



SAS Publishing



# Getting Started with SAS<sup>®</sup> IT Service Level Management 2

The correct bibliographic citation for this manual is as follows: SAS Institute Inc. 2005. *Getting Started with SAS® IT Service Level Management 2*. Cary, NC: SAS Institute Inc.

**Getting Started with SAS® IT Service Level Management 2**

Copyright © 2005, SAS Institute Inc., Cary, NC, USA

All rights reserved. Produced in the United States of America.

**For a hard-copy book:** No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the publisher, SAS Institute Inc.

**For a Web download or e-book:** Your use of this publication shall be governed by the terms established by the vendor at the time you acquire this publication.

**U.S. Government Restricted Rights Notice.** Use, duplication, or disclosure of this software and related documentation by the U.S. government is subject to the Agreement with SAS Institute and the restrictions set forth in FAR 52.227-19 Commercial Computer Software-Restricted Rights (June 1987).

SAS Institute Inc., SAS Campus Drive, Cary, North Carolina 27513.

1st printing, October 2005

SAS Publishing provides a complete selection of books and electronic products to help customers use SAS software to its fullest potential. For more information about our e-books, e-learning products, CDs, and hard-copy books, visit the SAS Publishing Web site at **support.sas.com/pubs** or call 1-800-727-3228.

SAS® and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.

Other brand and product names are registered trademarks or trademarks of their respective companies.

---

# Contents

## **Chapter 1 △ Introduction to SAS IT Service Level Management 1**

Introducing SAS IT Service Level Management 1

What Is Service Level Management? 2

SAS IT Service Level Management Software Overview 7

## **Chapter 2 △ Transforming IT Data into SLM Intelligence 11**

Overview of IT Service Level Calculations 11

Understanding the Structure of Your Contract 12

Service Level Objectives 14

Data Adjustments for Outages 19

Extract, Transform, Load (ETL) 20

## **Chapter 3 △ Using the SAS IT Service Level Management GUI 29**

Overview: Getting Ready to Run SAS IT Service Level Management 30

Starting the GUI 30

Exploring the GUI 33

Using the GUI to Construct a Contract 38

Running ETL 68

Closing SAS IT Service Level Management 68

## **Chapter 4 △ Reporting on Your SLM Data 69**

Overview of Reporting 69

Baseline Reports 70

Service Level Reports 77

SAS Enterprise Guide Reports 97

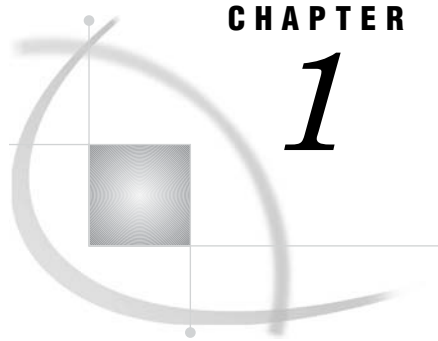
## **Appendix 1 △ Recommended Reading 101**

Recommended Reading 101

## **Glossary 103**

## **Index 107**





## CHAPTER

## 1

# Introduction to SAS IT Service Level Management

<i>Introducing SAS IT Service Level Management</i>	1
<i>What Is Service Level Management?</i>	2
<i>Why Is Service Level Management Needed?</i>	2
<i>Increasing Demands, Fierce Competition</i>	2
<i>Proving the Value of IT Services</i>	3
<i>Continuous Improvement of IT Services</i>	3
<i>The Goals of Service Level Management</i>	3
<i>Understanding and Meeting Business Needs</i>	3
<i>Steps for Implementing Service Level Management</i>	4
<i>Ongoing Service Level Management Activities</i>	4
<i>Moving Beyond Good Intentions</i>	4
<i>Effective Contracts</i>	5
<i>Delineating Business Needs</i>	5
<i>Establishing Measurable Service Goals</i>	5
<i>Specifying Measurement Techniques</i>	5
<i>Defining Appropriate Reporting Periods and Methods</i>	5
<i>Common Problems with Contracts</i>	6
<i>Data Collected by Many Different Tools and for Many Different Purposes</i>	6
<i>Data Not Typically Stored in a Central Location</i>	6
<i>Data Dissimilar in Measurement Type and Format</i>	6
<i>SAS IT Service Level Management Software Overview</i>	7
<i>Makes Disparate Data Easily Accessible</i>	8
<i>Transforms Data and Stores It in a Contract Database</i>	8
<i>Calculates Indicators for Service Level Performance Even with Disparate Data</i>	8
<i>Generates Reports That Are Meaningful to Providers and Customers</i>	9
<i>Baseline Reporting</i>	9
<i>Service Level Reporting</i>	9
<i>Enterprise Guide Reporting</i>	9
<i>Provides a User-Friendly Graphical User Interface</i>	10
<i>Other SAS IT Management Solutions</i>	10

## Introducing SAS IT Service Level Management

SAS IT Service Level Management is a member of the SAS IT Management Solutions family. SAS IT Service Level Management supports service level management (SLM) efforts by providing the following:

- the capability to represent every element of your IT contracts to which performance measures can be applied

- the ability to assign service level objectives and select various methods of measurement for each component, service, service level agreement (SLA), and contract
- a database where diverse SLM data can be stored and easily accessed
- methods of interpreting the SLM data in terms of established service level objectives for availability, response time, throughput, custom objectives, and composite objectives
- an easy-to-use graphical user interface (GUI) that makes vital information more accessible to all users
- several methods of reporting on the data, including text-based and graphic reports that include Baseline reports, Service Level reports, and SAS Enterprise Guide reports.

*Note:* This document supports the software for SAS IT Service Level Management 2.1 and later. △

---

## What Is Service Level Management?

Service level management is a paradigm of IT service delivery that focuses on these goals:

- discovering and outlining the IT services that are needed to fulfill business requirements
- establishing measurable goals for each IT component and service that is needed to meet established business needs
- evaluating the quality of IT services based on how business customers experience those services
- producing user-oriented reports that communicate whether the delivered services have met established objectives and fulfilled business needs

---

## Why Is Service Level Management Needed?

Over the last two decades, the business world has become increasingly dependent on a supporting structure of IT services. During the boom years of the last decade, many businesses were happy to spend freely on IT services; however, few fully understood what the IT budget was buying. The atmosphere has changed considerably in this new millennium. In an era of declining budgets and an increasing need for expanded IT services, every budget dollar must be watched carefully and allocated effectively and efficiently. The IT budget is no exception. SAS IT Service Level Management enables IT providers and customers to verify that the quality of service that is delivered justifies the cost.

## Increasing Demands, Fierce Competition

IT customers today are often more familiar with the vast potential of current technologies than they were in the past; therefore, they often demand more from the IT providers that support their lines of business. Customers who are not familiar with the technology can also be demanding. An incomplete understanding of the IT infrastructure can lead to unrealistic demands and a failure to acknowledge outstanding service. To further complicate matters, the IT customer has a wide range of options when selecting an IT provider. Both technology and highly skilled IT professionals are

widely available, and the competition is fierce. If a customer is not satisfied with the levels of IT service provided, other IT providers stand ready to offer alternatives.

## Proving the Value of IT Services

Of course, good customer service should always be a goal. Today, more than ever, it is to the advantage of IT providers—both internal IT departments and external IT companies—to go above and beyond providing merely satisfactory basic services. Providers need to demonstrate to their customers that the IT services that they offer have the following qualities:

- They are dependable, efficient, and economically reasonable.
- They are closely aligned to the needs of the lines of business.
- They are likely to result in a clear return on investment.

## Continuous Improvement of IT Services

Many IT providers are turning to SLM to help them increase the quality of their services, ensure a positive experience for business customers, and improve communication and understanding between providers and customers. The following sections explain how SLM can help IT service providers to accomplish the following goals:

- evaluate and understand IT services from the customer's perspective
- develop service level measurement and reporting that are meaningful for customers
- plan future upgrades
- discover trends
- forestall developing problems

Subsequent chapters demonstrate how SAS IT Service Level Management software addresses some of the common problems of SLM implementation and practice.

*Note:* For the remainder of the book, the term *customer* refers to the recipient of IT services and the term *provider* or *contract provider* refers to the provider of those services, whether the provider is part of the same organization as the customer or is an external, third-party provider. When the discussion warrants a distinction between an internal IT department and an external IT provider, this fact will be clearly noted in the text. △

---

## The Goals of Service Level Management

### Understanding and Meeting Business Needs

The concept of service level management was born out of the mutual need of IT providers and their customers to fully understand the business needs for IT services and to ensure that those needs are met. If providers and customers do not communicate effectively, inappropriate service goals might be established.

For example, if a provider gauges effectiveness of service based only on the availability of each IT component, overall service rates could be well above 99.9%, and the provider might be very proud of an excellent record of availability. At the same time that the IT department is congratulating itself on superior service, customers could be

experiencing unacceptable service outages due to slow system response time. It is possible that the repeated failure of a single component, though brief in duration, could lead to the loss of massive amounts of data. It could also be that a 45-minute outage that still results in an availability score of 99.9% results in a much longer outage for the customer.

In reality, no single component functions in isolation. The outage of a major system component might require additional time to re-establish lost connections and reconfigure dependent systems. Imagine, for example, the effects of a server outage on an online catalog ordering system—especially if the outage occurs during a prime ordering time! A company that experiences such difficulties will probably not be impressed with that 99.9% figure. Focusing on equipment performance rather than on service delivery and the customer experience often provides a skewed view of service quality.

When SLM is implemented properly, providers and customers work together to establish IT service delivery goals that are directly correlated to the way that business customers actually use and experience IT services. When IT services are evaluated with the customer's perspective at the forefront, the focus changes from a disconnected overview of all underlying components and services to a more detailed view of the collective components and services *as they directly affect the applications and functions most vital to the business.*

## Steps for Implementing Service Level Management

Some of the most important steps in the process of implementing SLM include the following:

- Identify business needs. For example, 99.9% availability of catalog ordering system on a daily basis between the hours of 7:00 a.m. and 10:00 p.m., with scheduled maintenance outages between the hours of 2 a.m. and 4 a.m., if possible.
- Establish measurable service goals for each of the specified components and services.
- Specify the IT resources that are required to support the business needs.

## Ongoing Service Level Management Activities

After implementation is complete, the ongoing processes of monitoring, documenting, reporting, and reviewing can begin, enabling you to do the following:

- Monitor IT resources with a focus on ensuring that business customers experience the best possible levels of service.
- Document IT performance and report back to customers in a way that is meaningful and understandable to them.
- Review results regularly with the customer and adjust service level goals if needed.
- Quickly adjust your SLM processes to accommodate hardware and software changes and other IT changes.

## Moving Beyond Good Intentions

By implementing SLM, IT providers gain increased sensitivity to customers' IT needs. Such providers are better able to anticipate customer requests and exceed customer expectations. SLM also helps customers to better understand their own IT requirements and to have more realistic expectations. Such customers are aware of the real successes and failures of the IT providers, and they are able to recognize superior service. But how can IT providers and their customers move beyond good intentions and ensure that SLM is effectively implemented? How can they put their IT service



information to work to continually improve the quality of the IT services? The establishment of effective, quantifiable contracts is part of the solution.

---

## Effective Contracts

SLAs specify service level objectives for one or more IT services that the customer receives from the provider. A single contract can contain SLAs for several major services, such as e-mail, an online catalog ordering system, an intranet, a wide area network, and an internal telephone system. Formalizing service level goals in SLAs enables providers and customers to use the IT service information that they collect to precisely describe the services and how they will be provided, measured, monitored, and reported on.

Establishing baselines and goals for service levels accomplishes the following:

- helps ensure that IT services are aligned with business goals
- helps customers to gauge their service level expectations
- delineates clear pathways for improvement of service delivery
- provides all parties to the SLA with a basis for judging quality of service

## Delineating Business Needs

SLAs focus on a required service as the customer uses and experiences it. In other words, an effective SLA takes into account all of the components and contributory services that must be available and functioning in order to deliver the final service that the business customer requires.

## Establishing Measurable Service Goals

Service level objectives are specified for the delivered service. The focus, once again, is on the quality of service that the customer experiences. Some common types of service level objectives that are addressed in SLAs are *availability*, or the percentage of time that a system is available to respond to the requests of its users; *response time*, or the amount of time between the submission of a request for service and the user's receipt of the system's reply to that request; *throughput*, or the rate at which requests for work are processed by a computer system; a *custom objective*, or an objective that meets your unique business needs; and a *composite* objective, or an objective that combines two or more objectives.

## Specifying Measurement Techniques

After service level objectives are specified, meaningful measurement techniques must be adopted. Judgments about how well service level objectives have been met are based on these measurements. The SLA specifies what aspect of each component and service will be measured and how those measurements will be calculated, reported, and used over time.

## Defining Appropriate Reporting Periods and Methods

The IT provider and the customer should agree on what types of reports will be prepared, how frequently they will be prepared, and how they will be presented. The most effective reports provide clear, easy-to-understand information about the overall quality of service that is provided to the customer, even though the data that is presented might come from disparate sources and be related to diverse equipment, functions, and service components.

By agreeing on and recording the service level objectives and the specifics of how progress toward these objectives will be monitored, measured, and reported on, IT providers and their business customers improve both the services and the perceptions of service success. This understanding accomplishes two objectives:

- It enables providers and customers to work together to fine-tune the alignment of IT services to the lines of business.
- It facilitates the continued exploration of options and opportunities for continually improving IT services.

---

## Common Problems with Contracts

Even after they have completed all the required legwork to create well-structured contracts, IT providers and their customers face additional difficulties in implementing the SLAs that are included in their contracts. They often lack the necessary substantiating data. Sometimes, they find that it takes so much time to produce and maintain the necessary reports that reporting is finally dismissed as unfeasible by both the customer and the provider. The problem is not really lack of data, however. There could actually be an excess of data!

The delivery of a specific business capability to a customer is made possible by a chain of hardware, software, personnel, information, and other resources. Each of these foundational IT components and services contributes to the success or failure of the service that is covered in the SLA. Among other problems, the complexity of the data is increased because IT data has the following characteristics:

- It is collected by many different tools and for many different purposes.
- It is not typically stored in a central location.
- It is dissimilar in measurement type and format.

Yet IT providers and customers must access, filter, manage, analyze, and report on vast amounts of this complex data in order to establish service level objectives and monitor IT service levels.

The following paragraphs present a closer look at some of these common problems.

### Data Collected by Many Different Tools and for Many Different Purposes

There are almost as many tools for collecting IT information as there are hardware and software manufacturers. But the tools that are created to monitor one device often will not work for devices that are made by a different manufacturer or for different kinds of devices. Also, IT providers must incorporate and interpret data from third-party providers such as AT&T, BellSouth, and Cisco. Sifting through so much disparate data and trying to determine what is “meaningful” is difficult and time-consuming.

### Data Not Typically Stored in a Central Location

In order to access, filter, manage, analyze, and report on data, you have to find it. After you have decided which data you need in order to calculate service level performance, SAS IT Service Level Management enables you to extract the data from remote or local sources and store it in a contract database.

### Data Dissimilar in Measurement Type and Format

The data that is collected from different components and services is not always comparable. How does the data from one device really compare to the data from a different device, when both are required to deliver a particular service to the customer and the performance of both must be measured for the same purpose?

SAS IT Service Level Management can help you address these and many other problems.

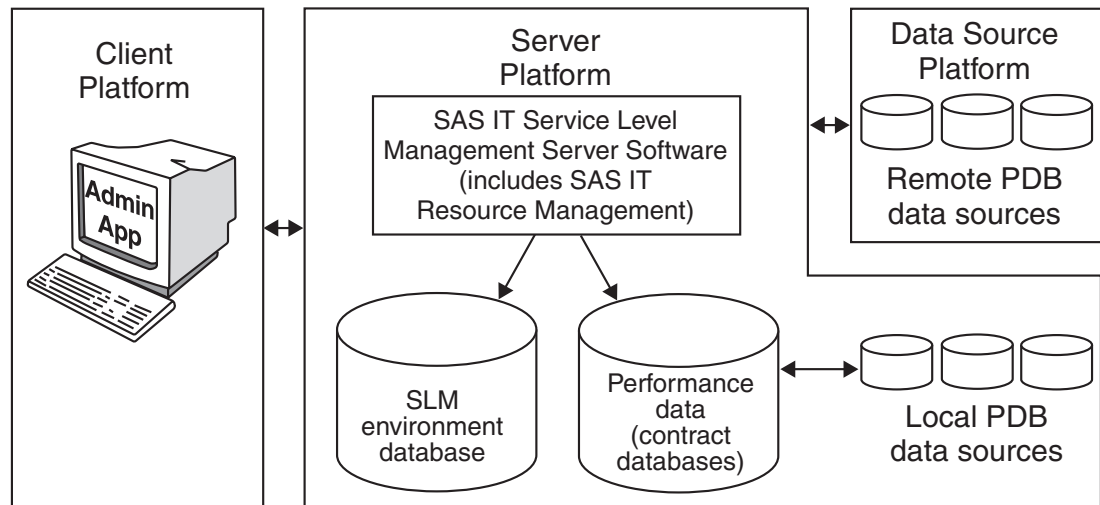
## SAS IT Service Level Management Software Overview

SAS IT Service Level Management is an easy-to-use, highly scalable, and flexible SLM solution. Working with SAS IT Resource Management, SAS IT Service Level Management enables you to do the following:

- Access IT performance data, no matter how it is collected or where it is located and store the data in data source performance databases (PDBs).
- Create a description of your contract and of each component, service, and SLA that is covered by your contract, including instructions for analyzing the performance data.
- Simplify the complicated processes of applying service level objectives to the data and storing the results in contract databases on the SLM server.
- Generate a variety of reports on service level performance as well as contract and service delivery status.

The client/server architecture of SAS IT Service Level Management (see Figure 1.1 on page 7) ensures that you are able to access information from your desktop, while most of the processing takes place on the SLM server.

**Figure 1.1** The SAS IT Service Level Management Client/Server Architecture

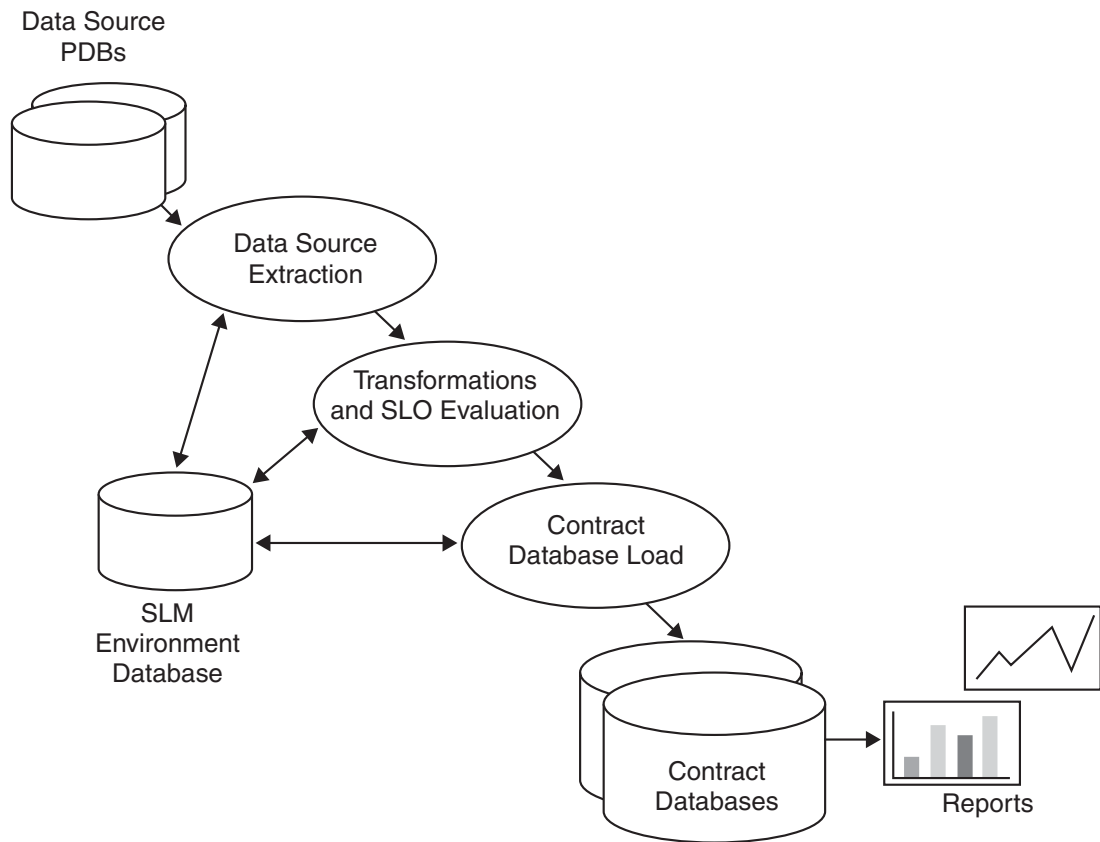


When you use SAS IT Service Level Management to define a contract and all the SLAs, services, and components that belong to the contract, you also configure information for accessing and analyzing the IT data in the data source PDBs. This information is stored in the environment database. During the SLM extract, transform, and load (ETL) process, illustrated in Figure 1.2 on page 8, SAS IT Service Level Management uses the information in the environment database to do the following:

- Make disparate data easily accessible.
- Transform data and store it in a contract database.

- Calculate service level indicators.

**Figure 1.2** SAS IT Service Level Management ETL Process




---

## Makes Disparate Data Easily Accessible

SAS IT Service Level Management uses the flexibility and power of SAS IT Resource Management. This enables you to access and analyze IT performance data from any IT service process, no matter where the data resides.

---

## Transforms Data and Stores It in a Contract Database

Using the power of the SAS IT Resource Management batch ETL processes, SAS IT Service Level Management simplifies the process of extracting the disparate IT data, transforming it, and loading it into the contract database on the SLM server.

---

## Calculates Indicators for Service Level Performance Even with Disparate Data

SAS IT Service Level Management enables you to construct a representation of your contract. Using the GUI and detailed information about the IT services and components

that are covered by your contract, you create a description of your contract and of each component, service, and SLA that is covered by your contract. These descriptions of each element of the contract and the graphical representations of these elements are called *nodes*. Your original contract has a hierarchical structure; that is, there is an overall contract that can contain one or more SLAs. The SLAs cover the specific services that you offer. Those services are, in turn, a combination of other services or components (or both). The structure of this contract hierarchy is duplicated within SAS IT Service Level Management.

SAS IT Service Level Management calculates and reports on service level objectives for availability, response time, throughput, custom objectives, and composites of these objectives.

A more detailed overview of the contract hierarchy and how values are calculated and applied throughout the hierarchy is provided in Chapter 2, “Transforming IT Data into SLM Intelligence,” on page 11.

---

## **Generates Reports That Are Meaningful to Providers and Customers**

SAS IT Service Level Management uses the relevant data about IT services to generate reports that clearly communicate to providers and customers how well service level objectives are being met. Baseline reports, Service Level reports, and SAS Enterprise Guide reports are provided for comprehensive reporting capabilities.

### **Baseline Reporting**

SAS IT Service Level Management generates Baseline reports that display all of the data that exists in a contract database for a specified contract within the current environment. These graphic reports provide guidance for establishing initial service level targets based on supplied network data.

The Baseline reports are generated in a Web gallery. The gallery enables you to view hourly, daily, and monthly data in a graphic report. These reports enable you to see trends for the objectives that are defined in your contract database.

### **Service Level Reporting**

SAS IT Service Level Management also generates an interlinked set of Web-based reports that enable you to view the compliance of service level indicators to their respective targets. These reports provide information on all levels of a contract hierarchy and can help you quickly assess compliance by determining whether service level targets have been met. You can drill down from one level of the contract to the next level and switch from daily to weekly to monthly to yearly reports. Both text-based and graphic reports are provided.

### **Enterprise Guide Reporting**

SAS IT Service Level Management also provides a SAS Enterprise Guide project that can be used as a template for accessing your data and creating new reports interactively. SAS Enterprise Guide reports can be directed to a Web browser, to the Enterprise Guide viewer, or to a viewer of your choice.

Additional information about SAS IT Service Level Management reporting is provided in Chapter 4, “Reporting on Your SLM Data,” on page 69.

---

## Provides a User-Friendly Graphical User Interface

The GUI enables you to navigate quickly and easily through even the most complex contracts. In addition to the familiar menu bar, toolbar, and pop-up menus, you will find a workspaces list and a task list that provide instant access to common tasks. These tasks are carefully organized into related groups and presented in the five main workspaces. The other windows that are associated with each of the workspaces enable you to fine-tune SAS IT Service Level Management to accommodate your existing contracts.

Using SAS IT Service Level Management does not require an in-depth understanding of SAS programming. The flexible GUI enables you to do the following:

- Define the contract and each SLA, service, and component node in the contract hierarchy.
- Select metrics and calculations.
- Define service level objectives.
- Set targets.
- Define range sets and range descriptions for purposes of scoring and reporting.
- Adjust data to accommodate both scheduled and unscheduled outages.
- Designate customer and provider contacts.
- Generate reports.

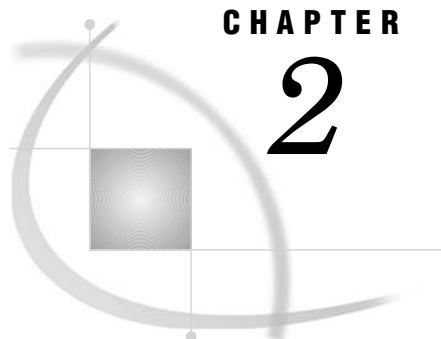
---

## Other SAS IT Management Solutions

Besides SAS IT Service Level Management, there are several other SAS IT Management Solutions.

- *SAS IT Resource Management.* Brings your disparate data into a customized warehouse where it can be used for IT resource management across your enterprise from your desktop.
- *SAS IT Charge Management.* Combines IT subscription and transaction-based charge information to allocate, audit, and invoice IT usage in specific business cost centers.

For additional information about SAS IT Management Solutions, visit the Web site: <http://www.sas.com/solutions/itsysmgmt/>.



## CHAPTER

## 2

# Transforming IT Data into SLM Intelligence

---

<i>Overview of IT Service Level Calculations</i>	11
<i>Understanding the Structure of Your Contract</i>	12
<i>The Structure of the Contract Hierarchy</i>	12
<i>Contract Nodes</i>	13
<i>SLA Nodes</i>	13
<i>Service Nodes</i>	13
<i>Component Nodes and Resources</i>	14
<i>Service Level Objectives</i>	14
<i>Indicators</i>	14
<i>Range Descriptions</i>	15
<i>Ranges and Range Sets</i>	16
<i>Scores</i>	17
<i>Targets</i>	18
<i>Data Adjustments for Outages</i>	19
<i>Extract, Transform, Load (ETL)</i>	20
<i>Downward Flow of Instructions for Data Extraction and Service Level Calculations</i>	20
<i>Upward Flow of Data and Service Level Calculations</i>	23
<i>Summary</i>	26

---

## Overview of IT Service Level Calculations

In Chapter 1, “Introduction to SAS IT Service Level Management,” on page 1, you learned that SAS IT Service Level Management enables you to construct a software-based contract that mirrors your established IT contract. You also learned that SAS IT Service Level Management enables you to define service level objectives for every node in your contract hierarchy and to specify how the performance data will be accessed and how service level indicators will be calculated. In this chapter, you will first learn more about the structure of a contract hierarchy. Next, you will learn more about service level objectives. Finally, you will learn about how SAS IT Service Level Management performs service level calculations based on the service level objectives and applies them to each node in the contract during the ETL process.

The information in this chapter will help you to understand the SAS IT Service Level Management GUI as depicted in Chapter 3, “Using the SAS IT Service Level Management GUI,” on page 29. That chapter introduces the GUI and illustrates the main steps for creating a new service contract and automating the data evaluation processes for that contract.

---

## Understanding the Structure of Your Contract

Before you create a contract in SAS IT Service Level Management, you might already have a written contract. At the very least, you need to formulate a plan that specifies the services that you intend to provide to customers and how you will measure those services. SAS IT Service Level Management can help you develop a contract and set reasonable targets for services by providing Baseline reports that show baseline data in a contract database.

When you create the contract by using SAS IT Service Level Management, you create a separate node for the contract itself and for each SLA, service, and component that the contract covers. This contract mirrors your written contract or plan. If your plan contains multiple levels of complexity, then the contract that you create in SAS IT Service Level Management duplicates this level of complexity.

---

### The Structure of the Contract Hierarchy

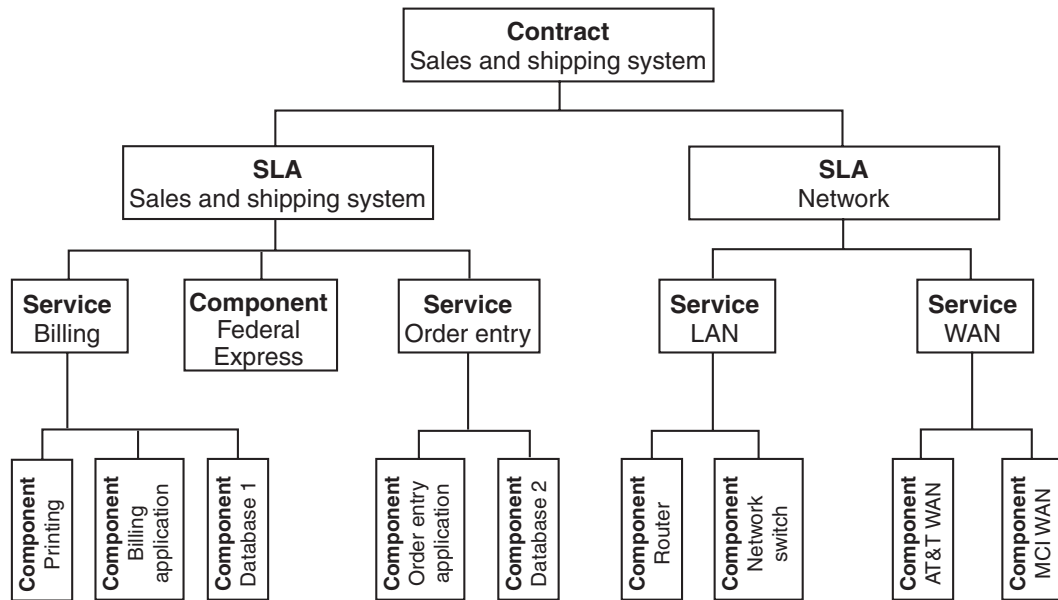
There are four kinds of nodes in the contract hierarchy. These include the *component* nodes, the *service* nodes, the *SLA* nodes, and the *contract* nodes. When you create a contract in SAS IT Service Level Management, you create all the nodes that you need to represent all the SLAs, services, and components that your contract covers, and you enter information that clearly establishes the relationships between the nodes.

