

ColdFusion Web Development with Macromedia Dreamweaver MX 2004

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with

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Introduction

THIS BOOK EXPLORES the great partnership between ColdFusion, a fantastically powerful but easy to learn server-side scripting language originally released by the Allaire corporation in 1995, and Dreamweaver, Macromedia's world-class visual web-authoring tool, the original version of which first surfaced around 1997.

The product versions supported by this book are Dreamweaver MX 2004, which was released in late 2003, and ColdFusion MX 6.1 (the 6.1 release is a minor upgrade to the main ColdFusion MX version, available for free to those who already have MX, at <http://www.macromedia.com/software/coldfusion/productinfo/upgrade/>).

ColdFusion is one of the five server models available to Dreamweaver MX 2004 users (the others being ASP, ASP.NET, PHP, and JSP), so much integrated support it is provided for ColdFusion in Dreamweaver MX 2004, especially because Macromedia now owns both products. By using Dreamweaver MX 2004, you can set up your ColdFusion web site, connect it to your database, put together all the code for the pages—and style them too—with very little hassle. The only other place you'll probably visit often is the ColdFusion Administrator, which provides even more power over your web sites.

In this book, we aim to do just one thing: teach you how to build great ColdFusion-based web applications using Dreamweaver MX 2004! We won't take you through an exhaustive tour of *every* tiny little Dreamweaver feature and obscure ColdFusion function; instead, we cover just the stuff you need to know in a concise, clear, and enjoyable manner.

It won't be long before you have mastered ColdFusion, so read on.

What's Inside?

Here is an overview of what each of this book's 13 chapters covers.

Chapter 1: Welcome to ColdFusion MX 6.1

This chapter provides a detailed introduction to the technology, including notes on ColdFusion's history and architecture, how to install it, and how to use the ColdFusion Administrator and set up a ColdFusion site in Dreamweaver MX 2004. Here we also take a very brief look at some basic CFML to give you a taste of the following chapters.

Chapter 2: Databases and Dreamweaver MX 2004

Now we look at one of the most important pieces in the ColdFusion puzzle: databases. Here we focus on what databases are and what different types are available (going on to examine the inner workings of a Microsoft Access database), using the Structured Query Language (SQL) to query databases, setting up data sources, and building queries and Recordsets in Dreamweaver MX.

Chapter 3: Introduction to ColdFusion Markup Language

The object of this chapter is to give you a detailed overview of how to start coding with ColdFusion Markup Language (CFML). Here we look at the most common CFML tags and their functionality, and we discuss what `Application.cfm` files are and how to use them.

Chapter 4: ColdFusion Variables and Logic

This chapter first looks at the different types of variable scope available for use in ColdFusion before going on to examine the available ColdFusion data types and functions in detail.

Chapter 5: Form Processing

Here we begin applying some of the base knowledge introduced in previous chapters, looking at building forms in ColdFusion and client- and server-side form validation (including some complete adaptable examples: an e-mail feedback form and a file upload form). We then go on to look at using checkboxes and multiple submit buttons in forms before rounding off the chapter by building some examples that make use of Dreamweaver MX's form-enhancing server behaviors.

Chapter 6: Database Manipulation

Databases are the order of the day again here. Building on the basic knowledge of Chapter 2, we explore using Recordsets with advanced queries and dynamic tables to display, update, and delete data from a database (incorporating a master/detail page set and Recordset paging). We then go on to build up a dynamic image gallery that includes image uploading functionality, and round off the chapter with a look

at some advanced database features: stored procedures, views, query of queries, caching queries, and query parameters.

Chapter 7: Maintaining State

This chapter looks at how we can use the Application, Client, Cookie, and Session scopes to maintain state across pages in a ColdFusion application, including creating cookies, Session variables and locks, using the Application scope within a content-management system, and enabling and deleting Client variables. This chapter finishes off by looking at using WDDX to display complex values within the Client scope, and understanding Cookie-less sessions.

Chapter 8: Exception Handling with CFML

Here we look at the mechanisms available to ColdFusion for handling errors and exceptions. We start with error handling at the server level via the ColdFusion Administrator, then look at handling errors at the application level with `<cferror>`. Next we show how to build more robust error-handling code by using `<cfcatch>`, `<cftry>`, `<cfthrow>`, and `<cfrethrow>`, and describe best practices for structured exception handling. Lastly, we cover debugging by using the ColdFusion Administrator, `<cfdump>`, and `<cftrace>`, protecting data integrity by using `<cftransaction>`, and the impact of Flash Web Services on application exception handling.

Chapter 9: Dreamweaver MX 2004 Extensions

We look at how to install and manage Dreamweaver MX Extensions by using the extension manager, how to use a couple of the more popular publicly available extensions, and how to build our own extensions (using the Server Behavior Builder) and distribute them.

Chapter 10: Code and Component Reuse

This chapter looks at the mechanisms available to Dreamweaver and ColdFusion for reusing code and components, including the `<cfinclude>` tag, ColdFusion user-defined functions (UDFs), ColdFusion custom tags, ColdFusion Components (CFCs), Dreamweaver Snippets, the Dreamweaver library, Dreamweaver templates, and Dreamweaver tag libraries.

