

Crystal Enterprise 10

Required NTFS Permissions

Overview

This technical brief outlines the necessary Microsoft NT File System (NTFS) rights you must apply to specific folders and files on the computer hosting Crystal Enterprise (CE) version 10 in order to have sufficient permissions for a fully functional CE installation.

The intended audiences for this technical brief are CE Administrators and Network Administrators with full administrative access to the computer hosting CE.

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Introduction

This document is organized by the various CE components that are part of the CE system and the NTFS rights required for the components to function successfully.

This document discusses NTFS rights in the context of Microsoft Internet Information Server (IIS) as the web server for the CE system. The web server is the first component that receives a user's request for a CE web page. For Microsoft Windows NT, Microsoft Windows 2000, and Microsoft Windows 2003 IIS is the most common web server. NTFS rights closely integrate IIS and the Windows operating system

By default IIS is configured to allow anonymous access to the web server. The user account used to access the web server anonymously is the IUSR_<COMPUTERNAME>. The account name is specific to your web server, for example if your web server computer name is WEB, the IUSR_<COMPUTERNAME> account will be IUSR_WEB for your computer.

NOTE

When paths to files are mentioned in this document, "winnt" and "windows" can be used interchangeably. For example, Microsoft Windows 2000 paths contain "winnt" while Windows 2003 paths contain "windows".

This document uses <drive letter>:\winnt\ as the default Windows install path. If you are using Windows 2003, the default install path is <drive letter>:\windows. Please be aware of this as you read this document.

Changing user accounts

Various CE components may require you to change the user account in order to gain sufficient access to various resources. This section details how to change the user account for a CE component in the Crystal Configuration Manager (CCM).

Crystal Configuration Manager (CCM)

To change the user account for a CE server, you must make the changes in the CCM. Follow the steps outlined below to change the user account used by a CE server:

1. Open the CCM by going to **Start > Programs > Crystal Enterprise 10 > Crystal Configuration Manager**.
2. Right-click the CE server you will be making changes to and click **Stop** on the submenu. This stops the server.
3. Right-click the CE server and click **Properties** on the submenu. This opens the server's properties dialog box.
4. In the server's properties dialog box, click the **Properties** tab. The user account here is specified in the **Log On As** section.

5. Clear the **System Account** check box. This allows you to edit the user account for the CE server.
6. To change the user account for the CE server, click the ... button to browse for the user account. Select the user account you want to use.
7. Specify the correct password for the account in the **Password** and **Confirm password** fields.
8. Click **OK** to close all dialog boxes.
9. Right-click the CE server and click **Start** on the submen to start the CE server.

Crystal Enterprise Components

Crystal Enterprise components are comprised of the:

- Web Connector
- Web Component Server (WCS)
- Crystal Management Server (CMS)
- Crystal Cache Server
- Crystal Page Server
- Report Job Server
- Crystal Input File Repository Server
- Crystal Output File Repository Server
- Crystal Event Server
- [Embedded Report Application Server](#)
- Program Job Server

The entire CE system can reside on a single computer or can be installed over several computers on the network.

This section describes each CE component and the NTFS rights that must be configured in order for the component to work successfully.

NOTE	The folder paths outlined in the sections below are the default locations of the Crystal Enterprise files and folders. These folder paths may differ for your Crystal Enterprise system if it has not been installed to its default locations.
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Web Connector

The Web Connector resides on the computer hosting the web server. The Web Connector receives requests from the web server and forwards the requests to the Web Component Server (WCS). The Web Connector acts as a conduit between the web server and WCS.

User Account

The Web Connector uses the anonymous access account specified by IIS. By default the anonymous access account is the IUSR_<ComputerName> account.

The default settings of the IUSR_<ComputerName> account will provide the Web Connector sufficient access to the files and folders it needs to access.

NTFS rights to folders and files

The table below outlines the NTFS rights the IUSR_<ComputerName> account must have to specific files and folders.

User Account	NTFS Rights	Folder Path
IUSR_<ComputerName> account	Read	<drive>:\Winnt\System32
	Read / Execute permission	<drive>:\Winnt\System32\Ebus-3-3-2.dll
		<drive>:\Winnt\System32\Etc-1-0-12.dll
		<drive>:\Winnt\System32\Msvcp60.dll

Special Cases to Keep in Mind

There are two special cases to keep in mind for the Web Connector.

Firewalls

The Web Connector is the only component that needs to be on the web server and communicates to the Web Component Server (WCS) using the TCP/IP protocol. If there is a firewall between these two components, refer to the “Crystal Enterprise Firewall Support” technical brief for more information.

The technical brief can be found in

<http://support.businessobjects.com/search>

by searching for the file ce85_firewall_support.pdf

Application Mappings

By default the application mappings are set on the web server’s default web site and propagate to all of the virtual sub directories. To ensure that the web connector is being used only for Crystal files (in cases where the virtual directories are being locked down), the application mappings can be set on only the Crystal virtual directory.

