

*Essential Guide to PeopleSoft  
Development and Customization*



# *Essential Guide to PeopleSoft Development and Customization*

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## *preface*

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The long weekend was almost over. Sunday nights were usually filled with activities such as eating a quiet dinner, watching some TV, and playing hockey in the basement with my golden retriever, Devon. Things were a little bit different this particular evening. My home office was filled with the aroma of burning ink. The laser printer had been spewing out pages for hours. So many pages, in fact, I needed to make an extra trip to the supermarket for more paper. Prior to this printing marathon I had been reviewing my material one last time, meticulously searching for typos and grammatical errors. Not being a person known for his love of documentation, I found this review process quite painful especially when Devon arrived at the office door with a hockey ball in her mouth and a gleam in her eye. “Sorry, Devon, not tonight.” Monday morning was the due date for my portion of the manuscript for *The Essential Guide to PeopleSoft Development and Customization*. After some final adjustments, I uploaded my work to the publisher’s ftp site and, in the morning, I mailed the hardcopies of the manuscript to the editor. As I tucked the shipping receipt into my pocket, I felt a huge relief; many months of work had come to an end.

Meanwhile, a similar ritual of reviewing, adjusting, and printing was being held at three other locations. Galina Landres, Isidor Rivera, and Prakash Sankaran were adding finishing touches to their portions of the manuscript as well. My name is Tony DeLia, and I’m a technical consultant with AnswerThink Consulting Group. I consider myself extremely fortunate to be involved in this project with these three individuals. Let me briefly share with you some observations of my fellow authors.

Some readers may be familiar with Galina Landres. She and her husband Vlad wrote the successful and highly acclaimed book *SQR in PeopleSoft and Other Applications*. It is through Galina and Vlad’s hard-working vision that this book, *The Essential Guide to PeopleSoft Development and Customization*, was conceived. If ever two people deserved a vacation it would have to be Galina and Vlad. I met Galina in July of 1998 while working for a mutual client. While working on my laptop at a vacant desk, Galina introduced herself. She is very friendly, extremely professional, knowledgeable—and passionate about her work. I knew it would be a pleasure to work with her.

Isidor Rivera also works with Galina as part of his company’s Global Development Team. Isidor carries a great deal of responsibility and is held in high regard by his peers. He supports a global PeopleSoft system as well as legacy mainframe systems. Isidor’s schedule and his ability to maintain it is amazing. He handles technical issues from locations all over the world at all times of the day. One day he’s flying to South America to provide assistance, and the next day he’s

attending a meeting in Manhattan. It is well within reason to believe Isidor knows of a secret time portal he uses to accomplish so many tasks at once. Isidor admits to being an avid astronomy buff but denies any knowledge of a time portal. Beside being a PeopleSoft developer, the other profession for which Isidor would be best suited would be the captain of a starship. Fortunately for his company, starships don't exist yet.

Prakash Sankaran and I both work for the same consulting company. We've known each other for years by reputation only. Our paths hadn't crossed on a project until we were both involved at the client site where Galina and Isidor work. Prakash has worked with PeopleSoft applications from the very first version and has strong functional background to complement his technical savvy. He also has a great sense of humor, which is evident at our company conferences. Whether he's giving a presentation or attending one, Prakash usually has some funny lines to share, perfectly timed, of course. When he's not discussing PeopleSoft issues or helping out a fellow employee with a problem, he's most likely talking about golf.

You already know that I have a dog who can play hockey. Now I'll share some more significant details. I started in this business in 1985 at the age of twenty-one with a small consulting firm. I had the benefit of working on systems utilizing 60s' and 70s' based technology on the mainframe as well as PC-based systems for the 80286 and beyond. I've always seemed to have access to a wide variety of technology from client/server applications using Visual Basic and PowerBuilder to packaged database applications such as Oracle Financials. Perhaps the greatest influence on my career came when I had the opportunity to work with my wife Tanya. She was the project manager implementing a new software package called PeopleSoft. I've been developing and supporting PeopleSoft applications ever since.

