

# WebFOCUS

Resource Analyzer Administrator's  
and User's Manual  
Release 7709

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# Preface

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This content 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.

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## How This Manual Is Organized

This manual includes the following chapters:

	<b>Chapter/Appendix</b>	<b>Contents</b>
1	What Is Resource Analyzer?	Introduces Resource Analyzer and describes its ability to analyze site activity and contribute to performance analysis. Provides an introduction to Resource Analyzer Usage Monitoring and reporting features.
2	Configuring and Administering Resource Management	Describes how to configure and administer Resource Management from the Web Console.
3	Resource Analyzer Report Options	Describes the different categories of Resource Analyzer reports, the individual reports within these categories, and the process for displaying reports.
4	Getting Help	Describes Resource Analyzer online help and documentation options.
A	Administrative Usage Monitoring Tables Column Descriptions	Summarizes the fields in the Resource Analyzer administrative (system) and Usage Monitoring databases.
B	Time Fields in Resource Management	Describes the time fields in the specified synonyms.
C	Using DDL Statements to Create the Internal Tables	Explains how to use DDL statements to create the Resource Analyzer and Resource Governor internal tables.

## Conventions

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

Convention	Description
THIS TYPEFACE or this typeface	Denotes syntax that you must enter exactly as shown.
<i>this typeface</i>	Represents a placeholder (or variable) in syntax for a value that you or the system must supply.
<u>underscore</u>	Indicates a default setting.
<i>this typeface</i>	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.
Key + Key	Indicates keys that you must press simultaneously.
{ }	Indicates two or three choices. Type one of them, not the braces.
[ ]	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.
	Separates mutually exclusive choices in syntax. Type one of them, not the symbol.
...	Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis (...).
. . .	Indicates that there are (or could be) intervening or additional commands.

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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

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Thank you, in advance, for your comments.

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## What Is Resource Analyzer?

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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. As a result, 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 information 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 149.

## 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. On the one hand, 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 how 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 in order 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 most seldom-used fields, and 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 (for example, 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 the informational 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 request 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 offload 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 WHERE conditions are frequently used in combination?

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, thereby 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 (At server start, upon the processing of a user scheduled job, or either after a certain number of user sessions or a specified time period), the log file will be archived, using the Deferred Execution service of the server, 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.

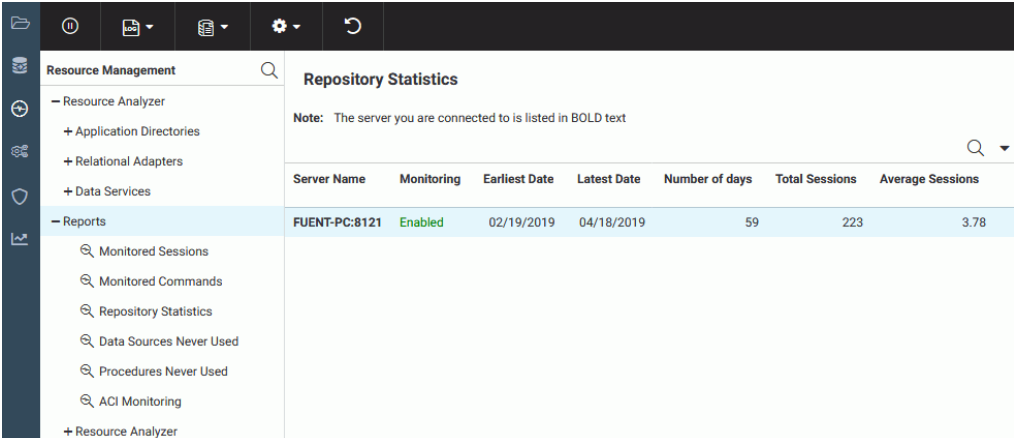
**Server.** A server must be installed and configured for Resource Analyzer. The deferred execution service, DFM\_DEFAULT, and the SCHEDULER Special Service should also be active on the server. It is the server that houses the Resource Analyzer internal tables and processes the data access requests of 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 screenshot displays the 'Resource Management' web console interface. On the left is a navigation sidebar with icons for home, search, and various management functions. The main content area is titled 'Repository Statistics' and includes a note: 'The server you are connected to is listed in BOLD text'. Below the note is a table with columns for Server Name, Monitoring, Earliest Date, Latest Date, Number of days, Total Sessions, and Average Sessions. The table contains one entry for 'FUENT-PC:8121' which is 'Enabled' and has data from 02/19/2019 to 04/18/2019, with 59 days, 223 total sessions, and an average of 3.78 sessions per day.

Server Name	Monitoring	Earliest Date	Latest Date	Number of days	Total Sessions	Average Sessions
<b>FUENT-PC:8121</b>	Enabled	02/19/2019	04/18/2019	59	223	3.78



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 169.

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 that 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 119.

**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 issued and the amount of resources used.
- Repository Statistics.** Shows the total number of records collected during the time period specified.
- Data Sources Never Used.** Opens the Unused Master File Descriptions report, which lists the data sources that have never been used.
- Procedures Never Used.** Opens the Procedures Never Used report, which lists the procedures that have never been executed.
- ACI Monitoring.** Opens the ACI Summary Report, which provides information about changes to the server configuration files, and user application files. Actual changes made are not reported, but who, when, and the type of access is shown.

- 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. The three basic categories are:
  - Users
  - Procedures
  - Data SourcesUsage Analysis Reports comprise four categories of analysis:
  - Frequency of Use
  - Resources Used
  - Historical Use
  - Top n
- Exception Analysis Reports.** These reports provide information on error situations by procedure name. There are two types of error reports:
  - Errors and Messages
  - Procedure with Errors
- Domain Analysis Reports.** The available report provides information on the usage of the WebFOCUS domains and their reports and users.
  - Domain Usage
- Impact Analysis Reports.** The available report provides information on response times and the effects of column changes.
  - Change Impact for Column
- 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. The performance analysis reports available are:
  - Procedure Benchmarks
  - 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 123.

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.

For more information on running and viewing these reports and graphs, see [Resource Analyzer Report Options](#) on page 119.

## 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).

# Chapter 2


## Configuring and Administering Resource Management

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. You can access the Resource Management interface by clicking the Resource Management button  that is located on the sidebar.

You can also use the sidebar to manage your server environment. From the sidebar, you can perform actions such as:

- Select, add, and configure data adapters.
- Create and manage adapter metadata.

You can toggle the sidebar by clicking the toggle button  to expand or collapse it.

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 that can be seen once configured.



### Ribbon

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.

From the ribbon you can perform actions such as enabling or disabling monitoring, archiving logs, and setting logging properties. For more information on all of the commands shown in the ribbon, see *Resource Management Configuration Maintenance*.

### 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 read and write authority to all datasets allocated to EDACCFG, EDACMAS, EDACACX, and SMARTLIB DD statements of the server. All other platforms require read and write authority to EDACONF/catalog and EDACONF/catalog/rm.
- Basic user:** MVS requires read authority to the dataset allocated to the SMARTLIB DD statement.

**Note:** In order for User activity to be collected correctly by Resource Management, all users who connect to the WebFOCUS Reporting Server need to have Executive privilege for the EDACONF/catalog/rm directory. The default directory name is ibi\srvmn\wfs\catalog\rm (for Windows) or ibi/srvmn/wfs/catalog/rm (for UNIX), where *nn* is the Reporting Server release.

While the standard security roles, Server Admin, Application Admin, Operator, and Basic User, have this privilege available to them after a server install, any Custom roles need to be explicitly configured for EDACONF/catalog/rm with the Execute (PRRUN) privilege.

2. If you are going to use a Relational data store for the permanent repository, it should already have been configured ready to be used in the Resource Management configuration. See [How to Configure Resource Management Using a FOCUS or Relational Repository](#) on page 31 for a list of certified relational engines.
3. Enable Resource Management from the Web Console.
4. 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.
5. 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, click the *Start* menu, and then click *Programs*. If using Windows 10, click *All Apps*.
2. Select *Information Builders (oriWay Software)*, and click *Web Console*.

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

`http://ipaddress:port`

where:

`ipaddress`

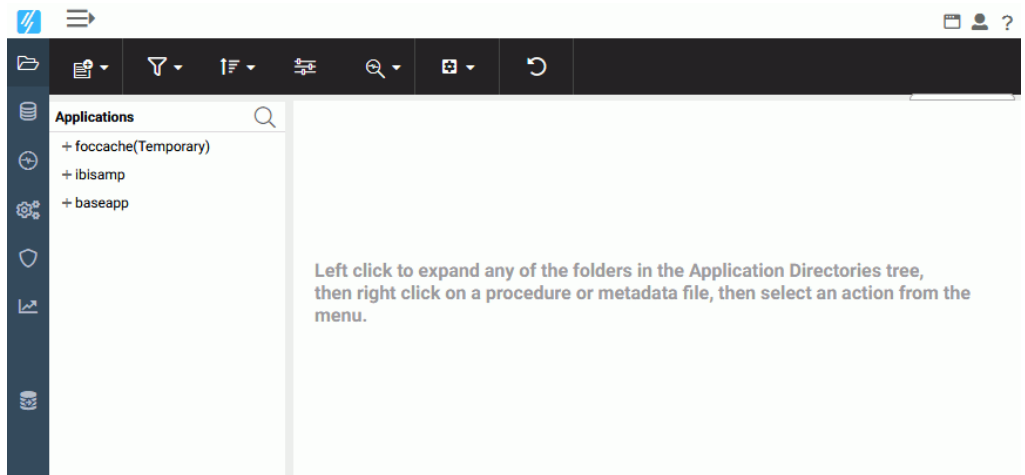
Identifies the server where Resource Analyzer is to be configured. Do not use *localhost* when accessing the Web Console for Resource Management initial configuration.

`port`

Is the port number for that server.

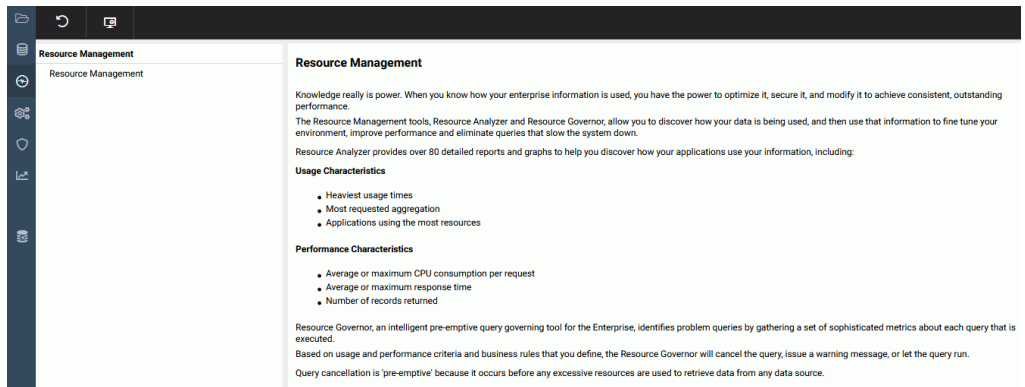
**Note:** On the *Programs* or *All Apps* menu under *iWay Software*, the server types can include *iWay Full-Function Server*, or *iWay DataMigrator Server*. On the *Programs* or *All Apps* menu under *Information Builders*, the server type can include a *WebFOCUS Server*. Resource Analyzer can be configured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

The Web Console opens, as shown in the following image.



3. Click the *Resource Management* button  on the sidebar.

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



4. Click *Configure* on the ribbon.
5. 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.
6. Click *Next*.

The Resource Management Configuration pane opens.



### 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. The default value is taken from the browser address bar, and is usually the computer name, along with the port number used by the server. It is recommended that this value is not changed. If *localhost:port number* is used in the browser, it can not be used for the Server Name and must be changed.

**Note:** If you need to change the server name after configuring Resource Management, you have to remove the current configuration and reconfigure it using the new server name. Note that removing the current configuration of Resource Management will delete all of your collected data.

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

The screenshot shows the 'Configure Resource Management' dialog box with two sections expanded:

- Repository Settings:**
  - Server Name: fuent-pc:8121
  - Repository: Relational
  - Data Adapter: MS SQL Server ODBC : CON
  - Create Repository: Yes
  - Owner/Schema: (empty) ( case sensitive )
- Configuration Settings:**
  - Data Request Monitoring: Off
  - Procedure Request Monitoring: Execute and INCLUDE
  - WebFOCUS System Procedure Monitoring: Off
  - Repository load type: Bulk load ( Before selecting Bulk load confirm that the vendor's utility has been installed )

A 'Configure' button is located at the bottom left of the dialog.

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

- 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.

The current list of certified relational engines is:

- Db2
- Informix
- MariaDB
- MS SQL Server
- MySQL
- Oracle
- PostgreSQL
- Sybase
- Teradata
- Vertica
- 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 DBA of the site should investigate the use of the parameter `LOCKSIZE` and change it to `ANY` if large volumes of data are to be stored. This value of `LOCKSIZE` will prevent the Db2 error message:

`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 DBA of the site can add it to the existing Resource Management environment.

When Resource Management data is archived to a target DB2 repository, the user ID that is used to submit the archive job must have the authority to create temporary tables in DB2 with a minimum page size of 4K.

- 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. For more information on many-to-one, see [Configuring Many-to-One Monitoring](#) on page 39.

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.

- 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*. The format of the input required is *Database* or *Database.tablespace*.
- 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.

**Note:** On initial configuration it is recommended that this value is set to *On* so that all default monitoring data can be collected for an initial period after which reports can be run to determine at what level future monitoring should be set. Default monitoring is down to the Field/Column level, which could amount to a large volume of Repository data. If, after reviewing the available reports, it is determined that, for example, this level of monitoring is not required, it can be turned off. For more information, see [Set Repository Properties](#).

### 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.

### WebFOCUS System Procedure Monitoring

Determines whether WebFOCUS internal system procedures will be monitored. The following options are available:

- Off.** Internal system procedures will not be monitored. This is the default setting.
- On.** Internal system procedures will be monitored.

### Repository load type

Indicates the load method that will be used to add log data to the data repository. The following options are available:

- Bulk load.** The bulk load utility for the selected RDBMS server, if available, will be used to load the data into a temporary table on the RDBMS server using the connection adapter that was selected for the repository. This is the default value.
- Table load.** The TABLE command will be used to load the data into a temporary table on the RDBMS server using the connection adapter that was selected for the repository.

After the data is loaded into the temporary table using either load method, the MERGE command is then used to merge the data from the temporary table into the data repository.

- h. For a **FOCUS** repository, click *Configure*.
  1. For a PDS deployment, click *Next*.
  2. Click *OK* to close the Warning dialog box.

The Configure Resource Management PDS Data Sets pane opens, as shown in the following image.

**Configure Resource Management PDS Data Sets**

**Note:** All Data Set names will have 'tablename.FOCUS' appended to them.

Dataset Name Qualifier  Up to 29 characters, including period

RMLSRVRS	Type	Trk	Primary	1	Secondary	1
RMLSESS	Type	Cyl	Primary	200	Secondary	20
RMLRPCS	Type	Cyl	Primary	250	Secondary	25
RMLRPCLN	Type	Cyl	Primary	150	Secondary	15
RMLRPCWF	Type	Cyl	Primary	175	Secondary	17
RMLQUERY	Type	Cyl	Primary	350	Secondary	50
RMLCMDLN	Type	Cyl	Primary	250	Secondary	50
RMLGOVEN	Type	Trk	Primary	25	Secondary	2
RMLRMTS	Type	Trk	Primary	25	Secondary	2
RMLFROMS	Type	Cyl	Primary	225	Secondary	50
RMLCOLMN	Type	Cyl	Primary	550	Secondary	50
RMLFNCTN	Type	Cyl	Primary	75	Secondary	7
RMLRLTNS	Type	Cyl	Primary	250	Secondary	50
RMLAUDIT	Type	Cyl	Primary	500	Secondary	10

- Set the appropriate values for your site based on the formula described in [Administrative Usage Monitoring Tables Column Descriptions](#) on page 169.

**Note:** This process can only be completed once.

8. **For a FOCUS Repository:**

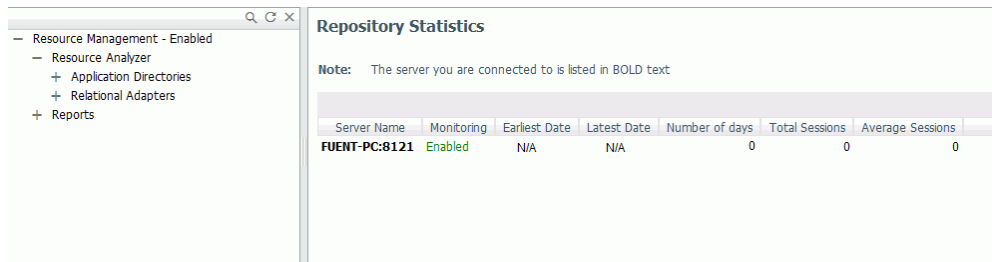
- a. Type a Server Name, which is used by Resource Analyzer as the server name in collected data and on reports. Any identifier of up to 48 characters is acceptable, but the value should be unique across all servers where Resource Analyzer is installed. The default value is taken from the browser address bar, and is usually the computer name, along with the port number used by the server. It is recommended that this value is not changed. If *localhost:port number* is used in the browser, it can not be used for the Server Name and must be changed.

**Note:** If you need to change the server name after configuring Resource Management, you have to remove the current configuration and reconfigure it using the new server name. Note that removing the current configuration of Resource Management will delete all of your collected data.

- b. Select *FOCUS* from the Repository drop-down menu.
- c. Go to step 8g.

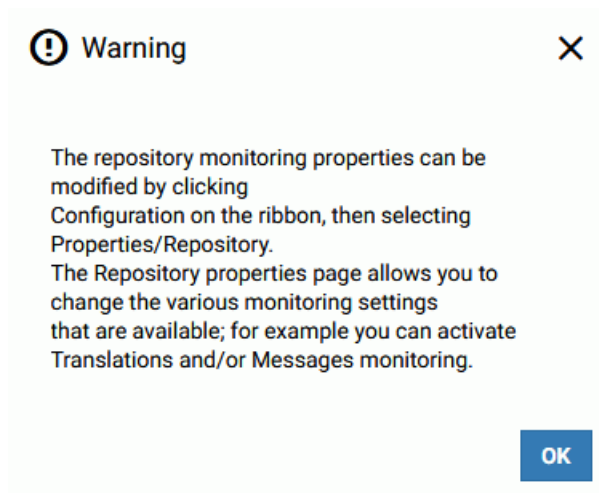
9. Click *Configure*.

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



**Note:** The server that you are connected to is shown in bold text.

After a successful configuration, a confirmation dialog box opens, as shown in the following image.



You can now select monitoring levels for Resource Analyzer. For more information, see *Set Repository Properties*.

Click *OK*.

## 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 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 must be at the same major release level.

All servers in a cluster environment, or multiple servers on UNIX, IBM i/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 40. If the Resource Management DDL was used to create the repository tables, then go to [How to Configure Additional Servers](#) on page 40.

### **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.
2. Configure Resource Analyzer from the Resource Management Configuration pane.
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 [Set Repository Properties](#).

### **Procedure:** How to Configure Additional Servers

For additional servers that will use the same repository, 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, that connects to the same database used in step 1 in [How to Configure the First Server](#) on page 40.
2. Configure Resource Analyzer from the Resource Management Configuration pane.
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. If set to *Yes*, an error message will be displayed stating that the repository already exists.

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 the same Owner/Schema name for the relational adapter that Resource Analyzer used to create the repository tables.
9. Click *Configure*.

After configuration is complete, select the monitoring level for Resource Analyzer. For more information, see *Set Repository Properties*.

**Note:** All administration for Resource Analyzer must be done on each of the servers configured to use the same repository tables.

## Administering Resource Management from the Web Console

The 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.

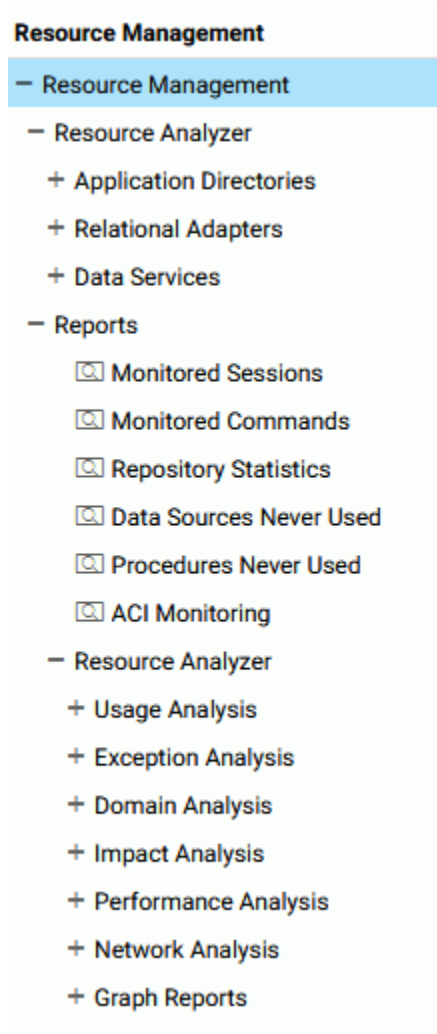
You can:

- Enable/disable monitoring.
- Maintain the repository.
- Reconfigure the repository from FOCUS to relational, or one relational environment to another relational environment.
- 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.

- ❑ Monitor Data Services.
- ❑ Access reports.

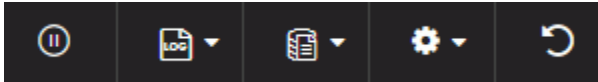
Access to these tasks is provided by the Resource Management button on the sidebar.

The following image shows the hierarchical navigation menu that is available when the Resource Management button 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.

### 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 sidebar.
3. On the ribbon, click the *Enable/Disable* icon.

When disabling Resource Management, a confirmation window will be displayed. Click *OK* to disable Resource Management or *Cancel* to leave it enabled.

