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Preface

This documentation describes how to administer Resource Analyzer. It provides instructions for configuring the Resource Analyzer Usage Monitoring facility, and explains how to delete extraneous data from the Resource Analyzer Usage Monitoring and administrative databases. It also provides a description of the various Resource Analyzer reports and how to access them. It is intended for the DBA, systems administrator, data warehouse designer, or anyone else who needs to monitor request, user, and resource activity.

How This Manual Is Organized

This manual includes the following chapters:

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**Documentation Conventions**

The following table describes the documentation conventions that are used in this manual.

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<tr>
<td><strong>THIS TYPEFACE</strong> or <strong>this typeface</strong></td>
<td>Denotes syntax that you must enter exactly as shown.</td>
</tr>
<tr>
<td><strong>this typeface</strong></td>
<td>Represents a placeholder (or variable) in syntax for a value that you or the system must supply.</td>
</tr>
<tr>
<td><strong>underscore</strong></td>
<td>Indicates a default setting.</td>
</tr>
<tr>
<td><strong>this typeface</strong></td>
<td>Represents a placeholder (or variable), a cross-reference, or an important term. It may also indicate a button, menu item, or dialog box option that you can click or select.</td>
</tr>
<tr>
<td>Key + Key</td>
<td>Indicates keys that you must press simultaneously.</td>
</tr>
<tr>
<td>{ }</td>
<td>Indicates two or three choices. Type one of them, not the braces.</td>
</tr>
<tr>
<td>[ ]</td>
<td>Indicates a group of optional parameters. None are required, but you may select one of them. Type only the parameter in the brackets, not the brackets.</td>
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<td></td>
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</tr>
<tr>
<td>...</td>
<td>Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis (...).</td>
</tr>
<tr>
<td>. . .</td>
<td>Indicates that there are (or could be) intervening or additional commands.</td>
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Related Publications

Visit our Technical Content Library at http://documentation.informationbuilders.com. You can also contact the Publications Order Department at (800) 969-4636.

Customer Support

Do you have any questions about this product?

Join the Focal Point community. Focal Point is our online developer center and more than a message board. It is an interactive network of more than 3,000 developers from almost every profession and industry, collaborating on solutions and sharing tips and techniques. Access Focal Point at http://forums.informationbuilders.com/eve/forums.

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Call Information Builders Customer Support Services (CSS) at (800) 736-6130 or (212) 736-6130. Customer Support Consultants are available Monday through Friday between 8:00 a.m. and 8:00 p.m. EST to address all your questions. Information Builders consultants can also give you general guidance regarding product capabilities. Please be ready to provide your six-digit site code number (xxxx.xx) when you call.

To learn about the full range of available support services, ask your Information Builders representative about InfoResponse Online, or call (800) 969-INFO.

Information You Should Have

To help our consultants answer your questions most effectively, be ready to provide the following information when you call:

- Your six-digit site code (xxxx.xx).

- Your iWay Software configuration:
  - The iWay Software version and release. You can find your server version and release using the Version option in the Web Console.

  Note: The MVS and VM servers do not use the Web Console.
The communications protocol (for example, TCP/IP or LU6.2), including vendor and release.

The stored procedure (preferably with line numbers) or SQL statements being used in server access.

The database server release level.

The database name and release level.

The Master File and Access File.

The exact nature of the problem:

Are the results or the format incorrect? Are the text or calculations missing or misplaced?

Provide the error message and return code, if applicable.

Is this related to any other problem?

Has the procedure or query ever worked in its present form? Has it been changed recently? How often does the problem occur?

What release of the operating system are you using? Has it, your security system, communications protocol, or front-end software changed?

Is this problem reproducible? If so, how?

Have you tried to reproduce your problem in the simplest form possible? For example, if you are having problems joining two data sources, have you tried executing a query containing just the code to access the data source?

Do you have a trace file?

How is the problem affecting your business? Is it halting development or production? Do you just have questions about functionality or documentation?

User Feedback

In an effort to produce effective documentation, the Technical Content Management staff welcomes your opinions regarding this document. You can contact us through our website, http://documentation.informationbuilders.com/connections.asp.

Thank you, in advance, for your comments.
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What Is Resource Analyzer?

Resource Analyzer provides Information Systems (IS) organizations with the ability to manage the growing volume and unpredictable nature of ad hoc data access. Together with its partner product Resource Governor, Resource Analyzer is designed specifically to help IS organizations analyze and control end-user data access.

Resource Analyzer is accessed through the Web Console.

In this chapter:

- Resource Analyzer Overview
- Resource Analyzer for Decision Support Analysis
- Uses for Resource Analyzer: Performance Analysis
- Introduction to Data Access and Performance Analysis With Resource Analyzer
- Sample Data Access Questions
- How Resource Analyzer Works
- Software Prerequisites
- Overview of the Web Console
- Overview of Reporting With Resource Analyzer
- Integrating Resource Analyzer With WebFOCUS, Managed Reporting, and ReportCaster

Resource Analyzer Overview

Since the Internet is now the medium of choice for disseminating enterprise information throughout many corporations, user and usage data is critical. This environment exposes systems to more access to more data by more users, placing increased stress on data warehouses, self-service applications, and corporate communications applications. Tuning applications for high performance, high availability, and fast response times is crucial.
Web access also causes the user base to grow exponentially, triggering a need to map changing usage patterns. Web administrators need information about who is accessing what data and when, through which applications, and how frequently, as well as information about the concurrency of user access. Resource Analyzer can help answer these questions and others by letting administrators analyze the performance of any WebFOCUS or iWay-enabled application. In addition to Web administrators, WebFOCUS developers, DBAs, and performance analysts will find Resource Analyzer crucial to decision-support analysis at their sites.

Resource Analyzer monitors data usage activity by collecting the attributes of requests and storing them in a set of Usage Monitoring tables. It automatically keeps track of each request, which data sources and columns it accessed, when it was run, how long it took, which resources it consumed, and more. Resource Analyzer allows you to report on, graph, and analyze end-user request traffic.

Resource Analyzer for Decision Support Analysis

Web administrators, DBAs, and application developers require a variety of information to determine how to optimize reporting environments. Resource Analyzer offers decision support analysis, which helps administrators decide how to organize their sites by supplying useful facts about the following types of issues:

- Monitoring and managing the impact of Web-based reporting on Online Transaction Processing (OLTP) operational systems.
- Balancing decision support systems (DSS) reporting with OLTP workload to allow the two to coexist and to ward off threats posed by reporting on OLTP data.
- Determining if data-access design meets the needs of users.
- Removing resource-consuming data that is never used (dormant data).
- Determining the best times to schedule maintenance, backups, data-warehouse extractions, and batch processes.
- Determining an allowable amount of downtime.
- Deciding how fast users must be able to recover from software failure or disk drive crashes.
- Discovering performance "hot spots" that must be targeted for correction before they become major problems.
- Analyzing how mixed workloads pattern themselves and change over time (trend analysis).
- Determining how to educate the user community on efficient request writing, overnight batch processing, report bursting, and other areas, in order to avoid performance problems.
Deciding how the organization can quantify return on investments for new data-warehouse and intranet data-dissemination initiatives and justifying these expenses to management.

Uncovering the revenue-generating potential in Web-based data. This information can then be sold to partners, customers, or external market researchers.

Considering if and when the enterprise should decide to charge back the users of data. These issues are discussed in greater detail throughout this chapter.

**Uses for Resource Analyzer: Performance Analysis**

There are a number of areas of application development and site maintenance for which Resource Analyzer can be useful. This section describes some of these areas, which all fall under the category of performance analysis. Resource Analyzer has several reports that are specifically geared toward these performance analysis issues. For more information see Performance Analysis Reports on page 144.

**Benchmarking and Service Management**

Most organizations do not consider the performance of the request environment until it has already begun to deteriorate. By this time, the data source design is complete and the programs are in production. Companies must then implement service management, or Service Level Agreements (SLAs), to manage the high-performance production environment at an appropriate, justifiable cost.

The application developer can use data in Resource Analyzer reports and graphs to evaluate conditions in test environments before the investment is made on a viable production environment, and also later to determine if SLAs are being implemented effectively.

**Identifying Dormant Data**

As Internet/intranet, OLTP, and data-warehouse systems grow, large volumes of unused (or dormant) data accumulate, making the process of searching for more critical data less efficient. There are two categories of dormant data that Resource Analyzer identifies:

- Entire data sources that are never accessed.
- Dormant columns in particular tables.

Resource Analyzer lets you examine the use of data selections and relations in requests at your site to determine what data is largely bypassed by the request activity of your site. This data can then be deleted or archived to allow for better performance.
**Summarization and Pre-Aggregation**

When reports are run multiple times, column totals and averages are calculated repeatedly. It is much more efficient, and less costly, to calculate column values once and store the results in summary tables for repeated use. This technique is known as *pre-aggregation* or *summarization*. Resource Analyzer reports can show you which data is most frequently summarized, providing valuable information for building summarization tables.

**Denormalization**

Although traditional theories about data-source design encourage normalization to maintain referential integrity, denormalization can be efficient and resource-cutting when planned and implemented judiciously. Denormalization can increase expenses for updating data as well as increase the amount of redundant data, thus leading to increased disk usage. Nevertheless, with denormalized data sources, you may cut CPU time by 40-50% and see 25-30% faster response times. Resource Analyzer offers join reports, which supply information on which you can base your denormalizing strategies.

**Data Marting**

Individual departments often need to analyze only a subset of the data found in OLTP application systems and data warehouses. For these purposes, data marts offer better customization and control than dealing with the entire system. Moving data into a data mart on a departmental machine can reduce processing and storage costs, as well as allow you greater control over several areas of data-source design and maintenance, for example:

- Limiting the amount of historical/legacy data funneled into the data mart.
- Restructuring keys and indexes of the original data as it is copied to the data mart.
- Re-sequencing, editing, and converting the data.
- Remapping the names of columns.
- Summarizing the data.
- Merging the data with department data found only in that particular line of business.
- Rolling up the data with respect to time intervals.

Resource Analyzer lets you focus in on which data, data sources, and columns are most used by particular departments to determine the most effective strategies for designing your data marts.
Change Impact: Effects of Application Revision

Think how useful it would be to be able to project how proposed changes will affect the activity of your site. Resource Analyzer helps you assess what end users and applications will be affected by data source schema change. Resource Analyzer reports help you identify every user of a data source and column, and pinpoint every field accessed by requests, to judge the overall impact of impending changes.

Quantifying Return on Investments

Resource Analyzer contributes to capacity planning by helping you determine who "visits" data sources and which applications are most mission-critical to your user community. The quantifiable data supplied by Resource Analyzer justifies the expenses of data warehouses, Internet applications, new release software, and hardware upgrades.

Usage-Based Billing and Performance

Information analysis has become a commodity that can be sold to business partners, vendors, customers, and external resellers. Resource Analyzer Usage Monitoring functionality lets you track who is accessing your data sources in order to implement usage-based billing and user-chargeback systems.

End-User Education

Educating the end-user community about request preparation is crucial to improving system performance. Resource Analyzer Usage Monitoring capabilities let you track what users are doing wrong so you can best determine what areas they need to be informed about and trained in. Resource Analyzer can also help you implement a chargeback system at your site to inform individual users about their resource consumption and encourage them to improve their techniques.

Re-Hosting

When you are considering downsizing and right-sizing, it is crucial that you understand what data is used, how it is used, and who uses it at what times. The usage details supplied by Resource Analyzer identify the least active data sources, those with the smallest audiences, the least active and seldom-used fields, as well as a variety of other information to help you develop a clear road map for data migration.
Introduction to Data Access and Performance Analysis With Resource Analyzer

Resource Analyzer gives you a very thorough understanding of data access at your site. This section discusses some of the ways you can use Resource Analyzer to understand and analyze the data access patterns and issues of your organization.

Data Access Management

As a data-access management and performance-analysis tool, Resource Analyzer helps you make knowledgeable decisions about managing access to corporate and departmental data. These decisions typically require balancing system performance and capacity (CPU cycles and disk space availability) with the demands of ad hoc access to information for decision-making. By using the information provided by Resource Analyzer, IS organizations have significantly improved their system performance, enabled faster data access for end users, and finely tuned information content of their data sources.

Overview of Data Access Concepts

Resource Analyzer specifically provides detailed information about the following four major data access variables:

- Request usage
- Data usage
- Resource usage
- Usage over time

Usage Information

Resource Analyzer usage information helps you identify the following:

- Who is using the requests?
- Which requests are being run?
- When are requests being run?
- Where are requests getting data?
- How are requests using data (that is, detail or aggregation, extract file or report, online or offline)?
Resource Analyzer data usage information enables you to learn the following:

- What is the most and least popular data being accessed?
- What columns are potential index candidates?
- Who is accessing the data?
- What data is being accessed?
- What data is not being accessed?
- When is the data being accessed?
- How is the data being used?

Resource Analyzer resource usage information lets you know the following:

- Who are the high-resource users?
- Which requests use the most resources?
- When are the peak resource usage time periods?
- How can you reduce system resource utilization?

Resource Analyzer usage over time information helps you confirm the following:

- Who is running requests during peak periods?
- Which requests are running during peak periods?
- When are the best times to off-load high resource requests?
- How do you better balance resource usage for improved performance and response time?
- How does request volume relate to resource usage over time?
- How has usage changed over time?

Sample Data Access Questions

Before you begin analyzing the access activity of your site, you should review the following sample data access questions, which can be answered using Resource Analyzer. Following each question are a few of the important decisions you can make based on Resource Analyzer’s answers. You will see that getting answers to even fairly simple questions can help you reduce system usage costs, improve query performance, reduce your administrative efforts, increase IS service levels to end users, and improve effective use of information by end users.
**Question:** Who is running requests?

All service organizations can benefit by initially confirming who their users or customers are.

**Question:** What are the implications of request results being stored? For example, how much report writing is done from screen display, or how much output is to files, spreadsheets, or saved data sources?

Reports that users produce on a regular basis can be scheduled and automatically distributed. Knowing how much output goes to extract or flat files provides estimates on temporary disk space requirements. Data placed in spreadsheets or saved data sources may prove useful to others.

**Question:** Which requests run the longest?

Long-running requests are typically good candidates for performance-tuning improvements. The reorganization of logic or even the simple addition of an index can save hours of processing time for a single request. Long-running requests can be scheduled to run at off-peak hours to reduce the performance impact on the overall system.

**Question:** How frequently are certain requests run?

The same request run multiple times by different users, each producing the same output, could be executed once with a distribution of the report to the necessary users. Requests that are run regularly by users may be scheduled.

**Question:** Which requests use which data sources, views, or columns?

Data sources often require column revision or content modification. Knowing which requests use these data sources and/or columns provides quantitative information for determining the impact of such revisions and allows for a complete implementation of the necessary changes.

**Question:** Which columns are often used in WHERE conditions and which combinations of WHERE conditions are frequently included?

Columns that are often used in equality conditions may be good candidates for indexing. Combinations of WHERE conditions identify a potential new data source of information that can be placed in a warehouse environment or otherwise adapted to provide for faster access of the required information.

**Question:** What data is not used at all?

Unused information can be removed, thus reducing disk-space usage and improving request performance. Evidence of unused, or dormant, data may also indicate that the needs of the users require better analysis.
**Question:** How detailed is the use of the data? Are most users summarizing or averaging the data and on which columns?

Information about how data is used can identify columns that should be precalculated for faster access or reduced storage requirements.

**Question:** What time periods are being accessed? Do users examine only the last five of the 10 years you have made available? Do users visit the archive?

Information about which data is used allows intelligent decisions to be made concerning which portion of the data should be archived for efficient use of system storage.

**Additional Questions You May Want to Investigate With Resource Analyzer:**

- When are users running requests?
- When are data sources being accessed?
- When are data sources not being accessed?
- Which users consistently execute long-running requests?
- Which users consistently grab very large answer sets?

This section has introduced just a few of the issues that can be addressed using Resource Analyzer. You can begin your analysis of ad hoc data access at your site by seeking answers to these and other questions. Once you are comfortable with the capabilities of Resource Analyzer, you can formulate further questions specifically designed to meet the needs of your organization. The questions you choose to ask will help you decide how to configure Resource Analyzer Usage Monitoring capabilities and, later, which Resource Analyzer reports to view.

### How Resource Analyzer Works

Resource Analyzer monitors request activity, logging the attributes of each request to a log file. At predetermined intervals (Server start, after a certain number of user sessions or time period OR upon the processing of a User scheduled Job), the log file will be archived, using the servers Deferred Execution service, to the Usage Monitoring tables also referred to as the Repository. At configuration time, FOCUS database or Relational tables can be selected for the repository. Once an adequate amount of Usage Monitoring data has been collected, you can run Resource Analyzer reports, which illustrate (in both tabular and graphical format) various aspects of request activity at your site.

You access Resource Analyzer administrative and reporting features through the server Web Console.
Note: We use the term MVS to refer to z/OS - PDS deployment. We use the term z/OS to refer to z/OS - HFS deployment using UNIX System Services.

Software Prerequisites

Only site administrators should have access to configuring Resource Analyzer administrative settings.

Overview: Resource Analyzer Software Components

On all other platforms, Resource Analyzer is comprised of only one component.

Server. A server must be installed and configured for Resource Analyzer. The deferred execution service, DFM_DEFAULT, and the SCHEDULER Special Service, should also be active on the server. It is the server that houses the Resource Analyzer internal tables and processes the data access requests of the user. For more information, see the Server Installation manuals for your platform.

Overview of the Web Console

All Resource Analyzer administration functions are performed from the Web Console.

Overview of Resource Analyzer Administration

Before Resource Analyzer can monitor request information, it must know your monitoring requirements. You specify these requirements through the Web Console of the server, using the Resource Management Administration Tool. You can specify a range of monitoring configurations depending on your needs. The following image shows sources being monitored from the Web Console of the server.
The monitoring process is as follows:

1. A request is issued by a user trying to access data from a data source.
2. This request is processed by the server, which calls the Usage Monitor just prior to retrieving the first record for the request.
3. The Usage Monitor captures the request attributes and stores them until the request finishes retrieving data.
4. The Usage Monitor is called once more to gather resource usage statistics.
5. The logged information is stored in the Usage Monitoring tables. For more information about Usage Monitoring, see *Administrative Usage Monitoring Tables Column Descriptions* on page 163.

Over time, you may find that Usage Monitoring data that has accumulated is no longer relevant to your current activity and analysis. When this is the case, Resource Analyzer allows you to delete this data from the Usage Monitoring tables by using the Web Console of the server.

For more information about using the Web Console of the server to set monitoring configurations and delete data, see *Configuring and Administering Resource Management* on page 29.

**Overview of Reporting With Resource Analyzer**

Resource Analyzer offers tabular and graphical reports which show content planning requirements, user activity profiles, usage profiles over time, typical request structures, and columns used. These reports are accessed from the Web Console of the server. For more information on each individual report, see *Resource Analyzer Report Options* on page 112.

**Note:** On MVS, only data that has been archived to the repository is available for reporting.

- **Monitored Sessions.** Shows the number of connections and the amount of resources used.
- **Monitored Commands.** Shows the commands issues and the amount of resources used.
- **Errors and Messages.** Shows a list of any errors and/or the warning messages issued. Drill-down links show more details of the request that issued them.
- **Data Sources Never Used.** Opens the Unused Master File Descriptions report which lists the data sources which have never been used.
- **Procedures Never used.** Opens the Procedures Never Used report which lists the procedures which have never been executed.
Usage Analysis Reports. These reports represent the types of analysis most commonly used for research. They provide detailed information on users, procedures, or data sources:

- **Users.** These reports provide a variety of information about the users at your site, such as how many requests each user submits, the dates and resource consumption of those requests, the data sources certain users are accessing the most, and whether they are issuing ad hoc or cataloged requests, summarized or detailed requests, and so on.

- **Procedures.** These reports give a variety of information about the remote procedures used to submit requests, including the actual syntax of the requests.

- **Data Sources.** These reports show how your data sources are being accessed, what kind of activity patterns are occurring at your site, and the earliest and latest data access dates. These reports show more detailed information, such as aggregate functions used against columns, and column use in relations, sorting, and grouping.

Usage Analysis Reports comprise three categories of analysis:

- **Frequency of Use.** Focuses on how frequently particular data sources are accessed, users make requests, or procedures are executed.

- **Resources Used.** Focuses on the resources consumed by requests to particular data sources, by particular users, or with particular procedures.

- **Historical Use.** Shows data-source, user, and procedure information over time.

- **Procedure Analysis.**

- **Domain Analysis Reports.** The available report provides information on the usage of the WebFOCUS domains and their reports and users.

- **Impact Analysis Reports.** The available report provides information on response times and the effects of column changes.

- **Performance Analysis Reports.** These reports are designed to help reduce excessive overhead. They help identify costly requests and unused data sources that may need to be reviewed to determine if the resource or storage usage could be reduced.

- Procedure Benchmarks Report
- Excessive Resources
- Long-running Requests
- Large Volume Requests
- Dormant Data
- Excessive Joins
- Repeated Aggregations
- Candidates for Column Index
- Optimization

- **Network Analysis Reports.** These reports provide information about the network traffic on the web server for requests. There are two network analysis reports.
  - Bandwidth by Procedure
  - Resources by Connection

- **Graph Reports.** From this page, you can select one of several graphical reports:
  - Cumulative Hourly Use
  - Query Volume vs. Resource Utilization
  - Peak Transaction Periods
    - By Hour of Day
    - By Day of Week
    - By Month
  - Peak Resource Periods
    - By Hour of Day
    - By Day of Week
    - By Month

Resource Analyzer reports are initially displayed in tabular format. Reports can also be reformatted as EXCEL, PDF, PowerPoint and, if available, active reports. For information, see *Alternate Reporting Output* on page 116.

You can also re-sort reports by different columns and drill-down on various hyperlinks to view more detailed information and different reports.
You can specify date-range selection criteria for the reports by accessing a calendar through the Date drop-down list.

Reports are viewed using Data Visualization. Data Visualization provides a means for you to add visual representations of data to your report output. In Resource Analyzer, these visual representations are in the form of horizontal bar graphs. These graphs make relationships and trends among data more obvious.

The following image shows an example of report output using Data Visualization.

For more information on running and viewing these reports and graphs, see Resource Analyzer Report Options on page 112.

Integrating Resource Analyzer With WebFOCUS, Managed Reporting, and ReportCaster

If you use Resource Analyzer with WebFOCUS Managed Reporting or ReportCaster, Resource Analyzer monitors the execution of all procedures initiated from those products and collects the following information:

- Descriptive name of the procedure being monitored.
- Physical file name (also known as logical name).
- Domain name where the monitored procedure resides.
- Application directory of the procedure in the application path of the server application path.
- User ID that ran the procedure.
- Basedir setting for WebFOCUS.
- Scheduler ID assigned to the procedure (when monitoring ReportCaster only).
- Internal procedure name used by distribution server for a scheduled procedure (when monitoring ReportCaster only).
The Web Console enables you to configure and administer Resource Management.

In this chapter:

- Resource Management Interface
- Configuring Resource Management
- Administering Resource Management From the Web Console
- Migrating the Resource Management Repository
- Event Routing

Resource Management Interface

The Resource Management Web Console functionality is available through a ribbon at the top of the interface. The Resource Management ribbon replaces traditional toolbars with a single, rectangular region that spans the width of the application window.

There are two ribbons in Resource Management. The following image shows the ribbon before configuration has taken place.

The following image shows the default ribbon in Resource Management and can be seen once configured.
Ribbon

From the ribbon you can perform actions such as, enable or disable monitoring, archive logs, and set logging properties. For more information on all of the commands shown in the ribbon, see *Resource Management Configuration Maintenance* on page 39.

**Note:** You can hide the ribbon by clicking the *Hide Ribbon* button on the Quick Access Toolbar. This will remain the default view until you choose to show the ribbon using the same button.

The ribbon provides the same options that are available from the right-click menus of the top nodes in the navigation pane.

Ribbon Organization

The Resource Management ribbon represents a subset of controls and commands that are organized into related groups depending on function or relationship. All groups are labeled and all icons represent a control or command.

Configuring Resource Management

At run time, Resource Management collects usage monitoring data in a log file. At predetermined times, such as during server startup or a user request, the log data collected is archived to a permanent repository. Before collecting the data, Resource Management must be configured.

To configure Resource Management, after the server is installed, you must:

1. Consider security authorization for RM files and libraries.

   There are two levels of security to consider:

   - **Administrator:** MVS requires write authority to all datasets allocated to the EDACFG, EDAMAS, EDAACX, and SMARTLIB DD statements of the server. All other platforms require write authority to EDACONF/bin, EDACONF/catalog, and EDACONF/etc.

   - **Basic user:** MVS requires read authority to the dataset allocated to the SMARTLIB DD statement. All other platforms require read authority to EDACONF/etc.


3. Type your license key and select a repository type. Resource Management can be configured to create Usage Monitoring tables in a FOCUS repository or in a relational repository. The repository holds data on resource usage.

4. Configure the repository.
Procedure: How to Configure Resource Management Using a FOCUS or Relational Repository

To enable Resource Management, you must have a valid license key. After typing the key, you can specify the type of repository to be used for Usage Monitoring. The Usage Monitoring tables are then created. This procedure shows how to create Usage Monitoring tables in a FOCUS or relational repository using a license code for Resource Analyzer.

