



SAS® IT Resource Management 3.6 Reporting Guide

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SAS® IT Resource Management 3.6: Reporting Guide

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Contents

<i>About This Book</i>	<i>vii</i>
<i>Accessibility</i>	<i>xi</i>

PART 1 Introduction to SAS IT Resource Management and Batch Reporting 1

Chapter 1 • About SAS IT Resource Management	3
What Is SAS IT Resource Management?	3
Benefits of Using SAS IT Resource Management	4
How Does SAS IT Resource Management Work?	4
How to Locate Documentation and Help for SAS IT Resource Management	6
Chapter 2 • About Batch Reporting	9
Overview of How SAS IT Resource Management Works to Create Batch Reports	9
Overview of Batch Reporting	10
Reporting Components across SAS Products and Applications	14
Chapter 3 • Working with the Adapter Setup and Add Domain Category Wizards	19
What Are the Adapter Setup and Add Domain Category Wizards?	19
How to Use the Adapter Setup or Add Domain Category Wizards	20
Reporting Jobs and Objects Created by the Adapter Setup and Add Domain Category Wizards	20
Using Domain Categories	24
Types of Reports That the Adapter Setup and Add Domain Category Wizards Create	25
Viewing Batch Reports	25
Chapter 4 • Exception Reporting	27
About Exception Reports	27
Sample Exception Reports	28

PART 2 Working with Batch Reports 29

Chapter 5 • About Creating and Modifying Batch Reports	31
Why Create or Modify Batch Reports?	31
How to Create or Modify Your Own Batch Reports	31
Chapter 6 • Working with Supplied SAS Enterprise Guide Projects	41
About SAS Enterprise Guide Projects	41
Preparing to Work with SAS Enterprise Guide	46
How to Modify a Report in a Supplied SAS Enterprise Guide Project	53
Chapter 7 • Working with the ITRM Report Definition Task in SAS Enterprise Guide	57
About the ITRM Report Definition Task	57

Working with the ITRM Report Definition Task	58
Chapter 8 • Working with Report Jobs and Performance Report Transformations	67
About Report Jobs	67
Working with Report Jobs	69
About Performance Report Transformations	72
Working with Performance Report Transformations	75
Specifying a Data Source Location	86
About Templates and Style Sheets	87
Working with Templates and Style Sheets	88
Chapter 9 • Working with ITRM Report Center	91
What Is ITRM Report Center?	91
Accessing ITRM Report Center Interface	94
How to Get Help and Documentation for ITRM Report Center	95
Features of ITRM Report Center	96
PART 3 Report Administration 101	
Chapter 10 • Administrative Tasks	103
Administrative Tasks Using ITRM Report Center	103
Administrative Tasks Using the SAS Content Server Admin Console	110
Administrator Tasks Using SAS Management Console	112
Other Administrative Tasks	118
PART 4 Interactive Reporting and Using the SAS Portal and SAS BI Dashboard 119	
Chapter 11 • About Interactive Reporting	121
Overview of Interactive Reporting	121
Chapter 12 • Using SAS Enterprise Guide Interactively	123
Overview of SAS Enterprise Guide	123
Accessing SAS IT Resource Management Projects with SAS Enterprise Guide	124
Locating SAS Enterprise Guide Documentation	125
Chapter 13 • Using SAS Web Report Studio Interactively	127
Overview of SAS Web Report Studio	127
Access SAS IT Resource Management Information Maps to Generate a Report in SAS Web Report Studio	129
Emailing Web Report Studio Reports	130
Locating SAS Web Report Studio Documentation	131
Chapter 14 • Using SAS Add-In for Microsoft Office Interactively	133
SAS Add-In for Microsoft Office and SAS IT Resource Management Data	133
Using SAS Add-In for Microsoft Office to Access SAS IT Resource Management Data	134
Chapter 15 • Using SAS Portal for Communicating IT Domain Intelligence	137
Overview of SAS Information Delivery Portal	137
Locating SAS Information Delivery Portal Documentation	140

Chapter 16 • Using SAS BI Dashboard	141
Overview of SAS BI Dashboard	141
Locating SAS BI Dashboard Documentation	143
Chapter 17 • Working with SAS Visual Analytics	145
SAS Visual Analytics	145
PART 5 Appendixes 147	
Appendix 1 • Naming Standards for Reporting Objects	149
About Naming Standards for SAS IT Resource Management Reporting Objects	149
Naming Standards and Location of Objects	149
Appendix 2 • Reporting Standards for SAS IT Resource Management Reports	153
About Reporting Standards for SAS IT Resource Management Reports	153
Standards for SAS IT Resource Management Report Elements	154
Standard Specifications for Report Tasks	158
Appendix 3 • Troubleshooting and Debugging Tips	161
How to Verify the SAS IT Resource Management Enterprise	
Guide Installation and Configuration	162
Why SAS Enterprise Guide Reports Do Not Display Correctly	164
Why Are Reports Missing from ITRM Report Center?	171
Why Report Jobs Are Not Generating Reports	174
Removing Duplicate Reports That Are Stored in the SAS Content Server	177
Error Message: Select a SAS Content Server	177
How to Debug a Middle-Tier Connection Problem in a Report Job	178
How to Refresh the Cache for ITRM Report Center Reports	179
How to Back Up Reports	180
Logging Level of ITRM Report Center	180
Technical Support	180
Appendix 4 • Best Practices	183
Run Report Jobs at Night or during Low Usage Periods	183
Managing SAS Enterprise Guide Projects for SAS IT Resource Management	184
Designing Reports for Batch Jobs	186
Override Report Expiration Dates to Purge Reports from the SAS	
Content Server Using the Performance Report Transformation	187
Back Up Your Data and Reports	187
Schedule Report Jobs Based on the Available Data	188
Override the Graph Type	188
Appendix 5 • Setting Up Web Links in Tile Charts	189
Appendix 6 • Report Conversion Guide	195
Converting Reports	196
Creating Bar and Pie Charts Using SAS Enterprise Guide	203
Creating Line and Other Plots Using SAS Enterprise Guide	215
Creating Tabular Reports Using SAS Enterprise Guide	227
Working with SAS IT Resource Management	236
Recommended Reading	239
Index	241

About This Book

Audience

The purpose of the *SAS IT Resource Management 3.6: Reporting Guide* is to present all topics that are related to SAS IT Resource Management reporting. For information about system administration and data preparation topics, see the *SAS IT Resource Management 3.6: Administrator's Guide*.

The *SAS IT Resource Management 3.6: Reporting Guide* is designed for the following users:

- Performance analysts are responsible for analyzing IT performance data and communicating the results of this analysis. Performance analysts use SAS IT Resource Management to design and create reports for the purposes of IT performance management and capacity planning.

These users understand how to analyze the IT resource measurement data that is managed by data administrators. They analyze this data to measure the utilization, availability, and performance of IT resources. They also plan the proper adjustments to the IT infrastructure to meet the current and projected demands of the business.

Performance analysts often function as capacity planners, system administrators, and business analysts. Their job responsibilities require them to analyze data and to communicate IT intelligence by designing, generating, sharing, and viewing reports.

Performance analysts might refer to all SAS IT Resource Management documentation or SAS product documentation for those products that are included in the SAS IT Resource Management solution such as SAS Enterprise Guide.

- Information consumers are responsible for analyzing report data and making decisions based on that data.

These users are business people who are interested in the overall performance aspects of IT at a company. They often function as system architects, IT managers, and IT executives. Information consumers use the reports that are generated by SAS IT Resource Management to support decisions that they make regarding the IT infrastructure. They need to access IT intelligence reports from the office as well as from remote locations.

Information consumers typically use the documentation that is found in this reporting guide, especially the sections about interpreting reports and using SAS Web Report Studio. They might also refer to the *SAS IT Resource Management 3.6: Overview* and the *SAS IT Resource Management 3.6: Report Center Guide*.

- Data administrators are responsible for administering the IT data mart and setting up the jobs that stage and aggregate IT performance data so that report-ready data is available for generating reports.

These users are responsible for administering the IT data mart and adapters; handling the extract, transform, and load (ETL) processes; and managing reporting processes. Data administrators typically deploy and schedule the batch production jobs that prepare and generate IT performance reports. They often function as IT performance managers and capacity planners.

Data administrators primarily use the documentation that is found in the *SAS IT Resource Management 3.6: Administrator's Guide*. They might also refer to all SAS IT Resource Management documentation or SAS product documentation for those products that are included in the SAS IT Resource Management solution such as SAS Enterprise Guide.

Requirements

Here are the prerequisites for using SAS IT Resource Management:

- A user ID and password that is appropriate for the type of access that is needed to accomplish designated IT Resource Management functions.

Note: Data administrators use SAS Management Console to define the sign-in credentials for users and groups of users, based on their roles and the SAS products with which they need to work. For more information, see Chapter 2, “Preparing to Work with the SAS IT Resource Management Client,” in the *SAS IT Resource Management 3.6: Administrator's Guide*.

- An operating environment that includes a supported client, middle tier, and server.
- Depending on your role, you might need access to SAS software that is provided by SAS IT Resource Management.

Note: To sign in to the SAS products in the following list, select **Programs** \Rightarrow **SAS**. From the list of software that is displayed, select the application that you want to work with. Then enter your user ID and password.

- SAS IT Resource Management

Note: The SAS IT Resource Management solution provides additional IT-specific features and functionality to the data management capabilities of SAS Data Integration Studio. These additional features and functions are seamlessly integrated with those of SAS Data Integration Studio. The enhanced capabilities of SAS Data Integration Studio that are delivered by SAS IT Resource Management are commonly referred to as the SAS IT Resource Management client, throughout this document.

- SAS Information Map Studio
- SAS Enterprise Guide with add-in for SAS IT Resource Management
- SAS Management Console
- SAS Add-In for Microsoft Office

You might also want to access SAS products that are web-based.

Note: To sign in to the SAS products in the following list, open your web browser and point it to the URL address of the product that you want to use.

- SAS Web Report Studio
- SAS Visual Analytics

- SAS BI Dashboard
- SAS ID Portal

Online Help is available for all SAS software. Click **Help** within the product in order to access it. In addition, documentation for SAS software is available at <http://support.sas.com/documentation/index.html>. Use the A-Z index to locate the documentation that you want to access.

Accessibility

Accessibility Notice

SAS IT Resource Management includes the following accessibility and compatibility features that improve usability of the product for users with disabilities. These features are related to accessibility standards for electronic information technology that were adopted by the U.S. Government under Section 508 of the U.S. Rehabilitation Act of 1973, as amended.

If you have questions or concerns about the accessibility of SAS products, send email to accessibility@sas.com.

SAS IT Resource Management addresses several areas of 508 compliance:

- Software accessibility compliance applies to software.

In SAS IT Resource Management, software accessibility compliance applies to the SAS Data Integration Studio user interface. SAS IT Resource Management uses the functionality of SAS Data Integration Studio for data manipulation functions. As such it has the same accessibility features as that product. For information about these features, see the *SAS Data Integration Studio: User's Guide*. This documentation is located at this address: <http://support.sas.com/documentation/index.html>. Use the Product Index A-Z to locate this document.

- Windows accessibility compliance applies to Windows applications, such as SAS Enterprise Guide and SAS Add-In for Microsoft Office.

SAS Enterprise Guide conforms to accessibility standards for the Windows platform. In addition, SAS Enterprise Guide has keyboard shortcuts for the following areas: the Import Data task, the main workspace, menus, the project tree, a process flow, the properties window for an object, and the code editor. For more information, see the **Keyboard Shortcuts** in the Help for SAS Enterprise Guide.

You can also use keyboard navigation to navigate through the options in a drop-down list by pressing Alt and the up and down arrow keys.

In some instances, you can use the **Enable accessibility features** option. This option makes additional accessibility features available in the task windows and the windows that appear when you run a stored process. This option is available from the Options dialog box.

- *SAS Enterprise Guide: User's Guide* is located at this address: <http://support.sas.com/documentation/onlinedoc/guide/index.html>.
- *SAS Add-In for Microsoft Office* is located at this address: <http://support.sas.com/documentation/onlinedoc/addin/index.html>.

- For information about the accessibility of this product, see Accessibility Features of *SAS IT Resource Management 3.6: Report Center Guide* at <http://support.sas.com/documentation/onlinedoc/itsv>.
- Web accessibility compliance applies to browser-based content and web-based applications, such as SAS Web Report Studio, SAS ID Portal, SAS BI Dashboard.

To locate the appropriate documentation for a SAS product, use the A-Z index at this location: <http://support.sas.com/documentation/index.html>.

Part 1

Introduction to SAS IT Resource Management and Batch Reporting

<i>Chapter 1</i>	
About SAS IT Resource Management	3
<i>Chapter 2</i>	
About Batch Reporting	9
<i>Chapter 3</i>	
Working with the Adapter Setup and Add Domain	
Category Wizards	19
<i>Chapter 4</i>	
Exception Reporting	27

Chapter 1

About SAS IT Resource Management

What Is SAS IT Resource Management?	3
Benefits of Using SAS IT Resource Management	4
How Does SAS IT Resource Management Work?	4
How to Locate Documentation and Help for SAS IT Resource Management	6
Accessing SAS IT Resource Management Online Help	6
Accessing SAS IT Resource Management Documentation	6

What Is SAS IT Resource Management?

SAS IT Resource Management is an IT performance management and capacity planning solution that enables the analysis of any IT data source. The solution creates an IT performance data warehouse, and delivers and applies the advanced analytic capabilities of SAS to that warehouse for the purposes of IT performance management, capacity planning, and exception analysis. It renders the IT Intelligence necessary to optimize the IT infrastructure. In addition, the solution leverages the IT performance data warehouse and the SAS product capabilities that are included in the solution for purposes beyond the scope of IT performance management, such as IT financial management or IT service management. With SAS IT Resource Management, IT departments can manage and plan the usage of their resources to provide a stable yet scalable IT environment for its current and future operations.

To meet the challenges of today's competitive business environment, the IT department must solicit information from the leaders of the business about the demands that directly affect the IT infrastructure. Concurrently, the IT department must deliver enough information about the performance, capacity, and exceptional conditions of IT resources to allow the business's decision makers to understand and evaluate their current consumption of IT. As such, the communication of IT performance and capacity information must be in a language and format that is suitable for its intended purpose and audience. It is the role of IT performance management and capacity planning software to facilitate this communication so that the IT department can plan and implement adjustments to the IT infrastructure. In the end, this ensures that the business remains competitive and responsive to its customers.

Benefits of Using SAS IT Resource Management

SAS IT Resource Management can be used to resolve a variety of systems management challenges within an organization. It provides the functionality to do the following tasks:

- Establish IT data marts that contain all the resource management data, over various periods of time, that is associated with an enterprise.
- Define and create aggregated data that is specific to a site's analysis and reporting requirements.
- Create common references to common measurements that are available in disparate data sources. This ensures that the IT data mart provides an independent set of measurements that can be analyzed across the IT enterprise.
- Provide graphical and textual reports that contain information that is needed to manage current day IT operations.
- Use SAS IT domain knowledge for performance management, capacity planning, IT resource forecasting, peak period and seasonality analysis, workload analysis, and enterprise IT performance summaries. This information complements existing IT utilization, availability, and performance analysis capabilities.
- Provide exception analysis processing and reporting in order to discover anomalies within the data source.
- Provide a variety of report output mediums to accommodate the needs of the data administrators, performance analysts, and high-level information consumers.

How Does SAS IT Resource Management Work?

SAS IT Resource Management supports adapters for many of the most popular network system and application management tools across the Windows, UNIX, and z/OS operating environments. It also provides the tooling for the creation of user-written adapters for any data source that is not natively supported by the solution. In doing so, it takes advantage of SAS 9 and the enterprise-class solutions that SAS provides, such as these solutions:

- SAS Data Integration Studio

This solution provides flexible data integration and specific IT Resource Management services for most data sources. These services perform most of the data preparation and aggregation work that is needed to analyze and report on resource performance. These services enable you to perform the following tasks:

- Create and maintain the IT data marts that are the containers for the staging, aggregation, information map, exception, and report jobs. Create and maintain the staged tables and libraries, the aggregation tables and libraries, the information maps, report definitions, and exception definitions that are created by or used by SAS IT Resource Management.
- Create, maintain, and deploy the jobs that populate the IT data mart.
- Calculate new columns and statistics, percentiles, percent changes, and so on, from the input data.

- Create and run the jobs that aggregate the data.
- Create analysis and report-ready data sources from the aggregated data.
- Create and run jobs that produce IT intelligence and exception reports.
- SAS Enterprise Guide

This solution provides comprehensive reporting definition services. Report tasks can be run interactively in SAS Enterprise Guide projects by running the branches of a project that include those report tasks.

Each SAS Enterprise Guide project that is supplied by SAS IT Resource Management includes one or more ITRM Report Definition tasks. ITRM Report Definition tasks publish the report definitions to the SAS Metadata Server. The SAS IT Resource Management client can include that report definition in a report job. Those jobs are then deployed and scheduled for execution in batch mode. The resulting report output can be accessed by ITRM Report Center.

- ITRM Report Center

This web-based application manages and organizes report output that is stored in the SAS Content Server. Filters are available to use in organizing the report output in galleries.

ITRM Report Center provides access to the **Home**, **Gallery**, **Resource**, and **Administration** workspaces. The **Home**, **Gallery**, and **Resource** workspaces enable users and administrators to manage reports, galleries, and resources. The **Administration** workspace enables administrators to perform specialized tasks, such as creating and assigning locations in the SAS Content Server, deleting reports from the SAS Content Server, and updating the list of available alerts that appear in the **Home** workspace.

- SAS Business Intelligence Platform

This platform uses the SAS Foundation technology, which includes the following software: Base SAS, SAS/GRAFH, the Output Delivery System (ODS), and other technologies. It also uses the following components:

- SAS Information Map Studio: This product provides easy access to data using business-oriented terminology. Information maps that are created by the information map transformation in the SAS IT Resource Management client can be read and modified by SAS Information Map Studio.
- SAS Metadata Repository: This repository of centralized metadata stores information about the objects that are created and used by SAS IT Resource Management. These objects include IT data marts, ETL jobs, information maps, report tasks, report jobs, and more.
- SAS Web Report Studio: This web-based, interactive query and analysis tool simplifies and standardizes access to and reporting of performance information.
- SAS Information Delivery Portal: This customizable portal provides corporate decision makers with easy access to the data that is most pertinent to them by means of reports and dashboards. This data includes key performance indicators (KPIs), filter reports, and more. SAS Information Delivery Portal enables the selective and secure dissemination of information throughout an organization.
- The BI Dashboard is a web-based interface that is displayed within SAS Information Delivery Portal. Using data and information maps from multiple sources, information consumers and performance analysts users can create dashboards that display information that is pertinent to their areas of interest.

- SAS Add-In for Microsoft Office: This product enables integration with commonly used Microsoft products such as Microsoft Word and Microsoft Excel.
- SAS Statistics, High-Performance Forecasting, and Econometric Time Series: These solutions provide a complete set of SAS statistical methods for IT data analysis.
- SAS Visual Analytics SAS Visual Analytics Administration and Reporting: This web-based product suite uses SAS high-performance analytic technologies to enable organizations to interact graphically with huge volumes data to discover business insights.

Note: SAS IT Resource Management does not include the Explorer component of SAS Visual Analytics.

For more information, see Chapter 1, "General Overview," in *SAS IT Resource Management 3.6: Administrator's Guide*.

How to Locate Documentation and Help for SAS IT Resource Management

Accessing SAS IT Resource Management Online Help

Online Help is available for anyone who performs tasks with the user interface.

Note: The Help that is provided with this release of the SAS IT Resource Management software briefly describes the fields on the windows that are specific to IT Resource Management.

To display the field-based Help window for an active window or tab, click **Help** or press the F1 key. To search for topics about concepts or features that are identified by specific words, such as "information maps," click the **Search** tab (magnifying glass icon) in the Help window. Enter the text to be found and press the Enter key.

Online Help is available for all SAS technology products on which SAS IT Resource Management is built.

Accessing SAS IT Resource Management Documentation

The following SAS IT Resource Management documentation is available from <http://support.sas.com/documentation/onlinedoc/itsv>:

- *What's New in SAS IT Resource Management 3.6*

This document provides a brief description of the new features that are included in this release of the SAS IT Resource Management software and documentation.

- *SAS IT Resource Management 3.6: Overview*

This document provides information about the extensive domain intelligence that is available with SAS IT Resource Management.

The audience for this introductory document is anyone who works with SAS IT Resource Management or who uses the reports that are generated by the software.

- *SAS IT Resource Management 3.6: Administrator's Guide*

This document contains detailed information about the tasks that are required to set up and manage the IT data mart. It also describes how to set up the IT Resource Management adapters so that they can process the IT resource data that is stored in the IT data mart. This guide provides information about how to set up and maintain IT data marts. It also describes how to work with simple and summarized aggregations, information maps, and the wizards, especially the Adapter Setup and the Add Domain Category wizards. These wizards facilitate the specification of the extract, transform, and load (ETL) processes that are required for administering a site's IT resource data. The guide also provides information about exception analysis processes that enable the discovery and reporting of anomalies within the specified data source.

This document provides information about the other functional components of the software, such as the SAS Metadata Repository (SMR) and the like.

The audience for this document is SAS IT Resource Management data administrators or capacity planners.

- *SAS IT Resource Management 3.6: Reporting Guide*

This document contains detailed information about the tasks that are required to generate, view, and manage reports. It describes how to work with ITRM Report Definition task in SAS Enterprise Guide, the Performance Report transformations that are available from the SAS IT Resource Management client, and ITRM Report Center application. It also provides general information about other SAS products that support the reporting processes, such as SAS Web Report Studio, SAS Information Delivery Portal, and SAS Add-in for Microsoft Office.

A “Report Conversion” appendix provides a description of the steps that are performed in order to re-create reports that were generated using SAS IT Resource Management 2.7 report macros. These steps use SAS Enterprise Guide, which is included in SAS IT Resource Management. Separate instructions are provided for converting report macros to the current version of SAS Enterprise Guide.

- *SAS IT Resource Management 3.6: Report Center Guide*

This document contains detailed information about the tasks that are required to view, organize, filter, and share SAS IT Resource Management performance and exception reports.

- *SAS IT Resource Management Adapter 3.6 for SAP: User's Guide*

This document contains detailed information about the tasks that are required to install, customize, and use the SAS IT Resource Management adapter for SAP.

- System Requirements—SAS IT Resource Management 3.6

This document provides a list of the requirements needed to support the server tier, middle tier, and client tier for SAS IT Resource Management.

- *SAS IT Resource Management 3.6: Migration Guide*

This document provides a description of the steps that are performed in order to move a site's processing from the earlier versions of the software to the current version.

- *Guide to Operating SAS IT Resource Management 3.6 without a Middle Tier*

This document describes how the SAS IT Resource Management solution works when a middle tier is not installed.

- Demand Technology Performance Sentry Data Collection Sets for SAS IT Resource Management

This HTML resource contains data collection sets for ITRM Windows Server and ITRM Exchange.

- SAS IT Resource Management 3.6: Supplied Staged and Aggregation Tables for Supported Adapters

This HTML resource contains detailed information about the columns of the staged tables and aggregation tables that are generated by the Adapter Setup and the Add Domain Category wizards.

- SAS IT Resource Management 3.6: Supplied Report Samples

Note: Information about the system requirements, supported adapter metrics, and the SAS IT Resource Management data models is also available at <http://support.sas.com/onlinedoc/itsv>.

Documentation is available for the business intelligence and data integration components of the SAS Intelligence Platform and all the SAS products that are referenced in this document. To access this documentation, navigate to the website at this location: <http://support.sas.com/documentation/index.html>. On this page, use the **Select a Product** drop-down menu to choose the documentation for the product or solution that you want to view. Then click **Go**.

Chapter 2

About Batch Reporting

Overview of How SAS IT Resource Management Works to Create Batch Reports	9
Overview of Batch Reporting	10
Batch Reporting Architecture	10
Information Map	12
SAS Enterprise Guide Project	12
ITRM Report Definition Task	12
Report Definition	12
Performance Report Transformation	13
Report Job	13
Report Output	13
SAS Content Server	13
ITRM Report Center	13
Reporting Components across SAS Products and Applications	14

Overview of How SAS IT Resource Management Works to Create Batch Reports

SAS IT Resource Management provides the process along with the supporting technology that is required to regularly collect, aggregate, analyze, and report on the IT performance evaluation data that is vital to the health of an enterprise.

This process consists of the following steps.

Prepare IT performance data for reporting:

1. Collect raw data about a resource.
2. Process (stage) raw data.
3. Aggregate data from the staged tables.
4. Generate information maps.

Generate and analyze IT reports:

5. Define and generate reports.
6. View reports.

The first four steps in the preceding process prepare your IT performance data for reporting. The *SAS IT Resource Management 3.6: Administrator's Guide* provides detailed information about each of these processes and describes how a systems administrator might work with SAS IT Resource Management to prepare raw IT data for reporting.

Note: You can also analyze staged or aggregation tables for exceptional conditions. This feature is optional.

The last two steps in the process make up the reporting process. These steps define the IT reports that you want to generate and enable you to view the report output to analyze your data. This book, the *SAS IT Resource Management 3.6: Reporting Guide*, provides detailed information about each of these processes and their components.

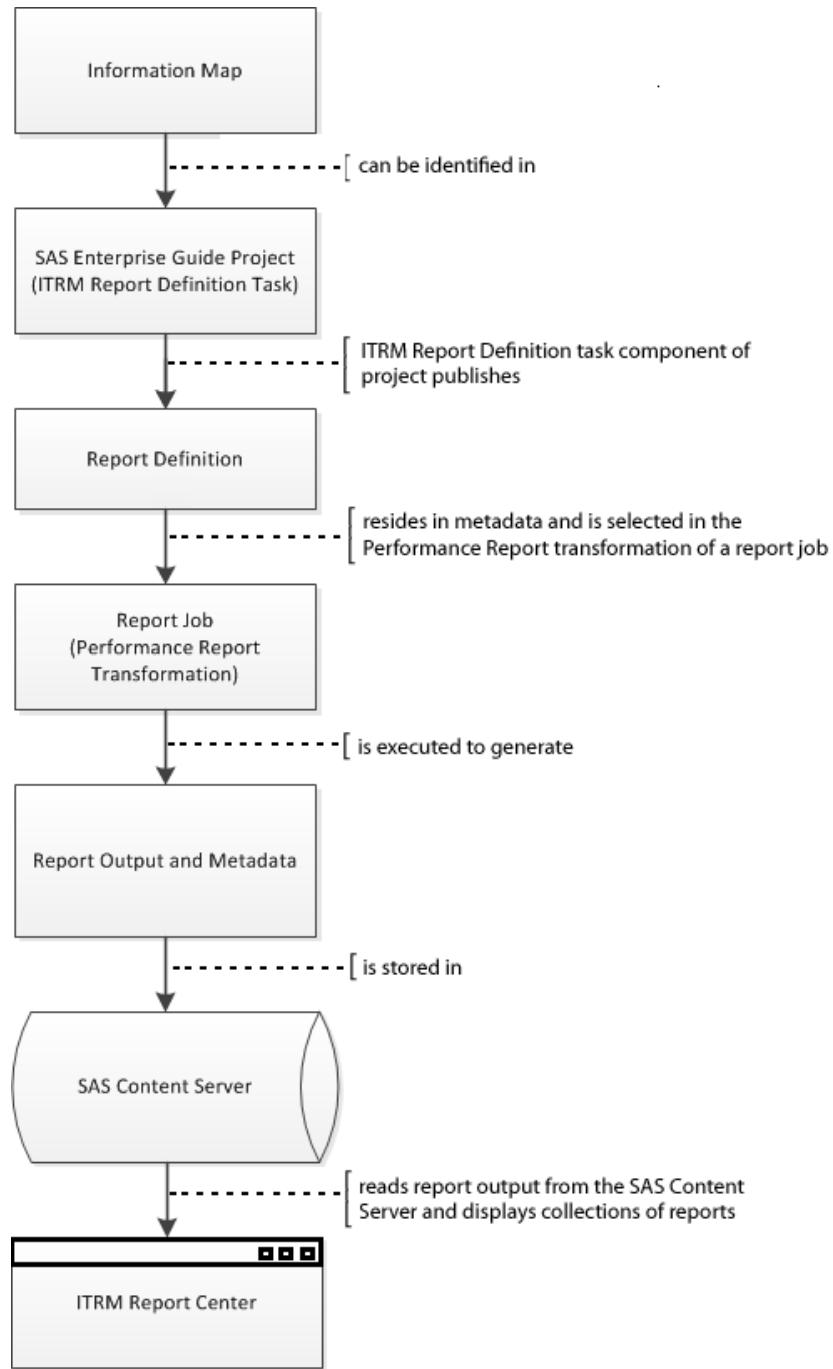
Overview of Batch Reporting

Batch Reporting Architecture

SAS IT Resource Management enables you to invoke and create the components that are needed for batch reporting on various adapters and domain categories. These reporting components are supplied by SAS IT Resource Management. These reporting components are created automatically when the Adapter Setup or the Add Domain Category wizard executes the reporting jobs that contain Performance Report transformations.

The following figure shows the basic components of the batch reporting process and how these components work together to create batch reports.

Figure 2.1 Overview of Reporting Components and Batch Reporting Architecture



Each component of the batch reporting process contributes to the final report output. It also specifies characteristics of the report such as its content, appearance, location, filters for viewing, and expiration date. You can use the supplied components and predefined process flows for your batch reports. You can also use these supplied components as templates to customize the supplied batch reports for your business needs or create your own batch reports with different reporting parameters.

The following topics in this section describe how each of the reporting components in the batch reporting architecture work together to generate IT reports and make them available for viewing. After you understand the function of each component, where it fits in the batch reporting architecture, and how it affects the other reporting components, then you can work with these components to create or modify your own batch reports if necessary.

Information Map

Information maps are data sources that include a collection of data items and filters that describe and present a report-ready view of your IT resource data. Information maps are stored in IT data marts.

Report definitions in the report jobs use information maps to locate and filter the physical data for report input. Pointers to information maps are also included in the SAS Enterprise Guide projects that SAS IT Resource Management supplies.

SAS Enterprise Guide Project

SAS IT Resource Management supplies SAS Enterprise Guide projects for several supported adapters and domain categories. These projects manage references to data, related report tasks, code, and report results that determine how data appears in the batch reports that the Adapter Setup or the Add Domain Category wizard creates.

An ITRM Report Definition task is appended to each branch of a project. This task extracts the generated code of the branch and additional metadata to include it in a report definition that it creates and saves on the SAS Metadata Server. The report definition can be used by Performance Report transformations that are in report jobs.

ITRM Report Definition Task

The ITRM Report Definition task is the last component of a SAS Enterprise Guide project process flow. The ITRM Report Definition task specifies the filters and metadata that are used to view the report output in ITRM Report Center. When deployed, the ITRM Report Definition task creates a report definition that includes all of the metadata and SAS code from a given branch of your SAS Enterprise Guide project. The report definition also includes the filters and additional metadata that are specified in the task.

The resulting report definitions are saved on the SAS Metadata Server and used by Performance Report transformations that are in report jobs.

Report Definition

A report definition is created by an ITRM Report Definition task and stored in the SAS Metadata Server. It contains the SAS code that defines one or more reports. Report definitions include the metadata values that can be used as filters to subset reports in ITRM Report Center. These properties are specified in the ITRM Report Definition task that creates the report definition. The properties include filter values for domain category, domain subcategory, job schedule frequency, and possibly other keywords that might be specific to the report.

The Performance Report transformation is a component of a SAS IT Resource Management report job. It identifies the report definitions that are used to create the report output when the job is run.

Performance Report Transformation

Performance Report transformations are part of the report jobs that support the reporting functions of SAS IT Resource Management. A Performance Report transformation specifies how to group together report definitions that generate reports. It stores output in the SAS Content Server. A Performance Report transformation can also override the expiration date of report output. You can do this by specifying a number of days to the override parameter in the transformation.

When executed, the report job that contains the Performance Report transformation uses the report definitions that the transformation identifies in order to generate report output.

Report Job

Report jobs consist of Performance Report transformations. When executed, these transformations generate SAS code that creates reports from the report definitions that are identified in the Performance Report transformation. The report jobs are stored in the IT data mart. They create and delete report output.

Report Output

Report output is the report that the report job creates when it is executed. The reports are stored in folders in the SAS Content Server. This server is used by SAS IT Resource Management for remote content management. The SAS Content Server stores report content and the associated report properties. It also provides version control and distribution of the stored reports.

After the SAS IT Resource Management reports are available in the SAS Content Server, you can use ITRM Report Center to view the reports.

SAS Content Server

The SAS Content Server is a content repository where SAS IT Resource Management stores reports and report metadata that is the output of report jobs. These report jobs include Performance Report transformations that specify the repository folder path, relative to the SAS Content Server, in which to store the reports. These reports are generated and stored in the SAS Content Server in corresponding subfolders of the **sasdav/** folder.

Note: The SAS Content Server also stores exception reports that result from exception analysis jobs that detected exceptional conditions.

ITRM Report Center

ITRM Report Center is a web-based application that enables you to view and organize the SAS IT Resource Management performance and exception reports that are available in the SAS Content Server.

Reporting Components across SAS Products and Applications

When working with batch reporting for SAS IT Resource Management, you might need to work with several of the reporting components that are described in this chapter.

These components are accessible in various SAS products and applications that you use to create, modify, and view SAS IT Resource Management reports.

For example, to modify a supplied report might require that you access ITRM Report Center, SAS Enterprise Guide, and the SAS IT Resource Management client to complete modifications for the reporting process. Access to these clients enables you to do the following tasks:

- view the properties of a report in ITRM Report Center
- identify the reporting components that correspond to that report
- modify the reporting components as needed

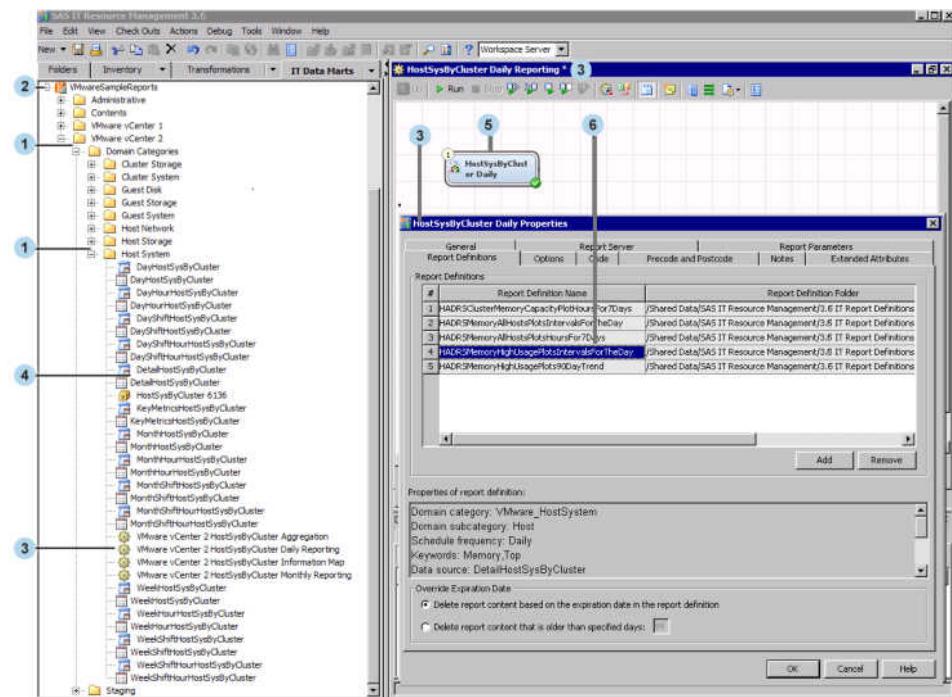
For more information, see [“How to Create or Modify Your Own Batch Reports” on page 31](#).

The following three figures show the relationships of the SAS IT Resource Management reporting components.

The Report Properties dialog box of the Performance Report transformation can be accessed from the **Report Definitions** tab of that transformation. It displays the SAS Enterprise Guide project, process flow, and Report Definition task names. It also provides the domain category and information map (the data source from which the report is generated) that are associated with a report. This report metadata enables you to locate the corresponding SAS Enterprise Guide project, process flow, information map, and ITRM Report Definition task from which the report was designed and created. This report metadata also enables you to use the SAS IT Resource Management client to locate the domain category, information map, report job, and Performance Report transformation that are created and deployed to produce the report.

Select the **Report Definitions** tab of the Performance Report transformation to view its properties.

Figure 2.2 Properties of the Performance Report Transformation in the SAS IT Resource Management Client

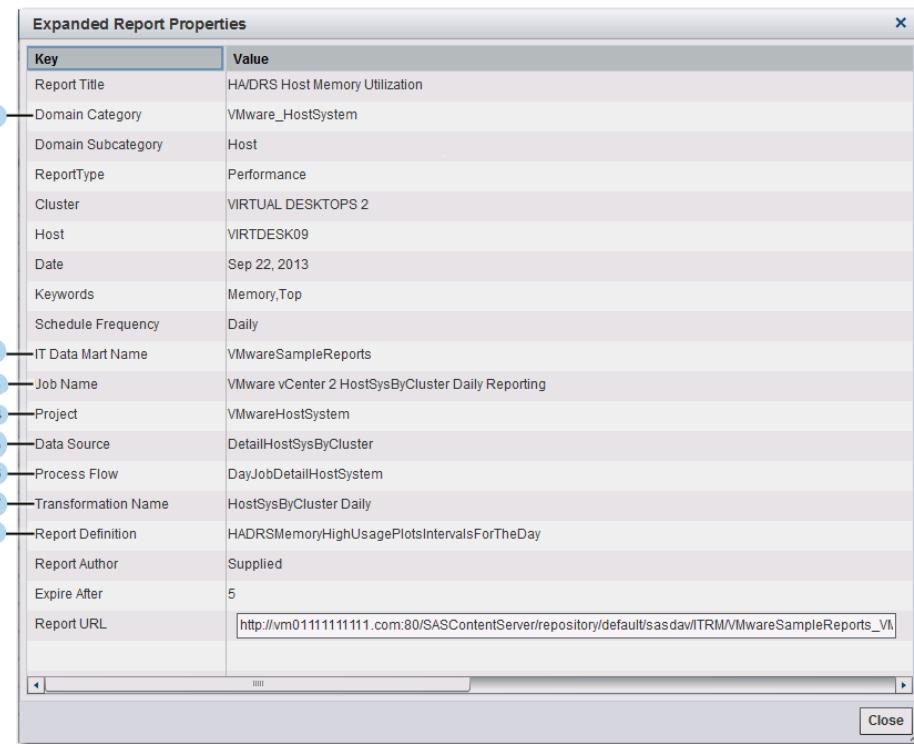


- 1 domain category
- 2 IT data mart name
- 3 reporting job name
- 4 information map or data source name
- 5 ITRM Performance Report transformation name
- 6 ITRM report definition name

Note: Select a report definition. Then, scroll down the Properties of report definition section of the previous dialog box to see the other properties of the Performance Report transformation. For example, you would be able to see the SAS Enterprise Guide project name and the SAS Enterprise Guide process flow name.

In ITRM Report Center, click the properties icon  to display the Expanded Report Properties

Figure 2.3 Expanded Report Properties Viewed in ITRM Report Center



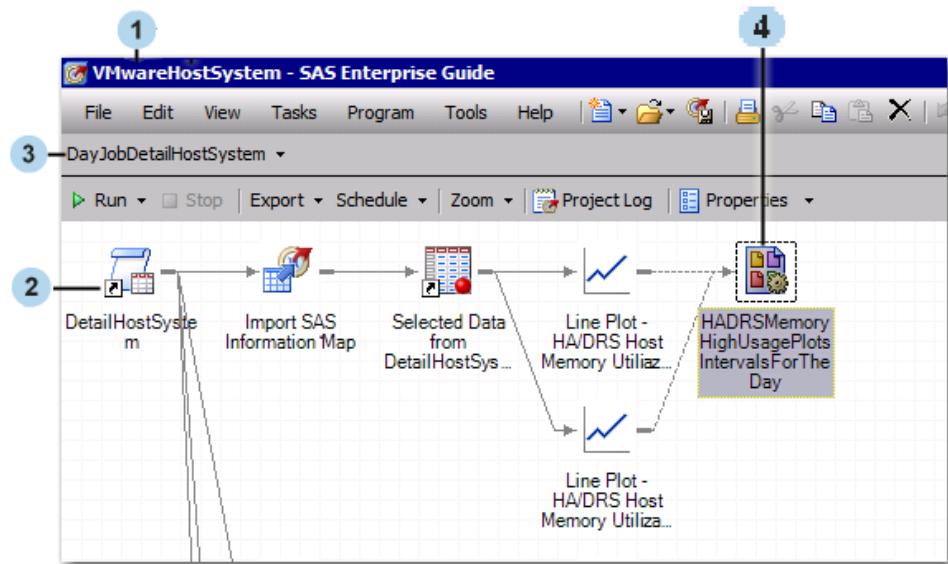
The dialog box is titled "Expanded Report Properties". It contains a table with two columns: "Key" and "Value". The "Key" column lists report properties, and the "Value" column lists their corresponding values. The properties and values are as follows:

Key	Value
Report Title	HADRSHost Memory Utilization
1 Domain Category	VMware_HostSystem
Domain Subcategory	Host
ReportType	Performance
Cluster	VIRTUAL DESKTOPS 2
Host	VIRTDESK09
Date	Sep 22, 2013
Keywords	Memory,Top
Schedule Frequency	Daily
2 IT Data Mart Name	VMwareSampleReports
3 Job Name	VMware vCenter 2 HostSysByCluster Daily Reporting
4 Project	VMwareHostSystem
5 Data Source	DetailHostSysByCluster
6 Process Flow	DayJobDetailHostSystem
7 Transformation Name	HostSysByCluster Daily
8 Report Definition	HADRSMemoryHighUsagePlotsIntervalsForTheDay
Report Author	Supplied
Expire After	5
Report URL	http://vm011111111.com:80/SASContentServer/repository/default/sasdata/ITRM/VMwareSampleReports_V1

- 1 domain category
- 2 IT data mart name
- 3 job name
- 4 SAS Enterprise Guide project name
- 5 information map or data source name
- 6 SAS Enterprise Guide process flow name
- 7 ITRM Performance Report transformation name
- 8 ITRM report definition name

In SAS Enterprise Guide, open a SAS Enterprise Guide project to view the information map or data source, process flow, and ITRM Report Definition task that are associated with a report.

Figure 2.4 Project and Process Flow in SAS Enterprise Guide



- 1 SAS Enterprise Guide project name
- 2 information map or data source name
- 3 SAS Enterprise Guide process flow name
- 4 ITRM report definition task name

Note: To view comprehensive lists of the report properties for the performance and exception reports, see Appendix 1, “Report Properties,” in the *SAS IT Resource Management 3.6: Report Center Guide*.

Chapter 3

Working with the Adapter Setup and Add Domain Category Wizards

What Are the Adapter Setup and Add Domain Category Wizards?	19
How to Use the Adapter Setup or Add Domain Category Wizards	20
Reporting Jobs and Objects Created by the Adapter Setup and Add Domain Category Wizards	20
About Reporting Jobs Created by the Adapter Setup Wizard and Add Domain Category Wizards	20
How to Determine Whether the Adapter Setup Wizard or Add Domain Category Wizard Will Create Reporting Jobs for Your Selections	21
Deploy and Run Jobs That the Adapter Setup or Add Domain Category Wizard Creates	23
Using Domain Categories	24
Types of Reports That the Adapter Setup and Add Domain Category Wizards Create	25
Viewing Batch Reports	25

What Are the Adapter Setup and Add Domain Category Wizards?

The SAS IT Resource Management client includes an Adapter Setup wizard and an Add Domain Category wizard. These wizards enable you to define and create staging, aggregation, information map, and reporting jobs that process the raw data for an IT resource. These jobs include predefined configurations that are based on industry intelligence that represents a best estimate about the types of aggregations and reports that most sites need for analysis.

The wizards create reporting jobs that produce reports that are good choices for many users. To examine the reports that SAS IT Resource Management provides, use a wizard to process a sample set of data and then create and run the resulting information map jobs and report jobs. You can then use ITRM Report Center to view the reports that are generated. Alternatively, you can view the sample reports on the SAS IT Resource Management website. To access these reports, navigate to this site: <http://support.sas.com/documentation/onlinedoc/itsv/#itrm36>. Then scroll down to the **Samples of Supplied Reports** section where the supplied sample reports are located.

If the supplied reports do not meet all of the specific reporting needs for your environment, you can identify the modifications that you want to make to the reporting

jobs. You can then work with the corresponding supplied SAS Enterprise Guide projects and reporting architecture to implement your modifications. For more information, see “[How to Create or Modify Your Own Batch Reports](#)” on page 31.

Note: Your site might not process data from any of the data sources for which SAS IT Resource Management provides an adapter. In that case, you can view sample reports on the SAS IT resource Management product page, which is located here: <http://support.sas.com/documentation/onlinedoc/itsv>. To view the reports, scroll down to the **Samples of Supplied Reports** section of the page.

After the wizard creates the appropriate jobs, you can schedule and run each as needed. The jobs process the raw data in a manner that is specified by or based on a selected adapter and domain category.

For more information about using the Adapter Setup or the Add Domain Category wizard, see “[How to Use the Adapter Setup or Add Domain Category Wizards](#)”.

How to Use the Adapter Setup or Add Domain Category Wizards

The Adapter Setup and Add Domain Category wizards guide you through several steps that help define staging, aggregation, and reporting components. These components are used to create the ETL jobs that process your IT resource data.

The following information provides instructions for completing the wizards:

- For more detailed information about the Adapter Setup wizard, see “[Creating Jobs Using the Adapter Setup Wizard](#)” in Chapter 10, “[Adapter Setup Wizard](#),” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.
- For more detailed information about the Add Domain Category wizard, see “[Creating Jobs By Using the Add Domain Category Wizard](#)” in Chapter 11, “[Add Domain Category Wizard](#),” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Reporting Jobs and Objects Created by the Adapter Setup and Add Domain Category Wizards

About Reporting Jobs Created by the Adapter Setup Wizard and Add Domain Category Wizards

The Adapter Setup and Add Domain Category wizards programmatically create reporting jobs for many of the domain categories and time periods that you select. These reporting jobs are named using the convention `<domain subcategory><time period>` (such as **Daily**, **Weekly**, and **Monthly**) **Reporting**, and they are stored in the same domain category folder as the aggregation and information map jobs.

Reporting jobs include Performance Report transformations that use report definitions and information maps to generate reports using data for IT resources. When a reporting job executes, it creates the necessary report packages and reports based on the information maps that are in the same domain category folder. The reports are then saved as tabular or graphic files (such as HTML or PNG files) in the **Repository folder path**

of the SAS Content Server that you selected in the Adapter Setup or Add Domain Category wizards. For more information about the reporting jobs that the wizards create for specific domain categories and time periods, see “[How to Determine Whether the Adapter Setup Wizard or Add Domain Category Wizard Will Create Reporting Jobs for Your Selections](#)”.

Note: The metadata server and SAS Content Server must be running when reporting jobs execute or the jobs cannot generate output.

After a reporting job is deployed, scheduled, and executed, the resulting report output is available for viewing with ITRM Report Center. Among other features, this application enables you to access, filter, and manage your report content from a web browser. For more information, see [Chapter 9, “Working with ITRM Report Center,” on page 91](#).

How to Determine Whether the Adapter Setup Wizard or Add Domain Category Wizard Will Create Reporting Jobs for Your Selections

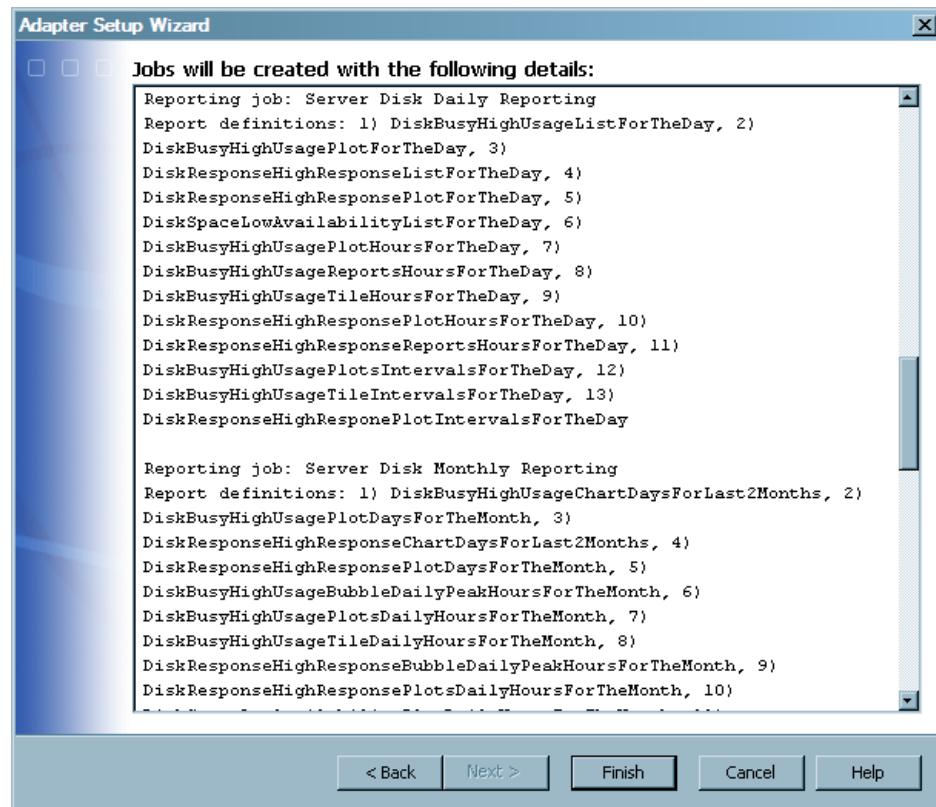
SAS IT Resource Management supplies predefined report definitions for several domain categories and time periods. These report definitions include information such as the names of the variables, the report style, and other attributes that are used to build tabular and graphical reports from your IT resource data. The Adapter Setup and Add Domain Category wizards use these prepackaged report definitions in the reporting jobs that they create for the domain categories and time periods that you select.

Note: The prepackaged report definitions that the Adapter Setup and Add Domain Category wizard jobs use were created by the supplied SAS Enterprise Guide projects. You might want to modify a report that the Adapter Setup or Add Domain Category wizard creates. Similarly, you might want to create your own report that is similar to one that the wizards create. If so, then you can use the corresponding supplied SAS Enterprise Guide project as a template. To do so, copy the supplied project and make the necessary modifications to create a modified report definition. For more information about how to complete this and other related tasks, see [How to Create or Modify Your Own Batch Reports on page 31](#) and “[Managing SAS Enterprise Guide Projects for SAS IT Resource Management](#)” on page 184.

If you select a domain category and time period for which SAS IT Resource Management supplies report definitions, then the Adapter Setup or Add Domain Category wizard creates the appropriate reporting jobs. To determine whether the wizards are going to create reporting jobs for the domain category and time periods that you selected, view the **Summary** page of the wizard before you select **Finish**.

The **Summary** page lists the report jobs that the Adapter Setup and Add Domain Category wizard will create. It also shows the report definitions that the report jobs use, as shown in the following image:

Figure 3.1 Example of a Summary Page Listing Report Jobs



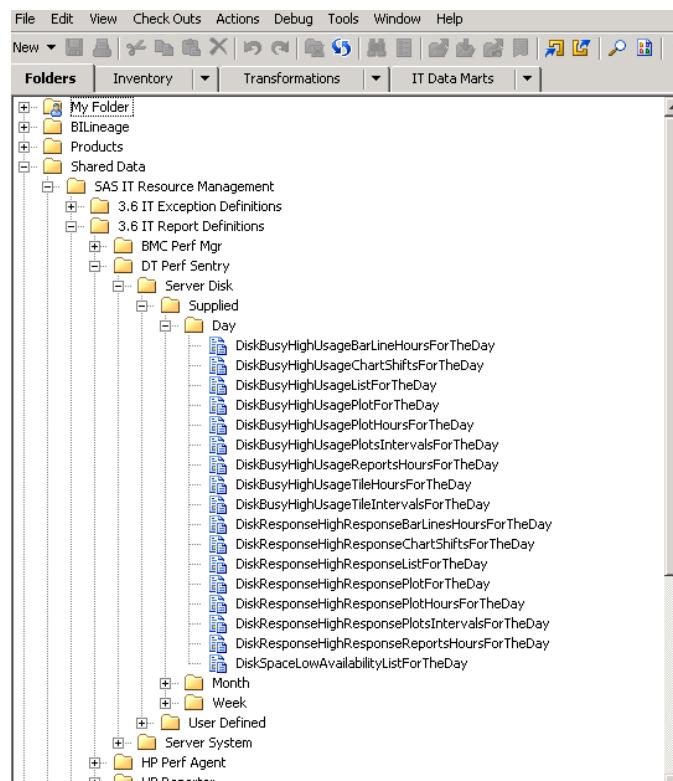
Note: The **Summary** page also includes a note if no reporting jobs are to be created.

You can also determine whether the Adapter Setup or Add Domain Category wizard is going to create reporting jobs based on your selections. To do so, view the list of supplied report definitions for a given domain category and time period. If SAS IT Resource Management supplies report definitions for a given adapter, domain category, and time period, then the wizard creates a reporting job for those selections based on the configuration level that you selected. If there are no supplied report definitions for a given adapter, domain category, and time period, then the wizard does not create reporting jobs for those selections.

To view the supplied report definitions, perform the following steps:

1. In the **Folders** tree, select **Shared Data** \Rightarrow **SAS IT Resource Management** \Rightarrow **3.6 IT Report Definitions**.
2. Select an **<adapter>** folder.
3. Select a **<domain category>** folder.
4. Select **Supplied**.
5. Select a **<time period>** folder.

Figure 3.2 Supplied Report Definitions for DT Perf Sentry, Server Disk, Day Data



You can also create your own report definitions, Performance Report transformations, and reporting jobs. You can add reporting jobs for the domain categories and time periods for which the wizards do not create reporting jobs. Report definitions that you create should be stored in the **User Defined** folder within the domain category folder. For more information about how to create your own report definitions, see “[About the ITRM Report Definition Task](#)” on page 57.

If you decide to create your own reporting objects and jobs, maintain consistency and efficiency by using the same naming conventions and folder structure that SAS IT Resource Management uses for supplied reports. For more information, see [Link to “How to Create and Modify Your Own Batch Reports” on page 31](#) and [“Naming Standards and Location of Objects” on page 149](#).

Deploy and Run Jobs That the Adapter Setup or Add Domain Category Wizard Creates

The Adapter Setup and the Add Domain Category wizards create jobs. You must run those jobs as needed. These jobs depend on one another to process the raw data for reporting.

The following list shows the types of jobs that the wizards create and the dependencies of each. Each job type in the list is dependent on the job type that precedes it.

1. staging job
2. aggregation job
3. information map job
4. reporting job

For some domain categories, exception jobs are created. These jobs run the Exception transformation. The source table for these jobs must be created in order for these jobs to run. For example, if the source table is created in a staging job, then that staging job must run successfully before the exception job is run.

For more information, see “[Deploying and Running Report Jobs](#)” on page 71.

Note: Based on your specifications, the Adapter Setup and Add Domain Category wizards might not create all four types of jobs (staging, aggregation, information map, and reporting) when they execute. For example, you might specify in a wizard to create only a staging job. Or, you might select a supported adapter for which the wizards do not create reporting jobs.

Using Domain Categories

Domain categories are categories of tables and related objects that are organized logically to represent subsets of the IT resource measurements that are available from an adapter. This organization helps you create reports from one or more related aggregation tables of IT performance measurements.

Note: The domain categories that the Adapter Setup or Add Domain Category wizard displays are not necessarily all of the available domain categories for an adapter. You can view all of the domain categories for an adapter by opening the **Folders** tree view and expanding **Products** ⇒ **SAS IT Resource Management** ⇒ **Adapters** ⇒ **<adapter name>** ⇒ **IT Template Tables**. The template tables are the metadata used to create staged tables and are grouped by domain category. All of the domain categories for an adapter are in this list.

The domain categories that are associated with an adapter vary based on the requirements and capabilities of each adapter. If SAS IT Resource Management provides aggregation and information map jobs for a given adapter, then the Adapter Setup and Add Domain Category wizards enable you to select the domain categories that you want to use. If an adapter does not have aggregation and information map jobs available from the wizard, then the wizard creates only a staging job.

You can manage system performance by selecting the specific domain categories that are essential to the performance management and capacity planning processes for your enterprise. The amount of time that the Adapter Setup or Add Domain Category wizard takes to create the resulting jobs varies based on the number of staged tables, aggregation jobs and tables, information map jobs, and reporting jobs that are generated for the domain categories that you select.

Note: The Adapter Setup and Add Domain Category wizards create ETL jobs based on the domain categories that you select. However, the domain categories for some adapters are divided further into domain subcategories. In these cases, the jobs that are created are based on the domain subcategories instead. This prevents jobs from being too large. When working with the ETL jobs that the wizard creates, you might notice that the jobs are categorized into these subcategories.

For more information about the types of jobs that the Adapter Setup and Add Domain Category wizards create for each adapter and domain category, see the Appendix 4, “Jobs That the Adapter Setup and Add Domain Category Wizards Create for Domain Categories,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Types of Reports That the Adapter Setup and Add Domain Category Wizards Create

The Adapter Setup and Add Domain Category wizards provide a wide variety of report types that provide analytical intelligence about IT resources. These reports are designed and configured to show your IT data in a format that is visually appealing and accurate. The selection of a report type to communicate an IT domain intelligence fact is best made by understanding both the message and the audience for which that message is targeted.

Some of the reports that the wizards create include tabular and line plots, bar charts, tile charts (also known as tree maps), and bubble plots. For more information and examples of report types that the Adapter Setup and Add Domain Category wizards create, see the “Domain Intelligence Offered by SAS IT Resource Management” topic in the *SAS IT Resource Management 3.6: Overview*.