Chapter 11: Working with XML in ColdFusion MX 6.1

Now it's time to explore ColdFusion's native XML-handling abilities. Here we take a quick look at what XML is, then go on to look at how ColdFusion can create XML dynamically and access and manipulate XML from external sources. We then examine how XPath can be used to parse and retrieve specific data from an XML document, and how XSLT can be used to transform XML into other markup.

Chapter 12: Flash MX 2004, Web Services, and ColdFusion MX 6.1

Chapter 12 delves deep into the world of Flash web services, specifically looking at how it can be used in conjunction with ColdFusion to dynamically transfer data to and from Flash applications. We start with a brief review of Flash and Flash web services and how they work, then go on to look at some increasingly complicated ColdFusion Flash web services examples.

Chapter 13: A Complete ColdFusion-Based Web Site

This last chapter is a case study that looks at the planning, design, and implementation of a complete ColdFusion-based web site, revisiting many of the techniques we have discussed over the course of the book.

Who's This Book For?

This book is for web professionals with some Dreamweaver knowledge who want to gain a solid understanding of the ColdFusion MX language, and learn to use Dreamweaver MX to create powerful, dynamic web applications with ColdFusion by using Dreamweaver's extensive built-in ColdFusion support.

What Do I Need to Begin?

To use this book, you primarily need a copy of Dreamweaver MX 2004 and a copy of ColdFusion server. If you have bought Studio MX 2004, you are in luck; this comes with a limited version of ColdFusion MX 6.1 Server, which can be used by only one user at a time. Although this would be no good for a production environment, it is perfect for developmental and testing purposes. You can also download the version 6.1 upgrade free from <http://www.macromedia.com/software/coldfusion/productinfo/upgrade/>, if you don't have it.

Secondarily, you need a copy of Microsoft Access (preferably XP or 2000) or another database of choice, a web server to run your examples through (see Chapter 1 for more details), and a web browser to view your examples. You also need a copy of Flash MX to work through the examples in Chapter 12, “Flash Web Services.” A few more minor downloads are required over the course of the book, but we’ll refer to these when required.

You’ll also want to download the example code for this book, available from <http://www.apress.com>. This contains all the examples discussed in the book, making your job even easier.

CHAPTER 1

Welcome to ColdFusion MX 6.1

BECAUSE YOU HAVE PICKED UP this book, you're probably interested in planning and developing dynamic web sites using ColdFusion MX and Dreamweaver MX (latest versions—ColdFusion 6.1 and Dreamweaver MX 2004). Luckily, using ColdFusion MX 6.1 together with Dreamweaver MX 2004 has never been easier! ColdFusion MX 6.1 is aimed at developers who want to make dynamic web sites or applications by introducing interactivity between the user and a server.

ColdFusion MX 6.1 is a powerful server-side technology that essentially combines an application server and a specialized scripting language called ColdFusion Markup Language (CFML). ColdFusion MX 6.1 Application Server has its own web server, but it can work with a wide range of web servers. When the end-user requests a ColdFusion MX 6.1 page, the server processes the page and returns it to the user. Because the code executes on the server, the users cannot see the source code, and the server-side code works the same way regardless of what browser the end-user employs.

CFML is perhaps the easiest server-side scripting language to learn. Despite ColdFusion MX 6.1's simplicity, it can be used to create large-scale enterprise applications on its own, or it can be integrated with JavaServer Pages (JSP). You can use it to create anything from a content management system to a fully featured e-commerce site!

A Brief History of ColdFusion

At the time of writing, the ColdFusion Application Server has been with us for nearly eight years. In fact, ColdFusion was the first web application server released. Since its early days, there have been some remarkable changes in how the software works and how developers use it to develop content-rich and interactive web sites. Let's look at the history of ColdFusion.

In early 1995, Jeremy and J. J. Allaire formed Allaire Corporation. Only a couple of months later, ColdFusion 1.0 was launched. In 1996, ColdFusion 1.5 was released, by which time it had already generated a sizeable following.

In March 1997, Allaire bought HomeSite from Bradbury Software. (HomeSite is a popular HTML editor now bundled with Dreamweaver MX 2004, and is

currently known as HomeSite+.) Three months later, ColdFusion 3.0 started shipping to a user-base of 30,000 developers.

ColdFusion 3.1 was introduced in January 1998, with greater support for Windows NT and Solaris platforms. This version was released with ColdFusion Studio, an enhanced version of HomeSite with specific tools to aid the development of dynamic ColdFusion applications.

In November 1998, Allaire shipped HomeSite 4 and ColdFusion 4.0, and exactly one year later they announced the launch of ColdFusion 4.5. In 1999, Allaire acquired Live Software's JRun engine, and for some time the two were completely separate standalone products. This would not be the case forever.

Much later, in March 2001, Macromedia announced the completion of a merger between it and Allaire Corporation. Just three months later, Macromedia ColdFusion Server 5 was launched and made available to developers. Though this release of ColdFusion did not leverage much of the power of JRun, certain features and functionality that shipped with the server made use of an underlying feature-limited JRun engine.

