

# Getting Started with ColdFusion

ColdFusion 4.01 for Windows® NT,  
Windows 95/98, and Solaris

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## P R E F A C E

# Welcome To ColdFusion

The ColdFusion Web application server is a complete development platform that provides the fastest way to integrate browser, server, and database technologies into powerful Web applications and interactive Web sites. With ColdFusion, you can build everything from online stores to sophisticated business systems.

Read this manual to get started with ColdFusion.

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## Intended Audience

*Getting Started with ColdFusion* is meant for anyone who needs:

- An overview of the ColdFusion development platform
- To install ColdFusion Server
- Help creating their first ColdFusion application pages

**Note** The ColdFusion Studio install does not require enough user input to be covered here. For more information about using ColdFusion Studio, see the online version of *Using ColdFusion Studio*.

## Developer Resources

Allaire is committed to setting the standard for customer support in developer education, technical support, and professional services. Our Web site is designed to give you quick access to the entire range of online resources.

Allaire Developer Services	
Resource	Description
Allaire Web site <a href="http://www.allaire.com">www.allaire.com</a>	Our home page provides general information about Allaire products and services as well as regular corporate news updates.
Technical Support <a href="http://www.allaire.com/support">www.allaire.com/support</a>	Allaire offers a wide range of professional support programs.
Training <a href="http://www.allaire.com/education">www.allaire.com/education</a>	There are a variety of courses that you may attend at an Allaire training center, at your site, on the Internet, and even at your desktop.
Developer Community <a href="http://www.allaire.com/developer">www.allaire.com/developer</a>	The DevCenter provides the resources that you need to stay on the cutting edge of development. There are links to Support Forums, our Knowledge Base, the Developer's Exchange, technical papers and more.
Allaire Alliance <a href="http://www.allaire.com/partners">www.allaire.com/partners</a>	There is a network of solution providers, application developers, releasers, and hosting services creating solutions with ColdFusion.

## About ColdFusion Documentation

ColdFusion documentation is designed to provide support for all components of the ColdFusion development platform. Both the print and online versions are organized to allow you to quickly locate the information you need. ColdFusion online documentation is provided in both HTML and Acrobat file formats.

### ColdFusion Server

#### Printed documentation

- *Getting Started with ColdFusion*
- *Administering ColdFusion Server*
- *Developing Web Applications with ColdFusion*
- *CFML Language Reference*

#### Online documentation

All ColdFusion documentation is available online in both HTML and Acrobat formats.

To view the HTML documentation, open the following URL:

<http://127.0.0.1/cfdocs/dochome.htm>

To view and print ColdFusion documentation in Acrobat format, open the following

URL: <http://127.0.0.1/cfdocs/AcrobatDocs/>

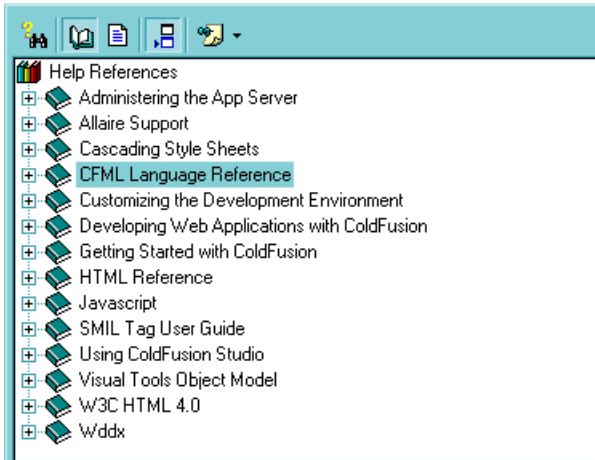
### ColdFusion Studio

#### Printed documentation

- *Getting Started with ColdFusion*
- *Administering ColdFusion Server*
- *Developing Web Applications with ColdFusion*
- *CFML Language Reference*

## Online documentation

ColdFusion Studio contains a wide range of online assistance, including a complete collection of ColdFusion documentation. To view Studio online documentation, click the Help resource tab. You'll see an expandable list of documents about ColdFusion Studio, as well as a number of other areas that relate to Web programming:



Studio online documentation is searchable and individual pages can be bookmarked. For more information about using the Studio interface, see the online version of *Using ColdFusion Studio*.

## ColdFusion manuals

The core ColdFusion documentation set consists of the following titles.

### *Getting Started with ColdFusion*

Covers system requirements and basic installation, describes ColdFusion development system components, and introduces the ColdFusion Markup Language (CFML). Start here to learn how ColdFusion works, how to install ColdFusion server, and how to create your first ColdFusion application.

### *Administering ColdFusion Server*

Describes configuration options for maximizing performance, managing data sources, setting security levels, and a range of development and site management tasks. If you are administering a ColdFusion site, you'll need this book to help plan and implement ColdFusion security, load balancing, and for details about tuning the ColdFusion application server.

### *Developing Web Applications with ColdFusion*

Presents the fundamentals of ColdFusion application development and deployment, including an overview of CFML elements such as functions, expressions, arrays, scripting, and XML data exchange. Also includes detailed information about ColdFusion data sources, user interfaces, and Web technologies.

### *CFML Language Reference*

Provides the complete syntax, with example code, of all CFML tags and functions.

### *ColdFusion Quick Reference Guide*

A valuable quick online reference to CFML tags, functions, and variables.

## Documentation Conventions

When reading documentation, please be aware of these formatting cues:

- Code samples, filenames, and URLs are set in a monospaced font.
- URL addresses that begin with `http://127.0.0.1` direct you to pages on your Web server's local machine or the *localhost*.
- Notes and tips are identified by bold type in the margin.
- Bulleted lists present options and features.
- Numbered steps indicate procedures.
- Toolbutton icons are generally shown with procedure steps.
- Menu levels are separated by the greater than (>) sign.
- Text for you to type in is set in *italics*.

## Printing ColdFusion Documentation

If you are working with an evaluation version of ColdFusion and would like printed documentation to read, locate the Adobe Acrobat files installed with both ColdFusion Server and ColdFusion Studio. The Acrobat files offer excellent print output. You can print an entire manual or individual sections.

