

Crystal Enterprise

Web Server Overview - Internet Information System (IIS)

Overview

This document provides an overview to web server technology – particularly Microsoft’s Internet Information Server (IIS) and its relationship with Crystal Enterprise.

Although this article has been written based on Crystal Enterprise 10, it is applicable to other versions of Crystal Enterprise.

Contents

INTRODUCTION	2
WEB SERVER TECHNOLOGY	2
<i>What is a web server?</i>	<i>2</i>
<i>Static and Dynamic Pages.....</i>	<i>3</i>
<i>Installing a Web Server</i>	<i>3</i>
Installing Internet Information Services	3
Configuring Anonymous Authentication.....	4
Basic Web Site Configuration.....	5
CONNECTING CRYSTAL ENTERPRISE TO A WEB SERVER	6
<i>Internet Information Services</i>	<i>6</i>
Meeting network requirements.....	7
Server-side installation connected to a web server.....	7
<i>Web Server Errors</i>	<i>7</i>
Common HTTP Status Codes and Their Causes	8
TROUBLESHOOTING CE AND IIS WEB SERVER	9
FINDING MORE INFORMATION	10

Introduction

This is an overview of Web Server Technology – featuring Microsoft’s Internet Information Server and Crystal Enterprise. From this material you should be able to recognize Internet Information Services as a web server, configure it for Crystal Enterprise, and diagnose and troubleshoot common issues.

This document can help you diagnose error codes from IIS and from Crystal Enterprise.

The main focus points will be:

- Web server technology
- Internet Information Server (IIS)
- Crystal Enterprise and IIS
- Common IIS error codes
- Crystal Enterprise/IIS troubleshooting

Web Server Technology

What is a web server?

A web server is a software application that uses the Hypertext Transfer Protocol (HTTP) to respond to requests received from web browsers and to provide access to and deliver content pages to the web browser through the Internet.

There are many web server software applications, including public domain software from Apache, and commercial applications from Microsoft (Internet Information Server – IIS), Oracle, Netscape and others.;

Example of how a web server works:

If you call the URL(Uniform Resource Locator) `http://www.businessobjects.com/default.asp` in your browser, the browser will split-up and understand the three parts,

- The http, (Hyper Text transfer Protocol),
- The web server name where the site is hosted and
- The web page under the site, default.asp.

The browser will communicate with a name server to translate the web server name "www.businessobjects.com" into an IP (Internet Protocol) address, for example `http://10.50.104.50`, which it uses to connect to the web server machine.

Then the browser will open a connection to the web server at that IP address on port 80.

By following the HTTP protocol, the browser sends a GET request to the web server, asking for the file "http://www.businessobjects.com/default.asp".

The web server interprets the server-side scripting and sends the files in HTML format to the Browser. (For example, an IIS web server can interpret ASP scripting and will send the browser an HTML file.)

Then the browser will interpret the HTML tags into formatted web pages.

Static and Dynamic Pages

A web server can process both static and dynamic pages. All HTML pages (with or without client-side scripts) are static, meaning that the web server will send the html files to the browser without any intervention. But when you write some server side script that can make the site dynamic, the web server helps to achieve the dynamic page. For example if you write a Guest Book in ASP then the web server, (IIS in this case), is needed to interpret it. The Web server is actually processing information and generating a page based on the specifics of the query. A web server can provide security to your pages to some level. A web server with SSL (secured Socket Layer) can give you more protected pages, where you can do secured file transaction like credit card processing.

Here is a list of some web servers and what server side scripts they can run:

Web Server	Scripts
IIS	ASP, ASP.NET, CGI, Python, PHP
Apache	PHP, CGI/Perl, Python
Tomcat	CGI/Perl, JSP, Servlets, JavaBeans
IPlanet	JSP, Servlets, Enterprise JavaBeans
Chilisoft	ASP
Go webservice	LotusScript

Installing a Web Server

The following instructions will guide you in setting up a World Wide Web server for anonymous access in a Windows 2000 environment.

Installing Internet Information Services

Microsoft Internet Information Services (IIS) is the Web service that is integrated with Windows 2000. To install IIS:

1. Click **Start**, point to **Settings**, and then click **Control Panel**.
2. In Control Panel, double-click **Add/Remove Programs**.
3. Click **Add/Remove Windows Components**.
4. In the Windows Components Wizard, select the **Internet Information Services (IIS)** check box, and then click **Details**.
5. Clear all the check boxes, and then select the following check boxes:
 - Common Files
 - Documentation
 - FrontPage 2000 Server Extensions
 - Internet Information Services Snap-In
 - Internet Services Manager
 - World Wide Web Server
6. Click **OK**, and then on the Windows Components page, click **Next**. If you are prompted to do so, insert the Windows 2000 CD-ROM, or browse to the network location of the Windows 2000 installation files and then click **OK**.
7. On the "Completing the Windows Components Wizard" page, click **Finish**.
8. In the **Add/Remove Programs** dialog box, click **Close**.