Web Component Server (WCS)

The Web Component Server (WCS) receives requests from the Web Connector and is used to translate and pass user requests for CE web pages (For example: pages with the file extension RPT, CWR, CRI or CSP) to the appropriate CE component. Once the request has been processed, the WCS will pass the information back to the user via the Web Connector and web server to complete the request.

The WCS also handles the user sessions and licensing. The WCS communicates with the CMS to authenticate users and their requests to the system. It also works closely with the CMS to check the server list so the requests are sent to the correct CE server.

User Account

The user account the WCS will use depends on whether the CE system has been installed entirely on a single computer or spread over several computers.

By default the WCS uses the local System account to access resources and CE components. The WCS using the local System account will provide sufficient access to resources and CE components.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local System account or the Domain user account must have to specific folders in order for the WCS to function successfully.

User Account	NTFS Rights	Folder Path
System account	Read permission	<drive>:\Winnt\System32
	Read / Execute permission	<drive>:\Program Files\Crystal Decisions\Web Content\Enterprise
		<drive>:\Program Files\Crystal Decisions\WCS\CRIImages
		<drive>:\Program Files\Crystal Decisions\WCS
		<drive>:\Program Files\Crystal Decisions\Enterprise\win32_x86
	Write Permission	<drive>:\Program Files\Crystal Decisions\WCS\logging

Special Cases to Keep in Mind

If Crystal Analysis Professional is installed on the CE system, the account the WCS is using will need Read permissions to:

<drive>:\Program Files\Crystal Decisions\Enterprise\filestore\input\

Crystal Input File Repository Server

When publishing a report using the Crystal Publishing Wizard, Crystal Management Console (CMC), or when saving a report to an Enterprise folder using the Crystal Reports 10 **Save as** selection, a copy of the report is saved to the Crystal Input File Repository Server.

NOTE	<p>The Crystal Input File Repository server can be located on any computer in the Crystal Enterprise system.</p> <p>The Crystal Input and Output File Repository server cannot share the same folder. They must each have their own separate folders.</p>
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User Account

The user account the Crystal Input File Repository Server will use depends on whether the CE system has been installed entirely on a standalone computer or spread over several computers.

CE system installed on a standalone computer

By default the Crystal Input File Repository Server uses the localsystem account to access resources and CE components. The Crystal Input File Repository Server using the localsystem account will provide sufficient access to resources and CE components on the local computer.

CE system installed over several computers

If the CE system has been installed over several computers, and the Crystal Input File Repository Server needs to access the File Repository directories outside of its own computer, you must set the user account to a domain user account that has local administrative access to all the computers hosting CE components.

In order to change the user account for the Crystal Input File Repository Server, you must make the changes in the CCM. Refer to the “Changing user accounts” section in this technical brief for further instructions.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local System account or the Domain user account must have to specific folders in order for the Crystal Input File Repository to function successfully.

User Account	NTFS Rights	Folder Path
System account	Read permission	<drive>:\Winnt\System32
or Domain user account with administrative access	Read / Execute/Write permission	<drive>:\Program Files\Crystal Decisions\Enterprise\filestore\input\

Special Cases to Keep in Mind

If the **input** folder does not exist, the Crystal Input File Repository Server will create the folder when the service starts.

Crystal Output File Repository Server

The Crystal Output File Repository Server stores successfully scheduled instances. The Crystal Job Server passes the successful instance to the Crystal Output File Repository Server. The Crystal Page Server requests the instance from the Crystal Output File Repository Server when the user requests to view the instance.

NOTE	<p>The Crystal Output File Repository server can be located on any computer in the Crystal Enterprise system.</p> <p>The Crystal Input and Output File Repository server cannot share the same folder. They must each have their own separate folders.</p>
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User Account

The user account the Crystal Output File Repository Server uses depends on whether the CE system has been installed on one computer or several computers.

CE system installed on a single computer

By default the Crystal Output File Repository Server uses the local system account to access resources and CE components. A Crystal Output File Repository Server using the local system account provides sufficient access to resources and CE components on the local computer.

CE system installed over several computers

If the CE system is installed over several computers and the Crystal Output File Repository Server needs to access the File Repository directories outside of its own computer, you must set the user account to a domain user account that has local administrative access to all the computers hosting CE components.

To change the user account for the Crystal Output File Repository Server, you must make the changes in the CCM. Refer to the [Changing user accounts](#) section in this technical brief for instructions.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local System account or the Domain user account must have to specific folders in order for the Crystal Output File Repository to function successfully.

User Account	NTFS Rights	Folder Path
System account	Read permission	<drive>:\Winnt\System32
or Domain user account with administrative access	Read / Execute/Write permission	drive>:\Program Files\Crystal Decisions\Enterprise\filestore\output\

Special Cases to Keep in Mind

If the **output** folder does not exist, the Crystal Output File Repository Server will create the folder when the service starts.

