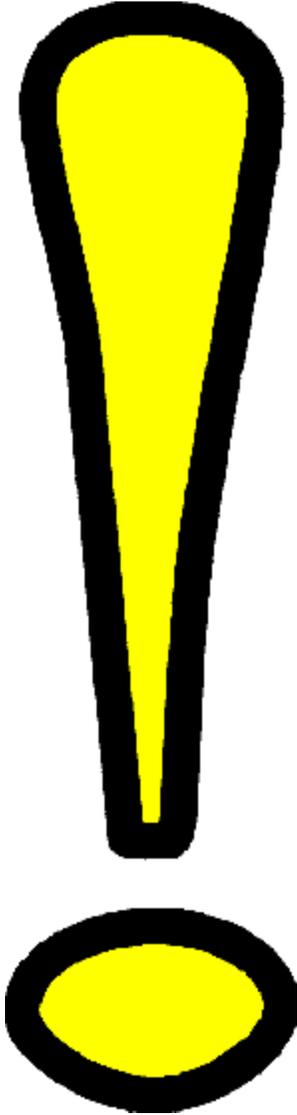


No related topics were found.

No topics were found.

This area is presently under construction





# **Welcome to the CorelDRAW 7 Graphics Suite**



## **Welcome to the CorelDRAW 7 Graphics Suite**

You've chosen the leading PC graphics package that brings together all the tools you need to design, create, edit, enhance, and publish illustrations, photographs, corporate logos, technical illustrations, and much more.

The CorelDRAW 7 Graphics Suite is the preferred package of industry professionals and casual home-users alike. Whether you're a budding graphic designer, commercial artist, technical illustrator, or anything in between, the CorelDRAW 7 Graphics Suite features all the tools you need to create professional (or just professional-looking) documents with precision and ease. CorelDRAW 7 redefines ease of use and accessibility for all its graphics tools and editing capabilities.









## Welcome to CorelDREAM 3D 7

CorelDREAM 3D provides all the features necessary to create full-color three-dimensional (3D) illustrations. Its Bezier-based modeler uses familiar tools from your favorite two-dimensional (2D) drawing program (like CorelDRAW) to create 3D objects. The program also has a Modeling Wizard to guide you through the steps needed to create a 3D object.

After you create an object, you can paint it with colors and textures that have realistic properties such as transparency and reflection. You can even apply real-world textures like wood grain or marble.

To enhance realism and 3D effects, you can add various types of light sources to your scene. By changing a few light source settings, you can change a cafe scene from a midday scene, to early morning, to late evening.

### GRAPHIC

Because you work in three dimensions, you can view your scene from any angle and at any degree of magnification by placing cameras at different positions in the 3D workspace.

When you're finished with your 3D model, you need to render the image. Rendering is the culmination of a CorelDREAM 3D project. Rendering is like taking a photograph; it reduces a 3D environment to a 2D image. The rendered image is compatible with many popular Windows 2D graphics and page layout programs, so you'll have no trouble making composite renderings with other images or integrating the images with your text.

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{button ,AL('PRC Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} [Related Topics](#)





## Included with the CorelDRAW 7 Graphics Suite

The CorelDRAW 7 Graphics Suite also includes the following applications and utilities to enhance your productivity and empower you with more publishing options:

**Corel OCR-TRACE** - Converts bitmap images to vector graphics and text included in a bitmap into editable characters.

**CorelDEPTH** - Contains all the tools you need to create full-color 3D text and graphics and export them in formats compatible with CorelDRAW, Corel VENTURA, and many other graphics and page layout applications. The professionally designed template wizards guide you through the steps of creating 3D text and graphics.

**CorelTEXTURE** - Creates colorful, realistic textures that can be used to enhance professional graphic productions such as charts, pictures, logos, and photo-collages.

**Corel MULTIMEDIA MANAGER** - Helps you organize, manage, and manipulate multimedia files.

**Corel CAPTURE** - Takes a "snapshot" of any item appearing on your computer screen and allows you to use the image produced in technical documentation, course materials, or presentations.

**CorelSCAN** - Helps you create professional quality scanned images. You can scan an image using any available data source and correct imperfections without launching a photo-editing application.

**CorelMEMO** - Allows you to paste notes to yourself as you work.

**Corel SCRIPT and Corel SCRIPT DIALOG EDITOR** - Allows you to write scripts for many CorelDRAW tools so you can create your own add-on utilities.

**Corel Color Manager Wizard** - Guides you through the steps to choose or create device profiles for scanners, monitors, and printers. The Color Manager Wizard uses these profiles to build the system profile.

**Corel Print Wizard** - Guides you through the steps to make personal and professional publishing choices.

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{button ,AL('PRC Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} [Related Topics](#)



## About Corel Corporation

## About Corel Corporation

Corel Corporation is recognized internationally as a world leader in the development of PC-based graphics and multimedia software. CorelDRAW now available in more than 17 languages and has won more than 215 international awards from major trade publications.

We pride ourselves in delivering high quality graphics, productivity, and multimedia software by actively seeking and responding to your input.

Corel ships its products through a network of more than 160 distributors in 70 countries worldwide. Corel is traded on the Toronto Stock Exchange (symbol: COS) and the NASDAQ — National Market System (symbol: COSFF).

For more information about Corel and our products, check out our World Wide Web site at <http://www.corel.com>.

### Enough about us, what do you have to say?

In our continuing efforts to help you get the most from CorelDRAW, we look for new and better ways to document our products. If you've developed a unique effect that you'd like to share with us, please let us know. Send us the details and we may include them — with due credit to you, of course

— in future CorelDRAW learning materials. Address your letter to:  
CorelDRAW Documentation Manager,  
Corel Corporation,  
1600 Carling Avenue,  
Ottawa, Ontario, Canada  
K1Z 8R7  
Fax: (613) 728-9790

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} Related Topics

## Documentation conventions

## Documentation conventions

As you read the Corel documentation, you'll notice a number of conventions that you'll probably want to become familiar with first.

### Mouse conventions

The following are some conventions for mouse movements you'll see in the documentation:

<b>When you see this</b>	<b>Do this</b>
Click File, New	Click the File menu with the mouse, and then click the New item in the menu.
Click Arrange, Order, To Back	Click the Arrange menu, move the cursor to the Order item. From the submenu that appears, click To Back.
Enable a check box	Click the check box to place a check mark or an "X" inside the box.
Disable a check box	Click the check box to remove the check mark or "X."
Select	Click (and drag) to highlight.
Choose Italic from the Weight <i>list box</i>	Click the Weight list box, and click the mouse button on the Italic option.
Right-click, and click Paste	Click the right mouse button, and click the Paste command from the submenu that appears.

### Keyboard conventions

The following are conventions for keyboard actions you'll probably want to become familiar with:

<b>When you see this</b>	<b>Do this</b>
Press ENTER	Press the ENTER key on your keyboard.
CTRL + SHIFT	Press the CONTROL key and the SHIFT key at the same time.

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`{button ,AL("OVR Welcome to the CorelDRAW 7 Graphics Suite";,0,"Defaultoverview",)}` [Related Topics](#)

## Using help



## Using help

The CorelDRAW 7 Graphics Suite features new and enhanced documentation to meet your most requested documentation needs. The comprehensive online Help system provides easy access to descriptions and procedures that cover all application features and functions. In addition to online Help, the CorelDRAW 7 Graphics Suite also includes a complete User's Guide.

The documentation set comprises the following:

### Online Help

The online Help system enables you to retrieve all the information you need quickly, and then return to your work. Help appears in a separate window on your screen. For quick access, you can keep the Help window displayed on top of the application. You can also print specific topics from the online Help system.

### Online Tutors

Online Tutors provide step-by-step instructions on how to complete specific tasks and projects. If you prefer, you can have a Tutor show you how complete the task.

Tutors range in complexity from instructions about basic tasks to complete projects that involve several tasks. This help feature is available in CorelDRAW and Corel PHOTO-PAINT.

### Online Hints

Online Hints display information and guidance on the task that you're performing. When you click a tool or an object, the content of the Online Hints window is updated to provide you with relevant information. This help feature is only available in CorelDRAW.

### Context-sensitive Help

The context-sensitive Help displays information that is relevant to the current status of the application and provides information on using commands.

### Online ToolTips

Online ToolTips provide information about icons and buttons on the toolbars and the Toolbox. ToolTips display in a balloon when you position the mouse pointer over a button.

### User's Guide

The CorelDRAW 7 Graphics Suite User's Guide provides you with comprehensive documentation that you can take away from your desk and read at your leisure.

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{button ,AL("OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",,)} [Related Topics](#)





## Using online Help

When you click Help Topics from the Help menu, a dialog box opens that provides three ways to access the help you need.

### To access online Help

1. Click Help, Help Topics.
2. Click one of the following tabs:
  - Contents to display conceptual and “how-to” information
  - Index to search by feature names, synonyms, and tasks
  - Find to perform a full-text search of Help

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`{button ,AL("PRC Using help;',0,"Defaultoverview",)}` [Related Topics](#)









## Accessing context-sensitive Help

Context sensitive help is accessible from wherever you are in CorelDRAW. You can access context-sensitive help from the menus, Dialog boxes, Roll-Ups, Property Bars, and all other toolbars in CorelDRAW.

The most common ways to access context-sensitive Help are as follows:

<b>To get help on</b>	<b>Do this</b>
Dialog boxes	Click the Help button or press F1.
Menu commands	Click the Help button on the toolbar, click a menu, and click a command. Or, press F1 when a command is highlighted.
Tools and controls	Click the Help button on the toolbar, and click the item for which you want help. Or, click Help, What's This?. Or, click the item with the right mouse button, and click What's This?.
Roll-Ups	Right-click the Title Bar of an open Roll-Up, and click Help.
Selected objects	Right-click an object, and click Properties. Information about the object's type, fill type, outline type, and any applied special effects appears in the Properties Dialog box.



### Tip

- Use the Status Bar at the bottom of the Application Window to familiarize yourself with the tools. The Status Bar displays details of what buttons, controls, and menu commands do as you move the mouse cursor over them.

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{button ,AL('PRC Using help;',0,"Defaultoverview",)} [Related Topics](#)





## Printing Help

You can print specific help topics or print entire sections of online Help.

<b>To</b>	<b>Do This</b>
Print an entire section	From the Contents page, click the Print button that appears along the bottom-right side of the window.
Print an overview topic	Click the Print button that appears below the title bar.
Print a How-to topic	Right-click the window, and click Print Topic.

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{button ,AL('PRC Using help';0,"Defaultoverview",)} [Related Topics](#)

## **Corel support services**

## Corel support services

Corel is committed to providing customers with high-quality technical support. The following sections describe the variety of support services available.

### Principal technical support services

#### 1-613-728-7070 (North America only)

Free technical support is available to you for 30 days from the day you place your first call to Corel Technical Support. Corel representatives are available to respond to your call from Monday to Friday, 8:30 a.m. to 7:30 p.m. Eastern Standard Time. During and after your principal support period, you can also use the basic services listed below.

### Basic services

Corel offers the following technical support options, most of which are available 24 hours a day, 365 days a year. These services are useful if you prefer not to pay for support or encounter problems during off-hours.

### IVAN (Interactive Voice Answering Network)

The Interactive Voice Answering Network contains answers to commonly asked questions about Corel products and is available 24 hours a day, 365 days a year. It is regularly updated with the latest information, tips, and tricks. You can also request that IVAN's solutions be faxed to you. There is no charge for this service beyond the cost of the telephone call.

#### IVAN (613) 728-7070

### Automated FAX on Demand

Corel's Technical Support personnel maintain an automated FAX on Demand system of numbered documents that contain up-to-date information about common issues, tips, and tricks. This service is available 24 hours a day, 365 days a year.

#### FAX on Demand (613) 728-0826, extension 3080

You will be asked for a document number and your fax number. The document you request is automatically sent to you. To fax a catalog of documents to yourself, call the Automated FAX on Demand system number and request document **2000**.

### Bulletin Board System (BBS)

If you have a modem and communications software package, you can access Corel's BBS. You can download files, troubleshooting information, and utilities. You can also transfer problem files to Customer Support through the BBS.

#### European BBS (+353)-1-7082700

#### North American BBS (613) 728-4752

### CompuServe®

Interact with others and Corel technicians to obtain product information and support. CompuServe is available 24 hours a day, 7 days a week, including holidays. Corel representatives will respond from 8:30 to 5:00 Eastern Standard Time, from Monday to Friday, excluding holidays.

If you have a CompuServe membership, you can access Corel's technical information by entering **GO COREL** (for English), **GO CORELGER** (for German), **GO CORELFR** (for French), **GO CORELNL** (for Dutch), and **GO CORELSCAN** (for Scandinavian) at the CompuServe Prompt.

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} [Related Topics](#)

## Internet Services

### World Wide Web Site (WWW)

The World Wide Web address for Corel's products on the Internet is <http://www.corel.com>. At this location, you can quickly search Corel's Searchable Knowledge Base. From the database you can read, print, or download documents that contain answers to many of your technical questions or problems. This site also contains files you can download.

### File Transfer Protocol (FTP)

You can download printer files and other files through our anonymous FTP site at <ftp.corel.com>.

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} [Related Topics](#)

## Extended technical support services

For details on the support options available to you after your principal support expires, please contact Corel Technical Support at **(613) 728-7070**.

### Worldwide support

Corel customers residing outside North America can contact Corel Technical Support representatives in Dublin, Ireland, or a local Authorized Support Partner. Technical support outside North America is available to you at the following locations. If your country is not listed below, please check the Services and support section on our World Wide Web site at <http://www.corel.com>. You can also call **(353)-1-7082500** for information on contacting Technical Support.

### Extended technical support services

To request an up-to-date listing of Corel's Authorized Support Partners worldwide, and a copy of Corel's Extended Technical Support Policy, contact Corel Technical Support at **(353)-1-7082500**.

#### Latin America

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Argentina	(0541) 954-6500
Brazil	011 5505 4725
Chile	562 671-3060
Mexico	525 254-0173
Colombia	916196012

#### Middle East

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Dubai	971.6.510.227
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#### Eastern Europe

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Czech Republic	42-2-627-3487
Poland	(0048)-(71)-728-141 ext. 289

#### Europe

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Austria	(01)-589-241-30
Belgium-French	(02)-714-41-30
Belgium-Dutch	(02)-714-41-31
Denmark	35-25-80-30
Finland	(90)-229-060-30
France	(1)-69-32-49-85
Germany	(069)-66405030
Italy	(02)-452-812-30
Netherlands	020-611-1611
Norway	22-97-19-30
Portugal	353-1-708-2388
Spain	01-661-3627
Sweden	0680-711-751
Switzerland-French	353-1-708-2355
Switzerland-German	353-1-708-2344
United Kingdom	+353-1-7082333

#### Asia Pacific

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Australia	07 3244 3311
Hong Kong	8100-3729
India	91 11 3351948
Japan	03-5645-8379
Malaysia	800-1090
New Zealand	09 526 1155
Singapore	1-800-65-1042

Taiwan

2 593 3696

**Africa**

South Africa

021-658-4222

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} Related Topics

## Before calling Corel Technical Support

Before calling Corel Technical Support, please have the following information available. This will assist the Technical Support representative in helping you more quickly and efficiently:

- A brief description of the problem, including the exact text of any error messages received, and the steps to recreate the problem.
- The type of computer, monitor, pointing device (e.g. mouse, tablet), printer, and video card (display adapter) in use.
- The version of Microsoft Windows and the Corel product in use. Choose the About Windows 95 command from the Help menu in Explorer to find which version of Windows you are running.
- A list of any programs loaded into RAM (e.g., TSRs). Check the Startup folder in the Programs menu to determine if you are running any other programs.

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} [Related Topics](#)

## Customer service worldwide

Corel Customer Service is operated by a number of third-party companies on behalf of Corel. If you would like additional information on Corel products or services, please call one of the telephone numbers listed below. If your country is not listed, please call the general number listed below. General customer service and product information can also be accessed through the World Wide Web at <http://www.corel.com>.

<b>Country</b>	<b>Call this number</b>
United States	1-800-772-6735
Canada	1-800-772-6735
Australia	1-800-658-850
Austria	0660-5875
Belgium	0800 11930
Denmark	800 187 55
Finland	0800-1-13502
France	05 90 65 12
Germany	0130 815074
Ireland	1800-242800
Italy	1678 74791
Japan	03-5645-8567
Luxembourg	0800-2213
Netherlands	06-022-2084
New Zealand	0800-COREL-1
Norway	800 11661
Portugal	05055-3001
South Africa	0800-23-4211
Spain	900 95 35 38
Sweden	020 791 085
Switzerland	155-8224
United Kingdom	0800-581028
General	353-1-706-3912

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} [Related Topics](#)



# CorelDRAW 7 Graphics Suite concepts

## CorelDRAW 7 Suite concepts

CorelDRAW and CorelDREAM 3D work with vector-based graphics and Corel PHOTO-PAINT works with bitmap images. This section highlights basic concepts you need to work with vectors, bitmaps, and objects, and presents a brief overview of working with three-dimensional (3D) graphics.

**For more information see the following:**

{button ,JI(`,`Understanding vector and bitmap images')} [Understanding vector and bitmap images](#)

{button ,JI(`,`Understanding objects')} [Understanding objects](#)

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{button ,AL(`OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",,)} [Related Topics](#)

## Understanding vector and bitmap images



## Understanding vector and bitmap images

Computer imaging programs are based on creating either vector graphics or bitmap images. This section presents the basic concepts of a vector-based program like CorelDRAW and outlines the differences between vector images and bitmap images such as ones you work with in Corel PHOTO-PAINT.

If you haven't worked with drawing programs, or if you've worked solely with paint or photo-editing programs, you'll find this section especially informative.

### For more information see the following:

{button ,JI('`Why is resolution an important consideration when working with bitmaps') } [Why is resolution an important consideration when working with bitmaps?](#)

{button ,JI('`Comparing a vectorbased image with a bitmap image') } [Comparing a vector-based image with a bitmap image](#)

{button ,JI('`Working back and forth between applications') } [Working back and forth between applications](#)

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{button ,AL('OVR CorelDRAW 7 Graphics Suite concepts;',0,"Defaultoverview",)} [Related Topics](#)





## What is a vector image?

Vector images, also called object-oriented or draw images, are defined mathematically as a series of points joined by lines. Graphical elements in a vector file are called objects. Each object is a self-contained entity with properties such as color, shape, outline, size, and position on the screen, included in its definition.

Since each object is a self-contained entity, you can move and change its properties over and over again while maintaining its original clarity and crispness, and without affecting other objects in the illustration. These characteristics make vector-based programs ideal for illustration and 3D modeling, where the design process often requires individual objects to be created and manipulated.

Vector-based drawings are resolution independent. This means that they appear at the maximum resolution of the output device, such as your printer or monitor. As a result, the image quality of your drawing is better if you print from a 600 dpi printer than from a 300 dpi printer.

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`{button ,AL("PRC Understanding vector and bitmap images";,0,"Defaultoverview",)}` [Related Topics](#)





## What is a bitmap image?

In contrast to vector illustration programs, photo-editing programs like Corel PHOTO-PAINT, work with bitmap images. When you work with bitmap images, you can refine small details, make drastic changes, and intensify effects.

Bitmap images, also called raster or paint images, are made of individual dots called pixels (picture elements) that are arranged and colored differently to form a pattern. When you zoom in, you can see the individual squares which make up the total image. Increasing the size of a bitmap has the effect of increasing individual pixels, making lines and shapes appear jagged.

However, the color and shape of a bitmap image appear continuous when viewed from a greater distance. Because each pixel is colored individually, you can create photorealistic effects such as shadowing and intensifying color by manipulating select areas, one pixel at a time.

Reducing the size of a bitmap also distorts the original image because pixels are removed to reduce the overall image size.

Also, because a bitmap image is created as a collection of arranged pixels, its parts cannot be manipulated (e.g., moved) individually.

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`{button ,AL('PRC Understanding vector and bitmap images;',0,"Defaultoverview",)}` [Related Topics](#)





## Why is resolution an important consideration when working with bitmaps?

When you work with bitmaps, the quality of your output is dependent on the decisions you make about resolution early in the process. Resolution is an umbrella term that refers to the amount of detail and information an image file contains, as well as the level of detail an input, output, or display device is capable of producing. When you work with bitmaps, resolution affects both the quality of your final output and the file size.

Working with bitmaps requires some planning, because the resolution you choose for your image will usually move with your file. Whether you print a bitmap file to a 300 dpi laser printer or to a 1270 dpi imagesetter, the file will print at the resolution you set when you created the image unless the printer resolution is lower than the image resolution.

If you want your final output to look like its on-screen counterpart, you need to be aware of the relationship between the resolution of your image and the resolution of your various devices before you begin to work. Once you do, you'll be on your way to producing consistent results.

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`{button ,AL("PRC Understanding vector and bitmap images";,0,"Defaultoverview",)}` [Related Topics](#)





## Comparing a vector-based image with a bitmap image

Compare the description of vector images to bitmap images. Recall that objects are created as collections of lines in vector graphics and bitmap images are made of individual pixels arranged in patterns. Of the two formats, bitmap images tend to offer greater subtleties of shading and texture but also require more memory and take longer to print. Vector images give you sharper lines and require less printing resources.

Paint, image processing, and scanning programs generate bitmap images where representing continuous variations in tone is required. Illustration programs (like CorelDRAW), and 3D modeling programs (like CorelDREAM 3D) work with vector images to allow you to create and manipulate individual objects over and over again during the design process.

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`{button ,AL('PRC Understanding vector and bitmap images;',0,"Defaultoverview",)}` [Related Topics](#)





## Working back and forth between applications

If you work with more than one of the CorelDRAW 7 Graphics Suite applications or if you intend to work back and forth between them, you'll probably find the Application Launcher useful. The Application Launcher button is accessible within each application and allows you to run other programs without having to find their location on your system.

This section provides some information on how you can take a document from one application in the CorelDRAW 7 Graphics Suite and work with it in another.

### Can I work with a bitmap image in CorelDRAW?

CorelDRAW allows you to incorporate bitmaps into your illustrations and to export bitmaps you create. For simple drawings, you can use CorelDRAW's Autotrace command or the Freehand tool to trace around the outline manually.

For more detailed drawings, you can use Corel OCR-TRACE to convert bitmaps into vector graphics that you can edit, scale, print, and so on, without distortion.

### Can I work with a CorelDRAW file in Corel PHOTO-PAINT?

You can open vector-based CorelDRAW illustrations directly in Corel PHOTO-PAINT. Corel PHOTO-PAINT automatically creates a bitmapped version of the original when you open the CorelDRAW illustration.

### Can I work with a CorelDRAW file in CorelDREAM 3D?

To work with a CorelDRAW illustration in CorelDREAM 3D, first import the two-dimensional (2D) shapes from CorelDRAW (called the cross-section) into CorelDREAM 3D. In CorelDREAM 3D, you then sweep the shape along the path to form a 3D object. The sweep path is sometimes referred to as the extrusion path. The shape is now a 3D object you can manipulate like other objects in CorelDREAM 3D.

### Can I work with a CorelDREAM 3D file in Corel PHOTO-PAINT?

To work with a CorelDREAM 3D image in Corel PHOTO-PAINT, you need to render the 3D image. Rendering captures a view of your 3D scene and saves it as a 2D image. You can think of a rendering as a photograph of a scene. You can take any number of renderings of your scene from multiple angles or under different lighting conditions, and compare the results.

A rendering is distinct from the scene from which it is taken. The rendered image is a bitmap made up of pixels and does not contain objects. It is a separate file that can be stored in one of the following formats:

- Corel PHOTO-PAINT (.CPT)
- .BMP
- .TIFF
- .TGA
- .PCX
- .PSD

To work with a CorelDREAM 3D file in Corel PHOTO-PAINT, you simply open the rendered image.

### To launch another installed application

1. Click the Application Launcher.
2. Click the application you want to run.

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{button ,AL('PRC Understanding vector and bitmap images;',0,"Defaultoverview",)} [Related Topics](#)

## **Becoming familiar with objects**



## Understanding objects



In CorelDRAW and CorelDREAM 3D, objects are the basis of documents. After you create basic objects, you can add properties and shape and refine details to create custom graphic designs.



In Corel PHOTO-PAINT, objects play an important role in the design process. You can create objects to use them as masks and also merge them into the background.

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{button ,AL('OVR CorelDRAW 7 Graphics Suite concepts';0,"Defaultoverview",)} [Related Topics](#)









## Understanding objects and their place in CorelDREAM 3D

The first step toward creating a 3D illustration in CorelDREAM 3D is to build and assemble the objects that make up your scene. Some basic objects such as spheres, cones, and cubes are included in CorelDREAM 3D. You can also create your own objects using the Free Form Modeler and the Text tools.

Objects in CorelDREAM 3D are any 3D volume or other item that appears in the universe, including cameras and lights. When objects are grouped, their group is also described as an object. A universe is the 3D workspace shown in the Perspective window, where you can place and position objects. The size, position, and orientation of the universe are fixed.

To create an object, you need to draw cross-sectional shapes and extrusion paths on the appropriate planes in the Modeling window. Each plane in the Modeling window is a separate two-dimensional (2D) drawing environment with a grid. At any given time, you'll work on a single plane. The currently selected plane is called the drawing plane.

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`{button ,AL('PRC Becoming familiar with objects;',0,"Defaultoverview",,)} Related Topics`



# The CorelDRAW 7 Suite workplace

## The CorelDRAW 7 Suite workplace

Often, the best way to learn how something works is to use it to accomplish a specific task. If you're experienced with the CorelDRAW Graphics Suite, you'll probably want to spend a few minutes exploring the additions and enhancements, and then start working. If you're a new user, you might want to look through this section to familiarize yourself with some of the basics.

The desktop includes the work area, document window, menu bar, toolbars, Roll-Ups, and other tools you choose to display while you work.

