

# Crystal Enterprise 10

## Troubleshooting a communication error

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### Overview

In Crystal Enterprise 10 when viewing the ePortfolio, Crystal Management Console (CMC) or a report distributed over the web the following error message may be displayed:

"Communication Error: Communication failed with all configured Web Component Servers because they are disabled or not currently running. If this problem continues, please contact the system administrator." (From this point on we will refer to the above error as the "Communication Error")

This document explains causes of this error and steps to troubleshoot it in Crystal Enterprise 10. The target audiences for this document are network administrators and web server administrators.

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## Introduction

To properly use this document you should be a Network Administrator with administrative rights to the server where Crystal Enterprise is installed.

Communication errors are commonly generated when there are communication issues between the Web Connector and the Web Component Server (WCS) or between the WCS and the Crystal Management Server (CMS). This document outlines several troubleshooting steps to help you resolve this issue.

The two main applications you will be using to troubleshoot are the Crystal Configuration Manager (CCM) and the Microsoft Windows Event Viewer.

To open the CCM, go to:

Start > Programs > Crystal Enterprise 10 > Crystal Configuration Manager

The Microsoft Windows Event Viewer is a valuable tool for troubleshooting. It allows you to view any error messages generated by the operating system and errors generated by various applications.

The Application Log within the Event Viewer displays error messages that are generated by an application, like CE.

To view the Event Viewer Application Log for Windows 2000 or Windows 2003, go to:

Start > Settings > Control Panel > Administrative Tools > Event Viewer > Application Log

## Before you begin...

Before beginning detailed troubleshooting, there are several things you should do that may resolve the communication error.

### Restart the WCS Service

Restarting the WCS service re-initiates the connection with various components and may resolve the communication error.

To restart the WCS service, complete the following steps:

1. Go to Start > Programs > Crystal Enterprise 10 > Crystal Configuration Manager.
2. Right-click **Crystal Web Component Server**.
3. Click **Restart** on the submenu. This stops and restarts the service.

If the WCS service does not start, check the Windows Event Viewer Application Log for any relevant error messages.

If the WCS restarts successfully, test the server to see if the communication error is resolved.

## Multihomed Computers

Configuring a multihomed computer correctly is essential for CE to work correctly.

### What are multihomed computers?

Multihomed computers are computers with more than one IP address or more than one network adapter.

### Does Crystal Enterprise support multihomed computers?

Crystal Enterprise (CE) has limited support for multihomed computers.

CE will automatically use the first network adapter found after restarting. On a computer with more than one network adapter, a different network adapter may be recognized each time the computer is started which results in unexpected behavior. This behavior is due to the limitation of the CORBA (Common Object Request Broker Architecture) bus, which is the architecture that CE uses.

### How can you verify whether your computer is multihomed?

To verify whether your CE system has multiple IP addresses or multiple network adapters, use the `ipconfig /all` command. Open a command prompt window (Start > Run > type "cmd") and type `ipconfig /all` as shown below:

```
C:\>ipconfig /all
```

Below is an example of what the `ipconfig /all` command will show you:

#### *Windows IP Configuration*

```
Host Name . . . . . : CEWCS
Primary DNS Suffix . . . . . :
Node Type . . . . . : Mixed
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : crystaldecisions.com
```

#### *Ethernet adapter Local Area Connection 2:*

```
Connection-specific DNS Suffix . . . . . : crystaldecisions.com
Description . . . . . : Intel PCI Adapter
Physical Address. . . . . : 00-A0-C9-86-FC-0F
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
IP Address. . . . . : 10.50.97.246
```

<i>Subnet Mask</i> . . . . .	:	255.255.252.0
<i>Default Gateway</i> . . . . .	:	10.50.96.2
<i>DHCP Server</i> . . . . .	:	10.50.144.260
<i>DNS Servers</i> . . . . .	:	10.50.144.60
		10.53.96.173
<i>Primary WINS Server</i> . . . . .	:	10.50.144.250
<i>Secondary WINS Server</i> . . . . .	:	10.50.144.251

If more than one ethernet adapter or IP address is listed, the computer is multihomed.

