SAS® IT Resource Management

Report Conversion Guide 2.7 to 3.1.1

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SAS® IT Resource Management Report Conversion Guide: 2.7 to 3.1.1

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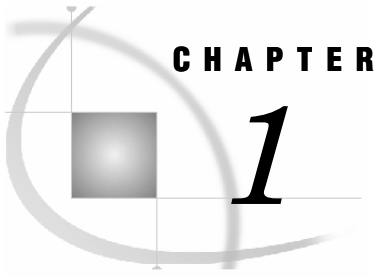


CHAPTER

1 Converting Reports

Introduction

A primary enhancement of SAS IT Resource Management 3.1.1 is the incorporation of world-class reporting and report distribution capabilities available from SAS. In previous releases, the SAS IT Resource Management Solution relied upon a custom reporting interface to perform the following tasks:

- Define and set report options.
- Generate a specific set of report types.
- Summarize data by time periods specified at report generation time.

Now, SAS Business Intelligence is not only delivered by the IT organization, it enables the IT organization to deliver IT performance management and capacity planning for the corporate IT enterprise.

SAS Enterprise Guide has long been available to SAS IT Resource Management customers as a reporting tool option. Beginning with SAS IT Resource Management 3.1.1, SAS Enterprise Guide is the primary reporting tool for the SAS IT Resource Management solution.

This document provides a guideline for converting reports that are generated by the SAS IT Resource Management 2.7 reporting tools to new and enhanced reports using SAS IT Resource Management 3.1.1 and the SAS Enterprise Guide reporting tool.

Reporting with SAS IT Resource Management 2.7 and reporting with SAS IT Resource Management 3.1.1 using SAS Enterprise Guide have some similarities:

- Both reporting tools provide an interface that enables a user to generate reports quickly and easily without requiring SAS programming skills.
- Both reporting tools enable users to write and submit SAS code to generate reports.
- Both reporting tools support a variety of SAS graph types and options.
- Both reporting tools generate the SAS code necessary to create the desired reports.

However, there are differences between the SAS IT Resource Management 2.7 reporting tool and using SAS Enterprise Guide to generate reports in SAS IT Resource Management 3.1.1:

- The SAS IT Resource Management 2.7 reporting tool relies upon the existence of custom SAS IT Resource Management 3.1.1 report macros that are delivered with the solution. SAS Enterprise Guide does not.
- SAS Enterprise Guide delivers a user friendly interface from which a significant set of report tasks and task options are selected compared to the SAS IT Resource Management 2.7 user interface for report generation.
- SAS Enterprise Guide supports a much larger set of report types and options than the report types and options that are supported by SAS IT Resource Management 2.7 report macros. It also offers many data management and analytical procedures that are not available in SAS IT Resource Management 2.7.
- A set of SAS IT Resource Management 2.7 reports are not yet available in SAS IT Resource Management 3.1.1 using SAS Enterprise Guide. These reports are listed in the following table.

Table 1.1 Status of SAS IT Resource Management 2.7 Report Types

Report Types	Status
Spectrum Plot	Replaced with a new Tile Chart available in a future release of SAS Enterprise Guide.
Tile Chart	Available in a future release of SAS Enterprise Guide.
Gallery	Today, you can use SAS Enterprise Guide to publish reports to the Web.
Exception Reports	Today, limited exception reporting can be accomplished by using filters to subset data for top or low values of a given ranked column.

In addition to the differences shown in the preceding table, SAS Enterprise Guide supports reporting from data accessible via information maps. Using information maps is the recommended method for accessing your data in SAS IT Resource Management 3.1.1.

The following table shows the SAS IT Resource Management 2.7 macros and the equivalent SAS Enterprise Guide tasks that should be used to generate equivalent reports. Much of the existing functionality that is available through SAS IT Resource Management 2.7 reporting macros is provided by SAS Enterprise Guide.

Table 1.2 SAS Enterprise Guide Report Tasks for SAS IT Resource Management 2.7 Report Macros

SAS IT Resource Management 2.7 Report Macro	Corresponding SAS Enterprise Guide Report Task or Feature That Is Used to Recreate the Report
%CPCHART	Bar chart and pie chart tasks
%CPCCHRT	Bar chart and pie chart tasks
%CPPLOT1	Line plot, scatter plot, area plot, and box plot

SAS IT Resource Management 2.7 Report Macro	Corresponding SAS Enterprise Guide Report Task or Feature That Is Used to Recreate the Report
	tasks
%CPPLOT2	Line plot task
%CPTABRPT	Summary tables task
%CPPRINT	List data task
%CPSRCRPT	Code window task
%CPG3D	Scatter plot task
%CPGTPLT	Document builder feature
%CPSETHAX	SAS Enterprise Guide report option for selected reports
%CPIDTOPN	Filter and ranked column
%CPRUNRPT	Stored process feature
%CPSPEC	Tile chart in a future SAS Enterprise Guide release
%CPEXCEPT	Web publishing feature
%CPHTREE	Web publishing feature
%CPMANRPT	Web publishing feature
%CPWEBINI	web publishing feature
%CPXHTML	Web publishing feature
%CPENTCPY	Obsolete

Refer to the next sections for more detail on creating specific reports and setting report task options using SAS Enterprise Guide.

Global and Individual Report Tasks and Options

To create reports with SAS Enterprise Guide, select the report task that is associated with the report that you want to create and set the report options. You can set report options in one of the following two ways:

- Set global options in the Options window. These options apply to all tasks in the SAS Enterprise Guide project.
- Set options in each individual report task.

The report options and their respective functions are labeled clearly. Report tasks with similar options use similar Options windows.

Global Report Task Options

In SAS Enterprise Guide, there are a few report task options that can be set for all report tasks in your project. The following list shows some of the global options you can

set. To set an option, select **Tools > Options** from the menu bar. Then, on the left hand pane of the Options window, click on the string that is specified in parentheses.

- graph format type, such as GIF or ActiveX (Graph)
- graph width and height (Graph)
- report title and footnote (Tasks General)
- view report output, with tools such as SAS Enterprise Guide or your local browser (Viewer)
- other options using Custom Code (Custom Code)

Global Pattern and Symbol Options Using Custom Code

In SAS Enterprise Guide, pattern and symbol options are typically set at the individual report task level. However, you can set these options once for the entire project using the **Insert custom SAS code** option. Global options can be set using this method and can still be overridden in an individual report task for a specific task.

To set global graph options, perform the following steps:

1. Select **Tools >Options** from the menu bar.
2. Click on Custom Code in the left hand pane, and check the **Insert custom SAS code before task and query code** box.
3. Click **Edit.**
4. Type the desired graph option statements in the Edit window.
5. Click **Save** and **OK** to save the change.
6. Rerun your report task to use the new graph option statements.

Individual Report Task Options

Most report task options are set individually by specifying values for each report task.

To set values for the report task options in an individual report task, perform the following steps:

1. Open the report task for which an option is to be set.
2. Select the appropriate window under the Appearance category for the task.
3. Select from the various options or specify a valid value for the desired option.

Click **Help** to view the Help on any specific option in the current window.

Top N and Bottom N Reporting

In SAS IT Resource Management 2.7, some report types support the Top N and Bottom N reporting option. For other report types, the use of the macro %CPIDTOPN is required.

To report on the top or bottom contributors for a specific column in SAS IT Resource Management 3.1.1 using SAS Enterprise Guide, you can use a filter to select the top or bottom contributors for a specific ranked column. Information map filters can be defined (using the SAS IT Resource Management Plug In to SAS Data Integration Studio Information Map transformation or using Information Map Studio) and selected in the **Filter** tab of the Information map window in SAS Enterprise Guide. Filters can also be specified within SAS Enterprise Guide Query tasks.

Report Output

In SAS Enterprise Guide you can generate graph output to the SAS Enterprise Guide window or to a local browser. You can specify your preference by selecting **Tools > Options** from the menu bar. You can also generate graph output by publishing to a Web server or to a file system. You can use SAS Management Console to define channels and then select a channel when publishing from SAS Enterprise Guide. In addition, if you use the SAS Report format, a report can be published to a repository and SAS Web Report Studio. For more information about publishing SAS Enterprise Guide reports, see SAS Enterprise Guide help.

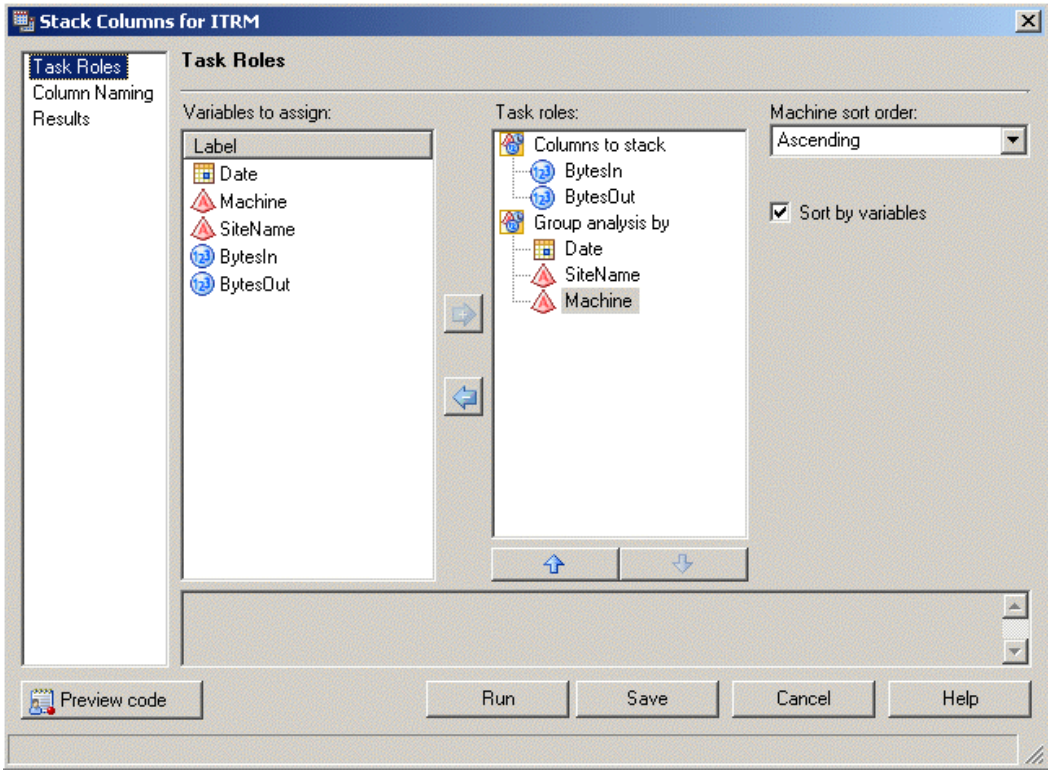
Print a Report

To print a report from the SAS Enterprise Guide window select **File > Print** from the drop-down menu. You can also right-click on the SAS Enterprise Guide report window and select **Print**. If you view SAS Enterprise Guide reports in a browser, then use your browser print capabilities to print the report. To print a report from the SAS Information Delivery Portal, also use your browser print capabilities.

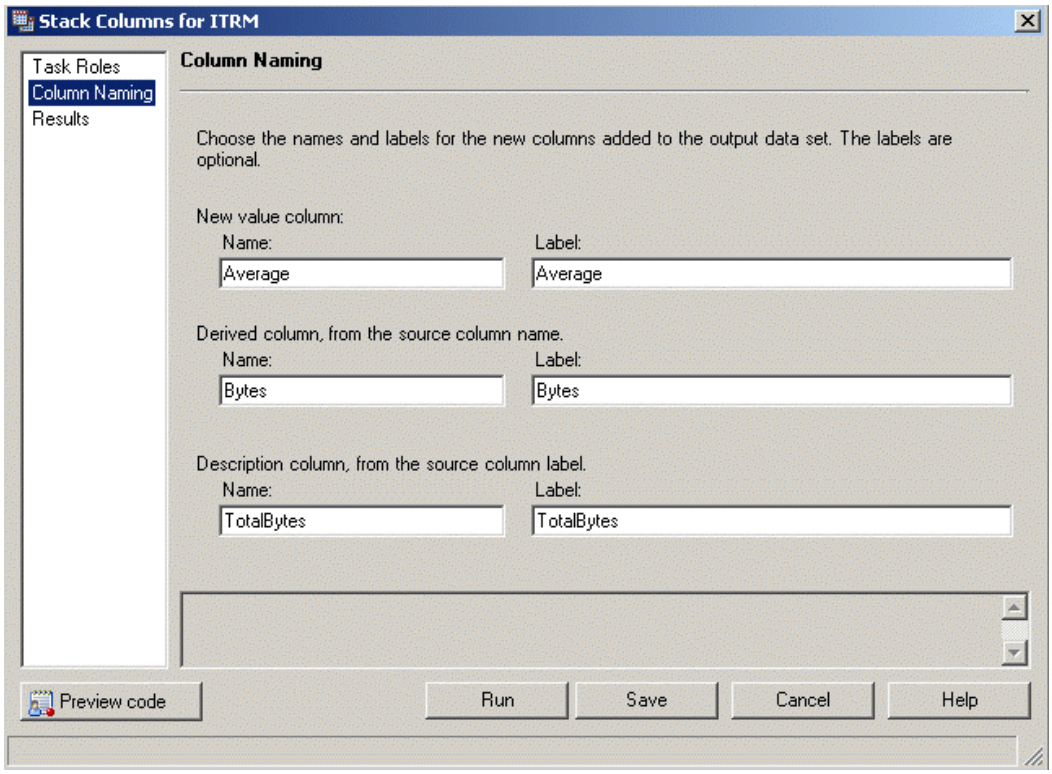
Stack Column Task (Reference 1)

The Stack Columns task in SAS Enterprise Guide allows you to stack your data so that multiple columns of data can become multiple rows of data. This step is required for recreating certain charts and plots available in SAS IT Resource Management 2.7.

The following example shows where two analysis variables will be stacked.



After you assign the variables to their appropriate task roles click on the Columns Naming window to change the default column labels for the new columns that will be created. Changing the column names and column labels is optional. However, changing the default column labels is recommended because they are very long and can cause unexpected errors for some graph types.



For more information about working with the Stack Columns task, see SAS Enterprise Guide help.