**Note:** In prior releases of the WebFOCUS Reporting Server, the following line was added to the EDASPROF.prf file when Resource Management is configured and enabled.

```
SET SMARTMODE=ON
```

It was possible to remove this line manually to disable the product rather than use the option detailed above. That SET command is no longer used and the only way to Disable/Enable the product is as documented above.

### Logging

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 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 sidebar.
3. On the ribbon, click the *Logs* icon, point to *Logging*, and then click *Properties*.

The Logging Properties pane opens, as shown in the following image.

#### **Logging Properties**

**Repository archiving based on number of sessions and days will not be supported in the next release. Please switch to Schedule Archive prior to the next release.**

Maximum sessions per log	<input type="text" value="10000"/>	Values: 500 - 999999
Maximum days per log	<input type="text" value="1"/>	Values: 1 - 365
Schedule Archive	<input type="text" value="No"/>	
Limit Agent memory	<input type="text" value="No"/>	

The following options are available:

#### **Maximum sessions per log**

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. This option is only available if Schedule Archive is set to *No*.

#### **Maximum days per log**

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. This option is only available if Schedule Archive is set to *No*.

#### **Schedule Archive**

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

When set to *No*, automatic archiving is active and based on the two additional settings. The default value is *No*.

**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 sidebar. Expand the *Special Services and Listeners* folder, right-click *SCHEDULER*, and click *Start*. If the *Start* option is not available, the scheduler is already running. If Resource Management and setting *Schedule Archive* to *Yes* are done in the same Web Console session, the Scheduler will need to be restarted. To do so, right-click *SCHEDULER* and click *Stop*, followed by *Start*.

### Limit Agent memory

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 user log records in memory are written to a temp disk file and the memory is freed.

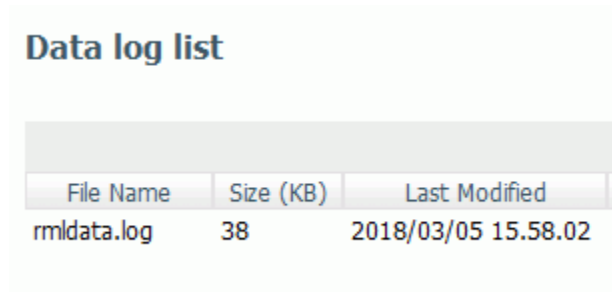
At this point any new log records generated will be written to disk instead of memory until the end of the session. At this time, all the log records in the temporary disk file are written to the physical disk file (*rmldata.log*). This setting should only be used if excessive memory usage is observed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

4. Make your desired changes and click *Save*.

### **Procedure:** How to View Logs

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. On the ribbon, click the *Logs* icon, point to *Logging*, and then click *View Logs*.

The Data log list pane opens, as shown in the following image.



File Name	Size (KB)	Last Modified
rmldata.log	38	2018/03/05 15.58.02

If you right-click any item in any column, the following options are available:

- View.** Opens the log file for the selected data log. You can also double-click the log name to view the file.
- Download.** Saves the selected log to your Downloads folder. In Windows, the default location of this folder is C:\users\*username*\Downloads.

## 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 Schedule Archive is set to Yes. For more information on logging properties, see [How to Set Logging Properties](#) on page 44.

- Submit job
- View 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 or any of the intervals or limits mentioned above having been reached. For more information, see [How to Submit an Archive of the Current Log File](#) on page 54.

**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 55.

**Reference: Bulk Load Support**

The archive process uses two steps. The first step will use the Bulk Load facility to move the monitored data to a staging/temporary table and then issue a SQL MERGE syntax to insert the data into the repository. This means that the adapter connection to the repository environment must have correct privileges to create a table.

If the RDBMS repository vendor supported by Resource Management supports bulk load and the environment is correct, the archive process will attempt to issue bulk load commands. If they fail, the archive will fall back to previous methods of inserting monitored data.

Bulk load is transparent except for the following:

- Microsoft SQL Server on Windows.** This requires the BCP utility to be available in the windows search PATH.

See [How to Set Monitor Properties](#) on page 70 for details on how to set the load type to another value other than bulk load.

**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 sidebar.
3. On the ribbon, click the *Logs* icon, point to *Archive, Schedule and E-Mail*, and click *Manage jobs*.

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

^ General  
? Schedule Status No Schedule ▾ Enables/Disables Schedule

▽ Log and output destinations

▽ E-Mail On Start

^ E-Mail On Completion

? Enable

? Mail to To

Cc

Bcc

Use a semicolon as the separator character for multiple email addresses

? Advanced

▽ E-Mail On Failure

Cancel Set

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.

### Log and output destinations

These options control 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.



- 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.

Multiple options can be selected. ETLLOG and E-Mail are selected by default.

**Note:**

- If the job is run from the DMC or Web Console, information will go to the console log regardless of this setting.
- The *E-Mail On Start* and *E-Mail On Completion* options are not relevant to the Resource Management Archive job and should not be used.

**Enable**

Select this to enable when an email should be sent.

**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.

**Advanced**

Select this option to get the following options:

- 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.
- 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.

- 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.

^ **General**

? Schedule Status Active Enables/Disables Schedule

? Schedule Type Run Once Determines whether a flow will execute

---

^ **Start and stop range**

? Start Date 05/07/2018 Specifies the start time and date for the execution of

? Start Time 12 27 Specifies the start time and date for the execution of

---

^ **Special date/time ranges**

? Specify Stop Time  Specifies forced end time

---

^ **Log and output destinations**

---

^ **E-Mail On Start**

---

^ **E-Mail On Completion**

? Enable

? Mail to **To**  

**Cc**  

**Bcc**  

Use a semicolon as the separator character for multiple email addresses (ic

? Advanced

---

^ **E-Mail On Failure**

Cancel Set

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 using 24-hour time.

**Specify Stop Time**

Allows you to specify an end time for the execution of the process flow using 24-hour time. 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 using 24-hour time. 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 using 24-hour time. This option is only available if the schedule type is set to *Recurring* and the interval type is set to time, such as *Minutes*.

### Intraday End

Specifies the end of the daily time span of the process flow using 24-hour time. This option is only available if the schedule type is set to *Recurring* and the interval type is set to time, such as *Minutes*.

### 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*.

5. Click *Set*.

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 sidebar.
3. On the ribbon, click the *Logs* icon, point to *Archive*, then point to *Schedule and E-Mail*, and click *Scheduler Agents*.

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

ID	State	Application	Procedure	Report	User ID	Schedule Type	Last Run Time	Next Run Time	Tscomid
D7	SCHEDULED	_edaconf/catalog	F rmusavlg		OPSYS\BIVcf12026	Recurring	Not Available	2018/09/06 15:30	--

The following buttons are available on the Scheduler Agents pane:

### Choose States

Allows you to select the states that are displayed on the Scheduler Agents pane.

**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 sidebar.
3. On the ribbon, click the *Logs* icon, point to *Archive*, then point to *Schedule and E-Mail*, and click *Scheduled Events*.

The Scheduled Events pane opens, as shown in the following image.

**View jobs scheduled to start during specified time range**

The image shows a user interface for selecting a time range. At the top, there are two calendar icons, each followed by the date "2018/9/6". Below this, there are four dropdown menus for selecting the time range: the first two are for the hour (both set to "00") and the last two are for the minute (set to "23" and "59" respectively). At the bottom, there are two buttons: "View Report" and "Cancel".

4. Set the desired time range and click *View Report*.

The report opens, as shown in the following image.

Application	Procedure	Run Date	Run Time	User ID
_edaconf/catalog	rmusavlg	2018/09/06	15:45:00	OPSYS\IBI\cf12026

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 sidebar.
3. On the ribbon, click the *Logs* icon, point to *Archive*, and then click *Submit job*.

The Warning dialog box opens.

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 sidebar.
3. On the ribbon, click the *Logs* icon, point to *Archive*, and then click *View jobs*.

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

Delete Selected		Refresh Selected								
Defer ID	User ID	Status	App	Procedure	Report	Submitted Time	Scheduled Time	Days Left		
<input checked="" type="checkbox"/>	2018-09-05-10-29-06cmrpip000001_LOOPBACK	Ready	OPSYS\IBI\cf12026	RMARCIVE		2018 September 05 16:41:38	---	29		
<input type="checkbox"/>	2018-09-05-10-29-06cmrpip000005_LOOPBACK	Ready	OPSYS\IBI\cf12026	RMARCIVE		2018 September 06 12:01:41	---	29		
<input type="checkbox"/>	2018-09-05-10-29-06cmrpip000006_LOOPBACK	Ready	OPSYS\IBI\cf12026	RMARCIVE		2018 September 06 15:30:06	---	29		
<input type="checkbox"/>	2018-09-05-10-29-06cmrpip000007_LOOPBACK	Ready	OPSYS\IBI\cf12026	RMARCIVE		2018 September 06 15:45:05	---	29		
<input type="checkbox"/>	2018-09-05-10-29-06cmrpip000008_LOOPBACK	Ready	OPSYS\IBI\cf12026	RMARCIVE		2018 September 06 15:57:20	---	29		

If you right-click an item in the Defer ID column, the following options are available:

- View.** Opens the output of the selected item.
- Download.** Saves the selected log to your Downloads folder. In Windows, the default location of this folder is C:\users\username\Downloads.

- ❑ **Delete.** Deletes the selected item.

### List Unarchived Log Files

Select this option to show a list, if any exist, 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 sidebar.
3. On the ribbon, click the *Logs* icon, point to *Archive*, and then click *List Unarchived*.

The Resource Management unarchived logs list opens, listing the non-archived logs.

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 sidebar.
3. On the ribbon, click the *Repository* icon, point to *Maintenance*, then point to *Schedule and E-Mail*, and click *Add Job*.

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

### Schedule Repository Maintenance for FUENT-PC:8121

**WARNING: The repository tables for this server should be backed up before proceeding.**

#### Delete data older than:

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

4. If you have multiple servers available, select the server from the drop-down menu.
5. Select the time range of data that you want to schedule.
6. Click *Next*.

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

^ General

? Schedule Status  Enables/Disables Schedule

^ Log and output destinations

^ E-Mail On Start

^ E-Mail On Completion

? Enable

? Mail to To

Cc

Bcc

Use a semicolon as the separator character for multiple email addresses

? Advanced

^ E-Mail On Failure



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.

### Log and output Destinations

These options control 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.
- 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.

Multiple options can be selected. ETLLOG and E-Mail are selected by default.

### Note:

- If the job is run from the DMC or Web Console, information will go to the console log regardless of this setting.
- The *E-Mail On Start* and *E-Mail On Completion* options are not relevant to the Resource Management Archive job and should not be used.

### Enable

Select this to enable when an email should be sent.

### 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.

### **Advanced**

Select this option to get the following options:

- 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.
- 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.

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 image shows a configuration form for a procedure. It is organized into several sections, each with a header and a list of fields:

- General**
  - Schedule Status**: A dropdown menu set to "Active". Description: "Enables/Disables Schedule".
  - Schedule Type**: A dropdown menu set to "Run Once". Description: "Determines whether a flow will execute".
- Start and stop range**
  - Start Date**: A date input field containing "05/07/2018". Description: "Specifies the start time and date for the execution of".
  - Start Time**: Two time input fields containing "12" and "27". Description: "Specifies the start time and date for the execution of".
- Special date/time ranges**
  - Specify Stop Time**: A checkbox that is unchecked. Description: "Specifies forced end time".
- Log and output destinations**: A section header with a downward arrow.
- E-Mail On Start**: A section header with a downward arrow.
- E-Mail On Completion**
  - Enable**: An unchecked checkbox.
  - Mail to**: Three dropdown menus for "To", "Cc", and "Bcc". Below them is the text: "Use a semicolon as the separator character for multiple email addresses (ic".
  - Advanced**: An unchecked checkbox.
- E-Mail On Failure**: A section header with a downward arrow.

At the bottom of the form are two buttons: "Cancel" and "Set".

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 using 24-hour time.

### **Specify Stop Time**

Allows you to specify an end time for the execution of the process flow using 24-hour time. 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 using 24-hour time. 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 using 24-hour time. This option is only available if the schedule type is set to *Recurring* and the interval type is set to time, such as *Minutes*.

**Intraday End**

Specifies the end of the daily time span of the process flow using 24-hour time. This option is only available if the schedule type is set to *Recurring* and the interval type is set to time, such as *Minutes*.

**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*.

8. Click *Set*.

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 sidebar.
3. On the ribbon, click the *Repository* icon, point to *Maintenance*, then point to *Schedule and E-Mail*, and click *List jobs*.

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

**Schedule Repository Maintenance - Update**

Name	Status	Months	Description
rmmjob01	<u>Active</u>	<u>01</u>	ALLSERVERS

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 successfully completed reports, or all completed reports that contained errors.
- Run by.** Allows you to view reports for all flows, as well as 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 *Schedule a Repository Maintenance*.
- 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.

### **Months Column**

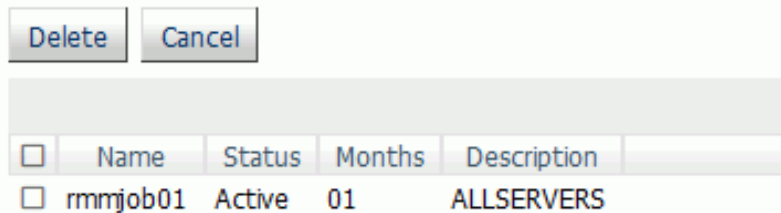
**Older than.** Opens the Resource Management Schedule Repository Maintenance - Change pane. Select the new time range of data that you want to delete and click Save.

**Procedure: How to Delete Scheduled Jobs**

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. On the ribbon, click the *Repository* icon, point to *Maintenance*, then point to *Schedule and E-Mail*, and click *Delete jobs*.

The Schedule Repository Maintenance - Delete pane opens.

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

**Schedule Repository Maintenance - Delete**

5. Click *Delete*.

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


1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. On the ribbon, click the *Repository* icon, point to *Maintenance*, and click *Submit job*.

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


### Resource Management Repository Maintenance for FUENT-PC:8121

**WARNING: The repository tables for this server should be backed up before proceeding.**

All session and detail data in the date range for this server will be deleted

? Start Date:  2018/9/5


? End Date:  2018/9/6

 2018/9/7

12 ▾ 22 ▾

Submit

**Note:**

 The options for deleting data will vary based on how much data is in the repository.

4. Enter a Start Date and End Date for deletion of data through that range, or click the calendar icon 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 pane 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 sidebar.
3. On the ribbon, click the *Repository* icon, point to *Maintenance*, and click *View jobs*.

The list of jobs opens, as shown in the following image.

Delete Selected		Refresh Selected									Q	▼
	Defer ID	User ID	Status	App	Procedure	Report	Submitted Time	Scheduled Time	Days Left			
<input type="checkbox"/>	2018-01-30-15-31-07cmrpij000003_LOOPBACK	IBI\cf12026	Ready		RMUDEL		2018 January 31 16:08:39	---	29			
<input type="checkbox"/>	2018-02-01-10-29-29cmrpij000002_LOOPBACK	IBI\cf12026	Ready		RMUDEL		2018 February 01 11:40:26	---	29			



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

## Reconfiguring the Repository

This option allows you to convert the repository from either FOCUS to Relational or Relational to Relational. Before starting the reconfiguration process, you must create an adapter connection that points to the location of the new repository.

### **Procedure:** How to Reconfigure the Repository

- Launch the Web Console.
- Click the *Resource Management* option on the sidebar.
- On the ribbon, click the *Repository* icon, point to *Reconfigure*, and click *Create new SQL repository*.

The Repository Reconfiguration pane opens, as shown in the following image.

#### Repository Reconfiguration: Create SQL Repository

**Before starting, create a backup of the C:\ibi\sr99\wfs7709\catalog\rm directory**

Reconfiguration to a new SQL Adapter consists of several steps. Step 1 is required. The rest of the steps are optional.

- Step 1. Create and initialize the new SQL repository.
- Step 2. Copy the Source repository data to the Target SQL repository.
- Step 3. Delete the temporary work files and Source repository.

**Warning: If this process is interrupted Resource Management may be left in a state that will not allow data to be copied.**

#### Step 1 - Create and initialize the new SQL data repository:

Select 'Yes' if you are authorized to create the SQL data repository.

Select 'DDL Only\*' if you are not authorized to create the SQL data repository.

Select 'No' if the new configuration is to be added to an existing 'Many to One' repository.

**\* Note: When the new data repository has been created, the Reconfigure process must be started again to finish the initialization of the new data repository**

? SQL Adapter	<input type="text" value="-- Select from list --"/>	
? Owner/Schema	<input type="text"/>	( case sensitive )
? Repository load type	<input type="text" value="Bulk load"/>	( Before selecting Bulk load confirm that the vendor's utility has been installed )
? Create Repository	<input type="text" value="-- Select --"/>	

- From the SQL Adapter drop-down menu, select the adapter and connection name for the new repository that was previously defined.
- 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*).

6. From the Create Repository drop-down menu, select *Yes*, unless the repository has already been created using the native Data Definition Language (DDL) of the data adapter or you are reconfiguring 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.

If you are not authorized to create the SQL data repository, select *DDL Only*.

7. Click *Next*.

The Copy Data pane opens.

8. From the Copy data drop-down menu, select *Yes*.

Once you select *Yes*, you can select a date range to copy data in smaller portions, instead of all at once, using the calendar fields provided.

9. Click *Copy Data*.

Once the data has been copied, a Deferred Execution pane opens showing the request.

### ***Procedure:* How to Submit a Reconfiguration Job**

Once you have created and initialized a SQL data repository, you can resubmit a copy job. This is done if there were any errors during the initial copy job, if the job did not run to completion, or if you want to select a different data range to copy. To submit a new job:

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. On the ribbon, click the *Repository* icon, point to *Reconfigure*, and click *Copy Data*.

The Repository Reconfiguration: Copy Data pane opens.

4. Specify the date range for the repository copy job.
5. Click *Copy data*.

Once the data has been copied, a Deferred Execution pane opens showing the request.

**Procedure: How to View a Reconfiguration Job**

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. On the ribbon, click the *Repository* icon, point to *Reconfigure*, and click *View jobs*.

The Deferred List pane opens.

If you right-click an item in the Defer ID column, the following option is available:

- Delete.** Deletes the selected item.

**Procedure: How to Delete Work Files**

Once new repository and support files are created, you can delete temporary and old repository work files. To delete these files:

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. On the ribbon, click the *Repository* icon, point to *Reconfigure*, and click *Delete work files*.

The Repository Reconfiguration: Delete work files pane opens.

4. Click *Delete*.
5. Click *OK* to confirm the deletion.

The Repository Statistics pane opens, as shown in the following image.

Repository Statistics						
<b>Note:</b> The server you are connected to is listed in BOLD text						
Server Name	Monitoring	Earliest Date	Latest Date	Number of days	Total Sessions	Average Sessions
<b>FUENT-PC:8121</b>	Enabled	03/05/2018	03/05/2018	1	8	8.00

**Migration**

For more information on how to migrate Resource Management, see [Migrating the Resource Management Repository](#) on page 95.

## Configuration Maintenance

The Configuration command has the following options:

- Properties
- Configure Application Path
- Change License Key
- Delete Configuration

These give the administrator the option to see current configuration settings, as well as change the viewable application directories, 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 setting for Global Data Request monitoring is Off and the default setting for Component Level is 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 sidebar.
3. On the ribbon, click the *Configuration* icon, point to *Properties*, and click *General*.

The General Properties pane opens.

The Resource Management Properties pane shows the following fields:

#### **Configured**

The date that Resource Management was configured or reconfigured.

#### **Configuration Type**

The product that is currently configured to Resource Management. Depending on which license key was used, the configuration type will be Resource Analyzer, Resource Governor, or Resource Analyzer Resource Governor.

#### **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 done by individually selected data sources.

**Procedure Request Monitoring**

Indicates the level of Procedure Request Monitoring.

**WebFOCUS System Procedure Monitoring**

Determines whether WebFOCUS internal system procedures will be monitored. The default setting is *Off*.

**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 pane.

**Last Repository Update**

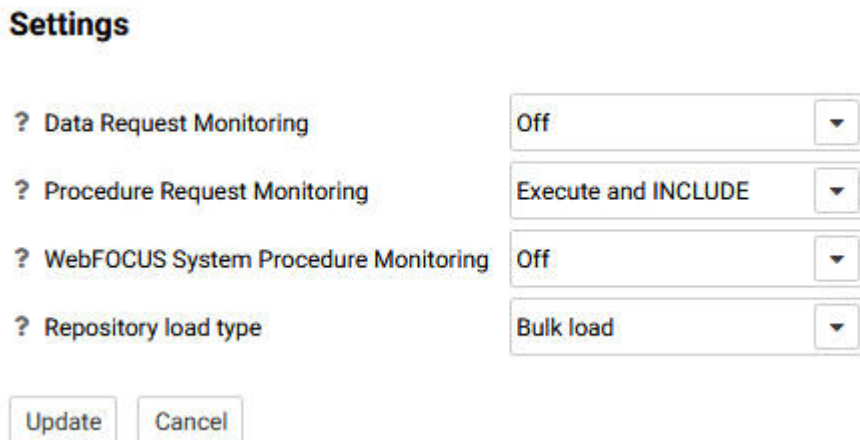
The last time the repository updated to include data from a log file.

**Procedure: How to Set Monitor Properties**

To set Resource Management Properties:

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. On the ribbon, click the *Configuration* icon, point to *Properties*, and click *Settings*.

The Settings pane opens, as shown in the following image.



The Settings pane 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 done 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.

### **WebFOCUS System Procedure Monitoring**

Determines whether WebFOCUS internal system procedures will be monitored. The default setting is *Off*.

### **Repository load type**

Indicates the load method that will be used to add log data to the data repository. The following options are available:

- Bulk load.** The bulk load utility for the selected RDBMS server, if available, will be used to load the data into a temporary table on the RDBMS server using the connection adapter that was selected for the repository. This is the default value.
- Table load.** The TABLE command will be used to load the data into a temporary table on the RDBMS server using the connection adapter that was selected for the repository.

