Steven Mann
Chuck Rivel
Ray Barley
Jim Pletscher
Aneel Ismaily

Microsoft® SharePoint® 2010 Business Intelligence

UNLEASHED

SAMS

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SAMS | 800 East 96th Street, Indianapolis, Indiana 46240 USA

Microsoft® SharePoint® 2010 Business Intelligence Unleashed

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About the Authors

Steve Mann was born and raised in Philadelphia, Pennsylvania, where he still resides today. He is an Enterprise Applications Engineer for Morgan Lewis and has more than 17 years of professional experience. Steve was previously a Principal Architect for RDA Corporation where he worked for over 13 years.

For the past 8 years, he has primarily focused on collaboration and business intelligence solutions using Microsoft technologies. Steve managed the internal BI Practice Group at RDA for several years. He was also heavily involved within RDA's Collaboration/Search Practice Group.

He has authored and co-authored several books related to the subject of SharePoint Server 2010. Steve's blog site can be found at www.SteveTheManMann.com.

Chuck Rivel is currently employed at RDA as a Principal Architect which involves scoping, designing, developing and delivering custom data warehouse projects for many different industries. He has over 14 years' experience working with MS technologies and the last 8 years have been focused on DW\BI development. Currently, he is the BI Technical Lead for RDA, which is responsible for the technical direction of the BI team within RDA and for creating training programs for existing RDA employees to learn the BI toolset.

Ray Barley is a Principal Architect at RDA Corporation and has worked as a developer, analyst, project manager, architect, trainer and independent consultant. He has been focused on architecting and delivering Business Intelligence solutions since 2005. Ray helps to run the Baltimore SQL Server User group, is a frequent speaker at local user group meetings, and a frequent contributor to MSSQLTips.com.

Jim Pletscher is a Senior BI Consultant with RDA and has worked in the IT field for more than 15 years. Jim first began exploring OLAP technologies with SQL Server 2000, and has worked extensively with SQL Server 2005 and 2008, developing Reporting and Analysis solutions for numerous clients in a variety of industries over the past 8+ years. He is originally from Pennsylvania, and lives there now, but has also lived in Northern California as well.

Aneel Ismaily was born and raised in Karachi, Pakistan and then moved to the United States at the age of 18. Since then he has lived in Atlanta, GA. Aneel joined Georgia State University in 2001 and finished his BS degree from there in Computer Science. He is currently enrolled in a professional MBA program at Georgia State University and expecting to graduate in Dec, 2012. Aneel brings over eight years of experience to RDA in designing, developing, deploying, and supporting Business Intelligence Solutions. He currently holds Sr. Software Engineer Position with RDA. Prior to RDA, Aneel was employed at BCD Travel as a BI Solution Developer and previously as a Database Administrator. You can learn more about Aneel at http://www.linkedin.com/in/aismaily.

Dedications

To my family, especially my wife Jen, for being so excited for me on getting the opportunity
to write the book and then pushing me to get it done.
—Chuck Rivel

To my wife Karen, and our children Katelyn, Jessica and Joshua.
To my dad for teaching me the value of perseverance.
—Ray Barley

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—Jim Pletscher

I dedicate this book to each and every member of my family for their unconditional
support in all aspects of my life. I love you all!
—Aneel Ismaily

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—Steve Mann

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—Chuck Rivel

Thanks to Steve Mann for asking me to participate in this project. Thanks to all of my colleagues who over the years have shared their knowledge.
—Ray Barley

To my parents, who bought me my first computer, a Commodore64, and started what has become my career with computers. To my wife, Treva, and kids, Rebecca, Colin, and Hayden, who keep life fun and exciting and remind me not to sweat the small stuff.
—Jim Pletscher

Thanks to Steve Mann, Chuck Rivel, Ray Barley and Jim Pletscher for giving me this opportunity. I also thank the entire team of Sams Publishing for their support during the book review.
—Aneel Ismaily

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Introduction

Business intelligence (BI) has been around for many more years than you might think. *Decision support systems* (DSS) and *executive information systems* (EIS) from the 1970s and 1980s, along with *artificial intelligence* (AI) systems from the 1990s, can now all be considered as part of what BI comprises today.

In brief, BI refers to the aggregation of all relevant business information, put together such that correlations and metrics may be monitored and analyzed, and the making of decisions based on trends and the results of the analyzed information.