In May 2002, Macromedia ColdFusion MX was released to the public. It was included in the Macromedia MX family of products, and the Developer version was also bundled with the Windows version of Macromedia Studio MX. ColdFusion MX was the most significant release of ColdFusion to date, because it was a complete rewrite of the server code. Completely rewritten in Java, it featured a more significant integration across a broad spectrum of technologies, including Macromedia Flash and Dreamweaver, and introduced many significant features to the CFML language and the server's underlying engine. ColdFusion MX, being a complete rewrite, was essentially a version 1 release—it just happened to have a history of predecessors. In fall 2003, Macromedia released ColdFusion MX 6.1 as a free upgrade dot-release for anyone with a CFMX license. MX 6.1 addressed the vast majority of reported bugs and server behavior "issues," including an amazing compiler performance improvement. For lack of a better way to put it, MX 6.1 has been the most significant and flat-out best version of ColdFusion released to date.

Integration with Studio MX

As you already know, the Developer Version of ColdFusion MX 6.1 is bundled with Studio MX 2004. The Developer version is fully functional and free, but restricted to requests from a single IP address. You will find support for CFML and for ColdFusion MX 6.1 in most of these products, some more than others. For example, there is not much integration with FreeHand MX and Fireworks MX, but they are primarily graphics-based products used to design web site front-ends, so this is to be expected. On the other hand, you can use Flash MX 2004 (standard or professional), Dreamweaver MX 2004, and HomeSite+ in

conjunction with ColdFusion MX 6.1 to create dynamic web sites more efficiently than ever because of their integration with the server. Other new products, such as Flex, also integrate with ColdFusion MX 6.1 very well. Flex is Macromedia's new server product that generates Rich Internet Application (RIA) interfaces from XML (see www.macromedia.com for more information about Flex).

This section outlines some of the key points regarding the integration of ColdFusion MX 6.1 with other products in the Studio MX suite.

Flash Integration

Since Flash 4, developers have been able to integrate server-side languages with Flash movies. With the introduction of Flash Remoting in Flash MX, ColdFusion MX and Flash have been brought together in an entirely new way. This is still true for ColdFusion MX 6.1. Flash Remoting offers an efficient, lightweight, and easy-to-use method for integrating ColdFusion MX 6.1 with Flash movies. Flash MX 2004 also has improved support for consuming web services and XML data—and it should come as no surprise that ColdFusion MX 6.1 has excellent support for XML and for web services. These technologies make it easy to share data between Flash applications and ColdFusion applications without having to write more than a couple lines of code!

Macromedia's support for integrating ColdFusion MX 6.1 with Flash is certainly the strongest when it comes to server-side support. Flex, a server-side Flash generation server, is one such example. Who knows what might be next? Expect to see further advancements in the near future.

For more information on Flash integration with ColdFusion MX 6.1, refer to Chapter 12.

HomeSite+

HomeSite+ is an enhanced version of Macromedia's HomeSite 5 and ColdFusion Studio 5. It is an advanced code editor for several languages, including ColdFusion MX 6.1. It fully supports ColdFusion MX 6.1 tags for code completion and hinting. You can find HomeSite+ in the Dreamweaver folder on the Studio MX 2004 CD-ROM. It must be installed separately.

Integration with Dreamweaver

Macromedia has made it easier than ever to develop rich ColdFusion MX 6.1 applications with Dreamweaver MX 2004. For example, Dreamweaver MX 2004

allows you to create Recordsets using a simple wizard interface and add server behaviors that can page through those Recordsets with a few mouse clicks.

TIP *A Recordset is a specific group of records selected from a database and defined as a single object, thus enabling you to easily manipulate the data via your server-side language.*

Dreamweaver MX 2004 also offers code hinting for ColdFusion MX 6.1 tags, which brings up a list of available tag attributes and suggested values where appropriate. Also available is a complete tag editor that allows you to right-click on ColdFusion MX 6.1 tags and fill in attributes by using a wizard-style interface that uses text boxes and drop-down menus, and support for CFML functions, keyboard shortcuts (including snippet keyboard shortcuts), and more.

You can also receive ColdFusion MX 6.1 server debugging information from within Dreamweaver MX 2004, which helps you debug your applications. Macromedia has also made it very simple to use web services and ColdFusion Components (a powerful new tool in CFMX 6.1) within Dreamweaver MX 2004. Tell Dreamweaver MX 2004 the URL of any web service, select Insert Code, and Dreamweaver MX 2004 generates all the necessary code and embeds it into your ColdFusion MX 6.1 template.

The ColdFusion MX 6.1 Server and CFML

The ColdFusion MX 6.1 Server and CFML have a good deal of competition in the world of server-side languages and web application servers. Before working with ColdFusion MX 6.1 (or any language, for that matter), it is always wise to weigh the pros and cons.

Advantages of ColdFusion MX 6.1

ColdFusion MX 6.1 provides several advantages. Foremost is its simplicity and ease of use. This means that it is easy to learn (as you will find out soon) and fast to develop in, which can—and almost always does—make it cheaper for your clients in the long run. ColdFusion MX 6.1 makes it easy to perform queries, send e-mails, search your site or collect documents, grab remote web pages or files, or force users to log in to an application, all by providing standard tags to perform these actions instead of requiring you to write custom code.

Despite its simplicity, CFML is a powerful server-side language. You can use custom tags, use a number of network protocols, have full database access,

and integrate with enterprise-level solutions (such as Enterprise JavaBeans [EJB], Component Object Model [COM], and Common Object Request Broker Architecture [CORBA]). The ColdFusion Component Architecture, introduced to CFML in ColdFusion MX and refined in MX 6.1, allows developers to take advantage of many of the powerful Object Oriented Language benefits such as inheritance, instance-based development, and encapsulation.