The contract hierarchy can be visualized as a pyramid, with the contract node, representing your whole contract, at the highest level. The contract node can have any combination of zero, one, or more SLA, service, and component nodes as its immediate child nodes. SLA nodes represent the various service level agreements that are covered by your contract. There can be multiple SLA nodes, and an SLA node can have any combination of zero, one, or more service and component child nodes. The service nodes represent the services that are covered by each SLA. There can be multiple service nodes, and a service node can have multiple child nodes, which can be services and components. The component nodes represent the various software, hardware, or other entities that make the delivery of an IT service possible. There can be multiple component nodes, and a component node cannot have child nodes.

*Note:* See *SAS IT Service Level Management: User's Guide* for more detailed information about the structure of the contract hierarchy. △

Figure 2.1 on page 13 represents a simple contract hierarchy.



**Figure 2.1** Example Contract Hierarchy

Contracts can be far more complex than the one shown in Figure 2.1 on page 13, and SAS IT Service Level Management is flexible enough to adapt to your contract, no matter how many SLAs, components, and services are included. However, as you learn more about the contract hierarchy and the four kinds of nodes, this simple depiction can help you to understand how the nodes in the contract hierarchy relate to each other.

---

## Contract Nodes

The contract node is the highest-level node in the contract hierarchy. It represents the complete contract.

---

## SLA Nodes

An SLA node represents an agreement between an IT provider and a customer that defines the services that are provided, the metrics that are associated with these services, and acceptable and unacceptable service levels. Typically, an SLA covers one or more business services. For example, an SLA for a sales and shipping system might cover an order-entry service, a billing service, and an inventory service. While contracts contain basic, high-level information about the customer and provider, the SLAs that are contained within the contract usually contain more specific, detailed information about the covered services.

---

## Service Nodes

A service node represents one or more of the IT systems that typically enable a business process to function. Services can be simple and low-level, such as offering a service for disk space. They can also be high-level and more complex, such as offering a Web application hosting service that is composed of numerous subsidiary services, like a disk space service, Web server service, network service, and help desk service.

---

## Component Nodes and Resources

Component nodes usually represent tangible IT hardware and software assets, such as a Web server or disk farm. Components can be low-level, such as an individual router, or high-level, such as an entire LAN/WAN.

For each component node that you define, you must create a list of resources. The resource list is used to subset the data from the data source PDBs. For example, a Web server component would have a resource list that identifies the servers in the Web server farm.

---

## Service Level Objectives

Service level objectives measure the service that the provider delivers to the customer. The type of objective indicates what aspect of service is measured in order to determine a value for the service level indicator. The type of objective is tied to the type of data measurements that are available to you. Each node can have the following types of objectives, which are based on the data from the child nodes:

<i>Availability</i>	the percentage of time that a node is available to respond to the requests of its users.
<i>Response time</i>	the amount of time that a node takes to complete a request.
<i>Throughput</i>	the volume of work that can be processed by a node within a specified time.
<i>Custom objective</i>	a user-defined objective that measures data that doesn't typically fit within the scope of availability, response time, or throughput, such as customer satisfaction or mean time between failures (MTBF).
<i>Composite</i>	an overall service level measurement, based on scores from any combination of availability, response time, throughput, and custom objective for the same node.

As you create the nodes for your contract, you also create the service level objectives for each node. The service level objectives specify the following:

- calculation methods that are used for the indicator
- range set that is used to determine a score (when scores are used)
- service level target for the objective

*Note:* *Indicators* are always calculated for each objective of each node in the contract, based on the selected objective and calculation methods. An indicator is compared to a range set in order to obtain a *score* for each objective of a node. See “Scores” on page 17 for more information about scores, indicators, and ranges. △

---

## Indicators

An indicator is a value that represents the performance of a given objective for a node. For a contract node, an SLA node, or a service node, the value for the indicator is derived from the indicators or scores of the child nodes. For a component node, the value for the indicator is derived from input measures that are extracted from the data source PDB by means of the component node's resource list.

Calculate This Node's Availability Indicator

Input metrics from resources:

Measures

Calculation Method:

Mean

Used to roll-up the input metrics to create this node's indicator.

This Objective's Indicator:

Mean calculation of the Availability Measures for the resources.

Several calculation methods have been built into the software for each type of objective. An appropriate method is set as the default; however, SAS IT Service Level Management enables you to select a suitable alternative method to calculate the indicator for each type of objective at each node. You can also specify code for a custom calculation method for any indicator.








*Note:* More detailed information about appropriate calculation methods is provided in *SAS IT Service Level Management: User's Guide*. △

## Range Descriptions

Range descriptions enable you to associate common descriptors with range sets for various objectives types, resulting in a standard display of colors and labels within your reports. Before creating and defining ranges that will classify the indicator values of an objective, you will want to create your organization's set of common range descriptions to best represent all types of performance values. For example, you might define a range description for objective indicators and scores that exceed expectations. In this case, you might name the range description "Exceeded" and designate that the objective indicators and scores that exceed your expectations will appear in your reports as blue and be labeled "Exceeded."

The following is an example of range descriptions that a user might create and modify.

Current range descriptions from the catalog

Name	Text Report	Label
Exceeded	 Sky Blue	Exceeded
Met	 Honeydew	Met
Missed	 Pale Yellow	Missed
Missing Value	 Light Gray	Missing Value
Out-of-bounds High	 Plum	Out-of-bounds High
Out-of-bounds Low	 Plum	Out-of-bounds Low
Poor	 Misty Rose	Poor

There are six supplied range descriptions (Exceeded, Met, Missed, Missing Value, Out-of-bounds High, and Out-of-bounds Low). Three of the supplied range descriptions (Missing Value, Out-of-bounds High, and Out-of-bounds Low) cannot be deleted because they classify unexpected values that might be outside of the user-defined ranges in a range set.

Range descriptions are also customizable when defining reports. You can override the definitions of range descriptions for specific report specifications, thereby affecting the colors and labels displayed in reports for the associated contracts. For example, you might use a range description for all of your reports to display poor performance data in red. However, one of your customers might have a unique requirement or cultural preference that associates positive values to the color red. You can modify the range description colors for the report specification showing red wherever indicators exceed expectations, and this change will apply only to contracts within this report specification. All report specifications that do not reference that unique customization will continue to use the definitions of the original range description that displays poor performance in red.

*Note:* For information about how to create and define range descriptions, see “Range Descriptions” on page 48. More detailed information about range descriptions is also available in *SAS IT Service Level Management: User’s Guide*. For more information about ranges and range sets, see “Ranges and Range Sets” on page 16.  $\triangle$

## Ranges and Range Sets

Ranges and range sets enable you to associate ranges of indicator values with scores and range descriptions. Ranges help you to categorize service level indicators. Several ranges are grouped to form a single range set. If ranges in a range set have defined scores, then the appropriate score is assigned to the associated objective based on the value of the service level indicator.

Range $\triangle$	Score	Name	Text Report	Label
97 $\leq$ x < 98	3	Met	Honeydew	Met
98 $\leq$ x $\leq$ 99	2	Exceeded	Sky Blue	Exceeded
High	1	Out-of-bounds High	Plum	Out-of-bounds High
Low	4	Poor	Misty Rose	Poor
Missing		Missing Value	Light Gray	Missing Value

A range set specifies the following properties for each individual range:

- ☐ low value of the range
- ☐ high value of the range
- ☐ comparison operators for the high and low values
- ☐ score
- ☐ name of associated range description
- ☐ report color of associated range description
- ☐ report label of associated range description

*Note:* The *missing*, *high*, and *low* ranges are special ranges that are always present in every range set. The purpose of these ranges is to capture data that falls outside the user-defined ranges. *Missing* captures data where the indicator has a missing value. *High* captures data where the indicator is above the user-defined ranges. *Low* captures data where the indicator is below the user-defined ranges. By default, each of these ranges assigns a score of missing; however, the score of these special ranges can be modified.  $\triangle$

If a range set is selected for an objective, the value of the indicator is compared to a series of ranges. For example, suppose that you use the range set that is depicted in the

sample above. An availability indicator with a value of 99 would receive a score of 2, while an indicator value of 93 would receive a score of 4.

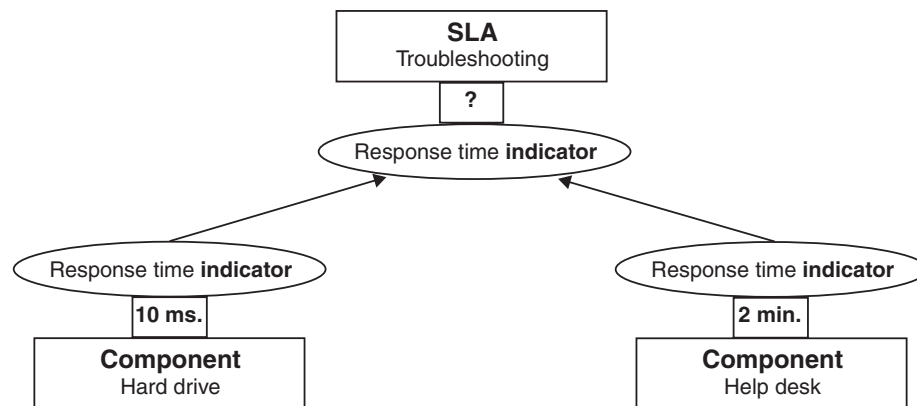
*Note:* See “Range Sets” on page 49 for information about using the GUI to create range sets. More detailed information about ranges and range sets is available in *SAS IT Service Level Management: User’s Guide*. △

## Scores

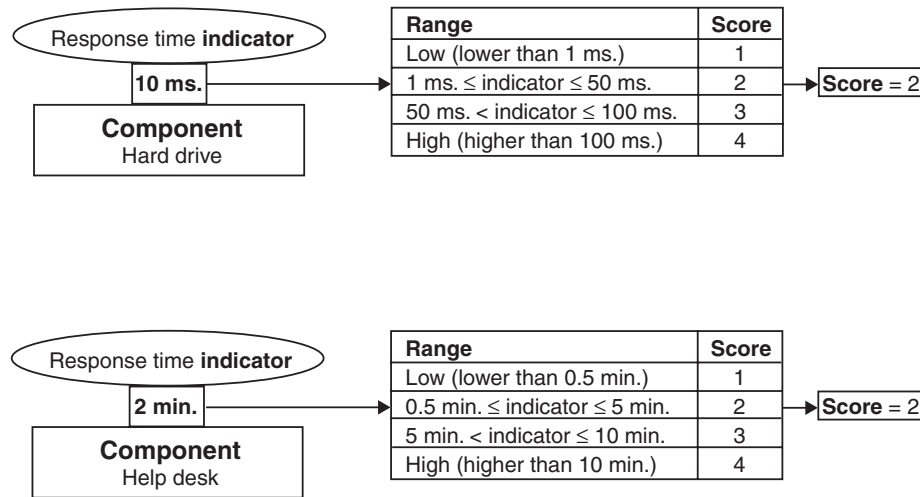
A range set can be used to assign a score based on the value of the indicator for the objective. The score is determined by matching the indicator to the range that includes the value of the indicator.

Scores simplify the process of calculating values for service level objectives when the child nodes represent unlike entities. For example, to calculate a value for a response time objective for a contract, you might need to combine data on response time for a help desk operation with data on response time for a hard drive. The help desk response time is measured in minutes, while response time for a hard drive is measured in milliseconds. An excellent response time for a help desk would be very poor for a hard drive. As Figure 2.2 on page 17 indicates, combining the service level indicators for these would not produce a meaningful indicator for the contract.

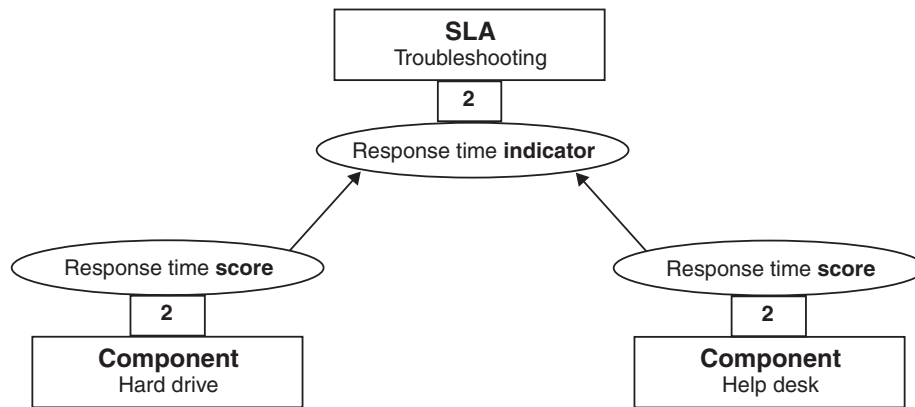
**Figure 2.2** Using the Indicators of Child Nodes to Calculate an Indicator for the Parent Node



However, if you create a range set for the help desk and another range set for the hard drive, as shown in Figure 2.3 on page 18, you can assign similar scores to the unlike indicators.

**Figure 2.3** Using Range Sets to Assign Scores Based on the Indicators

Then you can use the scores to calculate the indicator for the parent node, as shown in Figure 2.4 on page 18.

**Figure 2.4** Using the Scores of the Child Nodes to Produce a Meaningful Result for the Parent Node

*Note:* See “Ranges and Range Sets” on page 16 for more information. More detailed information about scoring is available in *SAS IT Service Level Management: User’s Guide*. △

## Targets

The service level target represents the goal for service level performance that the provider agrees to meet within a specified compliance period or time frame (daily, weekly, monthly, yearly). Targets for service levels are agreed upon by the IT provider and customer.

You can select the compliance period, target statistic (for indicators only), comparison operator, and threshold value for the target. You can also indicate whether the indicator

or the score for a particular node is compared to the threshold value to determine whether the goal for that node has been met.

Compliance Period:	Target Statistic:	Comparison Value:	Operator:	Target Value:	Label:
Monthly	Mean	Indicator	>=	99.9	%

Compliance reports display lists of contracts and their compliance with the target settings. IT providers and customers can use these reports to view the compliance of service level performance across all objective types within contracts. See “Service Level Reports” on page 77 for more information about compliance reports.

*Note:* More detailed information about targets is available in *SAS IT Service Level Management: User’s Guide*. △

---

## Data Adjustments for Outages

SAS IT Service Level Management provides methods for adjusting service level data to exclude planned and excused outages from calculations of indicators. An outage is an event during which contracted services are not available for a period of time. Some outages are necessary or unavoidable, and these outages should not count against the provider. Necessary outages typically include scheduled outages for required systems maintenance or for holidays. These outages are planned in advance, and the provider should not be held responsible for the service interruptions that result. Unavoidable outages are beyond the control of the provider. These include outages that are caused by natural disasters such as hurricanes and ice storms. These kinds of unplanned outages are considered “excused outages,” and the provider is not held accountable for them.

SAS IT Service Level Management enables you to specify the start time and end time of an outage and the type of outage (scheduled or excused).

**Outage Properties**

General | Schedules | Scheduled Exceptions | Notes

Outage Name: Just Before Midnight

Is this outage in effect? Yes

Reason for the Outage: Possible Maintenance

Outage Type: Scheduled

Select the node that requires an outage definition:

- Finance Department (selected)
  - Expense Accounting
  - Finance Network
    - Finance HUBs
      - HUB35100 Component
      - HUB59321 Component
    - Internal Switch
      - Switch 9322 Component
  - Expense Application
    - League Application
    - PHILLIP Application
    - CORP3 Application
  - Payroll
    - Finance Network

Selection: Finance Department

Note: Any children of the selected node will inherit this outage.

OK Cancel Help

During the period of an outage, data that is related to the affected nodes can be missing or invalid, or the data can simply reflect very unsatisfactory performance. During ETL, SAS IT Service Level Management notes the scheduled and excused outage periods and excludes the related data from all calculations.

Information about outages can be entered into SAS IT Service Level Management at any time. If you enter the outage details after the outage has already occurred, then the next time ETL runs, SAS IT Service Level Management adjusts the service level data to exclude the data from the outage period.

---

## Extract, Transform, Load (ETL)

During the ETL processing, SAS IT Service Level Management performs data extraction and service level calculations throughout the hierarchy. As you have already learned, instructions in each contract node, SLA node, and service node specify how the data from the child nodes will be used to calculate indicators and scores. For component nodes, data is extracted from data source PDBs.

---

### Downward Flow of Instructions for Data Extraction and Service Level Calculations

One way to think about ETL is to visualize the instructions for data extraction and service level calculations, beginning at the highest level of the contract hierarchy and moving down.



Figure 2.5 on page 21 shows that instructions in the contract node's objectives specify which data is extracted from the SLA child nodes and how the indicator is calculated for each objective.

**Figure 2.5** Example of Contract Node Instructions for Data Extraction

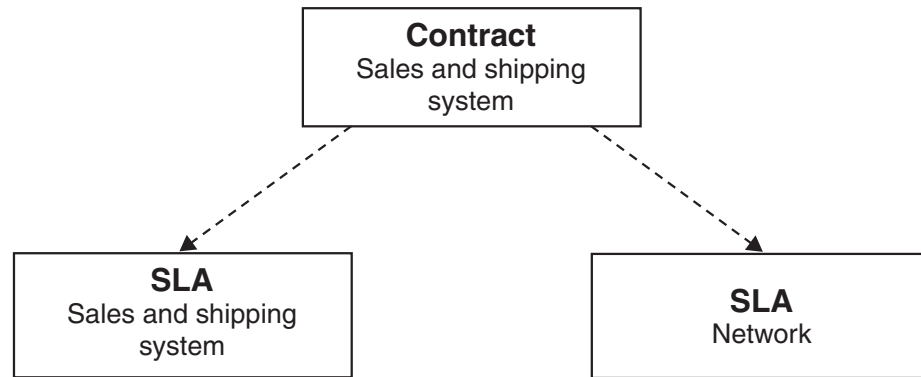


Figure 2.6 on page 21 shows that instructions in the SLA node's objectives specify which data is extracted from the service and component child nodes and how the indicator is calculated for each of the SLA's objectives.

**Figure 2.6** Example of SLA Node Instructions for Data Extraction

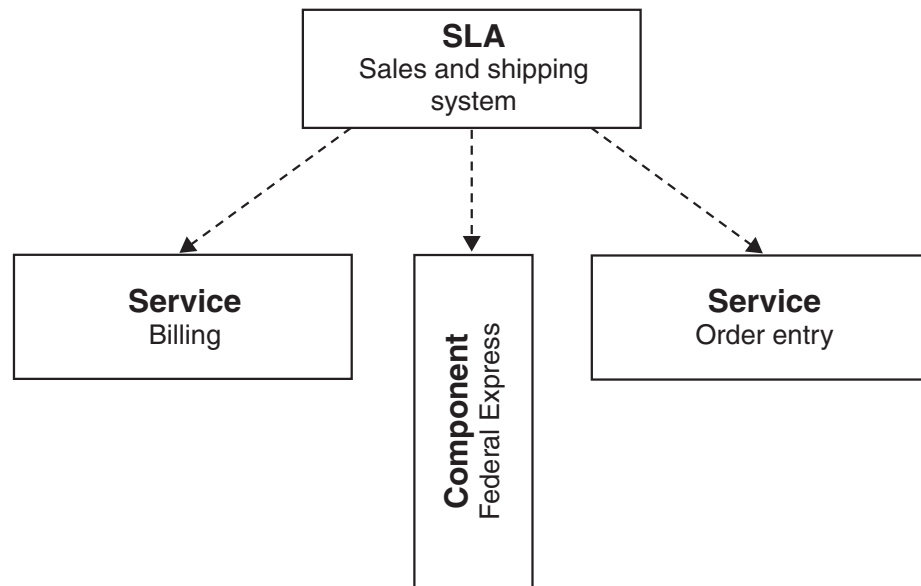
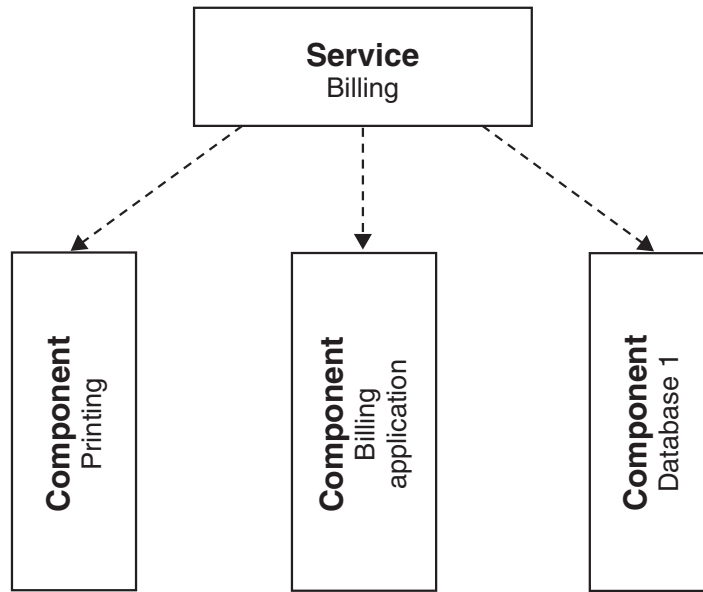
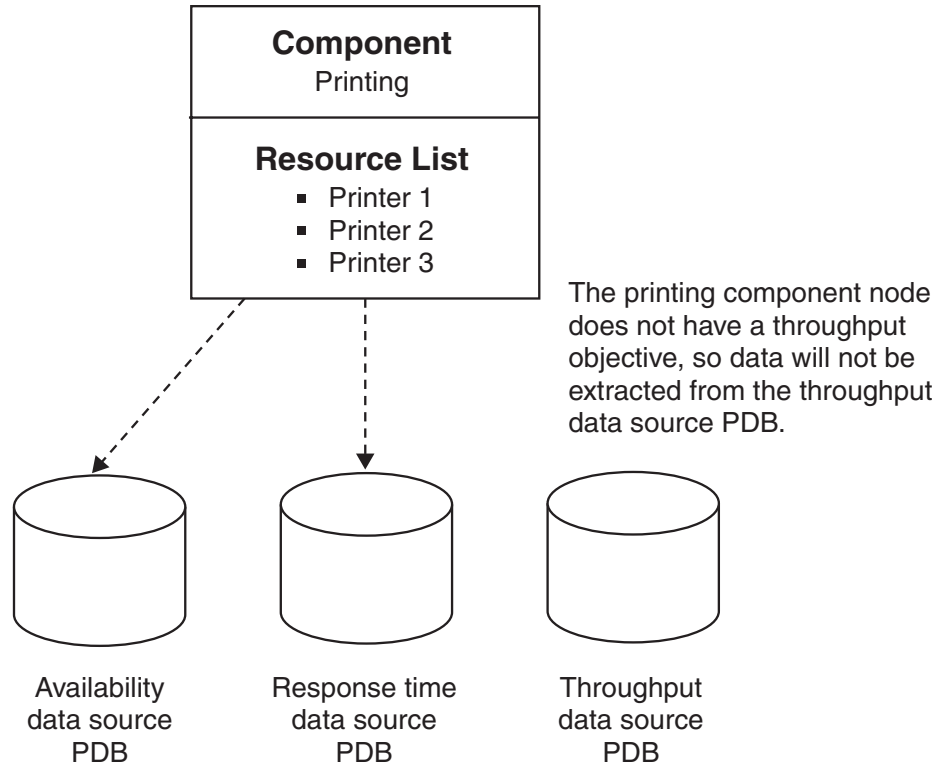


Figure 2.7 on page 22 shows that instructions in the service node's objectives specify which data is extracted from the service and component child nodes and how the indicator is calculated for each of the service node's objectives.

**Figure 2.7**     Example of Service Node Instructions for Data Extraction

Instructions in the component node's objectives and in the associated resource list specify which data is extracted from the data source PDBs and how the indicator is calculated for each of the component node's objectives (see Figure 2.8 on page 23). For example, the data that is retrieved from the data source PDBs for the printing component is filtered by the resource list. The data source PDBs can contain data from many printers and other devices; however, data is retrieved only for the three printers that are specified in the resource list and only for the types of objectives that are activated for the component.

**Figure 2.8** Example of Component Node Instructions for Data Extraction


---

## Upward Flow of Data and Service Level Calculations

The instructions for data extraction come down from the parent nodes; however, the data enters the hierarchy through the component nodes and moves upward. When the previously specified calculations of indicators and scores are completed for a node, the data is available to be extracted by the parent node.

For example, in Figure 2.9 on page 24, the printing component node has an availability objective, a response time objective, and a composite objective. Based on information in the resource list, the printing component node extracts availability and response time data for three printers from the data source PDB. The availability objective specifies that the availability indicator is the mean of the availability indicators from Printer 1, Printer 2, and Printer 3. The response time objective specifies that the response time indicator is the mean of the response time indicators from those same three resources. The composite objective specifies how the composite indicator will be calculated from the indicators of the other two objectives for the node.

**Figure 2.9** Example of Data Entering the Contract Hierarchy through a Component Node

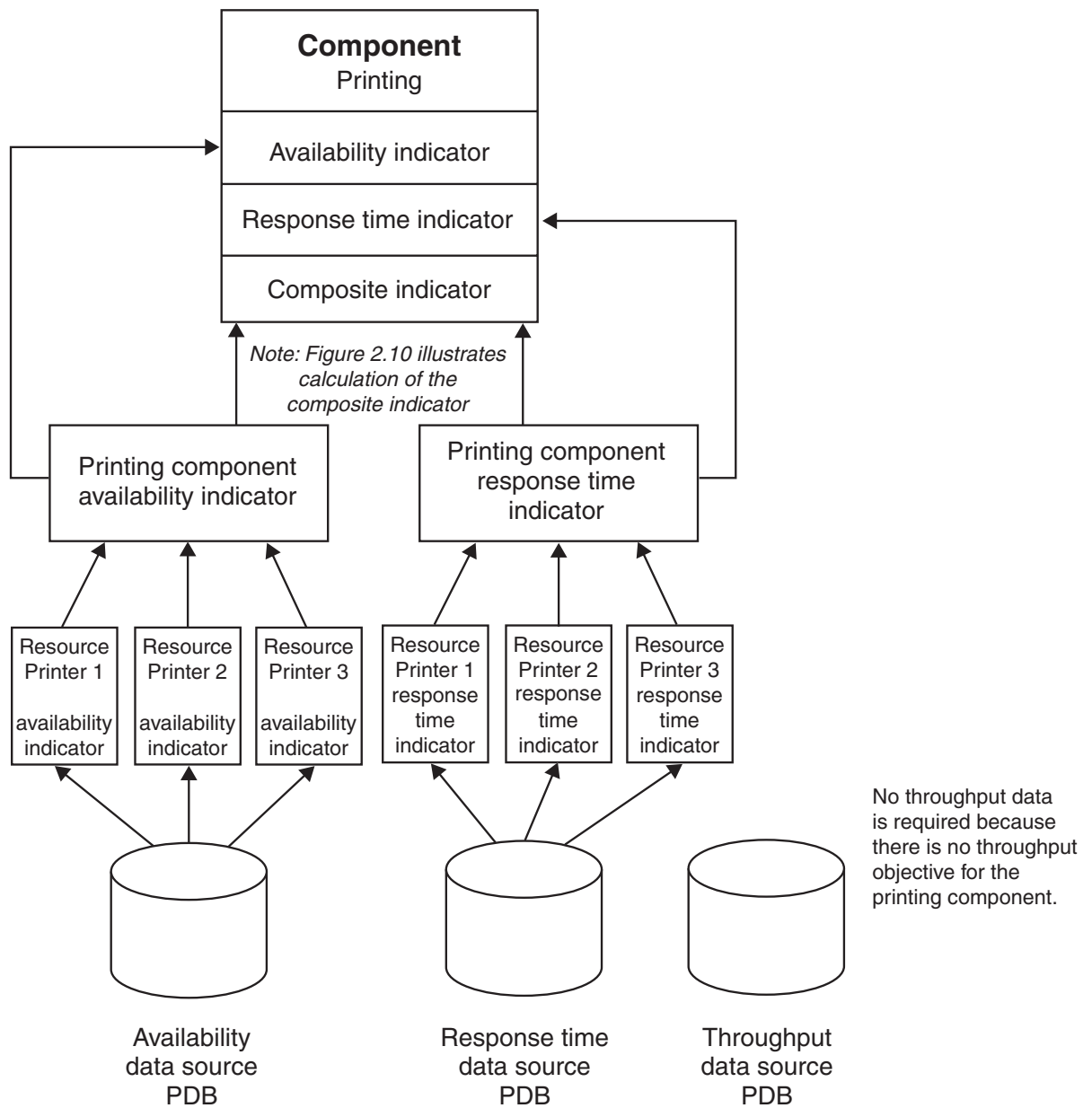
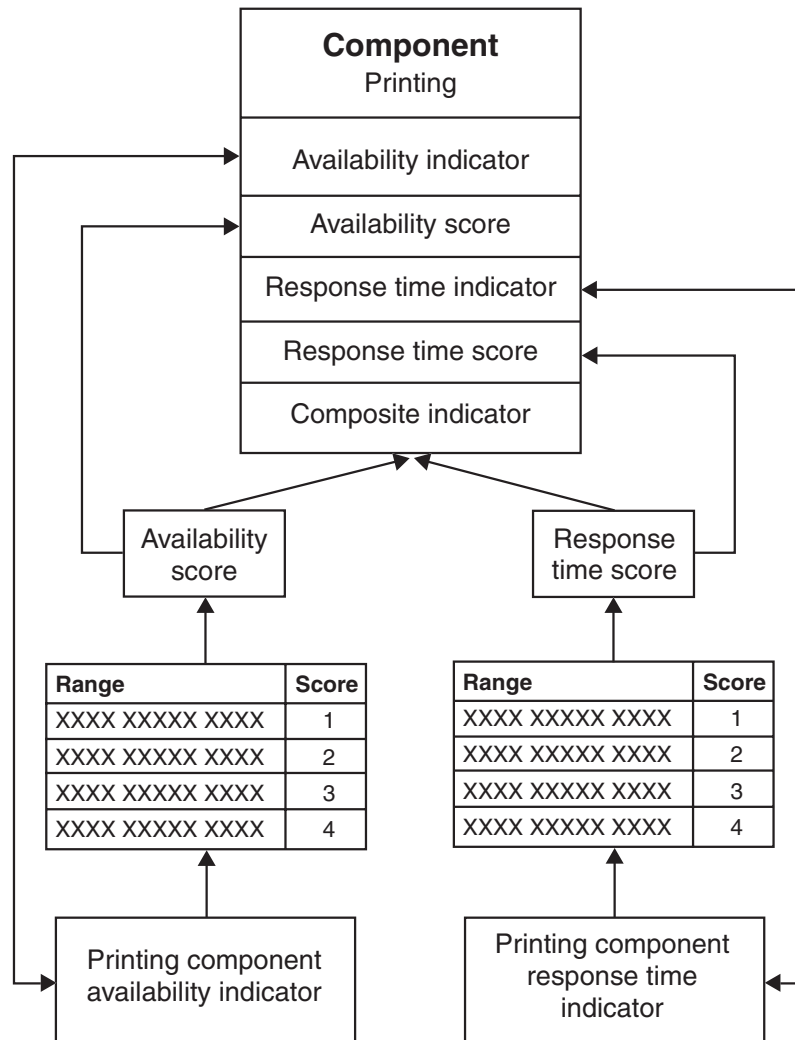


Figure 2.10 on page 25 illustrates in more detail how the composite indicator for the printing component node is calculated.