Viewing Batch Reports

The Adapter Setup and Add Domain Category wizards enable you to create reporting jobs that can be run to generate batch reports. These batch reports are saved in the SAS Content Server. To view, manage, and sort these reports, use ITRM Report Center.

ITRM Report Center is a web-based application that enables performance analysts and information consumers to access, filter, and manage galleries of report content. For more information about these and other features, see [Chapter 9, “Working with ITRM Report Center,” on page 91](#).

Chapter 4

Exception Reporting

About Exception Reports	27
Sample Exception Reports	28

About Exception Reports

Exception reports are generated when an exceptional condition is detected in the source data. The condition that defines an exception is specified in an Exception transformation. That transformation enables you to specify the exception definition as well as other pertinent information such as filters, report parameters, and report attributes. For more information about this transformation, see Chapter 9, “Exception Analysis Processing,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

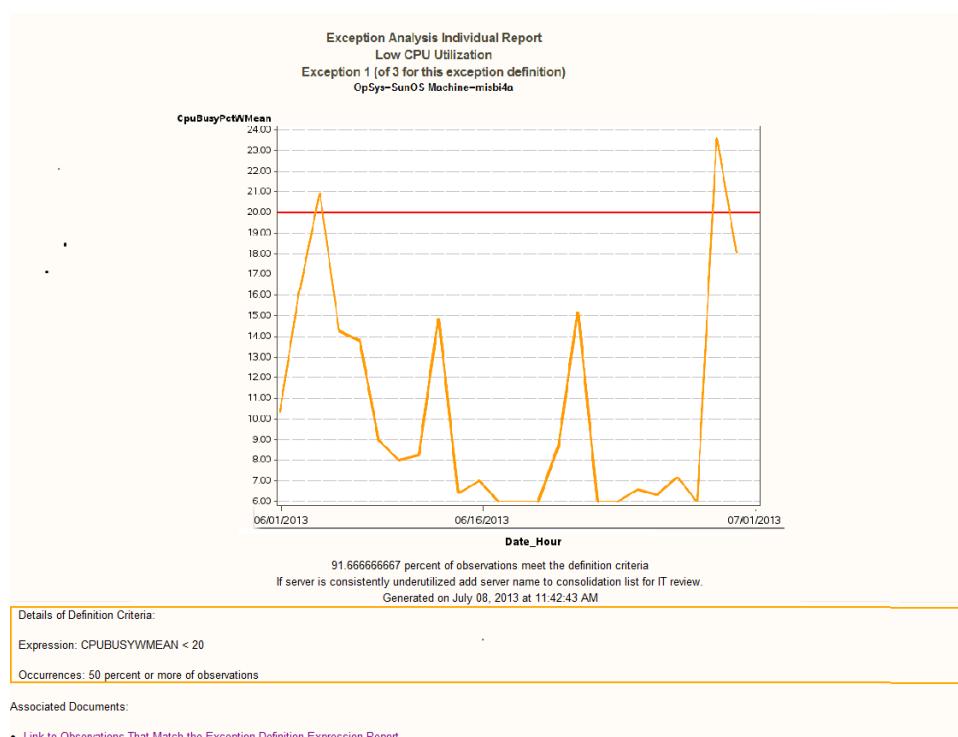
If an exception is detected, the Exception transformation generates two types of reports:

- An overview report lists the exceptions that were found. Here is an example of an expanded overview report:

Figure 4.1 *Exception Analysis Overview Report*

- Individual reports provide graphs of the individual exceptions that were found. Here is an example of an individual report:

Figure 4.2 Exception Analysis Individual Report



You can access these reports in ITRM Report Center.

Note: For more information, see Chapter 9, “Exception Analysis Processing,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Sample Exception Reports

SAS IT Resource Management is installed with sample exception reports. The reports are located in a folder called `sasdav\SampleReports` on the SAS Content Server. Sign in to ITRM Report Center to view the exception reports. (The sample reports are identified by the “ITRMDomainIntelligence” domain category.)

For more information, see Appendix 2, “Sample Reports,” in the *SAS IT Resource Management 3.6: Report Center Guide*. This topic also includes information about how to create a gallery of sample exception reports.

Part 2

Working with Batch Reports

<i>Chapter 5</i>	
<i>About Creating and Modifying Batch Reports</i>	<i>31</i>
<i>Chapter 6</i>	
<i>Working with Supplied SAS Enterprise Guide Projects</i>	<i>41</i>
<i>Chapter 7</i>	
<i>Working with the ITRM Report Definition Task in SAS Enterprise Guide</i>	<i>57</i>
<i>Chapter 8</i>	
<i>Working with Report Jobs and Performance Report Transformations</i>	<i>67</i>
<i>Chapter 9</i>	
<i>Working with ITRM Report Center</i>	<i>91</i>

Chapter 5

About Creating and Modifying Batch Reports

Why Create or Modify Batch Reports	31
How to Create or Modify Your Own Batch Reports	31
Understanding the Batch Reporting Process	31
Prepare to Create or Modify Your Own Batch Reports	32
Modifying the Information Map	33
Modifying How Batch Reports Look	34
Modifying the Metadata for the Reports Generated by a Report Definition	37
Creating New Reports Using a Supplied Project as a Template	37
Creating New Reports from Scratch	39

Why Create or Modify Batch Reports?

The topics in this chapter describe the various ways that you can create your own batch reports or modify the batch reports that SAS IT Resource Management supplies. These topics also provide information about the reporting components that you must modify to perform various tasks and how to find detailed information about these components.

The recommended process to create or modify batch reports is to first run the Adapter Setup wizard and the jobs that it creates. This practice enables you to visually review the reports that SAS IT Resource Management offers.

How to Create or Modify Your Own Batch Reports

Understanding the Batch Reporting Process

The batch reporting process consists of several reporting components that are interconnected within a process flow. The components of this process flow are specified and then executed in a standard sequence in order to generate batch reports. For an example of the reporting components and how they work together in the process flow, see “[Overview of Batch Reporting](#)” on page 10.

The Adapter Setup wizard and the Add Domain Category wizard enable you to automatically create the reporting components for several adapters and domain categories that you select. However, you might choose to modify elements of specific reports or add to the existing set of reports. SAS IT Resource Management enables you

to do so by making each reporting component modifiable. You can make a copy of the supplied components and then modify the copies as needed to accommodate the reporting needs for your organization.

TIP When you modify or add a specific reporting component, you might need to modify the other reporting components downstream in the process flow to accommodate your change. For example, you might add an ITRM Report Definition task in a SAS Enterprise Guide project to create a new report definition. You must then add or modify a corresponding Performance Report transformation in the report job to specify the new report definition.

Prepare to Create or Modify Your Own Batch Reports

Before you decide to create your own batch reports, visually review the reports that the Adapter Setup or Add Domain Category wizard creates. Then you can determine whether these reports meet your needs. To do so, perform the following steps:

1. In SAS IT Resource Management, run the Adapter Setup or Add Domain Category wizard for selected adapters and domain categories.

For more information, see [“How to Use the Adapter Setup or Add Domain Category Wizards” on page 20](#).

TIP For best results, use more than one day of data that spans across the week and month boundaries. For example, include data that includes at least the last day of a week and month as well as the first day of the following week and month. This scope of data ensures that you can generate daily, weekly, and monthly reports. If you use data from one day only, then you cannot generate weekly or monthly reports.

2. Deploy and run the resulting jobs.

For more information, see Chapter 14, “Jobs,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

3. In the **Gallery** workspace of ITRM Report Center, review the reports and identify the ones that you want to modify, if necessary. For more information, see [“What Is ITRM Report Center?” on page 91](#).

To modify your batch reports, examine the properties of the reports. Using ITRM Report Center, view or select the report that you want to modify and click the Properties icon



[]. This action opens the Expanded Report Properties window.

Figure 5.1 Expanded Report Properties Viewed in ITRM Report Center

Expanded Report Properties	
Key	Value
Report Title	HADRSHostMemoryUtilization
1 Domain Category	VMware_HostSystem
Domain Subcategory	Host
ReportType	Performance
Cluster	VIRTUAL DESKTOPS 2
Host	VIRTDESK09
Date	Sep 22, 2013
Keywords	Memory,Top
Schedule Frequency	Daily
2 IT Data Mart Name	VMwareSampleReports
3 Job Name	VMware vCenter 2 HostSysByCluster Daily Reporting
4 Project	VMwareHostSystem
5 Data Source	DetailHostSysByCluster
6 Process Flow	DayJobDetailHostSystem
7 Transformation Name	HostSysByCluster Daily
8 Report Definition	HADRSHostMemoryHighUsagePlotsIntervalsForTheDay
Report Author	Supplied
Expire After	5
Report URL	http://vm0111111111.com:80/SASContentServer/repository/default/sasdav/ITRM/VmwareSampleReports_VM

- 1 domain category
- 2 IT data mart name
- 3 job name
- 4 SAS Enterprise Guide project name
- 5 information map or data source name
- 6 SAS Enterprise Guide process flow name
- 7 ITRM Performance Report transformation name
- 8 ITRM report definition name

Modifying the Information Map

Ways to Modify the Information Map

An *information map* is the data source for a batch report that is generated from Adapter Setup or Add Domain Category wizard report jobs. If you modify the information map for a batch report, then you might need to modify the other reporting components in the batch reporting process to accommodate your change.

The following modifications to an information map require that you also modify the corresponding SAS Enterprise Guide project, report definitions, and deployed jobs:

- Change the name of an information map or data item that is used in a SAS Enterprise Guide project that is in use or a report job that is currently deployed.
- Add a data item or information map filter that you want to use in a report.

The following modifications to an information map do not require that you modify the other reporting components in the process:

- Modify an information map filter expression.
- Add or remove a data item or information map that is not used in any other currently deployed jobs or SAS Enterprise Guide projects.

How to Modify the Data Source or Information Map

To modify the data source or information map that a batch report uses, perform the following steps:

1. Using ITRM Report Center, view or select the report for which you want to modify the information map and click the Properties icon []. This action opens the

Expanded Report Properties window. To view the expanded report properties, see [Figure 5.1 on page 33](#).

2. Note the following information:

Domain Category

The value in this field is an abbreviated representation of the adapter and the domain category that corresponds to the report and the reporting components that created it.

IT Data Mart Name

The value in this field is the name of the IT data mart that contains the report job.

Data Source

The value in this field is the name of the information map and the Information Map transformation for the report.

3. In the SAS IT Resource Management client, navigate to the IT data mart and domain category that you noted in the previous step.
4. Open the information map job for the domain category. In the job, locate the Information Map transformation that has the same name as the **Data Source** for the report.
5. Right-click the Information Map transformation and select **Properties**. The Properties dialog box appears and enables you to modify the information map that the transformation creates when executed.

For more information about working with information maps, see Chapter 12, “Information Maps,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

6. Redeploy and run the information map job.
7. Modify the other reporting components if necessary.

Modifying How Batch Reports Look

Ways to Modify How Batch Reports Look

SAS IT Resource Management supplies SAS Enterprise Guide projects that include several components such as report tasks and ITRM report definition tasks. The parameters that are specified in these components affect how batch reports look. These parameter specifications are included in the report definition that the Performance Report transformation identifies in the corresponding report job.

The following changes require that you modify components in the SAS Enterprise Guide project, modify and deploy the ITRM Report Definition task to create a new report definition, and then redeploy the report job:

- Change the title or footnote of a report.
- Change or add a data item in a report such as an analysis variable or a BY variable.
- Change the report style for one report.
- Change the graph format, style sheet, or colors for one report.

For instructions about how to perform these tasks, see [“How to Modify Components in a SAS Enterprise Guide Project”](#).

How to Modify Components in a SAS Enterprise Guide Project

To modify components in a SAS Enterprise Guide project, perform the following steps:

1. Using ITRM Report Center, view or select the report that you want to change, and click the Properties icon []. This action opens the Expanded Report Properties window. To view the expanded report properties, see [Figure 5.1 on page 33](#).
2. Note the following information:

IT Data Mart Name

The value in this field is the name of the IT data mart that contains the report job.

Job Name

The value in this field is the name of the job that generates the report job.

Project

The value in this field is the name of the supplied SAS Enterprise Guide project that is associated with the report.

Process Flow

The value in this field is the page of the SAS Enterprise Guide project that is associated with the report. This page includes the ITRM Report Definition task that creates the report definition for the report.

Report Definition

The value in this field is the name of the report definition and the ITRM Report Definition task in SAS Enterprise Guide that creates the report definition for the report.

3. Navigate to the location on the client workstation where you installed SAS IT Resource Management. The projects are located at **SASITResourceManagementSASEnterpriseGuideComponents\3.6**. For example, if you installed SAS IT Resource Management on a 64-bit machine, the projects might be located at **C:\Program Files\SASHome\SASITResourceManagementSASEnterpriseGuideComponents\3.6**.
4. Copy the supplied SAS Enterprise Guide project that you want to modify.

CAUTION:

Modify a copy of a supplied SAS Enterprise Guide project only. Do not modify a supplied SAS Enterprise Guide project directly. The supplied SAS Enterprise Guide projects include specifications and IT domain intelligence that SAS IT Resource Management provides for reporting. If you modify supplied projects directly, then you will lose the specifications and benefits that these projects provide for future reference. Also, when SAS IT Resource Management provides project updates, your modifications might be overwritten. For more

information, see “[Managing SAS Enterprise Guide Projects for SAS IT Resource Management](#)” on page 184.

5. Verify that you have set up SAS Enterprise Guide and migrated your projects so that they can work with the SAS IT Resource Management 3.6 IT data marts. For more information about how to perform these tasks, see “[About Preparing to Work with SAS Enterprise Guide](#)” on page 46.
6. Review the Project Notes and Process Flow Notes for the project if they are available. You can use the information in these notes to determine the types of reports that the project creates. They can help you understand the general conventions that are used to specify the reports.
7. Modify the relevant reporting component in the copy of the supplied project. You can use the Process Flow and Report Definition properties that you identified previously to locate the specific branch of components in the project that affect the report.

For more information, see [Chapter 6, “Working with Supplied SAS Enterprise Guide Projects,”](#) on page 41.

8. Open the ITRM Report Definition task and click **Deploy** to run it and create an updated report definition.

Note: Report definitions that you create should be stored in a **User Defined** folder. Report definitions that you create do not and should not overwrite the supplied report definitions that are in the **Supplied** folder.

For more information, see “[Working with the ITRM Report Definition Task](#)” on page 58.

9. Your modifications might have included adding a new report definition or changing the name of an existing report definition. If so, you must also update the Performance Report transformation in the corresponding report job to add the new report definition or specify the updated report definition with the new name.

For more information, see “[Working with Performance Report Transformations](#)” on page 75.

10. Using the SAS IT Resource Management client, redeploy and run the corresponding report job.

You can use the **IT Data Mart Name** and **Job Name** to locate the report job that you want to redeploy.

For more information, see “[Deploying and Running Report Jobs](#)” on page 71.

How to Modify the Characteristics of All Reports in a Report Job

You might want to change the style sheet, the graph format, or the colors for all reports in the report job. If so, modify the Performance Report transformation only and then redeploy the report job. To do so, perform the following tasks:

1. In SAS IT Resource Management, locate the IT data mart where the Adapter Setup or the Add Domain Category wizard stored the report job that you want to modify.

Note: If you do not know where the report job is stored, then you can use the **Gallery** workspace of ITRM Report Center to view the properties for one of the reports that the report job creates. Use the Domain Category, Report Definition Task, IT Data Mart Name, and Job Name properties to deduce the IT data mart folder where the job is stored and the report definition that the report job uses to create the report. For more information, see “[What Is ITRM Report Center?](#)” on page 91.

For more information, see “What Does the Adapter Setup Wizard Create” and “What Does the Add Domain Category Wizard Create” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

2. Double click the report job to open it in the Process Flow window.
3. Right-click the Performance Report transformation in the Process Flow window and select **Properties**. The Properties dialog box appears.
4. Click the **Report Parameters** tab. The parameters on this tab enable you to specify the style sheet and graph format that affect the look for all of the reports that the corresponding Performance Report transformation and report job create. You can create your own style sheet and design template to change the look of the report output. You can also specify the location for the ActiveX Control and the override location for temporary physical files on the server.

For more information about designating the style sheet that a report uses, see “[Working with Performance Report Transformations](#)” on page 75.

5. Redeploy and run the report job.

For more information, see “[Deploying and Running Report Jobs](#)” on page 71.

Modifying the Metadata for the Reports Generated by a Report Definition

About Modifying Report Definitions for Batch Reports

You might choose to create or modify report definitions for your batch reports if you want to perform the following tasks:

- Change the report content by adding or removing reports from the list of reports in the report definition.
- Change a setting or property that is used in a filter.
- Modify how a report graph looks (graph type) or how many instances of a report are kept (aging).

For more information, see “[How to Modify Components in a SAS Enterprise Guide Project](#)” on page 35.

Creating New Reports Using a Supplied Project as a Template

Why Use a Supplied Project as a Template When Creating New Reports?

The batch reports that the Adapter Setup wizard and the Add Domain Category wizard jobs create include supplied report definitions that are based on IT domain intelligence. These reports also include standard and consistent styles, colors, and filters that are proven to improve legibility and report categorization in ITRM Report Center. All of these report definitions are specified in the supplied SAS Enterprise Guide projects that are used to create them for the batch reports. These SAS Enterprise Guide projects are supplied by SAS IT Resource Management and stored on the client workstation during installation.

You might want to create a new batch report that the Adapter Setup wizard jobs do not create. If so, use a supplied SAS Enterprise Guide project as a template to build the report definition for your new report. You can make a copy of the supplied project that is

most closely associated with the type of report that you want to create. Then modify only the necessary parameters.

TIP The supplied SAS Enterprise Guide projects include standard titles, footnotes, axis statements, names, labels, styles, colors, and filters that SAS IT Resource Management supports and recommends for a given adapter and domain category. Using these supplied projects as templates for the new reports that you create enables you to maintain consistency among the reports that you create and those that SAS IT Resource Management provides.

For example, you might choose to create a new report using a supplied SAS Enterprise Guide project as a template if you want to perform the following tasks:

- Replicate reports for a domain category for which the Adapter Setup or Add Domain Category wizards do not already provide reports.
- Create reports for a user-written adapter.

For more information, see [“How to Create New Reports Using a Supplied Project as a Template” on page 38](#).

How to Create New Reports Using a Supplied Project as a Template

To create a new report by using a supplied SAS Enterprise Guide project as a template, perform the following steps:

1. Navigate to the location on the client workstation where you installed SAS IT Resource Management. The projects are located at **SASITResourceManagementSASEnterpriseGuideComponents\3.6**. For example, if you installed SAS IT Resource Management on a 64-bit machine, the projects might be located at **C:\Program Files\SASHome\SASITResourceManagementSASEnterpriseGuideComponents\3.6**.
2. Identify the supplied SAS Enterprise Guide project that most closely resembles the type of adapter and domain category that you want to work with. You can use one of the following two methods to determine the supplied project that is most appropriate for your new reports:
 - Use the supplied project that corresponds to the adapter and domain category for your new report. The name of each supplied project begins with the adapter name followed by the domain category. For example, if you are creating a report for the DT Perf Sentry adapter and the Server Disk domain category, then you might choose the **DTPerfSentryServerDisk.egg** supplied project.
 - Use a supplied project that creates reports that are similar to the report that you want to create. SAS IT Resource Management does not supply a SAS Enterprise Guide project for every domain category. If a project for your domain category does not already exist, then you can use a project for another adapter that has a similar domain category. Review the reports that SAS IT Resource Management provides to identify the supplied project for a report that you want to imitate.
3. Copy the supplied SAS Enterprise Guide project that you want to use as a template.

CAUTION:

Modify a copy of a supplied SAS Enterprise Guide project only. Do not modify a supplied SAS Enterprise Guide project directly. The supplied SAS Enterprise Guide projects include specifications and IT domain intelligence that SAS IT Resource Management provides for reporting. If you modify supplied projects, maintain a copy of the original supplied projects. Otherwise, you could lose the specifications and benefits that these projects provide for future

reference. For more information, see “[Managing SAS Enterprise Guide Projects for SAS IT Resource Management](#)” on page 184.

4. Verify that you have set up SAS Enterprise Guide and migrated your projects so that they can work with the SAS IT Resource Management 3.6 IT data marts. For more information about how to perform these tasks, see “[About Preparing to Work with SAS Enterprise Guide](#)” on page 46.
5. Review the Project Notes and Process Flow Notes for the project if they are available. You can use the information in these notes files to determine the types of reports that the project creates. They can help you understand the general conventions that are used to specify the reports.
6. In the copy of the supplied project, modify the components as needed to specify the report configurations for the new report.

For more information, see [Chapter 6, “Working with Supplied SAS Enterprise Guide Projects,”](#) on page 41 and “[Working with the ITRM Report Definition Task](#)” on page 58.

7. Run the SAS Enterprise Guide project and then modify and deploy the ITRM Report Definition task separately to create a new report definition.
8. Using the IT Resource Management client, create a new report job or modify the Performance Report transformation in an existing report job. The Performance Report transformation in the report job must specify the name and location of the report definition that the modified SAS Enterprise Guide project creates.

For more information, see “[Working with Performance Report Transformations](#)” on page 75.

9. Deploy and run the report job.

For more information, see “[Deploying and Running Report Jobs](#)” on page 71.

Creating New Reports from Scratch

Why Create a New Report from Scratch?

SAS IT Resource Management and SAS Enterprise Guide enable you to create batch reports from scratch, without using supplied SAS Enterprise Guide projects or reporting components as templates or models. You might choose to create your own reports from scratch if a similar counterpart is not provided by SAS IT Resource Management.

To create new reports from scratch, you must create all of the reporting components that are required to generate reports. For more information, see “[How to Create a New Report from Scratch](#)”.

How to Create a New Report from Scratch

TIP SAS IT Resource Management uses specific naming conventions and locations when naming and saving reporting objects such as tables, information maps, information map filters, data items, report titles, report footnotes, and report definitions. These conventions simplify the management and maintenance of the various objects that are interrelated. For best results, if you choose to create or edit reporting objects, then use the same naming and storage conventions that SAS IT Resource Management uses for consistency and efficiency. For more information, see “[About Naming Standards for SAS IT Resource Management Reporting Objects](#)” on page 149 and “[About Reporting Standards for SAS IT Resource Management Reports](#)” on page 153.

To create a new report from scratch, perform the following steps:

1. Identify a data source for the report. The reports created by the Adapter Setup and the Add Domain Category wizard use information maps as data sources. However, SAS IT Resource Management supports other SAS data sets as sources such as aggregation tables.

For more information, see Chapter 8, “Aggregating the Data,” or Chapter 12, “Information Maps,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

2. Create a SAS Enterprise Guide project that includes at least the following components:
 - the input data source
 - one or more report tasks to specify the report parameters
 - one or more ITRM Report Definition tasks to specify the report definitions
3. Run the SAS Enterprise Guide project interactively to verify that the report output meets your needs.
4. Then modify and deploy the ITRM Report Definition task manually to create a new report definition.
5. Using the IT Resource Management client, create a new report job that includes a Performance Report transformation. The Performance Report transformation must specify the name and location of the report definition that the SAS Enterprise Guide project created.

For more information, see “Working with Performance Report Transformations” on page 75.

6. Deploy and run the report job.

For more information, see “Deploying and Running Report Jobs” on page 71.

Chapter 6

Working with Supplied SAS Enterprise Guide Projects

About SAS Enterprise Guide Projects	41
What Are SAS Enterprise Guide Projects?	41
SAS Enterprise Guide Projects Supplied by SAS IT Resource Management	42
Properties of Supplied SAS Enterprise Guide Reports	45
Preparing to Work with SAS Enterprise Guide	46
About Preparing to Work with SAS Enterprise Guide	46
Setting Up SAS Enterprise Guide for SAS IT Resource Management Data	46
Migrating SAS Enterprise Guide Projects to Work with SAS IT Resource Management 3.6	48
How to Modify a Report in a Supplied SAS Enterprise Guide Project	53

About SAS Enterprise Guide Projects

What Are SAS Enterprise Guide Projects?

In SAS Enterprise Guide, you can work with projects, process flows, branches, and tasks in order to manage the reporting process.

Here are some of the SAS Enterprise Guide components that are used in SAS IT Resource Management reporting:

- Projects

Projects are used by SAS Enterprise Guide to manage each collection of related tasks, code, references to data, and results.

- Process Flows

A process flow is a view within a project that shows a set of related data sets, tasks, and results that are linked and can be executed in a single stream. You can run a portion of the process flow or the entire process flow. A project can have multiple process flows that can be selected from the **Project** tree.

- Branches

A branch is a set of related tasks that are linked and can be executed in a single stream. Branches can be accessed from a process flow window in SAS Enterprise Guide.

- Tasks

In SAS Enterprise Guide, tasks generate SAS code and formatted results. Tasks include SAS procedures that can generate many types of reports, from simple data listings to complex analytical procedures.

SAS IT Resource Management supplies an ITRM Report Definition task that creates report definitions.

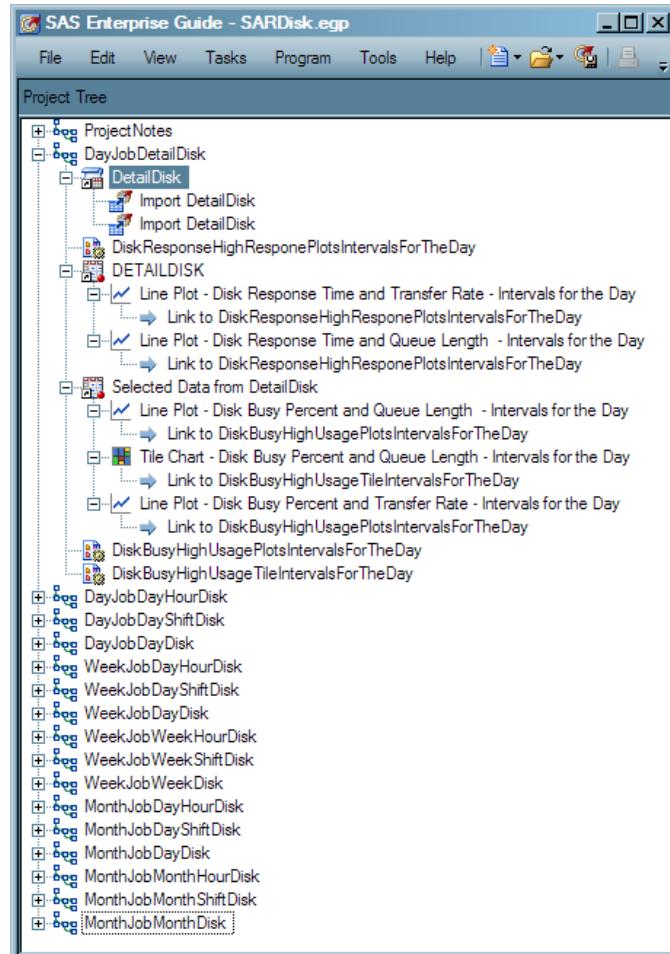
SAS Enterprise Guide Projects Supplied by SAS IT Resource Management

During installation, SAS IT Resource Management provides several SAS Enterprise Guide projects. They can be accessed by navigating to the location where you installed SAS IT Resource Management on the client workstation. The projects are located at **SASITResourceManagementSASEnterpriseGuideComponents\3.6**. For example, if you installed SAS IT Resource Management on a 64-bit machine, the projects might be located at **C:\Program Files\SASHome\SASITResourceManagementSASEnterpriseGuideComponents\3.6**.

These projects, when executed, generate reports that provide domain intelligence for IT resources. The following two displays show the tree view and the workspace view for the supplied project called SARDisk.egp and the process flow called DayJobDetailDisk.

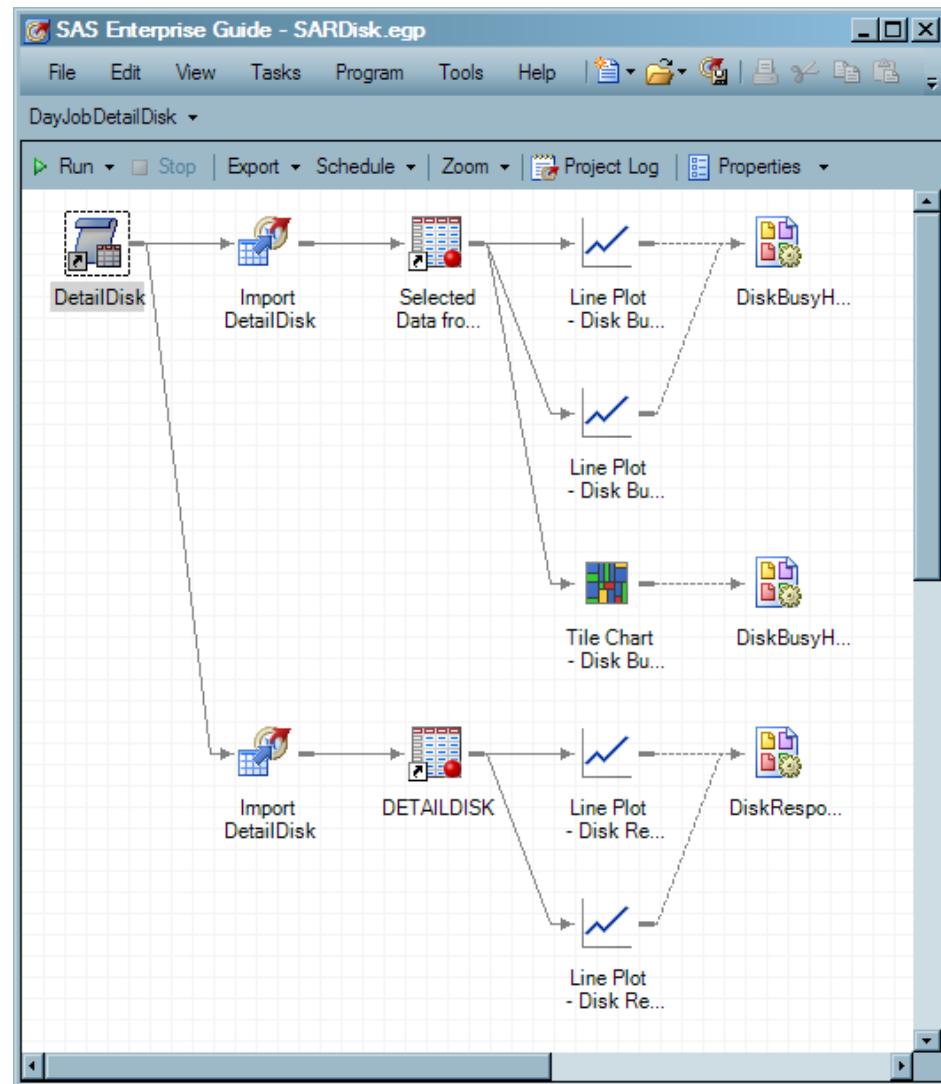
- The tree view provides a hierarchical representation of data, tasks, results, and other objects that are associated with your projects. All of the process flows that are associated with this project are displayed in the tree view of the project.

Figure 6.1 Tree View of the DayJobDetailDisk Process Flow in the SARDisk.egp Project



- The workspace view shows the process flow diagram of the objects in one process flow of your project.

Figure 6.2 Workspace View of the DayJobDetailDisk Process Flow in the SARDisk.egp Project



The tree and workspace views of the SARDisk.egp project provide examples of these terms:

- The project name is SARDisk.egp.
- The process flow name is DayJobDetailDisk.
- The first task in the process flow is the information map called DetailDisk.
- The process flow contains two branches that each start with a Map Import task called ImportDetailDisk.
 - The import task in the first branch creates a table that provides the source data for the three report tasks that generate line plots and a treemap.
 - The import task in the second branch creates a table that provides the source data for two report tasks that generate two lines plots.

Note: After the SAS Enterprise Guide project is run, the resulting reports are rendered in HTML.

- An ITRM Report Definition task is appended to each branch. This task creates the generated code of the branch as a report definition. When the report definition is run in a report job, it creates output in the SAS Content Server.

TIP Many supplied SAS Enterprise Guide projects include Project Notes and Process Flow Notes. The Project Notes file provides useful information about the reports that the project creates for the adapter and domain category. The Process Flow Notes file provides specific information about the columns and filters that are used in the various process flows of the project. You can use the information in these notes files to determine the types of reports that the project creates. The information can also help you understand the general conventions that are used to specify the reports.

Properties of Supplied SAS Enterprise Guide Reports

SAS Enterprise Guide reports that are supplied by SAS IT Resource Management conform to a set of reporting standards. These conventions, based on IT intelligence and best practices, designate standard specifications for report footnotes, titles, fonts, colors, filters, and so on.

Supplied projects use process flow names that typically suggest which job the reports should run in (for example, the daily job, the weekly job, or the monthly job). The process flow name also indicates the name of the information map that is used. The supplied SAS Enterprise Guide project called SARDisk.egp includes a process flow named DayJobDetailDisk. The name of this process flow suggests that it contains reports that should run in a daily job and that use the DetailDisk information map. This naming convention enables you to associate reports with their report jobs and identify the information maps and SAS tables on which the reports are based.

If you choose to create or edit IT reports, then you should follow these reporting standards. Following these standards ensures that the reports that you create have the same look as those that SAS IT Resource Management supplies.

For more information, see [Appendix 1, “Naming Standards for Reporting Objects,” on page 149](#) and [“About Reporting Standards for SAS IT Resource Management Reports” on page 153](#).

Preparing to Work with SAS Enterprise Guide

About Preparing to Work with SAS Enterprise Guide

Before you begin working with the supplied SAS Enterprise Guide projects, you must use the functions of SAS Enterprise Guide in order to perform the following tasks:

- Set up SAS Enterprise Guide so that it can work with SAS IT Resource Management data.
- Migrate SAS Enterprise Guide projects so that they can work with your SAS IT Resource Management 3.6 IT data marts, in which you created the report data

Note: Supplied SAS Enterprise Guide projects include pointers to information maps.

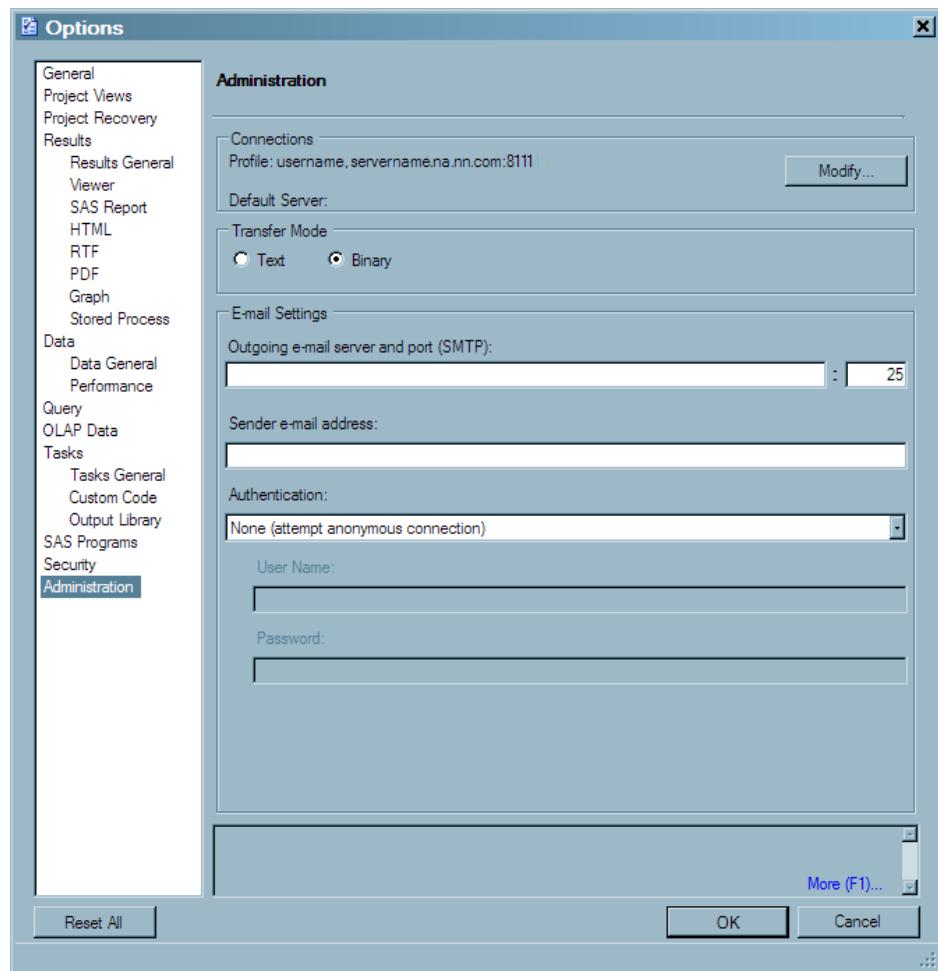
These information maps are created when you run the corresponding information map jobs that the Adapter Setup or Add Domain Category wizard creates. Before you begin working with a supplied SAS Enterprise Guide project, you should run the Adapter Setup or Add Domain Category wizard for the corresponding adapter and domain category. You must then run the jobs, including the information map job, to create the information map that the supplied project uses.

Setting Up SAS Enterprise Guide for SAS IT Resource Management Data

In order to work with the data from SAS IT Resource Management, SAS Enterprise Guide must access the SAS Metadata Repository. To access a SAS Metadata Repository for use by SAS Enterprise Guide, perform the following steps:

1. Invoke SAS Enterprise Guide. To do so, select **Start** ⇒ **Programs** ⇒ **SAS** ⇒ **Enterprise Guide**.
2. From the menu bar, select **Tools** ⇒ **Options**. The Options dialog box appears. From the list in the left pane, select **Administration**.

Figure 6.3 Administration Window of the Options Dialog Box



3. If you want to create a profile or change your profile, click **Modify**, which opens the Connections window. Select the profile that you want to change and click **Modify**.
4. The Modify Profile window appears and enables you to create or revise the profile. Enter or revise the following information.
 - a. The name of the profile is required. The description is optional.
 - b. Specify whether the machine is remote or local by clicking the appropriate button.
 - c. Enter the machine and port number of the server that you want to connect to.
 - d. Enter the user ID and password for the person who can access this server.
 - e. Click **Save** to save all specified values and close the window, or **Cancel** to discard all values and close the window.
5. To connect to the server, select the appropriate profile and click **Set active**. The active server is the source for all resource definitions (such as servers and libraries). If the Credentials Required dialog box appears, enter your user ID and password and click **OK**.

The selected repository is identified by the active repository icon: .
6. Click **Close** to return to the Administration window.
7. Click **OK** to return to the main SAS Enterprise Guide workspace.

For information, see *Administering SAS Enterprise Guide*. To locate this documentation, navigate to <http://support.sas.com/documentation/index.html>. From the list of products, select the **SAS Enterprise Guide**.

Migrating SAS Enterprise Guide Projects to Work with SAS IT Resource Management 3.6

About the Migration Wizard

The Migration Wizard for SAS Enterprise Guide enables you to migrate report projects that are created with earlier versions of SAS IT Resource Management and SAS Enterprise Guide. The migrated report projects can then be used with your current version of SAS IT Resource Management and SAS Enterprise Guide.

SAS Enterprise Guide projects supplied by SAS IT Resource Management, and typically those created for use with SAS IT Resource Management, use information maps in the report projects. Therefore, you must change the map paths of the supplied information maps to point to the information maps that you created with the Adapter Setup or Add Domain Category wizard. The easiest way to change the map paths is to use the Migration Wizard for SAS Enterprise Guide.

Prerequisites to Running the Migration Wizard

Before you run the Migration Wizard for SAS Enterprise Guide and the SAS Add-in for Microsoft Office, you must run the staging, aggregation, and information map jobs that create the information maps for the adapter and domain category that you want to work with.

If you installed the supplied SAS Enterprise Guide projects, they can be accessed by navigating to the location where you installed SAS IT Resource Management on the client workstation. The projects are located at

`SASITResourceManagementSASEnterpriseGuideComponents\3.6`. For example, the projects might be located at `C:\Program Files\SASHome\SASITResourceManagementSASEnterpriseGuideComponents\3.6`.

TIP Make a copy of the SAS Enterprise Guide projects and migrate only the copied projects. The original projects should be kept unchanged as a backup.

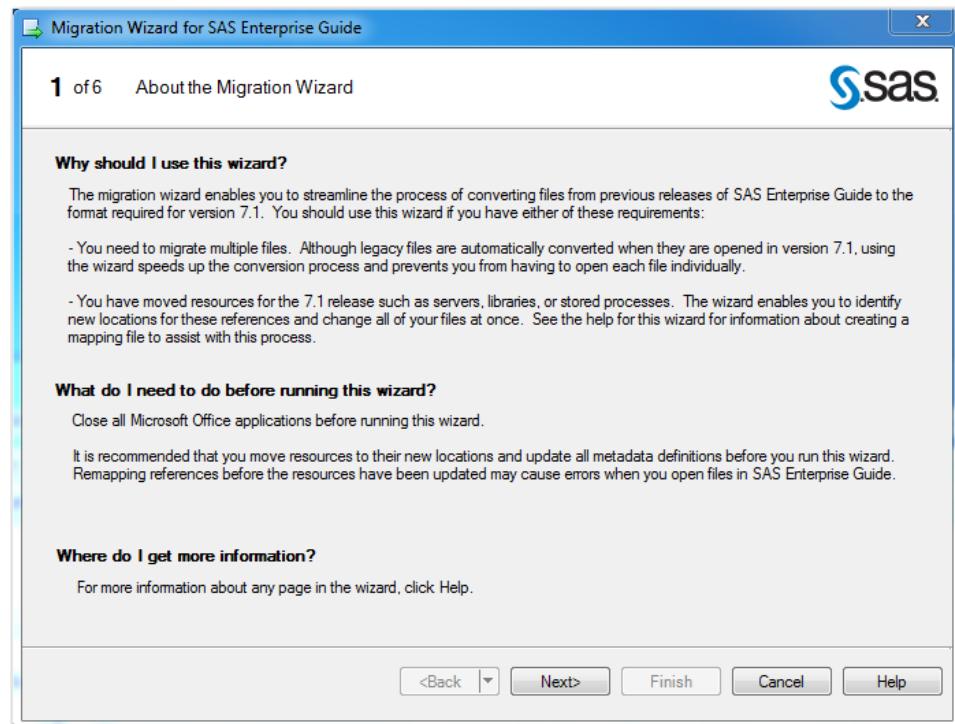
TIP Make sure the copied projects are not read-only projects. To do this, right-click each project and select **Properties**. On the **General** tab, make sure that the **Attributes** box is not checked. Then click **OK**.

Running the Migration Wizard

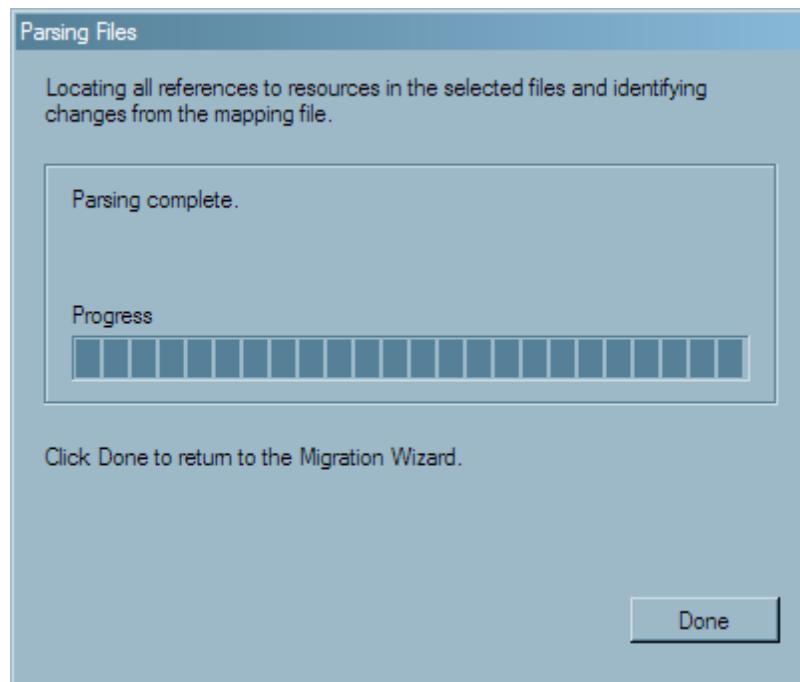
To run the Migration Wizard for SAS Enterprise Guide and the SAS Add-in for Microsoft Office, perform the following steps:

1. Navigate to the location where the current version of SAS Enterprise Guide is installed. Then select **MigrationWizard.exe**. Click **Enter** to invoke the Migration wizard. The first page of the Migration wizard appears. This page contains information about why you should use this wizard and what you should do before you run it.

Figure 6.4 Page 1 of the SAS Enterprise Guide Migration Wizard

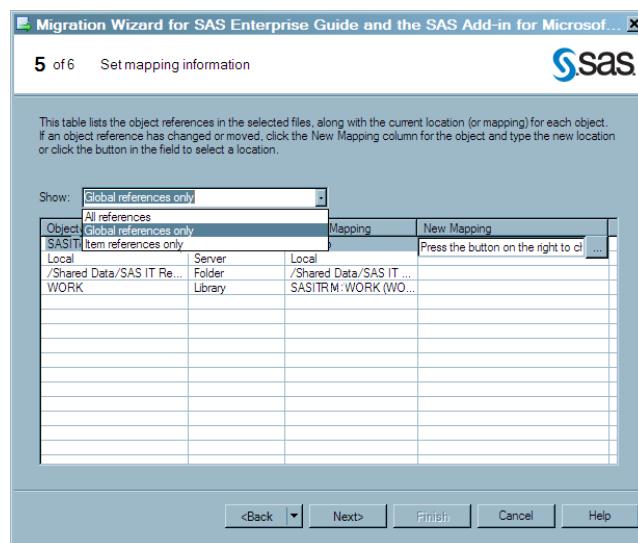


2. On page 2 of the wizard, verify the connection profile of the application server where your information maps are located. You can click **Modify** to change your connection profile.
3. On page 3 of the wizard, select the projects that you want to migrate. To do so, perform the following steps:
 - a. In the **Available files** column, navigate to the location of the SAS Enterprise Guide projects that you want to migrate.
 - b. Check the boxes next to the projects to be migrated.
 - c. Click the right arrow to move the projects to the **Selected files** column.
4. On page 4 of the wizard, information is displayed that explains the next steps of the migration process. Click **Next** to run the process that parses the files. The progress of the wizard is displayed as it locates all the references to the projects that you selected.

Figure 6.5 Parsing Files Information Box

Click **Done** when the progress indicator shows that this task is complete.

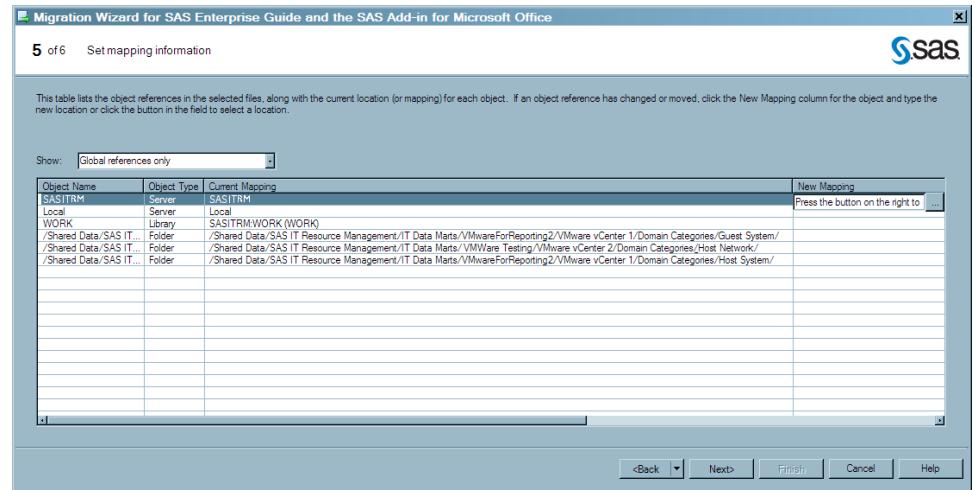
5. On page 5 of the wizard, you must enter the new mapping information for the selected projects. To do so, perform the following steps:
 - a. Use the **Show** field to shorten the number of entries on this page. From the drop-down list, select **Global references only**. (This setting removes the information maps from this page, which significantly simplifies the contents of this page.)

Figure 6.6 Selecting Only Global References

- b. Expand the page to the full width of your screen. This action enables you to have space to see the complete path information for the current and new mappings.
- c. Resize or place your mouse pointer over the **Current Mapping** column width so that you can see the complete path. This path is the path that was used in the SAS

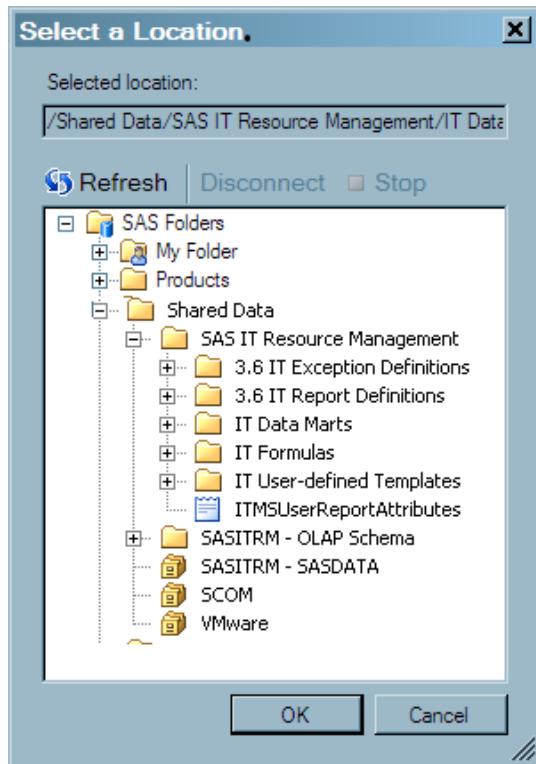
Enterprise Guide project when it was last saved. It identifies the adapter and domain category for which the project was developed. As shown in the following display, a typical path is quite long (for example, **/Shared Data/SAS IT Resource Management/IT Data Marts/VMwareForReporting2/VMware vCenter 1/Domain Categories/Guest System/**).

Figure 6.7 Expanded Current Mapping Column



- d. If you want to change the information map path globally, click the ellipsis button (...) in the **New Mapping** column. The Change Resource dialog box appears. Use the **Browse** button to display the list of servers from which you can select the **Server name** that you want to use in your paths. If you want to apply this change to all the object references that contain this value, check the corresponding box.
- e. You must enter the mapping information for your new IT data mart in the **New Mapping** column for each of the project folders that are shown on this page. To do so, perform the following steps:
 - Select the folder and click the ellipsis button (...) in the **New Mapping** column. The Change Resource dialog box appears.
 - Use the **Browse** button to display the list of folders to which the projects can be migrated. Expand the **Folders** tree until you locate the IT data mart from which you ran the Adapter Setup wizard for these projects.

Figure 6.8 Locating the IT Data Mart



- Continue expanding the folders within the IT data mart until you find the location of the adapter. Then locate the domain category that corresponds to the path in the **Current Mapping** field. In the Select a Location dialog box, the **Selected location** field displays the complete path for the new location.

Note: Make sure that the box is checked that specifies to apply this change to all object references that contain this value.
- When you have entered the new mapping information for all the SAS Enterprise Guide project folders, click **Next**.
- f. On the **Begin the migration process** page, you can also enter the path to your Migration Record File. You can also change the path to the Log File. To do so, specify this information:
 - whether to create automatic backups of the original files
 - whether to verify the existence of all resources that were changed

TIP For best results, specify that the original files should be backed up automatically.
- g. Click **Finish** to perform the migration. The Migrating files window displays the progress of your migration. When the migration is complete, the status of the processing is displayed. If a processing error occurred, you can view the log file. Otherwise, click **Done** to exit from the Migration wizard. The jobs that contain the projects that were successfully migrated can be opened in the IT data mart and run.

How to Modify a Report in a Supplied SAS Enterprise Guide Project

The supplied SAS Enterprise Guide projects are the source of the reports that the Adapter Setup wizard creates. Each report in a supplied SAS Enterprise Guide project corresponds to a report definition that SAS IT Resource Management provides. After you have run the Adapter Setup wizard for a given adapter and run the resulting report jobs, you can review the reports that these jobs create. You can then determine whether the reports that SAS IT Resource Management provides meet the needs of your organization.

Note: Your site might not process data from any of the data sources for which SAS IT Resource Management provides an adapter. In that case, you can use an alternate data source to process a sample set of data to run the Adapter Setup wizard and view the reports that it generates. For example, some data sources that are commonly available in IT enterprises are these:

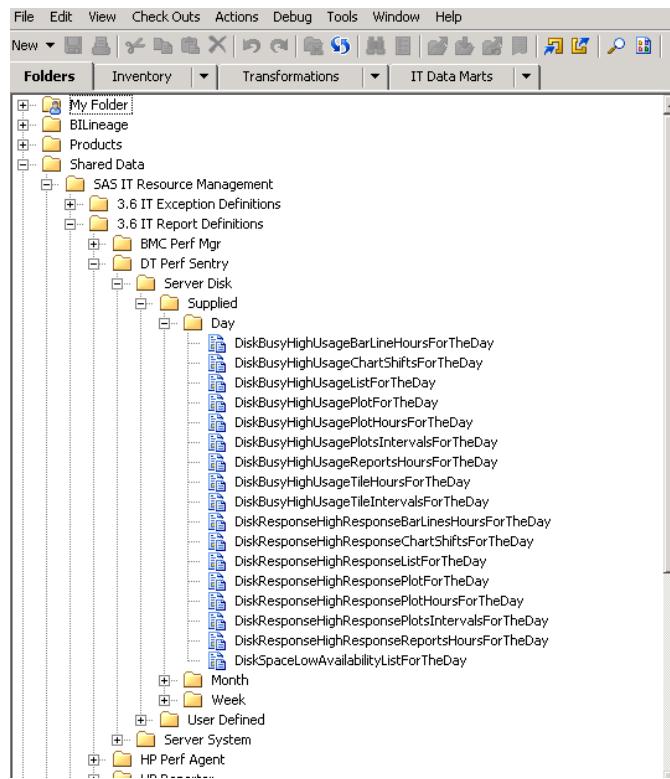
- SAR for UNIX systems
- SNMP for IP networks
- a trial license of Demand Technology Performance Sentry for Windows systems

Alternatively, you can access samples of reports on the SAS IT Resource Management website that is located here:<http://support.sas.com/documentation/onlinedoc/itsv/#itrm36>. Scroll down to the section called **Samples of Supplied Reports**.

If you want to modify a supplied report that you view in ITRM Report Center, then you can use the report properties to identify the supplied project that is associated with it. You can then copy the corresponding SAS Enterprise Guide project and modify the copied project as needed. To do so, perform the following steps:

1. In the **Folders** tree of the SAS IT Resource Management client, select **Shared Data** \Rightarrow **SAS IT Resource Management** \Rightarrow **3.6 IT Report Definitions**.
2. Select an **<adapter>** folder.
3. Select a **<domain category>** folder.
4. Select **Supplied**.
5. Select a **<time period>** folder.

Figure 6.9 Supplied Report Definitions for DT Perf Sentry, Server Disk, Day Data



6. On the workstation where the SAS IT Resource Management client is installed, navigate to `SASITResourceManagementSASEnterpriseGuideComponents\3.6`. For example, if you installed SAS IT Resource Management on a 64-bit machine, the projects might be located at `C:\Program Files\SASHome\SASITResourceManagementSASEnterpriseGuideComponents\3.6`.
7. Copy the supplied SAS Enterprise Guide project that you want to modify.

CAUTION:

Modify a copy of a supplied SAS Enterprise Guide project only. Do not modify a supplied SAS Enterprise Guide project directly. The supplied SAS Enterprise Guide projects include specifications and IT domain intelligence that SAS IT Resource Management provides for reporting. If you modify supplied projects, be sure to maintain a copy of the original supplied projects. Otherwise, you will lose the specifications and benefits that these projects provide for future reference. For best results, maintain and save the original copies of all supplied projects and report definitions in the **Supplied** folder and save your modified copies in the **User Defined** folder. For more information, see “[Managing SAS Enterprise Guide Projects for SAS IT Resource Management](#)” on page 184.

8. If the project includes notes, then review the Project Notes and Process Flow Notes files. You can use the information in these notes files to determine the types of reports that the project creates. These files can also help you understand the general conventions that are used to specify the reports.
9. Modify the reports in the copy of the supplied project. You can use the **ProcessFlow** and **Performance Report Task** properties that you identified previously to locate the specific branch of components in the project that affect the report.

For more information, see [Chapter 6, “Working with Supplied SAS Enterprise Guide Projects,”](#) on page 41.

10. Run the ITRM Report Definition task to create an updated report definition.
For more information, see [“Working with the ITRM Report Definition Task” on page 58](#).
11. Your modifications might include adding a new report definition or changing the name of an existing report definition. In that case, you must use the IT Resource Management client to update the Performance Report transformation in the corresponding report job to add the new report definition or specify the updated report definition with the new name.
For more information, see [“Working with Performance Report Transformations” on page 75](#).
12. From the IT Resource Management client, redeploy and run the corresponding report job.
For more information, see [“Deploying and Running Report Jobs” on page 71](#).

Chapter 7

Working with the ITRM Report Definition Task in SAS Enterprise Guide

About the ITRM Report Definition Task	57
Working with the ITRM Report Definition Task	58
Access and Navigate the ITRM Report Definition Task	58
Create Report Definitions Using the ITRM Report Definition Task	59
Delete User-Written Report Definitions from the Metadata	63
Managing User-Defined Primary Report Filters	63
Modify Report Definitions Using the ITRM Report Definition Task	66

About the ITRM Report Definition Task

The ITRM Report Definition task enables you to use SAS Enterprise Guide to specify and create report definitions. These report definitions include all of the metadata and SAS code from a given branch of your SAS Enterprise Guide project. After the ITRM Report Definition task creates the performance report definition, you can use the Performance Report transformation that is available in the SAS IT Resource Management client to include the report definition in your report jobs.

