

Chapter 1

Using This Book

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Chapter 1

Using This Book

Purpose

SAS/OR User's Guide: Bills of Material Processing provides a complete reference for the bills of material processing tools in SAS/OR software. This book serves as the primary documentation for the BOM procedure and the bill-of-material post-processing macros. [Chapter 2](#) describes the BOM procedure, and [Chapter 3](#) describes the bill-of-material post-processing macros.

“Using This Book” describes the organization of this book and the conventions used in the text and example code. To gain full benefit from using this book, you should familiarize yourself with the information presented in this section and refer to it when needed. “Additional Documentation” at the end of this section provides references to other books that contain information on related topics.

Organization

[Chapter 2](#) describes the BOM procedure. [Chapter 3](#) and the [Appendix](#) describe the Bill-of-Material Post-Processing Macros and a BOM Web example, respectively. Each chapter description is self-contained; you need to be familiar with only the basic features of the SAS System and SAS terminology to use most of them.

The following list summarizes the types of information provided for the BOM procedure:

Overview provides a general description of what the procedure does. It outlines major capabilities of the procedure and lists all input and output data sets that are used with it.

Getting Started illustrates simple uses of the procedure using a few short examples. It provides introductory *hands-on* information for the procedure.

- Syntax** constitutes the major reference section for the syntax of the procedure. First, the statement syntax is summarized. Next, a functional summary table lists all the statements and options in the procedure, classified by function. In addition, the online version includes a Dictionary of Options, which provides an alphabetical list of all options in the BOM procedure. The PROC BOM statement is then described, followed by a description of the STRUCTURE statement.
- Details** describes the features of the procedure, including algorithmic details and computational methods. It also explains how the various options interact with each other. This section describes input and output data sets in greater detail, with definitions of the output variables, and explains the format of printed output, if any.
- Examples** consists of examples designed to illustrate the use of the procedure. Each example includes a description of the problem and lists the options highlighted by the example. The example shows the data and the SAS statements needed, and includes the output produced. You can duplicate the examples by copying the statements and data and running the SAS program. The SAS Sample Library contains the code used to run the examples shown in this book; consult your SAS Software representative for specific information about the Sample Library. A cross-reference table at the end of the “Examples” section lists all the options illustrated by the different examples in the chapter.
- References** lists references that are relevant to the chapter.

Typographical Conventions

The printed version of *SAS/OR User's Guide: Bills of Material Processing* uses various type styles, as explained by the following list:

roman is the standard type style used for most text.

UPPERCASE ROMAN	is used for SAS statements, options, and other SAS language elements when they appear in the text. However, you can enter these elements in your own SAS code in lowercase, uppercase, or a mixture of the two. This style is also used for identifying arguments and values (in the Syntax specifications) that are literals (for example, to denote valid keywords for a specific option).
UPPERCASE BOLD	is used in the “Syntax” section to identify SAS keywords such as the names of procedures, statements, and options.
bold	is used in the “Syntax” section to identify options.
helvetica	is used for the names of SAS variables and data sets when they appear in the text.
<i>oblique</i>	is used for user-supplied values for options (for example, DUPLICATE= <i>dup</i>).
<i>italic</i>	is used for terms that are defined in the text, for emphasis, and for references to publications.
monospace	is used to show examples of SAS statements. In most cases, this book uses lowercase type for SAS code. You can enter your own SAS code in lowercase, uppercase, or a mixture of the two. This style is also used for values of character variables when they appear in the text.