My fellow co-authors and I share several common threads. Beside having a considerable amount of Peoplesoft experience, each of us has consistently exhibited a willingness to share this experience with others. It is this spirit of helping others which has served as the motivating factor in producing this book.

## *acknowledgments*

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Many people deserve special recognition for their part in the making of this book. First and foremost, our appreciation goes to the people at Manning Publications who made this book a reality. Not only were they professional and supportive, but very patient and understanding as well. Our special thanks goes to Marjan Bace, Ted Kennedy, Mary Piergies, Adrienne Harun, Dottie Marsico, Leslie Haimes, and Sharon Mullins.

We would like to thank the following people who participated in the technical review of this book: Ahmet Emre, Peter Choi, Andrew Gatti, Buddy MacDonald, Cary Cloud, Celia Hyman, Cindy Finnigan, David and Lisa Hill, David Hardacker, Del Iglesia, Doug Cha, JR Grownney, Peter Choi, Richard Reid, Steve Britt, and Steve Gill

A special note of gratitude goes to Chris Heller, the Director of PeopleTools Product Strategy, for supplying release 8.0 information and also reviewing much of our material. His contributions to this book have been greatly appreciated.

Tony DeLia would like to thank his family for their support and acceptance of occasional neglect. Additionally he'd like to thank his wife Tanya, who has been an inspiration and a beacon, carefully guiding the direction of his career. She has also given him the greatest gift imaginable, his daughter Katie. His dog Devon deserves some praise for quietly waiting to be let out while Tony finished some of these chapters. Tony would also like to thank Galina, Isidor, and Prakash for the opportunity to be a part of this book.

Galina Landres would like to thank her husband Vlad for his enormous help in the review process. This whole project was his idea and Vlad helped tremendously to bring it to life. Many thanks go to her son Gene and her daughter Inna for their love and support as well as their help in the book's creation. Galina thanks her dear parents for being very understanding and patient. Special thanks go to Irina, Arkady, Ester, and Leon for their continuous love and support. Many thanks to the entire team at Seagrams (her best and favorite client). Huge appreciation goes to her fellow co-authors Tony, Isidor, and Prakash for their excellent work and great friendship.

Isidor Rivera writes: This is for the memory of my father Isidro, Sr. Your illness and subsequent passing in the spring of '99 was very unexpected. We had so many plans early last year, just as this book project was beginning. In the months following your passing, it became so difficult to come home and work on this project. The weekends and late evenings were spent thinking about all the wonderful things you did for Sonia and me. How we marvel at your work and miss

you deeply. Thanks to the co-authors, Galina, Tony, and Prakash for helping me find the strength and will to continue.

Prakash would like also to thank his book colleagues, Galina, Tony, and Isidor for putting up with his work schedule and his endless (not anymore!) delays with his part of the book. He also thanks his primary clients in the past five years—Wakefern Food Corporation, Best Foods, St. Francis and Bristol Hospitals, Seagram, and SPX—for giving him an opportunity to acquire the experience he needed to write this book. Finally, he would like to thank his father for always supporting him in whatever he has done in his life.

## *about the authors*

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TONY DELIA has over fifteen years' experience working with mainframe, client/server, and relational database applications, including PeopleSoft HR, Payroll, and Financial applications. He specializes in custom application development. Tony enjoys roller hockey, weight lifting, and most other physical activities. He seldom travels far without a sketchbook and crayons. Some of his artwork and technical creations can be seen on his website <http://www.sqrtools.com>.

GALINA LANDRES has been working in the field of computer science for more than twenty years. Galina has been involved in the development and customization of PeopleSoft applications since PeopleSoft's release 3.0. She is a co-author of *SQR in PeopleSoft and Other Applications* (Greenwich, CT: Manning Publications, 1999). Galina is a founder of SQRLand ([www.sqrland.com](http://www.sqrland.com)), a consulting company specializing in PeopleSoft, SQR, and relational database applications.

ISIDOR RIVERA has been in the field of software development for twenty years. His background includes Mainframe and Client/Server applications. He has worked on systems in areas such as Financial Modeling, Accounting, and more recently, Human Resources and Payroll applications. Isidor has much experience converting legacy data to PeopleSoft for distinct business units of a major corporation and has in-depth knowledge of the globalization of PeopleSoft applications.