Report definitions provide greater flexibility when executing and specifying your report jobs and output. For example, report definitions perform the following actions:

- run in a report job that can execute on any SAS Application Server such as Windows, UNIX variants, and z/OS. This provides the flexibility of using the batch capabilities of enterprise class systems instead of a Windows client when running the large number of reports that are necessary for IT performance management and capacity planning activities.
- attach metadata to each report so that ITRM Report Center can locate, subset, and filter all of the reports individually. This metadata includes values that you specify as filters when using ITRM Report Center to view and sort only a portion of the available reports.
- create separate pages, metadata, and filters for each report so that every report can be easily searched within ITRM Report Center.

After you use the ITRM Report Definition task to define and create a report definition, it is stored on the SAS Metadata Server. You can use the SAS IT Resource Management client to access the report definition later and include it in a Performance Report transformation that is part of a report job. When the report job executes, the report definition generates reports and report metadata that are written to the SAS Content

Server. You can then use ITRM Report Center to view these reports or subsets of these reports.

In addition to enabling you to create your own report definitions, SAS IT Resource Management supplies report definitions that were generated from the supplied projects in SAS Enterprise Guide. The supplied report definitions provide extensive domain intelligence about IT resources for the supported adapters. The Adapter Setup and Add Domain Category wizards use these report definitions in the report jobs that they create. You can use these supplied report definitions instead of, or in addition to, the report definitions that you create with the ITRM Report Definition task. The supplied report definitions are loaded into a predefined folder for supplied report definitions on the SAS Metadata Server after SAS IT Resource Management is installed. For more information about supplied projects in SAS Enterprise Guide, see “[SAS Enterprise Guide Projects Supplied by SAS IT Resource Management](#)” on page 42.

Working with the ITRM Report Definition Task

Access and Navigate the ITRM Report Definition Task

To access the ITRM Report Definition task, perform the following steps:

1. Open or create a SAS Enterprise Guide project that includes one or more report tasks, custom tasks, or program nodes.
2. Access the **ITRM Performance Report Task** from the SAS Enterprise Guide task list or from **Tools** \Rightarrow **Add-In** \Rightarrow **ITRM Performance Report**.

To navigate through the pages of the ITRM Report Definition task, use the following buttons:

Back

displays the previous window in the ITRM Report Definition task.

Next

displays the next window in the ITRM Report Definition task.

Save

saves the current specifications set in the ITRM Report Definition task and creates an ITRM Report Definition object in the process flow diagram of the SAS Enterprise Guide project. The save option does not create a report definition. It simply saves the ITRM Report Definition task object that you can use to create a report definition.

CAUTION:

When working with SAS Enterprise Guide, you must save your projects frequently to keep updates to the tasks in the project. If you select **Save** in the ITRM Report Definition task, then the specifications for the ITRM Report Definition task are saved for the current instance of the project. However, if you do not also save the SAS Enterprise Guide project, then the updates are lost when the project is re-opened.

Deploy

performs the same functions as **Save** and creates a report definition that is stored on the SAS Metadata Server.

Note: You must click **Deploy** to create a report definition. The save option alone does not create a report definition.

Cancel

abandons changes that were made and closes the task.

Help

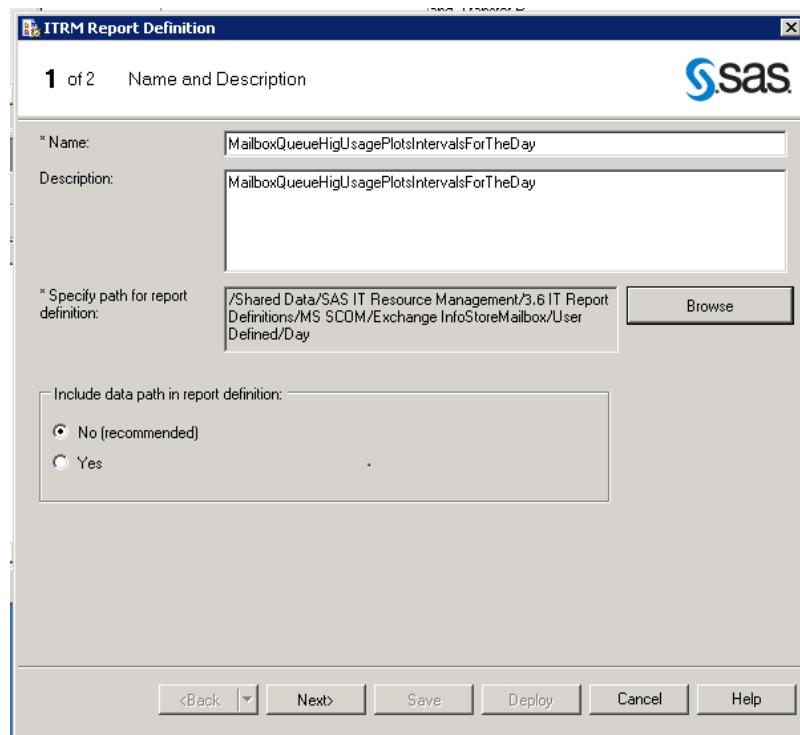
displays a Help topic for the current page. For information about each field on the ITRM Report Definition task pages, see the Help.

Create Report Definitions Using the ITRM Report Definition Task

To name and define report definitions for a SAS Enterprise Guide project, perform the following steps:

1. Open or create a SAS Enterprise Guide project that includes one or more report tasks, custom tasks, or program nodes.
2. Select **Tools** \Rightarrow **Add-In** \Rightarrow **ITRM Report Definition** from the task list in SAS Enterprise Guide to display the **Name and Description** page of the ITRM Report Definition task.

Figure 7.1 ITRM Report Definition Task Name and Description Page



3. In the **Name** field, enter the name of the ITRM Report Definition task. The name must be unique for the current metadata path, or the new ITRM Report Definition task overwrites the report definition that has the same name. The **Name** field can contain no more than 60 characters. The **Name** field cannot contain any special characters.

Note: SAS IT Resource Management supplies SAS Enterprise Guide projects that name ITRM Report Definition task objects and report definitions by using descriptive words that indicate the following: the measures that are reported, the filters that are used, and the time period that is reported. For example, a report definition might be named **SystemCpuHighUsagePlotIntervalsForTheDay**. For best results, use

this naming convention or your own to create consistent names that are easy to understand and locate in the SAS Metadata Server.

4. In the **Description** field, enter a description of the ITRM Report Definition task. Entering a description in this field is optional but recommended.
5. In the **Specify path for report definition** field, specify a metadata path where you want to save the report definition. Click **Browse** to select the folder that you want to contain the report definition task.

The metadata folder that you select resides in the SAS Metadata Repository and is available from the SAS IT Resource Management client. The folder that you select will contain the report definitions for the reports that are included in the ITRM Report Definition task.

For best results, save your report definitions in `/Shared Data/SAS IT Resource Management/<SAS IT Resource Management version number> IT Report Definitions/<adapter>/<domain category>/User Defined/<time period>`.

CAUTION:

Do not save your user-defined report definitions in the folder that is named Supplied in the preceding path. The Adapter Setup and Add Domain Category wizards use the report definitions in the **Supplied** folder when generating reporting jobs. If you add or modify report definitions in the **Supplied** folder, then the jobs of the associated Adapter Setup and Add Domain Category wizards might lose the IT intelligence that SAS IT Resource Management provides. Your modified report definitions might also be overwritten when you install any software updates for SAS IT Resource Management.

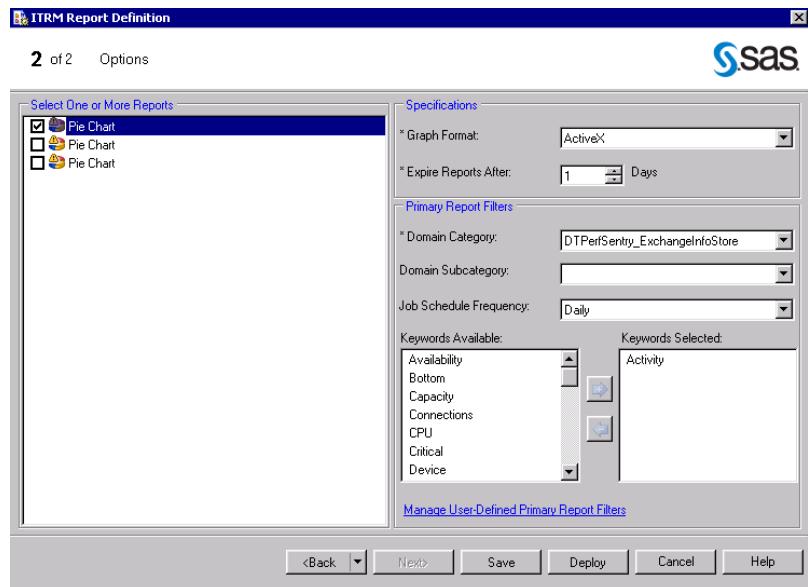
6. Use the **Include data path in report definition** option to enable or disable the storing of the current data path in the report definition. The default and recommended value is **No** because it provides greater flexibility and portability of report definitions. In this case, the data path value in the report definition is left blank. In addition, the Performance Report transformation that uses the report definition searches for the data within the corresponding folder for the given job.

The **Yes** value indicates that the report definition explicitly specifies the data path as the current data path that was used when the report definition was created. Select **Yes** only if your data path is unique, unchanging, and outside the job folder for the report definition. The Performance Report transformation that uses the report definition then searches for the data within the same data path that was used when the report definition was created.

For more information, see “[Specifying a Data Source Location](#)” on page 86.

7. Click **Next** to access the **Options** page.

Figure 7.2 ITRM Report Definition Task Options Page



8. On the **Options** page, you must select one or more reports from the list of report tasks that are in the current process flow. All of the reports that you select are going to use the same specifications and primary report filter settings.

Note: If you want to assign different settings to various reports, you must create a separate ITRM Report Definition task. For example, line plots use the graph format of ActiveX for dynamic features while tile charts are most useful when Java is used. If you have a project that includes both line plots and tile charts, then you perform the following steps:

- Create at least one ITRM Report Definition task for the line plots that use ActiveX.
- Create one ITRM Report Definition task for the tile charts that use Java.

9. In the **Specifications** box, specify the following options:

Graph Format

determines the type of graph that you want to generate (ActiveX, Java, or PNG) for the report definition. The default value is **ActiveX**.

Note: List reports that are included in your ITRM Report Definition task ignore this option.

Expire Reports After N Days

calculates the expiration date, relative to the system date when the report is generated. If a report is expired and its report job is run again, the expired report is deleted and replaced with the new report. If a report is not expired and its report job is run again, the previous report remains in the system with the new report that is generated. You can specify an expiration range from 1 to 999 days. The default value is 1. In this case, reports that are older than one day are deleted when the report job is run.

Note: This parameter calculates expiration by number of days. When setting the expiration for reports that are run on a schedule other than daily, account for the number of days within the time period in which the reports are run. For example, the expiration value for a weekly report should be some multiple of seven because there are seven days in a week.

10. In the **Report Filters** box, specify the filter values that you want to use when viewing reports in ITRM Report Center. These values do not appear on the report. However, they do appear as filter options in ITRM Report Center.

The options for each filter type can include supplied values and user-defined values. To create, delete, save, or share user-defined values for the filter types, click **Manage User-Defined Primary Report Filters**. For more information about managing user-defined primary report filter values, see “[Managing User-Defined Primary Report Filters](#)” on page 63.

CAUTION:

Carefully select the appropriate filters for your reports and ensure that you use correct spellings for user-defined values. Assigning an incorrect or misspelled filter to a report does not affect the data or the accuracy of the report content. However, an incorrect filter makes the corresponding report difficult to locate when filtering subsets of reports in ITRM Report Center. In addition, make sure that the values for each of the filters are less than 33 characters in length.

Domain Category

specifies the domain category of the adapter that is used for the report. The options for this field include the domain categories for the adapters that the Adapter Setup wizard supports as well as any user-defined values. Use the down arrow  to display a list of available values for this filter. A value is required in this field.

Domain Subcategory

specifies the domain subcategory, a subset of the domain category that you selected. The options for this field include only the supplied subcategories for the domain category that you selected as well as any user-defined values. Use the down arrow  to display a list of available values for this filter. If the selected

Domain Category does not include supplied subcategories, then only the user-defined values for domain subcategory are available.

Job Schedule Frequency

indicates when the corresponding reports should be scheduled to run. The options for this field include daily, weekly, monthly, quarterly, yearly, and any user-defined values. Use the down arrow  to display a list of available values for this filter.

Note: This value is a report filter in metadata only. It does not schedule report jobs. You can use this value as an indicator to include this report definition in report jobs that are scheduled to run on an interval that corresponds with this value. This value is also used as a filter in ITRM Report Center.

Keywords Available

lists the keywords that you can assign to reports for filtering in ITRM Report Center. This list includes supplied and user-defined keywords. To add keywords to reports, select one or more keywords from the **Keywords Available** list and then click . The keywords are added to the **Keywords Selected** list. To

remove keywords from the **Keywords Selected** list, select one or more variables from the **Keywords Selected** list and click .

11. Click **Save** to save the filters. Click **Deploy** if you want to deploy the Report Definition task.

All values are saved in the ITRM Report Definition task object and a report definition is created on the metadata server. In addition, an ITRM Report Definition task object appears in the process flow diagram with a link to all of the selected

reports tasks and program nodes. A message box notifies you when the report definition is created successfully.

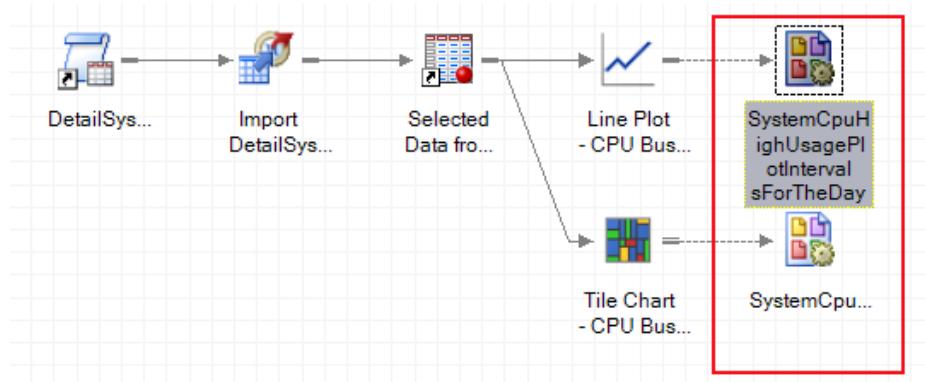
CAUTION:

Running a SAS Enterprise Guide process flow or project does not automatically run the ITRM Report Definition task and create a report definition. You must open the ITRM Report Definition task separately and click **Deploy** to create and publish a report definition.

When a report definition is created successfully, it does not appear as a separate object in the process flow or in a format that is viewable from SAS Enterprise Guide. SAS Enterprise Guide manages the ITRM Report Definition tasks that create report definitions but it does not manage the report definitions. You can use SAS IT Resource Management and SAS Management Console to view and access the report definitions that the ITRM Report Definition tasks create.

The following display shows two ITRM Report Definition task objects, boxed in red, in a SAS Enterprise Guide process flow.

Figure 7.3 ITRM Report Definition Task Objects in a Process Flow



12. Save the SAS Enterprise Guide project.

Delete User-Written Report Definitions from the Metadata

If you created a user-defined report definition, it can be deleted using the ITRM client. To do so, right-click the report definition. Then, click **Delete**. A warning dialog box appears if the report definition is used in any report job.

Managing User-Defined Primary Report Filters

About the Manage User-Defined Primary Report Filters Window

When planning to filter and subset your reports, you might need to create domain categories, domain subcategories, job schedule frequencies, and keyword values that are unique to your business. The ITRM Report Definition task enables you to create and manage your own unique primary report filter values that you can assign to report definitions. You can use these filter values later in ITRM Report Center when viewing and searching for reports. You can also share these user-defined primary report filters with other clients that might want to filter reports in a similar way.

The Manage User-Defined Primary Report Filters window of the ITRM Report Definition task enables you to add and delete user-defined values for primary report filters on the metadata server. Storing the values in metadata enables them to be shared

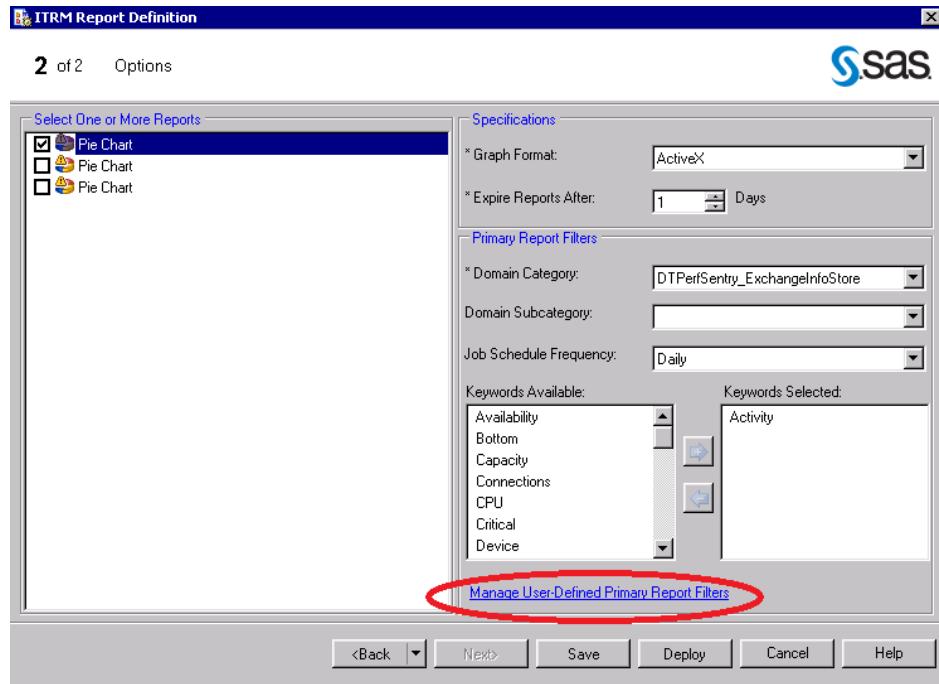
with other SAS Enterprise Guide clients and with the Exception transformation in the SAS IT Resource Management client.

Create User-Defined Values

To create user-defined primary report filter values, perform the following steps:

1. Open an ITRM Report Definition task in a SAS Enterprise Guide project.
2. Click **Next** to navigate to the Options page of the ITRM Report Definition task.
3. Click **Manage User-Defined Primary Report Filters**.

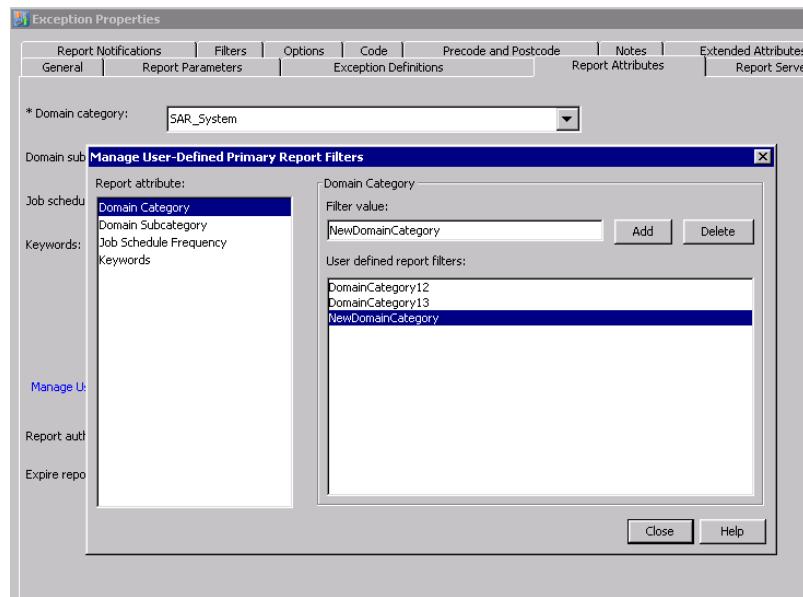
Figure 7.4 Manage User-Defined Primary Report Filters Option on the Options Page



The Manage User-Defined Primary Report Filters window appears.

4. From the list on the left of the pane, select the type of filter for which you want to add a value. For example, you can select **Domain Category**, **Domain Subcategory**, **Job Schedule Frequency**, or **Keywords**.

Figure 7.5 Manage User-Defined Primary Report Filters Page for Domain Categories



5. Enter the new filter value in the field at the top of the window. This field accepts only letters, numbers, hyphens, and underscores.

Note: Misspellings, typing errors, and differences in capitalization standards can create inconsistencies in this field. An error in the value can make the associated reports difficult to find when using ITRM Report Center to filter your reports. Inconsistencies can also lead to multiple filter values that mean the same thing but are listed separately.

6. Click **Add** to create the filter value in metadata and to make it available for selection in the task.
7. Click **Close** to return to the Options page of the wizard.

Note: To select the user-defined value, you must select it from the drop-down list on the Options page of the ITRM Report Definition task.

Note: New filter values appear in ITRM Report Center after they are used in a report definition that is part of a run report job.

Delete User-Defined Primary Report Filter Values

When you delete a user-defined primary report filter value, the value is removed from the metadata server and is not available in the drop down list for ITRM Report Definition tasks. However, if an ITRM Report Definition task was saved with a value that has been deleted, the task preserves the value until it is changed and re-saved. The deleted value is also still available in the metadata of deployed report definitions and available for selection in ITRM Report Center until reports that include them are purged.

To delete a user-defined value, perform the following steps:

1. From the Manage User-Defined Primary Report Filters window of the ITRM Report Definition task, select the type of filter for which you want to delete a value. For example, you can select **Domain Category**, **Domain Subcategory**, **Job Schedule Frequency**, or **Keywords**.
2. Select the value that you want to delete.
3. Click **Delete** to remove the filter value from metadata. This action makes the filter value unavailable for selection in the task.

4. Click **Close** to return to the Options page of the ITRM Report Definition task.

Modify Report Definitions Using the ITRM Report Definition Task

You can use the ITRM Report Definition task to modify a SAS IT Resource Management report definition. The ITRM Report Definition task must be run manually (as described in this topic) to create or modify a report definition. Simply running a project, process flow, or a branch in SAS Enterprise Guide does not update the report definitions.

To modify report definitions using the ITRM Report Definition task, perform the following steps:

1. Open the appropriate SAS Enterprise Guide project and run the branch that is associated with the report definition that you want to modify.
2. Right-click the ITRM Report Definition task object and select **Modify <ITRM Report Definition Task Name>**.
3. Navigate the ITRM Report Definition task pages and modify the settings as needed.
4. Click **Deploy**. A message box notifies you when the report definition is created successfully. All new values are saved in the ITRM Report Definition task object, and the report definition is updated on the metadata server. You must then run the corresponding report job to see updates in the report output.

Note: **Save** does not create a report definition. It simply saves the ITRM Report Definition task object that you can use to create a report definition later.

5. Save the SAS Enterprise Guide project to save the ITRM Report Definition task update.

Note: If you modify report definitions, remember to redeploy the associated jobs.

Chapter 8

Working with Report Jobs and Performance Report Transformations

About Report Jobs	67
What is a Report Job?	67
Report Jobs Created by the Adapter Setup and Add Domain Category Wizards	68
Working with Report Jobs	69
Create a Report Job	69
Modify a Report Job	70
Copy a Report Job	70
Delete a Report Job	71
Deploying and Running Report Jobs	71
About Performance Report Transformations	72
What Is a Performance Report Transformation?	72
Properties of Performance Report Transformations	73
Performance Report Transformations Created by the Adapter	
Setup or Add Domain Category Wizard	74
Working with Performance Report Transformations	75
Add a Performance Report Transformation to a Report Job	75
Edit a Performance Report Transformation	85
Delete a Performance Report Transformation	86
Specifying a Data Source Location	86
About Templates and Style Sheets	87
What Are Templates and Style Sheets	87
About the Default Template for SAS IT Resource Management Reports	87
About the Default Style Sheets for SAS IT Resource Management Reports	88
Working with Templates and Style Sheets	88
Overview	88
Create or Specify a Different Template for Batch Reports	89
Create or Specify a Different Style Sheet for Batch Reports	89

About Report Jobs

What is a Report Job?

Report jobs can be run from the SAS IT Resource Management client or can be deployed and run in a batch process. When run, these jobs create reports and save them

to the SAS Content Server. Each report job includes a Performance Report transformation that, when executed, generates SAS code to perform the following tasks:

- create reports in the SAS Content Server repository
- delete older versions of the same reports that have expired
- update the ITRM Report Center cache
- create a summary in the report job log that shows the URL of all reports generated in SAS Content Server

For more information, see “[About Performance Report Transformations](#)” on page 72.

Report jobs can be generated in two ways:

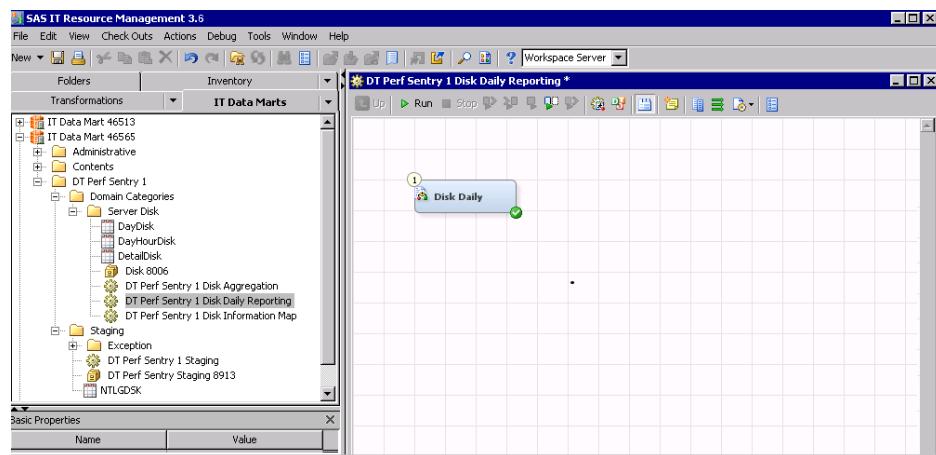
- automatically, by using the Adapter Setup and the Add Domain Category wizards
- manually, by using the **Performance Report** transformation that is in the **SAS IT Resource Management** folder of the **Transformations** tree in SAS IT Resource Management

Report Jobs Created by the Adapter Setup and Add Domain Category Wizards

The Adapter Setup and Add Domain Category wizards create report jobs that contain Performance Report transformations for several of the adapters and domain categories that SAS IT Resource Management supports. For more information about the specific adapters and domain categories for which the Adapter Setup and Add Domain Category wizards create reporting jobs, see Appendix 4, “Jobs That the Adapter Setup Wizard and Add Domain Category Wizard Create for Domain Categories,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

For example, the following image shows the report job that the Adapter Setup wizard created for the Server Disk domain category of the DT Perf Sentry adapter. The report job (**Disk Daily Reporting**) is located in the **Domain Categories** subfolder of the IT data mart folder. The Performance Report transformation (**Disk Daily**) is available from the process flow diagram of the open report job. A similar report job can be created by the Add Domain Category wizard.

Figure 8.1 Report Job Created by the Adapter Setup Wizard



Using the Adapter Setup or the Add Domain Category wizard is the most convenient way to create report jobs for selected adapters. When generated by the Adapter Setup or

Add Domain Category wizard, report jobs use Performance Report transformations that reference supplied report definitions. These report definitions provide extensive domain intelligence about IT resources for the supported adapters. For more information, see the Chapter 10, “Adapter Setup Wizard,” and Chapter 11, “Add Domain Category Wizard,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

However, you might choose to create your own report jobs or modify those that the Adapter Setup or the Add Domain Category wizard creates. For more information, see “[Working with Report Jobs](#)”.

Working with Report Jobs

Create a Report Job

The Adapter Setup and the Add Domain Category wizards create report jobs for several adapters and domain categories. You can view these supplied reports here: [Samples of Supplied Reports](#). These reports are organized by adapter and domain category.

However, you might need to create or modify your own report job. For example, you might want to create batch reports for a domain category for which SAS IT Resource Management does not already provide reports.

To create a report job, you must first create a job and then add a Performance Report transformation to that job. To do so, perform the following steps:

1. In the SAS IT Resource Management client, open or create a job. If you want to work with an existing job, double-click on that job to open it on the **Diagram** tab of the Job Editor window of SAS IT Resource Management.

If you need to create a new job, you can invoke the New Object wizard from the **File** menu of SAS IT Resource Management. For information about how to perform this task, see the “Create a Job” topic in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

The new job opens on the **Diagram** tab of the Job Editor window.

2. Navigate to the **SAS IT Resource Management** folder of the **Transformations** tree of SAS IT Resource Management.
3. Drag the **Performance Report** transformation onto the job in the **Diagram** tab of the Job Editor window.

Note: A Performance Report transformation does not have an input or output object that is displayed in the process flow diagram of a report job. Thus, a report job can include one Performance Report transformation as the only object in the process flow diagram of the job and still be valid.

4. Modify the Performance Report transformation parameters as needed to meet the reporting needs of your organization. For more information, see “[Add a Performance Report Transformation to a Report Job](#)” on page 75. Then save the job.
5. Deploy and run the report job. For more information, see “[Deploying and Running Report Jobs](#)” on page 71.

Modify a Report Job

To edit an existing report job, perform the following steps:

1. In the **IT Data Marts** tree of SAS IT Resource Management, double-click the report job that you want to edit.
2. Edit the report job.

To Edit the Properties of the Report Job

- a. Right-click the report job in the **IT Data Marts** tree.
- b. To rename the report job, select **Rename**.
- c. To view and modify the properties of the report job, select **Properties**. For more information about the properties for a report job, see the Help for SAS IT Resource Management.
- d. Click **OK**. Save the job.

To Edit the Properties of a Performance Report Transformation in the Report Job

- a. Right-click the Performance Report transformation in the process flow diagram and select **Properties**. A Properties dialog box is displayed and enables you to modify the various parameters that are specified for the Performance Report transformation and the code that it generates. For more information, see “[Edit a Performance Report Transformation](#)” on page 85.

- b. Click **OK**. Save the job.

For more information about the specific parameters that are available for configuration in the Performance Report transformation, see the detailed steps in “[Add a Performance Report Transformation to a Report Job](#)” on page 75.

3. Deploy and run the report job. For more information, see “[Deploying and Running Report Jobs](#)” on page 71.

Copy a Report Job

To copy a report job, perform the following steps:

1. Navigate to the location of the job in the **IT Data Marts** tree.
2. Right-click the job.
3. Select **Copy**.
4. Right-click the folder where you want the copy of the job to reside.
5. Select **Paste**. A copy of the report job is saved in the folder and is assigned the default name `Copy of <original job name>`.
6. Double-click the new job to open it in the **Diagram** tab of the Job Editor.
7. Right-click the Performance Report transformation in the process flow and select the **Server** tab.
8. Specify the name and location of the SAS Content Server for the Performance Report transformation.
9. Click **OK**. Save the job.

Delete a Report Job

To delete a report job, perform the following steps:

1. Navigate to the location of the job in the **IT Data Marts** tree.
2. Right-click the job.
3. From the menu that is displayed, select **Delete**.
4. In the confirmation box, click **Yes** to delete the job.

If you delete a report job that has already run, then the reports that the job created remain in the SAS Content Server until an administrator deletes them manually. The only way that a report is programmatically deleted from the SAS Content Server is when the report has expired and its report job is rerun to remove and replace the report.

Note: If you delete a report job in an IT data mart but the report job has already been deployed, then the deployed job can still be run in batch.

Deploying and Running Report Jobs

About Deploying and Running Report Jobs

After you create or modify a report job, you can deploy and run the job to purge expired reports, and create new reports in the SAS Content Server where ITRM Report Center can access them. Report jobs are the last step in the batch reporting process flow. Therefore, they rely on the successful completion of all the jobs and components that precede it in the data extraction, transformation, loading, and reporting process.

Deploying a job enables you to execute the job outside of SAS IT Resource Management, such as when scheduling a job to run at a specified time. SAS IT Resource Management enables you to deploy as well as run jobs. For more information about how to deploy and run jobs, see the Chapter 14, “Jobs,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Deploy and Run Report Jobs That the Adapter Setup or Add Domain Category Wizard Creates

The Adapter Setup and the Add Domain Category wizards create a set of jobs that compartmentalize each step of the extract, transform, load, and reporting process for IT data. These jobs depend on one another to process the raw data for reporting. For example, aggregation jobs include aggregations that rely on the staged tables that are generated when the staging job is run. As a result, each job should be run only after the jobs that it depends on have been run. The following list shows the types of jobs that the Adapter Setup and the Add Domain Category wizards create and the dependencies of each. Each job type in the list is dependent on the job type that precedes it.

1. staging job
2. aggregation job
3. information map job
4. reporting job
5. exception job

Note: An exception analysis job is created by the Adapter Setup wizard or the Add Domain Category wizard for each adapter for which exception definitions are

supplied for the stage tables. For information about the Exception transformation, see Chapter 9, “Exception Analysis Processing,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

For more information about the Adapter Setup and Add Domain Category wizards, see Chapter 3, “Working with the Adapter Setup and Add Domain Category Wizards,” on page 19.

Deploy and Run Your Own Report Jobs

You can create, deploy, and run your own report jobs manually, without using the Adapter Setup or Add Domain Category wizard. However, like the report jobs that these wizards create, your report jobs must also rely on other processing components that extract, transform, and load your IT data. For consistency and efficiency, use the same naming conventions and job structure that these wizards use when you create your own jobs and components for this process. For information about what the Adapter Setup or Add Domain Category wizards create, see the Chapter 10, “Adapter Setup Wizard,” and Chapter 11, “Add Domain Category Wizard,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

After you confirm that all of the extract, transform, and load components for your report job are prepared and successfully executed, you can deploy and run your report job.

About Performance Report Transformations

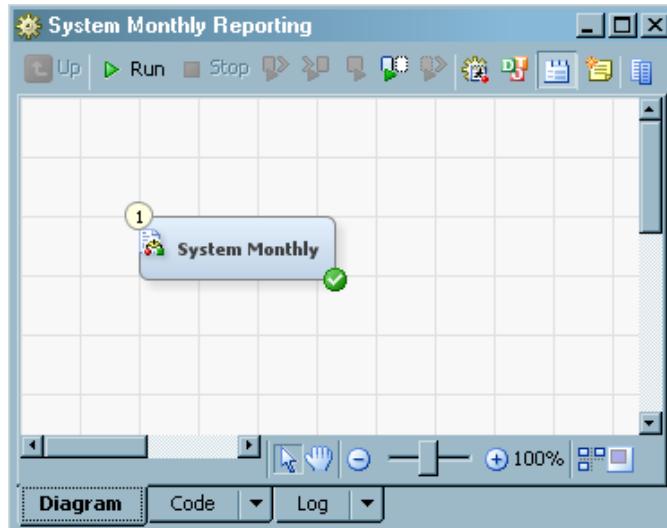
What Is a Performance Report Transformation?

Performance Report transformations are among the final components of the batch reporting process. These transformations are part of report jobs, and they identify one or more of the report definitions that a report job uses to create report output. This process enables you to run report jobs and their report definitions in batch mode.

Report definitions provide a majority of the specifications for report output. However, the Performance Report transformation enables you to specify (and in some cases, override) a few additional parameters for all of the reports that the corresponding report job creates. The Performance Report transformation compiles the specified values and generates the SAS program that are run as scheduled in the report job.

In the following example, a Performance Report transformation named **System Monthly** is in the **System Monthly Reporting** job for the DT Perf Sentry adapter and the Server System domain category.

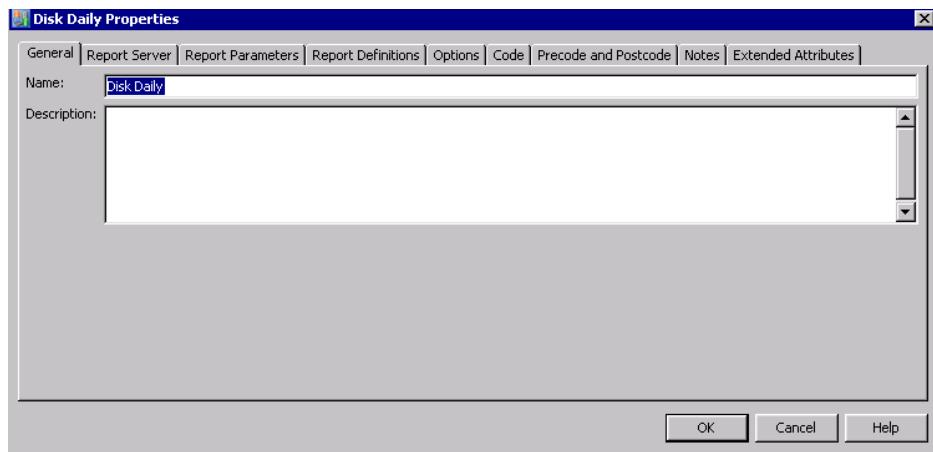
Figure 8.2 A Performance Report Transformation in a Report Job



For more information, see “[About Report Jobs](#)” on page 67.

Properties of Performance Report Transformations

To access the Performance Report transformation properties, right-click a Performance Report transformation in a report job and select **Properties**. A Properties dialog box appears and enables you to view properties and specifications for the SAS Content Server, report parameters, and report definitions.



The Properties dialog box contains the following tabs:

- The **General** tab displays information that identifies the Performance Report transformation such as name and description.
- The **Report Server** tab enables you to specify the **SAS Content Server name** and the **Repository folder path** where the report output is to be stored.
- The **Report Parameters** tab enables you to view or modify the parameters that apply to the reports that the transformation generates.
- The **Report Definitions** tab enables you to identify the report definitions that you want to use and to specify their purging criteria.

- The **Options** tab displays information about how to further customize and generate the code.
- The **Code** tab enables you to manage the code that is generated by the transformation.

Note: This tab should not be used to modify the code that is generated by the Performance Report transformation. Changes that you make can result in code that is error prone or is out of alignment with the report definition that was created by SAS Enterprise Guide.

- The **Precode and Postcode** tab enables you to specify that user-written code should be inserted at the beginning or end of the current transformation.
- The **Notes** tab displays any notes or documents that are associated with the transformation.
- The **Extended Attributes** tab displays the custom properties that are available for the transformation.

For more information about the tabs that are available from the Properties dialog box, see the Help for SAS IT Resource Management.

Performance Report Transformations Created by the Adapter Setup or Add Domain Category Wizard

The Adapter Setup and Add Domain Category wizards create Performance Report transformations for several of the adapters and domain categories that SAS IT Resource Management supports. Performance Report transformations are saved as components of the reporting jobs that are stored in the IT data mart folders that the wizard creates. These Performance Report transformations reference supplied report definitions that provide extensive domain intelligence about IT resources for the supported adapters. For more information, see the Chapter 10 “Adapter Setup Wizard,” and Chapter 11, “Add Domain Category Wizard,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Using the Adapter Setup and Add Domain Category wizards is the most convenient way to create Performance Report transformations and report jobs for selected adapters. However, you might choose to create your own Performance Report transformations or modify those that these wizards create. For more information, see “[Working with Performance Report Transformations](#)” on page 75.

For more information about the Performance Report transformations and report jobs that the Adapter Setup and wizard creates, see “[Report Jobs Created by the Adapter Setup and Add Domain Category Wizards](#)” on page 68. For more information about the specific adapters and domain categories for which the Adapter Setup and Add Domain Category wizards create reporting jobs, see Appendix 4, “Jobs That the Adapter Setup and the Add Domain Category Wizards Create for Domain Categories,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Working with Performance Report Transformations

Add a Performance Report Transformation to a Report Job

The Adapter Setup and Add Domain Category wizards create Performance Report transformations and report jobs automatically for a number of supplied adapters and domain categories. However, you might need to create your own Performance Report transformation and report job. For example, you might want to create batch reports for domain categories for which SAS IT Resource Management does not already provide reports.

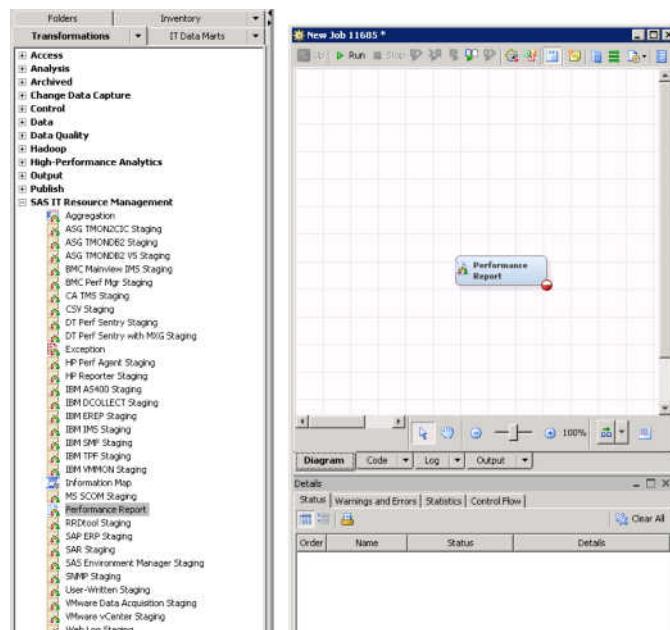
To create a Performance Report transformation and add it to a report job, perform the following steps:

1. In SAS IT Resource Management, open the report job that is to contain the new Performance Report transformation. The job appears on the **Diagram** tab of the Job Editor window.

Note: If you want to add a Performance Report transformation to a new job, you must first create the job. For more information about how to create a job, see the “Create a Job” topic in Chapter 14, “Jobs,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

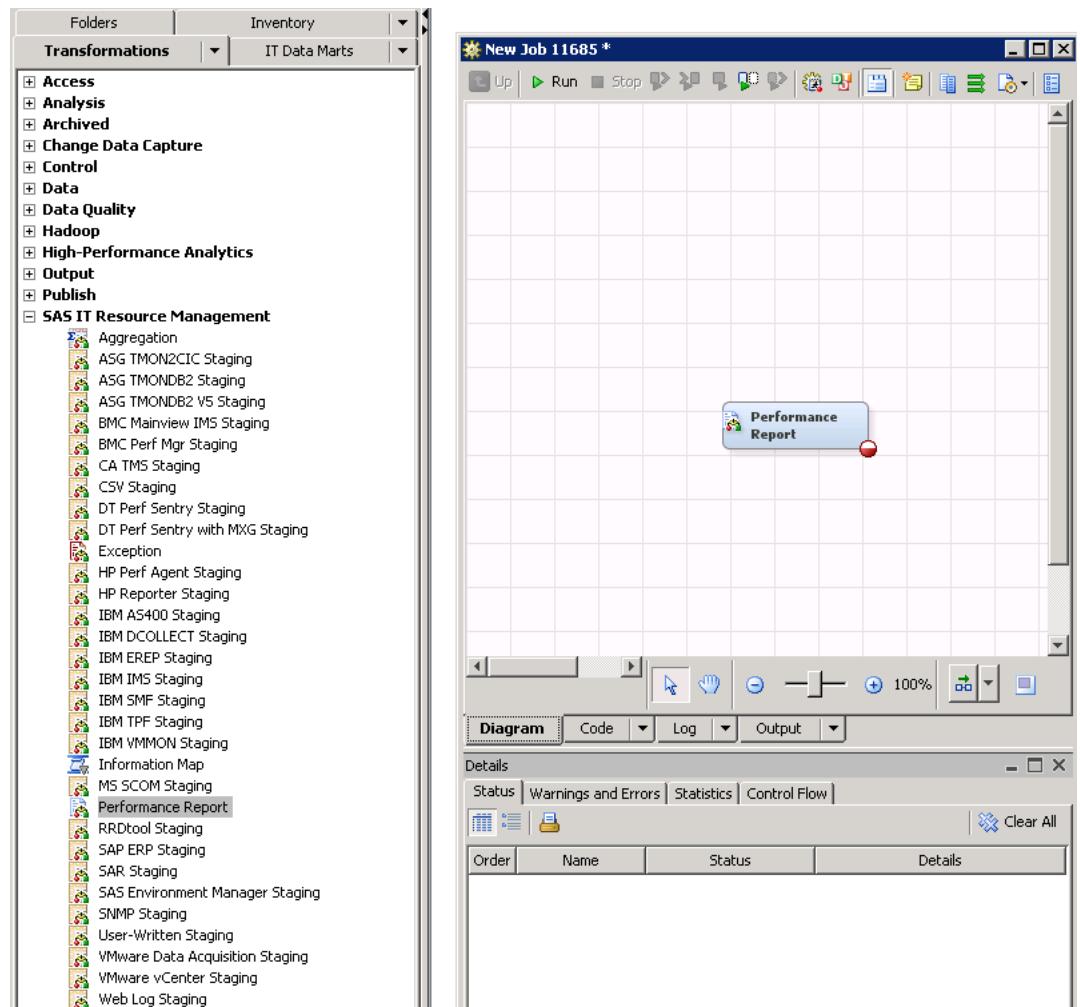
2. In the **Transformations** tree of SAS IT Resource Management, expand the **SAS IT Resource Management** folder.

Figure 8.3 SAS IT Resource Management Transformations Folder



3. Drag and drop the **Performance Report** transformation onto the Job Editor window. The Performance Report transformation appears in the process flow diagram for the job.

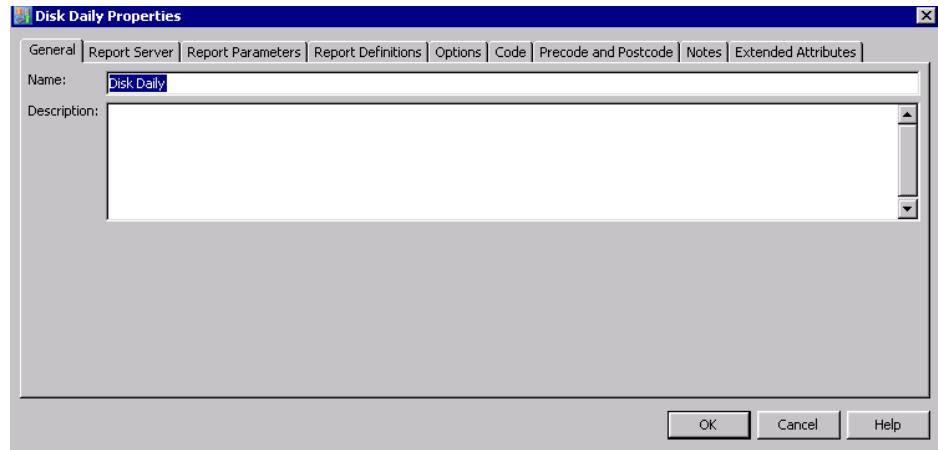
Figure 8.4 Sample Job with a New Performance Report Transformation



4. Right-click the Performance Report transformation and select **Properties**.
5. On the **General** tab, specify the name and description of the transformation.

Note: SAS IT Resource Management uses the naming convention `<domain category> <time period>` to name Performance Report transformations. For example, a Performance Report transformation that generates weekly reports for the Server System domain category of DT Perf Sentry is named **System Weekly**. For best results, use the same naming convention that SAS IT Resource Management uses for consistency and efficiency. For information, see Appendix 7, “Naming Standards,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

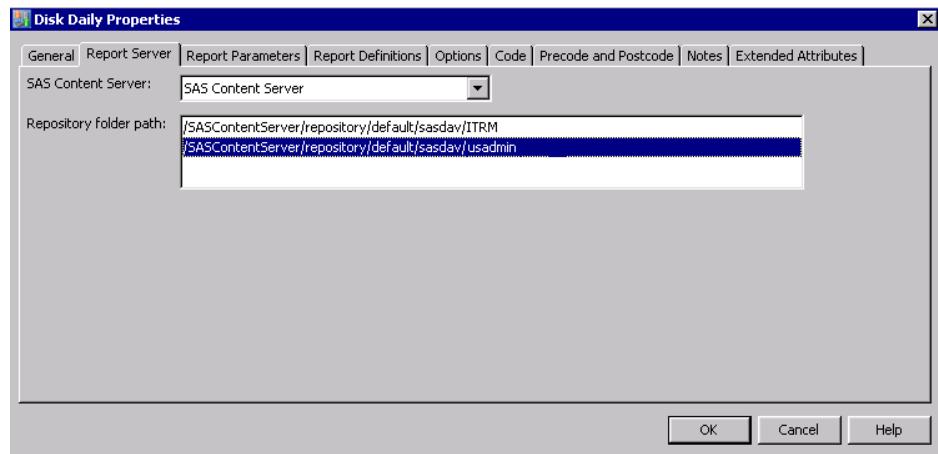
Figure 8.5 General Tab of a Performance Report Transformation



6. On the **Report Server** tab, select the SAS Content Server folder path for the transformation.

In this dialog box, all SAS Content Server folder locations that are available to ITRM are displayed. SAS Content Server folder locations are created in ITRM Report Center **Administration** workspace. For more information about creating ITRM folder locations on the SAS content server, see [“How to Create and Assign Access to a SAS Content Server Location Using ITRM Report Center”](#) on page 105.

Figure 8.6 Report Server Tab of a Performance Report Transformation



The **Report Server** tab includes the following parameters:

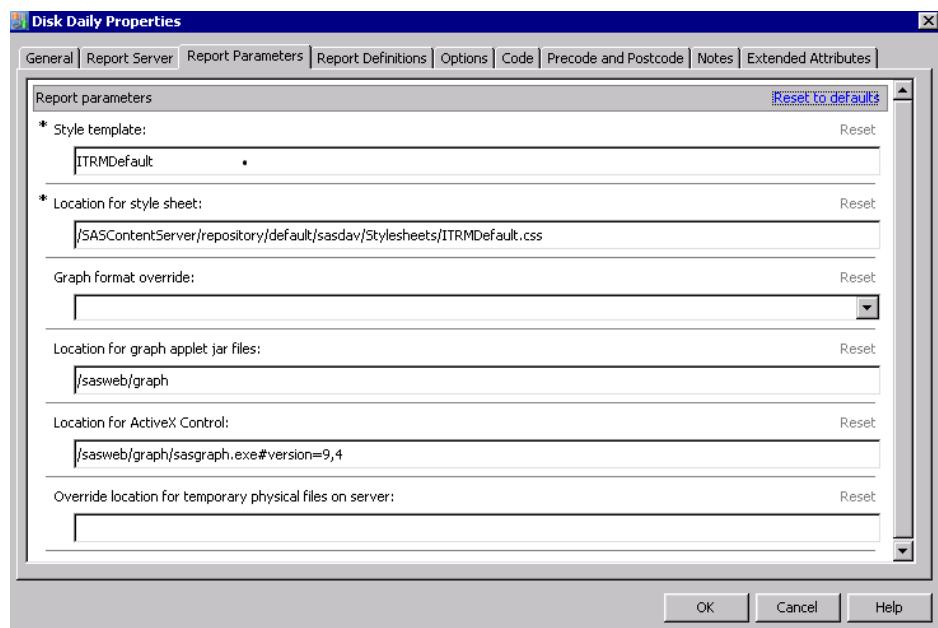
- **SAS Content Server** specifies the name of the SAS Content Server that stores the report output for the Performance Report transformation.
- **Repository folder path** specifies the root path, relative to the SAS Content Server, in which to store the reports.

Note: Use the **Administration** workspace of ITRM Report Center to add or delete a repository folder path.

7. On the **Report Parameters** tab, specify the following attributes:

- the style and graph formats for the reports that the transformation creates
- the location for the ActiveX Control
- the override location for temporary physical files on the server

Figure 8.7 Report Parameters Tab of a Performance Report Transformation



The **Report Parameters** tab includes the following parameters:

- **Style template** specifies the name of the style template that is used by all of the reports that the Performance Report transformation creates. The style template determines graph colors and other attributes inside the graph portion of a report.

You can use the standard style template that SAS IT Resource Management provides (named **ITRMDefault**). Alternatively, you can create your own style template that includes your own custom colors and visual design. For more information, see “[About Templates and Style Sheets](#)” on page 87.

Note: The content, report titles, and footnotes of the individual exception reports that are generated by the Exception transformation honor the style template that you specify. However, this style sheet does not affect the exception overview report.

- **Location for style sheet** specifies the cascading style sheet (.css file) that is used when viewing a report. It controls colors and other attributes outside of the graph portion of a report.

Any of the following location types are valid values for this field:

- a full URL to the style sheet folder on a specified server (such as `http://<server>:8080/<folder name>/`).
- a URL to a style sheet folder on all the clients where the web browser was initiated (such as `file:///c:/programfiles/<folder name>/`).
- a relative URL to the style sheet folder on the middle tier where the graphs are installed (such as `/<folder name>/<subfolder name>/`). The option to use only the relative path provides portability of this value. For example, the name or location of the middle tier might change. In that case, the location value does not need to change as long as the folder names in the middle tier remain the same.

The default value (`/SASContentServer/repository/default/sasdav/Stylesheets/`) provides a path to the default style sheet for SAS IT Resource Management reports. You can create a style sheet that includes your own custom

colors, logos, and visual design. For more information, see “[About Templates and Style Sheets](#)” on page 87.

- **Graph format override** specifies the graph format to use when generating the reports, regardless of the graph format indicated in the corresponding report definition. The available formats are ActiveX, PNG, or JAVA type images. A value is optional in this field, and the default value is blank. When this field is blank, the reports use the graph format that is specified in the report definition.
- **Location for graph applet JAR files** specifies the path to the SAS code that is used only to render reports that are specified as Java reports. A value is optional in this field, and the default value is `/sasweb/graph`.

Any of the following location types are valid values for this field:

- a full URL on a specified server.
- a URL to a folder on all the clients where the web browser was initiated (such as `file:///c:/program files/<folder name>`).
- a relative URL to a folder on the middle tier where the graphs are installed (such as `/<folder name>/<subfolder name>`). The option to use only the relative path provides portability of this value. For example, the name or location of the middle tier might change. In that case, the location value does not need to change as long as the folder names in the middle tier remain the same.

Note: If this field is blank, then the Performance Report transformation uses the path that is specified for the –APPLETLOC option in the SAS configuration file.

- **Location for ActiveX Control** specifies the path to the ActiveX Control. (ActiveX Control is the software that displays an ActiveX graph.) In most cases, the ActiveX Control is installed on your system. If it is not installed on your system, you can do one of the following actions:

- Use the default path to install the control for you. The default path is specified as the following: `/codebase/graph/v94/sasgraph.exe#version=9,4`. This path points to a URL location on the SAS website from which the ActiveX Control can be installed.

TIP Access to the Internet is necessary in order to install the ActiveX Control from the SAS website.

- Enter the path to a location from which the ActiveX Control can be installed.

Note: Installation of the ActiveX Control is done only one time per client.

- **Override location for temporary physical files on server**

Temporary disk space is used to store reports that are generated by a report job. After the reports have been published to the SAS Content Server, these files and any associated folders are deleted. The default value for this field is blank.

If the override path exists and is specified, it is used as the location for the reports generated by the report job. If it is not specified or if it does not exist, the following paths are used, based on your operating environment:

- For Windows operating environments, SAS IT Resource Management uses one of the following paths to the temporary files. The path is selected from this list in the following order:
 - the value of the TEMP environment variable (for the user)
 - the value of the TEMP environment variable (for the system)

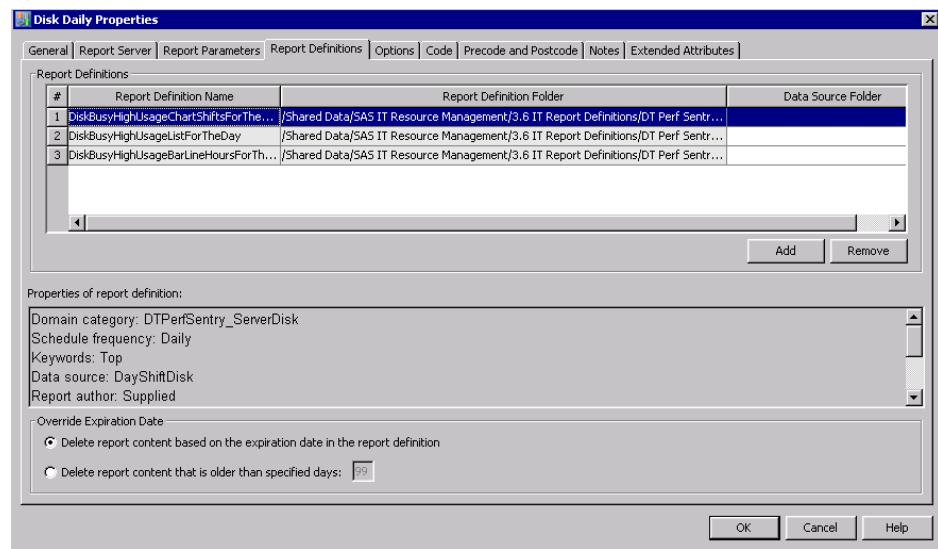
- the value of the USERPROFILE environment variable
- .
- For UNIX operating environments, the path is selected from this list in the following order:
 - the value of the TEMP environment variable
 - /tmp
 - the value of the HOME environment variable
 - .
- For z/OS operating environments, the path is selected from this list in the following order:
 - The value of the FILETEMPDIR option if it is specified, if it exists, and if FILESYSTEM=zFS
 - /tmp
 - .

Note: If the macro variable ITRMDebug is set to a value of 1 in your report job, the files and any associated folders are not deleted.

The **Report Parameters** tab also enables you to reset the parameter values on the tab to their original default values. To do so, select **Reset** next to a specific field to reset the value for that parameter to the default value. Or, select **Reset to defaults** to reinstate the default value for all parameters on the tab.

8. On the **Report Definitions** tab, you can specify the report definitions and expiration date criteria for the reports that the transformation creates.

Figure 8.8 Report Definitions Tab of a Performance Report Transformation



As shown in the previous display, the **Report Definitions** table at the top of the page provides a list of report definitions. These report definitions are used by the Performance Report transformation to generate reports.