In the early 2000s, when economic conditions became rough, companies began focusing on their businesses more closely. This produced the essential need for BI solutions. Many organizations began building data warehouses using SQL Server 2000 and Analysis Services 2000. Microsoft recognized this need and approached the development of their SQL Server 2005 product with BI in mind.

The release of SQL Server 2005 brought BI to the forefront of Microsoft solutions. Although this took care of the data and reporting components, it did not address the core monitoring and planning aspects of a BI solution. To fill this gap, Microsoft began developing Office *PerformancePoint Server* 2007 (PPS) in conjunction with the acquisition of ProClarity. At the same time, *Microsoft Office SharePoint Server 2007* (MOSS 2007) was being promoted as the main delivery mechanism for BI solutions using Microsoft technologies, and was at this point being referred to as the Microsoft BI stack. The Microsoft BI stack fulfilled the business needs, but the solution was made up of various separate components. Enter Office 2010.

With the releases of SharePoint Server 2010 and SQL Server 2008 R2, the convergence of the BI stack is more evident. Once-separated components (MOSS and PPS) are now combined within the same architecture, and tighter integration now exists between SharePoint and Reporting Services and Analysis Services.

The Office 2010 platform forces technological change within skillsets and roles. The BI specialists who may be considered SQL Server experts now need to understand SharePoint and its role within a BI solution. Conversely, SharePoint experts and developers need to be able to use SharePoint as a delivery mechanism for BI solutions.

Previously, if you needed to understand BI solutions using SQL Server, you referred to a SQL Server or data warehousing publication. If you needed to understand SharePoint, you referred to SharePoint-related material. With the tighter integration of the Microsoft BI Stack, we believe there is a need to combine the components of BI and SharePoint into one reference book for this integration. This book bridges the gap between the two worlds of database technology and portal solutions.

How This Book Is Organized

- Part I, "Getting Started," explains how to prep SharePoint 2010 for the deployment of BI solutions. The Business Intelligence Center is described, and you learn about Excel Services.
- Part II, "Reporting Services," focuses on the integration and use of Reporting Services within SharePoint, including uses of the Report Viewer web part.
- Part III, "PerformancePoint Services," discusses the configuration and development of PPS (which is now part of SharePoint 2010 as an application service), along with security aspects of PPS.
- Part IV, "PowerPivot," explains how Analysis Services and SharePoint 2010 have been integrated to produce a mechanism for business users to publish analytical information via Excel.
- Part V, "Visio Services," explores how the visualization of BI data is becoming as important as the information it provides. Leveraging Visio Services within SharePoint adds an interesting component to BI solutions.
- Part VI, "End-to-End Solutions," covers how all the components and services all fit together (in contrast to earlier chapters where these components and services are examined from discrete perspectives). This part provides two scenario-based end-to-end solutions that explain how to construct a BI solution.
- Part VII, "Troubleshooting," outlines resolutions to common problems so that you do not have to search the Internet for guidance with regard to currently known issues and errors.

What This Book Does Not Cover

This book explains the integration and uses of SQL Server 2008 R2 components with SharePoint Server 2010. It does not discuss the processes of building a data warehouse, dimensional model, or Analysis Services cube. These are separate core topics that need to be explored on their own.

Some BI specialists consider *Business Connectivity Services* (BCS) an extension of business solutions. Although BCS does provide access to external data sources (which could include data warehouses or central repositories), this book focuses more on the commonality of SQL Server components in SharePoint 2010. To really understand BCS and the various capabilities, you should refer to publications that deal specifically with that subject; general SharePoint 2010 books just scratch the surface.

Another extension possible through the leveraging of BI data within SharePoint is InfoPath 2010. By creating forms with InfoPath 2010, you can leverage data from BCS, external data sources via Web Services, or from direct database connections. However, this subject area is beyond the scope of this book. To explore the possibilities of InfoPath 2010 within a SharePoint environment, refer to *InfoPath with SharePoint 2010 How-To* (Sams, 2010).

Expanding Your Knowledge

We hope that this book provides a solid foundation of understanding about potential BI solutions via SharePoint and SQL Server and that you find everything you need here. However, business requirements and changing needs usually require custom solutions that cannot all be possibly documented in one location.