### For more information see the following:

{button ,JI('Exploring the work area and document windows')} [Exploring the work area and document windows](#)

{button ,JI('Exploring window elements')} [Exploring window elements](#)

{button ,JI('Becoming familiar with Dialog boxes')} [Becoming familiar with Dialog boxes](#)

{button ,JI('Using toolbars flyouts RollUps and Property Bars')} [Using toolbars, flyouts, Roll-Ups, and Property Bars](#)

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} [Related Topics](#)

## **Exploring the work area and document windows**



## Exploring the work area and document windows

The work area is where all the action takes place. When you open a document, its window appears in the work area. When you open Roll-Ups, they also appear in the work area, unless you drag them away. Like a physical desktop, you can keep it neat to maximize space, or you can leave images and other screen elements anywhere on the surface for easy access.

The window in which you create your drawing or image is called the Drawing Window in CorelDRAW, the Image Window in Corel PHOTO-PAINT, and the Scene Window in CorelDREAM 3D. This section “Welcome to the CorelDRAW 7 Graphics Suite” also refers to all three generally as the “document window.”

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`{button ,AL("OVR The CorelDRAW 7 Suite workplace";0,"Defaultoverview",)}` [Related Topics](#)









## Exploring Scene Windows in CoreIDREAM 3D

Documents created in CoreIDREAM 3D are called scenes. A scene is a collection of objects, light sources, and cameras, saved in a file. Each new scene has four Perspective windows and one Hierarchy window. When you save a scene, its file name appears in the Title Bars of the Perspective and Hierarchy windows.

You can open multiple scenes and switch between them at any time. You can also copy objects between scenes and view the same scene from different angles by opening it in multiple Perspective windows.

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`{button ,AL('PRC Exploring the work area and document windows;',0,"Defaultoverview",)}` [Related Topics](#)



## Exploring window elements



## Exploring window elements

This section discusses basic Windows screen elements with which you may already be familiar. If you're new to Windows applications, you'll find this section especially informative. This section looks at:

[Exploring the Title Bar](#)

[Exploring the Menu Bar](#)

[Exploring the Status Bar](#)

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{button ,AL('OVR The CoreIDRAW 7 Suite workplace;',0,"Defaultoverview",)} [Related Topics](#)



## Exploring the Title Bar

The Title Bar extends across the top of the window, inside the window borders. It displays the name of the file and indicates whether it is the active window or not. The Title Bar of an active window is highlighted and the others on your desktop are dimmed.

Dragging a Title Bar repositions a window within the work area. The buttons that appear at the right end of the Title Bar can be used to reduce the window to its smallest size so that it appears only on the task bar, maximize the CorelDRAW window to full screen size, or to close the window.



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{button ,AL('PRC Exploring window elements;',0,"Defaultoverview",)} [Related Topics](#)



## Exploring the Menu Bar

The Menu Bar is the area across the top of a window directly below the Title Bar. It contains the names of the menus that group together like commands. Clicking a menu name displays a list of commands that can be used to access program functions. The Menu Bar looks like this:

A horizontal menu bar with a grey background and a thin border. It contains the following menu items: File, Edit, View, Layout, Arrange, Effects, Text, Special, and Help. Each item has a small, light-colored letter underlined to indicate a mnemonic key.

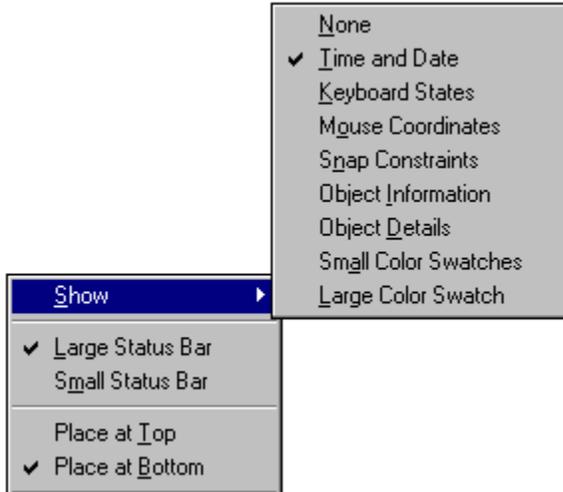
File Edit View Layout Arrange Effects Text Special Help

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{button ,AL('PRC Exploring window elements;',0,"Defaultoverview",)} [Related Topics](#)

## Exploring the Status Bar

The Status Bar displays information about the selected object, or action. By default, the Status Bar appears at the bottom of the screen, below the Color Palette. You can display the Status Bar at the top of the screen instead. The Status Bar looks like this:



You can also set the Status Bar up to display only one line of information instead of the usual two, or you can hide it. These options, and others, can be selected from the pop-up menu that appears when you right-click the Status Bar. The following is an example of what the Status Bar looks like after you choose Show, Time and Date from the pop-up menu:

11:27 AM Monday, August 14, 1995	Rectangle on Layer 1	Fill: White
Snap to Guideline	9.17839 Height: 3.74243 Center: (3.61307, 1376.31061)	Outline: 0.

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{button ,AL('PRC Exploring window elements;',0,"Defaultoverview",)} [Related Topics](#)





## Using scroll bars

Scroll arrows appear at the end of each scroll bar. Horizontal and vertical scroll bars are used to scroll the current window and view other areas of a drawing that don't fit inside the application window. This action is called "panning." Panning is especially useful for displaying drawings that are zoomed out or zoomed in.

### To view the right side of your document

- Click the right scroll arrow.

### To view the left side of your document

- Click the left scroll arrow.

### To scroll rapidly

- Click and hold the mouse button down on the scroll arrow, click one of the scroll elevators, or click and drag the scroll box.



### Tip

- In CorelDRAW, the Auto-panning option scrolls the view automatically when you drag an object toward the edges of the document window.

### To enable Auto-panning in CorelDRAW

1. Click Tools, Options.
2. Click the Display tab.
3. Enable the Auto-panning check box.

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{button ,AL("PRC Exploring window elements;',0,"Defaultoverview",,)} [Related Topics](#)



## **Becoming familiar with Dialog boxes**

## Becoming familiar with Dialog boxes

If you've worked with other applications that run on Windows, you'll probably be familiar with the conventions in this section. For a more detailed discussion of Windows Dialog boxes, see the *Microsoft Windows User's Guide*.

Dialog boxes appear when you choose a menu item or click a command button. A Dialog box presents the list of options available for the selected command and requires you to type in information that the program requires to proceed.

The following lists some items in a typical Dialog box:

[OK button](#)

[Cancel button](#)

[Command buttons](#)

[Option buttons](#)

[Check boxes](#)

[Display boxes](#)

[List boxes](#)

[Numerical and text boxes](#)

[Spin boxes](#)

[Tabs](#)

[Variable units](#)

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{button ,AL('OVR The CoreIDRAW 7 Suite workplace;',0,"Defaultoverview",)} [Related Topics](#)

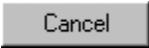
**Using the OK button**

The OK button carries through the choices you specify in a Dialog box, closes the Dialog box, and returns you to your document.



**Using the Cancel button**

The Cancel button causes the application to ignore any changes made in the Dialog box at that point and returns you to the document window.



### Using command buttons

Command buttons cause an action to occur, such as resetting Dialog box values or presenting you with a supplementary Dialog box.



### Using option buttons

Option buttons present two or more mutually exclusive choices. To pick one of the choices, click the associated button. Unlike check boxes, you can only choose one of the options in the grouping.



### Using check boxes

An enabled check box means that the option it corresponds to is turned on; a disabled check box means it's turned off. A check box is enabled when an X or a check mark appears in the check box, and disabled when the check box is empty. Unlike option buttons, you can enable one or all of the options contained within one grouping of check boxes.



**Using Preview Windows**

Preview Windows appear in some Dialog boxes and Roll-Ups to give you a visual representation of your current selection. As you change the selection, the graphic shown in the Preview Window changes to reflect your choice.

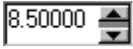
### Using list boxes

List boxes present you with a list of options. Scroll through the list and select an item by double-clicking it, or choosing it and then clicking OK.

### Using numerical and text boxes

Both numerical and text boxes are referred to as “boxes” in the CorelDRAW 7 Graphics Suite documentation.

For numerical boxes, you can either type in the values or use the attached spin boxes.



For text boxes, you need to type in text.

Name:

### Using spin boxes

Spin boxes allow you to change values in number boxes using the mouse. The top arrow increases the value displayed; the bottom arrow decreases it. You can either click the arrow to change the value by a single increment or hold the mouse button down on the arrow to change the value continuously.

For more rapid scrolling, click and hold the mouse button down on the horizontal bar that appears between the arrows until you get the lightning icon, then drag up or down to increase the scrolling speed. If this doesn't work, right-click, and click Settings. Enable the Lightning Scroll check box, and click OK.



**Using tabs**

Tabs appear along the top of some Dialog boxes. Tabs allow you to move between property pages that group related commands together.

Tabs also refer to the elements that appear along the bottom of the screen in a multiple-page CorelDRAW file. Use these tabs, called page flippers, to move to specific pages.

Layout

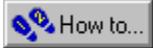
**Using variable units**

Variable units allow you to set the units for the selected option. The units are only associated with the option they appear beside, which allows you to use different units for different options.

To change the units, click the down button that appears beside the unit and choose the desired units from the list box. When you choose a different unit, the value automatically converts.

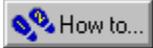
 

## Using toolbars, flyouts, Roll-Ups, Property Bars



## Using toolbars, flyouts, Roll-Ups, and Property Bars

The application commands available through the menu bars can also be accessed through toolbars and flyouts in the CorelDRAW Suite of applications.



In CorelDRAW 7 and Corel PHOTO-PAINT 7, the Property Bars and Roll-Ups allow you to access operations at your fingertips. Property Bars, accessible as you work on your document, enable you to access commands that are relevant to the active tool or the operation you're currently performing.

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`{button ,AL("OVR The CorelDRAW 7 Suite workplace";0,"Defaultoverview",)}` [Related Topics](#)



## Using toolbars

Each button on a toolbar represents a command. Some are shortcuts to menu commands; others are commands that are available only as toolbar buttons.

### To display or close toolbars

1. Click View, Toolbars.
2. Enable the check boxes beside the toolbars you wish to display; disable the check boxes beside the toolbars you wish to close.

### To close toolbars

- Click the X at the top right corner of the Title Bar.

### To move toolbars

- Click and drag the Title Bar.

### To change the vertical or horizontal orientation of toolbars

1. Place your cursor over one of the toolbar's edges and wait until it becomes a two-sided arrow.
2. Drag until the toolbar is the shape you want.

### Note

- You can only change the shape of floating toolbars. When you dock a toolbar, it becomes horizontal when placed on the top or bottom side of the application window or vertical when placed on the left or right side.

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{button ,AL(^PRC Using toolbars flyouts RollUps Property Bars;'0,"Defaultoverview",)} [Related Topics](#)



## Accessing flyouts

Flyouts are toolbars that are accessible through one tool. A small black arrow at the bottom right corner of a tool indicates that it is a flyout grouped with other tools. You can drag a flyout off its host toolbar by dragging any part outside the button area. This step doesn't actually remove the flyout from the toolbar, but displays it as a separate toolbar.

### To display a flyout

- Click the arrow, or click and hold the mouse button down on the tool to display the flyout.

---

{button ,AL('PRC Using toolbars flyouts RollUps Property Bars';0,"Defaultoverview",)} [Related Topics](#)





## Working with Roll-Ups

A Roll-Up is a Dialog box that contains the same operations as most Dialog boxes, e.g., command buttons, options, list boxes, and Close buttons.

Unlike most other Dialog boxes, you can keep Roll-Ups open while working on a document to access the operations you use most frequently, or to experiment with different effects. If you need to maximize your workspace and wish to keep the Roll-Up handy, click the arrow in the Title Bar to roll it up, leaving just the Title Bar visible. Click the arrow again to unroll it.

The following lists some common operations you'll use with Roll-Ups:

To	Do This
Roll a Roll-Up up or down	Click the arrow in the top right corner. Or, double-click the Title Bar of the Roll-Up.
Carry out your selections	Click the Apply button.
Close a Roll-Up	Click the Close button at the far right of the Title Bar. Or, right-click the Title Bar and click Close.
Close a Roll-Up after an operation is carried out	Click the Autoclose button.
Close all open Roll-Ups	Right-click the Title Bar of an open Roll-Up, and click Close All.
Move a Roll-Up	Click and drag the Title Bar to the desired location.
Arrange Roll-Ups	Right-click the Title Bar of an open Roll-Up, and click Arrange to move it to one side of the working area.
Arrange all Roll-Ups	Click Arrange All to Roll-Up all open Roll-Up windows and move them to one side of the working area.
Get help on Roll-Ups	Right-click the Title Bar of an open Roll-Up, and click Help.

### Note

- When a set of Roll-Ups is arranged, you can activate one of them by clicking its Title Bar.

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`{button ,AL('PRC Using toolbars flyouts RollUps Property Bars;',0,"Defaultoverview",)} Related Topics`





## Using Property Bars

The Property Bar is a context-sensitive command bar that displays different buttons and options depending on the selected tool or object. For example, when text is selected, the Property Bar contains only text-related commands.



If you click the Pick tool to select the object at this point, the Property Bar updates with commands that are relevant for the object. In this case, both transformation commands and formatting commands become available.

If you click a different tool at this point, the Property Bar changes again to display commands and controls for that tool.

If nothing in your drawing is selected, the Property Bar displays tools that pertain to the overall drawing such as the page size and orientation. It also displays some commonly set options such as Display Objects While Moving, and Snap To Grids, and provides access to the Options Dialog box where you can set all other application options.

### To display the Property Bar

1. Click View, Toolbars.
2. Enable the Property Bar check box.

### To remove the Property Bar from the desktop

- Click the Close button at the upper-right corner of the Property Bar.

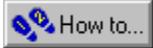
### To dock the Property Bar

- Drag the Title Bar or any open area of the Property Bar toward the menus at the top of the application window or to any of the other sides to place it there.

---

`{button ,AL('PRC Using toolbars flyouts RollUps Property Bars;',0,"Defaultoverview",)} Related Topics`





## Customizing toolbars and Property Bars

In CorelDRAW and Corel PHOTO-PAINT, you can move and delete tools in the toolbars and the Property Bar to suit your preferences. You can move buttons from one bar (a toolbar or the Property Bar) by dragging them off one bar to another one. Dragging the button to an open area deletes them.

### To display a toolbar or the Property Bar

1. Click View, Toolbars.
2. Enable the toolbars you wish to display on the desktop.

### To move a button

1. Hold down ALT while holding down the mouse button.
2. Drag the button to another toolbar to move the button there.



### To delete a button

1. Hold down ALT together.
2. Drag the button off the toolbar to anywhere else in the application window except another toolbar or the Property Bar.

### To restore the default setup of toolbars

1. Click View, Toolbars.
2. Click the a toolbar's name.
3. Click Reset.

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{button ,AL('PRC Using toolbars flyouts RollUps Property Bars';,0,"Defaultoverview",,)} [Related Topics](#)

## Organizing and retrieving files



## Organizing and retrieving files

As you begin to work with a CorelDRAW Suite application, it's a good idea to get in the habit of organizing your files. If you specify information about a file when you save, it's easier to keep tabs on the whereabouts and the contents of your files.

When you save documents, specify information that might help you find them easier in a later session. Later, when you open your documents, you'll find the notes, annotations, thumbnails, and keywords that you've assigned to them will help to jog your memory.

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} Related Topics



## Adding notes, annotations, thumbnails, and keywords

You might find it useful to annotate and assign keywords to files and to use thumbnails (small bitmap representations of graphic files) to find files without having to remember their names.

When you open files to which you've added notes, the information you specified when you saved the files appears in the Open Dialog box.

### To add notes to a file

1. Click File, Save if you're saving the file for the first time, or Save As if you want to add notes to a file you saved previously.
2. In the Notes box, type the information you want to record about the file.
3. Click Save.

### To change the thumbnail of an open file

1. Click File, Save if you're saving the file for the first time or Save As if you want to change the thumbnail of a file you saved previously.
2. Choose the type of thumbnail from the Thumbnail list box.

### To assign keywords to your files

1. Click File, Save if you're saving the file for the first time, or Save As if you want to add notes to a previously-saved file.
2. Choose the name of the file to which you want to assign keywords.
3. In the Keywords box, type the keywords you want to assign to the file.

If you want to add more than one keyword, separate each keyword with a comma. You can type as many keywords as you want.

4. Click Save.



### Notes

- To display thumbnails in the Open Dialog box, enable the Preview check box. Thumbnails allow you to see a small bitmap of a file's contents before you open it.
- By default, applications in the CorelDRAW Suite add a color header to a file when you save it. You can specify a monochrome header instead, or turn the header off.

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{button ,AL('PRC Organizing and retrieving files';,0,"Defaultoverview",)} [Related Topics](#)



## Retrieving files by file type

Applications in the CorelDRAW Suite provide two ways to sort files on your system. You can sort files by their names or file types.

### To open files by file type

1. Click File, Open.
2. In the Files of Type box, choose the file type of the document you want to open.  
The Corel application displays only the files of the format you specify.

---

`{button ,AL("PRC Organizing and retrieving files";,0,"Defaultoverview",)}` [Related Topics](#)

## Using the Scrapbook

## **Viewing computer, application, and document information**



## Viewing computer and application information

The CorelDRAW Suite of applications provide easy access to information about your computer as well as the applications themselves. The System Info Dialog box provides details on your system's setup. You can display detailed information about any of the following five categories: system, display, printing, Corel .EXE and .DLL files, and system .DLL files.

Program information consists of the program name, version number, serial number, and user name. This information doesn't change. You'll find this information particularly useful if you ever need help from Corel Technical Support Services.

### CorelDRAW

The Document Information Dialog box displays information about your CorelDRAW document and other details including the number of pages it contains, the number of layers, and the number of graphics and text objects.

### Corel PHOTO-PAINT

The Image Info Dialog box lets you instantly determine the image's file name, size, resolution, how much memory it is taking up (in bytes), its format, whether it is compressed, the type of file compression used, and its color mode.

### CorelDREAM 3D

The About Extensions Dialog box, displays information such as supported import and export filters in CorelDREAM 3D's extensions.

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{button ,AL('OVR Welcome to the CorelDRAW 7 Graphics Suite;',0,"Defaultoverview",)} [Related Topics](#)



## Viewing system information

System information shows the current state of your computer. You can choose any of five different categories of system information. These categories let you see details about your system, display, printers, Corel .EXE and .DLL files, and system .DLL files. For example, you can use this feature to see how much memory you have on the drive to which you want to save a file. You can save any system information in a text file called SYSINFO.TXT.

### To view system information

1. Depending on which application you're currently working in, click Help, and then click one of the following:
  - About CorelDRAW
  - About Corel PHOTO-PAINT
  - About CorelDREAM 3D
2. Click System Info.
3. Choose a category in the Choose a Category list box.



### Tip

- Use the Save button to store system information for printing. System information is saved as SYSINFO.TXT. A message box tells you where the file is saved.

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{button ,AL("PRC Viewing computer application and document information";0,"Defaultoverview",)} [Related Topics](#)







## Viewing program information

You can view information about your program, including the program name, version number, serial number, and user name. Keep this information handy if you call Corel Technical Support Services for help.

### To view program information

Depending on which application you're currently working in, click Help, and click one of the following:

- About CorelDRAW
- About Corel PHOTO-PAINT
- About CorelDREAM 3D

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{button ,AL('PRC Viewing computer application and document information;',0,"Defaultoverview",)} [Related Topics](#)







## Viewing extension information

CoreIDREAM 3D includes details about its extensions including compatible formats for importing and exporting as well as particulars about the cameras, renderers, scenes, and other items in your file.

### To view information about extensions

1. Click Help, About Extensions.
2. Choose a topic from the Category list box to display information.

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`{button ,AL("PRC Viewing computer application and document information";0,"Defaultoverview",)}` [Related Topics](#)





# The CoreIDREAM 3D Interface

## Application overview

### The Scene

A CoreIDREAM 3D document is called a scene. A scene is the collection of objects, light sources, and cameras, saved in a single file. Each new scene has two windows  the Perspective window and the Hierarchy window. When you have saved a scene, its filename appears in the title bars of the Perspective and Hierarchy windows.

### CoreIDREAM 3D windows

When the application opens for the first time, you see four windows: Perspective window (upper left), Hierarchy window (upper right), Objects browser (lower left), and Shaders browser (lower right). These are the primary work windows. To display one of the windows, choose it from the Windows menu.

### Workspace preferences

As you work, you can resize windows, move them around your screen, and customize your workspace. When you quit the application, CoreIDREAM 3D remembers your settings and uses them the next time you launch the application. If you like, you can save different workspace layouts in configuration profiles that you can load at any time. To save a workspace profile, set the workspace as you like it and click Windows, Workspace, Save Current.

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{button ,AL('OVR1 Chapter The CoreIDREAM 3D Interface;',0,"Defaultoverview",)} [Related Topics](#)

## Perspective window

The primary window in CorelDREAM 3D is called the Perspective window. This window shows a view of the 3D workspace, where objects are created and arranged in three dimensions to create a scene. The workspace itself is called the universe. Objects are 3D volumes or other items, such as lights and cameras, within the universe.

The view of your scene shown in the Perspective window is taken through a camera. You can position other cameras to get different viewpoints of the scene. You can also open a second Perspective window to view your scene from two viewpoints at once.

Objects, lights, and cameras are arranged in the main Perspective window to set up scenes. The Edit Object commands can be used to work on selected items up close.

To create or edit an object, you use the Modeling window. When objects are opened for modeling, the Perspective window "zooms in" on the object (to the exclusion of other objects) and transforms itself into the Modeling window. The Main menu changes to the Modeling menu, and the Perspective Toolbox changes to the Modeler Toolbox with the Drawing and Text tools.

You can open the Modeling window by double-clicking an object in the Perspective or the Hierarchy window. Click the Done button at the bottom of the window to switch back to the Perspective window. By default, the Reference view of the Modeler is shown, but you can select another view (drawing plane, top/bottom, front/back, or right/left side) from the View menu.

The Working box, represented by three intersecting planes, is the primary element of the Perspective window. The Working box

provides a framework that guides you as you work in a 3D universe with 2D devices  the mouse and monitor.

Each plane of the Working box has a grid. The display of the three grids can be turned on or off by using the [Plane Display tool](#) to the left of the Perspective window. The grid representing the active plane is shown in blue-green on the screen. When you move an object in the Perspective window, movement follows the currently active plane.

When the Perspective window is active, a specific set of tools is available. The current zoom ratio (1:1, 2:1, etc.) is shown in the lower left of the window. The status (idle, drawing, shading, etc.) of the application is displayed in the Status Bar.

### Object Preview

The Perspective window has five modes to display your objects.

- No Preview
- Bounding Box
- Wireframe
- Preview (Gouraud)
- Better Preview (Phong)

The Better Preview mode shows details of the shape and color of your objects, but takes longer to calculate and draw. To increase application efficiency, you might want to work in Wireframe or Preview mode at the beginning of your project, then switch to Better Preview mode as specific details become important.

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`{button ,AL('OVR1 Chapter The CorelDREAM 3D Interface;',0,"Defaultoverview",)}` [Related Topics](#)

## Hierarchy window

The Hierarchy window provides a way to manage the contents of your workspace. You can view the hierarchy in Vertical, Horizontal, or Outline views.

Although it is possible to work without using the Hierarchy window, you will find it increasingly valuable as you develop more complex scenes. The Hierarchy window provides information on the scene's construction that is not immediately apparent in the Perspective window; for example, it can show how several elements are grouped.

The Perspective and Hierarchy windows are synchronized: as you add or remove objects from one, the display in the other updates automatically.

The Hierarchy window shows a logical (as opposed to visual) representation of the scene. All objects, cameras, and lights that you bring into the universe are represented by icons in the Objects panel of the Hierarchy window.

The Hierarchy window is organized into three separate panels: Objects, Masters, and Effects. You can use the tabs at the top of the window to switch between panels.

The Objects panel displays all objects in your scene.

The Masters panel displays only Master objects. You use the Masters panel to manage multiple copies of a single object. When you duplicate a single object you create a class of objects that are linked to the master object. To edit an individual copy, select the copy in the Objects panel. To make a change to all the copies of the object, select the Master object in the Masters panel.

The Effects panel shows any Rendering Effects that you've added to your scene.

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`{button ,AL('OVR1 Chapter The CoreIDREAM 3D Interface;Building a scene;',0,"Defaultoverview",)}` [Related Topics](#)

## Objects browser

The Objects browser is a visual catalog of 3D objects that you can drag directly into your Perspective or Hierarchy windows. The Objects browser will display all CoreIDREAM 3D files located in the directories that you load into the browser.

You can have multiple directories open in the Objects browser. To navigate through them, click the tab of the specific directory you want to view. Click the [Add Folder icon](#) to add directories to the browser. Click the [Remove Folder icon](#) to close the selected directory. Closing a directory does not delete files, it only removes them from the browser.

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`{button ,AL('OVR1 Chapter The CoreIDREAM 3D Interface;',0,"Defaultoverview",)}` [Related Topics](#)

## Shaders browser

The Shaders browser provides an easily accessible catalog of color, texture, and other surface characteristics that you can apply to your objects. Each of these shaders includes various channels: color, reflection, highlights, shininess, transparency, refraction, bumps, and glow. Shaders can be applied individually or collectively. Objects can be shaded by dragging the desired shader from the browser and dropping it onto the object.

You can create your own shaders and add them to the Shaders browser to make them always available.

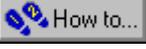
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`{button ,AL('OVR1 Chapter The CoreIDREAM 3D Interface;Shading;',0,"Defaultoverview",,)} Related Topics`

## Toolbars

Toolbars give quick access to many frequently used commands and tools.

You can choose which toolbars you want to see in your workspace and configure them as you want. Click View, Toolbar to

display the CorelDREAM 3D toolbars  Standard, Toolbox (Perspective or Modeler), or Zoom. The Toolbox is the Perspective Toolbox when you work in the Perspective window and the Modeler Toolbox when you work in the Modeling window. Because you can save different workspace configurations, you can design different toolbars for different tasks.

The Standard toolbar appears at the top of the window, and the Perspective/Modeler toolbar appears on the left. However, these are floating toolbars; therefore you can move them wherever you like. Position the mouse on the toolbar, but not on a button, and drag it to a position that suits your needs. You can even change the shape of a toolbar by dragging a corner or edge. You can redock a toolbar by placing it at the top, bottom, left, or right of the screen.