**Figure 2.10** Example of Calculating the Indicator for the Composite Objective

After indicators are calculated for the component nodes, the data is extracted by service and SLA parent nodes and then by their parent nodes on up through the hierarchy. Based on the previously specified instructions in the service level objectives of the parent nodes, indicators and scores for parent nodes are calculated as the data becomes available for extraction from the child nodes. Indicators are automatically calculated for every node in the contract. Some nodes might also have scores calculated for them. Scores are particularly useful when the data from the child nodes is dissimilar.

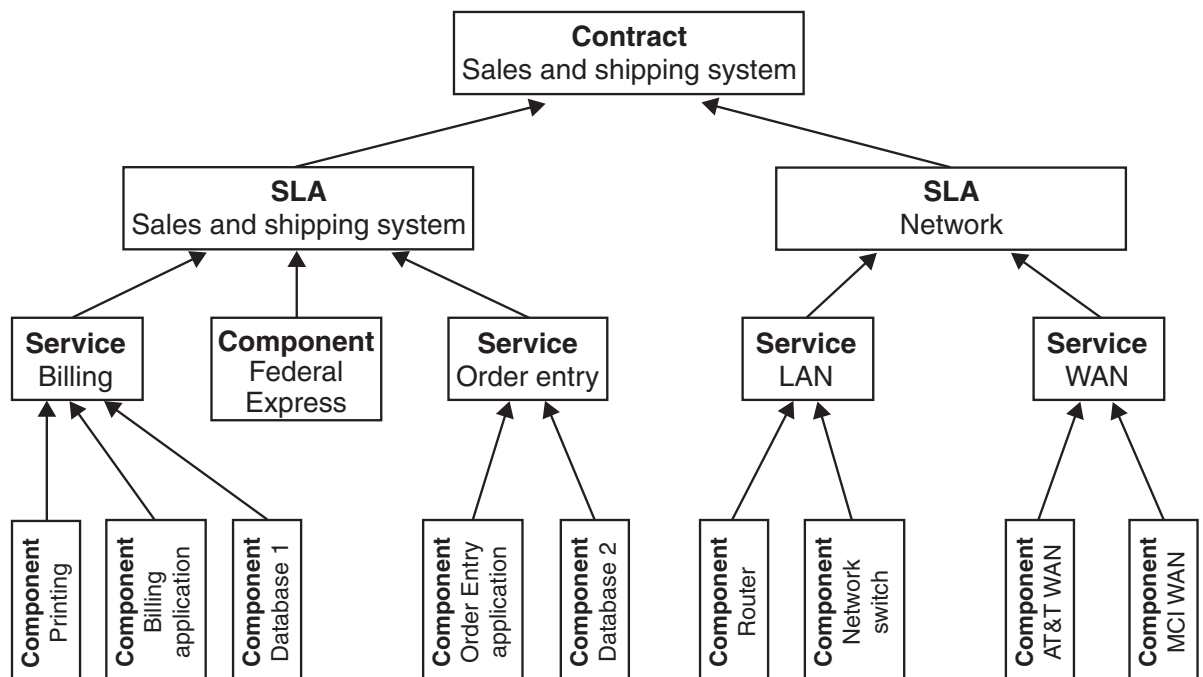
Figure 2.11 on page 26 is an overview of how the data moves back up through the hierarchy. You can look at this figure and visualize how those instructions might be implemented when the data becomes available for extraction. For example, the billing service node extracts data from the printing component, the billing application component, and the database 1 component to calculate indicators for the billing service node. A billing service might have availability and response time objectives, and these components seem likely to have response time and availability data that is associated with them. Because these components are likely to have very different indicators, the objectives for the billing service node probably specify that range sets will be used to calculate scores, and the scores will be used to calculate meaningful indicators for the billing service node.

Similarly, the sales and shipping SLA node could extract availability and response time indicators from its child nodes, which include a billing service, an order entry service, and a Federal Express component. The SLA node would also be likely to use range sets to assign scores in order to calculate meaningful indicators for its objectives.

Finally, at the top of the hierarchy, the sales and shipping contract node could have an availability objective, a response time objective, a throughput objective, and a composite objective. A different calculation method could be used for each objective. For example, the contract node might simply extract availability indicators from each SLA node and calculate an indicator from the mean of the child nodes' indicators. The response time objective might require the use of scores to calculate an indicator. The indicator for the throughput objective might be based on data from the network SLA node only.

*Note:* See “Service Level Objectives” on page 14 to review the definitions of objectives, indicators, scores, and range sets. More detailed information about data extraction and calculations of scores and indicators is provided in *SAS IT Service Level Management: User's Guide*. △

**Figure 2.11** Example Flow of Indicator and Score Calculations Up Through the Contract Hierarchy



## Summary

When the ETL process runs, instructions in each parent contract, SLA, and service node, beginning at the contract node, specify the following:

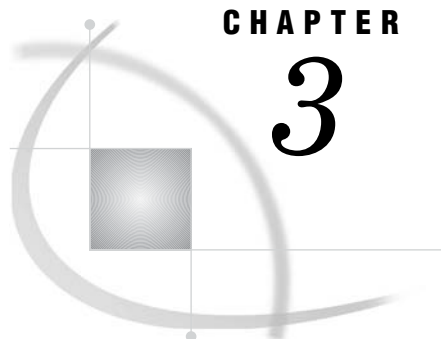
- whether indicators or scores will be extracted from the child nodes and for which objectives
- what method(s) will be used to combine the indicators or scores that are extracted from the child nodes and calculate an indicator for each objective that has been set in the parent node

- whether scores will also be calculated for the parent node and for which objectives

Data enters the contract hierarchy through the component nodes. The resource list of each component specifies exactly which data is imported and filters out all the rest. Instructions in the objectives of the component node specify how an indicator is calculated for the node and whether scores will also be calculated and for which objectives.







## CHAPTER

## 3

# Using the SAS IT Service Level Management GUI


<i>Overview: Getting Ready to Run SAS IT Service Level Management</i>	<b>30</b>
<i>Starting the GUI</i>	<b>30</b>
<i>Exploring the GUI</i>	<b>33</b>
<i>Navigation</i>	<b>34</b>
<i>Menu Bar</i>	<b>34</b>
<i>Toolbar</i>	<b>34</b>
<i>Workspaces List</i>	<b>35</b>
<i>Hierarchy Tree Pop-up Menus</i>	<b>35</b>
<i>Task List</i>	<b>35</b>
<i>Tabs</i>	<b>35</b>
<i>Workspaces</i>	<b>35</b>
<i>Contract Workspace</i>	<b>35</b>
<i>Catalog Workspace</i>	<b>36</b>
<i>Participants Workspace</i>	<b>37</b>
<i>Data Workspace</i>	<b>37</b>
<i>Reports Workspace</i>	<b>38</b>
<i>Using the GUI to Construct a Contract</i>	<b>38</b>
<i>Defining Server Connections and Data Sources</i>	<b>39</b>
<i>Server Connections</i>	<b>40</b>
<i>Data Sources</i>	<b>42</b>
<i>Adding Participants</i>	<b>42</b>
<i>Contacts</i>	<b>43</b>
<i>Customers</i>	<b>44</b>
<i>Providers</i>	<b>46</b>
<i>Creating Catalog Items</i>	<b>47</b>
<i>Range Descriptions</i>	<b>48</b>
<i>Range Sets</i>	<b>49</b>
<i>Components</i>	<b>52</b>
<i>Services</i>	<b>59</b>
<i>SLAs</i>	<b>60</b>
<i>Creating a Contract</i>	<b>61</b>
<i>The Contract Workspace</i>	<b>61</b>
<i>The Contract Window</i>	<b>62</b>
<i>Running ETL</i>	<b>68</b>
<i>Closing SAS IT Service Level Management</i>	<b>68</b>

---

## Overview: Getting Ready to Run SAS IT Service Level Management

In previous chapters, you learned how SAS IT Service Level Management can help you manage your service level contracts. This chapter describes how to use the GUI to do the following:

- ☐ Access IT performance data.
- ☐ Define all the measurable nodes—components, services, and SLAs—that make up a contract.
- ☐ Designate service level objectives for each node.
- ☐ Select your preferred methods of processing and evaluating the data.

*Note:* Many of the screen images in this chapter show sample data and settings to help you understand how data might appear in your SAS IT Service Level Management application. 

---

## Starting the GUI

The first time you log on to SAS IT Service Level Management, you must select the existing environment that you want to use or edit properties to define an appropriate environment for your needs.

The SLM environment contains the SLM environmental data for a contract. Environmental data describes the software objects that you define and use to create the contract—that is, the SLAs, services, components, customers, providers, and more. Typically, you need only a single SLM environment. You can have multiple environments; however, you cannot open more than one environment at a time.

To start SAS IT Service Level Management, you can use either of these methods:

- ☐ Select the SAS IT Service Level Management icon on your desktop.
- ☐ From the Windows taskbar, select **Start ► Programs ► SAS IT Service Level Management**.

The Log On Info dialog box opens.

**SAS IT Service Level Management**

**SAS**  
IT Management Solutions  
Understand • Measure • Manage

*The Power to Know*  
Copyright © 2004 by SAS Institute Inc., Cary, NC, USA. All Rights Reserved.

**Log On Info**

Environment:  
localhost Edit...

User Name:  
newuser

Password:  
\*\*\*\*\*

OK Cancel Help

The Log On Info dialog box permits only authorized users to access your data (SAS IT Service Level Management observes the default authorization for the operating environment).

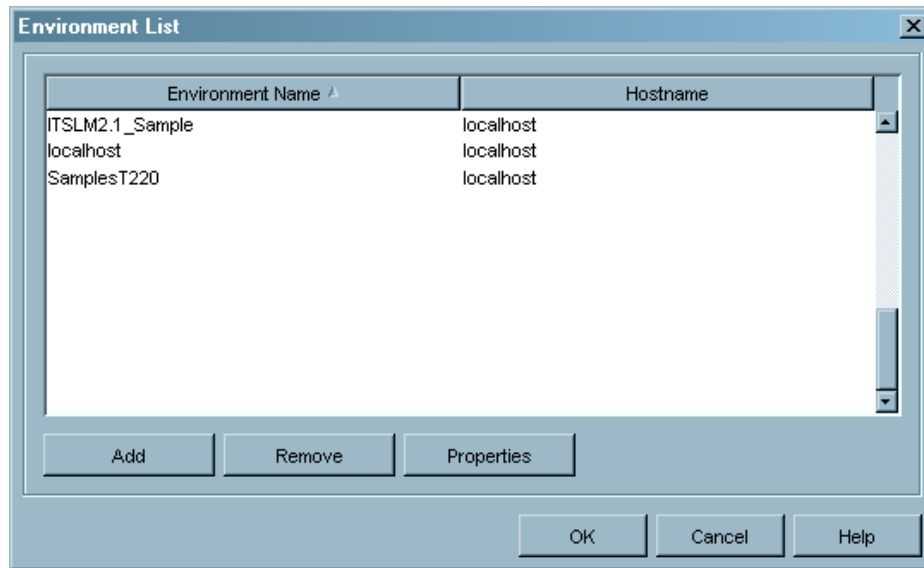
To log on to SAS IT Service Level Management, do the following:

- 1 Click the arrow to the right of the **Environment** field and select the environment that you want to use.
- 2 Enter your user name and password.
- 3 Click **OK**.

If you need to edit your environment, complete the following steps:

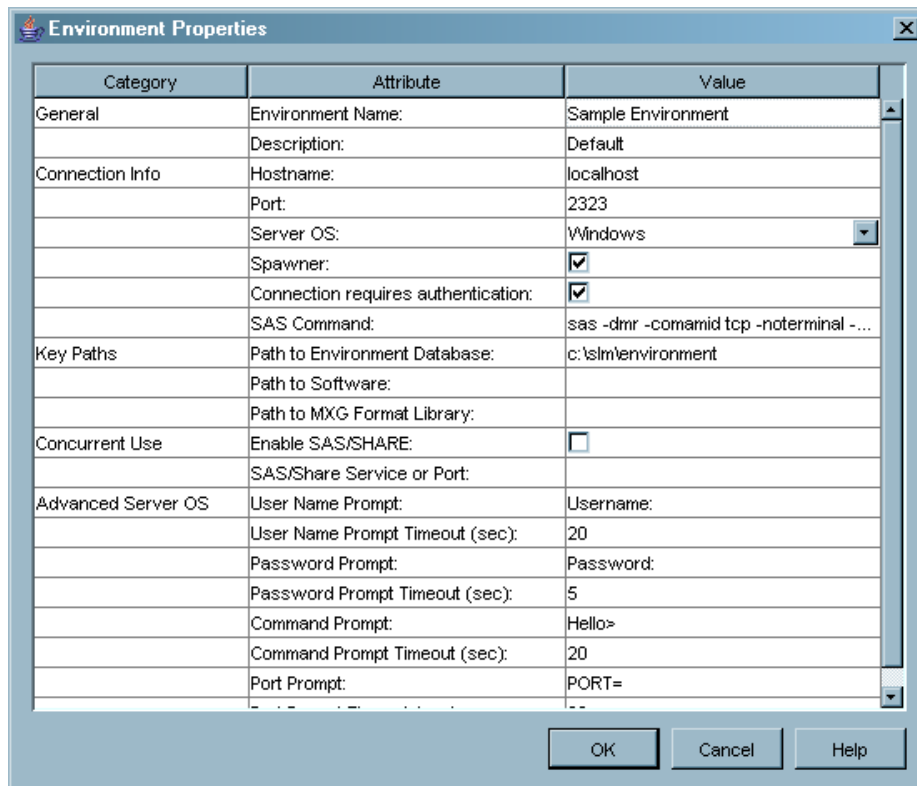
- 1 Click **Edit**.

The Environment List dialog box opens. This is the starting point for adding or removing an environment or for editing the properties of the environment that you have selected.



- 2 Select the environment that you want to edit.
- 3 Click **Properties** to display the Environment Properties dialog box and enter or edit the environment details.

*Note:* Detailed instructions for editing environment properties are provided in *SAS IT Service Level Management: User's Guide*.  $\triangle$

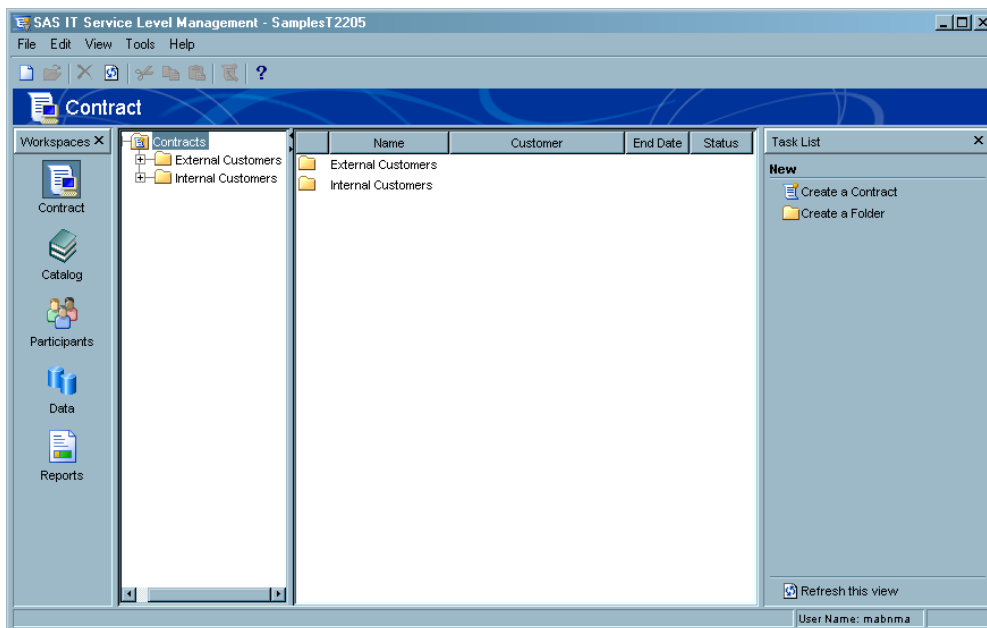


- 4 Use the Environment Properties dialog box to enter the properties for your SLM environment. The Category column lists groups of properties. The Attribute column lists the names of the individual properties. The Value column lists the

values of the properties. The environment data is stored on the SLM server platform and is accessed by means of the connection to the SLM server. The environmental data is saved and is automatically opened as the default environment the next time you start SAS IT Service Level Management.

- 5 Click **OK** in the Environment Properties dialog box and on the Environment List dialog box to return to the Log On Info dialog box.
- 6 Click **OK** in the Log On Info dialog box to finish logging on.

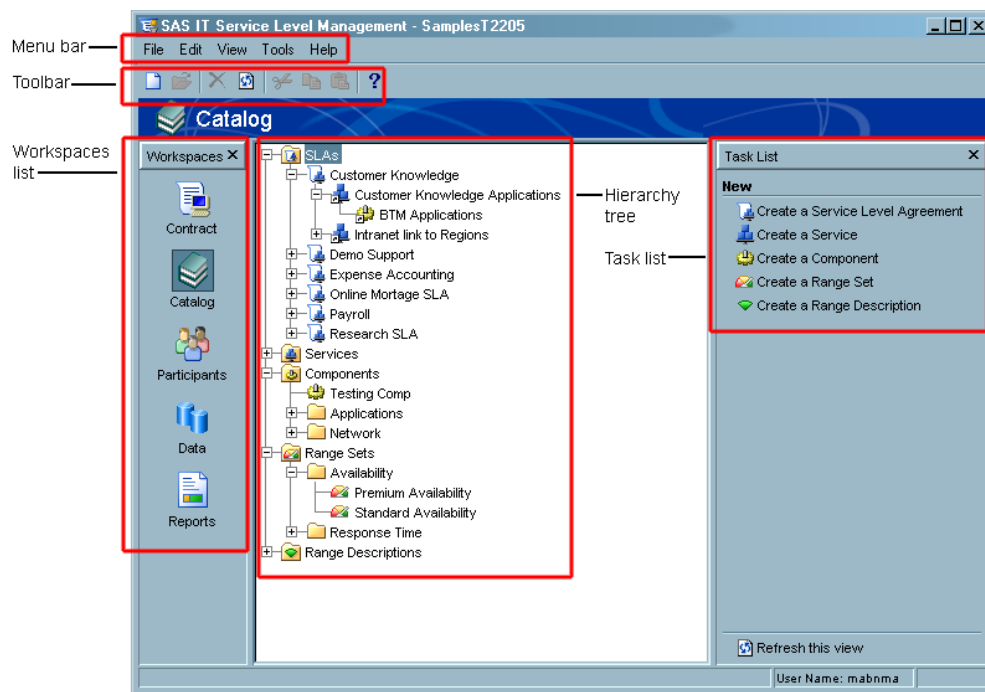
When you log on, the main window opens with the Contract workspace displayed.



## Exploring the GUI

The GUI is designed for functionality and ease of use. There are several methods of navigating to almost every window or dialog box. The SAS IT Service Level Management main window (Display 3.1 on page 34) contains the following interface components:

- Menu bar
- Toolbar
- **Workspaces** list
- Hierarchy tree pop-up menus
- **Task** list

**Display 3.1** Interface Components of the Main Window

In addition to the familiar menu bar, you'll find shortcut icons on the toolbar, the **Workspaces** list, and the **Task** list that take you to windows and dialog boxes where you can complete specific tasks. Pop-up menus are also available by right-clicking any item in the hierarchy tree to display the pop-up menu for that item. Keyboard shortcuts are also available for many common tasks.

When logging on and using the GUI, you might also notice that some commands take a few moments to display a result because of the amount of data retrieval and processing that the GUI must perform. These instances are marked with progress indicators such as an hourglass or dialog box to inform you that SAS IT Service Level Management is working.

## Navigation

### Menu Bar

The menu bar is available in each of the workspaces—Contract, Catalog, Participants, Data, and Reports. The menu bar contains five standard commands: **File**, **Edit**, **View**, **Tools**, and **Help**. Select one of these commands to display a drop-down list of options. The options that are available on a given drop-down list are determined by which workspace or window is currently open.

### Toolbar

The toolbar is located just below the menu bar at the top of the SAS IT Service Level Management main window. The icons are shortcuts to common tasks. Accessibility of the tools is determined by the current workspace and task. Hold the mouse pointer over a tool icon to display a tool tip that explains the purpose of the tool.

## Workspaces List

On the left side of each of the main SAS IT Service Level Management workspaces, you will find a vertical **Workspaces** list. Each of the icons on this list is a shortcut to one of the five main workspaces.

## Hierarchy Tree Pop-up Menus

Many functions can also be accessed by using pop-up menus. When you select a workspace to display, you'll see a hierarchy tree. You can right-click an item on the tree to display a pop-up menu. The pop-up menu provides quick and easy access to common tasks for the selected item.

## Task List

The **Task** list is another easy way to access common tasks quickly and easily. Each workspace displays a list of the tasks that can be accomplished within that workspace.

## Tabs

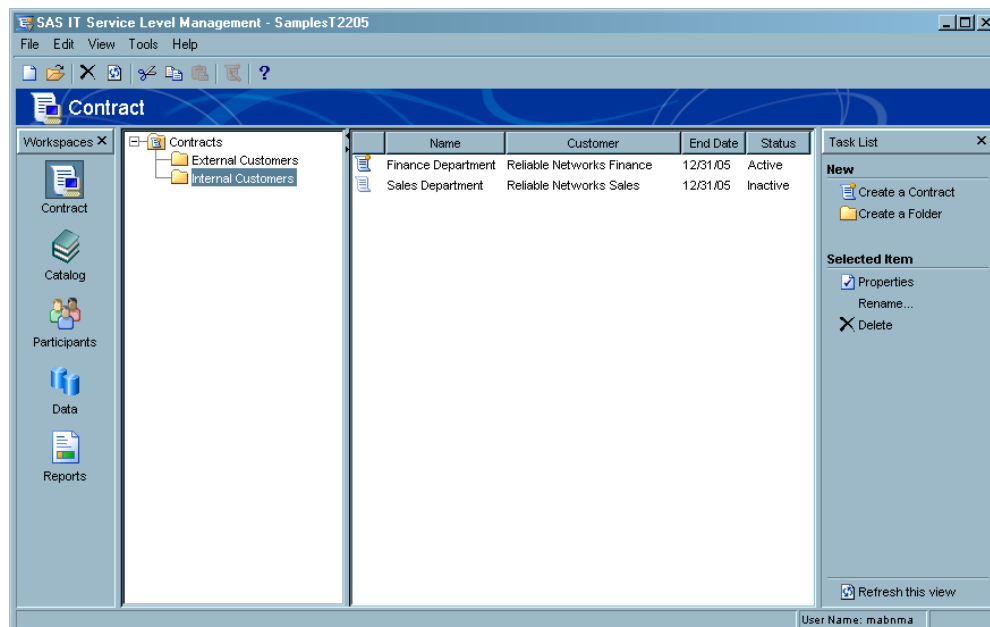
Navigation tabs appear on the dialog boxes that open after you select a task from a workspace. Each dialog box contains a unique set of tabs. For example, the Component dialog box displays the following tabs: **General**, **Date Filter**, **Objectives**, **Data**, **History**, and **Notes**. By entering information in the fields on these tabs, you complete the task of creating a component.

---

## Workspaces

SAS IT Service Level Management simplifies the creation and maintenance of contracts by providing five main workspaces—Contract, Catalog, Participants, Data, and Reports. These workspaces represent collections of dialog boxes where the tasks of creating, modifying, deleting, and reporting on the building blocks of contracts take place.

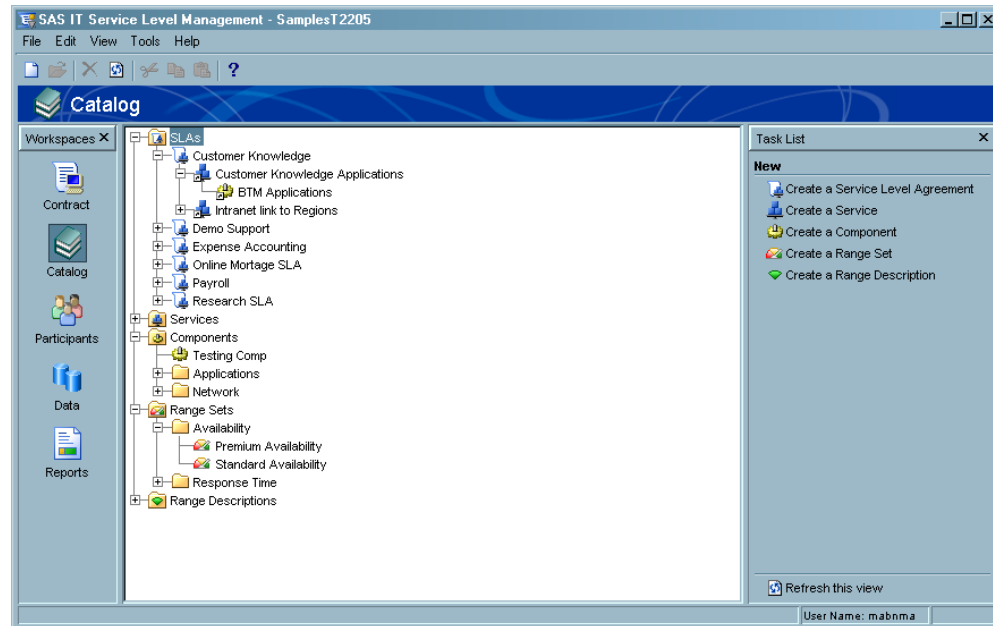
## Contract Workspace



The purpose of the Contract workspace is to facilitate management of contracts. From this workspace, you can access the dialog boxes where you perform the following tasks:

- Create a new contract.
- Define, manage, and organize lists of current contracts.
- Modify or remove an existing contract.

## Catalog Workspace

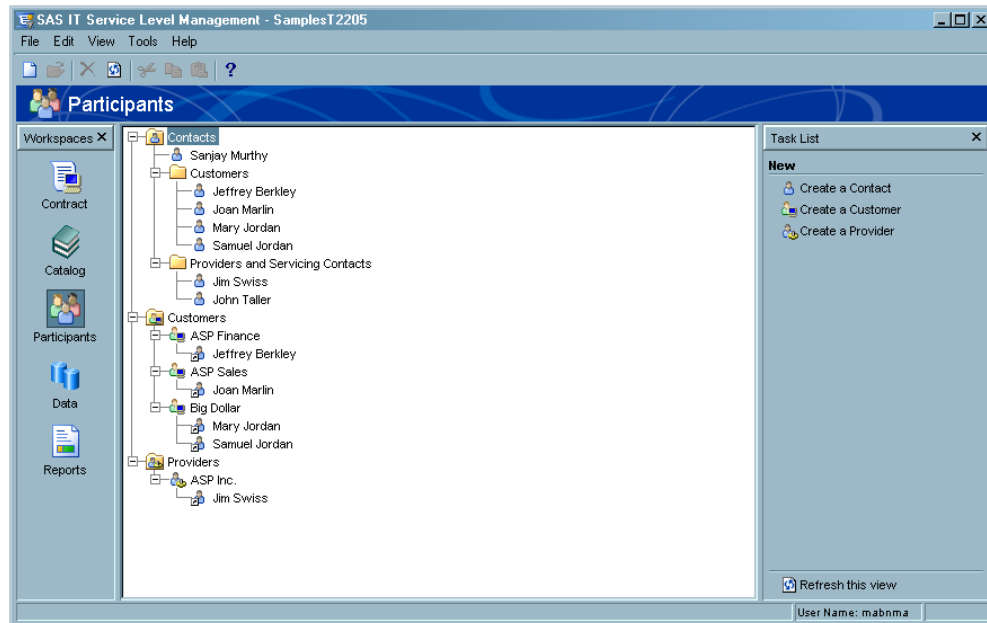


The purpose of the Catalog workspace is to provide easy access to the nodes that are used to create contracts. From this workspace, you can access the dialog boxes that are used to complete the following tasks:

- View predefined catalog items.
- Create, modify, or remove a single catalog item.
- Define, manage, and organize lists of predefined services.
- Define, manage, and organize lists of predefined components.
- Define, manage, and organize lists of predefined SLAs.
- Define, manage, and organize range sets.
- Define, manage, and organize range descriptions.



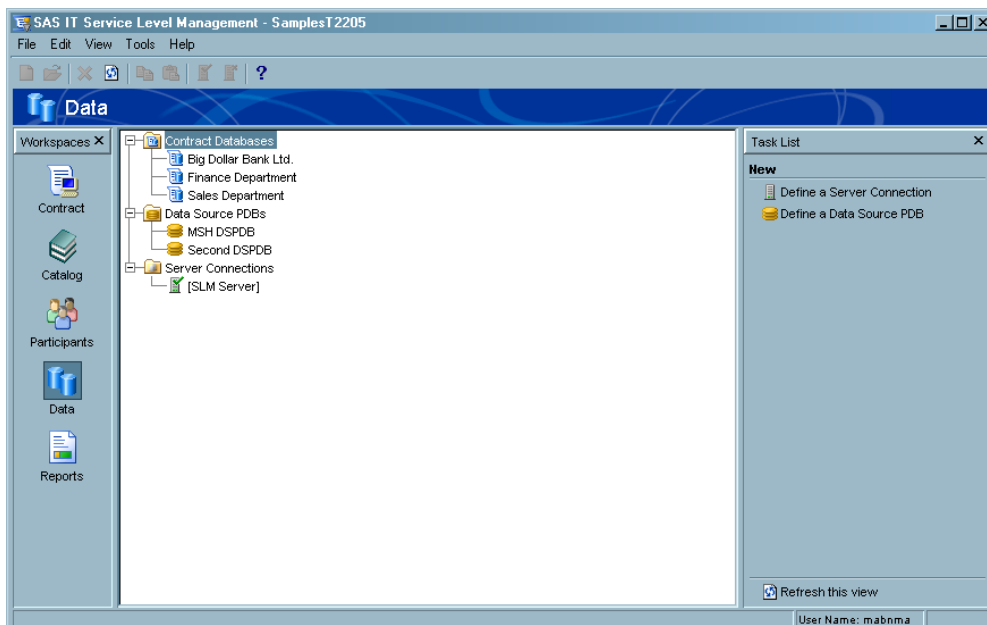
## Participants Workspace



The purpose of the Participants workspace is to facilitate the creation and management of the contact, provider, and customer descriptions that you need to build a contract in SAS IT Service Level Management. From this workspace, you can access the dialog boxes that are used to complete the following tasks:

- ☐ View and manage lists of contacts.
- ☐ View predefined contacts, customers, and providers.
- ☐ Create, modify, or remove a single contact, customer, or provider.
- ☐ Indicate which contacts are related to a customer or provider.