After the data is loaded into the temporary table using either load method, the MERGE command is then used to merge the data from the temporary table into the data repository.

4. Select the monitoring properties desired.
5. Click *Update*.

### ***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 sidebar.
3. On the ribbon, click the *Configuration* icon, point to *Properties*, and then click *Repository*.



The Repository Properties pane opens. The pane, as shown in the image below, shows the default record types collected. You can enable or disable any items on the pane 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.

## Repository Properties

^ Procedure requests

- Procedure
- Procedure parameters

^ Commands

- SQL
- TABLE/TABLEF
- GRAPH
- MATCH
- APP
  - Command statements
- JOIN
- MODIFY
- MAINTAIN

^ Command details

- Data Sources
  - Fields
  - Fields used by Reference
- Functions
- WHERE/IF

^ Audit records

- Translations
- Messages
- Access Control

Update

Cancel

Reset to Default

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 Remove Procedures from Monitor pane. 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 Add Data Sources to Monitor pane for each application folder. Also, the application must have Monitoring enabled in the Application properties pane.

**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 also collects 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.

Repository Property	Record Type	Repository Location	Comments
<b>Procedure Requests</b>			
Procedure	RLFX	SMRPCS	Each Procedure (for example, FOCEXEC or SQL Stored Procedure) executed will cause a RLFX record to be collected.
	RLFW	SMRPCWF	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.

<b>Repository Property</b>	<b>Record Type</b>	<b>Repository Location</b>	<b>Comments</b>
Procedure statements and parameters	RLFC	SMRPCREQUESTS (table) SMRPCSCMD (segment)	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.
<b>Data Requests</b>			
	RLCD	SMQUERY	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 an 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.
	RLDG	SMGOVERN (table) SMGOVEND (segment)	
	RLDE	SMREMOTES (table) SMRMTS (segment)	
<b>Data Request Details</b>			
Request Statements	RLCC	SMRPCREQUESTS (table) SMCMDLN (segment)	Contains the complete request. For example, TABLE FILE CAR PRINT CAR END.
Functions	RLDU	SMFUNCTIONS (table) SMFNCTNS (segment)	Data about aggregate functions used on fields. There is one record for each function used containing the aggregation function used and the field it was used on.

<b>Repository Property</b>	<b>Record Type</b>	<b>Repository Location</b>	<b>Comments</b>
WHERE/IF	RLDR	SMRELATIONS (table) SMRELTNS (segment)	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 each record 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.
Data Sources	RLDS	SMFROMS	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.
Field	RLDF	SMCOLUMNS (table) SMCOLMNS (segment)	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.
Fields used by Reference	RLDF	SMCOLUMNS (table) SMCOLMNS (segment)	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.

**Audit Records**

Repository Property	Record Type	Repository Location	Comments
Translations	RLAU	SMAUDIT	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.
Messages	RLAU	SMAUDIT	Messages that are issued during the processing of a request will be monitored.
Access Control	RLAU	SMAUDIT	Information about the changes to server configuration files, applications, and files. The data shows the timestamp, the user ID of who made the change, and the TCP address the change originated.

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.

Release 7.6	Release 7.7
<b>Monitoring Settings</b>	<b>Command Log Records</b>
All Data	Select all
Query, Froms, Relations, and Columns	Commands, Request, Data Sources, WHERE/IF, and Fields
Query, Froms, and Relations	Commands, Request, Data Sources, and WHERE/IF
Query and Froms	Commands, Request, and Data Sources
Query only	Commands and Requests

4. Click *Update*.

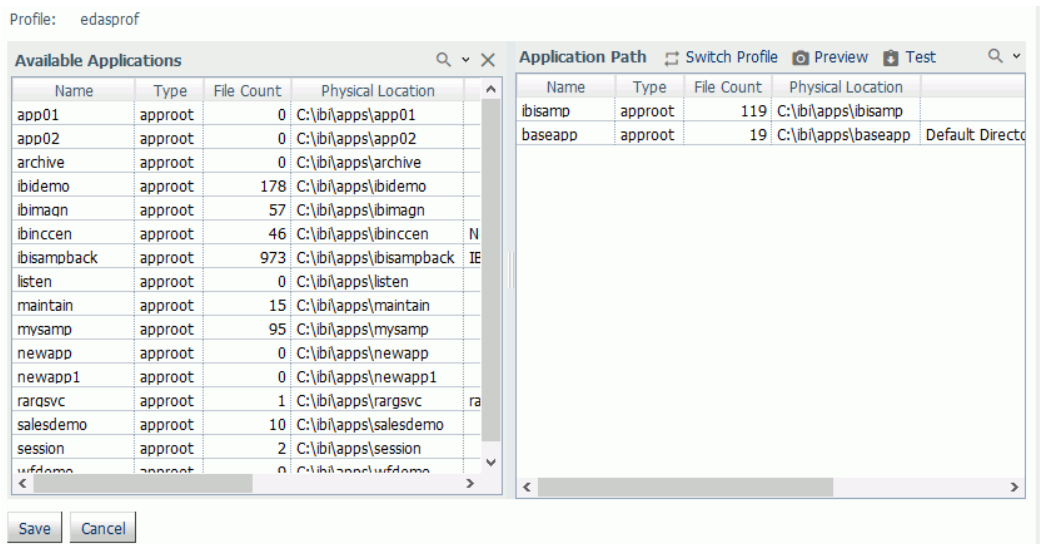
## Configuring Application Paths

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 sidebar.
3. On the ribbon, click the *Configuration* icon, and click *Configure Application Path*.

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



4. To add or remove a directory from the application path, right-click the application and click *Add to Path* or *Remove from Path*, respectively.
5. Click *Save* when finished.

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 95.

## 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 sidebar.
3. On the ribbon, click the *Configuration* icon, and click *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**

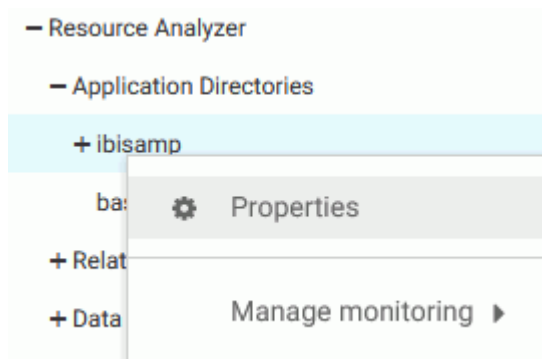
You can remove Resource Management from the server from the Resource Management Configuration pane. This is required if you want to change the repository type from FOCUS to relational, or relational to FOCUS.

**Procedure: How to Remove Resource Management**

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. On the ribbon, click the *Configuration* icon, and click *Delete Configuration*.  
The Delete Configuration pane opens.
4. Click *Delete* 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

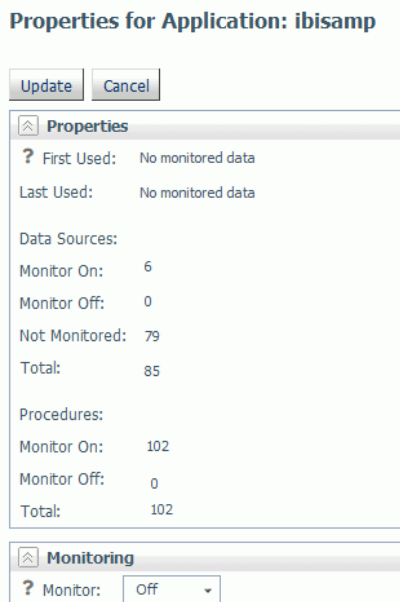
Monitoring Data Sources can be set at the application level to monitor all data sources or at the individual level.

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

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

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. Expand the *Application Directories* folder in the tree.
4. To view the data source properties, right-click an application directory and click *Properties*.

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



The Application pane has the following fields/options:

#### **First Used**

Is the date the application was first accessed.



**Last Used**

Is the date the application 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 *Set Monitor Status at the Application Level*.

**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 sidebar.
3. Expand an application directory in the tree.
4. To view the Application properties, right-click an application name and click the *Properties* option from the context menu.

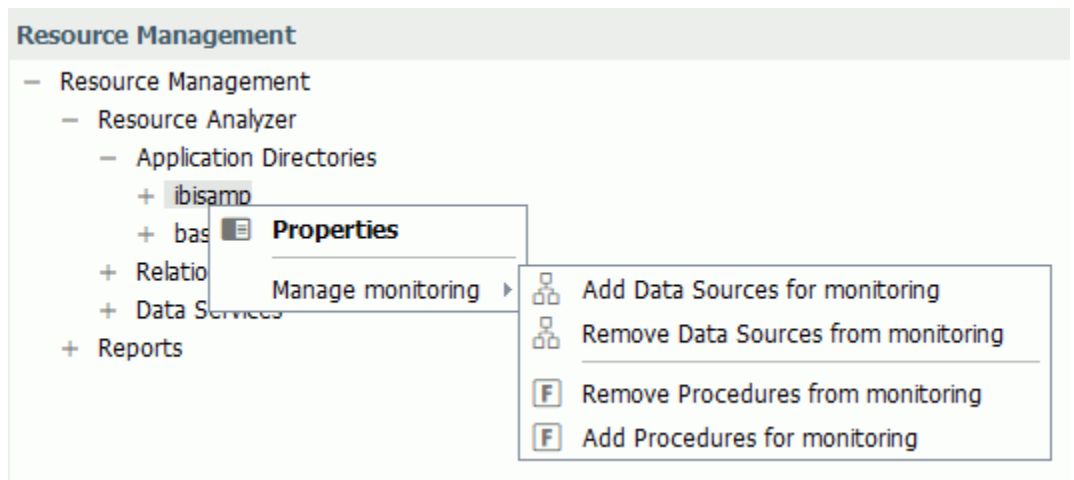
The Properties for Application pane opens.

5. Select the monitoring status you want 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 point to *Manage monitoring*, a context menu is available, as shown in the following image.

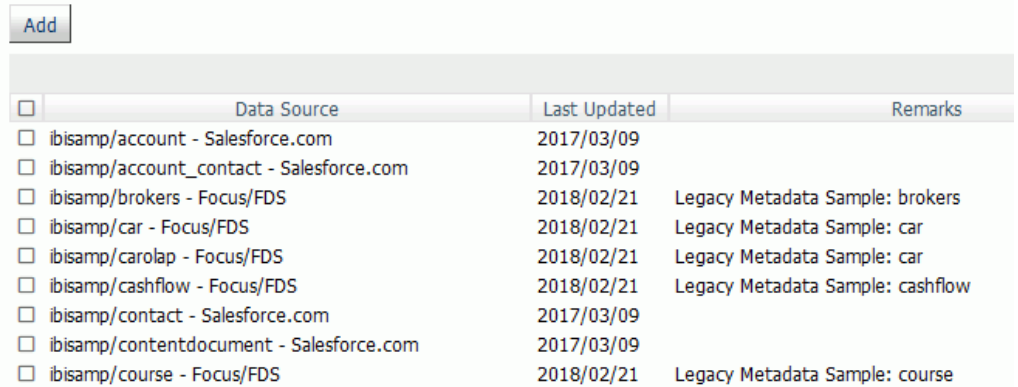


**Procedure: How to Monitor Individual Data Sources**

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 sidebar.
3. Right-click an application directory in the navigation pane, point to *Manage monitoring*, and click *Add Data Sources for monitoring*.

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

**Add Data Sources for monitoring**


The screenshot shows a window titled "Add" containing a table of data sources. The table has four columns: a checkbox, "Data Source", "Last Updated", and "Remarks". There are ten rows of data sources, each with a checkbox in the first column.

<input type="checkbox"/>	Data Source	Last Updated	Remarks
<input type="checkbox"/>	ibisamp/account - Salesforce.com	2017/03/09	
<input type="checkbox"/>	ibisamp/account_contact - Salesforce.com	2017/03/09	
<input type="checkbox"/>	ibisamp/brokers - Focus/FDS	2018/02/21	Legacy Metadata Sample: brokers
<input type="checkbox"/>	ibisamp/car - Focus/FDS	2018/02/21	Legacy Metadata Sample: car
<input type="checkbox"/>	ibisamp/carolap - Focus/FDS	2018/02/21	Legacy Metadata Sample: car
<input type="checkbox"/>	ibisamp/cashflow - Focus/FDS	2018/02/21	Legacy Metadata Sample: cashflow
<input type="checkbox"/>	ibisamp/contact - Salesforce.com	2017/03/09	
<input type="checkbox"/>	ibisamp/contentdocument - Salesforce.com	2017/03/09	
<input type="checkbox"/>	ibisamp/course - Focus/FDS	2018/02/21	Legacy Metadata Sample: course

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.

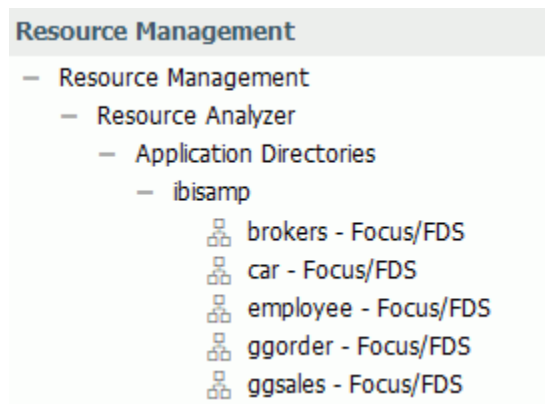
5. Click *Add*.

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



6. Click the *Close* button.

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

3. Right-click an application directory in the navigation pane, point to *Manage monitoring*, and click *Remove Data Sources from monitoring*.

A list of available data sources opens.

4. Select the data sources that you want 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 monitoring - 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 sidebar.
3. Right-click an application directory in the navigation pane, point to *Manage monitoring*, and click *Remove Procedures from monitoring*.

A list of available procedures opens.

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

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

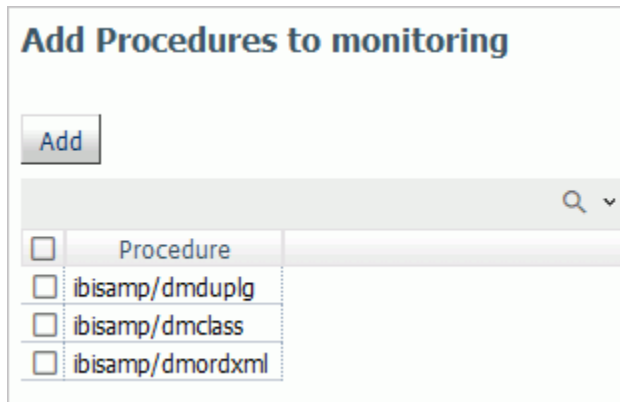
5. Click *Close*.

### ***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 *Remove a Procedure from Being Monitored*.

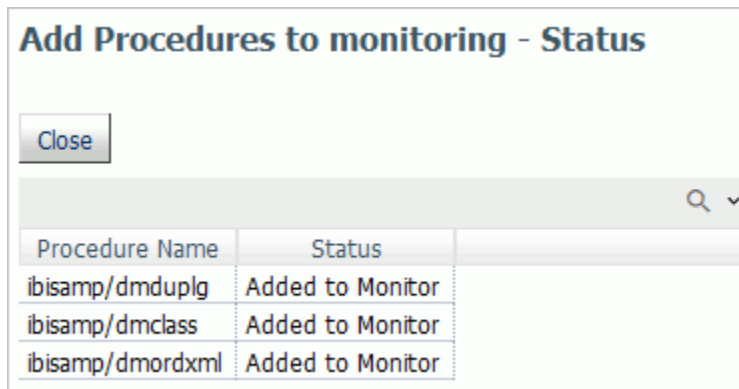
1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. Right-click an application directory in the navigation pane, point to *Manage monitoring*, and click *Add Procedures for monitoring*.

The Add Procedures to monitoring 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*.

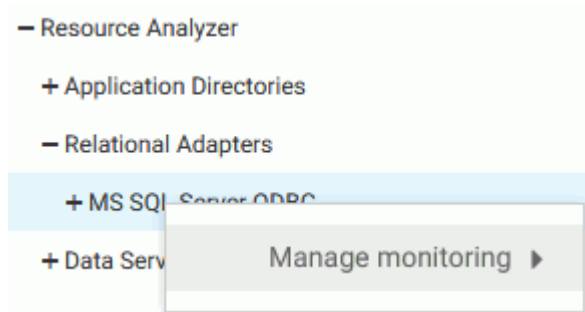
The Add Procedures to monitoring - Status pane opens displaying the selected procedures with monitoring enabled, as shown in the following image.



6. Click the *Close* button.

## Monitoring Relational Adapters

When you right-click a relational adapter folder, a context menu appears, as shown in the following 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 sidebar.
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 pane opens for the selected connection. The following options are available:

#### **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**

#### **Monitored**

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 Off**

The number of procedures with monitoring off.

#### **Total**

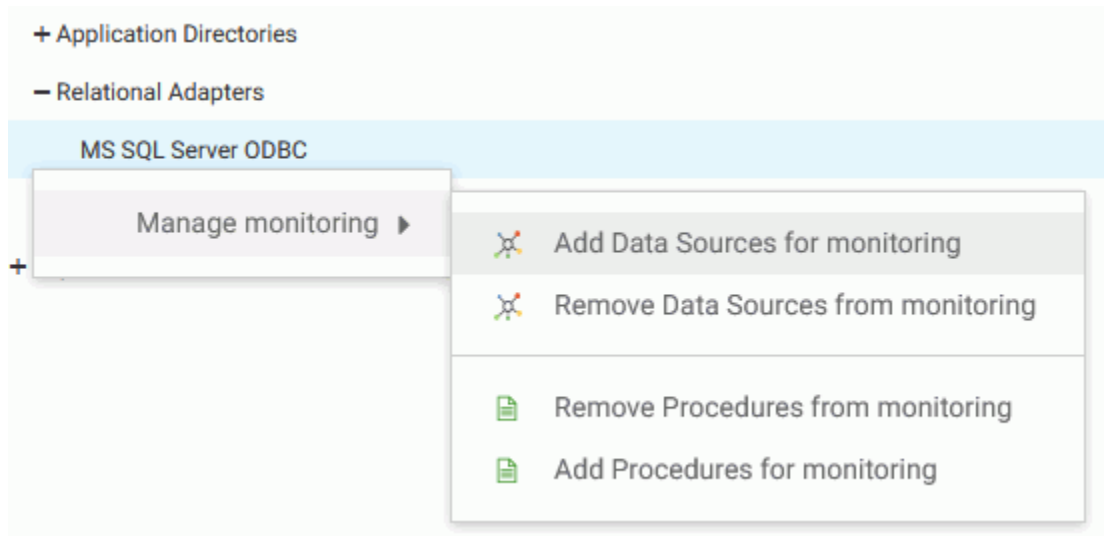
The total number of procedures in the selected application directory.

## **Monitoring Relational Data Adapter Sources**

When you right-click a relational adapter and point to *Manage monitoring*, a context menu is available, as shown in the following image.



In the example shown, MS SQL Server ODBC 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 sidebar.
3. Expand the *Relational Adapters* folder in the tree, right-click the appropriate data adapter, point to *Manage monitoring*, and click *Add Data Sources for monitoring*.
4. Select the connection name from the drop-down menu.

**Note:** If there is only one connection name available, the pane will be shown immediately.

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

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

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

<input type="checkbox"/>	Data Source	Monitor As	Type	Comment
<input type="checkbox"/>	dbo.wrd_wf_retail_age	Owner.Table	▼ TABLE	
<input type="checkbox"/>	dbo.wrd_wf_retail_currency	Owner.Table	▼ TABLE	
<input type="checkbox"/>	dbo.wrd_wf_retail_customer	Owner.Table	▼ TABLE	
<input type="checkbox"/>	dbo.wrd_wf_retail_discount	Owner.Table	▼ TABLE	
<input type="checkbox"/>	dbo.wrd_wf_retail_education	Owner.Table	▼ TABLE	
<input type="checkbox"/>	dbo.wrd_wf_retail_employee	Owner.Table	▼ TABLE	

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

**Note:** Any data source with special characters will be quoted using the RDBMS quoted identifier character. The data source will be stored as a two part name, and monitored using upper case characters, with the exception of any quoted special characters.

7. From the Monitor As column, select one of the following options from the drop-down menu:
  - Table.** Monitor the data source using the one part name.
  - Owner.Table.** Monitor the data source using the two part name. This is the default value.
  - Both.** Monitor the data source using both the one part and two part names.
8. Click *Add*.

The Add Data Sources pane reopens displaying the selected data sources with monitoring enabled.
9. Click *OK* to close the confirmation dialog box.
10. 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 sidebar.
3. Right-click a relational adapter directory, point to *Manage monitoring*, and click *Remove Data Sources from monitoring*.

The Remove Data Sources from monitoring 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 Data Source 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 *OK* to close the confirmation dialog box.
8. 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 sidebar.
3. Right-click a relational adapter directory, point to *Manage monitoring*, and click *Remove Procedures from monitoring*.

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

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

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

7. Click *OK* to close the confirmation dialog box.
8. 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 *Remove a Procedure for a Relational Adapter from Being Monitored*.

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. Right-click a relational adapter directory in the navigation pane, point to *Manage monitoring*, and click *Add Procedures for monitoring*.

The Add Stored Procedures to monitoring 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 *Stored Procedure* column to select all of the listed procedures.

7. Click *Add*.

The Add Stored Procedure for monitoring pane opens displaying the selected procedures with monitoring enabled.

8. Click *OK* to close the confirmation dialog box.
9. Click the *Close* button.

## Monitoring at the Data Service Level

When you expand the *Data Services* folder in the navigation pane, the data services available on the server are listed. An example is shown in the following image.



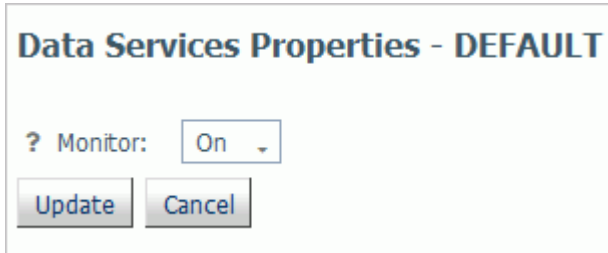
### **Procedure:** How to Disable Monitoring on Data Services

All defined Data Services are displayed in the Resource Management navigation pane.