Crystal Management Server (CMS)

The Crystal CMS is responsible for the security and the coordination of all the other components in the Crystal Enterprise system. The Crystal CMS keeps a Directory Listing that contains the IP addresses and listening ports of the other components in the system and it is this list that is accessed by the other servers to discover where the necessary component are that will do the correct job.

User Account

The user account the Crystal CMS uses depends on whether the CE system has been installed entirely on a single computer or spread over several computers.

CE system installed on a single computer

By default the Crystal CMS uses the local system account to access resources and CE components. A Crystal CMS using the local System account provides sufficient access to resources and CE components on the local computer.

CE system installed over several computers

If the CE system has been installed over several computers and the Crystal CMS needs to access the system database outside of its own computer, you must set the user account to a domain user account that has local administrative access to all the computers hosting CE components.

You must make changes to the user account for the Crystal CMS in the CCM. Refer to the [Changing user accounts](#) section in this technical brief for further instructions.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local System account or the Domain user account must have to specific folders in order for the Crystal CMS to function successfully.

User Account	NTFS Rights	Folder Path
System account or Domain user account with administrative access	Read / Execute permission	<drive>:\Winnt\System32\drivers\etc\hosts

Crystal Cache Server

The main responsibility of the Crystal Cache Server is to serve cache pages in response to users' viewing requests. The Crystal Cache Server maintains and updates its virtual cache table as well as its physical cache directory. It cyclically receives registration information from all Crystal Page Servers so the Crystal Cache Server can maintain an accurate list of all available Crystal Page Servers on the CE system.

The Crystal Cache Server serves pages to the WCS in response to viewing requests from users. If a cache page does not exist the Crystal Cache Server invokes the Crystal Page Server to create the requested page.

User Account

The user account the Crystal Cache Server uses depends on whether the CE system has been installed on one computer or several computers.

CE system installed on a standalone computer

By default the Crystal Cache Server uses the local system account to access resources and CE components. A Crystal Cache Server using the local system account provides sufficient access to resources and CE components on the local computer.

CE system installed over several computers

If the CE system has been installed over several computers and if the Crystal Cache Server needs to access CE components outside of its own computer, you must set the user account to a domain user account that has local administrative access to all the computers hosting CE components.

You must make changes to the user account for the Crystal Cache Server in the CCM. Refer to the [Changing user accounts](#) section in this technical brief for further instructions.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local System account or the Domain user account must have to specific folders in order for the Crystal Cache Server to function successfully.

User Account	NTFS Rights	Folder Path
System account or Domain user account with administrative access	Read permission	<drive>:\Winnt\System32
	Read / Execute permission	<drive>:\Program Files\Crystal Decisions\Enterprise\win32_x86
	Write Permission	<drive>:\Program Files\Crystal Decisions\WCS

Report Job Server

The Report Job Server connects to the database in order to retrieve the information necessary to build the report.

When a user schedules a report, the Report Job Server receives instructions from the Crystal CMS. It also gives status information back to the Crystal CMS while the job is processing and when the job completes. The Report Job Server interacts with the Crystal Input File Repository Server when it retrieves the report template from the input file. The Report Job Server also communicates with the Crystal Output File Repository Server when it places the successful output file into the file repository.

For each scheduled job, the Report Job Server starts its own separate child process. Each of these controls its own procReport.dll, which starts the crpe32.dll. The procReport.dll will establish the connection to the data source.

The crpe32.dll is the print engine component that takes the data and structure information and creates the actual report output file.

User Account

The user account the Report Job Server will use depends on whether the CE system has been installed entirely on a standalone computer or spread over several computers.

CE system installed on a standalone computer

By default the Report Job Server uses the local system account to access resources and CE components. A Report Job Server using the local system account provides sufficient access to resources and CE components on the local computer.

CE system installed over several computers

If the CE system has been installed over several computers and if the Report Job Server needs to access CE components outside of its own computer, you must set the user account to a domain user account that has local administrative access to all the computers hosting CE components.

You must make changes to the user account for the Report Job Server in the CCM. Refer to the [Changing user accounts](#) section in this technical brief for further instructions.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local System account or the Domain user account must have to specific folders in order for the Report Job Server to function successfully.

User Account	NTFS Rights	Folder Path
System account or Domain user account with administrative access	Read permission	<drive>:\Winnt\system32
	Read / Execute permission	system temp directory
		<drive>:\Winnt\Crystal
		<drive>:\Winnt\Fonts
		<drive>:\Program Files\Crystal Decisions\Shared
	Write Permission	<drive>:\Program Files\Crystal Decisions\WCS
<drive>:\Program Files\Crystal Decisions\Enterprise\FileStore\		

Crystal Page Server

The Crystal Page Server connects to the database in order to retrieve the information necessary to build the report.