To redock a toolbar that you have moved, double click any of the gray areas of the toolbar (not on the title bar or any of the tools themselves).

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{button ,AL('OVR1 Chapter The CorelDREAM 3D Interface;',0,"Defaultoverview",)} [Related Topics](#)

## Thinking in 3D

Three-dimensional (3D) illustration involves more advanced concepts and procedures than two-dimensional (2D) illustration. Projects must be brought through several phases, and different tools and methods are used at each. The following description presents an overview of 3D illustration.

Many real-world objects are structurally complex. Their shapes curve, twist, join, and separate in ways that might seem impossible to recreate in a computer program. Do not be intimidated. CorelDREAM 3D makes constructing such objects easy. You build them one piece at a time.

Before you begin a complex object, examine its components. Keep in mind the way CorelDREAM 3D's Modeling tools work, and divide the object into simple elements. For example, you can "disassemble" a bicycle wheel into an axle, the hub, the spokes, the rim, and a tire. In CorelDREAM 3D, it is easy to model each of these components. Then, using the Positioning and Alignment tools in the Perspective window, you can assemble the pieces into the wheel.

After you build a subassembly, such as a bicycle wheel, you can group the components together. Grouping enables the subassembly to be manipulated as a single object. When you work in this way, there is no limit to the complexity of objects you can build. Finish the bicycle, lean it against a building, put some tables and chairs on the sidewalk, maybe add a fire hydrant or streetlight, and an outdoor cafe is created.

The different objects can also be shaded to provide depth and lighting effects. Shading involves not only colors but textures, like stucco on a building, and surface properties, like shininess.

To enhance realism and 3D effects, light sources can be created in your scene. In fact, lighting is necessary for the same

reasons it is required in photography  nothing can be seen without it! With special lighting, your cafe scene can be changed from the middle of the day to the afternoon or evening.

In the middle of the day, the lighting is bright white and comes from overhead. The shadows are short, directly beneath the objects. In the afternoon, the light is warmer, yellow-orange, and comes from a low angle. The shadows stretch away from the objects. At night, the ambient light is dim and bluish. The streetlight creates a puddle of light on the sidewalk, and another light shines out through a window of the building.

Because you are working in three dimensions, you can view your scene from any angle and at any degree of magnification as you develop the scene. In CorelDREAM 3D, different views can be created by placing cameras at different positions in your 3D workspace. For example, a bird's-eye view can be taken looking straight down at your sidewalk cafe. The cafe can also be viewed from a second floor balcony across the street or from a child's view looking up at the tables and chairs. It is the same cafe, but what appears in the window depends entirely on the selected viewpoint.

After you decide on the best viewpoint, you render the scene. Rendering is the culmination of a 2D-dimensional image. The rendered image, which potentially has a much higher resolution than can be seen on-screen, can be printed directly from CorelDREAM 3D or opened in virtually any graphics application.

If the rendering does not turn out quite right, you can go back into your scene, adjust the viewpoint, lighting, shading, or the shape of objects, and take another rendering.

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`{button ,AL("OVR1 Chapter The CorelDREAM 3D Interface;";0,"Defaultoverview",)}` [Related Topics](#)



# What's new in CorelDREAM 3D 7

## Interface changes

### Improved menu layout

Most menus for document windows have been consolidated in the main Menu Bar. The Menu Bar will display different menu items depending on which window in CorelDREAM 3D is active.

For example, selecting Import from the File menu allows you to import graphics files when you are in the main Perspective window, or import vector-based artwork when you are in the Free-Form Modeling window.

### Flexibility in the toolbars

CorelDREAM 3D 7 gives you more control over your toolbar configuration. You can set which toolbars you want to see, where they are placed and even what shape they are.

Pop-up tooltips are also available. Placing your mouse over a tool reveals its name, eliminating confusion about which tool is which. You have the option of turning off tooltips in the Preferences dialog box.

The shortcut menus (accessible by the right mouse button) provide convenient access to object or window specific commands.

### Flyout menus

Several sets of tools, such as the Rotation and 3D Primitive tools, pop-up from a single position in the toolbar. To see all available tools, hold the mouse button down over the currently selected tool. Then move the cursor to the tool you want to use and release the mouse button.

Clicking a multiple-use tool after it is selected rotates through the options for the tool. For example, click the Cone to highlight it. Click again to select the Cylinder, and again to select the Icosahedra.

### New Object Creation tools

3D Primitives, Free-form and Text and Modeling Wizard objects, Lights, and Cameras are now created using the new Object Creation tools in the Perspective toolbar. Choose the tool you want and either click to create a default sized light, camera, or Wizard object, or click-drag to specify a custom size.

### Drag and drop objects from the Toolbox

Objects can be added to the scene by dragging their tool icons directly from the Toolbox into the Perspective or Hierarchy window.

### Multiple toolbars

We've increased the number of toolbars and made more of the frequently used commands and tools available in those toolbars.

You can choose which toolbars you want to use. From the View menu, choose Toolbar to select the toolbars - Standard, Toolbox (Perspective or Modeler), or Zoom - that you want to display. The Toolbox will display a different set of tools depending on whether you are working in the Perspective window or the Modeling window.

The Standard toolbar first appears horizontally at the top of the window while the default for the Perspective/Modeler toolbar appears vertically on the left. But these are floating toolbars -- you can move them wherever you like. Position the mouse on the toolbar, but not on a button, and drag it to a position that suits your needs. You can even change the shape by grabbing a corner and dragging. You can re-dock a toolbar by placing it at the top, bottom, left or right edge of the screen.

### Render Effects dialog box

The various render effects have been consolidated into one dialog box. The new Render Effects dialog box presents you with tabs to access different choices: Ambient, Atmosphere, Reflected Background, Backdrop and Filters. Each tab has a separate listing in the Scene menu for quick access.

### Properties

Much information that was previously available in various dialog boxes has been consolidated into the Properties dialog box. To access this dialog box, click Edit, Properties. Tab through the various options in the Properties dialog box to edit the size, scale, position, and orientation of your object, to create or edit links, behaviors, or deformers, and to edit shading properties.

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{button ,AL('OVR1 Chapter Whats new in CorelDREAM 3D 7;',0,"Defaultoverview",)} [Related Topics](#)

## Improved Hierarchy window

The Hierarchy window includes more information about the objects and master objects (formerly called Classes and Instances) and any Render Effects that are in your scene. Use the Objects, Master, and Effects tabs to quickly jump to the information you need.

### Class and Instances

Class and Instances have been replaced by Master objects and Objects. When you duplicate an object, you will have two objects but only one Master object. Changes made to the Master object will affect both (all) of the Objects. This feature acts the same way Class and Instances worked in CorelDREAM 3D 6. We've renamed them to make them easier for new users to understand.

Use the tabs in the Hierarchy window to quickly move from Masters to Objects. This new interface makes it easier for you to see the effects of your changes.

### Links

In CorelDREAM 3D 7, the relationship between child and parent objects has been greatly enhanced to simulate various types of physical links between objects. Link options include Lock, Slider, Axis, Shaft, 2D plane and Custom links.

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{button ,AL('OVR1 Chapter Whats new in CorelDREAM 3D 7;',0,"Defaultoverview",)} [Related Topics](#)

## Shaders

CorelDREAM 3D 7 includes an enhanced Shader editor to give you more flexibility in creating your own custom shaders.

### Global Mixer

Mix all the channels of one shader with those of another using the Global Mixer Component in the Shader editor. This is particularly useful in animation. Using the global mixer, the shader on an object can change to a completely different shader over time.

### Glow channel

The new Glow channel in the shader editor allows you to add luminescence to your objects. It's important to remember that the glow channel will not make these objects "light" other objects, but it will enhance the luminescent quality of the shader. For example, you can use the Glow channel to light up the numbers on a clock like LED lights.

### Color in Transparency and Reflection channels

The Transparency and Reflection channels now understand color information. This makes it simpler to create accurately colored glass objects. In most cases dropping the color from the color channel will create the best effect.

### Texture maps

Texture maps in CorelDREAM 3D 6 were always saved internally. Now you have the option to save them external to the file and browser as well. Saving a texture map externally will reduce the file sizes of your Shaders browser and your scenes. However, if you save externally and move your CorelDREAM 3D file from one location to another, you must remember to include the external texture file along with the scene.

You can change how you save texture maps by clicking File, Preferences, and selecting Shader editor.

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`{button ,AL('OVR1 Chapter Whats new in CorelDREAM 3D 7';,0,"Defaultoverview",)} Related Topics`

## Lights and cameras

CorelDREAM 3D 7's new Camera tools make it easier to move cameras within a scene.

### Dolly, Pan, and Track tools

CorelDREAM 3D 7 provides direct manipulation of the camera with the Dolly, Pan and Track tools. Pan and Track perform the same functions as they did in the CorelDREAM 3D 6 Camera Settings window. Now, however, you can manipulate them directly by moving the mouse within the Perspective window.

The Dolly function is brand new. Using the Dolly Tool moves the camera while it remains pointing at the same position in the scene. If an object is selected the camera will move around the object. If no object is selected the camera will rotate around the center of the universe.

In addition to Dolly, Pan and Track, all three of these tools let you zoom the camera in and out. With any of the Camera tools selected, hold down CTRL and drag upwards to move the camera towards the objects in your scene and downwards to move the camera away from them.

The Dolly, Pan and Track tools are located in a single set of pop-up tools in the Perspective toolbar.

### View lights and cameras as solid objects

In CorelDREAM 3D 7 you can control how your lights and cameras are seen in the Perspective window. To see them as solid objects while you are arranging your scene, select Show Lights and Cameras in the General Preferences. You can also choose specific colors to represent lights and cameras.

### Camera Properties dialog box

The redesigned Camera Properties dialog box has an expand button to display the camera control palettes: Dolly, Pan and Track. Click the key in the lower left corner of the Camera Properties dialog box to show or hide the palettes.

### Light-cone projections

You can now display a projection and circle that shows you the area and objects that will be illuminated by a specific spot light. Turn the light-cone projections on and off by clicking that light with CTRL down.

### Move and resize the Production Frame

The Production Frame can be resized and moved in the Perspective window. Click View, Production Frame (CTRL + ALT + F) to see which part of the scene is set to be included in the rendering.

Click on (but not inside) the Production Frame in the Perspective window to select it.

Once the Production Frame is selected, you can place the pointer anywhere inside the frame and click-drag to move it.

Place the pointer on one of the handles to resize the Production Frame. Holding down SHIFT constrains the size to the same aspect ratio. An alert message will appear if you change the aspect ratio while resizing the Production Frame. This message can be turned off either from within the dialog box or from Preferences.

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{button ,AL('OVR1 Chapter Whats new in CorelDREAM 3D 7;',0,"Defaultoverview",)} [Related Topics](#)

## Rendering options

The new CoreIDREAM 3D interface presents you with tabs to access various choices. Check out the Render Settings, Render Effects and Light Settings in the Render menu.

### Two kinds of fog

The Fog effect in CoreIDREAM 3D 6 is now called Distance Fog. In addition, CoreIDREAM 3D 7 includes a new Cloudy Fog atmosphere. Set fog in the Render Effects dialog box, under the Render menu.

### Reflected Backgrounds and Backdrops

CoreIDREAM 3D gives you two ways to include images "behind" your rendered scenes: Backdrops and Reflected Backgrounds.

Backdrops are used to put an image behind your scene. A backdrop is not reflected in the objects in your scene but simply appears behind the rendered objects. You can use texture maps, colors, bi-gradients and movies as backdrops, as well as the image in the reflected backgrounds.

Reflected backgrounds, sometimes referred to as environment maps, work very differently. Rather than appearing behind your objects, any texture map, color bi-gradient or movie used as a reflected background behaves as if it is projected on the inside surface of a giant sphere that surrounds your scene. When rendered, the projection is then reflected in any objects that use the Reflection channel in their shaders.

You have the option of including this projected image as a backdrop. You will only see the small portion of the projected image that happens to be behind your rendered area.

### Render settings

The Render Settings dialog box gives you tabs to select Image Size, File Format, Renderer, Output File and Camera.

### Output file

Use Output File to choose where and under which name your rendered image will be saved.

### Save and reload custom render settings

Create and save custom render settings in the Render Settings dialog box . You can apply your saved render settings directly from the Render menu.

### Improved Batch Queue

The improved Batch Queue lets you name and save your Batch Queue list. Now you can quickly reload and launch a batch of files after making changes in your scene. To save a list, click the Save List button. You can bring up the same files quickly by clicking the Load List button.

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`{button ,AL('OVR1 Chapter Whats new in CoreIDREAM 3D 7';0,"Defaultoverview",)}` [Related Topics](#)

## Other changes

### Starting your scene

When you launch CoreIDREAM 3D you are presented with four options: Create Empty Scene, Use the Scene Wizard, Open Existing File or Cancel. You can turn this feature off by checking the box at the bottom of the Scene Wizard dialog box. To turn it back on again go to the General section of the Preferences dialog box.

### The Scene Wizard

CoreIDREAM 3D provides you with a set of professionally designed scenes ready for your custom objects. Just choose Use Scene Wizard when you open a new document.

You can even use the Scene Wizard for a scene you have already started. CoreIDREAM 3D will remind you that the Scene Wizard will replace existing lights and cameras. (You can turn off this warning, too, but it is helpful while you are learning the software.)

The Scene Wizard is also a great learning tool. Take some time to study each of the scenes generated from the Scene templates to learn the tricks of the trade.

### Modified Objects browser

The Objects browser in CoreIDREAM 3D 7 has been simplified. Instead of being file based, with scenes loaded into specific files, it is directory based. Any CoreIDREAM 3D file in a loaded directory or folder is automatically added to the browser.

Use controls in the browser to add or remove directories that contain your 3D clip art. Click one of the named tabs to view a specific directory.

### Modeler

Freeform objects are now named before they are drawn. If you don't want to be prompted to name each new object, you can turn that function off in the Free-Form Modeling window section of the Preferences dialog box. (Remember: in a complex scene descriptive names can be very helpful.)

You can also use the Preferences to set the default Grid size. The Grid size you set under Preferences will stick with each object you create after making the change, so different objects in your scene can have different Grid sizes. Remember to use the Snap to Grid with the Grid size for precise drawing.

### Arranging and grouping objects

The toolbar now includes a Group/Ungroup tool. Select several objects then click the Group/Ungroup tool to group them. Select a group, click the same tool and your group is released. Since the tool is located in the toolbar, you can use the Group/Ungroup tool from both the Hierarchy and Perspective windows.

### Distance calculator

The Numerical Properties dialog box now includes a distance calculator. Select any two objects and choose Numerical Properties from the Windows menu. The Distance indicator will tell you the distance between the hot points of the two objects.

### Deformers

Deformers provide you with a selection of powerful yet simple deformation tools to enhance your model making capabilities. Deformers are applicable to any object or even to a group of objects.

XYZ scaling results in asymmetric, numerical rescaling. Squash and Stretch are useful deformers that simulate exaggerated, cartoon-like shape changes. Bend and Twist allow you to build complex objects that would be difficult to construct through modeling. Shatter is a simple explosive tool.

Only one deformer can be applied per object, but deformers can be stacked up at successive group levels to provide a combined effect.

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{button ,AL('OVR1 Chapter Whats new in CoreIDREAM 3D 7;',0,"Defaultoverview",)} [Related Topics](#)



# Working with objects

## Working with objects



Working in CorelDREAM 3D is much like working in a photographer's studio. You set up a scene, then generate a photorealistic picture of it. The first step toward creating a 3D illustration is to build and assemble the objects in your scene. CorelDREAM 3D provides several different types of 3D objects that you can use to build scenes. Primitive objects are common 3D geometric shapes that require no modeling on your part. Text objects are blocks of 3D text that you type in the Text modeler. Free-Form objects are 3D objects you design using the Free-Form Modeling window.

What happens immediately after you create an object depends on what type of object you create. When you create a Free-Form object, CorelDREAM 3D opens a Modeling window, allowing you to edit the object's shape.

When you create a Text object, CorelDREAM 3D opens it in the Text Modeling window, allowing you to type the text you want, specify its depth, and add bevels.

When you create a Primitive object (e.g., sphere, cone, cube, cylinder), it appears in your scene, where you can move and resize it.

You create objects using the Object Creation tools, which appear in CorelDREAM 3D's Toolbox. Each type of object you can create has its own tool.



### Note

- Objects dropped into the Perspective window are placed on the active plane of the Working box, at the point where you release the mouse button. Objects dropped into the Hierarchy window are placed at the center of the universe.

### For more information see the following:

{button ,JI('The Free-Form Modeling window')} [The Free-Form Modeling window](#)

{button ,JI('Working on the drawing plane')} [Working on the drawing plane](#)

{button ,JI('Working with cross sections')} [Working with cross sections](#)

{button ,JI('The Cross Section Options dialog box')} [The Cross Section Options dialog box](#)

{button ,JI('Working with the sweep path')} [Working with the sweep path](#)

{button ,JI('Using the scaling envelope')} [Using the scaling envelope](#)

{button ,JI('Text objects')} [Text objects](#)

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{button ,AL('OVR1 Chapter Working with objects;',0,"Defaultoverview",)} [Related Topics](#)

## Free-form modeling concepts

You can use CorelDREAM 3D's Free-Form Modeling window to create custom objects. Once you master the concepts and skills behind the Free-Form Modeling window, you will be able to create nearly any form you can imagine.

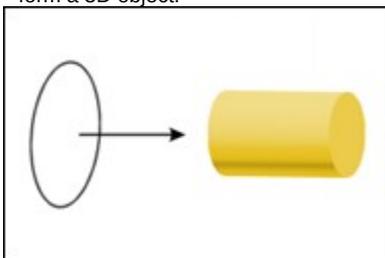
### The Modeling Wizard

The Modeling Wizard is a picture-based assistant that guides you through the basic steps of creating an object. After a few sessions with the Modeling Wizard, you will better understand the concepts of 3D modeling and the tools of CorelDREAM 3D.

Most of the concepts covered in this section are also covered by the Modeling Wizard. Although the Modeling Wizard's technical descriptions are less thorough, it offers a wider array of examples. You can also examine each example in the Free-Form Modeling window to see how it was created.

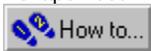
### Free-form modeling concepts

The Free-Form Modeling window is based on a simple concept called extrusion. You create an object by drawing a 2D shape, then drawing a sweep path (or extrusion path) perpendicular to the shape. CorelDREAM 3D sweeps the shape along the path to form a 3D object.



### Straight Extrusion

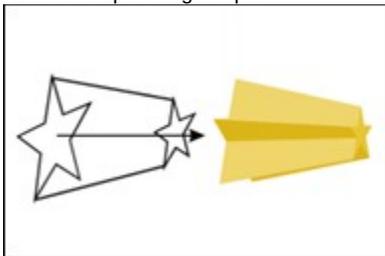
The diagram above demonstrates the most basic type of Free-Form object [How to...](#) a straight extrusion. In a straight extrusion, a 2D shape is swept along a straight sweep path, creating a sort of "cookie cutter" effect. By varying the 2D shape and the length of the sweep path, you can create a wide variety of objects using the straight extrusion technique. Note that the 2D shape need not be a single outline



it can consist of several distinct outlines.

### Scaling

Many real-world objects cannot be modeled using straight extrusion [How to...](#) their forms are more complex. The Free-Form Modeling window allows you to vary your extrusions to create complex objects. One of the most useful variations is the ability to scale a shape as it moves along the sweep path. In the example below, the 2D shape shrinks to 50% of its original size as it sweeps along the path.



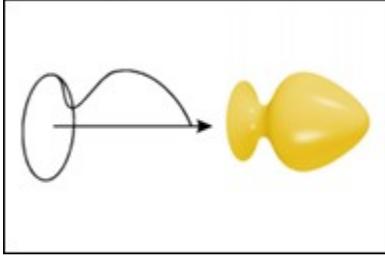
The scaling in this example is very simple [How to...](#) the 2D shape shrinks at a constant rate from the beginning of the sweep path to the end. You can also use scaling to model more complex contours. CorelDREAM 3D's flexible scaling envelope allows you to control scaling with great precision.

### Lathing

You can use lathing to model many symmetrical objects. Lathing is a specific application of the scaling envelope. To create a

Lathe object, you start with a symmetrical 2D shape [How to...](#) a circle or a regular polygon. You then use the scaling envelope to draw the object's lathe profile. To understand how a Lathe object is formed, imagine spinning the lathe profile 360 degrees around a straight axis to create a solid 3D volume. In the Free-Form Modeling window, the lathe axis is represented by

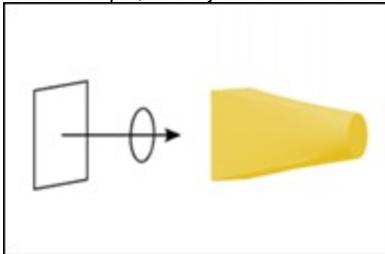
the sweep path.



### Cross sections

Although scaling and lathing allow you to create a wide variety of forms, to model some objects you must change the 2D shape as it sweeps along the extrusion path. CorelDREAM 3D allows you to create any number of cross sections along the length of

the extrusion path. At each cross section, you can change the 2D shape [How to...](#) the Free-Form Modeling window extrudes from one cross section to the next, basing the contours of the object's surface on the shapes in the cross sections. In this example, the object's surface stretches from the square in the first cross section to the circle in the last cross section.



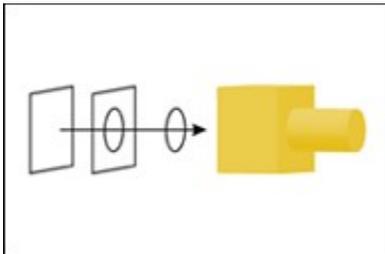
This modeling technique is sometimes referred to as skinning [How to...](#) the Free-Form Modeling window stretches a "skin" over the various shapes in the cross sections.

Each cross section can contain more than one 2D shape. As a result, when you model an object with multiple cross sections, some ambiguity arises [How to...](#) how do the shapes in one cross section correspond to the shapes in the next cross section? CorelDREAM 3D's shape numbering feature allows you to specify which shapes should be connected from one cross section to the next. If a particular shape has no corresponding shape in the next cross section, it is not extruded.

In the following example, shape numbering is used to create an abrupt transition from one shape to another. The middle cross

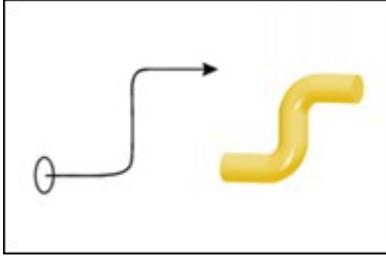
section contains two shapes [How to...](#) a square and a circle

[How to...](#) while the first and last cross sections each contain only one shape. Because the square in the first cross section shares a number with the square in the middle cross section, these two shapes are connected. For the same reason, the circle in the middle cross section extrudes to the circle in the last cross section.

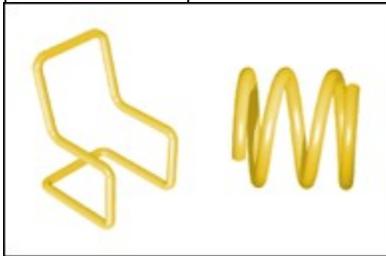


### Complex sweep paths

All of the examples so far have used straight sweep paths. If you draw a more complex sweep path, you can model objects with bends and curves.



The Free-Form Modeling window allows you to draw a true 3D sweep path, making it possible to model objects like the chair frame below. Note that the chair uses a closed sweep path. CorelDREAM 3D also provides tools to automatically create complex sweep paths such as the spiral.



**For more information see the following:**

{button ,JI('The Free-Form Modeling window')} [The Free-Form Modeling window](#)

{button ,JI('Working on the drawing plane')} [Working on the drawing plane](#)

{button ,JI('Working with cross sections')} [Working with cross sections](#)

{button ,JI('The Cross Section Options dialog box')} [The Cross Section Options dialog box](#)

{button ,JI('Working with the sweep path')} [Working with the sweep path](#)

{button ,JI('Using the scaling envelope')} [Using the scaling envelope](#)

{button ,JI('Text objects')} [Text objects](#)

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{button ,AL('OVR1 Chapter Working with objects;',0,"Defaultoverview",)} [Related Topics](#)

# The Free-Form Modeling window



## The Free-Form Modeling window

Whenever you create or edit a Free-Form object, you work in the Free-Form Modeling window. When you create a new Free-Form object, the Modeling window opens automatically, temporarily replacing your scene's Perspective window. When the Modeling window is open, new menus appear in the Menu Bar, and Modeling tools replace the Object Creation and Camera tools in the Toolbox. Your view of the scene is replaced with a close-up view of the object. The Hierarchy window automatically switches to the Masters tab, since changes you make in the Free-Form Modeling window affect Master objects, not individual copies of objects.

### The Modeling box

The Modeling box is the primary feature of the Modeling window. On the planes of the Modeling box, you draw and edit the various elements that the Free-Form Modeling window uses to build a 3D object: cross-section shapes, the sweep path, and the scaling envelope.

Within the Modeling box, you work on a single plane at a time. The plane you are working on is called the drawing plane. When you want to edit a particular element, you designate the plane containing that element to be the drawing plane. The drawing plane is shown in color and the inactive planes are dimmed.

### Cross sections

Any plane containing one or more 2D shapes is called a cross section. A simple extruded object has one cross section containing the shape that is extruded along the sweep path. By creating additional cross sections along the sweep path, you can alter the shape of the object. A cross-section plane is visible only when it is selected as the current drawing plane.

### The sweep path

The sweep path, or extrusion path, travels through 3D space. It is the path along which cross-section shapes are extruded. The path is defined by two red lines that appear on the bottom and side walls of the Modeling box.

You can think of these red lines as horizontal and vertical projections of the path. The path itself is not visible. It extends from the first cross section to the last. You can draw straight, curved, or irregular sweep paths.

### The scaling envelope

The scaling envelope is an advanced feature that controls the curvature of an object's form. By default, the scaling envelope is

not shown  when you want to use the envelope, click Geometry, Extrusion Envelope, and choose one of the envelope options.