By default, all Data Services are monitored. To disable monitoring:

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. Expand the *Data Services* folder.
4. Right-click the Data Service you wish to disable and click *Properties*.

The Data Services Properties pane opens, as shown in the following image.



5. Select *OFF* from the Monitor drop-down menu.
6. Click *Update*.

A confirmation dialog box opens.

7. Click *OK*.

The Data Services node in the navigation pane now shows the Data Service with monitoring disabled, as shown in the following image.



**Procedure: How to Enable Monitoring on Data Services**

All defined Data Services are displayed in the Resource Management navigation pane.

To enable monitoring on a Data Service that was previously disabled:

1. Launch the Web Console.
2. Click the *Resource Management* option on the sidebar.
3. Expand the *Data Services* folder.
4. Right-click the disabled Data Service you wish to enable and click *Properties*.

The Data Services Properties pane opens.

5. Select *ON* from the Monitor drop-down menu.
6. Click *Update*.

A confirmation dialog box opens.

7. Click *OK*.

The Data Services node in the navigation pane now shows the Data Service with monitoring enabled.

## Migrating the Resource Management Repository

If you want 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.

### Requirements for Migrating the Resource Management Repository

The following conditions are required 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, use the server Web Console to Disable Monitoring & Governing. If you turn monitoring back on and continue to monitor in the old release, you must 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, with the same connection name used in the prior release, must be configured pointing to the data to be migrated. 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 for a New Server Install

You can migrate a Resource Management repository on UNIX, Windows, UNIX System Services, and IBM i for a new server install. 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 for a New Server Install

To start the migration job:

1. Click the *Resource Management* option in the sidebar.
2. On the ribbon, click the *Repository* icon, point to *Migration*, and click *Migrate old release*.

**Note:** You can also perform this task by clicking the *Workspace* option in the sidebar, right-clicking *Workspace* in the navigation pane, and clicking *Migrate*.

The Repository Migration page opens, as shown in the following image.



**Repository Migration**

? Release to migrate data from

? EDACONF directory of the old release  ...

3. From the drop-down menu, select the release number from which you are migrating. Options include 7703, 7704, 7705, 7706, 7707, and 7708.
4. For all releases, you must enter the path to the EDACONF directory of the release being migrated. Examples are C:\ibi\svr77\wfs for Windows and /home1/ibi/srv77/wfs for UNIX.
5. Click *Next*.



The Resource Management Migration: Submit Migration Job pane opens, as shown in the following image.

**Submit Migration Job**

Release to be migrated: **7706**

Old EDACONF: **C:\ibi\srv77\wfs7706**

Repository data range: **03/29/2018 - 03/29/2018**

**System Database**

? Migrate  No ▾

**Data Repository**

? Migrate  No ▾

- From the System Database Migrate drop-down menu, select Yes if you want to migrate the old release system database. If you select Yes, additional options become available, as shown in the following image.

### Submit Migration Job

Release to be migrated: **7706**  
Old EDACONF: **C:\ibi\srv77\wfs7706**  
Repository data range: **03/29/2018 - 03/29/2018**

### System Database

? Migrate

\*Yes\* should only be selected once, or rejected record counts will be noted in in the subsequent migration jobs output

### Configuration data

Selecting \*Yes\* will replace existing settings that may have already been set

? Log record preferences

? Logging Properties

### Data Repository

? Migrate

The additional Configuration data options are:

#### Log record preferences

Select Yes to migrate the old release log record preference settings to the system repository of the current server. Migrating this data will cause any existing log record preference data to be replaced with the data from the old release.

#### Logging Properties

Select Yes to migrate the old release logging property settings to the system repository of the current server. Migrating this data will cause any existing logging properties data to be replaced with the data from the old release.

- From the Data Repository Migrate drop-down menu, select Yes if the previous release data repository should be migrated. The default value is No.

If you select Yes, additional options become available, as shown in the following image.

**Data Repository**

? Migrate

No data has been migrated at this time

The migration job will be submitted using the selected date range below when 'Submit Job' is clicked.

? Start Date

? End Date

Migration jobs using different date ranges can be submitted again by clicking the 'Migration/Submit Migration job' menu item. Do not submit another job until the current job completes and the results have been reviewed

The additional options let you migrate data in smaller portions, instead of all at once. The available options are:

#### Start Date

The starting date of the data to be migrated. The default value is the earliest date in the old repository.

#### End Date

The ending date of the data to be migrated. The default value is the latest date in the old repository.

8. Accept the default dates, or enter a specific date that you want the migration to run.
9. Click *Submit Job*. A confirmation of the request appears, stating that the deferred execution request is in the queue.
10. On the ribbon, click the *Repository* icon, point to *Migration*, and then click *View jobs*.

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

x Delete Selected		↻ Refresh Selected								
	Defer ID	User ID	Status	App	Procedure	Report	Submitted Time	Scheduled Time	Days Left	
<input type="checkbox"/>	2018-03-29-12-34-00cmrrip000002_LOOPBACK	IBI\cf12026	Ready		RMIGRATE		2018 March 29 12:55:45	–	29	

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 click *Get* to review the job output.

11. You can choose whether to remove the old configuration files or perform this action in the future.

On the ribbon, click the *Repository* icon, point to *Migration*, and then click *Delete work files*.

- a. Click *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 After a Server Refresh

You can migrate 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 set up 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 Resource Analyzer 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.

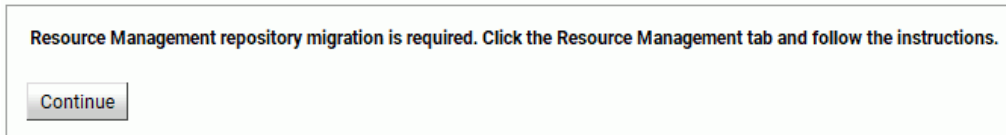
The migration is performed from the Web Console and consists of three phases:

- 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.

If you start the Web Console session with security ON, a message is displayed, as shown in the following image.



This 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 for a total of 10 times, or until the migration process has been performed.
- Start the migration process by clicking *Continue* and then clicking *Resource Management*.

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

**Note:** If you start the Web Console session with security OFF, you will not see the message as described above. The Resource Management Migration pane will be immediately available after clicking *Resource Management*.

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

The following procedure details the steps for migrating a FOCUS or relational repository after a server refresh.

1. Click the *Resource Management* option in the sidebar.
2. **For a FOCUS Repository: Phase 1 - Migrate Configuration**, the pane opens in Phase 1.
  - a. Click *Reconfigure* to complete Phase 1.

3. **For a Relational Repository: Phase 1 - Migrate Configuration**, the pane opens in Phase 1, as shown in the following image.

### Repository Migration

The server was upgraded to a new release and new features for Resource Management must be added to the repository and configuration files.

Before starting, make backups of the following configuration files:

- `rmprof.prf` is located in: `C:\ibi\srvt77\wfs7706d\etc`
- `gktable.prf` is located in: `C:\ibi\srvt77\wfs7706d\etc`
- All files prefixed with `RML` located in: `C:\ibi\srvt77\wfs7706d\catalog\rm`

The migration process consists of several steps. Step 1 is required. The rest of the steps are optional.

- Step 1. Upgrade configuration files and create the repositories with new features.
- Step 2. Migrate existing repository data to the new repositories.
- Step 3. Delete the temporary work files and old repository.

#### Step 1

Create Repository

Resource Management will perform the following actions when the 'Reconfigure' button is clicked.

- Rename existing `RMPROF` to `rmpr7706.prf`
- Rename existing `GKTABLE` to `gktb7706.prf`
- Create and initialize the new `RMSYS` repository using the existing `RMSYS` configuration values.
- Create and initialize the new `RMLDB` repository.

After step 1 has completed the new `RMLDB` and `RMSYS` repositories will have been initialized and ready for archiving log data.

The options in the Create Repository drop-down menu are *Yes*, *No*, and *DDL Only*.

#### For Phase 1 - Create Repository Yes:

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 *Next* to go to step 4 and begin Phase 2.

#### For Phase 1 - Create Repository 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 *Create DDL*. The instructions for the location of the `rmldb.sql` file are displayed. Give this file to the DBA for processing.

- c. Click *Close*. You will be returned to the first migration screen. You must create the tables before continuing.
 

**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`.
  - d. Once the repository tables have been created, return to the Web Console and click *Resource Management*.
  - e. Go to step 4 to begin Phase 2.
4. **Phase 2 - Migrate data**, select the Migration data option from the drop-down menu, as shown in the following image.

### Submit Migration Job

#### Step 1 - Migrate configuration actions:

The system repository has been created and initialized and all old system data has been migrated.

The data repository has been created and initialized and ready for data migration.

#### Step 2 - Migrate data:

**No data has been migrated at this time**

The date range of data in the source repository: **04/11/2018 - 04/11/2018**

? Migrate data


The repository migration can be submitted when you are ready by clicking the 'Migration/Submit Migration job' menu item.

The options are Yes or No.

#### Note:

- If you selected *DDL Only* in the previous step, click *Reconfigure*.
- When returning to this page after selecting *DDL Only*, the default value is *No*. Do not select Yes or an error will occur.

#### 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 options become available, as shown in the following image.


### Step 2 - Migrate data:


No data has been migrated at this time

The date range of data in the source repository: 04/11/2018 - 04/11/2018

? Migrate data

The repository migration job will be submitted using the selected date range when the 'Run Job' button is clicked.

? Start Date  

? End Date  

The additional options let you migrate data in smaller portions, instead of all at once. The available options are:

#### Start Date

The starting date of the data to be migrated. The default value is the earliest date in the old repository.

#### End Date

The ending date of the data to be migrated. The default value is the latest date in the old repository.

- a. Click *Submit Job* to schedule the migration procedure. A confirmation of the request appears, stating that the deferred execution request is in the queue.
- b. Go to step 7.

#### 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.

To run the migration process at a later date, select *Resource Management* on the sidebar and on the ribbon, click the *Repository* icon, point to *Migration*, and click *Submit job*.

The Resource Management Migration: Submit Migration Job pane will open on Phase 2.

- a. Click *Exit* to continue.
  - b. Optionally, review step 5.
5. To view the Migration Job page if migration was selected, on the ribbon, in the Repository group, click *Migration*, and then click *View job*.



The Deferred List pane opens.

6. Right-click on the job and click *Get* to see if there are any FOCUS errors.
7. **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, click the *Repository* icon, point to *Migration*, and then click *Delete work files*.

- a. Click *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 a new server install of Release 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* option in the sidebar.
2. On the ribbon, click the *Repository* icon, point to *Migration* and click *Migrate old release*.
3. The Resource Management Migration page opens.
4. To migrate data from the release, use the drop-down menu to select the release number from which you are migrating. The options include 7700-7702, 7703, 7704, 7705, 7706, 7707, and 7708. 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.

#### **GKTABLE dataset name**

The dataset name of the Resource Management parameter file.

#### **REPOSITORY dataset name**

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

#### **RMLSYS dataset name**

The dataset that contains Resource Management system information.

#### **CONFIGURATION dataset name**

For old release selections of 7703 or 7704, this is the dataset name that contains the Master File profile members. They are RMLPD773 (7703) or RMLPD774 (7704) and RMLPRFSY (both releases).

5. Click *Next* to continue.
6. The Submit Migration Job pane opens.

For all other releases, the same pane will show but without the Create 7.6 compatibility masters option available. The following options are available:

**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 the old release selection.

All of the names in the following chart require QUALIF.servertype as a prefix.

Where *servertype* can be FFS, WFS, or DM.

Dataset name	7704-7706
GKTABLE	CONF.PRF
REPOSITORY**	RMLDB.FOCUS
RMLSYS*	RMLSYS.FOCUS
CONFIGURATION	CONF.CFG

\* Only required when migrating system data.

\*\* Only required if old repository is FOCUS.

7. From the Data Repository Migrate drop-down menu, select Yes if the data repository for the previous release should be migrated. If Yes is selected, SMCNTRL, SMPRMTRS, and SMPRL data will be migrated. The default value is *No*.

If you select Yes, additional options become available.

The additional options let you migrate data in smaller portions, instead of all at once. The available options are:

**Start Date**

The starting date of the data to be migrated. The default value is the earliest date in the old repository.

**End Date**

The ending date of the data to be migrated. The default value is the latest date in the old repository.

8. Accept the default dates, or enter a specific date that you want the migration to run.
9. Click *Submit Job*. A confirmation of the request appears, stating that the deferred execution request is in the queue.
10. On the ribbon, click the *Repository* icon, point to *Migration* and then click *View job*.

The Deferred List pane opens, displaying the list of deferred requests and showing the request name that was displayed when the deferred migration job was scheduled. Examples of request names are listed in the Defer ID column.

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 click *Get* to review the job output.

11. You can choose whether to remove the old configuration files or perform this action in the future.

On the ribbon, click the *Repository* icon, point to *Migration* and then click *Delete work files*.

- a. Click *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.

## 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 types 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 data repository validation failure

Warning messages:

36048 - Resource Governor canceled a request

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

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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.
- Repository Statistics.** Shows the total number of records collected during the time period specified.
- 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.
- ACI Monitoring.** Opens the ACI Summary report, which provides information about changes to the server configuration files, and user application files. Actual changes made are not reported, but who, when, and the type of access is shown.

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.
- ❑ **Exception 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 sidebar and expand the *Reports* and *Resource Analyzer* folders, as shown in the following image.



**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 click *Run*.
3. The Report Filter window opens. Make any desired changes and click *View Report*. For more information, see [Report Filters](#) on page 119.

**Procedure: How to Submit a Report**

To submit a report:

1. Expand the *Reports* folder on the tree in the navigation pane.
2. Right-click the desired report in the tree and click *Submit*.

The Report filter for Repository Statistics pane opens.

3. Make any desired changes from the filtering options provided. For more information on these options, see [Report Filters](#) on page 119.
4. From the calendar icon and the drop-down menu, specify a date and time to execute the report.
5. Click *Submit Report* to submit the report to the deferred queue.

**Procedure: How to View a List of Submitted Reports**

To view a list of submitted reports that have been run in deferred mode:

1. Expand the *Reports* folder on the tree in the navigation pane.
2. Right-click the desired report in the tree and click *View Submitted*.

The Deferred List pane opens, showing a list of submitted reports.

If you right-click an item in the list, the following options are available:

- View.** Opens the report.
- Download.** Saves the selected report to your Downloads folder. In Windows, the default location of this folder is C:\users\*username*\Downloads.
- Delete.** Deletes the selected item.

**Procedure: How to Schedule a Report**

You can schedule reports to run and be automatically distributed. To schedule a report:

1. Expand the *Reports* folder on the tree in the navigation pane.
2. Right-click the desired report in the tree, point to *Schedule and E-Mail*, and click *Add job*.



The Report filter for the selected report opens, as shown in the following image.

**Report filter for Monitored Commands**

Select server: FUENT-PC:8121

Report format: HTML

Visualize Data: Yes

Report period: Today

▶ Next

3. Select your desired filtering conditions and click *Next*.

The Manage Schedule and E-Mail pane opens, as shown in the following image.

^ **General**

? Schedule Status No Schedule Enables/Disables Schedule

^ **Log and output destinations**

^ **E-Mail On Start**

^ **E-Mail On Completion**

? Enable

? Mail to To

Cc

Bcc

Use a semicolon as the separator character for multiple email addresses

? Advanced

^ **E-Mail On Failure**

Cancel Set

The Manage Schedule and E-Mail pane has the following options:

**Schedule Status**

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

**Log and output destinations**

These options control where the log information from the 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.
- 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.

Multiple options can be selected. ETLLOG and E-Mail are selected by default.

**Note:**

- If the job is run from the DMC or Web Console, information will go to the console log regardless of this setting.
- The *E-Mail On Start* and *E-Mail On Completion* options are not relevant to the Resource Management Archive job and should not be used.

**Enable**

Select this to enable when an email should be sent.

**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.

**Advanced**

Select this option to get the following options:

- 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.
- 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.

- 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.

^ <b>General</b>	
? Schedule Status	Active <input type="button" value="v"/> Enables/Disables Schedule
? Schedule Type	Run Once <input type="button" value="v"/> Determines whether a flow will execute
^ <b>Start and stop range</b>	
? Start Date	05/07/2018 <input type="button" value="calendar"/> Specifies the start time and date for the execution of
? Start Time	12 <input type="button" value="v"/> 27 <input type="button" value="v"/> Specifies the start time and date for the execution of
^ <b>Special date/time ranges</b>	
? Specify Stop Time	<input type="checkbox"/> Specifies forced end time
v <b>Log and output destinations</b>	
v <b>E-Mail On Start</b>	
^ <b>E-Mail On Completion</b>	
? Enable	<input type="checkbox"/>
? Mail to	To <input type="text"/>
	Cc <input type="text"/>
	Bcc <input type="text"/>
	Use a semicolon as the separator character for multiple email addresses (ic
? Advanced	<input type="checkbox"/>
v <b>E-Mail On Failure</b>	
<input type="button" value="Cancel"/>	<input type="button" value="Set"/>

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 using 24-hour time.

**Specify Stop Time**

Allows you to specify an end time for the execution of the process flow using 24-hour time. 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 using 24-hour time. 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 using 24-hour time. This option is only available if the schedule type is set to *Recurring* and the interval type is set to time, such as *Minutes*.

**Intraday End**

Specifies the end of the daily time span of the process flow using 24-hour time. This option is only available if the schedule type is set to *Recurring* and the interval type is set to time, such as *Minutes*.

**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*.

5. Click *Set*.

A confirmation dialog box opens.

6. Click *OK*.

**Procedure: How to View Scheduled Reports**

To view the details of a scheduled report:

1. Expand the *Reports* folder on the tree in the navigation pane.
2. Right-click the desired report in the tree, point to *Schedule and E-Mail*, and click *List job*.

The Scheduled jobs pane for the selected report opens, as shown in the following image.

Scheduled jobs - Monitored Commands		
Job Name	Schedule	Schedule type
<a href="#">rmsr0004</a>	<a href="#">Active</a>	Run Once.

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

#### Job name Column

- Filters.** Opens the Report filter pane for that enables you to update the filters for the selected report.
- View Reports.** Opens a pane that shows when the scheduled report was run. If you right-click an item in the list, the following options are available:
  - View.** Opens the report.
  - Download.** Saves the selected report to your Downloads folder. In Windows, the default location of this folder is C:\users\*username*\Downloads.
  - Delete.** Deletes the selected item.

#### Schedule Column

- Manage Schedule.** Opens the Manage Schedule and E-Mail for procedure pane.

### **Procedure:** How to Delete Scheduled Reports

To delete a report that has been scheduled to run:

1. Expand the *Reports* folder on the tree in the navigation pane.
2. Right-click the desired report in the tree, point to *Schedule and E-Mail*, and click *Delete job*.  
The Delete Scheduled Reports pane for the selected report opens.
3. Select the scheduled jobs you want to delete by selecting the checkbox next to its name. To select all listed reports, select the checkbox in the header.
4. Click *Delete*.

## 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, drilling down on reports for more details, displaying reports in graphical format, and the online help.

### 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 click *Run*.

The Report Filter window opens, as shown in the following image.

**Report filter for Monitored Commands**

Select server: FUENT-PC:8121

Report format: HTML

Visualize Data: Yes

Report period: Date range

Start Date: 2019/2/19

End Date: 2019/2/22

View Report

The above image is an example of the filter pane. Different reports may have different options available. See [Performance Analysis Reports](#) on page 149.

All other reports will only have the first three options available.

The following options are available:

**Select server**

The server, or servers, you want to report on. Multiple server support is only available if the server you are connected to is part of a many-to-one configured repository.

**Visualize Data**

Allows you to add visualization to numeric resource values, such as CPU and duration times. This option is enabled by default.

**Report format**

Allows you to select the output format of the report. The available options are HTML, active report, PDF, Excel, and PowerPoint. The default value is HTML.

**Report period**

The time range that the report will be run on.

**Start Date**

Allows you to select the first date of the reporting range.



**End Date**

Allows you to select the first date of the reporting range. The default end date 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 for the same browser session, so you will not need to reset it when you reconnect to the server.

**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*.

**Resource Management report filter**

Select server: FUENT-PC:8121

Visualize Data:

Report format: HTML

Report period:  Last 3 months

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*.

**Note:** Both Excel and PowerPoint reformatted reports are accessed using the download link in your browser. Drill down links in PowerPoint reports will only be active if PowerPoint is in display mode. Additional pop-up messages may be displayed by these two products when following the drill-down links. These messages are outside of the control of the Resource Management product.

### ***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 calendar icon 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 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 165.

## 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.

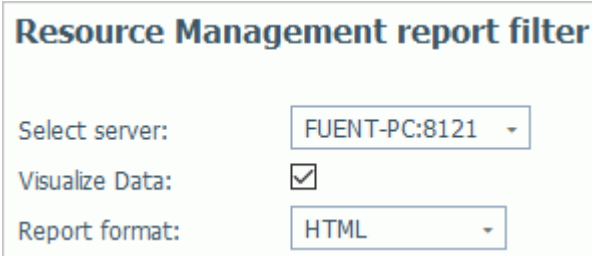
## Monitor Preference and Reports

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.

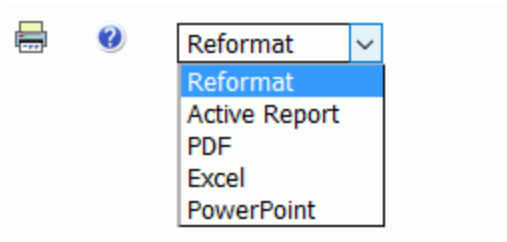
Reports initially appear in the format specified by the Report format setting in the Resource Management report filter pane, as shown in the following image.



The image shows a screenshot of the "Resource Management report filter" pane. It contains three settings:

- Select server:** A dropdown menu with "FUENT-PC:8121" selected.
- Visualize Data:** A checked checkbox.
- Report format:** A dropdown menu with "HTML" selected.

