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# Oracle Hyperion Interactive Reporting 11 Expert Guide

Master advanced Dashboards, JavaScript and Computation features of Oracle Hyperion Interactive Reporting 11 and much more

Edward J. Cody

Emily M. Vose

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**Edward J. Cody**

**Emily M. Vose**



BIRMINGHAM - MUMBAI

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# Preface

Oracle Hyperion Interactive Reporting is one of the many products in the Oracle Business Intelligence Enterprise Edition Plus software suite, an industry-leading business intelligence platform. The primary focus of the Interactive Reporting product is to provide strong relational querying and data analysis capabilities, where the software provides significant flexibility for creating custom dashboards, interfaces, and data analysis templates through the use of custom JavaScript programming and built-in software functionality. While Interactive Reporting is extremely flexible, performing advanced operations in the software is complicated and requires basic programming knowledge and an advanced understanding of the software. This *Expert Guide* continues from where *The Business Analyst's Guide to Oracle Hyperion Interactive Reporting 11* left off, and provides the reader with information to successfully leverage the advanced features of the product along with examples and specific techniques applicable to everyday use.

The *Oracle Hyperion Interactive Reporting 11 Expert Guide* provides software users and developers with many examples of techniques used by software experts. The book begins with an introduction to leveraging advanced features of the product along with an introduction to JavaScript. Dashboards are a major focus of this guide, with four chapters focused on building an increasingly complex Dashboard with functions, global objects, and syncing selections across Dashboards. The book places an emphasis on learning methods for data analysis by using advanced programming and built-in functions, and a unique approach to using code to generate batch reports and briefing slides is provided. The Dashboard Studio Optimize Utility and the Dashboard Studio Merge Utility are explained in detail, and the approach to building a central code repository for use across multiple documents in an enterprise is demonstrated.

This book provides the information necessary to evolve Interactive Reporting users into experts, by providing the skills to understand, communicate, and perform advanced level tasks. While this guide displays content and examples from version 11 of the software, the techniques and examples presented are also applicable to previous versions of the software dating back to version 8.

## What this book covers

*Chapter 1, Advanced Hyperion Interactive Reporting Techniques* provides an introduction to the book, a brief review of the main features of Interactive Reporting, and orients the user to the sections of Interactive Reporting where custom scripting and advanced features are utilized.

*Chapter 2, Introduction to JavaScript and the Interactive Reporting API* provides the background required to understand the developer concepts discussed throughout the rest of the book, including an in-depth explanation of the Interactive Reporting API and an introduction to the JavaScript programming language.

*Chapter 3, Creating a Simple Dashboard* presents the procedural steps required to create a simple Dashboard without the use of JavaScript, discusses built-in interactivity, and provides an overview of Live Charts and Gauges.

*Chapter 4, Introducing Dashboard Interactivity* explores common dashboard interactivity approaches using JavaScript as well as the building blocks for creating a master dashboard layout with navigation, controls, and dynamic objects.

*Chapter 5, Building the Dashboard Framework* details the steps necessary to create a customized Dashboard Framework within Interactive Reporting by extracting JavaScript to a centralized library of global code objects.

*Chapter 6, Advanced Dashboard Techniques* provides information on creating and maintaining custom dashboard filters and dashboard controls from a centralized query of filter values, and it provides the steps to keep filter controls synchronized between dashboards.

*Chapter 7, Advanced Data Analysis* provides an in-depth explanation of the options available in Interactive Reporting for performing data manipulation throughout the document.

*Chapter 8, Creating Briefing Slides and Executing Batch Exports* educates the user on the methods and features most commonly used for exporting information from Interactive Reporting, including native software export features, leveraging custom programming to perform simple and complex exports, and simple steps for configuring a Report section to produce briefing slide content.

*Chapter 9, The Central Code Repository* provides information for creating a Central Code Repository to store and programmatically push code into Interactive Reporting documents from a central relational database.

*Chapter 10, Optimizing and Merging* details the features of the Dashboard Studio and Dashboard Studio Optimize Utility to merge, modify, and fix Interactive Reporting documents.

## What you need for this book

This book was written using a standard deployment of Oracle EPM 11.1.1.3. The sections and techniques in this book are primarily version-independent, where almost all of the functionality demonstrated will exist in previous versions of the product. References are made to some of the new features in Interactive Reporting 11, especially in the area of charting and Dashboards as features have progressed throughout the new versions. The Interactive Reporting Sample Database is used throughout the examples in this book.

## Who this book is for

The target audience of this book is any Oracle Hyperion Interactive Reporting user looking to improve their skills in the product. The book focuses on the more advanced features of the software, including an introduction to JavaScript, simple to advanced dashboard concepts, advanced analysis, and additional special topics.