ColdFusion MX 6.1 almost always pays for itself tenfold because of the amount of development time it saves compared to its competitors.

Disadvantages of ColdFusion MX 6.1

Many server-side programming language alternatives to ColdFusion, such as ASP, PHP, JSP, and Perl, are free to use. However, none comes with the technical and community support, variety of supported OS platforms, and out-of-the-box features ColdFusion MX 6.1 has. Sure, ColdFusion MX 6.1 does cost a little bit of money initially, but this is compensated by other savings as we already mentioned, and it is free for development purposes. You can run a fully featured copy of ColdFusion MX 6.1 Enterprise Edition for free to develop your applications—the only catch is that it will not allow other browsers to visit your applications (obviously—it's only for development until you purchase a license or arrange for a host).

Installing the ColdFusion MX 6.1 Server

You can install ColdFusion MX 6.1 MX on several different operating systems: Windows, Mac OS X, Linux, Solaris, and HP-UX. It also has the advantage of having a built-in web server, so you can test and develop on a system that does not have a server already installed. In this section, we explain how to install ColdFusion MX 6.1 server onto a Windows-based system.

Before you begin the installation, we strongly recommend that you make sure that your computer system meets the minimum hardware requirements as specified by Macromedia. You can find these system requirements at http://livedocs.macromedia.com/coldfusion/6.1/htmldocs/part_ins.htm.

How to Install ColdFusion MX 6.1

1. Start the install procedure. After agreeing to the end-user license agreement, you will be taken to the Customer Information dialog box. This is where you enter details like your name and organization name. You can also enter a serial number if you have purchased a license for ColdFusion

MX or ColdFusion MX 6.1. If you leave the serial number text field blank, you will install the 30-day trial version. There is a bullet for opting to immediately install the developer version, which is a single-IP address fully-functional version (if you install the 30-day trial and let the trial expire, it becomes a developer edition anyway). In addition to the license type, you choose the install type. Several options are available. In this book we focus on the standalone version, but be aware that ColdFusion MX 6.1 is a Java 2 Platform Enterprise Edition (J2EE) application, and as such it runs on top of a J2EE server. There are options to install ColdFusion MX 6.1 on top of JRun 4, or to deploy it on an existing J2EE application server as either a .ear or .war file. If you don't know what all of that means, don't worry about it right now. Just know that ColdFusion runs as a Java application and that there are many options for how ColdFusion MX 6.1 can be configured and deployed. You can read more about installing the J2EE version of CFMX 6.1 at <http://livedocs.macromedia.com/coldfusion/6.1/htmldocs/installj.htm#wp109411>.

2. Next, the installer detects which web servers you currently have installed and gives you the option of using any of these or Macromedia's standalone web server. Macromedia recommends that you use the standalone server only for developmental purposes and not on production systems. Note that by default the standalone server runs on port 8500. So, if you are connecting to your local machine, you must always append :8500 onto the domain in the URL. For example, to access the ColdFusion MX 6.1 Administrator, you would need to enter `http://localhost:8500/CFIDE/administrator/` in the address bar of your web browser. If you are using Internet Information Server (IIS) or Apache (or any other web server) with the default HTTP port (80), you will connect to the local machine as `http://localhost/CFIDE/administrator/`. Choose one of these options and click the Next button.
3. Now you define the paths to which you want to install the program files and web files. By default, ColdFusion MX 6.1 installs to the `C:\CFusionMX\` directory. When finished, click the Next button.
4. The next step of the install procedure allows you to choose what components are installed. The first component is the application server itself, which must be installed. The second component is the Documentation and sample applications, and these are optional.

In a production environment, do not install the documentation or sample applications, because they may be exploited by malicious Web users. When you have finished making your decision, click on the Next button.

TIP *You can access the most recent documentation at <http://livedocs.macromedia.com/>, and users can actually add comments and notes to most pages for other people to read. These comments often contain useful tips or workarounds for bugs.*

5. Next, you choose passwords for the administration web site and for users connecting through Remote Development Services (RDS). RDS is one way that HomeSite and Dreamweaver MX 2004 can connect remotely to the ColdFusion MX 6.1 server and edit files. If you wish to use the same password for both, simply click the “Use the same password as above” checkbox and enter a password into both of the upper text fields. Click the Next button after you are finished.
6. The final step is a confirmation screen. This allows you to check all settings before actually installing the files. You can go back and make changes before returning and clicking on the Install button. ColdFusion MX 6.1 will then take several minutes to install before the wizard completes.
7. Once the installation wizard has successfully completed, it will launch the ColdFusion MX 6.1 Administration web site, which we walk you through later in this chapter. Once you log in to the Administrator, click on Version Information near the top right, and you will see a brief summary of the server details and the Java Virtual Machine (JVM) details.

A text field near the top of this page lets you enter a new serial number. If you installed the Developer or 30-day trial edition of ColdFusion MX 6.1 and later want to upgrade to the Professional or Enterprise edition, simply return to this page and enter your serial number. ColdFusion MX 6.1 will remove the connection limitations of the Developer edition.

Before getting started with ColdFusion MX 6.1, update your software to the latest version. At the time of writing, the latest update offered by Macromedia is ColdFusion MX 6.1. As new bug fixes and features are released, hotpatches and sometimes even updaters are made available for download. You can check for new patches and updates at <http://www.macromedia.com/support/coldfusion/>.