### ColdFusion Server Acrobat files

Locate the ColdFusion Server Acrobat files by opening the following URL on the system hosting ColdFusion Server:

`http://127.0.0.1/cfdocs/AcrobatDocs`

### ColdFusion Studio Acrobat files

ColdFusion Studio Acrobat files are not installed with ColdFusion Studio. They can be found on the product CD. To locate the files, load the product CD and click the browse option to browse the contents of the CD. You'll find the Acrobat files in a folder called "Studio Acrobat Files."

## Getting Answers

One of the best ways to solve particular programming problems is to tap into the vast expertise of the ColdFusion developer community on the Allaire Support Forums. Other ColdFusion developers on the forums can help you figure out how to do just about anything with ColdFusion. The search facility can also help you search messages going back 12 months, allowing you to learn how others have solved a problem you may be facing. The Forums are a great resource for learning ColdFusion, and they're also a great place to see the ColdFusion developer community in action.

## Contacting Allaire

### Corporate headquarters

Allaire Corporation  
One Alewife Center  
Cambridge, MA 02140

Tel: 617.761.2000

Fax: 617.761.2001

<http://www.allaire.com>

### Technical support

Telephone support is available Monday through Friday 8 A.M. to 8 P.M. Eastern time (except holidays)

Toll Free: 888.939.2545 (U.S. and Canada)

Tel: 617.761.2100 (outside U.S. and Canada)

Postings to the ColdFusion Support Forum (<http://forums.allaire.com>) can be made any time.

### Sales

Toll Free: 888.939.2545

Tel: 617.761.2100

Fax: 617.761.2101

Email: [sales@allaire.com](mailto:sales@allaire.com)

Web: <http://www.allaire.com/store>



## CHAPTER 1

# ColdFusion Overview

This chapter describes the evolving Web application platform and introduces the ColdFusion development platform.

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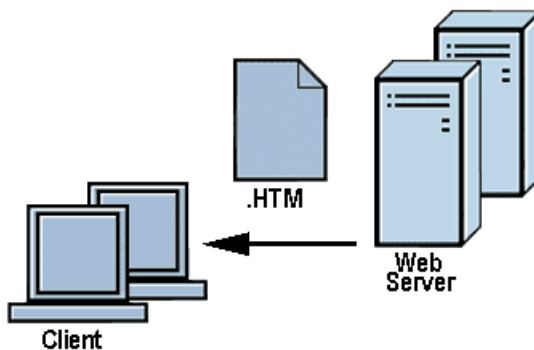
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## Development Challenges

Companies are now using Web applications to solve major business challenges from e-commerce to content publishing to business process automation.

But as the Web emerges as a new application platform, developers need to leverage existing data, while they maintain the benefits inherent to the Web. These benefits include:

- The browser as a universal cross-platform client
- Server-based content
- Page-based content models
- Markup languages for structuring, displaying, and exchanging information

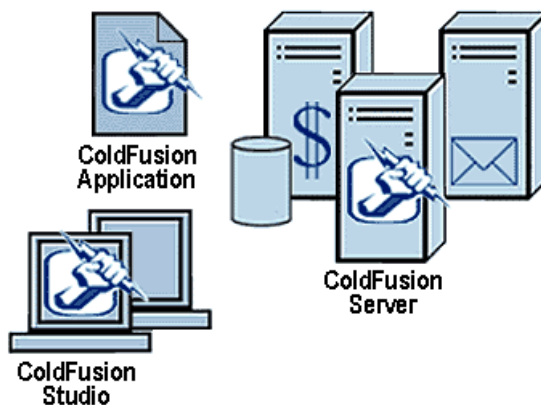


## The ColdFusion Development Platform

ColdFusion provides a development platform on which you can take advantage of the unique architecture of the Web while, at the same time, integrating with existing legacy technologies and enterprise systems.

The ColdFusion development platform consists of two basic components: ColdFusion Server and ColdFusion Studio. ColdFusion Server is a high-performance Web application server for deploying browser-based applications. ColdFusion Studio is a complete suite of visual tools for building applications.

Using the ColdFusion development platform, you can build Web applications that connect to a wide range of existing business systems such as RDBMS, messaging servers, file repositories, directory servers, and distributed object middleware.



### ColdFusion Web applications

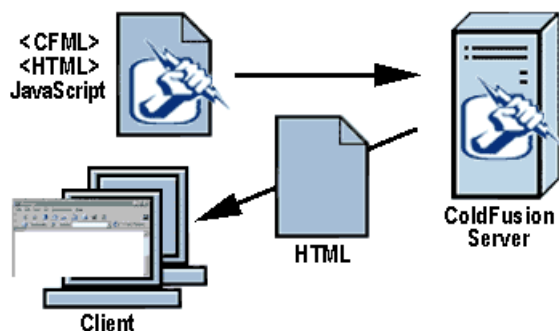
ColdFusion applications are essentially a collections of pages. As with static Web pages, application pages can contain HTML and other client technologies. But, unlike static pages, ColdFusion application pages:

- Are denoted by a specific file extension  
CFM is the default ColdFusion file extension.
- Contain an additional language, the ColdFusion Markup Language (CFML)

## CFML

CFML is a tag-based server scripting language that cleanly integrates with HTML and XML. The core of the language is more than 70 server-side tags that encapsulate complex processes such as connecting to databases and LDAP servers, and sending email. Additionally, CFML is extensible and it seamlessly integrates with major distributed objects standards such as COM and CORBA.

Processed entirely on the ColdFusion server each time an application page is requested, CFML provides a dynamic application environment that is both powerful and easy to use.



## ColdFusion Server

Because CFML is processed on the server and because Web servers only know how to pass pages to browsers, ColdFusion Server must be installed on a Web server to provide support for ColdFusion applications.

### How ColdFusion Server works

When ColdFusion Server is installed on a Web server and a client requests a page with a CFM extension, the following steps take place:

1. The Web server passes files to ColdFusion Server.
2. ColdFusion Server scans the page and processes all CFML tags.
3. ColdFusion Server returns only HTML and other client-side technologies to the Web server and, in turn, the browser.