Once in the report, you can change its format by selecting a different option from the drop-down menu located on the upper left of the report page, as shown in the following image.



The drop-down menu lists the different report outputs, allowing you to change the display of the current report. 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.

To access any of the reports in the Web Console, click *Resource Management* on the sidebar and expand the *Reports* folder. Right-click the desired report, and click *Run* from the context menu. After specifying report filters, click *View Report*.

## 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.

The following image shows the Monitored Sessions report.

**Session Summary Report**  
 Server Name: FUENT-PC:8121  
 Date Range: 05/12/2015 - 09/12/2016

Date	Session Count	Duration	CPU Time	Wait Time	Adapter Time	Monitored Procedures	Monitored Commands	I/O Used	Records Processed	Rows Returned	Transactions
<a href="#">08/12/2016</a>	3	00:00:00.3250	00:00:00.2800	00:00:00.0450	00:00:00.0310	0	9	10	1,058	12	0
<a href="#">08/31/2016</a>	32	00:00:24.6340	00:00:01.2010	00:00:23.4330	00:00:08.7320	0	10	0	297	297	228
<a href="#">09/09/2016</a>	55	00:00:14.6630	00:00:02.9570	00:00:11.7060	00:00:03.5900	8	27	40	3,249	906	299
<a href="#">09/12/2016</a>	32	00:00:19.9240	00:00:01.6400	00:00:18.2840	00:00:11.4340	0	13	10	1,405	359	296
<b>Grand Total</b>	<b>122</b>	<b>00:00:59.5460</b>	<b>00:00:06.0780</b>	<b>00:00:53.4680</b>	<b>00:00:23.7870</b>	<b>8</b>	<b>59</b>	<b>60</b>	<b>6,009</b>	<b>1,574</b>	<b>823</b>

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

Click a hyperlink in the:	Report Generated	Description
Date column	Session Summary Report by Hour	Lists the procedures and commands that are being monitored by hour. Allows you to drill down to see this report by quarter, and then by detail.

## Monitored Commands

The Monitored Commands report provides an overview of the resources being used by each command, including the execution, CPU, and wait time.

The following image shows the Monitored Commands report.

**Resources Used by Command**  
 Server Name: [FUENT-PC:8121](#)  
 Date Range: 08/12/2015 - 09/12/2016

Date	Command	Usage Count	Execution	CPU Time	Wait Time	Adapter Time	I/O Used	Records Processed	Rows Returned	Transactions
09/12/2016	TABLE	7	00:00:00.3240	00:00:00.0460	00:00:00.2780	00:00:00.0000	0	173	173	0
	TABLEF	7	00:00:04.2640	00:00:00.2660	00:00:03.9980	00:00:00.0000	0	206	206	0
09/09/2016	JOIN	1	00:00:00.0000	00:00:00.0000	00:00:00.0000	00:00:00.0000	0	0	0	0
	TABLE	10	00:00:00.7900	00:00:00.1120	00:00:00.6780	00:00:00.1230	2	201	201	0
	TABLEF	9	00:00:02.6030	00:00:00.1800	00:00:02.4230	00:00:00.0000	0	208	208	0
08/31/2016	TABLE	7	00:00:00.5270	00:00:00.0460	00:00:00.4810	00:00:00.0000	0	133	133	0
	TABLEF	3	00:00:09.9270	00:00:00.3270	00:00:09.6000	00:00:00.0000	0	162	162	0
08/12/2016	TABLE	8	00:00:00.1030	00:00:00.0550	00:00:00.0480	00:00:00.0300	8	1,058	12	0
	TABLEF	1	00:00:00.0050	00:00:00.0000	00:00:00.0050	00:00:00.0000	2	0	0	0
<b>Grand Total:</b>			<b>00:00:18.5430</b>	<b>00:00:01.0320</b>	<b>00:00:17.5110</b>	<b>00:00:00.1530</b>	<b>12</b>	<b>2,141</b>	<b>1,095</b>	<b>0</b>

Percentage and Ratio fields are rounded values  
 Resource Analyzer  
 1

Date: 09/12/16 Time: 15.16.37

## Repository Statistics

The Repository Statistics report provides an overview of the total number of records collected during the time period specified.

The following image shows the Repository Statistics report.

RMLDB Repository record counts															
By Year and Month															
Server Name: FUENT-PC:8121															
Date Range: 02/01/2018 - 02/22/2018															
Server Name	Year	Month	Sessions	Procedures	Procedure Lines	WebFOCUS	Query	Query Lines	Governor	Remotes	Data Sources	Fields	Functions	Relations	Audits
FUENT-PC:8121	2018	February	337	26	162	0	802	88	0	0	0	0	0	0	0

### 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.

The following image shows the Data Sources Never Used report.

Unused Master File Descriptions			
Server Name: FUENT-PC:8121			
Application	Data Source	Last Modification Date	Last Modification Time
baseapp	dmortmplx	2012/05/23	12.41.43
	dmpers	2010/09/28	14.23.08
	dmxduplg_dupl	2012/05/22	15.40.14
	dmxord	2012/05/23	11.29.42
dimensions	ed_type_lookup	2016/05/23	15.45.56
	ed_type_lookup	2016/06/28	15.57.55
	wf_retail_age	2016/05/23	15.45.06
	wf_retail_age	2016/06/28	15.57.49

### Procedures Never Used

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

The following image shows the Procedures Never Used report.

Unused Procedures			
Server Name: FUENT-PC:8121			
Application	Procedure	Last Modification Date	Last Modification Time
baseapp	flow01	2012/01/04	11.40.41
	flow01_dmhr_t	2012/01/04	11.40.41
	opt_test1	2014/03/25	11.57.34
	profile	2010/08/11	11.21.53
dimensions	ed_subtype_lookup	2016/05/23	15.45.56
	ed_subtype_lookup	2016/06/28	15.57.55
ibisamp	cargraph	2012/02/06	22.05.52
	carinst	2012/02/06	22.05.52
	carinst2	2012/02/06	22.05.52

## ACI Monitoring

The ACI Monitoring report provides information about changes to the server configuration files, and user application files. Actual changes made are not reported, but who, when, and the type of access is shown. To access this report, you must have the Access Control setting that can be found in the Repository Properties pane enabled.

You can specify the following parameters in the Report Management report filter page for this report:

- User name.** Allows you to run the report based on user. The default value is All.
- Option.** Allows you to filter based on the type of access. Options are All, Read file, Write file, and Delete file. The default option is All.
- Category.** Allows you to specify the types of files that you want to audit. Options are All, System files, or User files. The default value is All.
- E-Mail.** Allows you to view the sender and receiver information in the form of their individual email address for any email messages that were sent in the Web Console.

The following image shows the ACI Monitoring report.

**ACI - Summary Report**  
 Category: **ALL**  
 Server Name: FUENT-PC:8121  
 Date Range: 09/06/2018 - 09/13/2018

Date	User	Time	Action	Connection Address	File Type	Source Application/Filename	Target Application/Filename	Return Code	Status
09/13/2018	IBllcf12026	13:13:05.839	<a href="#">READ</a>	::1	prf	EDASPROF.prf			
		13:13:16.147	<a href="#">WRITE</a>	::1	prf	edasprof.prf			
		13:13:17.463	<a href="#">READ</a>	::1	prf	EDASPROF.prf			
		13:15:50.180	<a href="#">WRITE</a>	::1	fax	ibisamp/prc01.fax			
		13:16:10.015	<a href="#">READ</a>	172.30.240.58	cfg	_edaconfcatalog/irm/gktable.cfg			
		13:16:57.732	<a href="#">APP COPY</a>	172.30.240.58	Application	A		224	Error
		13:18:59.269	<a href="#">READ</a>	172.30.240.58	fax	ibisamp/prc01			

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

Click a hyperlink in the:	Description
Action column	<p>Opens a dialog box that shows the actual command that was issued for the operation.</p> <p>If you filter a report by <i>E-Mail</i>, the hyperlink will open a dialog box that shows the email address for both the sender and receiver of an email sent in the Web Console.</p>
Return Code column	<p>Opens a dialog box that provides further explanation on the error code listed.</p>

## 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, right-click the desired report, and click *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 click *Run* from the context menu.



The following image shows the Usage Analysis and Users report folders expanded.

### Usage Analysis Categories

There are three basic Usage Analysis categories:

- ❑ **Users.** 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.** Gives a variety of information about the remote procedures used to submit requests, including the actual syntax of the requests.
- ❑ **Data Sources.** 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.
- ❑ **Top n.** Shows usage data for the top number of users, procedures, or data sources specified for the Top n report. The available options for top number are 5, 10, 15, 20, and 25. The default value is 10.

## 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 sort the report by that column.

**Users - Frequency of Use Summary**  
 Server Name: FUENT-PC:8121  
 Date Range: 08/12/2015 - 09/12/2016

User	Number of Commands Executed	Number of Distinct Procedures	<a href="#">% Total Commands</a>	<a href="#">% Total Procedures</a>	<a href="#">% Total Resources</a>	First Command Executed	Last Command Executed
IBIICF12026	53	4	<a href="#">100.00</a>	<a href="#">100.00</a>	<a href="#">100.00</a>	08/12/2016	09/12/2016
Grand Total:	53	4	100.00	100.00	100.00		

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

Hyperlink in the:	Report Generated	Description
% Total Commands column.	Procedure Use by <i>User</i>	Lists the procedures executed by the user with information about how often and when the executions have occurred. Also allows you to drill down to see detailed request information for each procedure as well as the actual request syntax
% Total Procedures column.	Procedure Summary for <i>User</i>	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.
% Total Resources column.	Resources used by <i>User</i>	Summarizes the resource usage of the specified user, including number of requests, elapsed time, CPU seconds, I/Os, rows returned, and access dates.

### 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, rows, and their first and last access dates. Click any of the hyperlinked column headings to sort the report by that column.

**Users - Resources Used**  
Server Name: FUENT-PC:8121  
Date Range: 08/12/2015 - 09/12/2016

User	Number of Commands Executed	Total Execution Time	Total CPU Time	Total Adapter Time	Average Execution Time	Average CPU Time	Average Adapter Time	Total I/Os	Total Rows	Average I/Os	Average Rows	First Command Execution	Last Command Execution
<a href="#">BICF12026</a>	53	00:00:18.5430	00:00:01.0320	00:00:00.1530	00:00:00.3499	00:00:00.0195	00:00:00.0029	12	1,095	0	21	08/12/2016	09/12/2016
Grand Total:	53	00:00:18.5430	00:00:01.0320	00:00:00.1530	00:00:00.3499	00:00:00.0195	00:00:00.0029	12	1,095	0	21		

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

Hyperlink in the:	Report Generated	Description
User column.	Data Source Use by <i>User</i>	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.

### 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 sort the report by that column.

**Users - Historical Use**  
 Server Name: FUENT-PC:8121  
 Date Range: 08/12/2015 - 09/12/2016

User	Year	Number of Commands Executed	Number of Distinct Procedures	% Total Requests	% Total Procedures	% Total Resources
<a href="#">IBICF12026</a>	<a href="#">2016</a>	53	4	100.00	100.00	100.00
Total for: IBICF12026		53	4	100.00	100.00	100.00
Grand Total:		53	4	100.00	100.00	100.00

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

Hyperlink in the:	Report Generated	Description
User column.	Data Source Use by <i>User</i>	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.

Hyperlink in the:	Report Generated	Description
Year column.	Access per Month for User during Year	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.
% Total Procedures column.	Procedures used by User	Summarizes the procedure access of the specified user, including number of executions and % of resources used.

### Users Report by Top N

The following image shows the Users Report by Top n Users, which shows the usage data for the top number of users specified. The number of users is specified in the Top number drop-down menu of the Report Filter. The available options for top number are 5, 10, 15, 20, and 25. The default value is 10. The Name column in this report can use a file that decodes the User ID shown in the User column. The format for the file is *userid,name*. The default file searched for is names.txt in the baseapp folder.

Top 10 Users						
Server Name: FUENT-PC:8121						
Date Range: 08/12/2015 - 09/12/2016						
User	Name	Session Count	Total Elapse Time	Total CPU Time	Total Wait Time	
IB\ICF12026	**Unknown User**	155	00:01:04.8620	00:00:08.7320	00:00:56.1300	
<b>Grand Total:</b>		<b>155</b>	<b>00:01:04.8620</b>	<b>00:00:08.7320</b>	<b>00:00:56.1300</b>	

### Procedures Reports

The Procedures reports supply a variety of information about the procedures with which users submit requests at your site. This information helps you compare the relative resource usage of cataloged versus ad hoc requests, find out which procedures are the most popular and frequently executed, and thereby 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.

<b>Procedures - Frequency of Use Summary</b> Server Name: FUENT-PC:8121 Date Range: 08/12/2015 - 09/12/2016					
Procedure Type	Number of Executions	% Total Executions	% Total Resources	First Execution	Last Execution
<a href="#">Ad-Hoc</a>	76	95.00	99.12	08/12/2016	09/12/2016
<a href="#">Application</a>	4	5.00	.88	09/09/2016	09/09/2016
<b>Grand Total:</b>	<b>80</b>	<b>100.00</b>	<b>100.00</b>		

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

Hyperlink in the:	Report Generated	Description
Procedure Type column.	Request from Procedure Ad hoc  <b>or</b> Procedure Summary  (depending on procedure type selected)	Lists the date and time, 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.

## Procedures Report by Resources Used

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.

Procedures - Resources Used										
Server Name: FUENT-PC:8121										
Date Range: 08/12/2015 - 09/12/2016										
Procedure Type	Number of Executions	Total Execution	Total CPU	Total Adapter	Total I/Os	Total Rows	% Total Executions	% Total Resources	First Execution	Last Execution
<a href="#">Ad-Hoc</a>	76	00:00:20.1400	00:00:01.6630	00:00:00.0300	10	2,191	95.00	98.84	09/12/2016	09/12/2016
<a href="#">Application</a>	4	00:00:00.1920	00:00:00.0020	00:00:00.1230	2	24	5.00	1.16	09/09/2016	09/09/2016
<b>Grand Total:</b>	<b>80</b>				<b>12</b>	<b>2,215</b>	<b>100.00</b>	<b>100.00</b>		

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

Hyperlink in the:	Report Generated	Description
Procedure Type column.	Procedure Resource Utilization	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.

### 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 sort the report by that column.

<b>Procedures - Historical Use</b> Server Name: FUENT-PC:8121 Date Range: 08/12/2015 - 09/12/2016				
Procedure Type	Year	Number of Executions	% Total Executions	% Total Resources
Ad-Hoc	<a href="#">2016</a>	76	95.00	99.12
Application	<a href="#">2016</a>	4	5.00	.88

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

Hyperlink in the:	Report Generated	Description
Year column.	Procedure Access by Year by Month	Lists the month for all executed procedures of the specified procedure type and year. Also lists their number and percentage of executions, their number of users, and their resource usage percentage.



## Procedures Report by Top N

The following image shows the Procedures Report by Top n Users, which shows the top number of procedures executed by the user. The number of procedures is specified in the Top number drop-down menu of the Report Filter. The available options for top number are 5, 10, 15, 20, and 25. The default value is 10.

Top 10 Procedures/Reports				
Server Name: FUENT-PC:8121				
Date Range: 08/12/2015 - 09/12/2016				
Procedure/Report	Number of Commands Executed	Total Elapse Time	Total CPU Time	Total Wait Time
<a href="#">baseapp/prc01</a>	1	00:00:00.0060	00:00:00.0060	00:00:00.0000
<a href="#">baseapp/ra_test1</a>	1	00:00:00.0440	00:00:00.0000	00:00:00.0440
<a href="#">baseapp/sales_by_brand</a>	1	00:00:00.1450	00:00:00.0000	00:00:00.1450
<a href="#">baseapp/testerror</a>	1	00:00:00.0630	00:00:00.0000	00:00:00.0630
<b>Grand Total:</b>	<b>4</b>	<b>00:00:00.0630</b>	<b>00:00:00.0000</b>	<b>00:00:00.0630</b>

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

Hyperlink in the:	Report Generated	Description
Procedure/Report column.	Procedure execution count by User	Shows how many times the selected procedure was executed by the user.

## 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 sort the report by that column.

**Data Sources - Frequency of Use Summary**  
 Server Name: FUENT-PC:8121  
 Date Range: 08/12/2016 - 09/13/2016

Application Name	Data Source	Data Type	Number of Times Used	Number of Distinct Users	% Total Requests	% Total Resources	First Access	Last Access
wfdemo\dimensions	<a href="#">wf_retail_labor_rate</a>	EDA	1	1	1.04	0.03	09/13/2016	09/13/2016
	<a href="#">wf_retail_marital_status</a>	EDA	1	1	1.04	0.03	09/13/2016	09/13/2016
	<a href="#">wf_retail_occupation</a>	EDA	1	1	1.04	0.04	09/13/2016	09/13/2016
	<a href="#">wf_retail_product</a>	EDA	8	2	8.33	8.83	09/13/2016	09/13/2016
	<a href="#">wf_retail_shipping_options</a>	EDA	1	1	1.04	0.06	09/13/2016	09/13/2016
	<a href="#">wf_retail_store</a>	EDA	8	2	8.33	8.84	09/13/2016	09/13/2016
	<a href="#">wf_retail_time</a>	EDA	1	1	1.04	0.05	09/13/2016	09/13/2016
	<a href="#">wf_retail_time_lite</a>	EDA	7	1	7.29	8.81	09/13/2016	09/13/2016
	<a href="#">wf_retail_vendor</a>	EDA	1	1	1.04	0.04	09/13/2016	09/13/2016
	<b>Total for: wfdemo\dimensions</b>			<b>52</b>		<b>54.17</b>	<b>44.92</b>	
wfdemo\facts	<a href="#">wf_retail_labor</a>	EDA	1	1	1.04	0.08	09/13/2016	09/13/2016
	<a href="#">wf_retail_sales</a>	EDA	8	2	8.33	8.86	09/13/2016	09/13/2016
	<a href="#">wf_retail_shipments</a>	EDA	1	1	1.04	0.05	09/13/2016	09/13/2016
<b>Total for: wfdemo\facts</b>			<b>10</b>		<b>10.42</b>	<b>8.99</b>		
<b>Grand Total:</b>			<b>96</b>		<b>100.00</b>	<b>100.00</b>		

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

Hyperlink in the:	Report Generated	Description
Data Source column.	Column Level for Data Source <i>Data Source</i>	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.
Data Type column.	Data Sources of type <i>Data Type</i>	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.

<b>Hyperlink in the:</b>	<b>Report Generated</b>	<b>Description</b>
Number of Times Used column.	Request Activity for Data Source: <i>Data Source</i>	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.
Number of Distinct Users column.	Users of <i>Data Source</i>	Lists all users of the specified data source along with a summary of the resources they have used.
% Total Requests column.	Procedures Using <i>Data Source</i>	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.

### 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 information can help you determine which data sources might be good candidates for pre-joining, pre-aggregation, or denormalization, and help you 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 sort the report by that column.

**Data Sources - Resources Used**  
 Server Name: FUEHT-PC:8121  
 Date Range: 08/12/2016 - 09/13/2016

Application Name	Data Source	Data Type	Number of Times Used	Total Execution*	Total CPU*	Total Adapter*	Average Execution*	Average CPU*	Average Adapter*	Total I/O*	Total Rows Returned*	Average I/O*	Average Rows Returned*
wfdemodimensions	<a href="#">wf_retail_industry</a>	EDA	1	00:00:00.0060	00:00:00.0000	00:00:00.0020	00:00:00.0060	00:00:00.0000	00:00:00.0020	1	1	1	1
	<a href="#">wf_retail_labor_rate</a>	EDA	1	00:00:00.0060	00:00:00.0060	00:00:00.0020	00:00:00.0060	00:00:00.0060	00:00:00.0020	1	1	1	1
	<a href="#">wf_retail_marital_status</a>	EDA	1	00:00:00.0120	00:00:00.0000	00:00:00.0050	00:00:00.0120	00:00:00.0000	00:00:00.0050	1	1	1	1
	<a href="#">wf_retail_occupation</a>	EDA	1	00:00:00.0080	00:00:00.0080	00:00:00.0020	00:00:00.0080	00:00:00.0080	00:00:00.0020	1	1	1	1
	<a href="#">wf_retail_product</a>	EDA	8	00:00:00.9630	00:00:00.7210	00:00:00.1900	00:00:00.1204	00:00:00.0901	00:00:00.0238	11,051	11,051	1,381	1,381
	<a href="#">wf_retail_shipping_options</a>	EDA	1	00:00:00.0260	00:00:00.0000	00:00:00.0230	00:00:00.0260	00:00:00.0000	00:00:00.0230	1	1	1	1
	<a href="#">wf_retail_store</a>	EDA	8	00:00:00.9670	00:00:00.7210	00:00:00.1920	00:00:00.1209	00:00:00.0901	00:00:00.0240	11,051	11,051	1,381	1,381
	<a href="#">wf_retail_time</a>	EDA	1	00:00:00.0240	00:00:00.0000	00:00:00.0200	00:00:00.0240	00:00:00.0000	00:00:00.0200	1	1	1	1
	<a href="#">wf_retail_time_title</a>	EDA	7	00:00:00.9550	00:00:00.7210	00:00:00.1870	00:00:00.1364	00:00:00.1030	00:00:00.0267	11,050	11,050	1,579	1,579
	<a href="#">wf_retail_vendor</a>	EDA	1	00:00:00.0160	00:00:00.0000	00:00:00.0120	00:00:00.0160	00:00:00.0000	00:00:00.0120	1	1	1	1
Total for: wfdemodimensions		EDA	52	00:00:05.0650	00:00:03.6900	00:00:01.1410	00:00:00.8208	00:00:00.5204	00:00:00.2651	55,267	55,267	7,116	7,116
wfdemofacts	<a href="#">wf_retail_labor</a>	EDA	1	00:00:00.0340	00:00:00.0000	00:00:00.0300	00:00:00.0340	00:00:00.0000	00:00:00.0300	1	1	1	1
	<a href="#">wf_retail_sales</a>	EDA	8	00:00:00.9750	00:00:00.7210	00:00:00.2020	00:00:00.1219	00:00:00.0901	00:00:00.0253	11,051	11,051	1,381	1,381
	<a href="#">wf_retail_shipments</a>	EDA	1	00:00:00.0230	00:00:00.0000	00:00:00.0190	00:00:00.0230	00:00:00.0000	00:00:00.0190	1	1	1	1
Total for: wfdemofacts		EDA	10	00:00:01.0320	00:00:00.7210	00:00:00.2510	00:00:00.1789	00:00:00.0901	00:00:00.0743	11,053	11,053	1,383	1,383
Grand Total:		EDA	96	00:00:16.4410	00:00:11.6680	00:00:01.5790	00:00:10.2816	00:00:07.1090	00:00:00.3661	80,330	79,504	12,180	11,354

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

Hyperlink in the:	Report Generated	Description
Data Source column.	Column Level for Data Source <a href="#">Data Source</a>	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.
Number of Times Used column.	Procedures Using <a href="#">Data Source</a>	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.