Conventions for Examples

Most of the output shown in this book is produced with the following SAS System options:

```
options linesize=80 pagesize=60 nonumber nodate;
```

In addition, the graphics output shown in [Chapter 2](#) is produced with the following options:

Printed Version

```
goptions hpos=80 vpos=32;
```

Online Version

```
goptions hpos=80 vpos=32 ypixels=800;
```

The remaining graphics options used in this book depend on the example that creates the output. The general options for the graphics output of [Example 2.1](#) are as follows:

```
goptions hsize=5.75 in vsize=4.0 in;
```

In addition, the following GOPTIONS and PATTERN statements are used to create the online (color) output for this example:

```
goptions cback=ligr;
pattern1 v=s c=blue;
pattern2 v=e c=red;
pattern3 v=e c=magenta;
pattern4 v=e c=blue;
pattern5 v=e c=cyan;
```

The following PATTERN statement is used to create the black-and-white output, which appears in the printed version of the manual.

```
pattern1 c=gray v=s r=5;
```

The general options for the graphics output of [Example 2.2](#) are as follows:

```
goptions hsize=5.75 in vsize=8.0 in;
```

In addition, the following GOPTIONS and PATTERN statements are used to create the online (color) output for this example:

```
goptions cback=ligr;
pattern1 v=e c=blue;
pattern2 v=e c=red;
pattern3 v=e c=magenta;
pattern4 v=e c=blue;
pattern5 v=e c=cyan;
```

The following PATTERN statement is used to create the black-and-white output, which appears in the printed version of the manual.

```
pattern1 c=black v=e r=5;
```

Accessing the SAS/OR Sample Library

The SAS/OR sample library includes many examples that illustrate the use of SAS/OR software, including the examples used in this documentation. To access these sample programs, select **Learning to Use SAS->Sample SAS Programs** from the **SAS Help and Documentation** window, and then select **SAS/OR** from the list of available topics.

Online Help System and Updates

You can access online help information about SAS/OR software in two ways, depending on whether you are using the SAS windowing environment in the command line mode or the pull-down menu mode.

If you are using a command line, you can access the SAS/OR help menus by typing **help or** on the command line. If you are using the pull-down menus, you can select **SAS Help and Documentation->SAS Products** from the **Help** pull-down menu, and then select **SAS/OR** from the list of available topics.

Additional Documentation for SAS/OR Software

In addition to *SAS/OR User's Guide: Bills of Material Processing*, you may find these other documents helpful when using SAS/OR software:

SAS/OR User's Guide: Constraint Programming

provides documentation for the constraint programming procedure in SAS/OR software. This book serves as the primary documentation for the CLP procedure, an experimental procedure in SAS/OR software.

SAS/OR User's Guide: Local Search Optimization

provides documentation for the local search optimization procedure in SAS/OR software. This book serves as the primary documentation for the GA procedure, which uses genetic algorithms to solve optimization problems.

SAS/OR User's Guide: Mathematical Programming

provides documentation for the mathematical programming procedures in SAS/OR software. This book serves as the primary documentation for the INTPOINT, LP, NETFLOW, and NLP procedures, in addition to the newer OPTMODEL, OPTLP, OPTQP, and OPTMILP procedures, the various solvers called by the OPTMODEL procedure, and the MPS-format SAS data set specification.

SAS/OR User's Guide: Project Management

provides documentation for the project management procedures in SAS/OR software. This book serves as the primary documentation for the CPM, DTREE, GANTT, NETDRAW, and PM procedures, the earned value management macros, the Microsoft Project conversion macros, and the PROJMAN application.

SAS/OR User's Guide: The QSIM Application

provides documentation for the QSIM Application, which is used to build and analyze models of queueing systems using discrete event simulation. This book shows you how to build models using the simple point-and-click graphical user interface, how to run the models, and how to collect and analyze the sample data to give you insight into the behavior of the system.

SAS/OR Software: Project Management Examples, Version 6

contains a series of examples that illustrate how to use SAS/OR software to manage projects. Each chapter contains a complete project management scenario and

describes how to use PROC GANTT, PROC CPM, and PROC NETDRAW, in addition to other reporting and graphing procedures in the SAS System, to perform the necessary project management tasks.

SAS/IRP User's Guide: Inventory Replenishment Planning

provides documentation for SAS/IRP software. This book serves as the primary documentation for the IRP procedure for determining replenishment policies, as well as the %IRPSIM SAS programming macro for simulating replenishment policies.