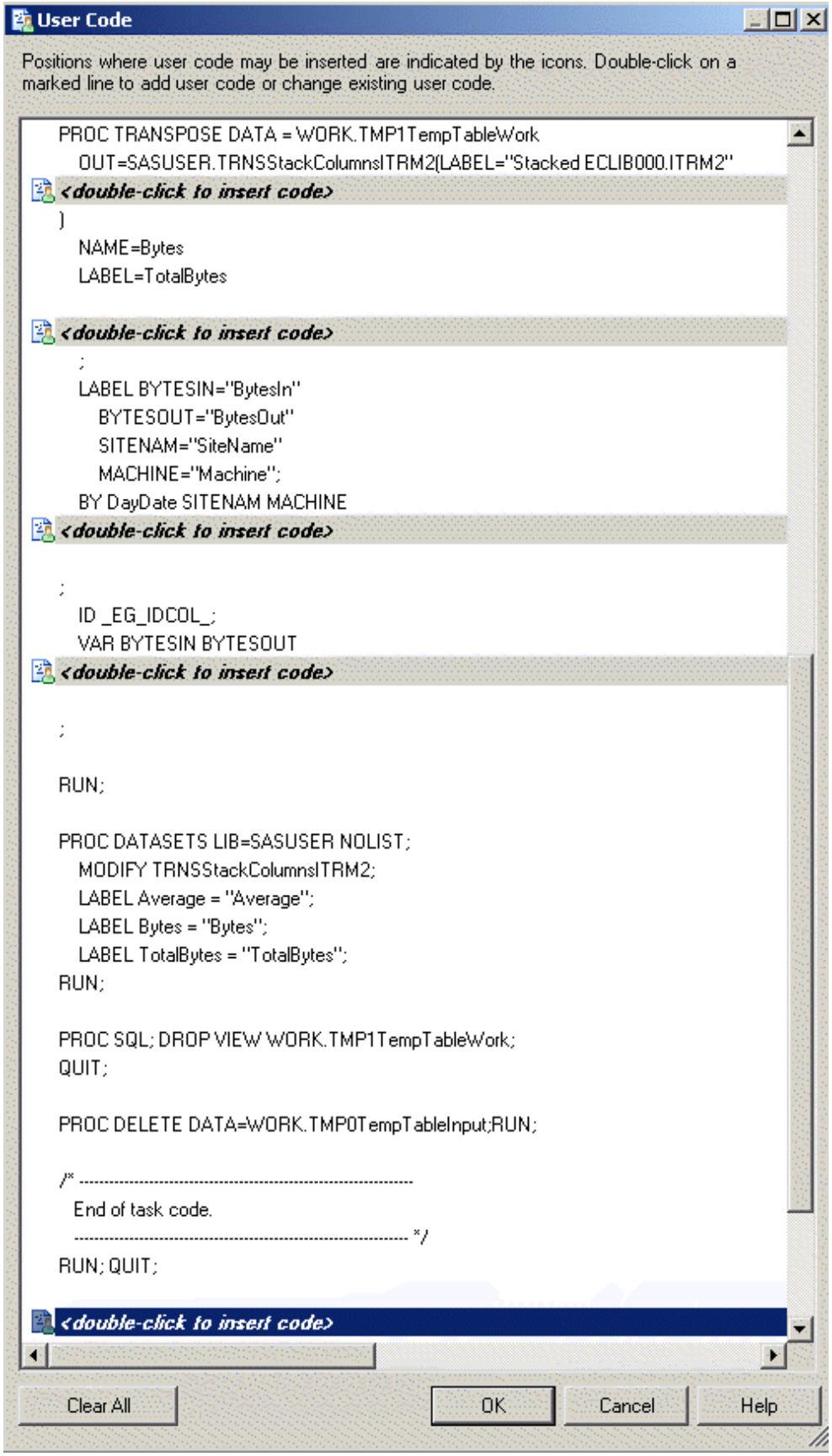
Custom User Code to Accumulate Stacked Data (Reference 2)

The Stack Columns task in SAS Enterprise Guide allows you to stack your data so that multiple columns of data can become multiple rows of data. This step is required for recreating certain charts and plots available in SAS IT Resource Management 2.7.

However, custom user code is also required if you also want to accumulate the data. This step is required for recreating stacked plots available in SAS IT Resource Management 2.7.

You can add custom user code to the Stack Columns task by clicking **`Preview code`** and then clicking **`Insert Code`**. Your custom code must follow the RUN statement that follows the TRANSPOSE procedure code generated by SAS Enterprise Guide.

The following image shows the User Code window. You can insert custom user code wherever an “insert code” icon appears. The “insert code” icon at the bottom of the image shows where you should insert your custom user code to accumulate your data.


User Code
Positions where user code may be inserted are indicated by the icons. Double-click on a marked line to add user code or change existing user code.
PROC TRANSPOSE DATA = WORK.TMP1TempTableWork
OUT=SASUSER.TRNSStackColumnsITRM2(LABEL="Stacked ECLIB000.ITRM2"
<double-click to insert code>
)
NAME=Bytes
LABEL=TotalBytes
<double-click to insert code>
;
LABEL BYTESIN="BytesIn"
BYTESOUT="BytesOut"
SITENAM="SiteName"
MACHINE="Machine";
BY DayDate SITENAM MACHINE
<double-click to insert code>
;
ID _EG_IDCOL_;
VAR BYTESIN BYTESOUT
<double-click to insert code>
;
RUN;
PROC DATASETS LIB=SASUSER NOLIST;
MODIFY TRNSStackColumnsITRM2;
LABEL Average = "Average";
LABEL Bytes = "Bytes";
LABEL TotalBytes = "TotalBytes";
RUN;
PROC SQL; DROP VIEW WORK.TMP1TempTableWork;
QUIT;
PROC DELETE DATA=WORK.TMP0TempTableInput;RUN;
/* ----------
End of task code.
---------- */
RUN; QUIT;
<double-click to insert code>
Clear All
OK
Cancel
Help

The custom user code that is required to accumulate your data is a DATA step that accumulates the output from PROC TRANSPOSE. The next screen shot shows a code fragment that includes PROC TRANSPOSE and a DATA step for accumulating your stacked data.

Note that when writing the DATA step, some information is derived from PROC TRANSPOSE. The following information is derived from PROC TRANSPOSE:

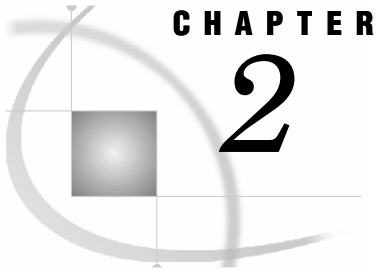
- The data set name must equal the data set name associated with the OUT= parameter of PROC TRANSPOSE.
- The list of BY variables must equal the list of BY variables of PROC TRANSPOSE.
- The required variable for the FIRST function will be derived from the BY variable list of PROC TRANSPOSE. Which variable is selected determines how your data is accumulated. Use the following rules to determine which variable to select for the FIRST function:
  - If you want to accumulate analysis variables, as shown in Example 16 of Chapter 2, then select the last BY variable from PROC TRANSPOSE for the FIRST function of your DATA step.
  - If you want to accumulate a class variable, as shown in Example 18 of Chapter 2, then use the next to last BY variable from PROC TRANSPOSE for the FIRST function of your DATA step.

The following example shows how to accumulate two analysis variables.

Code Preview for Task

Insert Code...

```
PROC TRANSPOSE DATA = WORK.TMP1TempTableWork
    OUT=SASUSER.TRNSSTACKCOLUMNSITRM_0004(LABEL="Stacked ECLIB000.ITRM2")
    NAME=Bytes
    LABEL=TotalBytes
    ;
    LABEL BYTESIN="BytesIn"
        BYTESOUT="BytesOut"
        SITENAM="SiteName"
        MACHINE="Machine";
    BY DayDate SITENAM MACHINE;
    ID _EG_IDCOL_;
    VAR BYTESIN BYTESOUT;

RUN;

PROC DATASETS LIB=SASUSER NOLIST;
    MODIFY TRNSSTACKCOLUMNSITRM_0004;
    LABEL Average = "Average";
    LABEL Bytes = "Bytes";
    LABEL TotalBytes = "TotalBytes";
RUN;

PROC SQL; DROP VIEW WORK.TMP1TempTableWork;
QUIT;

PROC DELETE DATA=WORK.TMP0TempTableInput;RUN;

/* ---------------------------------------------------------------------
   End of task code.
   --------------------------------------------------------------------- */
RUN; QUIT;

/* Start of custom user code. */
/* Start of custom user code. */
data sasuser.TRNSSTACKCOLUMNSITRM_0004 ;
  set sasuser.TRNSSTACKCOLUMNSITRM_0004 ;
    by DayDate Sitenam Machine ;
    retain SaveVal;
    if FIRST.Machine then SaveVal=0;
    Average=sum(Average,SaveVal);
    saveval=Average;
    drop saveval;
    run;
/* End of custom user code. */
```



CHAPTER 2

Creating Reports Using SAS Enterprise Guide

Overview

The following sections discuss the means by which specific types of reports were created with SAS IT Resource Management 2.7 and the recommended means by which they are created using SAS IT Resource Management 3.1.1.

Bar and Pie Charts

The following table presents the eight chart types available in SAS IT Resource Management 2.7 and communicates the corresponding SAS Enterprise Guide task that is available to generate those chart types in SAS IT Resource Management 3.1.1.

Table 2.1 SAS IT Resource Management 2.7 Chart Types and Corresponding SAS Enterprise Guide Tasks

Chart Type	SAS Enterprise Guide Task
Vertical Bar	Bar Chart task
Horizontal Bar	Bar Chart task
Vertical Bar 3D	Bar Chart task
Horizontal Bar 3D	Bar Chart task
Pie	Pie Chart task
Pie 3D	Pie Chart task
Star	Not supported
Block	Not supported

In SAS Enterprise Guide, the bar orientations (vertical and horizontal) are task subtype options that are available in the bar chart task. The bar dimensions (2D and 3D) are appearance options in the bar chart and pie chart tasks.

This section presents more details of the SAS IT Resource Management 2.7 macro used to create various types of bar and pie charts and the equivalent SAS Enterprise Guide steps required to recreate these types of reports.

In SAS IT Resource Management 2.7, the %CPCHART macro is used to create these three bar chart types:

- one analysis column and one class column (Example 1)
- one analysis column, one class column, and one group column (Example 2)

- one analysis column, one class column, and one subgroup column (Example 3)

The %CPCCHRT macro is used to create these four bar chart types:

- multiple analysis columns (Example 4)
- multiple analysis columns and one group column (Example 5)
- multiple analysis columns, one group column, and one subgroup column (Example 6)
- multiple analysis columns, one group column, and one stack column (Example 7)

In SAS IT Resource Management 2.7, the %CPCHART macro is used to create the following pie chart type:

- one analysis column and one class column (Example 8)

The % CPCCHRT macro is used to create the following pie chart type:

- multiple analysis columns (Example 9)

The following sections show how to recreate the seven bar chart types and the two pie chart types using SAS Enterprise Guide.

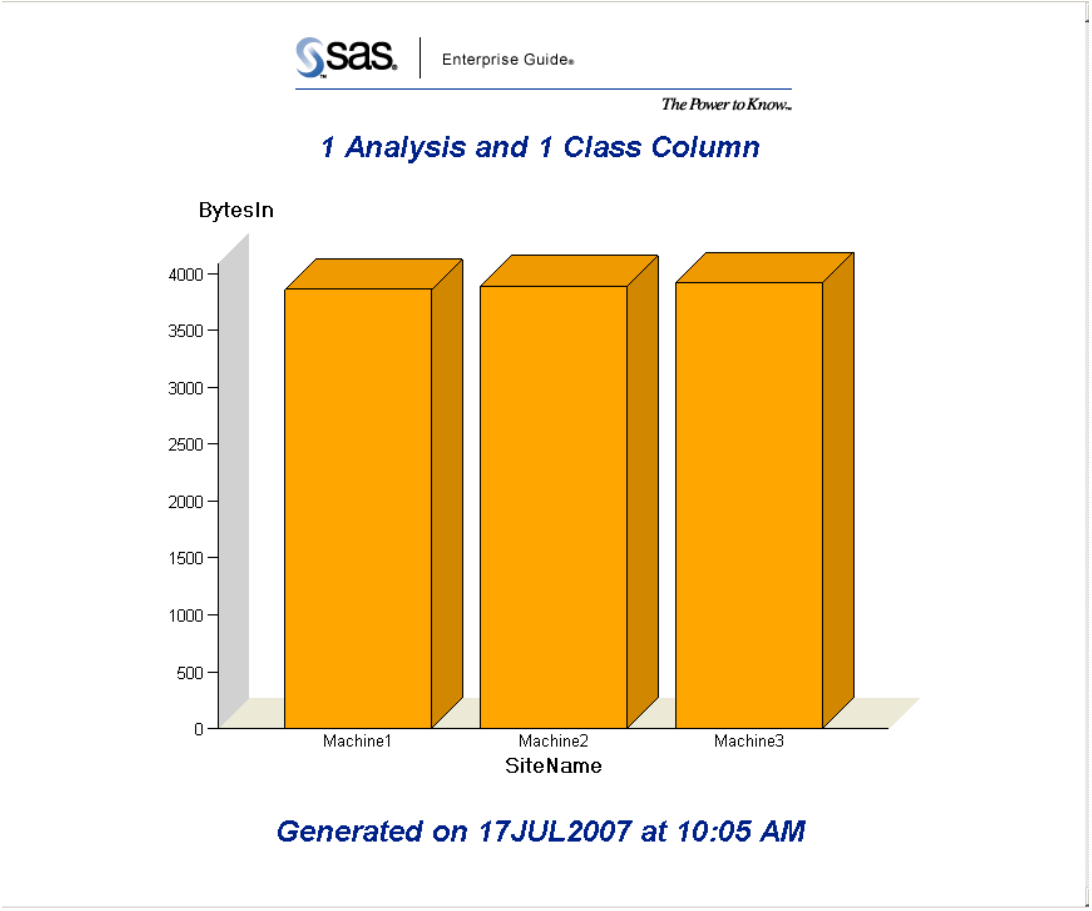
Bar Chart and Pie Chart Notes

Here are some notes that you might consider when working with bar charts and pie charts:

- The difference between bar chart Example 6 and Example 7 in SAS Enterprise Guide is in the column role assignments.
- A future release of SAS Enterprise Guide will include a new bar chart task that will enable you to create bar chart Example 4, Example 5 and Example 6 without requiring the additional Stack Columns task.
- Do not confuse the **Group bars by** role, available in some chart tasks, with the **Group charts by** role. The **Group charts by** role is a role that is available in most report tasks. It allows you to create a different report page for each value of the **Group charts by** column.
- The Transpose task can be substituted for the Stack Columns task. See SAS Enterprise Guide help for more information about the differences between the Stack Columns task and the Transpose task.
- The graph examples in the following sections typically show two analysis columns wherever multiple analysis columns are supported.
- Some graph titles might refer to SAS IT Resource Management 2.7 terminology to help you make the transition from 2.7 to 3.1.1. For example, a class column assigned to a subgroup role in 2.7 might be assigned to a stack role in 3.1.1 to achieve the same results.