### What are the available options if your computer is multihomed?

Refer to pg.324 of the CE 10 Administrator's Guide, **Configuring CE on a multihomed machine** to ensure that CE is configured correctly and retest the server to see if the communication error is resolved.

## Web Connector Configuration

The web connector must reference the correct hostname and port of the computer hosting the WCS service.

To check if the web connector is referencing the correct WCS hostname from the computer hosting the web connector:

1. Open the Crystal Configuration Manager (CCM).
2. Click on the **Configure Web Connector** symbol on the toolbar. The **Web Component Configuration** dialog box opens to display the WCS hostname and port number.
3. Ensure that the hostname displayed under the heading **WCS Host Name** is the correct hostname of the computer hosting the WCS service and that the port being used is 6401.

<b>Note</b>	Name resolution is done between all CE servers even if the entry under the heading <b>WCS Host Name</b> is an IP address. Therefore, a communication error may occur even if the IP address listed under the heading <b>WCS Host Name</b> is correct but the web connector and WCS cannot resolve to each other by name.
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For more information on virtual directories and path mappings in a CE environment, the technical brief **Virtual Directories and Path Mapping**, can be found on the Business Objects support site at <http://support.businessobjects.com/search/> by searching for ce10\_virtual\_dir\_path\_mapping.pdf

## Web Component Server Configuration

The services that are shown in the Crystal Configuration Manager (CCM) window are the services CE uses. For these services to function properly in a CE system, the Crystal Management Server (CMS) must enable and recognize these services. A communication error could occur if the CMS has not enabled and recognized the WCS service.

To check whether the CMS has enabled and recognized the WCS service:

1. Open the CCM on the computer hosting the WCS service.
2. Click the **Enable/Disable Servers** symbol in the toolbar. You will be prompted to log on.
3. Log on as the CE administrator. Once logged on you will see a list of all the CE services that the CMS recognizes and whether each service is enabled or disabled. All services not displayed in the list are not recognized by the CMS. To determine why a service is not recognized, check the Windows Event Viewer for relevant error messages.

If a service is enabled:

- it has a green arrow symbol beside it and
- the checkbox beside it is selected.

If a service is disabled:

- it has a red circle with a white line beside it and
  - the checkbox beside it is cleared.
4. If the WCS service is disabled, enable it by selecting the checkbox to the left of it and clicking **OK**.

Test the server to see if the communication error is resolved.

## Verifying NTFS Permissions

Internet Information Server (IIS) uses a Windows user account for the Anonymous User to access various folders, files and resources on the computer. By default, IIS uses an account called IUSR\_computername for the Anonymous User.

In the case of Crystal Enterprise (CE), the Anonymous User account loads and executes the Web Connector. If the Anonymous User does not have permission to access the bus components located in the c:\Winnt\System32 directory a communication error may occur.

This can be resolved by either configuring IIS to use a user account for the Anonymous User that has sufficient rights or by granting sufficient rights to the IUSR\_computername account.

The Anonymous User account must have the following NTFS rights:

NTFS Rights	File or Directory

Read	System32 directory (c:\<windows install path>\System32)
Read and Execute	Ebus-3-3-2.dll (c:\<windows install path>\System32)
Read and Execute	Etc-1-0-12.dll (c:\<windows install path>\System32)
Read and Execute	Msvcp60.dll (c:\<windows install path>\System32)

For more information on the rights required for web reporting in a CE environment, the technical brief **Required NTFS File Permissions**, can be found on the Business Objects support site at <http://support.businessobjects.com/search/> by searching for the file name ce10\_ntfsrights.pdf. Once the appropriate rights have been granted, test the server to see if the communication error is resolved.

## Testing Communication between Components

If Crystal Enterprise (CE) has been installed over more than one server, the most common cause of a communication error is that the Web Connector and the Web Component Server (WCS) cannot communicate over the network.