Before performing the following steps, make sure the server is running.

1. On a Windows system, from the Programs Menu, select iWay Software (or Information Builders, if you have a WebFOCUS server installation), then the server type, and click Web Console.

If you are using an operating system other than Windows, enter

http://ipaddress:port

where:

ipaddress

Identifies the server where Resource Analyzer is to be configured.

port

Is the port number for that server.

**Note:** On the Program Menu under iWay Software, the server types can include iWay Full-Function Server, or iWay DataMigrator Server. On the Program Menu under Information Builders, the server type can include a WebFOCUS Server. Resource Analyzer can be configured on any of these servers.

The Web Console opens, as shown in the following image.
2. Click the **Resource Management** link on the toolbar. The Resource Management page opens, as shown in the following image.

3. Click **Configure** on the ribbon or right-click **Resource Management** in the navigation pane and select **Configure**.

4. Type the license key from the packing slip. There are different keys: one for Resource Analyzer, one for Resource Governor, and one if both products are licensed.

5. Click **Next**. The Resource Management Configuration pane opens.

6. For a **FOCUS** Repository:
   a. Type a Server Name. Used by Resource Analyzer as the server name in collected data and on reports. Any identifier of up to 48 characters is acceptable, but the value should be unique across all servers where Resource Analyzer is installed. Host server (computer) name, along with the port used by the server, is the default. It is recommended that this value is not changed.
   b. Select **FOCUS** from the Repository drop-down menu.
   c. Go to step 8.
7. For a **Relational** Repository:

   a. Type a Server Name. Used by Resource Analyzer as the server name in collected data and on reports. Any identifier up to 48 characters is acceptable, but the value should be unique across all servers where Resource Analyzer is installed. Host server (computer) name, along with the port used by the server, is the default. It is recommended that this value is not changed.

   b. Select *Relational* from the Repository drop-down menu. The following image shows the additional fields that become available.

   ![Resource Management Configuration](image)

   c. Select an adapter from the Data Adapter drop-down menu. This adapter identifies the data adapter and the connection name to be used for storing Resource Analyzer Usage Monitoring data. The connection name is the logical name used to identify a particular set of connection attributes. This setting also determines the SUFFIX used when creating the Master Files for these tables.

     **Note:** If no certified Resource Management adapter has been configured, the only option in the drop-down menu will be FOCUS.

     The current list of certified relational engines is:

     - DB2
     - Oracle
     - Informix
Sybase

Teradata

Ingres

MS SQL Server

RDB

MySQL

PostgreSQL

Generic ODBC/JDBC for Sybase SQL Anywhere Release 12 non-Unicode only.

Note:

- The Sybase ASA database used for the Resource Management Repository must be created with the *Ignore trailing blanks in string comparisons* option (or the -b option in the dbinit command).

- If DB2 is going to be the target for the Resource Management Repository, the sites DBA should investigate the use of the parameter LOCKSIZE and change it to ANY if large volumes of data is to be stored. This value of LOCKSIZE will prevent the DB2 error message:

  \[
  \text{The limit on the number of locks has been exceeded for the tablespace within DB2.}
  \]

  If the DDL Only option is used at configuration time, then this parameter can be added to the DDL that is generated otherwise the sites DBA can add it to the existing Resource Management environment.

d. Set Create Repository to *Yes*, unless the repository has already been created using the native Data Definition Language (DDL) of the Data Adapter or you are configuring a Many-to-one environment.

When *No* is selected, the configuration process will not issue DROP TABLE, DROP INDEX, CREATE FILE, and CREATE INDEX commands. Because the configuration process will always initialize the repository with default data and issue the default GRANTS, the repository must exist when the commands are executed or the configuration will fail. Yes is the default value.

For more information, see *Using DDL Statements to Create the Internal Tables* on page 199. For more information on Many-to-one, see *Configuring Many-to-One Monitoring* on page 36.
e. Provide an Owner/Schema. By default, the tables are created for the specified owner/schema in the default database, and the owner/schema must be authorized to create tables in the database.

If the tables are to be created in an alternate database that the owner has rights to, and the technique is supported by the RDBMS, the database name must be specified as well (for example, database.owner). Consult the appropriate RDBMS documentation for the appropriate syntax. On the System I platform, the Owner Name will be shown as Library.

f. For servers running on z/OS, HFS, or PDS deployment where DB2 has been selected as the data adapter, provide a DB2 DBSPACE.

g. Set Global Settings, which has the following options:

**Data Request Monitoring**

Indicates whether Data Request Monitoring is on or off. When Global Data Request Monitoring is enabled, or set to On, Resource Analyzer collects information on all SQL SELECT and FOCUS TABLE, TABLEF, MATCH, GRAPH, MODIFY, and MAINTAIN requests. The default value is Off. Monitoring will be by individually selected data sources.

**Procedure Request Monitoring**

Indicates the level of Procedure Request Monitoring. The following options are available:

- **Execute and Include.** All executed procedures and any procedure that used -INCLUDE will be monitored. This is the default value.

- **Execute Only.** Any procedure that is executed using EX or EXEC will be monitored.

- **Primary Execute Only.** The only procedure monitored will be the primary procedure. Any procedure executed from within the primary (-INCLUDE or EX) will not be monitored.

8. Click Configure.
The Repository Statistics page opens, and the navigation pane on the left appears, as shown in the following image.

You can now select monitoring levels for Resource Analyzer. For more information, see How to Set Repository Properties on page 68.

**Configuring Many-to-One Monitoring**

Several considerations and steps must be taken in order to configure Resource Management to gather monitor data for multiple servers into a single repository. This feature can only be done using relational adapters. Access must be available from each server machine to the selected relational engine and a license will be needed for each individual adapter.

All servers in a cluster environment, or multiple servers on UNIX, AS/400.MVS/PDS, and Windows platforms, can collect monitor data into a single repository. If you have environments with multiple WebFOCUS or iWay servers configured for Resource Management and want to collect monitor data from those servers into a single repository, the steps in the following procedure show how to configure Resource Management using the Web Console of the servers.

**Configuring Resource Analyzer**

If you have not used the Resource Management DDL to create the repository tables, then you need to pick a server to do the initial configuration that will create the repository tables. Using the Web Console of the server you will need to perform the steps in How to Configure the First Server on page 36. If the Resource Management DDL was used to create the repository tables then go to the How to Configure Additional Servers on page 37.

**Procedure: How to Configure the First Server**

For the first server, configure Resource Management from the Web Console of the server using the following steps:

1. Configure the relational data adapter for the repository, if it does not yet exist.
3. Enter the Resource Management license key. Click Continue.

4. Select Relational from the Repository Type drop-down menu.

5. Enter a unique name in the Server Name field, or accept the default.

6. Select a Data Adapter and the appropriate connection name from the drop-down menu.

7. Set Create Repository to Yes.

8. Provide an Owner/Schema name for the relational adapter that Resource Analyzer will use to create the repository tables.

9. Click Configure.

After configuration is complete, select the monitoring level for Resource Analyzer. For more information, see How to Set Repository Properties on page 68.

**Procedure:** How to Configure Additional Servers

For additional servers that will use the same repository, configure the Resource Management from the Web Console of the server using the following steps:

1. Configure the relational data adapter for the repository, if it does not yet exist, that connects to the same database used in step 1 in How to Configure the First Server on page 36.


3. Enter the Resource Management license key. Click Continue.

4. Select Relational from the Repository Type drop-down menu.

5. Enter a unique name in the Server Name field, or accept the default.

6. Select a Data Adapter and the appropriate connection name from the drop-down menu.

7. Set Create Repository to No.

   **Note:** Create Repository must be set to No on each additional server so that the configuration process does not drop and recreate the repository tables. This will cause the loss of data for any of the reporting servers using the same repository tables.

   If the relational repository tables were created by the DBA using the DDLs provided with the product, then all servers have to be configured using Create Repository No.

8. Provide an Owner/Schema name for the relational adapter that Resource Analyzer will use to create the repository tables.

9. Click Configure.

After configuration is complete, select the monitoring level for Resource Analyzer. For more information, see How to Set Repository Properties on page 68.
Note: All administration for Resource Analyzer must be done on each of the servers configured to use the same repository tables.

Reference: Governing

If Governing is being used, administration for Resource Governor must be done on each server. Knowledge base rule files cannot be shared or copied from one server to another.

When rules are built for Governing, there is a knowledge base rule file built on the server. These knowledge base files can only be used on the server that they were built on. For example, if rules to govern databases are built on a UNIX server, these rules can only be used on that specific UNIX server. The same rule applies for Windows, z/OS, PDS server, and other platforms.

Administering Resource Management From the Web Console

Resource Analyzer Usage Monitoring facility allows you to monitor requests as they are submitted by users, and logs information about request usage. This information includes the usage statistics associated only with data retrieval or data manipulation in the case of MODIFY or MAINTAIN. This request information is stored in Resource Analyzer Usage Monitoring tables. You can specify the Monitor Preference, which allows you to change what information is collected for monitored data sources.

The Web Console enables you to administer Resource Management.

You can:

- Enable/disable monitoring.
- Maintain the repository.
- Remove Resource Management.
- Enable/disable global monitoring.
- Set monitoring preferences.
- Add data sources to be monitored.
- View the properties of data sources and the sample data they produce.
- Access reports.

Access to these tasks is provided by the Resource Management link on the toolbar.
The following image shows the hierarchical navigation menu that is available when the Resource Management link is selected.

Resource Management Configuration Maintenance

The Resource Management ribbon provides options for configuring Resource Management, as shown in the following image.

The following sections provide detailed explanations for each option in the ribbon.

**Note:** You can also access these options by right-clicking *Resource Management - Enabled/Disabled* in the navigation pane.
Enabling or Disabling Monitoring

When you enable Resource Management, it automatically turns on monitoring. However, you can disable and re-enable monitoring at any time.

Procedure: How to Enable or Disable Monitoring

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Monitoring group, click Enable/Disable.
   or
   From the navigation pane, right-click Resource Management - Enabled/Disabled and select Enable/Disable.

Logging Properties

The Reporting Server will write all information regarding monitored sources to a log file. This log file is then archived to the Resource Management repository at predetermined intervals or limits, while the server is running. The current log is also archived when the server starts or when the administrator submits a job from the Web Console of a running server.

The intervals or limits can be configured from the Logging Properties option in the Resource Management Web Console. When configured, the log file of an active server will be archived based on the maximum number of sessions or the days set, or based on a scheduled job configured by the administrator.

Procedure: How to Set Logging Properties

Logging properties can be configured in the Resource Management Web Console. When configured, the log files will be archived based on the maximum number of sessions and days set, or based on a scheduled job configured by the administrator.

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Logs group, click Logging Properties.
   or
   From the navigation pane, right-click Resource Management - Enabled/Disabled and select Logging Properties.
The Resource Management Logging Properties window opens, as shown in the following image.

![Resource Management Logging Properties](image)

The following options are available:

**rmlog_max_sessions**

The number of sessions recorded in the active log file before the log is archived and a new log is started. The default value is 10000.

**rmlog_max_days**

The number of days an active log file is kept open before it is archived and a new log is started. The default value is 1.

**rmlog_schedule_archive**

When set to No, automatic archiving is active and based on the two settings above.

When set to Yes, only the Limit agent memory for interim log records is shown and the administrator has to configure the schedule archive settings. For more information, see *How to Schedule an Archive* on page 42.

**Note:** To use the scheduler feature for archiving the log file, the server Scheduler process must be running. To check this, from the Web Console, click the Workspace option on the toolbar. Click the Special Services and Listeners folder, right-click SCHEDULER, and select Start. If the Start option is not available, the scheduler is already running.
Limit agent memory for interim log records

This setting is used for a connection during which multiple procedures are run within the session. This type of connection can cause the Resource Management logging process to use a large amount of memory before the log records are written to the physical disk file (rmldata.log).

When set to Yes, enter a value between 5 and 99 (in megabytes). When this parameter is set to Yes and the specified amount of memory is reached, the connected users log records in memory are written to a temp disk file and the memory is freed.

At this point any new log records generated will be written to disk instead of memory until the end of the session. At this time, all the log records in the temporary disk file are written to the physical disk file (rmldata.log). This setting should only be used if excessive memory usage is observed and users are connected for long periods.

4. Make your desired changes and click Save and Restart Server.

Archive Log Files

When this option is selected, a context menu is shown with the following options:

- Schedule and E-Mail
  
  **Note:** This option is only available when rmlog_schedule_archive is set to Y. For more information on logging properties, see How to Set Logging Properties on page 40.

- Submit archived job

- View archive jobs

These give the administrator the option to archive the current log file (a new log file is automatically started), as well as view previous archive jobs including any that were submitted due to server restart, and any of the intervals or limits mentioned above having been reached.

**Note:** After a successful archive, the log file is deleted. If the archive fails, the log file will remain available for archiving. The failure should be investigated and corrected. Once this is done, the List Unarchived Log Files option can be used to archive the data. For more information, see List Unarchived Log Files on page 51.

**Procedure:** How to Schedule an Archive

**Note:** Only one archive can be scheduled at a time.

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Logs group, click Archive, Schedule and E-Mail, and select Manage.
   or

   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Archive, Schedule and E-Mail, and select Manage.

   The Manage Schedule and E-Mail for procedure pane opens, as shown in the following image.
The Manage Schedule and E-Mail for procedure pane contains the following fields and options:

**Schedule Status**
Determines if there is a schedule and if so, whether the schedule is active or inactive.

**Mail To**
The email addresses where the messages will be sent. Place each email address (or user ID configured on the server with an associated email address) on a new line with no separators.

**Mail to addresses defined in procedure**
You can send the messages to email addresses defined in the procedure by either typing in the location of the procedure, or clicking the ellipsis button and manually selecting it from the Select Procedure dialog box.

**Enable**
Select this to enable when an email should be sent.

**Advanced**
Select this option to get the following options:

- **Importance.** Select the importance for the e-mail from the drop-down menu. Choices are Low, Normal, or High.

- **Subject.** The subject line of the message.

- **E-Mail Message.** The body of the message.

- **Send HTML output as inline message.** When selected, if any stored procedures called by the flow generate an output, the message is included as message text instead of as an attachment. This option is only available in the E-Mail On Completion section.
4. If you select *Active* or *Inactive* from the Schedule Status drop-down menu, the Manage Schedule and E-Mail for procedure pane opens with more fields, as shown in the following image.

The Manage Schedule and E-Mail for procedure pane contains the following additional fields and options:

**Schedule Type**

Determines whether a process flow will execute once, on a recurring basis, on several specific days (multi-day), or when the server starts.
Interval Type

Specifies the interval in which a process flow will be executed. For example, if you select Month as your Interval Type, and select 2 as your Interval Number, the flow will execute every two months. This option is only available if the schedule type is set to Recurring.

Interval Value

Specifies the frequency at which a process flow will be executed. For example, if you select Week as your Interval Type, and select 2 as your Interval Value, the flow will execute every two weeks. This option is only available if the schedule type is set to Recurring.

Start Date

Specifies the start date for the execution of the process flow.

Start Time

Specifies the start time for the execution of the process flow.

Specify Stop Time

Allows you to specify an end time for the execution of the process flow. This option is only available if the schedule type is set to Run Once or Multi-Day.

Specify End Date

Allows you to specify an end date and time for the execution of the process flow. This option is only available if the schedule type is set to Recurring or Multi-Day.

End Date

Specifies the end date for the execution of the process flow. This option is available if Specify End Date is selected.

End Time

Specifies the end time for the execution of the process flow. This option is available if Specify End Date is selected.

Days of the Week

Specifies the day of the week on which the process flow will be executed. This option is only available if the schedule type is set to Recurring or Multi-Day.

Days of the Month

Specifies the day of the month on which the process flow will be executed. This option is only available if the schedule type is set to Recurring or Multi-Day.
**Intraday Start**

Specifies the beginning of the daily time span of the process flow. This option is only available if the schedule type is set to *Recurring*.

**Intraday End**

Specifies the end of the daily time span of the process flow. This option is only available if the schedule type is set to *Recurring*.

**Run on Holidays**

Specifies the option to execute the process flow on desired holidays.

The following options are available:

- **Skip.** Excludes run on desired holidays.
- **Only.** Only run on desired holidays.

This option is only available if the schedule type is set to *Recurring* or *Multi-Day*.

**Log and Output Destinations**

This option controls where the log information from the Maintenance Job should be sent when the job finishes.

The following options are available:

- **ETLLOG.** The log is sent to the DataMigrator log.
- **EDAPRINT.** The log is sent to the Server log.
- **E-Mail.** The log is sent as an attachment to an email message if specified in Job Properties.

Multiple options can be selected. The default value for this option is ETLLOG and E-Mail.

*Note:* If the job is run from the DMC or Web Console, information will go to the console log regardless of this setting.

5. Click *Set*.

   *Note:* Do not use the *Set and Test Run* or *Save* options.

   A confirmation dialog box opens.

6. Click *OK*.
**Procedure:**  How to View Scheduler Agents

This report runs for the user whose ID value is stored in the sched_scan_id of a Scheduler. The Scheduler must be active to run the Scheduler Agents report.

1. Launch the Web Console.
2. Click the **Resource Management** option on the toolbar.
3. On the ribbon, in the Logs group, click **Archive, Schedule and E-Mail**, and select **Scheduler Agents**.

   or

   From the navigation pane, right-click **Resource Management - Enabled/Disabled**, select **Archive, Schedule and E-Mail**, and select **Scheduler Agents**.

The Scheduler Agents window opens, as shown in the following image.

![Scheduler Agents window](image)

The following buttons are available on the Scheduler Agents page:

**Choose Columns**  
Allows you to specify the columns that are displayed on the Scheduler Agents page.

**Choose States**  
Allows you to select the states that are displayed on the Scheduler Agents page.

**Activate Selected**  
Allows you to enable the scheduler for the selected procedure.

**Deactivate Selected**  
Allows you to disable the scheduler for the selected procedure.

If you right-click a drill-down item in the Procedure column, the following options are available:

**Manage Schedule/E-mail**  
Opens the Manage Schedule and E-Mail for procedure pane, which allows you to edit the schedule settings for the selected procedure.
**View Scheduled Events**
Opens the Scheduled Events pane, which allows you to view jobs scheduled to start during a specified time range.

**View Log**
Opens the Log report for the selected procedure.

**View Statistics**
Opens the Statistics report for the selected procedure.

**Quiesce Scheduler Agent**
Allows you to stop the selected scheduled procedure from running.

**Procedure: How to View Scheduled Events**

**Note:** The Scheduler must be active to run the Scheduler Events report.

1. Launch the Web Console.
2. Click the **Resource Management** option on the toolbar.
3. On the ribbon, in the Logs group, click **Archive, Schedule and E-Mail**, and select **Scheduled Events**.
   
   or

   From the navigation pane, right-click **Resource Management - Enabled/Disabled**, select **Archive, Schedule and E-Mail**, and select **Scheduled Events**.

The Scheduled Event window opens, as shown in the following image.

![Scheduled Events Window](image)

4. Set the desired time range and click **View Report**.
The report opens, as shown in the following image.

![Scheduled Events for _edaconf/catalog/rmusavlg](image)

This report shows all flows and procedures scheduled to run during the time period you selected. The Run Date and Run Time columns show their scheduled run times. The User ID column shows the user ID used when running the flow or procedure.

**Procedure:** How to Submit an Archive of the Current Log File

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Logs group, click Archive and then select Submit Archive job.

   or

   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Archive, and then select Submit Archive job.

The Select an Option dialog box opens, as shown in the following image.

![Select an Option](image)

4. Click OK to save the log data.

**Procedure:** How to List Previous Archive Jobs

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.

3. On the ribbon, in the Logs group, click Archive and then select View Archive jobs.

   or

From the navigation pane, right-click Resource Management - Enabled/Disabled, select Archive, and then select View Archive jobs.

The Deferred List opens showing the saved logs, as shown in the following image.

![Deferred List Image]

4. Right-clicking an item in the Defer ID column provides more options. Select Get to see the output, or Delete to delete the selection.

**List Unarchived Log Files**

Select this option to show a list, if any, of previous log files that have not been archived.

**Procedure:**  How to List Unarchived Logs

1. Launch the Web Console.

2. Click the Resource Management option on the toolbar.

3. On the ribbon, in the Logs group, click List Unarchived.

   or

From the navigation pane, right-click Resource Management - Enabled/Disabled and select List Unarchived.
The Resource Management unarchived logs list opens listing the non-archived logs, as shown in the following image.

4. Select an unarchived log and click Next to archive the desired unarchived logs.

5. Select a date and time to archive and click Continue.

**Working With Repository Maintenance**

Repository data can be deleted once it has been used or reported on. This deletion can be by date range or, if sufficient data has been stored, the data can be deleted if it is more than one, three, or six months old.

**Procedure:** How to Schedule a Repository Maintenance

1. Launch the Web Console.

2. Click the Resource Management option on the toolbar.

3. On the ribbon, in the Repository group, click Maintenance, Schedule and E-Mail, and select Manage jobs.

   or

   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Maintenance, Schedule and E-Mail, and select Manage Jobs.
The Resource Management Schedule Repository Maintenance - Add pane opens, as shown in the following image.

![Image of Resource Management Schedule Repository Maintenance - Add pane]

**WARNING:** The repository should be backed up before proceeding.

Delete data older than:

- [ ] 1 month
- [ ] 2 months
- [ ] 3 months
- [ ] 6 months
- [ ] 12 months
- [ ] Specify months

4. Select the server from the list shown.
5. Select the time range of data that you want to delete.
6. Click Next.
The Manage Schedule and E-Mail for procedure pane opens, as shown in the following image.

![Manage Schedule and E-Mail for procedure pane](image)

The Manage Schedule and E-Mail for procedure pane contains the following fields and options:

**Schedule Status**

Determines if there is a schedule and if so, whether the schedule is active or inactive.

**Mail To**

The email addresses where the messages will be sent. Place each email address (or user ID configured on the server with an associated email address) on a new line with no separators.

**Mail to addresses defined in procedure**

You can send the messages to email addresses defined in the procedure by either typing in the location of the procedure, or clicking the ellipsis button and manually selecting it from the Select Procedure dialog box.
Enable

Select this to enable when an email should be sent.

Advanced

Select this option to get the following options:

- **Importance.** Select the importance for the e-mail from the drop-down menu. Choices are Low, Normal, or High.

- **Subject.** The subject line of the message.

- **E-Mail Message.** The body of the message.

- **Send HTML output as inline message.** When selected, if any stored procedures called by the flow generate an output, the message is included as message text instead of as an attachment. This option is only available in the E-Mail On Completion section.
7. If you select Active or Inactive from the Schedule Status drop-down menu, the Manage Schedule and E-Mail for procedure pane opens with more fields, as shown in the following image.

The Manage Schedule and E-Mail for procedure pane contains the following additional fields and options:

**Schedule Type**

Determines whether a process flow will execute once, on a recurring basis, on several specific days (multi-day), or when the server starts.
Interval Type

Specifies the interval in which a process flow will be executed. For example, if you select Month as your Interval Type, and select 2 as your Interval Number, the flow will execute every two months. This option is only available if the schedule type is set to Recurring.

Interval Value

Specifies the frequency at which a process flow will be executed. For example, if you select Week as your Interval Type, and select 2 as your Interval Value, the flow will execute every two weeks. This option is only available if the schedule type is set to Recurring.

Start Date

Specifies the start date for the execution of the process flow.

Start Time

Specifies the start time for the execution of the process flow.

Specify Stop Time

Allows you to specify an end time for the execution of the process flow. This option is only available if the schedule type is set to Run Once or Multi-Day.

Specify End Date

Allows you to specify an end date and time for the execution of the process flow. This option is only available if the schedule type is set to Recurring or Multi-Day.

End Date

Specifies the end date for the execution of the process flow. This option is available if Specify End Date is selected.

End Time

Specifies the end time for the execution of the process flow. This option is available if Specify End Date is selected.

Days of the Week

Specifies the day of the week on which the process flow will be executed. This option is only available if the schedule type is set to Recurring or Multi-Day.

Days of the Month

Specifies the day of the month on which the process flow will be executed. This option is only available if the schedule type is set to Recurring or Multi-Day.
**Intraday Start**

Specifies the beginning of the daily time span of the process flow. This option is only available if the schedule type is set to *Recurring*.

**Intraday End**

Specifies the end of the daily time span of the process flow. This option is only available if the schedule type is set to *Recurring*.

**Run on Holidays**

Specifies the option to execute the process flow on desired holidays.

The following options are available:

- **Skip.** Excludes run on desired holidays.
- **Only.** Only run on desired holidays.

This option is only available if the schedule type is set to *Recurring* or *Multi-Day*.

**Log and output Destinations**

This option controls where the log information from the Maintenance Job should be sent when the Job finishes.

The following options are available:

- **ETLLOG.** The log is sent to the DataMigrator log.
- **EDAPRINT.** The log is sent to the Server log.
- **E-Mail.** The log is sent as an attachment to an email message if specified in Job Properties.

Multiple options can be selected. The default value for this option is ETLLOG and E-Mail.

**Note:** If the Job is Run from the DMC or Web Console, information will go to the console log regardless of this setting.

8. Click **Set**.

**Note:** Do not use the Set and Test Run or Save options.

A confirmation dialog box opens.