Example 1

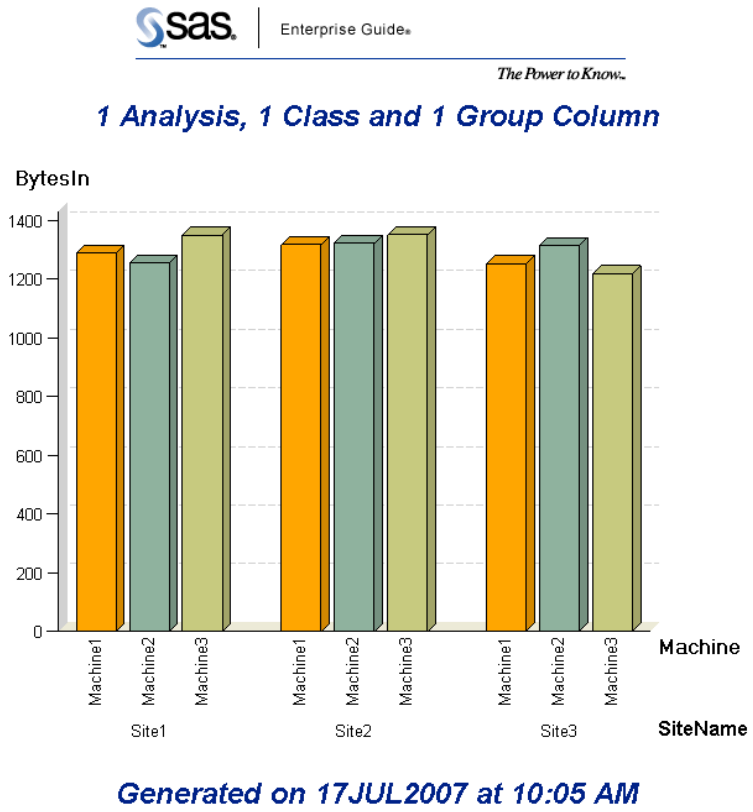
Bar Chart with One Analysis Column and One Class Column



1. Select the Bar Chart task.
2. Select the **Simple Vertical Bar** chart type.
3. Assign one analysis column to the **Sum of** role.
4. Assign one class column to the **Column to chart** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 2

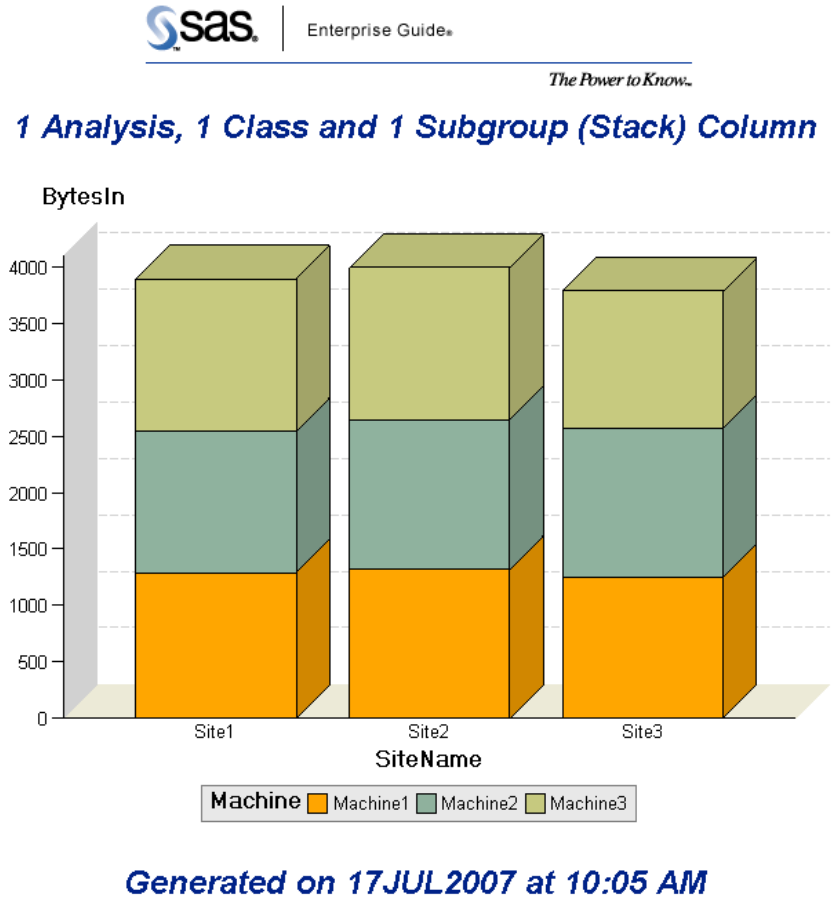
Bar Chart with One Analysis Column, One Class Column, and One Group Column



1. Select the Bar Chart task.
2. Select the **Grouped Vertical Bar** chart type.
3. Assign one analysis column to the **Sum of** role.
4. Assign one class column to the **Column to chart** role.
5. Assign one class column to the **Group bars by** role.
6. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 3

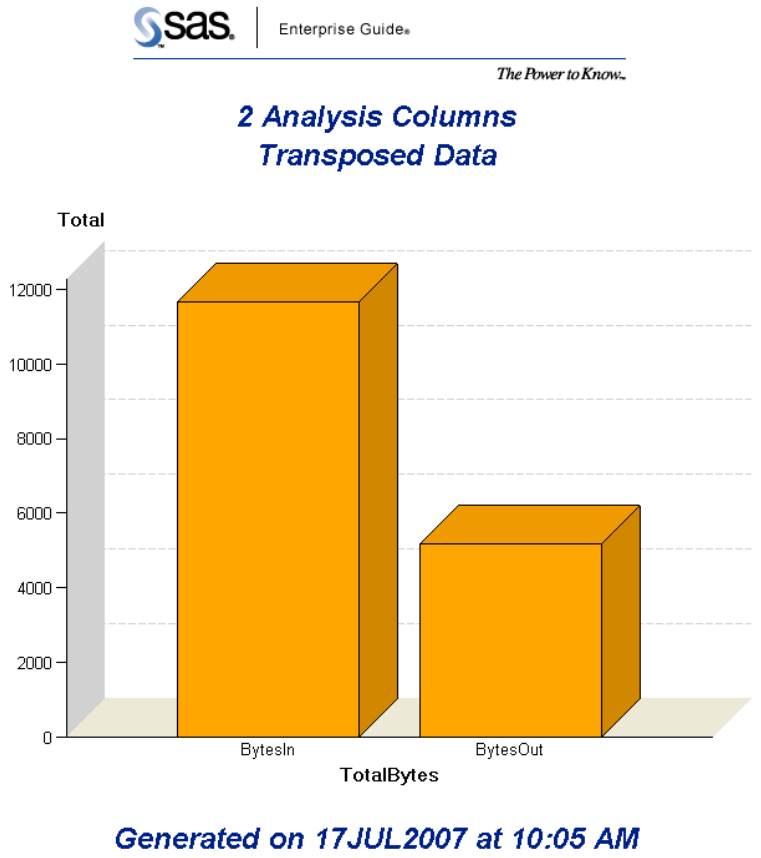
Bar Chart with One Analysis Column, One Class Column, and One Subgroup Column



1. Select the Bar Chart task.
2. Select the **Stacked Vertical Bar** chart type.
3. Assign one analysis column to the **Sum of** role.
4. Assign one class column to the **Column to chart** role.
5. Assign one class column to the **Stack** role.
6. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 4

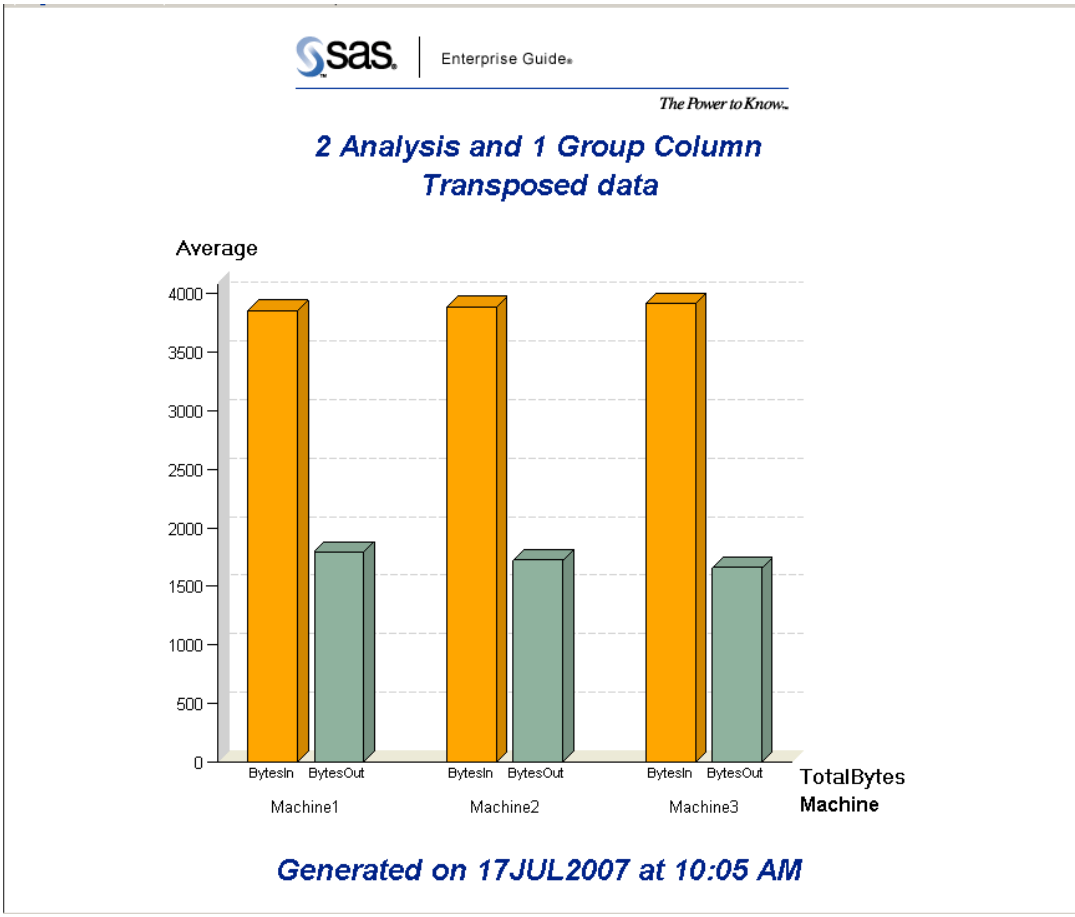
Bar Chart with Two Analysis Columns



1. Select the Stack Columns task located in the Data category to transpose your data.
2. Assign the two analysis columns you want to chart to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels (See Reference 1).
5. Run the Stack Columns task to transpose your data.
6. Select the Bar Chart task.
7. Select the **Simple Vertical Bar** chart type.
8. Assign the new transposed analysis column to the **Sum of** role.
9. Assign the new transposed class column to the **Column to chart** role.
10. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 5

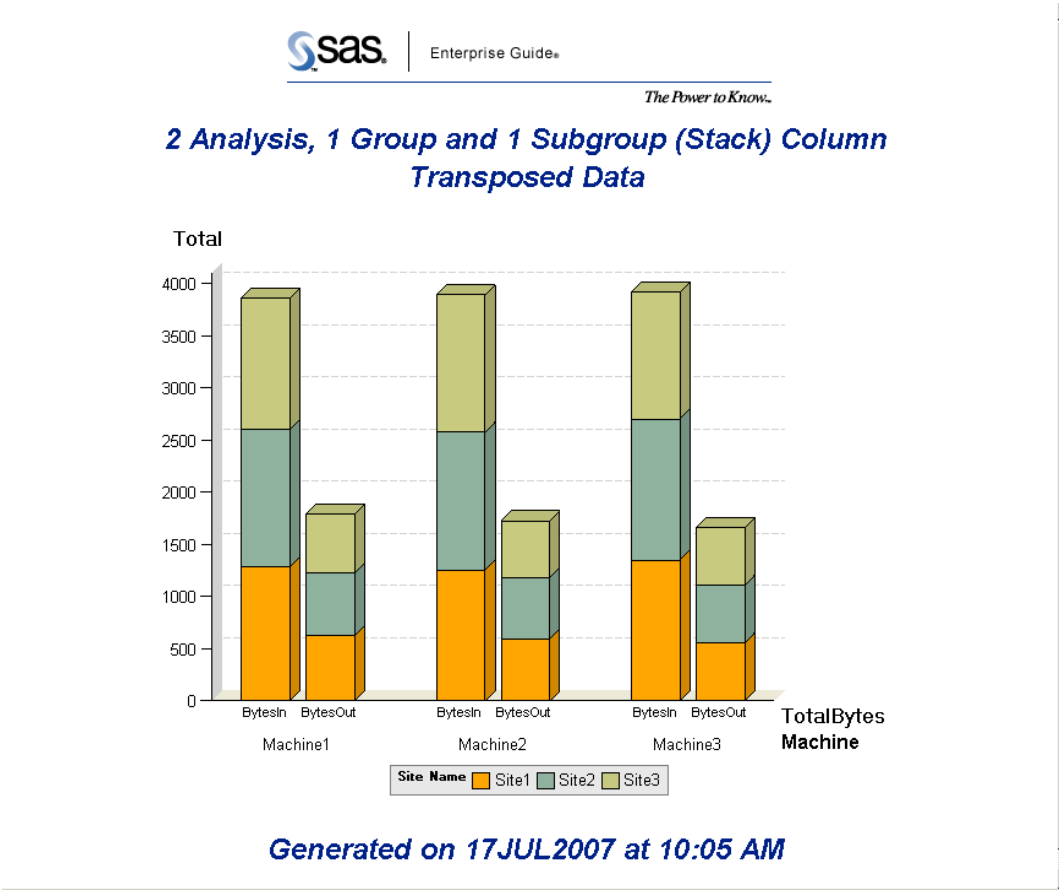
Bar Chart with Two Analysis Columns and One Group Column



1. Select the Stack Columns task located in the Data category to transpose your data.
2. Assign the two analysis columns you want to chart to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels (See Reference 1).
5. Run the Stack Columns task to transpose your data.
6. Select the Bar Chart task.
7. Select the **Grouped Vertical Bar** chart type.
8. Assign the new transposed analysis column to the **Sum of** role.
9. Assign the new transposed class column to the **Column to chart** role.
10. Assign one class column to the **Group bars by** role.
11. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 6

Bar Chart with Two Analysis Columns, One Group Column, and One Subgroup Column

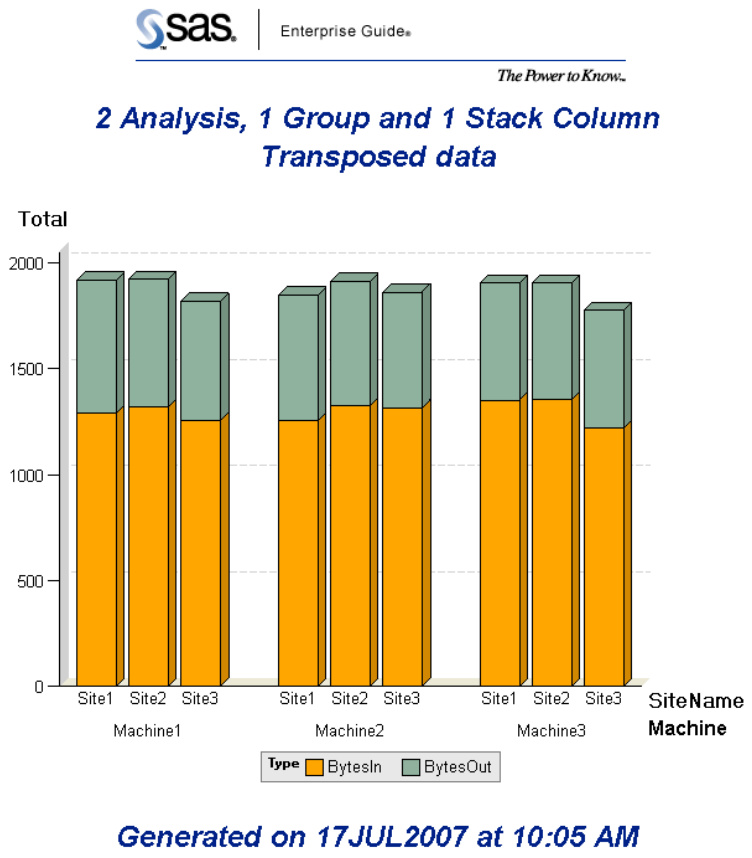


1. Select the Stack Columns task located in the Data category to transpose your data.
2. Assign the two analysis columns you want to chart to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels (See Reference 1).
5. Run the Stack Columns task to transpose your data.
6. Select the Bar Chart task.
7. Select the **Grouped/Stacked Vertical Bar** chart type.
8. Assign the new transposed analysis column to the **Sum of** role.
9. Assign the new transposed class column to the **Column to chart** role.
10. Assign one class column to the **Group bars by** role.
11. Assign one class column to the **Stack** role.