The scaling envelope appears on the same planes as the sweep path. The envelope is represented by four blue Bezier curves, two on each sweep path plane. By editing these envelope description lines, you can scale an object's cross sections as they sweep along the extrusion path. You can scale cross-section shapes either symmetrically or asymmetrically.

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{button ,AL('OVR Chapter Working with objects;Building a Scene;',0,"Defaultoverview",)} [Related Topics](#)



## Editing Free-Form objects

When you edit a Free-Form object you have already created, CorelDREAM 3D opens it in the Modeling window. When you are finished modeling, you can return to the Perspective view of your scene.

### To edit an object

- Double-click the object in the Perspective or Hierarchy window.

**OR**

- Select the object and click Edit, Object, Edit.

### To finish editing an object

- Click the Done button at the bottom of the Modeling window.

**OR**

- Click Edit, Object, Close And Return.

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`{button ,AL("PRC The Freeform modeling window";0,"Defaultoverview",)}` [Related Topics](#)



## Changing your view of the object



As you shape an object, you might want to rotate it to get a different view to see what the opposite side looks like, or to stand the object on end. CorelDREAM 3D provides two methods of changing your perspective on an object: view selection and the Virtual Trackball.

When you change your view of the object, your view of the Modeling box changes as well. The object maintains its spatial relationship to the Modeling box at all times. An object's orientation in the Modeling box has no connection to its orientation in the scene.

### To select a different view

1. Click View, Type.
2. Click one of the eight preset views:  
Reference (the default), Drawing Plane, Top, Bottom, Left, Right, Front, or Back.

The Drawing Plane view provides a direct view of the selected drawing plane. This view is recommended for drawing detailed shapes.

### To rotate the object

1. Click the [Virtual Trackball tool](#).
2. Drag the object to its new orientation.

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{button ,AL('PRC The Freeform modeling window';,0,"Defaultoverview",)} [Related Topics](#)



## Selecting the object preview mode

CorelDREAM 3D displays a preview of the object as you work. In some cases, you might want to hide the object to have a clear view of the cross sections or path. Wireframe view lets you work faster because redrawing times are reduced.

### To change the default preview mode

1. Click View.
2. Click Default Quality.
3. Click the preview mode you want: Bounding Box, Preview, or Better Preview.

This will set the default preview quality for all objects in your drawing.

### To select the preview mode for individual objects

1. Select the object you want to preview.
2. Click View.
3. Click Object Quality.
4. Click the preview mode you want: Default, Invisible, Bounding Box, Preview, or Better Preview.

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{button ,AL('PRC The Freeform modeling window';,0,"Defaultoverview",)} [Related Topics](#)



## Selecting Modeling box display

You can selectively turn off display of the Modeling box planes.

### To change plane display

1. Click the [Plane Display tool](#).
2. Click the representation of the plane you want to hide or show.

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{button ,AL('PRC The Freeform modeling window';,0,"Defaultoverview",)} [Related Topics](#)



## Setting scale and object size

The Modeling window opens at a scale consistent with the proportions of the objects in the scene. You can also work with your objects at a scale of your choosing.

### To set Modeling box and object size

1. Click View, Modeling box Size.
2. In the Box Size box, type a dimension. You can change the dimension units using the list box to the right.

### To resize the Modeling box without resizing the object

1. Click View, Modeling box Size.
2. Disable the Scale Object With Modeling Box check box.

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`{button ,AL('PRC The Freeform modeling window';,0,"Defaultoverview",)}` [Related Topics](#)



## Setting surface fidelity

Like most 3D rendering applications, CorelDREAM 3D breaks each object down into hundreds of tiny polygons before rendering a scene. This enables the renderer to understand the contents of the scene. Although the ray tracer has no idea how to render a teapot, it can easily handle the many polygons that might make up a teapot.

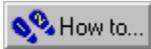
CorelDREAM 3D calculates how many polygons are needed for each object, based on the rendering resolution, the size of the object, and its distance from the camera. This calculation ensures that your objects render smoothly. If a particular object does not render as smoothly as you would like, you can force CorelDREAM 3D to break the object into a greater number of polygons. CorelDREAM 3D allows you to set a value for each object's surface fidelity.

If none of the objects in your scene renders as smoothly as you would like, you can increase Silhouette Quality instead.

### To set surface fidelity

1. Open the Modeling window.
2. Click Geometry, Surface Fidelity.
3. Move the slider to increase or decrease the object's surface fidelity.

The default value is 100%.



### Note

- The surface fidelity value is resolution-independent. That is, if a particular value yields good results for a object in a scene at low resolution, it should also yield good results at higher resolutions.

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`{button ,AL('PRC The Freeform modeling window;Rendering';0,"Defaultoverview",)}` [Related Topics](#)

# Working on the drawing plane



## Working on the drawing plane

To create an object, you must draw cross sections and extrusion paths on the appropriate planes in the Modeling window. Each plane in the modeling window is a separate 2D drawing environment with a grid. At any given time, you work on a single plane. The currently selected plane is called the drawing plane.

All 2D shapes and paths you draw in CorelDREAM 3D are Bezier curves. A Bezier curve is an interpolated curve whose shape is determined by the relative positions of its vertices and control points. Each segment of a Bezier curve connects two vertices. The control points (handles) that extend from each vertex determine the curvature of the path segments.

CorelDREAM 3D's drawing tools are similar to those found in traditional Bezier-based 2D drawing applications. The drawing tools enable you to create curves and shapes, and to edit and modify these shapes point-by-point.

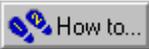
### Precision editing

For precise positioning of lines and points as you draw, use the Drawing Plane grid. By default, the grid is visible on the planes of the Modeling box, but the Snap-To-Grid option is disabled. When the Snap-To-Grid option is enabled, drag operations "jump" to the nearest grid intersection.

You can change these settings in the Grid dialog box in the View menu. You can also set the size of each grid increment, and specify whether a line should be drawn at every increment.

### The Numerical Properties dialog box

The Numerical Properties dialog box provides technical information on the selected vertex or grouped shape. To access the Numerical Properties dialog box, click Edit, Numerical Properties.

- No information is available for ungrouped shapes or multiple vertex selections.
- When you are working with a shape on the cross-section plane, you can enter new values to change the position of a vertex or move a grouped shape.
- On the sweep path plane, the Numerical Properties dialog box provides information only  you cannot enter values.

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{button ,AL('OVR Chapter Working with objects;',0,"Defaultoverview",)} [Related Topics](#)



## Using the Bezier tool

The [Bezier tool](#) allows you to draw new paths or to add points to either end of an existing open path.

You draw with the Bezier tool by adding one point at a time. When you add a new point, the segment of the path connecting the previous point to the new point is drawn.

Depending on the state of its handles, each vertex can be classified as a corner point or a curve point. A curve point's handles are bound together to create a straight tangent for the path, resulting in a smooth curve. A corner point's handles can be moved independently or retracted completely. This allows for abrupt changes in the direction of the path.

### To add a corner point

- Click (but do not drag).

Hold down SHIFT to constrain the position of a new point in relation to the previous point. The angle between the two points is constrained to increments of 45 degrees.

### To add a curve point

- Click and drag.

As you drag, a pair of handles extends from the vertex. By default, each pair of handles is bound together  the two handles remain parallel to one another.

- Hold down SHIFT while you drag to constrain the angle of the handles to 45 degree increments.
- Hold down ALT while you drag to break apart a pair of handles. You can then move each handle independently. Continue to

hold down ALT as you drag  if you release the key before releasing the mouse button, the handles snap back together.

- Click a path's opposite endpoint to close the path.

### To draw a new path

1. Click an empty area of the drawing plane with the Selection tool to deselect all paths and points.
2. Click the Bezier tool.
3. Click anywhere on the drawing plane to start a new path with a corner point, or click and drag to start with a curve point.
4. Click or click and drag to add each subsequent point.

### To add points to either end of an open path

1. Select one of the endpoints of an open path by clicking it with the Selection tool.
2. Select the Bezier tool.
3. Click or click and drag to add the next point.
4. Continue adding points until you are satisfied with the path.

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`{button ,AL("PRC Working on the drawing plane";,0,"Defaultoverview",)}` [Related Topics](#)



## Using the Selection tool

In the Modeling window, the [Selection tool](#) allows you to view the points on the path, select, deselect, and move points, and to drag handles.

### To view the points on a path

- Click a path to view its points.

All the points on the curve become visible, but none are individually selected. A point is white when it is deselected and black when it is selected.

- Hold down SHIFT and click additional paths to view the points on multiple paths.
- Hold down SHIFT and click a path whose points are visible to make them invisible.
- Click an empty area of the drawing plane to make all points invisible.

### To select a point

- Click a point to select it.

Its color changes from white to black and any handles become visible.

- Hold down SHIFT and click additional points to increase your selection.
- Hold down ALT and click a path to select all of the points on the path.
- Hold down SHIFT and click a selected point to deselect it.
- Click an empty area of the drawing plane to deselect all points.

### To move selected points

- Drag selected points to move them.

All selected points move together. As you drag, the path segments that are affected by the move are redrawn.

- Hold down SHIFT while you drag to constrain the movement of the points in relation to their previous positions. Their movement is restricted to increments of 45 degrees.
- Select all points on a path and drag them to move the entire path.

### To adjust a curve

- Drag handles to adjust a curve.

As you drag, the curve is redrawn. By default, parallel handles move in pairs  when you move a handle, the opposite handle moves to remain parallel to the one you are moving.

- Hold down SHIFT while you drag to constrain the angle of a handle's motion to increments of 45 degrees.
- Hold down ALT while you drag to break apart a pair of parallel handles. You can then move each handle independently.

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`{button ,AL("PRC Working on the drawing plane;";0,"Defaultoverview",)}` [Related Topics](#)



## Using the Convert Point tool

The [Convert Point tool](#) allows you to convert a corner point to a curve point, or convert a curve point to a corner point.

### To make a curve point

- Click and drag a corner point with no handles.  
As you drag, a pair of handles extends from the point.

**OR**

- Click and drag one of a corner point's free handles.  
When you click the free handle, it is rejoined with its opposite handle. As you drag, the handles move together and remain parallel.

### To make a corner point with no handles

- Click a curve point.  
The point's handles retract.

### To make a corner point

- Click and drag one of a curve point's handles.  
When you click the handle, it breaks apart from its opposite handle. As you drag, it moves independently.

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`{button ,AL("PRC Working on the drawing plane;";0,"Defaultoverview",)}` [Related Topics](#)



## Using the Delete Point tool

The [Delete Point tool](#) allows you to delete a point or a path segment.

### To delete a point

- Click a point to delete it.

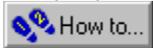
When you delete a point in the middle of a path, the points on either side of the deleted point are connected by a new path segment. This changes the shape of the path. When you delete the endpoint of an open path, the last path segment disappears, leaving a new endpoint.

If you delete a point on the sweep path, any cross section associated with that point is deleted as well.

### To delete a path segment

- Click a path segment to delete it.

If you remove a path segment, the adjacent path segments remain unchanged. When you delete a path segment from a closed path, the path becomes open. When you delete a path segment from an open path, the path is split into two separate open paths.



### Note

- This feature applies to cross sections only  you cannot delete a segment from the sweep path or the scaling envelope.

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`{button ,AL('PRC Working on the drawing plane;',0,"Defaultoverview",)}` [Related Topics](#)



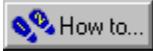
## Using the Add Point tool

The [Add Point tool](#) allows you to add a new point between two existing points on the same path.

### To add a new point

- Click anywhere on an existing path.

CorelDREAM 3D determines whether to add a corner point or a curve point, based on the shape of the path. The new point is automatically selected and can be moved with the Selection tool.



### Tip

- When you add a point to the sweep path, you can simultaneously add a cross section at that point  just hold down ALT as you click.

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`{button ,AL("PRC Working on the drawing plane;";0,"Defaultoverview",)}` [Related Topics](#)



## Using the 2D Primitive tools

The [2D Primitive tools](#) allow you to create closed paths in a variety of shapes. These tools only work on cross-section planes.

### To draw a rectangle

1. Click the [Rectangle tool](#).
2. Drag from one corner of the rectangle to the opposite corner. Hold down SHIFT while dragging to create a square.

### To draw a rectangle with rounded corners

1. Click the [Rounded Rectangle tool](#).
2. Drag from one corner of the rectangle to the opposite corner. Hold down SHIFT while dragging to create a square with rounded corners.
3. Set the radius of curvature for the corners in the dialog box that appears.

### To draw an ellipse

1. Click the [Ellipse tool](#).
2. Drag the outline to the correct shape. Hold down SHIFT while dragging to create a circle.

### To draw a polygon

1. Click the [Polygon tool](#).
2. Drag the outline to the correct shape. Hold down SHIFT while dragging to keep all angles equal.
3. Set the number of sides in the dialog box that appears.

### To create 2D text

1. Click the [Draw text tool](#).
2. Click to position the text.
3. Type your text and select settings in the dialog box that appears.

Use this tool when you want to extrude text along a curved path. Use the Text modeler when you want to extrude text along a straight path and add bevels.



### Note

- After creating a shape with one of the 2D Primitive tools, you cannot immediately edit its points  you must first ungroup the shape.

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`{button ,AL("PRC Working on the drawing plane;",0,"Defaultoverview",)}` [Related Topics](#)



## Rotating shapes

Shapes rotated with the Rotation tool always rotate around their centers. When you rotate a cross-section shape, you can specify that the rotation is applied to the surface of the object to give it a twisted appearance.

Rotation is only available on cross-section planes.

### To free rotate

1. Click the [Rotation tool](#).
2. Select the shape you want to rotate.
3. Drag the shape around a circular path.

### To rotate numerically

1. Select the shape you want to rotate.
2. Click Geometry, Rotate.
3. In the Rotate dialog box, select the center of rotation  the shape's center or the drawing plane's center.
4. Type a value for degree of rotation.
5. Click clockwise (CW) or counter-clockwise (CCW).

### To twist an object

- Hold down ALT while rotating a cross-section shape with the Rotation tool.

For precise twisting, enable the Twist check box in the Rotation dialog box. When Twist is enabled, CorelDREAM 3D twists the surface the specified number of degrees.

You need at least two cross-sections to twist an object.



### Tip

- Rotation values greater than 360 degrees make sense when you want to twist an object's surface  you can use them to specify multiple twists.

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{button ,AL('PRC Working on the drawing plane;',0,"Defaultoverview",)} [Related Topics](#)



## Grouping shapes

You can group shapes using the Group command. When shapes are grouped, you can manipulate them as a single entity. You might group a single Bezier object if you want to resize it by dragging.

Grouping is only available on cross-section planes.

### To group shapes

1. Select the shapes you want to group.
2. Click Arrange, Group.

### To ungroup

1. Select the group you want to ungroup.
2. Click Arrange, Ungroup.

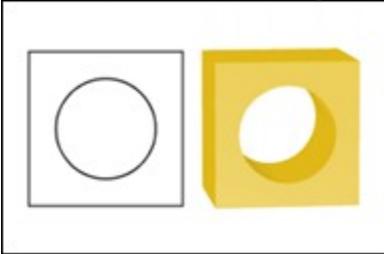
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`{button ,AL('PRC Working on the drawing plane;',0,"Defaultoverview",)}` [Related Topics](#)



## Compounding shapes

Compounding shapes is much like grouping them, with one significant difference  any shape that is completely enclosed by another shape in the same compound "cuts away" from the larger shape. When a compound shape is extruded, the inner shapes create holes through the extrusion, as shown below.



Compound shapes are only available on cross-section planes.

### To compound shapes

1. Select the shapes you want to compound.
2. Click Arrange, Combine.

### To release a compound

1. Select the compound shape you want to release.
2. Click Arrange, Break Apart.

### Tip

- For better results, use ungrouped native shapes when combining objects.

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{button ,AL("PRC Working on the drawing plane;";0,"Defaultoverview",)} [Related Topics](#)



## Scaling shapes

It is not always necessary to scale a cross-section shape. The scaling envelope can often accomplish the same results. Scaling is only available on cross-section planes.

### To scale shapes

1. Group the curves in the shape you want to resize.
2. Drag a corner with the Selection tool to resize the shape. Hold down SHIFT to maintain proportions.

### To scale shapes numerically

1. Select the shape you want to resize.
2. Click Geometry, Scale
3. In the Resize dialog box, type values for the horizontal and vertical scale factors.

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{button ,AL("PRC Working on the drawing plane;",0,"Defaultoverview",)} [Related Topics](#)



## Importing shapes

CorelDREAM 3D allows you to import cross-section shapes, sweep paths, and envelopes from 2D drawing programs, such as CorelDRAW, that support Bezier curves.

### To import shapes to a cross section

1. Send the drawing plane to the cross section where you want to work.
2. Click File, Import.
3. In the dialog box, select the file you want and click Open.

The file can include one or several 2D shapes. You should, however, avoid unnecessary complexity. Paint characteristics, such as stroke and fill, are ignored. Compound paths are preserved. Text is automatically converted to outlines.

### To import a path as a sweep path or envelope

1. Make one of the path description planes the active drawing plane.
2. Click File, Import.
3. In the dialog box, select the file you want and click Open.
4. Click Sweep Path or Envelope.



### Notes

- When you import a sweep path or envelope, it replaces the current sweep path and envelope.
- If you want to import an envelope path, you must first turn on the envelope  choose Extrusion Envelope from the Geometry menu.

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{button ,AL("PRC Working on the drawing plane;";0,"Defaultoverview",)} [Related Topics](#)

## Forming 3D objects from cross sections



## Working with cross sections

A basic Free-Form object, such as a box, has one cross section at the start of the path. The shape on this first section is swept to the end of the extrusion path. To create more complex forms, you can add any number of cross sections along the length of the path. Because each cross section, in turn, can contain any number of shapes, you can model even very intricate objects.

The Free-Form Modeling window automatically extrudes between each cross section and the next, basing the surface of the object on the shapes contained in the cross sections.

As you begin to work with the Free-Form Modeling window, you will find that the sweep path and cross sections are closely tied. Although they are separated here for clarity and organization, these concepts go hand in hand.

### Modeling with multiple cross sections

Modeling with multiple cross sections, sometimes called skinning or lofting, allows you to create objects with complex contours.

The following is an overview of the steps you take to model an object with multiple cross sections.

- Draw (or import) the first cross-section shape.
- Add as many cross sections as you need at the appropriate points along the path.
- Draw (or import) shapes onto each cross section. You can Copy and Paste to move shapes between sections.
- If one or more of your cross sections contains multiple shapes, use shape numbering to control the correspondence between sections.
- Modify the sweep path, if necessary.
- Refine your object by changing the number of sections, shapes, or the shape correspondence.
- Use the scaling envelope to alter the contours of the object between the cross sections (optional).

### Moving the drawing plane between sections

If you have multiple cross sections, you can choose Next or Previous from the Cross-Section menu to move the drawing plane between adjacent cross sections. You can also use keyboard shortcuts to move between sections. Hold down the CTRL key and press the right or left arrow key to move to the next or previous cross section.

Alternatively, you can move to a particular cross section by specifying its number. Cross sections are numbered from left to right. Click Cross-Section, Go To, and type the number of the cross section you want.

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`{button ,AL("OVR Chapter Working with objects";0,"Defaultoverview",)} Related Topics`



## The Cross Section Options dialog box

The Cross Section Options dialog box allows you to set several parameters for a particular cross section. You can specify whether the cross section should be filled, if it should be connected to the next cross section, and the type of skinning that should be used between it and the next cross section.

### Fill Cross Section

You can use this feature to specify whether or not to fill the cross section. For example, a cylinder with its first and last sections not filled would be a tube that you could look through. An object's first and last cross sections are often referred to as endcaps



you can turn endcaps "on" by filling them, or "off" by leaving them unfilled.

### Disconnect From Next Cross Section

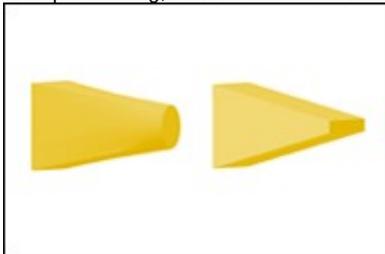
You can use this feature to turn off extrusion between this cross section and the next one. In this way, you can create an "intermittent" object.

### Skinning Type

Shape-to-shape skinning is especially well suited to creating smooth, organic surfaces whose cross-section shapes are significantly different from one another. Shape-to-shape skinning is the default setting, and should yield good results in most cases. If adjacent cross sections have different numbers of vertices, shape-to-shape skinning is the only option available.

You can use point-to-point skinning when adjacent cross sections contain very similar shapes, and you want each vertex in one cross section to be connected directly to the corresponding vertex in the next cross section. This option is useful when you model an object that requires straight, sharp edges.

The simple examples below illustrate when each skinning type is appropriate. The model on the left was created with shape-to-shape skinning, and the model on the right was created with point-to-point skinning.



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{button ,AL('OVR Chapter Working with objects';0,"Defaultoverview",)} [Related Topics](#)



## Working with the sweep path

The key to working with the sweep path is understanding how the 2D path description lines define the 3D sweep path. There are two red path description lines, one on each sweep path plane. Although the path description lines appear to be two separate paths, they are actually two projections of the same path.

Each point on one path description line corresponds to a point on the other path description line  in fact, each pair of points represents a single 3D point on the sweep path.

Usually, it is easy to see how the path description lines relate to the sweep path. However, when you are working with a sweep path that moves in all three dimensions, it is sometimes more difficult to understand how the path description lines relate to one another.

### Drawing the sweep path in 3D

To draw a simple 3D sweep path, the best approach is often to draw one path description line exactly as you want it, then move a few points on the other line. However, as the sweep path becomes more complex, this approach becomes less effective. In some cases, you might want to draw the sweep path continuously from the first point to the last, switching back and forth between the two path description lines as you work.

### Cross sections and the sweep path

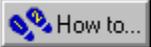
It is also important to understand the relationship between cross sections and the sweep path. You can think of the sweep path as an object's spine. Whenever you move a point on the sweep path, any cross section at that point will move as well.

The opposite is not true, however. When you move a cross-section shape up, down, left, or right along the cross-section plane, the sweep path is not affected. This allows you to create cross sections that are not centered around the sweep path, which broadens the range of shapes that you can create.

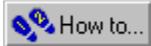
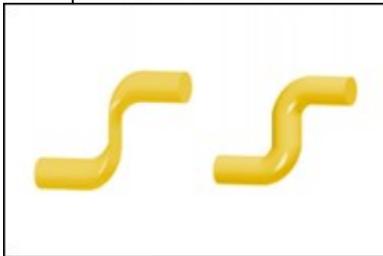
### Translation versus Pipeline

The Free-Form Modeling window can extrude cross sections along the sweep path using either the Translation or the Pipeline method. The difference between these two methods relates to the orientation of the cross sections as they are swept along the path.

With the Translation method, each cross section remains perpendicular to the ground plane of the Modeling box, regardless of the sweep path's curvature. With the Pipeline method, the orientation of each cross section depends on the direction of the

sweep path at the point where the cross section is located  all cross sections remain perpendicular to the sweep path, rather than to the ground plane.

The diagram below shows an example of the Translation method on the left, and the Pipeline method on the right. Both examples use the same cross section and sweep path.



#### Note

- You can switch extrusion methods at any time by using the Geometry menu; however, changing extrusion methods may reset your sweep path and scaling envelope. In general, you should try to determine the most appropriate extrusion method before you start.

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{button ,AL('OVR Chapter Working with objects';0,"Defaultoverview",)} [Related Topics](#)



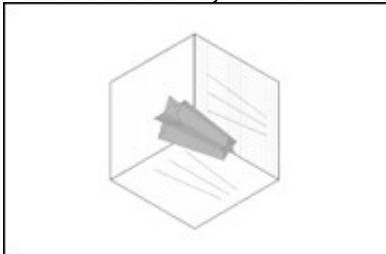
## Using the scaling envelope

To a large extent, the contours of a Free-Form object are determined by the cross sections you place along the sweep path. Wherever you change the size or shape of a cross section, the object's surface changes accordingly. Sometimes, however, you will want a finer degree of control than cross sections alone can provide. The scaling envelope allows you to specify how an object's surface should curve from one cross section to the next, giving you precise control over the object's form.

For the best results, you should model the object as completely as possible using the sweep path and cross sections, then adjust the scaling envelope as a final step.

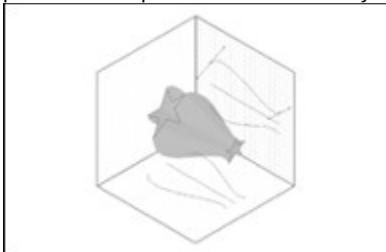
### Understanding the envelope

By default, the scaling envelope is not used  CorelDREAM 3D stretches the object's surface over the cross sections as simply as possible. When you turn the envelope on, it appears as four blue envelope description lines, two on each sweep path plane. (The red path on each sweep path plane is a path description line). Initially, the envelope conforms to the dimensions of the object's cross sections. It widens and narrows only if the cross sections vary in size.



Like the path description lines, the envelope description lines are Bezier curves. By editing these curves, you can alter an object's contours. The following example shows the effects of editing the envelope. Note that the cross sections are the same as in the

previous example  only the envelope has been changed.



In the example above, the four envelope description lines are mirror images of each other, resulting in a symmetrical object. When you work with the Symmetrical Envelope setting enabled, symmetry is automatically maintained. You can also edit the envelope description lines in pairs (Symmetrical In Plane), or individually (Free). This allows you to model asymmetrical objects.

### How the envelope relates to the sweep path

The envelope and the sweep path are closely related. In fact, each point on the scaling envelope corresponds to a point on the sweep path.

If you move an envelope point perpendicular to the sweep path, you change the scaling of the object at that point on the path. If you move an envelope point parallel to the sweep path, the corresponding point on the sweep path moves as well



the points are locked together in the direction of the sweep path.

If you use the Pipeline extrusion method, envelope points are constrained to move only perpendicular to the sweep path.

To maintain the relationship between the sweep path and the envelope, a point is added to the sweep path when you add a point to the scaling envelope. Likewise, when you delete a point from the envelope, the corresponding point is deleted from the sweep path.