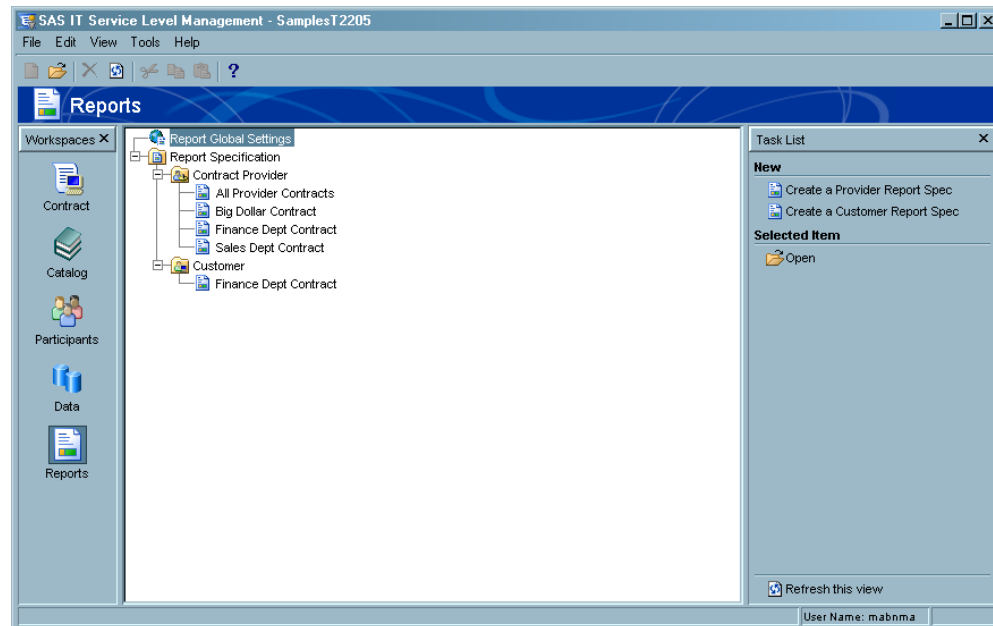
## Data Workspace



The purpose of the Data workspace is to provide easy access to the data items that are used in creating contracts. From this workspace, you can access the dialog boxes that are used to complete the following tasks:

- ☐ Define, modify, or remove a connection to a data source server.
- ☐ Connect to and disconnect from a data source server connection.
- ☐ Define data sources.
- ☐ View data sources and related tables.
- ☐ View contract databases and their tables.

## Reports Workspace




The purpose of the Reports workspace is to facilitate the creation and management of specifications for defining, generating, and viewing Service Level reports. From this workspace, you can access the dialog boxes where you perform the following tasks:

- ☐ Define report global settings such as report output locations and style sheet parameters.
- ☐ Create, modify, or delete report specifications for contract providers and customers.
- ☐ Organize and manage report specifications into contract provider folders and customer folders.
- ☐ Create report job codes for processing in a batch environment.
- ☐ Generate and view report results.

---

## Using the GUI to Construct a Contract

Before you can create a contract within SAS IT Service Level Management, you must create or define data sources, participants, range descriptions, range sets, components, services, and SLAs that you will later select to create your service level contract. As explained in Chapter 1, “Introduction to SAS IT Service Level Management,” on page 1, you must have all the information about your service level contract readily available before you begin to set up your software to monitor and report on your SLAs.


*Note:* SAS IT Service Level Management software is a means of capturing the work that you completed during the negotiation phase of the service level management process as laid out in the IT Infrastructure Library (ITIL) SLM process that is described in the book *Service Delivery (IT Infrastructure Library Series)*. 

This section describes the logical steps in creating a contract. For the purposes of this overview, we'll briefly discuss the windows and dialog boxes that you will use to create a contract. Detailed instructions for these steps are provided in *SAS IT Service Level Management: User's Guide*.

SAS IT Service Level Management enables you to use a bottom-up approach to create all the nodes and describe all the server connections, data sources, participants, and range sets that you will ultimately select when you create the contract itself. The elements that compose the foundation of the contract hierarchy include the following:

- 1 server connections
- 2 data sources
- 3 participants
- 4 range descriptions
- 5 range sets
- 6 components
- 7 services
- 8 SLAs
- 9 contract

The following sections present an overview of the workspaces and dialog boxes that are used to define or create each of the elements in the creation of a new contract.

*Note:* See “Understanding the Structure of Your Contract” on page 12 for additional information about the contract hierarchy. 

---

## Defining Server Connections and Data Sources

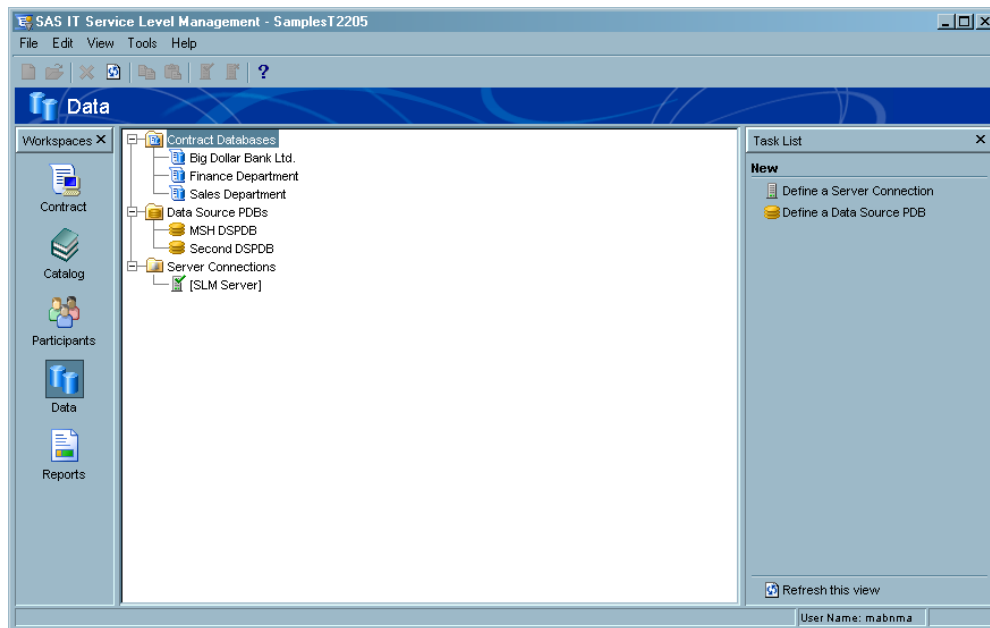
The Data workspace is a logical starting point for defining the data sources that will be used in creating a contract. Use the Data workspace to do the following:

- ☐ Define data source server connections.
- ☐ Define data sources.

All performance data enters the hierarchy through the components. The data that is feeding into the objectives that are selected for each component comes from a data source that is designated for that component's objectives. No processing can take place until SAS IT Service Level Management can access the data source. Therefore it is logical to begin the process of creating a contract by defining data server connections and data sources.

Either of the following actions displays the Data workspace:

- ☐ Select the **Data** icon from the **Workspaces** list.
- ☐ From the menu bar, select **View ► Data**.

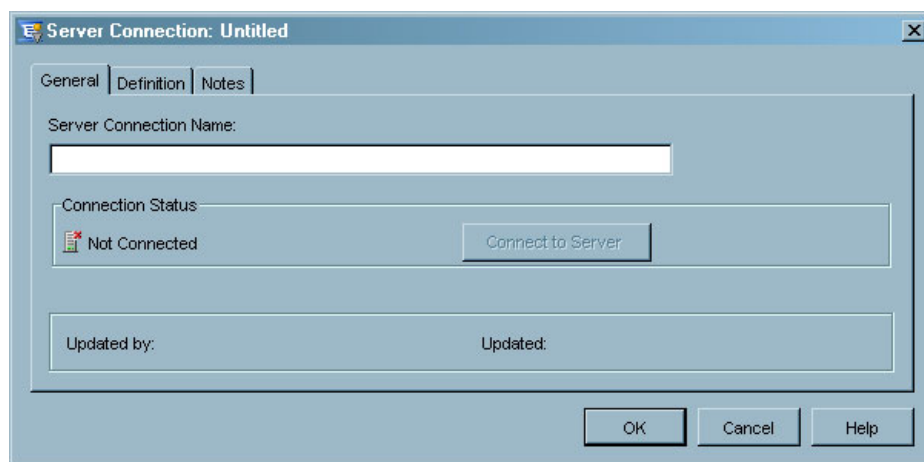


## Server Connections

When you define the server connections, you are enabling SAS IT Service Level Management to find the server(s) where your data source is located.

To define a server connection, complete the following steps.

- 1 Display the Server Connection dialog box by completing one of the following actions:
  - From the menu bar, select **File ► Define ► Server Connection**.
  - Right-click **Server Connections** in the hierarchy tree, and from the pop-up menus select **Define ► Server Connection**.
  - Select **Define a Server Connection** from the **Task** list.



- 2 In the **Server Connection Name** field, type the name of the server connection that you want to create.
- 3 Click the **Definition** tab.

Category	Attribute	Value
General	Hostname:	localhost
	Port:	2323
	Default User Name:	
	Default Password:	
	Server OS:	Windows
	Spawner:	<input checked="" type="checkbox"/>
	Script:	<input checked="" type="checkbox"/>
Advanced Server OS	SAS Command:	sas -dmr -comamid tcp -noterminal -cleanup
	User Name Prompt:	Username:
	User Name Prompt Timeout (sec):	20
	Password Prompt:	Password:
	Password Prompt Timeout (sec):	5
	Command Prompt:	Hello>
	Command Prompt Timeout (sec):	20

Test

OK Cancel Help

- 4 Type a hostname in the **Value** column cell that corresponds to the **Hostname** row. This cell must be complete in order for SAS IT Service Level Management to connect to the requested server.
- 5 Complete the other fields as necessary.
- 6 Click the **Notes** tab.

Notes:

This is where you can type notes for this server connection.

Attachments:

	On Report	Report St...	Report End	Name	Address
	<input checked="" type="checkbox"/>	8/19/05		SAS Institute	http://www.sas.com

New Delete Open Address Properties

OK Cancel Help

- 7 Type any additional information that you want to include about the server connection that you are creating.
- 8 Click **OK**.

The new server connection is now defined.

*Note:* The **Notes** tab is the last tab in most dialog boxes. The purpose of the **Notes** tab is to display an area where users can add notes and attachments to a component, service, SLA, contract, range set, customer, provider, data source, contract database, or server connection. Because the **Notes** tab appears and functions the same throughout each workspace, no further illustrations are provided in this documentation. △

## Data Sources

Defining a data source tells SAS IT Service Level Management how to find a SAS IT Resource Management (ITRM) performance database (PDB) where performance data is stored. SAS IT Service Level Management uses this data to calculate service level indicators.

To define a data source, complete the following steps:

- 1 Display the **Data Source PDB** dialog box by completing one of the following actions:
  - From the menu bar in the Data workspace, select **File ► Define ► Data Source PDB**.
  - Right-click **Data Source PDBs** in the hierarchy tree and from the pop-up menus select **Define ► Data Source PDB**.
  - Click **Define a Data Source PDB** in the **Task** list.

- 2 In the **Data Source PDB Name** field, type the name that you want to use for the data source that you are defining.
- 3 In the **Path to Data Source PDB** field, type the path to the location of the data source.
- 4 In the **Server Connection Name** field, select the correct server connection for the data source that you are defining.
- 5 If you want to add notes, click the **Notes** tab.
- 6 Click **OK**.

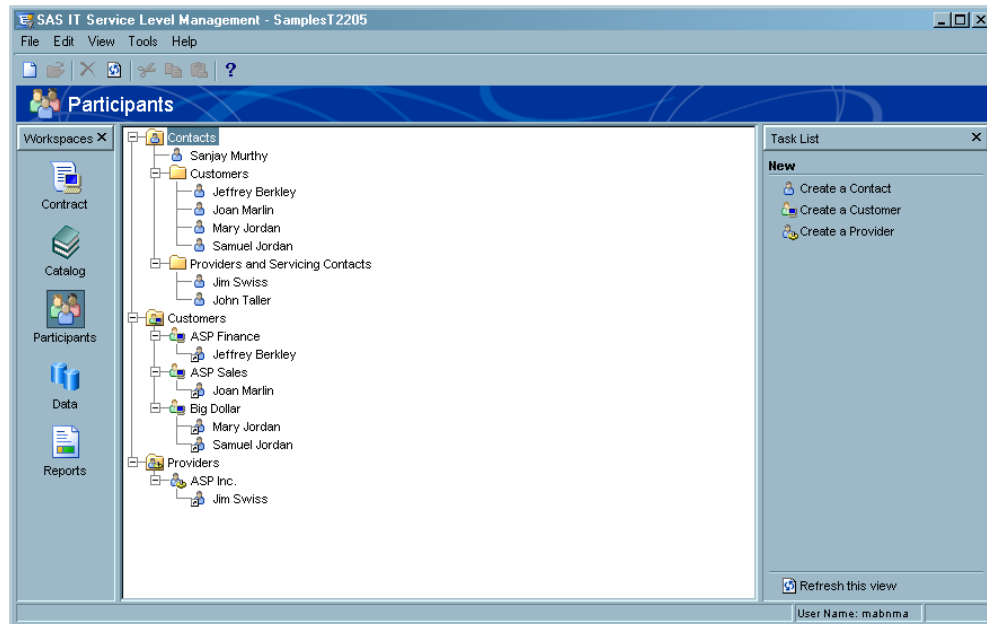
---

## Adding Participants

Contracts typically involve two parties, a customer and a provider. The Participants workspace enables you to enter contact information for all the people who are parties to a contract, whether they are customers, providers, or other types of contacts.

Either of the following actions displays the Participants workspace:

- ☐ Select the **Participants** icon from the **Workspaces** list.
- ☐ From the menu bar, select **View ► Participants**.



## Contacts

Use the Contact dialog box to add or modify contact names, addresses, and other useful contact information for the list of participants that you will use when you create a contract. You can check boxes to indicate whether the contact that you are creating will appear in drop-down lists as a customer, a provider, or a servicing contact for a contract, SLA, service, or component.

To add a contact, complete the following steps:

- 1 Open the Contacts dialog box in any of the following ways:
  - ☐ From the menu bar in the Participants workspace, select **File ► New ► Contact**.
  - ☐ Right-click **Contacts** in the hierarchy tree and from the pop-up menu select **New ► Contact**.
  - ☐ Click **Create a Contact** in the **Task** list.

**Contact: Untitled**

Contact Type

Select where this contact may appear

☒ Customer

☒ Provider

☒ Servicing Contact

☐ Receive e-mail notification for any missed targets (default)

Category	Attribute	Value
Directory	Contact Name:	
	First Name:	
	Last Name:	
	Name 3:	
	Name 4:	
	Job Title:	
Numbers	Department:	
	Telephone:	
	Pager:	
	FAX:	
Address	E-mail:	
	Address 1:	
	Address 2:	

Updated by: Updated:

OK Cancel Help

- 2 Type the contact information in the appropriate fields.
- 3 Select the appropriate check boxes (**Customer**, **Provider**, **Servicing Contact**) to indicate the drop-down lists where you want the new contact to appear.
- 4 If you select the **Servicing Contact** check box, indicate if the contact will receive e-mail notification for any targets missed during the current compliance period.
- 5 Click **OK**.

The contact is added to the lists that you selected.

## Customers

From the Customer dialog box, you can complete the following tasks:

- ☐ Create or update a customer to be used in a contract.
- ☐ Add existing contact names and address information for that customer.
- ☐ Add new contacts.

To create a customer, complete the following steps:

- 1 Open the Customer dialog box in any of the following ways:



- From the menu bar in the Participants workspace, select **File ► New ► Customer**.
- Right-click **Customers** in the hierarchy tree and from the pop-up menus select **New ► Customer**.
- Click **Create a Customer** in the **Task** list.

The screenshot shows the 'Customer: Untitled' dialog box with the 'General' tab selected. It contains three text input fields for 'Customer Name', 'Company', and 'Business Unit'. Below these fields are two labels, 'Updated by:' and 'Updated:', each followed by a text input field. At the bottom right are three buttons: 'OK', 'Cancel', and 'Help'.

- 2 Type the name of the customer in the **Customer Name** field.
- 3 Type the name of the customer's company in the **Company** field.
- 4 Click the **Contacts** tab.

The screenshot shows the 'Customer: Untitled' dialog box with the 'Contacts' tab selected. At the top, there is a section labeled 'Add Existing Contact:' with a dropdown menu showing 'Jeffrey Berkley' and an 'Add' button. Below this is a table with five columns: 'Primary Contact', 'Primary Approver', 'Contact Name', 'Telephone', and 'E-mail'. The table body is currently empty. At the bottom left are three buttons: 'New Contact', 'Remove', and 'Open'. At the bottom right are three buttons: 'OK', 'Cancel', and 'Help'.

- 5 Add a contact in either of the following ways:
  - If you have previously created contacts by using the Contacts dialog box, you can select a contact from the **Add Existing Contact** drop-down list. Click **Add** to the right of the list to add the contact that you select.

- If the contact that you want to add is not in the drop-down list, click **New Contact** to access the Contacts dialog box, where you can create the contact.
- If you want to add notes about this customer, click the **Notes** tab.
- Click **OK**.

## Providers

The Provider dialog box enables you to create a provider to be used in the contract. From this dialog box, you can complete the following tasks:

- Create or update a provider.
- Add existing contact names with address information.
- Add new contacts.

To create a provider, complete the following steps:

- 1 Open the Provider dialog box in any of the following ways:
  - From the menu bar in the Participants workspace, select **File ► New ► Provider**.
  - Right-click **Providers** in the hierarchy tree and from the pop-up menus select **New ► Provider**.
  - Click **Create a Provider** in the **Task** list.

- 2 Type the name of the provider in the **Provider Name** field.
- 3 Type the name of the provider's company in the **Company** field.
- 4 Click the **Contacts** tab.

Provider: Untitled

General   Contacts   Notes

Add Existing Contact:

Primary Contact	Primary Approver	Contact Name	Telephone	E-mail
<input type="checkbox"/>	<input type="checkbox"/>	Sanjay Murthy	919.555.6852	smurthy@reliablenets.com

- 5 Add a contact in either of the following ways:
  - If you have previously created contacts by using the Contacts dialog box, you can select a contact from the **Add Existing Contact** drop-down list. Click **Add** to the right of the list to add the contact that you select.
  - If the contact that you want to add is not in the drop-down list, click **New Contact** to access the Contacts dialog box, where you can create the contact.
- 6 If you want to add notes about this provider, click the **Notes** tab.
- 7 Click **OK**.

---

## Creating Catalog Items

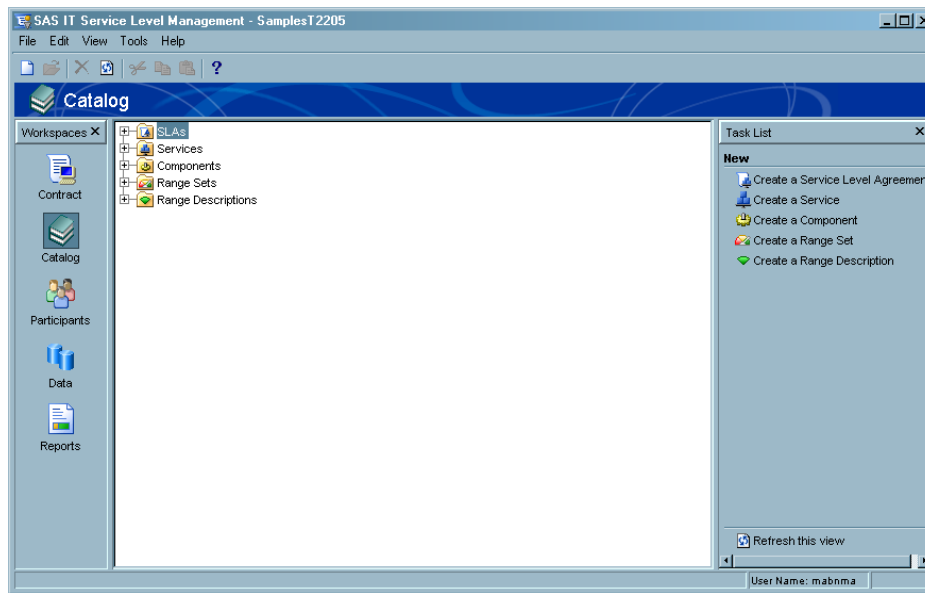
So far, you have seen how to create the necessary server connections and define data sources so that SAS IT Service Level Management can access your SLM-related data. You have seen how to define providers and customers and how to define contacts for them. There are still a few more tasks to complete before a contract can be created. Using the Catalog workspace, you can complete the following sequence to manage the catalog items that are needed to build a contract:

- 1 Create and edit range descriptions that contain range set colors and labels for reports.
- 2 Create the range sets to apply to the components, services, SLAs, and contracts that you want to track.
- 3 Define your SLM components and services.
- 4 Select components, services, and range sets to create your SLAs within SAS IT Service Level Management.

You can display the Catalog workspace in either of the following ways:

- Select the **Catalog** icon from the **Workspaces** list.
- From the menu bar, select **View ► Catalog**.

The Catalog workspace opens.



## Range Descriptions

Range descriptions associate report colors and labels with ranges within a range set. These descriptors help you identify range classifications within range sets for contract and catalog nodes. For example, a range description might define all ranges that exceed expectations to appear in reports as green and be labeled “Exceeded.”

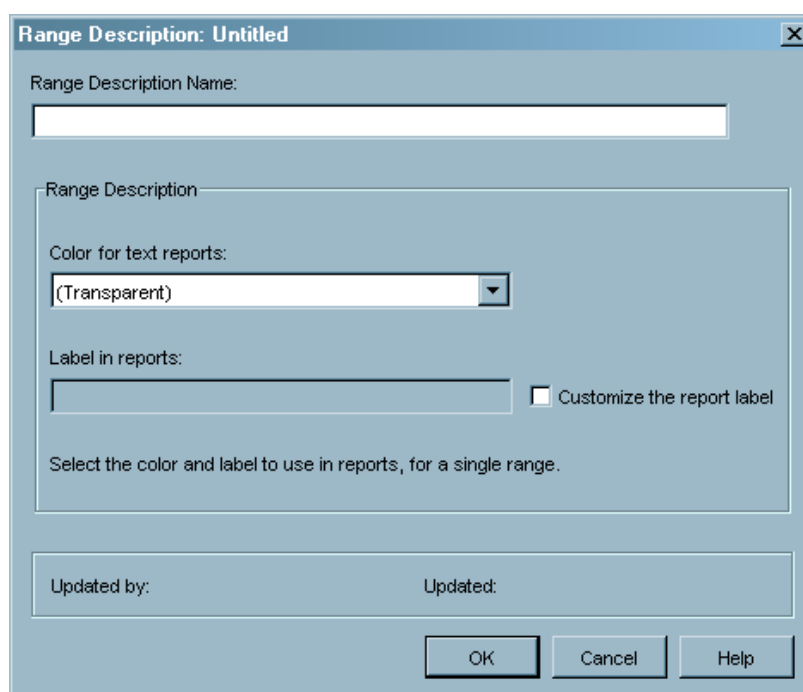
Six predefined range descriptions (Exceeded, Met, Missed, Missing Value, Out-of-bounds High, and Out-of-bounds Low) are supplied. Three of these supplied range descriptions (Missing Value, Out-of-bounds High, and Out-of-bounds Low) cannot be renamed or deleted. You can also create additional range descriptions that meet your specific business needs.

From the Range Description dialog box, you can complete the following tasks:

- ☐ Modify the report color and report label for predefined range descriptions.
- ☐ Assign a name to a new range description that will appear for selection in range sets and report specifications.
- ☐ Define a report color and report label for a new range description.

To create a range description, complete the following steps:

- 1 From the Catalog workspace, open the Range Description dialog box in one of the following ways:
  - ☐ From the menu bar in the Catalog workspace, select **File ► New ► Range Description**.
  - ☐ Right-click **Range Descriptions** in the hierarchy tree and from the pop-up menus select **New ► Range Description**.
  - ☐ Click **Create a Range Description** in the **Task** list.



The dialog box is titled "Range Description: Untitled". It contains the following fields and controls:

- Range Description Name:** A text input field.
- Range Description:** A section containing:
  - Color for text reports:** A dropdown menu currently showing "(Transparent)".
  - Label in reports:** A text input field.
  - ☐ **Customize the report label**
- Select the color and label to use in reports, for a single range.** (Instructional text)
- Updated by:** and **Updated:** (Empty text fields)
- Buttons:** OK, Cancel, and Help.

- 2 Use the Range Description dialog box to name the new range description and specify the report color and label that you want to associate with the description.
- 3 Click **OK** to save your changes. The new range description will appear in the **Range Descriptions** folder in the hierarchy tree.

*Note:* If you attempt to delete a range description that is linked to a range already in use by the catalog, contract, or report programs, a dialog box will prompt you to choose another existing range description to replace the description that you want to delete. △

*Note:* For more information, see “Range Descriptions” on page 15. In addition, *SAS IT Service Level Management: User’s Guide* provides more detailed information about managing range descriptions. △

## Range Sets

The Range Set dialog box enables you to define service level objectives for all of the components, services, and SLAs that will be included in your contract. Ranges and range sets enable you to designate scores and description associations to help interpret actual performance measurements. From the Range Set dialog box in the Catalog workspace, you can complete the following tasks:

- ☐ Define a set of ranges to compare against the actual values or input metrics.
- ☐ Define a score for each range.
- ☐ Associate ranges with predefined range descriptions that determine report output parameters such as descriptors, colors, and labels.

To create and edit a range set, complete the following steps:

- 1 From the Catalog workspace, open the Range Set dialog box in any of the following ways:

- From the menu bar, select **File ► New ► Range Set**.
- Right-click **Range Sets** on the hierarchy tree and from the pop-up menus select **New ► Range Set**.
- Click **Create a Range Set** in the **Task** list.

Range Set: Untitled

General | Range Set | Notes

Range Set Name:

Updated by: Updated:

OK Cancel Help

- 2 Type the name of the range set that you want to define.
- 3 Click the **Range Set** tab.

Range Set: Untitled

General | Range Set | Notes

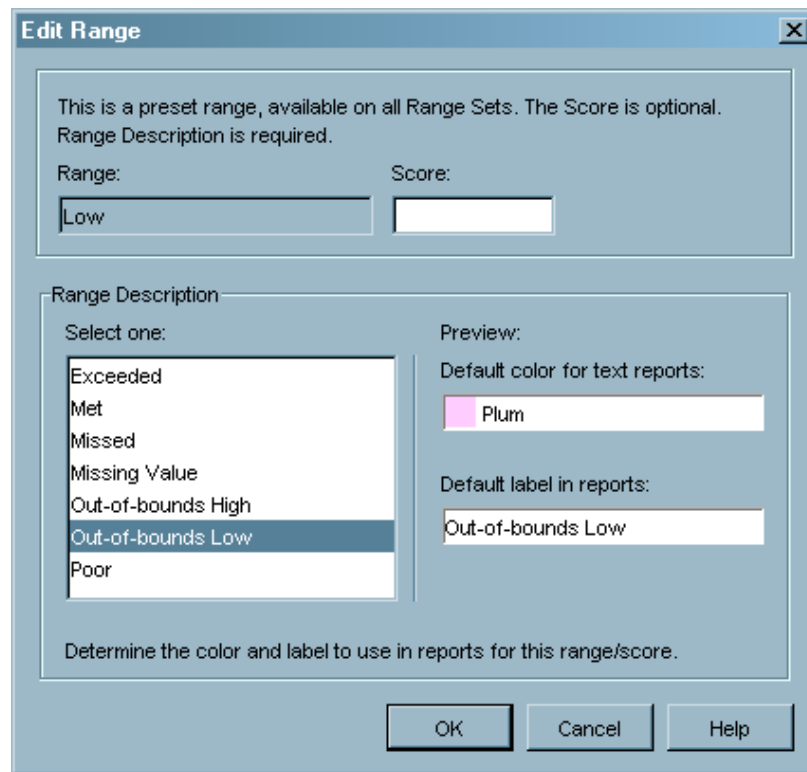
Range ▲	Score	Name	Text Report	Label
High		Out-of-bounds High	Plum	Out-of-bounds High
Low		Out-of-bounds Low	Plum	Out-of-bounds Low
Missing		Missing Value	Light Gray	Missing Value

Add Range Delete Edit

Range Set is used to calculate scores and/or to display colors and labels on reports.

OK Cancel Help

- 4 To edit existing ranges in the range set, complete the following steps:
  - a Display the Edit Range dialog box in any of the following ways:
    - Select a range and click **Edit**.
    - Right-click a range and select **Edit** from the pop-up menu.
    - Double-click a range.



**Edit Range**

This is a preset range, available on all Range Sets. The Score is optional. Range Description is required.