### Usage Example

When a client requests the Allaire Home page, the following steps take place:

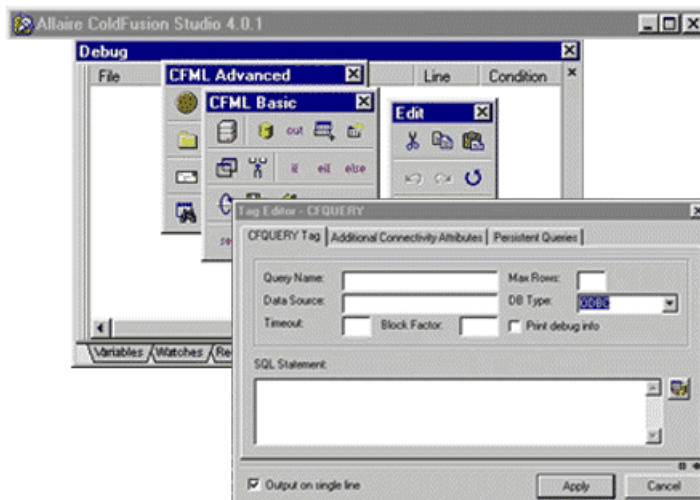
1. The Allaire Web server sees the CFM extension and passes the page to our ColdFusion Server.
2. ColdFusion Server processes the CFML tags to perform procedures such as retrieving data from a database to populate a page.
3. ColdFusion Server passes the data it processed back to the Web server as HTML.
4. The Web server sends the data back to the browser.
5. The browser renders the page.

## ColdFusion Studio

ColdFusion Studio is an integrated development environment (IDE) that includes a variety of tools for building Web applications.

The core editing environment is based on the same technology that's in Allaire HomeSite. It provides a full suite of advanced editing tools including color coding, Web application wizards, and two-way visual programming. ColdFusion Studio also includes visual database tools, an interactive debugger, full integration with source control systems, and support for remote and team development using ColdFusion Server.

Each copy of ColdFusion Studio includes a single-user version of ColdFusion Server so that individual developers can create and test applications at their desktop.



## ColdFusion Products

The ColdFusion development platform is licensed as two separate products that work together: ColdFusion Server and ColdFusion Studio. ColdFusion Studio is available in a single edition that includes the complete suite of visual tools. ColdFusion Server is available in three editions that vary based on both platform and features:

- ColdFusion Server 4.0 Professional for Windows NT
- ColdFusion Server 4.0 Enterprise for Windows NT
- ColdFusion Server 4.0 Enterprise for Solaris

ColdFusion Studio and ColdFusion Server can be configured in a variety of ways depending on the requirements of your development team. The quantity and editions that you choose will be based on your unique needs.

For help with your configuration decisions, refer to the ColdFusion product pages, <http://www.allaire.com/coldfusion>.

## ColdFusion Features

ColdFusion provides a comprehensive set of features that enable:

- Rapid development
- Scalable deployment
- Open integration
- Complete security

### Rapid development

The ColdFusion development platform enhances the speed and ease of development through:

- A tag-based server scripting language that is powerful and intuitive
- Two-way visual programming and database tools
- Remote interactive debugging for quickly identifying and fixing problems
- Web application wizards to automate common development tasks
- Source control integration to enable team development
- Secure file and database access via HTTP for remote development
- A tag-based component architecture for flexible code reuse

### Scalable deployment

ColdFusion delivers a high-performance platform for application deployment through:

- A multi-threaded service architecture that scales across processors
- Database connection pooling to optimize database performance
- Just-in-time page compilation and caching to accelerate page request processing
- Dynamic load balancing for scalable performance in a cluster environment\*
- Automatic server recovery and fail-over for high availability\*

## Open integration

ColdFusion integrates with new and legacy technologies through:

- Database connectivity using native database drivers,\* ODBC, or OLE-DB
- Embedded support for full text indexing and searching
- Standards-based integration with directory, mail, HTTP, FTP, and file servers
- Connectivity to distributed object technologies including CORBA\* and COM+
- Open extensibility with C/C++

## Complete security

ColdFusion provides a foundation for building secure applications through:

- Integration with existing authentication systems including Windows NT domains and LDAP directory servers
- Advanced access control so that server administrators can control files and data sources
- Support for existing database security
- Server sandbox security for protecting multiple applications on a single server\*
- Support for existing Web server authentication, security, and encryption

\* Available only with the Enterprise Edition

+Available only with the Windows Enterprise Edition

For a complete feature list and more detailed information, refer to the ColdFusion product pages, <http://www.allaire.com/coldfusion>.



# Installing ColdFusion Server

This chapter describes ColdFusion Server system requirements, installation and configuration procedures for common Web server environments.

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## Windows System Requirements

The table below describes the ColdFusion Server system requirements for Windows configurations.

<b>System Needs</b>	<b>Professional for Windows</b>	<b>Enterprise for Windows</b>
<b>OS</b>	<ul style="list-style-type: none"> <li>• Windows NT 4.0 Server</li> <li>• Windows 95/98</li> </ul>	<ul style="list-style-type: none"> <li>• Windows NT 4.0 Server</li> </ul>
<b>Processor</b>	<ul style="list-style-type: none"> <li>• Intel 486 or higher</li> <li>• Pentium preferred</li> </ul>	<ul style="list-style-type: none"> <li>• Intel 486 or higher</li> <li>• Pentium preferred</li> </ul>
<b>Disk Space</b>	50MB	70MB
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 24MB minimum</li> <li>• 32MB recommended</li> </ul>	<ul style="list-style-type: none"> <li>• 32MB minimum</li> <li>• 64MB Recommended</li> </ul>
<b>Web Server</b>	Compatible with a wide range of Web servers including: <ul style="list-style-type: none"> <li>• Netscape servers</li> <li>• Microsoft Internet Information servers (IIS)</li> <li>• O'Reilly WebSite servers</li> <li>• Apache servers</li> </ul>	Compatible with a wide range of Web servers including: <ul style="list-style-type: none"> <li>• Netscape servers</li> <li>• Microsoft Internet Information servers (IIS)</li> <li>• O'Reilly WebSite servers</li> <li>• Apache servers</li> </ul>
<b>Other Hardware</b>	CD-ROM drive	CD-ROM drive
<b>Notes</b>	<ul style="list-style-type: none"> <li>• A browser is needed to administer ColdFusion Server.</li> <li>• Apache 1.3.4 and above is supported.</li> </ul>	<ul style="list-style-type: none"> <li>• A browser is needed to administer ColdFusion Server.</li> <li>• IIS 3.1 or higher is required for failover and load balancing.</li> <li>• Apache 1.3.4 and above is supported.</li> </ul>

## Windows Configuration

### To install and configure ColdFusion for Windows:

1. Verify that a Web server is installed and properly configured.
2. Load and configure ColdFusion Server.
3. Verify that ColdFusion Server is running.