PRAKASH SANKARAN has been working with client/server applications for the past twelve years. During that time, he has been involved in implementing PeopleSoft applications for the past ten years. He has been working with the PeopleSoft application since release 1. Prakash has extensive experience in converting legacy systems to PeopleSoft as well as upgrading existing PeopleSoft applications to newer releases. Some clients which contributed to Prakash's development and growth in the PeopleSoft field are the International Monetary Fund, Wakefern Food Corporation, Best Foods, St. Francis and Bristol Hospitals, Seagram, and SPX Corporation.

## *about the cover illustration*

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The cover illustration of this book is from the 1805 edition of Sylvain Maréchal's four-volume compendium of regional dress customs. This book was first published in Paris in 1788, one year before the French Revolution. Its title alone required no fewer than 30 words:

*Costumes Civils actuels de tous les peuples connus dessinés d'après nature gravés et coloriés, accompagnés d'une notice historique sur leurs coutumes, moeurs, religions, etc., redigés par M. Sylvain Maréchal*

The four volumes include an annotation on the illustrations: “gravé à la manière noire par Mixelle d'après Desrais et colorié.” Clearly, the engraver and illustrator deserved no more than to be listed by their last names—after all they were mere technicians. The workers who colored each illustration by hand remain nameless.

The colorful variety of this collection reminds us vividly of how culturally apart the world's towns and regions were just 200 years ago. Dress codes have changed everywhere and the diversity by region, so rich at the time, has faded away. It is now hard to tell the inhabitant of one continent from another. Perhaps we have traded cultural diversity for a more varied personal life—certainly a more varied and exciting technological environment. At a time when it is hard to tell one computer book from another, Manning celebrates the inventiveness and initiative of the computer business with book covers based on the rich diversity of regional life of two centuries ago, brought back to life by Maréchal's pictures. Just think, Maréchal's was a world so different from ours people would take the time to read a book title 30 words long.

## *about this book*

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The *Essential Guide to PeopleSoft Development and Customization* is an exhaustive, as well as practical, guide covering PeopleSoft 7.5 and many new features in release 8.0. Both novice and experienced programmers will benefit from the detailed coverage of topics ranging from the basics of Application Designer to the proper use of PeopleCode within the Application Processor. The book serves as both a reference and a tutorial and covers advanced topics that other books avoid. The reader can gain valuable expertise by following the exercises and building sample applications and utilities. Extensive coverage of PeopleCode, including scroll and function library examples, can be found as well as the methodology behind customization and upgrades. Discover how to effectively utilize SQR and Process Scheduler. Master various levels of PeopleSoft security. Most developers won't touch PeopleSoft COBOL programs with a ten foot pole. Expand your horizons by uncovering the secrets of PeopleSoft COBOL and the PTPSQLRT module and even walk through a sample customization. Application Engine is a powerful PeopleTool—but one of the least understood. Through a series of simple but effective exercises, the reader can learn Application Engine concepts such as dynamic SQL, decision logic, and dynamic sections. A useful Application Engine utility is produced which will enhance the delivered Process Scheduler panels. This book takes a soup-to-nuts approach leading the reader through the full cycle of application development.

The four authors provide the reader with the skills necessary to compete in the PeopleSoft marketplace for years to come. Special sections are included which provide detailed information on new features in PeopleSoft release 8. The reader should gain valuable insight into the next generation of PeopleTools. Exciting new features such as the new PeopleCode Debugger and PeopleCode dot notation, using a new series of object classes, are revealed. Also covered are Application Designer enhancements and improved Process Scheduler design and SQR support. See firsthand how Application Engine has been turbo-charged with a new line of meta-constructs, PeopleCode actions, and file handling capability, as well as a new integrated design. The authors' primary goal was not to be the first book on the market... it was to be the best.

