

# Crystal Reports 8.5 and Crystal Enterprise 8.0

## Printing and Exporting Image resolution with Crystal Reports and Crystal Enterprise

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### Overview

This document discusses improving image resolution while deploying reports using Crystal Enterprise or the Crystal Reports Report Design Component (RDC) through Visual Basic or Active Server Pages.

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### Introduction

Prior to the release of Crystal Reports 8.5 and Crystal Enterprise 8.0 images embedded in web reports (through the Web Component Server and the Report Design Component) were, by default, displayed using 96 dpi (dots per inch) resolution and 256 colors. This was by design in order to increase the speed of delivery through reducing report processing time and file size.

In some cases customers were using reports to present images that needed to be in much more detail and so resolution and color needed to be increased substantially. For this reason a patch was developed for Crystal Reports 8.0 addressing this demand. This patch included an updated Crpe32.dll as well as some registry modifications.

The changes implemented in the Crystal Reports 8.0 patch were included in the releases of Crystal Reports 8.5 Developer Edition and Crystal Enterprise 8.0

(Standard and Professional Editions). This document will explain how to make adjustments to the values of the appropriate registry keys in order to improve image quality when printing or exporting from your web applications.

\*\*\* It is important to note that these changes arise from an enhancement request to improve image quality when printing and exporting. While one may see improvements in viewing quality, in some cases one may also see degradation in the appearance of the image through any of these methods or in the Crystal Reports Designer Application itself.

## Important Note

This document suggests making changes to your registry. While we will offer direction we do not assume responsibility for registry corruption. If registry issues ensue as a result we will recommend restoring the back up of the registry so please make sure that the registry is fully backed up and all Emergency Repair Disks are up to date and readily available. All recommendations should be tried in a test environment prior to making alterations in a production environment.

<b>NOTE</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 or Windows 2000, you should also update your Emergency Repair Disk (ERD).
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## Image Quality with Crystal Enterprise 8.0

When reporting with Crystal Enterprise, the reports are generated by the Crystal Web Components. When Crystal Enterprise is installed the following registry key is created:

**HKEY\_LOCAL\_MACHINE\Software\Seagate Software\Crystal Reports**

1. Modify an existing or create a new key under the "Crystal Reports" key called "Export" as seen below:

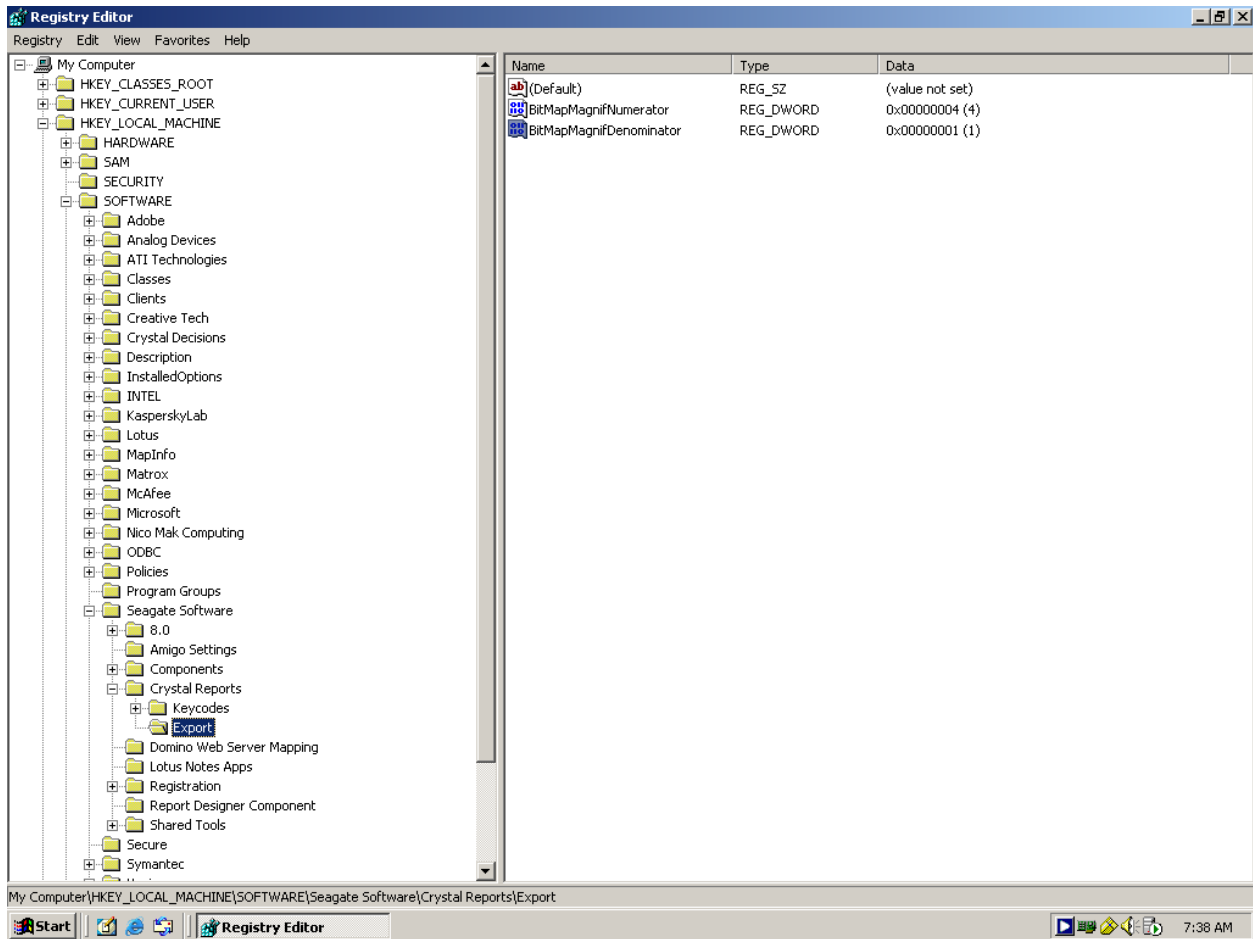
**HKEY\_LOCAL\_MACHINE\Software\Seagate Software\Crystal Reports\Export**