Installation steps are explained in detail below.

**Note** When running an Apache Web server, you will need to configure it for ColdFusion support after you install ColdFusion Server.

## Windows Web Server Verification

A Web server must already be installed and running in order to install and configure ColdFusion.

### To verify that a Web server is running on a Window system:

1. Open a browser on your local system and enter the following URL:  
HTTP://127.0.0.1  
If the Web server is running and properly configured, the default Web page appears in your browser.  
If a Web server is not properly configured, you will receive an error message.
2. If you received an error, check Services in the Control Panel on a Windows NT machine or the Web server's utility on a Windows 95 or 98 machine to manage the Web server.

If errors persist, reinstall the Web server software and contact the Web server vendor before installing ColdFusion Server.

## ColdFusion Server Windows Installation

Load and configure ColdFusion Server by launching the install program, `setup.exe`.

During ColdFusion setup, a wizard prompts for:

- The ColdFusion components you want to install
- The Web server you want to use with ColdFusion
- A folder in which to store ColdFusion program files

To get started quickly, accept default folders.

If your system has a previous version of ColdFusion, `setup.exe` replaces ColdFusion program files but does not remove or change any existing application pages.

**Note** To get started quickly, do not configure load balancing and advanced security here. Refer to *Administering ColdFusion Server* to learn more about these features.

**Caution** Prior to running `setup.exe`, close all other applications and shutdown any database servers running on the same machine. This ensures that the ODBC drivers install properly.

**To install ColdFusion Server for Windows:**

1. Login to your system using an Administrator account.
2. Run `setup.exe` from the ColdFusion CD-ROM.
3. Read and accept the ColdFusion license agreement.
4. Fill in the product registration form.
5. Accept default folder names for ColdFusion files.
6. Select the Web server for ColdFusion.

The setup wizard polls your computer and displays the Web root directory it finds.

7. Accept default folder names for ColdFusion files.

ColdFusion examples and documentation are installed in the CFDOCS directory which resides below the Web server's root directory.

8. Select the components to install.

To get started quickly, do not select Load Balancing and Advanced Security Services at this time.

9. Add ColdFusion to the Start menu.

10. Start the installation by verifying the data on the next screen and then press Next.

After the installation is complete, perform the next series of tasks if you have an Apache Web server. Otherwise, move ahead to verify that ColdFusion Server is running.

**Note** Allaire recommends that you don't install sample applications and documentation on production servers or servers that are available on the internet unless you secure the CFDOCS directory using standard Web security.

## Apache Web Server Windows Configuration

In order to run ColdFusion Server on an Apache Web server, configure the Web server to load the ColdFusion module.

### To configure the Apache Web server:

1. Copy the ColdFusion module:  
`c:\cfusion\bin\ApacheModuleColdFusion.dll`  
to your Apache modules directory.
2. Edit the `Apache\conf\httpd.conf` configuration file to include this line:  
`LoadModule coldfusion_module modules/ApacheModuleColdFusion.dll`

## ColdFusion Windows Verification

After installation, test ColdFusion Server to ensure that it is configured correctly for a Web server. ColdFusion is delivered with sample applications and databases. You may test the configuration by accessing a sample application or by accessing the ColdFusion Administrator, a tool that you can use to fine-tune the server settings.

### To verify ColdFusion Server:

1. Select `Start > Programs > ColdFusion Server > Welcome to ColdFusion`.  
The ColdFusion Server Welcome page appears in your default browser.
2. Select `Test your ColdFusion Installation` from the `Here's Where to Begin` category on the page.  
The Verification Installation and Configuration page appears.
3. Choose `Biology` from the department field and choose `Verify Query` to perform a test query.  
The test query, `Courses Offered by the Biology Department`, appears when successful.

**Note** If the documentation and example applications are not installed on the server, verify the installation by entering `http://127.0.0.1/CFIDE/Administrator/index.cfm` in a local browser URL window or selecting `ColdFusion Administrator` from the `Start` menu `ColdFusion Server` program group to open the ColdFusion Administrator.

## Windows Installation Considerations and Final Notes

- By default, ColdFusion Server Windows installation creates and adds three Web server mappings on your local machine:
  - /CFDOCS and /CFIDE reside under your Web root directory.
  - /CFUSION resides on your hard drive.All three Web mappings are assigned read and execute permissions.
- Allaire recommends not to install sample applications and documentation on production servers or servers that are available on the internet unless you secure the CFDOCS directory using standard Web security.
- Refer to the Release Notes to learn more about supported configurations, features, and enhancements.
- To uninstall ColdFusion, click the Uninstall ColdFusion 4.0 icon in your ColdFusion program group.
- Contact Allaire Customer Service if ColdFusion does not install properly.

## Solaris System Requirements

The table below describes Solaris system requirements for ColdFusion Server Enterprise support and Enterprise support with load balancing and server failover (ClusterCATS).