9. Click **OK**.
**Procedure:** How to View Scheduled Jobs

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Repository group, click Maintenance, then Schedule and E-Mail, and select Show jobs.

   or

   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Maintenance, then Schedule and E-Mail, and select Show jobs.

The Resource Management Repository Maintenance - Update pane opens, as shown in the following image.

![Resource Management Schedule Repository Maintenance - Update](image)

If you right-click a drill-down item in a column, the following options are available:

**Name Column**

- **Log and Statistics.** Opens the Log and Statistics pane that enables you to view a log or statistics report.

  The following options are available:

  - **Report Type.** Allows you to select either a log or statistics report.

    - **Report Range.** Allows you to select to view the last report, all the reports, or a report specified within a select time range.

    - **Completion Status.** Allows you to view all reports, all completed reports, all completed successfully reports, or all completed reports that contained errors.

    - **Run by.** Allows you to view reports for all flows, and those initiated by the scheduler or submit.

    - **Application or Flow Name.** Allows you to select a specific application or flow name for the report.
Status Column

- **Manage Schedule.** Opens the Manage Schedule and E-Mail for procedure pane.
  For more information on this pane, see *How to Schedule a Repository Maintenance* on page 52.

- **Scheduler Agents.** Runs a report for the user whose ID value is stored in the sched_scan_id of a Scheduler. The Scheduler must be active to run the Scheduler Agents report.

- **Scheduled Events.** Opens a pane that shows all jobs scheduled to run during a specified time range.
  The Scheduler must be active to run the Scheduler Events report.
  This report shows all flows and procedures scheduled to run during the time period you selected. The Run Date and Run Time columns show their scheduled run times.
  The User ID column shows the user ID used when running the flow or procedure:
  - sched_run_id value - flow is run under
  - user - the user ID that saved the flow or procedure
  - server_admin_id - the first server administrator ID

Months Column

**Older than.** Opens the Resource Management Schedule Repository Maintenance - Change pane. Select the new time range of data that you want to delete and click Save.

Procedure: **How to Delete Scheduled Jobs**

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Repository group, click Maintenance, then Schedule and E-Mail, and select Delete jobs.
   or
   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Maintenance, then Schedule and E-Mail, and select Delete jobs.

4. Select the scheduled jobs you want to delete, as shown in the following image.

![Resource Management Schedule Repository Maintenance - Delete](image)

5. Click *Delete*.

**Procedure:**  
**How to Submit a Maintenance Job**

1. Launch the Web Console.
2. Click the *Resource Management* option on the toolbar.
3. On the ribbon, in the Repository group, click *Maintenance*, and select *Submit Maintenance job*.
   
   or

   From the navigation pane, right-click *Resource Management - Enabled/Disabled*, select *Maintenance*, and select *Submit Maintenance job*. 
The Resource Management Repository Maintenance pane opens, as shown in the following image.

The Resource Management Repository Maintenance pane opens, as shown in the following image.

The Resource Management Repository Maintenance pane opens, as shown in the following image.

Note: If you select Delete data older than 1 month, the options on the Repository Maintenance pane will be slightly different than shown in the above image.

4. Enter a Start Date and End Date for deletion of data through that range, or click the down arrow to choose the dates.

5. Click Submit.

Note: Caution should be used when using this utility. Make sure you have a backup of the data before you proceed.

The Submit Repository Maintenance Job window opens.

6. Enter a date and time for the maintenance job to be executed. Click Submit.

A Deferred Execution pane opens confirming your request.
Procedure: How to View a List of Scheduled Maintenance Jobs

1. Launch the Web Console.

2. Click the Resource Management option on the toolbar.

3. On the ribbon, in the Repository group, click Maintenance, and select View Maintenance jobs.

   or

   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Maintenance, and select View Maintenance jobs.

The Deferred List pane opens, as shown in the following image.

4. To delete any of the scheduled maintenance jobs, select the check box next to the job you want to delete, and click Delete Selected.

Configuration Maintenance

The Configuration command has the following options:

- Properties
- Configure Application Path
- Migrate prior release data
- View Migration jobs
- Change License Key
- Remove

These give the administrator the option to see current configuration settings, as well as change the viewable application directories, perform migration, change a license key, and remove the current Resource Management configuration.
Resource Management Properties

Setting monitor properties enables you to select global settings and the component levels to be monitored. Components are split into two categories, Procedure and Command. The information that Resource Analyzer monitors is stored in the Usage Monitoring tables. The default settings are: Global Data request Monitoring set to off and component level set to Command. Session records are always captured.

Procedure: How to View Resource Management Properties

To view Resource Management Properties:

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Configuration group, click Configuration, select Properties, and then select General.
   or
   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Configuration, select Properties, and then select General.
The Resource Management Properties page opens, as shown in the following image.

![Resource Management Properties](image)

The Resource Management Properties pane shows the following fields:

**Configured**

The date that Resource Management was configured or reconfigured.

**Repository Type**

The repository that is being used.

**Data Adapter Connection**

The data adapter connection of the current configuration.

**Owner/schema**

The owner/schema name for the relational adapter that Resource Analyzer will use to create the repository tables.
Global Data Request Monitoring

Indicates whether Data Request Monitoring is on or off. When Global Data Request Monitoring is enabled, or set to On, Resource Analyzer collects information on all SQL SELECT and FOCUS TABLE, TABLEF, MATCH, GRAPH, MODIFY, and MAINTAIN requests. The default value is Off. Monitoring will be by individually selected data sources.

Procedure Request Monitoring

Indicates the level of Procedure Request Monitoring.

Data Sources monitored

The number of application data sources and relational pass-thru data sources that have been enabled for monitoring. This will show Global monitor enabled if Data Request Monitoring is On. See the Global Settings section below for more information.

Data Sources not monitored

The number of application data sources and relational pass-thru data sources that have been disabled by setting the monitoring setting to OFF.

Excluded Procedure count

The number of procedures that have been excluded from monitoring.

Last Maintenance Date

The date the repository was modified using the Repository Maintenance page.

Last Repository Update

The last time the repository updated to include data from a log file.

Procedure: How to Set Monitor Properties

To set Resource Management Properties:

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Configuration group, click Configuration, select Properties, and then select Monitoring.

or

From the navigation pane, right-click Resource Management - Enabled/Disabled, select Configuration, select Properties, and then select Monitoring.
The Resource Management Monitoring Properties page opens, as shown in the following image.

The Resource Management Monitoring Properties page has the following options:

**Data Request Monitoring**

Indicates whether Data Request Monitoring is on or off. When Global Data Request Monitoring is enabled, or set to On, Resource Analyzer collects information on all SQL SELECT and FOCUS TABLE, TABLEF, MATCH, GRAPH, MODIFY, and MAINTAIN requests. The default value is Off. Monitoring will be by individually selected data sources.

**Procedure Request Monitoring**

Indicates the level of Procedure Request Monitoring. The following options are available:

- **Execute and INCLUDE.** All executed procedures and any procedure that used INCLUDE will be monitored. This is the default value.
- **Execute only.** Any procedure that is executed using EX or EXEC will be monitored.
- **Primary Execute only.** The only procedure monitored will be the primary procedure. Any procedure executed from within the primary (-INCLUDE or EX) will not be monitored.

4. Select the monitoring properties desired.

5. Click Save.
Procedure: How to Set Repository Properties

The amount of data stored in the repository can be controlled by selecting the record types logged for each connected session. Collecting all of the records can give a complete overview of what each connected user is doing and is a good first step in determining what resources are being consumed and which procedures, data sources, and fields are being used and by whom. But collecting everything can stress the data repository, whether a FOCUS or Relational Database Management system is being used. Some of the tables are more geared towards the Resource Governor feature and others are used just for the Resource Analyzer feature. The Functions and WHERE/IF records are mainly used by the Resource Governor, but there are several reports in Resource Analyzer that will report on that data as well. From the Web Console Resource Management tab you have the option to add or remove any record type from the logging process using the Configuration/Properties/Repository menu in the Web Console ribbon or the Resource Management node on the tree.

To set Resource Management Repository Properties:

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Configuration group, click Configuration, select Properties, and then select Repository.
   or
   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Configuration, select Properties, and then select Repository.
The Resource Management Repository Properties page opens. The page, as shown in the image below, shows the default record types collected. You can enable or disable any items on the page to control when they are to be collected. Some records are required for others to be collected so by selecting one record, it may cause dependent records to be selected automatically.
By default all procedures (focexec or SQL Stored Procedure) are monitored unless the Procedure requests log record has been disabled or the procedure has been removed from monitoring using the Manage Monitoring/Remove Procedures from Monitor page. By default, no data requests are collected unless one or more Data Requests log record types are selected and either Global Monitoring is enabled or at least one data source has been enabled for monitoring using the Manage Monitoring/Add Data Sources to monitor page for each Application folder. Also, the properties for the Application must have Monitoring enabled in the Applications properties page.

**Note:** The All Data option in Release 7.6 also collects SORT and Functions. In Release 7.7, SORT has been included in Fields, and Functions has its own dialog box.

The commands option in Release 7.7 will also collect information about remote requests from a HUB-SUB configuration.

Resource Management will always collect session records and this feature cannot be turned off.

By default, command records (for example, a TABLE command being issued) will also be collected for a data resource that is not being monitored.

The following table shows the relationship between the Repository Properties and the log record types, as well as the corresponding repository entries.

<table>
<thead>
<tr>
<th>Repository Property</th>
<th>Record Type</th>
<th>Repository Location</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Messages</td>
<td>RLAU</td>
<td>SMAUDIT</td>
<td>Messages that are issued during the processing of a request will be monitored.</td>
</tr>
</tbody>
</table>

**Procedure Requests**
<table>
<thead>
<tr>
<th>Repository Property</th>
<th>Record Type</th>
<th>Repository Location</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure</td>
<td>RLFX</td>
<td>SMRPCS</td>
<td>Each Procedure (for example, FOCEXEC or SQL Stored Procedure) executed will cause a RLFX record to be collected.</td>
</tr>
<tr>
<td></td>
<td>RLFW</td>
<td>SMRPCWF</td>
<td>The RLFW record will only be collected if the session was started by a connection from the WebFOCUS Client or WebFOCUS self-service application. The RLFW record is added to the SMRPCWF table or segment. Only one RLFW record will be collected for the primary procedure but several RLFX may be collected for a session.</td>
</tr>
<tr>
<td>Procedure statements and parameters</td>
<td>RLFC</td>
<td>SMRPCREQUESTS (table)</td>
<td>Contains the EX statement and the parameters or the -INCLUDE record. The actual command is executed. The RLFC records are collected if enabled and the Procedures are being collected.</td>
</tr>
</tbody>
</table>

**Data Requests**

<table>
<thead>
<tr>
<th>RLCD</th>
<th>SMQUERY</th>
<th>These settings allow for the customization of command data to be collected. The RLCD record is collected and added to the SMQUERY table or segment. Each data request (for example, TABLE FILE... or SQL SELECT...) executed will cause a RLCD record to be collected. The RLCD can generate two additional child records, RLDG (Governor) and RLDE (request using SUFFIX=EDA data source). These two records cannot be disabled and will always be collected if generated.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLDG</td>
<td>SMGOVERN (table)</td>
<td>SMGOVEND (segment)</td>
</tr>
<tr>
<td>RLDE</td>
<td>SMREMOTES (table)</td>
<td>SMRMTS (segment)</td>
</tr>
</tbody>
</table>

**Data Request Details**

<table>
<thead>
<tr>
<th>Data Request Statements</th>
<th>RLCC</th>
<th>SMRPCREQUESTS (table)</th>
<th>Contains the complete request. For example, TABLE FILE CAR PRINT CAR END.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SMCMMDLN (segment)</td>
<td></td>
</tr>
<tr>
<td>Repository Property</td>
<td>Record Type</td>
<td>Repository Location</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------</td>
<td>---------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Translations</td>
<td>RLAU</td>
<td>SMAUDIT</td>
<td>Contains the translated request if translation is required. If a WebFOCUS TABLE request is for a relational data source, the translated SQL, which is sent to the RDBMS, will be monitored. The RLAU records are collected if enabled and the data request statements are being collected.</td>
</tr>
<tr>
<td>Functions</td>
<td>RLDU</td>
<td>SMFUNCTIONS (table)</td>
<td>Data about aggregate functions used on fields. There is one record for each function used and contains the aggregation function used and the field it was used on.</td>
</tr>
<tr>
<td>WHERE/IF</td>
<td>RLDR</td>
<td>SMRELATIONS (table)</td>
<td>Data on the Relational tests used in a request, such as the operator, literals, or date and time values used. There is one record for each WHERE/IF/AND/OR and contains the right and/or left data source and field used. It also has the literal if one was used on the left or right-hand side of the clause and other information pertinent to a relational test clause.</td>
</tr>
<tr>
<td>Data Sources</td>
<td>RLDS</td>
<td>SMFROMS</td>
<td>The Master File Description/Synonym name or RDBMS table or tables used in a request. There is one record for each data source used in a request. This includes cross-referenced data sources or data sources joined using the JOIN or COMBINE command.</td>
</tr>
<tr>
<td>Field</td>
<td>RLDF</td>
<td>SMCOLUMNS (table)</td>
<td>The fields used, the type of field, and whether it was used in a sort or group in a request. There is one record for each field selected to return data in the request or in a BY or ORDER BY/GROUP BY statement. This record is not collected for fields used in functions or relational tests.</td>
</tr>
</tbody>
</table>
### Fields used by Reference

<table>
<thead>
<tr>
<th>Repository Property</th>
<th>Record Type</th>
<th>Repository Location</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fields used by Reference</td>
<td>RLDF</td>
<td>SMCOLUMNS (table) SMCOLMNS (segment)</td>
<td>Information about any DEFINE fields used or referenced in a request. The Fields used by Reference are indicated when the SMDEFINE field is set to 5 (Referenced). Referenced fields are fields that are used in a DEFINE in the MFD, DEFINE FILE or COMPUTE statement to create a virtual field and the virtual field is used in the request.</td>
</tr>
</tbody>
</table>

The following table shows the comparisons between the Monitoring settings in 7.6, and earlier releases, and the Command Log records settings in Release 7.7.

<table>
<thead>
<tr>
<th>Release 7.6</th>
<th>Release 7.7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monitoring Settings</strong></td>
<td><strong>Command Log Records</strong></td>
</tr>
<tr>
<td>All Data</td>
<td>Select all</td>
</tr>
<tr>
<td>Query, Froms, Relations, and Columns</td>
<td>Commands, Request, Data Sources, WHERE/IF, and Fields</td>
</tr>
<tr>
<td>Query, Froms, and Relations</td>
<td>Commands, Request, Data Sources, and WHERE/IF</td>
</tr>
<tr>
<td>Query and Froms</td>
<td>Commands, Request, and Data Sources</td>
</tr>
<tr>
<td>Query only</td>
<td>Commands and Requests</td>
</tr>
</tbody>
</table>

4. Click Save.

### Configuring Application Paths

You can configure the application path to set the viewable directories for Resource Analyzer.

**Procedure:** How to Configure an Application Path

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Configuration group, click Configuration and then select Configure Application Path.
From the navigation pane, right-click Resource Management - Enabled/Disabled, select Configuration and select Configure Application Path.

The Application Path pane opens, as shown in the following image.

4. To add or remove a directory from the application path, select the In Path check box and click Save.

5. Refresh the navigation pane to see the newly added or removed directory.

**Migrating Resource Management**

For more information on how to migrate Resource Management, see *Migrating the Resource Management Repository* on page 91.

**Working With License Keys**

A license key is required to run Resource Analyzer. You can change the license key you are using from within Resource Management at any time.

**Procedure: How to Change the License Key**

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Configuration group, click Configuration and then select Change License Key.

or
From the navigation pane, right-click Resource Management - Enabled/Disabled, select Configuration, and select Change License Key.

The Resource Management Configuration pane opens showing your current license.

4. Enter the new license into the License field and click Save.

Removing Resource Management

You can remove Resource Management from the server from the Resource Management Configuration pane. This is required if you want to change the repository type from FOCUS to relational, or relational to FOCUS.

Procedure: How to Remove Resource Management

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. On the ribbon, in the Configuration group, click Configuration and select Remove.
   or
   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Configuration, and select Remove.

   The Resource Management Confirmation pane opens.
4. Click Remove to remove Resource Management from the server. All system files and the Repository will be removed from the server.

Working With Application Directories

When you right-click an application directory, a context menu is available, as shown in the following image.
The following sections provide detailed explanations for each option in this context menu.

**Monitoring at the Application Level**

Monitoring Data Sources can be set at the Application level to monitor all Data Sources or at the individual level.

**Note:** Monitoring at the individual data source level will take precedence over the application level. For more information, see *Monitoring Individual Data Sources* on page 79.

**Procedure:** **How to View Application Name Properties**

1. Launch the Web Console.
2. Click the *Resource Management* option on the toolbar.
3. Expand an application directory in the tree.
4. To view the data source properties, click the *Properties* option from the context menu.
The Application pane opens.

The Application pane has the following fields/options:

**First Used**
Is the date the synonym was first accessed.

**Last Used**
Is the date the synonym was last accessed.
**Data Sources**

**Monitor On**

The number of data sources with monitoring on.

**Monitor Off**

The number of data sources with monitoring off.

**Not Monitored**

The number of data sources not being monitored.

**Total**

The total number of data sources in the selected application directory.

**Procedures**

**Monitor On**

The number of procedures with monitoring on.

**Monitor Off**

The number of procedures with monitoring off.

**Total**

The total number of procedures in the selected application directory.

**Monitor Status**

For more information on setting monitor status, see *How to Set Monitor Status at the Application Level* on page 78.

**Note:** The samples application directory ibisamp, created at product installation, has monitoring turned off, by default.

**Procedure:**  **How to Set Monitor Status at the Application Level**

Data sources in an application can have monitoring turned on or off at the application level. When *On* is selected, the Usage Monitor will collect information about all requests for all data sources in the application. When *Off* is selected, no monitored data for data sources in the Application is collected.

If Application monitoring has never been used, the Monitor Status will be *Not Set*. This is the default value.

To set monitor status for an application:

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.

3. Expand an application directory in the tree.

4. To view the Application properties, right-click an application name and select the Properties option from the context menu.
   
The Application pane opens.

5. Select the monitoring status you wish to use from the Monitor Status drop-down menu. The options are:
   
   - Not Set. This is the same as Off and is the default. The status will not be shown in the navigation tree when viewing data sources.
   
   - On. Turns monitoring for the Application on and can be seen in the navigation tree when viewing the Application list.
   
   - Off. Turns monitoring for the Application off and can be seen in the navigation tree when viewing the Application list.

Monitoring Individual Data Sources

When you right-click an application directory and select Manage Monitoring, a context menu is available, as shown in the following image.
Procedure: How to Monitor Individual Data Sources

Data sources must be monitored to provide monitor data, which can then be used to analyze performance.

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. Right-click an application directory in the navigation pane, select Manage Monitoring and select Add Data Sources to Monitor.

The Add Data Sources to Monitor pane opens to display all synonyms in the selected application directory, as shown in the following image.

![Add Data Sources to Monitor](image)

4. Select the check boxes for the data sources you want to monitor, or select the Select All check box next to the Data Source Name column, to select all of the data sources listed.
5. Click Add.

The Add Data Sources to Monitor - Status pane opens displaying the selected data sources with monitoring enabled, as shown in the following image.

![Add Data Sources to Monitor - Status](image)

6. Click the Close button.

The data sources you selected now appear in the tree, as shown in the following image.

![Resource Management - Enabled](image)

**Procedure:** How to Remove a Monitored Data Source From Being Monitored

You can remove a data source from being monitored as follows.

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. Right-click an application directory in the navigation pane, select Manage Monitoring and select Remove Data Sources from Monitor.

   A list of available data sources opens.

4. Select the data sources that you wish to remove from monitoring or select the Select All check box next to the Data Source Name column, and click Remove.

   The Remove data Sources from Monitor - Status pane opens, confirming that the selected data source was removed.

5. Click Close.

Procedure: How to Remove a Procedure From Being Monitored

By default, all Application Data Source procedures are monitored. You can remove a procedure from being monitored as follows.

1. Launch the Web Console.

2. Click the Resource Management option on the toolbar.

3. Right-click an application directory in the navigation pane, select Manage Monitoring and select Remove Procedures from Monitor.

   A list of available procedures opens.

4. Select the procedures that you wish to remove from monitoring or select the Select All check box next to the Procedure Name column, and click Remove.

   The Remove Procedures from Monitor - Status pane opens, confirming that the selected procedure was removed.

5. Click Close.

Procedure: How to Monitor Procedures

To have the ability to add procedures, they will need to be removed from monitoring first. For more details, see How to Remove a Procedure From Being Monitored on page 82.

1. Launch the Web Console.

2. Click the Resource Management option on the toolbar.

3. Right-click an application directory in the navigation pane, select Manage Monitoring and select Add Procedures to Monitor.
The Add Procedures to Monitor pane opens to display all procedures in the selected application directory, as shown in the following image.

4. Select the check boxes for the procedures you want to monitor, or select the Select All check box next to the Procedure Name column, to select all of the procedures listed.

5. Click Add.

The Add Procedures to Monitor - Status pane opens displaying the selected procedures with monitoring enabled, as shown in the following image.
6. Click the **Close** button.

   The procedures you selected now appear in the tree under the selected application directory.

**Monitoring Relational Adapters**

When you right-click a relational adapter folder, a context menu is available, as shown in the following image.

![Relational Adapter Context Menu](image)

The following sections provide detailed explanations for each option in this context menu.

**Relational Adapter Properties**

**Procedure:** **How to View Relational Adapter Properties**

1. Launch the Web Console.
2. Click the **Resource Management** option on the toolbar.
3. Expand the **Relational Adapters** folder.
4. Right-click a relational adapter directory in the tree and select **Properties**.
5. Select a connection name from the Connection Name drop-down menu.

   **Note:** If there is only one connection name available, the properties for that connection will be shown immediately.
The Properties for Relational Adapter for the selected connection pane opens, as shown in the following image.

![Properties for Relational Adapter](image)

The Properties for Relational Adapter pane has the following fields/options:

**Connection Name**
- Allows you to select the connection name from the drop-down menu.

**First Used**
- Is the date the relational adapter was first accessed.

**Last Used**
- Is the date the relational adapter was last accessed.
Data Sources

Monitor On
The number of data sources with monitoring on.

Monitor Off
The number of data sources with monitoring off.

Not Monitored
The number of data sources not being monitored.

Total
The total number of data sources in the selected application directory.

Procedures

Monitor On
The number of procedures with monitoring on.

Monitor Off
The number of procedures with monitoring off.

Total
The total number of procedures in the selected application directory.

Monitoring Relational Data Adapter Sources

When you right-click a relational adapter and select Manage Monitoring, a context menu is available, as shown in the following image.
In the example shown, the MS SQL Server is the adapter selected for relational source monitoring.

Procedure: How to Monitor Relational Data Adapter Sources

Monitoring relational data adapter sources means monitoring SQL direct passthru requests to relational sources that do not use synonyms. Relational sources must be monitored to provide monitor data, which can then be used to analyze performance.

Note: The following procedure can only be done if a relational adapter has been configured.

To monitor relational sources:

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. Expand the Relational Adapters folder in the tree, right-click the appropriate data adapter, select Manage Monitoring and select Add Data Sources to Monitor.
4. Select the connection name from the drop-down menu.

5. If required, select the Filter check box and provide filter information in the appropriate fields. Click Next.

The Add Data Sources pane opens, as shown in the following image.

6. Select the check boxes for the data sources you want to monitor, or select the Select All check box next to the Owner column to select all of the data sources listed. Click Add.
The Add Data Sources pane reopens displaying the selected data sources with monitoring enabled.

7. Click Close. The relational data sources you selected now appear in the tree under the adapter/connection folder.

Procedure: How to Remove a Data Source for a Relational Adapter From Being Monitored

You can remove a data source from being monitored as follows.

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. Right-click a relational adapter directory, select Manage Monitoring, and click Remove Data Sources from Monitor.
   The Remove Data Sources from Monitor pane opens.
4. Select the connection name from the drop-down menu.
5. If required, select the Filter check box and provide filter information in the appropriate fields. Click Next.
   The Remove Data Sources pane opens.
6. Select the check boxes for the data sources you want to remove, or select the Select All check box next to the Owner column to select all of the data sources listed. Click Remove.
   The Remove Data Sources pane reopens displaying the data sources that were removed.
7. Click Close.

Procedure: How to Remove a Procedure for a Relational Adapter From Being Monitored

By default, all relational procedures are monitored. You can remove a procedure from being monitored as follows.

1. Launch the Web Console.
2. Click the Resource Management option on the toolbar.
3. Right-click a relational adapter directory, select Manage Monitoring, and click Remove Procedures from Monitor.
The Remove Procedures from Monitor pane opens, as shown in the following image.

![Remove Procedures for MS SQL Server from Monitor](image)

4. Select the connection name from the drop-down menu.

5. If required, select the Filter check box and provide filter information in the appropriate fields. Click Next.

   The Remove Procedures from Monitor pane opens, showing the list of available procedures.

6. Select the procedures you wish to remove from monitoring, and click Remove.

   The Remove Procedures from Monitor - Status pane opens, confirming that the selected procedure was removed.