12 (Optional) Assign one or more class columns to the **Group charts by** role.

Example 7

Bar Chart with Two Analysis Columns, One Group Column, and One Stack Column



1 Select the Stack Columns task located in the Data category to transpose your data.

2 Assign the two analysis columns you want to chart to the **Columns to Stack** role.

3 Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.

4 Rename your new column labels (See Reference 1).

5 Run the Stack Columns task to transpose your data.

6 Select the Bar Chart task.

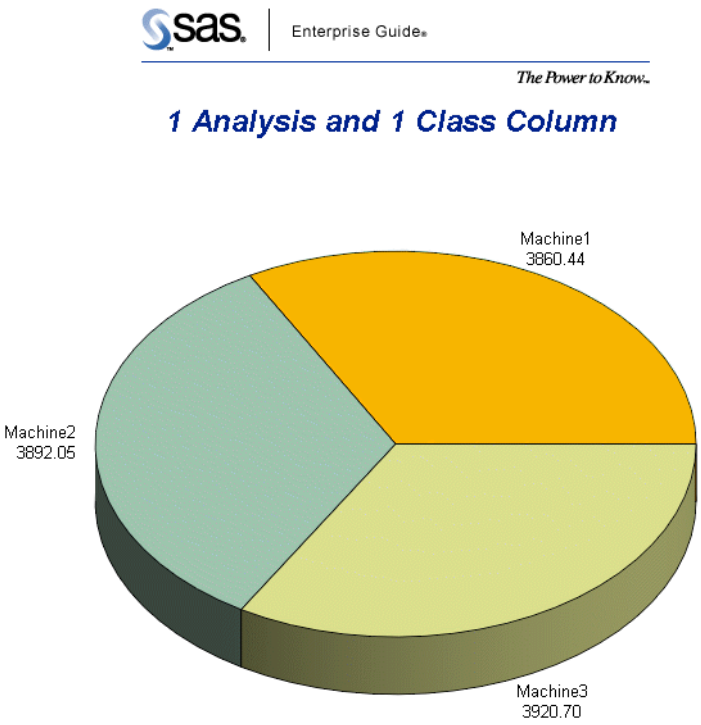
7 Select the **Grouped/Stacked Vertical Bar** or the **Grouped/Stacked Horizontal Bar** chart type.

8 Assign the new transposed analysis column to the **Sum of** role.

9 Assign one class column to the **Column to chart** role.
10 Assign one class column to the **Group bars by** role.
11 Assign the new transposed class column to the **Stack** role.
12 (Optional) Assign one or more class columns to the **Group charts by** role.

Example 8

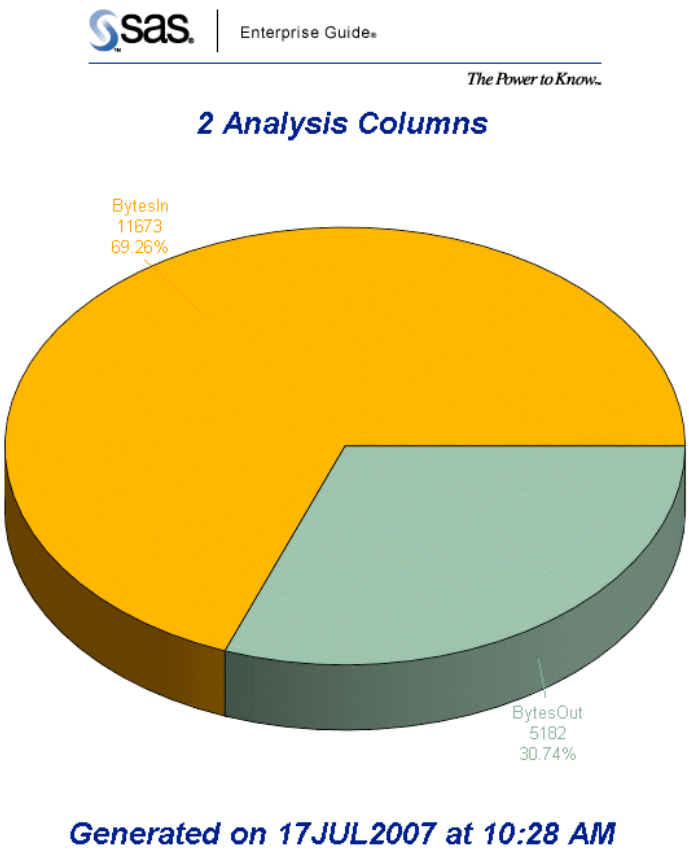
Pie Chart with One Analysis Column and One Class Column



1 Select the Pie Chart task.
2 Select the **Simple Pie** chart type.
3 Assign one analysis column to the **Sum of** role.
4 Assign one class column to the **Column to chart** role.
5 (Optional) Assign one or more class columns to the **Group charts by** role.

Example 9

Pie Chart with Two Analysis Columns



1. Select the Stack Columns task located in the Data category to transpose your data.
2. Assign the two analysis columns you want to chart to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels (See Reference 1).
5. Run the Stack Columns task to transpose your data.
6. Select the Pie Chart task.
7. Select the **Simple Pie** chart type.
8. Assign the new transposed analysis column to the **Sum of** role.
9. Assign the new transposed class column to the **Column to chart** role.
10. (Optional) Assign one or more class columns to the **Group charts by** role.

Line and Other Plots

The following table presents the 15 plot types or options available in SAS IT Resource Management 2.7 and communicates the corresponding SAS Enterprise Guide task that is available to generate those chart types in SAS IT Resource Management 3.1.1.

Table 2.2 SAS IT Resource Management 2.7 Plot Types and Corresponding SAS Enterprise Guide Tasks

Plot Type	SAS Enterprise Guide Task
2XY	Line Plot task
Line	Line Plot task
Join	Line Plot task
Needle	Line Plot task
Smooth	Line Plot task
Spline	Line Plot task
Standard Deviation	Line Plot task
Step Center	Line Plot task
Percent	Line Plot task
Scatter	Scatter Plot task
Stack	Area Plot task
Stack Percent	Area Plot task
Box Plot	Box Plot task
Hi – Low plot	Box Plot task
Regression	Various regression plots in the Analyze category of plots

This section presents more detail of the SAS IT Resource Management 2.7 macro used to create various types of plots and the equivalent SAS Enterprise Guide steps required to recreate these types of reports.

In SAS IT Resource Management 2.7, the %CPPLOT1 macro is used to create these types of line plots:

- one analysis column and one class column (Line, Step, Box and Hi-Low Plots) (Examples 10, 11, 12 and 13)
- multiple analysis columns (Scatter Plot) (Example 14)
- multiple analysis columns and one class column (Line and Line Stack Plots) (Examples 15 and 16)
- one analysis column, one class column, and one group column (Line and Line Stack Plots) (Examples 17 and 18)

The %CPPLOT2 macro is used to create this type of line plot:

- 2XY Plot with Multiple Analysis Columns and One Class Column (Example 19)

Here are some notes that you might consider when using line plots:

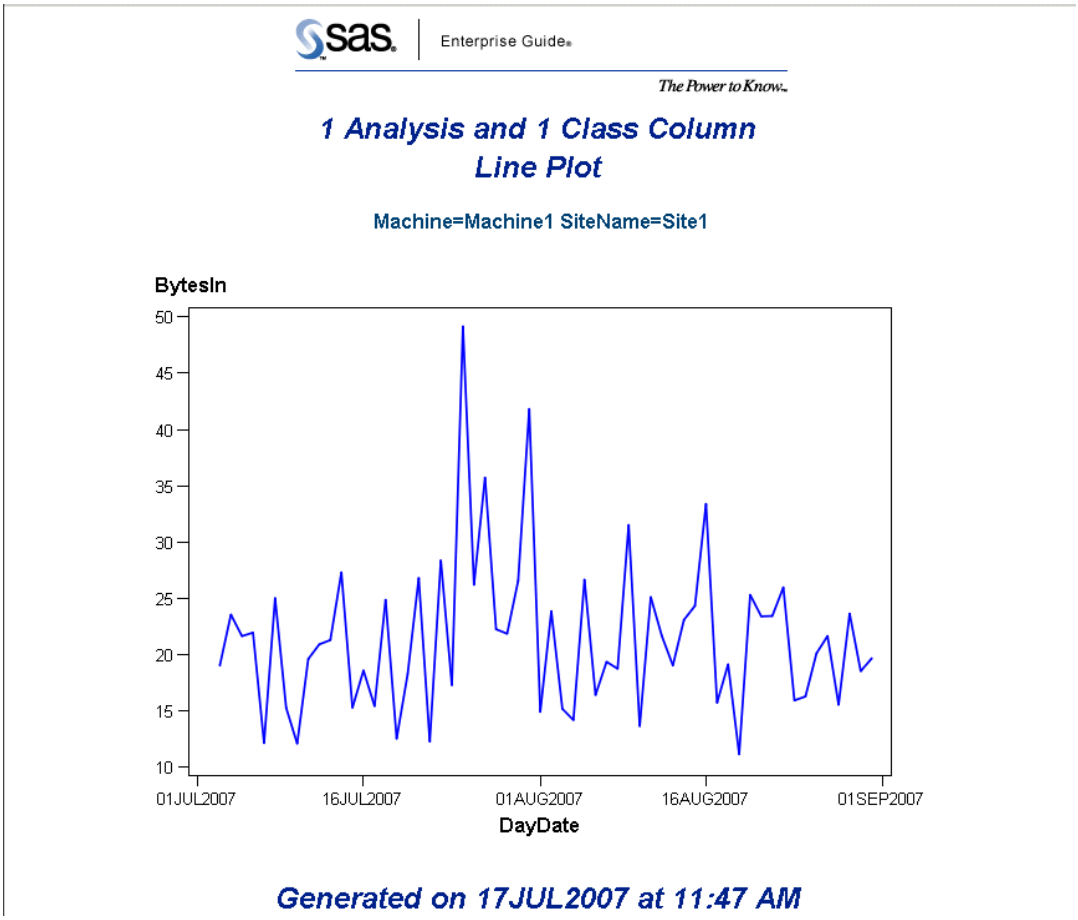
- Do not confuse the **Group** role, available in some plot tasks, with the **Group charts by** role. The **Group charts by** role is a role that is available in most

report tasks. It allows you to create a different report page for each value of the **Group charts by** column.

- The graph examples in the following sections typically show two analysis columns wherever multiple analysis columns are supported.

Example 10

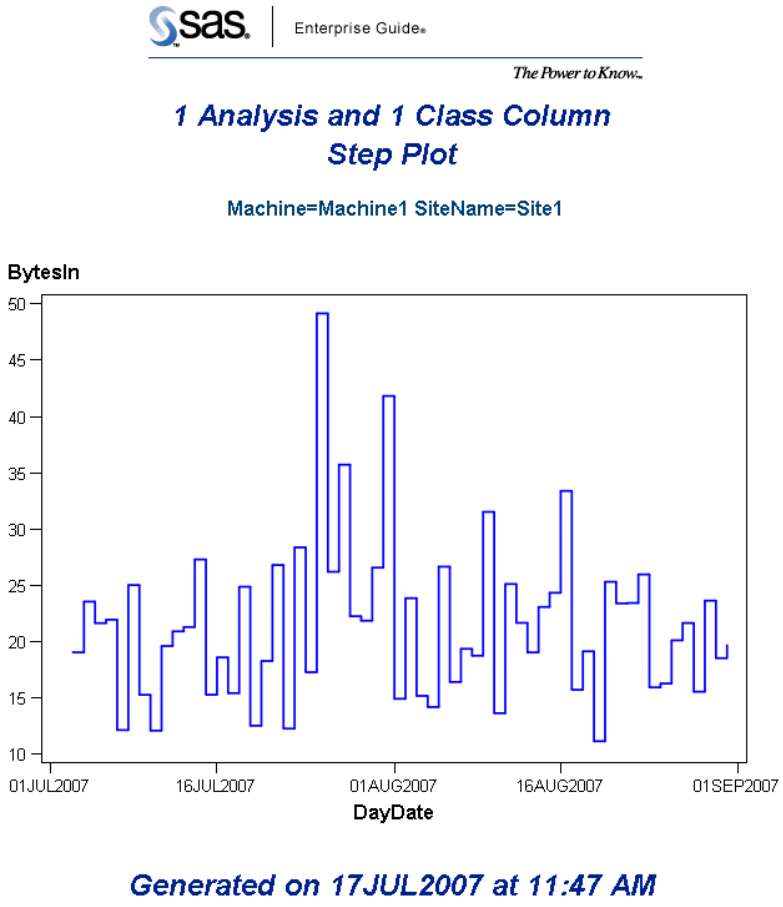
Line Plot with One Analysis Column and One Class Column