Changing the Port Number for ColdFusion MX 6.1

If using the Macromedia standalone web server with ColdFusion MX 6.1, you can also change the port from 8500 to 80 or any other available port.

Simply open the install directory: `\CFusionMX\runtime\servers\default\SERVER-INF\jrun.xml` file and search for `<attribute name="port">8500</attribute>`, which is near the bottom of the document. Change the port number from 8500 to the available port you wish to use, such as port 80, and save this file. Stop and restart the ColdFusion MX 6.1 MX Application server service from the Services window at the Control Panel ► Administrative Tools ► Services interface. You will now be able to access your ColdFusion MX 6.1 Administrator and pages on the new port that you specified. More information about configuring the built-in web server appears at http://www.macromedia.com/support/coldfusion/adv_development/config_builtin_webserver/.

The ColdFusion MX 6.1 Administrator

ColdFusion MX 6.1 settings are defined in two places: the Web-based ColdFusion MX 6.1 Administrator (also known as the *Admin*), and within XML files in the ColdFusion MX 6.1 program directory.

Most of the changes you'll ever need to make can be done through the ColdFusion MX 6.1 Administrator, found at <http://localhost:8500/CFIDE/administrator/> if you are using ColdFusion MX 6.1's built-in web server by default. If using IIS, Apache, or have configured ColdFusion MX 6.1 to respond to a different port, then you must modify the port (and any other URLs in this book) accordingly. We assume that you are running the server on port 8500.

When you first connect to the Administrator, it will provide you with a login screen. This is where you enter your ColdFusion MX 6.1 Administrator password (which you selected while installing the ColdFusion MX 6.1 Server). Enter the password and click on the Login button. You will be taken to the administration homepage.

The Administrator has five major sections down the left side of the interface:

- Server Settings
- Data & Services
- Debugging & Logging
- Extensions
- Security

All these sections have areas of their own you must consider while working with this tool. We describe all these areas next. However, we provide only a brief overview of Extensions and Security, two highly advanced areas of ColdFusion MX 6.1 development beyond the scope of this book.

Server Settings

The Server Settings area has ten different areas (nine if you're using the J2EE version) primarily used to control server-wide settings, such as enabling and disabling certain variable scopes, and mail server and caching settings.

Settings

These are general server settings that control behavior and performance. You can set the number of seconds that a user request is allowed to run before it times out (if at all), and also limit the number of simultaneous requests a user can run. You can define which template will be called if ColdFusion MX 6.1 cannot find the requested template, and can also specify which template is called if an error occurs and is not handled in the ColdFusion MX 6.1 code. We cover error handling in detail in Chapter 8.

Caching

This is where you define how many ColdFusion MX 6.1 templates (.cfm files) and database queries can be cached in the server memory at one time. You can also specify if the server should check whether the file currently being served by ColdFusion MX 6.1 is the most recent version of the file. This last setting, called Trusted Cache, is an option you would enable only if your files never changed after you upload them to the server.

When ColdFusion MX 6.1 runs a template for the first time, it compiles the template into a .class file and caches the file on the server. The next time the file is requested, ColdFusion MX 6.1 checks whether the requested file is newer than the one in the cache; if so, it recompiles the template and returns it to the visitor. If the file in the cache is the latest version, then the file is returned immediately to the visitor, and ColdFusion MX 6.1 doesn't need to recompile the file. This enables ColdFusion MX 6.1 to recompile files only when they have changed, greatly improving server performance.

Client Variables

ColdFusion MX 6.1 allows you to store persistent data for users. At a shopping site, for example, if a user were to leave the site and return later, you could save the contents of the visitor's shopping cart. ColdFusion MX 6.1 does this by issuing the visitor a unique key and storing the visitor's data in a database, cookie, or the system registry. This section is where you define which databases should store the persistent data, how long it is stored before being purged from the database, and whether ColdFusion MX 6.1 should store the data in the registry, in cookies, or in a particular database by default. We cover client variables in detail in Chapter 7.

Memory Variables

ColdFusion MX 6.1 also allows developers to store data in server memory instead of saving it as session variables in a database, cookie, or registry. Memory variables and persistent data are covered in Chapter 7.

Mappings

ColdFusion MX 6.1 mappings are aliases to directories, even those outside the Web-root, and are similar to the virtual directories that you would define in your web server. We mainly use them when creating custom tags in ColdFusion MX 6.1 or include files. Instead of including a file by specifying the path `../../includes/header.cfm`, you could create a mapping named SiteA that points to the root of the SiteA.com web site. Then you could include this file in the following way: `/SiteA/includes/header.cfm`. This mapping will work no matter how deeply `header.cfm` is located within the site's directory structure.

How to include external files by using the `<cfinclude>` tag is covered in Chapter 10.

Mail Server

This is where you enter your mail server settings into ColdFusion MX 6.1; this enables us to use the `<cfmail>` tag to send e-mails through ColdFusion MX 6.1. We cover `<cfmail>` in Chapter 5.

Charting

ColdFusion MX 6.1 lets you dynamically create bar charts, pie charts, line graphs, and several other types of charts in two or three dimensions. This is where you

specify whether to cache charts to the hard drive or the server memory. You also choose where to save any charts that are cached to the disk, and also the maximum number of charts in either cache. You can also specify the maximum number of thread requests (between one and five) that can be processed at the same time.