7. Click Close.

Procedure: How to Monitor Procedures

To have the ability to add procedures, they will need to be removed from monitoring first. For more details, see How to Remove a Procedure for a Relational Adapter From Being Monitored on page 89.

1. Launch the Web Console.

2. Click the Resource Management option on the toolbar.

3. Right-click a relational adapter directory in the navigation pane, select Manage Monitoring and select Add Procedures to Monitor.

   The Add Procedures to Monitor pane opens.

4. Select the connection name from the drop-down menu.

5. If required, select the Filter check box and provide filter information in the appropriate fields. Click Next.

6. Select the check boxes for the procedures you want to monitor, or select the Select All check box next to the Owner column to select all of the listed procedures.
7. Click Add.

The Add Procedures Status pane opens displaying the selected procedures with monitoring enabled, as shown in the following image.

8. Click the Close button.

Migrating the Resource Management Repository

If you wish to access monitor data from a previous release when upgrading Resource Analyzer, you must migrate the previous Resource Management repository contents into the new release repository.

The migration procedure is executed in batch to migrate the repository used by Resource Analyzer from prior releases to Release 7.7 or higher.

Requirements for Migrating the Resource Management Repository

The following conditions are required in order to migrate the Resource Management Repository.

- Monitoring must be turned off on both the host and target server before running the migration procedure. Also, the host log file must be archived to the repository before it is migrated to the new repository.

To turn off monitoring in Release 7.6 and higher, use the server Web Console to Disable Monitoring & Governing. If you turn monitoring back ON and continue to monitor in the old release, you will need to re-run the migration in order to migrate the newly monitored data.
When migrating monitor data stored in FOCUS, the tables must be available during migration. No actively running sink machine (SU) process is recommended or required.

When migrating monitor data stored in a relational repository, an appropriate database adapter must be configured with a connection pointing to the data from the prior release. If the new relational repository is to be stored in the same location as the old data, appropriate values for owner, creator, and so on, must be used to differentiate the two sets of data.

For both relational and FOCUS migration, the repository tables in the old release locations remain where they were and can be used as backup.

**Note:** When you run the migration more than once (which is necessary if you continued monitoring in the old release after migration and want the newly monitored data to be migrated), you will get a duplicate record error message. The duplicates are ignored and the new records are added.

**Migrating a Resource Management Repository on UNIX, Windows, UNIX System Services, and IBM i**

For these platforms, the migration procedure is executed in a Web Console session.

**Note:** IBM i was formerly known as i5/OS.

**Procedure:** How to Migrate a Resource Management Repository on UNIX, Windows, UNIX System Services, and IBM i

To start the migration job:

1. Click the Resource Management link in the toolbar.
2. On the ribbon, in the Configuration group, click Configuration and select Migrate previous release data.
   
   or

   From the navigation pane, right-click Resource Management - Enabled/Disabled, select Configuration, and then select Migrate previous release data.

   **Note:** You can also perform this task by clicking the Workspace link in the toolbar, right-clicking Workspace in the navigation pane, and selecting Migrate, General.
3. The Resource Management Migration page opens, as shown in the following image.

4. From the drop-down menu, select the release number you are migrating from. Options include 76x, 7700-7702, 7703, 7704, and 7705.

5. For all releases, you will need to enter the path to the EDACONF directory of the release being migrated. Examples are C:\ibi\srv77\wfs for Windows and /home1/ibi/srv77/wfs for Unix.

6. Enter the path to the EDAHOME directory of the release being migrated. Examples are C:\ibi\srv77\home for Windows and /home1/ibi/srv77/home for Unix.

   **Note:** This is only required if the old release is Version 7.7.03.

7. Click Next.

   The Resource Management Migrate Repositories pane opens, as shown in the following image.
8. Select the server name used by Resource Management in the old release.

9. From the Migrate system data drop-down menu, select Yes if the previous releases system data should be migrated. If Yes is selected, SMCNTRL, SMPRMTRS, and SMPRL data will be migrated. Only custom BRL members will be migrated. The SMKNBNAME value in SMCNTRL will not be migrated and any Govern and/or Advise values will be set to OFF. Any compiled rule files must be rebuilt after the migration is completed and new Govern and/or Advise values must be set. The default value is No.

10. Select the earliest and latest dates of the data to be migrated.

11. Accept the default date and time, or enter the specific date and time that you want the migration to run.

12. Click Submit. A confirmation of the request appears, stating that the deferred execution request is in the queue.

13. On the ribbon, in the Configuration group, click Configuration and select View Configuration Migration job.

   or

   From the navigation pane, right-click Resource Management-Active, and select View Configuration Migration job.

   The Deferred List pane opens, displaying the list of deferred requests and to view the request name that was displayed when the deferred migration job was scheduled. Examples of request names are listed in the Deferred ID column, as seen in the following image.

   ![Deferred List](image)

   The Status column shows the state of the deferred request, which can be Queued, Executing, or Ready. To see if the status has changed to Ready, either keep refreshing the page using the refresh options located at the top of the page, or redisplay the page at a later time. Once the status is Ready, right-click the request line and select Get to review the job output.

**Migrating a Resource Management Repository on UNIX, Windows, UNIX System Services, and IBM i After a Server Refresh**
The migration information described below is only applicable if the server environment has been upgraded by performing the refresh option during the installation process. To refresh the server, follow the instructions in the Installation Guide for your platform.

**Migration Usage Notes:**

- The migration process must be applied to the original server that was refreshed. If a clone server was setup and the Resource Management repository was copied to this server for the purpose of testing, the migration process will not work. There are inter-dependencies in the RA repository data based on the machine name and port number used when first configured.

- The migration of the Resource Management Repository on MVS PDS deployment after a refresh is not supported, a new server environment is required.

Once the refresh process has completed successfully, start the server and then the Web Console.

The migration is performed from the Web Console and consists of three phases:

- Migrate configuration file (Required).
- Migrate repository (Optional).
- Remove old files (Optional).

For these platforms, the migration procedure is executed on a Web Console session.

**Note:** IBM i was formerly known as i5/OS.

To start the migration process, click the *Resource Management* link on the toolbar in the Web Console. A warning message is displayed, as shown in the following image.

![Warning Message](image)

This warning message indicates that the structure of the Resource Management repository has changed. A migration process is required in order to update the existing repository so that new data columns can be archived to the repository. If the migration process is not run, monitor data will still be collected and archived but without the new data columns.

You can:

- Ignore the message contents by closing the message window. The repository will still have the old structure and the warning message will continue to be shown.
Start the migration process by closing the message window and right-clicking the warning link in the statistics table. Select *Migrate Configuration*, as shown in the following image.

The Resource Management Configuration Migration pane opens. The sequence of panes is slightly different depending on the repository type.

**Procedure: How to Migrate a FOCUS Repository After a Server Refresh**

1. **Phase 1 - Migrate Configuration**, after selecting *Migrate Configuration*, the pane opens in Phase 1, as shown in the following image.

   a. Click *Configure* to complete Phase 1.
2. **Phase 2 - Migrate data**, select the Migration data option from the drop-down menu, as shown in the following image.

The options are Yes or No.

**For Phase 2 - Migrate data Yes:**

Select this option to copy data from the old repository to the new one. When this option is selected, additional information is displayed regarding Phase 3, which is optional and performed from an option on the Configuration menu. See Step 6 for more information.

a. Click **Migrate** to schedule the migration procedure.

   The Submit Configuration Migration Job pane opens, as shown in the following image.

b. Select the date and time for the execution to take place.

c. Click **Submit** to go to step 3.

**For Phase 2 - Migrate data No:**
Select this option if you do not want data to be copied from the old repository to the new one. When this option is selected, additional information is displayed regarding Phase 3, which is optional and performed from an option on the Configuration menu. See Step 6 for more information.

To run the migration process at a later date, select Resource Management on the menu bar and on the ribbon, in the Configuration group, click Configuration, and select Migrate nnnn release data, where nnnn reflects the release number.

or

From the navigation pane, right-click Resource Management - Enabled/Disabled and select Configuration, Migrate nnnn release data, where nnnn reflects the release number.

**Note:** This option will be removed once Phase 3 is complete.

a. Click Done to continue. Instructions will be displayed for the next, optional, steps.
b. Optionally, review step 5.

3. To view the List Configuration Migration Job Output if migration was selected, on the ribbon, in the Configuration group, click View Configuration Migration job.

or

From the navigation pane, right-click Resource Management - Enabled/Disabled and select Configuration, View Configuration Migration job

The Deferred List pane opens.

4. Right-click on the job and select Get to see if there are any focus errors, as shown in the following image.

5. **Phase 3 - Remove old configuration and data files**, you can choose whether to remove the old configuration files or perform this action in the future.

On the ribbon, in the Configuration group, click Configuration and select Remove old Configuration files.

or
From the navigation pane, right-click Resource Management - Enabled/Disabled and select Configuration, Remove old Configuration files.

a. Select Delete and then OK to confirm.

**Note:** Once you choose to remove the old configuration files, the option to migrate data will no longer be available.

**Procedure:** How to Migrate a Relational Repository After a Server Refresh

1. **Phase 1 - Migrate Configuration**, after selecting Migrate Configuration, the Resource Management Configuration Migration pane opens at Phase 1, as shown in the following image.

   ![Resource Management Configuration Migration](image)

   The options are Yes and DDL Only.

   **For Phase 1 - Create Repositories Yes:**

   The options are Yes and DDL Only.
Select this option if you have DBA authority over the existing Resource Management repository tables. New repository tables will be created with a suffix of _nnnn, where nnnn reflects the release number. The process will continue at Phase 2.

a. Select Yes from the Create Repositories drop-down menu. A list of actions that will be performed is displayed.

b. Click Configure to go to step 2 and begin Phase 2.

**For Phase 1 - Create Repositories DDL Only:**

Select this option if you do not have DBA authority over the existing Resource Management repository tables. This option creates a file, rmldb.sql, which contains RDBMS specific DDL.

a. Select DDL Only from the Create Repositories drop-down menu.

b. Click Next. The instructions for the location of the rmldb.sql file are displayed. Give this file to the DBA for processing. You must close the browser at this point in the process. You cannot start phase 2 using the same browser session or errors will occur while attempting to access your old database.

**Note:** Your DBA must create the new Repository tables in the same location as the original 7.7 tables and both sets of tables have to be accessible on the same Adapter connection on the server. The new tables will have the release number appended to the name. The format will be tablename_release.

c. Once the repository tables have been created, return to the Web Console and click Resource Management. The warning message opens again. Close the window and right-click on the warning link in the Statistics table and then click on the Migrate Configuration entry to continue the Configuration Migration process.

d. Go to step 2 to begin Phase 2.
2. **Phase 2 - Migrate data**, select the Migration data option from the drop-down menu, as shown in the following image.

![Phase 2 - Migrate data actions](image)

The options are Yes or No.

**For Phase 2 - Migrate data Yes:**

Select this option to copy data from the old repository to the new one. When this option is selected, additional information is displayed regarding Phase 3, which is optional and performed from an option on the Configuration menu. See Step 5 for more information.

a. Click **Migrate** to schedule the migration procedure.

The Submit Configuration Migration Job pane opens, as shown in the following image.

![Submit Configuration Migration Job](image)

b. Select the date and time for the execution to take place.

c. Click **Submit** to go to Step 3.

**For Phase 2 - Migrate data No:**
Select this option if you do not want data to be copied from the old repository to the new one. When this option is selected, additional information is displayed regarding Phase 3, which is optional and performed from an option on the Configuration menu. See Step 5 for more information.

To run the migration process at a later date, select Resource Management on the menu bar and on the ribbon, in the Configuration group, click Configuration, and select Migrate nnnn release data, where nnnn reflects the release number.

or

From the navigation pane, right-click Resource Management - Enabled/Disabled and select Configuration, Migrate nnnn release data, where nnnn reflects the release number.

**Note:** This option will be removed once Phase 3 is complete.

a. Click Done to continue. Instructions will be displayed for the next, optional, steps.

b. Optionally, review step 5.

3. To view the List Configuration Migration Job Output if migration was selected, on the ribbon, in the Configuration group, click View Configuration Migration job.

or

From the navigation pane, right-click Resource Management - Enabled/Disabled and select Configuration, View Configuration Migration job

The Deferred List pane opens.

4. Right-click on the job and select Get to see if there are any focus errors, as shown in the following image.

5. **Phase 3 - Remove old configuration and data files**, you can choose whether to remove the old configuration files or perform this action in the future.

On the ribbon, in the Configuration group, click Configuration and select Remove old Configuration files.

or
From the navigation pane, right-click Resource Management - Enabled/Disabled and select Configuration, Remove old Configuration files.

a. Select Delete and then OK to confirm.

**Note:** Once you choose to remove the old configuration files, the option to migrate data will no longer be available.

### Migrating a Resource Management Repository on MVS

This option is only available when migrating data from Release 7.6 or 7.7. Repository migration is not available from earlier releases.

**Procedure:** How to Migrate a Resource Management Repository on MVS

To start the migration job:

1. Click the Resource Management link in the toolbar.

2. On the ribbon, in the Configuration group, click Configuration and select Migrate prior release data.

   or

   From the navigation pane, right click Resource Management - Enabled/Disabled, select Configuration, and then select Migrate prior release data.

   **Note:** You can also perform this task by clicking the Workspace link in the toolbar, right-clicking Workspace in the navigation pane, and selecting Migrate, General.

3. The Resource Management Migrate Repositories page opens, as shown in the following image.

   ![Resource Management Migrate Repositories](image)

4. To migrate data from the release, use the drop-down menu to select the release number you are migrating from. The options will include 76x, 7700-7702, 7703, and 7704. Depending on the release selected, one or more of the following options will be available.
Note: For help in identifying the dataset names required on the next two panes, see the chart in Step 6.

Old repository type
For 7700 – 7702, 7703 and 7704 Old release selection, select the type of repository that was configuration on the old release. Values available are Relational or FOCUS. This option is not shown for 76x.

EDACONF MASTER dataset name
For 76x or 7700 – 7702 Old release selection, the dataset name that was used to save the MASTER files during the configuration of the previous release. For 76x release, there should be at least 15 members in the provided dataset starting with “SM”. For 7700 – 7702, there should be a member called RMLDB.

EDAHOME MASTER dataset name
For 7703 or 7704 Old release selection, this is the supplied MASTER file installed with the product which has approximately 200 members and contains a member called RMLDB.

ACCESS dataset name
The dataset name that contains the ACCESS files created/used during the configuration of the previous release.

CONFIGURATION dataset name
For 7703 or 7704 Old release selection, this is the dataset name that contains the master file profiles members. They are RMLPD773 (7703) or RMLPD774 (7704) and RMLPRFSY (both releases).

REPOSITORY dataset name
The dataset name of the FOCUS repository from the previous release.

Provide the information required for the fields available.

5. Click Next to continue.
6. For Release 7.6, the following pane opens.

For all other releases, the same pane will show but without the Create 7.6 compatibility masters option available.

**Server name to migrate**
Select the server name to be migrated.

**Migrate system data**
Select Yes if the previous releases system data should be migrated. If Yes is selected, SMCNTRL, SMPRMTRS and SMPRL data will be migrated. Only custom BRL members will be migrated. The SMKNBNAME value in SMCNTRL will not be migrated and any Govern and/or Advise values will be set to OFF. Any compiled rule files must be rebuilt after the migration is completed and new Govern and/or Advise values must be set. The default value is No.

For releases 7700 – 7702, 7703 and 7704, if Yes is selected, one or two additional input boxes are shown depending on Old release selection.

**SYSTEM dataset name**
This is the dataset that contains Resource Management system information. It was created during the configuration of the old release server.

**EDAHOME MASTER dataset name**
For 7703 or 7704 Old release selection, this is the supplied MASTER file installed with the product which has approximately 200 members and contains a member called RMLSYS.

**Note:** If multiple migration runs are being made, only migrate the system data once.
Create 7.6 compatibility masters
Select Yes if you want to have 7.6 style masters created that will allow existing custom reports to run. Some modifications to your custom reports may be required. An additional input box is shown that allows for an existing application name to be provided.

Start Date
The earliest date of the data to be migrated. The format is MM/DD/YYYY. The default value is 1/1/1995.

End Date
The latest date of the data to be migrated. The format is MM/DD/YYYY. The default value is the current date.

All of the names in the following chart require QUALIF.servertype as a prefix. Where servertype can be FFS, WFS, or DM.

<table>
<thead>
<tr>
<th>Dataset name</th>
<th>76x</th>
<th>7700-7702</th>
<th>7703</th>
<th>7704</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDACONF MASTER</td>
<td>CONF.MAS</td>
<td>CONF.MAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDAHOME MASTER</td>
<td>P.HOME.MAS*</td>
<td>P.HOME.MAS</td>
<td>P.HOME.MAS</td>
<td></td>
</tr>
<tr>
<td>ACCESS**</td>
<td>CONF.ACX</td>
<td>CONF.ACX</td>
<td>P.HOME.ACX</td>
<td>P.HOME.ACX</td>
</tr>
<tr>
<td>CONFIGURATION</td>
<td></td>
<td>CONF.CFG</td>
<td></td>
<td>CONF.CFG</td>
</tr>
<tr>
<td>REPOSITORY***</td>
<td>RMLDB.FOCUS</td>
<td>RMLDB.FOCUS</td>
<td>RMLDB.FOCUS</td>
<td></td>
</tr>
<tr>
<td>SYSTEM*</td>
<td>RMLSYS.FOCUS</td>
<td>RMLSYS.FOCUS</td>
<td>RMLSYS.FOCUS</td>
<td></td>
</tr>
<tr>
<td>COMPATIBILITY</td>
<td>App name</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Only required when migrating system data.
** Only required if old repository is relational.
*** Only required if old repository is FOCUS.

7. Click Next.
   The Submit Data Migration Job pane opens.

8. Accept the default date and time, or enter the specific date and time that you want the migration to run.

9. Click Submit. A confirmation of the request appears, stating that the deferred execution request is in queue.
10. On the ribbon, in the Configuration group, click Configuration and select View Configuration Migration job.

or

From the navigation pane, right-click Resource Management-Active, and select View Configuration Migration job.

The Deferred List pane opens, displaying the list of deferred requests and to view the request name that was displayed when the deferred migration job was scheduled. Examples of request names are listed in the Deferred ID column, as seen in the following image.

The Status column shows the state of the deferred request, which can be Queued, Executing, or Ready. To see if the status has changed to Ready, either keep refreshing the page using the refresh options located at the top of the page, or redisplay the page at a later time. Once the status is Ready, right-click the request line and select Get to review the job output.

**Event Routing**

Event routing allows you to launch procedures or send email based on different server events. This feature includes five new pre-defined notifications having to do with five different type of events that can occur in Resource Analyzer. The notifications will be captured and visible on the edaprint and can be sent through email.

Error messages:
36029 - Resource Management repository is not valid for this release, archive failed

36154 - Agent failed to log Resource Management session data

Warning messages:

36048 - Resource Governor canceled a request

36097 - Resource Management logging did not archive all data

36037 - Resource Management has unarchived logs

For more information on event routing and how to customize it, see the Event Routing section in the Server Administration manual.
Chapter 3

Resource Analyzer Report Options

After you have enabled Usage Monitoring for a period of time and Resource Analyzer has collected a reasonable amount of data, you can display several reports and graphs about the monitored data. This chapter describes the various reports you can run and view with Resource Analyzer.

In this chapter:

- Reports Overview
- Resource Analyzer Reporting
- Resource Analyzer Report Options
- General Reports
- Resource Analyzer Reports

Reports Overview

Resource Analyzer produces a range of different reports, depending on the type of information you want and the types of issues you are addressing:

- **Monitored Sessions.** Shows the number of user sessions by date.
- **Monitored Commands.** Shows the number of connections and the amount of resources used.
- **Errors and Messages.** Shows a list of any errors and/or the warning messages issued. Drill-down links show more details of the request that issued them.
- **Data Sources Never Used.** Opens the Unused Master File Descriptions report which lists the data sources which have never been used.
- **Procedures Never Used.** Opens the Procedures Never Used report which lists the procedures in the APP PATH which have never been executed.

The Resource Analyzer Reports folder contains the following reports:

- **Usage Analysis Reports.** These reports represent the types of analysis most commonly used for research. They provide detailed information on users, procedures, or data sources.
Procedure Analysis Report. This report shows any error situations by Procedure name.

Domain Analysis Reports. This report provides information on the usage of the WebFOCUS domains and their reports and users.

Impact Analysis Report. This report provides information on the effects of column changes.

Performance Analysis Reports. These reports are designed to help reduce excessive overhead. They help identify costly requests and unused data sources that may need to be reviewed to determine if the resource or storage usage could be reduced.

Network Analysis Reports. These reports show network traffic on the Web server for requests.

Graph Reports. These reports provide a graphical view of peak transaction and resource periods, cumulative usage, and query volume versus resource utilization.

Resource Analyzer Reporting

For all platforms, Resource Analyzer reporting is accessed from the Web Console.

Procedure: How to Access Resource Analyzer Reports

To access Resource Analyzer reports:

1. Launch the server Web Console.
2. Click Resource Management on the toolbar and expand the Reports and Resource Analyzer folders, as shown in the following image.

![Image](image1.png)

**Procedure:** How to Run Resource Analyzer Reports

To run Resource Analyzer reports:

1. Expand the Reports folder on the tree in the navigation pane.
2. Right-click the desired report in the tree and select Run, as shown in the following image.

![Image](image2.png)
Note: In addition to Run, the Reports context menu also contains Submit and View Submitted Reports. Submit prompts you for a date and time to execute the report and submits the report to the deferred queue. View Submitted Reports lists the reports that have been run in deferred mode.

3. The Report Filter window opens. Make any desired changes and click View Report. For more information, see Report Filters on page 112.

Resource Analyzer Report Options

There is general information that applies to all Resource Analyzer reports. This information includes setting date ranges for report selection criteria, online help, drilling down on reports for more details, and displaying reports in graphical format.

Report Filters

Before you execute a report, you can select the date range of usage monitoring data to include along with other criteria used in the report. To specify these options, right-click the report you want to run and select Run.

The Report Filter window opens, as shown in the following image. By default, the Visualize Data checkbox is selected, indicating Data Visualization is ON, the Report format is set for HTML, and the default date in the End date input box is the current date.

The information you supply here will apply to any report you run. To change this information, return to this screen by running another report and changing the filters.
Resource Analyzer report selection criteria information is saved from session to session, so you will not need to reset it when you re-connect to the server.

**Note:** Some reports will display more, or different, options than those shown in the above image. For those reports, select the appropriate values for the report.

**Procedure:** **How to Turn Off Data Visualization**

You have the option of turning off Data Visualization when displaying reports. By default, the Visualize Data checkbox is selected, indicating that Data Visualization is ON.

To turn off data visualization:

1. Clear the **Visualize Data** checkbox.
2. Click **View Report**.

**Procedure:** **How to Format a Report**

To change the report format:

1. Click the **Report format** drop-down menu.

   The following image shows all of the report options available. If you are licensed for active reports, you can choose that as your report format. For more information on active reports, see the WebFOCUS Managed Reporting End User's Manual.
2. Select a report format from the drop-down menu. The following options are available:
   - HTML
   - active report
   - PDF
   - Excel
   - PowerPoint

3. Click View Report.

**Procedure:** How to Set Selection Criteria Dates for Reports

By default, suggested dates are shown in the Start and End Date input boxes. You may change these values by typing directly into the boxes, or by selecting dates from a pop-up calendar. To set selection criteria dates for reports:

1. Type a date into the date input box on the left (Start Date).
   or

   Click the drop-down arrow that appears to the right of the date input box.
A calendar appears from which you can choose the month, day, and year for the Start date of the Usage Monitoring data on which you want to report.

2. Type a date into the End Date input box or select a date from the pop-up calendar. If no date is selected, the current date will be used by default.

3. Click View Report.

**Online Help**

When you run any of the reports, you have an online help feature at your disposal, accessible through the ? Help button in the report window. The online help provides background information about the report you are running.

For more information about the help features, see *Getting Help* on page 159.

**Drilling Down With Reports**

Initially, when you execute reports, you will usually see a general summary report for the category. Most of the column headings of the reports are hyperlinked. Click the column heading links to re-sort the report by different columns. In addition, other hyperlinks in the report let you drill down to more detailed information. These hyperlinked drill-down options are described in more detail throughout this chapter.
The following sections describe the individual reports. Some of these sections contain a table of drill-down links. In these tables, terms shown in italic represent placeholders, indicating the term can have different values, depending on the selections for that report.

**Monitor Preference and Reports**

If you change the Monitor Preference setting and do not collect all the information, some reports will have missing data. When those reports are executed, a message will be displayed informing the user that no data is available.

**Alternate Reporting Output**

Many reports can be output in both tabular and graphical formats. Reports can also be reformatted into a number of different outputs.


To reformat a report, click the *Reformat* link located on the upper left of the report page.

The Reformat As window opens, as shown in the following image. The window contains a Select Format drop-down menu, allowing you to choose a helper application in order to display reports in a variety of formats. The format that you select will be used on any drill-down reports. Reports run from the tree will use the Report format set in the Resource Management: Report Filter window.
General Reports

These reports provide overviews of the data sources and procedures being monitored, as well as those procedures in the server application path that have never been executed. General Reports appear only on the Web Console.