### How the envelope relates to cross sections

Editing the scaling envelope can also affect an object's cross-section shapes. If you edit the envelope at a point where there is no cross section, only the surface between the cross sections is affected. However, if you edit the envelope at a point where a cross section exists, the shapes on the cross section are scaled accordingly. If you delete a point from the envelope, you will also delete any cross section located at that point.

When you use the scaling envelope in conjunction with multiple-shape cross sections, note that the scaling reference point is the

sweep path  not the center of each shape. If you want a cross section's shape to scale around its center point, you should resize it on the cross-section plane, rather than use the scaling envelope.

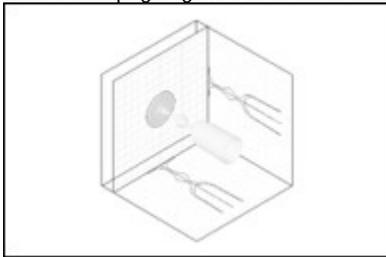
## Lathing

Lathing tools are common in 3D modeling applications. Lathing allows you to create many types of symmetrical objects. Typically, a 2D lathe profile is rotated around a straight [axis](#) to create a 3D volume. Rotation can be circular or angular, about 360 degrees or less. CorelDREAM 3D does not have a separate Lathe modeler. Instead, you will create Lathe objects in the Free-Form Modeling window, just as you create other objects.

Because your Lathe object is actually a Free-Form object, you can edit it in ways that traditional lathing tools do not allow. For example, you can create a symmetrical Lathe object, then deform it using the Free-Form Modeling window's other tools. You can choose from two different lathing methods. Most of the time, you will use the scaling envelope to create a Lathe object. However, sometimes you will choose to sweep the lathe profile around a circular extrusion path.

You can create nearly any Lathe object by extruding a circle or a regular polygon and using the scaling envelope to draw the object's lathe profile.

This champagne glass shows how the scaling envelope can be used to form a Lathe object.



Note that the glass has only a single cross section  a circle located at the beginning of the sweep path (the base of the glass). The shape of the object is defined entirely by the curve drawn in the scaling envelope.

As you can see, the lathe profile is duplicated four times  once for each of the envelope description lines. You need only draw the profile once. When you use the Symmetrical envelope constraint, the other three envelope description lines "mirror" the lathe profile you draw. As you draw the lathe profile, CorelDREAM 3D automatically creates a straight sweep path by placing one point on the path for each point you draw on the profile.

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**{button ,AL("OVR Chapter Working with objects";'0,"Defaultoverview",)} [Related Topics](#)**



## Adding and removing cross sections

You can add as many cross sections as you like. Each cross section must correspond to a vertex point on the sweep path. If you want to add a cross section where there is no vertex, you must add a vertex.

Although modeling with multiple cross sections enables you to achieve otherwise impossible effects, be careful not to add cross sections unnecessarily. Editing an object with too many cross sections can become difficult and tedious. Often, you can accomplish similar results using the scaling envelope.

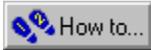
### To create a new cross section

1. Click the Add Point tool.
2. Hold down ALT and click the sweep path at the point where you want to create the new cross section.

CorelDREAM 3D adds a vertex to the sweep path and creates a new cross section at that point. You can now send the drawing plane to this section and modify the shapes on it.

### To remove a cross section

1. Send the drawing plane to the cross section you want to remove, or select the corresponding point on the sweep path.
2. Click Cross-Section, Remove.



#### Tip

- If you are working on a cross-section plane, you can create a new cross section at the next vertex on the sweep path in a single step. Click Cross-Section, Create  CorelDREAM 3D adds a new cross section at the next vertex. This produces exactly the same result as selecting the vertex on the sweep path, as described above.

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{button ,AL("PRC Forming 3D objects from cross sections;',0,"Defaultoverview",)} [Related Topics](#)



## Manipulating cross sections

You can align your cross-sections to the sweep path or create a specific number of cross sections between the current cross section and the next one.

### To generate intermediate cross sections

1. Send the drawing plane to one of the cross sections.
2. Click Cross-Section, Create Multiple.
3. In the dialog box that appears, type the number of sections you want to create.

CorelDREAM 3D creates the intermediate cross sections, spacing them evenly between the current cross section and the next one. A new point is added to the sweep path for each cross section created.

The shapes on the new cross sections are interpolated from the shapes on the existing cross sections. This process is similar

to blending between two shapes in a 2D illustration program  each shape on the new cross sections is one "step" in the blend.

### To center a cross section on the sweep path

1. Send the drawing plane to the cross section.
2. Click Geometry, Center.

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{button ,AL('PRC Forming 3D objects from cross sections;',0,"Defaultoverview",)} [Related Topics](#)

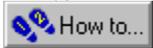


## Correspondence and shape numbering

Normally, there is a direct correspondence between the number of shapes in adjacent cross sections. You can, however, use a different number of shapes in adjacent sections, or change which shape sweeps to which. You control multiple-shape correspondence through shape numbering. Each numbered shape will be swept to the corresponding numbered shape in the next cross section. Grouped or compounded shapes are assigned a single shape number.

### To control shape-to-shape correspondence

1. Click Cross-Section, Show Shapes Numbers.
2. Click the number for the shape whose correspondence you want to change.
3. Type in the number for the shape you want it to correspond to.



### Notes

- If you type the number of another shape in this plane, the program swaps the correspondence number with that shape.
- If you type a unique number, make sure that you assign the same number to the appropriate shape in the adjacent cross section(s).
- Any shape that has no correspondence (i.e., its number does not match any shape number in an adjacent section) is not extruded.

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{button ,AL('PRC Forming 3D objects from cross sections;',0,"Defaultoverview",)} [Related Topics](#)



## Extrusion presets

CorelDREAM 3D provides three extrusion presets that automatically generate specific types of sweep paths. The three presets are Straight, Spiral, and Torus. When you apply an extrusion preset, the current sweep path and envelope are replaced with the preset path.

### To straighten the sweep path

- Click Geometry, Extrusion Preset, Straight.

All of the points on the sweep path are moved into a straight line. Cross-section shapes are unaffected.

### To make a spiral

1. Draw a 2D shape in the cross-section plane.
2. Click Geometry, Extrusion Preset, Spiral.

3. Type the number of turns you want  one turn equals 360 degrees.
4. Type the length of the spiral sweep path. The relationship between the number of turns and the length determines how "tightly" the coils of the spiral are spaced.
5. Type a value in the Distance To Axis box. This value determines the size of each coil by setting the distance between the cross-section shape and the spiral's central axis.
6. Type a percentage in the cross section Scaling box if you want to shrink or enlarge the cross-section shape as it sweeps along the spiral path. Values less than 100% shrink the shape; values greater than 100% enlarge the shape.
7. Type a percentage in the Spiral Scaling box if you want to decrease or increase the distance to the axis as the cross-section shape sweeps along the path. Values less than 100% taper the spiral; values greater than 100% widen the spiral.



### Note

- When you use the Spiral extrusion preset, only the first cross section of your existing object is kept  the remaining cross sections, sweep path, and envelope are replaced.

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`{button ,AL('PRC Forming 3D objects from cross sections';0,"Defaultoverview",)}` [Related Topics](#)



## Editing the envelope

If you make changes to the scaling envelope that you do not like, you can click Geometry, Reset Envelope to undo your changes. Clicking None in the Extrusion Envelope submenu also undoes the effects of the envelope.

### To enable the envelope or change its symmetry constraint

1. Click Geometry, Extrusion Envelope.
2. Click the desired symmetry constraint.

- Symmetrical: All four envelope description lines use the same curve  when you edit one line, the others update automatically.
- Symmetrical in Plane: The two envelope description lines in either plane use the same curve  when you edit one line, the other line in the same plane is updated automatically, as a mirror image.
- Free: Each line can have a unique curve.

### To modify the scaling envelope

- Use the drawing tools to edit the envelope description lines.  
You can add and delete vertices, as well as adjust existing vertices and control points. As you adjust one of the envelope description lines, the other lines are updated in real time.

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{button ,AL('PRC Forming 3D objects from cross sections;',0,"Defaultoverview",)} [Related Topics](#)



## Lathing with the scaling envelope

You can create nearly any Lathe object by extruding a circle or a regular polygon and using the scaling envelope to draw the object's lathe profile.

### To create a Lathe object with the scaling envelope

1. Create a new Free-Form object.
2. Using the Ellipse tool, hold down SHIFT and drag on the cross-section plane to draw a circle. Use the Polygon tool if you want a polygonal lathe.

Draw your circle (or polygon) at an appropriate size for the object you are creating, as the initial diameter of your object depends on the size of the cross section. If you want your object to start with a rounded end (like the top of a silo), draw the circle larger for now. You can go back later and adjust the first point of the curve.

3. Click Geometry, Center to center the cross section on the sweep path.
4. Click Geometry, Extrusion Method, and enable the Translation option.
5. Click Geometry, Extrusion Envelope, Symmetrical.

The four blue envelope description lines appear, two on each sweep path plane. Don't worry about trying to edit these straight

description lines  they disappear when you start drawing your own lathe profile.

6. Using the Selection tool, click once on either sweep path plane to make it the current drawing plane. Click an empty space on the plane, being careful not to select the sweep path or either of the envelope description lines.
7. Click View, Type, Drawing Plane to draw in the plane of the screen. This step is not necessary, but may be helpful.
8. Using the Bezier tool, click or click and drag on the drawing plane to place the second point of the lathe profile.

Remember, the first point of the lathe profile is determined by the size of the cross section. Draw the lathe profile on the envelope description line above the sweep path.

9. Continue to draw the lathe profile by adding additional points with the Bezier tool.

You can also use the drawing tools to edit the points you have already added. For the best results, be careful not to cross over the sweep path as you draw the lathe profile.

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**{button ,AL('PRC Forming 3D objects from cross sections;',0,'Defaultoverview',)} [Related Topics](#)**



## Lathing with a circular sweep path

Some Lathe objects are difficult to create with the scaling envelope. An object with a hole in the center, like a torus, can be particularly troublesome. In such cases it is better to draw the lathe profile in the cross-section plane and sweep it around a circular sweep path. The Torus extrusion preset, in the Geometry menu, creates a precise circular path.

### To create a Lathe object using a circular sweep path

1. Create a new Free-Form object.
2. Draw your lathe profile in the cross-section plane.
3. Click Geometry, Extrusion Preset, Torus.  
CorelDREAM 3D opens a dialog box and prompts you to specify the distance of the cross section from the torus' central axis. This value determines the radius of the torus.
4. Type a value in the Distance To Axis field.



#### Note

- You may need to experiment with the radius of the torus to achieve the effect you want. Repeat steps 3 and 4, and type a different dimension  CorelDREAM 3D replaces the old torus with the new one you have specified.

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{button ,AL('PRC Forming 3D objects from cross sections;',0,"Defaultoverview",)} [Related Topics](#)

## Creating Text objects



## Text objects

The size of a Text object in the universe depends on the font size you choose in the Text Modeling window. You can determine how large a Text object will be by dividing its font size by two. This calculation gives you the approximate height (in inches) of a capital letter; lowercase letters are proportionally smaller.

For example, if you create a Text object using 72-point type in the Text Modeling window, any capital letters in the Text object would be approximately 36 inches tall in the universe. When you know the height of the letters in your object, you can set a value in the Extrusion Depth field to control the relationship between height and depth.

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`{button ,AL("OVR Chapter Working with objects;";0,"Defaultoverview",)} Related Topics`



## Working with Text objects

When you create a new Text object, CorelDREAM 3D opens the Text Modeling window. The Text Modeling window also opens when you edit an existing Text object.

### To create a new Text object

1. Drag the [Text tool](#) into the Perspective or Hierarchy window.
2. Type the text you want to add.
3. Set the font and type characteristics using the controls above the Text box.
4. In the Depth box, type the extrusion depth and set the extrusion units.
5. Use the Bevel controls to set front and back bevels for the text.
  - Enable the check boxes for the Front and/or Back face.
  - Select the type of bevel you want.
  - Type values in the Height and Depth fields to specify the slope or contour.
6. Click the Done button to create your object. You can also click Edit, Object, Close and Return.

### To edit an existing Text object

- Double-click the object in the Perspective or Hierarchy window.  
**OR**
- Select the object and click Edit, Object, Edit.



# Arranging objects

## Arranging objects

CorelDREAM 3D's workspace is called the universe. The universe is displayed in the Perspective window. CorelDREAM 3D uses the Cartesian coordinate system to reference positions in the universe. A triplet of unique coordinates (X, Y, Z) is associated with each individual position in the universe.

The three grids displayed in the Perspective window join to form three faces of a cube called the Working box. The Working box is a visual reference superimposed on the global universe in which all of CorelDREAM 3D's objects are visualized, manipulated, and assembled.

The three visible edges of the Working box (where each of the grids intersect) give a visual representation of the X, Y and Z axes of the universe. The origin (0, 0, 0) of the global universe is at the center of the Working box. When you open a new scene, the "floor" might be the only plane that is visible. If so, you can make the other planes visible by clicking their visual representation in the [Plane Display tool](#).

The size of the universe is determined by the size set for the objects. However, the maximum volume of the universe is a 3.32 kilometer cube. On the other end of the scale, the minimum dimension of an object is 0.006 millimeters. You can specify your object sizes in any units of measurement as long as they are the maximum and minimum scale boundaries.

### The Arranging tools

Every basic operation (alignment, orientation, positioning) can be performed using the tools located in the upper part of the Toolbox. The Toolbox contains tools for arranging, creating and shading objects, creating new cameras and light sources, setting various camera modes (dolly, pan and track) and selectively rendering parts of the Perspective window for previewing purposes.

Click a tool to select it. The mouse pointer takes on a distinctive shape that depends on the tool chosen. Keyboard shortcuts for the selection tool, virtual trackball and rotation tool are "sticky", meaning they will switch the cursor to that tool permanently once invoked. Keyboard shortcuts for the Magnifying Glass tool and the Hand tool are not sticky; the mouse pointer will automatically revert to its previous state when another keyboard shortcut is used. This enables you to perform quick on-the-fly panning and zooming adjustments while manipulating objects.

**Selection tool:** Use the Selection tool to select or resize 3D objects, 2D projections, and groups of objects. Click an object or its projection to select it. Drag an object to move it along the active plane. Hold down ALT and drag an object to move it perpendicularly to the active plane. Drag a bounding box handle or its 2D projection handle to resize its contents. Double click an object to edit it in the Modeling window. Double click a light source or camera to bring up its Properties dialog box. Double click a group to edit it.

**Virtual Trackball tool:** Use the Virtual Trackball tool to orient selected objects in 3D space. Drag a selected object to orient it. If no object is selected, the Virtual Trackball tool selects the object the first time you click it. Drag the mouse outside the circle of the Virtual Trackball to rotate the object along the screen plane. Drag the mouse inside the circle of the Virtual Trackball to rotate the object directly in 3D space, as if you were tipping a crystal sphere with your finger.

**One Axis Rotation tool:** Use the One Axis Rotation tool to rotate an object in 2D along one of the Working box planes. Click and drag the object's 2D projection. In the Free-Form Modeling window, click and drag a shape on the cross-section plane to rotate it around its center.

**Zoom In tool:** Click the Zoom In tool and click the Perspective window to magnify the window's view by a factor of two. Drag the tool to zoom to the area inside the marquee.

**Zoom Out tool:** Click the Zoom Out tool and click the Perspective window to zoom out by a magnification factor of two.

**Hand tool:** Drag the Hand tool to pan around the window without having to use the scroll bars.

### For more information see the following:

{button ,JI(','The Working box')} [The Working box](#)

{button ,JI(','Objects in the scene')} [Objects in the scene](#)

{button ,JI(','Arranging objects')} [Arranging objects](#)

# The Working box



## The Working box

By default, CoreIDREAM 3D opens new scenes with one camera and one light in the universe. This camera provides you with a point of view into the Perspective window and is not directly visible. Because you are looking through this camera, you can't see it. The default light is usually visible in the upper left corner of the Perspective window, and is represented by a red cone.

The grids on the sides of the Working box are visual aids. They help visualize the projection planes of the Working box and do not confine your scene in any way. You can place objects anywhere in the universe, within or beyond the grids.

### Changing the attitude and position of the Working box

You can move and orient an object anywhere in the universe without making any adjustment to the Working box; however, it might take a string of operations. It is easier to set the Working box, then arrange objects in relation to it. With this method, you can make any arrangement in just a few operations. Once you start thinking in 3D, you will find that the Working box makes the precise alignment and arrangement of objects fast and easy.

You can set the attitude of the Working box for a particular operation or a set of operations. For example, the angle of the Working box can be changed so that an object can be "slid" down the slope of the active plane. After such an operation, you can move or reorient the Working box for the next task.

If you have oriented one object, you can easily position a second object parallel to the first. Send the Working box to the first object, select the second object, and click Arrange, Align On Working box. You can now move or nudge the second object to an exact position.

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`{button ,AL("OVR Chapter Arranging objects";0,"Defaultoverview",)} Related Topics`



## Changing the active plane

The [Plane display tool](#) is the only tool in the Planes toolbar. It has four active areas: the three planes and the Object preview.

The Plane display tool singles out one of the three planes (usually the bottom or "floor") by displaying it in green. This indicates that this plane is the current active plane. The active plane is used by default when dragging objects with the mouse in the Perspective window. The Selection and Rotation tools also use the active plane as their plane of reference.

The default color of the displayed planes, the size of the Working box, the planes are initially displayed, and other features of the Working box can be changed in the Perspective section of the Preferences dialog box.

You can customize the display of the Working box to display any, all, or none of the grid planes using the Plane display tool.

### To change the active plane

- Hold down ALT and click the plane you want in the Plane display tool.

### To toggle the display of a plane grid

- Click the plane you want to toggle in the Plane display tool.

### To toggle the object preview in the Perspective window

- Click the cube at the center of the Plane display tool.

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{button ,AL('PRC The Working box';0,"Defaultoverview",)} [Related Topics](#)



## Changing grid options

The following is a list of the available grid options.

- **Spacing:** Sets the distance of a nudge (moving a selected object with an Arrow key). The value and unit you choose should have a correlation with the scene you are developing. For example, if you're creating a building, one meter should provide enough accuracy for most operations.
- **Draw Line Every:** Sets the number of increments between grid lines. When the setting is 1, the increment and displayed grid correspond directly.
- **Show Grid:** When Show Grid is selected, the grid is visible on each of the visible planes. Note that even if the Show Grid option is not selected, objects' hot points will snap to the grid if Snap To Grid is selected.
- **Snap To Grid:** When Snap To Grid is selected, objects you drag "jump" to the nearest grid increment. The [hot point](#) of the object, not the edge of the projection, snaps to the grid.

### To set Grid options

- Click View, Grid, or press CTRL + J.



### Tip

- Set the number of increments between grid lines to a value greater than one if you want fine control over the Snap To Grid function but do not want many grid lines to be visible.

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{button ,AL("PRC The Working box;',0,"Defaultoverview",)} [Related Topics](#)



## Moving the Working box

There are several ways to orient the Working box: rotate it with the Virtual Trackball tool, send it to another coordinate system, or set its attitude numerically. Changing the Working box does not affect your existing objects. The orientation of the Working box applies only to subsequent arrangement operations.

### To move the Working box

- Hold down CTRL and drag the Working box.

### To resize the Working box

- Hold down CTRL and drag a corner of one of the grid planes.

### To orient the Working box with the Virtual Trackball

1. Click the [Virtual Trackball tool](#).
2. Hold down CTRL and drag the grid in the Working box.  
The Working box revolves about its center as you drag.

### To position or orient the Working box numerically

1. Click the [Selection tool](#).
2. Hold down CTRL and click the Working box.
3. Click Edit, Numerical Properties.  
The Numerical Properties dialog box displays the current position and attitude of the Working box. The pop-up box at the bottom right identifies the selected reference coordinate system. If you want to use a different system, select another from the list box: Global universe, Working box, or Object/Group.
4. Set the yaw, pitch, and roll values to orient the Working box.
5. Set the X, Y, Z position values.
6. Click Apply to make the changes.

### To align the Working box to an object or group

1. Select an object or group.
2. Click Arrange, Align Working box.  
The planes of the Working box are set parallel to the sides of the selected object's bounding box. The coordinate systems of the Working box and object are now aligned.

### To send the Working box to a position

1. If you want to send the Working box to an object, select the object.
2. Click Arrange, Send Working box To
3. Choose the position you want from the pop-up menu: Global universe, Local universe, or Selection.  
The Working box's origin snaps to the origin of the selected position. It is resized to a scale appropriate to this position.

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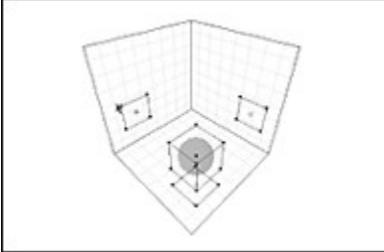
{button ,AL('PRC The Working box;',0,"Defaultoverview",)} [Related Topics](#)

## Objects in the scene



## Objects in the scene

Objects are represented in the Perspective window by a preview. Their appearance is called a preview because the level of detail is lower than in the final rendering. You can set the level of preview detail for the window by selecting the mode you want from the View menu or by using one of the four preview quality icons on the Standard toolbar.



The bounding box is the smallest box that encloses an object. Wire frame bounding boxes appear around objects that are selected. The bounding boxes of all objects, including cameras and spot lights, cast 2D profiles, called projections, on the planes of the Working box. These projections indicate the object's position and orientation in relation to each of the three planes.

Several objects can be grouped together to form a group.

To arrange objects in 3D, you can directly manipulate the object's preview or bounding box. You can use the projections to manipulate an object with respect to any single plane (in 2D).

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`{button ,AL('OVR Chapter Arranging objects;',0,"Defaultoverview",,)} Related Topics`



## Changing preview detail in the Perspective window

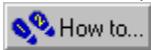
Using Better Preview increases the time required to calculate and draw or redraw the Perspective window. To increase CorelDREAM 3D's efficiency, work in Wireframe, Preview, or Bounding Box mode at the outset of a project, then switch to Better Preview mode as specific shading detail becomes more important. You should use the Render Area tool whenever possible instead of switching to Better Preview.

### To change preview detail in the Perspective window

- Click View, Default Quality, and choose one of the following options.
  - Bounding Box displays object projections for the visible working planes and the bounding boxes for the objects.
  - Wireframe displays object projections for the visible working planes, bounding boxes, and objects. Objects are displayed as wireframe objects.
  - Preview displays object projections for the visible working planes, bounding boxes and objects. Objects are displayed as solid objects with color information. Only the outlines of painted shapes are displayed.
  - Better Preview displays objects using ambient light and your specific light sources to show color, highlights, gel effects, and depth shading. Shading, texture maps, and paint regions, are displayed in detail to better provide details of the shape and color of objects.

### To change the preview of a single object

1. Select the object by clicking its icon in the Hierarchy or Perspective window.
2. Click View, Object Visible/Object Invisible.



#### Note

- The single object selection overrides the overall level of preview detail selected for the Perspective window. This provides a simple, but effective, way to simplify the content of your scene by selectively hiding objects. Objects made invisible this way still appear in renderings, but are invisible in the Perspective window. This differs from the Cloak option available under the Transform tab of the Properties dialog box. Cloaked objects are invisible in the renderings of a scene but visible in the Perspective window.

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{button ,AL('PRC Objects in the scene;',0,"Defaultoverview",)} [Related Topics](#)



## Naming and finding objects

New objects are named by default "Type n," where Type is the object description (Free-form, Sphere, Text, etc.) and n is the number of similar objects in the order they are created  Free-form 1, Free-form 2, and so forth.

It is useful to name objects to manage the contents of your scene. As the number of objects in a scene increases and the objects become closer, finding the object's name in the Hierarchy window or with the Find command is often easier than locating it in a cluster of similar objects.

### To change the name of an object

1. Select its icon in the Hierarchy window.
2. Press ENTER.
3. Type the new name.

### To find an object using the Find command

1. Click Edit, Find.
2. Type the name of the object to locate.
3. Select the appropriate search criteria.
4. Click Find.

If an object is found that matches the search criteria, its icon is highlighted in the Hierarchy window and the object is selected in the Perspective window.



### Tip

- Click Find again to find the next occurrence of the selected word or phrase.

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`{button ,AL("PRC Objects in the scene";0,"Defaultoverview",)}` [Related Topics](#)



## Selecting objects

Usually, you must select one or more objects before choosing a command. When an object is selected, its bounding box is visible, its 2D projections have handles at the corners, and its icon in the Hierarchy window is highlighted.

CorelDREAM 3D provides a number of ways to select objects.

### To select objects in the Perspective window

- Use the selection tool to click the object's preview, or one of its 2D projections.

### To select one of several overlapping objects in the Perspective window

1. Position the cursor over the objects and hold down the mouse button. A menu appears, listing all of the objects beneath the cursor at that point.
2. Select the object you want from the menu.

### To select objects in the Hierarchy window

- Click the object's name in the Hierarchy window.



### Tip

- In either window or in the pop-up box, you can SHIFT + click objects to add to or remove from the selection.

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{button ,AL('PRC Objects in the scene;',0,"Defaultoverview",)} [Related Topics](#)

## **Moving, aligning, and resizing objects**

## Moving, aligning, and resizing objects

Arranging is the process of positioning and orienting objects. The most significant part of an object's arrangement is its spatial relationship to other objects. In most cases, the absolute arrangement (in relation to the universe) is relevant only to the extent of what seems "upright" to you. For example, you'd probably find it confusing to work in an upside-down scene, and a glass of wine placed at any attitude other than upright would seem to defy gravity if the wine did not spill.

If you like, you can create a tilted or upside-down world by changing the attitude of your camera. This is far easier than working in a skewed universe.

Arranging one object in relation to another may require a series of positioning, orientation, and alignment operations. Many of these commands operate under the constraints of the Working box. Setting the Working box appropriately before starting an operation greatly simplifies the procedure.

Because the relationship of objects to one another is the most important part of arrangement, resizing may also be necessary. Except where noted, all of the positioning, orienting, aligning, and resizing commands work with either single or grouped objects.