This table includes the following parameters:

- **Report Definition Name** specifies the name of the report definition.

- **Report Definition Folder** specifies the folder where the report definition is stored.
- **Data Source Folder** specifies the folder where the data source for the report is located. If this field is blank, then the report job looks for the data source in the data path that is specified in the report definition or in the same IT data mart folder as the report job, respectively.

You can double-click a **Data Source Folder** cell to open the Select a Location dialog box. This dialog box enables you to navigate to and select a folder that contains the data source for the corresponding report definition.

For more information, see “[Specifying a Data Source Location](#)” on page 86.

The **Report Definitions** tab enables you to add report definitions to the Performance Report transformation. To do so, perform the following steps:

- a. Click **Add**. The Select Report Definitions dialog box appears.
- b. Navigate to the report definition folders that corresponding to the adapter and domain category that you are using.

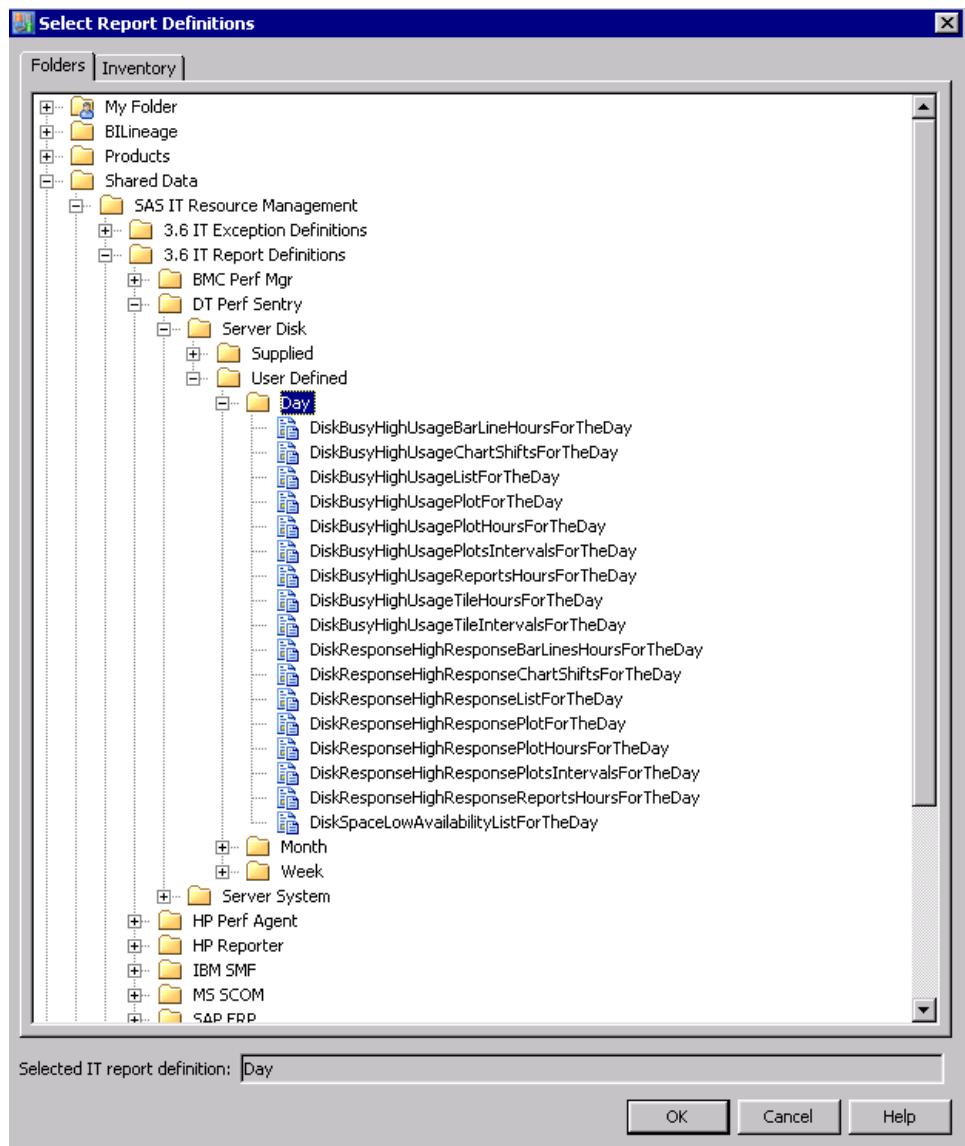
The report definitions that the Adapter Setup and the Add Domain Category wizards use are in **Supplied** folders at **Shared Data/SAS IT Resource Management/3.6 IT Report Definitions/<adapter>/<domain category>/Supplied/<time period (such as Day, Week, or Month)>**.

The report definitions that you have modified or created on your own are, by default, in **User Defined** folders at **Shared Data/SAS IT Resource Management/3.6 IT Report Definitions/<adapter>/<domain category>/User Defined/<time period (such as Day, Week, or Month)>**.

Note: The supplied SAS Enterprise Guide projects that you can use to create your own report definitions provide this default location. However, you can specify a different location for the report definition. For best results, use the default **User Defined** folders as detailed above for consistency and efficiency.

The following display shows the supplied report definitions that the Adapter Setup or Add Domain Category wizard uses for Day reports of the Server Disk domain category of the DT Perf Sentry adapter.

Figure 8.9 Select Report Definitions Dialog Box



- c. Select one or more report definitions that you want to add to the Performance Report transformation.
- d. Click **OK**. The report definition appears in the **Report Definitions** table at the top of the **Report Definitions** tab.

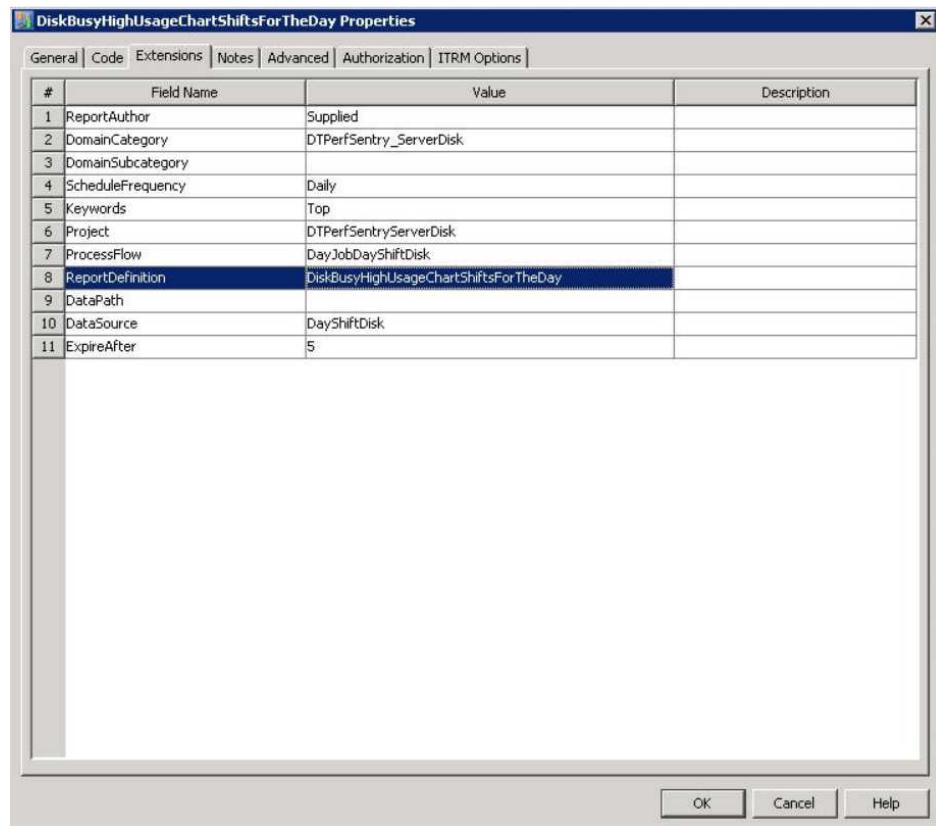
To remove a report definition from the **Report Definitions** table, perform the following steps:

- a. Select the report definition from the **Report Definitions** table at the top of the **Report Definitions** tab.
- b. Click **Remove**. The report definition is removed from the **Report Definitions** table.

The **Properties of report definition** box provides additional information about the report definition that is selected in the **Report Definitions** table. The following display shows some of the properties that might be associated with a report definition.

Note: As shown in the following display, the properties of a report definition are also available from the **Extensions** tab of the report definition.

Figure 8.10 Properties of Report Definition Box of the Report Definitions Tab



TIP Report definition names are unique within a domain category. However, they are not unique across all domain categories. The only means of distinguishing between two report definitions with the same name is by viewing their properties. You can use the information in the **Properties of report definition** box to confirm that you have selected the correct report definition for your report job.

Table 8.1 Properties of Report Definitions on the Report Definitions Tab

Property	Notes
Report author	Specifies the user ID of the person who created the report definition. If the value is Supplied , then the report definition was supplied by SAS IT Resource Management and is used by the Adapter Setup and Add Domain Category wizards.

Property	Notes
Domain category	<p>Specifies the adapter and domain category for the report definition. For example, the value DTPerfSentry_ServerDisk indicates that the report definition corresponds to the Server Disk domain category of the DT Perf Sentry adapter. This value is a primary filter that is specified for the report definition in the ITRM Report Definition task.</p> <p>Verify that the adapter and domain category is correct for the IT data that you are using and the reports that you want to create.</p>
Domain subcategory	<p>(Optional) Specifies the domain subcategory that corresponds to the domain category for the report definition. This value is a primary filter that is specified for the report definition in the ITRM Report Definition task.</p>
Job schedule frequency	<p>Specifies when the corresponding reports for the report definition should be scheduled to run. This value is a primary filter that is specified for the report definition in the ITRM Report Definition task.</p> <p><i>Note:</i> This value is a report filter in metadata only. It does not affect the schedule for the corresponding report job. However, for best results, you should schedule the corresponding report job to run according to this filter. For example, if the schedule frequency is Weekly, then schedule the report job to run weekly.</p>
Keywords	<p>Specifies the keywords that the report definition assigns to the reports that it creates. Keywords are primary filters that are specified for the report definition in the ITRM Report Definition task.</p>
Project	<p>Specifies the name of the SAS Enterprise Guide project that includes the ITRM Report Definition task that created the report definition.</p>
Process flow	<p>Specifies the name of the process flow that includes the ITRM Report Definition task that created the report definition.</p>
Report Definition	<p>Specifies the name of the ITRM Report Definition task that created the report definition. The ITRM Report Definition task and the report definition have the same name.</p>
Data path	<p>(Optional) Specifies the path to the data source.</p>
Data source	<p>Specifies the data source such as an information map. Verify that the data source is in the same folder as the report job. If it is not, verify that the data source is in the data path of the report definition or in the Data Source Folder of the Performance Report transformation.</p>

Property	Notes
Expire after	<p>Specifies the number of days that the corresponding reports are stored in the SAS Content Server before they are expired. If a report is expired and its report job is run again, the expired report is deleted.</p> <p><i>Note:</i> The Override Expiration Date options in the Performance Report transformation can override this value.</p>

For more information about the naming standards that SAS IT Resource Management uses for reporting components, see “[About Naming Standards for SAS IT Resource Management Reporting Objects](#)” on page 149.

The **Override Expiration Date** group box provides the ability to override the expiration date that is specified in the report definition.

Figure 8.11 Override Expiration Date Options on the Report Definitions Tab



The following override options take effect the next time the report job is deployed and run:

- **Delete report content based on the expiration date in the report definition** causes the expiration date that is specified in the report definition to take effect. This option is the default.
- **Delete report content that is older than specified days** enables you to override the expiration date that is specified in the report definition. You can enter the number of days that must elapse before the reports are deleted.

9. Click **OK**. The Performance Report transformation icon in the process flow diagram of the report job appears with a green check to indicate that it is complete and ready for execution.
10. Deploy and run the report job. For more information, see “[About Report Jobs](#)” on page 67.

Edit a Performance Report Transformation

To edit an existing Performance Report transformation, perform the following steps:

1. In the **IT Data Marts** tree of SAS IT Resource Management, double-click the job that contains the Performance Report transformation that you want to edit.
2. Right-click the Performance Report transformation in the process flow diagram and select **Properties**. A Properties dialog box is displayed and enables you to modify the various parameters that are specified for the Performance Report transformation and the code that it generates.

For more information about the specific parameters that are available for configuration in the Performance Report transformation, see the detailed steps in “[Add a Performance Report Transformation to a Report Job](#)” on page 75.

3. Click **OK** to save your changes.

4. Deploy and run the report job. For more information, see “[About Report Jobs](#)” on [page 67](#).

Delete a Performance Report Transformation

To delete a Performance Report transformation from a job, perform the following steps:

1. In the **IT Data Marts** tree in SAS IT Resource Management, double-click the job that contains the Performance Report transformation that you want to delete.
2. Right-click the Performance Report transformation in the process flow diagram and select **Delete**. The Performance Report transformation object is deleted from the job.
3. Click **OK** to save your changes.
4. Deploy and run the report job. For more information, see “[About Report Jobs](#)” on [page 67](#).

Specifying a Data Source Location

SAS IT Resource Management provides flexibility and portability of report jobs, Performance Report transformations, and report definitions by enabling you to specify the location of the source data for a report in various ways.

Here are the ways that you can specify the data source location and how the report job uses these paths to find the data source:

- In the Performance Report transformation and ITRM Report Definition task, do not specify a data path.

A data source location might not be specified within the Performance Report transformation or report definition from an ITRM Report Definition task. In that case, the report job looks for the data source in the same IT data mart folder as the report job. This is the default and recommended scenario.

TIP The Adapter Setup and Add Domain Category wizards store data sources (or information maps) in the same folder as their corresponding report jobs. Thus, a Performance Report transformation that the wizard creates does not include values in the **Data Source Folder** column. In addition, the report definitions that the wizard uses do not include data path locations. For consistency and portability of your reporting components, save your information maps in the same folder as their corresponding report jobs. In addition, do not specify a data source location in your Performance Report transformations or report definitions.

- In a Performance Report transformation, specify a data path by using the **Data Source Folder** field for a report definition. For more information, see “[Add a Performance Report Transformation to a Report Job](#)” on [page 75](#).

If you enter a data path in this field, then the report job uses this path, regardless of whether a data source location is specified in the report definition from the ITRM Report Definition task. If this field is blank, then the report job checks the corresponding report definition to identify a data source location.

The default value is blank.

- In an ITRM Report Definition task, specify a data path by selecting **Yes** for the option **Include data path in report definition**. For more information, see “[Create Report Definitions Using the ITRM Report Definition Task](#)” on page 59.

If you select **Yes** to include the data path in the report definition, then the path is hard coded with the report definition. In addition, the data path appears in the **Properties of report definition** box of the Performance Report transformation. The report job uses this path, unless the corresponding Performance Report transformation includes a value for the **Data Source Folder** that overrides the report definition.

By default, the ITRM Report Definition task does not specify a data path in the report definition that it creates.

About Templates and Style Sheets

What Are Templates and Style Sheets

The visual appearance of the reports that SAS IT Resource Management creates is controlled by the following two style components:

template

describes the default visual aspects (colors, fonts, lines, markers, and so on) of the report graph. The template resides on the server.

style sheet

describes the default visual aspect of report elements that are outside of the graph area such as borders, banners, titles, footnotes, and so on. The style sheet is a *.css file that resides on the client workstation and on the middle tier.

SAS IT Resource Management provides a default template and style sheet for your IT reports. The Adapter Setup and the Add Domain Category wizards and the supplied SAS Enterprise Guide projects use the default template and style sheet to specify the visual style of the reports that they create.

About the Default Template for SAS IT Resource Management Reports

SAS IT Resource Management provides a default template file named **tmplitrm.sas7bitm** that creates a default template named **ITRMDefault**. This default template includes updates to a parent template called **styles.analysis** that SAS provides. These updates include specifications for graph colors in charts and plots. You can make a copy and modify the source code if you want to create a modified version of the template.

During installation, SAS IT Resource Management saves the default template files and their source code in folders on the server tier.

Here are the locations of the source code for the templates, based on operating system:

- Windows: **<sashome>\SASFoundation\9.4\itrmmvadata\sasmisc**
- UNIX: **<sashome>/SASFoundation/9.4/misc/itrmmvadata**
- z/OS: **&prefix.ITRM.CPMISC**

Here are the locations of the template, based on operating system:

- Windows: **<sashome>\SASFoundation\9.4\itrmmvadata\sashelp**

- UNIX: `<sashome>/SASFoundation/9.4/sashelp`
- z/OS: `&prefix.nnnn.SASHELP` where `nnnn` is the country encoding. For example, if `nnnn=ENW0` for English, then the location is `&prefix.ENW0.SASHELP`.

About the Default Style Sheets for SAS IT Resource Management Reports

Default style sheets for SAS IT Resource Management reports are named `ITRMDefault.css`. These style sheets include report specifications that are unique to SAS IT Resource Management. For example, the report banners represent SAS IT Resource Management and the title fonts as well as border colors complement the visual properties that are specified in the default template for SAS IT Resource Management reports.

SAS IT Resource Management provides two default style sheets. One style sheet specifies the properties for the reports that the supplied SAS Enterprise Guide projects generate. The other style sheet specifies the properties for batch reports. These two style sheets include identical specifications except for the report banner.

The default style sheet that is used in the supplied SAS Enterprise Guide projects includes a SAS IT Resource Management banner. This enables you to see the banner when you run reports interactively with SAS Enterprise Guide. This default style sheet is saved in the same location as the SAS Enterprise Guide style sheets on the client workstation. For example, for a Windows system, the location for the style sheet is in the `<SAS install location>\SAS\EnterpriseGuide\<version>\Styles` folder (such as `C:\Program Files\SAS\EnterpriseGuide\7.1\Styles` for SAS Enterprise Guide 7.1 running on Windows).

The default style sheet that batch reports use is stored in the SAS Content Server, and it does not include specifications for a report banner. This enables the batch reports to be generated without a banner and thus be easier to view in the ITRM Report Center. This version of the style sheet is saved in the web application server directory on the middle tier at `<web application root>/SASContentServer/repository/default/sasdev/Stylesheets/ITRMDefault.css`.

For more information about how to include your own corporate logo in a banner on an interactive style sheet, see the “Editing Styles: Using Background and Banner Images” topic in the SAS Enterprise Guide Help.

Working with Templates and Style Sheets

Overview

You can use the default templates and style sheets that SAS IT Resource Management provides or you can create your own. You can choose to create your own template or style sheet. If you do, use the defaults as a parent or model and make only the necessary adjustments for your custom needs.

TIP Before you modify a template, style sheet, or any other reporting component that SAS IT Resource Management provides, make a copy of the supplied component as a backup and modify the copy.

SAS IT Resource Management enables you to identify the templates and style sheets that you want to use for reports. However, these components are created and specified with

other SAS products. For example, you can use Base SAS to create and specify a template by invoking and specifying the TEMPLATE procedure. You can use SAS Enterprise Guide to work with style sheets.

As you work with templates and style sheets for your IT reports, refer to the documentation in the appropriate SAS product for more information. For more information about how to work with templates, see the documentation for the TEMPLATE procedure in *SAS Output Delivery System: User's Guide* at <http://support.sas.com>. For more information about how to work with style sheets, see the Help for SAS Enterprise Guide.

Create or Specify a Different Template for Batch Reports

To create or specify a different template for batch reports, perform the following steps:

1. Use Base SAS to create a new template by modifying the template source file. For best results, save the new source file and template file with the new name in the same location as the default template at `<SAS install location>\SAS\<SASFoundation>\9.4\itrmmvadata\sasmisc` (such as `C:\Program Files\SAS\SASFoundation\9.4\itrmmvadata\sasmisc`) and `<SAS install location>\SAS\<SASFoundation>\9.4\itrmmvadata\sashelp`. For more information about modifying a report template, see the documentation for PROC TEMPLATE at <http://support.sas.com>.
2. Modify the Performance Report transformation in your report jobs to specify the new template name.
3. Redeploy your report jobs.

Note: For best results, use the same template when working with SAS Enterprise Guide interactively. For more information about working with style sheets in SAS Enterprise Guide, see the Help for SAS Enterprise Guide.

Create or Specify a Different Style Sheet for Batch Reports

If you want to use a style sheet other than the one that is already specified in your report jobs, perform the following steps:

1. Make a copy of the default style sheet and use a text editor or SAS Enterprise Guide to modify the style sheet specifications. For more information about working with style sheets in SAS Enterprise Guide, see the Help for SAS Enterprise Guide.
2. Copy your new style sheet to one of the following supported locations:
 - the web application server directory on your middle tier (such as `<webapp root>/SASContentServer/`).
 - a folder on all clients where the web browser is initiated (such as `file:///c:/program files/<folder name>/`).

Note: For ease-of-use and portability of report jobs, use the web application server location.
3. Modify the Performance Report transformation in your report jobs to point to the new style sheet name and location.
4. Redeploy your report jobs

Note: For best results, use the same style sheet when working with SAS Enterprise Guide interactively. For more information about working with style sheets in SAS Enterprise Guide, see the Help for SAS Enterprise Guide.

Chapter 9

Working with ITRM Report Center

What Is ITRM Report Center?	91
Accessing ITRM Report Center Interface	94
Sign In as a Registered User	94
Sign Out from ITRM Report Center	95
Logging Level of ITRM Report Center	95
How to Get Help and Documentation for ITRM Report Center	95
Features of ITRM Report Center	96
How to Organize Reports	96
How to View Reports	97
Copying Reports into Albums and Emailing Reports	99

What Is ITRM Report Center?

ITRM Report Center is a web application that enables users to view, organize, filter, and share SAS IT Resource Management performance and exception reports. From the workspace bar, you can access the **Home**, **Gallery**, **Resource**, and **Administration** workspaces.

The following list briefly describes the four workspaces and the general functions that ITRM Report Center provides. (The **Home**, **Gallery**, **Resource**, and **Administration** workspaces are described in more detail in the *SAS IT Resource Management 3.6: Report Center Guide*.)

- The **Home** workspace consists of three main sections: **Watch List**, **Alerts**, and **Recent Work**.

Figure 9.1 The Home Workspace

The **Home** workspace enables you to access your personal watch lists, alerts, and recent work. This workspace is accessible by all users. For more information, see Chapter 2, “Overview of the Home Workspace,” in the *SAS IT Resource Management 3.6: Report Center Guide*.

- The **Gallery** workspace enables you to access folders, galleries, and albums that are used to organize and share SAS IT Resource Management reports. This workspace is accessible by all users. For more information, see Chapter 3, “Overview of the Gallery Workspace,” in the *SAS IT Resource Management 3.6: Report Center Guide*.

Figure 9.2 The Gallery Workspace

- The **Resource** workspace enables you to view SAS IT Resource Management reports from a hierarchical perspective for each resource in ITRM Report Center. This workspace is accessible only by users who are members of groups that are members in the IT Resource Management: User role or the IT Resource Management Administrators group. For more information, see Chapter 4, “Overview

of the Resource Workspace,” in the *SAS IT Resource Management 3.6: Report Center Guide*.

Figure 9.3 The Resource Workspace

Resource Type	Resource Name	Domain Category	Report Count	Most Recent Creation Date
DeviceType	► Type3			
DeviceType	► Type2			
DeviceType	► Type4			
Sysplex	► DEAPLEX			
Sysplex	► PRODPLEX			
DeviceType	► Type1			
Domain	► CARYNT	DTPerfSentry_ServerSystem	6	Jun 5, 2014 02:52:06 PM
Machine	► eecsun4	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:50 PM
Machine	► lnxbl011	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:54 PM
Machine	► auspi02	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:52 PM
Machine	► lnxbl005	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:54 PM
Machine	► PERFORMANCE3	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:48 PM
Machine	► bigbow2	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:58 PM
Environment	► Production	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:31 PM
Machine	► rhlg001	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:54 PM
SiteName	► Site1	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:30 PM
Machine	► swiprod1	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:51 PM
Machine	► bigbow1	ITRMDomainIntelligence	1	Jun 4, 2014 10:27:58 PM

- The following display shows the **Administration** workspace. This workspace provides an administrator with these capabilities:
 - viewing the folders in the SAS Content Server and creating (or deleting) locations where reports are stored
 - assigning those locations for users' reports in the SAS Content Server
 - purging reports
 - refreshing the cache

The **Administration** workspace is accessible by users who are members of the IT Resource Management Administrators group.

Figure 9.4 The Administration Workspace

Location	Description	Report Count	Last Modified Date
/SASContentServer/repository/default/sasdavlITRM		5207	Jun 5, 2014 08:11:40 AM
/SASContentServer/repository/default/sasdavladmin		0	

User group	Location
ITRMcustom user group	/SASContentServer/repository/default/sasdavladmin
SASUSERS	/SASContentServer/repository/default/sasdavlITRM
IT Resource Management Report Center Users	/SASContentServer/repository/default/sasdavlITRM

Accessing ITRM Report Center Interface

Sign In as a Registered User

Access to some ITRM Report Center workspaces and functions is controlled by SAS metadata-based application roles. Permission to access SAS Content Server locations where SAS IT Resource Management reports are available is controlled by SAS metadata-based application groups. Membership in roles and groups is established and maintained by your SAS administrator using SAS Management Console. For more information about groups and roles, see the *SAS Management Console 9.4: Guide to Users and Permissions*.

To sign in to ITRM Report Center, perform the following steps:

1. In the address bar of your web browser, enter the URL for ITRM Report Center. For example, you might use the following URL to access your ITRM Report Center:

`http://<Middle-Tier-Server-Name>/ITRMReportCenter.`

Alternatively, you might use this URL:

`http://<Middle-Tier:Port#>/ITRMReportCenter.`

Note: Contact your system administrator if you do not know the URL for ITRM Report Center.

Then press Enter. The sign in window for ITRM Report Center appears.

Figure 9.5 ITRM Report Center Sign In Window

2. Enter a user ID and password. (Your user ID and password are case-sensitive.)
3. Click **Sign In**. The ITRM Report Center interface appears.

Sign Out from ITRM Report Center

To sign out from ITRM Report Center, click **Sign Out** in the upper right corner of the user interface.

By default, if ITRM Report Center is open for 30 minutes with no activity, then a warning message appears. This message states that you will be signed out and the session will close unless you choose to continue the session.

Logging Level of ITRM Report Center

After installing ITRM Report Center, the logging level is set to **WARN**. Only those logging messages that are set for **WARN**, **ERROR**, or **FATAL** appear in the ITRMReportCenter log file. Logging messages that are set for **DEBUG** or **INFO** do not appear.

Note: For information about setting the logging level for the Web Application server, see “How to Set the Logging Level for the Web Application Server” in Appendix 9, “Best Practices and Troubleshooting Tips,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

How to Get Help and Documentation for ITRM Report Center

You can use the following two types of documentation to find more information about the features, benefits, and capabilities of ITRM Report Center:

Embedded Help

Help pop-ups and tooltips provide brief descriptions of various tasks and fields to help you use ITRM Report Center effectively.

To access a Help pop-up for more information about a current topic, click the Help icon (?) when it appears next to a field or area in the user interface. You can also place the mouse pointer over an element in the user interface to view the associated tooltip for more information.

SAS IT Resource Management 3.6: Report Center Guide

This document provides detailed information about the concepts and tasks that are related to using ITRM Report Center. To access this document, click **Help** \Rightarrow **User's Guide (PDF)** in the application.

Additional documentation and references are also available from the **Help** menu in ITRM Report Center. To access these resources, click **Help** in the ITRM Report Center application and select from the following menu options:

- **SAS on the Web** includes the following options:
 - **SAS IT Resource Management Report Center 3.6** opens the SAS IT Resource Management documentation page on the web (<http://support.sas.com/itrm>). This page provides access to all the documentation (PDF and HTML) for the SAS IT Resource Management solution.
 - **SAS Customer Support** opens the SAS Customer Support page. This page provides access to the Knowledge Base, Support, Training and Bookstore, and more.
 - **SAS Training** opens the Training and Bookstore page.
 - **SAS Home Page** opens the SAS home page at <http://www.sas.com>.
- **About SAS IT Resource Management Report Center 3.6** provides more information about the version of the application and related details.

Features of ITRM Report Center

How to Organize Reports

You can organize SAS IT Resource Management reports with the following components:

- Albums

Albums are containers for reports to which you want easy access. They can be thought of as point-and-click galleries. When you open an album, it resembles and behaves like a gallery. Galleries and albums differ only in how they are created. An album is created by selecting reports from existing galleries and using the Copy Link to Album icon () that is available from the workspace bar. You do not use a wizard to create or edit it.

- Galleries

A *gallery* is a group of reports that share common filter values. You can organize SAS IT Resource Management reports by creating a gallery that includes all of the reports that meet a specific criterion. For example, you might create a gallery to include all available reports for a particular machine, adapter data source, or keyword.

A gallery is created with the New Gallery wizard. It is modified by using the Edit Gallery wizard.

ITRM Report Center also enables you to further subset or filter the reports in a gallery when viewing that gallery. Thus, you can quickly view a smaller set of reports in a gallery to measure and analyze the utilization, availability, performance, and statistical trends of IT resources for your enterprise.

- **Gallery Folders**

A *gallery folder* is a container for galleries, albums, and other gallery folders. These folders function like typical folders in a tree. You can use these folders to group related galleries, albums, and gallery folders. For example, you might create a single gallery folder to include all of your galleries for DT Perf Sentry reports.

- **Resources**

A *resource* can be a type of device, machine, system, environment, or other category of IT resources. In the **Resource** workspace, you can view reports hierarchically by the resource type.

How to View Reports

In ITRM Report Center, the **Gallery** and **Resource** workspaces provide four views of the reports that you select. Use the arrow on the taskbar to select the type of display that you want to view. In the following display, **My Gallery** is opened and the **CPU Busy Percent and Run Queue Length** report is selected. The flow view is chosen as the format in which to view the report.

Figure 9.6 Taskbar with Flow Icon Circled

Type	Report Title	By Variables
Report	CPU Busy Percent	bigbow1
Report	CPU Busy Percent	Mon,MyDomain
Report	CPU Busy Percent and Run Queue Length	bigbow2
Report	CPU Busy Percent and Run Queue Length	bigbow2

- The grid (or table) view displays the reports and their associated metadata in a tabular format. You can quickly scan these reports for similarities and double-click an individual report to view a large image of it in a separate browser window.

Click **Grid** to display the reports in the grid view.

Figure 9.7 Reports in the Grid (or Table) View

Type	Report Title	By Variables	Content Date	Generation Date
File	CPU Busy Percent	bigbow1	Aug 12, 2012	Jul 18, 2014 10:06:17 PM
File	CPU Busy Percent	Mon,MyDomain	Aug 13, 2012	Jul 18, 2014 10:06:08 PM
File	CPU Busy Percent and Run Queue Length	bigbow2	Aug 12, 2012	Jul 18, 2014 10:06:16 PM
File	CPU Busy Percent and Run Queue Length	Mon,swpprod1	Aug 13, 2012	Jul 18, 2014 10:06:11 PM
File	CPU Busy Percent Plus 2 Standard Deviations	PERFORMANCE3		Jul 18, 2014 10:06:08 PM
File	CPU Utilization for ITRM Servers			Jul 18, 2014 10:06:13 PM
File	DB2 Attachment Type and Connection Accounting Threads	Mon,Production,SSN1	Aug 13, 2012	Jul 18, 2014 10:05:57 PM
File	DB2 Subsystem SQL Function Activity	Mon,Production	Aug 13, 2012	Jul 18, 2014 10:05:55 PM
File	Guest CPU Busy Percent	My Cluster 1	Aug 13, 2012	Jul 18, 2014 10:06:01 PM
File	Guest CPU Busy Percent By Cluster		Aug 13, 2012	Jul 18, 2014 10:06:01 PM
File	Guest CPU Ready Percent for Cluster	My Cluster 1	Aug 13, 2012	Jul 18, 2014 10:06:05 PM
File	Incoming Packet Size by Interface	Type1,Type1,Type1	Aug 13, 2012	Jul 18, 2014 10:05:50 PM
File	Interface Utilization	Type2,Type2,Type2	Aug 13, 2012	Jul 18, 2014 10:05:51 PM
File	Low CPU Utilization	Inxbl005		Jul 18, 2014 10:06:13 PM
File	Low CPU Utilization	Inxbl011		Jul 18, 2014 10:06:13 PM
File	Low CPU Utilization	rhlgn001		Jul 18, 2014 10:06:13 PM
File	Lpar CPU Hardware Msu and Mips Across All Engines	Mon,DEVAPLEX,DEVA,3-DEVA	Aug 13, 2012	Jul 18, 2014 10:05:49 PM
File	Lpar zAAP CPU Hardware Msu and Mips	Mon,DEVAPLEX,DEVA,3-DEVA	Aug 13, 2012	Jul 18, 2014 10:05:49 PM
File	Memory Usage Percent and Paging Rate	eeccsun4	Aug 1, 2012	Jul 18, 2014 10:06:10 PM
File	Network Traffic (Bits per Second) by Interface	Type3,Type3	Aug 13, 2012	Jul 18, 2014 10:05:52 PM
File	Overall Packet Types - Packets Per Second			Jul 18, 2014 10:06:09 PM
File	Packet Types by Interface	Type4,Type4	Aug 13, 2012	Jul 18, 2014 10:05:53 PM
File	Run Queue Length	Mon,auspi02	Aug 13, 2012	Jul 18, 2014 10:06:12 PM
File	Run Queue Length	auspi01	Aug 1, 2012	Jul 18, 2014 10:06:13 PM
File	Site Total Requests and Total Pages	Mon,Site1	Aug 13, 2012	Jul 25, 2014 04:50:30 AM
File	Site Total Requests and Total Pages	Mon,Site1	Aug 13, 2012	Jul 18, 2014 10:05:54 PM
File	System CPU Busy Percent and Hardware Mips by Engine Type		Aug 13, 2012	Jul 18, 2014 10:06:00 PM
File	System CPU Busy Percent and Hardware Msu and Mips by Engine Type	Mon,DEVAPLEX,DEVA	Aug 13, 2012	Jul 18, 2014 10:05:58 PM

The tile view displays a thumbnail view of each report and enables you to minimize, expand, and arrange the reports in the gallery. Click  to display the reports

in the tile view.

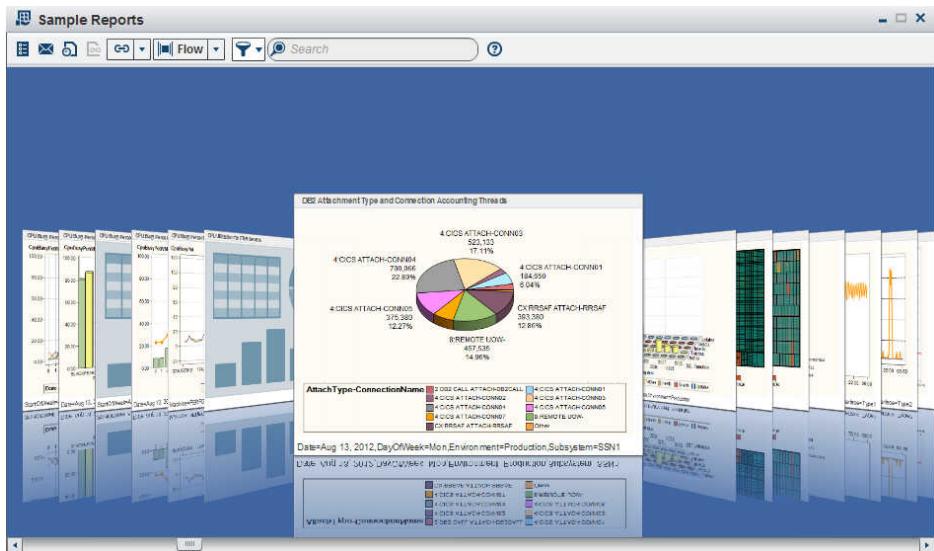
Figure 9.8 Reports in the Tile View



- The flow view displays the reports as moveable pages so that you can navigate through a sequence of reports that are stacked together.

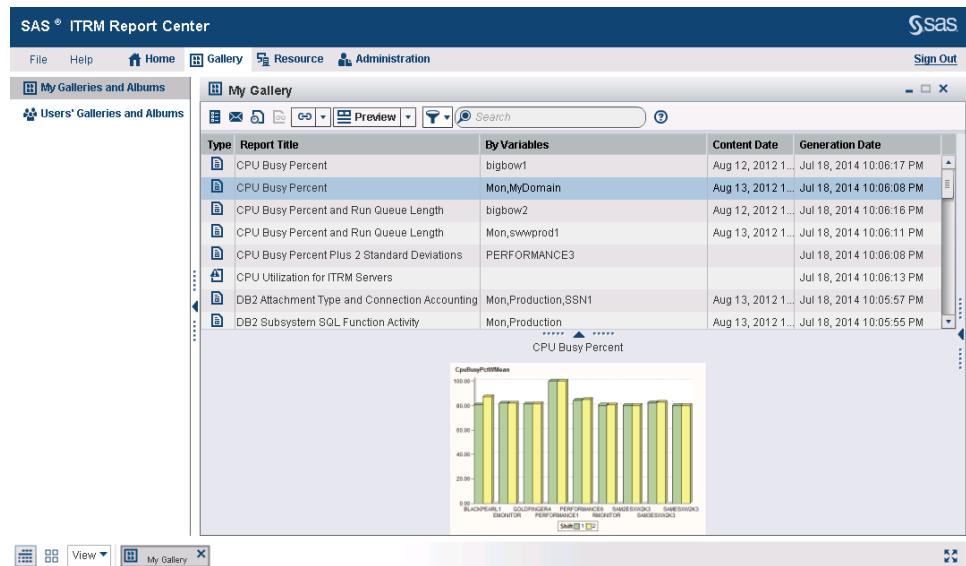
Click  to display the reports in the flow view.

Figure 9.9 Reports in the Flow View



- The Preview pane displays a shortened version of the grid view. Select a report to view a thumbnail image of it in your current window.

Figure 9.10 Reports in the Preview Pane



Copying Reports into Albums and Emailing Reports

ITRM Report Center enables you to copy reports of particular interest into albums. You can also email reports that are in albums.

Part 3

Report Administration

Chapter 10
Administrative Tasks 103

Chapter 10

Administrative Tasks

Administrative Tasks Using ITRM Report Center	103
Accessing the ITRM Report Center Administration Workspace	103
Create and Assign Access to SAS Content Server Locations	103
How to Delete a Location from the SAS Content Server	107
Purge Reports from the SAS Content Server	108
Refresh the ITRM Report Center Cache	108
Administrative Tasks Using the SAS Content Server Admin Console	110
Overview of the SAS Content Server	110
How Does SAS IT Resource Management Use the SAS Content Server?	110
How to Delete Reports Manually from the SAS Content Server	110
Administrator Tasks Using SAS Management Console	112
Reset the Maximum Number of Reports to Be Returned from the Create Gallery Filters	112
Reset the Number of Items to Be Included in the Watch List	113
Update the List of Available Alerts	114
Add a User-Defined Report Occurrence to ITRM Report Center	116
Other Administrative Tasks	118
Back Up Reports on the SAS Content Server	118

Administrative Tasks Using ITRM Report Center

Accessing the ITRM Report Center Administration Workspace

The SAS IT Resource Management administrator performs many tasks from ITRM Report Center. To access the ITRM Report Center **Administration** workspace, sign in to ITRM Report Center with a user ID that is in the IT Resource Management Report Center Administrators group.

Create and Assign Access to SAS Content Server Locations

About Root Locations

All reports that are generated by Performance Report and Exception transformations are stored in the `SASContentServer/repository/default/sasdav/<root-location>` folder. At installation, the default root location for SAS IT Resource

Management is set as **ITRM**. Additional root locations can be created for use by SAS IT Resource Management. These root locations are useful when a site wants to grant different groups of users access to view subsets of SAS IT Resource Management reports.

Note: Additional root locations that you create are at the same hierarchical level in the SAS Content Server as the **ITRM** folder, which is the default location for reports.

By default, all IT Resource Management Report Center groups are also members of the **SASUSERS** group. Therefore, they can access reports in the **SASContentServer/repository/default/sasdav/ITRM** location. When multiple SAS IT Resource Management root locations are used, you can change the location for specific groups to a general, or even empty, SAS Content Server folder location. (This technique might also be useful when reports from SAS IT Resource Management 3.3 or earlier are migrated because those reports are migrated to the default SAS IT Resource Management SAS Content Server folder.) When no reports will be shared between groups, do not write any reports to the default SAS Content Server location used by SAS IT Resource Management.

Note: All members of the IT Resource Management Report Center Administrators group have permission to access all SAS Content Server locations that are used by SAS IT Resource Management.

When you set up an additional root location, use the SAS IT Resource Management client to open the job that contains the Performance Report or Exception transformation whose reports you want to store in that root location. Right-click the transformation and select **Properties**. On the **Server** tab, select the root location that you want to work with. This action ensures that your reports are stored in the selected root location, not in the default **ITRM** location on the SAS Content Server. To allow members of IT Resource Management Report Center Users groups in ITRM Report Center to access these reports, assign access to the SAS Content Server locations that you added to those user groups. For more information, see “[How to Create and Assign Access to a SAS Content Server Location Using ITRM Report Center](#)” on page 105.

TIP After assigning a SAS Content Server root location to a user group, be sure to redeploy your job. Then, sign out of ITRM Report Center and sign in again. This action enables you to avoid unexpected errors.

Working with Multiple SAS Content Server Locations

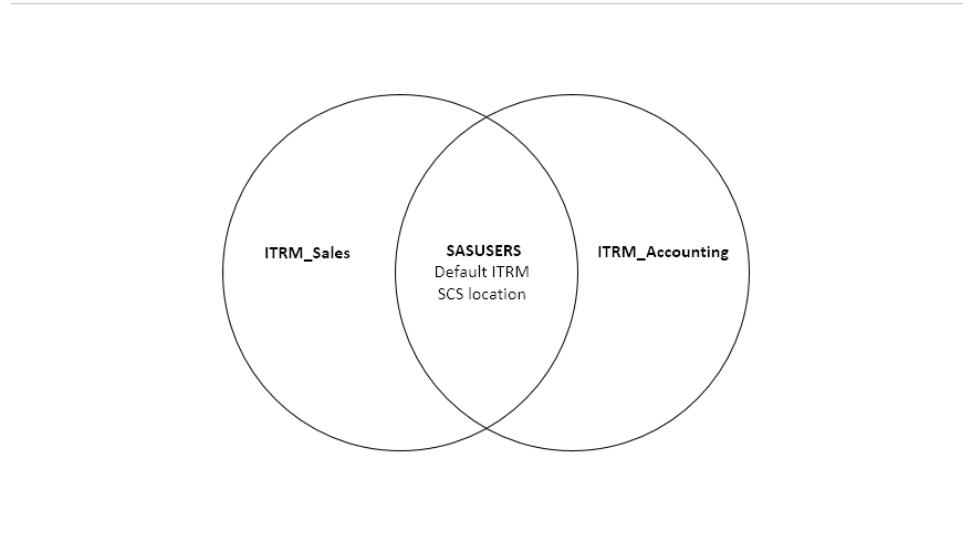
To restrict access to certain sets of SAS IT Resource Management reports that are stored on the SAS Content Server, you need to set up additional root locations on the SAS Content Server. For example, you might set up an additional root location called **ITRM_Sales** that contains reports for people who have privileges for viewing SAS IT Resource Management reports for IT resources allocated to the Sales division. Alternatively, you might want to set up a root location called **ITRM_Accounting** that permits access only by people who have privileges for viewing IT Resource Management reports for IT resources allocated to the Accounting division.

As shown in the following diagram, there are three IT Resource Management Report Center User groups. Each of these groups has access to SAS Content Server locations that are used by SAS IT Resource Management. The **ITRM_Sales** and **ITRM_Accounting** groups are created as members of the IT Resource Management Report Center Users group. (The IT Resource Management Report Center Users group that is supplied by SAS IT Resource Management is a member of the IT Resource Management: Report Center User role.)

- Members of the **SASUSERS** group can access the SAS IT Resource Management reports that are written to the default ITRM Report Center SAS Content Server location.

- Because they are members of the SASUSERS group, ITRM_Sales members have access to reports that are written to the default ITRM Report Center SAS Content Server location. ITRM_Sales members also have access to reports that are written to the ITRM_Sales location in the ITRM Report Center SAS Content Server.
- Because they are members of the SASUSERS group, ITRM_Accounting members have access to reports that are written to the default ITRM Report Center SAS Content Server location. ITRM_Accounting members also have access to reports that are written to the ITRM_Accounting location in the ITRM Report Center SAS Content Server.

Figure 10.1 Example of Multiple Accessing of SAS Content Server Locations



Note: If you want access to all of the SAS IT Resource Management reports in this example, then you need to be a member of both ITRM_Sales and ITRM_Accounting. Alternatively, you could be an IT Resource Management Report Center Administrator.

How to Create and Assign Access to a SAS Content Server Location Using ITRM Report Center

To add an additional location to the SAS Content Server, sign in to ITRM Report Center as a SAS IT Resource Management administrator and select the **Administration** workspace to access the following window.

Figure 10.2 Administration Workspace

SAS® ITRM Report Center

File Help Sign Out

Manage Content

Content server locations:

Location	Description	Report Count	Last Modified Date
/SASContentServer/repository/default/sasdav/ITRM		5207	Jun 5, 2014 08:11:40 AM
/SASContentServer/repository/default/sasdav/admin		0	

Create Location Delete Location Purge Reports Refresh Cache

Assign location to user group:

User group	Location
ITRMcustom user group	/SASContentServer/repository/default/sasdav/admin
SASUSERS	/SASContentServer/repository/default/sasdav/ITRM
IT Resource Management Report Center Users	/SASContentServer/repository/default/sasdav/ITRM

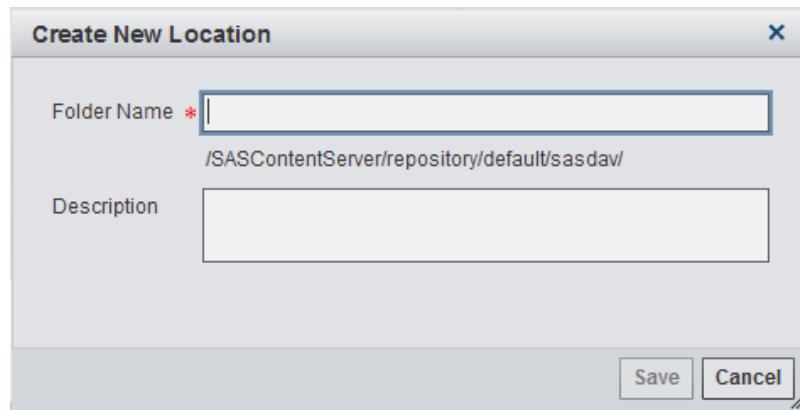
Change Location

User: SAS Administrator

Then, perform the following steps:

Create a New SAS Content Server Location

1. Click **Create Location**. This dialog box appears:

Figure 10.3 Create Location Dialog Box

2. In the Create Location dialog box, enter the **Folder Name**. Entering text in the **Description** box is optional.
3. • In the **Folder Name** field, enter the name of the folder where you want to store your reports. (Only alphabetic characters, numbers, and the underscore character are valid when entering text into this field.)
 • [Optional] Enter a description of the folder.
 • Click **Save**.

When the new root location is created, the principal user (`jcr:authenticated`) is set to **Yes** for the newly created path for all permissions, such as Read, Write, and so on.

Assign the New Location to an IT Resource Management User Group

4. Navigate to the Assign Location to User Group section of the workspace.

Figure 10.4 Assign Location to User Group

Assign Location to User Group	
User group	Location
IT Resource Management Administrators	/SASContentServer/repository/default/sasdav/ITRM
SASUSERS	/SASContentServer/repository/default/sasdav/ITRM
IT Resource Management Users	/SASContentServer/repository/default/sasdav/ITRM

[Change Location](#)

Select a user group and click **Change Location**.

5. The Change Location dialog box appears.

Figure 10.5 Change Location



In the Change Location dialog box, click the arrow in the **Location** field. A list of all available SAS Content Server locations that are used by SAS IT Resource Management is displayed. Select the location to be assigned to the user group.

How to Delete a Location from the SAS Content Server

To remove a location from the SAS Content Server, perform the following steps:

1. Sign in to ITRM Report Center as an IT Resource Management Report Center Administrator.
2. From the list of locations under **Content server locations**, select the location that you want to delete. Click **Delete Location**.

Note: You cannot delete a location that is assigned to the SASUSERS group.

3. Click **OK** to delete the location.

Note: Deleting the location does not delete folders or reports from the SAS Content Server. This action only deletes the location so that it cannot be accessed from the SAS IT Resource Management client and from ITRM Report Center.

TIP After deleting a SAS Content Server root location, sign out of ITRM Report Center and then sign in again. This action enables you to avoid unexpected errors.

Purge Reports from the SAS Content Server

To purge reports from the SAS Content Server, perform the following steps:

1. Sign in to ITRM Report Center as an IT Resource Management Report Center administrator. Then navigate to the Content Server Locations section of the **Administration** workspace:

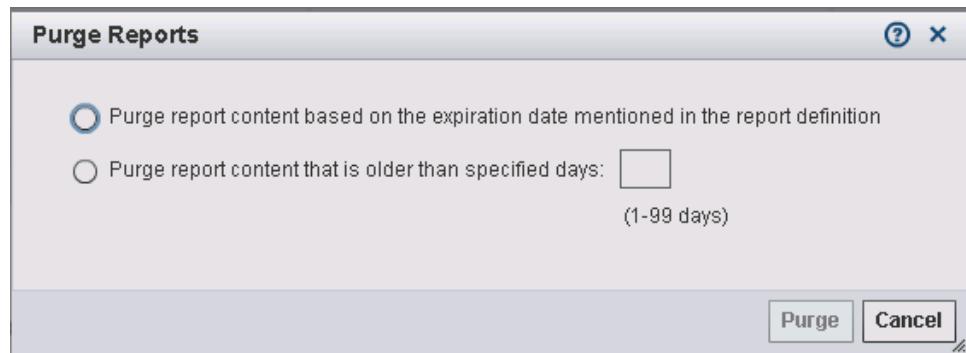
Figure 10.6 Content Server Locations of the Administration Workspace

Content Server Locations		
Location	Description	
/SASContentServer/repository/default/sasdav/ITRM	ITRM default location	
/SASContentServer/repository/default/sasdav/ITRM_Accounting	For accounting personnel	
/SASContentServer/repository/default/sasdav/ITRM_Sales	For sales personnel	

[Create Location](#) [Purge Reports](#) [Refresh Cache](#)

2. Select the location whose reports you want to purge.
3. Click **Purge Reports**. The following dialog box appears:

Figure 10.7 Purge Reports from the SAS Content Server



4. Click the option that indicates how to determine whether a report should be purged:
 - If you select the first option, the expiration date of reports is examined. Reports in the selected location that meet the criteria are deleted.
 - If you select the second option, the current system date is examined. Reports in the selected location that meet the criteria are deleted.

Then click **Purge**. If you select the option to purge content that is older than the specified number of days, only those reports that satisfy those criteria are purged. Expired reports whose content is not older than the specified number of days are not purged.

A note is displayed at the bottom of the window when the purge is finished.

Note: The cache is refreshed when you purge reports.

Refresh the ITRM Report Center Cache

About the ITRM Report Center Cache

ITRM Report Center enables you to access, view, and manage all of the SAS IT Resource Management reports that are stored within the **root-location** folder and its

subfolders. The **root-location** folder on the SAS Content Server is scanned and the report metadata that is retrieved is stored in the ITRM Report Center cache. Using this cache enables ITRM Report Center to retrieve reports from the SAS Content Server more quickly.

The cache is updated during the following events:

- when ITRM Report Center starts
- when a SAS IT Resource Management performance report or exception job is run
- when the SAS IT Resource Management administrator forces a cache update
- when reports are purged

How to Refresh the ITRM Report Center Cache

To force a cache update, sign in to ITRM Report Center as an IT Resource Management Report Center administrator and select the **Administration** workspace. The following window appears:

Figure 10.8 Administration Workspace of ITRM Report Center

Select the location that you want to refresh. Then click **Refresh Cache**. When the cache is being updated, a message appears at the bottom of the UI.

Note: Refreshing the cache might cause a temporary disruption to users who are signed in.

Administrative Tasks Using the SAS Content Server Admin Console

Overview of the SAS Content Server

The *SAS Content Server* is a web-based Distributed Authoring and Versioning (WebDAV) server. It is a content repository that stores digital content (such as documents, reports, and images) that is created and used by several SAS client applications. SAS IT Resource Management, and other SAS products such as SAS Web Report Studio and SAS Information Delivery Portal, use the SAS Content Server to store their reports and supporting files.

How Does SAS IT Resource Management Use the SAS Content Server?

SAS IT Resource Management uses the SAS Content Server to store reports and report metadata that are output from Performance Report and Exception transformations.

The jobs that include these transformations must specify the repository folder path, relative to the SAS Content Server, in which to store the reports.

Performance reports and exception reports are stored on the SAS Content Server in corresponding subfolders of the `SASContentServer/repository/default/sasdav/<root_location>` folder.

The reports are stored in the following locations on the SAS Content Server:

- Performance reports: `SASContentServer/repository/default/sasdav/<root_location>/<IT data mart name>_<job name>/<report definition name>`
- Exception reports: `SASContentServer/repository/default/sasdav/<root_location>/<IT data mart name>_<job name>/<Exception transformation name>`

Note: The default value of the *root-location* is `ITRM`. However, if you have administrator privileges, you can add additional root locations to the SAS Content Server. For more information, see “[How to Create and Assign Access to a SAS Content Server Location Using ITRM Report Center](#)” on 105.

How to Delete Reports Manually from the SAS Content Server

SAS IT Resource Management is installed with 34 sample reports. These sample reports provide examples of the type of reports that SAS IT Resource Management generates. The reports are located in a folder called `sasdav\ITRM\SampleReports` in the SAS Content Server.

After you have worked with the sample reports that SAS IT Resource Management provides, you might want to delete them from your SAS Content Server. In addition, you might want to delete other reports from your SAS Content Server.

TIP The preferred method of purging reports is by using the expiration date in the report job. Alternatively, you can purge reports from the **Administration** workspace

of ITRM Report Center. However, in some rare cases, you might use this method to delete reports manually.

To delete reports, sign in to the SAS Content Server Administration Console with the SAS metadata-based Metadata Server: Unrestricted role. Then perform the following steps:

1. Navigate to `http://<your-Middle-Tier-name>:<port-number>/SASContentServer/dircontents.jsp?path=/sasdav/ITRM_prod`. As shown in the following display, the reports are in a folder called **DTPerfSentryReports_System_Daily_Reporting**.

Figure 10.9 The sasdav/ITRM_prod Location in SAS Content Server

2. Select the reports that you want to delete. In the example shown, the **DTPerfSentryReports_System_Daily_Reporting** is selected from the list of items.
3. Click **Delete**.

CAUTION:

Exercise caution when clicking Delete. As soon as you click **Delete**, the selected objects are deleted.

Note: Delete reports only at the package level. Do not delete individual reports. If you do so, the metadata for those reports is not deleted, and a link to the report is displayed as broken.

Refresh the cache for the appropriate root location after the deletion. You can perform this action from the **Administration** workspace on ITRM Report Center. Deleting reports and refreshing the cache while users are signed in to ITRM Report Center can cause temporary unexpected results for users.

When the refresh is initiated by the administrator, the following message is displayed at the bottom of the ITRM Report Center UI to all users who are signed in: “Administrator has initiated refresh cache at location: `/SASContentServer/repository/default/sasdav/<root-location>`”. When the refresh action has completed, this message is displayed to all users who are signed in: “Refresh cache at location `/SASContentServer/repository/default/sasdav/<root-location>` is finished”.

Note: For more information, see Chapter 10, “Administering the SAS Content Server,” in the *SAS 9.4 Intelligence Platform: Middle-Tier Administration Guide*.

Administrator Tasks Using SAS Management Console

Reset the Maximum Number of Reports to Be Returned from the Create Gallery Filters

When you create a gallery in ITRM Report Center, you use primary and secondary filters to subset the reports that are on the SAS Content Server. By default, primary filters must reduce the number of reports to no more than 100,000 before you can continue. (The next step enables you to subset the reports further with secondary filters.)

By default, secondary filters must reduce the number of reports to no more than 3,000. In some cases, when galleries are created, the total number of reports returned from the primary and secondary filters might exceed 3,000 (or the **SecondaryReportCount** value). If so, then the reports that exceed that limit are omitted from the gallery.

Note: The default values for the **PrimaryReportCount** and the **SecondaryReportCount** can be changed by a SAS administrator. Regardless of the value specified for this parameter, however, an absolute maximum of 5,000 reports, enforced by ITRM Report Center, can be displayed for a single gallery.

The default limits are specified to help manage the size of galleries to avoid unnecessarily large report sets that make it difficult to locate specific reports. However, you can specify the default limits to meet the needs of your organization if you need larger or smaller galleries.