## *INTENDED AUDIENCE*

This book is intended for both beginner and experienced Peoplesoft support personnel including:

- technical developers and consultants who develop, customize, or support PeopleSoft applications
- functional consultants and users who would like greater insight into the realm of Peoplesoft application development
- project leaders and managers responsible for Peoplesoft implementations, customizations, and upgrades.
- database administrators, network technicians, programmers, and all other technical personnel involved in Peoplesoft implementations and support
- computer specialists who would like to learn how to use the Peoplesoft development toolset through self-study.
- those who enjoyed *SQR in PeopleSoft and Other Applications* and would like to pick up where the book left off

## *HOW THIS BOOK IS ORGANIZED*

There are seven major parts to this book. The reader will find it to be most effective by following the examples and exercises provided. Special chapters appear in some sections describing new features in PeopleSoft release 8. These include details on Application Designer, PeopleCode, SQR, Process Scheduler, and Application Engine.

Part 1 gives an overview of PeopleSoft architecture including comparisons between two-tier, three-tier, and web based architecture and their functions. Also included is an introduction to the PeopleSoft environment. Part 1 also describes development and administrative tools such as Application Designer, Data Mover, Security Administrator, and Tree Manager. The reader will become familiar with records, fields, panels, and menus as well as PeopleCode, projects, and upgrades.

Application Development comprises part 2 of the book. The reader will gain valuable insight while building a sample Problem Tracking application. Critical design elements and components are discussed and incorporated into your application. We apply enhancements using search records, derived work fields, PeopleCode, and push buttons. We also discover panel design features such as scroll bars, subpanels, secondary panels, and grids. We learn the difference between PeopleSoft and database objects. We also cover the application processor as it performs during search processing, data retrieval, and PeopleCode events. New Application Designer features found in PeopleSoft release 8 are presented.

Part 3 is an in-depth look at PeopleCode. Here the reader can find a basic overview along with detailed descriptions of the PeopleCode language and related components. Follow the examples which reveal the proper technique for accessing panel buffer fields, working with scroll bars and effective dates, using embedded SQL, and performing error handling procedures. Additional topics such as Security, Meta-SQL, and function libraries are discussed along with debugging techniques. New Peoplecode features found in Peoplesoft release 8 are presented.

Part 4 deals with customizing PeopleSoft-delivered applications. In this section, we determine when to customize and what impact customization has on future upgrades. Tips on performing an upgrade are given along with a discussion on the proper use of projects. Walk through several sample customizations and the steps required to successfully implement your derived modifications.

Part 5 discusses the use of SQR in PeopleSoft applications. Here we see how SQR programs are set up and run in the Peoplesoft environment. We find comprehensive coverage when using run control records and communicating with Process Scheduler and Process Monitor. Unearth the secrets behind implementing security levels and scheduling recurring jobs. New SQR and Process Scheduler features found in Peoplesoft release 8 are also presented.

Part 6 is an explanation of PeopleSoft COBOL and its unique structure. Differences between conventional COBOL programming and PeopleSoft's particular flavor is discussed. Learn the fundamentals behind the PTPSQLRT module which is the driving force behind PeopleSoft COBOL. Individual PTPSQLRT actions are examined along with the required parameters for each. A realistic modification is performed demonstrating the concepts behind PeopleSoft COBOL. Additional facets such as Process Scheduler API, Configuration Manager and using trace files are discussed.

Part 7 serves as both a reference and tutorial into the world of Application Engines. After an overview describing the basic components and functionality of an Application Engine, the section offers the reader a series of exercises designed to demonstrate each A/E concept. During these simple exercises we cover decision logic and loop control, as well as how to access cache records, effectively utilize dynamic sections, and more. Additional topics are presented describing trace files, restart capability, and analysis of Application Engine programs. New Application Engine features found in Peoplesoft release 8 are also presented.

The appendices found in the book consist of descriptions of the Problem Tracking application (appendix A), Locations by Operator Class application (appendix B), a listing of PeopleSoft system tables (appendix C), Application Engine examples (appendix D), a list of commonly used built-in Peoplecode functions (appendix E), and a list of Application Engine functions (appendix F).

## ***CODE DOWNLOAD***

All source code presented in this book is available from the Manning website. The URL [www.manning.com/Delia](http://www.manning.com/Delia) includes a link to the source code files.