### For more information see the following:

{button ,JI('`The hot point')} [The hot point](#)

{button ,JI('`Positioning objects')} [Positioning objects](#)

{button ,JI('`Resizing objects')} [Resizing objects](#)

{button ,JI('`Orienting objects')} [Orienting objects](#)

{button ,JI('`Aligning and duplicating objects')} [Aligning and duplicating objects](#)

{button ,JI('`Deformers')} [Deformers](#)

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{button ,AL('OVR Chapter Arranging objects;Building a Scene';0,"Defaultoverview",)} [Related Topics](#)

## The hot point



## The hot point

The hot point, which is used in a number of arrangement operations, is the single point of an object that identifies the object's location in the universe. If you look at the numerical position of an object in the Numerical Properties dialog box, the X, Y, Z coordinates refer to the hot point. Groups also have a hot point. The hot point of a selected object appears in the Perspective window as a small sphere that also casts 2D projections.

By default, an object's hot point is at the center of its bounding box. You can move the hot point to any point in, around, or on the surface of the object. Where you position the hot point depends on the type of arrangement operation you are planning. Different operations may require different placements of the hot point.

For example, with the hot point at the center of an object, the rotate command spins the object in place. However, with the hot point placed some distance from the object, rotate orbits the object around its hot point. Therefore, for a baseball bat, you would place the hot point where the batter grips it. For an elbow joint or architectural lamp, you would place the hot point where the moving parts meet.

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`{button ,AL('OVR Arranging objects;',0,"Defaultoverview",)}` [Related Topics](#)



## Moving hot points

You can move a hot point to a location other than the object's center.

### To move a hot point by dragging

1. Select the object or group.
2. Drag the hot point in 3D or drag one of its 2D projections.
  - Hold down CAPS LOCK while you drag to move the object in lockstep with its hot point.
  - Hold down CTRL to snap the hot point to the surface of the object beneath it.
  - Hold down both CAPS LOCK and CTRL to drag an object by its hot point across a contoured surface while keeping the same distance between the object and the contour.

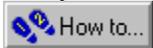
### To move a hot point numerically

1. Select the object or group.
2. Select the hot point or one of its 2D projections.
3. Click Edit, Numerical Properties (CTRL + I).

The Numerical Properties dialog box displays the position of the hot point (X, Y, Z coordinates).
4. Use the pop-up box on the bottom right of the Numerical Properties dialog box to select the coordinate system you want.

You can move the hot point in relation to the Global universe, the Working box system, or the Object/Group system.
5. Type new position values to move the hot point.

If you enable the Lock To Object option, the hot point moves with its object.



### Note

- The Lock To Object option only locks the movement of an object's hot point to the object itself. It does not lock one object to another object.

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{button ,AL('PRC The hot point';,0,"Defaultoverview",)} [Related Topics](#)



## Centering hot points

CorelDREAM 3D can automatically center the hot point of a new object or restore a moved hot point to the center of an existing object.

### To center a hot point

1. Select the object or group.
2. Click Arrange, Center hot point.

---

`{button ,AL("PRC The hot point;";0,"Defaultoverview",)} Related Topics`

## Positioning objects



## Positioning objects

In most cases, the most important part of an object's position is its location relative to other objects. Often, to create the desired relationships, you will use the positioning tools in conjunction with the orientation and alignment tools.

Remember that the appearance of your scene is determined not only by the position of objects, but by your point of view



the location of the camera you're looking through. With two objects in your scene, you can switch their relative positions, left-to-right, by placing the camera on the other side of the scene.

CorelDREAM 3D provides several ways to position objects: dragging, nudging, and numerical positioning.

---

{button ,AL('OVR Arranging objects;',0,"Defaultoverview",)} [Related Topics](#)



## Dragging

The easiest way to move an object through space is to drag it with the Selection tool. As you drag an object, remember that the planes of the Working box extend throughout the universe. The visible grid is merely a reference for the orientation of those planes and does not restrict you to the visible space.

### To move an object parallel to the active plane

- Drag the object's preview or its projection on that plane.

### To move an object perpendicular to the active plane

- Hold down ALT while dragging its preview.

### To move an object along one of the other planes

- Drag the object's projection in that plane.

### To constrain the direction of travel within a plane

- Hold down SHIFT while dragging.

This constrains the direction of travel to the nearest increment of the angular constraint setting. The angular constraint setting is 45 degrees, so depending on how you drag, constraint directions would be in increments of 45 degree from the starting point.

---

`{button ,AL("PRC Positioning objects";,0,"Defaultoverview",)}` [Related Topics](#)



## Nudging

When you must have fine control over an object's movement, you can nudge it a short distance.

### To nudge an object

- Select one or several objects with the [Selection tool](#).
- Press one of the Arrow keys. The grid lines on the active plane indicate the directions that the Arrow keys move the object. Each time you press an Arrow key, the selected objects move parallel to the active plane one increment of the grid setting. This grid setting is determined by the Spacing value you set in the Grid dialog box (View, Grid).

### To increase the nudge in increments of 5

- Hold down SHIFT while you nudge.

### To nudge perpendicular to the active plane

- Hold down ALT and press the Up or Down arrow key.

---

`{button ,AL('PRC Positioning objects';,0,"Defaultoverview",)}` [Related Topics](#)



## Numerical positioning

The Numerical Properties dialog box positions an object precisely in relation to the coordinate systems: Global universe, Working box system, or Object/Group system.

The Numerical Properties dialog box updates dynamically as you select different objects in the Hierarchy window.

### To position an object or group numerically

1. Select an object or group.
2. Click Edit, Numerical properties.
3. Click the [Coordinate System button](#) and choose the system you want to use. The Numerical Properties dialog box displays the currently selected coordinate system in an abbreviated format.
  - Global = Global universe
  - WBox = Working box
  - Object = Object/Group

The X, Y, Z values describe the position of the hot point in the selected coordinate system.

4. Type new values in the X, Y, and Z fields in the top panel.

A value of 0 in the X, Y, or Z fields corresponds to the center of the X, Y, or Z working plane.
5. Click Apply to update your changes to the selected object or group. When Auto is enabled, the object's position is updated automatically.

---

`{button ,AL('PRC Positioning objects';0,"Defaultoverview"),}` [Related Topics](#)

## Resizing objects



## Resizing objects

An object's size must always be considered in relationship to other objects. When you create an object, you model it at a particular size. When you place an object in a scene, you can scale it to new dimensions. Note that scaling in the scene universe does not change the size of the original (master) object.

CoreIDREAM 3D allows you to resize an object in one of two ways: by dragging its bounding box or 2D projection handles (free resizing), or by using the Numerical Properties dialog box. In both cases, you can resize an object proportionally or disproportionately.

Resizing might change the relative positions of two objects. For example, a glass on a table, if enlarged, might go through the table, and if shrunk, might seem to float over it. You can prevent this by using the plane at the bottom of the glass as the

reference for resizing  that is, by dragging a corner at the top of the bounding box, not at its bottom.

The size at which you create objects has little relationship to their size in the final rendered image. The size of objects in the rendered image is determined not only by their dimensions, but more importantly by their distance from the point of view. This is just like the real world: a car right in front of you appears to be larger than a car parked down the block. In CoreIDREAM 3D, the point of view is the camera; therefore, if you want to make objects appear larger in the rendering, either move the camera closer or increase its focal length.

---

`{button ,AL('OVR Arranging objects;',0,"Defaultoverview",)}` [Related Topics](#)



## Free resizing

The easiest way to resize an object is by using the Selection tool. If you need more accurate control over the size of your object, use the Numerical Properties dialog box.

### To resize an object or group

1. Select an object or group.
2. Drag one of the corners of the object's bounding box.

As you drag, the opposite corner of the bounding box remains anchored, while the other corners move. This opposing corner is the default [reference point](#) for free resizing.

If you drag the corner, the object is resized disproportionately in all three dimensions. However, you can set constraints on the resize operation by holding down modifier keys as you drag.

- SHIFT maintains proportions.
  - ALT resizes only along the axis perpendicular to the active plane.
  - CTRL resizes using the object's hot point as a reference.
3. When you are satisfied with the object's new size, release the mouse button.

---

`{button ,AL("PRC Resizing objects";'0,"Defaultoverview",)} Related Topics`



## Numerical resizing

Numerical resizing uses the hot point as the reference.

### To resize an object or group numerically

1. Select the object.
2. Click Edit, Numerical Properties.

The values in the Size panel give the dimensions (height, width, and depth) of the object's bounding box. You can change units with the pop-up box to the right of the Size field.

You can resize an object by changing the values in each field. If Keep Proportions is enabled, the ratio between an object's height, width, and depth is automatically maintained.

3. Click Apply to update your changes to the object.

---

`{button ,AL("PRC Resizing objects";,0,"Defaultoverview",)}` [Related Topics](#)



## Resizing using the Scale XYZ deformer

The Scale XYZ deformer can be used to resize objects and groups along any of its bounding box axes.

### To resize an object or group with the Scale XYZ deformer

1. Select the object.
2. Click Edit, Properties.
3. Click the Deformer tab.
4. Choose the Scale XYZ deformer from the list box.
5. Using the sliders, preview the effect of your resize on the object selected or on one of the preview templates available (the cube is usually a good choice for this particular deformer).

The scaling is done as a percentage of the original dimension of the bounding box of the object or group selected.

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`{button ,AL('PRC Resizing objects';0,"Defaultoverview",)} Related Topics`

## **Orienting objects**

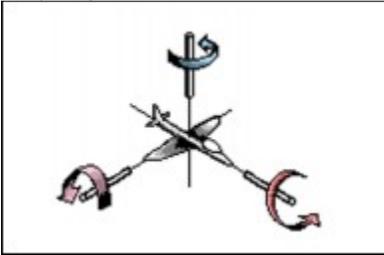
## Orienting objects

Most real-world objects have a logical "upright" and some have a logical "front." For example, airplanes and automobiles have both. In simple terms, you can think of an object's orientation as "the direction it faces."

CorelDREAM 3D determines the upright and front of objects by the way they were created in the Modeling box.

Orientation applies to objects and groups as well as to lights and cameras. In this section, the term "object" also refers to cameras and lights.

The technical terms that describe orientation movements in an object's own local coordinate system or frame of reference are taken from aviation. Yaw (blue axis) is the degree of rotation about the upright axis. Pitch (pink axis) is the degree of front to back rotation. Roll (red axis) is the degree of side to side rotation. Sometimes the term attitude is used to describe the combined effect of yaw, pitch, and roll.



CorelDREAM 3D allows you to adjust an object's orientation in two ways: with the Virtual Trackball tool and numerically.

After you orient an object, you might lose track of its original X, Y, Z orientation. To assist, CorelDREAM 3D lets you visualize a local set of Axis Indicators centered on the object's hot point. The colors of the X (pink), Y (red) and Z (blue) axes respectively match the colors of the pitch, roll and yaw directions in the Numerical Properties dialog box to make numerical orientation easy. You can control the display of axis indicators using the Preferences dialog box (File, Preferences).

As you build a complex object, orient each of its parts as you assemble them. Then, group the complex object so that you can orient it as a single object. You can still edit the group and change the relative orientations of its individual objects.

---

`{button ,AL('OVR Arranging objects;',0,"Defaultoverview",)} Related Topics`



## Free rotating

The Virtual Trackball tool allows you to orient an object freely in space, almost as if you were turning it directly with your hand.

### To orient an object with the Virtual Trackball tool

1. Click the [Virtual Trackball tool](#).

2. Click the object or group you want to rotate.

You can select more than one object. SHIFT + click to add objects to the selection.

3. Drag within the circle to roll the Virtual Trackball tool.

Drag outside the circle to rotate in relation to the monitor screen.

The point of rotation is the hot point. If you make a multiple selection, each object rotates about its own hot point.

### To constrain rotation to a given plane

1. Click the [Rotation tool](#).

2. Select the projections in the plane in which you want to constrain the rotation.

You can set the Working box to any angle using the Perspective section of the Preferences dialog box.

3. Drag the projection in a circular path.

If you hold down SHIFT while you drag, rotation uses the increments of the angular constraint setting.

---

`{button ,AL("PRC Orienting objects";0,"Defaultoverview",)} Related Topics`



## Numerical orienting

The Numerical Properties dialog box orients an object precisely in relation to the coordinate systems: Global universe, Working box system, or the Object/Group system.

### To orient an object or group numerically

1. Select an object or group.
2. Click Edit, Numerical properties.
3. Click the [Coordinate System button](#) and choose the system you want to use.
4. Type new values in the Yaw, Pitch, and Roll fields.

The Yaw, Pitch, and Roll values describe the orientation of the object in the selected coordinate system.

5. Click Apply to update your changes to the selected object or group. When Auto is enabled, the object's orientation automatically updates when you click another field.



### Tip

- You can undo your changes (Edit, Undo) until you attempt a different command. While you are in the Numerical Properties dialog box, click Reset to return to the original values.

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{button ,AL('PRC Orienting objects;',0,"Defaultoverview",,)} [Related Topics](#)



## Mirroring an object's orientation

You can automatically change an object's orientation to one that mirrors the object's current orientation across an imaginary plane passing through the object's hot point. The Mirror option in the Numerical Properties dialog box allows you to mirror the object's orientation. The plane that is being mirrored across is aligned with the bottom plane of the Working box.

### To mirror an object's orientation

1. Select an object or group.
2. Click Edit, Numerical properties.
3. Enable the Mirrored check box.
4. Click Apply to update your changes to the selected object or group. When Auto is enabled, the object's orientation updates automatically.

---

{button ,AL('PRC Orienting objects;',0,"Defaultoverview",)} [Related Topics](#)



## Special orientation features

You can align objects with the Working box, with the universe, or with gravity.

When the Working box is in its "home" orientation, there is no difference between aligning with the Working box and with the local universe.

Gravity is absolute. It refers only to the global universe. Align On Gravity sets the roll of the selected object to 0, without affecting its Pitch or Yaw. This feature is particularly useful for correcting the attitude of a camera. For example, if you were looking through a camera and the horizon slanted diagonally across the frame, Align On Gravity would adjust the roll of the camera to level the horizon.

### To align objects with the Working box

1. Select one or more objects.
2. Click Arrange, Align.
3. Click On Working box.

CoreIDREAM 3D rotates the objects the minimum amount to put the sides of the object's bounding box parallel to the planes of the Working box.

If you choose Fully On Working box, CoreIDREAM 3D places the object upright, then sets its bounding box parallel to the planes of the Working box.

### To align an object with the universe

1. Select the object.
2. Click Arrange, Align, On universe.

CoreIDREAM 3D places the object upright and sets its bounding box parallel to the axes of the universe.

### To Align On Gravity

1. Select the object.
2. Click Arrange, Align, On Gravity .

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{button ,AL("PRC Orienting objects";0,"Defaultoverview",)} [Related Topics](#)



## Aiming cameras and lights

All of the positioning and orientation commands work on cameras and lights as well as simple objects. In addition, the Point At command directs the light beam or camera view toward an object you specify.

### To point a camera or light at an object

1. Select the camera or light and the object you want to point at.

You can select multiple cameras and lights, but only one object or group. If you don't select a camera or light, CoreIDREAM 3D points the current camera.

2. Click Arrange, Point At (CTRL + M).

The light or camera points at the hot point of the selected object or group.

---

`{button ,AL("PRC Orienting objects";'0,"Defaultoverview",)}` [Related Topics](#)

## Aligning objects



## Aligning and duplicating objects

### Relative alignment

CorelDREAM 3D's relative alignment feature lets you easily arrange several objects with respect to each other. For example, if you built a bicycle wheel, you would use relative alignment to arrange the axle, hub, spokes, rim, and tire to be concentric and co-planar. There are many other uses for relative alignment.

### Duplication

Duplication is a handy way to automatically repeat a series of position, orientation, and resize operations on a duplicate object. Duplication is an efficient way to work, and has a number of practical applications.

For example, you could use this feature to build a spiral staircase. Create the first stair and set its hot point to the axis of spiral. Then, duplicate the stair, raise it to the level for the next step, and rotate it an appropriate amount. Choose duplicate again and again until you have built the staircase.

### Symmetrical duplication

Many real-world objects exhibit symmetry. Airplanes, automobiles, and the human body are a few examples. To help you build

complex symmetrical objects, CorelDREAM 3D provides two commands  Flip and Duplicate with Symmetry. The Flip command uses an imaginary plane, parallel to the bottom plane, that passes through the center of the left and right planes of the Working box. This plane acts as a mirror across which the objects are reflected, or flipped. The position of the object relative to the bottom plane is critical. For example, if you want the object to be reflected, but keep its position in space, the bottom plane should cross through the center of the object. You can do this by sending the object's hot point to the plane (the hot point must be centered). If you plan to Duplicate With Symmetry, and want the mirrored duplicate to lie precisely alongside the original, you must set the bottom plane to that side of the object's bounding box.

---

{button ,AL('OVR Arranging objects;',0,"Defaultoverview",)} [Related Topics](#)



## Relative alignment

When aligning many objects, start by aligning only two objects. Once you have aligned the two objects, group them and align a third object to the group. Continue to group and align objects until all objects are aligned.

### To align objects relative to one another

1. Select the set of objects you want to align.
2. Click Arrange, Align Objects (CTRL + A).

You align your objects in each dimension (X, Y, and Z) separately. The selected dimension is called the axis of constraint. You can work in any order you choose.

3. Choose the axis of constraint from the Axis list box.
4. Select the alignment command you want for each axis

- Align sets the reference point of each object to the reference point of the anchor object along the axis of constraint. The anchor specifies the unmoved object relative to which the other objects selected will be moved to.
- Space puts the specified distance between the reference points of each object. Type a value and use the pop-up box to set the units.
- Distribute places the reference point of each object, evenly spaced in relation to the two anchor objects, along the axis of constraint. The reference objects do not move in distribution. Therefore, Distribute has no effect on a selection of only two objects.
- Contact brings the BoxMax of each object into contact with the BoxMin of the next object along the axis of constraint.
- None leaves the objects at their original position.

5. Select the anchor object.

Anchor specifies the object that you want to keep in its current position. All of the other objects move in relation to this object. For the Distribute command, select two anchor objects. The objects keep the same order along the axis of constraint.

- The 2D projection of the selected anchor object is shown in color.
- Click the corresponding colored arrow buttons in the Alignment window to select the anchor object. TAB advances the selection, and SHIFT + TAB retreats it.
- For the Distribute command, click the other colored arrow buttons to select the second anchor.

6. Select the reference point on the objects.

The selected alignment command applies to each object with respect to its selected reference point. Object reference points that are grayed out are unavailable for that alignment command.

- hot point specifies each object's hot point.
- BoxMin specifies the edge of each object's bounding box with the lowest coordinate value (closer to the intersection of the three planes of the Working box) along the axis of constraint.
- Center specifies the center of each object's bounding box.
- BoxMax specifies the edge of each object's bounding box with the highest coordinate value (farther from the intersection of the three planes of the Working box) along the axis of constraint.
- Sides specifies the sides of the object's bounding box.

7. Click Apply.

8. When you have achieved the alignment you want in this constraint axis, move on to the next one. (Return to step 3.)

Depending on your design for this set of objects, you can use relative alignment in one, two, or all three axes of constraint.

---

`{button ,AL('PRC Aligning objects;',0,"Defaultoverview",)} Related Topics`



## Duplicating objects

Duplication is a handy method to automatically repeat a series of position, orientation, and resize operations on a duplicate object. Duplication is an efficient way to work and has a number of practical applications.

### To duplicate an object

1. Select one object.
2. Click Edit, Duplicate (CTRL + D).
3. Perform any number of position, orientation, and resize operations without deselecting the object.
4. Click Edit, Duplicate again.

Each time you duplicate, the new copy receives the same set of positioning, orientation, and resizing operations relative to the object from which it has been duplicated. Duplicated objects are multiple instances of a single master object.

---

`{button ,AL("PRC Aligning objects;Working with Master objects;',0,"Defaultoverview",,)} Related Topics`



## Object symmetry

The Flip command uses an imaginary plane that is parallel to the bottom plane, and passes through the center of the left and right planes of the Working box. This plane acts as a mirror across which the objects are reflected, or flipped.

If you are using the Duplicate With Symmetry command, and want the mirrored duplicate to lie precisely alongside the original, set the bottom plane to that side of the object's bounding box.

### To create a mirror image of an object

1. Select the object.
2. Click Arrange, Flip.

The Flip command mirrors the selected object relative to an imaginary plane that is parallel to the bottom plane. The position of the imaginary plane is at the center of the left and right planes of the Working box.

### To duplicate with symmetry

1. Select the object.
2. Click Edit, Duplicate With Symmetry (CTRL + ALT + D).

Duplicate with Symmetry creates a duplicate of the object derived from the same master object. The object's placement relative to the imaginary plane parallel to the bottom plane determines the duplicate object's placement.

---

**[Related Topics](#)**

## Using deformers



## Deformers

Deformers are a powerful class of manipulation tools to modify and twist objects and groups of objects. Deformers include: Stretch, Shatter, and Bend and Twist.

### Stretch

The Stretch deformer is well suited to simulating the exaggerated, cartoon-style effects of squash and stretch motions. A squashed object will seem to bulge; a stretched one will elongate while thinning in the middle, almost like chewing-gum.

The stretch axis indicates the axis along which the stretch or squash will occur. Any percentage value lower than 100% will cause the object to be compressed and bulge; any value greater than 100% will elongate and thin the object.

### Shatter

Shatter is a very simple, facet-based deformer to simulate object explosions. Because the deformer only works at the facet/patch level, it will work best on non patch-based imported objects (DXF imports made of a large number of polygons, for example). When applied to objects made with CorelDREAM 3D's Free-Form Modeling window, the shatter will only separate the patches that make up the surface of the object. This results in a coarse-grained shatter effect similar to the one that can be previewed using the teapot or sphere preview sample.

### Bend And Twist

The Bend And Twist deformer combines two frequent operations. This deformer is also useful to fine tune complex models such as bent compound shapes that are otherwise tricky or impossible to achieve. The bend and bend axis control the amount and direction of the bend, while the twist, twist start, and twist size define the amount of twist and the portion of the object on which the twist is applied.

---

{button ,AL('OVR Arranging objects;',0,"Defaultoverview",)} [Related Topics](#)



## Deforming objects

All deformers share a common preview pane in which the effect of the deformation can be previewed. There is also a definition pane that is specific to each particular deformer.

Because only one deformer can be selected at any given time, to combine the effects of multiple deformers (a stretch and a twist for example) to an object, you must stack the objects using artificial group hierarchies.

### To use a specific deformer

1. Select the object or group you want to deform.
2. Click Edit, Properties.
3. Choose the deformer you want to apply from the Deformers list box.

4. Select an appropriate preview sample from the choices listed in the preview pane  Sphere, Cube, Teapot, Selected Box (the bounding box of the selected objects), or Selected Object.

Simple primitives such as the sphere or cube often give you adequate results while being simple enough to offer instant feedback as you set parameters.

5. Select the parameters by manipulating the appropriate sliders and options.

### To apply multiple deformers

1. Apply the first deformer to the object by following the procedure described above.
2. Place the object in a group by itself.
3. Apply the second deformer to this group.



# Building a scene

## Building a scene

This section covers how to edit and manage the contents of your CoreIDREAM 3D scene. You will learn how to add, remove, and duplicate objects and how to organize objects in ways that give you the greatest amount of control, as well as flexibility, as you perfect your scene.

**For more information see the following:**

{button ,JI('Editing your scenes contents')} [Editing your scene's contents](#)

{button ,JI('Building a hierarchical structure')} [Building a hierarchical structure](#)

{button ,JI('Navigating the Hierarchy')} [Navigating the Hierarchy](#)

## Editing the scene



## Editing your scene's contents

You edit the contents of a scene by adding, deleting, and replacing objects. You can also modify any object that you have created.

### The Scene Wizard

The Scene Wizard is a picture-based assistant that guides you through the steps of creating scenes. There are two ways to create scenes through the Scene Wizard: by using Scene Templates, or by picking various components of your scene step by step.

There are three different categories of Scene Templates: Logo Templates, Indoor Templates, and Outdoor Templates. Each template contains completed scenes. Once you've created the scene, you can edit the scene just as if you created it from scratch.

There are two categories of step by step wizards: Photo Studio and Indoor Step By Step. These categories create scenes by allowing you to step through a number of screens to select various components for your scene. The Photo Studio lets you choose lighting effects, backdrops, and props. The Indoor Step By Step lets you choose wall and floor combinations and lighting effects.

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`{button ,AL('OVR Chapter Building a scene';,0,"Defaultoverview",)}` [Related Topics](#)



## Adding and deleting objects

You can add existing objects to your scene by dragging between windows, by using the Objects browser, or by using the Copy and Paste commands. You can even add an entire scene as a group in a new scene.

When you load an existing object, its shading, position, orientation, and size characteristics are brought with it. You can change any of these to fit the new scene.

### To add an object by copy and paste

1. Select the object you want to add. You can select objects from other scenes or from the Objects browser.
2. Click Edit, Copy (CTRL + C).
3. Click inside the window where you want the object to appear.
4. Click Edit, Paste (CTRL + V).

### To add an object by dragging

- Drag the icon representing the object you want from the source window to the destination window.

When you drag into the Hierarchy window, you can drag directly onto a group or an object. If you drag an object onto another object, the hot points will align.

### To delete an object

1. Select the object in the Perspective or Hierarchy window.
2. Click Edit, Delete.



#### Tip

- When you select a parent object within a group, you automatically select all of its child objects. If you delete the parent, the children or the group contents are deleted as well. Change the structure of the hierarchy to place the child or contents at some other level before proceeding.

---

{button ,AL('PRC Editing the scene;Working with Master objects';0,"Defaultoverview",)} [Related Topics](#)



## Replacing objects

When you replace an object, the replacement takes on the positioning, alignment, and size characteristics of its predecessor.

### To replace a single object or group

1. Select the object you want to use.
2. Click Edit, Copy (CTRL + C).
3. Select the object you want to replace.
4. Click Edit, Paste (CTRL + V).

If you are pasting an object (not a group), a dialog box gives you the option of scaling the replacement to fit within the same bounding box (the object occupies the same space), or of keeping the scaling (the replacement is scaled at the same factor as the original object).