<b>System Needs</b>	<b>Enterprise for Solaris</b>	<b>Enterprise for Solaris with ClusterCATS</b>
<b>OS</b>	<ul style="list-style-type: none"> <li>• Solaris 2.5.1 with required patches</li> <li>• Solaris 2.6 with required patches</li> </ul>	<ul style="list-style-type: none"> <li>• Solaris 2.5.1 with required patches</li> <li>• Solaris 2.6 with required patches</li> </ul>
<b>Processor</b>	Sparc	Sparc
<b>Disk space</b>	<ul style="list-style-type: none"> <li>• 90 MB minimum</li> <li>• 120 MB for a full install</li> </ul>	120 MB for a full install
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 64 MB minimum</li> <li>• 128 MB recommended</li> </ul>	128 MB
<b>Web server</b>	<ul style="list-style-type: none"> <li>• Netscape Fast Track Server</li> <li>• Netscape Enterprise Server</li> <li>• Apache 1.3.x with Mod_So</li> <li>• Apache 1.2.x</li> </ul>	Netscape Enterprise Server 3.0 or higher
<b>Other System Needs</b>	<ul style="list-style-type: none"> <li>• CD-ROM drive</li> <li>• Motif Run Time Kit</li> <li>• X Windows Platform software</li> <li>• XCU4 Utilities</li> <li>• pkgadd, pkgrm, and pkginfo utilities</li> <li>• Root access</li> </ul>	<ul style="list-style-type: none"> <li>• CD-ROM drive</li> <li>• Motif Run Time Kit</li> <li>• X Windows Platform software</li> <li>• XCU4 Utilities</li> <li>• pkgadd, pkgrm, and pkginfo utilities</li> <li>• Root access on each server</li> <li>• Each system in cluster needs access to all other systems using the IP address and the hostname</li> </ul>
<b>Notes</b>	<ul style="list-style-type: none"> <li>• A browser is needed to administer ColdFusion Server.</li> <li>• Use Netscape 3.5 on Solaris 2.6.</li> <li>• When possible, use the most recent version of Apache.</li> <li>• C and Perl compilers are recommended for Apache.</li> </ul>	<ul style="list-style-type: none"> <li>• A browser is needed to administer ColdFusion Server.</li> <li>• Use Netscape 3.5 on Solaris 2.6.</li> <li>• ClusterCATS installation updates Netscape configuration files.</li> </ul>

## Solaris Configuration

To configure ColdFusion on Solaris, you need to:

1. Verify the system environment.
2. Load and configure ColdFusion Server.
3. Verify that ColdFusion is running.

Installation steps are explained in detail below.

**Note** When running an Apache Web server, you may need to manually configure it for ColdFusion support after you install ColdFusion Server.

## Solaris System Verification

A Web server must already be installed and running in order to install and configure ColdFusion Server. In order to install ColdFusion successfully, you will need to know the specifics about the Solaris environment.

### Verify the installation environment by:

- Ensuring that you already have all of the appropriate Solaris patches installed for a particular OS
- Noting the Web server, its Web root, and configuration files locations
- Noting the Solaris username for which ColdFusion will run
- Noting where you want to install ColdFusion Server on your machine  
`/opt` is the default directory.

**Note** UNIX filenames are case-sensitive.

**Caution** When upgrading from ColdFusion 3.1, edit `/var/sadm/install/admin/default` to ensure that “instance” is set to `overwrite`. Otherwise, you will not be able to load and configure ColdFusion.

## ColdFusion Server Solaris Installation

ColdFusion Server for Solaris is distributed as a package file. As with other package files, install and manage ColdFusion using `pkgadd`, `pkgrm`, and `pkginfo` utilities.

During ColdFusion Server installation, the install program:

- Verifies the OS and ensures that appropriate patches are installed
- Looks for existing ColdFusion files and detects whether or not they can be overwritten
- Prompts you for Web server and ColdFusion directory information
- Installs ColdFusion files for the Web server environment

**Note** To get started quickly, do not configure advanced security or ClusterCATS here. Refer to *Administering ColdFusion Server* to learn more about these features.

### To install ColdFusion Server on Solaris:

1. Log in as root.
2. Load the ColdFusion CD-ROM into your CD drive.
3. Mount the CD-ROM on `/cdrom/cdrom0` if necessary.  
If the Solaris Volume Manager is active, you won't need to mount the CD.
4. Type `pkgadd -d /cdrom/cdrom0` to start the installation process.  
Solaris returns the names of the package files on the specified volume.
5. Select the ColdFusion package file.  
The installation begins by checking for appropriate OS patches and looking for previous releases of ColdFusion on the machine.
6. Enter the ColdFusion Serial ID when prompted.
7. Accept the default directory for ColdFusion server.
8. Select the Web server for ColdFusion.
9. Press Enter to have the program automatically configure the Web server.  
The program will load the necessary plug-in for Netscape and module for Apache 1.3.x Web servers.
10. Do not configure ClusterCATS at this time.
11. Accept the default directory for the Web server.
12. Do not configure advanced security at this time.
13. Install the ColdFusion documentation.  
The documentation is installed in the CFDOCS directory which resides under the Web root directory.
14. Enter the username under which ColdFusion will run.
15. Press Enter to begin the installation.

When the installation is complete, a shell script restarts the Web server and starts ColdFusion services.

**Note** If you are running an Apache Web 1.2.x server or are manually configuring another Web server, refer to `/opt/coldfusion/webserver/apache/README` or `/opt/coldfusion/webserver/NSAPI/README` files.

## ColdFusion Server Solaris Verification

After installation, test ColdFusion Server to ensure that it is configured correctly for a Web server. ColdFusion is delivered with sample applications and databases. You may test the configuration by accessing a sample application or by accessing the ColdFusion Administrator, a tool that you can use to fine-tune the server settings.

### To verify ColdFusion Server:

1. Enter `http://127.0.0.1/CFDOCS/index.htm` in your local browser.  
Enter the URL as it appears because UNIX filenames are case-sensitive.  
The ColdFusion Server Welcome page appears in your default browser.
2. Select Test your ColdFusion Installation from the Here's Where to Begin category on the page.  
The Verification Installation and Configuration page appears.
3. Choose Biology from the department field and choose Verify Query to perform a test query.  
The test query, Courses Offered by the Biology Department, appears when successful.

**Note** If the documentation and example applications are not installed on the server, verify the installation by entering `http://127.0.0.1/CFIDE/Administrator/index.cfm` in a local browser URL window to open the ColdFusion Administrator.