Monitored Sessions

The Monitored Sessions report provides an overview of the procedures and commands that are being monitored, including the number of records processed, and the rows returned.

To access the Monitored Sessions report in the Web Console, click Resource Management on the toolbar and expand the Reports folder. Right-click Monitored Sessions, and select Run from the context menu. After specifying report filters, click View Report.

The following image shows the Monitored Sessions report.

This report has one hyperlink that allows you to drill down to other reports, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td>Session Summary Report by Hour, then by Quarter, and then by detail.</td>
<td></td>
</tr>
</tbody>
</table>

Monitored Commands

The Monitored Commands report provides an overview of the resources being used by each command, including the execution, CPU, and wait time.
To access the Monitored Commands report in the Web Console, click Resource Management on the toolbar and expand the Reports folder. Right-click \textit{Monitored Commands}, and select \textit{Run} from the context menu. After specifying report filters, click \textit{View Report}.

The following image shows the Monitored Commands report.

![Monitored Commands Image]

**Errors and Messages**

The Errors and Messages report provides an overview of error messages that Resource Management has monitored.

To access the Errors and Messages report in the Web Console, click Resource Management on the toolbar and expand the Reports folder. Right-click \textit{Errors and Messages}, and select \textit{Run} from the context menu. After specifying report filters, click \textit{View Report}.

The following image shows the Errors and Messages report.

![Errors and Messages Image]

This report has one hyperlink that allows you to drill down to other reports, as described in the following table.
### Drill-Down Hyperlink: Click...

<table>
<thead>
<tr>
<th>Errors and Messages</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Procedures that issued the messages, then to the command that issues the message, and finally to all of the messages issued for the selected procedure.</td>
</tr>
</tbody>
</table>

If you click the hyperlink in that report, you generate a final report which shows the error message in red. Click the red hyperlink to open the All Messages report, which shows all of the messages generated by the selected procedure.

### Data Sources Never Used

The Data Sources Never Used report provides an overview of unused data sources, including the application directory they are found in, and the last modification date and time.

To access the Data Sources Never Used report in the Web Console, click Resource Management on the toolbar and expand the Reports folder. Right-click Data Sources Never Used, and select Run from the context menu. After specifying report filters, click View Report.
The following image shows the Data Sources Never Used report.

### Procedures Never Used

The Procedures Never Used report lists those procedures in the server's application path that have never been executed.

To access the Procedures Never Used report in the Web Console, click Resource Management on the toolbar and expand the Reports folder. Right-click Procedures Never Used, and select Run from the context menu. After specifying report filters, click View Report.
The following image shows the Procedures Never Used report.

<table>
<thead>
<tr>
<th>Application</th>
<th>Procedure</th>
<th>Last Modification Date</th>
<th>Last Modification Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>baseapp</td>
<td>flow01</td>
<td>2012/01/04</td>
<td>11.40.41</td>
</tr>
<tr>
<td></td>
<td>flow01_dmhr_t</td>
<td>2012/01/04</td>
<td>11.40.41</td>
</tr>
<tr>
<td></td>
<td>profile</td>
<td>2010/08/11</td>
<td>11.21.53</td>
</tr>
<tr>
<td>ibisamp</td>
<td>cargraph</td>
<td>2012/02/06</td>
<td>22.05.52</td>
</tr>
<tr>
<td></td>
<td>carinst</td>
<td>2012/02/06</td>
<td>22.05.52</td>
</tr>
<tr>
<td></td>
<td>carinst2</td>
<td>2012/02/06</td>
<td>22.05.52</td>
</tr>
<tr>
<td></td>
<td>carmgn</td>
<td>2012/09/26</td>
<td>21.27.30</td>
</tr>
<tr>
<td></td>
<td>cgivars</td>
<td>2013/04/09</td>
<td>21.28.18</td>
</tr>
<tr>
<td></td>
<td>createc2</td>
<td>2012/02/06</td>
<td>22.15.58</td>
</tr>
<tr>
<td></td>
<td>dblcar</td>
<td>2012/02/06</td>
<td>22.46.20</td>
</tr>
</tbody>
</table>

**Resource Analyzer Reports**

The following section provides a description of each report in the Resource Analyzer folder.

To access these reports in the Web Console, expand the **Resource Analyzer** folder in the tree, click the desired report, and select **Run**.

**Usage Analysis Reports**

Usage Analysis reports provide information on reporting activity. To access Usage Analysis reports in the Web Console, expand the Usage Analysis folder in the tree and then expand the appropriate Usage Analysis report folder (Users, Procedures, or Data Sources). Right-click the desired type of usage analysis (Frequency of Use, Resources Used, or Historical Use) and select **Run** from the context menu.
The following image shows the Usage Analysis and Users report folders expanded.

**Reference:** Usage Analysis Categories

There are three basic Usage Analysis categories:

- **Users.** This category provides a variety of information about the users at your site, such as how many requests each user submits, the dates and resource consumption of those requests, the data sources certain users are accessing the most, and whether they are issuing ad hoc or cataloged requests, summarized or detailed requests, and so on.

- **Procedures.** This category gives a variety of information about the remote procedures used to submit requests, including the actual syntax of the requests.

- **Data Sources.** This category shows how your data sources are being accessed, what kind of activity patterns are occurring at your site, and the earliest and latest data access dates. These reports show more detailed information, such as aggregate functions used against columns, and column use in relations, sorting, and grouping.
Types of Usage Analysis

Usage Analysis Reports can measure three types of usage:

- **Frequency of Use.** Focuses on how frequently particular data sources are accessed, users make requests, or procedures are executed.

- **Resources Used.** Focuses on the resources consumed by requests to particular data sources, by particular users, or with particular procedures.

- **Historical Use.** Shows data source, user, and procedure information over time.

Users Reports

One of the best techniques for improving system performance is to educate users about request preparation. Education involves familiarizing users with what data is available and what constitutes the designs of different data sources. If users understand what is required of them in executing requests, their expectations about system response will be more realistic. After educating users, you can then organize elements of the data according to user needs, taking into account efficient grouping and clustering of this data. Some questions to consider about users are:

- Are users familiar with the cardinality of the data sources and the impact of multiple joins?

- Have the profiles of the users been identified?

- Who are the novices, who are the experienced users, and what are their habits and performance expectations?

- Do users visit data very often or sporadically?

- Are user profiles predictable or do they operate in binary mode, where most of the time they impose no activity on the system but sometimes they consume every computer resource possible?

The Users reports help you analyze the activity of users at your site and determine such information as: whether users are novice or experienced, which data sources they are accessing most often, when they are using the most resources, and so on.
Users Report by Frequency of Use

The following image shows the Users Report by Frequency of Use, which provides a summary of user activity. This report lists users on the left, followed by columns with hyperlinked headings that indicate the number of requests the users submitted, their percentage of total requests and resource usage, and their first and last access dates. Click any of the hyperlinked column headings to re-sort the report by that column.

This report has several hyperlinks that allow you to drill down to additional reports. The following table lists and describes these hyperlinks.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A value under the User column.</td>
<td>Data Source Use by User</td>
<td>Lists the data sources accessed by the specified user, information about the requests, and dates of access. Also allows you to drill down to see column and data type information, as well as procedures used in requests by the specified user.</td>
</tr>
<tr>
<td>A value under the Number Procedures column.</td>
<td>Procedure Summary for User Frequency of Use</td>
<td>Lists the procedures executed by the specified user along with statistics about each execution.</td>
</tr>
<tr>
<td>Drill-Down Hyperlink: Click...</td>
<td>Report Generated</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>A value under the % Total Requests column.</td>
<td>Procedure Summary for User</td>
<td>Lists the procedures used for requests by the specified user, along with request and resource information and dates of access. Also allows you to drill down to see detailed request information for each procedure as well as the actual request syntax.</td>
</tr>
<tr>
<td>A value under the % Total Resources column.</td>
<td>Resources used by User</td>
<td>Summarizes the resource usage of the specified user, including number of requests, elapsed time, CPU seconds, I/Os, rows returned, and access dates.</td>
</tr>
</tbody>
</table>
**Users Report by Resources Used**

The following image shows the Users Report by Resources Used, which provides information on resource utilization by user. This report lists users along with the number of requests they submitted, total and average elapsed time, CPU seconds, I/Os, and rows, and their first and last access dates. Click any of the hyperlinked column headings to re-sort the report by that column.

This report has one hyperlink that allows you to drill down to another report, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink: Click...</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value under the User column.</td>
<td>Data Source Use by User</td>
<td>Lists the data sources accessed by the specified user, information about the requests, and dates of access. Also allows you to drill down to see column and data type information, as well as procedures used in requests by the specified user.</td>
</tr>
</tbody>
</table>
Users Report by Historical Use

The following image shows the Users Report by Historical Use, which provides information on historical activity by user. This report lists users along with the number of requests they submitted in a particular year and the percentages of their requests and resource usage out of the totals of that year. Click any of the hyperlinked column headings to re-sort the report by that column.

![Users Report by Historical Use](image)

This report has several hyperlinks that allow you to drill down to additional reports, summarized in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td>Data Source Use by User</td>
<td>Lists the data sources accessed by the specified user, information about the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>requests, and dates of access. Also allows you to drill down to see column</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and data type information, as well as procedures used in requests by the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>specified user.</td>
</tr>
</tbody>
</table>

A value under the User column.
### Resource Analyzer Reports

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink: Click...</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value under the Year column.</td>
<td>Access per Month for User during Year</td>
<td>Summarizes by month the number of requests made by the specified user, along with the percentage of the user requests and resource usage out of the particular date totals.</td>
</tr>
<tr>
<td>A value under the % Total Resources column.</td>
<td>Resources used by User</td>
<td>Summarizes the resource usage of the specified user, including number of requests, elapsed time, CPU seconds, I/Os, rows returned, and access dates.</td>
</tr>
</tbody>
</table>

### Procedures Reports

The Procedures reports supply a variety of information about the procedures with which users submit requests at your site. This information will help you compare the relative resource usage of cataloged versus ad hoc requests, find out which procedures are the most popular and frequently executed, and thus determine the truly mission-critical applications run at your site.
Procedures Report by Frequency of Use

The following image shows the Procedures Report by Frequency of Use, which provides a summary of procedures being executed. This report lists procedures executed at your site by type, along with statistics about each execution.

![Procedures Report by Frequency of Use](image)

This report has one hyperlink that allows you to drill down to another report, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td>Request from Procedure Ad hoc or Procedure Summary (depending on procedure type selected)</td>
<td>Lists the date and time, as user, resource, and execution information for all procedures of the specified type. Also allows you to drill down further to see the actual request syntax.</td>
</tr>
</tbody>
</table>
The following image shows the Procedures Report by Resources Used, which provides a summary of resource utilization by procedure. This report summarizes the resource usage for the procedures executed at your site, including their percentage of total procedures and resources used, as well as total CPU seconds, elapsed time, I/Os, rows, and first and last execution.

<table>
<thead>
<tr>
<th>Procedure Type</th>
<th>Number of Procedures</th>
<th>% Total Procedures</th>
<th>% Total Resources</th>
<th>Total CPU</th>
<th>Total Elapsed</th>
<th>Total I/Os</th>
<th>Total Rows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad-Hoc</td>
<td>1</td>
<td>7.69</td>
<td>15.07</td>
<td>0000:03:39</td>
<td>0000:04:11</td>
<td>1,538</td>
<td>1,249</td>
</tr>
<tr>
<td>Application</td>
<td>12</td>
<td>92.31</td>
<td>84.93</td>
<td>0000:00:07</td>
<td>0000:00:18</td>
<td>15,498</td>
<td>2,839</td>
</tr>
</tbody>
</table>

This report has one hyperlink that allows you to drill down to another report, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td>Procedure Resource Utilization</td>
<td>Summarizes the executions, users, total and average resource usage, and execution dates for procedures of all types. Also lets you drill down on procedure names to see more detailed usage information as well as the actual request syntax.</td>
</tr>
</tbody>
</table>
Procedures Report by Historical Use

The following image shows the Procedures Report by Historical Use, which provides information on historical activity by procedures. This report summarizes by year the number of executions, users, and percentage of executions and resources used by the types of procedures at your site. Click any of the hyperlinked column headings to re-sort the report by that column.

This report has one hyperlink that allow you to drill down to another report, described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td>Procedure Access by Year by Month</td>
<td>Lists the year and month for all executed procedures of the specified procedure type. Also lists their number and percentage of executions, their number of users, and their resource usage percentage.</td>
</tr>
</tbody>
</table>

![Procedures - Historical Use Report](image)

Report Date: 03/24/2011
Server Name: EDASERVE
Date Range: 01/01/1995 - 03/24/2011

<table>
<thead>
<tr>
<th>Procedure Type</th>
<th>Year</th>
<th>Number of Executions</th>
<th>% Total Executions</th>
<th>% Total Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad-Hoc</td>
<td>2011</td>
<td>83</td>
<td>83.84</td>
<td>1.39</td>
</tr>
<tr>
<td>Application</td>
<td>2011</td>
<td>16</td>
<td>16.16</td>
<td>98.61</td>
</tr>
</tbody>
</table>
Data Sources Reports

In order to improve system performance at your site, it is helpful to determine which data sources are most mission-critical, most popular among your users, and most resource-intensive. The Data Sources reports show you how your data sources are being accessed, as well as, illustrate various activity patterns at your site and the earliest and latest dates that data was accessed.

Data Sources Report by Frequency of Use

The following image shows the Data Sources Report by Frequency of Use, which provides a summary of data sources being used. This report lists all accessed data sources along with the number and percentage of requests to each data source, the number of users, the percentage of resources consumed, and access dates. Click any of the hyperlinked column headings to re-sort the report by that column.

This report has several hyperlinks that allow you to drill down to additional reports, summarized in the following table.
<table>
<thead>
<tr>
<th>Drill-Down Hyperlink: Click...</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value under the Data Source column.</td>
<td>Column Level for Data Source <em>Data Source</em></td>
<td>Shows usage for the columns for the specified data source, including whether they were used with functions, relations, selects, sorts, and groups, and how many days the column has been unused. Also allows you to drill down to see more information about when the columns were used.</td>
</tr>
<tr>
<td>A value under the Data Type column.</td>
<td>Data Sources of type <em>Data Type</em></td>
<td>Lists all the data sources of the specified data type (the engine used in your enterprise) along with the dates of first and last access for each data source.</td>
</tr>
<tr>
<td>A value under the Number Requests column.</td>
<td>Request Activity for Data Source: <em>Data Source</em></td>
<td>Shows request activity for all users of the specified data source, including I/Os, rows returned, and elapsed time. Also allows you to drill down further to see the actual request syntax.</td>
</tr>
<tr>
<td>A value under the Number Distinct Users column.</td>
<td>Users of <em>Data Source</em></td>
<td>Lists all users of the specified data source along with a summary of the resources they have used.</td>
</tr>
<tr>
<td>Drill-Down Hyperlink: Click...</td>
<td>Report Generated</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>A value under the % Total Requests column.</td>
<td>Procedures Using <em>Data Source</em></td>
<td>Lists the procedures used to access the specified data source, along with their resource usage and dates of access. Also allows you to drill down on a procedure name to see request information for that procedure and the actual request syntax.</td>
</tr>
<tr>
<td>A value under the % Total Resources column.</td>
<td>Resources Used by <em>Data Source</em></td>
<td>Lists the resources used by the specified data source, sorted by date. Also allows you to drill down on the dates to see more detailed data access information by month.</td>
</tr>
</tbody>
</table>

**Data Sources Report by Resources Used**

Understanding the patterns of resource usage at your site, including CPU and elapsed time, I/Os, and rows returned, can be helpful in several ways. This kind of information can help you determine which data sources might be good candidates for pre-joining, pre-aggregation, or denormalization, and decide which data to index. In addition, you can monitor users and inform them of their resource usage to encourage them to plan their requests more efficiently.

Accessing the Data Sources report category by the Resource Utilization mode of analysis can help you with all of these issues.
The following image shows the Data Sources Report by Resources Used, which provides a summary of resource utilization by data source. This report summarizes the resources used by all data sources at your site, including both total and average elapsed time, CPU seconds, I/Os, and returned rows. Click any of the hyperlinked column headings to re-sort the report by that column.

This report has several hyperlinks that allow you to drill down to additional reports, summarized in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td></td>
<td>Shows usage for the columns for the specified data source, including whether they were used with functions, relations, selects, sorts, and groups, and how many days the column has been unused. Also allows you to drill down to see more information about when the columns were used.</td>
</tr>
<tr>
<td>A value under the Data Source column.</td>
<td>Column Level for Data Source Data Source</td>
<td></td>
</tr>
</tbody>
</table>

![Data Sources Report](image-url)
### Data Sources Report by Historical Use

The accessibility of a Web environment makes rapid growth of your user base inevitable. As more users are accessing more data, monitoring site activity becomes more important, offering you information about the following areas:

- How much data is being requested.
- What the busiest times of the day, week, and month are.
- Which users are most active against which data sources.
- What standard response times have been.

Accessing the Data Sources report category by historical analysis lets you analyze user activity to determine the peaks and valleys in system usage, supplying you with a solid basis for deciding how to schedule requests, educate users, and so on.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink: Click...</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value under the Number of Requests column.</td>
<td>Procedures Using Data Source</td>
<td>Lists the procedures used to access the specified data source, along with their resource usage and dates of access. Also allows you to drill down on a procedure name to see request information for that procedure and the actual request syntax.</td>
</tr>
</tbody>
</table>
The following image shows the Data Sources Report by Historical Use, which provides information on historical activity by data source. This report summarizes request activity by year and month for all accessed data sources at your site. Click any of the hyperlinked column headings to re-sort the report by that column.

![Data Sources Report](image)

This report has several hyperlinks that allow you to drill down to additional reports, summarized in the following table.
<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Click...</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A value under the Data Source column.</td>
<td>Column Level for Data Source <em>Data Source</em></td>
<td>Shows usage for the columns for the specified data source, including whether they were used with functions, relations, selects, sorts, and groups, and how many days the column has been unused. Also allows you to drill down to see more information about when the columns were used.</td>
</tr>
<tr>
<td>A value under the Year column.</td>
<td>Data Access for <em>Data Source</em> during <em>Year</em></td>
<td>Shows data access information for the specified data source and year, including number of requests, elapsed time, CPU seconds, I/Os, and rows returned. Also allows you to drill down on a specific date (month, day, and year) to see request information for that date as well as the actual request syntax.</td>
</tr>
</tbody>
</table>

**Procedure Analysis Report**

The Procedure Analysis folder contains the Procedure with Errors report, which provides information on error situations by Procedure name.
The following image shows the Procedure Analysis report.

![Procedure Analysis Report](image)

This report has one hyperlink that allows you to drill down to another report, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedure Name</td>
<td>Requests Executed with Errors</td>
<td>Provides a list of requests that resulted in an error.</td>
</tr>
</tbody>
</table>

If you click the hyperlink in the Requests Executed with Errors report, the Error Message Report opens. This report shows all of the error messages generated.

**Domain Analysis Report**

The Domain Analysis Report provides information on the usage of the WebFOCUS domains and their reports and users.

To access the Domain Analysis report in the Web Console, click Resource Management on the toolbar and expand the Reports and Resource Analyzer folders. Expand the Domain Analysis folder. Right-click the available report, and select Run from the context menu.

The available report is the Domain Usage Report. It provides a summary line of each domain that has been monitored. This report supplies you with information that helps you understand the usage of the domain reports and the users that run them.

**Note:** In the tables of drill-down links, terms shown in italic represent placeholders, indicating the term can have different values, depending on the selections for that report.
Domain Usage Report

The summary version of the report displays the Domain name, the number of reports from the Domain that have been monitored, the number of users that have run Domain reports that have been monitored, the average execution time of all of the monitored reports in the Domain, and the average CPU time used by all of the monitored reports in the Domain.

Right-click Domain Usage and select Run. Select the column for which you want to examine information under the Column name drop-down menu and click View Report. Any use of a column with that name in any monitored table is reported.

The report window opens, as shown in the following image.

This report has two hyperlinks that allow you to drill down to additional reports summarized in the following table.
### Drill-Down Hyperlink: Click...

<table>
<thead>
<tr>
<th>Description</th>
<th>Report Generated</th>
<th>Drill-Down Hyperlink: Click...</th>
</tr>
</thead>
<tbody>
<tr>
<td>provides the names of the reports that have been monitored, the number of times the report has been run, the average execution time the used, the average CPU time used, the total number of rows returned by all of the executions and the number of database records processed by all executions of the report. Also allows you to drill down further to view the user names that have executed the report.</td>
<td>Domain by Report Summary report</td>
<td>A value under the Number Monitored Reports column.</td>
</tr>
<tr>
<td>The report provides the user names that have been monitored, the number of reports the user has run, the average execution time the used, the average CPU time used, the total number of rows returned by all of the executions and the number of database records processed by all executions of the report. Also allows you to drill down further to view names of the reports that the user has run.</td>
<td>Domain by Users Summary report</td>
<td>A value under the Number Monitored Users column.</td>
</tr>
</tbody>
</table>

### Impact Analysis Report

The Impact Analysis Report provides information on the affects of column changes.
To access the Impact Analysis report in the Web Console, click Resource Management on the toolbar and expand the Reports and Resource Analyzer folders. Expand the Impact Analysis folder. Right-click the available report, and select Run from the context menu.

The available report is the Change Impact for Column Report. It provides which procedures and end users will be affected by changes to column names and format. This report supplies you with information that can help you understand the rippling effects of data schema changes.

**Note:** In the tables of drill-down links, terms shown in italic represent placeholders, indicating the term can have different values, depending on the selections for that report.

**Change Impact for Column Report**

It is very useful to determine in advance which users and applications will be most affected by impending data source schema changes. The Change Impact for Column reports determine how data-source modifications affect users and their applications.

Right-click Change Impact for Column and select Run. Select the column for which you want to examine information under the Column name drop-down menu and click View Report. Any use of a column with that name in any monitored table is reported.
The report window opens, as shown in the following image. This report summarizes the procedures used to access the specified column.

![Change Impact for Column: NAME](image)

This report has two hyperlinks that allow you to drill down to additional reports summarized in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A value under the Procedure Name column.</td>
<td>Requests from Procedure Procedure Name</td>
<td>Shows a variety of information, including date and time, user, CPU seconds, elapsed time, I/Os, and rows returned, about the requests made with the specified procedure. Also allows you to drill down further to see the actual request syntax.</td>
</tr>
</tbody>
</table>
Performance Analysis Reports

Performance Analysis Reports are designed to help reduce excessive overhead. They help identify costly requests and unused data sources that may need to be reviewed to determine if the resource or storage usage could be reduced.

To access Performance Analysis reports in the Web Console, click Resource Management on the toolbar and expand the Reports and Resource Analyzer folders. Expand the Performance Analysis folder. Right-click the desired report, and select Run from the context menu.

The following reports are available:

- **Procedure Benchmarks Report.** Measures iterative improvements in resource expenditure and analyze the response time of requests to determine whether Service Level Agreement (SLA) standards are being met.

- **CPU Bound, I/O Bound, Large Answer Set Procedures Report.** Views the most resource-intensive requests to identify causes of network and machine use bottlenecks.

- **Excessive Resources Report.** Uncovers procedures with long-running requests, which use excessive resources and result in long waits for users.

- **Large Volume Request Report.** Identifies requests returning more data than necessary and target them for optimization.

- **Dormant Data Report.** Uncovers which data sources, columns, and data are infrequently or never accessed, and which can make response times slower and batch updates more cumbersome. This helps you decide how to better organize your data sources.
Excessive Joins Report. Reveals which columns are frequently joined, helping you determine how to create pre-joined tables. Joining too many tables is expensive and slow.

Repeated Aggregations Report. Shows which data sources might be the best candidates for summarization or pre-aggregation, to improve performance. Aggregations can cause bottlenecks during query execution.

Candidates for Column Index Report. Identifies columns that should be indexed.


Note: In the tables of drill-down links, terms shown in italic represent a placeholder, indicating the term can have different values, depending on the selections for that report.

Procedure Benchmarks Report

Benchmarking is a process by which you determine whether your site’s service level agreements (SLAs) are being met. Use the Procedure Benchmarks reports to identify response times for requests and other information for analyzing site performance.

Right-click the Procedure Benchmarks report on the tree in the navigation pane and select Run from the context menu. The Report Filter for Procedure Benchmarks window opens.

From the Procedure Name drop-down menu, select the name of the procedure for which you wish to examine information and click View Report.

The Monitored Procedure Detail report appears, as shown in the following image. This report shows information about executions of the specified procedure, including execution date and time, user, CPU and elapsed time, usage type and client type. Click any of the hyperlinked column headings to re-sort the report by that column.
**Excessive Resources Report**

Some of the most helpful information Resource Analyzer can provide is about which requests are using the most resources. This kind of information helps you identify causes of network and machine-use bottlenecks and enables you to decide what data needs to be indexed, what requests need to be scheduled, or which users need to be educated. The Excessive Resources reports help you with this investigation.

Right-click *Excessive Resources* and select *Run* from the context menu. The Report Filter for Excessive Resources window opens, as shown in the following image.