### Tip

- You can return the object to its original size with the Reset button in the Numerical Properties dialog box .

---

`{button ,AL('PRC Editing the scene;Working with Master objects;',0,"Defaultoverview",)}` [Related Topics](#)



## Editing objects

At any time, you can select an object and edit it in the Free-Form Modeling window, the Minimum Modeler, or the Text Modeler. If it's a Free-Form object, CorelDREAM 3D switches your toolbar to display the Free-form modeling tools in the window.

Imported and primitive objects, such as the cone or sphere, open in the Minimum Modeling window. You cannot modify the geometry of these imported objects but you can apply shaders and paint shapes to them.

### To edit an object

- Double-click its preview in the Perspective window or its icon in the Hierarchy window.

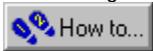
**OR**

- Select the object and click Edit, Object, Edit.

### To edit the object in a new window

- Click Edit, Object, Edit In New Window.

You might have to adjust the size and position of the windows so that both are visible on your screen.

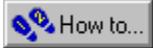


### Note

- Because your modifications are updated to the object, then updated to the Perspective window, your system's performance might lag slightly when you use Edit In New Window. For this reason, Edit In New Window is not recommended for systems with limited RAM.

---

{button ,AL('PRC Editing the scene;',0,"Defaultoverview",)} [Related Topics](#)



## Using the Scene Wizard

The Scene Wizard can create new scenes or apply them to existing files.

### To create a new scene using the Scene Wizard

1. Click File, New.
2. Click the Use Scene Wizard button.
3. Choose the category of Wizard you want to use.

Make your selections in each succeeding category by either double-clicking the preview or selecting the category and clicking Next.

4. Click Done when you've reached the final screen.



### Tip

- To use the Scene Wizard to add to an existing scene, click File, Apply Scene Wizard, and follow the instructions given above. The selections you make in the Scene Wizard will be applied to your current scene.

---

`{button ,AL('PRC Editing the scene;',0,"Defaultoverview",)}` [Related Topics](#)

## **Building a hierarchical structure**

## Building a hierarchical structure

The scene structure organizes the elements of a scene according to spatial or logical relationships between the elements. Structure simplifies arrangement operations that might otherwise be difficult or impossible. Effective use of structure can save you time and often makes the difference between a minor modification and major rework.

You work primarily in the Hierarchy window to structure a scene by grouping and linking objects.

The hierarchy of a scene is created as you introduce objects, group them, and create links. Every object in your scene is represented in the hierarchy. The hierarchy is displayed as a tree of elements, each represented by a named icon. (If your Hierarchy window is in Outline view, the objects will be represented only by their names.)

Elements can be objects, groups, cameras, or light sources. The highest level of the hierarchy is the root, represented by an icon entitled "Universe". It encompasses your entire scene. Beneath the universe, you can have any number of branches and sub-branches.

Usually, the root is the universe. However, if you edit a group box, the hierarchy displays the group box as the current root and the contents of that group as the only elements of the hierarchy.

You can view the hierarchy vertically or horizontally, and have the option of centering these views under the root, or in outline mode.



### Tip

- It is far easier to keep track of objects that you've given specific names than to manage generically named objects.

### For more information see the following:

{button ,JI('`Grouping objects')} [Grouping objects](#)

{button ,JI('`Linking objects')} [Linking objects](#)

{button ,JI('`Working with Master objects')} [Working with Master objects](#)

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{button ,AL('OVR Chapter Building a scene';0,"Defaultoverview",)} [Related Topics](#)

## Navigating the Hierarchy

You can expand and collapse the items in the Hierarchy window to view more or fewer elements in your scene. You might need to open a series of group boxes to find a particular object deep in the hierarchy. To return to the outer view, you must close the group boxes at each level until only the main branch, beneath the root, is displayed.

Outline view lists the contents of the hierarchy in outline form rather than as icons. This view is especially useful for complex scenes or for viewing as much of your hierarchy as possible.

### Changing the structure

You can combine multiple elements of your hierarchy in two ways: grouping and linking. You can also nest groups within other groups or create a chain with multiple links.

Groups are made by selecting objects and applying the Group command. Links are made by dragging one object onto another.

You can reorganize your Groups and links by dragging them from one location in the hierarchy to another. Don't worry about making a mistake when changing the hierarchy. You can drag an element to another level at any time.

You can drag objects individually or select several objects and drag them together. To select multiple icons, drag a marquee around adjacent icons or hold down SHIFT to select additional icons. To remove a single object from a multiple selection, hold down SHIFT and click the object.

Drawing a marquee is an easy way to select a set of objects. However, you cannot select a group exclusive of its contents or a parent exclusive of its children.

When you select elements in the hierarchy, the selection applies not only to the selected object, but, in the case of a closed group box, to its contents, and in the case of a parent object, to its children.

### Groups and links

Groups and links are similar  both let you combine multiple objects in your scene so that you can manipulate them as a single unit, but their usage is quite different.

Groups are collections of objects that make structuring and navigating through your scene more manageable. Groups are static

 they don't change the relationships between the objects in the groups, they only contain the objects. This is similar to the group function in 2D illustration and drawing programs.

Links on the other hand, let you define an active relationship between the parent object and the child object. By applying various types of links you can "tie" them together so that moving the parent will effect the child, but moving the child will not effect the parent.

#### For more information see the following:

{button ,JI('`Grouping objects')} [Grouping objects](#)

{button ,JI('`Linking objects')} [Linking objects](#)

{button ,JI('`Working with Master objects')} [Working with Master objects](#)

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{button ,AL('OVR Chapter Building a scene;',0,"Defaultoverview",)} [Related Topics](#)

## Grouping objects



## Grouping objects

Objects in your scene can be related by their spatial proximity (those physically close to one another) or by their symbolic context (such as the components of a complex object). As you build up your scene, remember to group related objects. For example, if you are building an office scene, group the simple objects that make up each piece of furniture.

You can nest one group within another to as many levels as you want. As you build a complex scene, nesting the groups will help you manage the multitude of elements.

Don't worry about perfecting the shape of an object before putting it in a group. You can always open the group, then open the object for editing.



You can manipulate a group in much the same way as you do an object by dragging or rotating the group's bounding box or its projections. During any positioning or arrangement operation, the objects in a group retain their spatial relationship to one another.

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`{button ,AL('OVR Building a hierarchical structure;',0,"Defaultoverview",)}` [Related Topics](#)



## Creating and naming groups

A group box is the root of its contents. While the Group box is open, its contents are displayed on a sub-branch.

### To create a new group

1. Select the objects you want to group in either the Perspective or Hierarchy window.
2. Click Arrange, Group.

A box icon appears in the Hierarchy window under the current root. By default, group boxes are named "Group X," where X is a sequential number.

### To change the name of a group

1. Click the name of the group in the Hierarchy window.
2. Type the new name.
3. Click OK, or press ENTER.

To open the Edit Name dialog box in Outline view you must invoke a long click by holding down the mouse for a few seconds. This is because clicking the name is the only way to select an object or group in Outline view.

### To add objects to a group

- Drag the icons of the objects you want to add onto the group box icon.

To bring an object into the scene and immediately place it in a group, drag it from the Objects browser (or source hierarchy) directly onto a group box icon.

### To remove objects from a group

- Drag the selected objects to another point in the Hierarchy.

For example, you can drag onto the universe icon. This places the objects on the main branch.

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{button ,AL('PRC Grouping objects;',0,"Defaultoverview",)} [Related Topics](#)



## Opening and closing groups

In addition to being able to group and ungroup elements in your scene, CoreIDREAM 3D lets you keep your groups intact, but open. When a group is open, it maintains its structure in the hierarchy, but you can move each object within the group independent of the other objects, just as if they were ungrouped.

This is a great time saver and gives you maximum flexibility. You can easily adjust the objects in your groups, but maintain their structure in the hierarchy.

### To open a group

- Click the plus sign to the left of the group.

### To close a group

- Click the minus sign to the left of the group.



### Tip

- You can also open and close a group by holding down ALT and double-clicking the group box icon.

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{button ,AL('PRC Grouping objects;',0,"Defaultoverview",)} [Related Topics](#)



## Using the group bounding box

In the Perspective window, the elements of a group are enclosed in a single bounding box that is visible when the group box is closed. When you create a group, the group bounding box is set parallel to the planes of the Working box.

The group bounding box is the smallest box, with the same orientation as the Working box, that encloses all bounding boxes of the group's contents. As you work, if you add or remove objects from the group, the dimensions of the group bounding box might change. The orientation of the group bounding box, however, does not change as you add or remove elements.

If you reorient a group, the group bounding box will no longer be parallel to the Working box.

### To recalculate the group bounding box

1. Select the group you want to recalculate.
2. Click Arrange, Ungroup (CTRL + U).
3. Click Arrange, Group (CTRL + G).

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`{button ,AL('PRC Grouping objects;',0,"Defaultoverview",)}` [Related Topics](#)



## Editing a group

You can modify the relative positions and attitudes of the objects in a group.

Within a group, a Local Root universe, also called the Object/Group universe, is used. The axes of this coordinate are parallel to the walls of the group's bounding box, and have their origin at the center.

The Local Root universe maintains the relative positions of the objects when you move or rotate the group as a whole. That is, regardless of how you manipulate the group bounding box, the objects retain their positions in terms of the Local Root universe.

When you edit a group, the Working box is oriented parallel to the group's bounding box. This enables you to work in terms of the group's Local Root universe. You can also align the Working box with the Global universe.

### To edit a group

1. Select the group.
2. Click Edit, Object, Edit.

**OR**

- Double-click the group box icon in the Hierarchy window.

### To open the group in a new window

1. Select the group.
2. Click Edit, Object, Edit In New Window.

When you open a group, the Hierarchy window displays the group box as the current root and its contents as the only elements of the hierarchy. Simultaneously, the Perspective window redraws to display only the contents of this group.

### To finish editing a group

- Click Edit, Object, Close and Return.

**OR**

- Double-click the group box icon in the Hierarchy window.

**OR**

- Click the Done button at the bottom of the Perspective window.

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`{button ,AL('PRC Grouping objects';,0,"Defaultoverview",)}` [Related Topics](#)

## Linking objects



## Linking objects

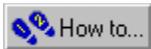
Links let you create relationships from child objects to parent objects. In a linked pair of objects, changing the position or orientation of the parent object will modify the position of the child. For example, if you drag the parent object to a new position, the child will follow it and maintain the same relative distance. If you rotate the parent, the child will revolve around the parent into a new position.

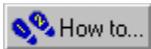
Moving the child object has no effect on the parent object. You can change its position or orientation without moving the parent.

### Building chains of links

The parent-child link enables you to easily manipulate many objects from a number of reference points by creating chains of linked objects. This feature is useful when you want to create articulations.

For example, if you want to create a fully articulated arm  one that can bend at the shoulder, elbow, wrist, and each of the five finger joints



 you first arrange the objects to construct the arm, then link them into a chain with the fingers at the deepest level of the hierarchy and the shoulder at the root.

### Lock links

A Locked link means that the child object is locked to the parent object. You cannot select the child object and move it, but it will move in relation to the parent when the parent is moved.

There are no options for the Lock property.

### Slider links

A Slider link sets constraints for the child object's movement along its X, Y, and Z axes. Movement on each axis can be locked, limited, or free. The default setting for each axis is locked.

Locking an axis prevents any movement on that axis. The Limited slider places limitations on movement in both directions. The Free setting lets the object move anywhere along that axis.

Options are set using slider controls.

### Axis links

In the Axis link, a child object can be rotated around one of its three axes.

The rotation can be locked, limited, or free. If the rotation is locked, no movement occurs. If the rotation is free, the rotation is an unlimited 360 degrees. If the rotation is limited, you can constrain the rotation between two points. The rotation pivot point is set by the hot point of the child object.

Options are set using axis rotation controls.

### Shaft links

In the shaft link, the child object can rotate around one of its axes while it slides up and down the same axis. Perhaps the best way to think of a shaft link is to visualize a firehouse pole. The firemen can slide down the pole while also rotating around it.

Options are set using an axis rotation control and a slider. You must also choose the main axis of the child object.

### 2D Plane links

The 2D Plane link restricts the movement of your object to a specific plane that you choose in the link dialog box. This plane is relative to the object's axis, not the global universe. For example, if you rotate the object, the plane that it moves on will tilt. The constraints in the 2D Plane link are not related to the parent object, except when you move the parent.

### Ball Joint links

The Ball Joint link allows you to rotate the child object 360 degrees around its own hot point. Like the 2D Plane link, the Ball Joint link is not related to the parent object, except when you move the parent. There are no constraints on any axis.

There are no options for the Ball Joint property.

### Custom links

The Custom link allows you to build your own combination of constraints using sliders and axis rotation controls.



## Linking and unlinking objects

You cannot link a child object to a group, but a group can be linked as a child to a parent object.

### To link one object to another

- In the Hierarchy window, drag the object's icon onto the icon of the desired parent.  
The link icon will appear prior to the parent object.

### To unlink a child:

- Select the object's icon and drag it to another point in the hierarchy.



### Tip

- To attach an object to a parent that is off screen in the Hierarchy window, hold down ALT and drag the new element. This automatically scrolls the window's contents to reveal additional elements.

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{button ,AL("PRC Linking objects";'0,"Defaultoverview",)} [Related Topics](#)



## Applying link properties

Linked objects have properties that define constraints on the child's movement relative to the parent. The default link property for a newly created link is None. This means you are free to position the child object anywhere in your scene.

Links become a more powerful tool for creating spatial relationships between objects when you apply a link property.

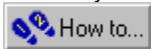
Before applying a link property make sure you position your object's hot point in the proper position. Once a link property is set, the hot point is fixed until you remove it.

Many of the link options require you to make settings based on a specific axis of the object. Often it's difficult to know on which axis you want to apply the option. For help in determining the correct axis, be sure to check the Show Axis information box in the Perspective section of the Preferences dialog box.

With the Show Axis preference selected, the X, Y, and Z axes are displayed for the currently selected object, originating from its hot point. These axes are color coded: Pink for X, Red for Y, and Blue for Z. Use them as a reference as you assign link options to your object.

### To apply a link property

1. Select a child object or group in either the Perspective or Hierarchy window.
2. Click Edit, Properties.
3. Click the Link tab.
4. Choose the link property that you want to apply from the Link Property list box.
5. Modify the appropriate options for the specific link property.



### Note

- The axis color codes are the same as those in the X, Y, and Z graphic display in the Numerical Properties dialog box.

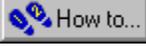
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{button ,AL('PRC Linking objects';0,"Defaultoverview",)} [Related Topics](#)



## Setting link controls

Two types of link controls  slider controls and axis rotation controls

 are used in various link properties.

### To set a link slider control

1. Choose the type of constraint (Locked, Limited, or Free) from the list box of the axis you want to change.
  - If you choose Free, your object can move anywhere along the chosen axis.
  - If you choose Limited, the slider bar on the right of the axis pulldown changes to display 3 sliders.
  - The slider on the left sets the outer constraint in the negative direction away from the object's hot point. The slider on the right sets the outer constraint in the positive direction away from the object's hot point. The slider in the middle sets the current position of the object.
  - To the right of the slider bar are plus and minus zoom controls which allow you to "zoom in" and "zoom out" to show a narrower or wider range of the sliders. Next to those is a position indicator number which displays the position of the currently selected slider.
2. Choose the slider marker you want to change and move it to set a new constraint limit. The position indicator will show you the setting in the default unit of measurement set in the preferences.

If the slider range is not large enough to let you set the constraint limit where you want, click the minus sign as many times as necessary to increase the slider range. If the slider range is too large to give you precise control over the slider positioning, click the plus sign as many times as necessary to decrease the slider range and give you more precision.
3. Move the center slider to the position along the range of motion that you want your object to have.
4. Set any other link controls you want to apply.

### To set axis rotation controls

1. Choose the type of constraint (Locked, Limited, or Free) from the list box of the axis you want to change.
  - If you choose Free, your object can rotate 360 degrees around the chosen axis.
  - If you choose Limited, the slider circle displays 3 sliders. The top slider defines the outer constraints of the rotation on the positive side of the axis. The lower slider defines them for the negative side of the axis. The middle slider sets the current position of the object.
2. Choose the slider marker you want to change and move it to a new position to set a different constraint limit. Repeat for the other constraint slider.
3. Move the center slider to the position along the range of motion that you want your object to be at when the dialog box is closed.
4. Set any other link controls you want to apply.

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{button ,AL('PRC Linking objects';,0,"Defaultoverview",)} [Related Topics](#)

## **Working with Master objects**



## Working with Master objects

Most scenes use one or more duplicates of some particular object. Each duplicate is not an independent object but an Instance of the original Master object. For example, if you create a table using four duplicate table legs, the four legs of a table are object instances of a master object called "table leg."

The position, orientation, size, hot point location, and shading of each object instance can be unique. The shape, however, must be common. If you change the geometry of an object instance it becomes the object instance of a new master object.

Shading of instances can be unique or common. A good example of common shading would be a dozen bottles on a shelf that all have the same label. Working at the master object level, you could change the labels on all twelve bottles in one operation.

Working at the instance level, you could put a stain on one of the labels. Later, you could change all of the labels by modifying the master object but without affecting the stain.

### Objects and Masters tabs in the Hierarchy

The Hierarchy window contains three tabs that change your view of the objects displayed in the hierarchy. The Objects tab displays all the objects and object instances in your scene. The Masters tab displays only the master objects. The Effects tab displays any Rendering effects you have applied to your scene.

Unlike the Objects tab, the Masters and Effects tabs do not let you structure or group objects.

You create a new master object each time you introduce a new object into the scene. If you edit an object instance and modify its shape, you also create a new master object. Click the Master tab to display the master objects.

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`{button ,AL('OVR Building a hierarchical structure;',0,"Defaultoverview",)} Related Topics`



## Master object operations

When you modify a master object, all object instances are automatically updated to the new form. Their individual position, orientation, scale, symmetry, and region shading remain unchanged.

### To create an object instance by duplicating an object

- Select the object.
- Click Edit, Duplicate (CTRL + D).

Instance objects can also be created by dragging in the same object from the Master tab or by copying and pasting the same object into a scene.

### To modify a Master object

1. In the Hierarchy window, click the Masters tab to display all Master objects.
2. Select the Master object you want to modify.
2. Click Edit, Object, Edit.
3. Use the modeling or shader tools to modify the object.
4. Click Done to apply your changes.

### To replace a Master object

1. Select and copy the object that will replace the existing master object.

You can only replace a master object with another master object. If you want to replace a master object with an instance object, first convert the instance object to a master by dragging it into the Masters tab.

2. In the Masters tab, select the master object you want to replace.
3. Click Edit, Paste (CTRL + V).

When you replace a master object, every instance of the class is replaced by the new object. Each object instance of the replacement uses the positioning, alignment, scale, and symmetry characteristics of its predecessor.

### To use a group as a Master object

- Drag the group from the Hierarchy window to the Masters tab.

A master group operates under the same rules as a master object. If you edit one instance of the master group and modify its contents in any way  the number of elements, their relative positions, or their orientations



you separate this group instance from its master to create a new master group.



### Notes

- You can have multiple instances with the same name, but you cannot have two master objects with the same name. When you create a new master object by modifying an object instance, CoreIDREAM 3D names the new class by appending a number to the old name.
- If you modify an instance when you want to modify the master object, you can replace the master with your modified instance.

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**[button](#), [AL\(](#) [PRC Working with Master objects](#); [Duplicating Objects](#); [Object Symmetry](#); '0', "Defaultoverview"), [Related Topics](#)**



## Customizing the Objects browser

The Objects browser contains previews of scenes and models that represent CorelDREAM 3D files stored within folders. Any CorelDREAM 3D file in a loaded folder is automatically added to the browser. Use the Open and Close Folder buttons in the browser to add or remove folders that contain your 3D clip art.

### To open a new directory in the Objects browser

1. Click the [Open Folder](#) button.
2. In the Directory Selection dialog box that appears, navigate through your available directories and choose the directory of CorelDREAM 3D files you want to display.



#### Note

- Only CorelDREAM 3D scene files will appear in the directory. If you choose a directory with no CorelDREAM 3D files, your preview area will be blank.

### To navigate in the Objects browser

- Click one of the named tabs to view a specific directory of files.  
If there are more directory tabs than can be viewed in your Objects browser window, click the tab scroll arrows in the upper left corner of the window to scroll your directory tabs to the left or right.

### To add an object from the Objects browser to a scene

- Select the object by clicking on its preview in the browser and drag it into your Perspective or Hierarchy window.  
If you drag the object into the Hierarchy window, it will appear in the center of your scene's universe.

When you introduce objects from the browser into a new scene, the objects carry all of their shading and arrangement characteristics with them. Scenes kept in the browser are introduced into a new document as a group class.

### To close a directory in the Objects browser

- Click the [Close Folder](#) button.



#### Note

- Closing a folder does not delete files. It only removes them from the browser. To remove an individual file from a folder, you can delete it or move it to another folder in your operating system.

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{button ,AL('PRC Working with Master objects';,0,"Defaultoverview",)} [Related Topics](#)



# Shading

## Shading

This section explains shading, the process that assigns surface properties to the objects in your scene. By designing shaders and applying them to your objects, you can precisely control their color, texture, and finish.

CorelDREAM 3D's drag and drop interface for applying shaders makes shading easy. You keep a collection of shaders in the Shaders browser, and drop them onto your objects in the Perspective or Modeling window. The revolutionary 3D Paint tools allow you to work right on the surface of your objects and give you unparalleled control.

**For more information see the following:**

{button ,JI(`,`Shading objects')} [Shading objects](#)

{button ,JI(`,`The Shader tree')} [The Shader tree](#)

## Shading objects



## Shading objects

In the world of 2D graphics, an artist's primary task is to render a work of art  to transfer an image from the mind's eye onto the canvas. A painter, for example, renders an image by brushing strokes of varying shades and hues directly onto paper or cloth. With these brush strokes, a skilled painter can portray not only a subject's form, but also its subtler aspects: its coloring, texture, and finish.

CoreIDREAM 3D allows you to capture such subtle nuances in your artwork, even if you haven't been trained in the techniques of classical art. Using a process called shading, you can assign a variety of surface characteristics to each object in your scene. When CoreIDREAM 3D renders your final artwork, these characteristics determine whether an object appears rough or smooth, shiny or dull, transparent or opaque.

### Shaders

In CoreIDREAM 3D, you control the appearance of objects by applying shaders to them. A shader is a set of surface characteristics. Each shader can contain settings for one or more of the following attributes: [Color](#), [Highlight](#), [Shininess](#), [Bump](#), [Reflection](#), [Transparency](#), [Refraction](#), and [Glow](#). A single shader with several of these attributes defined, can simulate such complex materials as polished wood, hammered gold, or rough granite.

CoreIDREAM 3D includes dozens of predefined shaders that are ready to use right out of the box. In time, you'll build your own collection by editing existing shaders and creating new ones from scratch. As you learn how to build your own shaders, you'll find the predefined shaders to be invaluable. Examine them closely, because they demonstrate techniques you might not immediately discover through experimentation.

### 3D Paint

Each object you create in CoreIDREAM 3D has a base shader, called the primer, that covers the entire object. By applying a shader to an object's primer, you can control the appearance of the object's surface. But many real-world objects have nonuniform surfaces. Variations on an object's surface might be as simple as a painted-on logo, or as complex as an intricate inlaid wood design.

To achieve such effects, you can use CoreIDREAM 3D's Paint tools.

The 3D Paint tools allow you to apply different shaders to various regions on the surface of an object. These regions, called paint shapes, can take the form of geometric shapes or of freely brushed designs. Once created, paint shapes can be selected, moved along the surface of an object, modified (in shape, size, or shader content), layered, or deleted.

### The Shaders browser

The Shaders browser is the hub of shader activity. Located by default in the lower left corner of your screen, the Shaders browser provides you with a visual catalog of all currently available shaders. You use the Shaders browser to apply shaders to objects, to create new shaders, to delete shaders, to save sets of shaders in files, to load saved shader files, and to move shaders between files.

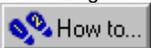
### The Shader editor

The Shader editor gives you complete control over the appearance of your shaders. You can use the Shader editor to edit shaders stored in the Shaders browser or shaders you've applied to objects in your scene.

The channel tabs give you access to the eight shader channels  each channel controls one aspect of the shader's appearance. The preview shows you how your shader will appear on the surface of an object and provides you with immediate feedback when you change shading parameters.

### Applying nonempty channels versus applying all channels

An object's primer always contains settings in all eight shader channels. Although you can replace some or all of these settings by applying a shader, you can never completely remove settings from a primer channel, because CoreIDREAM 3D requires settings in each channel to render an object. A shader in the Shaders browser, however, can have one or more empty channels. By default, CoreIDREAM 3D ignores these empty channels when you apply a shader to an object's primer. It applies only

nonempty channels  those that contain settings.

Applying only nonempty channels allows you to selectively change certain shading attributes, while leaving others intact. You might keep a catalog of frequently used colors or bump settings in the Shaders browser, and apply them to objects via the drag and drop technique.

Sometimes, however, you'd rather completely replace an object's primer with the shader you're applying. In this case, you must apply all channels, rather than just those that contain settings.

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{button ,AL('OVR Chapter Shading';0,"Defaultoverview",)} Related Topics



## Previewing a shaded drawing

Once you create or edit a shader, you usually want to see how it looks when applied to a particular object. You can examine a shaded object in the Perspective window to see the effects of the shader.

The level of detail you're able to see in the Perspective window depends on the preview mode you've selected. The Bounding Box and Wireframe modes provide no preview of the shaders in your scene. The Preview mode displays only the average color of an object across its entire surface. To see your shaders in detail, you must switch to Better Preview mode or use the Render Preview tool.

Better Preview mode accurately depicts highlights, bumps, glow, shading (but not shadows), and color variations over the surface of an object. Transparency, shadows, and reflection can be previewed only with the Render Preview tool, which allows you to ray trace a specific area of the Perspective window at screen resolution.

### To preview your drawing

1. Click the [Render Preview tool](#).
2. In the Perspective or Modeling window, drag a marquee to select the area to be previewed.