The Pageserver.exe invokes the Procreport.dll, which acts like a wrapper around Crpe32.dll. The wrapper gathers request information and invokes the Crpe32.dll. The Crpe32.dll is the print engine that connects to the database and gathers data.

User Account

By default the account that the Crystal Page Server uses is the local system account.

The Crystal Page Server needs to access the reporting database, which is typically located on a separate computer.

Example	A typical configuration is the Crystal Page Server is located on Computer A. The reporting database is a Microsoft Access database file which is located on Computer B.
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If this is the case, the Crystal Page Server must use a domain user account that has local administrative access to the computer hosting the reporting database.

You must make changes to the user account for the Crystal Page Server in the CCM. Refer to the [Changing user accounts](#) section in this technical brief for further instructions.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local System account or the Domain user account must have to specific folders in order for the Crystal Page Server to function successfully.

User Account	NTFS Rights	Folder Path
System account or Domain user account with administrative access	Read permission	<drive>\Winnt\system32
	Read / Execute permission	system temp directory
		<drive>\Program Files\Crystal Decisions\Enterprise\File Store\Input
		<drive>\Winnt\Crystal
		<drive>\Winnt\Fonts
	<drive>\Program Files\Crystal Decisions\Shared	
Write Permission	<drive>\Program Files\Crystal Decisions\WCS	

Program Job Server

A Job Server processes scheduled actions on objects at the request of the CMS. You can configure a Job Server to process either report objects or program objects when you add it to your Crystal Enterprise system. If you configure a Job Server to process program objects, it becomes a Program Job Server.

Program objects are custom applications, including scripts or Java programs, that run against and perform maintenance work on Crystal Enterprise.

The Program Job Server processes scheduled program objects, as requested by the CMS. To run a program, the Program Job Server first retrieves the files from storage on the Input File Repository Server and then runs the program. By definition, program objects are custom applications. Therefore the outcome of running a program depends on program object that is run.

Unlike report instances, which can be viewed in their completed format, program instances exist as records in the object history. Crystal Enterprise stores the program's standard out and standard error in a text output file. This file appears when you click a program instance in the object history.

User Account

The user account the Crystal Program Job Server uses depends on whether the CE system has been installed on one computer or on several computers.

CE system installed on one computer

By default the Crystal Program Job Server uses the local system account to access resources and CE components. A Crystal Program Job Server using the local system account provides sufficient access to resources and CE components on the local computer.

CE system installed over several computers

If the CE system is installed over several computers, and if the Crystal Program Job Server needs to access CE components outside its own computer, you must set the user account to a domain user account that has local administrative access to all the computers hosting CE components.

You must make changes to the user account for the Crystal Program Job Server in the CCM. Refer to the Changing user accounts section in this technical brief for instructions.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local system account or the domain user account must have to specific folders in order for the Crystal Program Job Server to function successfully.

User Account	NTFS Rights	Folder Path
System account or Domain user account with administrative access	Read permission	<drive>:\Winnt\system32
	Read / Execute permission	system temp directory
		<drive>:\Winnt\Crystal
		<drive>:\Winnt\Fonts
		<drive>:\Program Files\Crystal Decisions\Shared
	Write Permission	<drive>:\Program Files\Crystal Decisions\WCS
		<drive>:\Program Files\Crystal Decisions\Enterprise\FileStore\

Embedded Report Application Server

The Embedded Report Application Server (RAS) allows you to develop an application which connects to the RAS Software Developers Kit (SDK) and then accesses your reporting database through the RAS server. For the purposes of this discussion, the term RAS server will be used for this component.

The RAS server may reside in the same computer as the Web server (HTTP server) or be on a separate computer. Examples of Web application servers are Netscape Application Server, BEA Weblogic Enterprise, Borland AppServer and IBM's WebSphere Application Server.

User Account

The user account the RAS Server uses depends on whether the CE system has been installed on one computer or several computers.

CE system installed on a single computer

By default the RAS Server uses the local System account to access resources and CE components. A RAS Server using the local System account provides sufficient access to resources and CE components on the local computer.

CE system installed over several computers

If the CE system is installed over several computers, and if the RAS Server needs to access CE components outside of its own computer, you must set the user account to a domain user account that has local administrative access to all the computers hosting CE components.

You must make changes to the user account for the RAS Server in the CCM. Refer to the Changing user accounts section in this technical brief for instructions.

NTFS Rights to folders and files

The table below outlines the NTFS rights the local system account or the domain user account must have to specific folders in order for the Embedded RAS Server to function successfully.

User Account	NTFS Rights	Folder Path
System account or Domain user account with administrative access	Read, Write, Execute permission	%install partition%\Program Files\Common Files\Crystal Decisions\2.5\bin

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