1. Select the Line Plot task.
2. Select the Line Plot subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 11

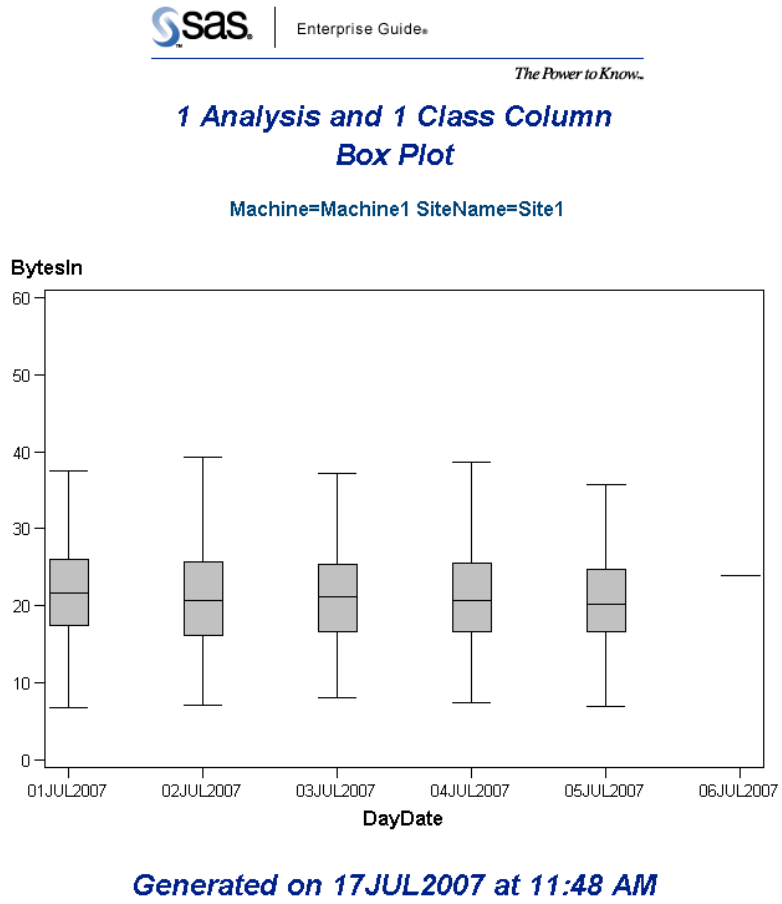
Step Plot with One Analysis Column and One Class Column



1. Select the Line Plot task.
2. Select the Step Plot subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 12

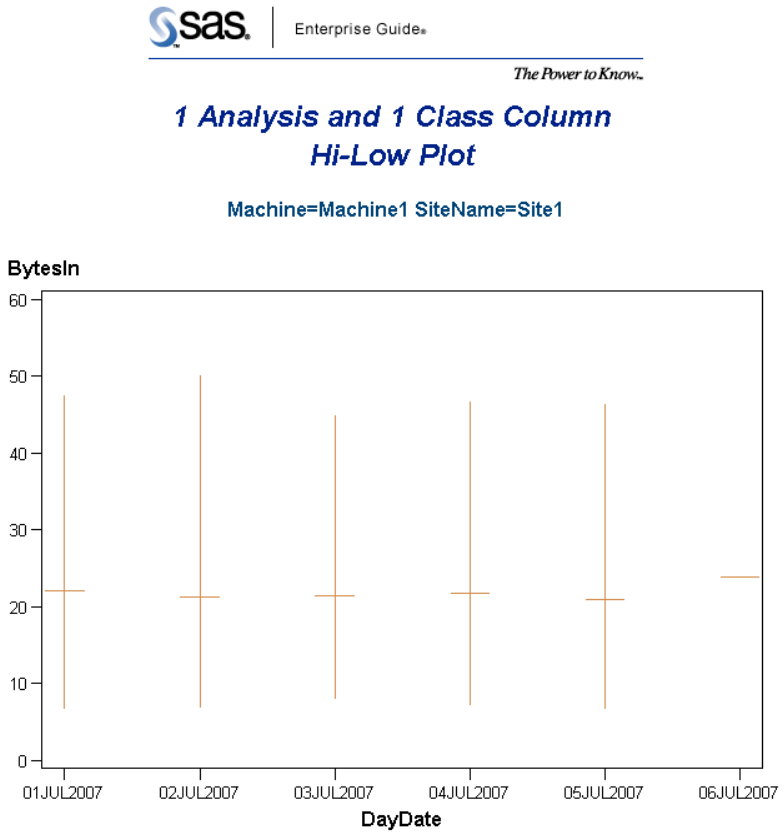
Box Plot with One Analysis Column and One Class Column



1. Select the Box Plot task.
2. Select the Box Plot subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 13

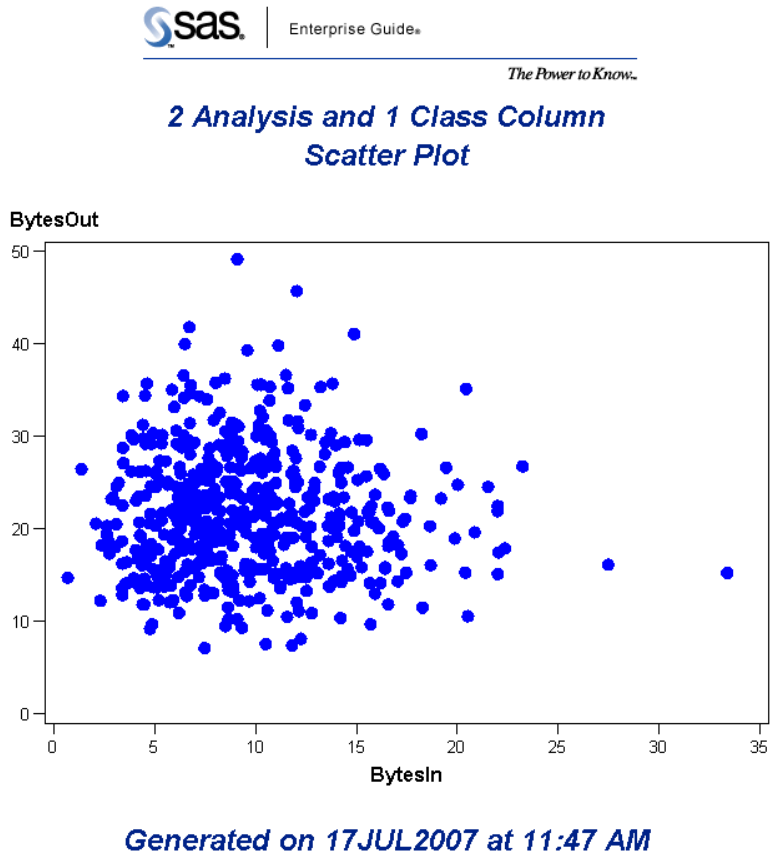
Hi-Low Plot with One Analysis Column and One Class Column



1. Select the Box Plot task.
2. Select the Hi-Low subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 14

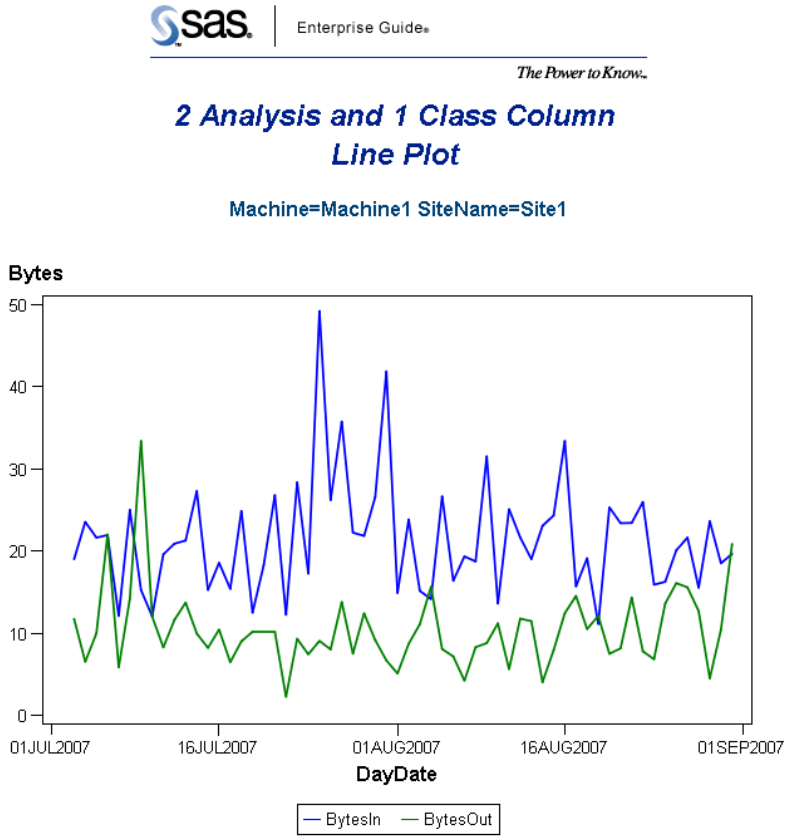
Scatter Plot with Two Analysis Columns



1. Select the Scatter Plot task.
2. Select any of the Scatter Plot subtasks.
3. Assign one analysis column to the **Vertical** role.
4. Assign one analysis column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 15

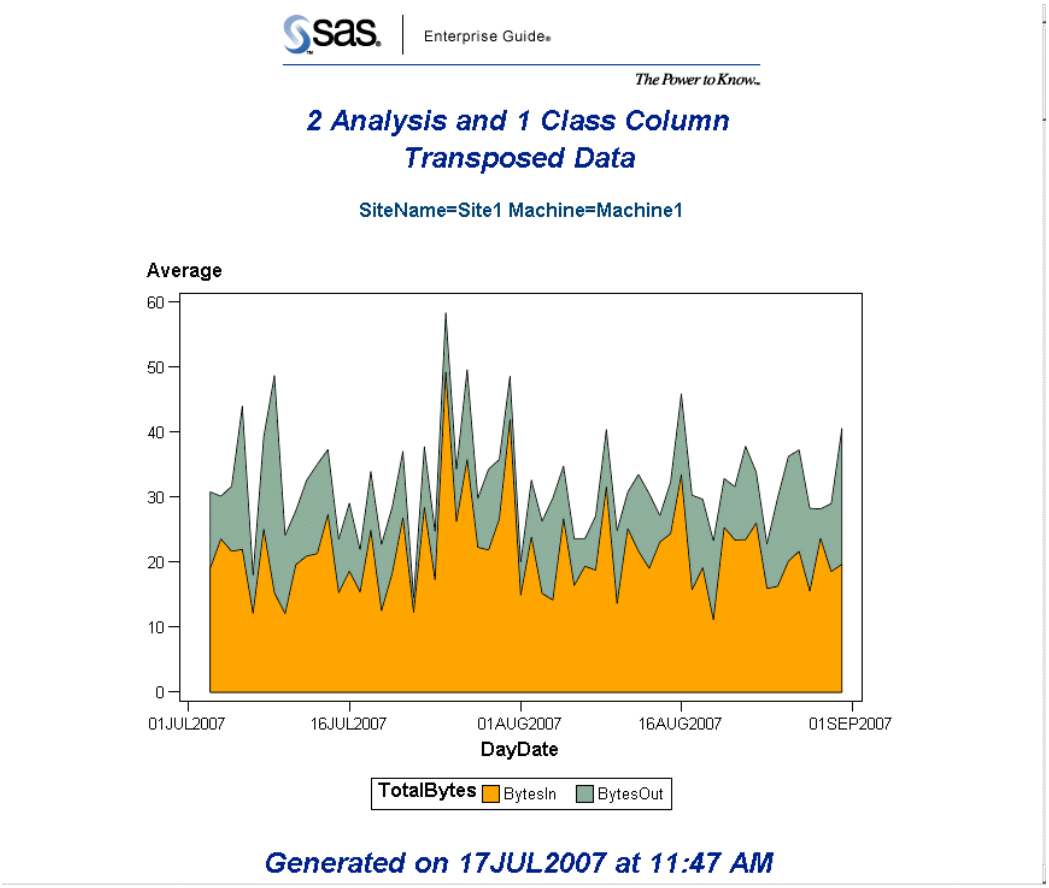
Line Plot with Two Analysis Columns and One Class Column



1. Select the Line Plot task.
2. Select the Multiple vertical column line plots using overlay subtask.
3. Assign two analysis columns to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 16

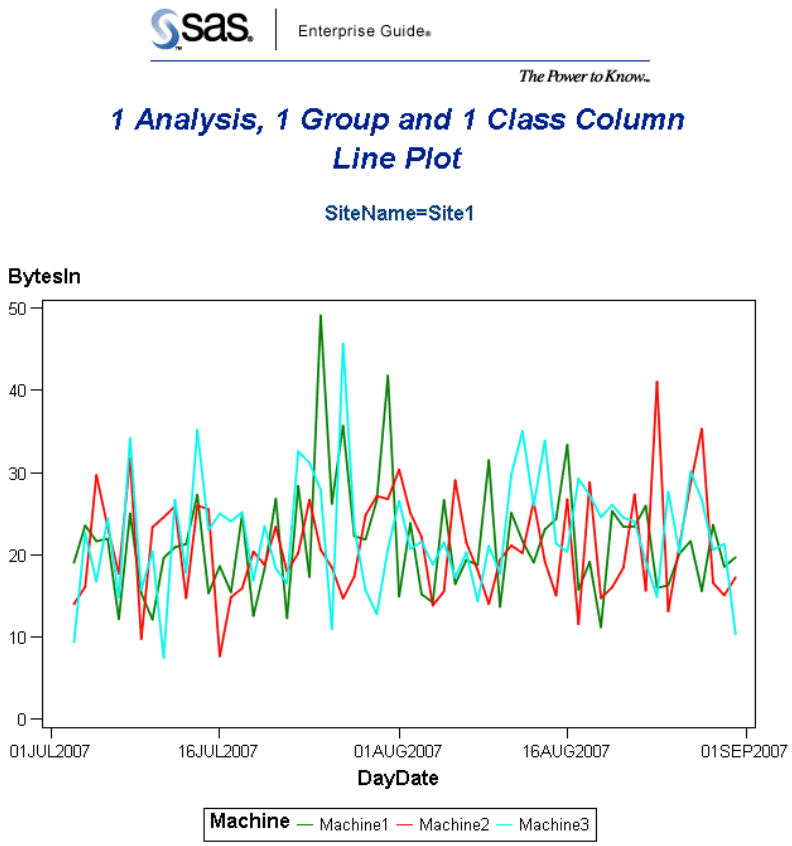
Stack Plot with Two Analysis Columns and One Class Column