## Permissions

Security can be set for documents in the Oracle Hyperion Workspace to prevent the user from accessing certain features of the product, including creating custom data models, editing queries, and saving and importing documents. This book is written with full access to all of the features of the product. Contact your system administration resources for more information on your deployment if you cannot access certain features of the product in your environment.

## Multidimensional queries

Oracle Hyperion Interactive Reporting provides the capability to query against a multidimensional data source. As most environments leverage Interactive Reporting against relational data sources, the focus of this book is on the relational querying and analysis capabilities of the product. More information on multidimensional queries can be found in the product documentation.

## Additional resources

There are many helpful online resources to learn more about Interactive Reporting, including three very common and useful references. The first is the Oracle Business Intelligence 11g documentation, which contains the developer references for Interactive Reporting. The second is the "Tips and Tricks Cookbook", by Mark Ostroff, a useful guide containing many Interactive Reporting tips, tricks, and advanced techniques. Both the Oracle documentation and the cookbook can be found on the Oracle website or through a simple web search. Finally, Toolbox.com (<http://it.toolbox.com>), a website commonly used by developers, contains Hyperion and Brio knowledge groups and provides the ability to search for answers and post questions to a large user community.

## Conventions

In this book, you will find a number of styles of text that distinguish between different kinds of information. Here are some examples of these styles, and an explanation of their meaning.

Code words in text are shown as follows: "Within Interactive Reporting, declarations with local scope are defined using the `var` keyword."

A block of code is set as follows:

```
var vMonth = 1;  
var vDay = "06";  
var vYear = 1999;
```

**New terms** and **important words** are shown in bold. Words that you see on the screen, in menus or dialog boxes for example, appear in the text like this: "The **Name** box is for specifying the name of the computed item."

 Warnings or important notes appear in a box like this. 

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# 1

## Advanced Hyperion Interactive Reporting Techniques

Welcome to the *Oracle Hyperion Interactive Reporting 11 Expert Guide*! Interactive Reporting is an extremely robust and powerful business intelligence tool providing ad-hoc querying and analysis, dashboards, and reporting capabilities. This Expert Guide picks up where *The Business Analyst's Guide to Oracle Hyperion Interactive Reporting 11* left off, with a focus on providing knowledge of the expert features of the product. While the *Business Analyst's Guide* was an introduction to using the product for the novice to intermediate user, this guide focuses on evolving software users into experts. Interactive Reporting provides many flexible and advanced features that are commonly unknown to the typical business user. One of the most important lesser known features of the software is that it exposes the developer features of the product to the everyday user. These developer features allow the user to leverage scripting in common exercises, to build custom interfaces, and to use code to drive automation. While these features may seem complicated to a user of the product, these features can easily be learned and implemented after reading this book.

This chapter will start with an introduction to the book, highlighting the different groups of content that will be discussed. After the book introduction, the following content is a brief review of some of the main features of Interactive Reporting. The purpose of this review is to baseline terminology that will be used throughout the book and to orient the user to the sections of Interactive Reporting where custom scripting and advanced features are utilized.

This chapter covers the following topics:

- An introduction to the *Expert Guide*
- A review of the EPM Workspace
- A review of Interactive Reporting sections
- Leveraging code throughout the software
- An overview of the Scripting Interface

## **Introduction to the Oracle Hyperion Interactive Reporting 11 Expert Guide**

Interactive Reporting provides users with a significant amount of flexibility in creating dashboards, reports, and analyzing data including the ability to leverage custom programming throughout the document. With this custom programming functionality comes complexity, where users need to understand the best practices in both the software and using JavaScript to create dashboards or custom calculations. This book focuses on providing the reader with an understanding and examples of where custom coding and features of Interactive Reporting can be leveraged to enhance the use of the product in daily activity. These features include introducing JavaScript programming concepts, creating simple to complex dashboards, analyzing content using built-in and JavaScript functions, creating briefing slides and batch exports, building a central code repository for use in the enterprise, and using the developer tools for optimizing and merging two or more Interactive Reporting documents together.

### **Review of Interactive Reporting concepts**

The book begins with a review of the Interactive Reporting sections and highlights the use of Computed Items across each of the sections of the document software. The introduction provides a high-level understanding of the steps needed to perform computations in each section and provides insight into the differences in the sections. The Script Editor is also introduced, and an overview is provided on the features of the editor and the steps to add JavaScript code to dashboard objects and the overall document. This first chapter lays the framework for the book and provides a solid understanding for the content presented across the rest the book.