So, to stay current and find additional answers if needed, consider the following resources a good investment of your time and attention:

- **Microsoft BI site:** http://www.microsoft.com/bi/
- **Microsoft Office Developer Center:** http://msdn.microsoft.com/en-us/office/default.aspx
- **Microsoft SharePoint 2010 site:** http://sharepoint.microsoft.com/
- **RDA BI/SQL Server Practice Group Blog:** http://bisqlserver.rdacorp.com/

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CHAPTER 3

Reporting Services Setup and Configuration

IN THIS CHAPTER

- Installing Reporting Services
- Installing the Reporting Services Add-In for SharePoint
- Configuring the Reporting Services Add-In for SharePoint Integration
- Adding Content Types to a Document Library

There are two options for installing Reporting Services: native mode and SharePoint Integrated mode. Native mode includes the Report Manager web application that can be used to manage all aspects of managing, deploying, and executing reports. Reporting Services can be installed in native mode completely independent of SharePoint. With SharePoint Integrated mode, the Report Manager is disabled and all report management and execution functions are provided in SharePoint. The considerations and steps for installing and configuring Reporting Services in SharePoint Integrated mode are the topic of this chapter.

Reporting Services uses a SQL Server database to store reports, subscriptions, and so on. This database is named ReportServer by default. The contents of the database are different depending on how it is created; i.e. whether it is created for Reporting Services running in native mode or SharePoint Integrated mode. The creation of the appropriate database can be handled by running the Reporting Services Configuration Manager or during the installation of Reporting Services and the database engine.

After installing or configuring Reporting Services to run in SharePoint Integrated mode, the Reporting Services Add-In for SharePoint must be installed and configured. The Add-In is a SharePoint feature that is activated at the site collection level and provides the infrastructure for storing, running and managing reports within SharePoint.

There are a number of advantages to installing Reporting Services in SharePoint Integrated mode versus native mode. First and foremost is the fact that the integration of Reporting Services with SharePoint is seamless. Reports are stored in SharePoint document libraries, allowing users to

interact with them from the familiar SharePoint web interface. Report security is handled in SharePoint rather than in the Report Manager, which implements its own security scheme.

Installing Reporting Services

Reporting Services is one of several features that can be installed from SQL Server setup along with the relational database engine. There are two steps during the setup that are important to highlight to allow the setup to do the majority of the work in getting Reporting Services running in SharePoint Integrated mode. First, as shown in Figure 3.1, choose the **SQL Server Feature Installation** option. The SQL Server PowerPivot for SharePoint option is not relevant to this discussion. The All Features with Defaults option is normally a good choice, except that it installs and configures Reporting Services in native mode, which is of no benefit.

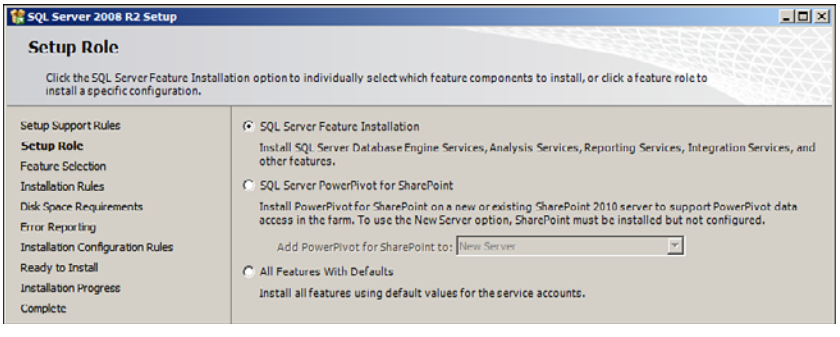

FIGURE 3.1 Configure service application associations.

The second step to highlight is Reporting Services configuration, as shown in Figure 3.2.

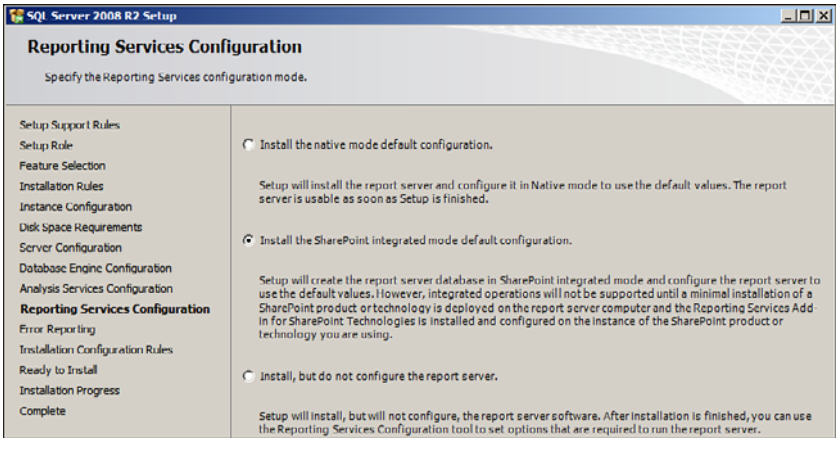

FIGURE 3.2 Reporting Services configuration.