Range:       Score:

Range Description:

Select one:

- Exceeded
- Met
- Missed
- Missing Value
- Out-of-bounds High
- Out-of-bounds Low**
- Poor

Preview:

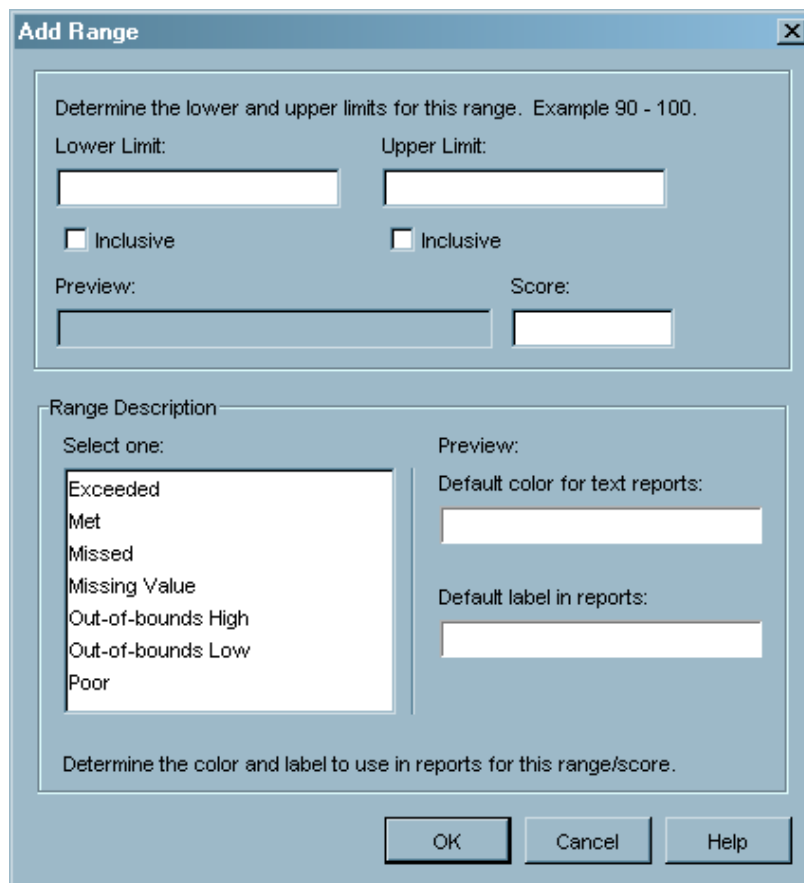
Default color for text reports:

Default label in reports:

Determine the color and label to use in reports for this range/score.

OK    Cancel    Help

- b Use the Edit Range dialog box to specify or change the value limits of the range and the score, descriptor, report color, and report label that you want to associate with the range.
  - c Click **OK** to save your changes.
- 5 To add a new range in the range set, complete the following steps:
  - a Click **Add Range** at the bottom left of the **Range Set** tab.



**Add Range**

Determine the lower and upper limits for this range. Example 90 - 100.

Lower Limit:  Upper Limit:

☐ Inclusive ☐ Inclusive

Preview:  Score:

---

Range Description

Select one:

- Exceeded
- Met
- Missed
- Missing Value
- Out-of-bounds High
- Out-of-bounds Low
- Poor

Preview:

Default color for text reports:

Default label in reports:

Determine the color and label to use in reports for this range/score.

OK Cancel Help

- b In the Add Range dialog box, set the lower and upper limits for the range and enter a value in the **Score** field.
  - c From the list on the bottom left of the dialog box, select the range description that you want to correspond with the new range. The report color and report label associated with the range description will appear in the preview fields to the right.
  - d Click **OK** to add the new range.
- 6 Select the **Notes** tab if you want to add notes about the range set.

*Note:* See “Ranges and Range Sets” on page 16 for more information. In addition, *SAS IT Service Level Management: User’s Guide* provides more detailed information about using ranges and range sets. △

## Components

A component in SAS IT Service Level Management usually represents software or hardware resources (such as a router or a server). It can also represent a single resource or multiple resources (such as a Web server farm). A component can also represent a person or a business process (such as the help desk).

The Component dialog box enables you to define a component, designate how the data related to that component will be collected, and specify the desired objectives for the component.

From this dialog box, you can complete the following tasks:

- Create or modify a component.



- ❑ Establish or modify date filter parameters that determine how and when to collect data or process indicators for a component.
- ❑ View predefined service level objectives of a component.
- ❑ Determine how to measure the component in order to score and meet the objective.
- ❑ Create, activate, remove, and modify component objectives.
- ❑ Assign a servicing contact to a component and determine if the contact will receive e-mail notifications for missed targets.

To create a component, complete the following steps:

- 1 From the Catalog workspace, open the Component dialog box in one of the following ways:
  - ❑ From the menu bar, select **File ► New ► Component**.
  - ❑ Right-click **Components** on the hierarchy tree and from the pop-up menus select **New ► Component**.
  - ❑ Click **Create a Component** in the **Task** list. The Component window will display with the **General** tab active.

The screenshot shows the 'Response Time - Component: Untitled' dialog box with the 'General' tab selected. The dialog has a title bar with a close button. Below the title bar are tabs for 'General', 'Date Filter', 'Objectives', 'Data', 'History', and 'Notes'. The 'General' tab contains the following fields and controls:

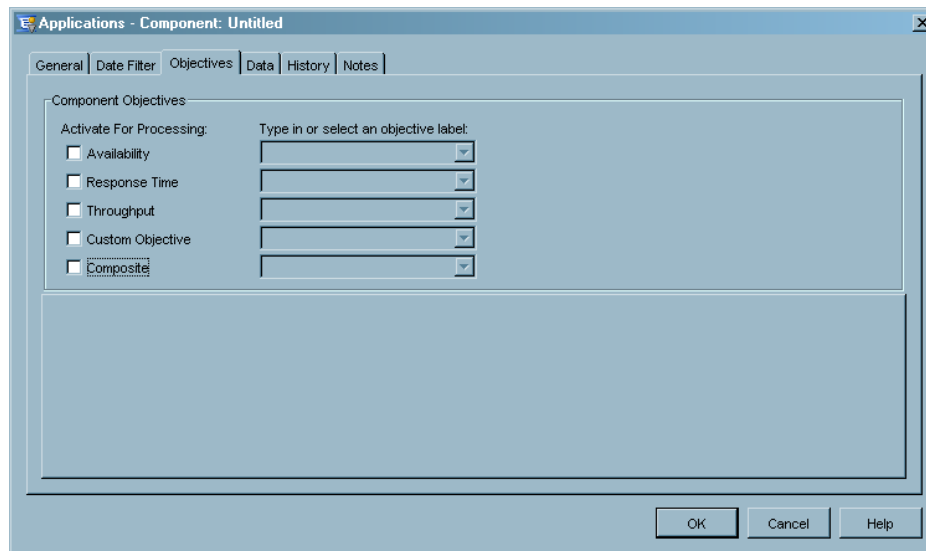
- Component Name:** A text input field.
- Version:** A text input field.
- Servicing Contact:** A section containing:
  - Select a contact:** A dropdown menu.
  - Contact Telephone:** A text input field.
  - E-mail:** A text input field.
  - Two checkboxes: ☐ 'This contact should be visible on Customer Reports' and ☐ 'Email this contact for any missed target definitions'.
- Updated by:** A text input field.
- Updated:** A text input field.
- At the bottom right are three buttons: 'OK', 'Cancel', and 'Help'.

- ❑ Use the **General** tab to name the component and assign a servicing contact who will be responsible for monitoring the component's success in achieving its targets.
- ❑ Click the **Date Filter** tab.

The screenshot shows the 'Response Time - Component: Untitled' dialog box with the 'Date Filter' tab selected. The dialog has the same title bar and tabs as the previous screenshot. The 'Date Filter' tab contains the following elements:

- A text instruction: 'Select one Date Filter Pattern and enter dates and times. This determines when to collect data or process indicators.'
- Date Filter Pattern:** A list of radio buttons:
  - ☒ All Inclusive
  - ☐ Continuous
  - ☐ Daily
  - ☐ Weekly
  - ☐ Monthly
- Span for Data Filter:** A text area containing the text: 'This is the default filter selection. Measures for all dates found in the data source(s) defined for this component will be collected and used as input metrics. This includes historical as well as future dates.'
- At the bottom right are three buttons: 'OK', 'Cancel', and 'Help'.

- 2 Use the **Date Filter** tab to specify how to filter incoming data based on the datetime stamp of the data.
- 3 Click the **Objectives** tab.



- 4 From the **Component Objectives** list on the **Objectives** tab, select and label the objectives you would like to activate for the component that you are creating. A corresponding tab for each active objective will appear in the bottom half of the window.

The **Availability**, **Response Time**, **Throughput**, and **Custom Objective** tabs provide identical parameter options. These options enable you to do the following for each active objective of the component you are creating:

- ☐ Select the input metric and calculation method that you want to use to calculate the indicator.
- ☐ Select the range set that you want to use.
- ☐ Select whether the target is based on the indicator or score for the given objective.
- ☐ Specify the summary statistic for comparison to the target value. This option is for indicator-based targets only.

The **Composite** tab enables you to designate which combination of availability, response time, throughput, and custom objective scores that SAS IT Service Level Management will use to generate a composite indicator for the component that you are creating.

Applications - Component: Untitled

General | Date Filter | Objectives | Data | History | Notes

Component Objectives

Activate For Processing:      Type in or select an objective label:

☒ Availability     

☒ Response Time     

☒ Throughput     

☒ Custom Objective     

☒ Composite     

Availability | Response Time | Throughput | Custom Objective | Composite

Calculate This Node's Composite Indicator

Include scores from:

☐ Availability

☐ Response Time

☐ Throughput

☐ Custom Objective

Calculation Method:

Mean

Used to roll-up the input metrics to create this node's indicator.

This Objective's Indicator:

Range Set Definition

Linked to:

Range	Score
-------	-------

Catalog...    Remove    View

Target Definition

Compliance Period:    Composite Value:    Operator:    Target Value:    Label:

Monthly    Indicator    >=      

OK    Cancel    Help

*Note:* *SAS IT Service Level Management: User's Guide* provides more detailed information about setting availability, response time, throughput, custom objectives, and composite objectives. △

5 Click the **Data** tab.

**Response Time - Component: Untitled**

General | Date Filter | Objectives | **Data** | History | Notes

**Data Definition**

Category	Attribute	Value
Availability	Objective Label:	Availability
	Activated for processing:	Yes
	Data Source PDB Name:	
	PDB Server Status:	
	Table Name:	
	Table Type:	
Response Time	Objective Label:	Response Time
	Activated for processing:	Yes
	Data Source PDB Name:	
	PDB Server Status:	
	Table Name:	

Define Data

**Resource(s)**

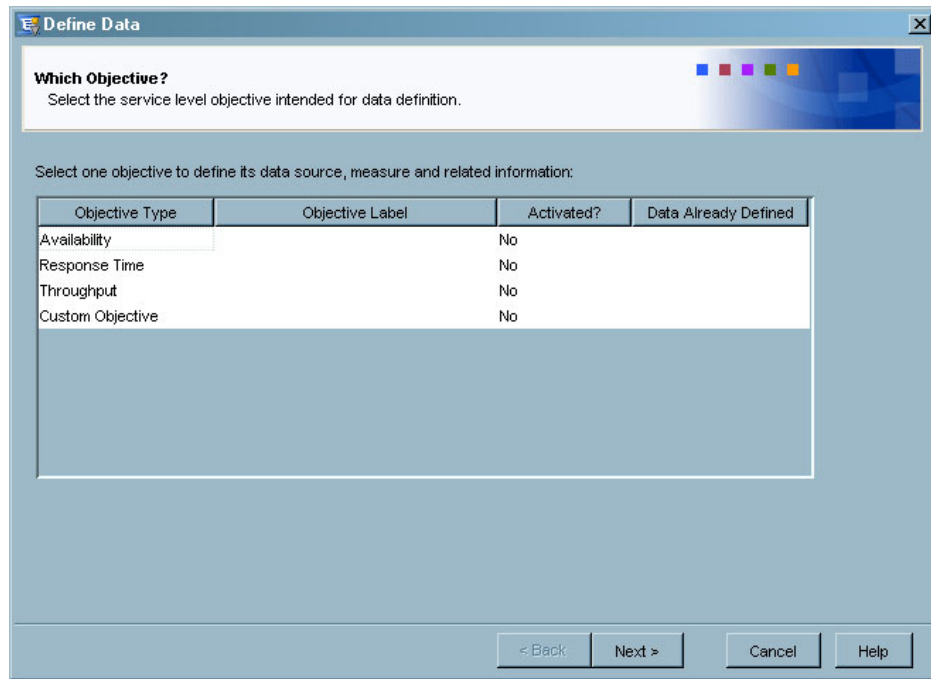
column 1	column 2	column 3	column 4	column 5	column 6

Columns  
Rows

OK Cancel Help

The **Data** tab enables you to enter locations for the data source that is used to calculate objectives and to create resource associations for the component. Identifying a component's resources includes defining resource data, indicating which columns to use, and identifying the rows of resources.

- 6 Click **Define Data** to create and modify data definitions. A Data Definition Wizard will guide you through the steps that are required to establish the data for an activated objective.



**Define Data**

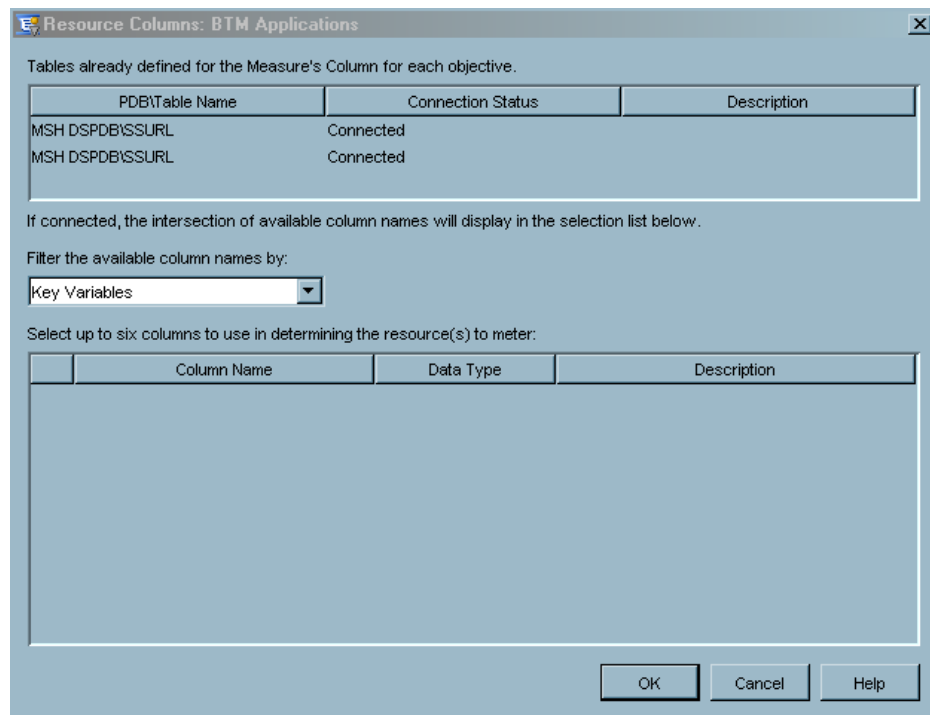
**Which Objective?**  
Select the service level objective intended for data definition.

Select one objective to define its data source, measure and related information:

Objective Type	Objective Label	Activated?	Data Already Defined
Availability		No	
Response Time		No	
Throughput		No	
Custom Objective		No	

< Back   Next >   Cancel   Help

- 7 After completing the steps in the Data Definition Wizard, click **Columns** in the **data** tab to display the Resource Columns dialog box.



**Resource Columns: BTM Applications**

Tables already defined for the Measure's Column for each objective.

PDB\Table Name	Connection Status	Description
MSH DSPDB\SSURL	Connected	
MSH DSPDB\SSURL	Connected	

If connected, the intersection of available column names will display in the selection list below.

Filter the available column names by:

Key Variables

Select up to six columns to use in determining the resource(s) to meter:

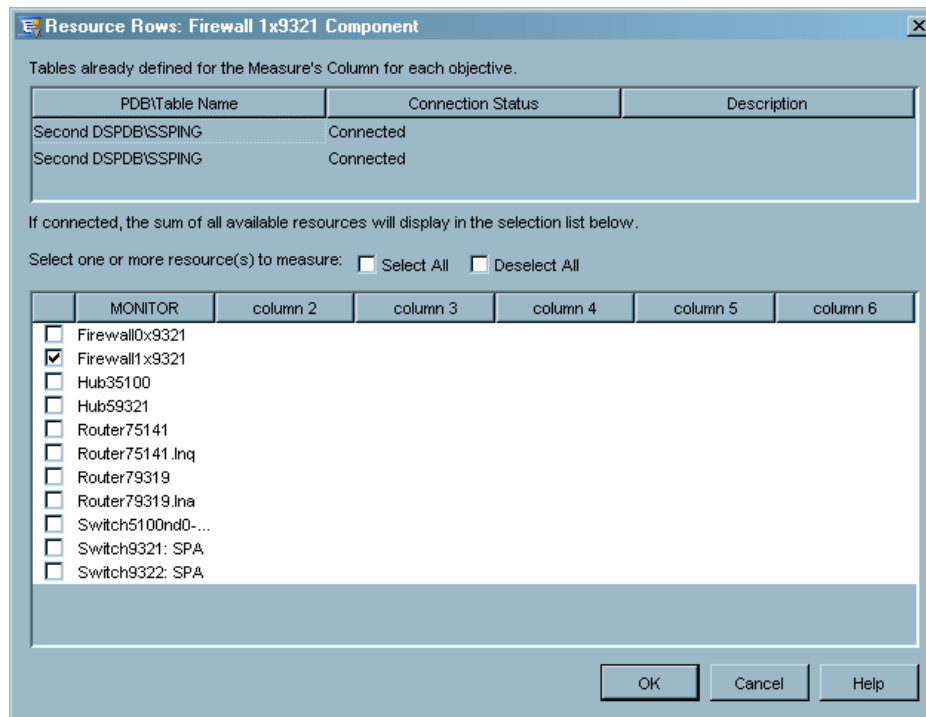
Column Name	Data Type	Description
-------------	-----------	-------------

OK   Cancel   Help

- 8 Use the Resource Columns dialog box to designate the columns from the data source PDB that uniquely identify resources. This dialog box shows which resource columns are available and if they have already been selected. You can add or remove a resource column by selecting or deselecting its corresponding check box.

*Note:* To display this list of columns, you must be connected to the server where the data source PDB is located. △

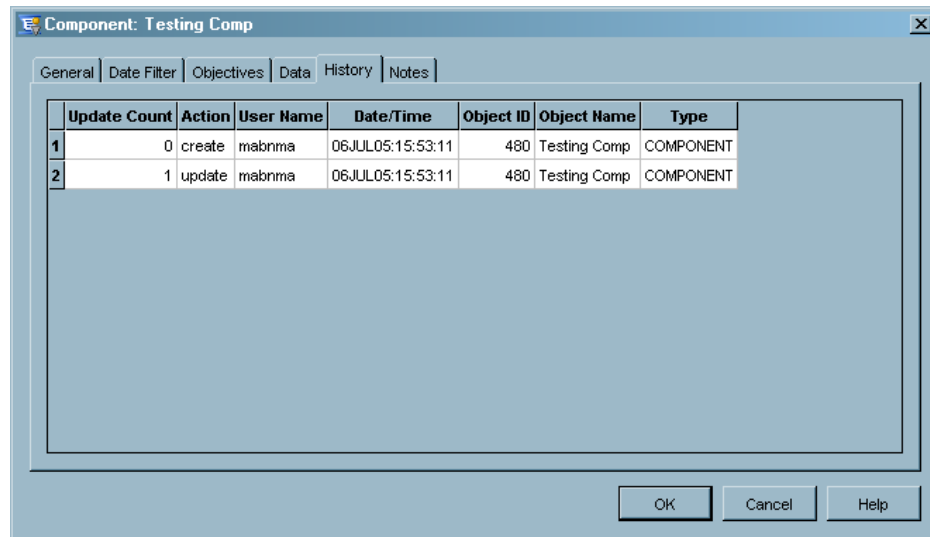
- 9 Click **OK** to save your changes and return to the Components dialog box.
- 10 Click **Rows** in the **Data** tab to open the Resource Rows dialog box.



The Resource Rows dialog box enables you to designate which resources are related to a particular component. This dialog box shows available resources and if they have already been selected. You can enable or disable a resource row by selecting or deselecting its corresponding check box.

*Note:* To display this list of rows, you must be connected to the server where the data source PDB is located. △

- 11 Click **OK** to save your changes and return to the Components dialog box.
- 12 Click the **History** tab.



The **History** tab displays a record of all actions that are performed, the user name of the person who performed the actions, and the date and time of each action. This is a display-only dialog box.

**13** Click the **Notes** tab if you want to add notes about the component that you are creating.

**14** Click **OK** to add the new component.

*Note:* See “Component Nodes and Resources” on page 14 for more information about components. *SAS IT Service Level Management: User’s Guide* provides more detailed information about creating components and services. △

## Services

A service in SAS IT Service Level Management represents one or more IT systems that enable a business process to function. Services are defined in the Catalog workspace and are associated with one or more components or child services. Service level data for these components and services is compiled to produce indicators for the service. A service can also contain other services.

The Service dialog box enables you to define a service and to determine the desired objectives for use in a contract.

From this dialog box, you can complete the following tasks:

- ☐ Create or modify a service.
- ☐ View predefined service level objectives.
- ☐ Establish associations between service level objectives and components or services.
- ☐ Determine how to calculate the indicator for objectives.
- ☐ Determine how to calculate the score for objectives.

To create a service, complete the following steps:

- 1** From the Catalog workspace, open the Service dialog box in any of the following ways:
  - ☐ From the menu bar, select **File ► New ► Service**.
  - ☐ Right-click **Services** in the hierarchy tree and from the pop-up menu select **New ► Service**.
  - ☐ Click **Create a Service** in the **Task** list.

The tabs in the Service dialog box are identical to the tabs in the Component dialog box, with one exception. Where the Component dialog box displays a **Data** tab, the Service dialog box displays a **Hierarchy** tab.

- 2 Click the **Hierarchy** tab to display the hierarchy for this service.

Service Hierarchy	Objectiv...	Objective Label	Activated?	Input Metrics	Calculation Method	Range Set	Target	Compliance Period	Target Status
External Customer Network Service	Availability		Yes	Indicators	Serial	Premium Availability	>= 99.5	Monthly	Mean
External Customer Switch Service	Availability		Yes	Indicators	Redundant	Premium Availability	>= 99.5	Monthly	Mean
Switch 5100 Component	Availability		Yes	Measures	Mean	Premium Availability	>= 99.5	Monthly	Mean
Switch 5321 Component	Availability		Yes	Measures	Mean	Premium Availability	>= 99.5	Monthly	Mean
Firewall Service	Availability		Yes	Indicators	Redundant	Premium Availability	>= 99.5	Monthly	Mean
Firewall 0x9321 Component	Availability		Yes	Measures	Mean	Premium Availability	>= 99.5	Monthly	Mean
Firewall 1x9321 Component	Availability		Yes	Measures	Mean	Premium Availability	>= 99.5	Monthly	Mean
Link to Internet Service	Availability		Yes	Indicators	Redundant	Premium Availability	>= 99.5	Monthly	Mean
Link 75141 Component	Availability		Yes	Measures	Mean	Premium Availability	>= 99.5	Monthly	Mean
Link 79319 Component	Availability		Yes	Measures	Mean	Premium Availability	>= 99.5	Monthly	Mean

The **Hierarchy** tab displays a summary of parameters for the selected service and its child nodes. The service hierarchy shows what appears (or will appear) in the catalog tree, along with the specific attributes for each node.

*Note:* See “Service Nodes” on page 13 for more information about services. *SAS IT Service Level Management: User’s Guide* provides more detailed information about creating services.   △

## SLAs

A service level agreement (SLA) is a part of a contract between a provider of services and the recipient of those services, or the customer. SLAs are defined in the Catalog workspace. SLAs, as defined within SAS IT Service Level Management, are associated with one or more services or components. An SLA can contain associations with



components and services. The services within the SLA can also contain associations to components and other services.

Use the SLA dialog box to define an SLA and outline its desired objectives for use in a contract. From the SLA dialog box, you can complete the following tasks:

- ☐ Create or modify an SLA.
- ☐ View predefined service level objectives.
- ☐ Define, manage, and organize a list of service level objectives for the SLA.
- ☐ Determine how to calculate the indicator for objectives.
- ☐ Determine how to calculate the score for objectives.

To create an SLA, complete the following steps:

- 1 From the Catalog workspace, open the SLA dialog box in one of the following ways:
  - ☐ From the menu bar, select **File ► New ► Service Level Agreement**.
  - ☐ Right-click **SLAs** in the hierarchy tree and from the pop-up menu select **New ► Service Level Agreement**.
  - ☐ Click the **Create a Service Level Agreement** icon in the **Task** list.

The tabs on the SLA dialog box are identical to the tabs on the Service dialog box.

- 2 Click each tab and complete the necessary fields to define each of the SLAs that you want to include in the contract.

*Note:* See “SLA Nodes” on page 13 for more information about SLAs. *SAS IT Service Level Management: User’s Guide* provides more detailed information about creating SLAs.   

---

## Creating a Contract

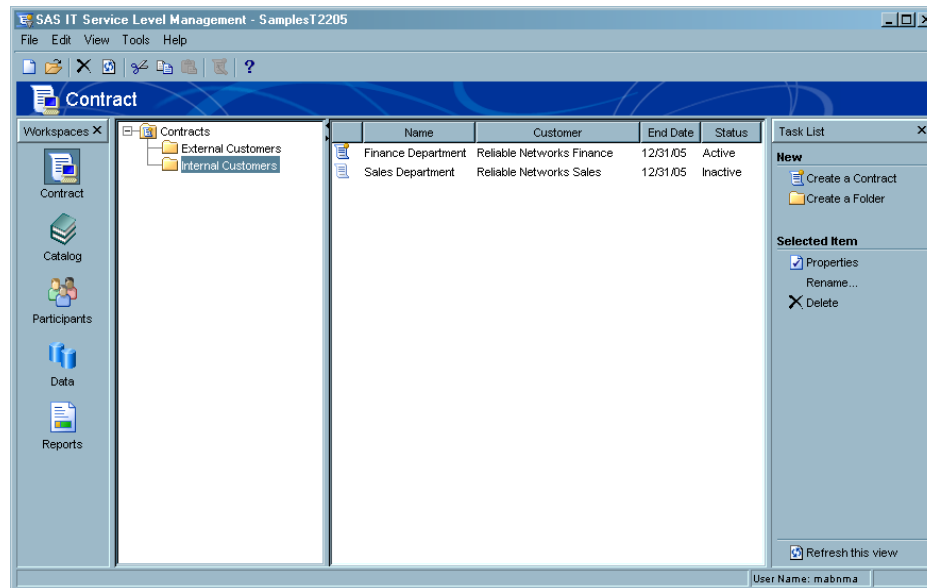
A service contract is a contract between a provider of services and the recipient of those services, the customer. Within SAS IT Service Level Management, a contract can be composed of zero, one, or more SLAs, services, and components.

## The Contract Workspace

The Contract workspace displays the list of current contracts and provides quick access to individual contracts.

You can display the Contract workspace in either of the following ways:

- Click the **Contract** icon from the **Workspaces** list.
- From the menu bar, select **View ► Contract**.



## The Contract Window

The purpose of the Contract window is to document the service level objectives for all the nodes in the contract. The information that is entered in the Contract window initiates the roll-up of data and also provides a means of documenting contractual information that is not used in measuring data but that might be significant to the management of the contract.

Some of the tasks that you can accomplish from the Contract window include the following:

- Define, manage, and organize a list of service level objectives.
- Define groupings of service level objectives.
- Define penalties for missing service level objectives and rewards for meeting service level objectives.
- Define outages that are associated with nodes in the contract hierarchy.
- View the history of changes for all the nodes in a contract.
- Associate customers with the contract.
- Specify the provider of the contract.
- Establish the status and important dates for the contract.
- Assign a servicing contact to a contract node and determine if the contact will receive e-mail notification for missed targets.
- Specify the output location and job code location of Baseline reports for components in the contract.

To create a contract, complete the following steps:

- 1 From the Contract workspace, open the Contract window in one of the following ways:

- From the menu bar, select **File ► New ► Contract**.
- Right-click **Contracts** in the hierarchy tree and from the pop-up menus select **New ► Contract**.
- Click **Create a Contract** in the **Task** list.

The Contract window is displayed, with the **General** tab active.

The fields on the **General** tab of the Contract window are similar to the fields on the **General** tab of the Component, Service, and SLA dialog boxes. Several additional fields — the **Path to Contract Database** field, the **Contract Start Date** field, the **Contract End Date** field, and the **Status** field — also appear on the Contract window **General** tab.

- 2 Use the **Path to Contract Database** field to specify the full path to the location of your contract.

*Note:* For additional information about creating new contract databases and completing the **Path to Contract Database** field, see *SAS IT Service Level Management: User's Guide*.    △

- 3 Use the **Contract Start Date** and **Contract End Date** fields to specify the start and end date of the contract. These fields are for documentation purposes only.
- 4 Use the **Status** field to change the status of the contract. The default status is *Inactive*. You must change the status of a new contract to *Active* in order to run the ETL process and validate or synchronize the contract.
- 5 The **Date Filter** tab is identical to the one on the Component, Service, and SLA dialog boxes. Use the **Date Filter** tab to specify how to filter incoming data based on the datetime stamp of the data.
- 6 Click the **Parties** tab.

**Contract: Finance Department : ASP Finance**

File View Tools Help

General Date Filter Parties Objectives Hierarchy Outages Contractual Data History Notes

**Customer**

Select an existing customer from the Participant Workspace:

Catalog

Preview customer information:

Attribute	Value
Customer Name:	ASP Finance
Company:	ASP Finance
Business Unit:	Finance
Primary Contact:	Jeffrey Berkley
Telephone:	919-555-1112
E-mail:	jeff.berkley@asp.com
Primary Approver:	Jeffrey Berkley
Telephone:	919-555-1112
E-mail:	jeff.berkley@asp.com

New Remove Edit

**Contract Provider**

Select an existing provider from the Participant Workspace:

Catalog

Preview provider information:

Attribute	Value
Provider Name:	ASP Inc.
Company:	ASP Inc.
Business Unit:	Contracts
Primary Contact:	Jim Swiss
Telephone:	919-555-3333
E-mail:	jim.swiss@asp.com
Primary Approver:	Jim Swiss
Telephone:	919-555-3333
E-mail:	jim.swiss@asp.com

New Remove Edit

7 Use the **Parties** tab to complete the following tasks:

- Create a new contact, customer, or provider from within the contract and add it to the Participants workspace.
- Copy an existing contact, customer, or provider to the contract.
- View and edit all customer and provider information in the contract.
- Assign or change the primary contact or primary approver for each customer or provider.

8 Click the **Objectives** tab.

**Contract: Finance Department : Reliable Networks Finance**

File View Tools Help

General Date Filter Parties Objectives Hierarchy Outages Contractual Data History Notes

**Contract Objectives**

Activate For Processing: Type in or select an objective label:

☒ Availability

☒ Response Time

☐ Throughput

☐ Custom Objective

☐ Composite

**Availability** | Response Time

Calculate This Node's Availability Indicator

Input metrics from child nodes: Indicators

Calculation Method: Serial

Used to roll-up the input metrics to create this node's indicator.