## **An Introduction to JavaScript in Interactive Reporting**

The book transitions from the overview of the different sections of the product to an introduction to the syntax, methods, and features of JavaScript in Interactive Reporting. JavaScript is an object-oriented scripting language that is commonly used in web development to provide enhanced user interfaces. Within Interactive Reporting, JavaScript is used across all sections of the document, except for the Query section, to perform custom computations and to add interactivity. A solid understanding of JavaScript is needed to become an advanced user of the Interactive Reporting software. The fundamentals described in the second chapter and utilized throughout the rest of the book will provide the user with the confidence needed to build and leverage JavaScript in daily interaction with the software.

## **Building simple to advanced dashboards**

Dashboard sections in Interactive Reporting are used for many purposes, from creating dashboard views of information, to using controls and objects on a dashboard to drive and orchestrate behaviour across multiple sections. This book places a large emphasis on building simple to complex dashboards and provides an understanding for managing code, filters, and interactivity across multiple dashboard sections in a single document. These dashboard chapters provide invaluable information for managing and reusing code inside a document, and the chapters demonstrate best practices for interacting with Interactive Reporting sections and components. Concepts learned in the dashboard chapters can be applied to any business situation where code is needed to perform an operation from processing queries to topics including creating custom programs that produce batch processing, using data from one query to filter another, and exporting to files.

## **Advanced computations**

One of the key aspects of business intelligence is the ability for the user to analyze and manipulate content to answer a set of business questions. Many business users typically prefer to use Microsoft Excel to perform data analysis rather than Interactive Reporting due to their comfort with the software. While Microsoft Excel provides many excellent tools for performing data analysis, Interactive Reporting combines data analysis capabilities with the ability to filter, add computations, leverage data sets, and manipulate data in the millions of records.

## **Briefing slides and batch exports**

Interactive Reporting provides many options for exporting information and formatted reports to different file formats. Users commonly struggle with the best and most appropriate method for creating data or formatted exports, with most users overlooking some of the most effective and efficient exporting methods. In addition to searching for the best export format, many users express interest in exporting information from Interactive Reporting into a Microsoft PowerPoint presentation. While the Hyperion Smart View product can be used to refresh objects in Microsoft documents, another option is available using a few tricks in Interactive Reporting and does not require the use of an additional piece of software.

Another less commonly known feature in Interactive Reporting is the ability to add custom code to generate batch exports of deliverables. Leveraging a few simple programming statements allows the user to save significant time and effort when exporting multiple slices of information from the same document.

## **The Central Code Repository**

One challenge that advanced users encounter with Interactive Reporting's report-centric model is the tracking and maintenance of heavily customized dashboard reports, especially in enterprise-level implementations where the code is used repetitively and transparently across multiple documents. Given the common and straightforward practice of storing similar JavaScript code within each document in an enterprise, it is incredibly difficult and infeasible to individually identify, track, and edit changes across documents.

One simple and invaluable methodology is to store report customization scripts in an accessible database table within the enterprise environment. The chapter on the **Central Code Repository (CCR)** describes building an external code library that allows code to be quickly pushed into some or all documents in an enterprise. This centralized repository provides the capability for agile responses to ongoing business changes and code maintenance without modifying the consuming reporting documents.

## **Optimizing and Merging**

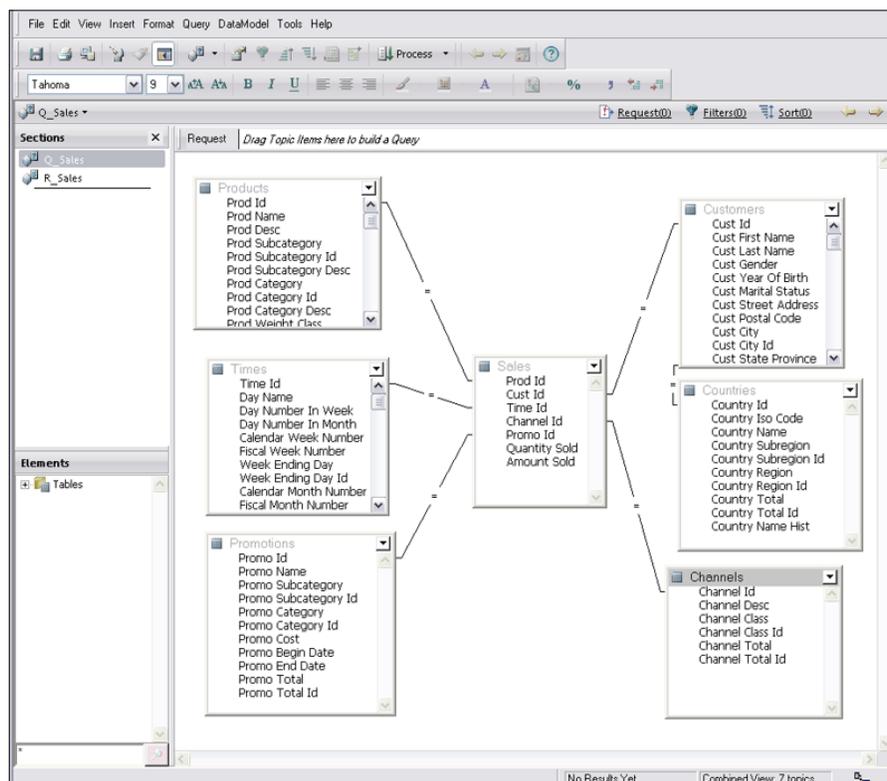
The Oracle Hyperion Interactive Reporting developer tool installation is packaged with two developer tools that are extremely beneficial to users of the software. The products are the Dashboard Studio and the Dashboard Studio Optimize Utility, which allow developers to merge, modify, and fix Interactive Reporting documents in addition to many other operations not included in the Studio developer utility or Interactive Reporting Web Client.