## Solaris Installation Considerations and Final Notes

- Read the Release Notes and README files to learn more about ColdFusion supported configurations, features, and enhancements.
- Contact Allaire Customer Service if ColdFusion does not install properly.
- To manually start or stop ColdFusion, use the scripts located in the `/opt/coldfusion/bin` directory.
- Use the `pkgm` utility to uninstall ColdFusion.
- Allaire recommends not to install sample applications and documentation on production servers or servers that are available on the internet unless you secure the CFDOCS directory using standard Web security.

## CHAPTER 3

# Creating an Application Page

This chapter guides you through the ColdFusion development process and introduces you to three CFML tags that you'll frequently use when developing ColdFusion applications.

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## The Development Process

Developing Web pages is typically an iterative process:

- Write some code.
- Save it as a page.
- View it in a browser.
- Write some more code.
- Save the page again.
- View it in a browser.
- And so on...

### Developing ColdFusion application pages

When you create ColdFusion application pages, you'll follow the same iterative development process that's outlined above.

For the sake of getting started quickly, during the first iteration, you will create, save, and view an application page that only uses HTML tags. During subsequent iterations, you will add CFML tags, save your page, and view it to see how the new code effects the page as it appears in the browser.

During this chapter, you will learn how to:

- Create a ColdFusion application page by writing some code in ColdFusion Studio.
- Save your application page under the Web root directory.
- View your page in a browser.
- Create a local variable by adding a CFML tag to your page.
- Save changes.
- View your page in a browser.
- Output the variable by adding another CFML tag to your page.
- Save changes.
- View your page in a browser.
- Retrieve data from a database by adding another CFML tag and some SQL to create a query on your page.
- Output the query data on your page by adding another CFML tag to our page.

**Note** You need to have ColdFusion documentation installed on your system in order to perform the procedures covered in this chapter.

## Writing Code

You can code your application pages using any HTML editor. But, since we make ColdFusion Studio, the instructions below guide you through developing your application pages using our product.

### To create an application page:

1. Open ColdFusion Studio.
2. Select File > New to create a new document or page.  
The New Document Template window appears.
3. Select the Default Template for your new page.  
ColdFusion Studio adds the standard HTML template code for you.
4. Change the document title from Untitled to My First Page.
5. Type ColdFusion directly under the begin BODY tag.
6. Enclose ColdFusion in a STRONG block tag.

The page code should look like this:

```
<HTML>
<HEAD>
<TITLE>My First Page</TITLE>
</HEAD>
<BODY>
<STRONG>ColdFusion</STRONG>
</BODY>
</HTML>
```

Move on to the next series of steps to save the page.

**Note** ColdFusion Studio features make it easy to code HTML, JavaScript, and CFML. Refer to the online version of *Using ColdFusion Studio* to learn about these features.

## Saving Application Pages

Save ColdFusion application pages underneath the Web root or another Web mapping so that the Web server can publish these pages to the internet.

To save a page as a ColdFusion application page, add a CFM extension. By default, the Web server knows to pass a page that contains a CFM extension to the ColdFusion Server when it is requested by a browser.

**To save the page:**

1. Select File > Save.

The Save As window appears.

2. Save your page as `MyFirstPage.cfm` in CFDOCS under the Web root directory.

For example, the directory path on your machine may be:

`C:\INETPUB\WWWROOT\CFDOCS` on Windows NT

Or `C:\WEB SHARE\WWWROOT\CFDOCS` on Windows 95

Move on to the next series of steps and view the page.

**Notes** The CFDOCS directory is created and assigned appropriate permissions when you install the documentation using `setup.exe`.

## Viewing Application Pages

View the page in a browser as you go to ensure that the code is working as expected. Presently, your page is very simple. But, as you add more code, you will want to ensure that the page continues to work.

**To view the page in a local browser:**

1. Open a Web browser on your local machine and enter the following URL to view `MyFirstPage.cfm`:  
`http://127.0.0.1/CFDOCS/MyFirstPage.cfm`
2. View Source in the browser to examine the code that the browser uses for rendering.

Only HTML and text is returned to the browser.

The code that was returned to the browser looks like this:

```
<HTML>
<HEAD>
<TITLE>My First Page</TITLE>
</HEAD>
<BODY>
<STRONG>ColdFusion</STRONG>
</BODY>
</HTML>
```

Now that you have created your first ColdFusion application page, you are ready to learn how to create a variable using CFML.

## Coding Variables

What makes a Web application page different from a static Web page is its ability to publish data dynamically and this involves creating, manipulating, and outputting variables.

There are a variety of variable types that you can use in ColdFusion. Some are ColdFusion specific and others are general Web variables.

For example, you may:

- Set and reference standard form and cookie variables
- Set and reference ColdFusion local, session, and client variables
- Reference CGI variables

The primary differences between variable types are where they exist, how long they exist, and where their values are stored. These considerations are referred to as a variable's scope.

For example, a local variable's scope is the application page, a form variable's scope is the action page that's associated with a form, and a session variable's scope is the session.

During this chapter, you will create and output local and query variables.

Refer to *Developing Web Applications with ColdFusion* for information about variables.

## Creating Local Variables

Use the CFSET tag to create a local variable and assign it a value. ColdFusion variables are typeless. This means that you don't need to define whether or not the value is numeric, text, or time-date.

For example, the code below creates the local variable `ProductName` and assigns it a value *ColdFusion*:

```
<CFSET ProductName = "ColdFusion">
```

On the left side of the equal sign you assign the variable a name and on the right side of the equal sign you assign the variable its value. Always place double quotes (") around your variable values.

The CFSET tag is one of the most frequently used CFML tags. Besides using it to create local variables, you can also use it to, for example, create arrays and structures.

Refer to *Developing Web Applications with ColdFusion* for information about how you can use the CFSET tag.

**To create a local variable for your page:**

1. Return to `MyFirstPage.cfm` in ColdFusion Studio.
2. Below the begin BODY tag, create a local variable called `ProductName` and set its value to `ColdFusion`:

```
<CFSET ProductName= "ColdFusion">
```

3. Save the file.

Ctrl S saves the file.