1. Select the Stack Columns task located in the Data category to transpose and accumulate your data.
2. Assign the two analysis columns that you want to plot to the **Columns to Stack** role.
3. Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role.
4. Rename your new column labels (See Reference 1).
5. Insert SAS Custom Code to accumulate your data (See Reference 2).
6. Run the Stack Columns task to transpose and accumulate your data.
7. Select the Area Plot task.
8. Select the Multiple area plots by group column subtask.
9. Assign the new transposed analysis columns to the **Vertical** role.
10. Assign the new transposed class column to the **Group** role.
11. Assign one date or time class column to the **Horizontal** role.
12. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 17

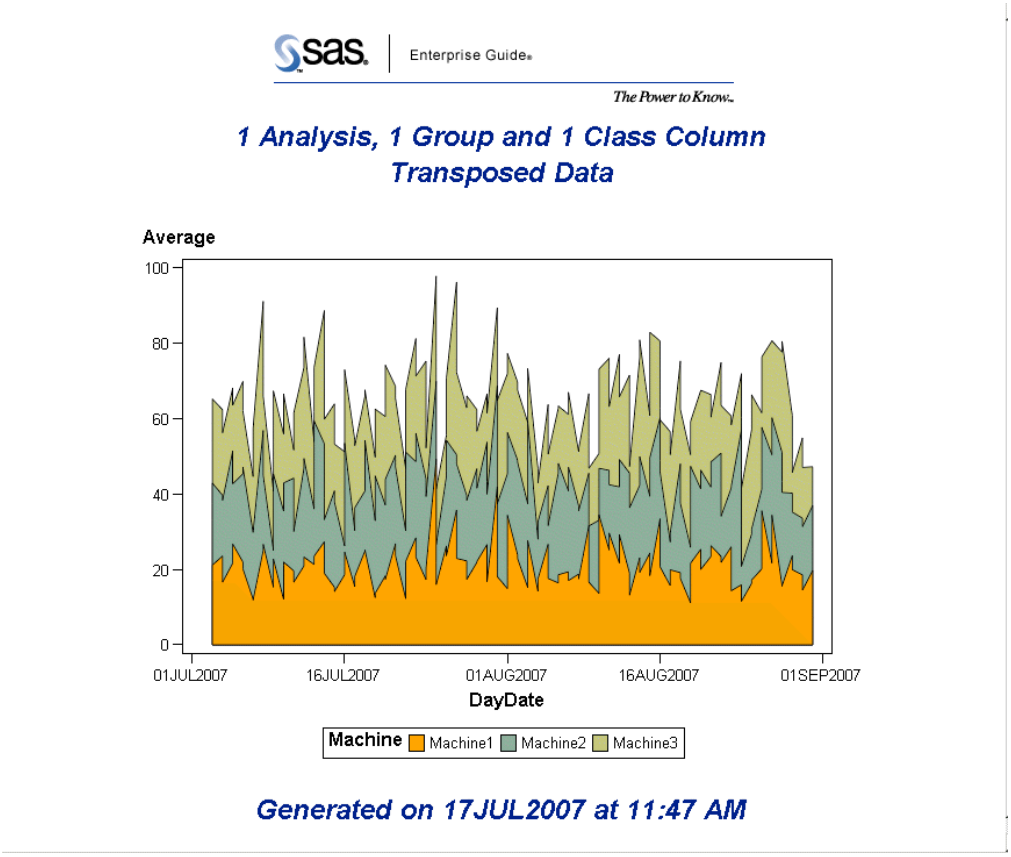
Line Plot with One Analysis Columns, One Class Column, and One Group Column



1. Select the Line Plot task.
2. Select the Multiple line plots by group column subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one date or time class column to the **Horizontal** role.
5. Assign one class column to the **Group** role.
6. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 18

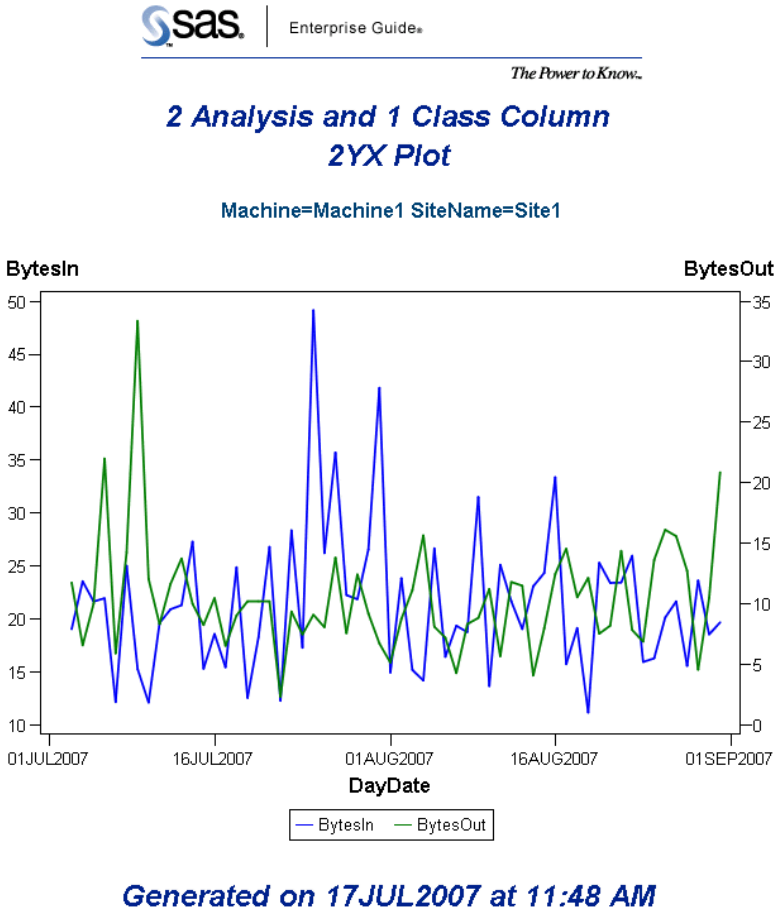
Stack Plot with One Analysis Columns, One Class Column, and One Group Column



1 Select the Stack Columns task located in the Data category to transpose and accumulate your data.
2 Assign one analysis column you want to plot to the **Columns to Stack** role.
3 Assign all of the class columns used in your report (including **Group charts by** columns) to the **Group Analysis by** role. Ensure that the class column that you want to accumulate in Step 5 in this task is the last column in the list.
4 Rename your new column labels (See Reference 1).
5 Insert SAS Custom Code to accumulate your data (See Reference 2).
6 Run the Stack Columns task to transpose and accumulate your data.
7 Select the Area Plot task.
8 Select the Multiple area plots by group column subtask.
9 Assign the new transposed analysis columns to the **Vertical** role.
10 Assign one date or time class column to the **Horizontal** role.
11 Assign one class column to the **Group** role.
12 (Optional) Assign one or more class columns to the **Group charts by** role.

Example 19

2XY Plot with Two Analysis Columns and One Class Column



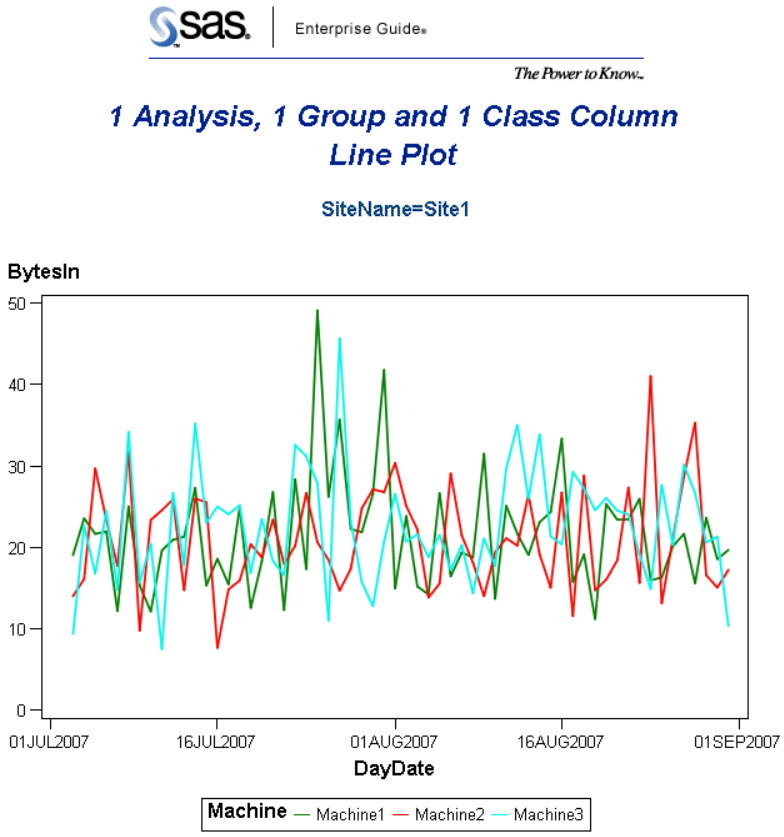
1. Select the Line Plot task.
2. Select the Line Plot subtask.
3. Assign one analysis column to the **Vertical** role.
4. Assign one analysis column to the **Vertical (Right)** role.
5. Assign one date or time class column to the **Horizontal** role.
6. (Optional) Assign one or more class columns to the **Group charts by** role.

Example 20

3D Graph

The 3D graph available in SAS IT Resource Management 2.7 differs from the 3D graph generated with SAS Enterprise Guide. In SAS Enterprise Guide, the columns for the horizontal, vertical, and depth task role must be numeric. In SAS IT Resource Management 2.7, a class column is supported.

You can use the Line Plot task in SAS Enterprise Guide to generate a plot that shows all of the information available in the SAS IT Resource Management 2.7 3D graph. Refer to Example 17 to create this graph.



Tabular Reports

The following table shows the six tabular report types that are available in SAS IT Resource Management 2.7 and lists the corresponding SAS Enterprise Guide task that is available to generate those report types in SAS IT Resource Management 3.1.1.

Table 2.3 SAS IT Resource Management 2.7 Report Types and Corresponding SAS Enterprise Guide Tasks

	Tabular Report Type	SAS Enterprise Guide Task
1	Analysis X Statistic	Summary Tables task
2	Class (value) X Analysis (Statistic)	Summary Tables task
3	Class (value) X Statistic (Analysis)	Summary Tables task
4	Class (value) X Analysis (Sum)	Summary Tables task
5	Class values X Class (Analysis (Statistic))	Summary Tables task
6	Class values X Analysis (Statistic)	Summary Tables task

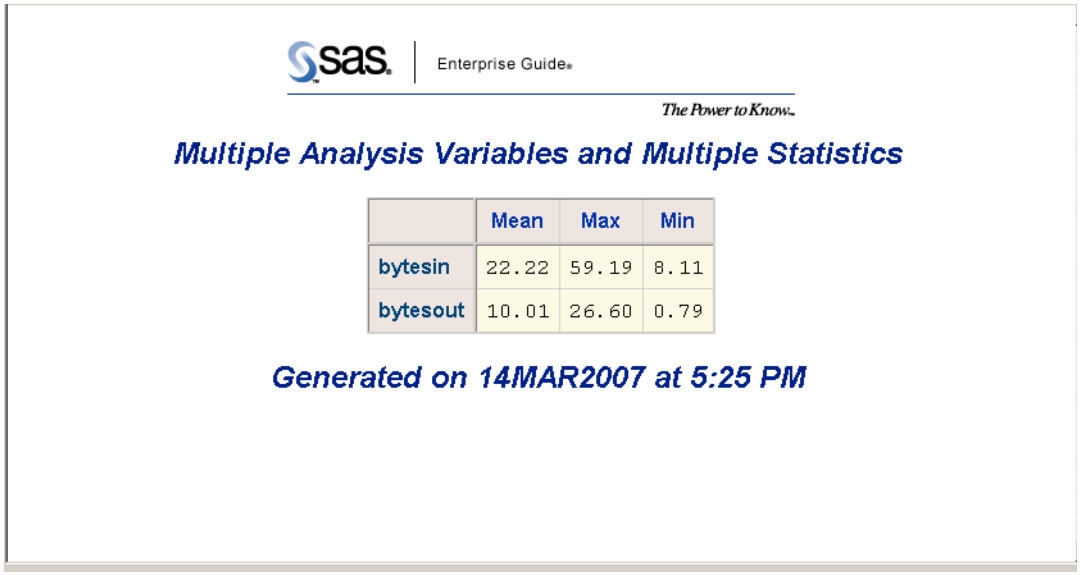
SAS IT Resource Management 2.7 uses the macro %CPTABRPT to create all of the variations that are shown in the preceding table. In SAS Enterprise Guide, you can create any of these variations with the Summary Tables task.

The following examples show the report output and the Summary Tables task for each of the preceding variations. Follow these steps to create any of the reports in examples 21–27.

1. Select the **Summary Tables** task located in the **Describe** category of reports.
2. In the **Task Roles** window, assign the analysis columns you want to include in your report to the **Analysis columns** task role.
3. In the **Task Roles** window, assign the class columns you want to include in your report to the **Classification columns** task role.
4. In the **Summary Tables** window, drag and drop the analysis columns and the classification columns to the appropriate section of the **Box Area.** The second screen shot of each example below provides a guide for where to drop and drag the variables.
5. (Optional) In the **Task Roles** window, assign one or more class columns to the **Pages** role.