This Objective's Indicator: Serial calculation of the Availability Indicators for the child nodes.

Range Set Definition

Copied from: Premium Availability

Range	Score
Missing	
High	
Low	
100 <= x <= 100	
99.5 <= x < 100	
99 <= x < 99.5	

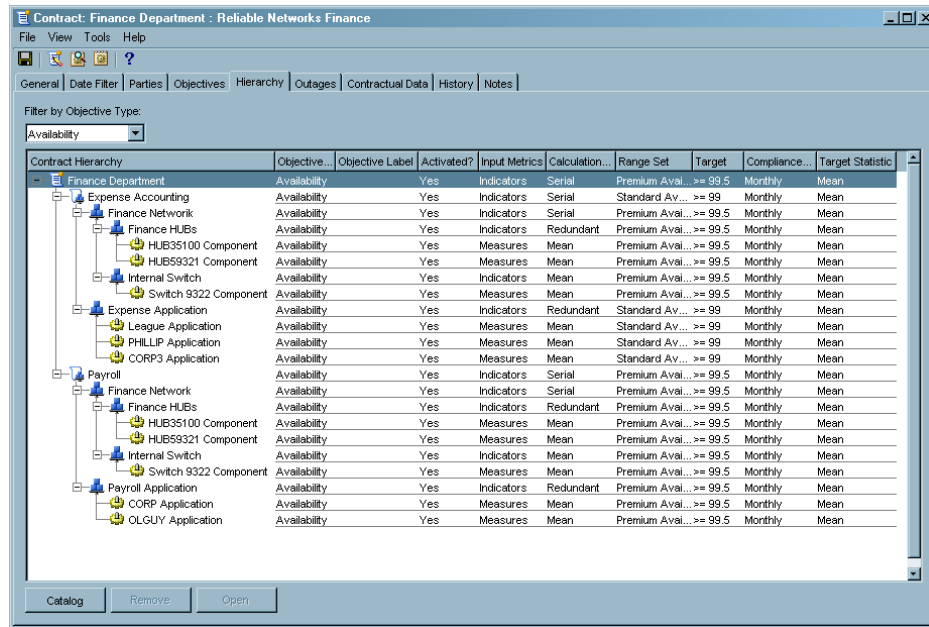
Catalog... Remove Edit

**Target Definition**

Compliance Period: Monthly Target Statistic: Mean Comparison Value: Indicator Operator: >= Target Value: 99.5 Label:

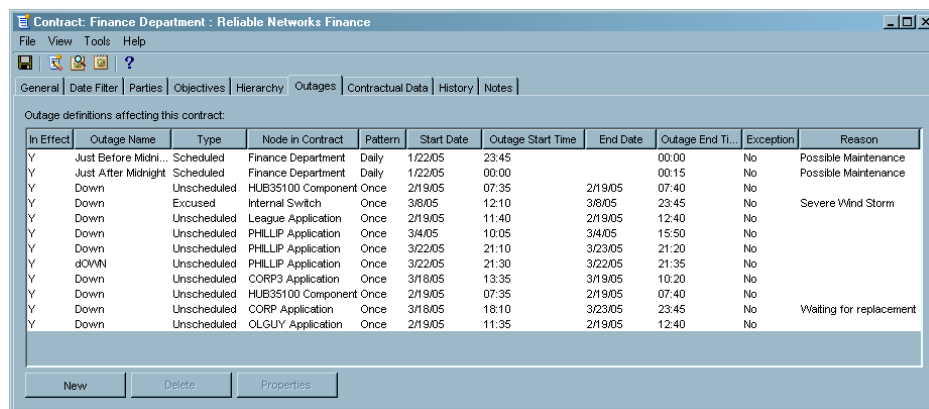
Use the **Objectives** tab to define and manage the service level objectives for the entire contract. Select and activate the appropriate contract objectives to define contract-wide availability, response time, throughput, custom objective, and composite objectives. The fields on this tab are similar to the fields on the **Objectives** tab of the Component, Service, and SLA dialog boxes.

9 Click the **Hierarchy** tab.



The **Hierarchy** tab displays a summary of attributes for the current contract and for any of the child nodes, enabling you to make comparisons. The contract hierarchy reflects all objective associations for this contract.

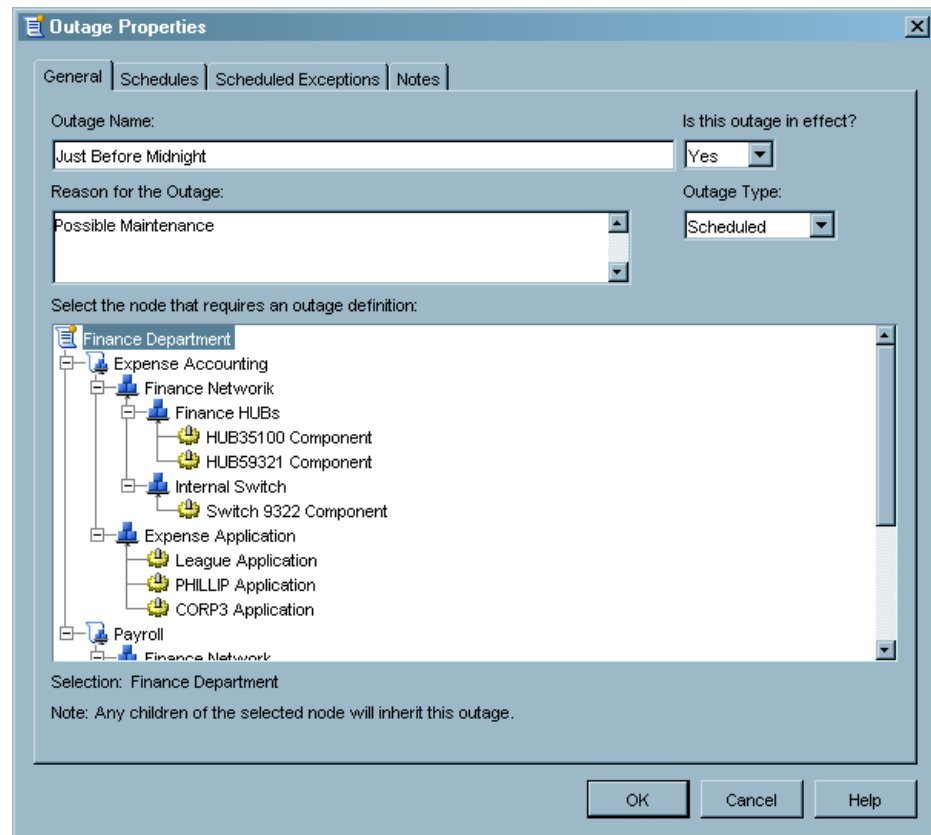
10 Click the **Outages** tab.



11 Use the **Outages** tab to view information about current service outages that might affect the evaluation of the services that are provided under the contract.

12 To create a new outage, complete the following steps:

- a Click **New** to access the Outage Properties dialog box.



- b Use the **General**, **Schedules**, **Scheduled Exceptions**, and **Notes** tabs in the Outage Properties dialog box to enter the details of the new outage.
- c Click **OK** to save your changes and return to the **Outages** tab.

13 Click the **Contractual Data** tab.

Contract: Finance Department : Reliable Networks Finance

File View Tools Help

General Date Filter Parties Objectives Hierarchy Outages Contractual Data History Notes

Data affecting this contract:

Category	Attribute	Value
Cost Info	Contract Price:	5,000
	Payment Term:	Monthly
	Currency (3-char ISO code):	USA
Term Info	Provider Approval Date:	07/01/2005
	Customer Approval Date:	07/01/2005
	Review Cycle:	Quarterly
	Next Scheduled Review:	10/01/2005
Contract Database Info	Start of Week:	MONDAY
Penalty Info	Penalty Identifier:	P01
	Penalty Amount:	500
	Penalty Currency (3-char ISO code):	USD
	Penalty Term:	Quarterly
	Penalty Notes:	Penalty confirmed by customer and provider
Credit Info	Credit Identifier:	C02
	Credit Amount:	500
	Credit Currency (3-char ISO code):	USD
	Credit Term:	Quarterly
	Credit Notes:	Credit confirmed by customer and provider

The **Contractual Data** tab enables you to gather, document, and view the generally agreed upon terms and conditions of the contract.

**14** Click the **History** tab to display details about changes to the contract over time.

Contract: Finance Department : Reliable Networks Finance

File View Tools Help

General Date Filter Parties Objectives Hierarchy Outages Contractual Data History Notes

	Update Count	Action	User Name	Date/Time	Object ID	Object Name	Type
1	1020	update	mabnma	01JUL05:13:05:51	3	Finance Department	CONTRACT
2	1032	update	mabnma	01JUL05:18:07:42	3	Finance Department	CONTRACT

**15** Click the **Notes** tab if you want to enter notes about this contract.

## Running ETL

After you create a contract and define service level objectives for all the nodes, you are ready to begin processing the SLM data for your contract.

To begin processing, complete the following steps:

- 1 From the Contract window menu bar, select **Tools ► Initiate ETL**.

The screenshot shows the SAS IT Service Level Management GUI. The title bar reads "Contract: Finance Department : ASP Finance" with a timestamp of "8/01/05 3:39:37 PM". The menu bar includes "File", "View", "Tools", and "Help". The "Tools" menu is open, showing options: "View Last Results", "Validate", "Synchronize", "Initiate ETL", "Create ETL Job Code ...", and "Create Baseline Gallery Job Code ...". The "Initiate ETL" option is highlighted. The main window has tabs for "General", "Outages", "Contractual Data", "History", and "Notes". The "General" tab is active, showing fields for "Contract No." (Finance D), "Path to Cor" (c:\slm\samples\CDB\Finance), "Contract Start Date" (1/1/05), "Contract End Date" (12/31/05), and "Status" (Active). Below these are fields for "Servicing Contact" (Jim Swiss), "Contact Telephone" (919-555-3333), and "E-mail" (jim.swiss@asp.com). At the bottom, it shows "Updated by: SampleUser", "Contract Database Table: N000003", "Updated: Jul 11, 2005 5:17 PM", and "Contract ID: 3".

- 2 Click **yes** to continue processing.

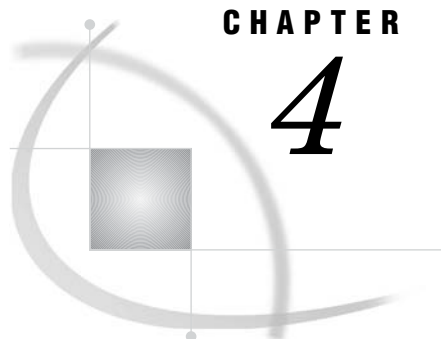
*Note:* Running ETL from the IT Service Level Management GUI might take a long time. Running ETL in a batch environment is recommended. *SAS IT Service Level Management: User's Guide* provides more information about running ETL in a batch environment. △

## Closing SAS IT Service Level Management

From any of the workspace windows, you can close SAS IT Service Level Management in any of the following ways:

- From the menu bar, you can select **File ► Exit**. Then, click **yes** to exit.
- Click **x** in the top-right corner of the main window. Then, click **yes** to exit.





## CHAPTER

## 4

## Reporting on Your SLM Data

---

<i>Overview of Reporting</i>	69
<i>Baseline Reports</i>	70
<i>Generating Baseline Reports</i>	70
<i>Viewing Baseline Reports</i>	71
<i>Daily Data Report</i>	73
<i>Weekly Data Report</i>	74
<i>Monthly Data Report</i>	76
<i>Service Level Reports</i>	77
<i>Reports for Contract Providers and Customers</i>	78
<i>Reports Workspace</i>	78
<i>Generating Service Level Reports</i>	79
<i>Report Global Settings</i>	79
<i>Report Specifications</i>	80
<i>Generate Service Level Reports</i>	81
<i>Viewing Service Level Reports</i>	82
<i>Contract List Report</i>	83
<i>Contract Hierarchy Report</i>	85
<i>Daily, Weekly, Monthly, and Yearly Reports</i>	86
<i>Resource Analysis Report</i>	87
<i>5-Minute Interval Table Report</i>	88
<i>Contract Details Report</i>	89
<i>Customer Report</i>	90
<i>Provider Report</i>	91
<i>Range Set Details Report</i>	92
<i>Outages Report</i>	93
<i>Outage Details Report</i>	94
<i>Compliance List Report</i>	95
<i>Compliance Details Report</i>	96
<i>Servicing Contacts Report</i>	97
<i>SAS Enterprise Guide Reports</i>	97

---

## Overview of Reporting

Reporting is an important part of the service level management concept. IT providers need frequent reports to help them identify problem areas quickly and easily so that they can resolve issues early. Customers need regular reports that demonstrate the value that is received for their investment in IT services. And both providers and customers need reports that illustrate clearly that the service level objectives that were specified in the contract are feasible and being met.

SAS IT Service Level Management provides three high-level categories of reports to meet the various needs of contract providers and customers and to facilitate report management.

Baseline reports	provide guidance for establishing reasonable service level targets based on resource data. These reports are helpful for contract providers who are setting up a contract.
Service Level reports	compare performance statistics with objective targets to communicate how well service level objectives are being met.
SAS Enterprise Guide reports	provide various ways to represent SAS IT Service Level Management data in graphical or tabular formats. SAS Enterprise Guide enables you to create interactive or ad hoc reports.

This chapter provides instructions for managing these reports and provides descriptions and illustrations of the reporting capabilities of SAS IT Service Level Management.

---

## Baseline Reports

Baseline reports are graphs that display data that exists in a contract database for a specified contract within the current environment. The graphs in the baseline gallery are prepared from the summary tables in the contract database. You can use these baseline views of contract components to determine reasonable targets for the objectives that you specify for the components.

Baseline reports are divided into three main groups based on scope of the data: daily, weekly, and monthly data reports. Each of these groups is further divided based on the calculation methods performed on all of the data: mean, minimum, maximum, and sum.

*Note:* More detailed information about Baseline reports and how to access them is available in *SAS IT Service Level Management: User's Guide*. △

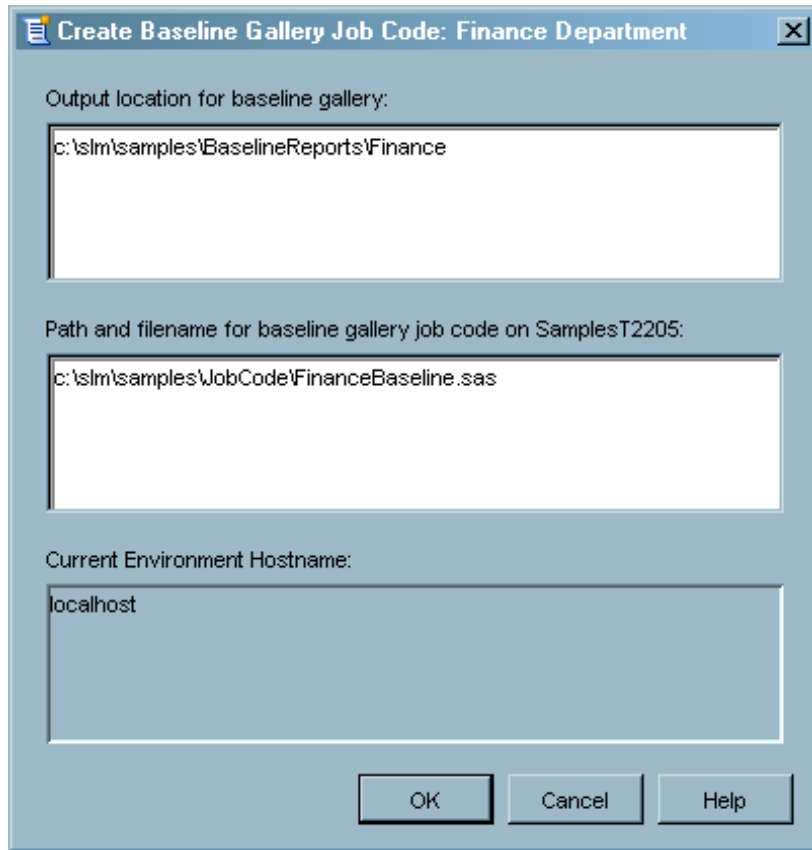
---

## Generating Baseline Reports

A SAS job code file must be run in batch mode to schedule the generation of Baseline reports. You can use the GUI to create this job code file, designate the location of the file, and designate the location of the report output.

To create the baseline gallery job code and designate the appropriate file and output locations, complete the following steps:

- 1 In the Contract workspace, open the contract for which you want to create the baseline gallery job code.
- 2 From the menu bar in the Contract window, select **Tools ► Create Baseline Gallery Job Code**.



The image shows a Windows-style dialog box titled "Create Baseline Gallery Job Code: Finance Department". It contains three text input fields and three buttons at the bottom.

Output location for baseline gallery:

Path and filename for baseline gallery job code on SamplesT2205:

Current Environment Hostname:

Buttons: OK, Cancel, Help

- 3 Use the Create Baseline Gallery Job Code dialog box to enter the location of the output for the Baseline gallery reports and the location of the job code file.
- 4 Click **OK** to return to the Contract window.

*Note:* The IT Service Level Management GUI does not directly generate Baseline reports. The job code file that generates the Baseline reports must run in a SAS session on your SLM Server platform. △

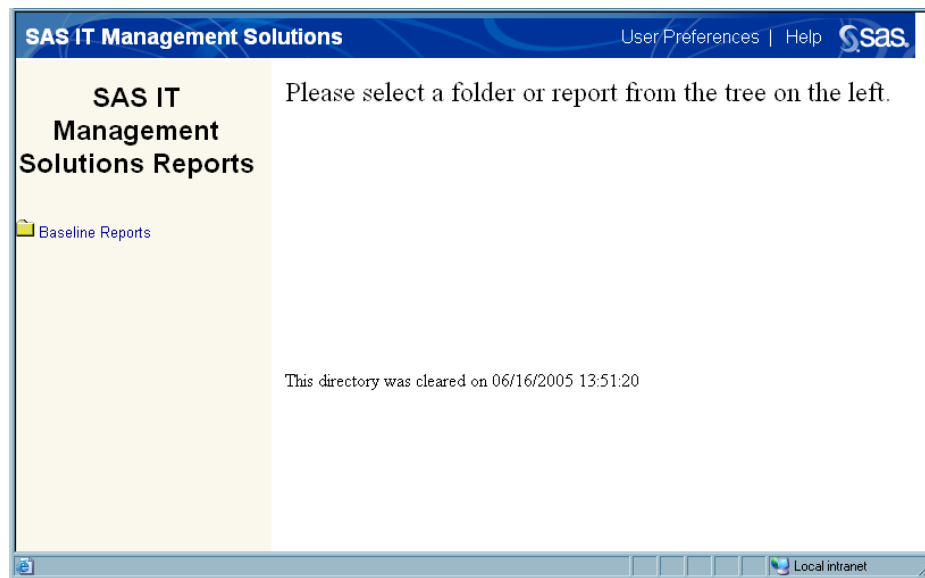
---

## Viewing Baseline Reports

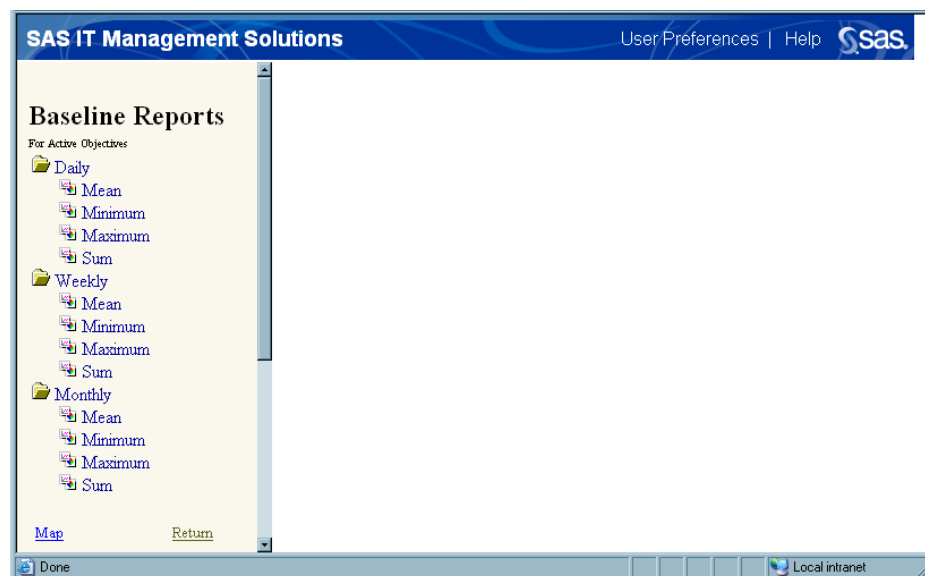
Baseline report graphs are available for the activated availability, response time, throughput, and custom objectives of a component that supports a contract. These reports are available for viewing after the baseline gallery job code runs. You can view the graphs from the welcome.htm file that is in the location that you designated when creating the baseline gallery job code.

To access the Baseline reports, complete the following steps:

- 1 Enter the gallery Web page address or file path location in a Web browser to access the starting page from which you can access the baseline graphs.



- 2 Click **Baseline Reports** to access the gallery of Baseline reports.

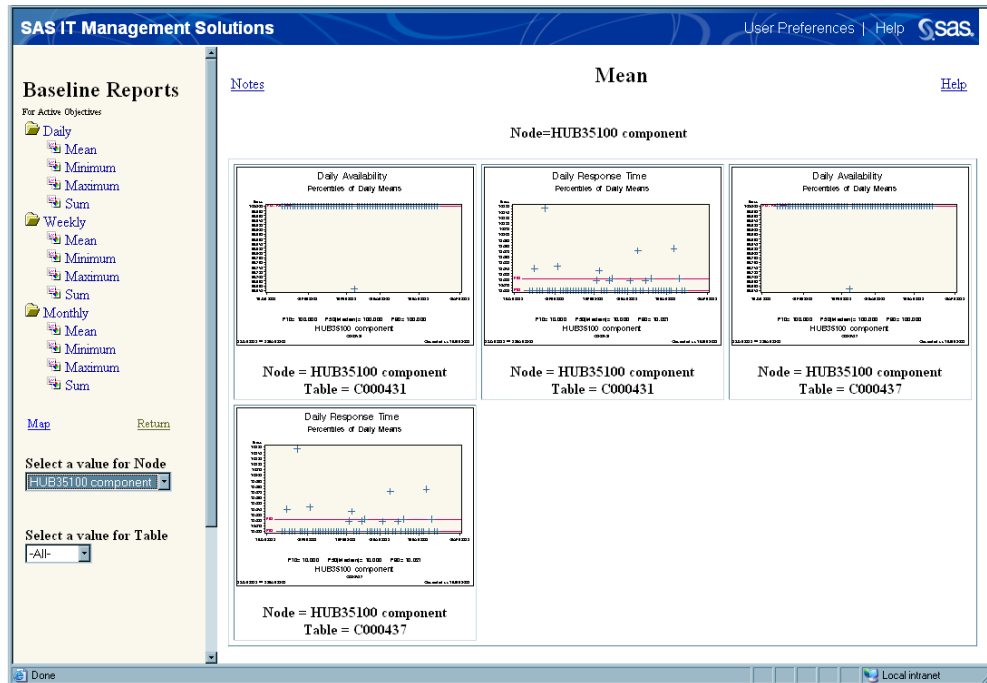


- 3 Use the navigation pane on the left side of the window to select a group of reports based on scope of the data (daily, weekly, monthly) and statistic (mean, min, max, sum).
- 4 Use the **Select a value for Node** or **Select a value for Table** menus (or both) to refine the group of thumbnail graphs by a specific node or table.
- 5 Click a thumbnail graph to enlarge the image.
- 6 After viewing the report, click **Back** at the top right of the page to return to the report thumbnails.

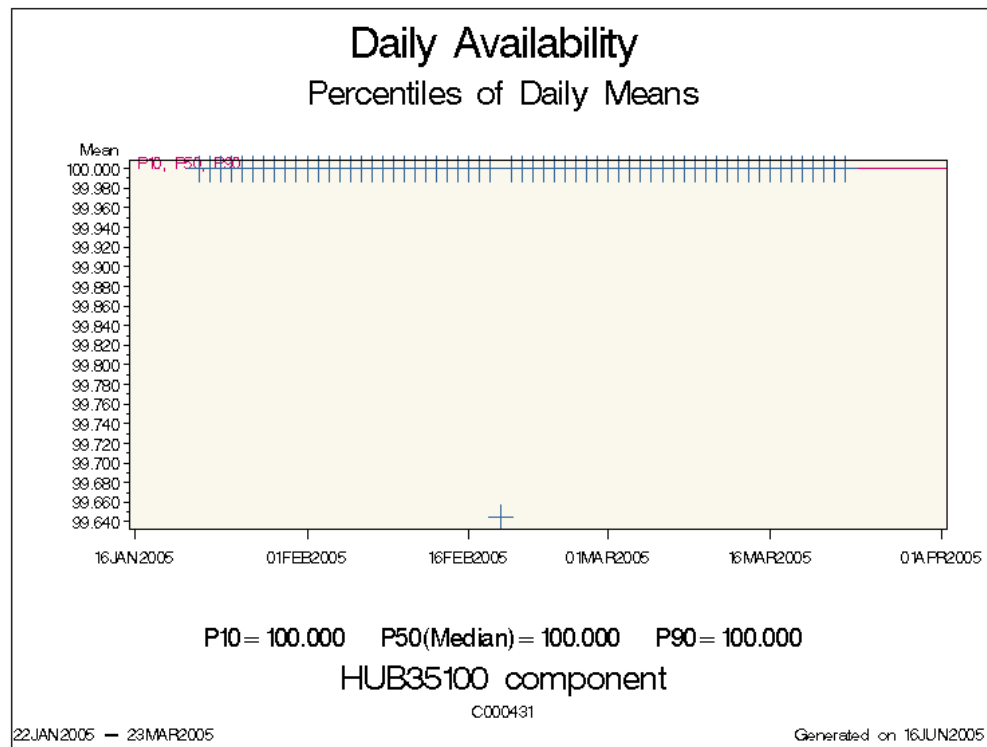
*Note:* The Back option in your Web browser will return to the main page, not the last report group that you selected. △

## Daily Data Report

The gallery of Baseline reports includes graphs that show daily data for activated availability, response time, throughput, and custom objectives of a component in a specified contract. For example, you could select **Daily ► Mean** in the navigation pane of the gallery to see the mean statistic of daily data for the contract components. Then you could select a specific component node from the **Select a value for Node** menu to view reports that show results for the specified component.



The following example displays mean indicator values in a Daily Data report. This sample graph shows that the mean indicator values of daily availability data for the HUB35100 Component generally reaches 100, with few exceptions. Using this information, you might determine that a reasonable performance target for this component is a mean value of 99.

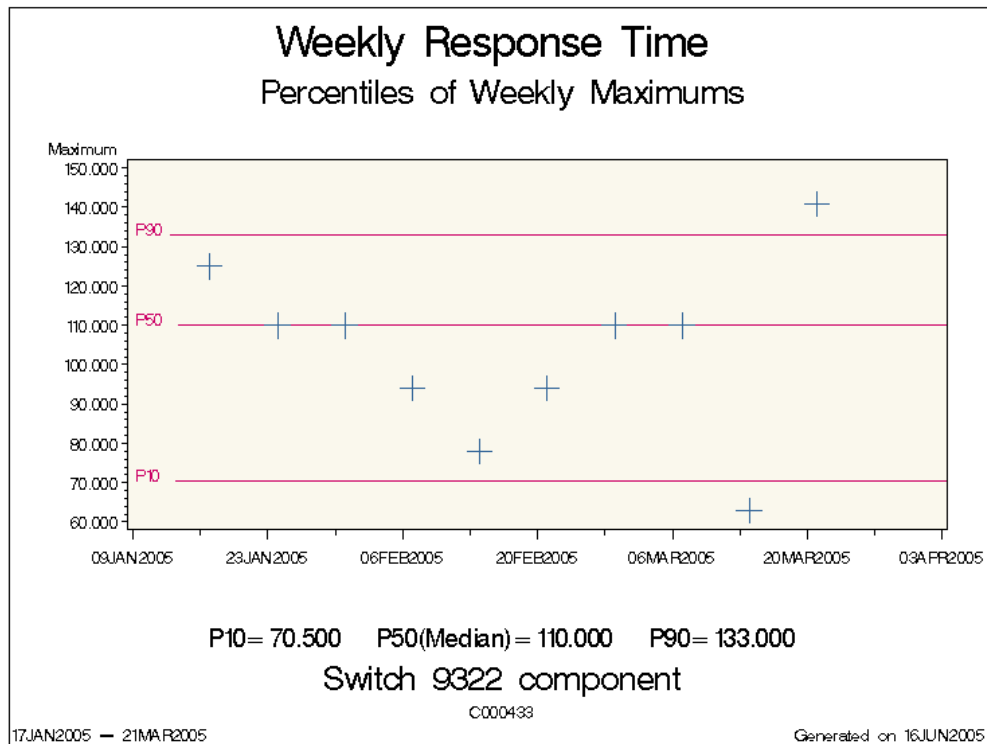


## Weekly Data Report

Graphs that show weekly data for activated availability, response time, throughput, and customer objectives of a component in a specified contract are also available. These reports display data as it is summarized on a weekly basis. For example, you could select **Weekly ► Max** in the navigation pane of the gallery to see the maximum indicator values of weekly data for components in a given contract.



The following example displays maximum indicator values in a Weekly Data report. This graph shows that the response time weekly maximums for component Switch 9322 has a median of 110.0 with most values above 90.0.