## 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.

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 sort the report by that column.

Data Sources - Historical Use							
Server Name: FUENT-PC:8121							
Date Range: 08/12/2016 - 09/13/2016							
Application Name	Data Source	Data Type	Year	Number of Times Used	Number of Distinct Users	% Total Requests	% Total Resources
wfdemo/dimensions	<a href="#">wf_retail_labor_rate</a>	EDA	<a href="#">2016</a>	1	1	1.04	.03
	<a href="#">wf_retail_marital_status</a>	EDA	<a href="#">2016</a>	1	1	1.04	.03
	<a href="#">wf_retail_occupation</a>	EDA	<a href="#">2016</a>	1	1	1.04	.04
	<a href="#">wf_retail_product</a>	EDA	<a href="#">2016</a>	8	2	8.33	8.83
	<a href="#">wf_retail_shipping_options</a>	EDA	<a href="#">2016</a>	1	1	1.04	.06
	<a href="#">wf_retail_store</a>	EDA	<a href="#">2016</a>	8	2	8.33	8.84
	<a href="#">wf_retail_time</a>	EDA	<a href="#">2016</a>	1	1	1.04	.05
	<a href="#">wf_retail_time_lite</a>	EDA	<a href="#">2016</a>	7	1	7.29	8.81
	<a href="#">wf_retail_vendor</a>	EDA	<a href="#">2016</a>	1	1	1.04	.04
<b>Total for: wfdemo/dimensions</b>				<b>52</b>		<b>54.17</b>	<b>44.92</b>
wfdemo/facts	<a href="#">wf_retail_labor</a>	EDA	<a href="#">2016</a>	1	1	1.04	.08
	<a href="#">wf_retail_sales</a>	EDA	<a href="#">2016</a>	8	2	8.33	8.86
	<a href="#">wf_retail_shipments</a>	EDA	<a href="#">2016</a>	1	1	1.04	.05
<b>Total for: wfdemo/facts</b>				<b>10</b>		<b>10.42</b>	<b>8.99</b>
<b>Grand Total:</b>				<b>96</b>		<b>100.00</b>	<b>100.00</b>

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

<b>Hyperlink in the:</b>	<b>Report Generated</b>	<b>Description</b>
Data Source column.	Column Level for Data Source <i>Data Source</i>	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.
Year column.	Data Access for <i>Data Source</i> during Year	Shows data access information for the specified data source and year, including number of requests, elapsed processing 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.

## Data Sources Report by Top N

The following image shows the Data Sources Report by Top n, which shows the top number of data sources used by the user. The number of data sources is specified in the Top number drop-down menu of the Report Filter. The available options for top number are 5, 10, 15, 20, and 25. The default value is 10.

<b>Top 10 Data Sources</b>					
Server Name: FUENT-PC:8121					
Date Range: 08/12/2016 - 09/13/2016					
Data Source	Number of Times Used	Total Records	Total Rows	DBMS I/O	Time in DBMS
wfdemo/dimensions/wf_retail_customer	8	11,051	11,051	11,551	2,100
wfdemo/dimensions/wf_retail_geography	8	11,051	11,051	11,551	2,260
wfdemo/dimensions/wf_retail_product	8	11,051	11,051	11,551	1,900
wfdemo/dimensions/wf_retail_store	8	11,051	11,051	11,551	1,920
wfdemo/facts/wf_retail_sales	8	11,051	11,051	11,551	2,020
wfdemo/dimensions/wf_retail_time_lite	7	11,050	11,050	11,550	1,870
wfdemo/wf_retail_lite	7	11,050	11,050	11,550	1,870
hold1	2	572	572	572	0
wm\$hold	2	572	572	1,144	0
ws\$hold	2	572	572	1,144	0
<b>Grand Total:</b>	<b>60</b>	<b>79,071</b>	<b>79,071</b>	<b>83,715</b>	<b>13,940</b>

## Exception Analysis Report

The Exception Analysis folder contains the Errors and Messages and Procedure with Errors reports, which provides information on error situations by procedure name.

### Errors and Messages

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

The following image shows the Errors and Messages report.

Issued Errors and Messages			
Server Name: FUENT-PC:8121			
Date Range: 08/12/2016 - 09/13/2016			
Errors and Messages	Message Count	First Issued	Last Issued
<a href="#">(FOC1350) ERROR IN SETTING INTERFACES ENVIRONMENT COMMAND. :SET CC-TRANSFORM OFF</a>	1	09/13/2016	09/13/2016
<a href="#">(FOC1400) SQLCODE IS 208 (HEX: 000000D0) XOPEN: 42S02</a>	1	09/13/2016	09/13/2016
<a href="#">(FOC1406) SQL OPEN CURSOR ERROR. :WF RETAIL SALES</a>	1	09/13/2016	09/13/2016
<a href="#">(FOC1500) : 'wrd_wf_retail_time_lite'[42000] Statement(s) could not be prepared.</a>	1	09/13/2016	09/13/2016
<a href="#">(FOC1500) : Microsoft SQL Native Client: [42S02] Invalid object name</a>	1	09/13/2016	09/13/2016
<a href="#">(FOC1500) : [ ] Deferred prepare could not be completed.</a>	1	09/13/2016	09/13/2016

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

Hyperlink in the:	Report Generated	Description
Errors and Messages column.	Errors and Messages	Shows the procedure and command count by user for the specified error message. You can drill down into procedures that issued the messages or to the command that issues the message, and then to all of the messages issued for the selected procedure.

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.

### Procedure with Errors

The Procedure with Errors report provides information on error situations by Procedure Name.



The following image shows the Procedure with Errors report.

Procedures - That ran with Errors			
Server Name: FUENT-PC:8121			
Date Range: 08/12/2016 - 09/13/2016			
Procedure Name	Error Count	First Execution	Last Execution
<a href="#">wfdemo/test/category_year_report</a>	1	09/13/2016	09/13/2016
<a href="#">wfdemo/test/country_map</a>	1	09/13/2016	09/13/2016

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

Hyperlink in the:	Report Generated	Description
Procedure Name column.	Requests Executed with Errors	Provides a list of requests that resulted in an error.

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. This report supplies you with information that helps you understand the usage of the domain reports and the users that run them, and provides a summary line of each domain that has been monitored..

**Note:** In the tables of drill-down links, terms shown in *italics* 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. The following image shows the Domain Usage report.

<b>Domain Summary</b>							
Server Name: FUENT-PC:8121							
Date Range: 06/01/2016 - 09/13/2016							
Domain Name	Number Monitored Reports	Number Monitored Users	Average Execution Time	Average CPU Time	Rows Returned	Records Processed	Last Accessed
<a href="#">catherine</a>	2	1	00:00:00.2276	00:00:00.1392	700	769	09/13/2016
<b>Grand Total</b>	<b>2</b>	<b>1</b>	<b>00:00:00.2276</b>	<b>00:00:00.1392</b>	<b>700</b>	<b>769</b>	

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

Hyperlink in the:	Report Generated	Description
Domain column.	Domain by Report Summary report	Provides the high level name of the reports that have been monitored, the number of times the report has been run, the average execution time the report 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 report names that have executed.

## Impact Analysis Report

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

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

The available report is the Change Impact for Column report. It provides information about 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.

Once you select the report, 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.

<b>Change Impact</b> Column: <b>ACTUAL</b> Server Name: FUENT-PC:8121 Date Range: 08/12/2016 - 09/13/2016				
Application	Procedure Name	Data Source	First Access	Last Access
wfdemo/test	<a href="#">wf_retail_validateload</a>	<a href="#">wfrhold1</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold10</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold11</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold12</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold13</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold14</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold15</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold16</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold17</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold18</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold19</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold2</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold20</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold3</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold4</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold5</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold6</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold7</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold8</a>	09/13/2016	09/13/2016
		<a href="#">wfrhold9</a>	09/13/2016	09/13/2016

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

Hyperlink in the:	Report Generated	Description
Procedure Name column.	Requests from Procedure <i>Procedure Name</i>	Shows a variety of information, including date and time, user, CPU seconds, elapsed execution 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.
Data Source column.	Column Level for Data Source <i>Data Source</i>	Shows usage for the columns for the specified data source, including whether they were used with functions, relations, selects, sorts, or groups, or if they were never used. Also allows you to drill down to see more information about when the columns were used.

## 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 sidebar and expand the *Reports* and *Resource Analyzer* folders. Expand the *Performance Analysis* folder. Right-click the desired report, and click *Run* from the context menu.

The following reports are available:

- Procedure Benchmarks Report.** Measures iterative improvements in resource expenditure and analyzes the response time of requests to determine whether Service Level Agreement (SLA) standards are being met.
- Excessive Resources Report.** Uncovers procedures with long-running requests, which use excessive resources and result in long waits for users.
- Long-running Requests Report.** Identifies procedures with long-running requests, which use excessive resources.
- Large Volume Requests 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, 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.
- ❑ **Optimization Report.** For WebFOCUS language reports, for example, TABLE FILE, that are run against a relational data source, the drill-down options in this report will lead the user to a report that will show the original code, which is translated SQL with a drill-down link to any aggregation messages. The Repository Log record for Translations must be selected for the drill-down report to be available.

For more information on the resource and performance analysis issues related to the Resource and Performance Analysis Reports, see [What Is Resource Analyzer?](#) on page 15.

**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.

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

The following image shows the Procedure Benchmarks 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 sort the report by that column.

<b>Procedure Benchmarks</b>							
Procedure: <a href="#">baseapp/prc01</a>							
Server Name: FUENT-PC:8121							
Date Range: 08/12/2010 - 09/12/2016							
<a href="#">Date</a>	<a href="#">Time</a>	<a href="#">User</a>	<a href="#">Execution Time</a>	<a href="#">CPU Time</a>	<a href="#">Adapter Time</a>	<a href="#">Usage Type</a>	<a href="#">Client Type</a>
2016/09/09	15:14:48.240	IB\ICF12026	00:00:00.0060	00:00:00.0060	00:00:00.0000	Executed	WebConsole

### 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.

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 following image shows the Excessive Resources report. 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 sort the report by that column.

**Excessive CPU, Long-running, Excessive I/O or Large Answer Set**

Thresholds: Elapsed Time: 0 CPU Time: 0  
 I/Os: 0 Rows: 0  
 Server Name: FUENT-PC:8121  
 Date Range: 08/12/2010 - 09/12/2016

Application Name	Procedure Name	Average Execution Time	Average CPU Time	Average Adapter Time	Average I/Os	Average Rows Returned
baseapp	<a href="#">prc01</a>	00:00:00.0020	00:00:00.0020	00:00:00.0000	1	0
	<a href="#">sales by brand</a>	00:00:00.0650	00:00:00.0000	00:00:00.0615	0	12
	<a href="#">testerror</a>	00:00:00.0600	00:00:00.0000	00:00:00.0000	1	0
Total for: baseapp		00:00:00.1270	00:00:00.0020	00:00:00.0615	2	12
unknown	<a href="#">Ad-Hoc</a>	00:00:00.2650	00:00:00.0219	00:00:00.0004	0	29
Total for: unknown		00:00:00.2650	00:00:00.0219	00:00:00.0004	0	29
Grand Total:		00:00:00.3920	00:00:00.0239	00:00:00.0619	2	41

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

Hyperlink in the:	Report Generated	Description
Procedure Name column.	Requests from Procedure <i>Procedure</i>	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.

**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.

The following image shows the Long-running Requests report. By default, the report is sorted by Average Elapsed Seconds and Average CPU Seconds.

Long-running Requests  
 Server Name: FUENT-PC:8121  
 Date Range: 08/12/2010 - 09/12/2016

Application Name	Procedure Name	Average Execution Time	Average CPU Time	Average Adapter Time	Average Rows	Average I/Os	Number of Distinct Users	Number of Times Used	First Executed	Last Executed
unknown	<a href="#">Ad-Hoc</a>	00:00:05.3623	00:00:00.2340	00:00:00.0000	140	0	1	3	08/31/2016	09/12/2016



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

Hyperlink in the:	Report Generated	Description
Procedure Name column.	Requests from Procedure: <i>Procedure Name</i>	Shows the requests that were executed from the selected procedure. Also allows you to drill down further to see the actual request syntax.

### 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.

The following image shows the Large Volume Requests report. By default the report is sorted by the highest Average Rows.

**Large Volume Requests**  
Server Name: FUENT-PC:8121  
Date Range: 08/12/2016 - 09/13/2016

Application Name	Procedure Name	Average Execution Time	Average CPU Time	Average Adapter Time	Average I/Os	Average Rows	Number of Distinct Users	Number of Executions	First Execution	Last Execution
unknown	<a href="#">Ad-Hoc</a>	00:00:00.4460	00:00:00.4070	00:00:00.0140	10,000	10,000	1	1	09/13/2016	09/13/2016

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

Hyperlink in the:	Report Generated	Description
Procedure Name column.	Requests from <i>Procedure Name</i>	Shows the requests that were executed from the selected procedure. Also allows you to drill down further to see the actual request syntax.

### 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.

The following image shows the Dormant Data report. 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.

Dormant Data - Data Source Summary						
Server Name: FUENT-PC:8121						
Date Range: 08/12/2016 - 09/13/2016						
Data Source	Data Type	Number Requests	Number Users	First Access	Last Access	Days Since Used
<a href="#">baseapp/dmortmplx</a>	EDA	0	0	Never	Never	0
<a href="#">baseapp/dmpers</a>	EDA	0	0	Never	Never	0
<a href="#">baseapp/dmxduplq_dupl</a>	EDA	0	0	Never	Never	0
<a href="#">baseapp/dmxord</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/ed_type_lookup</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/wf_retail_age</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/wf_retail_currency</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/wf_retail_customer</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/wf_retail_discount</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/wf_retail_education</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/wf_retail_employee</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/wf_retail_geography</a>	EDA	0	0	Never	Never	0
<a href="#">dimensions/wf_retail_income</a>	EDA	0	0	Never	Never	0

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

Hyperlink in the:	Report Generated	Description
Data Source column.	Dormant Data Summary: Column Level for <i>Data Source</i>	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.

## Excessive Joins Report

Joining too many tables can be slow and costly. Denormalization 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 help you decide how to plan your de-normalizing strategies.

The following image shows the Excessive Joins report. This report lists the most frequently joined data sources along with the procedures used to join them.

<b>Excessive Joins</b>			
Server Name: FUENT-PC:8121			
Date Range: 08/12/2016 - 09/13/2016			
Frequency of use	Application Name	Procedure Name	Data Sources Joined
7	unknown	<a href="#">Ad-Hoc</a>	wfdemo/wf_retail_lite
			wfdemo/facts/wf_retail_sales
			wfdemo/dimensions/wf_retail_customer
			wfdemo/dimensions/wf_retail_geography
			wfdemo/dimensions/wf_retail_time_lite
			wfdemo/dimensions/wf_retail_store
			wfdemo/dimensions/wf_retail_product
		<a href="#">report1</a>	wfdemo/wf_retail_lite
			wfdemo/facts/wf_retail_sales
			wfdemo/dimensions/wf_retail_customer
			wfdemo/dimensions/wf_retail_geography
			wfdemo/dimensions/wf_retail_time_lite
			wfdemo/dimensions/wf_retail_store
			wfdemo/dimensions/wf_retail_product
2	unknown	<a href="#">Ad-Hoc</a>	ws\$hold
			wm\$hold

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

Hyperlink in the:	Report Generated	Description
Procedure Name column.	Requests from <i>Procedure Joining Data source1, Data source2, Data sourcen</i>	Shows a variety of information, including date and time, user, CPU seconds, elapsed execution 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.

### 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.

The following image shows the Repeated Aggregations report. 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 sort the report by that column.

**Repeated Aggregations**  
 Server Name: FUENT-PC:8121  
 Date Range: 08/12/2016 - 09/13/2016

Number of Requests Using...	Function	Application Name	Data Source	Column Name	First Used	Last Used
3	SUM	wfdemo/facts	wf_retail_sales	REVENUE_LOCAL	09/13/2016	09/13/2016
1	CNT	wfdemo/dimensions	wf_retail_age	COUNT *	09/13/2016	09/13/2016
			wf_retail_currency	COUNT *	09/13/2016	09/13/2016
			wf_retail_customer	COUNT *	09/13/2016	09/13/2016
			wf_retail_discount	COUNT *	09/13/2016	09/13/2016
			wf_retail_education	COUNT *	09/13/2016	09/13/2016
			wf_retail_employee	COUNT *	09/13/2016	09/13/2016
			wf_retail_geography	COUNT *	09/13/2016	09/13/2016
			wf_retail_income	COUNT *	09/13/2016	09/13/2016
			wf_retail_industry	COUNT *	09/13/2016	09/13/2016
			wf_retail_labor_rate	COUNT *	09/13/2016	09/13/2016
			wf_retail_marital_status	COUNT *	09/13/2016	09/13/2016
			wf_retail_occupation	COUNT *	09/13/2016	09/13/2016
			wf_retail_product	COUNT *	09/13/2016	09/13/2016
			wf_retail_shipping_options	COUNT *	09/13/2016	09/13/2016
			wf_retail_store	COUNT *	09/13/2016	09/13/2016
			wf_retail_time	COUNT *	09/13/2016	09/13/2016
			wf_retail_vendor	COUNT *	09/13/2016	09/13/2016
		wfdemo/facts	wf_retail_labor	COUNT *	09/13/2016	09/13/2016
			wf_retail_sales	COUNT *	09/13/2016	09/13/2016
			wf_retail_shipments	COUNT *	09/13/2016	09/13/2016

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

Hyperlink in the:	Report Generated	Description
Function column.	Procedure Summary - Frequency of Use Using <i>Function</i> on <i>Data Source.Column Name</i>	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.

### 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.

This report shows how often columns were used as selection criteria in requests, as shown in the following image. Click any of the hyperlinked column headings to sort the report by that column.

Candidates for Column Index							
Server Name: FUENT-PC:8121							
Date Range: 06/01/2016 - 09/13/2016							
Application Name	Data Source Name	Column Name	Number Distinct Users	Number Data Requests	% Total Requests	First Access	Last Access
ibisamp	car	COUNTRY	3	10	.02	2016/07/13	2016/07/21

## Optimization

For WebFOCUS language reports, for example, TABLE FILE, that are run against a relational data source, the drill-down options in this report lead users to a report that will show the original code, which is translated SQL with a drill-down link to any aggregation messages.

<b>All Optimization Messages</b>				
Server Name: FUENT-PC:8121				
Date Range: 08/12/2016 - 10/21/2016				
Optimization Messages	Message Count	First Issued	Last Issued	
<a href="#">(FOC2590) AGGREGATION NOT DONE FOR THE FOLLOWING REASON:</a>	20	09/13/2016	10/21/2016	
<a href="#">(FOC2594) AGGREGATION IS NOT APPLICABLE TO THE VERB USED</a>	17	09/13/2016	10/21/2016	
<a href="#">(FOC2510) FOCUS-MANAGED JOIN SELECTED FOR FOLLOWING REASON(S):</a>	3	10/21/2016	10/21/2016	
<a href="#">(FOC2511) DISABLED BY USER</a>	3	10/21/2016	10/21/2016	
<a href="#">(FOC2592) RDBMS-MANAGED JOIN HAS BEEN DISABLED</a>	3	10/21/2016	10/21/2016	

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

Hyperlink in the:	Report Generated	Description
Optimization Messages column.	All Optimization Messages	Shows the procedure and command count by user for the selected message.

If you drill down on the Command Count hyperlink, a report opens that lists the Command Names. If that column has an active drilldown, you can click that link and open the Original/Translated/Messages report, as shown in the following image.

<b>Original/Translated/Messages Report</b>		
Procedure: <a href="#">wfdemo/test/prc03</a>		
Server Name: FUENT-PC:8121		
Date Range: 08/12/2016 - 10/21/2016		
<a href="#">(FOC2510) FOCUS-MANAGED JOIN SELECTED FOR FOLLOWING REASON(S):</a>		
Original Request	Translated Request	Messages
TABLE FILE WF_RETAIL_PRODUCT SUM CNT.BRAND END	SELECT T1."BRAND" FROM wrd_wf_retail_product T1	<a href="#">Yes</a>

The following columns are available:

Column	Description
Original Request	Shows the original request contents.
Translated Request	Shows the SQL that was sent to the RDBMS, if the original request was for a relational table.
Messages	Indicates if any messages were issued for this request.

If you click the drilldown in the Messages column, the report shows that the reason the request was not optimized is because optimization was disabled by the user, as shown in the following image.

**All Optimization Messages**  
**Procedure: [wfdemo/test/prc03](#)**  
**Server Name: FUENT-PC:8121**  
**Date Range: 08/12/2016 - 10/21/2016**

Message Number	Adapter
<a href="#">FOC2510</a>	FOCUS-MANAGED JOIN SELECTED FOR FOLLOWING REASON(S):
<a href="#">FOC2511</a>	DISABLED BY USER
<a href="#">FOC2590</a>	AGGREGATION NOT DONE FOR THE FOLLOWING REASON:
<a href="#">FOC2592</a>	RDBMS-MANAGED JOIN HAS BEEN DISABLED

## 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 sidebar and expand the *Reports* and *Resource Analyzer* folders. Expand the *Network Analysis* folder. Right-click the desired report, and click *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 that 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.