Example 21

Tabular Report Analysis X Statistic



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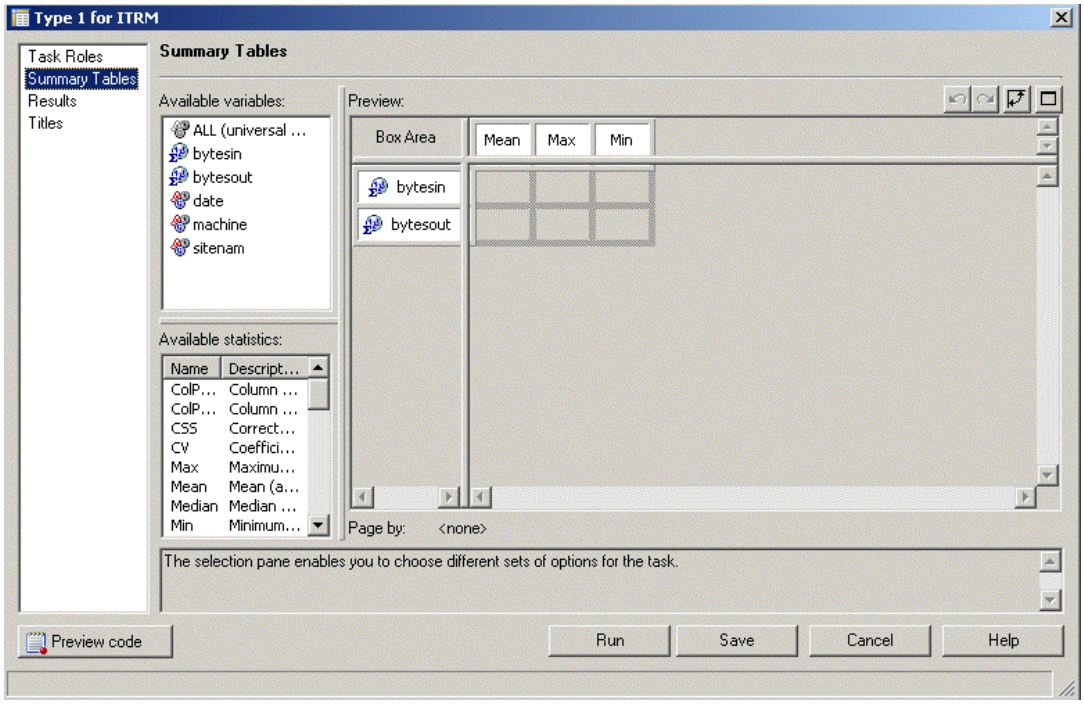
Multiple Analysis Variables and Multiple Statistics

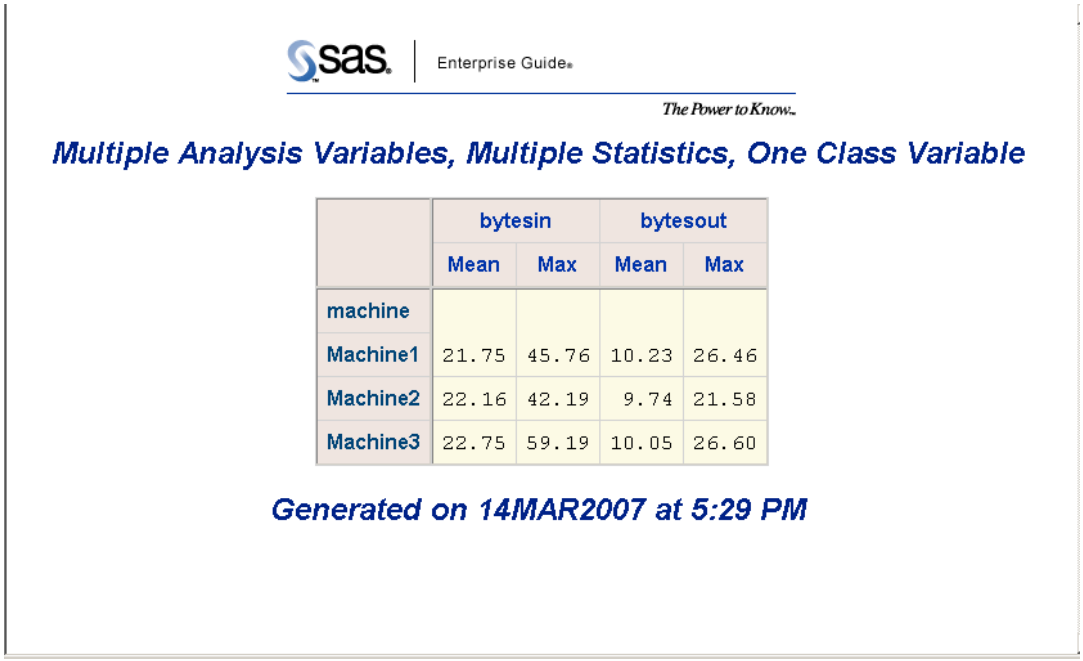
	Mean	Max	Min
bytesin	22.22	59.19	8.11
bytesout	10.01	26.60	0.79

Generated on 14MAR2007 at 5:25 PM



Example 22

Tabular Report Class (Value) X Analysis (Statistic)



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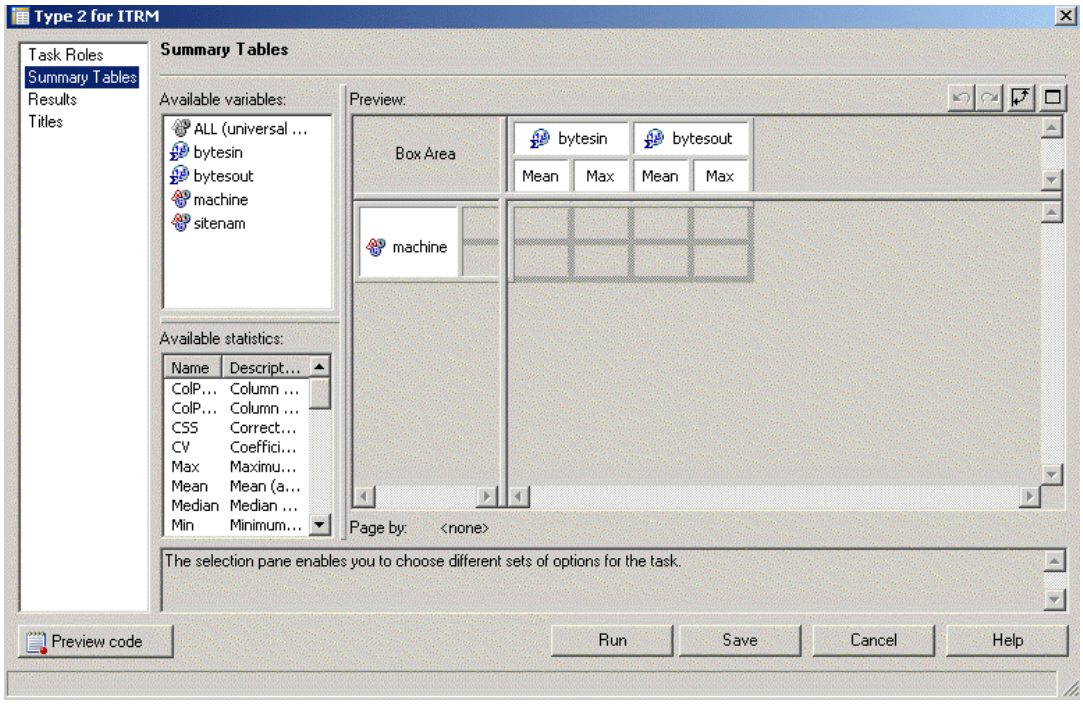
Multiple Analysis Variables, Multiple Statistics, One Class Variable

	bytesin		bytesout	
	Mean	Max	Mean	Max
machine				
Machine1	21.75	45.76	10.23	26.46
Machine2	22.16	42.19	9.74	21.58
Machine3	22.75	59.19	10.05	26.60

Generated on 14MAR2007 at 5:29 PM



Example 23

Tabular Report Class (Value) X Statistic (Analysis)

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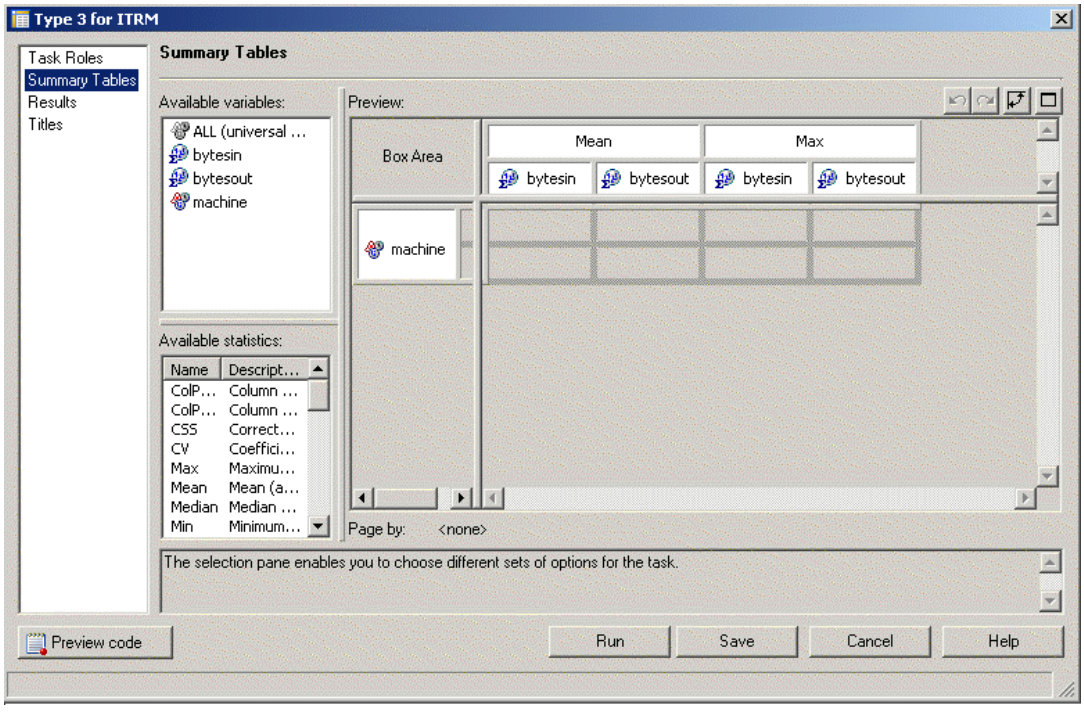
Single Class Variable, Multiple Statistics, Multiple Analysis Variables

	Mean		Max	
	bytesin	bytesout	bytesin	bytesout
machine				
Machine1	21.75	10.23	45.76	26.46
Machine2	22.16	9.74	42.19	21.58
Machine3	22.75	10.05	59.19	26.60

Generated on 14MAR2007 at 5:57 PM



Example 24

Tabular Report Class (Value) X Analysis (Sum)

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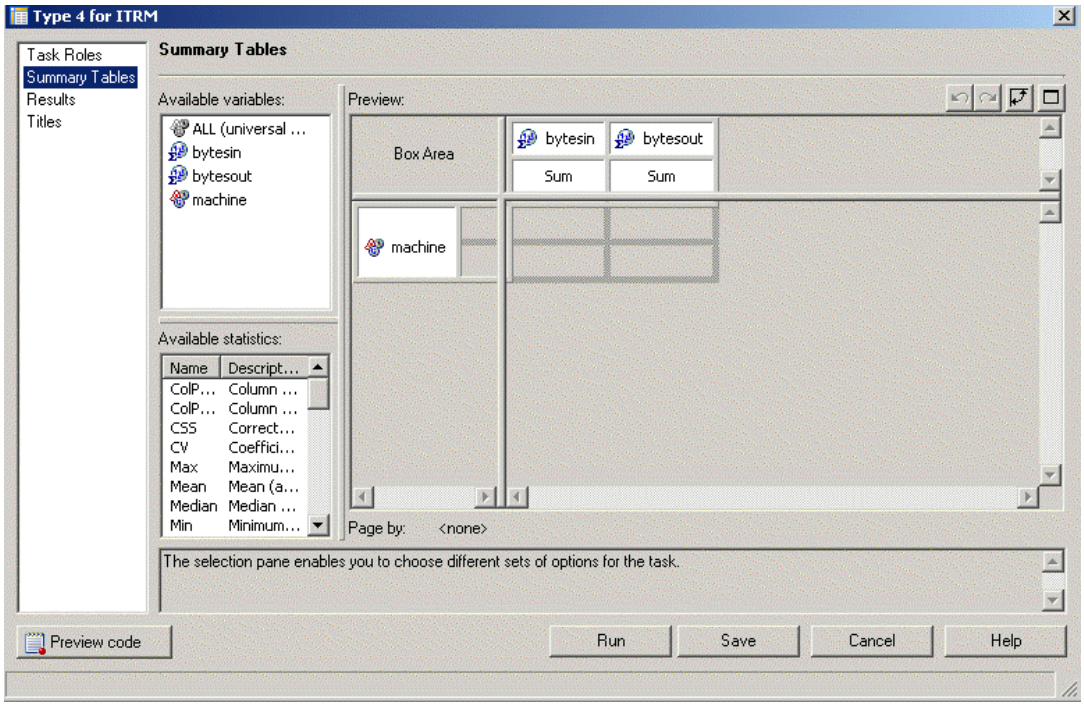
1 Class Variable, Multiple Analysis Variables and Sum Statitisc

	bytesin	bytesout
	Sum	Sum
machine		
Machine1	3914.13	1842.17
Machine2	3988.53	1753.36
Machine3	4094.37	1809.06

Generated on 14MAR2007 at 5:43 PM



Example 25

Tabular Report Class Values X Class (Analysis (Statistic))

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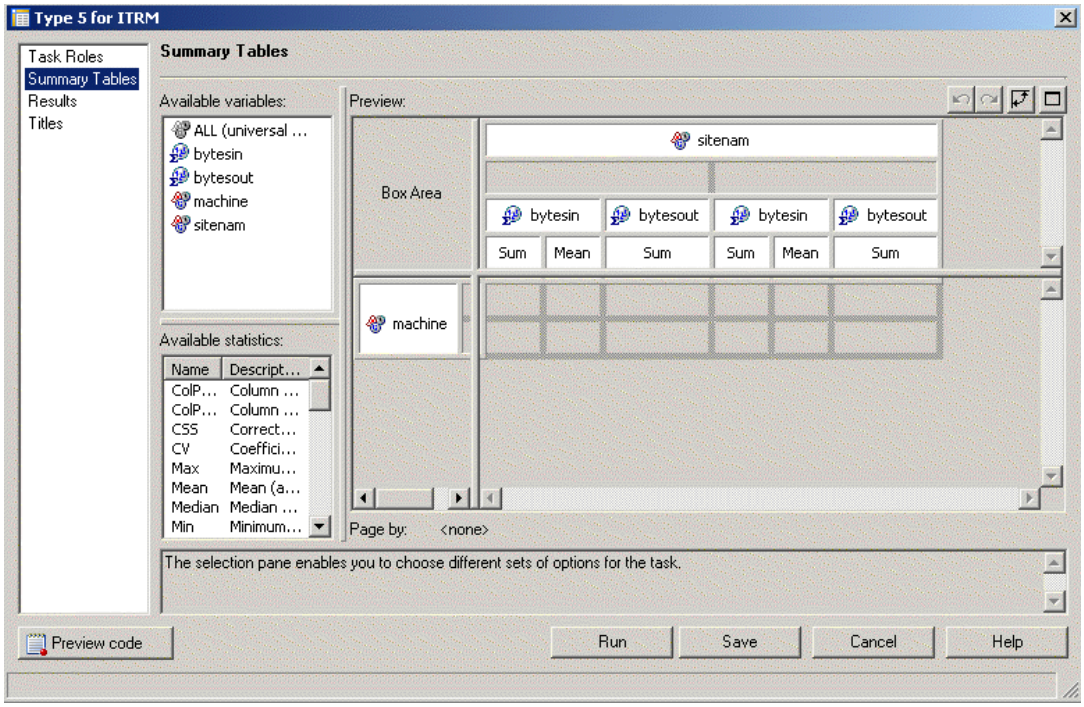
Multiple Class Variables, Multiple Analysis Variables and Multiple Statistics

	sitenam								
	Site1			Site2			Site3		
	bytesin		bytesout	bytesin		bytesout	bytesin		bytesout
	Sum	Mean	Sum	Sum	Mean	Sum	Sum	Mean	Sum
machine									
Machine1	1354.00	22.57	576.17	1219.27	20.32	650.89	1340.86	22.35	615.12
Machine2	1323.92	22.07	601.85	1356.72	22.61	559.61	1307.89	21.80	591.90
Machine3	1381.38	23.02	563.93	1393.73	23.23	636.08	1319.26	21.99	609.05