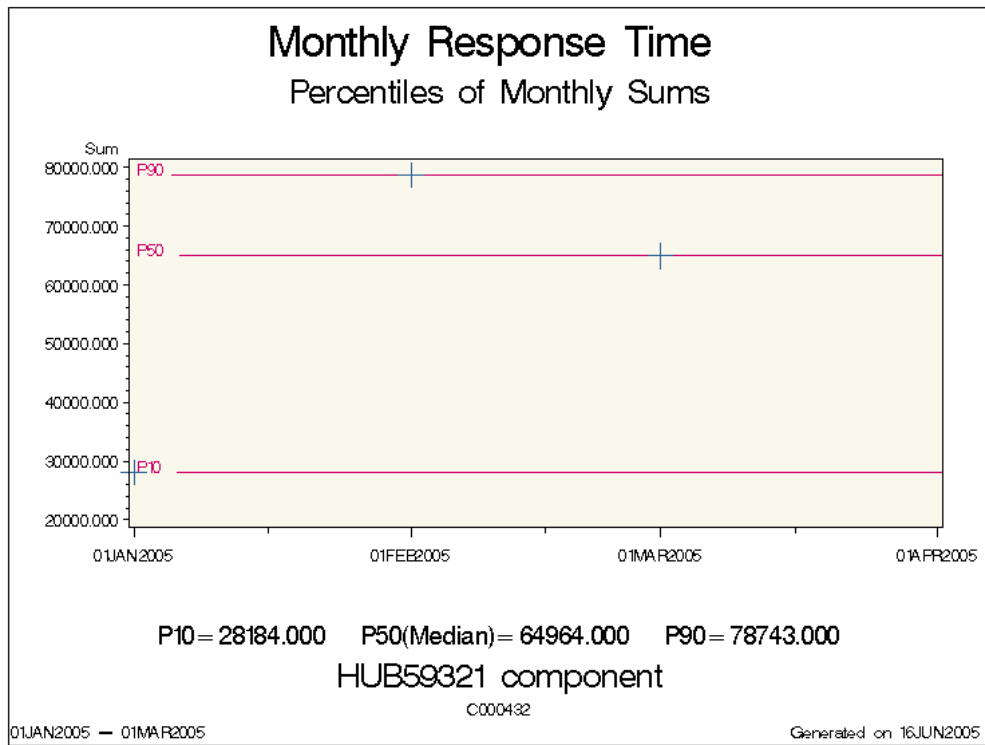
## Monthly Data Report

Baseline reports also include graphs that show monthly data for all activated availability, response time, throughput, and customer objectives of a component. For example, you could select **Monthly ► Sum** in the navigation pane of the gallery to see the sum values of monthly data for components in a contract.



The following example displays sum indicator values in a Monthly Data report. This sample graph shows a 10th, 50th, and 90th percentile for the data during a three-month time frame.





## Service Level Reports

Service Level reports include a variety of text-based reports and graphic reports. These reports present your service level data in formats that enable you to quickly determine whether service level targets have been met on several different levels. You can use these reports to check the performance of a contract and view the compliance of a node's performance. In addition, contract providers can view more detailed information about the compliance of specific resources and data sources with just a few mouse clicks that drill down into the reports.

Service Level reports are displayed on a Web page in a Web browser. The Web page can include up to three tabs (as determined by report specifications) that correspond and link to various Service Level reports and information.

- |                |   |
|----------------|---|
| Contracts tab  | displays a list of contracts and a high level view of their performance. After you select a specific contract, you can view its service level performance across daily, weekly, monthly, and yearly time periods by using a calendar to specify the time period. This tab also provides access to supporting information about contracts such as report specification details and outage information. |
| Compliance tab | displays a static view or snapshot of compliance to defined targets. The reports that are accessible from this tab enable you to view multiple contracts, view contracts by customer name, see compliance across all objective types, and filter a list of contracts to view only the missed targets.   |

Servicing  
Contacts tab enables a servicing contact to view compliance information for all the nodes for which he or she is responsible. The servicing contact can also filter this information by target to view missed targets only.

*Note:* More information about the types of Service Level reports and how to access them is available in *SAS IT Service Level Management: User's Guide*. △

## Reports for Contract Providers and Customers

SAS IT Service Level Management enables you to use report specifications to indicate if the Service Level reports that you are generating are for contract providers or customers. Contract provider report specifications can generate all of the available Service Level report types for one or more contracts. Customer report specifications can only generate a select set of Service Level reports that do not contain sensitive information that is possibly proprietary to the contract provider. For example, Resource Analysis reports are not available to customers because these reports show performance data that is too detailed for a customer's needs.

The report options, tabs, and information columns that display in a set of Service Level reports are based on the type of report specification that defines the reports (contract provider or customer) and the report options that are designated within that specification. The following table shows some of the possible tabs, reports, and options that are available for contract providers and customers.

**Table 4.1** Availability of Report Options for Contract Providers and Customers

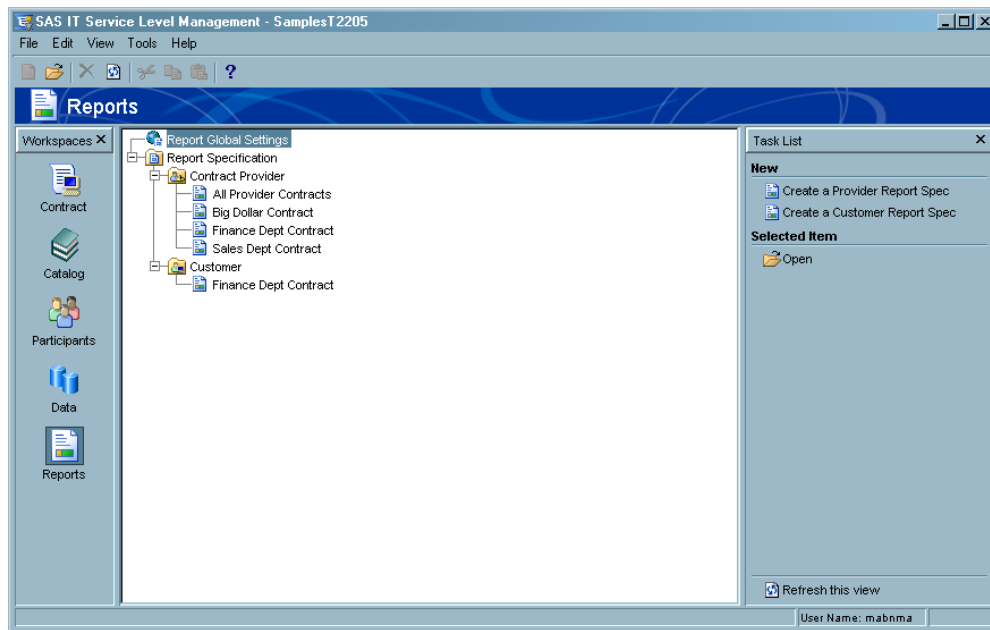
Report Option/ Report Name	Available to Contract Providers?	Available to Customers?
Contracts Tab	Yes	Yes
Compliance Tab	Yes	Yes
Servicing Contacts Tab	Yes	No
Resource Analysis Reports	Yes	No
5-Minute Interval Table Reports	Yes	No

## Reports Workspace

The Reports workspace in SAS IT Service Level Management provides an easy interface to create and manage report specifications for defining Service Level reports. Report specifications provide the definitions or parameter settings that are used to generate Service Level reports. The Reports workspace and report specifications enable you to define the report content without requiring manual edits to program code. The Reports workspace also enables you to generate reports and view the report output interactively.

Either of the following actions displays the Reports workspace:

- Click the Reports icon in the **Workspaces** list.
- From the menu bar, select **View ► Reports**.



The **Reports** workspace is where you can complete the following tasks:

- Create and manage global parameters that identify the default locations of your output and style sheets for Service Level reports.
- Establish decimal placement conventions in a style sheet to designate how text reports display indicator, score, and target values of objectives.
- Create and manage report specifications for contract providers and for customers.
- Create and manage folders that can be used to group your report specifications.

## Generating Service Level Reports

SAS IT Service Level Management enables you to generate several kinds of Service Level reports. These various reports present your SLM data in different ways. To generate the various Service Level reports and manage their parameters effectively, complete the following tasks:

- 1 Assign report global settings to designate the defaults for report specifications.
- 2 Create report specifications for the contract provider reports and customer reports that you want to generate.
- 3 Generate the reports interactively from the report specification window or execute the generated report job code in a batch environment.

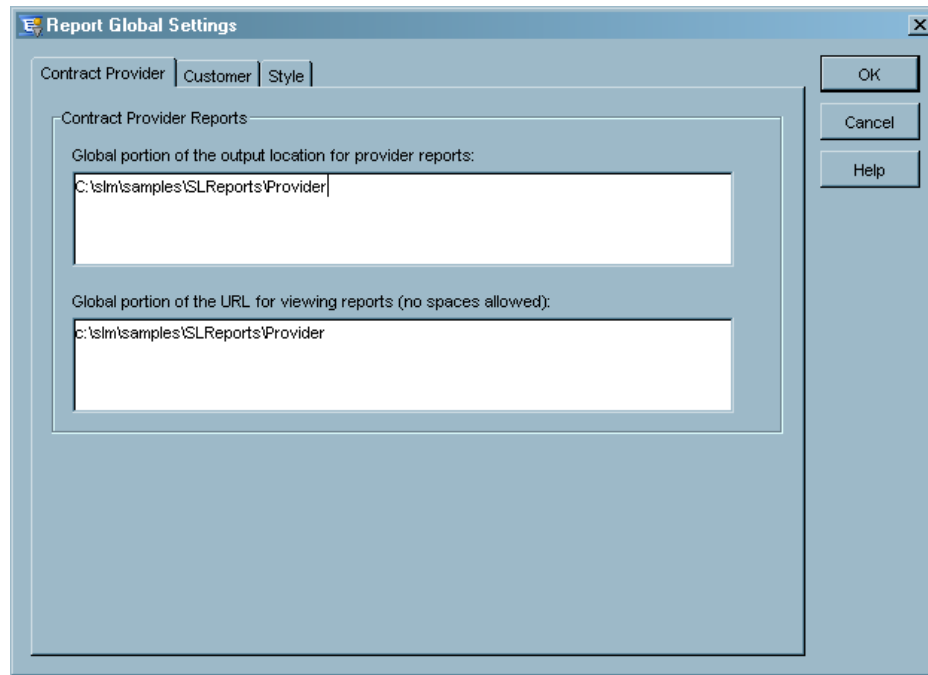
### Report Global Settings

You can create report global settings to define the default parameters that apply to all report specifications. The global settings dialog box enables you to specify report output locations of contract provider reports and customer reports. You can also use style sheet parameters to specify decimal placements in the reported data values and modify graphics or branding information in the reports.

*Note:* Most report global settings can be overridden for individual report specifications if necessary. Decimal values set in the style sheet cannot be overridden for individual report specifications. △

Either of the following actions displays the Report Global Settings dialog box:

- Double-click **Report Global Settings** in the hierarchy tree.
- Right-click **Report Global Settings** in the hierarchy tree and from the pop-up menu click **Open**.



From the Report Global Settings dialog box, you can complete the following tasks:

- Define report output locations for contract provider reports and customer reports.
- Designate a customized style sheet for reports.
- Define the decimal placement for indicator, score, and target values for objectives in the Service Level reports.

## Report Specifications

You must create report specifications for the Service Level reports that you would like to generate. Report specifications are report definition files that contain the many parameter options that you set for generating Service Level reports. There are two types of Service Level reports (contract provider and customer) based on who will read and use them. Both types of reports contain a specialized set of reporting options. Contract provider report specifications and customer report specifications define the necessary parameters for the designated report type.

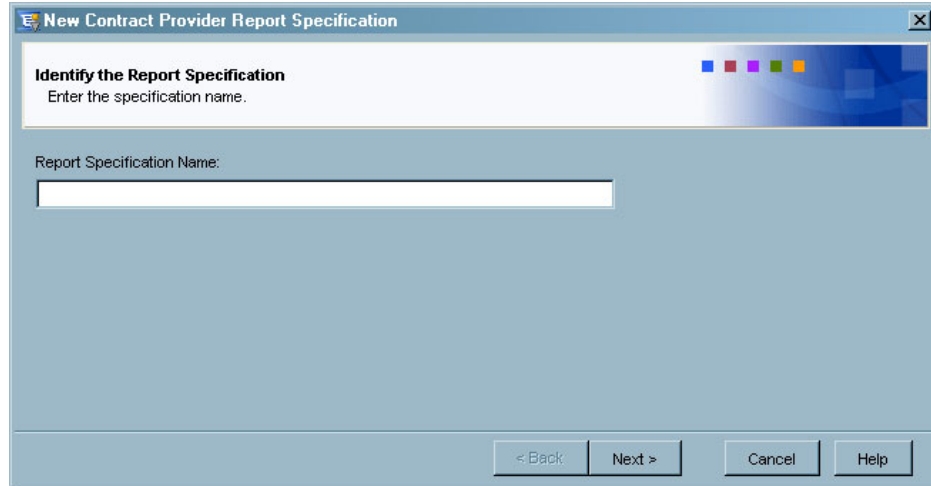
The Reports workspace provides the capability to create, modify, and save report specifications so that you can maintain specific report configurations without re-entering settings each time that you'd like to generate a routine report. Once you create a provider or customer report specification, it is automatically organized into the **Contract Provider Folder** or the **Customer Folder** for easy management. You can also create additional sub-folders to manage the report specifications further.

SAS IT Service Level Management provides a Reports Specification Wizard that helps you set the initial report parameters for each report. The Wizard provides step-by-step instructions for naming the report specification and assigning the

associated contracts, choosing report options, entering a report output location, designating range settings, and generating the report.

To create a contract provider or customer report specification, complete the following steps:

- 1 Click **Create a Provider Report Spec** or **Create a Customer Report Spec** in the **Task** list in the Reports workspace. A Reports Specification Wizard will appear.



- 2 Follow the step-by-step instructions for the Reports Specification Wizard to enter the various parameters required for generating reports. Once the report specification is complete, it is automatically placed in the appropriate **Contract Provider Folder** or **Customer Folder** in the Reports workspace.
- 3 To modify the report specification after it is created, double-click the report specification name in the appropriate folder to open the Report Specification window and modify settings as needed.

## Generate Service Level Reports

You can generate Service Level reports interactively or by creating job code to run in batch mode. To run a report specification interactively, complete the following steps:

- 1 From the hierarchy tree in the Reports workspace, highlight the report specification for the report that you want to run.
- 2 Click **Generate Report** in the **Task** list.
- 3 Click **Yes** to continue if prompted.
- 4 Ensure that the output location that you specified in the report specification is accessible from the SLM server. A progress indicator will open in the dialog box to show that the system is processing the task that you requested.
- 5 When the generation of the reports is completed, the Report Results dialog box opens and displays the status of the report generation. Depending on your specifications for the location of report output, the reports will display in your browser or you will need to locate the index.html file in the text directory at the report output location.
- 6 Click **Close** to exit the Report Results dialog box and return to the Reports workspace.

You can also generate Service Level reports by creating a report job code and executing in a batch environment. The report job code is a SAS program that invokes

the software that generates the reports. More detailed information about report job codes is available in *SAS IT Service Level Management: User's Guide*.

---

## Viewing Service Level Reports

After creating a report specification and running the Service Level reports, you can access and view the reports in a Web browser. These HTML reports are accessible from the URL that is designated in the corresponding report specification. The designated URL might be a file path on an internal network or it might reference links on managed Web servers so that the final report output can be distributed to a wide audience.

Each Service Level report provides tabs and links that help you view service level data in various report formats. These report formats are grouped and accessed from three possible tabs (**Contracts**, **Compliance**, and **Servicing Contacts**). You can use these tabs and links to drill down into text-based and graphic reports that offer several methods of displaying additional details or switching to a different type of report or objective. The availability of these tabs varies based on whether the reports are for contract providers or customers. In addition, the Compliance tab and Servicing Contacts tab must be enabled in the report specification in order to be available in the corresponding reports.

To view the Service Level reports, enter the URL in your Web browser or locate the `index.html` file that is in the text directory of the report output location. You designate the Web address and report output location when creating the report specification.

The reports that are presented below are a sampling of the Service Level reports that are available in SAS IT Service Level Management.

## Contract List Report

The Contract List report is available from the **Contracts** tab. This report provides an overview of service levels for all contracts selected in the report specification. From this report, you can see an overview of how each selected contract performs at various summary levels such as daily, weekly, monthly, and yearly. You can also drill down into each summary level to explore more detailed reports about each contract. For example, if a data cell in the Contract List report is shaded in a color that indicates poor performance, you can drill down for more details about that data for each time period. The Contract List report also enables contract providers to sort data by customer name to help organize and sort the report information.

This report enables you to identify the overall health of the contract, discover problem areas by drilling down to more detailed reports, view the notes about a contract, and view the performance of a contract on a daily, weekly, monthly, year-by-week, or year-by-month basis

The following is an example of a Contract List report:

Service Level Reports • Contract List Help sas

Contracts Compliance Servicing Contacts

### Contract List

Report Specification: [All Provider Contracts](#)  
 Report Run Date: 21Jul2005 10:56:29  
 Sort by: Contract Name ▾

#### Active Contracts Legend

Contract Name	Customer	Objective Type	Objective Label	Year-to-date Actuals	Month-to-date Actuals	Week-to-date Actuals	Latest Daily Actuals	Notes	Compliance Period	Current Target (statistic)
Big Dollar Bank Ltd.	Big Dollar	Availability	Duration	99.20	97.89	100.00	100.00		Weekly	(Mean) Indicator
		Response Time		1.00	1.00	1.00	1.00		Weekly	Score < 2.00
		Composite		2.00	3.00	1.00	1.00		Weekly	Score < 2.00
Finance Department	ASP Finance	Availability		1.00	1.00	1.00	1.00		Monthly	Score < 2.00
		Response Time		1.00	1.00	1.00	1.00		Daily	Score < 2.00

#### Inactive Contracts Legend

Contract Name	Customer	Objective Type	Objective Label	Year-to-date Actuals	Month-to-date Actuals	Week-to-date Actuals	Latest Daily Actuals	Notes	Compliance Period	Current Target (statistic)
Sales Department	ASP Sales	Availability		99.10	97.64	99.59	99.44		Monthly	No target value specified

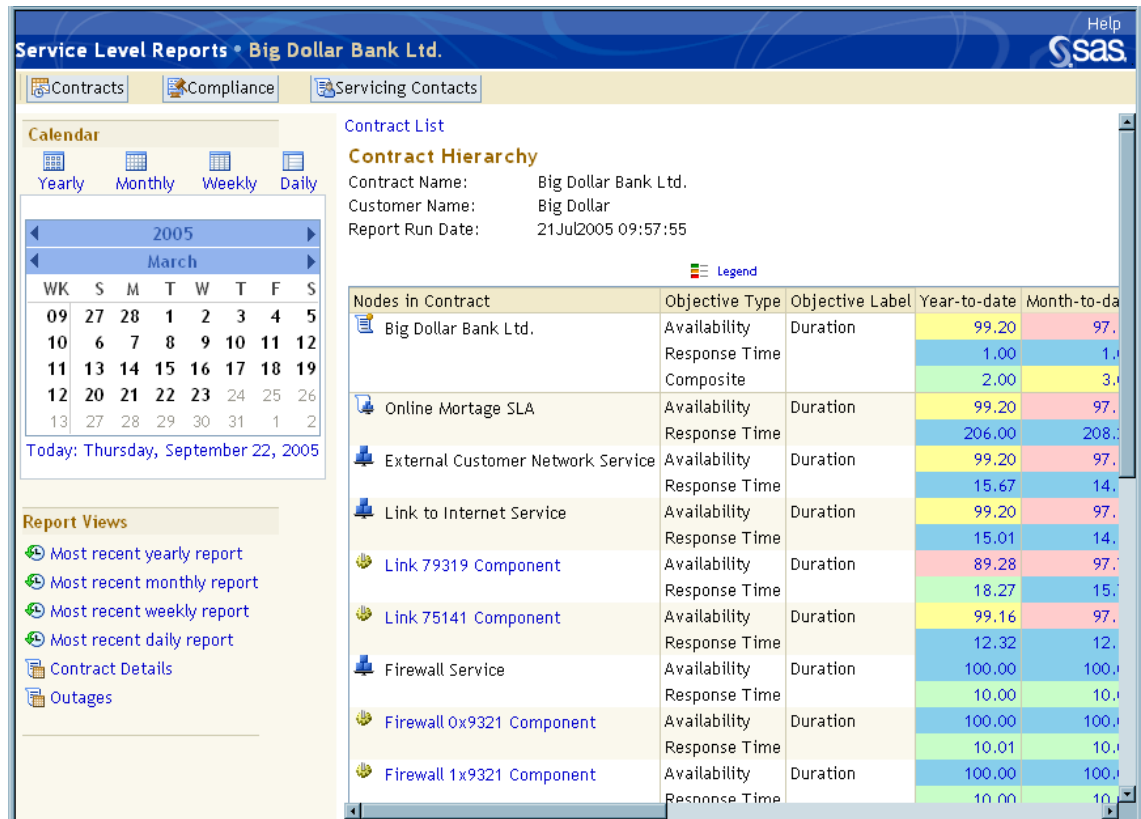
From the Contract List report, you can click various items and links to drill down to other reports such as the Report Specification Details reports, the Notes reports, and the Contract Hierarchy reports.



## Contract Hierarchy Report

The Contract Hierarchy report provides a comprehensive overview of how a specific contract is performing. This report displays actual values and targets for each component, service, and SLA of a selected contract, including the data for the contract itself. This report enables providers and customers to view this information across all summarization levels of the contract hierarchy and across all activated objectives for each node.

The following is an example of a Contract Hierarchy report:



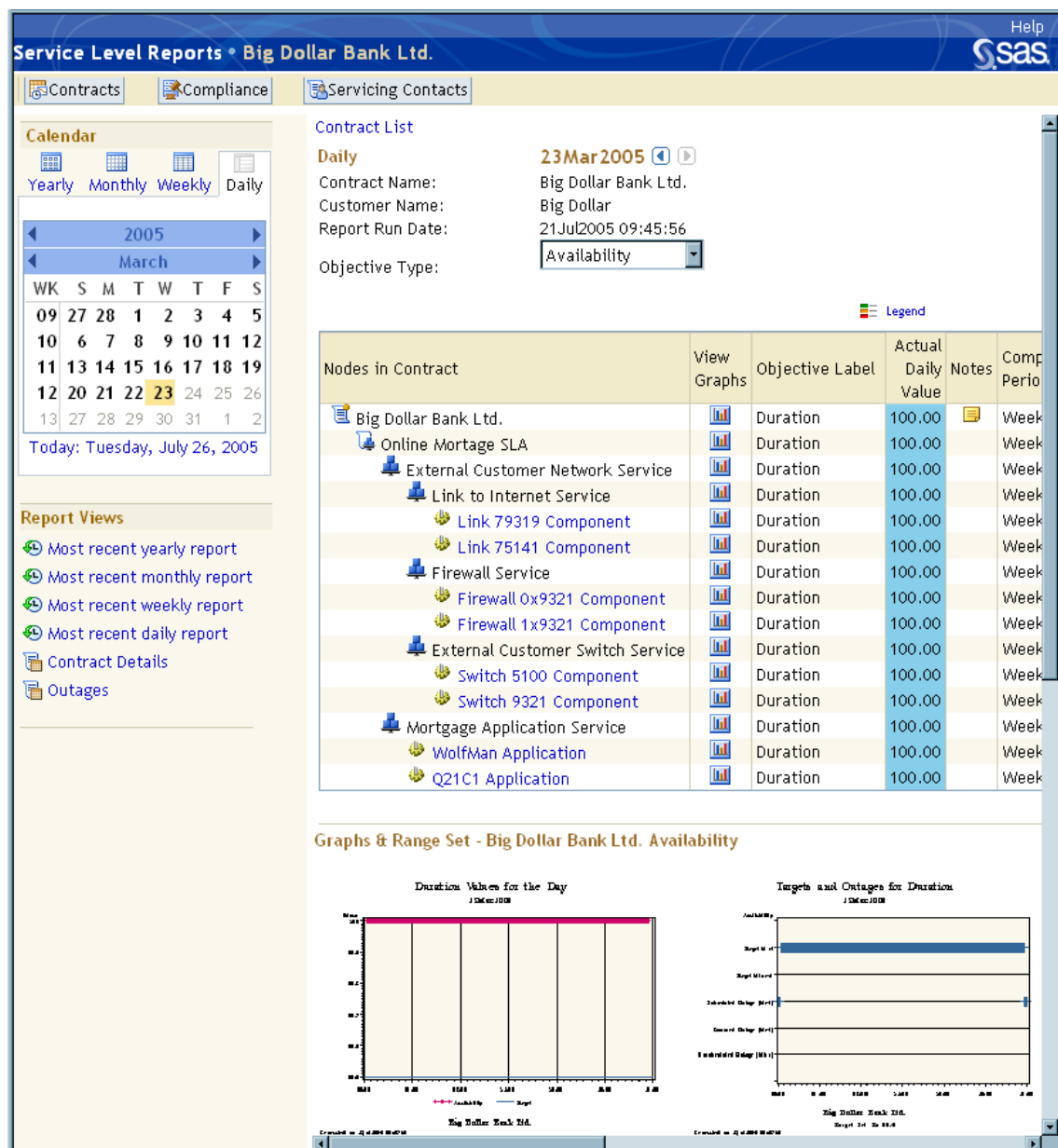
From the Contract Hierarchy report, you can click various items and links to view other reports. These other reports can show data by various time periods (Daily, Weekly, Monthly, Year-by-Week, and Year-by-Month reports) or provide more detailed information about the contract (such as the Contract Details report and Outages report). Contract providers can also click a component in this report to access a Resource Analysis report that shows detailed information about the performance of the component's resources.

## Daily, Weekly, Monthly, and Yearly Reports

Time-based reports such as the Daily, Weekly, Monthly, and Yearly reports display target and actual values, enabling you to view how all of the nodes of a contract are performing for a specified date. Each of these reports presents similar information, differing only in the increments of time over which data is reported. The Daily report also displays a graph view of the hourly results for missed targets or outages.

These time-based reports enable you to identify the objectives that are out of compliance and drill down to discover the specific dates and times during which targets were missed. These reports provide several ways to navigate to different levels of summary. You can filter these reports by objective type, use the calendar links to select specific summary levels, and use the previous and next arrow icons to navigate to a different time period at the same summary level. You can also click a graph icon to view a graphic report of the data for the corresponding node. You can then click the report graph to enlarge the image.

The following is an example of a Daily report:



From the time-based reports, contract providers can click a component to access a Resource Analysis report that shows detailed information about the performance of the component's resources.

## Resource Analysis Report

Resource Analysis reports enable contract providers to view the performance of all of the resources of a component on a daily basis. A flag icon in the **Potential Problem** column appears when there might be a problem with the resource because the daily indicator value does not meet the target value that was set for the component.

The following is an example of a Resource Analysis report:

The screenshot shows the 'Service Level Reports • Big Dollar Bank Ltd.' interface. The top navigation bar includes 'Contracts', 'Compliance', and 'Servicing Contacts'. The main content area is titled 'Contract List > Contract Hierarchy' and displays a 'Resource Analysis' report for '23Mar2005'. The report includes the following details:

- Contract Name: Big Dollar Bank Ltd.
- Customer Name: Big Dollar
- Latest date/ time for data: 23Mar05:23:55
- Report Run Date: 21Jul2005 09:57:10
- Objective Type: Availability (selected from a dropdown menu)
- Component Name: WolfMan Application
- Objective Label: Duration
- Latest Daily Indicator: 100.00
- Component's Target: The weekly mean of the availability indicator >= 99.50.

Below the details is a table titled 'Resource Availability' with the following data:

Resource	Resource Availability	Resource Indicator	Potential Problem
Monitor name	View Daily Table		
WOLFMAN2 url		99.469	

At the bottom of the report, a note states: 'Resource Indicators do not reflect outages or date filters set at the component level.' A 'Top of Page' link is also present.

Resource Analysis reports are only available to contract providers and are accessible from the **Contracts**, **Compliance**, and **Servicing Contacts** tabs. From the Resource Analysis report, you can drill down to 5–Minute Interval Table reports that provide more information about resources.

## 5–Minute Interval Table Report

The 5–Minute Interval Table report details numeric values from the resource data before they are interpreted with a calculation method for an objective. This information shows contract providers when (during the day) the performance of a resource complied or failed to comply with a component’s target for an objective.

The following is an example of a 5–Minute Interval table:

Resource Duration 5 Minute Interval Table WolfMan Application			
Date	Time	Indicator	MONITOR
23MAR2005	0:00:00	20.666666667	WOLFMAN2 url
23MAR2005	0:05:00	100	WOLFMAN2 url
23MAR2005	0:10:00	100	WOLFMAN2 url
23MAR2005	0:15:00	100	WOLFMAN2 url
23MAR2005	0:20:00	100	WOLFMAN2 url
23MAR2005	0:25:00	100	WOLFMAN2 url
23MAR2005	0:30:00	100	WOLFMAN2 url
23MAR2005	0:35:00	100	WOLFMAN2 url
23MAR2005	0:40:00	100	WOLFMAN2 url
23MAR2005	0:45:00	100	WOLFMAN2 url
23MAR2005	0:50:00	100	WOLFMAN2 url
23MAR2005	0:55:00	100	WOLFMAN2 url
23MAR2005	1:00:00	100	WOLFMAN2 url

The 5–Minute Interval Table reports are only available to contract providers and are accessible from Resource Analysis reports.

## Contract Details Report

The Contract Details report enables you to view all the settings that are associated with the contract, including detailed information about the customer and provider, calculation methods, range sets, and date filter information used for activated objectives of a specified contract.

The following is an example of a Contract Details report:

Service Level Reports • Big Dollar Bank Ltd.		
<a href="#">Contracts</a> <a href="#">Compliance</a> <a href="#">Servicing Contracts</a>		
<a href="#">Contract List</a> > <a href="#">Contract Hierarchy</a>		
<b>Contract Details</b>		
Contract Name:    Big Dollar Bank Ltd.		
Customer Name:    Big Dollar		
Report Run Date:    21Jul2005 09:57:44		
<b>Big Dollar Bank Ltd.</b>		
Category	Attribute	Value
General	Contract Name	<a href="#">Big Dollar Bank Ltd.</a>
	Version	
	Path to Contract Database	c:\slm\samples\CDB\BigDollar
	Contract Start Date	01Jan2005
	Contract End Date	31Dec2005
	Status	Active
	Updated by	SampleUser
	Updated	14JUL2005:12:19:46
	Contract PDB Table	N000001
Date Filter	Pattern	All
Parties	Customer Name	<a href="#">Big Dollar</a>
	Provider Name	<a href="#">ASP Inc.</a>
Cost Info	Contract Price	10,000
	Payment Term	Monthly

From the Contract Details report, you can drill down for more information about the terms of the contract by accessing the Customer, Provider, and Range Set Details reports.

## Customer Report

The Customer report enables you to view the customer and contact information for a selected contract.

The following is an example of a Customer report:

Service Level Reports • Big Dollar Bank Ltd. Help sas

Contracts Compliance Servicing Contacts

[Contract List](#) > [Contract Hierarchy](#) >  
[Contract Details](#)

**Customer**

Contract Name: Big Dollar Bank Ltd.  
 Report Run Date: 14Jul2005 13:10:26

Attribute	Value
Customer Name	Big Dollar
Company	Big Dollar Bank Ltd
Business Entity	Banking
Notes	

Primary Contact	
Contact Name	Samuel Jordan
First Name	Samuel
Last Name	Jordan
Job Title	Finance Manager
Department	Finance
Numbers/Telephone	919-555-2222
Pager	919-555-2223
Fax	919-555-2224
E-mail	sam.jordan@bigbank.com
Address 1	123 Kepley Road
City/Community	Cary
State/Province	NC
Country Code	USA
Zip/Postal Code	27513

Primary Approver	
Contact Name	Susan Jordan
First Name	Susan
Last Name	Jordan
Job Title	Finance Manager
Department	Finance

## Provider Report

The Provider report displays information about the provider for a selected contract. The layout of the Provider report is identical to that of the Customer report.