Configuring Anonymous Authentication

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Internet Services Manager**. (In Windows 2000 Professional, you can start Administrative Tools from Control Panel.)
2. Right-click *server name* (where *server name* is the name of the server), and then click **Properties**.
3. In the **Master Properties** box, click **WWW Service** (if it is not already selected), and then click the **Edit** button that is next to the **Master Properties** box.
4. Click the **Directory Security** tab.
5. Under **Anonymous access and authentication control**, click **Edit**.
6. Under **Authenticated access**, select the **Integrated Windows authentication** check box.
7. Select the **Anonymous access** check box, and then click **Edit**. Note the user account in the **Username** box. This account is used by Windows to authenticate anonymous users when they browse the Web site.

8. Click **OK**, click **OK**, click **OK**, and then click **OK**.

Basic Web Site Configuration

1. Start Internet Services Manager.
2. In the **Tree** list, expand * *server name* (where *server name* is the name of the server).
3. Right-click **Default Web Site**, and then click **Properties**.
4. If you have multiple IP addresses assigned to your computer, click the IP address that you want to assign to this Web site in the **IP Address** box.
5. If you do not want unlimited connections to the Web site, click **Limited To**, and then type the number of concurrent connections that you want. Each client that browses the Web site generally uses about 3 connections.
6. Click the **Performance** tab.
7. Move the **Performance tuning** slider to the position that you want.
8. If you want to limit the amount of network bandwidth that is available for connections to this Web site, select the **Enable bandwidth throttling** check box, and then type the amount that you want in the **Maximum network use** box.
9. If you want to limit the amount of computer processing time spent servicing requests for content on this Web site, select the **Enable process throttling** check box, and then type the amount that you want in the **Maximum CPU use** box. This prevents the Web site from consuming too much processor time to the detriment of other computer processes.
10. Click the **Home Directory** tab.
 - If you want to use Web content that is stored on the local computer, click **A directory located on this computer**, and then type the path that you want in the **Local Path** box. For example, the default path is C:\Inetpub\wwwroot.
 - If you want to use Web content that is stored on a different computer, click **A share located on another computer**, and then type the location that you want in the **Network Directory** box that appears.
 - If you want to use Web content that is stored on another Web address, click **A redirection to a URL**, and then type the location that you want in the **Redirect to** box. Under **The client will be sent to**, select the appropriate check box.
11. Click the **Documents** tab. Note the list of documents that IIS can use as the default start documents. If you want to use Index.html as your start document, you must add it. To do this:

NOTE: Windows 2000 Professional is limited to 10 concurrent connections.

NOTE: Bandwidth throttling is not available in Windows 2000 Professional. For additional information, view the following article in the Microsoft Knowledge Base:

263857 Items in the ISM are Missing or Appear Dimmed on Windows 2000 Professional

NOTE: For added security, do not create Web content folders in the root folder.

NOTE: The **Operators** tab is not available in Windows 2000 Professional. For additional information, view the following article in the Microsoft Knowledge Base:

263857 Items in the ISM are Missing or Appear Dimmed on Windows 2000 Professional

i) Click **Add**.

ii) In the **Add Default Document** dialog box, type `Index.html`, and then click **OK**.

iii) Click the **up-arrow** button until `Index.html` is displayed at the top of the list.

12. Click the **Operators** tab. Note the user accounts that have operator privileges on this Web site. Click **Add** to add additional user accounts to operate this Web site.

13. Click **OK** to return to the Internet Information Services window.

14. Right-click **Default Web Site**, and then click **Stop**.

15. Right-click **Default Web Site**, and then click **Start**.

The server is now configured to accept incoming Web requests to the Default Web Site. You can replace the content of the Default Web Site with the Web content that you want, or you can create a new Web site.

To access the Internet Information Services Management Console – right click on My Computer – choose Manage. Then from the Computer Management (local) – expand Services and Applications then choose Internet Information Services.

Properties and functions of the Default Web Site and virtual directories are accessible by right clicking on the Default Web Site and virtual directories.

Connecting Crystal Enterprise To A Web Server

Internet Information Services

When you install Crystal Enterprise – and more particularly – the Web Connector on a Windows machine that is running a supported version of Microsoft Internet Information Services (IIS), the Setup program configures your web server automatically. The Setup program creates virtual directories on the web server, and maps them to the Web Content and viewers directories of the Crystal Enterprise installation.