2. Under the Export key create two new DWORD Values. These values will be BitMapMagnifNumerator and BitMapMagnifDenominator. The full key will therefore be:

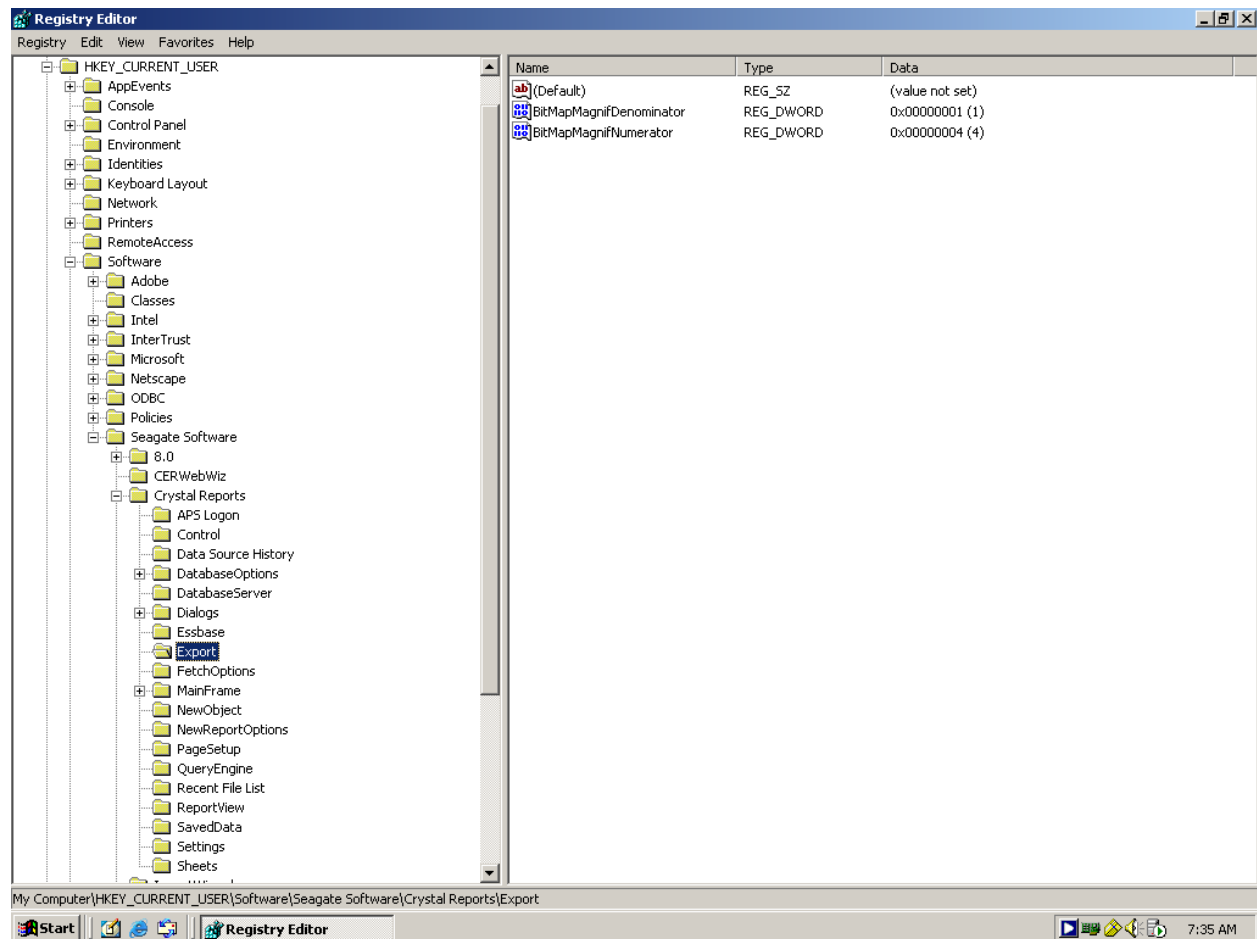
**[HKEY\_LOCAL\_MACHINE\Software\Seagate Software\Crystal Reports\Export]**