![Resource Management: Report filter for Excessive Resources](image)

For a request to be included in the report, it need only exceed one of the resource values specified, not all. Specify criteria to limit your report to information on requests that consume resource usage values above a certain average and click *View Report*. 
The Excessive Resources report opens, as shown in the following image. This report lists the most resource-intensive procedures, those whose average resource usage values, including CPU seconds, elapsed time, I/Os, and rows returned, exceed at least one of the limits you specified. The report also lists the average resource usage values for each procedure. Click any of the hyperlinked column headings to re-sort the report by that column.

This report has one hyperlink that allows you to drill down to another report, as described in the following table.
Resource Analyzer Reports

Drill-Down Hyperlink:
Click...

<table>
<thead>
<tr>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value under the Procedure Name column.</td>
<td>Requests from Procedure Procedure</td>
</tr>
<tr>
<td>Lists the date and time, user, and resource information for each request of the specified procedure. Also allows you to drill down further to see the actual request syntax.</td>
<td></td>
</tr>
</tbody>
</table>

Long-running Requests Report

Procedures with long running requests use excessive resources, a particular problem when dealing with operational systems. These procedures should be targeted for optimization.

Right-click Long-running Requests and select Run from the context menu. After specifying report filters, click View Report. The report window opens, as shown in the following image. By default the report is sorted by Average Elapsed Seconds and Average CPU Seconds.

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Procedure Name</th>
<th>Average Execution Time</th>
<th>Average CPU Time</th>
<th>Average Rows</th>
<th>Average I/Os</th>
</tr>
</thead>
<tbody>
<tr>
<td>rmudbld</td>
<td>0000:00:02</td>
<td>0000:00:01</td>
<td>1</td>
<td>1,013</td>
<td></td>
</tr>
<tr>
<td>internal_utility</td>
<td>projrepw</td>
<td>0000:00:01</td>
<td>90</td>
<td>1,665</td>
<td></td>
</tr>
<tr>
<td>Ad-Hoc</td>
<td>0000:00:00</td>
<td>0000:00:00</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>meadum01</td>
<td>0000:00:00</td>
<td>0000:00:00</td>
<td>1</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Internal_002</td>
<td>0000:00:00</td>
<td>0000:00:00</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>poin011</td>
<td>0000:00:00</td>
<td>0000:00:00</td>
<td>43</td>
<td>846</td>
<td></td>
</tr>
<tr>
<td>internal</td>
<td>proj008</td>
<td>0000:00:00</td>
<td>11</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>internal</td>
<td>proj0022</td>
<td>0000:00:00</td>
<td>12</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>Internal_005</td>
<td>0000:00:00</td>
<td>0000:00:00</td>
<td>108</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>unxstyl</td>
<td>0000:00:00</td>
<td>207</td>
<td>629</td>
<td></td>
</tr>
</tbody>
</table>

This report has one hyperlink that allows you to drill down to another report, as described in the following table.

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### Large Volume Requests Report

Large volume requests are requests that return more data than might be necessary. These requests can be targeted for optimization. You can identify these reports with the Large Volume Requests Report.

Right-click *Large Volume Requests* and select *Run* from the context menu. After specifying report filters, click *View Report*. The report window opens. By default the report is sorted by Highest Average Rows.

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Procedure Name</th>
<th>Average Rows</th>
<th>Average I/Os</th>
<th>Average Execution Time</th>
<th>Average CPU Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>internal_includes</td>
<td>usrin006</td>
<td>540</td>
<td>217</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_includes</td>
<td>unxstyl</td>
<td>207</td>
<td>629</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_includes</td>
<td>trkrp006</td>
<td>108</td>
<td>14</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_utility</td>
<td>projrepw</td>
<td>50</td>
<td>1,665</td>
<td>00:00:00:01</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td></td>
<td>Ad-Hoc</td>
<td>83</td>
<td>87</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_includes</td>
<td>pncin011</td>
<td>57</td>
<td>1,124</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_utility</td>
<td>noterepw</td>
<td>39</td>
<td>244</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_utility</td>
<td>pncallr</td>
<td>39</td>
<td>52</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_includes</td>
<td>proj0022</td>
<td>12</td>
<td>94</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_includes</td>
<td>proj0008</td>
<td>11</td>
<td>24</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td></td>
<td>rmudblod</td>
<td>1</td>
<td>609</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_includes</td>
<td>meddum01</td>
<td>1</td>
<td>8</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>internal_includes</td>
<td>medst002</td>
<td>1</td>
<td>4</td>
<td>00:00:00:00</td>
<td>00:00:00:00</td>
</tr>
</tbody>
</table>

Report Date: 04/12/2010
Server Name: INFORMAT-33F6D7:8101
Date Range: 01/01/1995 - 03/25/2010
This report has one hyperlink that allows you to drill down to another report, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink: Click...</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value under the Procedure Name column.</td>
<td>Requests from Procedure Name</td>
<td>Shows the requests that were executed from the selected procedure. Also allows you to drill down further to see the actual request syntax.</td>
</tr>
</tbody>
</table>

### Dormant Data Report

Dormant data, or data that is very infrequently accessed, can slow response times on your site. Use the Dormant Data reports to identify which data sources and columns have been less recently or never queried and can be deleted or archived to improve performance.

Right-click Dormant Data and select Run from the context menu. After specifying report filters, click View Report. The report window opens.

#### Dormant Data - Data Source Summary

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Data Type</th>
<th>Number Requests</th>
<th>Number Users</th>
<th>First Access</th>
<th>Last Access</th>
<th>Days Since Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>baseapp/carrec</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/customer</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/department</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/employee</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/eo</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/merge3</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/product</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/productcategory</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/productmodel</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>baseapp/query_old</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>ibisamp/brokers</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>ibisamp/carolap</td>
<td>EDA</td>
<td>0</td>
<td>0</td>
<td>Never</td>
<td>Never</td>
<td>0</td>
</tr>
</tbody>
</table>
This report shows a variety of information about each data source, such as number of requests, users, resource usage, and access dates. The Days Since Used column indicates the number of days that have passed since the data source was last accessed. By default, the report is sorted by access dates, with those data sources that have no access dates (and are therefore dormant) listed first, and includes all data sources in the application path, including those that aren’t being monitored.

This report has one hyperlink that allows you to drill down to another report, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink: Click...</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value under the Data Source column.</td>
<td>Dormant Data Summary: Column Level for Data Source</td>
<td>Shows which columns were never accessed in the specified data source, and also lists all accessed columns along with last access time in days. Shows usage for the columns, including whether they were used with functions, relations, selects, sorts, and groups.</td>
</tr>
</tbody>
</table>

**Excessive Joins Report**

Joining too many tables can be slow and costly. De-normalization can be an effective method for cutting CPU time and improving response times. The Excessive Joins reports help you determine which data is most frequently joined by user requests and helps you decide how to plan your de-normalizing strategies.
Right-click *Excessive Joins* and select *Run* from the context menu. After specifying report filters, click *View Report*. The report window opens. This report lists the most frequently joined data sources along with the procedures used to join them.

This report has one hyperlink that allows you to drill down to another report, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink:</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A value under the Procedure Name column.</td>
<td>Requests from <em>Procedure Joining Data source1, Data source2, Data source n</em></td>
<td>Shows a variety of information, including date and time, user, CPU seconds, elapsed time, I/Os, and rows returned, about the requests making the specified join. Also allows you to drill down further to see the actual request syntax.</td>
</tr>
</tbody>
</table>

**Repeated Aggregations Report**

Efficiencies can be created by calculating column values once and storing the results in summary tables for repeated use. This saves the cost of calculating these values every time a report is run.
Right-click *Repeated Aggregations* and select *Run* from the context menu. After specifying report filters, click *View Report*. The Candidates for Summary Level Databases report opens. This report shows how many requests used different functions on certain columns of data sources, along with the dates of access. Click any of the hyperlinked column headings to re-sort the report by that column.

This report has one hyperlink that allows you to drill down to another report, as described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink: A value under the Function column.</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Procedure Summary - Frequency of Use Using Function on Data Source.Column Name</td>
<td>Summarizes the procedure types (Application and Ad_Hoc) that have executed the specified function for the specified data source and column, along with statistics about each execution. Also allows you to drill down further to see a list of the cataloged procedures and information about them.</td>
</tr>
</tbody>
</table>

**Candidates for Column Index Report**

Indexing columns that are frequently used in selection criteria for reports can improve efficiency. This report identifies columns that should be indexed.

Right-click *Candidates for Column Index* and select *Run* from the context menu. After specifying report filters, click *View Report*. The report window opens. This report shows how often columns were used as selection criteria in requests. Click any of the hyperlinked column headings to re-sort the report by that column.

**Network Analysis Reports**

This new category of Resource Analyzer reports shows network traffic for requests on the Web server, for example, the users for each connected IP address.
To access Network Analysis reports in the Web Console, click Resource Management on the toolbar and expand the Reports and Resource Analyzer folders. Expand the Network Analysis folder. Right-click the desired report, and select Run from the context menu.

The following reports are available:

- **Bandwidth by Procedure.** Shows the number of bytes retrieved to the Web server for requests. The report analyzes the bandwidth by database type for each year/month combination.

- **Resources by Connection.** Shows the resources consumed by the different IP connections.

**Note:** In the tables of drill-down links, terms shown in italic represent a placeholder, indicating the term can have different values, depending on the selections for that report.
**Bandwidth by Procedure Report**

The Bandwidth by Procedure report shows the number of bytes retrieved to the Web server for requests. The report analyzes the bandwidth by database type for each year/month combination. Right-click *Bandwidth by Procedure* and select *Run* from the context menu. After specifying report filters, click *View Report*. The report window opens.

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Procedure Name</th>
<th>Year</th>
<th>Month</th>
<th>Bandwidth*</th>
</tr>
</thead>
<tbody>
<tr>
<td>ibisamp</td>
<td>rmsq06</td>
<td>2011</td>
<td>February</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>rmsq11</td>
<td>2011</td>
<td>February</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>rmtb01</td>
<td>2011</td>
<td>February</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>rmtb02</td>
<td>2011</td>
<td>February</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>rmtb03</td>
<td>2011</td>
<td>February</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>rmtb04</td>
<td>2011</td>
<td>February</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>rmtb07</td>
<td>2011</td>
<td>February</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>rmtb08</td>
<td>2011</td>
<td>February</td>
<td>0</td>
</tr>
<tr>
<td>unknown</td>
<td>Ad-Hoc</td>
<td>2011</td>
<td>March</td>
<td>876</td>
</tr>
<tr>
<td>_wcsmpidata</td>
<td></td>
<td>2011</td>
<td>March</td>
<td>1290</td>
</tr>
<tr>
<td>focsql01</td>
<td></td>
<td>2011</td>
<td>March</td>
<td>10864</td>
</tr>
<tr>
<td>focsql14</td>
<td></td>
<td>2011</td>
<td>March</td>
<td>288</td>
</tr>
<tr>
<td>focsql23</td>
<td></td>
<td>2011</td>
<td>March</td>
<td>144</td>
</tr>
<tr>
<td>focsql28</td>
<td></td>
<td>2011</td>
<td>March</td>
<td>156</td>
</tr>
<tr>
<td>focsql33</td>
<td></td>
<td>2011</td>
<td>March</td>
<td>72</td>
</tr>
<tr>
<td>focsql36</td>
<td></td>
<td>2011</td>
<td>March</td>
<td>216</td>
</tr>
</tbody>
</table>

This report has one hyperlink that allows you to drill down to another report, described in the following table.
Drill-Down Hyperlink: Click...

<table>
<thead>
<tr>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth Used by Procedure Type during Year/Month.</td>
<td>Shows the bandwidth for each day of the selected year/month.</td>
</tr>
</tbody>
</table>

Resources by Connection

Resources by Connection report shows the resources consumed by the different IP connections.

Right-click Resources by Connection and select Run from the context menu. After specifying report filters, click View Report. The report window opens.

This report has one hyperlink that allows you to drill down to another report, described in the following table.

<table>
<thead>
<tr>
<th>Drill-Down Hyperlink: Click...</th>
<th>Report Generated</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A value under the Month column.</td>
<td>Resources by Connection in Network Node</td>
<td>Shows the resources for each connection address.</td>
</tr>
</tbody>
</table>
Graph Reports

Resource Analyzer provides a number of graphs for resource and performance analysis.

To access Graph Reports in the Web Console, click Resource Management on the toolbar and expand the Reports and Resource Analyzer folders. Expand the Graph Reports folder. Right-click the desired report, and select Run from the context menu.

The eight Graph Reports appear in the tree:

- **Cumulative Hourly Use.** Determine hourly system usage.
- **Query Volume vs. Resource Utilization.** Profile query volume against system resource utilization.
- **Peak Transaction Periods**
  - **By Hour of Day.** Determine transaction-bottleneck periods by hourly request activity.
  - **By Day of Week.** Determine transaction-bottleneck periods by daily request activity.
  - **By Month.** Determine transaction-bottleneck periods by monthly request activity.
- **Peak Resource Periods**
  - **By Hour of Day.** Determine transaction-bottleneck periods by hourly resource usage.
  - **By Day of Week.** Determine transaction-bottleneck periods by daily resource usage.
  - **By Month.** Determine transaction-bottleneck periods by monthly resource usage.

**Cumulative Hourly Use and Peak Transaction/Resource Periods Reports**

These graph reports allow you to determine transaction-bottleneck periods for request activity or resource usage by different time periods.

Click a graph report and select Run from the context menu.
The Report Filter window opens.

You can filter a report by data source name and/or user name by selecting a valid data source name and/or user name from the drop-down menu, or by selecting ALL, to indicate all data sources and all users. The default is ALL. After you select your data sources or accept the default, click View Report.

**Query Volume vs. Resource Utilization Reports**

Un-tuned queries frequently return more data than necessary. Identify the procedures running these requests and target them for optimization.

Right-click *Query Volume vs. Resource Utilization*, and select *Run* from the context menu. After specifying report filters, click *View Report*. The report window opens. This report compares the number of requests to one of four factors of resource usage: CPU seconds, elapsed time in seconds, rows returned, and I/Os (all mapped on the vertical axis). This information is shown for each hour of the day, with the hours mapped along the horizontal axis. The values on the vertical axis are cumulative for the time period of the dates you select for Usage Monitoring data for reports. For more information on setting report date ranges, see *How to Set Selection Criteria Dates for Reports* on page 114.

By default, the first graph that appears shows requests graphed against CPU seconds. To view the graph for requests versus one of the other resource factors, select the appropriate option at the top of the screen and click the *Draw* button. The new graph appears.
Getting Help

The following section explains the help features of Resource Management in the Web Console.

In this chapter:

- Resource Management Administration Help
- Reporting Application Context-Sensitive Help From Reports

Resource Management Administration Help

Online help for Resource Management is available from the Web Console.

Web Console Help

To access online help from the Web Console, click the Help button located in the upper right corner of the console window and click Contents and Search, as shown in the following image.

The Web Console server help page opens.
The following image shows the Web Console server page, which displays several available help topics, including two administration topics: Resource Analyzer and Resource Governor Overview and Configuring and Administering Resource Management From the Web Console. The latter topic is selected in this image.
Reporting Application Context-Sensitive Help From Reports

Resource Management reports offer context-sensitive online help from almost every report. To access the online help for a specific report, run a report and then click the Help link that appears at the top of the report.

When you click the Help link in a report, a new browser window opens to display a topic relevant to that report. The window also displays a table of contents that allows you to easily navigate to help topics for other reports. Simply click a topic on the left and the information displays on the right. For example, when you click the Help link while viewing the Users-Frequency of Use report, the window displays the Frequency of Use Summary topic, as shown in the following image.

![Help Window](image-url)
This appendix provides descriptions of the Administrative and Usage Monitoring tables. Each description shows the table column definitions.

**In this appendix:**
- Administrative Tables (RMLSYS.MAS)
- Usage Monitoring Table (RMLDB.MAS)
- Usage Monitoring RDBMS Table Sizing
- Renamed or Moved Columns

**Administrative Tables (RMLSYS.MAS)**

This section lists the data definitions that make up the Resource Analyzer administrative tables and provides an explanation of the field values.

**Note:** Field values in the Administrative Tables section with an asterisk (*) after the name indicates the length value for the column has changed. Due to limitations of the Operation System, the PDS deployed servers will only allow a maximum of 8 characters to be stored in the column.

**SMSERVER Segment**

Keeps track of server related information. It is the root segment record that contains information that is relevant to all aspects of a server. It is updated every time the administrator property changes from the Web Console.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMSRVNAME*</td>
<td>Alphanumeric, length=128</td>
<td>SMSERVERNAME value.</td>
</tr>
<tr>
<td>SITECODE</td>
<td>Alphanumeric, length=7</td>
<td>IBI Site code value.</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>LICENSE</td>
<td>Alphanumeric, length=4</td>
<td>Product license value.</td>
</tr>
<tr>
<td>SERVTYPE</td>
<td>Alphanumeric, length=1</td>
<td>Type of server. Values are 1, 2, or 3.</td>
</tr>
<tr>
<td>ENTERPRISE</td>
<td>Alphanumeric, length=1</td>
<td>Enterprise configuration. Values are Y or N.</td>
</tr>
<tr>
<td>GLOBAL</td>
<td>Alphanumeric, length=1</td>
<td>Global Monitoring. Values are Y or N.</td>
</tr>
<tr>
<td>RPCPREF</td>
<td>Alphanumeric, length=1</td>
<td>Procedure Monitoring level. Values are A, E, or P; All Execute or Include, Execute Only, or Primary Execute Only.</td>
</tr>
<tr>
<td>GLOBALGOV</td>
<td>Alphanumeric, length=1</td>
<td>Global Governing. Values are Y = Yes, N = No, or A = Advise.</td>
</tr>
<tr>
<td>GLOBALKNB*</td>
<td>Alphanumeric, length=48</td>
<td>Global Rule File name or blanks.</td>
</tr>
<tr>
<td>RPCS</td>
<td>Alphanumeric, length=1</td>
<td>Log procedure executions. Values are Y or N.</td>
</tr>
<tr>
<td>RPCLN</td>
<td>Alphanumeric, length=1</td>
<td>Log procedure command line. Values are Y or N.</td>
</tr>
<tr>
<td>RPCWF</td>
<td>Alphanumeric, length=1</td>
<td>Log WebFOCUS information. Values are Y or N.</td>
</tr>
<tr>
<td>CMDS</td>
<td>Alphanumeric, length=1</td>
<td>Log command executions. Values are Y or N.</td>
</tr>
<tr>
<td>CMDLN</td>
<td>Alphanumeric, length=1</td>
<td>Log command statement. Values are Y or N.</td>
</tr>
<tr>
<td>DATASRCS</td>
<td>Alphanumeric, length=1</td>
<td>Log data source details. Values are Y or N.</td>
</tr>
<tr>
<td>FIELDS</td>
<td>Alphanumeric, length=1</td>
<td>Log field details. Values are Y or N.</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>FUNCTIONS</td>
<td>Alphanumeric, length=1</td>
<td>Log aggregate function details. Values are Y or N.</td>
</tr>
<tr>
<td>RELATIONS</td>
<td>Alphanumeric, length=1</td>
<td>Log procedure executions. Values are Y or N.</td>
</tr>
<tr>
<td>MONVIEW</td>
<td>Alphanumeric, length=1</td>
<td>Web Console tree view:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 (APPS only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (APPS and Data Adapter)</td>
</tr>
<tr>
<td>ROWLIMIT</td>
<td>Numeric, length=4</td>
<td>This column is not used in this release.</td>
</tr>
<tr>
<td>DBRELEASE</td>
<td>Alphanumeric, length=10</td>
<td>Repository release.</td>
</tr>
<tr>
<td>FIELDSREFD</td>
<td>Alphanumeric, length=1</td>
<td>Log all referenced fields. Values are Y or N.</td>
</tr>
<tr>
<td>AUDIT</td>
<td>Alphanumeric, length=1</td>
<td>Reserved for a future release.</td>
</tr>
<tr>
<td>DML</td>
<td>Alphanumeric, length=1</td>
<td>Log SQL DML requests. Values are Y or N.</td>
</tr>
<tr>
<td>CMD_SQL</td>
<td>Alphanumeric length=1</td>
<td>Log SQL non-DML requests. Values are Y or No.</td>
</tr>
<tr>
<td>CMD_JOIN</td>
<td>Alphanumeric length=1</td>
<td>Log JOIN requests. Values are Y or No.</td>
</tr>
<tr>
<td>CMD_TABLE/</td>
<td>Alphanumeric length=1</td>
<td>Log TABLE requests. Values are Y or No.</td>
</tr>
<tr>
<td>TABLEF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMD_GRAPH</td>
<td>Alphanumeric length=1</td>
<td>Log GRAPH requests. Values are Y or No.</td>
</tr>
<tr>
<td>CMD_MATCH</td>
<td>Alphanumeric length=1</td>
<td>Log MATCH requests. Values are Y or No.</td>
</tr>
<tr>
<td>CMD_MODIFY</td>
<td>Alphanumeric length=1</td>
<td>Log MODIFY requests. Values are Y or No.</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CMD_MAINTAIN</td>
<td>Alphanumeric length=1</td>
<td>Log MAINTAIN requests. Values are Y or No.</td>
</tr>
<tr>
<td>MESSAGES</td>
<td>Alphanumeric length=1</td>
<td>Log Errors and Messages. Values are Y or No.</td>
</tr>
<tr>
<td>LOGMEM</td>
<td>Alphanumeric length=3</td>
<td>Amount of memory to use for interim session log records. Value is in megabytes from 5 to 99, or 0 for unlimited.</td>
</tr>
</tbody>
</table>

**SMCNTRL Segment**

This is the main monitoring and governing control segment. It keeps track of which data sources are monitored, governed, and have rules applied. It is updated every time the administrator turns on (or off) collection for Global Monitoring, or for individual object monitoring or governing.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMNAME</td>
<td>Alphanumeric, length=577</td>
<td>Data source name.</td>
</tr>
<tr>
<td>SMSOURCE</td>
<td>Alphanumeric, length=8</td>
<td>Data source engine.</td>
</tr>
<tr>
<td>SMSUFFIX</td>
<td>Alphanumeric, length=8</td>
<td>Data source suffix.</td>
</tr>
<tr>
<td>SMSUFFIXDESC</td>
<td>Alphanumeric, length=64</td>
<td>Descriptive suffix.</td>
</tr>
<tr>
<td>SMCONNAME*</td>
<td>Alphanumeric, length=128</td>
<td>Connection name.</td>
</tr>
<tr>
<td>SMKBNNAME*</td>
<td>Alphanumeric, length=48</td>
<td>Governing rule file name.</td>
</tr>
</tbody>
</table>
### SMKBASE Segment

This segment is updated during the Build Rules process. It contains information on all Knowledge Base files created for the data objects.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMKNBNAME</strong>*</td>
<td>Alphanumeric, length=48</td>
<td>Governing rule file name.</td>
</tr>
<tr>
<td><strong>SMDSNAME</strong></td>
<td>Alphanumeric, length=577</td>
<td>Data source name.</td>
</tr>
<tr>
<td><strong>SMDSSOURCE</strong></td>
<td>Alphanumeric, length=8</td>
<td>Data source suffix.</td>
</tr>
<tr>
<td><strong>SMKNBTYPE</strong></td>
<td>Alphanumeric, length=1</td>
<td>Rule file type.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value D = Data Rules, C = Business Rules, or B = Both</td>
</tr>
<tr>
<td><strong>SMCREATED</strong></td>
<td>Alphanumeric, length=8</td>
<td>Data rule file created on YYYYMMDD.</td>
</tr>
<tr>
<td><strong>SMFIRSTDATE</strong></td>
<td>Alphanumeric, length=8</td>
<td>Start date of Usage Monitor data for data rules.</td>
</tr>
<tr>
<td><strong>SMLASTDATE</strong></td>
<td>Alphanumeric, length=8</td>
<td>End date of Usage Monitor data for data rules.</td>
</tr>
</tbody>
</table>
### SMTIMETYPE

**Value**

- Alphanumeric, length=1

**Description**

Time type parameter use in data rules.
Value C = CPU, E = Elapsed

### SMCUSTOM*

**Value**

- Alphanumeric, length=48

**Description**

Name of the business rule file or blanks.

### SMSTATUS

**Value**

- Numeric, length=4

**Description**

Status of induction rule process.

### SMDBNAME

**Value**

- Numeric, length=254

**Description**

File path, or dataset name, of the physical file.