Your page should look like this:

```
<HTML>
<HEAD>
<TITLE>My First Page</TITLE>
</HEAD>
<BODY>
<STRONG>ColdFusion</STRONG>
<CFSET ProductName = "ColdFusion">
</BODY>
</HTML>
```

4. Return to the browser and refresh `http://127.0.0.1/CFDOCS/MyFirstPage.cfm`

Ctrl R refreshes the page in the browser.

The variable is not output to the page; its value is just stored with the page.

You will learn how to output the variable value during the next procedure.

5. View the page source in the browser.

The CFML tag was processed on the server.

Only HTML is returned to the browser.

Move on to the next procedure to output the variable on your page.

## Outputting Variable Values

After you process data on the ColdFusion Server, you need a way to output it to your application page. Use the `CFOUTPUT` tag to tell ColdFusion Server to replace variable references with variable values.

For example, the code below outputs the current value of `ProductName`:

```
<CFOUTPUT>
#ProductName#
</CFOUTPUT>
```

The `CFOUTPUT` tag is a block tag. Place CFML variables inside the `CFOUTPUT` block so that they can be output to a page. Always place pound signs (`#`) around a variable so that ColdFusion knows to replace the variable reference with its current value. Because application pages are processed top-down, always place the `CFOUTPUT` block after the `CFSET` tag.

The CFOUTPUT tag is one of the most frequently used CFML tags. You use it in conjunction with other CFML tags, HTML tags, and text to format the data that's returned to the user. Besides using it to output local variables, you can also use it to, for example, output the results of a database query.

Refer to *Developing Web Applications with ColdFusion* for information about how you can use the CFOUTPUT tag.

### To output the local variable's value on your page:

1. Return to `MyFirstPage.cfm` in ColdFusion Studio.
2. Add a CFOUTPUT block tag under the CFSET tag.
3. Reference the `ProductName` local variable within the block:

```
<CFOUTPUT>
#ProductName#
</CFOUTPUT>
```

4. Save your changes.

Your page should look like this now:

```
<HTML>
<HEAD>
<TITLE>My First Page</TITLE>
</HEAD>
<BODY>
<STRONG>ColdFusion</STRONG>
<CFSET ProductName = "ColdFusion">
<CFOUTPUT>
#ProductName#
</CFOUTPUT>
</BODY>
</HTML>
```

5. Refresh your page in the browser.
6. View the page source in the browser.  
The CFML tags were processed on the server.  
The current variable value is returned as text to the browser.
7. Return to ColdFusion Studio.
8. Apply HTML formatting to make the `ProductName` value appear in bold:

```
<CFOUTPUT>
<STRONG>#ProductName#</STRONG>
</CFOUTPUT>
```

9. Add some text surrounding the local variable reference:  

```
<CFOUTPUT>
The product name is <STRONG>#ProductName#</STRONG>.
</CFOUTPUT>
```
10. Save your changes.

11. Refresh the page in the browser.

The HTML formatting and text is returned to the browser.

12. View the page source in the browser.

The CFML tags were processed on the server.

Move on to the next set of procedures to learn how to retrieve data from a database.

## Retrieving Data to a Page

ColdFusion enables you to create application pages that query databases to retrieve, update, insert, and delete data at runtime – as your users interact with pages in their browsers. To build a query, you will need to use:

- ColdFusion data sources
- The CFQUERY tag
- SQL commands

### ColdFusion data sources

A database is a file or server that contains a collection of data. A data source is a pointer from ColdFusion to a specific database.

Data sources are set up in the ColdFusion Administrator to define connection requirements for a database. For example, a data source defines whether or not to use ODBC or a native interface when connecting to a database.

You set up a data source and assign it a name so that you can reference it in the CFQUERY tag on application pages to query databases. During a query, the data source tells ColdFusion which database to connect to and what parameters to use for the connection.

During this chapter, you will use the cfsnippets data source to build a query. cfsnippets and its associated database, C:\CFUSION\DATABASE\cfsnippets.mdb, were set up on your machine when you installed ColdFusion documentation.

For information about the ColdFusion Administrator, ODBC, native databases, and data sources, refer to *Administering ColdFusion Server*.

## The CFQUERY tag

Use the CFQUERY tag to define a query.

For example, the code below will query the `cfsnippets` database using the `cfsnippets` data source that was delivered with ColdFusion documentation:

```
<CFQUERY NAME="CourseList" DATASOURCE="cfsnippets">  
You'll type SQL here  
</CFQUERY>
```

The CFQUERY tag is a block tag. The CFQUERY begin tag accepts a variety of optional attributes, but you will always use the NAME attribute to define the name for the query and the DATASOURCE attribute to name the existing data source to use to connect to a specific database. Always surround attribute values with double quotes (").

Place SQL commands inside the CFQUERY block to tell the database what to process during the query.

When ColdFusion encounters a CFQUERY tag on a page, it passes the enclosed SQL to a database using the data source that you specify in the begin tag.

The CFQUERY tag is one of the most frequently used CFML tags. You use it in conjunction with the CFOUTPUT tag so that you can output the data returned from a query.

Refer to *Developing Web Applications with ColdFusion* for information about how you can use the CFQUERY tag.

**Note** The data source must exist in order to perform a successful query.

## SQL

Write the SQL that you want the database to process within the CFQUERY block.

When the database processes the SQL, it creates a data set that is returned to the ColdFusion Server. ColdFusion places the data set in memory and assigns it the name that you defined for the query in the begin CFQUERY tag.

You may reference that data set by name using the CFOUTPUT tag further down on the page.

For example, you would write the code below to retrieve all data from the CORNUMBER and CORNAME columns from the CourseList table located in the C:\CFUSION\DATABASE\cfsnippets.mdb database:

```
<CFQUERY NAME="CourseList" DATASOURCE="cfsnippets">
SELECT CORNUMBER, CORNAME
FROM CourseList
</CFQUERY>
```

The SQL SELECT statement describes the column(s) to retrieve data from during a query. The FROM statement describes the table(s) to work with during the query. Use commas to separate multiple entries.

**Note** There is a lot more to SQL than what is covered here. Allaire recommends that you purchase one or several SQL guides that you can refer to as you go.