Choose **Install the SharePoint Integrated Mode Default Configuration**. This creates the Reporting Services database in SharePoint Integrated mode. There are some scenarios where the integrated mode default configuration option may not be available; for example you have to install both the database engine and Reporting Services. If the option is not available then the alternative is to choose **Install, but do not configure the Report Server** and then use the Reporting Services Configuration Manager to create a new Reporting Services database in SharePoint Integrated mode.

Installing the Reporting Services Add-In for SharePoint

In addition to getting Reporting Services set up and configured for SharePoint Integrated mode, the Reporting Services Add-In for SharePoint needs to be installed and configured. The add-in is a SharePoint Feature that provides the infrastructure to seamlessly integrate Reporting Services within SharePoint. Beginning with SharePoint 2010, the Reporting Services Add-In for SharePoint is included in the software prerequisites for SharePoint, as shown in Figure 3.3.

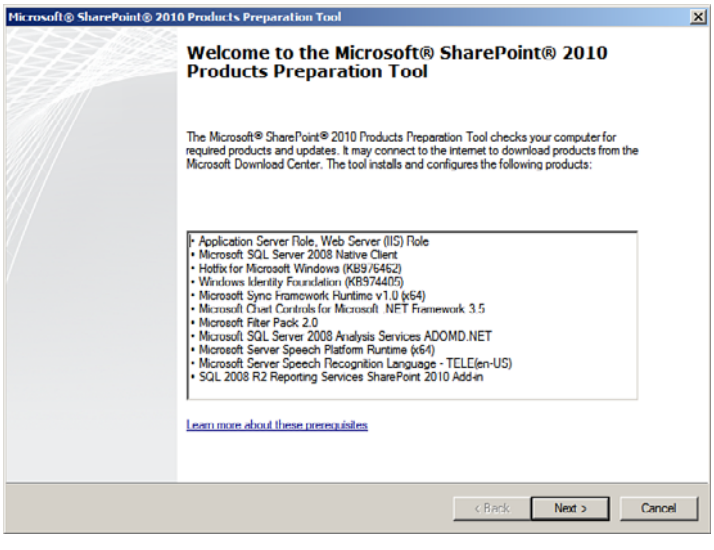

FIGURE 3.3 Microsoft SharePoint 2010 Products Preparation tool.

You can install any of the necessary software prerequisites by selecting **Install Software Prerequisites** from the SharePoint 2010 setup. The Reporting Services Add-In for SharePoint is also available as a separate download from the Microsoft website. (Just search for SQL Server 2008 R2 Feature Pack). Note that the version of the Reporting Services Add-In for SharePoint is based on both the version of SQL Server and the version of SharePoint. There are versions of the add-in for SQL Server 2005, SQL Server 2008, and SQL Server 2008 R2, and versions for SharePoint 2007 and SharePoint 2010.

After installing the Reporting Services Add-In for SharePoint, you see the Report Server Integration Feature in the Site Collection Features gallery.

TIP

To view the Site Collection Feature gallery, navigate to the root site in a site collection and click Site Actions, Site Settings, and Site collection features (in the Site Collection Administration section).

Configuring the Reporting Services Add-In for SharePoint Integration

After getting Reporting Services set up for SharePoint Integration and installing the Reporting Services Add-In for SharePoint, the next step is to configure the Reporting Services SharePoint Integration in SharePoint Central Administration. To do so follow these steps:

1. Launch SharePoint Central Administration from the Start menu. (It should be pinned to the Start menu; if not, select it from the All Programs, Microsoft SharePoint 2010 program group.) The SharePoint Central Administration home page is displayed, as shown in Figure 3.4.