---

**SMKBSHIFT Segment**

This segment is a child segment of SMKBASE and is updated during the Build Rules process. It contains the active shift parameters information when the Knowledge Base file was created for the data source.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMKBSHIFTNAME*</td>
<td>Alphanumeric, length=48</td>
<td>Shift name.</td>
</tr>
<tr>
<td>SMSSTARTTIME</td>
<td>Alphanumeric, length=4</td>
<td>Shift start time. The format is HHMM.</td>
</tr>
<tr>
<td>MSSENDTIME</td>
<td>Alphanumeric, length=4</td>
<td>Shift end time. The format is HHMM.</td>
</tr>
<tr>
<td>SMSSTARTDATE</td>
<td>Alphanumeric, length=4</td>
<td>Shift start date. The format is MMDD.</td>
</tr>
<tr>
<td>MSSENDDATE</td>
<td>Alphanumeric, length=4</td>
<td>Shift end date. The format is MMDD.</td>
</tr>
<tr>
<td>SMSROWS</td>
<td>Numeric, length=4</td>
<td>Shift row threshold.</td>
</tr>
</tbody>
</table>
### Field Value Description

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMSIOS</td>
<td>Numeric, length=4</td>
<td>Shift I/Os threshold.</td>
</tr>
<tr>
<td>SMSTIME</td>
<td>Numeric, length=4</td>
<td>Shift time threshold (CPU or Elapsed seconds).</td>
</tr>
<tr>
<td>SMSMONDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Monday.</td>
</tr>
<tr>
<td>SMSTUESDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Tuesday.</td>
</tr>
<tr>
<td>SMSWEDNESDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Wednesday.</td>
</tr>
<tr>
<td>SMSTHURSDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Thursday.</td>
</tr>
<tr>
<td>SMSFRIDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Friday.</td>
</tr>
<tr>
<td>SMSSATURDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Saturday.</td>
</tr>
<tr>
<td>SMSSUNDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Sunday.</td>
</tr>
<tr>
<td>SMSSHIFTTYPE</td>
<td>Alphanumeric, length=1</td>
<td>Shift date range or shift day of week used.</td>
</tr>
</tbody>
</table>

### SMKNBSTMT Segment

This segment is updated during the Build Rules process and contains BRL statements generated by the data induction process plus the Business rules selected when the rule was compiled.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMKNBNUM</td>
<td>Numeric, length=4</td>
<td>Sequence number.</td>
</tr>
</tbody>
</table>
SMKNBSTM

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMKNBSTM</td>
<td>Alphanumeric, length=1024</td>
<td>Business Rule Language statement.</td>
</tr>
</tbody>
</table>

**SMBRL Segment**

This segment is updated during the Build Rules process or the Business Rule Builder wizard and contains BRL name and type generated by the data induction process or the business rule build wizard.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMBRLNAME</td>
<td>Alphanumeric, length=8</td>
<td>Data rule or business rule file name.</td>
</tr>
<tr>
<td>SMBRLTYPE</td>
<td>Alphanumeric, length=1</td>
<td>Type of rules.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A = Administrative Rules, C = Business Rules</td>
</tr>
</tbody>
</table>

**SMBRLSTMT Segment**

This segment is updated during the Build Rules process or the Business Rule Builder wizard and contains all BRL statements generated for a BRL name by the data induction process or the business rule build wizard.

The following table lists the available field, its value, and description.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMBRLNUM</td>
<td>Numeric, length=4</td>
<td>Sequence number.</td>
</tr>
<tr>
<td>SMBRLSTMT</td>
<td>Alphanumeric, length=1024</td>
<td>Business Rule Language statement.</td>
</tr>
</tbody>
</table>
## SMPRMTRS Segment

This table contains all shift parameters and thresholds.

The following table lists the available field, its value, and description.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMSHFTNAME*</td>
<td>Alphanumeric, length=48</td>
<td>Shift name.</td>
</tr>
<tr>
<td>SMSTARTTIME</td>
<td>Alphanumeric, length=4</td>
<td>Shift start time. The format is HHMM.</td>
</tr>
<tr>
<td>SMENDTIME</td>
<td>Alphanumeric, length=4</td>
<td>Shift end time. The format is HHMM.</td>
</tr>
<tr>
<td>SMSTARTDATE</td>
<td>Alphanumeric, length=4</td>
<td>Shift start date. The format is MMDD.</td>
</tr>
<tr>
<td>SMENDDATE</td>
<td>Alphanumeric, length=4</td>
<td>Shift end date. The format is MMDD.</td>
</tr>
<tr>
<td>SMROWS</td>
<td>Numeric, length=4</td>
<td>Shift row threshold.</td>
</tr>
<tr>
<td>SMIOS</td>
<td>Numeric, length=4</td>
<td>Shift IOs threshold.</td>
</tr>
<tr>
<td>SMTIME</td>
<td>Numeric, length=4</td>
<td>Shift time threshold (CPU or Elapsed seconds).</td>
</tr>
<tr>
<td>SMMONDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Monday.</td>
</tr>
<tr>
<td>SMTUESDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Tuesday.</td>
</tr>
<tr>
<td>SMWEDNESDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Wednesday.</td>
</tr>
<tr>
<td>SMTHURSDAY</td>
<td>Alphanumeric, length=1</td>
<td>Use this shift on Thursday.</td>
</tr>
</tbody>
</table>
### Usage Monitoring Table (RMLDB.MAS)

This section lists the data definitions that comprise the Resource Analyzer Usage Monitoring Table, and provides an explanation of the segments and field values.

**Note:** The CPU, Elapsed, Wait, DBMS, and zIIP time values in all segments are in 10,000th of a second increments and are indicated by a double asterisk (**) next to the field name.

An exclamation point (!) next to a field name denotes that it has been renamed or moved to a new segment. For more information, see Renamed or Moved Columns on page 196.

An asterisk (*) next to a field name denotes that its length has changed. A hash tag (#) next to a field denotes that it is new in this release.

#### SMSERVERS Segment

This segment keeps track of server related information. It is the root segment record and it is updated every time the database is updated with new log information and when system maintenance is performed to remove old data.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMSRVNAMES*</td>
<td>Alphanumeric, length=128V</td>
<td>SERVERNAME value.</td>
</tr>
<tr>
<td>SITECODE</td>
<td>Alphanumeric, length=7</td>
<td>Information Builders site code value.</td>
</tr>
</tbody>
</table>
### Field Descriptions

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINSESSDATE</td>
<td>Alphanumeric, length=8</td>
<td>The first session date in the database for this server. The format is YYYYMMDD.</td>
</tr>
<tr>
<td>MAXSESSDATE</td>
<td>Alphanumeric, length=8</td>
<td>The last session date in the database for this server. The format is YYYYMMDD.</td>
</tr>
<tr>
<td>MONSTATUS</td>
<td>Alphanumeric, length=1</td>
<td>Monitoring status: I=Inactive, A=Active.</td>
</tr>
<tr>
<td>CNFGDATE</td>
<td>Alphanumeric, length=8</td>
<td>Configuration date.</td>
</tr>
<tr>
<td>LAST_MAINT</td>
<td>Alphanumeric, length=8</td>
<td>Date of last repository maintenance.</td>
</tr>
<tr>
<td>LAST_UPDATE</td>
<td>Alphanumeric, length=8</td>
<td>Date of last repository update.</td>
</tr>
<tr>
<td>SESSCOUNT</td>
<td>Double</td>
<td>Count of sessions in repository.</td>
</tr>
<tr>
<td>DBRELEASE</td>
<td>Alphanumeric, length=10</td>
<td>Repository release number.</td>
</tr>
<tr>
<td>SRVRNUM</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>

### SMSESS Segment

This segment contains a single record for each connected session for the server. It is the parent segment for the procedure executed in a session and for requests executed in a session. This record contains the accumulated values for all activity in a connected session.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SESSKEY</td>
<td>Alphanumeric, length=38</td>
<td>Session key. This key is a unique value for each session for a server.</td>
</tr>
<tr>
<td>SMSERVER*</td>
<td>Alphanumeric, length=128V</td>
<td>The server the session ran on. This is a required field to support relational databases used by the cluster master.</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SESSDATE</td>
<td>Alphanumeric, length=8</td>
<td>The session date. The format is YYYYMMDD.</td>
</tr>
<tr>
<td>SESSSTART</td>
<td>Alphanumeric, length=9</td>
<td>The session start time. The format is HHMMSSNNNN.</td>
</tr>
<tr>
<td>SESSTOP</td>
<td>Alphanumeric, length=9</td>
<td>The session end time. The format is HHMMSSNNNN.</td>
</tr>
<tr>
<td>SESSDUR**</td>
<td>Double</td>
<td>The session duration time.</td>
</tr>
<tr>
<td>SESSCPU**</td>
<td>Double</td>
<td>The session CPU time.</td>
</tr>
<tr>
<td>SESSWAIT**</td>
<td>Double</td>
<td>The session wait time.</td>
</tr>
<tr>
<td>SESSIOS</td>
<td>Double</td>
<td>The number of I/O operations used in the session.</td>
</tr>
<tr>
<td>SESSRECORDS</td>
<td>Double</td>
<td>The number of RECORDS processed in the session.</td>
</tr>
<tr>
<td>SESSTRANS</td>
<td>Double</td>
<td>The number of TRANSACTIONS processed in the session.</td>
</tr>
<tr>
<td>SESSLINES</td>
<td>Double</td>
<td>The number of LINES returned or held in the session.</td>
</tr>
<tr>
<td>SMUSERID!</td>
<td>Alphanumeric, length=128V</td>
<td>The effective user ID for the session. This is the connection user ID unless overridden.</td>
</tr>
<tr>
<td>USERIDTYPE</td>
<td>Alphanumeric, length=1</td>
<td>GKE %(M)RE USERID</td>
</tr>
<tr>
<td>SMLIVE!</td>
<td>Alphanumeric, length=1</td>
<td>Indicates the type of session. Values are 0, 1, 2, 3, or 4. See the SESSTYPE definition for descriptive values.</td>
</tr>
<tr>
<td>SESSFEXCNT</td>
<td>Numeric, length=4</td>
<td>Number of FOCEXECs monitored during the session.</td>
</tr>
<tr>
<td>SESSCMDCNT</td>
<td>Numeric, length=4</td>
<td>Number of commands monitored throughout the session.</td>
</tr>
<tr>
<td>SESSPREF</td>
<td>Alphanumeric, length=20</td>
<td>Monitor preference setting when session started.</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>SMCONNTYPE!</td>
<td>Alphanumeric, length=1</td>
<td>See NETWORK DEFINE.</td>
</tr>
<tr>
<td>SMCONNID!*</td>
<td>Alphanumeric, length=128V</td>
<td>Connection user ID.</td>
</tr>
<tr>
<td>SMSGROUP!*</td>
<td>Alphanumeric, length=128V</td>
<td>Security group for SMCONNID.</td>
</tr>
<tr>
<td>SMCONNADDR!</td>
<td>Alphanumeric, length=32</td>
<td>Network connection address.</td>
</tr>
<tr>
<td>CONNRETCODE</td>
<td>Alphanumeric, length=10</td>
<td>Connection return code.</td>
</tr>
<tr>
<td>SMCLIENTTYPE!</td>
<td>Alphanumeric, length=32</td>
<td>CLIENT value if sent from the client.</td>
</tr>
<tr>
<td>SMFOCREL!</td>
<td>Alphanumeric, length=30</td>
<td>Usage Monitor release and build number.</td>
</tr>
<tr>
<td>SMSEZIIPTIME**</td>
<td>Double</td>
<td>The zIIP processor time used. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SMSEZIIPONCP**</td>
<td>Double</td>
<td>The zIIP on CP value. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SMSEZIIPON</td>
<td>Alphanumeric, length=1</td>
<td>Indicates if zIIP was enabled. Values are Y, N, or blank. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SESSCPUID</td>
<td>Alphanumeric, length=48</td>
<td>CPUID value.</td>
</tr>
<tr>
<td>SESSLPARNM</td>
<td>Alphanumeric, length=8</td>
<td>The LPAR name the session ran on. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SESSMODELID</td>
<td>Alphanumeric, length=8</td>
<td>The CPU model ID the session ran on. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SMREFERERURL!</td>
<td>Alphanumeric, length=240V</td>
<td>The URL that the session originated from or blanks.</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>SMCLNTCODEPG</td>
<td>Double</td>
<td>The code page of the NLS client.</td>
</tr>
<tr>
<td>SMJOBID</td>
<td>Alphanumeric, length=63</td>
<td>Job ID of the scheduled or deferred job.</td>
</tr>
<tr>
<td>SMFOCUSIO</td>
<td>Double</td>
<td>The number of FOCUS I/O operations in the session.</td>
</tr>
<tr>
<td>SMDBMSIO</td>
<td>Double</td>
<td>The number of RDBMS adapter I/O operations used in the session.</td>
</tr>
<tr>
<td>SMDBMSTIME**</td>
<td>Double</td>
<td>Elapsed time spent in RDBMS.</td>
</tr>
<tr>
<td>SMMEMUSAGE</td>
<td>Double</td>
<td>Kilobytes of memory used in the session.</td>
</tr>
<tr>
<td>SMDISKUSAGE</td>
<td>Double</td>
<td>Kilobytes of disk space used in the session.</td>
</tr>
<tr>
<td>SMSVCNAME</td>
<td>Alphanumeric, length=64</td>
<td>Agent Service Name.</td>
</tr>
<tr>
<td>SESSSRVRNUM</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>

**SMRPCS Segment**

This segment contains a single record for each executed or included procedure. It is the parent segment for SMRPCCMD and SMRPCWF segments. The resource values in the segment are a subset of the resource values of its parent segment, and it contains the resource values used by the FOCUS or SQL requests it may execute.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRPCKEY</td>
<td>Alphanumeric, length=38</td>
<td>Session key value.</td>
</tr>
<tr>
<td>SMRPCNUM</td>
<td>Numeric, length=4</td>
<td>The execution order number. Values are 1 to 2,147,483,647.</td>
</tr>
</tbody>
</table>
### A. Administrative Usage Monitoring Tables Column Descriptions

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRPCDATE!</td>
<td>Alphanumeric, length=8</td>
<td>The date the procedure was executed. The format is YYYYMMDD.</td>
</tr>
<tr>
<td>SMRPCTIME!</td>
<td>Alphanumeric, length=9</td>
<td>The time the procedure was started. The format is HHMMSSNNN.</td>
</tr>
<tr>
<td>SMRPCSTOP</td>
<td>Alphanumeric, length=9</td>
<td>The time the procedure ended. The format is HHMMSSNNN.</td>
</tr>
<tr>
<td>SMFEXNAME!</td>
<td>Alphanumeric, length=577V</td>
<td>The procedure name.</td>
</tr>
<tr>
<td>SMRPCETIME!!</td>
<td>Double</td>
<td>The procedure execution time.</td>
</tr>
<tr>
<td>SMRPCCTIME!!</td>
<td>Double</td>
<td>The procedure CPU time.</td>
</tr>
<tr>
<td>SMRPCWTIME!!</td>
<td>Double</td>
<td>The procedure wait time.</td>
</tr>
<tr>
<td>SMRPCIOS</td>
<td>Double</td>
<td>The number of I/O operations by the procedure.</td>
</tr>
<tr>
<td>SMRPCRECORDS</td>
<td>Double</td>
<td>The number of RECORDS processed by the procedure.</td>
</tr>
<tr>
<td>SMRPCTRANS</td>
<td>Double</td>
<td>The number of TRANSACTIONS processed by the procedure.</td>
</tr>
<tr>
<td>SMRPCLINES</td>
<td>Double</td>
<td>The number of LINES returned or held by the procedure.</td>
</tr>
<tr>
<td>SMRPCPNUM</td>
<td>Alphanumeric, length=4</td>
<td>Parent procedure number or 0.</td>
</tr>
<tr>
<td>SMRPCINCL!</td>
<td>Alphanumeric, length=1</td>
<td>Procedure was used, as in INCLUDE. Values are Y or N.</td>
</tr>
<tr>
<td>SMRPCEND</td>
<td>Alphanumeric, length=1</td>
<td>Indicates how the procedure ended. Values are E, Q, or blank.</td>
</tr>
<tr>
<td>SMRPCWF#</td>
<td>Alphanumeric, length=1</td>
<td>Request originated from WebFOCUS.</td>
</tr>
</tbody>
</table>
### Field Value Description

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRPCWC#</td>
<td>Alphanumeric, length=1</td>
<td>Request originated from Web Console.</td>
</tr>
<tr>
<td>SMRPCLOC!</td>
<td>Alphanumeric, length=254V</td>
<td>Physical location of the procedure.</td>
</tr>
<tr>
<td>SMRPCZIIPTIME**</td>
<td>Double</td>
<td>The zIIP processor time used. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SMRPCZIIPONCP**</td>
<td>Double</td>
<td>The zIIP on CP values. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SMRPCZIIPON</td>
<td>Alphanumeric, length=1</td>
<td>Indicates if zIIP was enabled. Values are Y, N, or blank. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SMRPCFOCUSIO</td>
<td>Double</td>
<td>The number of FOCUS I/O operations by the procedure.</td>
</tr>
<tr>
<td>SMRPCDBMSIO</td>
<td>Double</td>
<td>The number of RDBMS adapter I/O operations by the procedure.</td>
</tr>
<tr>
<td>SMRPCDBMSTIME**</td>
<td>Double</td>
<td>Elapsed time spent in RDBMS.</td>
</tr>
<tr>
<td>SMRPCSRVRNUM</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>

### SMRPCCMD Segment

This segment contains one or more records that comprise the execution statement with all parameter names and their values that were supplied.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRCLKEY</td>
<td>Alphanumeric, length=38</td>
<td>Session key value.</td>
</tr>
<tr>
<td>SMRLNNUM</td>
<td>Numeric, length=4</td>
<td>Procedure number.</td>
</tr>
</tbody>
</table>
SMRPCSEGNUM  | Numeric, length=4 | Procedure line segment number.
SMRPCLINE! | Alphanumeric, length=72V | Procedure execution line.
SMRPCCSRVRNUM | Numeric, length=4 | Server number. Used in many-to-one configurations.

**SMRPCWF Segment**

This segment contains a single record that contains information sent to the Reporting Server from WebFOCUS or ReportCaster.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRWFKEY</td>
<td>Alphanumeric, length=38</td>
<td>Session key value.</td>
</tr>
<tr>
<td>SMRFNUM</td>
<td>Numeric, length=4</td>
<td>Procedure number.</td>
</tr>
<tr>
<td>SMWFFEXNAME!</td>
<td>Alphanumeric, length=577V</td>
<td>WebFOCUS procedure name. Also DEFINE as SMWFRPCNAME.</td>
</tr>
<tr>
<td>SMWFBASEDIR!</td>
<td>Alphanumeric, length=254V</td>
<td>WebFOCUS base directory path value. Also DEFINE as SMBASEDIR.</td>
</tr>
<tr>
<td>SMWFDOMAIN!</td>
<td>Alphanumeric, length=254V</td>
<td>WebFOCUS MR domain name value. Also DEFINE as SMDOMAIN.</td>
</tr>
<tr>
<td>SMWFAPPPATH!</td>
<td>Alphanumeric, length=254V</td>
<td>WebFOCUS MR application directory value. Also DEFINE as SMAPPDIR.</td>
</tr>
<tr>
<td>SMRCSCHEDID!</td>
<td>Alphanumeric, length=66</td>
<td>ReportCaster scheduler ID.</td>
</tr>
<tr>
<td>SMRCPROCID!</td>
<td>Alphanumeric, length=66</td>
<td>ReportCaster process ID.</td>
</tr>
<tr>
<td>SMWFSRVRNUM</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>
SMQUERY Segment

This segment contains a record for each monitored request executed. It is the parent segment for SMCMIDLN, SMRMSTS, SMFROMS, SMFNCTNS and SMRELTNs segments. The resource values in the segment are a subset of the resource values of its parent segment.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMKEY</td>
<td>Alphanumeric, length=38</td>
<td>Session key value.</td>
</tr>
<tr>
<td>SMCMDNUM</td>
<td>Numeric, length=4</td>
<td>Request number.</td>
</tr>
<tr>
<td>SMCMDNAME</td>
<td>Alphanumeric, length=12</td>
<td>The name of the FOCUS or SQL request type.</td>
</tr>
<tr>
<td>SMDATE</td>
<td>Alphanumeric, length=8</td>
<td>The date the command was executed. Format is YYYYMMDD.</td>
</tr>
<tr>
<td>SMTIME</td>
<td>Alphanumeric, length=9</td>
<td>The time the command started. The format is HHMMSSNNN.</td>
</tr>
<tr>
<td>SMSTOP</td>
<td>Alphanumeric, length=9</td>
<td>The time the command ended. The format is HHMMSSNNN.</td>
</tr>
<tr>
<td>SMELAPTIME</td>
<td>Double</td>
<td>The request execution time.</td>
</tr>
<tr>
<td>SMCPU TIME</td>
<td>Double</td>
<td>The request CPU time.</td>
</tr>
<tr>
<td>SMWAITTIME</td>
<td>Double</td>
<td>The request wait time.</td>
</tr>
<tr>
<td>SMIOS</td>
<td>Double</td>
<td>The number of I/O operations used by the request.</td>
</tr>
<tr>
<td>SMRECORDS</td>
<td>Double</td>
<td>The number of RECORDS processed by the request.</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SMTRANS</td>
<td>Double</td>
<td>The number of TRANSACTIONS processed by the request.</td>
</tr>
<tr>
<td>SMROWS</td>
<td>Double</td>
<td>The number of LINES returned or held by the request.</td>
</tr>
<tr>
<td>SMROWLEN</td>
<td>Numeric, length=4</td>
<td>Longest record length of rows held/returned.</td>
</tr>
<tr>
<td>SMOUTLIMIT</td>
<td>Numeric, length=4</td>
<td>SQL and FOCUS request max output limit.</td>
</tr>
<tr>
<td>SMRECLIMIT</td>
<td>Numeric, length=4</td>
<td>FOCUS requests of max RECORDS read.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SQL requests of max OUTPUT records.</td>
</tr>
<tr>
<td>SMREADLIMIT</td>
<td>Numeric, length=4</td>
<td>Max READS for MODIFY requests.</td>
</tr>
<tr>
<td>SMRETCODE</td>
<td>Numeric, length=4</td>
<td>Command return code.</td>
</tr>
<tr>
<td>SMUNIONS</td>
<td>Numeric, length=4</td>
<td>Number of SQL UNION statements.</td>
</tr>
<tr>
<td>SMUNIONALLS</td>
<td>Numeric, length=4</td>
<td>Number of SQL UNION ALL statements.</td>
</tr>
<tr>
<td>SMNUMFROMS</td>
<td>Numeric, length=4</td>
<td>Number of data sources used.</td>
</tr>
<tr>
<td>SMNUMCOLUMNS</td>
<td>Numeric, length=4</td>
<td>Number of columns used.</td>
</tr>
<tr>
<td>SMNUMRELATIONS</td>
<td>Numeric, length=4</td>
<td>Number of relational clauses.</td>
</tr>
<tr>
<td>SMNUMGROUPBYS</td>
<td>Numeric, length=4</td>
<td>Number of GROUP BYs.</td>
</tr>
<tr>
<td>SMNUMORDERBYS</td>
<td>Numeric, length=4</td>
<td>Number of SQL ORDER BY or FOCUS BY.</td>
</tr>
<tr>
<td>SMNUMFUNCTIONS</td>
<td>Numeric, length=4</td>
<td>Number of functions used.</td>
</tr>
<tr>
<td>SMNUMREMOTES</td>
<td>Numeric, length=4</td>
<td>Number of remote connections used.</td>
</tr>
<tr>
<td>SMSORTIO</td>
<td>Double</td>
<td>Number of sort I/O operations used.</td>
</tr>
<tr>
<td>SMEXTSORT</td>
<td>Alphanumeric, length=1</td>
<td>Indicates whether an external sort was used. Values are Y or N.</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>SMREQTYPE</td>
<td>Alphanumeric, length=1</td>
<td>Indicating the request type:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T = Table (FOCUS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F = TableF (FOCUS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M = Match (FOCUS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>G = Graph (FOCUS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Y = Modify (FOCUS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N = Maintain (FOCUS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S = Select (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E = Execute (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>O = Open (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C = Create (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R = Drop (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A = Alter (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>U = Update (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I = Insert (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D = Delete (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L = Declare (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P = Purge (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K = Close (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H = Fetch (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B = Bind (SQL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q = Prepare (SQL)</td>
</tr>
<tr>
<td>Field</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SMMDIFYTYPE</td>
<td>Alphanumeric, length=1</td>
<td>Indicates the MODIFY or MAINTAIN type:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Preloaded MODIFY.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Loading a FOCCOMP.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Running a preloaded MODIFY.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Compile part of LOAD MODIFY command.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Execute.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 = Debug Execute.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 = Compile.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 = Debug Compile.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 = Run.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A = Load Image.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B = Run Image.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C = MAINTAIN FILE.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D = MAINTAIN.</td>
</tr>
<tr>
<td>SMCOLLECT</td>
<td>Alphanumeric, length=1</td>
<td>Indicates the collection type:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Monitored command.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Governor unable to estimate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Governor cancelled request.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Governor issued advise.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Unable to parse SQL.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Not monitored.</td>
</tr>
<tr>
<td>SMALLROWS</td>
<td>Alphanumeric, length=1</td>
<td>Indicates whether all rows were returned:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = Incomplete.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Complete.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Data adapter limited.</td>
</tr>
</tbody>
</table>
Usage Monitoring Table (RMLDB.MAS)