IIS will use the Default Web Site to create two Virtual Directories:

- Crystal – which by default points to `C:\Program Files\Crystal Decisions\ Enterprise 10\Web Content`
- Crystal Report Viewers – which by default points to `C:\Program Files\Common Files\Crystal Decisions\ 2.5\CrystalReportViewers10`

The Setup program then configures application mappings on the web server, so all Crystal Enterprise requests (`.csp`, `.cwr`, and `.cri` file types) are passed to the ISAPI Web Connector module.

The application mappings are visible on the Virtual Directory properties pages in the Internet Information Services Management Console.

If you performed the full stand-alone installation, no additional configuration is required. If you installed the Web Connector and the Web Component Server (WCS) on different machines, you must provide the Web Connector with information about the remote WCS.

If the web server installed on the local machine is a supported version of Microsoft IIS, (or iPlanet Enterprise Server, or Lotus Domino) then the Setup program installs and configures the appropriate Crystal Enterprise Web Connector. Thus, when the installation is complete, you can access Crystal Enterprise by opening your web browser and going to: `http://webserver/crystal/enterprise10/`

Here, the term webserver represents the name of your web server machine. The Web Connector installed on that machine sets up the appropriate virtual directory mappings for the web server. The Web Connector also intercepts all Crystal Enterprise scripting requests and forwards them to the Web Component Server that you installed on your Crystal Enterprise machine. The Web Component Server evaluates the script and forwards its response to the web server through the Web Connector.

Meeting network requirements

When installing Crystal Enterprise on multiple machines, ensure that each target machine is able to communicate over TCP/IP with the machine that is running as your CMS. In particular, your web server must be able to communicate with the machine that is running as your Web Component Server (WCS). This communication is enabled by the Web Connector, which you must install on your web server machine. All web desktop clients must be able to access the web server. Note: If you are installing Crystal Enterprise in a firewall environment, you will need additional configuration details. See the “Working with Firewalls” section of the *Crystal Enterprise Administrator’s Guide*.

Server-side installation connected to a web server

A server-side installation connected to a web server is a quick way to integrate Crystal Enterprise with your existing web server – without installing the core Crystal Enterprise components on the web server itself. First, on the machine that you have set aside for use by Crystal Enterprise, run the new installation from the Crystal Enterprise Setup program. Then, install and configure the appropriate Web Connector on your web server machine. If the web server is running on Windows, you can select the Web Connector by running the Custom installation from the Crystal Enterprise Setup program.

Web Server Errors

When users try to access content on a server that is running Internet Information Services (IIS) through HTTP, IIS returns a numeric code that

indicates the status of the request. This status code is recorded in the IIS log, and it may also be displayed in the Web browser client. The status code can indicate whether a particular request is successful or unsuccessful and can also reveal the exact reason why a request is unsuccessful. By default, IIS places its log files in %WINDIR\System32\Logfiles. This directory contains separate directories for each World Wide Web (WWW) site. By default, logs are created in the directories daily and are named with the date (for example, exYYMMDD.log).

Common HTTP Status Codes and Their Causes

For additional information view the following articles in the Microsoft Knowledge Base:

187506 INFO: Basic NTFS permissions for IIS 4.0

247677 Error Message: 403.2 Forbidden: Read Access Forbidden

248072 Error Message: 403.3 Forbidden: Write Access Forbidden

- **200 - Success.** This status code indicates that IIS has successfully processed the request.
- **304 - Not Modified.** The client requests a document that is already in its cache and the document has not been modified since it was cached. The client uses the cached copy of the document, instead of downloading it from the server.
- **401.1 - Logon failed.** The logon attempt is unsuccessful, probably because of a user name or password that is not valid.
- **401.3 - Unauthorized due to ACL on resource.** This indicates a problem with NTFS permissions. This error may occur even if the permissions are correct for the file that you are trying to access. For example, you see this error if the IUSR account does not have access to the C:\Winnt\System32\Inetsrv directory.
- **403.1 - Execute access forbidden.** The following are two common causes of this error message:
 - A. You do not have enough Execute permissions. For example, you may receive this error message if you try to access an ASP page in a directory where permissions are set to None, or you try to execute a CGI script in a directory with Scripts Only permissions. To modify the Execute permissions, right-click the directory in the Microsoft Management Console (MMC), click **Properties**, click the **Directory** tab, and make sure that the **Execute Permissions** setting is appropriate for the content that you are trying to access.
 - B. The script mapping for the file type that you are trying to execute is not set up to recognize the verb that you are using (for example, GET or POST). To verify this, right-click the directory in the MMC, click **Properties**, click the **Directory** tab, click **Configuration**, and verify that the script mapping for the appropriate file type is set up to allow the verb that you are using.
- **403.2 - Read access forbidden.** Verify that you have set up IIS to allow Read access to the directory. Also, if you are using a default document, verify that the document exists.
- **403.3 - Write access forbidden.** Verify that the IIS permissions and the NTFS permissions are set up to grant Write access to the directory.