The following is an example of a Provider report:

Help

Service Level Reports • Big Dollar Bank Ltd.

Contracts

Compliance

Servicing Contacts

[Contract List >](#)
[Contract Hierarchy >](#)
[Contract Details](#)

Provider

Contract Name: Big Dollar Bank Ltd.

Report Run Date: 21Jul2005 09:57:44

Attribute	Value
Provider Name	ASP Inc.
Company	ASP Inc.
Business Entity	Contracts
Notes	

	Primary Contact
Contact Name	Jim Swiss
First Name	Jim
Last Name	Swiss
Job Title	Network Manager
Department	Networks
Numbers/Telephone	919-555-3333
Pager	919-555-3334
Fax	919-555-3335
E-mail	jim.swiss@asp.com
Address 1	123 Farrington Road
City/Community	Cary
State/Province	NC
Country Code	USA
Zip/Postal Code	27513

	Primary Approver
Contact Name	Jim Swiss
First Name	Jim
Last Name	Swiss
Job Title	Network Manager
Department	Networks

## Range Set Details Report

The Range Set Details report enables you to see all of the details for the range set that is associated with a selected objective in a contract. This report displays the ranges that make up the range set as well as their range descriptions so that you can review the colors and boundary conditions that are assigned to each range.

The following is an example of a Range Set Details report:

The screenshot shows the SAS Service Level Reports interface. The title bar reads 'Service Level Reports • Big Dollar Bank Ltd.' with a 'Help' link and the SAS logo. Below the title bar are three tabs: 'Contracts', 'Compliance', and 'Servicing Contacts'. The 'Contracts' tab is active, showing a breadcrumb trail: 'Contract List > Contract Hierarchy > Contract Details'. The main heading is 'Range Set Details'. Below this, the following information is displayed:

- Contract Name: Big Dollar Bank Ltd.
- Customer Name: Big Dollar
- Node in contract:
- Notes:
- Objective Type: Availability
- Objective Label: Duration
- Report Run Date: 14Jul2005 13:10:27

Below the details is a section titled 'Premium Availability' containing a table with the following data:

Range Description Name	Color	Label	Ranges	Score
Poor		Poor	$0 \leq x < 99$	4
Missed		Missed	$99 \leq x < 99.5$	3
Met		Met	$99.5 \leq x < 100$	2
Exceeded		Exceeded	$100 \leq x \leq 100$	1
Out-of-bounds High		Out-of-bounds High	high	.
Out-of-bounds Low		Out-of-bounds Low	low	.
Missing Value		Missing Value	missing	.

Below the table, a note states: "%" stands for indicator



## Outages Report

The Outages report enables you to view all of the outages for every node (and its child nodes) in a selected contract. Contract providers might use this report to view the outages that have been entered for their nodes. Customers might use this report to view all the outages that have been entered for their contract(s).

The following is an example of an Outages report:

Help

Service Level Reports • Big Dollar Bank Ltd.

Contracts

Compliance

Outages

Contract Name: Big Dollar Bank Ltd.

Customer Name: Big Dollar

Report Run Date: 14Jul2005 13:10:18

Outage type:

All

Outages						
In Effect	Outage Name	Outage Type	Nodes in Contract	Pattern	Start Date	Start Time
Yes	<a href="#">Down</a>	Unscheduled	Link to Internet Service	One time only	08Mar2005	12:20:00
Yes	<a href="#">Down</a>	Unscheduled	Link 79319 Component	One time only	22Jan2005	00:00:00
Yes	<a href="#">Down</a>	Unscheduled	Link 79319 Component	One time only	27Jan2005	14:45:00
Yes	<a href="#">Down</a>	Unscheduled	Link 79319 Component	One time only	28Jan2005	00:00:00
Yes	<a href="#">Down</a>	Unscheduled	Link 79319 Component	One time only	31Jan2005	17:15:00
Yes	<a href="#">Down</a>	Unscheduled	Link 79319 Component	One time only	01Mar2005	10:30:00

From the Outages report, you can also drill down for more information about outages by accessing the Outage Details report.

## Outage Details Report

The Outage Details report enables you to view all of the details, including the exceptions, for a selected outage. This information includes a display of the date and reason for all the exceptions to the outage.

The following is an example of an Outage Details report:

Help

Service Level Reports • Big Dollar Bank Ltd.

Contracts

Compliance

Servicing Contacts

[Contract List](#) > [Contract Hierarchy](#) > [Outage List](#)

**Outage Details**

Contract Name:

Big Dollar Bank Ltd.

Customer Name:

Big Dollar

Report Run Date:

14Jul2005 13:10:18

Attributes	Value
In Effect	Yes
Outage Name	Down
Outage Type	Unscheduled
Owning Node	Link to Internet Service
Pattern	One time only
Start Date	08Mar2005
End Date	08Mar2005
Outage Start Time	12:20:00
Outage End Time	23:45:00
Reason	Severe Wind Storm
Notes	

**Outage Exceptions**

Exception Date	Reason
No exceptions defined for this outage.	

[Top of Page](#)

## Compliance List Report

The Compliance List report is available from the **Compliance** tab. This report enables you to determine if contracts are meeting their targets during the compliance period for each active objective. You can also filter this report by customer, all targets, missed targets for the current period, and missed targets for the previous period.

The following is an example of a Compliance List report:

**Service Level Reports • Compliance List**

Report Run Date: 21Jul2005 10:56:23  
Target Filter: All Targets

**Customer list**

- All Contracts
- ASP FINANCE
- ASP SALES
- BIG DOLLAR

**Compliance List**

**Active Contracts**

Contract Name	Customer	Objective Type	Objective Label	Compliance Period	Actual Value		Notes	Current Target (statistic)	Latest
					Previous Period	Current Period			
Big Dollar Bank Ltd.	Big Dollar	Availability	Duration	Weekly	100.00	100.00	(Mean) Indicator >= 99.50	Score <= 2.00	23Mar
		Response Time		Weekly	1.00	1.00			
		Composite		Weekly	1.00	1.00			
Finance Department	ASP Finance	Availability		Monthly	1.00	1.00	Score <= 2.00	Score <= 2.00	23Mar
		Response Time		Daily	1.00	1.00			

**Inactive Contracts**

Contract Name	Customer	Objective Type	Objective Label	Compliance Period	Actual Value		Notes	Current Target (statistic)	Latest
					Previous Period	Current Period			
Sales Department	ASP Sales	Availability		Monthly	99.98	97.64	No target value specified		23Mar

From the Compliance List report, you can drill down to view the compliance data of specific contracts and their respective nodes by accessing the Compliance Details report.

## Compliance Details Report

The Compliance Details report enables you to determine if nodes within a specific contract are meeting their targets during the compliance period for each active objective. This report also enables contract providers to view the details for the individual components in order to uncover any problems with resources. You can filter this report by contract, all targets, missed targets for the current period, and missed targets for the previous period.

The following is an example of a Compliance Details report:

Service Level Reports • Big Dollar Bank Ltd. Help

Contracts Compliance Servicing Contacts

**Contract List**


- Big Dollar Bank Ltd.
- Finance Department
- Sales Department

**Compliance List**

**Compliance Details**

Contract Name: Big Dollar Bank Ltd.  
 Customer Name: Big Dollar  
 Report Run Date: 21Jul2005 09:57:52  
 Target Filter: All Targets

Legend

Nodes in Contract	Objective Type	Objective Label	Compliance Period	Actual Value		Notes	Current Target (statistic)	Latest Date
				Previous Period	Current Period			
Big Dollar Bank Ltd.	Availability	Duration	Weekly	100.00	100.00	 (Mean) Indicator >= 99.50 Score <= 2.00 Score <= 2.00	23Mar05:	
	Response Time		Weekly	1.00	1.00			
	Composite		Weekly	1.00	1.00			
Online Mortgage SLA	Availability	Duration	Weekly	100.00	100.00	(Mean) Indicator >= 99.50 (Mean) Indicator <= 1500.00 ms	23Mar05:	
	Response Time		Weekly	205.97	216.66			
External	Availability	Duration	Weekly	100.00	100.00	(Mean)		

## Servicing Contacts Report

The Servicing Contacts report is available from the **Servicing Contacts** tab. This report lists servicing contacts and the compliance data of the contracts for which the servicing contacts have responsibility. The data in this report provides a snapshot of the current and previous compliance period, enabling you to view the compliance information for contracts that are serviced by a selected contact person or business entity. You can also filter this report by contact, all targets, missed targets for the current period, and missed targets for the previous period.

The following is an example of a Servicing Contacts report:

**Service Level Reports • Compliance for Jim Swiss**

Report Run Date: 21Jul2005 10:56:27  
Target Filter: All Targets

**Finance Department**

Nodes in Contract	Objective Type	Objective Label	Compliance Period	Actual Value		Notes	Current Target (statistic)	Latest Data
				Previous Period	Current Period			
Finance Department	Availability		Monthly	1.00	1.00		Score <= 2.00	23Mar05:23:55
	Response Time		Daily	1.00	1.00		Score <= 2.00	
Expense Accounting	Availability		Monthly	100.00	100.00		(Mean) Indicator >= 99.00	23Mar05:23:55
	Response Time		Daily	216.64	211.89		(Mean) Indicator <= 5000.00 ms	
Finance Network	Availability		Monthly	100.00	100.00		(Mean) Indicator >= 99.50	23Mar05:23:55
	Response Time		Daily	10.38	11.24		(Mean) Indicator <= 150.00 ms	
Finance HUBs	Availability		Monthly	100.00	100.00		(Mean) Indicator >= 99.50	23Mar05:23:55
	Response		Daily	10.00	10.01		(Mean) Indicator <=	

## SAS Enterprise Guide Reports

SAS Enterprise Guide is a point-and-click Windows application that is packaged with SAS IT Service Level Management. SAS Enterprise Guide provides the following features:

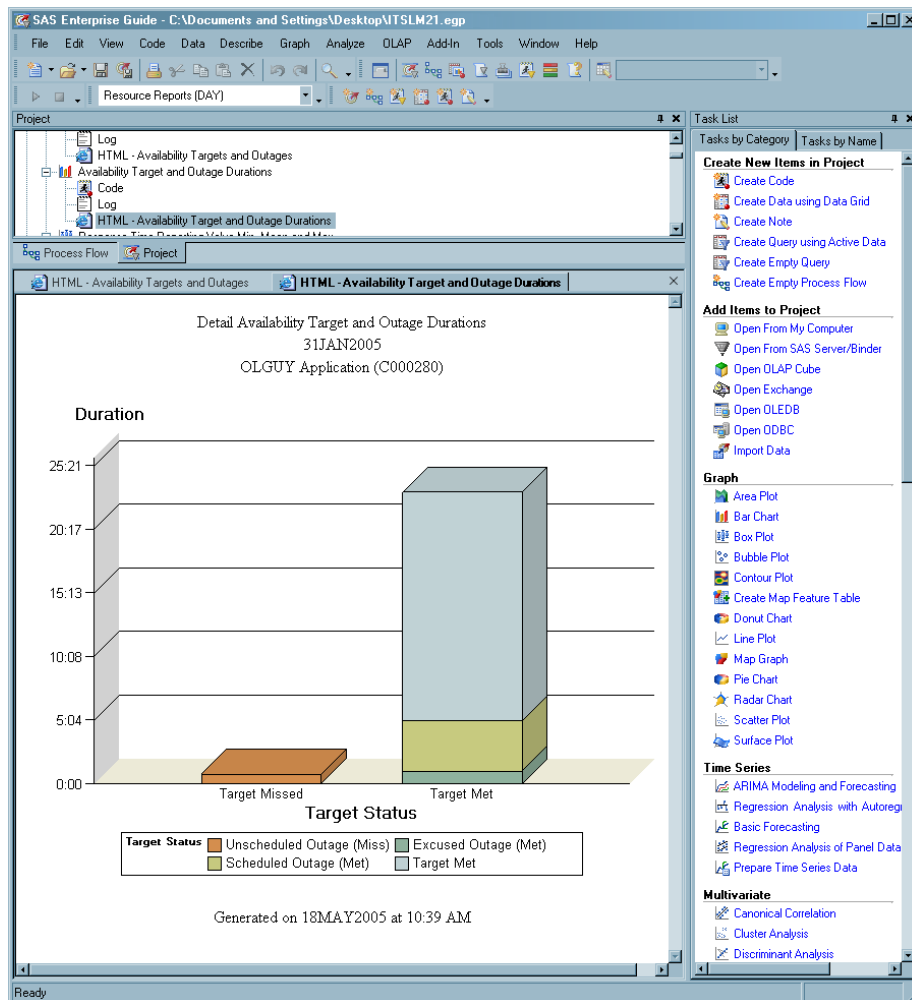
- an intuitive, visual, customizable interface
- transparent access to data
- ready-to-use tasks for analysis and reporting
- a code editing facility

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. The predefined SAS Enterprise Guide project that is provided with SAS IT Service Level Management consists of query tasks that filter your SLM data and report tasks that generate reports.

Use one of the following methods to start SAS Enterprise Guide:

- From the Windows Start menu, select **Programs ► SAS Enterprise Guide**. Then select the Enterprise Guide project file.
- Click the SAS Enterprise Guide icon on your desktop and select the SAS Enterprise Guide project file.
- Locate the supplied Enterprise Guide project file and double-click it. SAS Enterprise Guide opens the project.

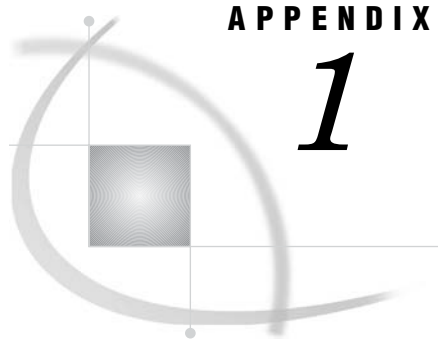
The Project window displays the active project and its associated notes, code, data, and results. To view one of the predefined reports, double-click the description of the HTML icon in the project list. You can also use the SAS Enterprise Guide GUI to create more specialized reports to meet your specific needs. The following is an example of a SAS Enterprise Guide graphic report. This detail report shows the availability target and outage durations of the OLGUY Application (C000280) component.



*Note:* Additional information about using the reporting capabilities of SAS IT Service Level Management is provided in *SAS IT Service Level Management: User's Guide*.   △







## APPENDIX

## 1

## Recommended Reading

---

*Recommended Reading* 101

---

## Recommended Reading

Here is the recommended reading list for this title:

- ☐ *Getting Started with Enterprise Guide*
- ☐ *Getting Started with SAS IT Resource Management*
- ☐ *SAS IT Resource Management: User's Guide*
- ☐ *SAS IT Resource Management: Macro Reference*
- ☐ *SAS IT Resource Management: Administration and Batch Reporting Course Notes*
- ☐ *SAS IT Resource Management: Interactive Reporting Course Notes*
- ☐ *SAS IT Service Level Management: User's Guide*

For a complete list of SAS publications, see the current *SAS Publishing Catalog*. To order the most current publications or to receive a free copy of the catalog, contact a SAS representative at the following address:

SAS Publishing Sales  
SAS Campus Drive  
Cary, NC 27513  
Telephone: (800) 727-3228\*  
Fax: (919) 677-8166  
E-mail: [sasbook@sas.com](mailto:sasbook@sas.com)  
Web address: [support.sas.com/pubs](http://support.sas.com/pubs)  
\* For other SAS Institute business, call (919) 677-8000.

Customers outside the United States should contact their local SAS office.



# Glossary

---

**availability**

the percentage of time that a system is available to respond to the requests of its users.

**catalog**

a group of SLAs, services, components, range sets, and range descriptions that are used to create a contract. These items are stored in five supplied folders (SLAs, Services, Components, Range Sets, and Range Descriptions) that are accessed from the Catalog workspace.

**component**

software, hardware, or any other entity that makes the delivery of an IT service possible. A component is also the lowest-level node in the contract hierarchy. See also resource, resource list.

**composite objective**

an objective that combines two or more of the other objective values to determine how well a particular node is performing. The indicator is calculated from the combined scores for availability, response time, throughput, and/or custom objective of the node.

**contact**

a person who is designated as having responsibility for some aspect of a contract, an SLA, a service, or a component. See also participant.

**contract**

a collection of data that represents the business relationship between an IT service provider and a customer. The contract contains one or more SLAs, which present specific, detailed information about the services that are to be provided. A contract is also the highest-level node in the contract hierarchy.

**contract database**

a container that stores time series data that has been through the SAS IT Service Level Management ETL process. This data is used to evaluate whether the objectives in a contract have been met. See also ETL (extract, transform, load) process.

**custom objective**

an objective that measures data that doesn't typically fit within the scope of availability, response time, or throughput, such as customer satisfaction or mean time between failures. SAS IT Service Level Management accommodates only one custom objective per node.

**data source PDB (performance database)**

a data warehouse that stores time series data that is provided by SAS IT Resource Management. This data is used as input to the SAS IT Service Level Management ETL process. See also ETL (extract, transform, and load) process.

**environment**

the server, the environment database, and a set of objects and processes that facilitate the server operations of SAS IT Service Level Management. For the SAS IT Service Level Management client, the property-value pairs for an environment describe how to connect to the server and access the database. For example, the property-value pairs specify information such as the host name, the port, and connection methods. See also environment database.

**environment database**

a database that contains objects that are defined in, and used by, SAS IT Service Level Management. The objects include contracts, service level agreements, services, components, customers, and providers. Some of these objects have pointers to other databases. For example, a contract object has a pointer to a contract database, and a component object has pointers to as many as three data source PDBs. See also environment.

**ETL (extract, transform, load) process**

the process of extracting IT performance data from a data source, transforming the data, and loading it into a contract database.

**excused outage**

a time period, such as during a power outage, when a node (and its child nodes) in the contract hierarchy was unavailable without fault from the service provider. An excused outage reduces the amount of time that a service provider is accountable for providing service. Corresponding service level indicators during this time period are displayed as missing and are ignored. See also scheduled outage, unscheduled outage.

**hierarchy**

an arrangement of nodes into levels that are based on parent-child relationships. Members of a hierarchy are arranged from more general to more specific. For example, in SAS IT Service Level Management, a simple contract hierarchy might consist of nodes that represent the contract at the highest level, the SLAs as child nodes of the contract, the services and components covered by each SLA as child nodes of the SLAs, and the components and contributory services that comprise each service as child nodes of those services.

**indicator**

a representation of the performance of an objective that is being measured, expressed as a numeric value.

**metric**

any standard of measurement that is used as a basis for evaluation or comparison. For example, bytes per second throughput is a common service level or performance metric.

**node**

a collection of data that describes one of the software objects that form the structure of an IT service contract. A graphic representation of one of these objects is also referred to as a node. The four types of measurable nodes in the contract hierarchy include components, services, service level agreements, and the contract itself.

**objective**

any of several aspects of service that are measured in order to arrive at one or more values for one or more indicators. Each node can have the following types of

objectives, which are based on the data from the node's child nodes or peer objectives: availability, response time, throughput, custom objective, and composite.

**outage**

a time period during which a node in the contract hierarchy is not available.

**outage exception**

a deviation in an outage pattern. For example, if an outage is defined to recur every Friday, an outage exception is set for the last Friday in the month if no outage is expected to occur on that day. See outage.

**participant**

a provider, customer, or other contact who is specified as being involved in a contract. Participants are defined in the Participants workspace.

**range**

a defined interval with distinct lower and upper boundaries that serve to collect or distinguish data values. Ranges are combined to form range sets. See also range set.

**range description**

a descriptor that assigns a report color and label to a range classification within a range set. For example, a range description might define all ranges that exceed expectations to appear in reports as green and be labeled "Exceeded." There are six supplied range descriptions (Exceeded, Met, Missed, Missing Value, Out-of-bounds High, and Out-of-bounds Low). Three of the supplied range descriptions (Missing Value, Out-of-bounds High, and Out-of-bounds Low) are fixed and cannot be deleted.

**range set**

a table that contains two or more ranges of probable service level measurements for a node, along with scores, colors, and/or descriptions for each of the ranges. See also range, score.

**report specification**

a report definition file that contains the many configuration options that the contract provider sets for generating a specific report.

**resource**

an item of hardware or software or any other entity for which data is collected and which, alone or with other resources, makes up a component. See also resource list, component.

**resource list**

a list of all the entities that comprise a component. The resource list also specifies which data is extracted from the data source PDB to calculate indicators for a component node's objectives. (By contrast, all other nodes extract data from child nodes.) See also resource, component.

**response time**

the amount of time to service a request.

**scheduled outage**

a predetermined and accepted time period, such as during a routine maintenance event, when a node (and its child nodes) in the contract hierarchy is expected to be unavailable. A scheduled outage reduces the amount of time that a service provider is accountable for providing service. Corresponding service level indicators during this time period are displayed as missing and are ignored. See also excused outage, unscheduled outage.

**score**

a numeric value that is derived by comparing a service level indicator to previously defined range sets. Scores are useful for comparing unlike measurements. For

example, response time for a help desk is measured in minutes, and response time for a hard drive is measured in milliseconds. If you combine these response times in a calculation of response time for a service, an SLA, or a contract, the result is meaningless. Using range sets to transform the dissimilar measurements into compatible scores facilitates such calculations and leads to useful and accurate results. See also range set.

**service**

a service that an IT organization provides to customers. IT services can include support for computer systems, networks, applications, telephones, fax machines, and Web pages, as well as other types of software and hardware services. A service is also a node in the contract hierarchy that organizes other service nodes and component nodes in the hierarchy.

**service level agreement**

See SLA (service level agreement).

**service level contract**

See contract.

**service level management**

See SLM (service level management).

**servicing contact**

a person or entity who is assigned the responsibility for a given node in the contract. Additionally, the servicing contact might receive e-mail notifications about missed targets. See contact.

**SLA (service level agreement)**

an agreement between an IT provider and a customer. The SLA specifies the performance goals for each service that the provider delivers. For example, goals for availability, response time, throughput, and a custom objective are often included in SLAs. An SLA is also a node in the contract hierarchy that organizes component nodes, service nodes, and other SLA nodes in the hierarchy.

**SLI (service level indicator)**

See indicator.

**SLM (service level management)**

a concept of IT service delivery that emphasizes the close alignment of IT services to the needs of customers. Clear definitions of service level objectives, frequent measurements of service levels, and meaningful reports help to ensure that IT customers experience high levels of service.

**SLO (service level objective)**

See objective.

**target**

a numeric value that represents the performance goal for a node that is being measured.

**throughput**

the rate at which requests for work are serviced by a computer system.

**unscheduled outage**

a time period, such as during a server failure, when a node in the contract hierarchy is not available. This type of outage incurs a penalty value of zero for the availability objective of the affected nodes during the outage time period. See also excused outage, scheduled outage.

# Index

---

## Numbers

5-Minute Interval Table report 88

## A

adjusting data 19  
availability 5, 14

## B

Baseline reports 9, 70  
    Daily Data report 73  
    generating 70  
    Monthly Data report 76  
    viewing 71  
    Weekly Data report 74  
business needs 3, 5

## C

catalog items  
    components 52  
    creating 47  
    range descriptions 48  
    range sets 49  
    service level agreements (SLAs) 60  
    services 59  
Catalog workspace 36  
client/server architecture 7  
Compliance Details report 96  
Compliance List report 95  
Compliance tab 77  
component nodes 12, 14  
components 52  
composite objectives 5, 14  
contacts 43  
    Servicing Contacts report 97  
    Servicing Contacts tab 78  
contract database 8  
Contract Details report 89  
contract hierarchy 8, 12  
Contract Hierarchy report 85  
Contract List report 83  
contract nodes 12, 13  
Contract Provider reports 78  
contract providers 3, 46

Contract window 62  
Contract workspace 36, 61  
contracts 5  
    adding participants 42  
    business needs 5  
    catalog items 47  
    constructing 38  
    creating 61  
    data collection tools 6  
    data sources 39  
    data storage location 6  
    format 6  
    measurable service goals 5  
    measurement techniques 5  
    measurement type 6  
    problems with 6  
    reporting periods and methods 5  
    representations of 8  
    server connections 39  
Contracts tab 77  
custom objectives 5, 14  
Customer reports 78, 90  
customers 3, 44

## D

Daily Data report 73  
Daily report 86  
data adjustments 19  
data collection tools 6  
data extraction 20  
data format 6  
data sources 39, 42  
data storage location 6  
Data workspace 38  
disparate data 8

## E

Enterprise Guide reporting 9, 97  
environment 30  
    editing 31  
    properties for 32  
environment database 7  
environmental data 30  
ETL  
    running 68

ETL process 7, 20  
    data extraction 20  
    downward flow of instructions 20  
    service level calculations 20, 23  
    summary of 26  
    upward flow of instructions 23  
extract, transform, and load process  
    See ETL process  
extracting data 20

## F

Five-Minute Interval Table report 88  
format of data 6

## G

global settings 79  
goals  
    measurable service goals 5  
    SLM goals 3  
GUI 10  
    constructing contracts 38  
    navigation 33  
    starting 30  
    workspaces 35

## H

hierarchy tree pop-up menus 35

## I

indicators 14  
    categorizing 16  
    ranges of values 16  
IT services 2  
    continuous improvement of 3  
    value of 3

## L

logging on 31

**M**

- measurable service goals 5
- measurement techniques 5
- measurement type 6
- menu bar 34
- menus 35
- Monthly Data report 76
- Monthly report 86

**N**

- navigation 33
- nodes 8
  - component nodes 12, 14
  - contract nodes 12, 13
  - service level objectives for 14
  - service nodes 12, 13
  - SLA nodes 12, 13

**O**

- objectives
  - composite 5, 14
  - custom 5, 14
  - service level 14
- Outage Details report 94
- outages
  - data adjustments for 19
- Outages report 93

**P**

- participants
  - adding 42
  - contacts 43
  - customers 44
  - providers 46
- Participants workspace 37
- pop-up menus 35
- Provider report 91
- providers 3, 46
  - Contract Provider reports 78

**R**

- range descriptions 15, 48
- Range Set Details report 92
- range sets 16, 49
- ranges 16

- report global settings 79
- report job code 81
- report specifications 80
- reporting 9, 69
  - Baseline reports 9, 70
  - Enterprise Guide reporting 9, 97
  - methods 5
  - Service Level reports 9, 77
- reporting periods 5
- Reports workspace 38, 78
- Resource Analysis report 87
- resource lists 14
- response time 5, 14

**S**

- SAS Enterprise Guide reports 9, 97
- SAS IT Charge Management 10
- SAS IT Management Solutions 10
- SAS IT Resource Management 10
- SAS IT Service Level Management 1, 7
  - closing 68
- scores 14, 17
- server connections 39, 40
- service goals 5
- service level agreements (SLAs) 5, 60
- service level calculations 11
  - downward flow of ETL instructions 20
  - upward flow of ETL instructions 23
- service level management (SLM) 2
  - business needs and 3
  - contract problems 6
  - contracts 5
  - goals of 3
  - implementing 4
  - need for 2
  - ongoing activities 4
- service level objectives 14
  - indicators 14
  - range descriptions 15
  - ranges and range sets 16
  - scores 17
  - targets 18
- Service Level reports 9, 77
  - 5-Minute Interval Table report 88
  - Compliance Details report 96
  - Compliance List report 95
  - Compliance tab 77
  - Contract Details report 89
  - Contract Hierarchy report 85
  - Contract List report 83
  - Contract Provider reports 78
  - Contracts tab 77

- Customer reports 78, 90
- Daily report 86
- generating 79
- generating interactively 81
- generating with code 81
- Monthly report 86
- Outage Details report 94
- Outages report 93
- Provider report 91
- Range Set Details report 92
- report global settings 79
- report specifications 80
- Reports workspace 78
- Resource Analysis report 87
- Servicing Contact report 97
- Servicing Contacts tab 78
- viewing 82
- Weekly report 86
- Yearly report 86
- service nodes 12, 13
- services 59
- Servicing Contact report 97
- Servicing Contacts tab 78
- SLA nodes 12, 13
- SLAs (service level agreements) 5, 60
- SLM
  - See service level management (SLM)*

**T**

- tabs 35
- targets 18
- Task list 35
- throughput 5, 14
- toolbar 34

**W**

- Weekly Data report 74
- Weekly report 86
- workspaces 35
  - Catalog 36
  - Contract 36, 61
  - Data 38
  - Participants 37
  - Reports 38, 78
- Workspaces list 35

**Y**

- Yearly report 86



# Your Turn

---

If you have comments or suggestions about *Getting Started with SAS IT Service Level Management 2*, please send them to us on a photocopy of this page, or send us electronic mail.

For comments about this book, please return the photocopy to

SAS Publishing  
SAS Campus Drive  
Cary, NC 27513  
E-mail: **[yourturn@sas.com](mailto:yourturn@sas.com)**

For suggestions about the software, please return the photocopy to

SAS Institute Inc.  
Technical Support Division  
SAS Campus Drive  
Cary, NC 27513  
E-mail: **[suggest@sas.com](mailto:suggest@sas.com)**



# SAS Publishing gives you the tools to flourish in any environment with SAS®!

**Whether you are new to the workforce or an experienced professional, you need a way to distinguish yourself in this rapidly changing and competitive job market. SAS Publishing provides you with a wide range of resources, from software to online training to publications to set yourself apart.**

## **Build Your SAS Skills with SAS Learning Edition**

SAS Learning Edition is your personal learning version of the world's leading business intelligence and analytic software. It provides a unique opportunity to gain hands-on experience and learn how SAS gives you the power to perform.

**[support.sas.com/LE](http://support.sas.com/LE)**

## **Personalize Your Training with SAS Self-Paced e-Learning**

You are in complete control of your learning environment with SAS Self-Paced e-Learning! Gain immediate 24/7 access to SAS training directly from your desktop, using only a standard Web browser. If you do not have SAS installed, you can use SAS Learning Edition for all Base SAS e-learning.

**[support.sas.com/selfpaced](http://support.sas.com/selfpaced)**

## **Expand Your Knowledge with Books from SAS Publishing**

SAS Press offers user-friendly books for all skill levels, covering such topics as univariate and multivariate statistics, linear models, mixed models, fixed effects regression and more. View our complete catalog and get free access to the latest reference documentation by visiting us online.

**[support.sas.com/pubs](http://support.sas.com/pubs)**



SAS Publishing