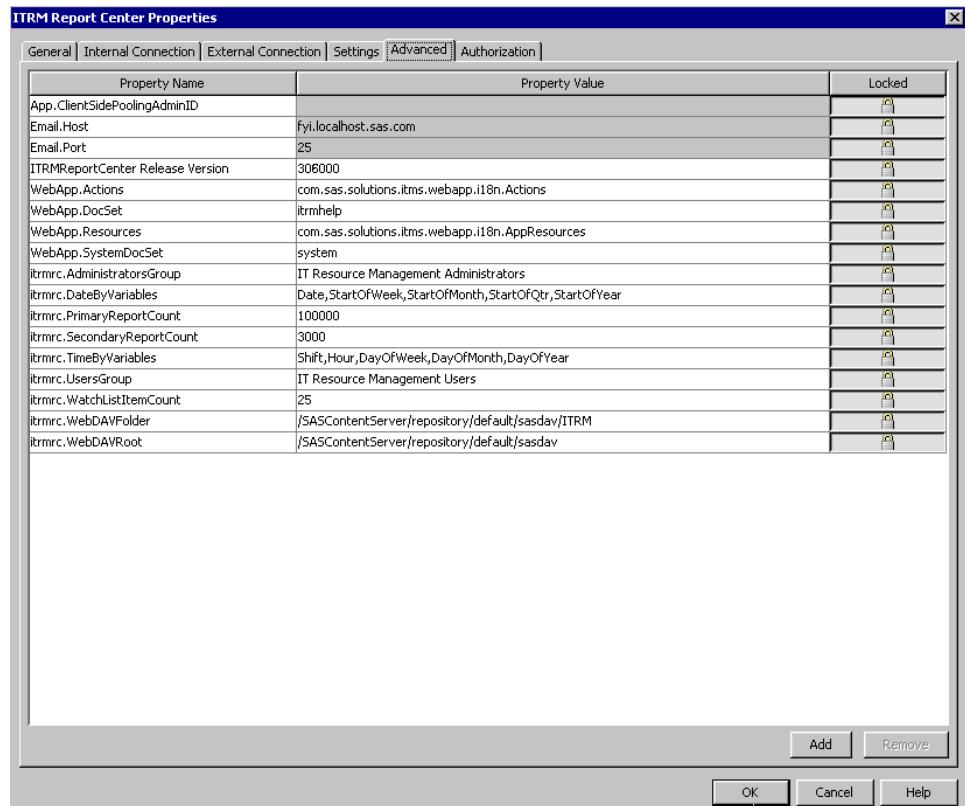
To specify your own default limits, perform the following steps:

1. Open SAS Management Console with administrator sign-in credentials. (To update the default report limits for the primary and secondary filters, use the SAS Administrative ID.)
2. On the **Plug-ins** tab, select **Application Management** ⇒ **Configuration Manager** ⇒ **SAS Application Infrastructure**.

Note: The Configuration Manager is installed as part of the SAS web infrastructure client. If you do not see this plug-in in SAS Management Console, then you can install it with the Software Deployment wizard. To do so, select **Install Additional Software** ⇒ **SAS Configuration Manager**.

3. Expand **SAS Application Infrastructure**.
4. Right-click **ITRM Report Center 3.6** and select **Properties**.
5. On the **Advanced** tab, the following window appears:

Figure 10.10 Advanced Tab of ITRM Report Center Properties



Then specify the following parameters:

- **itrmrc.PrimaryReportCount** specifies the limit for primary filters.
- **itrmrc.SecondaryReportCount** specifies the limit for secondary filters.

Note: The value for these parameters can be any positive integer.

6. Click **OK**. Restart ITRM Report Center.

Reset the Number of Items to Be Included in the Watch List

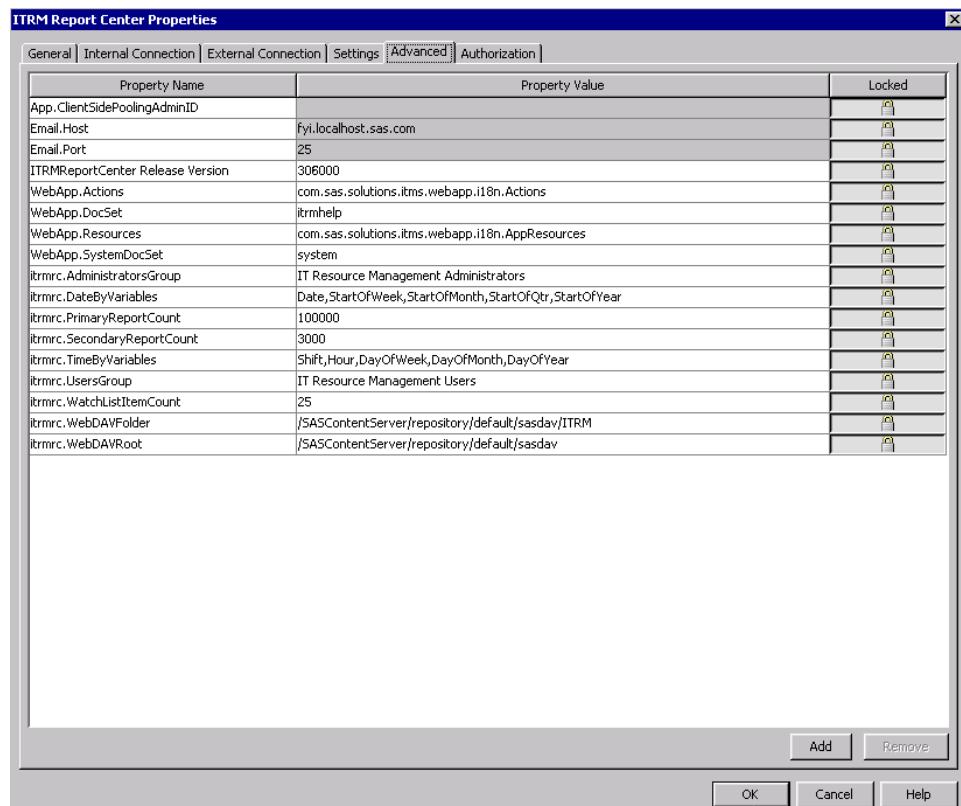
By default, the number of items that can appear on the watch list of the **Home** workspace is 25. To reset that number, perform the following steps:

1. Open SAS Management Console with administrator credentials. (To update the default report limits for the primary and secondary filters, use the SAS Administrative ID.)
2. On the **Plug-ins** tab, select **Application Management** \Rightarrow **Configuration Manager** \Rightarrow **SAS Application Infrastructure**.

Note: The Configuration Manager is installed as part of the SAS web infrastructure client. If you do not see this plug-in in SAS Management Console, then you can install it with the Software Deployment wizard. To do so, select **Install Additional Software** \Rightarrow **SAS Configuration Manager**.

3. Expand **SAS Application Infrastructure**.
4. Right-click **ITRM Report Center 3.6** and select **Properties**.
5. On the **Advanced** tab, the following window appears:

Figure 10.11 Advanced Tab of ITRM Report Center Properties



Specify the following parameter:

- **WatchListItemCount** specifies the limit for watch list items.

6. Click **OK**. The change takes effect immediately.

Note: You can use this method to increase or decrease the number of items in the watch list.

Update the List of Available Alerts

At installation, SAS IT Resource Management supplies a list of notification types. This list is accessible to a SAS administrator. You can change the list of available alerts that are presented in this window.

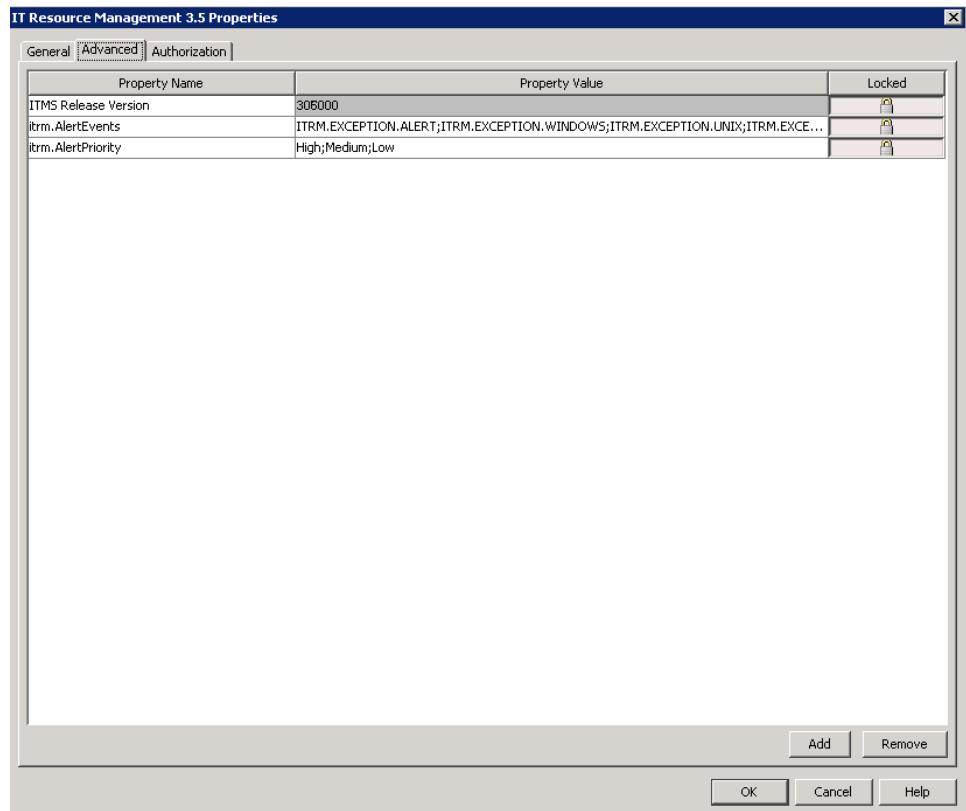
CAUTION:

Exercise caution with this procedure. Removing alerts might adversely affect users who depend on receiving existing alerts.

To update the list of available alerts, perform the following steps:

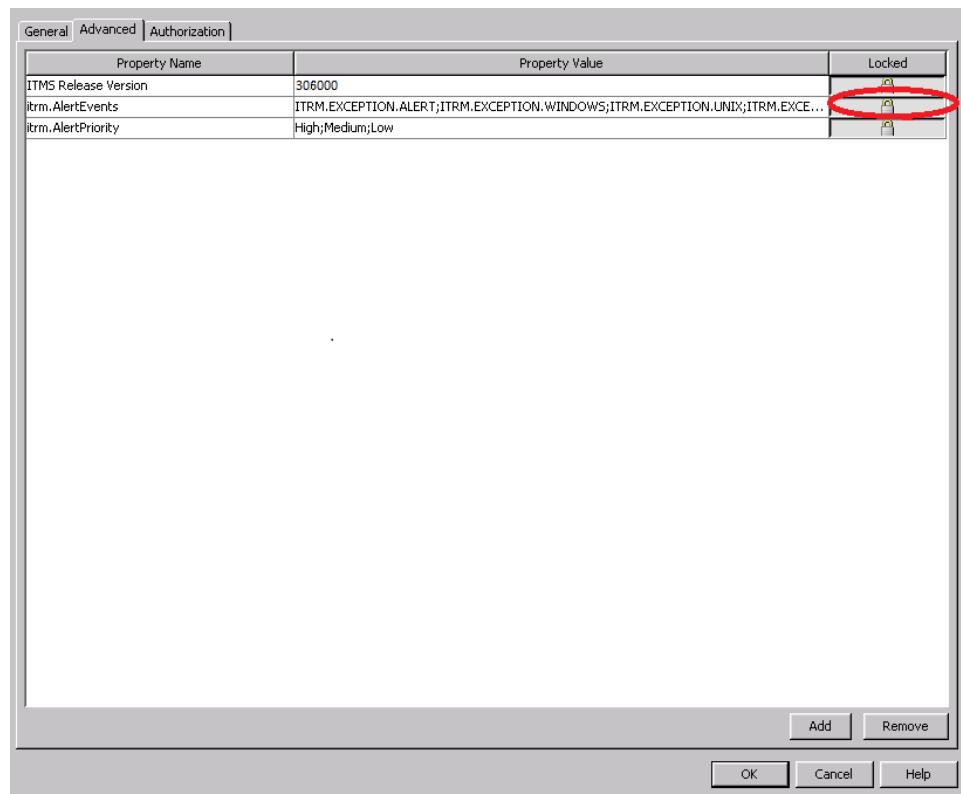
1. Sign in to SAS Management Console as the SAS administrator.
2. In the left pane, navigate to the Application Management section. Click **Configuration Manager** to open it. Right-click **IT Resource Management 3.6** and select **Properties**.
3. Select the **Advanced** tab. The IT Resource Management 3.6 Properties dialog box appears.

Figure 10.12 Application Management Properties Dialog Box



The list of available alerts is shown on the **itrm.AlertEvents** line of this dialog box. As the SAS administrator, you can edit the **ITRM AlertEvents** and **AlertPriority** items in the Property Value column shown in the previous display.

4. Click the Lock icon () on the **itrm.AlertEvents** line to unlock that property.

Figure 10.13 Unlocking the `itrm.Alert.Event` Property

- Double-click the **Property Value** field for the **itrm.Alert.Event** property.
- Position your cursor at the beginning of the field and enter your new alert. Alerts must be separated by semicolons.

Note: Alerts must begin with this text: **ITRM.EXCEPTION.**. For example, your new alert might be coded as this: **ITRM.EXCEPTION.NEWAALERT**.

- Click the Unlock icon () to lock the property. Click **OK**.

Add a User-Defined Report Occurrence to ITRM Report Center

To add a user-defined report occurrence such as **StartofQtr** or **StartofYear** as filter options to use in ITRM Report Center, perform the following steps:

- Open SAS Management Console with SAS administrator login credentials.
- On the **Plug-ins** tab, select **Application Management** ⇒ **Configuration Manager** ⇒ **SAS Application Infrastructure**.

Note: The Configuration Manager is installed as part of the SAS web infrastructure client. If you do not see this plug-in in SAS Management Console, then you can install it with the Software Deployment wizard. To do so, select **Install Additional Software** ⇒ **SAS Configuration Manager**.

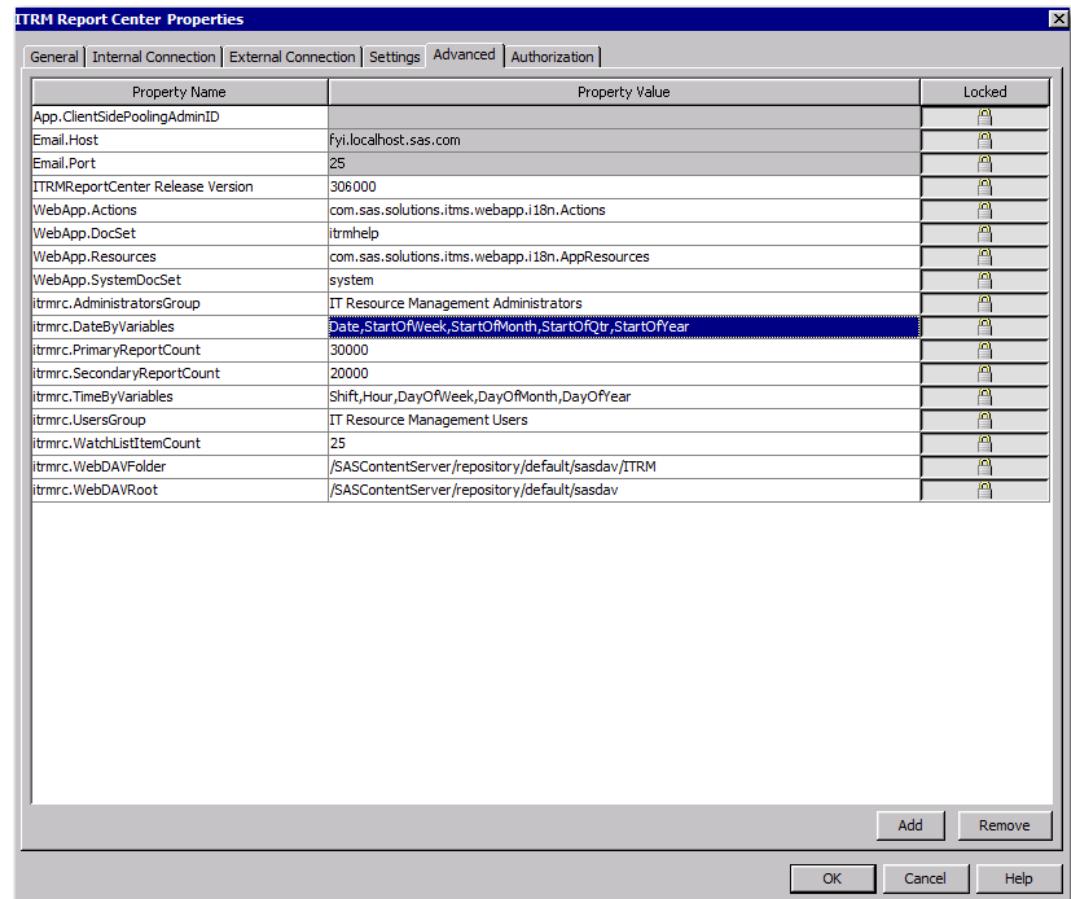
Adding the columns in SAS Management Console makes them available in ITRM Report Center. However, you can select from them only if there are reports in SAS Content Server that contain these values. Therefore, you can add any label if you also use it in your reports.

- Expand **SAS Application Infrastructure**.

4. Right-click **ITRM Report Center 3.6** and select **Properties**.
5. On the **Advanced** tab, add the user-defined report occurrence to the **itrmrc.DateByVariables** parameter. As shown in the following example, you can add **StartOfQtr** and **StartOfYear** to the **Property value** field.

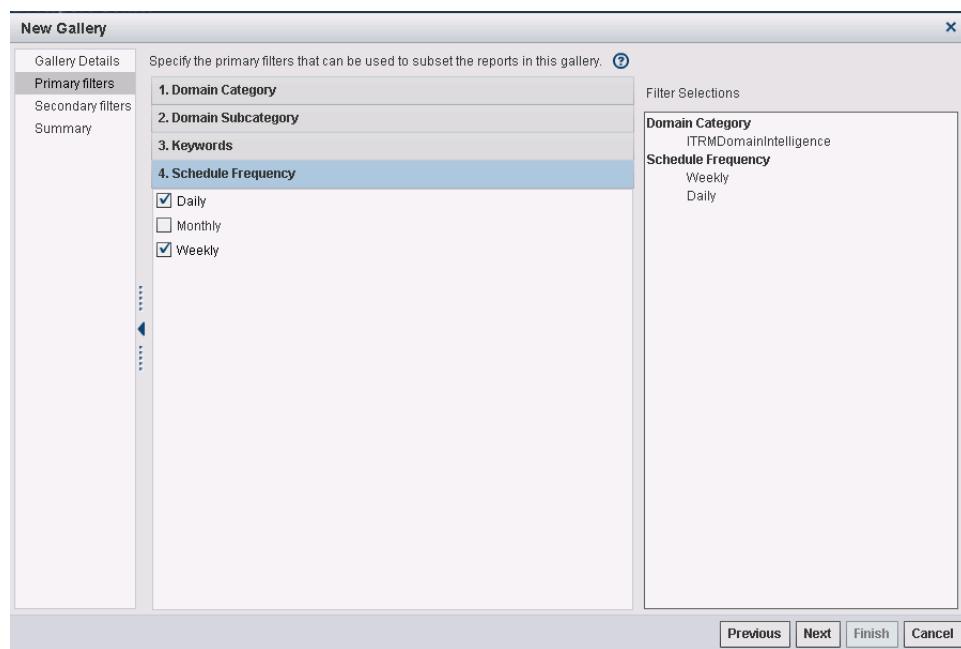
Note: SAS IT Resource Management is installed with these BY variables in place on this tab: **Date**, **StartOfWeek**, and **StartOfMonth**.

Figure 10.14 Advanced Tab of the Properties Window



6. Restart the ITRM Report Center web application.
7. In the Create Gallery and Edit Gallery wizards, you can select these additional date-based periods to use as filters for the gallery that you are working with. Therefore, you can display the corresponding date-based BY variable in that gallery.

Note: To do so, you must have reports in the SAS Content Server that contains these date-related BY variables.

Figure 10.15 Select More Time Periods in the ITRM Report Center Wizards

The new report occurrence options filter reports that contain the corresponding value in their BY variables list. Scroll down to see the other date-related BY variables.

Other Administrative Tasks

Back Up Reports on the SAS Content Server

To back up your SAS IT Resource Management reports, you must back up the SAS Content Server that stores the reports. Administrators should back up the SAS Content Server on a regular basis. The administrator should also back up the SAS Content Server before manually deleting any reports from the SAS Content Server.

For more information about backing up reports, see Appendix 9, “Best Practices and Troubleshooting Tips,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Part 4

Interactive Reporting and Using the SAS Portal and SAS BI Dashboard

<i>Chapter 11</i>	About Interactive Reporting	121
<i>Chapter 12</i>	Using SAS Enterprise Guide Interactively	123
<i>Chapter 13</i>	Using SAS Web Report Studio Interactively	127
<i>Chapter 14</i>	Using SAS Add-In for Microsoft Office Interactively	133
<i>Chapter 15</i>	Using SAS Portal for Communicating IT Domain Intelligence	137
<i>Chapter 16</i>	Using SAS BI Dashboard	141
<i>Chapter 17</i>	Working with SAS Visual Analytics	145

Chapter 11

About Interactive Reporting

Overview of Interactive Reporting	121
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Overview of Interactive Reporting

The recommended method for generating, managing, and viewing SAS IT Resource Management reports is to run the report jobs that were created by the Adapter Setup or Add Domain Category wizard or by user-specified Performance Report transformations. The report jobs are typically run in batch mode and the resulting reports are managed and viewed in ITRM Report Center. However, there are situations that require reports to be generated interactively (for example, when performing specific IT performance analysis or when developing a new report). SAS provides the following solutions that enable you to run or view reports interactively:

- SAS Enterprise Guide
- SAS Web Report Studio
- SAS Add-In for Microsoft Office
- SAS Information Delivery Portal
- SAS BI Dashboard
- SAS Visual Analytics Administration and Reporting

These solutions are discussed briefly in the following chapters of this reporting guide.

Chapter 12

Using SAS Enterprise Guide Interactively

Overview of SAS Enterprise Guide	123
What Is SAS Enterprise Guide?	123
How to Start SAS Enterprise Guide	123
Accessing IT Data Marts Using SAS Enterprise Guide	124
Accessing SAS IT Resource Management Projects with SAS Enterprise Guide ..	124
Locating SAS Enterprise Guide Documentation	125

Overview of SAS Enterprise Guide

What Is SAS Enterprise Guide?

SAS Enterprise Guide is a Microsoft Windows client application that provides a guided mechanism to exploit the power of SAS. SAS Enterprise Guide uses projects to manage a collection of related data, tasks, code, and results. With projects, you can run multiple tasks on the same group of data files and create interactive or ad hoc reports.

SAS Enterprise Guide provides comprehensive report tasks and reporting services that SAS IT Resource Management uses to generate analysis and intelligence about your IT resources. You can use the supplied IT Resource Management EG projects to run the supplied reports interactively or you can create your own. For more information, see “[About the ITRM Report Definition Task](#)” on page 57.

How to Start SAS Enterprise Guide

To launch SAS Enterprise Guide, select **Start** \Rightarrow **Programs** \Rightarrow **SAS** \Rightarrow **Enterprise Guide**.

The Welcome to SAS Enterprise Guide dialog box appears.

Figure 12.1 Welcome to SAS Enterprise Guide Dialog Box



You can select any of the options in the Welcome window.

Note: Make sure you have access to the project that you want to work with.

Accessing IT Data Marts Using SAS Enterprise Guide

Before you begin working with SAS Enterprise Guide projects, you must use the functions of SAS Enterprise Guide in order to perform the following tasks:

- Set up SAS Enterprise Guide so that it can work with SAS IT Resource Management data.
- Migrate SAS Enterprise Guide projects so that they can work with your SAS IT Resource Management 3.6 IT data marts, in which you created the report data

For more information about how to complete these tasks, see “[Preparing to Work with SAS Enterprise Guide](#)” on page 46.

Accessing SAS IT Resource Management Projects with SAS Enterprise Guide

The report projects that are supplied by SAS IT Resource Management are available on each client where SAS IT Resource Management is installed. They can be accessed by navigating to the location where you installed SAS IT Resource Management. The projects are located at

`SASITResourceManagementSASEnterpriseGuideComponents\3.6`. For example, if you installed SAS IT Resource Management on a 64-bit machine, the projects might be located at `C:\Program Files\SASHome\SASITResourceManagementSASEnterpriseGuideComponents\3.6`.

Only copies of those projects that are supplied by SAS IT Resource Management should be edited. Copy the projects to a location on your client and then work with those projects by navigating to them in the Server List window. Then, double-click the project to open it.

Note: If the Server List window is not displayed on your desktop, click **View** on the **SAS Enterprise Guide** menu bar. From the drop-down list, select **Server List**.

For more information, see [Chapter 6, “Working with Supplied SAS Enterprise Guide Projects,” on page 41](#) and [“Managing SAS Enterprise Guide Projects for SAS IT Resource Management” on page 184](#).

Locating SAS Enterprise Guide Documentation

From the menu bar of SAS Enterprise Guide, you can click **Help** to access the Help and a getting started tutorial. You can also access the following resources by selecting **Help** \Rightarrow **SAS on the Web**:

- the home page for SAS Enterprise Guide
- the product documentation page for SAS Enterprise Guide
- SAS online resources for statistics education
- SAS Technical Support resources
- the form for submitting feedback about any SAS product
- hotfixes for SAS Enterprise Guide
- the SAS home page

These web pages open in your default web browser.

For information about administrative tasks that are associated with SAS Enterprise Guide, use the A-Z index at <http://support.sas.com/documentation/index.html> to locate the documentation that is available for this product.

Chapter 13

Using SAS Web Report Studio Interactively

Overview of SAS Web Report Studio	127
About SAS Web Report Studio	127
Log On to SAS Web Report Studio as a Registered User	127
Access SAS IT Resource Management Information Maps to Generate a Report in SAS Web Report Studio	129
Emailing Web Report Studio Reports	130
Locating SAS Web Report Studio Documentation	131

Overview of SAS Web Report Studio

About SAS Web Report Studio

SAS Web Report Studio is a web-based query and reporting application that is provided by the business intelligence components of the SAS Intelligence Platform. It is designed for users who want to generate reports, view them, and share them with others on the web. The application provides several ways to create reports by using a wizard and templates. It can also execute stored processes.

SAS Web Report Studio uses as its reporting data source information maps that translate technical data structures into user-friendly business terminology. Specific to SAS IT Resource Management, information maps are supplied for most aggregated tables and can be created for any other tables available in the IT data mart. Information maps can be created through the SAS IT Resource Management Information Map transformation that is available from the SAS IT Resource Management client or directly through SAS Information Map Studio.

Log On to SAS Web Report Studio as a Registered User

To log on to SAS Web Report Studio, perform the following steps:

1. To display the SAS Web Report Studio logon window, click on the URL that is supplied by your system administrator or paste it into the address field of your browser. For example, you might enter <http://server01.abc.com:8080/SASWebReportStudio>. The following window appears.

Figure 13.1 SAS Web Report Studio Log On Window

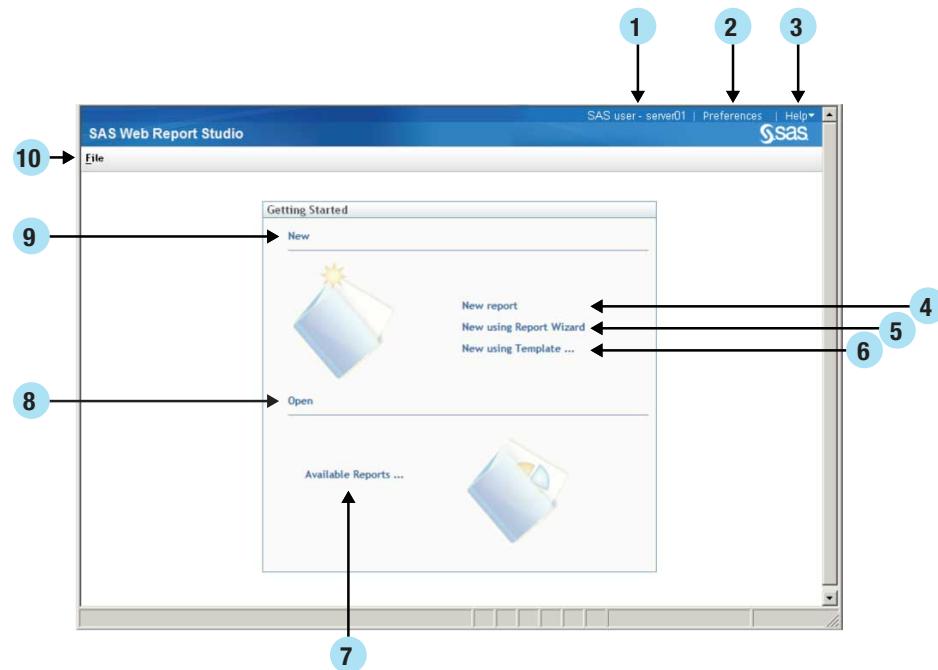
2. In the **User name** field, enter your user ID.

In the **Password** field, enter the password for the user ID that you just entered.

Note: Your password is case-sensitive. Your user ID might be case-sensitive, depending on the operating system that is used to host the web application server. If you need assistance, contact your system administrator.

3. Click **Log On**.

The following display shows the SAS Web Report Studio window that appears after you log on.

Figure 13.2 The Welcome Window

The following actions, which correspond to the numbers on the preceding display, can be invoked from this window:

- 1 Click **Log Off** to exit SAS Web Report Studio. When you select log off, you are logged off all environments, including the SAS OLAP server and other web environments.
- 2 Click **Preferences** to personalize your use of SAS Web Report Studio.

- 3 Select the **Help** menu to get help on using SAS Web Report Studio.
- 4 Click **New report** to create a new report using the **Edit** tab.
- 5 Click **New using Report Wizard** to access the Report Wizard. The wizard guides you in defining a query; selecting a table and graph for the layout; and adding optional features such as group breaks, a header, and a footer.
- 6 Click **New using Template** to access the Select a Template dialog box. When you select a template, you start creating your report with a predefined layout.
- 7 Click **More Reports** to access the Open dialog box. The **Open** dialog box enables you to search for reports, and it lists reports, stored processes, folders, and information maps.
- 8 Click **Open** to access the **Open** dialog box. The **Open** dialog box enables you to search for reports, and it lists reports, stored processes, and folders.
- 9 Click **New** to create a new report using the **Edit** tab.
- 10 Select the **File** menu to access task options, such as **Open and Manage Files**.

Note: For more information about these actions, see the *SAS Web Report Studio: User's Guide*.

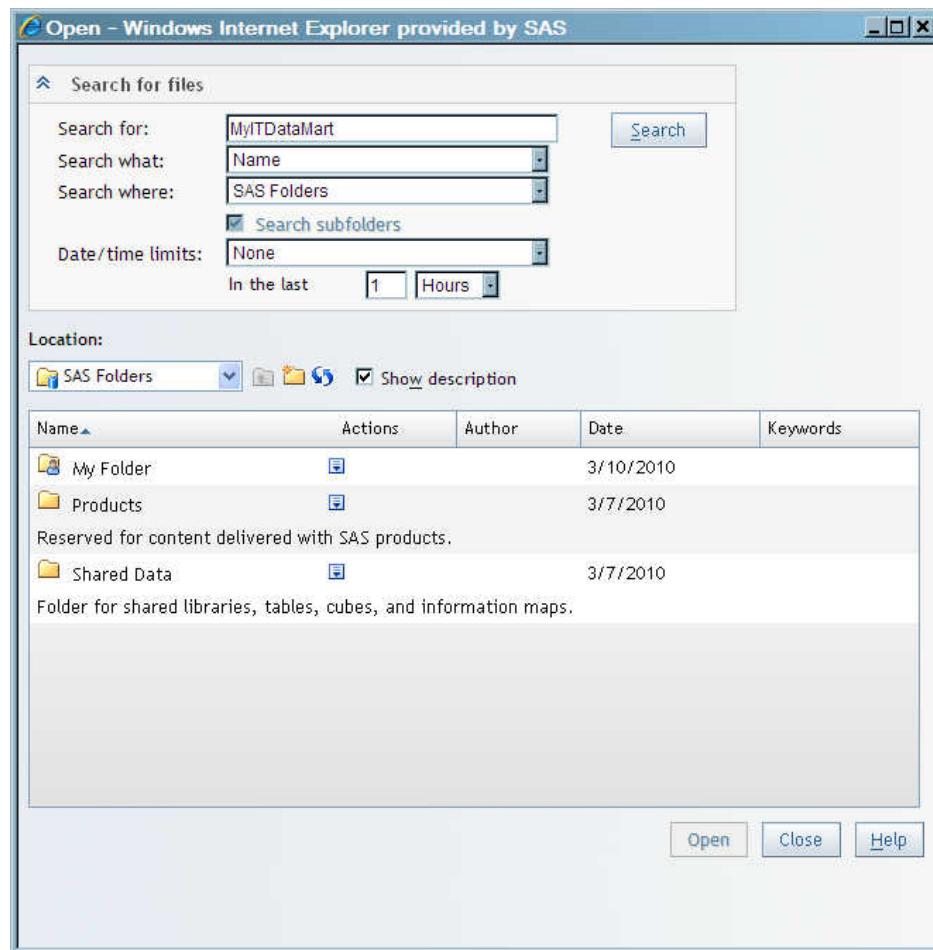
Access SAS IT Resource Management Information Maps to Generate a Report in SAS Web Report Studio

To create a report by using SAS Web Report Studio with an information map as the data source, perform the following steps:

1. From the menu bar of the Welcome window of SAS Web Report Studio, select **File** \Rightarrow **Open**. Alternatively, you can click **Open** on the Welcome window.

The Open dialog box is displayed.

Figure 13.3 The Open Dialog Box



2. You can search in **Shared Data/SAS IT Resource Management/IT Data Marts** for the information map that you want to use as the data source. To navigate through these folders, select the folder and click **Open**. Alternatively, you can double-click the folder to display its contents.
3. Double-click the information map in the Open dialog box. The new report opens in View mode.

Note: When the information map is run, it accesses the corresponding data items that are in the tables of aggregation data that are the input to the job that generated the information map.

Emailing Web Report Studio Reports

Reports can be shared with others or kept in private folders based on security settings. Certain pages of reports can be distributed to authorized users via email. For information about how to email reports, see Chapter 25, “Sharing Reports,” in the *SAS Web Report Studio: User’s Guide*.

Locating SAS Web Report Studio Documentation

There are two ways to access Help from within SAS Web Report Studio:

- Select **Help** \Rightarrow **Contents** or **Help** \Rightarrow **Using this Window**.

Note: The **Contents** tab enables you to access the *SAS Web Report Studio: User's Guide*.

- Click **Help**, which is available from any SAS Web Report Studio dialog box or wizard page.

For information about administrative tasks that are associated with SAS Web Report Studio, use the A-Z index at <http://support.sas.com/documentation/index.html> to locate the documentation that is available for this product.

Chapter 14

Using SAS Add-In for Microsoft Office Interactively

SAS Add-In for Microsoft Office and SAS IT Resource Management Data	133
About SAS Add-In for Microsoft Office	133
How to Access SAS Add-In for Microsoft Office	133
Using SAS Add-In for Microsoft Office to Access SAS IT Resource Management Data	134
Use SAS Tools to Analyze Your Data in Microsoft Excel	134
Create Stored Processes	135
Execute a Stored Process from SAS Add-In for Microsoft Office	135
Publish Results to a Central Location	136
Locating SAS Add-In for Microsoft Office Documentation	136

SAS Add-In for Microsoft Office and SAS IT Resource Management Data

About SAS Add-In for Microsoft Office

The SAS Add-In for Microsoft Office extends the functionality of Microsoft Excel, Microsoft Word, and Microsoft PowerPoint by enabling you to access SAS analytics and SAS reporting functionality without any SAS programming experience.

The SAS add-in includes approximately 80 SAS tasks that enable you to perform a variety of analyses. Examples of analyses that you can perform include linear and nonlinear regressions, multivariate analyses, time series analyses, one-way frequencies, and summary statistics. The SAS add-in enables you to refresh these analyses so that your results include the most up-to-date information. You can also easily share the results with others at your site.

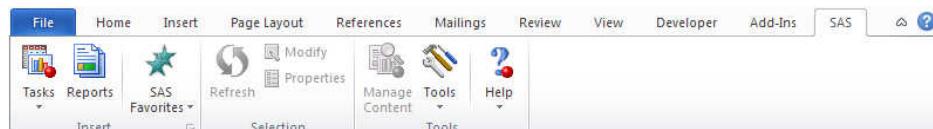
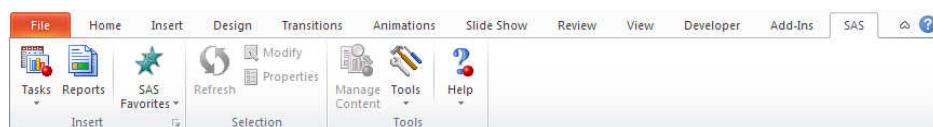
How to Access SAS Add-In for Microsoft Office

As the SAS IT Resource Management client is installed, the SAS add-in is installed on your computer. As such, a **SAS** tab is automatically integrated into the Ribbon in Microsoft Excel, Word, and PowerPoint 2010. The **SAS** tab enables you to access SAS analytics and reporting functionality directly from these Microsoft Office programs without having to open a separate SAS interface.

When you select the **SAS** tab from the **Microsoft Excel** menu bar, the **Ribbon** menu bar with SAS options and functionality is displayed:

Figure 14.1 SAS Tab Functionality in the Microsoft Excel Ribbon

As shown in the following two displays, similar functions and options are available when the SAS tab is selected from the menu bars of Microsoft Word and Microsoft PowerPoint.

Figure 14.2 SAS Tab Functionality in the Microsoft Word Ribbon**Figure 14.3** SAS Tab Functionality in the Microsoft PowerPoint Ribbon

Note: The instructions and screenshots in this chapter are specific to Microsoft Office 2007-2010. If you are using Microsoft Office 2000-2003, you can perform the tasks described in this chapter. However, the SAS options are located in the SAS menu rather than the SAS tab.

To locate more information about using SAS Add-In for Microsoft Office, navigate to the website at <http://support.sas.com/documentation/index.html>. Use the A-Z index to select **SAS Add-In for Microsoft Office**.

Using SAS Add-In for Microsoft Office to Access SAS IT Resource Management Data

Use SAS Tools to Analyze Your Data in Microsoft Excel

When you open Microsoft Excel 2010, you should see a SAS tab in the Ribbon. You access the SAS add-in from the menu options on this tab.

You can perform a variety of tasks using the SAS add-in. The following process briefly explains how you would run a SAS analysis:

1. Open Microsoft Excel.
2. Select the data source that you want to work with. In Excel, you can use data in an existing Excel worksheet or in a SAS data source. If you select a SAS data source, you can choose to filter and sort the data before the analysis.

Note: If the SAS data source is open in an Excel worksheet, then the task uses the filter and sort criteria that you specified when opening the data source.

3. Select the analysis that you want to perform.

Note: After you select the analysis, you might be prompted to log on to the SAS server if you have not previously logged on during the current session. You must be connected to a SAS server to run an analysis or to access a SAS data source.

4. Select the options in the analysis that you want to use and then run the analysis.
5. Specify the location of the output. For example, in Excel, you can choose to include the results in the existing worksheet, in a new worksheet, or in a new workbook. The results automatically open in Excel in the location that you chose.

Note: The SAS add-in is also available in Microsoft Word and PowerPoint.

Create Stored Processes

SAS Add-In for Microsoft Office enables users to run stored processes and customize the appearance of results that are returned by Microsoft Word or Microsoft Excel. A stored process is a SAS program that is hosted on a server and described by metadata. Stored processes can be written by anyone who is familiar with the SAS programming language or with the aid of a SAS code generator such as SAS Enterprise Guide. The basic steps to creating a stored process are as follows:

- Write the stored process.
- Choose or define a server.
- Register the metadata.

For information about how to perform these steps to create a stored process, see the *SAS 9.4 Stored Processes: Developer's Guide*, which can be found at <http://support.sas.com/documentation/index.html>. Use the A-Z index to locate this documentation.

Execute a Stored Process from SAS Add-In for Microsoft Office

To run a stored process from SAS Add-In for Microsoft Office, perform the following steps:

1. If you are using Microsoft Office 2007-2010, select the **SAS** tab in the Ribbon.
If you are using Microsoft Office 2000-2003, select **SAS** \Rightarrow **Reports**.
The Reports window appears.
2. Select the stored process that you want to run and click **Open**. If the stored process that you want to run is not available, you might want to refresh your list of stored processes.

Note: You can also run the stored process by right-clicking the stored process and selecting **Open** from the pop-up menu.

3. Specify information for any prompts that appear. These prompts for user-supplied values are defined when the stored process is created.

After you have specified values for any required parameters, the results of the stored process open in the worksheet, document, or presentation.

Note: If the stored process produces streaming results and your image format is not set to ActiveX, then any graphs that the stored process generates cannot be displayed. For more information, see the Help for SAS Add-in for Microsoft Office.

Publish Results to a Central Location

By publishing a document, you can share it with others without having to email it. If you publish the document to a metadata repository, then you can perform an impact analysis on the document. Impact analysis enables you to see where a data source came from and the items that are dependent on this source. This analysis enables you to know how changing a data source might affect other documents.

Note: To publish a document, the SAS support personnel at your site must have installed SAS Web Report Studio on the same metadata server.

Locating SAS Add-In for Microsoft Office Documentation

From the SAS Ribbon bar of Microsoft Word, Excel, or PowerPoint, you can click **Help** to access the SAS Help for the products that are included in SAS Add-In for Microsoft Office. In addition, *SAS Add-In 7.1 for Microsoft Office: Getting Started in Microsoft Excel, Microsoft Word, and Microsoft PowerPoint* can be found at <http://support.sas.com/documentation/index.html>.

Use the A-Z index to locate the documentation that is available for this product.

Chapter 15

Using SAS Portal for Communicating IT Domain Intelligence

Overview of SAS Information Delivery Portal	137
About SAS Information Delivery Portal	137
How to Access SAS Information Delivery Portal	137
How to Log Off from the Portal	138
How to Content Is Organized in the Portal	138
Locating SAS Information Delivery Portal Documentation	140

Overview of SAS Information Delivery Portal

About SAS Information Delivery Portal

The SAS Information Delivery Portal (or simply, the portal) is a web application that provides a single, easy-to-use interface from which you can access a broad range of enterprise information. This information includes reports, charts, web applications, documents, and links to internal or external web pages. The portal gives you access to information that is produced through the analytical capabilities of SAS, and provides a single access point to SAS output.

Your organization can use the portal to deliver important and timely business intelligence efficiently to employees, customers, partners, and vendors. The portal provides a secure environment for your business intelligence so that users see only the information that they have security rights to access.

The portal's personalization features enable you to create and customize your own web pages and content. You can organize your personal portal so that it contains only the information that you need, in the format that makes the most sense to you. From the portal, you can subscribe to publication channels that deliver continually updated information to your desktop. The portal also provides a secure environment for sharing information with other users.

How to Access SAS Information Delivery Portal

To open the SAS Information Delivery Portal, open your web browser and point it to the portal's URL. To obtain the URL, contact your administrator.

To identify yourself to the portal, you must log on with your user name and password. (If you do not have a user name and password, contact your administrator to obtain them.)

After you log on, you can do the following tasks:

- Personalize your view of the portal by adding pages, portlets, and content items and modifying or rearranging them to meet your unique needs. Each time you log on, your own personalized view of the portal is displayed.
- Search for and view protected content that your user name and password authorize you to access.
- Launch other applications that might be available from the portal, without the need to re-enter your user name and password.

The logon procedure varies depending on how your organization has installed the portal. Use either the portal logon procedure or the web server logon procedure, as appropriate.

- If your organization uses the portal's logon feature, open your browser and point to the portal's URL. When the portal's logon page appears, enter your User Name and Password. Then click **Log On** to open your personal portal.
- Organizations that use the web server logon, have different logon procedures. After you have logged on to the web server, open your personal portlet by pointing your browser to the portal's URL.

Note: The portal supports only one user session per browser instance. Different portal users can have different sessions in separate browser instances, but not in separate tabs in the same browser instance.

How to Log Off from the Portal

When you are finished using the portal, you should log off in order to close your portal session. Logging off releases the system resources that you were using. (Your portal session continues to use system resources until the session expires, even if you closed the browser window.)

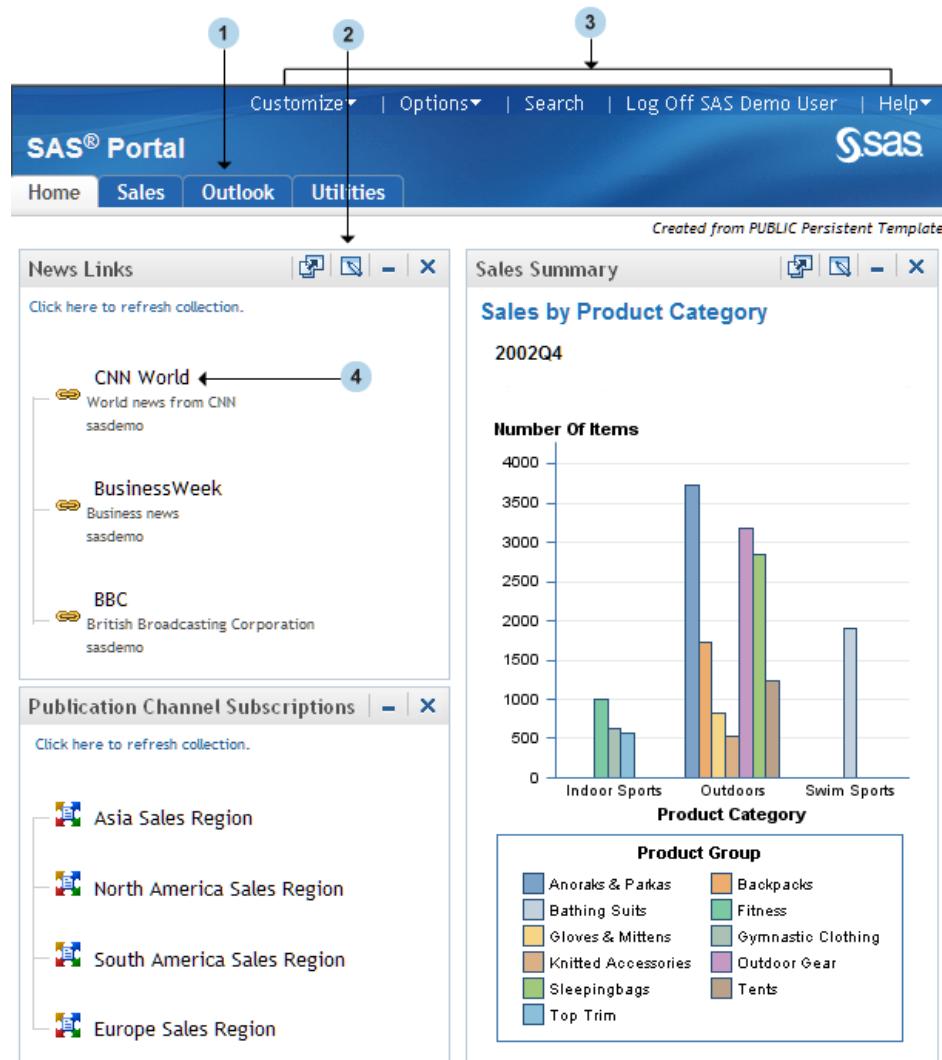
To log off, click **Log Off** in the banner. Then close the browser window.

How to Content Is Organized in the Portal

The following figure is an example of a portal.

Note: Your organization might customize the portal so that it looks different from the example shown here.

Figure 15.1 Information Delivery Portal



- 1 The navigation bar contains links for your portal web pages. You open a different page by clicking its name in the navigation bar. In the display, the portal's Home page is the active web page. Notice that the Home link is highlighted on the navigation bar.
- 2 Portlets are the rectangular display components of a portal page that contain links, graphs, reports, and other information that is available in the portal. You can edit the contents of some portlets. To edit, remove, or minimize a portlet, use the icons in the portlet title bar.
- 3 The banner provides links that enable you to customize your portal and personalize your portal by means of the **Options** button. The banner also provides search, log off, demonstration, and help features.
- 4 The portal links enable you to view information or launch applications that are available to you through the portal by clicking any active link that is displayed inside a portlet.

For information about the type of content that the portal can contain and how to add, view, and manage the portal's content, see the documentation that is available for SAS Information Delivery Portal.

Locating SAS Information Delivery Portal Documentation

To access Help from within SAS Information Delivery Portal, click **Help** in the banner.

For more information about SAS Information Delivery Portal, use the A-Z index at <http://support.sas.com/documentation/index.html> to locate the documentation that is available for this product.

Chapter 16

Using SAS BI Dashboard

Overview of SAS BI Dashboard	141
About SAS BI Dashboard	141
Log On to SAS BI Dashboard	142
Locating SAS BI Dashboard Documentation	143

Overview of SAS BI Dashboard

About SAS BI Dashboard

Dashboards provide a way to view data. Users can quickly view critical information in a compact, easy to interpret interface. Dashboards can display key performance indicators in one place to help users monitor information throughout an enterprise. By using the new dashboard designer and dashboard viewer, you can create a single dashboard that contains multiple indicators instead of creating a portal page with multiple dashboard portlets. Coordinating the look and feel of your dashboard and indicators is easier than ever.

A dashboard is a container that is nested within a portlet and that contains one or more indicators. An indicator is a composite of one or more related objects. Each indicator has a data source, one or more gauges, hyperlinks to additional information, and range settings for the gauges. Dashboards display critical information in such a way that the information can be interpreted and monitored at a glance. Dashboards can also contain links to other pertinent information, important summary and highlights, and personalized information such as weather, news, and stock news. Here is an example dashboard that contains three dashboards that use different data sources:

Figure 16.1 Example of the SAS BI Dashboard



The SAS BI Dashboard enables users to use dashboards to monitor key performance indicators that convey how well an organization is performing. As shown in the preceding display, dashboards include graphics, text, colors, and hyperlinks. The preceding dashboard shows multiple indicators and each indicator has its own data model underneath. These indicators are driven by six different SQL queries, but the data models could be all information maps, all scorecards, or some combination of these types. This dashboard displays gauges, graphs, bar charts, line plots, and a map.

Dashboards are created, maintained, and viewed through an easy-to-use web-based interface. All content is displayed in a role-based, secure, customizable, and extensible environment. Information consumers and performance analysts can customize how information appears on their personal dashboards.

SAS BI Dashboard enables users to create their own dashboards from a variety of data sources, including information maps and SAS data sets. Users can link dashboards to SAS business intelligence objects or to external URLs, and users can customize the visualization of the data in a number of ways. For more information about the SAS BI Dashboard, see the *SAS BI Dashboard: User's Guide*.

Log On to SAS BI Dashboard

The SAS BI Dashboard is accessed from within the SAS Information Delivery Portal. The current logon information from the portal is provided to the SAS BI Dashboard. Therefore, the SAS BI Dashboard appears immediately, without the need to log on. For more information, see the Help for SAS Information Delivery Portal.

To access SAS BI Dashboard, open the SAS Information Delivery Portal and log on. To do so, perform the following steps:

1. Open your web browser and point it to the portal's URL. To obtain the URL, contact your portal administrator.
2. To identify yourself to the portal, log on with your user name and password. If you do not have a user name and password, contact your system administrator to obtain them.

The logon procedure varies depending on how your organization has installed the portal. Use either the portal logon procedure or the web server logon procedure, as appropriate.

3. If your organization uses the portal's logon feature, do the following:
 - a. Open your browser and point to the portal's URL.
Note: To obtain the web address, contact your portal administrator.
 - b. On the logon page, enter your user name and password.
 - c. Click **Log On**. Your personal portal opens. Typically, most portal users see a page that contains a collection portlet (My Collection) and a bookmark portlet (Bookmarks).

Locating SAS BI Dashboard Documentation

Online Help for the SAS BI Dashboard is available from within the product. For more information, see the *SAS BI Dashboard: User's Guide*, which is available at <http://support.sas.com/documentation/index.html>. Use the A-Z index to locate the documentation for this product.

Chapter 17

Working with SAS Visual Analytics

SAS Visual Analytics	145
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SAS Visual Analytics

SAS IT Resource Management customers can use SAS Visual Analytics Administration and Reporting to visually explore SAS IT Resource Management data. Customers can design and create reports. They can also view and interact with those reports on the web or on a mobile device such as a tablet. SAS Visual Analytics provides access to the SAS LASR Analytic Server, which is an in-memory engine specifically designed for analytic processing in a scalable manner.

For more information, see the following topics that are in *SAS IT Resource Management 3.6: Administrator's Guide*:

- “Macros for Visual Analytics Integration,” in Appendix 8, “Macros”
- “Integrating Visual Analytics with SAS IT Resource Management” in Appendix 9, “Best Practices and Troubleshooting Tips”
- Appendix 14, “Using SAS Visual Analytics Designer”

Part 5

Appendices

<i>Appendix 1</i>	Naming Standards for Reporting Objects	149
<i>Appendix 2</i>	Reporting Standards for SAS IT Resource Management Reports	153
<i>Appendix 3</i>	Troubleshooting and Debugging Tips	161
<i>Appendix 4</i>	Best Practices	183
<i>Appendix 5</i>	Setting Up Web Links in Tile Charts	189
<i>Appendix 6</i>	Report Conversion Guide	195

Appendix 1

Naming Standards for Reporting Objects

About Naming Standards for SAS IT Resource Management Reporting Objects	149
Naming Standards and Location of Objects	149
Information Maps	149
Supplied SAS Enterprise Guide Projects	151
Performance Report Transformations and Report Jobs	151
Exception Definitions, Exception Transformations, and Exception Jobs	152

About Naming Standards for SAS IT Resource Management Reporting Objects

SAS IT Resource Management uses specific naming conventions and locations when naming and saving the various reporting components that it supplies and creates. These conventions simplify the management and maintenance of the objects that are interrelated for IT reporting in SAS Enterprise Guide, the SAS IT Resource Management client, and the ITRM Report Center.

For consistency and efficiency, if you choose to create or edit SAS Enterprise Guide projects, report definitions, Performance Report transformations, or any other reporting component for your IT resource data, then use the same naming and storage conventions that SAS IT Resource Management uses.

Naming Standards and Location of Objects

Information Maps

The following table describes the standard naming conventions and storage locations that SAS IT Resource Management uses when creating and saving the various objects that are associated with information maps.

Object	Naming Convention	Location
information map	<p>An information map has the same name as its corresponding source table.</p> <p>(Example: MonthShiftDisk)</p>	<p>In the IT Data Marts tree: $<IT\ data\ mart\ name>\Leftrightarrow<adapter\ type>\Leftrightarrow<number>\Leftrightarrow\text{Domain}\ Categories\Leftrightarrow<domain\ category>$.</p>
information map filter (date type)	<p>Includes descriptive words that show the performance area first, then a descriptor, the type of metric, and a statistic.</p> <p>(Examples: MemoryUsagePctWMean, PagesFreedRateMax)</p> <p><i>Note:</i> The format of the name must be in mixed case with no spaces.</p>	<p>In the Information Map transformation that is part of the information map job. Information map filters are available on the Information Map Parameters tab of the Information Map transformation properties.</p>
information map filter (statistic type)	<p>Includes descriptive words and components that are based on the following guidelines:</p> <ul style="list-style-type: none"> The first two characters (if the filter is based on a rank column from a joined table) show which level the column comes from. For example, D_ for Day level table, W_ for Week level table, M_ for Month level table, or nothing when it is not from a joined table. The text string Top or Bot corresponds to ascending or descending order. The data item name on which the column is based, when appropriate, is included. The text string DescRank or AscRank is included to show the rank order when appropriate. The format of the name must be mixed case with no spaces. <p>(Examples: BotMemoryAvailableMB, TopCpuBusyPct)</p>	<p>In the Information Map transformation that is part of the information map job. Information map filters are available on the Information Map Parameters tab of the Information Map transformation properties.</p>
information map job	<p>$<domain\ category>\ \text{Information}\ \text{Map}$</p> <p>(Example: Disk Information Map)</p>	<p>In the IT Data Marts tree: $<IT\ data\ mart\ name>\Leftrightarrow<adapter\ type>\Leftrightarrow<number>\Leftrightarrow\text{Domain}\ Categories\Leftrightarrow<domain\ category>$.</p>
Information Map transformation	<p>$<time\ period>\Leftrightarrow<measurement\ category>$</p> <p>(Example: MonthShiftDisk)</p> <p><i>Note:</i> The name must be the same name as the aggregation table that it uses. It cannot contain double quotation marks.</p>	<p>An active Information Map transformation is in the information map job. A template to create your own Information Map transformation is in the Transformations tree in the SAS IT Resource Management folder.</p>

Supplied SAS Enterprise Guide Projects

The following table describes the standard naming conventions and storage locations that SAS IT Resource Management uses to name and save the various objects that are associated with the supplied SAS Enterprise Guide projects.

Object	Naming Convention	Location
project	<Adapter><DomainCategory> (Example: DTPerfSentryServerSystem.egp)	Windows: Program Files/SASHome / SASITResourceManagementSAS EnterpriseGuideComponents/ 3.6.
process flow	<TimePeriod> Job <DataSourceName> (Example: DayJobDetailSystem)	An active Performance Report transformation is in the reporting job. A template to create your own Performance Report transformation is in the Transformations tree in the SAS IT Resource Management folder. <i>Note:</i> Transformation names cannot contain double quotation marks.
ITRM Report Definition task	<Resource><FilterDescription> <GraphType><TimePeriod> (Example: SystemCpuHighUsagePlotForTheDay)	The last object in a branch of a process flow in a SAS Enterprise Guide project. <i>Note:</i> The ITRM Report Definition task name is the same as the report definition that it creates.

Performance Report Transformations and Report Jobs

The following table describes the standard naming conventions and storage locations that SAS IT Resource Management uses to name and save Performance Report transformation, report jobs, and their reporting components.

Object	Naming Convention	Location
report definitions	<Resource><FilterDescription> <GraphType><TimePeriod> (Example: SystemCpuHighUsagePlotForTheDay)	In the Folders tree: Shared Data ⇒ SAS IT Resource Management ⇒ 3.6 IT Report Definitions

Object	Naming Convention	Location
Performance Report transformation	<DomainCategory> <Time Period> (Example: Disk Monthly)	An active Performance Report transformation is in the report job. A template to create your own Performance Report transformation is in the Transformations tree in the SAS IT Resource Management folder.
reporting job	<DomainCategory> <time period> Reporting (Example: Disk Monthly Reporting)	In the IT Data Marts tree: <IT data mart name> ⇒ <adapter type><number> ⇒ Domain Categories ⇒ <domain category>.