Java and JVM

This is where you define settings relating to the JVM by specifying the location where the JVM is installed, and any initialization arguments that you need to pass to the JVM. Typically, you don't ever need to change these settings. You can specify any additional class paths for the JVM that are sometimes needed when adding Java custom tags. Note that in the J2EE version of ColdFusion MX 6.1, this section is omitted (the J2EE application server settings are used instead).

Archives and Deployment

ColdFusion MX 6.1 allows you to save your web server's (or a specific application's) configuration information to an archive and migrate the archive to a different computer, or back up the archive and restore it later on the current machine.

Settings Summary

This is just a report of the current configuration. The page makes it easy for you to see all your configuration settings in one place and print a record. You can also click on the different sections of the report, which takes you to the corresponding page in the Administrator.

Data and Services

The next major section, Data and Services, has four different areas. You use these to create data sources, assign aliases to web services, and set up the Verity search engine (described shortly).

Data Sources

This is where you define your data sources for each database for this server. A data source is essentially an alias (that you define on your server) that allows you to communicate with your database.

Verity Collections

ColdFusion MX 6.1 ships with an indexing engine called Verity, which allows you to build a search engine for your web site. Verity lets you index MS Word documents, Adobe PDFs, databases, and most other document types. For more information on Verity, check out Macromedia's online documentation at <http://livedocs.macromedia.com/coldfusion/6.1/htmldocs/indexseb.htm#wp1160419>.

Verity K2 Server

Macromedia ships with a limited version of Verity's K2 Server, which is used to index and search documents within a site. Using Verity K2 Server, you can create "collections" of documents (such as MS Word documents or Adobe PDFs), search the collection(s) for a combination of words, and display the results within your ColdFusion MX 6.1 pages sorted by a ranking generated by Verity, and much more. You can find more information on Verity and the K2 Server at www.verity.com.

Web Services

This is where you can set up aliases for your commonly used web services. Instead of always typing the URL to the web service you want to use, you can simply register it in this section. For example, you can set up an alias called GoogleSearch for the URL <http://api.google.com/GoogleSearch.wsdl>. We cover web services in detail in Chapter 10.

Debugging and Logging

ColdFusion MX 6.1 includes a robust debugging environment that allows developers to debug applications easily during development. We cover the debugging options in detail here, including how to set which IP addresses are able to view debugging output, and which variable scopes and debugging output will be displayed.

Debugging Settings

This section is where you decide whether to enable debugging, and in which layout you want to display the debugging information (at the bottom of each template, or in a popup window with an expandable/collapsible tree). By defining what information should be shown in the debug output, developers can get detailed information on variables, queries, execution times, which pages were

processed for the current request, and all sorts of valuable error/exception information. You can also define whether to show database query information and which variables and their corresponding values should show up in the debugging output. This debugging output can also be used within Dreamweaver MX 2004 and HomeSite+ in addition to being displayed at the bottom of each template.

Debugging IP Addresses

This is where you enter the IP addresses that will receive the debugging information. It is important to note that if you don't define IP addresses in this section, all users will receive the debugging output. For this reason, it is advisable to enter at least the IP address of the ColdFusion MX 6.1 Server, or simply the IP address 127.0.0.1, which will always point to the local machine, or in this case the server running ColdFusion MX 6.1.

Logging Settings

When ColdFusion MX 6.1 encounters errors in the code, it will typically log the error to a file, which administrators and developers can peruse later. This helps developers figure out which part of their application is encountering problems and needs attention. In this section, you tell ColdFusion MX 6.1 which directory to save the log files in, the maximum allowed size of the log files before ColdFusion MX 6.1 archives them, and how many archived files to keep before deleting the older error logs. You can also tell ColdFusion MX 6.1 to log any template that takes more than a certain number of seconds to execute. This helps track templates that are performing badly and are perhaps inefficient and/or experiencing problems.

Log Files

This is where you view the log files ColdFusion MX 6.1 has produced. You can also go to the log directory that you defined in the Logging Settings section and open the files in Notepad or any other text editor. Log files can be downloaded, viewed, archived, or deleted.

Scheduled Tasks

ColdFusion MX 6.1 provides developers with an easy way to schedule templates to run at a specific day and time. Using this Web interface, you can create a new task that will execute once or recur every few hours. For example, you could schedule a ColdFusion MX 6.1 template to fetch new data from a remote news-feed every 8 hours, or delete customers' shopping carts if they haven't made any changes in the past 24 hours.

System Probes

You can use system probes to check whether your web site is running and functioning properly. Simply create a new probe, enter the URL to check, along with a string or regular expression to check for, and if the probe fails, it can either send an e-mail to a specified address or execute a script or program that could be used to restart the ColdFusion MX 6.1 service.

Code Analyzer

The code analyzer is useful when migrating from an earlier version of ColdFusion MX 6.1. It examines existing code and reports any potential issues that may arise because of deprecated ColdFusion MX 6.1 tags or features.

Extensions

This section is mainly for advanced development. It lets you extend ColdFusion MX 6.1 by registering new Java Applets that you want to use in your applications. You can also define new ColdFusion Extension (CFX) tags (custom tags written in Java or C++) that usually add features beyond those you could build using just CFML. For example, some CFX tags can resize images or convert them to different formats, or just tell you the width and height of an existing image.