**Note** The data source, columns and tables that you reference must exist in order to perform a successful query. When coding for UNIX, table and column names are case-sensitive.

### To create a new application page that retrieves a course list:

1. Return to ColdFusion Studio.
2. Create a new application page.
3. Select the Default Template for your page.
4. Change the document title from Untitled to Course List.
5. Type Course List directly under the begin BODY tag.
6. Enclose Course List in a H1 block tag.
7. Add this code directly under the H1 tag to retrieve data from a database:

```
<CFQUERY NAME="CourseList" DATASOURCE="cfsnippets">
SELECT CORNUMBER, CORNAME
FROM CourseList
</CFQUERY>
```

8. Save the page as `CourseList.cfm` in CFDOCS under the Web root directory.

For example, the directory path on your machine may be:

`C:\INETPUB\WWWROOT\CFDOCS` on Windows NT

Or `C:\WEBSHARE\WWWROOT\CFDOCS` on Windows 95

Your page should look like this:

```
<HTML>
<HEAD>
<TITLE>Course List</TITLE>
</HEAD>
<BODY>
<H1>Course List</H1>
<CFQUERY NAME="CourseList" DATASOURCE="cfsnippets">
SELECT CORNUMBER, CORNAME
FROM CourseList
</CFQUERY>
</BODY>
</HTML>
```

9. Return to your browser and enter the following URL to view `CourseList.cfm`:  
`http://127.0.0.1/CFDOCS/CourseList.cfm`
10. View source in the browser.

The ColdFusion `CourseList` data set is stored with the page but only HTML and text is sent back to the browser.

Move on to the next procedure to output the data set to the page.

**Note** ColdFusion Studio visual tools make it easy to build queries. Refer to the online version of *Using ColdFusion Studio* to learn about these features.

## Outputting Query Data

ColdFusion enables you to output query data sets on the page. To output data sets, you will need to:

- Use the `QUERY` attribute within the begin `CFOUTPUT` tag to name the query data set.
- Reference specific column names within the `CFOUTPUT` block to output the data to the page.

For example, you would write the code below to output the data contained in the `CORNUMBER` and `CORNAME` columns of the query named `CourseList`:

```
<CFOUTPUT QUERY="CourseList">
#CORNUMBER# #CORNAME#
</CFOUTPUT>
```

The `CFOUTPUT` tag accepts a variety of optional attributes, but most frequently, you will use the `QUERY` attribute to define the name of an existing query. As with other attributes, surround the `QUERY` value with double quote ("). As with any variables that

you reference for output, surround column names with pound signs (#) to tell ColdFusion to output the column's current values.

When you use the QUERY attribute, ColdFusion loops over all the code contained within the CFOUTPUT block, once for each row returned from a database.

You can place text and HTML tags inside or surrounding the CFOUTPUT block to format the data on the page.

**Caution** A query name must exist on the page in order to successfully output its data.

### To output query data on your page:

1. Return to CourseList.cfm in ColdFusion Studio.
2. Add this code below the CFQUERY block to define the QUERY to output:
 

```
<CFOUTPUT QUERY="CourseList" >
</CFOUTPUT>
```
3. Within the CFOUTPUT block, reference the columns that you want to output. Add a <BR> tag to format the results.
 

```
#CORNUMBER# #CORNAME#<BR>
```
4. Save your changes.

Your page should look like this:

```
<HTML>
<HEAD>
<TITLE>Course List</TITLE>
</HEAD>
<BODY>
<H1>Course List</H1>
<CFQUERY NAME="CourseList" DATASOURCE="cfsnippets">
SELECT CORNUMBER, CORNAME
FROM CourseList
</CFQUERY>
<CFOUTPUT QUERY="CourseList" >
#CORNUMBER# #CORNAME#<BR>
</CFOUTPUT>
</BODY>
</HTML>
```

5. View the page in a browser.
 

A course list displays in the browser.

Each line displays one row of data.

## Final Notes and Considerations

During this chapter, you learned how to:

- Create and save a ColdFusion application page.
- Create a local variable using the CFSET tag.
- Output a variable to a page using the CFOUTPUT tag.
- Retrieve data from a database using the CFQUERY tag and SQL commands.
- Output query result sets to a page using the CFOUTPUT tag with the QUERY attribute .
- UNIX file, column, and table names are case-sensitive.

Other things that you should know to get started include:

- Comment your code as you go.
- An evaluation copy of ColdFusion Studio is available.
- Example applications are delivered with ColdFusion documentation.



## CHAPTER 4

# Where to Go From Here

This chapter describes the sample applications that are delivered with ColdFusion Server and how you can use them to learn more about ColdFusion programming.

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## ColdFusion Example Applications

You can learn a lot about programming with ColdFusion by running, viewing, and copying existing application code.

During ColdFusion Server installation, four example applications were installed in the CFDOCS directory under your Web root.

To run any of the example applications, open `HTTP://127.0.0.1/CFDOCS/examplehome.htm` in a local browser.

To view and copy the code in any of these example applications, open the pages in ColdFusion Studio.

The table below describes the example applications.

Example Name	Application Purpose	Comments
New Line Employee Management	Employee management	This application illustrates how to: <ul style="list-style-type: none"> <li>• Publish data to the Web from a database</li> <li>• Build search interfaces</li> <li>• Build Web frontends so that data can be inserted and updated in a database</li> <li>• Reuse code using the CFINCLUDE tag</li> </ul>
Crazy Cab Email Client	Email client	This application illustrates how to: <ul style="list-style-type: none"> <li>• Build a login page</li> <li>• Build an authentication system</li> <li>• Integrate with POP and SMTP services</li> <li>• Use an application.cfm file to include the same application logic in every page</li> </ul>
Tack 2 Online Store	Ecommerce	This application illustrates how to: <ul style="list-style-type: none"> <li>• Test for browser type to make good use of JavaScript, CSS and DHTML</li> <li>• Index with Verity</li> <li>• Include a dynamic shopping cart</li> <li>• Use CustomTags to abstract complexity and reuse code across applications</li> </ul>
Tack2 Intranet	Content management	This sophisticated application is modeled after the content management system that hosts the Allaire Web site. It is only available on Windows machines.