Exception Definitions, Exception Transformations, and Exception Jobs

Object	Naming Convention	Location
exception definition	<InputTableType>_<InputTableName>_Description (Examples: STG_SAR_HighRunQueue, Agg_DaySystem_HighRunQueue)	In the Folders tree: Shared Data ⇒ SAS IT Resource Management ⇒ 3.6 IT Exception Definitions
Exception transformation	<DomainCategory> Exception (Example: SAR System Exception)	An active Exception transformation is in the exception job. A template to create your own Exception transformation is in the Transformations tree in the SAS IT Resource Management folder.
exception job	<DomainCategory> Exceptions (Example: SAR 1 System Exceptions)	In the IT Data Marts tree: <IT data mart name> ⇒ <adapter type><number> ⇒ Staging ⇒ Exception .

Appendix 2

Reporting Standards for SAS IT Resource Management Reports

About Reporting Standards for SAS IT Resource Management Reports	153
Standards for SAS IT Resource Management Report Elements	154
Titles	154
Footnotes	155
Axis	156
Colors	156
Group BY	157
Reference Lines	157
Fonts	157
Formats	157
Symbols	157
Standard Specifications for Report Tasks	158
Line Plots	158
2XY Plots	158
Needle Plots	158
Box Plots	159
Bar Lines	159
Bar Charts	159
List Data	159

About Reporting Standards for SAS IT Resource Management Reports

SAS IT Resource Management uses several reporting standards to design and specify the properties for various types of report. These conventions provide a consistency in the look of SAS IT Resource Management reports while espousing best practices for rendering IT reports. The reports that SAS IT Resource Management supplies include the types of reporting standards:

- standards for report elements
- standard specifications for report tasks

For best results, if you choose to create or edit your own IT reports, then use the same reporting standards that SAS IT Resource Management uses for consistency and efficiency.

Standards for SAS IT Resource Management Report Elements

Titles

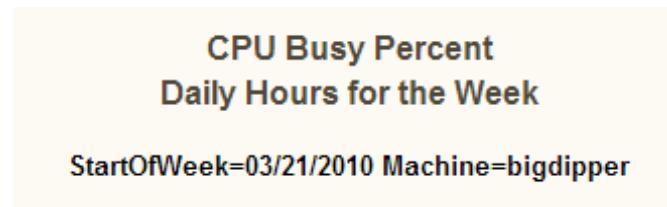
Many reports have the following two titles:

- Title1 shows the report metrics.
- Title2 provides information about the level of data that is being reported.

Note: The BY line and the axis of the report also help the report viewer determine the level of data that is being reported.

The following figure provides an example of Title1 and Title2 in a SAS IT Resource Management report with a BY Line.

Figure A2.1 Titles and BY Line in a SAS IT Resource Management Report



The following table provides information about how Title2 standards map to the aggregation level for the report.

Job	Title2 Sample	Aggregation Level
Day Job	Intervals for the Day	Detail
	Hours for the Day	DayHour
	Hours for last 3 Days	DayHour
	Hours for last 7 Days	DayHour
	Shifts for the Day	DayShift
	For the Day	Day

Job	Title2 Sample	Aggregation Level
Week Job	Daily Hours for the Week	DayHour
	Daily Peak Hours for the Week	DayHour
	Daily Shifts for the Week	DayShift
	Days for the Week	Day
	Days for last 4 Weeks	Day
	Weekly Hours for last 4 Weeks	WeekHour
	Weekly Hours for the Week	WeekHour
	By Shift and Week	WeekShift
	For the Week	Week
	By Week	Week
Month Job	Daily Hours for the Month	DayHour
	Daily Peak Hours for the Month	DayHour
	Daily Shifts for the Month	DayShift
	Days for the Month	Day
	Days for last 2 Months	Day
	Monthly Hours for the Month	MonthHour
	Monthly Hours for last 3 Months	MonthHour
	By Shift and Month	MonthShift
	For the Month	Month
	By Month	Month

Footnotes

Use a footnote to indicate that a filter was used to subset the report data. Here are some examples:

- Server with high CpuBusyPctWMean for the day
- Server with high CpuBusyPctWMean for the week
- Server with high CpuBusyPctWMean for the month

- Server with high CpuBusyPctWMean for one or more days
- Servers with highest CpuBusyPctWMean for the day
- Servers with highest CpuBusyPctWMean for one or more days

Use the following default as the second line of the footnote:

Generated on %TRIM(%QSYSFUNC(DATE(), NLDATE20.)) at %SYSFUNC(TIME(), NLTIMAP20.)

The following figure provides an example of a footnote in a SAS IT Resource Management report.

Figure A2.2 Footnote in a SAS IT Resource Management Report

Server with high CpuBusyPctWMean for the week
Generated on May 22, 2012 at 01:52:56 PM

Axis

To imitate the axis standards for SAS IT Resource Management reports, implement the following specifications:

- Specify a generic axis label for reports that contain legends, when you are plotting multiple statistics, or when the default labels on the axis are ambiguous.
- Turn off minor tick marks.
- For reports with hour on the horizontal axis, use **0** to **23** by **1**.
- For reports with hour on the vertical axis, use **0** to **24** by **2**.
- For reports with time on the horizontal axis, use “**00:00**” to “**24:00**” by “**02:00**”.
- For reports with percentages on the vertical axis, use **0** to **100** by **20**.

Colors

A template named **ITRMDefault** is used for default colors in SAS IT Resource Management reports. However, most reports do not require that colors be specified explicitly in the report task.

Most of the colors that are defined in the **ITRMDefault** template were selected from the autumn color scheme and from a set of the SAS Enterprise Guide window default colors.

If you want to specify a color in a report task, the following colors (in SAS Enterprise Guide) complement the colors in the **ITRMDefault** template:

- blue gray
- dark yellow
- light orange
- teal
- pale blue
- lavender

- tan
- gold
- light yellow
- lime
- light green

Use black for needle plots that include a symbol for a standard deviation metric.

Group BY

Be consistent with the placement of BY variables in your reports. SAS IT Resource Management reports use the following order to place BY variables in reports:

1. date, if used
2. date-related ID columns such as DayOfDay
3. other classification columns

Reference Lines

To imitate the reference line standards for SAS IT Resource Management reports, implement the following specifications:

- Use reference lines when possible.
- When plotting two metrics on the left and right axis, use a reference line for the most important metric that is plotted on the left vertical axis.
- Use values 20, 40, 60, 80 and 100 when using a reference line for a percent metric.
- Do not specify values when using reference lines if you do not know the minimum and maximum values for the metric.
- Use the style **Dashed**.
- Use the color **Gray - 25%**.
- Include a footnote about the reference if needed.

Fonts

SAS IT Resource Management reports use the default fonts for SAS Enterprise Guide.

Formats

SAS IT Resource Management reports use the default formats that are inherited from their aggregation tables or information maps.

Symbols

To imitate the symbols standards for SAS IT Resource Management reports, implement the following specifications:

- Use the dot symbol with size **8**.
- Use the triangle symbol when plotting a standard deviation statistic.

- Use symbols when they do not overcrowd the graph.

Standard Specifications for Report Tasks

Line Plots

To imitate the standards for SAS IT Resource Management line plots, implement the following specifications:

- Use line width of **3**.
- Break the plot line at missing values.
- Use the symbol dot with size **8** when plotting a small number of points.

2XY Plots

To imitate the standards for SAS IT Resource Management 2XY plots, implement the following specifications:

- Use a standard line plot, not an overlay.
- Plot the most important variable on the left. If both variables are important, plot percent variables on the left.
- Specify a corresponding color in the task for the labels of axis variables, if appropriate.

Needle Plots

To imitate the standards for SAS IT Resource Management needle plots, implement the following specifications:

- Use needle plots when you want to plot two or three statistics of a single metric.
- Do not use needle plots if you expect a small number of points, such as in a current week report that can have as few as one point on the first day of the week.

Needle plots are used in the following two formats: One that shows two statistics and one that shows three:

- needle plots that show two statistics.

For the reports that show two statistics, use the following guidelines:

- Both statistics should be needle lines with a size of **12** to **16**.
- The size should be as large as possible without bleeding onto the axis line.
- The variable with the larger number should always be first. The variable with the smaller number should be second. For example, **Maximum** is always larger than or equal to **Mean**, which is equal to or larger than **Minimum**.
- needle plots that show three statistics.

For reports that show three statistics, use the following guidelines:

- The two most important statistics should be needle lines with a size of **12** to **16**.

- The size should be as large as possible without bleeding onto the axis line.
- The statistic with the larger number should be first. The smaller statistics should be second. The third statistic, such as the standard deviation, should have an interpolation of scatter. For example, **Maximum** is always larger than or equal to **Mean**, which is equal to or larger than **Minimum**.
- Use the dot symbol when plotting a standard deviation. The dot should be black and size **9** to **12**. The dot symbol should be narrower than the needle width.

Box Plots

To imitate the standards for SAS IT Resource Management box plots, implement the following specifications:

- Use extreme high and low for the whisker length percentile.
- Specify the color in the task to be light orange.

Bar Lines

To imitate the standards for SAS IT Resource Management bar lines, implement the following specifications:

- Use bar lines when you want to plot two statistics of a single metric or of two different metrics, where the bar is the most important statistic or metric.
- Specify complementary colors in the task for the variable labels because a legend is not available.
- Chart the most important statistic or the percent statistic on the left hand side, if possible.
- Verify the statistic that is used in the advanced window.
- Use line width of **3**.
- Use the symbol dot with a size of **8**.

Bar Charts

To imitate the standards for SAS IT Resource Management bar charts, implement the following specifications:

- Chart one bar for each discrete variable.
- When the bar chart has a subgroup or is an interleave bar chart, you can add code to the task to include a legend. Use the insert code feature to add the code.

List Data

To imitate the standards for a SAS IT Resource Management data list, modify the labels to add spaces between capitalized words. This ensures that the header row of the HTML page can wrap and that the columns can resize as you enlarge and shrink the HTML page.

Appendix 3

Troubleshooting and Debugging Tips

How to Verify the SAS IT Resource Management Enterprise Guide Installation and Configuration	162
Where Is SAS IT Resource Management Installed?	162
Verifying the Presence of the ITRM Style Sheet, ITRM Banner, and EG Options Components in Your SAS Enterprise Guide Installation	162
Verifying the Correct Location of the ITRM Templates	163
Why SAS Enterprise Guide Reports Do Not Display Correctly	164
Determining Why the Report's Style Sheet, Banner, or Template Are Incorrect	164
Determining Why Java Applet Graphs Do Not Display Correctly	165
Determining Why ActiveX Graphs Do Not Display Correctly	169
Why Are Reports Missing from ITRM Report Center?	171
Are the ITRM Report Center Filters Defined Correctly?	171
Are the Reports Stored in the SAS Content Server?	172
Does the Cache Need to Be Refreshed?	173
Did the Report Jobs Run Correctly?	174
Why Report Jobs Are Not Generating Reports	174
Overview of Report Jobs Not Generating Reports	174
Possible Causes of Missing Data	175
How to Determine Why Data Is Missing	176
Removing Duplicate Reports That Are Stored in the SAS Content Server	177
Error Message: Select a SAS Content Server	177
How to Debug a Middle-Tier Connection Problem in a Report Job	178
How to Refresh the Cache for ITRM Report Center Reports	179
How to Back Up Reports	180
Logging Level of ITRM Report Center	180
Technical Support	180

How to Verify the SAS IT Resource Management Enterprise Guide Installation and Configuration

Where Is SAS IT Resource Management Installed?

The SAS IT Resource Management installation loads several files into locations that are needed for reporting functions. The files that are discussed in the following topic are installed in multiple subfolders in these two locations for 64-bit installations:

- `C:\Program Files\SASHome\SASITResourceManagementSASEnterpriseGuideComponents\3.6`
- `C:\Program Files\SASHome\SASITResourceManagementReportDefinitionTaskforEnterpriseGuide\3.6.`

The files are then copied to the locations that are listed as follows where they are used by the product.

Verifying the Presence of the ITRM Style Sheet, ITRM Banner, and EG Options Components in Your SAS Enterprise Guide Installation

The following values for EGRoot, UserProfile, and SASRoot pertain to the 64-bit version of SAS Enterprise Guide on Windows 7. They show the default paths that are used to locate the following objects that are needed for SAS Enterprise Guide:

- ITRM style sheet
- ITRM banner
- EG Options file
- dynamic link library (DLL)
- helpfiles
- EG projects

```
EGRoot = C:\Program Files\SASHome\SASEnterpriseGuide\7.1
UserProfile = C:\Users\<MyUserID>
SASRoot = C:\Program Files\SASHome
```

Note: Substitute the locations for EGRoot, UserProfile, and SASRoot based on your installation of SAS IT Resource Management for the values in the paths shown here for the ITRM style sheet, ITRM banner, and EG options components.

Default location for the ITRM Style Sheet

`<EGRoot>\Styles\ITRMDefault.css`

Note: For information about style sheets, see “[About the Default Style Sheets for SAS IT Resource Management Reports](#)” on page 88.

Default location for the ITRM Banner file

`<EGRoot>\Styles\ITRMBanner.png`

Note: For information about banners, see “[About the Default Style Sheets for SAS IT Resource Management Reports](#)” on page 88.

Default location of the EG Options file

<EGRoot>\EGOptions.xml

1. Open the EGOptions.xml file with a text editor and verify that it contains the string ITRMDefault.
2. If the string ITRMDefault is not found, open SAS Enterprise Guide. Select **Tools** \Rightarrow **Options** and click **Reset All**. This action applies the options that are recommended by SAS IT Resource Management.
3. Find the version of EGOptions.xml that was created during the installation of SAS IT Resource Management. Then, install it into the location above.

Note: For information about the location of these subfolders, see “[Where Is SAS IT Resource Management Installed?](#)” on page 162.

Default location for ITRM Report Definition Task and Help Files

<EGRoot>\Custom\ITRMGallery.dll

<EGRoot>\Custom\itrm_Gallerytask.chm

Default location for ITRM EG Projects

<SASRoot>\SASITResourceManagementSASEnterpriseGuideComponents\3.6

Note: For information about these topics, see “[Accessing SAS IT Resource Management Projects with SAS Enterprise Guide](#)” on page 124.

Verifying the Correct Location of the ITRM Templates

SAS IT Resource Management provides a default template file named tmplitrm.sas7bitm that creates a default template named ITRMDefault. This default template includes updates to a parent template called styles.analysis that SAS provides. These updates include specifications for graph colors in charts and plots.

Note: For information, see “[About the Default Template for SAS IT Resource Management Reports](#)” on page 87.

The following value for SASServerRoot pertains to SAS Enterprise Guide on Windows 7:

SASServerRoot = C:\Program Files\SASHome\SASFoundation\9.4

Verify that your installation of SAS IT Resource Management includes this component. The default location for this file is here: <**SASServerRoot**>\itrmvadata\ashelp\tmplitrm.sas7bitm.

Note: Substitute the location of the templates based on your installation of SAS IT Resource Management for the value of SASServerRoot.

Why SAS Enterprise Guide Reports Do Not Display Correctly

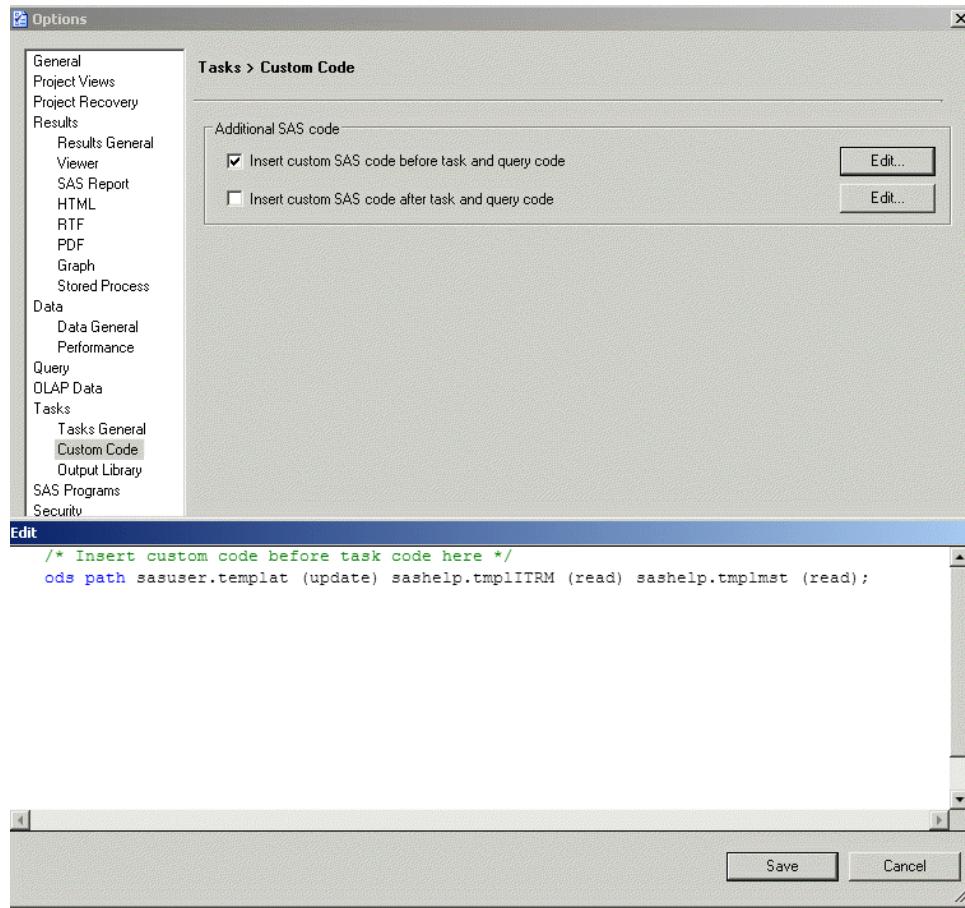
Determining Why the Report's Style Sheet, Banner, or Template Are Incorrect

If your reports do not use the correct style or colors, you might not have the correct SAS Enterprise Guide ITRM files installed, or they might not be installed correctly. To determine whether this is the problem, perform the following steps:

Verify that you are using the correct version of the SAS Enterprise Guide options file.

1. From the menu bar of SAS Enterprise Guide, select **Tools** \Rightarrow **Options**.
2. Select **Tasks** \Rightarrow **Custom Code**.
3. Verify that the **Insert custom SAS code box before task and query code** is checked.
4. Click the **Edit** button that is associated with the **Insert custom SAS code box before task and query code** check box.

Figure A3.1 Custom Code Dialog Box



- Verify that the following ODS path statement is present in the Edit window (as shown in the previous step):

```
ods path sasuser.templat (update) sashelp.tmplITRM (read)
      sashelp.tmplmst (read);
```

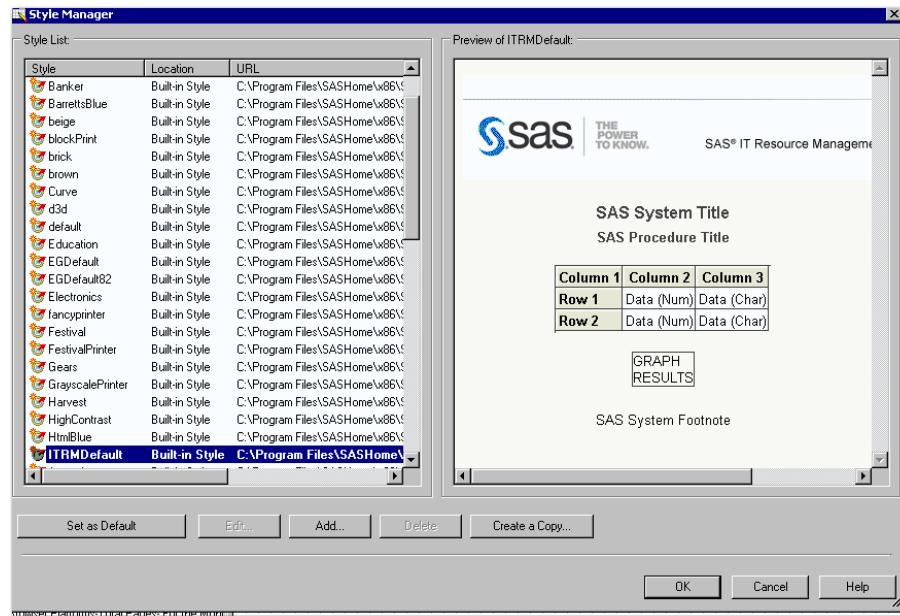
- If you do not see the ODS path statement, you might not have the correct SAS Enterprise Guide options file installed, or it might not be installed correctly.

If this is the case, verify that the ITRM style sheet, ITRM banner, and EG Options components for your SAS Enterprise Guide are installed correctly. To do so, see [“Verifying the Presence of the ITRM Style Sheet, ITRM Banner, and EG Options Components in Your SAS Enterprise Guide Installation” on page 162](#).

Verify that you are using the SAS IT Resource Management style sheet and banner.

- From the menu bar of SAS Enterprise Guide, select **Tools** \Rightarrow **Style Manager**. The following window appears:

Figure A3.2 Style Manager Window of SAS Enterprise Guide



- In the Style Manager window, verify that the following conditions are satisfied:
 - In the Style List group box, **ITRMDefault** is selected as the default style sheet.
 - In the Preview pane, the ITRM banner is displayed.
- If ITRMDefault does not appear in the list of available styles, see [“Verifying the Presence of the ITRM Style Sheet, ITRM Banner, and EG Options Components in Your SAS Enterprise Guide Installation” on page 162](#).

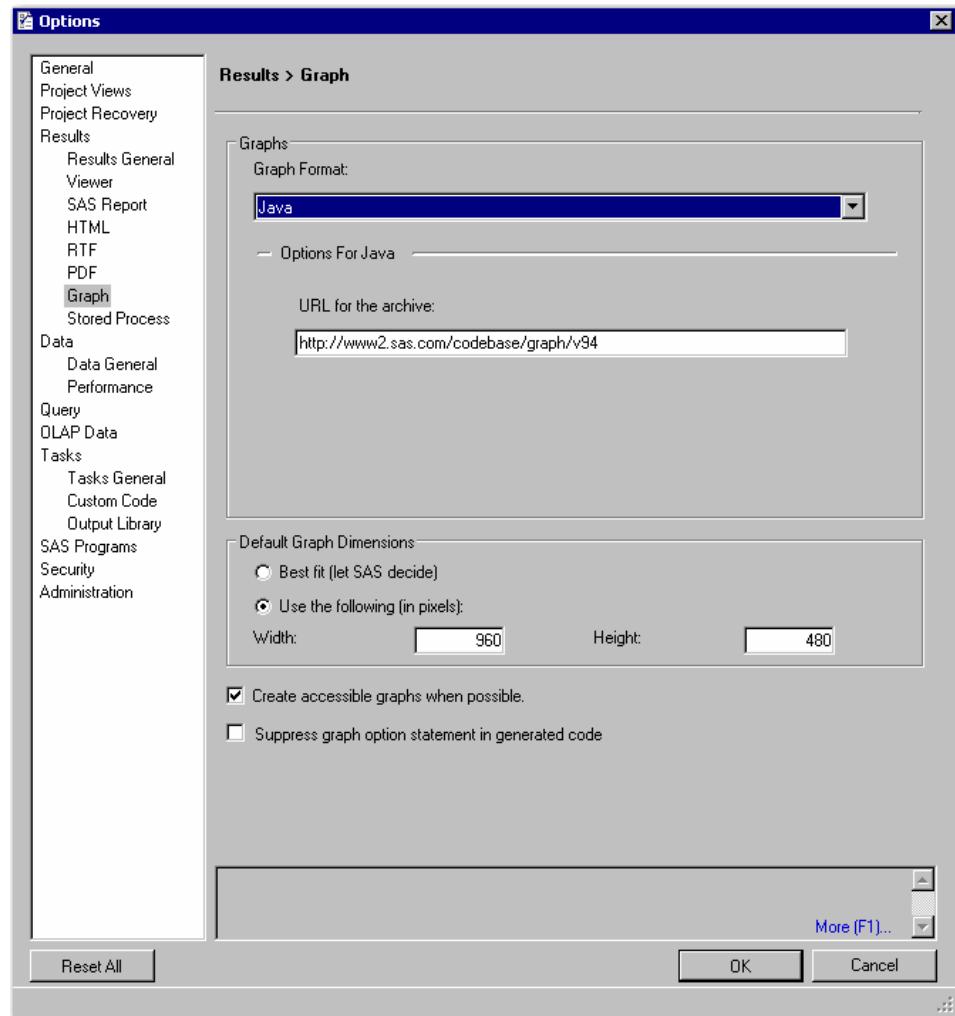
Determining Why Java Applet Graphs Do Not Display Correctly

If your Java Applet graphs are not displaying correctly, the problem might be caused by an incorrect codebase, version of JRE, or graph format.

Verify that you are using the correct codebase.

1. From the menu bar of SAS Enterprise Guide, select **Tools** ⇒ **Options**. Then click **Graph**.
2. Set the **Graph Format** to **Java** and make sure that the **URL for archive** field is set to <http://www2.sas.com/codebase/graph/v94>.

Figure A3.3 Results Window for Java Graphs



3. If you do not have access to the external web or if you encounter performance issues using the default path, then change the URL to point to your local middle tier, such as http://Your_Middle_Tier:Port_Number/sasweb/graph.
4. Make sure that the graph format is set back to your default format. Then click **OK** to save your settings.

Verify that the Java Console is enabled.

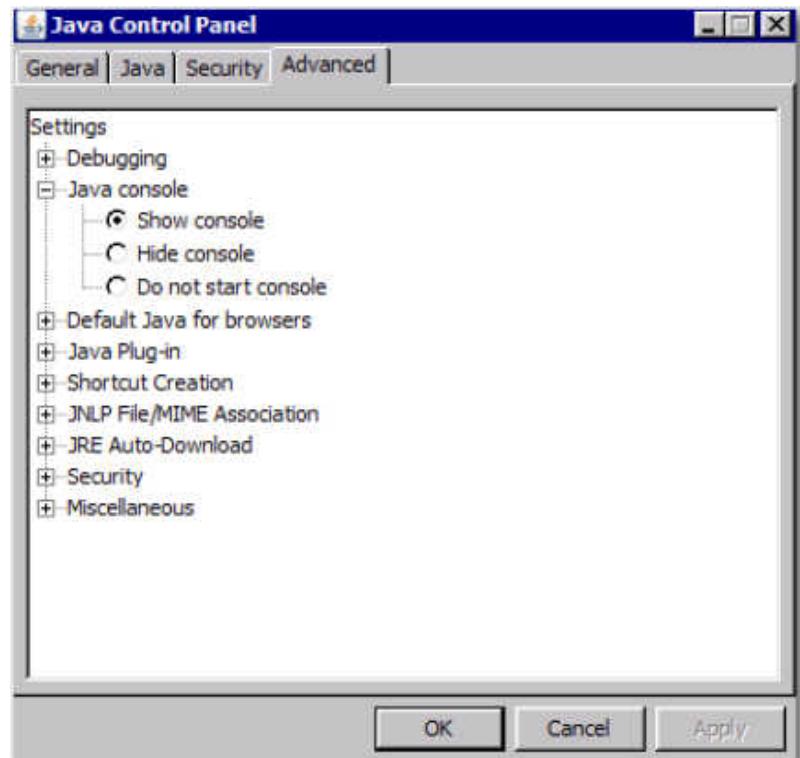
1. Navigate to the Java Control Panel that is available from the location where Java is installed.

Figure A3.4 Java Control Panel



2. Select the **Advanced** tab to display the following screen:

Figure A3.5 Advanced Tab of the Java Control Panel



3. Click **Show console**.

Note: If you need more help locating this window, contact your system administrator.

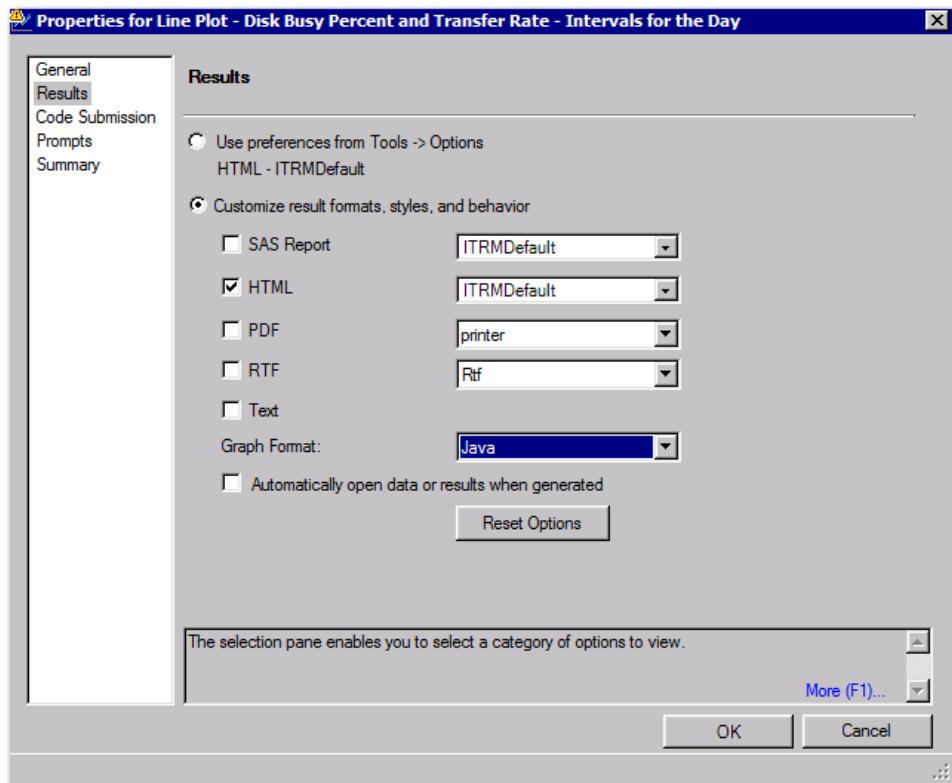
4. Click **OK** to close the Java Console Panel.

Generate the Java graph.

To generate a Java graph, perform the following steps:

1. Perform one of the following actions:
 - In the Results > Graph window of your EG Options file, set **Graph Format** to **Java**. Click **OK** to save **Java** as the default graph format. Then, in the report task Properties window, check **Use preferences from Tools -> Options**.
 - In the report task Properties window, check **Customize result formats, styles, and behavior** and set the **Graph Format** to **ActiveX**.

Figure A3.6 Report Properties with Graph Format Set to Java



Note: For best results, also check the **HTML** box and select the **ITRMDefault** style sheet.

2. Generate your Java graph.
3. If you are not able to view your Java graph, find the Java Console Panel. The panel displays the version of Java that you are using. Correct any errors or exceptions that are displayed.

Determine whether you are using the version of the Java Runtime Environment (JRE) that SAS recommends for your version of SAS. See the SAS Third-Party Software Reference at <http://support.sas.com/resources/thirdpartysupport/>.

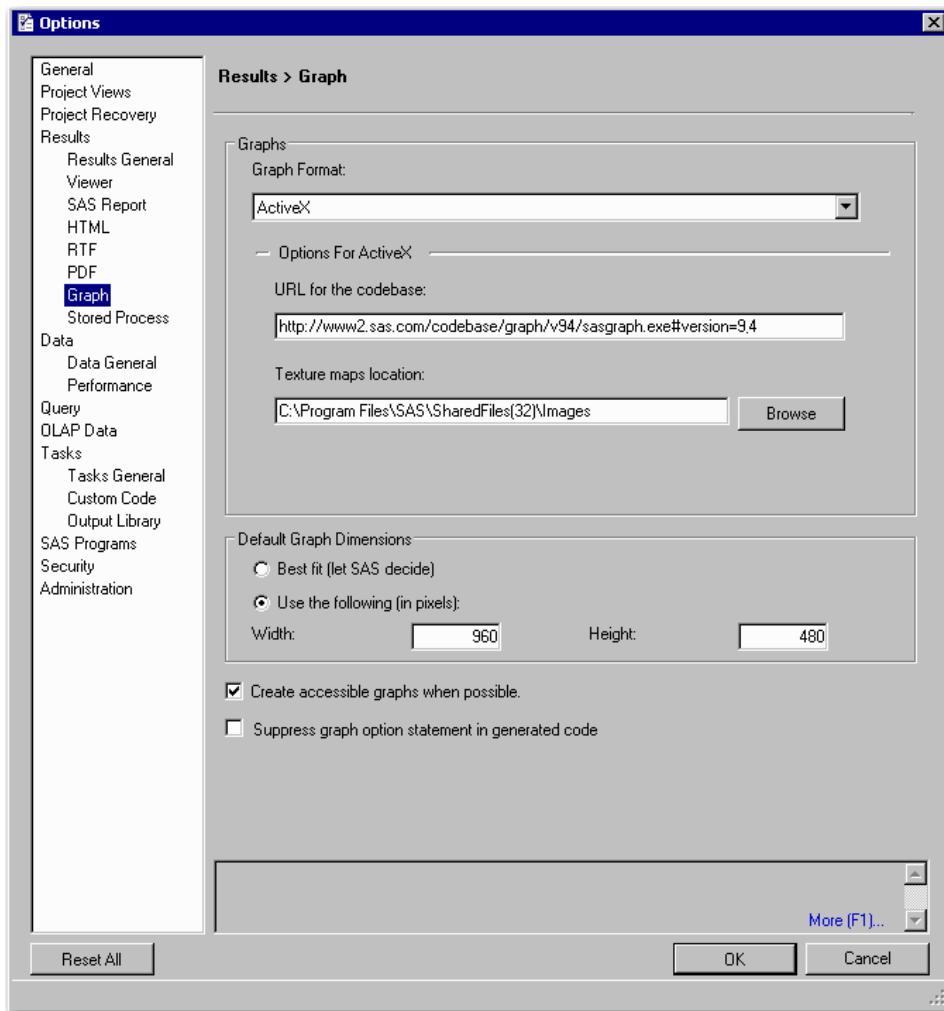
Determining Why ActiveX Graphs Do Not Display Correctly

If your ActiveX graphs are not displaying correctly, the problem might be caused by an incorrect codebase, version of ActiveX, or graph format.

Verify that you are using the correct codebase.

1. From the menu bar of SAS Enterprise Guide, select **Tools** \Rightarrow **Options**. Then click **Graph**.
2. Set the **Graph Format** to **ActiveX** and make sure that the **URL for the codebase** field is set to this path: `http://www2.sas.com/codebase/graph/sasgraph.exe#version=9,4`.

Figure A3.7 Results Pane for ActiveX Graphs



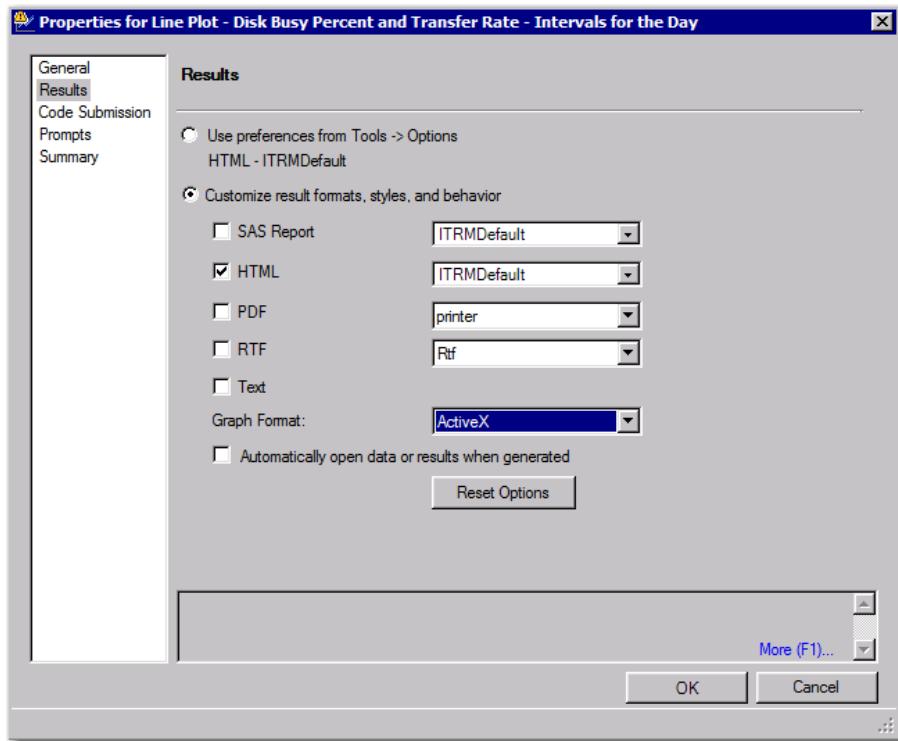
3. If you do not have access to the external web or if you encounter performance issues using the default path, then change the URL to point to your local middle tier. For example, your middle-tier location might be: `http://Your_Middle_Tier:Port_Number/sasweb/graph/sasgraph.exe#version=9.4`.
4. Make sure that the **Graph Format** is set back to your default. Then click **OK** to save your settings.

Generate the ActiveX graph.

To generate an ActiveX graph, perform the following steps:

1. Perform one of the following actions:
 - In the Results > Graph window of your EG Options file, set **Graph Format** to **ActiveX**, as shown in the preceding display. Then in the report task Properties window, check **Use preferences from Tools -> Options**. Click **OK** to save **ActiveX** as the default graph format.
 - In the report task Properties window, check **Use preferences from Tools -> Options**, as shown in the following display:

Figure A3.8 Use Preferences from Tools - Options



Note: For best results, also check the **HTML** box and select the **ITRMDefault** style sheet.

2. Generate your ActiveX graph.

Note: If ActiveX Control is not installed on your machine, you are prompted to install it. Accept the prompt.

Additional information can be found here:

- The ActiveX version that SAS recommends for your version of SAS is located here: <http://sww.sas.com/dvr/graphs/Demos/Install.html>.
- <http://sww.sas.com/helpdesk/documents/IE/>.

Why Are Reports Missing from ITRM Report Center?

To determine why reports are missing from ITRM Report Center, consider the following potential resolutions.

Are the ITRM Report Center Filters Defined Correctly?

1. Sign out of ITRM Report Center and then sign in again.
2. In the **Gallery** workspace, invoke the new Gallery wizard to create a new gallery that shows at least one report that should have been generated by the report job.
 - a. On page 2 of the wizard, select one domain category, one subcategory, one job schedule frequency, and one keyword (if applicable) that matches one of the reports in your report job.

- b. On page 3 of the wizard, note how many reports are found. If one or more reports are found, click **Next**. On step 4 of the wizard, note how many reports are found.
If no reports are found, go to the previous step and increase the number of occurrences to 999 and repeat. (For information about how to change the number of occurrences, see Step 3 of the “Create a Gallery” topic in Chapter 3, “The Gallery Workspace,” in the *SAS IT Resource Management 3.6: Report Center Guide*.)
3. If the number of reports displayed in a gallery is less than the quantity expected, do the following steps:
 - a. Determine whether the SAS Content Server cache needs to be refreshed. For information about this topic, see [“How to Refresh the Cache for ITRM Report Center Reports” on page 179](#).
 - b. Verify that the ITRM Report Center user who is viewing the gallery is a member of the groups that are authorized to access the SAS Content Server folder locations where the reports in that gallery are stored.
 - c. Review the **SecondaryReportCount** value that is set in the SAS Management Console. (That value controls the maximum number of reports that are displayed for a gallery.) For information, see [“Reset the Maximum Number of Reports to Be Returned from the Create Gallery Filters” on page 112](#).

If you are still not able to find any reports that should be generated from your report job, perform the following steps:

1. Try to determine whether ITRM Report Center can find any reports or whether the problem is limited to a subset of reports.
2. For more troubleshooting suggestions, see [“Are the Reports Stored in the SAS Content Server?”](#).

Are the Reports Stored in the SAS Content Server?

1. If you are a SAS Administrator, click **Open SCS Viewer Console** on the **Administration** workspace to traverse the SAS Content Server folder structure to search for at least one report that should be generated by the report job.

Figure A3.9 SCS Administration Console Contents

The screenshot shows the SAS® ITRM Report Center Administration Console. The top navigation bar includes 'File', 'Help', 'Home', 'Gallery', 'Resource', 'Administration', and 'Sign Out'. The main content area is titled 'Manage Content'. It features a table for 'Content server locations' with columns for 'Location', 'Description', 'Report Count', and 'Last Modified Date'. One row is visible: '/SASContentServer/repository/default/sasday/ITRM' with 73 reports last modified on Jul 21, 2014 02:50:05 PM. Below this is a table for 'Assign location to user group' with columns for 'User group' and 'Location'. It lists 'IT Resource Management Report Center Viewers (SASUSERS)' and 'IT Resource Management Report Center Users' both assigned to '/SASContentServer/repository/default/sasday/ITRM'. At the bottom right, it says 'User: Mary Hanna'.

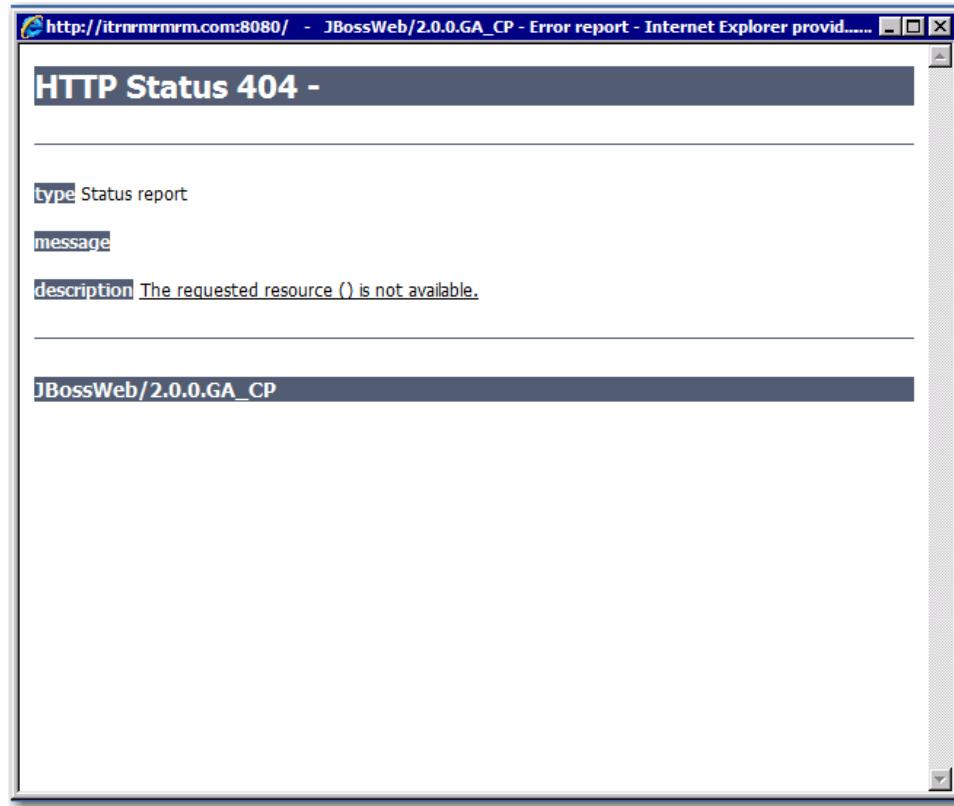
2. Traverse the folder structure until you reach the folder that contains the actual report.
3. If the report is not in the SAS Content Server, check the report job log to make sure that the reports generated without errors. Investigate and eliminate the cause of the errors and rerun the report job. For more troubleshooting suggestions, see [“Why Report Jobs Are Not Generating Reports” on page 174](#). You might have to rerun the report job with debugging turned on. Save the report job log and contact SAS Technical Support.
 - For more information about how to turn debugging on for ITRM Report Center, see [“How to Debug a Middle-Tier Connection Problem in a Report Job” on page 178](#).
4. If the report is in the SAS Content Server, perform the following steps:
 - a. Refresh the cache only under the specific root location where the report is stored. (Use the **Open SCS Viewer Console** to determine the location of the root folder.) For information about how to do this, see [“How to Refresh the Cache for ITRM Report Center Reports” on page 179](#).
 - b. Check whether there are errors in the ITRM Report Center log. (The log is located at `<YourSASConfigFolder>\Lev1\Web\Logs\SASServer10_1\ITRMReportCenter3.6.log`.) If there are errors in the ITRM Report Center log, save a copy of the log and contact SAS Technical Support. For information about how to do so, see [“Technical Support” on page 180](#).

Does the Cache Need to Be Refreshed?

ITRM Report Center maintains an internal index, or cache, of the reports that are stored in the SAS Content Server. The reports that are associated with ITRM Report Center are only those that are generated by SAS IT Resource Management report jobs and exception jobs. When SAS IT Resource Management report jobs and exception jobs run successfully, the cache is updated correctly. However, in some cases, such as network connection failures, you might not be able to see new reports. Similarly, you might see a

404 error message that refers to reports that were deleted because the cache was not updated correctly.

Figure A3.10 Example of an HTTP Status of 404



To force an update of the cache, see “[How to Refresh the Cache for ITRM Report Center Reports](#)” on page 179.

Did the Report Jobs Run Correctly?

Check the report job log to make sure that the reports were generated without errors. Investigate and eliminate the cause of the errors and rerun the report job. For more troubleshooting suggestions, see “[Why Report Jobs Are Not Generating Reports](#)”.

Why Report Jobs Are Not Generating Reports

Overview of Report Jobs Not Generating Reports

If your report jobs are not generating reports, the following conditions might need to be resolved:

- You might be experiencing a problem with your middle-tier connection. For information about how to correct this problem, see “[How to Debug a Middle-Tier Connection Problem in a Report Job](#)” on page 178.

Note: If your server and network are experiencing problems, make sure those problems are resolved before you rerun the report job.

- An information map might have been moved. To resolve this problem, make sure that the information maps that are used by the report job are accessible and referencing the correct data source.

To locate the information map, review the report job log and find the report definition that is associated with the first error. Search backward in the log until you find the following text string:

```
--- Report: ReportDefinitionNameHere
```

Continue searching backward until you find the source code for the report definition. The source code of the report definition identifies the information map that is the data source for this report definition. The source code begins with the following comment:

```
/*---- Report: ReportDefinitionNameHere ----*/
```

- Data that is required by the report is missing from the data source. To resolve this problem, see [Possible Causes of Missing Data](#).

Possible Causes of Missing Data

Warnings or error messages in your SAS log can help determine why your report jobs fail to generate reports. Any one of the following three scenarios can produce a warning message or an error message in the SAS log. To determine which of these scenarios is responsible for causing the problem, see [“How to Determine Why Data Is Missing” on page 176](#).

- A report definition is using an information map with a filter that subsets data that occasionally results in an empty data set.

Most of the report definitions that SAS IT Resource Management supplies use information map filters to subset the data for reporting. In some cases, the filters result in missing data and some SAS/GRAFH procedures generate warnings or errors that can be prevented only by rerunning the report when data is available.

For example, most report definitions that are designed to run on a weekly basis are designed to run at the beginning of the week for the previous week. When the IT data mart does not contain any data for the previous week, the report definition does not produce any reports. The same is true for monthly reports. Most monthly reports are designed to be run at the beginning of a month for the previous month. In these cases, you should wait until the IT data mart contains the data for the designated time period before scheduling the job.

- A report definition is using a filter that always results in missing data for a particular report.

In this case, you might need to update or eliminate the filter to ensure that data is available for a specific report definition.

- A report definition reports on a specific metric that is not collected at a particular site.

In this case, you should modify the report to use a metric that is available or eliminate the report definition from the report job.

How to Determine Why Data Is Missing

Warnings or error messages that are written to your SAS log can help you resolve why data is missing. To locate the problem, perform the following steps:

1. Review the report job log and find the report definition that is associated with the first error. Search backward in the log until you find the following text string:

```
--- Report: ReportDefinitionNameHere
```

2. If you find data in the aggregation table for the data items that are used by the report definition, you need to determine whether an information map filter is responsible for the absence of data. To do so, perform the following actions:
 - a. Find the supplied project, process flow, and ITRM Report Definition task that was used to create the report definition.

You can find this information in the SAS log. Continue searching backward until you find the source code for the report definition. The source code begins with the following comment:

```
/*--- Report: ReportDefinitionNameHere ----*/
```

- b. Using a copy of the supplied project, connect to your data source.

Note: You might need to use the migration wizard if the project was not previously used to connect to the data source.

For information about this wizard, see “[Migrating SAS Enterprise Guide Projects to Work with SAS IT Resource Management 3.6](#)” on page 48.

- c. In SAS Enterprise Guide, run the branch that includes the report definition that caused the warning or error.

If you see the same warning or error, then open the data source that is used in the report task that caused the warning or error.

- d. If the data source is empty, you need to determine whether a filter is responsible for the missing data. To do so, modify the information map, remove all filters, and rerun the information map and the report task. Check the resulting output to see whether the data is now present in the data set.

- e. If eliminating the filter solves the problem, then you need to determine which of the following courses of action you want to take:

- eliminate one or more of the filters
- modify the expression of the filter
- process additional dates of data

- f. If eliminating the filter still produces no data, then determine whether the measure is not being processed and make necessary adjustments to the report definition. For example, use another measure or eliminate the report definition from the report job.

- g. Make any required changes. Then, create a user-defined report definition, update the report job to use the new report definition, and redeploy the report job.

Removing Duplicate Reports That Are Stored in the SAS Content Server

If you rerun a report job multiple times in a day without processing additional days of data in between, then the report job generates multiple instances of the same reports in the SAS Content Server. These reports remain in the SAS Content Server until they expire and the corresponding report job is rerun.

To eliminate duplicate reports from the SAS Content Server, you can perform one of the following tasks:

- Allow the duplicate reports to expire as you continue to run the report job that added them.
- Remove the reports manually by using the SCS Admin Console. (Only a SAS administrator can perform this action.) For more information, see the chapter about administering the SAS Content Server in the *SAS 9.4 Intelligence Platform: Middle-Tier Administration Guide*.

Note: Update the cache after deleting reports from the SAS Content Server. For information about how to do this, see [“How to Refresh the Cache for ITRM Report Center Reports” on page 179](#).

- Override the expiration date by using the Performance Report transformation and rerunning the job. Use caution when implementing this option. Depending on your settings, this implementation can delete duplicates as well as all previous versions of the report that were created by the report job.

Error Message: Select a SAS Content Server

When a report job runs, it creates reports and stores reports in the SAS Content Server. If a copy of a report job is made, and an attempt is made to open the copy of the report job, the following error message is displayed: `Select a SAS content server`.

Note: The error can also occur for a report job of a data mart that is imported.

The message is issued because the association to a valid SAS Content Server is lost. To correct this situation, perform the following steps:

1. Double-click the new job to open it in the **Diagram** tab of the Job Editor.
2. Right-click the Performance Report transformation in the process flow and select the **Server** tab.
3. Specify the name and location of the SAS Content Server for the Performance Report transformation.
4. Click **OK** and save the job.

How to Debug a Middle-Tier Connection Problem in a Report Job

CAUTION:

The command to restart services should be issued only by a SAS IT Resource Management administrator. Everyone using ITRM Report Center is affected by this action.

If your report job shows an error that appears to be related to a middle-tier connection problem, verify that the SAS Content Server is available. To do so, connect to the SCS Admin Console at `http://<YourMiddle-TierName>:<port number>/SASContentServer/dircontents.jsp?path=/sasdav`. If you are not able to connect to the SAS Content Server Administrative Console, check the SAS Content Server log. If necessary, restart the managed servers that are associated with your mid-tier on the web application server.

Note: The names of these servers depend on the setup of the middle tier. They are typically named SASServer1, SASServer2, SASServer10, and so on.

If you had to restart any services, then rerun the report job. If you continue to see the same middle-tier connection errors after restarting the middle-tier connection services, then follow the steps below to continue debugging the middle tier, using a small, temporary report job.

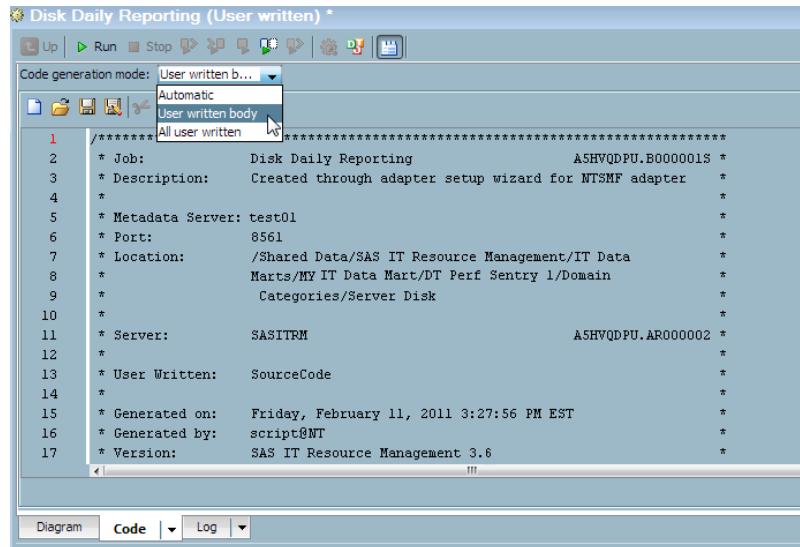
TIP To simplify debugging, perform these steps using a small, temporary report job.

Then run the jobs, save the logs, and contact SAS Technical Support. For information about how to do so, see “[Technical Support](#)” on page 180.

If after restarting any services, you encounter a different type of error, then see “[Why Report Jobs Are Not Generating Reports](#)” on page 174.

1. In the SAS IT Resource Management client, open your IT data mart. Then navigate to the folder that contains the report job that caused the error.
2. Create a new report job in the same folder. Add any report definition from the original job.
3. Click the **Code** tab in the Job Editor. Click **Code generation mode** and select **User written body**.

Figure A3.11 Select the Code Generation Mode



4. Search through the SAS log for the following text:

```

/* setup */
%global ITRMErr;
%global ITRMDebug;

```

Add the following debugging statements after the previous `%global ITRMDebug;` code.

```

/* Add debugging statement */
%let ITRMDebug=1;
/

```

Then, run the report job. Save the log.

5. Make a copy of the ITRM Report Center log and the SAS Content Server log that contain time stamps that correspond to the time at which you ran your report job.
6. Save the logs and contact SAS Technical Support. For information about how to do so, see “[Technical Support](#)” on page 180.

How to Refresh the Cache for ITRM Report Center Reports

ITRM Report Center maintains an internal index or cache of the SAS IT Resource Management reports that are stored in the SAS Content Server. Refreshing the cache might resolve issues with reports not appearing in ITRM Report Center. For example, if you remove reports manually from the SAS Content Server, you need to refresh the cache.

Note: Refreshing the cache might cause a temporary disruption to users who are signed in.

CAUTION:

ITRM administrators are the only users who can refresh the cache. Refreshing the cache affects everyone using ITRM Report Center. Make sure that this command is invoked when users are not signed in to ITRM Report Center.

You can refresh the cache for ITRM Report Center reports in either of these two ways:

- Sign in to ITRM Report Center as an administrator. In the **Administration** workspace, click **Refresh Cache**. (This action refreshes the cache for only one location.)
- Restart the ITRM Report Center service. (This action refreshes the cache for all locations.)

Note: For more information, see the chapter about administering the SAS Content Server in the *SAS 9.4 Intelligence Platform: Middle-Tier Administration Guide*.

How to Back Up Reports

To back up your SAS IT Resource Management reports, you must back up the SAS Content Server that stores the reports. For more information about backing up reports, see "How to Back Up SAS IT Resource Management" in Appendix 9, "Best Practices and Troubleshooting Tips," in the *SAS IT Resource Management 3.6: Administrator's Guide*.

Logging Level of ITRM Report Center

After installing ITRM Report Center, the logging level is set to **WARN**. Only those logging messages that are set for **WARN**, **ERROR**, or **FATAL** appear in the ITRMReportCenter log file. Logging messages that are set for **DEBUG** or **INFO** do not appear.

Note: For information about setting the logging level for the Web Application server, see "How to Set the Logging Level for the Web Application Server" in Appendix 9, "Best Practices and Troubleshooting Tips," in the *SAS IT Resource Management 3.6: Administrator's Guide*.

Technical Support

- If you need assistance with the software, we ask that only the on-site SAS support personnel call SAS Technical Support. For U.S. and Canadian customers, support is provided from our corporate headquarters in Cary, North Carolina. You can call (919) 677-8008, Monday through Friday. Customers outside of the U.S. can obtain local-language technical support through the local office in their countries. Customers in these locations should contact their local office for specific support hours. See <http://support.sas.com/techsup/contact/index.html> for contact information for local offices.
- Before calling, you might want to explore the SAS Technical Support website at <http://support.sas.com/techsup/>. The SAS Technical Support website offers a

Knowledge Base, FAQs, Technical Support Documents and more that can answer your questions. This website also provides a mechanism for reporting problems.

Appendix 4

Best Practices

Run Report Jobs at Night or during Low Usage Periods	183
Managing SAS Enterprise Guide Projects for SAS IT Resource Management ..	184
About SAS Enterprise Guide Projects for SAS IT Resource Management	184
Add, Update, or Delete Report Definitions	185
Designing Reports for Batch Jobs	186
Override Report Expiration Dates to Purge Reports from the SAS Content Server Using the Performance Report Transformation	187
Back Up Your Data and Reports	187
Schedule Report Jobs Based on the Available Data	188
Override the Graph Type	188

Run Report Jobs at Night or during Low Usage Periods

The beginning and end of SAS IT Resource Management reporting code includes a flag to inform ITRM Report Center that the report job has started and ended. If you run multiple jobs during the day while you are also working with ITRM Report Center, the report job runs might overlap. In that case, the subsequent ITRM Report Center cache updates can be delayed as they overlap.

For best results, run multiple report jobs at night or when there is little activity on ITRM Report Center. This ensures that there is little or no overlap of separate report jobs running, which can delay the update of the cache.