Security

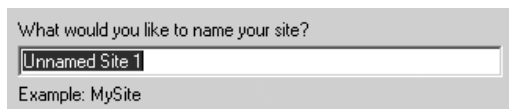
In this final section, you can define/disable a password for connecting to the ColdFusion MX 6.1 Administrator or for users to connect to ColdFusion MX 6.1 servers using Dreamweaver MX 2004 or ColdFusion Studio/HomeSite+. The final section, Sandbox Security, is used to restrict which sites can have access to which ColdFusion MX 6.1 elements, functions, and resources. You could prohibit certain sites from using elements such as `<cffile>`, `<cfdirectory>`, `<cfhttp>`, `<cfftp>`, or `<cfmail>`. You could even limit which servers or IP addresses the web site can connect to. Sandbox security is primarily used for servers employed in a shared hosting environment, where you want to lock down access to tags and data sources.

Setting Up a Site in Dreamweaver MX 2004

Dreamweaver MX 2004 is the recommended IDE for developing CFML applications, and it does everything in the context of a site. Fortunately, setting up a ColdFusion

MX 6.1–based site in Dreamweaver MX 2004 is extremely easy. Follow the simple steps listed here, and you will be ready to start developing your web site. Because we required only the basic features for setting up my site, and the site definition wizard nicely steps through each required piece of information, we use it in the following section. If you need any additional features, simply click on the Advanced tab at any time and enter your custom settings along with the following ones.

1. In Dreamweaver MX 2004, open the Files panel and select the Site tab. In the site menu at the top, click Manage Sites►New►Site, and the site definition wizard dialog box will open. If the Basic tab is not already selected at the top of your screen, select it.
2. You must give your site a name (Figure 1-1). For the purpose of this example, call it “cfbook” and click Next. (This name needs to be a unique identifier for Dreamweaver MX 2004.)

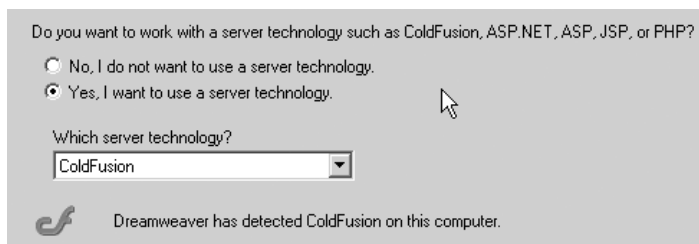


What would you like to name your site?

Example: MySite

Figure 1-1. Enter the name of your site into this box.

3. You want to use a server technology to build your web site, so make sure the “Yes, I want to use a server technology” option is selected here. For the server technology, select ColdFusion from the drop-down menu as shown in Figure 1-2. Click on the Next button.



Do you want to work with a server technology such as ColdFusion, ASP.NET, ASP, JSP, or PHP?

No, I do not want to use a server technology.

Yes, I want to use a server technology.

Which server technology?


 Dreamweaver has detected ColdFusion on this computer.

Figure 1-2. Select ColdFusion as the server technology you want to use.

4. You will be working with your files locally during development, so in the Editing Files, Part 3 section of the Site Definition dialog box, choose the first option and enter the path to a folder to store your ColdFusion MX 6.1 files in (see Figure 1-3). If you want or need to edit your files on a remote server (or edit them locally then upload them) using FTP, enter the location of the remote server at this point.

Here, you will be using the default location specified by Dreamweaver MX 2004. This will be the install location of ColdFusion MX 6.1, typically C:\CFusionMX. The Web-root directory for ColdFusion MX 6.1 is wwwroot—within this, create a new folder for this site. You will probably want to use the site name, but this can be changed by using the browse button (the folder icon to the right) or by typing in a new name. When finished, press the Next button.

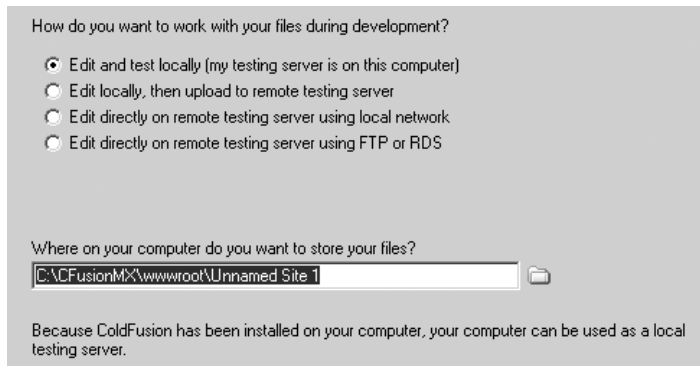


Figure 1-3. Choose where to edit and store files.

5. For the Testing Files section of the Site Definition dialog box, enter your local testing server and the root folder for this particular site. If using the standalone server, enter a URL similar to the following: `http://localhost:8500/cfbook`. If you are unsure, click on the Test URL button, which checks whether you are using a valid address. As long as ColdFusion MX 6.1 is running and you are targeting a valid server, you will be presented with a message that says "The URL Prefix test was successful" as seen in Figure 1-4.

If you get an error message, make sure your server is running and that you are using the correct port number. If you were running a server such as IIS, your URL would be `http://localhost/cfbook`. If you were using a remote server running ColdFusion MX 6.1, this would be the location provided by the company hosting your site. When finished, click Next.