**"BitMapMagnifDenominator"=dword:00000000**

**"BitMapMagnifNumerator"=dword:00000000**



3. These same values should be entered/created under the Hkey\_Current\_User as well (as shown in the following screen shot).



The values of these two keys are utilized by the Web Components for rendering the image. These same keys are used by the Crystal Reports Designer for exporting as well as by the .Net platform in order to determine the magnification factor.

The magnification factor is calculated as follows:

$$\text{Factor} = (\text{Numerator}/\text{Denominator})$$

$$\text{Bitmap dpi} = \text{Factor} * \text{screen dpi}$$

For example, if you are using a small font display and your screen is 96 dpi, you can set the magnification factor by assigning the numerator a value of 2 and denominator to 1. For a factor of 2.5, set the numerator to 25 and the denominator to 10. To get 240 dpi, set the numerator to 240 and denominator to 96.

#### Limitations:

- The magnification factor must be in the range of 1 to 12.5.
- Netscape JVM (Java Virtual Machine) allows a maximum of 2.5X image compression. This is a restriction for the Java viewer.
- Increasing magnification reduces the clarity on the screen.

- On some browsers (for example, Microsoft Internet Explorer 5), printing looks blurry because of graphic smoothing.
- Increased file size and network traffic.
- As these values change magnification the image may appear larger when using the HTML or DHTML viewers distorting their appearance.

## Image Quality with the Report Design Component (RDC) through Visual Basic or Active Server Pages (ASP)

The Report Design Component (RDC) uses values from a different set of registry keys to determine the magnification factor while rendering images. To generate a higher quality image through this component it is necessary to modify or create some key registry entries.

When Crystal Reports Developer Edition is installed the following registry key is created:

**HKEY\_LOCAL\_MACHINE\Software\Seagate Software**

1. Modify or create a key under the Crystal Reports key called Crystal Reports Designer Component.

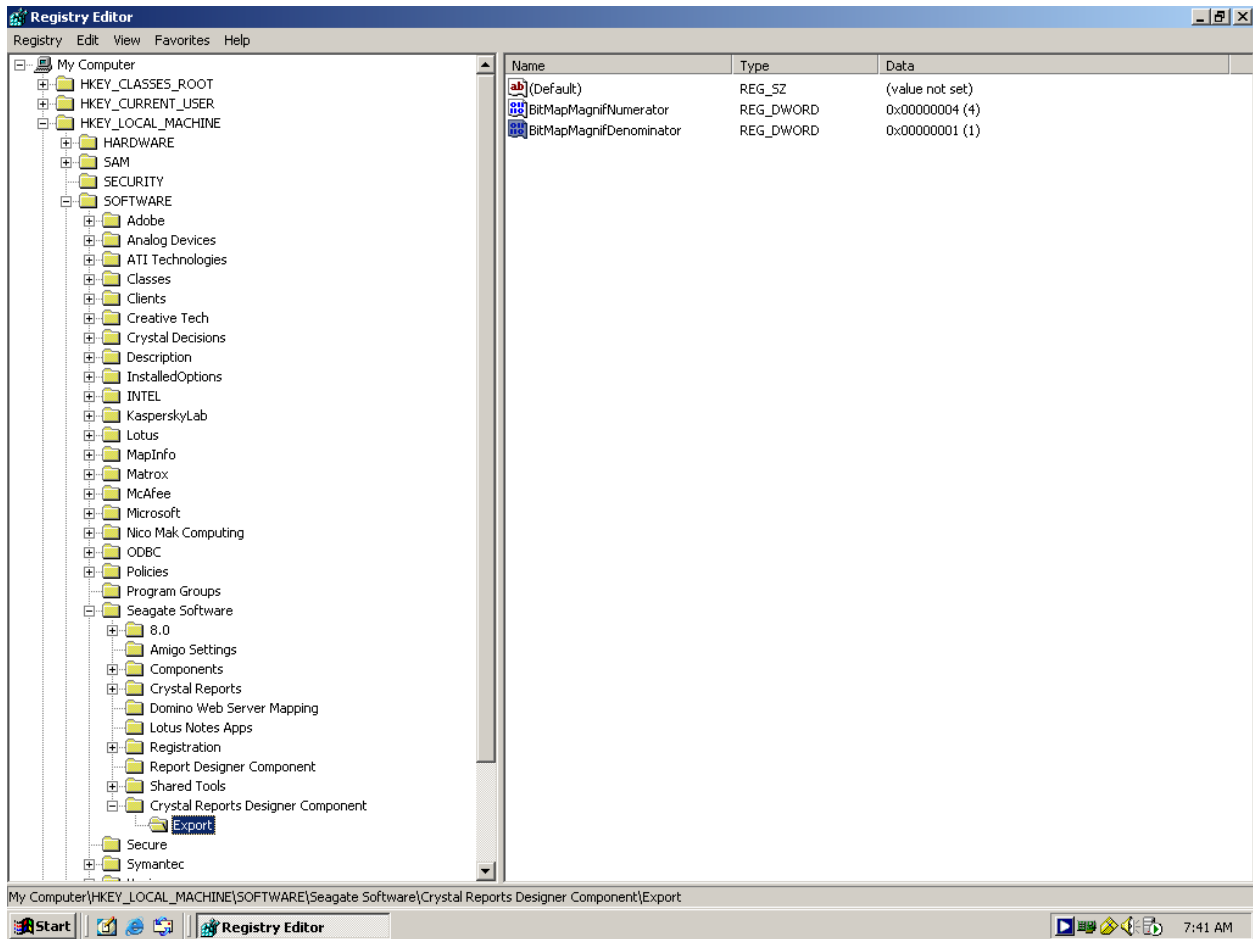
**HKEY\_LOCAL\_MACHINE\Software\Seagate Software\Crystal Reports Designer Component\Export**

2. Under the Export key create two new DWORD Values. These values will be “**BitMapMagnifNumerator**” and “**BitMapMagnifDenominator**”. The full key will therefore be:

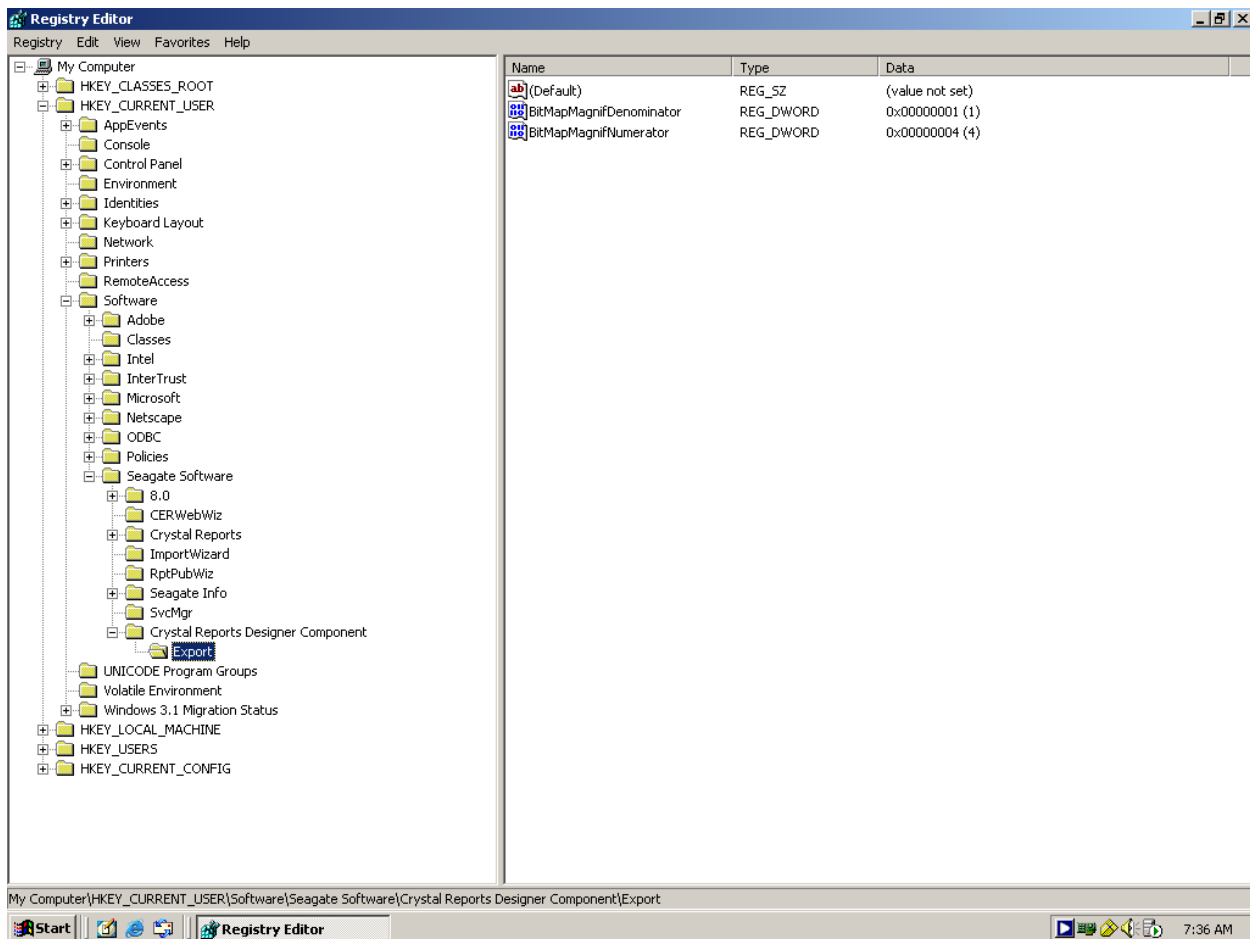
**[HKEY\_LOCAL\_MACHINE\Software\Seagate Software\Crystal Reports Designer Component\Export]**

**"BitMapMagnifDenominator"=dword:00000000**

**"BitMapMagnifNumerator"=dword:00000000**



3. Again these same values should be entered/created under the `Hkey_Current_User` as well. (As shown in the screen shot.)



## Suggested Trial Values

Determining the ideal values to use for the “**BitMapMagnifDenominator**” and “**BitMapMagnifNumerator**” can involve a certain amount of trial and error. It is often easiest to work with a denominator value of 1 and to then manipulate the numerator value using whole numbers between 1 and 12. A good starting value is to set the numerator to a value of 4. This value seems to provide a good increase in image quality without making the image of so large a size that download times are unmanageable.

As a rule, the larger the numerator value is the larger the image is (higher its quality), and the smaller the numerator the smaller the image is (poorer its quality). As previously mentioned some trial and error may be required depending on the specific images which are being rendered by your reports.

## Contacting Crystal Decisions for Technical Support

We recommend that you refer to the product documentation and that you visit our Technical Support web site for more resources.

### Self-serve Support:

<http://support.crystaldecisions.com/>

**Email Support:**

<http://support.crystaldecisions.com/support/answers.asp>

**Telephone Support:**

<http://www.crystaldecisions.com/contact/support.asp>