The following image shows the Bandwidth by Procedure report.

**Bandwidth Used**  
**By Procedure**  
**Server Name: FUENT-PC:8121**  
**Date Range: 08/12/2010 - 09/12/2016**

Application Name	Procedure Name	Year	Month	Bandwidth*
baseapp	prc01	2016	September	0
	sales_by_brand	2016	September	0
	testerror	2016	September	0
unknown	Ad-Hoc	2016	August	0
			September	0

### Resources by Connection

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



The following image shows the Resources by Connection report.

Resource Usage by Connection							
Server Name: FUENT-PC:8121							
Date Range: 08/12/2010 - 09/12/2016							
Connection	Connection Time	CPU Time	Adapter Time	I/Os	Rows	Records	Transactions
<a href="#">172.30.232.79</a>	00:00:29.6770	00:00:09.9310	00:00:13.7190	152	3,469	8,336	1,282
<b>Total for: 172.30.232.79</b>	<b>00:00:29.6770</b>	<b>00:00:09.9310</b>	<b>00:00:13.7190</b>	<b>152</b>	<b>3,469</b>	<b>8,336</b>	<b>1,282</b>
<a href="#">172.30.234.147</a>	00:00:02.5570	00:00:01.5560	00:00:00.2330	30	549	1,818	3
<b>Total for: 172.30.234.147</b>	<b>00:00:02.5570</b>	<b>00:00:01.5560</b>	<b>00:00:00.2330</b>	<b>30</b>	<b>549</b>	<b>1,818</b>	<b>3</b>
<a href="#">::1</a>	00:00:02.6080	00:00:00.7640	00:00:00.3450	20	309	2,429	244
<b>Total for: ::1</b>	<b>00:00:02.6080</b>	<b>00:00:00.7640</b>	<b>00:00:00.3450</b>	<b>20</b>	<b>309</b>	<b>2,429</b>	<b>244</b>
<a href="#">Deferred Listener</a>	00:00:00.0380	00:00:00.0000	00:00:00.0000	0	0	0	0
<b>Total for: Deferred Listener</b>	<b>00:00:00.0380</b>	<b>00:00:00.0000</b>	<b>00:00:00.0000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<a href="#">Deferred request</a>	00:00:21.6080	00:00:01.8140	00:00:12.5960	0	8	8	0
<b>Total for: Deferred request</b>	<b>00:00:21.6080</b>	<b>00:00:01.8140</b>	<b>00:00:12.5960</b>	<b>0</b>	<b>8</b>	<b>8</b>	<b>0</b>
<a href="#">Scheduler work</a>	00:00:18.9560	00:00:01.1400	00:00:00.0000	0	512	512	420
<b>Total for: Scheduler work</b>	<b>00:00:18.9560</b>	<b>00:00:01.1400</b>	<b>00:00:00.0000</b>	<b>0</b>	<b>512</b>	<b>512</b>	<b>420</b>
<a href="#">cmrsh000001</a>	00:00:01.2750	00:00:00.1470	00:00:00.0000	0	0	0	0
<b>Total for: cmrsh000001</b>	<b>00:00:01.2750</b>	<b>00:00:00.1470</b>	<b>00:00:00.0000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Grand Total:</b>	<b>00:01:16.7190</b>	<b>00:00:15.3520</b>	<b>00:00:26.8930</b>	<b>202</b>	<b>4,847</b>	<b>13,103</b>	<b>1,949</b>

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

Hyperlink in the:	Report Generated	Description
Connection column.	Resources by Connection in <i>Network Node</i>	Shows the resources for each connection address.

## 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 sidebar and expand the *Reports* and *Resource Analyzer* folders. Expand the *Graph Reports* folder. Right-click the desired report, and click *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 of request activity or resource usage by different time periods.

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*.

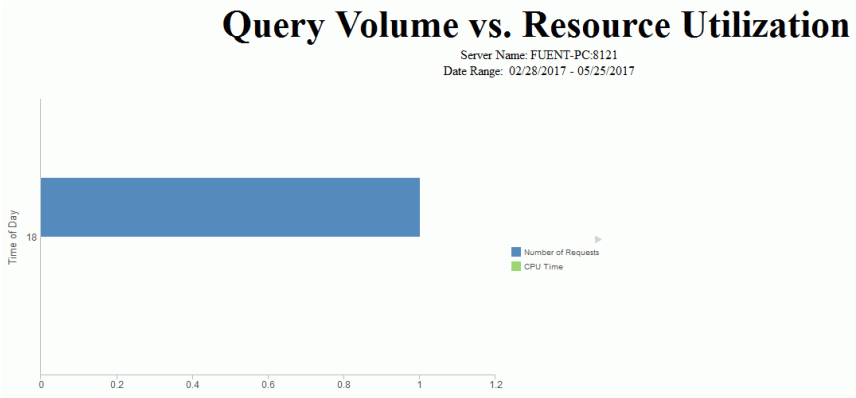
### **Query Volume vs. Resource Utilization Report**

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

This report compares the number of requests to one of four factors of resource usage: CPU seconds, elapsed execution 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 122.

By default, the first graph that appears shows requests graphed against CPU Time.

The following image shows the Query Volume vs. Resource Utilization Report.





## Getting Help

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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* and *Resource Analyzer Report Options*. The first topic is selected in this image.

The screenshot shows the Web Console help page. On the left is a navigation menu with a search bar at the top. The search bar contains the text "Search for" and "All Documents" with a "Go" button. Below the search bar is a text input field with "5" and the text "Max. 5 matches per document". The navigation menu lists various topics, with "Resource Analyzer and Resource Governor" expanded to show sub-topics: "Resource Management Interface", "Administering Resource Management From the Web Console", and "Migrating the Resource Management Repository".

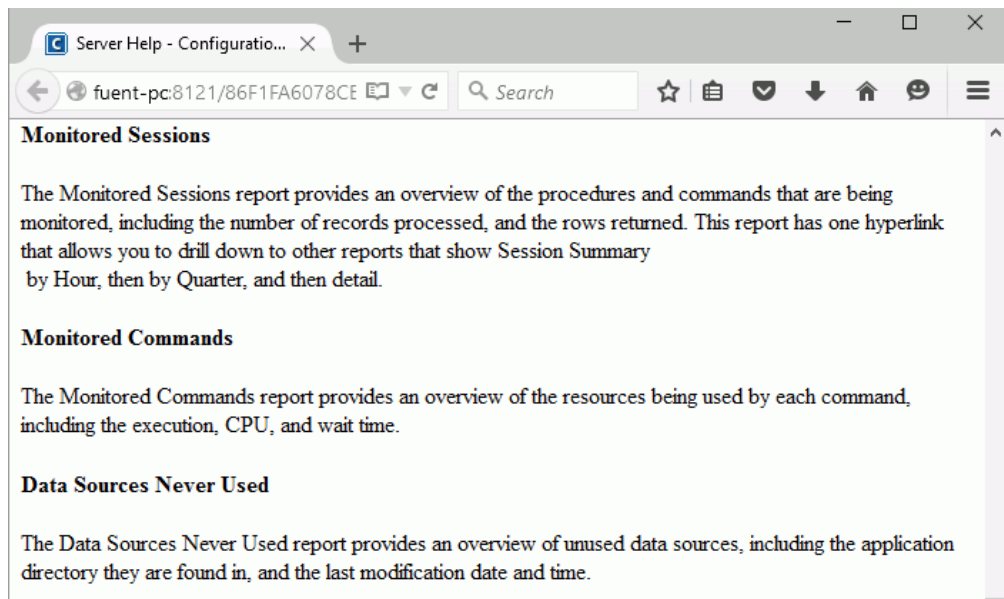
The main content area is titled "Resource Analyzer and Resource Governor" and includes an "INDEX" button. It features a "Topics:" section with a list of sub-topics: "Resource Management Interface", "Administering Resource Management From the Web Console", and "Migrating the Resource Management Repository". To the right of this list is a detailed description of Resource Analyzer and Resource Governor, explaining their roles in monitoring data usage and governing requests. Below the description is a "Top of page" link.

Below the main content is a section titled "Resource Management Interface" with an "In this section:" header and a list of sub-topics: "Ribbon" and "Ribbon Organization". Below this list is a paragraph explaining that the Resource Management Web Console functionality is available through a ribbon at the top of the interface, which replaces traditional toolbars with a single, rectangular region that spans the width of the application window. It also notes that there are two ribbons in Resource Management and that the following image shows the ribbon before configuration has taken place.

## 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 Monitored Sessions report, the window displays the Monitored Sessions topic, as shown in the following image.







## Administrative Usage Monitoring Tables Column Descriptions

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This appendix provides descriptions of the Administrative and Usage Monitoring tables. Each description shows the table column definitions.

**In this appendix:**

- ❑ [Usage Monitoring Table \(RMLDB.MAS\)](#)
  - ❑ [Usage Monitoring RDBMS Table Sizing](#)
- 

### 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.
- ❑ A hash tag (#) next to a field denotes that it is new in this release. A dollar sign (\$) next to a field denotes that it has been renamed. A DEFINE has been added to the Master File Description that redefines the new field name to the old field name for compatibility purposes.
- ❑ On MVS, for both HFS and PDS deployments, the MVSAPP entry in the servers edasprof profile should not be removed. If it is, some data field values may not be collected and will be blank.

### 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.

Field	Value	Description
SMSRVNAMES	Alphanumeric, length=128V	SERVERNAME value.
SITECODE	Alphanumeric, length=7	Information Builders site code value.
MINSESSDATE	Alphanumeric, length=8	The first session date in the database for this server. The format is YYYYMMDD.
MAXSESSDATE	Alphanumeric, length=8	The last session date in the database for this server. The format is YYYYMMDD.
MONSTATUS	Alphanumeric, length=1	Monitoring status: I=Inactive, A=Active.
CNFGDATE	Alphanumeric, length=8	Configuration date.
LAST_MAINT	Alphanumeric, length=8	Date of last repository maintenance.
LAST_UPDATE	Alphanumeric, length=8	Date of last repository update.
SESSCOUNT	Double	Count of sessions in repository.
DBRELEASE	Alphanumeric, length=10	Repository release number.
SRVRNUM	Numeric, length=4	Server number. Used in many-to-one configurations.

## 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.

Field	Value	Description
SESSKEY	Alphanumeric, length=38	Session key. This key is a unique value for each session for a server.
SMSERVER	Alphanumeric, length=128V	The server the session ran on. This is a required field to support relational databases used by the cluster master.
SESSDATE	Alphanumeric, length=8	The session date. The format is YYYYMMDD.
SESSSTART	Alphanumeric, length=9	The session start time. The format is HHMMSSNNN.
SESSSTOP	Alphanumeric, length=9	The session end time. The format is HHMMSSNNN.
SESSDUR**	Double	The session duration time.
SESSCPU**	Double	The session CPU time.
SESSWAIT**	Double	The session wait time.
SESSIOS	Double	The number of I/O operations used in the session.
SESSRECORDS	Double	The number of RECORDS processed in the session.
SESTRANS	Double	The number of TRANSACTIONS processed in the session.
SESSLINES	Double	The number of LINES returned or held in the session.
SMUSERID	Alphanumeric, length=128V	The effective user ID for the session. This is the connection user ID unless overridden.
USERIDTYPE	Alphanumeric, length=1	GKE %(M)RE USERID   GKE %(U)SERID override value. Values are M, U, or blank.

Field	Value	Description
SMLIVE	Alphanumeric, length=1	Indicates the type of session. Values are 0, 1, 2, 3, 4, or 5.  See the SESSTYPE definition for descriptive values.
SESSFEXCNT	Numeric, length=4	Number of FOCEXECs monitored during the session.
SESSCMDCNT	Numeric, length=4	Number of commands monitored throughout the session.
SESSAUDCNT#	Numeric, length=4	The number of SMAUDIT segment records for this session.
SESSPREF	Alphanumeric, length=64	Monitor preference setting when session started.
SMCONNTYPE	Alphanumeric, length=1	See NETWORK DEFINE.
SMCONNID	Alphanumeric, length=128V	Connection user ID.
SMGROUP	Alphanumeric, length=128V	Security group for SMCONNID.
SMCONNADDR	Alphanumeric, length=48	Network connection address.
CONNRETCODE	Alphanumeric, length=10	Connection return code.
SMCLIENTTYPE	Alphanumeric, length=32	CLIENT value if sent from the client.
SMFOCREL	Alphanumeric, length=30	Usage Monitor release and build number.
SMSEZIIPTIME**	Double	The zIIP processor time used. This value is only available on MF processors running z/OS.

Field	Value	Description
SMSEZIIPONCP**	Double	The zIIP on CP value. This value is only available on MF processors running z/OS.
SMSEZIIPON	Alphanumeric, length=1	Indicates if zIIP was enabled. Values are Y, N, or blank. This value is only available on MF processors running z/OS.
SESSCPUID	Alphanumeric, length=48	CPUID value.
SESSLPARNM	Alphanumeric, length=8	The LPAR name the session ran on. This value is only available on MF processors running z/OS.
SESSMODELID	Alphanumeric, length=8	The CPU model ID the session ran on. This value is only available on MF processors running z/OS.
SMCLNTCODEPG	Double	The code page of the NLS client.
SMJOBID	Alphanumeric, length=63	Job ID of the scheduled or deferred job.
SMFOCUSIO	Double	The number of FOCUS I/O operations in the session.
SMDBMSIO	Double	The number of RDBMS adapter I/O operations used in the session.
SMDBMSTIME**	Double	Elapsed time spent in RDBMS.
SMMEMUSAGE	Double	Megabytes of memory used in the session. This value includes Fixed Memory on MF processors running z/OS.
SMDISKUSAGE	Double	Kilobytes of disk space used in the session.
SMSVCNAME	Alphanumeric, length=64	Agent Service Name.
SESSSRVRNUM	Numeric, length=4	Server number. Used in many-to-one configurations.
SMMEMORY	Double	Kilobytes(KB) of swappable memory used.

Field	Value	Description
SMMEMFIXED	Double	Kilobytes(KB) of fixed memory used. This value is only available on MF processors running z/OS.
SMSYSPCTCPUUSAGE#	Numeric, length=4	The percent of system CPU usage at session start.
SMSYSMEMORY#	Double	The amount of memory available at session start.
SMSYSFREEMEMORY#	Double	The amount of free memory available at session start.
SMSYSVIRTMEMORY#	Double	The amount of virtual memory available at session start.
SMSYSFREEVIRTMEMORY#	Double	The amount of free virtual memory available at session start.

## 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.

Field	Value	Description
SMRPCKEY	Alphanumeric, length=38	Session key value.
SMRPCNUM	Numeric, length=4	The execution order number. Values are 1 to 2,147,483,647.
SMRPCDATE	Alphanumeric, length=8	The date the procedure was executed. The format is YYYYMMDD.
SMRPC TIME	Alphanumeric, length=9	The time the procedure was started. The format is HHMMSSNNN.

Field	Value	Description
SMRPCSTOP	Alphanumeric, length=9	The time the procedure ended. The format is HHMMSSNNN.
SMFEXNAME	Alphanumeric, length=577V	The procedure name. This is the WebFOCUS physical name. The path to the file is located in SMRPCWF.SMWFBASEDIR
SMRPCETIME**	Double	The procedure execution time.
SMRPCCTIME**	Double	The procedure CPU time.
SMRPCWTIME**	Double	The procedure wait time.
SMRPCIOS	Double	The number of I/O operations by the procedure.
SMRPCRECORDS	Double	The number of RECORDS processed by the procedure.
SMRPCTRANS	Double	The number of TRANSACTIONS processed by the procedure.
SMRPCCLINES	Double	The number of LINES returned or held by the procedure.
SMRPCPNUM	Alphanumeric, length=4	Parent procedure number or 0.
SMRPCATYPE	Alphanumeric, length=1	Type of procedure. I (-INCLUDE), E (EX), M (MFD_profile), or S (Stored Procedure Call).
SMRPCEND	Alphanumeric, length=1	Indicates how the procedure ended. Values are E, Q, or blank.  E = Exit or Run, Q = Quit.
SMRPCWF	Alphanumeric, length=1	Request originated from WebFOCUS.
SMRPCWC	Alphanumeric, length=1	Request originated from Web Console.

Field	Value	Description
SMRPCLOC	Alphanumeric, length=254V	Physical location of the procedure.
SMRPCZIIPTIME**	Double	The zIIP processor time used. This value is only available on MF processors running z/OS.
SMRPCZIIPONCP**	Double	The zIIP on CP values. This value is only available on MF processors running z/OS.
SMRPCZIIPON	Alphanumeric, length=1	Indicates if zIIP was enabled. Values are Y, N, or blank. This value is only available on MF processors running z/OS.
SMRPCFOCUSIO	Double	The number of FOCUS I/O operations by the procedure.
SMRPCDBMSIO	Double	The number of RDBMS adapter I/O operations by the procedure.
SMRPCDBMSTIME**	Double	Elapsed time spent in RDBMS.
SMRPCSRVRNUM	Numeric, length=4	Server number. Used in many-to-one configurations.
SMRPCPCTCPUUSAGE#	Numeric, length=4	The percent of system CPU usage at procedure start.
SMRPCSYSTEMMEMORY#	Double	The amount of memory available at procedure start.
SMRPCSYSFREEMEMORY#	Double	The amount of free memory available at procedure start.
SMRPCSYSVIRTMEMORY#	Double	The amount of virtual memory available at procedure start.
SMRPCSYSFREEVIRTMEMORY#	Double	The amount of free virtual memory available at procedure start.
SMRPCNUMPARMS#	Numeric, length=4	The number of SMRPCCCMD segment records for this procedure.



## 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.

Field	Value	Description
<a href="#">SMPPARMKEY\$</a>	Alphanumeric, length=38	Session key value.
<a href="#">SMPPARMNUM\$</a>	Numeric, length=4	Procedure number.
<a href="#">SMPPARMSEQ</a>	Numeric, length=4	Procedure line segment number.
<a href="#">SMRPPARMS</a>	Alphanumeric, length=1024V	Procedure parameter and value (1 pair per record).
<a href="#">SMRPCCSRVRNUM</a>	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.

Field	Value	Description
<a href="#">SMRWFKEY\$</a>	Alphanumeric, length=38	Session key value.
<a href="#">SMRWFNUM\$</a>	Numeric, length=4	Procedure number.
<a href="#">SMWFFEXNAME</a>	Alphanumeric, length=577V	WebFOCUS procedure name. Also DEFINE as SMWFRPCNAME.
<a href="#">SMWFBASEDIR</a>	Alphanumeric, length=254V	WebFOCUS base directory path value. Also DEFINE as SMBASEDIR.

Field	Value	Description
SMWFDOMAIN	Alphanumeric, length=254V	WebFOCUS MR domain name value. Also DEFINE as SMDOMAIN.
SMWFAPPPATH	Alphanumeric, length=254V	WebFOCUS MR application directory value. Also DEFINE as SMAPPPATH.
SMRCSCHEDID	Alphanumeric, length=66	ReportCaster scheduler ID.
SMRCPROCID	Alphanumeric, length=66	ReportCaster process ID.
SMWFMRGROUP	Alphanumeric, length=A128V	Reserved for a future release.
SMWFSRVNUM	Numeric, length=4	Server number. Used in many-to-one configurations.

## SMQUERY Segment

This segment contains a record for each monitored request executed. It is the parent segment for SMCMDLN, SMRMTS, 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.

Field	Value	Description
SMKEY	Alphanumeric, length=38	Session key value.
SMCMDNUM	Numeric, length=4	Request number.
SMCMDNAME	Alphanumeric, length=12	The name of the FOCUS or SQL request type.
SMDATE	Alphanumeric, length=8	The date the command was executed. Format is YYYYMMDD.

Field	Value	Description
SMTIME	Alphanumeric, length=9	The time the command started. The format is HHMMSSNNN.
SMSTOP	Alphanumeric, length=9	The time the command ended. The format is HHMMSSNNN.
SMELOPTIME**	Double	The request execution time.
SMCPUTIME**	Double	The request CPU time.
SMWAITTIME**	Double	The request wait time.
SMIOS	Double	The number of I/O operations used by the request.
SMRECORDS	Double	The number of RECORDS processed by the request.
SMTRANS	Double	The number of TRANSACTIONS processed by the request.
SMROWS	Double	The number of LINES returned or held by the request.
SMROWLEN	Numeric, length=4	Longest record length of rows held/returned.
SMOUTLIMIT	Numeric, length=4	SQL and FOCUS request max output limit.
SMRECLIMIT	Numeric, length=4	FOCUS requests of max RECORDS read. SQL requests of max OUTPUT records.
SMREADLIMIT	Numeric, length=4	Max READS for MODIFY requests.
SMRETCODE	Numeric, length=4	Command return code.
SMUNIONS	Numeric, length=4	Number of SQL UNION statements.
SMUNIONALLS	Numeric, length=4	Number of SQL UNION ALL statements.
SMNUMFROMS	Numeric, length=4	Number of data sources used.