Note: Run your report jobs only after the corresponding aggregation jobs are complete.

Managing SAS Enterprise Guide Projects for SAS IT Resource Management

About SAS Enterprise Guide Projects for SAS IT Resource Management

The reports that are available from ITRM Report Center and used for the purposes of performance management and capacity planning have their beginnings in SAS Enterprise Guide projects. These projects and their tasks produce reports that must be managed to ensure the integrity of the operational reporting environment for SAS IT Resource Management.

SAS makes the following recommendations as best practices for managing the SAS Enterprise Guide projects that SAS IT Resource Management provides at installation. These best practices assume that the SAS Enterprise Guide projects are maintained by several people referred to as “report developers” in this appendix.

The best practices described here provide suggestions for managing the following two sources of SAS Enterprise Guide projects:

supplied projects

Supplied projects, also called supplied SAS Enterprise Guide projects, are delivered with the SAS IT Resource Management solution. These projects are installed on each client machine to which SAS Enterprise Guide is deployed during the installation of SAS IT Resource Management.

The projects can be accessed by navigating to the location where you installed SAS IT Resource Management. The projects are located at **C:\Program Files\SASHome\SASITResourceManagement\SASEnterpriseGuideComponents\3.6.**

Supplied projects are assumed to be owned and managed by SAS. When updates to the SAS IT Resource Management solution are released, the entire contents of this folder might be overwritten to deliver product enhancements.

user projects

User projects are those SAS Enterprise Guide projects that are created by users of the SAS IT Resource Management solution and stored in a location other than that of the supplied projects.

The report definitions that are created by these SAS Enterprise Guide projects differ in the following ways:

- Supplied report definitions that are delivered with the SAS IT Resource Management solution are written to the SAS Metadata Server and are stored in folders such as **Shared Data/SAS IT Resource Management/3.6 IT Report Definitions/<Adapter Name>/Supplied/<Time Period>**.
- User report definitions that are generated from user projects should be written to a location other than that of the supplied report definitions. A suggested location is / **Shared Data/SAS IT Resource Management/3.6 IT Report Definitions/<Adapter Name>/User Defined/<Time Period>**.

Note: As SAS releases updates to supplied SAS Enterprise Guide projects and corresponding report definitions, you can run the jobs that the Adapter Setup and the Add Domain Category wizard generates. You can then view the report output in

ITRM Report Center. Any updates that SAS delivers can be incorporated into your production reporting jobs by executing the best practices that are described in the following topic.

Add, Update, or Delete Report Definitions

The following steps enable you to add, update, or delete report definitions that SAS IT Resource Management uses:

- In SAS Enterprise Guide, you can use the ITRM Report Definition task to add or update report definitions. You can also delete an ITRM Report Definition task.
- In the SAS IT Resource Management client, you can delete report definitions that are stored on the metadata server and used in your report jobs.

1. Locate the SAS Enterprise Guide projects that are used to produce reports from the operational SAS IT Resource Management System.
2. Make copies of the supplied SAS Enterprise Guide projects and establish a set of master SAS Enterprise Guide projects for your site. Store these master copies of the projects in a location that is accessible by all report developers.
3. Use the Migration Wizard for SAS Enterprise Guide to update the mapping to the information map or SAS table that serves as the source data for the report. For more information, see [“Preparing to Work with SAS Enterprise Guide” on page 46](#).
4. Use any method of version control to manage a set of master SAS Enterprise Guide projects. All report developers can use the master copies to make their own copies of the projects and publish their results after they have implemented and promoted changes to the report definitions that they produce.
5. Report developers perform the following steps when working with a SAS Enterprise Guide project:
 - a. Check out a copy of a master SAS Enterprise Guide project.
 - b. In SAS Enterprise Guide, select **File** \Rightarrow **New** \Rightarrow **Notes** to create a version notes file of the project. If a notes file already exists, then open the existing file.
 - c. Add the following entries to this notes file:
 - Project Updated By
 - Date of Changes
 - Tasks Modified
6. You can perform these actions:
 - use the ITRM Report Definition task to create new or update existing report definitions
 - delete an ITRM Report Definition task or a report

Note: Deleting the ITRM Report Definition task does not delete the corresponding report definition that is stored on the metadata server.

After you implement your changes, validate them.
7. If you added or modified ITRM Report Definition tasks, publish the corresponding report definitions to the SAS Metadata Server. To do so, perform the following steps:

Note: The suggested path for new report definitions is **/Shared Data/SAS IT Resource Management/3.6 IT Report Definitions/<Adapter Name>/User Defined/<Time Period>**.

- a. Right-click an ITRM Report Definition task and select **Modify <ITRM Report Definition task name>**.
- b. Click **Next** to navigate to page 2 of the ITRM Report Definition task wizard.
- c. Click **Deploy**. The new report definition is created and published to the SAS Metadata Server.

Note: This step is not needed if you deleted an ITRM Report Definition task.

8. Save and close the SAS Enterprise Guide project.

Note: If your site uses a method of version control to manage a set of master SAS Enterprise Guide projects, make sure that you check in the project.

9. Open the SAS IT Resource Management client.

Use the **IT Data Marts** tree to navigate to the report job in the appropriate IT data mart, adapter, and domain category folders. This location should be where you want to perform one of the following actions:

- select a new report definition in the report job
- deselect a report definition in the report job

10. Open the report job.

Right-click the Performance Report transformation and select **Properties**.

11. • If you are selecting a new report definition, select the **Report Definitions** tab and add the report definition as needed.
- If you are deselecting a report definition, select the **Report Definitions** tab and delete the report definition as needed.

12. Select the **Notes** tab and add the following entries to the notes:

- Transformation Updated By
- Date of Changes
- Report Definition Changes (such as *Added: <report definition name>*, *Updated: <report definition name>*, or *Deleted: <report definition name>*)

13. Save and close the Performance Report transformation.

14. Deploy the new report job.

15. Close the SAS IT Resource Management client.

Designing Reports for Batch Jobs

When you design reports and create a report definition that runs in a batch job, consider the following questions:

- Is the report definition intended to run in a daily, weekly, or monthly job?
- How long do you want to keep the generated report in the SAS Content Server?

Based on your answers to these questions, specify the appropriate values in the ITRM Report Definition task.

For example, if you design a report that should run daily and replace the previous version in the SAS Content Server, then specify the following values in the ITRM Report Definition task:

- On Page 1 of the ITRM Report Definition task, specify a path for the report definition that includes the subfolders **User Defined** and **Day**.
- On Page 2 of the ITRM Report Definition task, specify the following values:
 - Select **Daily** in the **Job Schedule Frequency** field.
 - Specify a value of **1** for the **Expire Reports After** field.

Specifying these values help you find daily report definitions when creating report jobs. These values in the report definition also help you find the desired reports when viewing them with ITRM Report Center.

Override Report Expiration Dates to Purge Reports from the SAS Content Server Using the Performance Report Transformation

By default, report jobs generate reports and purge expired versions of the same reports. You can use the Performance Report transformation in report jobs to disregard report expiration dates and remove reports based on their generation date.

To override report expiration dates for all reports in a report job, perform the following steps:

1. Open the report job for the reports that you want to purge.
2. Open the appropriate Performance Report transformation.
3. On the **Report Definitions** tab, select **Delete report content that is older than specified days:** and specify the value as **1**.
4. Save and close the report job.
5. Redeploy the report job.

The next time the report job runs, it generates a new version of the reports and removes all reports that are more than one day old.

Back Up Your Data and Reports

For more information about backing up your data and reports, see Appendix 9, “Best Practices and Troubleshooting Tips,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Schedule Report Jobs Based on the Available Data

Before you run report jobs, ensure that the available data in your IT data mart is sufficient and complete for the type of report job that you want to run. Here are some recommendations to ensure that you have an appropriate set of available data to run various report jobs:

- Ensure that the aggregation jobs that a report job depends on has executed and completed.
- Schedule weekly report jobs to run at the beginning of the week to generate reports for the previous week.
- Schedule monthly report jobs to run at the beginning of the month to generate reports for the previous month.
- Ensure that you have data in your data mart for the last week and the last month before you schedule weekly and monthly jobs.

Override the Graph Type

If you want to override the type of graphics device for your reporting jobs without redeploying your reporting jobs, use the SAS Graph DEVICE option. This is the syntax for the DEVICE system option:

`DEVICE= device-driver-specification`

This option specifies the device driver that is used by SAS/GRAF to generate graphic output. For more information about the DEVICE option, see *SAS System Options: Reference*.

You can set the DEVICE option in two ways:

- as a global SAS option when you invoke the reporting job
- in the SAS configuration file

The graph device is determined from this list in the following order:

1. the graph type that is specified by the DEVICE system option and set as a global option or in the SAS configuration file
2. the graph type that is specified in the **Graph format override** field of the **Report Parameters** tab of a Performance Report transformation
3. the graph type that is specified in the **Graph Format** field that was set on the **Options** page of the ITRM Report Definition task.
4. ActiveX is the default graph type when using the ITRM Report Definition task to create your own report definitions. (Most supplied report definitions are set to ActiveX. However, JAVA and PNG are also used.)

Note: The supported graph devices are **JAVA**, **ACTIVE**, and **PNG**. However, on MVS and UNIX, ActiveX is not supported, because the related **ACTIVE** Image format is not available.

Appendix 5

Setting Up Web Links in Tile Charts

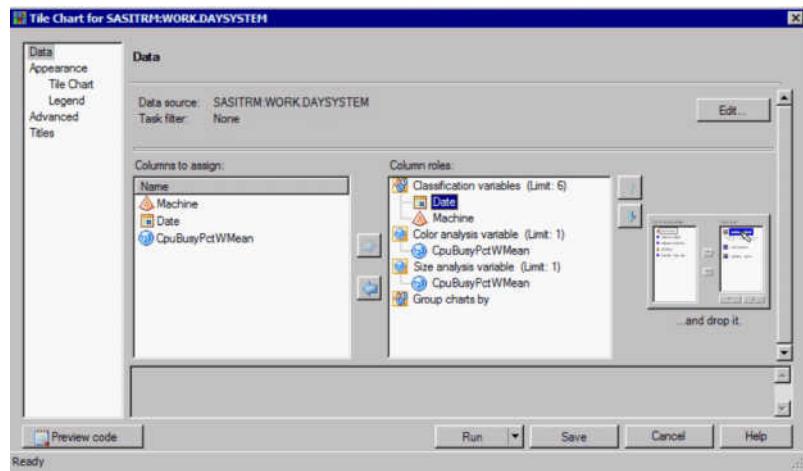
Tile charts (or treemaps) that are created using the SAS Enterprise Guide tile chart task include a web link to SAS IT Resource Management reports. To add a web link to SAS IT Resource Management reports, use the servlet that SAS IT Resource Management provides. The servlet associates the JAVA-based tile chart classification variables with an ITRM report that has matching BY variables.

Using the servlet, you specify tile chart web link parameters that enable you to drill down from that tile chart to ITRM reports that are stored on the SAS Content Server.

To implement this feature, perform the following steps:

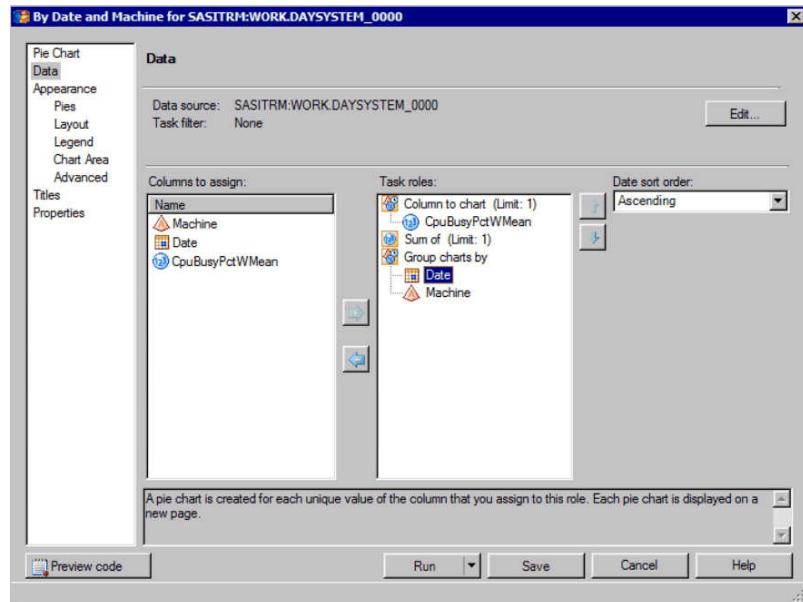
1. Ensure that you have an IT data mart that contains all of the data sources that you want to work with.
2. Open SAS Enterprise Guide and select the information map that you want to work with.
3. Select the tile chart task to define the tile chart report.
 - a. Carefully consider the classification variables when you are exploring the data. These values are used to identify the ITRM reports by their BY variables that are used for the tile chart web links.
 - b. From the Properties dialog box of the tile chart task, select **Results**. Set the graph type to **JAVA**.
 - c. Run the report interactively and confirm that the drill-down criteria are defined correctly.

The following display shows a tile chart task with two columns identified as classification variables: Date and Machine.

Figure A5.1 Definition of a Tile Chart

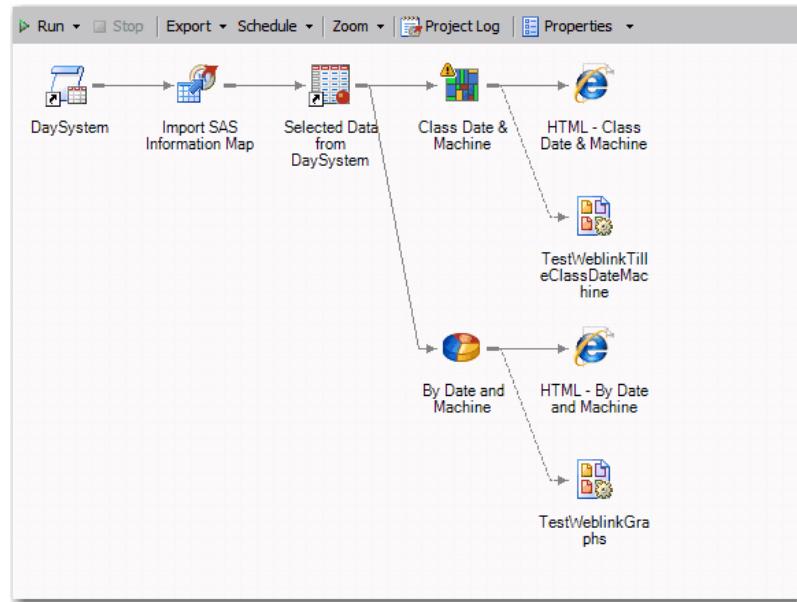
4. Using the same information map data source, create the report that you want to access using web links from the tile chart:
 - a. The BY variables of this report must match the class variables that were used in the tile chart.
 - b. Run the report interactively and confirm that the BY variables are defined correctly.

The following display shows a pie chart task with two columns identified as BY variables: Date and Machine.

Figure A5.2 Setting Up BY Variables: Date and Machine

5. When you are satisfied that both reports are defined correctly, add an ITRM report definition task for each report task that you defined. In addition, create the report definitions on the SAS Metadata Server by deploying the ITRM report definition tasks.

Figure A5.3 Project with Web Links Graphs



- a. Carefully consider the report definition names that you specify so that they are easy to identify because you will use them as parameter values in the servlet provided by ITRM.
- b. For the ITRM report definition task that is associated with the tile chart, set the graph type to **JAVA**.
- c. Consider using a keyword to help easily find the reports using ITRM Report Center when verifying the report output. You can define your own keyword for this purpose.
6. In the SAS IT Resource Management client, create a report job to run the two report definitions that you created in the previous steps. Run the job interactively and confirm that the report output looks correct. You can use ITRM Report Center to view the reports.

Note: You can use ITRM Report Center to create a gallery from which you can view the reports.

7. When you are satisfied that the reports that are generated by the report job are correct, use SAS Enterprise Guide to add the web link URL to the tile chart task and redeploy the report definition.

From the Advanced window of the SAS Enterprise Guide tile chart task, enter a web link label and a URL. The web link label is displayed as the tile chart web link. Specify the URL with the following components:

- The middle-tier server name where ITRM Report Center is running
- The case-sensitive SAS IT Resource Management servlet name
- The case-sensitive SCSRootPath for the SAS IT Resource Management reports to which the tile charts link

The SCS root path consists of the SAS **sasdav** path, the **ITRM** root path, and the folder location where the web link should search for reports.

- One or more web link parameters

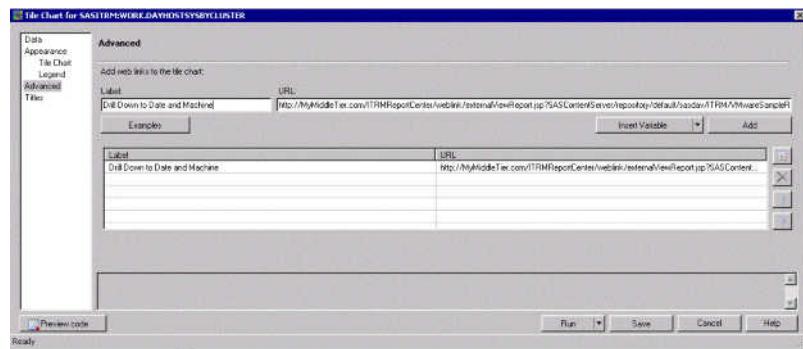
Here is an example:

- Middle-tier server name: `http://MyMiddleTier.com`
- Servlet name: `ITRMReportCenter/weblink/externalViewReport.jsp?`
- SCSRootPath: `/SASContentServer/repository/default/sasdav/ITRMRoot/DataMartName_JobName/ITRMReportDefinitionName`
- Classification and BY variable names (for example, `&VariableName1={&1}` `&VariableName2={&2}`)

The previous instructions yield this URL: `http://MyMiddleTier.com/ITRMReportCenter/weblink/externalViewReport.jsp?SCSRootPath=/SASContentServer/repository/default/sasdav/MyRoot/MyDataMart_MyJob/MyReportDefinition&VariableName1={&1}&VariableName2={&2}`

8. The following display shows the Advanced dialog box for the tile chart task where the information from the previous step is entered:

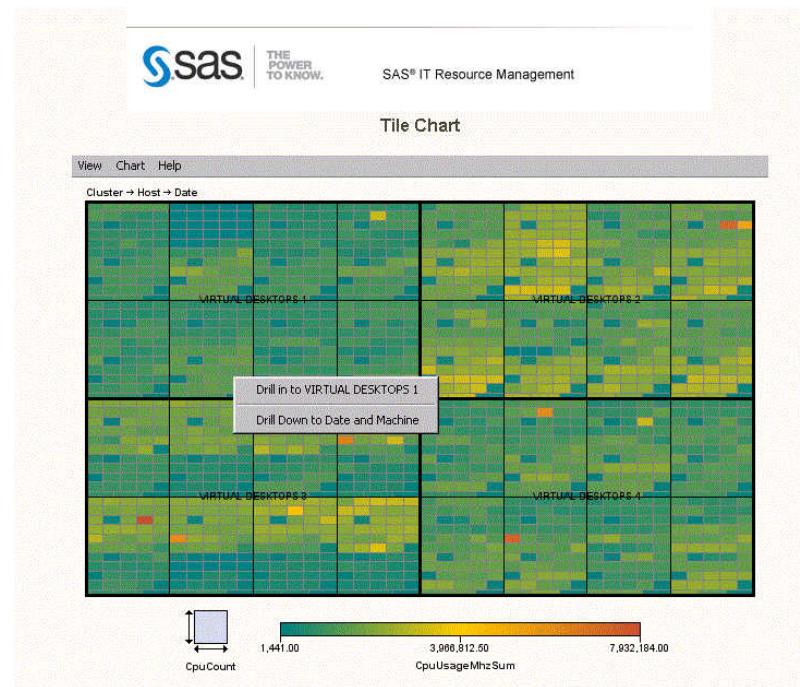
Figure A5.4 Dialog Box with Updated URL



9. Each SAS Enterprise Guide tile chart with a unique set of web links must be associated with its own report definition. In other words, the following statements apply:

- A tile chart task can have more than one web link.
- All tile charts that are associated with a report definition must share the same (one or more) web links.

The following display shows the resulting tile chart with the web link enabled. When you are right-clicking a tile, the web link launches the SAS IT Resource Management bar chart that meets the established criteria.

Figure A5.5 Tile Chart with Web Links Enabled

Appendix 6

Report Conversion Guide

Converting Reports	196
About Converting Reports	196
Global and Individual Report Tasks and Options	198
Stack Columns Task (Reference 1)	200
Custom User Code to Accumulate Stacked Data (Reference 2)	201
Creating Bar and Pie Charts Using SAS Enterprise Guide	203
About Bar and Pie Charts	203
Bar Chart and Pie Chart Notes	204
Example 1	206
Example 2	207
Example 3	208
Example 4	209
Example 5	210
Example 6	211
Example 7	212
Example 8	213
Example 9	214
Creating Line and Other Plots Using SAS Enterprise Guide	215
About Line and Other Plots	215
Line and Other Plot Notes	216
Example 10	217
Example 11	218
Example 12	219
Example 13	220
Example 14	221
Example 15	222
Example 16	223
Example 17	224
Example 18	225
Example 19	226
Example 20	227
Creating Tabular Reports Using SAS Enterprise Guide	227
About Tabular Reports	227
Example 21	229
Example 22	230
Example 23	231
Example 24	232
Example 25	233
Example 26	234

Example 27	235
Example 28	236
Working with SAS IT Resource Management	236
Dynamically Summarized Reporting	236
Working with Migrated PDBs	237

Converting Reports

About Converting Reports

SAS IT Resource Management incorporates the world-class data management, reporting, and report distribution capabilities that are available from SAS. In previous releases, SAS IT Resource Management relied upon a custom reporting interface to perform the following tasks:

- Summarize data by time periods that were specified at report generation time.
- Define and set report options.
- Generate a specific set of report types.

SAS Enterprise Guide has long been available to SAS IT Resource Management customers as a reporting tool option, but the primary reporting capability was the IT Resource Management report macros. Beginning with SAS IT Resource Management 3.1.1, SAS Enterprise Guide became the primary reporting tool for the SAS IT Resource Management solution. Legacy report macros for SAS IT Resource Management are no longer delivered.

This document provides a guideline for converting reports that are generated by the SAS IT Resource Management 2.7 reporting tools (the report macros) to new and enhanced reports using SAS IT Resource Management 3.2 (and later versions of the solution) and the SAS Enterprise Guide reporting tool.

Here are some similarities between using the SAS IT Resource Management 2.7 reporting tool and using SAS IT Resource Management 3.2 (and later versions of the solution) and SAS Enterprise Guide to generate reports:

- Both reporting tools provide an interface that enables you to generate reports quickly and easily without requiring SAS programming skills.
- Both reporting tools enable you to write and submit SAS code to generate reports.
- Both reporting tools support a variety of SAS graph types and options.
- Both reporting tools generate the SAS code that is necessary to create the desired reports.
- Both reporting tools support the creation of report definitions that can be run in batch mode.

However, there are differences between using the SAS IT Resource Management 2.7 reporting tool and using SAS IT Resource Management 3.2 (and later versions of the solution) and SAS Enterprise Guide to generate reports:

- The SAS IT Resource Management 2.7 reporting tools performed data manipulation tasks that were sometimes time consuming. Whenever possible, data manipulation tasks are now accomplished while data is staged and aggregated by SAS IT Resource Management. This results in information map data sources that are report ready and can serve as input to SAS Enterprise Guide and SAS Web Report Studio.

- SAS Enterprise Guide delivers a user-friendly interface from which a significant set of report tasks and task options are selected. The user interface for SAS Enterprise Guide is far superior to the SAS IT Resource Management 2.7 user interface for report generation.
- SAS Enterprise Guide supports a much larger set of report types and options than those that are available in the SAS IT Resource Management 2.7 report macros. It also offers many data management and analytical procedures that are not available in SAS IT Resource Management 2.7.

SAS Enterprise Guide supports reporting from report-ready data that is accessible through information maps. Using information maps is the recommended method for accessing data in SAS IT Resource Management 3.2 (and later versions of the solution).

The following table shows the SAS IT Resource Management 2.7 macros and the SAS Enterprise Guide tasks that can be used to generate equivalent reports in SAS IT Resource Management 3.2 (and later versions of the solution). Much of the existing functionality that is available through SAS IT Resource Management 2.7 reporting macros is provided by SAS Enterprise Guide. The data manipulation capabilities are now handled by staging and aggregation processes of SAS IT Resource Management.

Table A6.1 SAS Enterprise Guide Report Tasks for SAS IT Resource Management 2.7 Report Macros

SAS IT Resource Management 2.7 Report Macro	SAS Enterprise Guide Report Task or Feature That Is Used to Re-create the Report for SAS IT Resource Management 3.2 (and Later Versions of the Solution)
%CPCHART	Bar chart and pie chart tasks
%CPCCHRT	Bar chart and pie chart tasks
%CPPLOT1	Line plot, scatter plot, area plot, and box plot tasks
%CPPLOT2	Line plot task
%CPTABRPT	Summary tables task
%CPPRINT	List data task
%CPSRCRPT	Program Node task
%CPG3D	3-D Scatter plot task
%CPGTPLT	Document builder feature
%CPSETHAX	SAS Enterprise Guide report option for selected reports
%CPIDTOPN	Information map filter or Query task
%CPRUNRPT	Stored process feature
%CPSPEC	Tile chart task

SAS IT Resource Management 2.7 Report Macro	SAS Enterprise Guide Report Task or Feature That Is Used to Re-create the Report for SAS IT Resource Management 3.2 (and Later Versions of the Solution)
%CPEXCEPT	Information map filter or Query task
%CPHTREE	ITRM Report Definition Task
%CPMANRPT	ITRM Report Definition Task
%CPWEBINI	ITRM Report Definition Task
%CPXHTML	ITRM Report Definition Task
%CPENTCPY	Obsolete

For detailed information about creating specific reports and setting report task options using SAS Enterprise Guide, see the following sections.

Global and Individual Report Tasks and Options

About Report Tasks and Options

To create reports with SAS Enterprise Guide, use the report task that is associated with the report that you want to create. You can set the options for the report in one of the following three ways:

- Set global options in the Options window. These options apply to all tasks in the SAS Enterprise Guide project.
- Set options in each individual report task.
- Set options in the ITRM Report Definition task when working with report definitions that are to run in batch mode.

The report options and their respective functions are labeled clearly and are described in the Help for SAS Enterprise Guide. Report tasks with similar options use similar Options windows.

Global Report Task Options

In SAS Enterprise Guide, there are a few report task options that can be set for all report tasks in your project. To set one of these options, select **Tools** \Rightarrow **Options** from the menu bar. Then, on the left pane of the Options window, select the category of report options that you want to configure. The following list shows some of the global options that you can set.

- **Graph** enables you to specify the graph format (such as ActiveX or PNG) and graph dimensions (such as height and width).
- **Tasks General** enables you to specify the report title and footnote.
- **Viewer** enables you to specify how you want to view report output (such as SAS Enterprise Guide or your local browser).
- **Custom Code** enables you to specify options related to using custom code.

Global Color, Pattern, and Symbol Options Using SAS Templates

In SAS Enterprise Guide, pattern and symbol options can be set at the individual report task level. However, you can set these options once for the entire project using SAS templates and style sheets. Global options can be set using this method and can still be overridden in an individual report task for a specific task. To set these global graph options, perform the following steps:

1. Use SAS to create your custom SAS template.
2. Use SAS Enterprise Guide to create your custom style sheet with the same name as your custom SAS template.
3. Set the custom style sheet as the default style.
4. Run your report tasks.

Reports whose have graph options are not set for the report task will use the colors, patterns, and symbols that are set in your SAS template. For details about how to create a custom SAS Template and style sheet, see “[About Templates and Style Sheets](#)” on [page 87](#).

Individual Report Task Options

Most report task options are set individually by specifying values for each report task. To set values for the report task options in an individual report task, perform the following steps:

1. Right-click a report task and select **Modify <report task name>**.
2. Select from the various menu options in the left pane, and specify values for the corresponding parameters.

Click **Help** to view the Help on any specific option in the current window.

Top N and Bottom N Reporting

In SAS IT Resource Management 2.7, some report types support the Top N and Bottom N reporting option. For other report types, using the macro %CPIDTOPN is required.

You can use SAS Enterprise Guide to report on the top or bottom contributors for a specific column in SAS IT Resource Management 3.2 (and later versions of the solution). To do so, you can use a filter to select the top or bottom contributors for a specific rank column that is created when data is aggregated by SAS IT Resource Management. Information map filters can be defined (using Information Map transformations in SAS IT Resource Management or using SAS Information Map Studio) and selected (using the **Filter** tab of the Information Map window) in SAS Enterprise Guide. Filters can also be specified within SAS Enterprise Guide Query tasks.

Report Output

In SAS Enterprise Guide, you can generate graph output to the SAS Enterprise Guide window or to a local browser. You can specify your preference by selecting **Tools** \Rightarrow **Options** from the menu bar. You can also generate graph output by publishing to a web server or to a file system.

You can use the ITRM Report Definition task to create report definitions that are submitted in report jobs. The report jobs generate reports in the SAS content server and are displayed with ITRM Report Center.

You can also use SAS Management Console to define channels and then select a channel when publishing from SAS Enterprise Guide. In addition, if you use the SAS Report format, a report can be published to a repository and SAS Web Report Studio. For more

information about publishing SAS Enterprise Guide reports, see SAS Enterprise Guide Help.

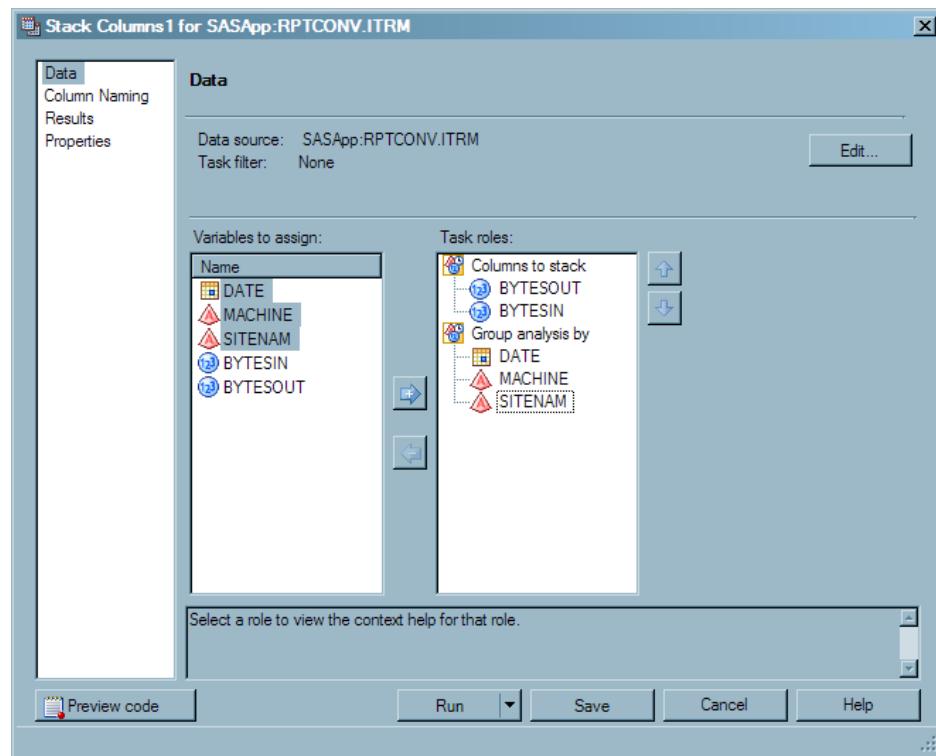
Print a Report

To print a report from the SAS Enterprise Guide window select **File** \Rightarrow **Print** or right-click the SAS Enterprise Guide report window and select **Print**. You can also use your web browser print capabilities to print reports when viewing them from a browser in SAS Enterprise Guide, SAS Information Delivery Portal, and ITRM Report Center.

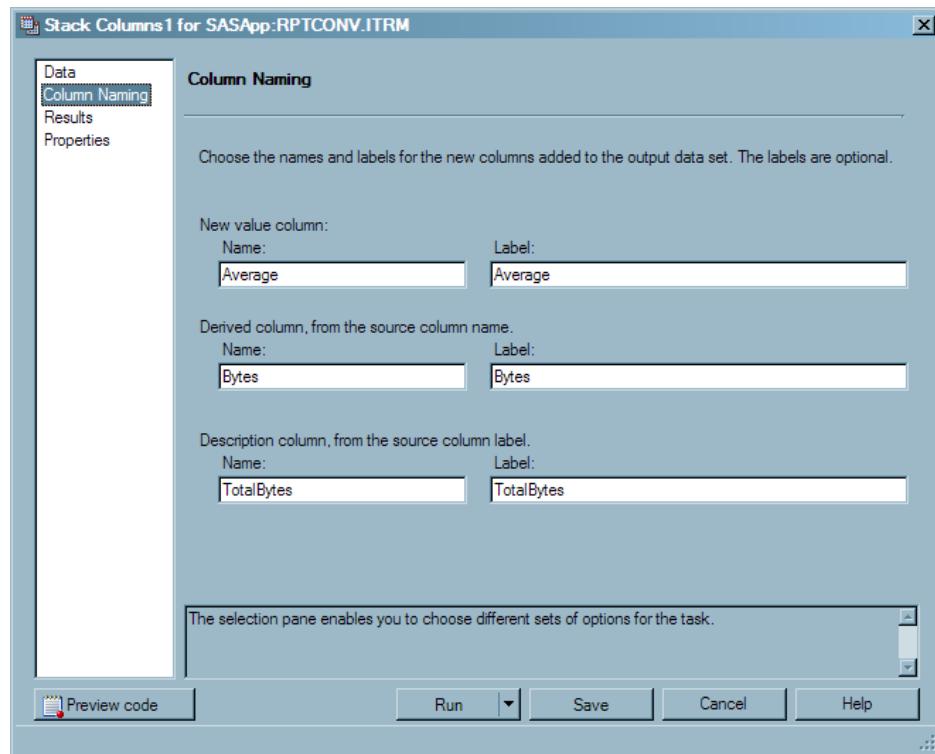
Stack Columns Task (Reference 1)

The Stack Columns task in SAS Enterprise Guide enables you to stack your data so that multiple columns of data can become multiple rows of data. This step is required for re-creating certain charts and plots that are available in SAS IT Resource Management 2.7.

The following example shows where two analysis variables are stacked. Assign the variables from the **Variables to assign** box to the appropriate role in the **Task roles** box.



Next, select **Column Naming** to open the Column Naming window and change the default column names and labels for the new columns that are created. This step is optional. However, changing the default column labels is recommended because they are very long and can cause unexpected errors for some graph types.



For more information about working with the Stack Columns task, see the SAS Enterprise Guide Help.

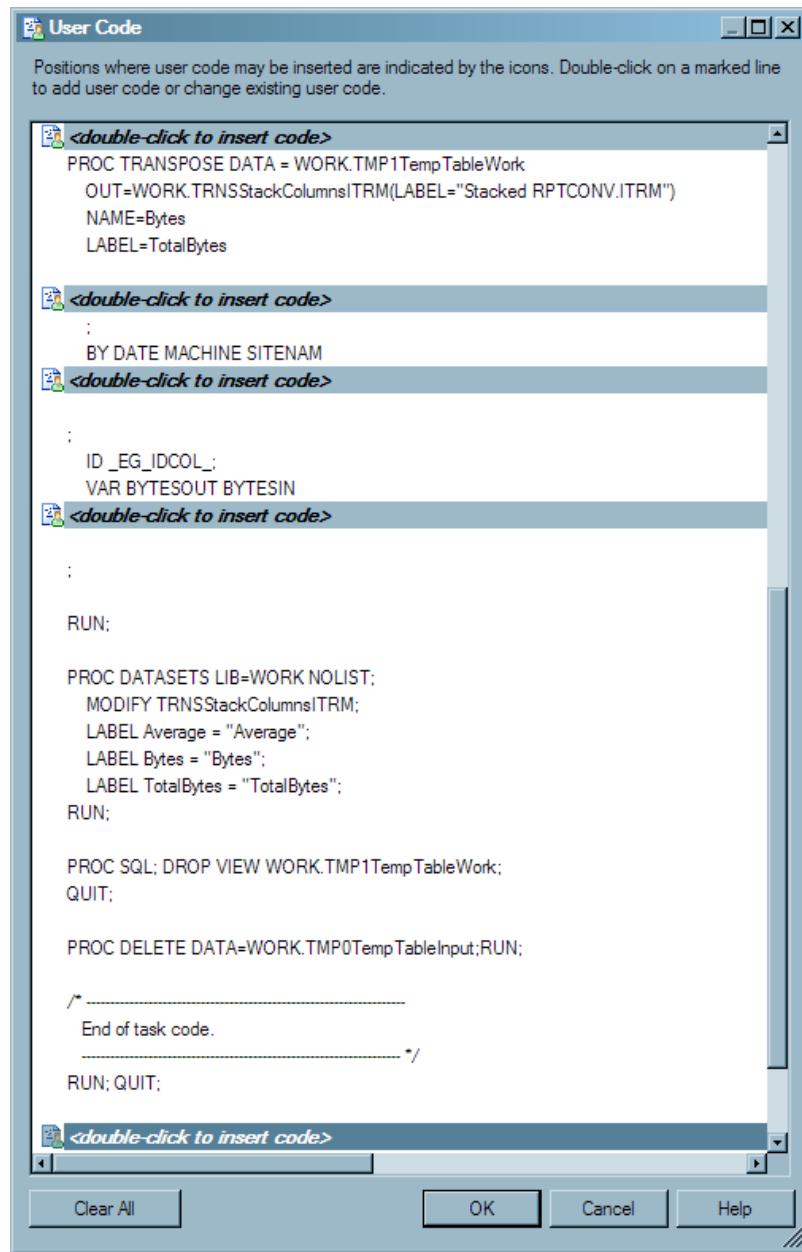
Custom User Code to Accumulate Stacked Data (Reference 2)

The Stack Columns task in SAS Enterprise Guide enables you to reshape your data so that multiple columns of data can become multiple rows of data. This step is required for re-creating certain charts and plots that are available in SAS IT Resource Management 2.7.

However, custom user code is required if you also want to accumulate the data. This step is required for re-creating stacked plots that are available in SAS IT Resource Management 2.7.

You can add custom user code to the Stack Columns task by selecting **Preview code** \Rightarrow **Insert Code**. Your custom code must follow the RUN statement that follows the TRANPOSE procedure code that is generated by SAS Enterprise Guide.

The following image shows the User Code window. You can insert custom user code wherever an “insert code” icon appears. The “insert code” icon at the bottom of the image shows where you should insert your custom user code to accumulate your data.



The screenshot shows the SAS User Code dialog box. The code is as follows:

```

User Code

Positions where user code may be inserted are indicated by the icons. Double-click on a marked line to add user code or change existing user code.

<double-click to insert code>
PROC TRANSPOSE DATA = WORK.TMP1TempTableWork
  OUT=WORK.TRNSStackColumnsITRM(LABEL="Stacked RPTCONV.ITRM")
  NAME=Bytes
  LABEL=TotalBytes

<double-click to insert code>
:
BY DATE MACHINE SITENAM
<double-click to insert code>
:
ID _EG_IDCOL_;
VAR BYTESOUT BYTESIN
<double-click to insert code>
:
RUN;

PROC DATASETS LIB=WORK NOLIST;
  MODIFY TRNSStackColumnsITRM;
  LABEL Average = "Average";
  LABEL Bytes = "Bytes";
  LABEL TotalBytes = "TotalBytes";
RUN;

PROC SQL; DROP VIEW WORK.TMP1TempTableWork;
QUIT;

PROC DELETE DATA=WORK.TMP0TempTableInput;RUN;

/* -----
   End of task code.
----- */
RUN; QUIT;

<double-click to insert code>

```

At the bottom of the dialog box are buttons for Clear All, OK, Cancel, and Help.

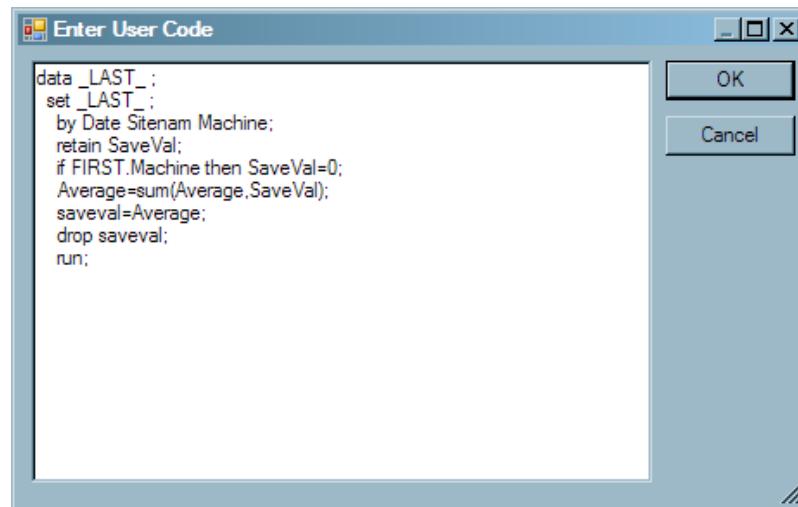
The custom user code that is required to accumulate your data is a DATA step that accumulates the output from PROC TRANSPOSE. The next display shows a code fragment that includes PROC TRANSPOSE and a DATA step for accumulating your stacked data.

Note that when writing the DATA step, some information is derived from PROC TRANSPOSE. The following information is derived from PROC TRANSPOSE:

- The list of BY variables must equal the list of BY variables of PROC TRANSPOSE.
- The required variable for the FIRST function will be derived from the BY variable list of PROC TRANSPOSE. The variable that is selected determines how your data is accumulated. Use the following rules to determine which variable to select for the FIRST function:
 - If you want to accumulate analysis variables (as shown in “[Example 16](#) on page 223), then select the last BY variable from PROC TRANSPOSE for the FIRST function of your DATA step.

- If you want to accumulate a class variable (as shown in “[Example 18](#)” on page 225), then use the next to last BY variable from PROC TRANSPOSE for the FIRST function of your DATA step.

The following example shows how to accumulate an analysis variable.



Creating Bar and Pie Charts Using SAS Enterprise Guide

This section discusses the means by which bar and pie charts were created with SAS IT Resource Management 2.7 and the recommended means by which they are created using SAS IT Resource Management 3.2 (and later versions of the solution).

About Bar and Pie Charts

The following table shows the eight chart types that are available in SAS IT Resource Management 2.7 and the corresponding SAS Enterprise Guide task that is available to generate those chart types in SAS IT Resource Management 3.2 (and later versions of the solution).

Table A6.2 SAS IT Resource Management 2.7 Chart Types and Corresponding SAS Enterprise Guide Tasks

Chart Type	SAS Enterprise Guide Task
Vertical Bar	Bar Chart task
Horizontal Bar	Bar Chart task
Vertical Bar 3-D	Bar Chart task
Horizontal Bar 3-D	Bar Chart task
Pie	Pie Chart task

Chart Type	SAS Enterprise Guide Task
Pie 3-D	Pie Chart task
Star	Bar Chart task - Appearance Options, Shape
Block	Bar Chart task - 3-D vertical bar chart

In SAS Enterprise Guide, the bar orientations (vertical and horizontal) are task subtype options that are available in the Bar Chart task. The bar dimensions (two-dimensional and three-dimensional) are appearance options in the Bar Chart and Pie Chart tasks.

This section provides more details about the SAS IT Resource Management 2.7 macros that create various types of bar and pie charts and the equivalent SAS Enterprise Guide steps that are required to re-create these types of reports.

The %CPCHART macro creates the following three bar chart types:

- one analysis column and one class column ([“Example 1” on page 206](#))
- one analysis column, one class column, and one group column ([“Example 2” on page 207](#))
- one analysis column, one class column, and one subgroup column ([“Example 3” on page 208](#))

The %CPCCHRT macro creates the following four bar chart types:

- multiple analysis columns ([“Example 4” on page 209](#))
- multiple analysis columns and one group column ([“Example 5” on page 210](#))
- multiple analysis columns, one group column, and one subgroup column ([“Example 6” on page 211](#))
- multiple analysis columns, one group column, and one stack column ([“Example 7” on page 212](#))

The %CPCHART macro creates a pie chart of one analysis column and one class column ([“Example 8” on page 213](#)).

The %CPCCHRT macro creates a pie chart type of multiple analysis columns ([“Example 9” on page 214](#)).

The following sections show how to re-create these bar chart and pie chart types using SAS Enterprise Guide.

Bar Chart and Pie Chart Notes

Here are some notes that you might consider when working with bar charts and pie charts:

- Do not confuse the **Group bars by** role that is available in some chart tasks, with the **Group charts by** role. The **Group charts by** role is a role that is available in most report tasks. It enables you to create a different report page for each value of the **Group charts by** column.
- The Transpose task can be substituted for the Stack Columns task. For more information about the differences between the Stack Columns task and the Transpose task, see SAS Enterprise Guide Help.

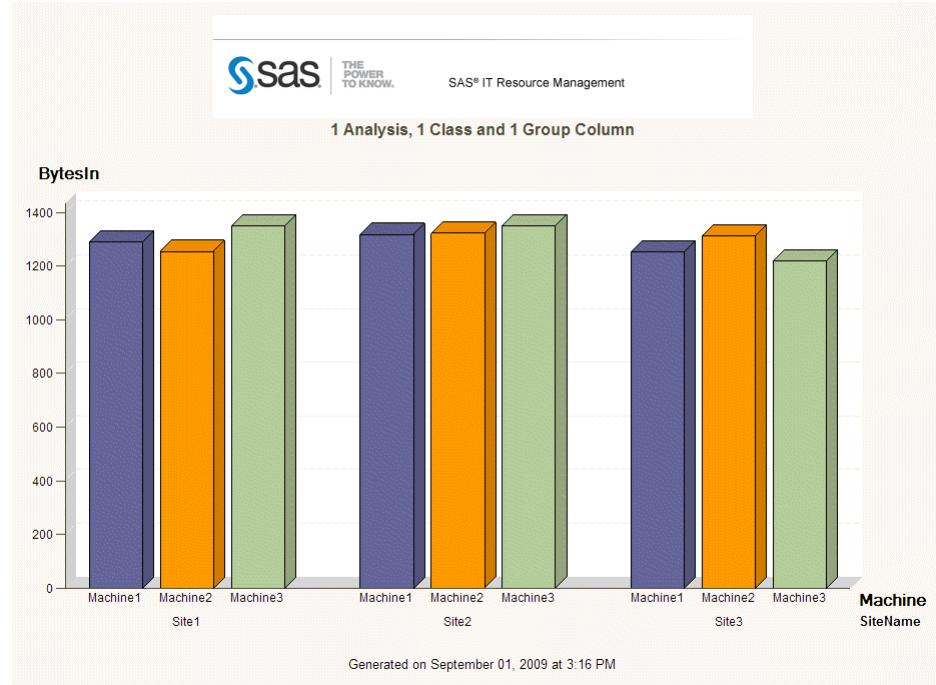
- The graph examples in the following sections typically show two analysis columns wherever multiple analysis columns are supported.
- Some graph titles might refer to SAS IT Resource Management 2.7 terminology to help you make the transition from SAS IT Resource Management 2.7 to SAS IT Resource Management 3.2 (and later versions of the solution). For example, a class column that is assigned to a subgroup role in SAS IT Resource Management 2.7 might be assigned to a stack role in SAS IT Resource Management 3.2 (and later versions of the solution). This technique would achieve the same results.

Example 1

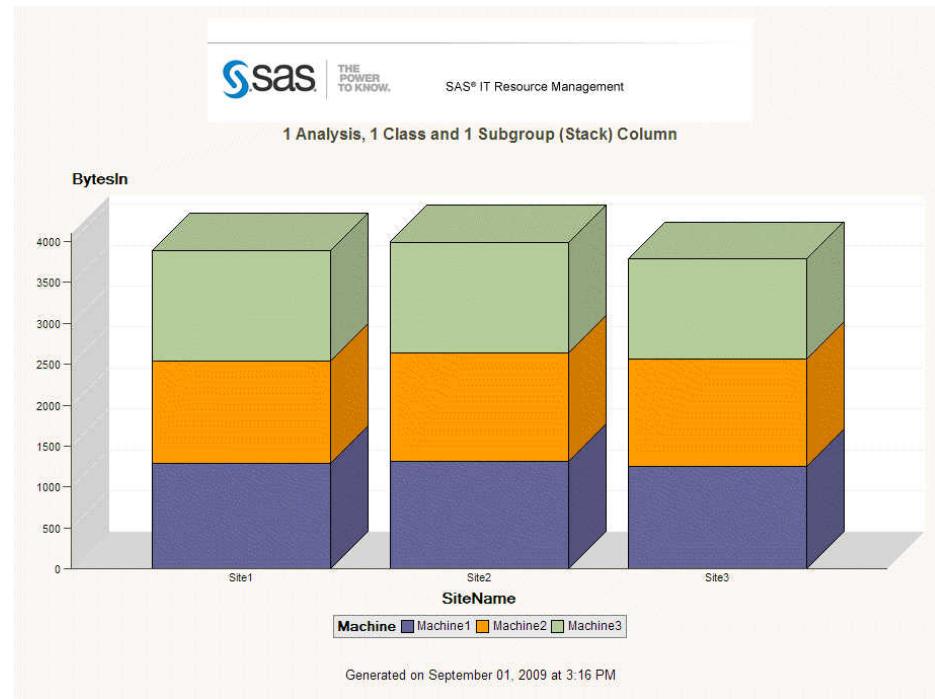
Bar Chart with One Analysis Column and One Class Column



1. Select the Bar Chart task.
2. Select the **Simple Vertical Bar** chart type.
3. Assign one analysis column to the **Sum of** role.
4. Assign one class column to the **Column to chart** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 2**Bar Chart with One Analysis Column, One Class Column, and One Group Column**

1. Select the Bar Chart task.
2. Select the **Grouped Vertical Bar** chart type.
3. Assign one analysis column to the **Sum of** role.
4. Assign one class column to the **Column to chart** role.
5. Assign one class column to the **Group bars by** role.
6. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 3**Bar Chart with One Analysis Column, One Class Column, and One Subgroup Column**

1. Select the Bar Chart task.
2. Select the **Stacked Vertical Bar** chart type.
3. Assign one analysis column to the **Sum of** role.
4. Assign one class column to the **Column to chart** role.
5. Assign one class column to the **Stack** role.
6. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 4**Bar Chart with Two Analysis Columns**

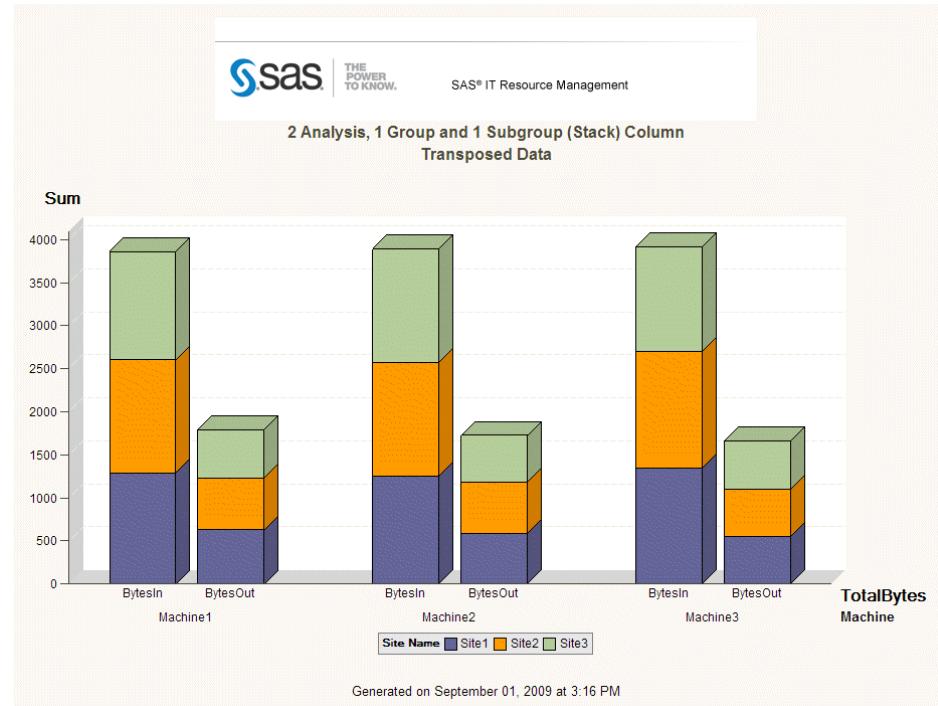
1. Select the Bar Chart task.
2. Select the **Multiple Measures Vertical Group** chart type.
3. Assign the columns that you want to chart to the **Sum of** role.
4. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 5**Bar Chart with Two Analysis Columns and One Group Column**

1. Select the Bar Chart task.
2. Select the **Multiple Measures Vertical Group** chart type.
3. Assign the columns that you want to chart to the **Sum of** role.
4. Assign one class column to the **Column to chart** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

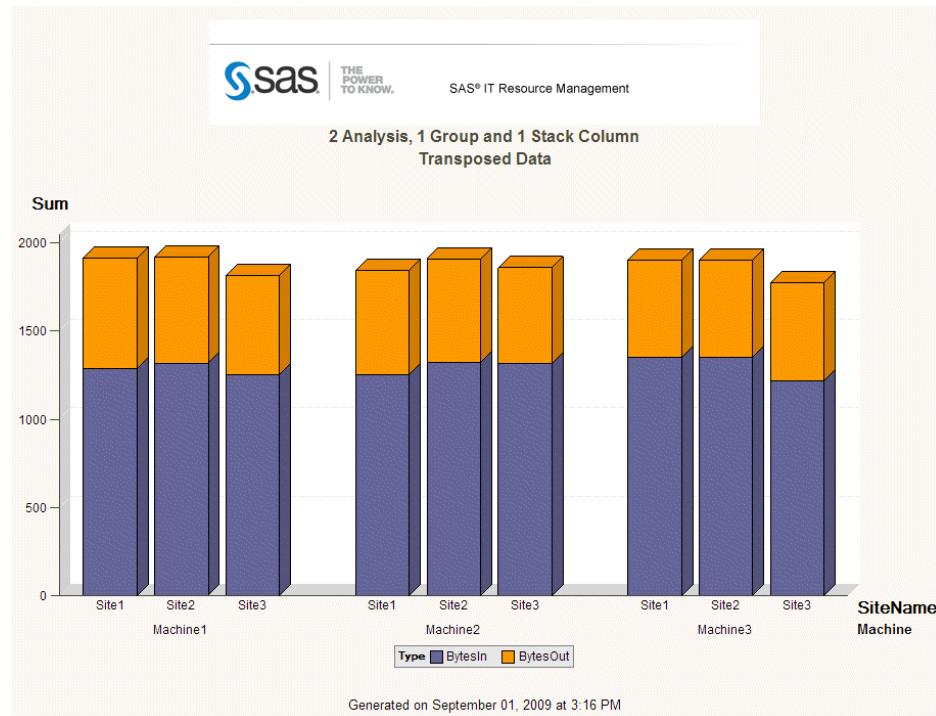
Example 6

Bar Chart with Two Analysis Columns, One Group Column, and One Subgroup Column



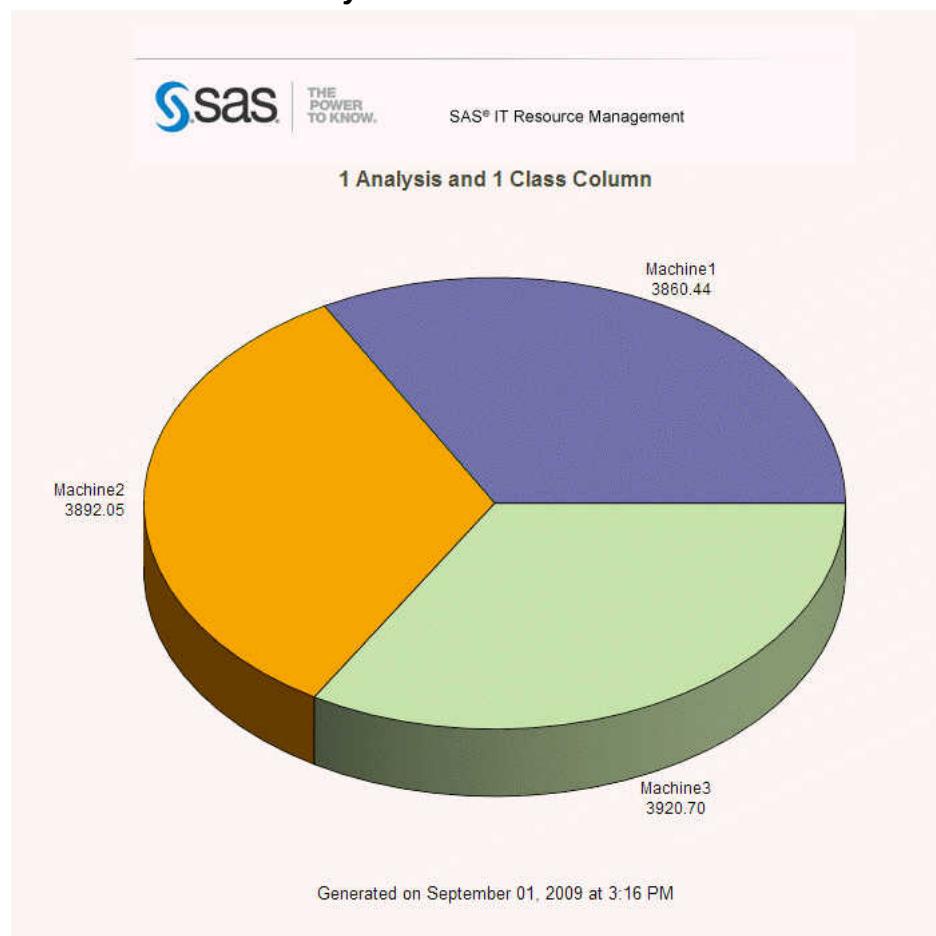
1. Select the Stack Columns task located in the Data category to transpose your data.
2. Assign the two analysis columns that you want to chart to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels. For information about how to do this, see “[Stack Columns Task \(Reference 1\)](#)” on page 200.
5. Run the Stack Columns task to transpose your data.
6. Select the Bar Chart task.
7. Select the **Grouped/Stacked Vertical Bar** chart type.
8. Assign the new transposed analysis column to the **Sum of** role.
9. Assign the new transposed class column to the **Column to chart** role.
10. Assign one class column to the **Group bars by** role.
11. Assign one class column to the **Stack** role.
12. (Optional) Assign one or more class columns to the **Group charts by** role.