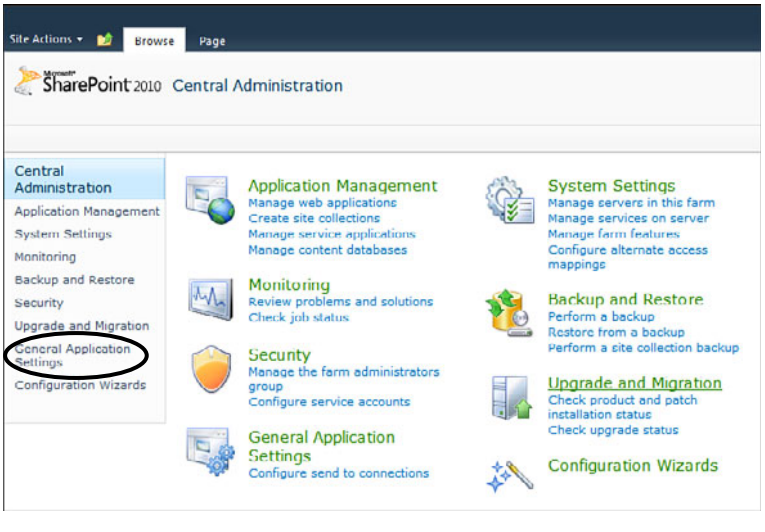

FIGURE 3.4 SharePoint Central Administration.

2. Click **General Application Settings** to display that page, as shown in Figure 3.5.
3. Click **Reporting Services Integration** and fill in the form, as shown in Figure 3.6

FIGURE 3.5 SharePoint Central Administration General Application Settings.

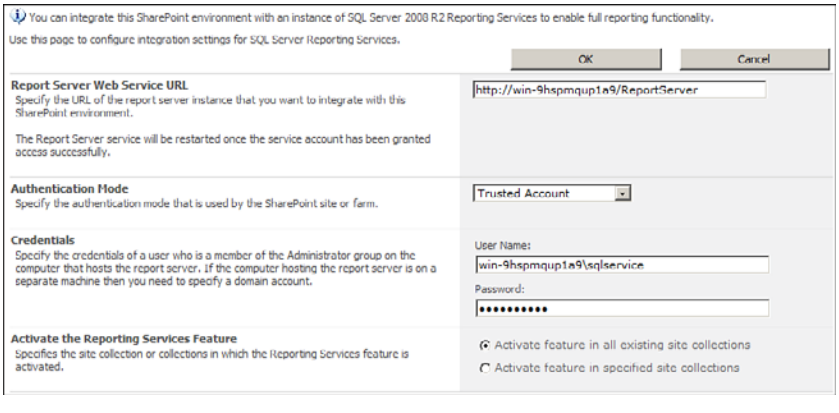

FIGURE 3.6 Reporting Services Integration in SharePoint Central Administration.

The following are the main points about the entries on the form:

- You can find the Report Server Web Service URL by opening the Reporting Services Configuration Manager and navigating to the Web Service URL page, as shown in Figure 3.7.

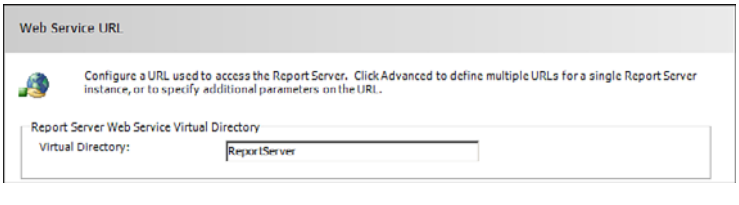

FIGURE 3.7 Reporting Services Configuration Web Service URL page.

- Choose **Windows Authentication for Authentication Mode** if Kerberos is configured; otherwise, choose **Trusted Account**.
- Enter a domain account for the credentials; this account must be in the Administrators group on the server where Reporting Services is installed.
- Specify to activate the Reporting Services feature for all existing site collections or specific ones as appropriate. As a general rule, it is a good idea to choose all existing site collections.

After you enter the required information and click **OK**, the Reporting Services Integration Summary is displayed, as shown in Figure 3.8.