Generated on 14MAR2007 at 5:49 PM



Example 26

Tabular Report Class Values X Analysis (Statistic)

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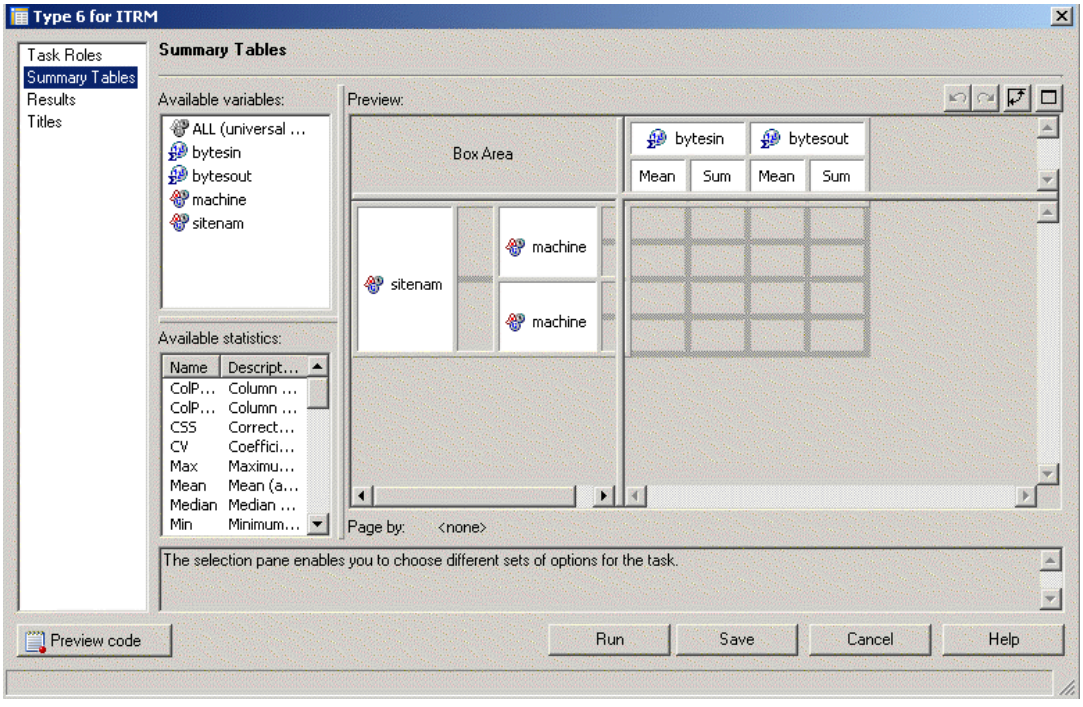
Multiple Class Variables, Multiple Analysis Variables, Multiple Statistics

		bytesin		bytesout	
		Mean	Sum	Mean	Sum
sitenam	machine				
Site1	Machine1	22.57	1354.00	9.60	576.17
	Machine2	22.07	1323.92	10.03	601.85
	Machine3	23.02	1381.38	9.40	563.93
Site2	Machine1	20.32	1219.27	10.85	650.89
	Machine2	22.61	1356.72	9.33	559.61
	Machine3	23.23	1393.73	10.60	636.08
Site3	Machine1	22.35	1340.86	10.25	615.12
	Machine2	21.80	1307.89	9.86	591.90
	Machine3	21.99	1319.26	10.15	609.05

Generated on 14MAR2007 at 5:52 PM



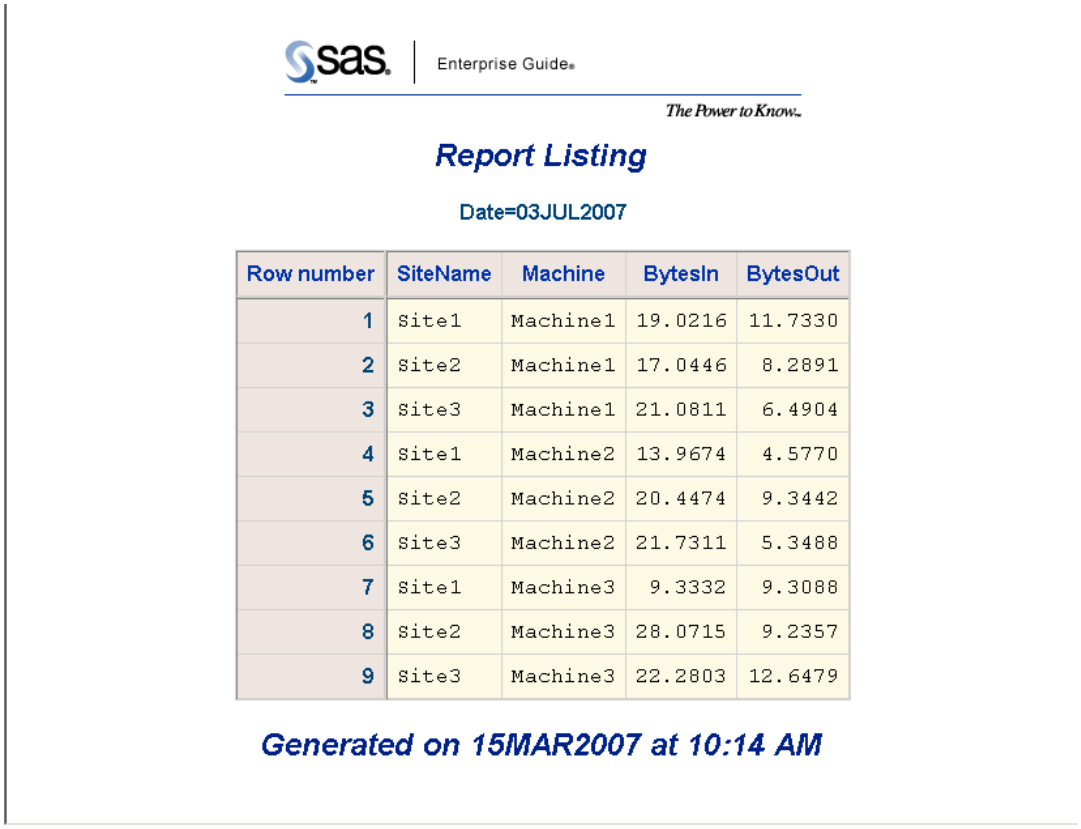
Example 27

Print Report

SAS IT Resource Management 2.7 uses the macro %CPPRINT to create Print reports. In SAS Enterprise Guide, you can create a print report, known as a Listing Report, using the List Data task available in the Describe category of tasks.

Follow these steps to create a Print report:

1. Select the **List Data** task located in the **Describe** category of reports.
2. In the **Task Roles** window assign the analysis columns and classification columns that you want to include in your report to the **List columns** task role.
3. (Optional) In the **Task Roles** window assign one or more class columns to the **Page by** role.



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Report Listing

Date=03JUL2007

Row number	SiteName	Machine	BytesIn	BytesOut
1	Site1	Machine1	19.0216	11.7330
2	Site2	Machine1	17.0446	8.2891
3	Site3	Machine1	21.0811	6.4904
4	Site1	Machine2	13.9674	4.5770
5	Site2	Machine2	20.4474	9.3442
6	Site3	Machine2	21.7311	5.3488
7	Site1	Machine3	9.3332	9.3088
8	Site2	Machine3	28.0715	9.2357
9	Site3	Machine3	22.2803	12.6479

Generated on 15MAR2007 at 10:14 AM

Example 28

Source Code

SAS IT Resource Management 2.7 uses the macro %CPSRCRPT to submit SAS code that is stored in a catalog source file. In SAS Enterprise Guide, you submit SAS code by creating and submitting a Code task.

Follow these steps to create a Code task to run source code:

1. Select **File** > **New** > **Code** from the menu bar.
2. Enter your SAS code in the Code window.
3. Right-click the mouse and select **Run** to submit the code.

CHAPTER 3

Working with SAS IT Resource Management

Dynamically Summarized Reporting

A primary enhancement of SAS IT Resource Management 3.1.1 is that you can use it to perform all of the data transformations that are necessary to produce analysis and report-ready data before report generation time. Using the SAS technologies that are specifically designed for data integration to prepare IT data for analysis and reporting will improve the performance of SAS IT Resource Management reporting and the system as a whole.

In previously released versions of SAS IT Resource Management, the Performance Data Base (PDB) structure limited the solution to predefined time period summarizations. In response, SAS IT Resource Management 2.7 reporting macros evolved to perform special time-based summarizations that were calculated at the time of report generation. In SAS IT Resource Management 3.1.1, the IT data mart structure replaces the PDB and enables data to be summarized as desired by the user through the SAS IT Resource Management 3.1.1 staging and aggregation transformations.

The SAS IT Resource Management Adapter Setup Wizard provides several of the summarized aggregations that were typically created at the time of report generation by SAS IT Resource Management 2.7 macros. However, you can manually create any of these summarized aggregations by using the guidelines in this section.

SAS IT Resource Management 3.1.1 has an enhanced list of formulas to support SAS IT Resource Management 2.7 to SAS IT Resource Management 3.1.1 report conversion. By choosing class columns for your summarized aggregations that use these new formulas, you can create summarized aggregations that provide the equivalent dynamic summarization available in SAS IT Resource Management 2.7 reporting.

The following table presents a list of SAS IT Resource Management 2.7 data summarizations that can be performed at the time of report generation. It also illustrates the recommended formulas in SAS IT Resource Management 3.1.1 that make the concept of report time data summarization and manipulation obsolete.

Table 3.1 SAS IT Resource Management 2.7 Report Summarizations and Corresponding Formulas in 3.1.1

SAS IT Resource Management 2.7	**SAS IT Resource Management 3.1.1**	
Reporting Summarization	**Class Column Formula for Summarized Aggregation Table**	**Recommended Format**
As Is	Datetime	NLDATM18.
15 Minute	DatetimeFifteenMinute	NLDATM13.
Hour	Hour and the appropriate Date type column such as DayDate, WeekDate, or MonthDate	2.
24 Hour	TwentyFourHour	NLTIME10.
Date	DayDate	NLDATE10.
Whole Day	DayDate	NLDATE10.
Week Day	DayOfWeek	WKD.
Month Day	DayOfMonth	2.
Year Day	DayOfYear	3.
Week	WeekDate	NLDATE10.
Month	MonthDate	NLDATE10.
Year Month	MonthOfYear	MON.
Quarter	QuarterDate	NLDATE10.

Follow these steps to create an aggregation table that includes in its class list a column using the formulas in the preceding table. Your aggregation table might include additional resource class columns.

Note: This task demonstrates how to modify an existing staged table and an existing aggregation table. If you are creating a new staged table or a new aggregation table, the instructions are similar; however, you will be adding new tables instead of modifying tables. Δ

1. Start SAS Data Integration Studio and connect to the ITMS repository of your metadata server.
2. Using the Custom Tree, find the staged table that you want to modify in the **Staged Table** folder of your IT data mart. (See the note that follows this task if you are not working with a staged table.)
3. Add a new column to your staged table. To do so, perform the following steps:
   a. Double-click the table to open the Properties window.
   b. In the **Column** tab, add a new column. To do so, perform the following steps:
      i. Click **New** to create a new row.
      ii. Enter a name.

iii. Double-click the **Expression** column of the new row to reveal the ellipses button.

iv. Double-click the **ellipses** button to open the Expression Builder window.

v. Select the **ITMS Formulas** tab.

vi. Select the desired formula from the formula list.

vii. Click **Insert**.

viii. Click **OK**.

ix. Enter a description.

x. Enter a format. (See the preceding table for a recommended format.)

xi. Click **OK** to save the new staged table column.

4 Using the Custom Tree, find and open the aggregation job that you want to modify in the **Jobs** folder of your IT data mart.

5 Use the Process Designer window to add the new class column to your aggregation table. To do so, perform the following steps:

a Double-click the aggregation transformation to open the Properties window.

b In the **Aggregations** tab, select the aggregation that you want to modify.

c Click **Edit**.

d Click **Next** until you open the Select Class & ID page where you can categorize the data.

e Highlight the new column that you created in step 3 and add it to the Selected class variables window.

f If your aggregation includes an unnecessary date-type column in the class list, then remove it from the Selected class variables window.

g Click **Next** until you open the Specify variables to rank the data window.

h Review the **Ranked Grouping** column for any necessary changes.

i Click **Next** until you open the window titled Summarized aggregation table will be updated with the following details.

j Confirm your changes by reviewing the information that you entered.

k Click **Finish** to save your changes.

l Click **Yes** to confirm your changes.

m Click **OK** to close the window.

6 Redeploy your aggregation job and submit the job so that the change will take effect. Associated information maps that are created with the Information Map transformation will automatically reflect the new column.

Note: Rerunning the Adapter Setup Wizard will not preserve the changes made in this section.Δ

Note: If you are not working with a staged table, then you will not have access to the **ITMS Formulas** tab mentioned in step 3.b.v. in the preceding task. In this case you can cut and paste the expression from the desired formula. To access the expression, expand the **Formulas** folder located under the ITRMSoftwareTree in the **Custom** tab. Next double click on the desired formula and click on the **Expression** tab.Δ

Working with Migrated PDBs

With few exceptions, column names and labels are preserved when migrating a SAS IT Resource Management 2.7 PDB to a SAS IT Resource Management 3.1.1 IT data mart. Therefore, user-written SAS code, that is not dependent on SAS IT Resource Management 2.7 macros, can be submitted to recreate existing reports with minimal changes.

Here are a few tips for recreating existing reports:

- The DATETIME column that was required in SAS IT Resource Management 2.7 is no longer required in SAS IT Resource Management 3.1.1. In summarized aggregations, the columns DAYDATE, WEEKDATE, MONTHDATE, and YEARDATE are used instead.
- Table names have changed. The level name is now appended to the original name. For example, a table with the original name SARDEV in the DETAIL library is now named SARDEV_DETAIL.
- ITRM tables are now physical SAS datasets, by default, rather than SAS DATA step views. Code that requires views as input will not work.
- Some column names changed. For example a COUNT column named PGFAULT is now called PGFAULT_RATE.

For more details about these changes and for more information about migrating PDBs and working with migrated PDBs, see the *SAS IT Resource Management 3.1.1 Migration Documentation*.

Your Turn

We want your feedback.

- If you have comments about this book, please send them to **yourturn@sas.com**. Include the full title and page numbers (if applicable).
- If you have comments about the software, please send them to **suggest@sas.com**.