224389 Err Msg: HTTP Error 403, 403.4, 403.5 Forbidden: SSL Required

248043 Error Message: 403.6 - Forbidden: IP Address Rejected

190004 Error 403.7 or 'Connection to Server Could Not Be Established'

186812 PRB: Error Message: 403.7 Forbidden: Client Certificate Required

248032 Error Message: Forbidden: Site Access Denied 403.8

NOTE: Microsoft Windows 2000 Professional and Microsoft Windows XP Professional automatically impose a 10-connection limit on IIS. You

248075 Error: HTTP 403.12 - Access Forbidden: Mapper Denied Access

294807 HOWTO: Disable Internet Explorer 5 'Show Friendly HTTP Error Messages' Feature on the Server Side

248013 Err Msg: HTTP Error 500-12 Application Restarting

261200 HTTP 500 Error Message Displays Instead of ASP Error Message from 500-100

- **403.4 - SSL required.** Disable the **Require secure channel** option, or use HTTPS instead of HTTP to access the page.
- **403.5 - SSL 128 required.** Disable the **Require 128-bit encryption** option, or use a browser that supports 128-bit encryption to view the page.
- **403.6 - IP address rejected.** You have configured your server to deny access to your current IP address.
- **403.7 - Client certificate required.** You have configured your server to require a certificate for client authentication, but you do not have a valid client certificate installed.
- **403.8 - Site access denied.** You have set up a domain name restriction for the domain that you are using to access your server.
- **403.9 - Too many users.** The number of users who are connected to the server exceeds the connection limit that you have set.
- **403.12 - Mapper denied access.** The page that you want to access requires a client certificate, but the user ID that is mapped to your client certificate has been denied access to the file.
- **404 - Not found.** This error may occur if the file that you are trying to access has been moved or deleted. It can also occur if you try to access a file that has a restricted file name extension after you install the URLScan tool. In this case, you see "Rejected by URLScan" in the log file entry for that request.
- **500 - Internal server error.** You see this error message for a wide variety of server-side errors. Your event viewer logs may contain more information about why this error occurs. Additionally, you can disable friendly HTTP error messages to receive a detailed description of the error.
- **500.12 - Application restarting.** This indicates that you tried to load an ASP page while IIS was in the process of restarting the application. This message should disappear when you refresh the page. If you refresh the page and the message appears again, it may be caused by antivirus software that is scanning your Global.asa file.
- **500-100.ASP - ASP error.** You receive this error message when you try to load an ASP page that has errors in the code. To obtain more specific information about the error, disable friendly HTTP error messages. By default, this error is only enabled on the default Web site.
- **502 - Bad gateway.** You receive this error message when you try to run a CGI script that does not return a valid set of HTTP headers.

Troubleshooting CE and IIS Web Server

The following Business Objects knowledge base articles can assist in troubleshooting the most common issues with Crystal Enterprise and

web servers – particularly IIS. Search for the knowledge base articles at <http://support.businessobjects.com>.

- Article ID c2010918 - Prompted for web server name when viewing the Crystal Launchpad
- Article ID c2009457 - Cannot start Page Server or Web Component Server in Crystal Enterprise
- Article ID c2009975 - How to generate a report based on Internet Information Server (IIS) log files
- Article ID c2010924 - HTTP 500 error when viewing Crystal Enterprise web pages on IIS. Article #c2010924
- Article ID c2010963 - Err Msg: "Internal Error in Web Component Server Connector..."
- Article ID c2011450 - Err Msg: "HTTP 500 Error - Internal Server Error" on IIS for Windows 2000
- Article ID c2010926 - HTTP 404 error when viewing Crystal Enterprise web pages
- Article ID c2007013 - "HTTP 404 - File not found" launching ePortfolio or Crystal Management Console

Finding More Information

For more information and resources, refer to the product documentation and visit the support area of the web site at:

<http://www.businessobjects.com/>

The reading material below reinforces this topic and will provide additional information:

- Crystal Enterprise Administrator's Guide
- Crystal Enterprise Installation Guide
- Supported Platforms for Crystal Enterprise

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