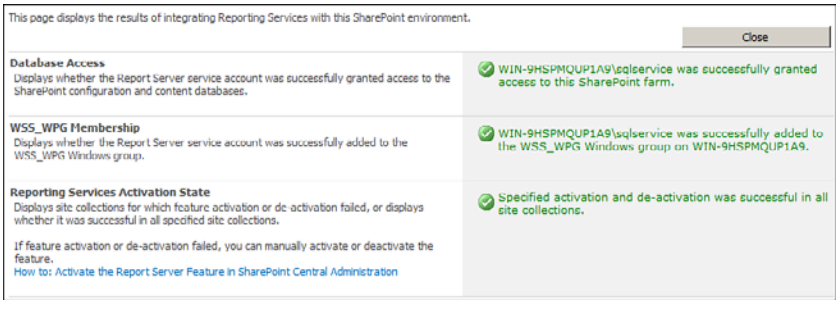

FIGURE 3.8 Reporting Services Integration Summary.

At this point, the configuration of Reporting Services in SharePoint Integrated mode is complete.

Adding Content Types to a Document Library

A Content Type in SharePoint is a collection of settings that describe a piece of content such as a document, task, contact, report, and so on. If you set up Reporting Services in SharePoint Integrated mode, you can then store reports, report models, and shared data sources in SharePoint document libraries. For a given document library, the appropriate content types for these artifacts must be added and the New Document menu customized to specify the types of documents that can be created when the New Document button is clicked. Follow these steps to add the appropriate Reporting Services content types to a document library and customize the New Document menu:

1. Navigate to (or create) a document library and click the **Library** tab, as shown in Figure 3.9. (The Library tab is underneath Library Tools.)
2. Click **Library Settings** on the ribbon to display the Library Settings page, as shown in Figure 3.10.
3. Click **Advanced Settings** to display the Advanced Settings page, as shown in Figure 3.11. (Only the relevant portion of the page is shown.)

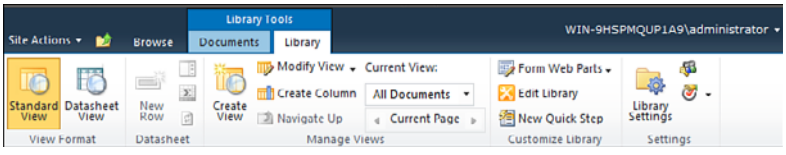

FIGURE 3.9 Document library.

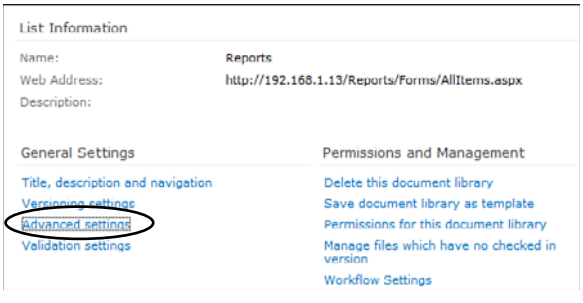

FIGURE 3.10 Document library settings page.

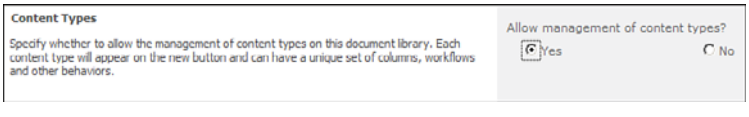

FIGURE 3.11 Document library advanced settings page.

4. Click **Yes** to allow management of content types (that is, to allow multiple content types in this document library).
5. Click **OK** to return to the Library Settings page. Navigate to the Content Types, as shown in Figure 3.12.

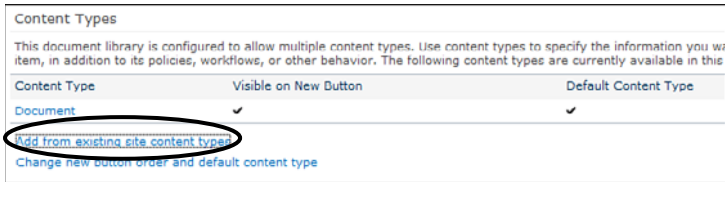

FIGURE 3.12 Document library content types.

6. Click **Add from Existing Content Types** to display the Select Site Content Types from, as shown in Figure 3.13.
7. Select the **Report Builder Model**, **Report Builder Report**, and **Report Data Source**, as shown in Figure 3.13, and then click **Add**.