## The EPM Workspace

The EPM Workspace, similar to a portal, is where all Oracle Hyperion objects, reports, and files can be accessed and integrated using a shared security model. The Workspace is accessible through the web browser and contains a file system and other document management gadgets, including personal pages, job scheduling, and content subscription.

## Interactive Reporting interface and components

Understanding the Interactive Reporting interface is crucial to being proficient in the software. The different sections of the software contain a variety of different options, but the location of where to find and utilize these options is the same across the tool. Knowledge of the interface and how to leverage the features of each section is essential to unlocking the full potential of the product. The terms displayed in the next screenshot will be referenced throughout the book:



Nearly all features of the Interactive Reporting user interface can be controlled or modified by report authors. Later chapters of the book will describe the methods for controlling the display of the different Web Client Interface menus, toolbars and sections.

## **Review of Interactive Reporting sections**

Before identifying where the advanced features of the product can be leveraged in the document, it is important to review the different sections of the software. The following list provides an overview of each section of the Interactive Reporting software:

- The Data Model and Query sections are used to model database objects and build queries from a data source.
- Each Query section is accompanied by a Results section where data returned from a query is displayed, filtered, and computed. There is only one Results section per Query section, and each Results section displays data in a row by column format.
- Table sections are similar to Results sections and are used to manipulate and split a set of results into different subsets for analysis. Each table section is specific to a set of results and multiple table sections can be created.
- A Pivot section is a common presentation section in Interactive Reporting that aggregates data in a row by column format and the pivot functionality is similar to Microsoft Excel pivots. The Pivot section can use any column of data from the parent Results or Table section.
- A Chart section is another presentation section of the document. The Chart section is commonly used to display data in a graphical format. Different chart formats exist, ranging from bar and pie charts to scatter and bubble charts.
- The Report section provides the ability to present charts and tables of data in a printable report format. The Report section is the only section of the document that allows for the addition of data from multiple queries in the document into a single reporting object, and reports provide an additional method of splitting out data by Report Groups.
- Dashboards are used to create custom interfaces or interactive displays of key metrics. The dashboard section provides the flexibility to leverage custom scripting and interactivity to automate manual features of the product.

## Leveraging code

Many methods exist for adding custom code throughout the document. Interactive Reporting provides the flexibility to manipulate data and build custom applications through using a JavaScript programming language throughout all sections of the document except the Query section, where custom fields are defined using database specific SQL.

JavaScript is commonly used in two ways within the document, including - building computations in presentation sections and building logic to force specific behaviours across the document or on a dashboard. When building computations in sections, JavaScript and native functions are used in Computed Items to modify and enhance a set of results. When driving behaviour across the documents or adding interactivity, JavaScript code is used in the Document Scripts or on a Dashboard section. In either approach, Interactive Reporting provides significant flexibility and interactivity to model and solve complex business problems.

## Query section Computed Items

Many users require the ability to provide further analysis on data returned from a query. Computed Items can be added to a query to create custom Request line items, which allow the user to modify and enhance the data elements in the data model.

Building Computed Items in the Query section is very different than building Computed Items throughout the rest of the document. The syntax for building Computed Items in the Query section is database specific SQL, while Computed Items throughout the rest of Interactive Reporting are created using JavaScript. The differentiation in syntax is based on the design of the product, where the Query section is the only section that builds a query string that is passed to the database. The rest of the sections in an Interactive Reporting document contain and display data that has already been returned from a data source.

The syntax of the Computed Item in a query is included as a column in the query string that is passed to the database. The following steps are methods to add Computed Items to the Request line:

<b>Right-click method</b>	<b>Query menu method</b>
Right-click inside the Request line	Open the <b>Query</b> menu
Select <b>Add Computed Item</b>	Select <b>Add Computed Item</b>