Note: The difference between this bar chart example and “[Example 7](#)” is in the column role assignments.

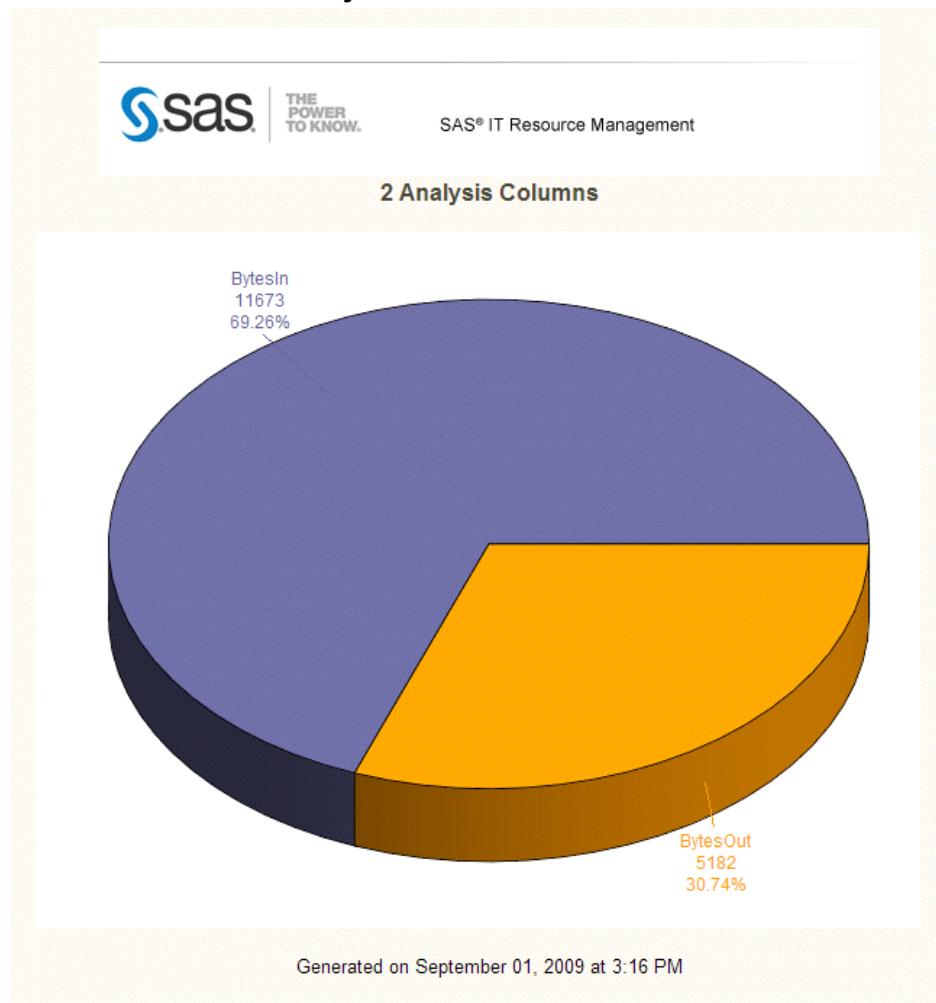
Example 7**Bar Chart with Two Analysis Columns, One Group Column, and One Stack Column**

1. Select the Stack Columns task located in the Data category to transpose your data.
2. Assign the two analysis columns that you want to chart to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels. For information about how to do this, see “[Stack Columns Task \(Reference 1\)](#)” on page 200.
5. Run the Stack Columns task to transpose your data.
6. Select the Bar Chart task.
7. Select the **Grouped/Stacked Vertical Bar** or the **Grouped/Stacked Horizontal Bar** chart type.
8. Assign the new transposed analysis column to the **Sum of** role.
9. Assign one class column to the **Column to chart** role.
10. Assign one class column to the **Group bars by** role.
11. Assign the new transposed class column to the **Stack** role.
12. (Optional) Assign one or more class columns to the **Group charts by** role.

Note: The difference between this bar chart example and “[Example 6](#)” on page 211 is in the column role assignments.

Example 8**Pie Chart with One Analysis Column and One Class Column**

1. Select the Pie Chart task.
2. Select the **Simple Pie** chart type.
3. Assign one analysis column to the **Sum of** role.
4. Assign one class column to the **Column to chart** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 9**Pie Chart with Two Analysis Columns**

1. Select the Stack Columns task located in the Data category to transpose your data.
2. Assign the two analysis columns that you want to chart to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels. For information about how to do this, see “[Stack Columns Task \(Reference 1\)](#)” on page 200.
5. Run the Stack Columns task to transpose your data.
6. Select the Pie Chart task.
7. Select the **Simple Pie** chart type.
8. Assign the new transposed analysis column to the **Sum of** role.
9. Assign the new transposed class column to the **Column to chart** role.
10. (Optional) Assign one or more class columns to the **Group charts by** role.

Creating Line and Other Plots Using SAS Enterprise Guide

This section discusses the means by which line and other plots were created with SAS IT Resource Management 2.7. It also discusses the recommended means by which they are created using SAS IT Resource Management 3.2 (and later versions of the solution).

About Line and Other Plots

The following table shows the 15 plot types or options that are available in SAS IT Resource Management 2.7 and the corresponding SAS Enterprise Guide tasks that are available to generate those chart types in SAS IT Resource Management 3.2 (and later versions of the solution).

Table A6.3 SAS IT Resource Management 2.7 Plot Types and Corresponding SAS Enterprise Guide Tasks

Plot Type	SAS Enterprise Guide Task
2XY	Line Plot task
Line	Line Plot task
Join	Line Plot task
Needle	Line Plot task
Smooth	Line Plot task
Spline	Line Plot task
Standard Deviation	Line Plot task
Step Center	Line Plot task
Percent	Line Plot task
Scatter	Scatter Plot task
Stack	Area Plot task
Stack Percent	Area Plot task
Box Plot	Box Plot task
Hi-Low plot	Box Plot task
Regression	Various regression plots in the Analyze category of plots

This section provides more detail about the SAS IT Resource Management 2.7 macro that creates various types of plots and the equivalent SAS Enterprise Guide steps that are required to re-create these types of reports.

The %CPPLOT1 macro is used to create the following plot types:

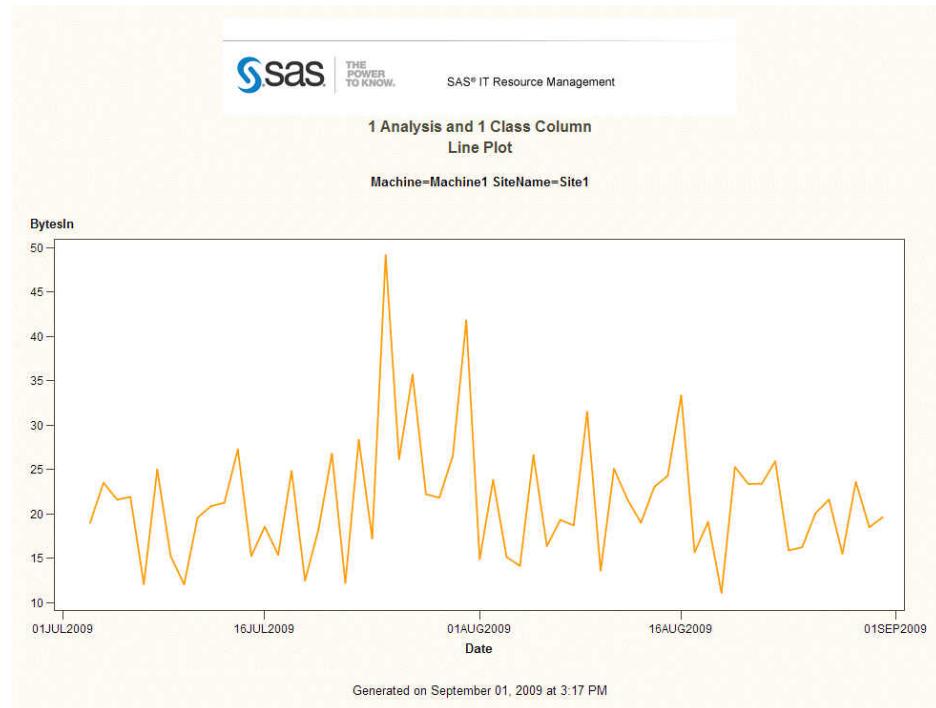
- one analysis column and one class column as shown in the following examples:
 - line plot (“[Example 10](#)” on page 217)
 - step plot (“[Example 11](#)” on page 218)
 - box plot (“[Example 12](#)” on page 219)
 - hi-low plot (“[Example 13](#)” on page 220)
- multiple analysis columns (scatter plot – “[Example 14](#)” on page 221)
- multiple analysis columns and one class column as shown in the following examples:
 - line plot (“[Example 15](#)” on page 222)
 - line stack plot (“[Example 16](#)” on page 223)
- one analysis column, one class column, and one group column as shown in the following examples:
 - line plot (“[Example 17](#)” on page 224)
 - line stack plot (“[Example 18](#)” on page 225)

The %CPPLOT2 macro creates a line plot that is named 2XY Plot with Multiple Analysis Columns and One Class Column (“[Example 19](#)” on page 226).

Line and Other Plot Notes

Here are some notes that you might consider when working with plot reports:

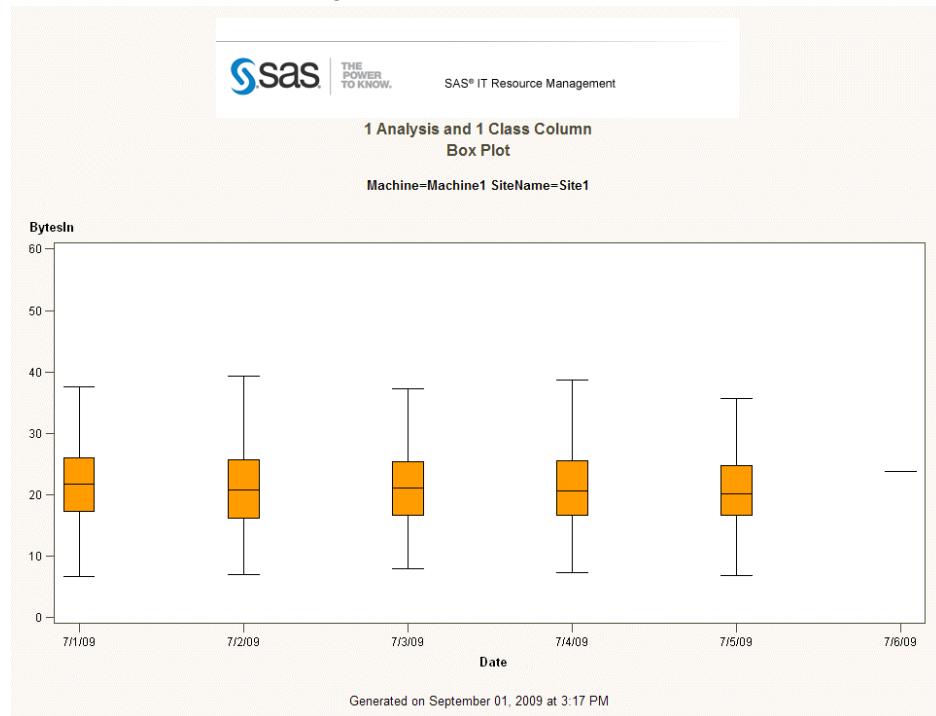
- Do not confuse the **Group** role that is available in some plot tasks, with the **Group charts by** role. The **Group charts by** role is a role that is available in most report tasks. It enables you to create a different report page for each value of the **Group charts by** column.
- The graph examples in the following sections typically show two analysis columns wherever multiple analysis columns are supported.

Example 10**Line Plot with One Analysis Column and One Class Column**

1. Select the Line Plot task.
2. Select the Line Plot subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 11**Step Plot with One Analysis Column and One Class Column**

1. Select the Line Plot task.
2. Select the Step Plot subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 12**Box Plot with One Analysis Column and One Class Column**

1. Select the Box Plot task.
2. Select the Box Plot subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 13

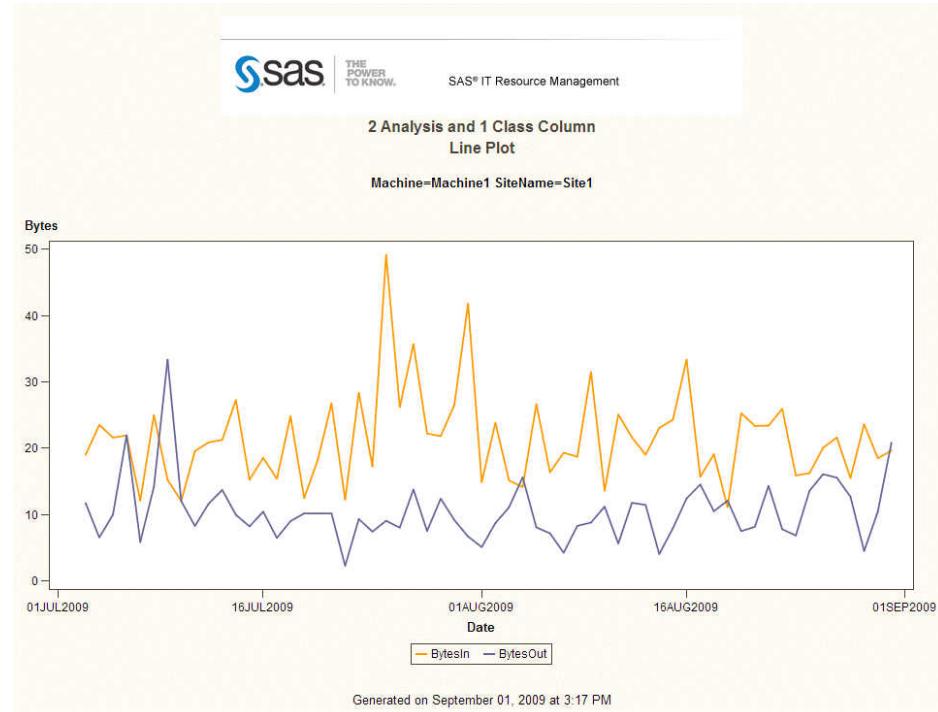
Hi-Low Plot with One Analysis Column and One Class Column



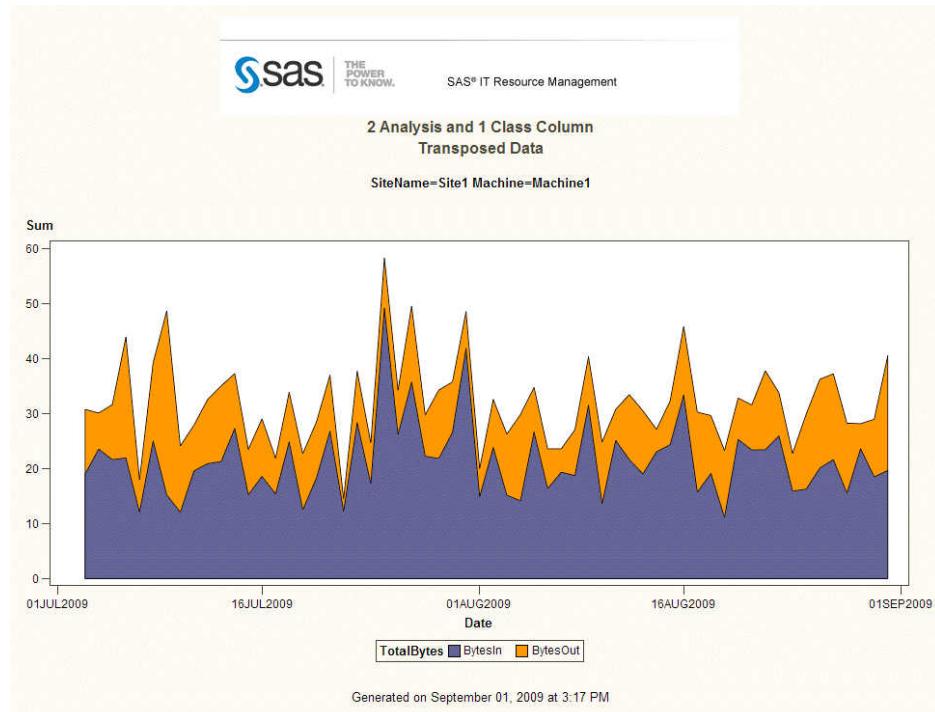
1. Select the Box Plot task.
2. Select the Hi-Low subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 14**Scatter Plot with Two Analysis Columns**

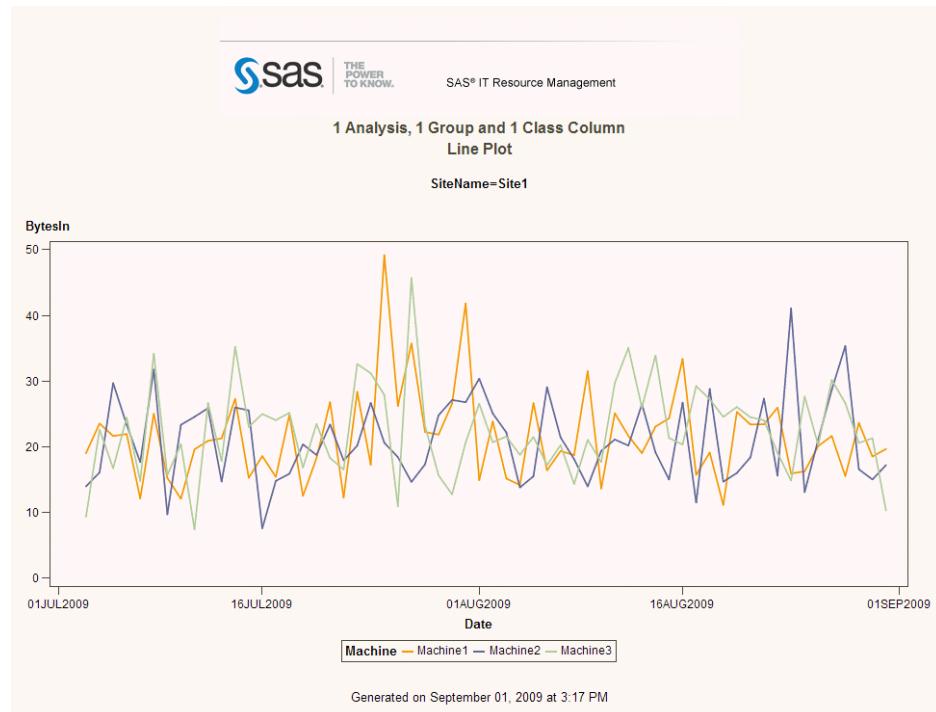
1. Select the Scatter Plot task.
2. Select any of the Scatter Plot subtasks.
3. Assign one analysis column to the **Vertical** role.
4. Assign one analysis column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 15**Line Plot with Two Analysis Columns and One Class Column**

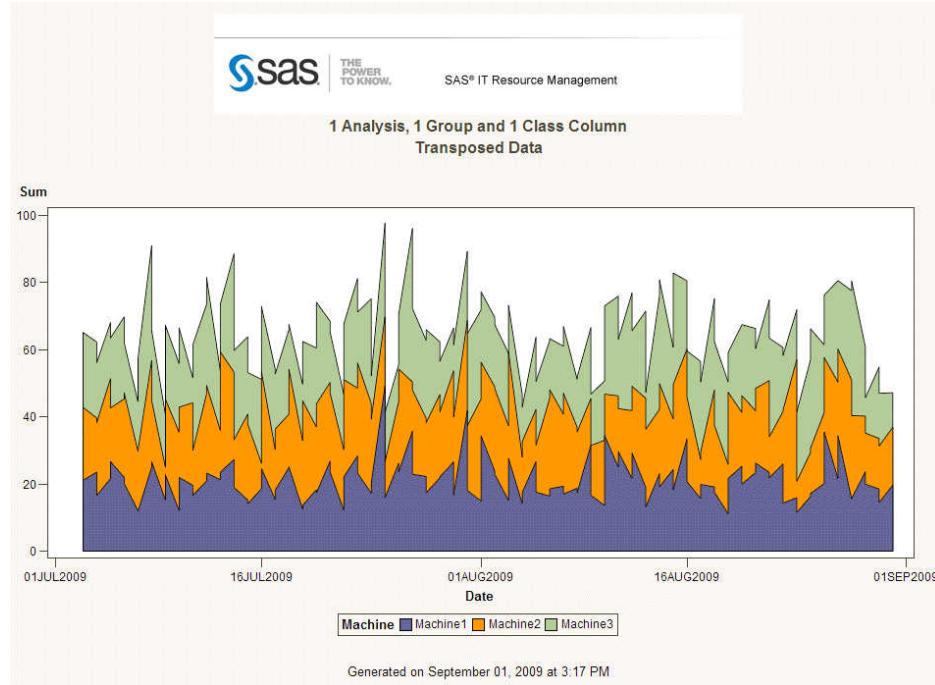
1. Select the Line Plot task.
2. Select the Multiple vertical column line plots using overlay subtask.
3. Assign two analysis columns to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 16**Stack Plot with Two Analysis Columns and One Class Column**

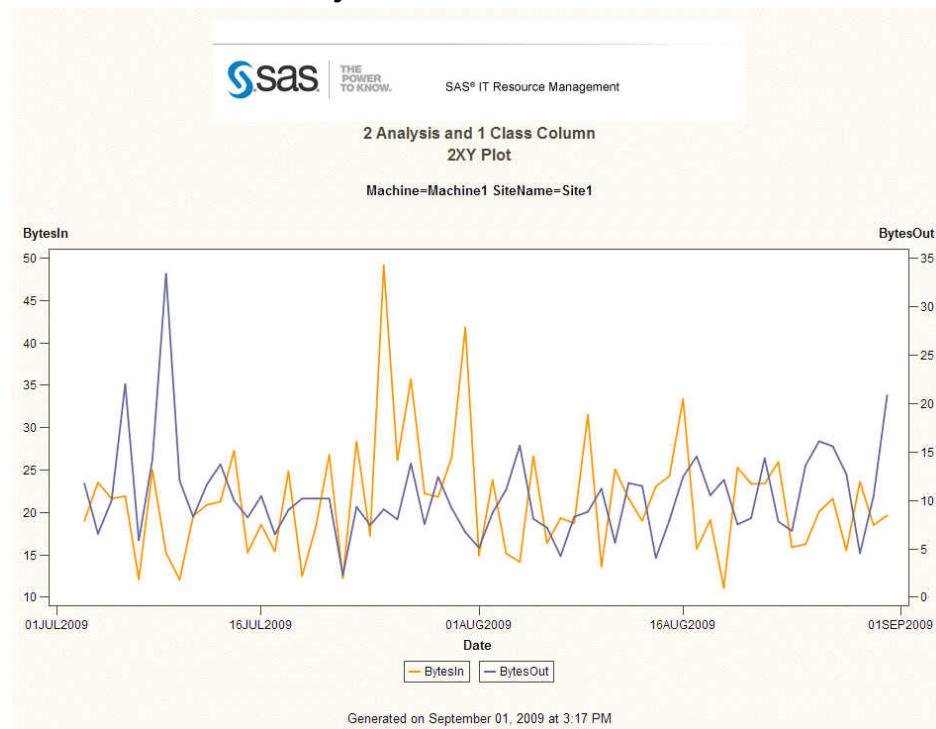
1. Select the Stack Columns task located in the Data category to transpose and accumulate your data.
2. Assign the two analysis columns that you want to plot to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels. For information about how to do this, see “[Stack Columns Task \(Reference 1\)](#)” on page 200.
5. Insert SAS custom code to accumulate your data. See “[Custom User Code to Accumulate Stacked Data \(Reference 2\)](#)” on page 201.
6. Run the Stack Columns task to transpose and accumulate your data.
7. Select the Area Plot task.
8. Select the Multiple area plots by group column subtask.
9. Assign the new transposed analysis columns to the **Vertical** role.
10. Assign the new transposed class column to the **Group** role.
11. Assign one date or time class column to the **Horizontal** role.
12. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 17**Line Plot with One Analysis Columns, One Class Column, and One Group Column**

1. Select the Line Plot task.
2. Select the Multiple line plots by group column subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. Assign one class column to the **Group** role.
6. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 18**Stack Plot with One Analysis Columns, One Class Column, and One Group Column**

1. Select the Stack Columns task located in the Data category to transpose and accumulate your data.
2. Assign one analysis column that you want to plot to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role. Ensure that the class column that you want to accumulate in Step 5 is the last column in the list.
4. Rename your new column labels. See “[Stack Columns Task \(Reference 1\)](#)” on page 200.
5. Insert SAS Custom Code to accumulate your data. See “[Custom User Code to Accumulate Stacked Data \(Reference 2\)](#)” on page 201.
6. Run the Stack Columns task to transpose and accumulate your data.
7. Select the Area Plot task.
8. Select the Multiple area plots by group column subtask.
9. Assign the new transposed analysis columns to the **Vertical** role.
10. Assign one date or time class column to the **Horizontal** role.
11. Assign one class column to the **Group** role.
12. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 19**2XY Plot with Two Analysis Columns and One Class Column**

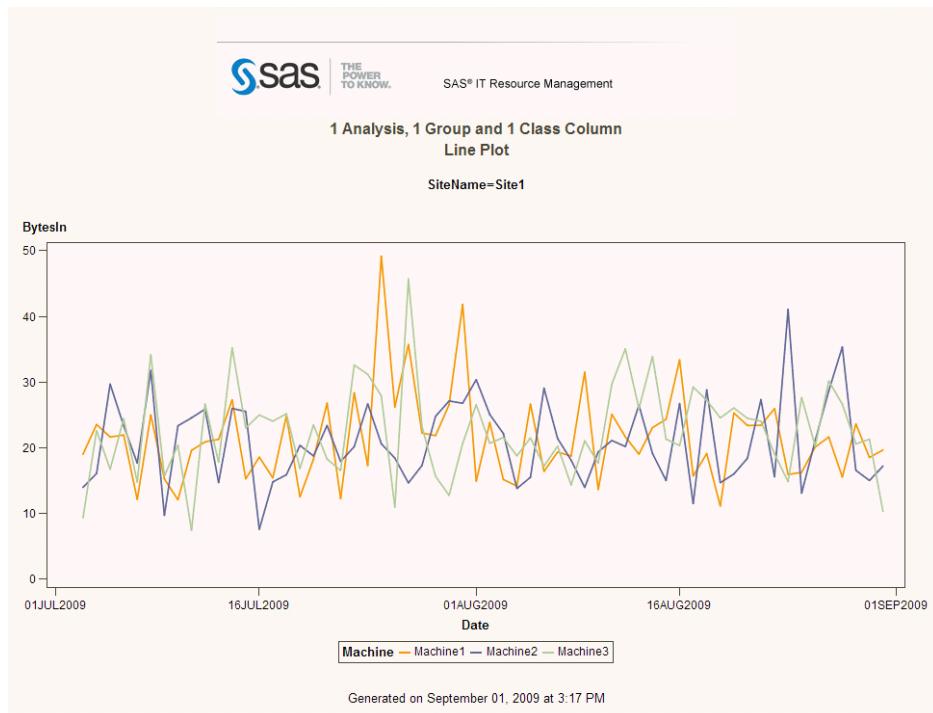
1. Select the Line Plot task.
2. Select the Line Plot subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one analysis column to the **Vertical (Right)** role.
5. Assign one date or time class column to the **Horizontal** role.
6. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 20

Three-Dimensional Graph

The three-dimensional graph that is available in SAS IT Resource Management 2.7 differs from the three-dimensional graph that is generated with SAS Enterprise Guide. In SAS Enterprise Guide, the columns for the horizontal, vertical, and depth task role must be numeric. In SAS IT Resource Management 2.7, a class column is supported.

You can use the Line Plot task in SAS Enterprise Guide to generate a plot that shows all of the information that is available in the three-dimensional graph from SAS IT Resource Management 2.7. To create this graph, see “[Example 17](#)” on page 224.



Creating Tabular Reports Using SAS Enterprise Guide

This section discusses the means by which tabular reports were created with SAS IT Resource Management 2.7 and the recommended means by which they are created using SAS IT Resource Management 3.2 (and later versions of the solution).

About Tabular Reports

The following table shows the six tabular report types that are available in SAS IT Resource Management 2.7 and the corresponding SAS Enterprise Guide task that is available to generate those report types in SAS IT Resource Management 3.2 (and later versions of the solution).

Table A6.4 SAS IT Resource Management 2.7 Report Types and Corresponding SAS Enterprise Guide Tasks

Tabular Report Type	SAS Enterprise Guide Task
Analysis X Statistic	Summary Tables task
Class (value) X Analysis (Statistic)	Summary Tables task
Class (value) X Statistic (Analysis)	Summary Tables task
Class (value) X Analysis (Sum)	Summary Tables task
Class values X Class (Analysis (Statistic))	Summary Tables task
Class values X Analysis (Statistic)	Summary Tables task

SAS IT Resource Management 2.7 uses the macro %CPTABRPT to create all of the variations that are shown in the preceding table. In SAS Enterprise Guide, you can create any of these variations with the Summary Tables task.

The following examples show the report output and the Summary Tables task for each of the preceding variations. To create any of the reports in examples 21–27, perform the following steps:

1. Select the **Summary Tables** task located in the **Describe** menu.
2. In the Task Roles window, assign the analysis columns that you want to include in your report to the **Analysis columns** task role.
3. In the Task Roles window, assign the class columns that you want to include in your report to the **Classification columns** task role.
4. In the Summary Tables window, drag and drop the analysis columns and the classification columns to the appropriate section of the **Box Area**. The second display of each example below provides a guide for where to drag and drop the variables.
5. (Optional) In the Task Roles window, assign one or more class columns to the **Pages** role.

Example 21**Tabular Report Analysis X Statistic**

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Multiple Analysis Variables and Multiple Statistics

	Mean	Max	Min
BytesIn	21.62	49.16	7.13
BytesOut	9.60	33.38	0.67

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Type 1 for SASApp:RPTCONV.ITRM

Summary Tables

Available variables:

Name
Total (ALL)
BYTESIN
BYTESOUT
MACHINE
DATE
SITENAM

Available statistics:

Name	Description
CSS	Corrected sum of squares
CV	Coefficient of variation
Max	Maximum value
Mean	Mean (average)
Min	Minimum value
N	Number of rows (excluding missing)
NMiss	Number of rows containing missing values

Preview:

	Mean	Max	Min
BYTESIN			
BYTESOUT			

Page by: <none>

Preview code Run Save Cancel Help

Example 22**Tabular Report Class (Value) X Analysis (Statistic)**

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Multiple Analysis Variables, Multiple Statistics, One Class Variable

	BytesIn		BytesOut	
	Mean	Max	Mean	Max
Machine				
Machine1	21.45	49.16	9.97	33.38
Machine2	21.62	41.07	9.59	23.23
Machine3	21.78	45.71	9.23	27.48

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Type 2 for SASApp:RPTCONV.ITRM

Summary Tables

Available variables:

Name	
Total (ALL)	
BYTESIN	
BYTESOUT	
MACHINE	
SITENAM	

Available statistics:

Name	Description
CSS	Corrected sum of squares
CV	Coefficient of variation
Max	Maximum value
Mean	Mean (average)
Min	Minimum value
N	Number of rows (excluding missing)
NMiss	Number of rows containing missing values
PctN	Report based percentiles

Preview:

		BYTESIN		BYTESOUT	
		Mean	Max	Mean	Max
MACHINE					

Page by: <none>

Run Save Cancel Help

Example 23**Tabular Report Class (Value) X Statistic (Analysis)**

SAS THE POWER TO KNOW. SAS® IT Resource Management

Single Class Variable, Multiple Statistics, Multiple Analysis Variables

	Mean		Max	
	BytesIn	BytesOut	BytesIn	BytesOut
Machine				
Machine1	21.45	9.97	49.16	33.38
Machine2	21.62	9.59	41.07	23.23
Machine3	21.78	9.23	45.71	27.48

Generated on September 01, 2009 at 3:17 PM

Type 3 for SASApp:RPTCONV.ITRM

Data Summary Tables Results Titles Properties

Summary Tables

Available variables:

Name
Total (ALL)
BYTESIN
BYTESOUT
MACHINE

Available statistics:

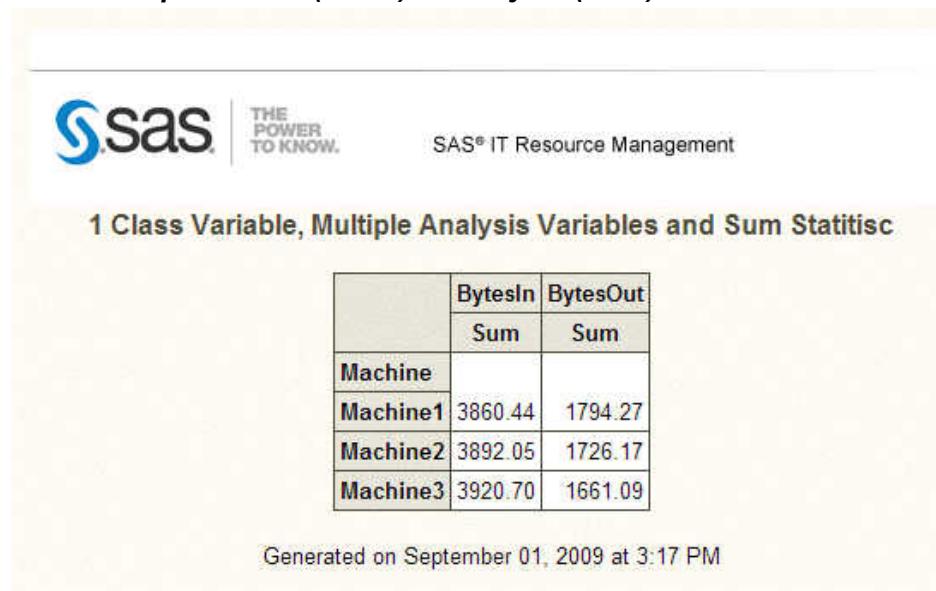
Name	Description
CSS	Corrected sum of squares
CV	Coefficient of variation
Max	Maximum value
Mean	Mean (average)
Min	Minimum value
N	Number of rows (excluding missing)
NMiss	Number of rows containing missing values
PctN	Report based percentage of freq...

Preview:

	Mean		Max	
	BYTESIN	BYTESOUT	BYTESIN	BYTESOUT
MACHINE				

The selection pane enables you to choose different sets of options for the task.

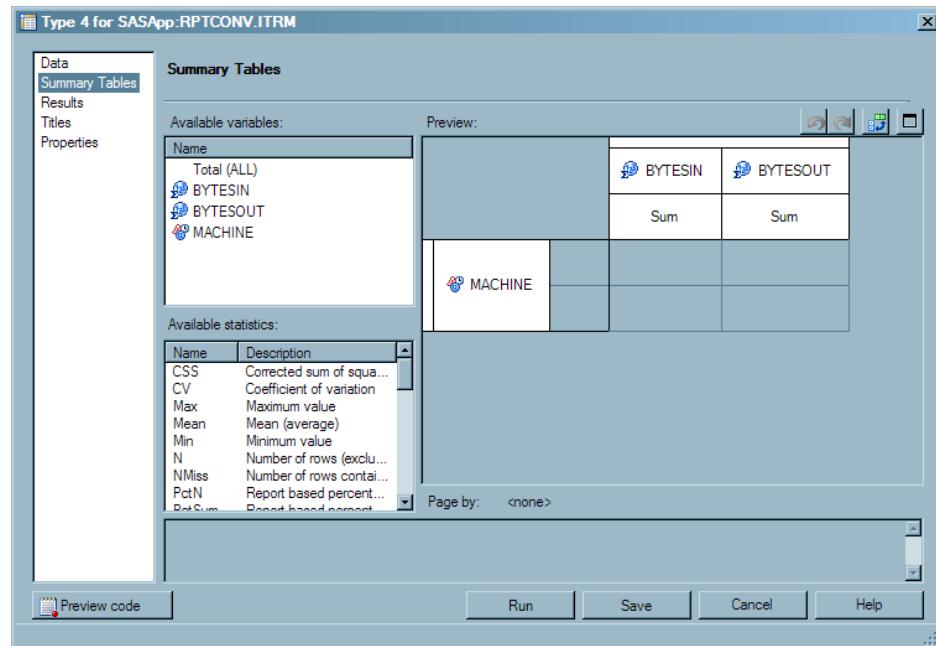
Preview code Run Save Cancel Help

Example 24**Tabular Report Class (Value) X Analysis (Sum)**

The screenshot shows a SAS report titled "1 Class Variable, Multiple Analysis Variables and Sum Statistics". The report includes the SAS logo and "THE POWER TO KNOW." slogan, along with "SAS® IT Resource Management". The main content is a table with the following data:

	BytesIn	BytesOut
	Sum	Sum
Machine		
Machine1	3860.44	1794.27
Machine2	3892.05	1726.17
Machine3	3920.70	1661.09

Generated on September 01, 2009 at 3:17 PM



The screenshot shows the SAS Type 4 report builder interface for "SASApp:RPTCONV.ITRM". The left pane shows the "Summary Tables" configuration with "Available variables" (BYTESIN, BYTESOUT, MACHINE) and "Available statistics" (CSS, CV, Max, Mean, Min, N, NMiss, PctN, PctC). The right pane shows a preview of the report structure, which includes a summary row for BYTESIN and BYTESOUT, and a detail row for MACHINE.

Example 25**Tabular Report Class Values X Class (Analysis (Statistic))**

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Multiple Class Variables, Multiple Analysis Variables and Multiple Statistics

	SiteName								
	Site1			Site2			Site3		
	BytesIn		BytesOut	BytesIn		BytesOut	BytesIn		BytesOut
	Sum	Mean	Sum	Sum	Mean	Sum	Sum	Mean	Sum
Machine									
Machine1	1288.70	21.48	627.56	1318.39	21.97	602.42	1253.35	20.89	564.30
Machine2	1254.89	20.91	591.20	1322.76	22.05	588.67	1314.40	21.91	546.30
Machine3	1350.13	22.50	553.78	1351.47	22.52	551.54	1219.09	20.32	555.76

Generated on September 01, 2009 at 3:17 PM

Type 5 for SASApp: RPTCONV ITRM

Summary Tables

Available variables:

- Total (ALL)
- BYTESIN
- BYTESOUT
- MACHINE
- SITENAM

Available statistics:

Name	Description
CSS	Corrected sum of squares
CV	Coefficient of variation
Max	Maximum value
Mean	Mean (average)
Min	Minimum value
N	Number of rows (excluding missing values)
NMiss	Number of rows containing missing values
PctN	Report based percentage of frequency (same as PctSum)
PctSum	Report based percentage of sum (same as N)

Preview:

SITENAM					
BYTESIN		BYTESOUT		BYTESIN	
Sum	Mean	Sum	Mean	Sum	Mean
MACHINE					

Page by: <none>

Run Save Cancel Help

Example 26**Tabular Report Class Values X Analysis (Statistic)**

SAS THE POWER TO KNOW. SAS® IT Resource Management

Multiple Class Variables, Multiple Analysis Variables, Multiple Statistics

		BytesIn		BytesOut	
		Mean	Sum	Mean	Sum
SiteName	Machine				
Site1	Machine1	21.48	1288.70	10.46	627.56
	Machine2	20.91	1254.89	9.85	591.20
	Machine3	22.50	1350.13	9.23	553.78
Site2	Machine1	21.97	1318.39	10.04	602.42
	Machine2	22.05	1322.76	9.81	588.67
	Machine3	22.52	1351.47	9.19	551.54
Site3	Machine1	20.89	1253.35	9.40	564.30
	Machine2	21.91	1314.40	9.11	546.30
	Machine3	20.32	1219.09	9.26	555.76

Generated on September 01, 2009 at 3:17 PM

Type 6 for SASApp:RPTCONV.ITRM

Summary Tables

Data
Summary Tables
Results
Titles
Properties

Available variables:

Name	Description
Total (ALL)	
BYTESIN	
BYTESOUT	
MACHINE	
SITENAM	

Available statistics:

Name	Description
CSS	Corrected sum of squares
CV	Coefficient of variation
Max	Maximum
Mean	Mean (average)
Min	Minimum value
N	Number of rows (excluding missi...)
NMiss	Number of rows containing missi...
PctN	Report based percentage of freq...
PctSum	Report based percentage of su...

Preview:

				BYTESIN		BYTESOUT	
				Mean	Sum	Mean	Sum
SITENAM	MACHINE						

Page by: <none>

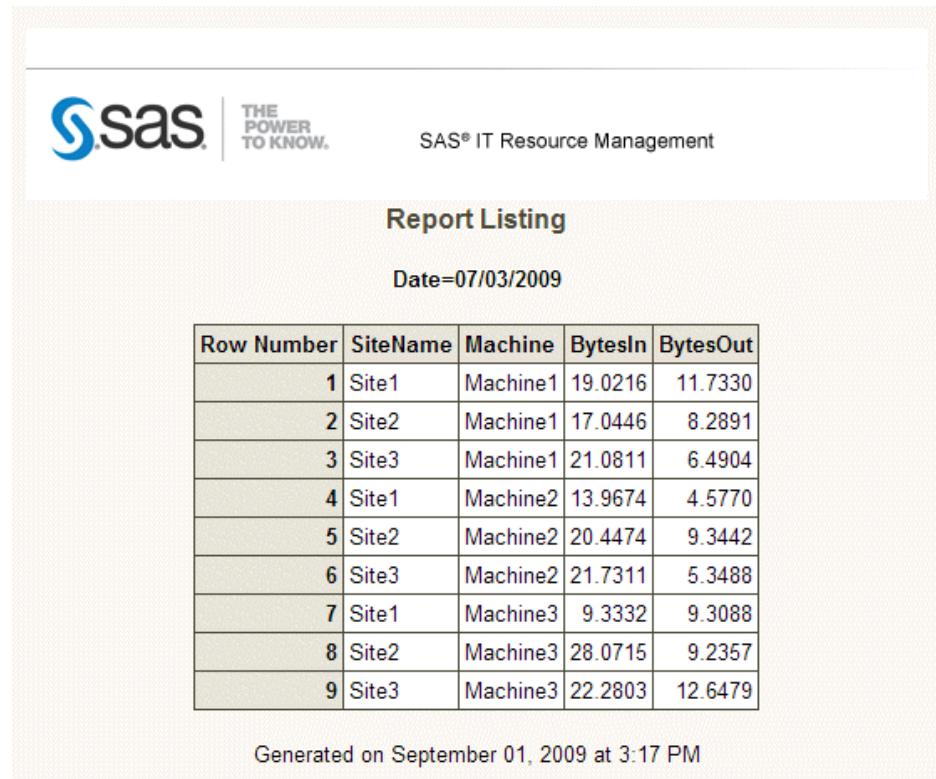
Preview code Run Save Cancel Help

Example 27**Print Report**

SAS IT Resource Management 2.7 uses the macro %CPPRINT to create print reports. In SAS Enterprise Guide, you can create a print report, known as a listing report, using the List Data task that is available in the **Describe** category of report tasks.

To create a print report, perform the following steps:

1. Select the List Data task that is located in the **Describe** category of report tasks.
2. In the **Task Roles** box, assign the analysis columns and classification columns that you want to include in your report to the **List columns** task role.
3. (Optional) In the **Task Roles** box, assign one or more class columns to the **Page by** role.



The screenshot shows a print report titled "Report Listing" generated on September 01, 2009, at 3:17 PM. The report is dated 07/03/2009. It features a table with columns: Row Number, SiteName, Machine, BytesIn, and BytesOut. The data is as follows:

Row Number	SiteName	Machine	BytesIn	BytesOut
1	Site1	Machine1	19.0216	11.7330
2	Site2	Machine1	17.0446	8.2891
3	Site3	Machine1	21.0811	6.4904
4	Site1	Machine2	13.9674	4.5770
5	Site2	Machine2	20.4474	9.3442
6	Site3	Machine2	21.7311	5.3488
7	Site1	Machine3	9.3332	9.3088
8	Site2	Machine3	28.0715	9.2357
9	Site3	Machine3	22.2803	12.6479

Generated on September 01, 2009 at 3:17 PM

Example 28**Source Code**

SAS IT Resource Management 2.7 uses the macro %CPSRCRPT to submit SAS code that is stored in a catalog source file. In SAS Enterprise Guide, you submit SAS code by creating and submitting a Program node task. The code that you write is saved in the task within the SAS Enterprise Guide project.

To create a Code task to run source code, perform the following steps:

1. Select **File** ⇒ **New** ⇒ **Code** from the menu bar.
2. Enter your SAS code in the Code window.
3. Right-click and select **Run** to submit the code.

Working with SAS IT Resource Management

Dynamically Summarized Reporting

SAS IT Resource Management 3.2 and later versions of the solution enable you to perform all of the data transformations that are necessary to produce analysis and report-ready data before generating reports. You can use the SAS technologies that are available in the SAS IT Resource Management client that are specifically designed for data integration to prepare IT data for analysis and reporting. This improves the performance of SAS IT Resource Management reporting and the system as a whole.

In earlier versions of SAS IT Resource Management, the performance data warehouse (PDB) structure limited the solution to predefined time period summarizations. In response, SAS IT Resource Management 2.7 reporting macros evolved to perform special time-based summarizations that were calculated at the time of report generation. In SAS IT Resource Management 3.2 (and later releases of the solution), the IT data mart structure replaces the PDB and enables you to summarize data by means of transformations. Therefore, dynamic summarization capabilities are no longer provided by the %CP report macros.

The SAS IT Resource Management Adapter Setup wizard provides several of the summarized aggregations that were typically created at the time of report generation by SAS IT Resource Management 2.7 report macros.

SAS IT Resource Management 3.2 (and later releases of the solution) include formulas that support various time periods. By choosing the aging columns for your summarized aggregations that use these new formulas, you can create summarized aggregations that provide the equivalent dynamic summarization that is available in SAS IT Resource Management 2.7 reporting. For more information about creating custom aggregations, see the “Creating Aggregation Tables with the Summarized Aggregation Table Wizard” topic in Chapter 8, “Aggregating the Data,” in the *SAS IT Resource Management 3.6: Administrator’s Guide*.

Working with Migrated PDBs

With few exceptions, column names and labels are preserved when migrating a SAS IT Resource Management 2.7 PDB to an IT data mart in SAS IT Resource Management 3.2 (and later releases of the solution). Therefore, user-written SAS code that is not dependent on SAS IT Resource Management 2.7 report macros can be submitted to re-create existing reports with minimal changes.

Here are a few tips for re-creating existing reports:

- The DATETIME column that was required in SAS IT Resource Management 2.7 is no longer required in SAS IT Resource Management 3.2 (and later releases of the solution). In summarized aggregations, the columns DAYDATE, WEEKDATE, MONTHDATE, and YEARDATE are used instead. The labels for these columns are Date, StartOfWeek, StartOfMonth, and StartOfYear, respectively.
- Table names have changed. The level name is now appended to the original name. For example, a table with the original name SARDEV in the DETAIL library is now named SARDEV_DETAIL.
- Additional columns are created in the staged table to convert COUNT, TIME, and TIMETICKS type variables into rates. The rate variables are what should be specified in the summarized aggregation for computing statistics that are compatible with SAS IT Resource Management 2.7 reporting.

For more details about these changes and for more information about migrating PDBs and working with migrated PDBs, see Chapter 4, “Migrating SAS ITRM 2.6 and 2.7 PDBs to SAS ITRM 3.6 IT Data Marts,” in the *SAS IT Resource Management 3.6: Migration Guide*.

Recommended Reading

- *SAS IT Resource Management 3.6: Overview*
- *SAS IT Resource Management 3.6: Administrator's Guide*
- *SAS IT Resource Management 3.6: Report Center Guide*
- *SAS IT Resource Management 3.6: Migration Guide*
- *SAS IT Resource Management Adapter 3.6 for SAP: User's Guide*

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Index

Numbers

2XY plots
example 226
standards 158

A

Adapter Setup wizard 10
defined 19
deploying and running jobs 23
domain categories 24
Performance Report transformations
 created 74
report jobs 20, 68
report types created 25
 using 20
adapters 4
axis standards for reports 156

B

backups
 data and reports 187
 reports on SAS Content Server 118
bar chart standards 159
Bar Chart task 203
 examples 206
bar line standards 159
batch reporting 10
 creating new reports from scratch 39
 creating or modifying batch reports 31
 designing reports 186
 modifying data sources 33
 modifying report definitions 37
 modifying the appearance of batch
 reports 34
 style sheets for 89
 templates 89
 using a supplied project as a template 37
 viewing reports 25
box plot standards 159
Box Plot task examples 219
BY variables in reports 157

C

color standards for reports 156
converting reports 196

D

data sources
 modifying for batch reporting 33
 specifying location 86
documentation
 SAS Add-In for Microsoft Office 136
 SAS BI Dashboard 143
 SAS Enterprise Guide 125
 SAS Information Delivery Portal 140
 SAS Web Report Studio 131
domain categories 24
dynamically summarized reporting 236

F

fonts and formats for reports 157
footnotes for reports 155

H

Help
 SAS Add-In for Microsoft Office 136
 SAS BI Dashboard 143
 SAS Enterprise Guide 125
 SAS Information Delivery Portal 140
 SAS IT Resource Management 6
 SAS Web Report Studio 131
Hi-Low subtask 220

I

information maps
 creating reports in SAS Web Report
 Studio 129
 for batch reporting 12
 modifying for batch reporting 33
 naming conventions 149
interactive reporting 121
IT data marts

accessing with SAS Enterprise Guide 124
 ITRM Report Center 5
 cache 108
 copying and emailing reports 99
 organizing reports 96
 overview 91
 signing on 94
 viewing reports 97
 ITRM Report Definition task
 accessing and navigating 58
 deleting user-defined report filter values 65
 for batch reporting 12
 managing user-defined report filters 63
 modifying report definitions 66
 working with in SAS Enterprise Guide 57

Performance Report transformations 13, 72
 adding to report jobs 75
 created by Adapter Setup wizard 74
 deleting 86
 editing 85
 editing properties 70
 naming conventions 76, 151
 properties 73
 Pie Chart task 203
 examples 213
 plots 215
 portal
See SAS Information Delivery Portal
 print report example 235
 printing reports 200
 projects, SAS Enterprise Guide 41, 184
 publishing reports 136

L

line plot standards 158
 Line Plot task 215
 examples 217, 222, 224, 226
 list data standards for reports 159
 listing report example 235

M

Microsoft Office 6, 133
 migration wizard 48
 prerequisites 48
 running 48

N

naming conventions
 information maps 149
 Performance Report transformations 76, 151
 report jobs 151
 reporting 149, 151
 SAS Enterprise Guide projects 151
 needle plot standards 158

O

online Help
See Help
 options for report tasks 198
 output for reports 199

P

PDBs 236

R

reference line standards for reports 157
 report definitions 12
 creating with ITRM Report Definition task 57
 modifying for batch reports 37
 modifying with ITRM Report Definition task 66
 report jobs 13, 67
 adding Performance Report transformations 75
 copying 70
 created by Adapter Setup wizard 20, 68
 creating 69
 deleting 71
 deploying and running 71
 modifying 70
 naming conventions 151
 scheduling 188
 report tasks 197
 Bar Chart 203
 Hi-Low 220
 Line Plot 215
 options 198
 Pie Chart 203
 Stack Columns 200, 223
 Step Plot 218
 reporting
 batch 10
 dynamically summarized 236
 interactive 121
 naming conventions 149, 151
 standards 153
 Top N and Bottom N 199
 reports
 2XY plot standards 158

- axis standards 156
- backing up 180
- backing up on SAS Content Server 118
- bar chart standards 159
- bar line standards 159
- box plot standards 159
- BY variables in 157
- color standards 156
- converting 196
- copying 99
- created by Adapter Setup wizard 25
- creating new batch reports from scratch 39
- creating with information maps in SAS Web Report Studio 129
- designing for batch jobs 186
- duplicate 177
- emailing 99, 130
- fonts and formats 157
- footnotes 155
- generating with SAS Enterprise Guide projects 42
- interactive 121
- line plot standards 158
- list data standards 159
- managing user-defined settings for filters 63
- missing 173, 174
- modifying in SAS Enterprise Guide projects 53
- needle plot standards 158
- organizing 96
- output 13, 199
- overriding expiration dates 187
- printing 200
- publishing 136
- purging from SAS Content Server 187
- reference line standards 157
- running during low usage periods 183
- standards 153
- symbol standards 157
- titles 154
- viewing 97

S

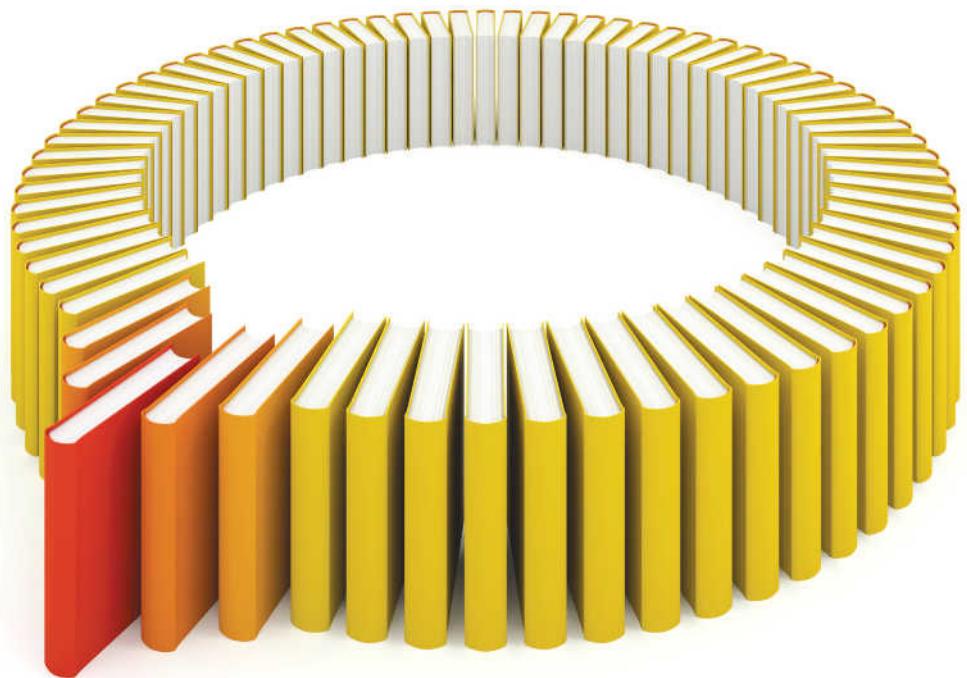
- SAS Add-In for Microsoft Office 6, 133
 - accessing 133
 - accessing SAS IT Resource Management data 134
 - documentation 136
 - executing stored processes 135
 - Help 136
- SAS BI Dashboard 5, 141
 - documentation 143
 - Help 143
- SAS Business Intelligence Platform 5
- SAS Content Server 110
 - backing up reports 118
 - duplicate reports 177
 - purging reports 187
 - storage of report output 13, 110
- SAS Data Integration Studio 4
- SAS Enterprise Guide 5, 123
 - accessing IT data marts 124
 - accessing SAS IT Resource Management projects 124
 - accessing SAS Metadata Repository 46
 - documentation 125
 - Help 125
 - managing projects 184
 - migrating projects 48
 - modifying reports in supplied projects 53
 - naming conventions for projects 151
 - preparing to work 46
 - projects for batch reporting 12, 35
 - report tasks 197
 - running source code 236
 - setting up for ITRM data 46
 - starting 123
 - working with ITRM Report Definition task 57
 - working with supplied projects 41
- SAS High Performance Forecasting 6
- SAS Information Delivery Portal 5, 137
 - accessing 137
 - documentation 140
 - Help 140
 - logging off 138
 - organization of content 138
- SAS Information Map Studio 5
- SAS IT Resource Management
 - accessing data with SAS Add-In for Microsoft Office 134
 - accessing projects with SAS Enterprise Guide 124
 - benefits 4
 - defined 3
 - Help 6
 - operation 4
- SAS Metadata Repository 5
 - accessing for SAS Enterprise Guide 46
- SAS Statistics and Econometric Time Series 6
- SAS Web Report Studio 5, 127
 - creating reports with information maps 129
 - documentation 131
 - Help 131
 - logging on 127

- Scatter Plot task example [221](#)
- scheduling report jobs [188](#)
- source code
 - running in SAS Enterprise Guide [236](#)
- Stack Columns task [200](#)
 - example [223](#)
- Stack Plot task examples [225](#)
- standards for reporting [153](#)
- Step Plot subtask [218](#)
- stored processes [135](#)
- style sheets [87](#)
 - default [88](#)
 - for batch reports [89](#)
- symbol standards for reports [157](#)

T

- tabular reports [227](#)
 - examples [229](#)

- templates [87](#)
 - default [87](#)
 - for batch reports [89](#)
 - for color, pattern, and symbol options [199](#)
- three-dimensional graph example [227](#)
- titles for reports [154](#)
- Top N and Bottom N reporting [199](#)
- troubleshooting
 - duplicate reports on SAS Content Server [177](#)
 - middle-tier connection [178](#)
 - reports missing from ITRM Report Center [173](#)
 - reports missing when running report jobs [174](#)
 - SAS Content Server [177](#)
 - user permissions [171](#)



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