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMALLCOLS</td>
<td>Alphanumeric, length=1</td>
<td>Indicates whether a SELECT * or PRINT * used. Values are Y or N.</td>
</tr>
<tr>
<td>SMSETALL</td>
<td>Alphanumeric, length=1</td>
<td>Indicates whether SET ALL was used:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = PASS</td>
</tr>
<tr>
<td>SMCORRQRY</td>
<td>Alphanumeric, length=1</td>
<td>Indicates whether the SQL request was correlated. Values are Y, N, or blank.</td>
</tr>
<tr>
<td>SMHLDTYPE</td>
<td>Alphanumeric, length=1</td>
<td>Indicates whether a hold file was created and type:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = HOLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = PCHOLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = SAVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = SAVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = ONLINE-FMT</td>
</tr>
<tr>
<td>SMHLDFORMAT</td>
<td>Alphanumeric, length=2</td>
<td>Format of hold file. See HOLDFORMAT DEFINE in the Master File.</td>
</tr>
<tr>
<td>SMHLDNAME</td>
<td>Alphanumeric, length=577V</td>
<td>HOLD file name.</td>
</tr>
<tr>
<td>SMRPCNAME</td>
<td>Alphanumeric, length=577V</td>
<td>Procedure name the request originated from. Blanks = Ad hoc.</td>
</tr>
<tr>
<td>SMFEXLNO!</td>
<td>Alphanumeric, length=10</td>
<td>Procedure line number if SMRPCNAME is not blank.</td>
</tr>
<tr>
<td>SMFEXLOC</td>
<td>Alphanumeric, length=254V</td>
<td>Procedures physical location if SMRPCNAME is not blank.</td>
</tr>
<tr>
<td>SMZIIPTIME**</td>
<td>Double</td>
<td>The zIIP processor time used. This value is only available on MF processors running z/OS.</td>
</tr>
</tbody>
</table>
### Field Descriptions

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMZIIPONCP**</td>
<td>Double</td>
<td>The zIIP on CP value. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SMZIIPON</td>
<td>Alphanumeric, length=1</td>
<td>Indicates if zIIP was enabled. Values are Y, N, or blank. This value is only available on MF processors running z/OS.</td>
</tr>
<tr>
<td>SMCMDFOCUSIO</td>
<td>Double</td>
<td>The number of FOCUS I/O operations by the request.</td>
</tr>
<tr>
<td>SMCMDDBMSIO</td>
<td>Double</td>
<td>The number of RDBMS adapter I/O operations by the request.</td>
</tr>
<tr>
<td>SMRPCDBMSTIME**</td>
<td>Double</td>
<td>Elapsed time spent in RDBMS.</td>
</tr>
<tr>
<td>SMQPRIMRPCNUM</td>
<td>Numeric, length=4</td>
<td>SMRPCS.SMRPCNUM value of the primary procedure or 0.</td>
</tr>
<tr>
<td>SMQRPCNUM</td>
<td>Numeric, length=4</td>
<td>SMRPCS.SMRPCNUM value or 0.</td>
</tr>
<tr>
<td>SMREMARKS</td>
<td>Alphanumeric, length=254</td>
<td>Notes from admins, updated by GKE %REMARK command.</td>
</tr>
<tr>
<td>SMQSRVRNUM</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>

### SMCDLN Segment

This segment contains one or more records that comprise the original request. The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMCLNKEY</td>
<td>Alphanumeric, length=38</td>
<td>Session key value.</td>
</tr>
<tr>
<td>SMCLNNUM</td>
<td>Numeric, length=4</td>
<td>Command number.</td>
</tr>
<tr>
<td>SMCMDSEGNUM</td>
<td>Numeric, length=4</td>
<td>Command line segment number.</td>
</tr>
</tbody>
</table>
**SMGOVEND Segment**

This segment is updated if the Governor cancels the request and issues a Cancel message or issues an Advise message.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMGOVKEY</td>
<td>Alphanumeric, length=38</td>
<td>The session key.</td>
</tr>
<tr>
<td>SMGOVNUM</td>
<td>Numeric, length=4</td>
<td>Request number.</td>
</tr>
<tr>
<td>SMKBNNAME!</td>
<td>Alphanumeric, length=48</td>
<td>Compiled rule file used.</td>
</tr>
<tr>
<td>SMRULENUM</td>
<td>Alphanumeric, length=4</td>
<td>Rule number that determined the result or decision.</td>
</tr>
<tr>
<td>SMTHRESHTYPE</td>
<td>Alphanumeric, length=8</td>
<td>Type of threshold exceeded.</td>
</tr>
<tr>
<td>SMTHRESHHOLD</td>
<td>Alphanumeric, length=10</td>
<td>Value of threshold exceeded.</td>
</tr>
<tr>
<td>SMGDBMS</td>
<td>Alphanumeric, length=8</td>
<td>EDA or SQL engine suffix.</td>
</tr>
</tbody>
</table>

**Note:** Field values in the SMGOVEND segment with an exclamation point (!) after the name indicate the length value for the field has changed from 8 to 48. Due to limitations of the operating system, the PDS deployed servers will only allow a maximum of eight characters to be stored in the field.
### Field Descriptions

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMGNBTYPE</td>
<td>Alphanumeric, length=6</td>
<td>Type of compiled rule file. Values are Both, Data, Custom, or Global.</td>
</tr>
<tr>
<td>SMGDSNAME</td>
<td>Alphanumeric, length=577V</td>
<td>Data source for compiled rule file.</td>
</tr>
<tr>
<td>SMGSRVRNUM</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>

### SMRMTS Segment

This segment contains the remote statistics for a request that retrieves data from a subserver. The resource values of this segment are in addition to the resource values of its parent segment.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRTKEY</td>
<td>Alphanumeric, length=38</td>
<td>The session key.</td>
</tr>
<tr>
<td>SMRTNUM</td>
<td>Numeric, length=4</td>
<td>The request number.</td>
</tr>
<tr>
<td>SMRTSEGNUM</td>
<td>Numeric, length=4</td>
<td>Remote number.</td>
</tr>
<tr>
<td>SMRTETIME</td>
<td>Double</td>
<td>Remote session duration time.</td>
</tr>
<tr>
<td>SMRTCTIME</td>
<td>Double</td>
<td>Remote session CPU time.</td>
</tr>
<tr>
<td>SMRTIOS</td>
<td>Double</td>
<td>The number of I/O operations used in the remote session.</td>
</tr>
<tr>
<td>SMRTROWS</td>
<td>Double</td>
<td>The number of rows returned from the remote session.</td>
</tr>
<tr>
<td>SMRTSQLCODE</td>
<td>Alphanumeric, length=11</td>
<td>The SQL return code from the remote request.</td>
</tr>
<tr>
<td>SMRTPID</td>
<td>Alphanumeric, length=11</td>
<td>Process ID of the session on the remote server.</td>
</tr>
</tbody>
</table>
### SMFNCTNS Segment

This segment contains a record for each function used in a monitored request.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMFUNKEY</td>
<td>Alphanumeric, length=38</td>
<td>The session key.</td>
</tr>
<tr>
<td>SMFUNNUM</td>
<td>Numeric, length=4</td>
<td>The request number.</td>
</tr>
<tr>
<td>SMFSEGNUM</td>
<td>Numeric, length=4</td>
<td>The function number.</td>
</tr>
<tr>
<td>SMFUNCTION</td>
<td>Alphanumeric, length=12</td>
<td>The function name.</td>
</tr>
<tr>
<td>SMFNAME!</td>
<td>Alphanumeric, length=577V</td>
<td>The data source that the field used.</td>
</tr>
<tr>
<td>SMFCOLUMN!</td>
<td>Alphanumeric, length=512V</td>
<td>The field that the function used.</td>
</tr>
<tr>
<td>SMASTKUSED!</td>
<td>Alphanumeric, length=1</td>
<td>Indicates whether or not an asterisk was used by the function. Values are Y or N.</td>
</tr>
<tr>
<td>SMFLITERAL!</td>
<td>Alphanumeric, length=32</td>
<td>The literal value, if used.</td>
</tr>
</tbody>
</table>
### SMRELTSNS Segment

This segment contains a record for each WHERE or IF clause used in a monitored request. The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRELKEY</td>
<td>Alphanumeric, length=38</td>
<td>The session key.</td>
</tr>
<tr>
<td>SMRELNUM</td>
<td>Numeric, length=4</td>
<td>The request number.</td>
</tr>
<tr>
<td>SMRSEGNUM</td>
<td>Numeric, length=4</td>
<td>The relation number.</td>
</tr>
<tr>
<td>SMLNAME</td>
<td>Alphanumeric, length=577V</td>
<td>Data source name used in the LHS.</td>
</tr>
<tr>
<td>SMLCOLUMN</td>
<td>Alphanumeric, length=512V</td>
<td>Field name used in the LHS.</td>
</tr>
<tr>
<td>SMRNAME</td>
<td>Alphanumeric, length=577V</td>
<td>Data source name used in the RHS, or blanks.</td>
</tr>
<tr>
<td>SMRCOLUMN</td>
<td>Alphanumeric, length=512V</td>
<td>Field name used in the RHS, or blanks.</td>
</tr>
<tr>
<td>SMOOPERATOR</td>
<td>Alphanumeric, length=8</td>
<td>Operator used in the clause. For example, &lt;, =, !=, etc.</td>
</tr>
<tr>
<td>SMANDOR</td>
<td>Alphanumeric, length=3</td>
<td>The AND or OR relational connector used.</td>
</tr>
<tr>
<td>SMNOT</td>
<td>Alphanumeric, length=1</td>
<td>The NOT keyword used. Values are Y or N.</td>
</tr>
<tr>
<td>SMALL</td>
<td>Alphanumeric, length=1</td>
<td>The ALL keyword used. Values are Y or N.</td>
</tr>
</tbody>
</table>
### Field, Value, Description

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMANY</td>
<td>Alphanumeric, length=1</td>
<td>The ANY keyword used. Values are Y or N.</td>
</tr>
<tr>
<td>SMLITERAL</td>
<td>Alphanumeric, length=32</td>
<td>The literal value, if used.</td>
</tr>
<tr>
<td>SMRSRVRNUM</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>

### SMFROMS Segment

This segment contains a record for each data source used in a monitored request. It is the parent segment for the SMCOLMNS segments.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMFRMKEY</td>
<td>Alphanumeric, length=38</td>
<td>The session key.</td>
</tr>
<tr>
<td>SMFRMNUM</td>
<td>Numeric, length=4</td>
<td>The request number.</td>
</tr>
<tr>
<td>SMDSNUM</td>
<td>Numeric, length=4</td>
<td>The data source number.</td>
</tr>
<tr>
<td>SMNAME</td>
<td>Alphanumeric, length=577V</td>
<td>The data source name.</td>
</tr>
<tr>
<td>SMSUFFIX</td>
<td>Alphanumeric, length=8</td>
<td>The data source suffix, or blanks.</td>
</tr>
<tr>
<td>SMDBMS</td>
<td>Alphanumeric, length=8</td>
<td>The EDA or SQL engine suffix.</td>
</tr>
<tr>
<td>SMDATATYPE</td>
<td>Alphanumeric, length=1</td>
<td>The data source type:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P = Permanent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T = Temporary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R = Relational</td>
</tr>
</tbody>
</table>
### Field Description

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMMORE</td>
<td>Alphanumeric, length=1</td>
<td>Used as MORE FILE. Values are Y, N, or blank.</td>
</tr>
<tr>
<td>SMSUNAME</td>
<td>Alphanumeric, length=8</td>
<td>The SU identifier.</td>
</tr>
<tr>
<td>SMALIAS</td>
<td>Alphanumeric, length=128V</td>
<td>The USE AS alias name.</td>
</tr>
<tr>
<td>SMDBNAME</td>
<td>Alphanumeric, length=254V</td>
<td>The data source location.</td>
</tr>
<tr>
<td>SMMASLOC</td>
<td>Alphanumeric, length=254V</td>
<td>The Master File location.</td>
</tr>
<tr>
<td>SMFRSRVRNU</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>

### SMCOLMNS Segment

This segment contains a record for each field retrieved from a data source in a monitored request.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMCOLKEY</td>
<td>Alphanumeric, length=38</td>
<td>The session key.</td>
</tr>
<tr>
<td>SMCCMDNUM</td>
<td>Numeric, length=4</td>
<td>The request number.</td>
</tr>
<tr>
<td>SMCDSDNUM</td>
<td>Numeric, length=4</td>
<td>The data source number.</td>
</tr>
<tr>
<td>SMCSEGNUM</td>
<td>Numeric, length=4</td>
<td>The column number.</td>
</tr>
<tr>
<td>SMCOLUMN</td>
<td>Alphanumeric, length=512V</td>
<td>The column/field name.</td>
</tr>
</tbody>
</table>
### SMAUDIT Segment

This segment will contain the translated request if the original submitted request was transformed from SQL to FOCUS or from FOCUS to SQL. It will also contain any messages issued.

The following table lists the available fields, their values, and descriptions.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMAUDITKEY</td>
<td>Alphanumeric, length=38</td>
<td>Session key.</td>
</tr>
<tr>
<td>SMAUDITNUM</td>
<td>Numeric, length=4</td>
<td>Audit Sequence number.</td>
</tr>
</tbody>
</table>
A. Administrative Usage Monitoring Tables Column Descriptions

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMAUDITFEXNUM</td>
<td>Numeric, length=4</td>
<td>Procedure number that caused this record to be created.</td>
</tr>
<tr>
<td>SMAUDITCMDNUM</td>
<td>Numeric, length=4</td>
<td>Request number that caused this record to be created.</td>
</tr>
<tr>
<td>SMAUDITTYPE</td>
<td>Alphanumeric, length=12</td>
<td>Audit record type.</td>
</tr>
<tr>
<td>SMAUDITREC</td>
<td>Alphanumeric, length=512V</td>
<td>Audit record.</td>
</tr>
<tr>
<td>SMAUDITSRVRNUM</td>
<td>Numeric, length=4</td>
<td>Server number. Used in many-to-one configurations.</td>
</tr>
</tbody>
</table>

Usage Monitoring RDBMS Table Sizing

The recommended size of the relational database tables will vary from one implementation to another. The following are the major factors to consider:

- Type of configuration: Standard or Many-to-One.
- How many requests are anticipated from all configured servers?
- The level of monitoring that will be used on each server:
  - There are three levels of detail in Stored Procedure monitoring.
  - There are seven levels of detail in Request monitoring.

For more information on what levels of detail are available, see Configuring and Administering Resource Management on page 29. The sizing example below assumes that all levels are being monitored.

The storage values shown in the table below are estimates. Resource Management uses VARCHAR for character fields that are greater than or equal to 120 bytes in length, except for the SMREQUESTS and SMRPCREQUESTS tables, which use 72 byte VARCHAR fields.

Note: The table with a $ is used by Resource Governor. It must be allocated, but the size can be reduced if you are not using Resource Governor.
<table>
<thead>
<tr>
<th>Table Name</th>
<th>Number of Rows</th>
<th>Row Size</th>
<th>Table Size in KB*</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMSERVERS</td>
<td>1</td>
<td>220</td>
<td>1</td>
<td>1-n rows. Where n is the number of configured servers in the repository.</td>
</tr>
<tr>
<td>SMSESSIONS</td>
<td>30000</td>
<td>1277</td>
<td>65471</td>
<td>One row per session.</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>300000</td>
<td>2273</td>
<td>1165356</td>
<td>One row per data request.</td>
</tr>
<tr>
<td>SMREQUESTS</td>
<td>3000000</td>
<td>124</td>
<td>635724</td>
<td>1-n rows per data request, where n is the number of 72 character segments in the data request.</td>
</tr>
<tr>
<td>SMGOVERN$</td>
<td>15000</td>
<td>709</td>
<td>18175</td>
<td>One row per governed request.</td>
</tr>
<tr>
<td>SMREMOTES</td>
<td>20000</td>
<td>251</td>
<td>8579</td>
<td>1-n rows per suffix=EDA data request, where n is the number of subservers used in the request.</td>
</tr>
<tr>
<td>SMFROMS</td>
<td>750000</td>
<td>1943</td>
<td>2490417</td>
<td>One row for each data source used.</td>
</tr>
<tr>
<td>SMCOLUMNS</td>
<td>1500000</td>
<td>572</td>
<td>1466309</td>
<td>One row per column returned or held.</td>
</tr>
<tr>
<td>SMFUNCTIONS</td>
<td>50000</td>
<td>1188</td>
<td>101514</td>
<td>One row per function used.</td>
</tr>
<tr>
<td>SMRELATIONS</td>
<td>150000</td>
<td>2282</td>
<td>584985</td>
<td>One row per relational test.</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>35000</td>
<td>1335</td>
<td>79852</td>
<td>One row per stored procedure.</td>
</tr>
<tr>
<td>SMRPCREQUESTS</td>
<td>40000</td>
<td>124</td>
<td>8477</td>
<td>1-n rows per procedure, where n is the number of 72 character segments in the procedure statement.</td>
</tr>
</tbody>
</table>
### Table Descriptions

<table>
<thead>
<tr>
<th>Table Name</th>
<th>Number of Rows</th>
<th>Row Size</th>
<th>Table Size in KB</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRPCWF</td>
<td>3000</td>
<td>2109</td>
<td>10813</td>
<td>One row per stored procedure from WebFOCUS.</td>
</tr>
<tr>
<td>SMAUDIT</td>
<td>3000000</td>
<td>580</td>
<td>2973633</td>
<td>1-n rows per translated request or message issued in a session.</td>
</tr>
</tbody>
</table>

#### Example of a WebFOCUS procedure:

```sql
EX MYWFFEX PAY=50000
```

Where MYWFFEX contains:

```sql
SELECT E.NAME, E.ADDRESS, E.JOBTITLE, J.JOBDESCRIPTION, J.PAY
FROM EMPLOYEE E, JOBS J
WHERE E.JOBTITLE = J.JOBTITLE AND J.PAY < &PAY
ORDER BY J.JOBTITLE, J.PAY;
```

Stores:

- 1 **SMSESSION** (1 * 1277) 1277
- 1 **SMQUERY** (1 * 2273) 2273
- 5 **SMREQUESTS** (4 * 124) 496
- 2 **SMFROMS** (2 * 1943) 3886
- 5 **SMCOLUMNS** (5 * 572) 2860
- 2 **SMRELATIONS** (2 * 2282) 4564
- 1 **SMRPCS** (1 * 1335) 1335
- 1 **SMRPCREQUESTS** (1 * 124) 124
- 1 **SMRPCWF** (1 * 2109) 2109

18942 bytes of storage

To determine the average storage needed, take the average of the least complex monitored request and the most complex, and multiply that value by the number of requests that could be monitored in a month or year.

The size of the table is calculated using a CP size, or character size, of 1. If the server is using a UNICODE code page (for example, CP65001), the size of the rows should be recalculated using a CP size of 3 to obtain the correct table size. The formula for calculating the table size is defined as:

**The Formula for KB:**

\[
\text{Rows} \times (\text{Size} \times \text{CP size}) \times 1.75 \div 1024 = \text{KB}
\]
When creating a DB2 TABLESPACE, this value should be used for PRIQTY.

If the RDBMS being used for the repository uses a different byte size for nvarchar fields, use the value used by the RDBMS. A general rule is that nvarchar fields will use three bytes to represent a character. All table sizes have been rounded up as necessary.

Renamed or Moved Columns

This table identifies the columns that have been renamed or moved to new segments from their previous location in earlier releases of Resource Analyzer.

<table>
<thead>
<tr>
<th>Previous Master</th>
<th>Previous Name</th>
<th>New Segment</th>
<th>New Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMRPCS</td>
<td>SMRPCNAME</td>
<td>SMRPCS</td>
<td>SMFEXNAME</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMWFRPCNAME</td>
<td>SMRPCWF</td>
<td>SMWFRPCNAME</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMBASEDIR</td>
<td>SMRPCWF</td>
<td>SMWBASEDIR</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMFEXLOC</td>
<td>SMRPCS</td>
<td>SMRPCNAME</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMDATE</td>
<td>SMRPCS</td>
<td>SMRCDATE</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMTIME</td>
<td>SMRPCS</td>
<td>SMRCTIME</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMELAPTIME</td>
<td>SMRPCS</td>
<td>SMRCETIME</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMCPUTIME</td>
<td>SMRPCS</td>
<td>SMRCCTIME</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMDOMAIN</td>
<td>SMRPCWF</td>
<td>SMWFDOMAIN</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMAPPDIR</td>
<td>SMRPCWF</td>
<td>SMWFAPPDIR</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMRCSCHEDID</td>
<td>SMRPCWF</td>
<td>SMRCSCHEID</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMRCPROCID</td>
<td>SMRPCWF</td>
<td>SMRCPROCID</td>
</tr>
<tr>
<td>SMRPCS</td>
<td>SMINCLUDED</td>
<td>SMRPCS</td>
<td>SMRPCINCL</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMSERVER</td>
<td>SMSESS</td>
<td>SMSERVER</td>
</tr>
</tbody>
</table>
The SMSQLINE field in the SMREQSTS master file from previous releases has been split, depending on its contents.

**Monitored Commands (other than EX FOCEXEC)**

<table>
<thead>
<tr>
<th>Previous Master</th>
<th>Previous Name</th>
<th>New Segment</th>
<th>New Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMQUERY</td>
<td>SMUSERID</td>
<td>SMQUERY</td>
<td>SMUSERID</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMLIVE</td>
<td>SMQUERY</td>
<td>SMLIVE</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMCONNTYPE</td>
<td>SMQUERY</td>
<td>SMCONNTYPE</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMCONNID</td>
<td>SMQUERY</td>
<td>SMCONNID</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMGROUP</td>
<td>SMQUERY</td>
<td>SMGROUP</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMCONNADDR</td>
<td>SMQUERY</td>
<td>SMCONNADDR</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMCLIENTTYPE</td>
<td>SMQUERY</td>
<td>SMCLIENTTYPE</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMFOCUSREL</td>
<td>SMQUERY</td>
<td>SMFOCREL</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMREFERERURL</td>
<td>SMQUERY</td>
<td>SMREFERERURL</td>
</tr>
<tr>
<td>SMQUERY</td>
<td>SMRPCLNO</td>
<td>SMQUERY</td>
<td>SMRPCLNO</td>
</tr>
<tr>
<td>SMFNCTNS</td>
<td>SMNAME</td>
<td>SMFNCTNS</td>
<td>SMNAME</td>
</tr>
<tr>
<td>SMFNCTNS</td>
<td>SMCOLUMN</td>
<td>SMFNCTNS</td>
<td>SMCOLUMN</td>
</tr>
<tr>
<td>SMFNCTNS</td>
<td>SMLITERAL</td>
<td>SMFNCTNS</td>
<td>SMLITERAL</td>
</tr>
<tr>
<td>SMFNCTNS</td>
<td>SMALLROWS</td>
<td>SMFNCTNS</td>
<td>SMALLROWS</td>
</tr>
<tr>
<td>SMBYS</td>
<td>SMBYTYPE</td>
<td>SMBYS</td>
<td>SMBYTYPE</td>
</tr>
</tbody>
</table>

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## Renamed or Moved Columns

<table>
<thead>
<tr>
<th>Previous Master</th>
<th>Previous Name</th>
<th>New Segment</th>
<th>New Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMREQSTS</td>
<td>SMSQLLINE</td>
<td>SMCMDLN</td>
<td>SMCMDLINE</td>
</tr>
</tbody>
</table>

**EX FOCEXEC**

<table>
<thead>
<tr>
<th>Previous Master</th>
<th>Previous Name</th>
<th>New Segment</th>
<th>New Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMREQSTS</td>
<td>SMSQLLINE</td>
<td>SMRPCCMD</td>
<td>SMRPCLINE</td>
</tr>
</tbody>
</table>
Using DDL Statements to Create the Internal Tables

This appendix explains how to use DDL statements to create the Resource Management internal tables.

In this appendix:
- Overview of Creating the Resource Analyzer and Resource Governor Internal Tables

Overview of Creating the Resource Analyzer and Resource Governor Internal Tables

The Resource Management internal tables are created using the server Web Console. If you need or prefer to create the internal tables yourself, as required by your site, you can create them for any supported rational database.

Procedure: How to Create the Internal Tables

To create the Resource Management repository table:

1. Start the Web Console of the server on which Resource Management will be configured.

2. Verify that the data adapter is configured to the database where the Resource Management repository was created. If the data adapter is not configured, you must do so now before continuing.

   Note: The same Connection Name used when configuring the data adapter is required.


   a. Click the Resource Management link in the toolbar.

   b. Click Configure in the ribbon or right-click Resource Management in the navigation pane and select Configure.

   c. Enter the license key from the packing slip and click Continue.

   Note: For more information, see Configuring Resource Management on page 30.

4. Select DDL Only from the Create Repository drop-down menu.
5. Enter the necessary information required to configure the repositories, as shown in the following image.

For Data Adapter and Owner/Schema, you must use the same values you used when configuring the adapter.

6. Click Create DDL.

7. Edit the file as needed for use at your site:
   a. Add any additional site-specific requirements. Consult the appropriate RDBMS manuals for additional information.
   b. Using a command shell, or another product, execute the modified DDL to create the Resource management repository tables.

   a. Click the Resource Management link on the toolbar.
   b. Click Configure in the ribbon or right-click Resource Management in the navigation pane and select Configure.
   c. Enter the license key from the packing slip and click Continue.

   **Note:** For more information, see Configuring Resource Management on page 30

9. Select No from the Create Repository drop-down menu.
10. Enter the same information that you used in step 5, as shown in the following image.

![Resource Management Configuration: Standard]

11. Click Next.

The Resource Management Configuration - Initial Properties window opens. For more information, see How to Configure Resource Management Using a FOCUS or Relational Repository on page 31.

12. Click Configure.
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