Field	Value	Description
SMNUMCOLUMNS	Numeric, length=4	Number of columns used.
SMNUMRELATIONS	Numeric, length=4	Number of relational clauses.
SMNUMGROUPBYS	Numeric, length=4	Number of GROUP BYs.
SMNUMORDERBYS	Numeric, length=4	Number of SQL ORDER BY or FOCUS BY.
SMNUMFUNCTIONS	Numeric, length=4	Number of functions used.
SMNUMREMOTES	Numeric, length=4	Number of remote connections used.
SMSORTIO	Double	Number of sort I/O operations used.
SMEXTSORT	Alphanumeric, length=1	Indicates whether an external sort was used. Values are Y or N.
SMREQTYPE	Alphanumeric, length=1	Type of request. See REQUESTTYPE DEFINE in the Master File.
SMMDIFYTYPE	Alphanumeric, length=1	Type of MODIFY or MAINTAIN. See MODIFYTYPE DEFINE in the Master File.
SMCOLLECT	Alphanumeric, length=1	Reason for collection. See SMSTATUS DEFINE in the Master File.
SMALLROWS	Alphanumeric, length=1	Indicates whether all rows were returned: 0 = Incomplete. 1 = Complete. 2 = Data adapter limited.
SMALLCOLS	Alphanumeric, length=1	Indicates whether a SELECT * or PRINT * used. Values are Y or N.
SMSETALL	Alphanumeric, length=1	Indicates whether SET ALL was used: 0 = OFF 1 = ON 2 = PASS

Field	Value	Description
SMCORRQRY	Alphanumeric, length=1	Indicates whether the SQL request was correlated. Values are Y, N, or blank.
SMHLDTYPE	Alphanumeric, length=1	Type of HOLD file. See HOLDTYPE DEFINE in the Master File.
SMHLDFORMAT	Alphanumeric, length=2	Format of hold file. See HOLDFORMAT DEFINE in the Master File.
SMHLDNAME	Alphanumeric, length=577V	HOLD file name.
SMRPCNAME	Alphanumeric, length=577V	Procedure name the request originated from. Blanks = Ad hoc.
SMFEXLNO	Alphanumeric, length=10	Procedure line number if SMRPCNAME is not blank.
SMFEXLOC	Alphanumeric, length=254V	Physical location of the procedure if SMRPCNAME is not blank.
SMZIIPTIME**	Double	The zIIP processor time used. This value is only available on MF processors running z/OS.
SMZIIPONCP**	Double	The zIIP on CP value. This value is only available on MF processors running z/OS.
SMZIIPON	Alphanumeric, length=1	Indicates if zIIP was enabled. Values are Y, N, or blank. This value is only available on MF processors running z/OS.
SMCMDFOCUSIO	Double	The number of FOCUS I/O operations by the request.
SMCMDDBMSIO	Double	The number of RDBMS adapter I/O operations by the request.
SMRPCDBMSTIME**	Double	Elapsed time spent in RDBMS.
SMQPRIMRPCNUM	Numeric, length=4	SMRPCS.SMRPCNUM value of the primary procedure or 0.

Field	Value	Description
SMQRPCNUM	Numeric, length=4	SMRPCS.SMRPCNUM value or 0.
SMREMARKS	Alphanumeric, length=254V	Notes from admins, updated by GKE %REMARK command.
SMQSRVRNUM	Numeric, length=4	Server number. Used in many-to-one configurations.
SMNUMCMDLNS#	Numeric, length=4	The number of SMCMDLN segment records for this request.

### SMCMDLN Segment

This segment contains one or more records that comprise the original request.

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

Field	Value	Description
SMCLNKEY	Alphanumeric, length=38	Session key value.
SMCLNCNUM\$	Numeric, length=4	Command number.
SMCLNSEQ\$	Numeric, length=4	Command line segment number.
SMCMDLINE	Alphanumeric, length=72V	Command line.
SMCLSRVRNUM	Numeric, length=4	Server number. Used in many-to-one configurations.

### 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.

**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	Value	Description
SMGOVKEY	Alphanumeric, length=38	The session key.
SMGOVCNUM\$	Numeric, length=4	Request number.
SMKBNAME	Alphanumeric, length=48	Compiled rule file used.
SMRULENUM	Alphanumeric, length=4	Rule number that determined the result or decision.
SMTHRESHTYPE	Alphanumeric, length=8	Type of threshold exceeded.
SMTHRESHHOLD	Alphanumeric, length=10	Value of threshold exceeded.
SMGDBMS	Alphanumeric, length=8	EDA or SQL engine suffix.
SMGKNBTYPE	Alphanumeric, length=6	Type of compiled rule file. Values are Both, Data, Custom, or Global.
SMGDSNAME	Alphanumeric, length=577V	Data source for compiled rule file.
SMGOVNTYPE	Alphanumeric, length=1	C = Canceled, A = Advised
SMGSRVRNUM	Numeric, length=4	Server number. Used in many-to-one configurations.

## 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.

Field	Value	Description
SMRMTKEY	Alphanumeric, length=38	The session key.
SMRMTNUM\$	Numeric, length=4	The request number.
SMRMTSEQ\$	Numeric, length=4	Remote number.
SMRMTETIME	Double	Remote session duration time.
SMRMTCTIME	Double	Remote session CPU time.
SMRMTIOS	Double	The number of I/O operations used in the remote session.
SMRMTROWS	Double	The number of rows returned from the remote session.
SMRMTSQLCODE	Alphanumeric, length=11	The SQL return code from the remote request.
SMRMTPID	Alphanumeric, length=11	Process ID of the session on the remote server.
SMRMTDATE	Alphanumeric, length=8	The local date on the remote server.
SMRMTTIME	Alphanumeric, length=9	Local time on the remote server.
SMRMTNAME	Alphanumeric, length=128V	Remote server name.
SMRMTSRVRNUM	Numeric, length=4	Server number. Used in many-to-one configurations.

## 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.



Field	Value	Description
SMFUNKEY	Alphanumeric, length=38	The session key.
SMFUNCNUM\$	Numeric, length=4	The request number.
SMFUNSEQ\$	Numeric, length=4	The function number.
SMFUNCTION	Alphanumeric, length=12	The function name.
SMFNAME	Alphanumeric, length=577V	The data source that the field used.
SMFCOLUMN	Alphanumeric, length=512V	The field that the function used.
SMASTKUSED	Alphanumeric, length=1	Indicates whether or not an asterisk was used by the function. Values are Y or N.
SMFLITERAL	Alphanumeric, length=32	The literal value, if used.
SMFSRVNUM	Numeric, length=4	Used in many-to-one configurations.

### SMRELTNS 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.

Field	Value	Description
SMRELKEY	Alphanumeric, length=38	The session key.
SMRELCNUM\$	Numeric, length=4	The request number.
SMRELSEQ\$	Numeric, length=4	The relation number.

Field	Value	Description
SMLNAME	Alphanumeric, length=577V	Data source name used in the LHS.
SMLCOLUMN	Alphanumeric, length=512V	Field name used in the LHS.
SMRNAME	Alphanumeric, length=577V	Data source name used in the RHS, or blanks.
SMRCOLUMN	Alphanumeric, length=512V	Field name used in the RHS, or blanks.
SMPERATOR	Alphanumeric, length=8	Operator used in the clause. For example, <, =, !=, etc.
SMANDOR	Alphanumeric, length=3	The AND or OR relational connector used.
SMNOT	Alphanumeric, length=1	The NOT keyword used. Values are Y or N.
SMALL	Alphanumeric, length=1	The ALL keyword used. Values are Y or N.
SMANY	Alphanumeric, length=1	The ANY keyword used. Values are Y or N.
SMLITERAL	Alphanumeric, length=32	The literal value, if used.
SMRSRVNUM	Numeric, length=4	Server number. Used in many-to-one configurations.

## 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.

Field	Value	Description
SMFRMKEY	Alphanumeric, length=38	The session key.
SMFRMCNUM\$	Numeric, length=4	The request number.
SMDSNUM	Numeric, length=4	The data source number.
SMNAME	Alphanumeric, length=577V	The data source name.
SMSUFFIX	Alphanumeric, length=8	The data source suffix, or blanks.
SMDBMS	Alphanumeric, length=8	The EDA or SQL engine suffix.
SMDATATYPE	Alphanumeric, length=1	The data source type: P = Permanent T = Temporary R = Relational
SMMORE	Alphanumeric, length=1	Used as MORE FILE. Values are Y, N, or blank.
SMSUNAME	Alphanumeric, length=8	The SU identifier.
SMALIAS	Alphanumeric, length=128V	The USE AS alias name.
SMDBLOC	Alphanumeric, length=577V	The data source location. Formerly named SMDBNAME.
SMMASLOC	Alphanumeric, length=577V	The Master File location.
SMTBLNAME	Alphanumeric, length=577V	Table name of the relational table.
SMFRSRVRNUM	Numeric, length=4	Server number. Used in many-to-one configurations.
SMNUMCOLS#	Numeric, length=4	The number SMCOLMNS segment records for this Data Source.

## 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.

Field	Value	Description
SMCOLKEY	Alphanumeric, length=38	The session key.
SMCOLCNUM\$	Numeric, length=4	The request number.
SMCOLDSNUM\$	Numeric, length=4	The data source number.
SMCOLSEQ\$	Numeric, length=4	The column number.
SMCOLUMN	Alphanumeric, length=512V	The column/field name.
SMDEFINE	Alphanumeric, length=1	Column type: 0 = UNKNOWN 1 = REAL 2 = PERMANENT DEFINE 3 = TEMPORARY DEFINE 4 = COMPUTE
SMIDXKEY	Alphanumeric, length=1	The indexed field. Values are Y or N.
SMBYTYPE	Alphanumeric, length=1	BY type: 1 = ORDER BY or BY 2 = GROUP BY 3 = ORDER BY & GROUP BY, or blank. Not used with BY.

Field	Value	Description
<a href="#">SMBYORDER</a>	Alphanumeric, length=1	Sort order: ascending (A), descending (D), or blank.
<a href="#">SMCOLSRVRNUM</a>	Numeric, length=4	Server number. Used in many-to-one configurations.
<a href="#">SMDVPROP</a>	Alphanumeric, length=1	Dimension Property: Dimension (D), Measure (M), or blank.
<a href="#">SMASNAME#</a>	Alphanumeric, length=512V	The AS value used in a request. This will only be populated if SET ASNAME ON is used before the request.

### 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.

Field	Value	Description
<a href="#">SMAUDITKEY</a>	Alphanumeric, length=38	Session key.
<a href="#">SMAUDITNUM</a>	Numeric, length=4	Audit Sequence number.
<a href="#">SMAUDITFEXNUM</a>	Numeric, length=4	Procedure number that caused this record to be created.
<a href="#">SMAUDITCMDNUM</a>	Numeric, length=4	Request number that caused this record to be created.
<a href="#">SMAUDITTYPE</a>	Alphanumeric, length=12	Audit record type. Values are: <ul style="list-style-type: none"> <li><input type="checkbox"/> Focus2SQL</li> <li><input type="checkbox"/> Transform</li> </ul>
<a href="#">SMAUDITREC</a>	Alphanumeric, length=512V	Audit record.

Field	Value	Description
<a href="#">SMAUDITSRVNUM</a>	Numeric, length=4	Server number. Used in many-to-one configurations.
<a href="#">SMAUDITEMGSRV</a>	Alphanumeric, length=1	Y (Message was displayed), N (Message was not displayed), or blank (Not a message record).

## 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 two levels of detail in Stored Procedure monitoring.
  - There are seven levels of detail in Command 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. All VARCHAR fields are the ACTUAL size plus 2 bytes. This size difference is used in the Table Size chart but not in the tables used to describe each field.

**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 Name	Number of Rows	Row Size	Table Size in KB*	Notes
<a href="#">SMSERVERS</a>	1	220	1	1- <i>n</i> rows. Where <i>n</i> is the number of configured servers in the repository.
<a href="#">SMSESSIONS</a>	30000	1151	59011	One row per session.

Table Name	Number of Rows	Row Size	Table Size in KB*	Notes
SMQUERY	300000	2277	1167407	One row per data request.
SMREQUESTS	3000000	124	635724	1- <i>n</i> rows per data request, where <i>n</i> is the number of 72 character segments in the data request.
SMGOVERN\$	15000	710	18175	One row per governed request.
SMREMOTES	20000	251	8579	1- <i>n</i> rows per suffix=EDA data request, where <i>n</i> is the number of subservers used in the request.
SMFROMS	750000	2526	3237671	One row for each data source used.
SMCOLUMNS	1500000	1087	2786499	One row per column returned or held.
SMFUNCTIONS	50000	1188	101514	One row per function used.
SMRELATIONS	150000	2282	584985	One row per relational test.
SMRPCS	35000	1375	82245	One row per stored procedure.
SMRPCREQUESTS	40000	1076	73555	One row per parameter pass to the procedure. For example, EX MYCAR PARM1=A, PARM2=B will create two rows. If the procedure is executed without any parameters, then no rows are created.
SMRPCWF	35000	2624	156953	One row per stored procedure from WebFOCUS.
SMAUDIT	3000000	581	2973633	1- <i>n</i> rows per translated request or message issued in a session.

Example of a WebFOCUS procedure:

```
EX MYWFFEX PAY=50000
```

Where MYWFFEX contains:

```
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 *      1151)    1151
1 SMQUERY (1 * 2277)          2277
5 SMREQUESTS (4 * 124)         496
2 SMFROMS (2 * 2576)          5152
5 SMCOLUMNS (5 * 1087)       5435
2 SMRELATIONS (2 * 2282)      4564
1 SMRPCS (1 * 1375)           1375
1 SMRPCREQUESTS (1 * 1076)    1076
1 SMRPCWF (1 * 2624)          2624
-----
24129 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:

$(\text{Rows} * (\text{Size} * \text{CP size}) * 1.75) / 1024 = \text{KB}$ .

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.



## Time Fields in Resource Management

---

This appendix explains the time fields available in Resource Management.

**In this appendix:**

- [Time Field Definitions](#)
- 

### Time Field Definitions

All of the fields listed in this appendix can be found in the RMLDATA/RMLDB synonyms.

The following field contents are based on "wall clock" time and are stored in A9 fields in date/time (HHMMSSNNN) format. DEFINE fields are provided for individual components.

**Session table - SMSESS**

**SESSSTART - SESSSTOP**

These two fields cover the time a connection request causes the Resource Management (RM) code to be called and the time the connection is terminated.

**RPC table - SMRPCS**

**SMRPCSTIME - SMRPCSTOP**

These two fields cover the start and stop time of all the Remote Procedure Call (RPC) requests in a session. There is at least one RPC request per session but there can be more.

**Command table - SMQUERY**

**SMTIME - SMSTOP**

These two fields cover the start and stop time of the Command (for example, TABLE, TABLEF, and MODIFY). There can be one or more Commands processed per RPC per session.

The following fields are based on machine timers and the data is stored in 10,000th of a second. DEFINE fields are provided for times converted to seconds, Minutes, and Hours.

**Session table - SMSESS**

**SESSDUR**

This field contains the total duration of the session.

**SESSCPU**

This field contains the total CPU used during the session.

**SMDBMSTIME**

This field is the total of all SMCMDDBMSTIME values for all commands executed during the session.

**RPC table - SMRPCS**

**SMRPCETIME**

This field is the total elapsed time from the start of the RPC to the end of the RPC request.

**SMRPCCTIME**

This field is the total CPU time used from the start of the RPC to the end of the RPC request.

**SMRPCDBMSTIME**

This field is the total of all SMCMDDBMSTIME values for all commands executed by the RPC.

**Command table - SMQUERY**

**SMELAPETIME**

This field is the total elapsed time from the start of a command to the end of the command. This value contains the elapsed time of the command and also includes the elapsed time spent processing a command that uses DBMS time.

**SMCPU TIME**

This field is the total CPU time from the start of a command to the end of the command.

**SMCMDDBMSTIME**

This field is the total elapsed time from the start of the servers SQL Adapter processing to the end of the SQL adapters data retrieval.

This time field is only created at the request level and is the length of time spent by the various server processes that prepare the request, sends the request to the RDBMS server, and processes the answer set received. The DBMS time values for a SMRPCDBMSTIME and SMDBMSTIME field are accumulation values derived from all of the commands executed in the session.

When a SQL request that accesses data starts, the DBMS start timer is set to the current time in 10,000<sup>th</sup> of a second. When the SQL request ends, the DBMS end timer is set to the current time in 10,000<sup>th</sup> of a second. The DBMS time is a subset of time spent while the SQL request was being processed between the time Resource Analyzer started monitoring the request and the time Resource Analyzer finished. The CPU time consumed by the RDBMS while processing the request is not available to RM and is not included.

There are two different ways the DMBS timer is used:

- Direct Passthru Requests
- Synonym Requests

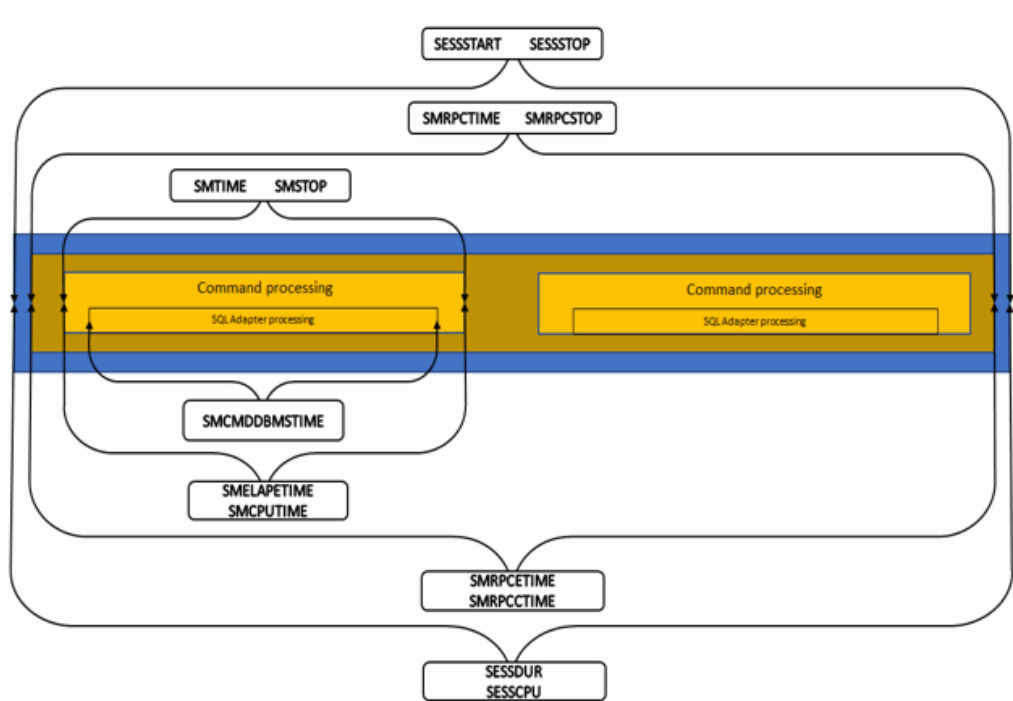
**Direct Passthru Requests:**

The SMCMDDBMSTIME timer starts when the DPT processor is called and ends when the DPT processor finishes processing. The length of time spent in this process is stored in the repository and is used in reporting as HH:MM:SS.nnnn. This type of request will have a small difference between the SMELAPTIME and the SMCMDDBMSTIME because of the minimal amount of time used by the server to prepare the request for processing. As stated before, SMCMDDBMSTIME is only an elapsed time value and includes both server SQL adapter time and RDBMS server time.

**Synonym Requests:**

As with Direct Passthru requests, the SMCMDDBMSTIME timer starts when the request type processor is called and ends when the processor finishes processing. The length of time spent in this process is stored in the repository and is used in reporting as HH:MM:SS.nnnn. This type of request will have a larger difference between the SMELAPTIME and the SMCMDDBMSTIME because of the additional processing time used to transform and optimize the request to SQL syntax that meets the requirements of the RDBMS server. The difference also includes the processing of the synonym before transformation and optimization and processing the returned answer set.

The following image shows an example of a session that executes one RPC that executes two commands.



The session duration and CPU timers are started when the connection to the server is established and ends when the session disconnects. At session start time, no DBMS timer is started. The RPC duration and CPU timers are started when the server calls the Resource Management RPC processor. Just like the session processing no DBMS timer is started. When an RPC executes a monitored command, the Resource Management command processor is called for initialization. After initialization finishes and Resource Management returns control to the server, one of two paths will be taken, either Direct Passthru or Synonym processing.

For an SQL command that uses a Direct Passthru command, the processor starts the server DBMS timer. When the answer set is retrieved, control is returned to the server and the DBMS timer is stopped. The Resource Management command processor is then called to end its processing.

For a synonym command that accesses data on a DBMS server the request is transformed and optimized, if needed, and then calls the SQL processor, which starts DBMS timer. When the answer set is retrieved, control is returned to the server and the DBMS timer is stopped. When the answer set has been formatted, Resource Management command process is called to end its processing.

During the call to end the Resource Management command process at the end of a request, the DBMS timer value of the server is copied to the SMCMDDBMSTIME field. It is also added to the SMRPCDBMSTIME and SMDBMSTIME fields. If the current RPC processes another command, the process outlined above is repeated.



## 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 relational 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 will be 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.

3. Configure Resource Management.
  - a. Click the *Resource Management* link on the sidebar.
  - 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 *Next*.

**Note:** For more information, see [Configuring Resource Management](#) on page 30.

4. Enter the server name and select *Relational* from the Repository drop-down menu.
5. Select *DDL Only* from the Create Repository drop-down menu.

6. Enter the necessary information required to configure the repositories, as shown in the following image.

**Configure Resource Management**

**Repository Settings**

? Server Name

? Repository

? Data Adapter

? Create Repository

? Owner/Schema  ( case sensitive )

**Configuration Settings**

? Data Request Monitoring

? Procedure Request Monitoring

? WebFOCUS System Procedure Monitoring

? Repository load type  ( Before selecting Bulk load confirm that the vendor's utility has been installed )

**Note:** For Data Adapter and Owner/Schema, you must use the same values you used when configuring the adapter.

7. Click *Create DDL*.
8. 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.
 

**Note:** The DDL statements are created without a semi colon at the end of each CREATE command. If your platform requires this, for example, Mainframe Db2 via ISPF SPUFI, the semi colon must be added. Do not add it if your environment is UDB.
9. Configure Resource Management.
  - a. Click the *Resource Management* link on the sidebar.
  - b. Click *Configure* in the ribbon or right-click *Resource Management* in the navigation pane and click *Configure*.
  - c. Enter the license key from the packing slip and click *Continue*.

**Note:** For more information, see [Configuring Resource Management](#) on page 30
10. Select *No* from the Create Repository drop-down menu.



11. Enter the same information that you used in step 6.
12. Click *Configure*.



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# WebFOCUS

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