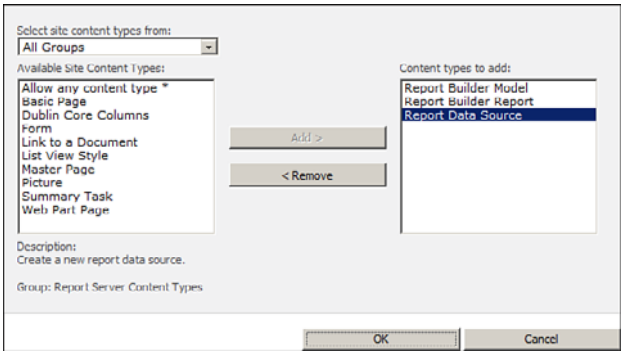

FIGURE 3.13 Add content types.

8. Click **OK** to return to the library settings page.
9. Navigate again to the Content Types and click **Change New Button Order** and **Default Content Type**, as shown in Figure 3.14.

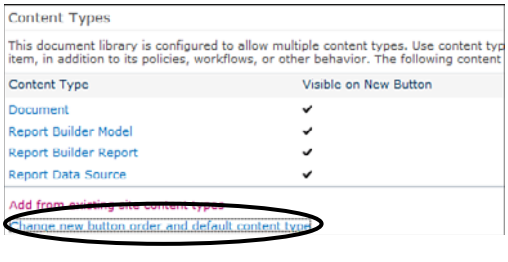

FIGURE 3.14 The new button order and default content type.

10. The Content Type Order form is displayed, as shown in Figure 3.15. Edit the Content Type Order, as shown in Figure 3.15.

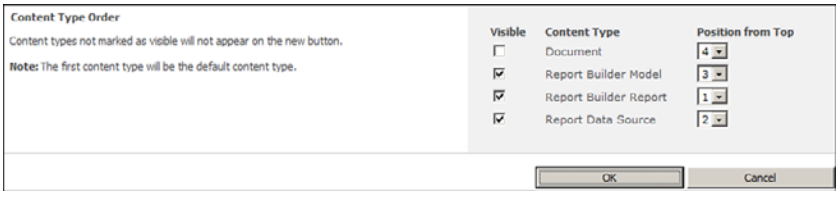

FIGURE 3.15 Content type order.

11. Click **OK** to return to the library settings page, and then navigate back to the home page for the document library (refer to Figure 3.9, earlier in this chapter).

12. Click the **Documents** tab underneath Library Tools.
13. Click **New Document** to display the drop-down menu, as shown in Figure 3.16.

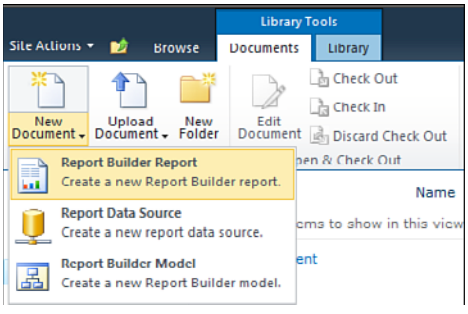

FIGURE 3.16 New Document drop-down menu.

The drop-down menu shows Report Builder Report, Report Data Source, and Report Builder Model choices. Selecting Report Builder Report launches Report Builder, a user-friendly tool used to design a report. This completes the setup and configuration of Reporting Services in SharePoint Integrated mode. The steps required to create a data source and a report are covered in the End-to-End Solutions chapter later in the book.

Summary

The setup and configuration of Reporting Services in SharePoint Integrated mode is a somewhat tedious process, but the advantages are many, and the integration is seamless. Business users get the benefit of being able to do everything in SharePoint without having to resort to the Report Manager web application. Report security leverages SharePoint, which also reduces complexity.

Best Practices

The following are best practices from this chapter:

- Choose the **SQL Server Feature Installation** option on the Setup Role step in SQL Server setup. This creates the Reporting Services database in SharePoint Integrated mode and makes it ready for the SharePoint configuration.
- Run **Install Software Prerequisites** for SharePoint to install the Reporting Services add-in for SharePoint (rather than downloading it).
- Add the Report Builder Report, Report Data Source, and Report Builder Model content types to any document library that will store reports. Customize the New Document menu to show these content types as choices.

- Choose Windows Authentication for Authentication Mode if Kerberos is configured, otherwise choose Trusted Account.
- Use a domain account that is a member of the Administrators group on the server where Reporting Services is installed.
- Activate the Reporting Services Feature for all existing site collections. If you choose not to do this, you can selectively activate the feature in the appropriate site collections.

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