### Using Ping to Test Communication

For CE to work correctly, the web connector and the WCS must be able to communicate. You can test communication by using the **ping** command. To use the **ping** command to test communication:

1. Make note of the IP address and hostname for both the computer hosting the Web Connector and the computer hosting the WCS. For more information on verifying a computer's IP address and hostname, see the [How can you verify if your computer is multihomed?](#) section of this document.
2. From the computer hosting the Web Connector, open a command prompt window (Start > Run > type "cmd").
3. Ping the computer hosting the WCS by typing "**ping <WCS hostname>**". For example, if the computer hosting the WCS is named CEWCS and the IP address for the WCS is 10.55.222.240, typing **ping CEWCS** should return the following:

```
C:\> ping CEWCS

Pinging CEWCS [10.55.222.240] with 32 bytes of data:
Reply from 10.55.222.240: bytes =32 time <10ms TTL=128
Reply from 10.55.222.240: bytes =32 time <10ms TTL=128
Reply from 10.55.222.240: bytes =32 time <10ms TTL=128
Reply from 10.55.222.240: bytes =32 time <10ms TTL=128
```

#### NOTE

If you do not receive a reply similar to the example above, you may be experiencing network related communications issues. Contact your network administrator for further

	troubleshooting.
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- Now ping the computer hosting the WCS by typing `ping -a <WCS IP address>`.

The `ping -a <WCS IP address>` command will reply with the hostname that the IP address is resolving. For example, if the IP address for the computer hosting the WCS is 10.55.222.240, the command `ping -a 10.55.222.240` should return:

```
C:\> ping -a 10.55.222.240

Pinging CEWCS [10.55.222.240] with 32 bytes of data:
Reply from 10.55.222.240: bytes =32 time <10ms TTL=128
Reply from 10.55.222.240: bytes =32 time <10ms TTL=128
Reply from 10.55.222.240: bytes =32 time <10ms TTL=128
Reply from 10.55.222.240: bytes =32 time <10ms TTL=128
```

<b>NOTE</b>	If the hostname returned is not the same hostname for the WCS as the one listed in step 3, you may be experiencing a network related communication issue. The IP address may be in use by another computer, causing a network related communication issue. Contact your network administrator for further troubleshooting.
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- Repeat steps 2 through 4 from the computer hosting the WCS.

If the computers hosting the Web Connector and WCS cannot communicate with each other by name or IP address, the issue is network related. Your network administrator must resolve this issue prior to troubleshooting with CE.

## Confirming Port Communication

The WCS communicates with other CE components using port 6401. Ensure that port 6401 is available and not in use. You must also check to see if the operating system has properly reserved port 6401 for the WCS.

This section outlines how to complete these tasks.

### Checking the Availability of Port 6401

You must ensure that no other application is using the port that the WCS is attempting to use. Because the default port is 6401, port number 6401 is used in the following procedures.

To check whether or not another application is using the same port as the WCS, refer to the procedures below.

#### Stop the WCS

- Open the Crystal Configuration Manager (CCM) by going to Start > Programs > Crystal Enterprise 10 > Crystal Configuration Manager.
- Right-click the WCS and click **Stop** on the submenu.



### Disable the WCS service

1. To do this open the CCM and click the **Enable/Disable** symbol on the toolbar.
2. When you are prompted to log on, log on as the CE administrator.
3. Once logged on, clear the box beside the WCS service. This disables the WCS service.
4. Restart the computer.

### Display the listening ports using the netstat /a command.

1. Once the computer is finished restarting, go to Start > Run and type “cmd”.
2. Type “netstat /a” at the command prompt and press the **Enter** key. This displays all the open ports in use by applications. Below is an example of how the command should be used:

```
C:\>netstat /a
```

The result of the command will show you all connections and listening ports.

If you find port 6401 in the list of ports, it is in use by an application other than CE. This is likely the cause of the communication error and you must take steps to disable the other application using port 6401.

### Services File

Windows NT, 2000, and 2003 all use a file called Services to list all of the known ports and services that installed applications use on the system. CE adds a handful of entries to the Services file once it is installed on the system. If the proper entries are not present, the WCS may not be able to use the port.

To check this, complete the following steps:

1. Go to C:\<Windows install path> \System32\Drivers\ETC\Services
2. Open the Services file in Notepad.
3. Check for the existence of an entry such as:  
*info-was 6401/tcp #*
4. If the entry is not there, add it.
5. Restart the computer for the changes to take affect.

Once all port information has been checked and configured correctly, test the server to see if the communication error is resolved.