Figure 1-4. Successful URL prefix dialog

6. Finally, in the Site Definition dialog box, select the No radio button if you do not want to upload your files to another machine (see Figure 1-5).

We will not be using this feature in this book. However, you may want to use this for testing if your ColdFusion MX 6.1 server is on another machine or on your hosting provider's server. Click the Next button.

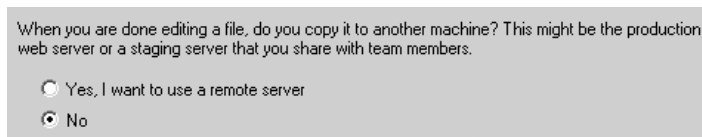


Figure 1-5. If you are not using a remote server, click the No option.

7. When finished, you will see a summary screen showing all your settings. To further configure these settings, select the Advanced tab at this time and make the desired modifications. Otherwise, click on the Done button.

Now you are back in Dreamweaver MX 2004, and you should notice a few changes in the authoring environment. First, there are certain additions specific to ColdFusion MX 6.1 in the Application panel group (Database, Bindings, Server Behaviors, and Components). You can define RDS logins (the RDS password is the one you defined earlier during installation), create data sources, and select Recordsets using these new features. The Insert bar now has tabs for CFML (and are labeled appropriately).

Getting Started with CFML

One of ColdFusion MX 6.1's greatest strengths is the simplicity of its tag-based language, CFML. If you have experience with coding HTML, the migration to

ColdFusion MX 6.1 should be very easy. Like HTML, CFML is not case-sensitive, so it doesn't matter if you type a tag in uppercase, lowercase, or mixed case. In this section, we are going to run through a few CFML tags. For developers used to a JavaScript-like syntax, CFML supports CFScript, which allows access to most ColdFusion MX 6.1 functionality through a more traditional coding style. We provide several more in-depth examples in Chapter 3.

Setting a Variable

To set a variable in a page, type

```
<cfset myVar = "myValue">
```

To output this variable, type

```
<cfoutput>#myVar#</cfoutput>
```

If you save this code in a `.cfm` file and view it in a web browser, the text "myValue" will be output to the screen.

When you output variables in ColdFusion MX 6.1, remember that they must be enclosed in pound signs (`#`). Without pound signs, ColdFusion MX 6.1 assumes that you want to output a string, so typing `<cfoutput>myVar</cfoutput>` would simply output `myVar` to the window. Likewise, if we forget the `<cfoutput>` tags, ColdFusion MX 6.1 won't parse the variables, and `#myVar#` will show up as the output! One place where ColdFusion MX 6.1 differs from other programming languages is that it doesn't require you to declare a data type for a variable before setting a value. ColdFusion MX 6.1 automatically converts variables and determines their data type for you.

Functions

ColdFusion MX 6.1 also has a very extensive list of functions available, including the ability to create your own user-defined functions (UDFs). For example, you could simply add `<cfoutput>#Now()#</cfoutput>` to a web page to have it display the current server date and time on the screen. `#Now()#` is a built-in ColdFusion MX 6.1 function that takes no arguments and returns the current date and time of the server. Several other date and time functions allow you to extract just the year, month, hour, second, or any component of a date, along with numerous other formatting options to choose for displaying dates.

Looping with <cfloop>

This tag has a few different parameters and performs different tasks depending on which attributes you specify, but one of the easiest ways to call this tag is like this:

```
<cfloop from="1" to="3" index="i">
    ...
</cfloop>
```

This example loops from 1 to 3. This is similar to a `for...next` loop structure in other languages. Using other attributes of the `<cfloop>` tag, `do...while` and other types of loops can be used. For each time you go through the loop, you set a variable called "i" that holds the current value. If you changed the code to:

```
<cfloop from="1" to="3" index="i">
    <cfoutput>#i#</cfoutput>
</cfloop>
```

It would generate the following output:

```
1 2 3
```

Sending Mail with <cfmail>

ColdFusion MX 6.1 allows you to send e-mails quickly and easily by using the `<cfmail>` tag, as shown in the following snippet:

```
<cfmail from = "admin@yourdomain.com" to = "info@yourdomain.com"
    subject = "your subject here">
    this is the body of the e-mail.
</cfmail>
```

As long as you have entered a valid mail server in the ColdFusion MX 6.1 Administrator, you will be able to send e-mails from ColdFusion MX 6.1. You could easily modify this example to allow you to send e-mails to a variable that a user typed into a web form; this would enable you to build a simple form that allows visitors to e-mail questions and feedback to the webmaster.

Summary

In this chapter, we described many different areas of the ColdFusion MX 6.1 environment, such as the CFML language, ColdFusion MX 6.1 application server, and how these interact with Dreamweaver MX 2004. We covered:

- The background and history of ColdFusion and how it integrates with the Web today
- The advantages and disadvantages of ColdFusion MX 6.1
- How to install and set up the standalone version of ColdFusion MX 6.1 server on the Windows platform
- How to set up a ColdFusion MX 6.1 web site in Dreamweaver MX 2004
- How to get started with CFML

The next chapter focuses on using databases and SQL, which is used to select, insert, update, and delete data from databases. We will also take a look at how to create a data source in the ColdFusion MX 6.1 Administrator, which allows ColdFusion MX 6.1 to talk to databases.