## Checking the Registry

The hostname listed in the Microsoft Windows Registry must match the hostname listed in the **Configure Web Connector** dialog box of the CCM. If the two values do not match, the communication error may occur. Follow the steps below to test this.

<b>Caution</b>	For information about how to edit the registry, view the "Changing Keys and Values" Help topic in Registry Editor (Regedit.exe) or the "Add and Delete Information in the Registry" and "Edit Registry Data" Help topics in Regedt32.exe. Note that you should back up the registry before you edit it. If you are running Windows NT, Windows 2000, or Windows 2003 you should also update your Emergency Repair Disk (ERD).
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### Verify the WCS hostname listed in the CCM

1. Open the Crystal Configuration Manager (CCM) by going to Start > Programs > Crystal Enterprise 10 > Crystal Configuration Manager.
2. Click the **Configure web connector** symbol in the toolbar to open the **Web Connector Configuration** dialog box. Make note of the WCS Host Name. Click **Cancel** to close the dialog box.
3. Close the CCM.

### Verify the WCS hostname listed in the Windows Registry

1. Open the Windows Registry Editor (Start > Run > type "regedt32"). This opens the Registry Editor and displays the directory tree and its contents in two separate windows.
2. Maximize the **HKEY\_LOCAL\_MACHINE** dialog box and navigate to the following location:  
HKEY\_LOCAL\_MACHINE/SOFTWARE/Crystal Decisions/10.0/Web Connector/WCSHosts
3. In the larger window the WCS hostname will be displayed in the Registry key WCSHost: REG\_SZ:. For the example:  
WCSHost: REG\_SZ: CEWCS

If the hostname listed in the Registry does not match the hostname listed in the **Web Connector Configuration** dialog box of the CCM, this may be the cause of the communication error.

To resolve this:

1. Double-click the WCSHost: REG\_SZ: registry key and input the correct WCS hostname.
2. Click **OK** to complete the process and close the registry.
3. Restart the computer for the changes to take affect.

Once the above steps are completed, test the system to see if the communication error is resolved.

## Recreating the WCS service

Recreate the WCS service if all previous troubleshooting efforts have not resolved the issue. Recreating the WCS service restores its connections to various CE components. The procedures below guide you through recreating the WCS service.

### Removing the current WCS service

To remove the current WCS service on the computer hosting the WCS:

1. Open the Crystal Configuration Manager (CCM) by going to Start > Programs > Crystal Enterprise 10 > Crystal Configuration Manager.
2. Click the **Enable/Disable Servers** symbol and log on using the CE administrator account. This opens the **Enable/Disable Servers** dialog box.
3. Clear the check box next to **Crystal Web Component Server** to disable it. Then click **OK** to close the dialog box.
4. In the CCM, right-click **Crystal Web Component Server** and then click **Stop** on the submenu.
5. Click **Crystal Web Component Server** and then click on the **Delete Server** symbol on the toolbar to remove the current WCS.

### Adding a new WCS service

To add a new WCS service on the computer hosting the WCS:

1. Open the CCM and click the **Add Server** symbol on the toolbar. This opens the Add Crystal Server Wizard.
2. Click **Next** and you will be prompted to select a Server Type and enter a Display Name and Server Name.
  - i) In the **Server Type** box, select the **Crystal Web Component Server**.
  - ii) Keep the defaults for the **Display Name** and **Server Name** fields.
3. Click **Next**. You are now prompted for the CMS Name Port.
  - i) The CMS Name should be the hostname of the computer.
  - ii) Select the **Use default port number** checkbox.
4. Click **Next** and then click **Finish** to complete the process.

### Enabling the new WCS service

To enable the new WCS on the computer hosting the WCS:

1. Open the CCM, right-click **Crystal Web Component Server** and then click **Start** on the submenu. This starts the service.

2. Click the **Enable/Disable Servers** symbol and log on using the CE administrator account. This opens the **Enable/Disable Servers** dialog box.
3. Select the check box next to **Crystal Web Component Server** to enable it. Click **OK** to finish enabling the service.
4. In the CCM, right-click **Crystal Web Component Server** and click **Restart** on the submenu to start the new WCS service.

You have now completed the process of recreating the WCS service. Test the server to see if the communication error is resolved.

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