CorelDREAM 3D ray traces the area you have selected.



### Tip

- To work efficiently, keep the size of your render previews small. Larger areas take longer to ray trace and require more memory. If you want to ray trace more than a small portion of your scene, Click Render, Render, Low Res Preview.

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`{button ,AL('PRC Shading objects;Rendering;',0,"Defaultoverview",)}` [Related Topics](#)



## Applying shaders

CoreIDREAM 3D's drag and drop interface for applying shaders is simple, yet powerful. To shade an object, you drag a shader from the Shaders browser and drop it onto the object in either the Perspective or Hierarchy window.

When you create a new object, CoreIDREAM 3D assigns a default [primer](#) to the object. To shade an entire object, you can apply a shader to the object's primer. You can use the drag and drop technique or the Apply button in the Shaders browser.

Shading techniques that work in the Perspective window also work in the Modeling window. To maintain clarity, the text below refers only to the Perspective window.

### To apply a shader to an object's primer (Drag and Drop)

- Drag a shader from the Shaders browser onto an object in the Perspective window or onto an object's icon in the Hierarchy window.

### To apply a shader to an object's primer (Apply button)

1. Select one or more objects in the Perspective or Hierarchy window.
2. Select a shader in the Shaders browser or use the [Eyedropper tool](#) to grab the shader from an object in the Perspective window.
3. Click the Apply button in the Shaders browser.

### To replace an object's primer (apply all channels)

1. Select one or more objects in the Perspective or Hierarchy window.
2. Select a shader in the Shaders browser or use the [Eyedropper tool](#) to grab the shader from an object in the Perspective window.
3. Click the Apply button in the Shaders browser and hold down the mouse button.
4. In the menu that appears, click Apply All Channels.



### Tip

- If you prefer, you can change the Default Apply Mode so that the Shaders browser applies all channels by default, instead of only nonempty channels. To access the Shaders browser preferences, Click File, Preferences, and select Shaders browser from the list box. A similar (but separate) preference setting exists for the Shader editor.

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{button ,AL('PRC Shading objects';,0,"Defaultoverview",)} [Related Topics](#)



## Shading a paint shape

A paint shape is a region you create on the surface of an object with the 3D Paint tools. Usually, you choose a shader to paint with before creating a paint shape. These instructions describe how to change the shader in a paint shape you've already created.

### To replace the shader of a paint shape

1. Use the [Paint Shape Selection tool](#) to select one or more paint shapes.  
Multiple paint shapes can be selected only if they are on the surface of the same object.
2. Select a shader in the Shaders browser, or use the [Eyedropper tool](#) to grab the shader from an object in the Perspective window.
3. Click the Apply button in the Shaders browser.



### Note

- Unlike an object's primer, a paint shape can have empty channels. For this reason, the distinction between applying nonempty channels and applying all channels does not pertain to paint shapes. When you apply a shader to a paint shape, all channels (including empty channels) are copied directly into the paint shape. When a paint shape has an empty channel, it inherits the contents of that channel either from the paint shape directly below it or from the primer.

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{button ,AL('PRC Shading objects';,0,"Defaultoverview",)} [Related Topics](#)

## Shader structure and content

## The Shader tree

A shader is a set of surface characteristics that you can assign either to an object or to a paint shape on the surface of an object. CorelDREAM 3D features a modular structure for defining shaders: the Shader tree. The modular nature of the Shader tree allows for great flexibility of shader content.

A Shader tree contains all of the settings for a single shader. The shader itself is at the root of the tree. Immediately beneath the root, the tree has eight branches, one for each of the shader channels: [Color](#), [Highlight](#), [Shininess](#), [Bump](#), [Reflection](#), [Transparency](#), [Refraction](#), and [Glow](#). A single shader with To specify shader settings, you add components to the Shader tree for each channel. The components beneath a particular channel represent that channel's settings. Depending on the components you use, the settings in each channel can be simple or complex. The Color channel might specify either a plain color or a multicolor pattern. Likewise, the Reflection channel might specify uniform reflectivity or varying levels of reflectivity across the surface of an object.

A shader need not contain settings in all eight channels. If you don't want to define a particular shading attribute, you can leave the branch beneath the corresponding channel empty.

There are three types of components: basic components, operators, and functions. Basic components are the fundamental "building blocks" of shaders. Colors, values, and texture maps are examples of basic components.

To create more complex and varied shading effects, you can use operators to combine the effects of two basic components within a shader channel. The arithmetic operators (Add, Subtract, and Multiply) combine components mathematically. The Mix operator uses functions to combine components in a variety of ways. By choosing which function to use, you control how the Mix operator combines a pair of components. CorelDREAM 3D includes several functions, including Checkers, Wires, Wood, Spots, and Marble.

When a component such as the Mix operator has branches that extend below it, the component and all of the branches below it are referred to as a subshader. Subshaders allow you to create truly complex effects  anywhere you can place a component on the Shader tree, you can place a subshader instead.

### Composite shaders versus global mix shaders

The shaders in all of the preceding examples are called Composite shaders because they are collections of individual channel settings. The settings within the different channels combine to determine the shader's overall appearance, but the settings in one channel have no effect on the settings in the other channels.

Suppose you wanted to create a shader that mixed attributes in all of the shader channels at once. For example, you might want to create a checkerboard pattern with alternating squares of shiny, reflective gold and rough granite. To accomplish this with a Composite shader, you must apply the same mix function to each channel. Fortunately, CorelDREAM 3D provides another type of tree structure, the Global Mix, that makes it easier to achieve such effects.

The top level of a Global Mix Shader tree has only one branch that affects all eight shader channels. The Global Mix operator always appears on that branch. The Global Mix operator functions identically to the Mix operator, except that it mixes complete shaders rather than individual shader components. These complete shaders can be Composite shaders, as in the example above, or other Global Mix shaders. You can achieve some very complex shading effects by nesting Global Mix shaders.

#### For more information see the following:

{button ,JI('Basic components')} [Basic components](#)

{button ,JI('Operators')} [Operators](#)

{button ,JI('Functions')} [Functions](#)

{button ,JI('Shader channels')} [Shader channels](#)

{button ,JI('Building and editing shaders')} [Building and editing shaders](#)

{button ,JI('3D Paint')} [3D Paint](#)

{button ,JI('Layering how primer and paint shapes interact')} [Layering: how primer and paint shapes interact](#)

{button ,JI('Managing your shaders')} [Managing your shaders](#)

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{button ,AL('OVR Chapter Shading';0,"Defaultoverview"),} [Related Topics](#)

## Basic components



## Basic components

### Color

The Color component allows you to specify any color, using either the RGB or the CMYK color model. Although you can place the Color component anywhere on the Shader tree, it is best suited for use in the Color, Highlight, Reflection, Transparency, and Glow channels, which are designed for color input.

- In the Bump channel, the Color component produces no effect because it produces a constant value across the surface of an object. To create the illusion of bumpiness, the Bump channel requires variation across an object's surface.
- In the Shininess or Refraction channels, colors are converted to values. Dark colors convert to low values, light colors to high values.

When you place the Color component on the Shader tree, it appears as a color swatch.

### Value

The Value component allows you to set a value between 0 and 100%. You use the Value component frequently in every channel but the Color channel.

- If you use it by itself, the Value component specifies a constant level for a particular attribute across the surface of an object or paint shape.
- If you place the Value component beneath the Color channel, its value is converted to a shade of gray. 0 converts to black, 100 to white.

When you place the Value component on the Shader tree, it appears as a slider.

### Texture Map

The Texture Map component allows you to use a 2D image, such as a scanned photograph or paint-type illustration, in your shader. Used effectively, texture maps lend your shaders unparalleled realism. Many complex real-world surfaces are nearly impossible to simulate through other means.

If you are familiar with other 3D applications or with earlier versions of CoreIDREAM 3D, you may be accustomed to a separate interface for applying texture maps to objects. In CoreIDREAM 3D 7, you apply texture maps just as you would apply other

shaders  with the 3D Paint tools, or with drag and drop. Use the Texture Map component to load an image into a shader, and apply your shader to objects and paint shapes.

Texture maps that use color images are extremely useful in the Color channel. You might import a product logo as a texture map and apply it like a decal to the 3D model of a package. Or, to mimic an extremely detailed natural surface, you could import a

small photographic sample of the surface and tile it  duplicate it a specified number of times



to cover your entire object.

If you use a color image in a noncolor channel, CoreIDREAM 3D internally converts it to grayscale.

You can use an image of any color depth as a texture map. In most cases, an 8-bit (256 color) image with a custom color palette provides excellent results, and requires substantially less memory and disk space than a 32-bit image. CoreIDREAM 3D cannot use CMYK images as texture maps. If you want to use a CMYK image, you must convert it to RGB before importing it.

You can use either a black and white or a grayscale texture map in any channel (except Color) to specify varying levels of a particular shading attribute. The shade of each pixel in the image determines the level of the attribute for the corresponding point on the object or paint shape.

If you use a black and white image, each black pixel turns the attribute on  sets it to 100%



and each white pixel turns the attribute off. An 8-bit grayscale image allows subtler effects because there are 256 possible shades for each pixel. For example, a grayscale blend from white to black in the Transparency channel would make an object or paint shape fade smoothly from opaque to transparent.

You can also use either a black and white or a grayscale texture map in place of a function with the Mix operator.

When you open an image to use as a texture map, you have two options: CoreIDREAM 3D can either save a copy of the image within your CoreIDREAM 3D file or keep a link to the external image file. By default, CoreIDREAM 3D saves copies of all texture maps internally (you can change this default in the Preferences dialog box).

There are advantages and disadvantages to each option. Internal storage of texture maps avoids organizational problems because you don't need to keep track of external files. However, internally saved maps greatly increase the size of a file, which can result in slower loading and saving. In general, you can store maps internally unless your file contains particularly large texture maps (or many smaller maps).

If you move an externally linked image on your hard drive, CorelDREAM 3D will prompt you to locate the image file the next time you open your CorelDREAM 3D scene file or shader library file.

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**{button ,AL("OVR Shader structure and content;',0,"Defaultoverview",,)} Related Topics**



## Changing the Color component

The choice of a color model has no effect on the content of your final rendered image. Like other rendering applications, CorelDREAM 3D always renders RGB images. You can use an image-processing application to convert rendered images to CMYK separations.

### To specify a color

1. Double-click a color swatch to edit it.
2. Select a color model from the Model list box: RGB or CMYK. CorelDREAM 3D displays the appropriate color sliders.
3. Move the pointers on the color sliders to set the color you want. You can also type specific values into the text boxes beside the sliders. The valid range for RGB values is from 0 to 255. The valid range for CMYK values is from 0 to 100%.

### OR

Click the color wheel in the upper right corner to choose a color from the Color Picker.

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`{button ,AL('PRC Basic components';0,"Defaultoverview",)}` [Related Topics](#)



## Changing the Value component

The Value component allows you to set a value between 0 and 100%. You use the Value component frequently in every channel except the Color channel.

### To set a value

- Move the pointer along the Value slider.

The far left side of the slider represents 0, the far right 100. The number to the right of the slider displays the current value.

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`{button ,AL("PRC Basic components";'0,"Defaultoverview",)} Related Topics`



## Working with Texture maps

When you place a Texture map component on the Shader tree, CoreIDREAM 3D displays the standard Open dialog box, prompting you to choose an image.

### To choose an image

1. Select an image file from the file list box in the Open dialog box.
2. Click the Options button to specify whether you want a copy of the image saved within your CoreIDREAM 3D file.
3. Click either Internal or External, then click OK to close the Options dialog box.
4. Click Open.

### To flip or rotate the image

- Click the appropriate button to the left of the preview.

### To tile the image

1. Enable the Tile check box.
2. Move the sliders to set the number of repetitions in each direction.

If you want CoreIDREAM 3D to rotate and flip neighboring tiles to maximize continuity, enable the Seamlessly check box. If your image is specifically designed for seamless tiling, you don't need to enable this option.

### To filter the image

1. Click the disk icon in the Texture Map controls
2. Click Filter in the menu that appears.
2. Choose the filter you want to use.

### To replace the image

1. Click the disk icon in the Texture Map controls
2. Click Open in the menu that appears.
3. Choose a different image.



### Tip

- The White Is Invisible check box allows you to achieve a type of masking effect by instructing CoreIDREAM 3D to ignore any purely white pixels in the image. For example, you could use this option to place a logo with an irregular shape on the surface of an object. Create a map with a white background and place it in the Color channel; then apply it to an object using the 3D Paint rectangle tool. Wherever there is a white pixel in the map, the paint shape or primer below shows through.

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`{button ,AL("PRC Basic components";0,"Defaultoverview",)}` [Related Topics](#)

## Operators



## Operators

Operators allow you to create complex shading effects by combining two components or subshaders within a single shader channel.

The Mix operator is perhaps CorelDREAM 3D's most versatile shading tool. It produces a wide variety of results depending on the function you use to mix the two components.

When you place a Mix operator on the Shader tree, it appears as a node with three branches. The left and right branches are placeholders for the two components you want to mix. The mixing function goes on the middle branch.

For each point on an object or paint shape, the function generates a value between 0 and 100. The Mix operator uses this value to combine the components on the left and right branches. When the value is closer to 0, more of the left component is used. When the value is closer to 100, more of the right component is used.

Some functions, like Checkers and Wires, generate a value of 0 or 1 for each point. These functions result in clear divisions between the two components. Other functions, like Wood and Spots, generate a range of values between 0 and 1. These functions result in gradual blends between the components.

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`{button ,AL("OVR Shader structure and content";0,"Defaultoverview",)} Related Topics`



## **Add (+)**

The Add operator sums the values of two components. When you place the Add operator on the Shader tree, it appears as a node with two branches.

The two branches are placeholders for the components you want to combine. For each point on a paint shape or object, the Add operator sums the values of the two components.

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`{button ,AL(^PRC Operators;^,0,"Defaultoverview",)}` [Related Topics](#)



## Subtract (-)

The Subtract operator behaves identically to the Add operator, except that the value of the right component is subtracted from, rather than added to, the value of the left component.

The Subtract operator is a useful way to invert the value of another component. Just place the component you want to invert in the right branch and a Value component set to 100 in the left branch. Try this technique on a Texture Map if you need to invert all the colors in an image.

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`{button ,AL('PRC Operators';,0,"Defaultoverview",)} Related Topics`



## **Multiply (\*)**

The Multiply operator behaves identically to the Add operator, except that the values of the two components are multiplied, rather than summed.

The Multiply operator can be used to tint a grayscale bitmap by multiplying the bitmap shader by a color shader.

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`{button ,AL('PRC Operators';,0,"Defaultoverview",)} Related Topics`

## Functions



## Functions

Functions are used almost exclusively with the Mix operator, although they can be used by themselves. A function generates a value between 0 and 100 for each point on an object or paint shape.

When you place a function on the middle branch of the Mix operator, the operator uses the values generated by the function to mix the components on the left and right branches. When the value equals 0, the left component is used; when the value equals 100, the right component is used. Intermediate values produce a blending of the two components.

When you place a function in a channel by itself, it assigns a value directly to each point on the object or paint shape. In a noncolor channel, each value is used "as is." In any of the channels designed for color input (Color, Highlight, Reflection, Transparency, or Glow), each value is converted to a shade of gray, with 0 translating to white and 100 to black.

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`{button ,AL('OVR Shader structure and content';0,"Defaultoverview",)}` [Related Topics](#)



## Checkers and stripes

The Checkers function produces a checkerboard pattern. Every point is assigned a value of exactly 0 or 100, so no blending occurs.

When you place the Checkers function on the Shader tree, it appears as a pair of sliders. These sliders allow you to set the number of horizontal and vertical squares in the pattern.

By setting the number of vertical squares to one (the lowest meaningful value for this function), you can make the Checkers function produce vertical stripes. Likewise, setting the number of horizontal squares to one produces horizontal stripes.

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`{button ,AL("PRC Functions";'0',"Defaultoverview",)} Related Topics`



## Wires

The Wires function produces a grid of lines. Like the Checkers function, the Wires function assigns a value of either 0 or 100 to each point on an object or paint shape. Specifically, it assigns a value of 100 to the lines of the grid, and a value of 0 to the space between the lines.

When you place the Wires function on the Shader tree, it appears as a set of four sliders. These sliders allow you to set both the number of horizontal and vertical wires and the thickness of the wires.

By default, the transitions between the wires and the background is abrupt  there are no intermediate steps between 0- and 100-value pixels. When you enable the Gray Scale check box, CoreIDREAM 3D uses smooth transitions. This option is especially useful in the Bump channel, where gradual transitions produce more striking results.

The thickness of the horizontal wires is expressed as a percentage of the height of the entire object or paint shape. The thickness of the vertical wires is expressed as a percentage of the width of the entire object or paint shape. You can determine the thickness of a single wire by dividing the percentage by the number of wires. For example, if ten horizontal wires represent 50% of a paint shape's height, the thickness of each wire is 5% of the height.

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`{button ,AL("PRC Functions";'0,"Defaultoverview",)} Related Topics`



## Spots

The Spots function produces a random pattern of spots. The spots it produces are irregular, more like leopard spots than polka dots.

Unlike Checkers and Wires, which produce 2D image data, the Spots function is a 3D function. When you apply a 2D function like Checkers or Wires to an object, it gives the impression that a 2D image has been wrapped around the object. When you apply a 3D function like Spots, it creates the illusion that the object has been carved from a solid block of material.

When you place the Spots function on the Shader tree, it appears as a pair of sliders. The Spot Size slider allows you to set the size of the spots, while the Blending slider controls how the spots blend together.

- When Blending is set to 0%, the function produces equal numbers of 0-value and 100-value spots, with gradual blending between spots.
- When Blending is set to 50%, the function produces equal numbers of 0-value and 100-value spots, with abrupt transitions between spots.
- When Blending is set to 100%, the function produces only 100-value spots  that is, every point on the object or paint shape is assigned a value of 100.

The Shuffle button creates a different spot pattern using the same size and blend settings  it generates a new random "seed," changing the appearance of the pattern. Use the Shuffle button when you're happy with the settings you've chosen, but you don't like the particular pattern that the function has generated.

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`{button ,AL('PRC Functions','0','Defaultoverview',)}` [Related Topics](#)



## Wood

The Wood function produces a wood grain pattern. It assigns a value of 100 to the veins and a value of 0 to the spaces between the veins. Like Spots, Wood is a 3D function.

When you place the Wood function on the Shader tree, a specialized set of controls appears.

- The Global Scale slider determines the size of the grain pattern in relation to the object.
- The Vein Count slider determines how closely the veins are spaced. High values produce dense vein patterns, while low values produce sparse vein patterns.
- The Perturbation and Undulation sliders determine the irregularity of the wood grain pattern. The Perturbation slider controls the size of the "waves" in the veins, while the Undulation slider controls their frequency.
- The Vein Blending slider determines whether the transitions between veins and spaces are abrupt or gradual. Low values produce abrupt transitions, while high values produce gradual blending.
- The Direction pull-down menu determines the orientation of the wood grain pattern in relation to the object.
- The Center pull-down menu determines whether the wood grain pattern is taken from the center of the tree, where the curvature of the veins is quite pronounced, or from a point further from the center, where the curvature is more gradual. You can choose from three settings.
- The Shuffle button generates a different grain pattern using the same settings.

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`{button ,AL('PRC Functions;',0,"Defaultoverview",)} Related Topics`



## Marble

The Marble function produces a marble pattern. It assigns a value of 100 to the veins and a value of 0 to the spaces between the veins. Like Spots and Wood, Marble is a 3D function.

Objects shaded with 3D functions, such as Spots, Wood, and Marble, appear to be carved or sculpted from solid blocks of

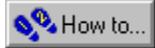
material, but this appearance is only skin-deep  like all of the objects you create in CoreIDREAM 3D, these objects are still "hollow." To illustrate this point, if you make a marble object partially transparent, you won't see veins running through the inside of the object.

When you place the Marble function on the Shader tree, a specialized set of controls appears.

- The Global Scale slider determines the size of the marble pattern in relation to the object.
- The Vein Count slider determines how closely the veins are spaced. High values produce dense vein patterns, while low values produce sparse vein patterns.
- The Perturbation and Undulation sliders determine the irregularity of the marble pattern. The Perturbation slider controls the size of the "waves" in the veins, while the Undulation slider controls their frequency.
- The Vein Blending slider determines whether the transitions between veins and spaces are abrupt or gradual. Low values produce abrupt transitions, while high values produce gradual blending.
- The Direction pull-down menu determines the orientation of the marble pattern in relation to the object.
- The Shuffle button generates a different marble pattern using the same settings.

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`{button ,AL("PRC Functions";'0,"Defaultoverview",)}` [Related Topics](#)



## Using other components as functions

You can actually use any component as a function in the Mix operator. This allows you to mix components in ways not supported by CorelDREAM 3D's basic functions. When you use a component as a function, CorelDREAM 3D automatically converts its output to values that the Mix operator can use to mix the components on the left and right branches.

Value and Texture map components are especially useful in place of functions.

- You can use a Value component to blend the components on the left and right branches of the Mix operator in a given ratio. A value of 50 blends the two components evenly. Lower values favor the left component, while higher values favor the right component.
- You can use either a black and white or a grayscale texture map to mix the left and right components in a custom pattern. For each white pixel in the image, the Mix operator uses the left component. For each black pixel, the Mix operator uses the right component. Intermediate shades produce a blending of the two components.

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`{button ,AL('PRC Functions';,0,"Defaultoverview",)} Related Topics`

## Shader channels



## Shader channels

Depending on the components you use, the settings in each channel can be simple or complex. The Color channel might specify either a plain color or a multicolor pattern. Likewise, the Reflection channel might specify either uniform reflectivity or varying levels of reflectivity across the surface of an object.

A shader need not contain settings in all eight channels. If you don't want to define a particular shading attribute, you can leave the branch beneath the corresponding channel empty.

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`{button ,AL('OVR Shader structure and content';0,"Defaultoverview",)}` [Related Topics](#)



## Color

No shader channel has a more obvious effect on the appearance of an object or paint shape than the Color channel. Depending on the components you place beneath the Color channel, you can specify anything from a plain color to a complex, multicolor pattern.

- To specify a plain color, place a Color component.
- To specify a multicolor pattern, use a Texture Map component or combine colors with the Mix operator.

The default content of the Color channel is a Color component set to a shade of red. Core!DREAM 3D assigns the default content of each channel, as part of the default primer, to each new object you create. The default content is also used to calculate the preview of a shader in the Shader editor when a particular channel is empty.



### Tip

- If you find that your single-color objects look unrealistic, try using the Mix operator with the Spots function to create minute color variations. Mix two slightly different hues in a pattern of tiny spots and set Blending to 0 for smooth blends. When viewed from a distance, these subtle color variations can give an object a more realistic appearance.

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{button ,AL('PRC Shader channels';0,"Defaultoverview",)} [Related Topics](#)



## Highlight and Shininess

Most objects in the real world show highlights when they are illuminated. These bright spots or streaks are direct reflections of light sources, like the sun glinting off a chrome bumper. Metallic objects have small, bright highlights. Plastics have dim, but large highlights. Stones usually have no highlights unless they are polished. You can control the color, intensity and size of an object's highlights by placing shader components beneath the Highlight and Shininess channels.

Often, you'll choose to place a simple Value component in each of these channels. If you want varying levels across the surface of an object or paint shape, you can use a texture map or a function.

- In the Highlight channel, a high value produces bright highlights, while a low value produces dim highlights.
- In the Shininess channel, a high value produces small highlights, while a low value produces large highlights.

By default, highlights are white. You can specify color highlights by placing a Color component (or any component that produces color information) in the Highlight channel. Color has no effect on the Shininess channel; any color information in the Shininess channel is internally converted to values.

The default content of both the Highlight channel and the Shininess channel is a Value component set to a value of 50.

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`{button ,AL("PRC Shader channels";,0,"Defaultoverview",,)} Related Topics`



## Bump

Bumpy and rough surfaces are difficult to model geometrically. Imagine modeling the irregularities of the skin of an orange point



after point the task would quickly become a nightmare. Fortunately, CorelDREAM 3D allows you to use a shader to simulate variations on the surface of an object. By placing shader components beneath the Bump channel, you can "perturb" a smooth surface to produce irregularities. This technique is known as bump mapping. Bump mapping can produce subtle effects like the bumps and pits on the surface of an orange, or more pronounced effects like the seams on a baseball.



Bump mapping does not change the actual topology of an object no points are displaced. Rather, it changes the angle at which light rays reflect off the surface at certain points. This technique tricks the eye into perceiving texture. Because the bumpiness is an illusion created by the renderer, the edge of the object remains smooth. In most cases, this is not a problem. However, if you require true surface variations to appear on the silhouette of your object, you must create them in the Free-Form Modeling window.

To simulate bumps, the components you place beneath the Bump channel must specify some variation in the colors or values of adjacent pixels. Consequently, placing a simple color or value in the Bump channel does not produce bumping. Texture maps and functions produce the best results in the bump channel. Like the other noncolor channels, the Bump channel always converts color information to grayscale.

When you use a grayscale image in the Bump channel, lighter areas appear to be raised, while darker areas appear to be lowered. When you use a function that produces values, areas with higher values appear to be raised, while areas with lower values appear to be lowered.

- For the most convincing results, you should create a smooth blend between extreme values like black and white or 0 and 100.
- The relative height or "steepness" of the bumps depends on how rapidly you blend between extreme values. A blend that occurs over the range of many pixels produces shallow, gradual bumping. A blend that occurs over the range of a few pixels produces steeper, more sudden bumping.

The default content of the Bump channel is a Value component, set to a value of 0. This produces no bumping, since there is no variation from pixel to pixel.



### Tip

- If a grayscale image with hard edges between black and white does not produce a satisfactory bump effect, try applying a Gaussian blur filter to the image in an image-editing application.

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{button ,AL('PRC Shader channels';0,"Defaultoverview",)} [Related Topics](#)



## Reflection

Many real-world surfaces are at least somewhat reflective. Most types of metal and glass are partially reflective, as are some types of plastic. A mirror is so reflective that it takes nearly all of its color from its surrounding environment. CoreDREAM 3D allows you to specify reflectivity by placing shader components beneath the Reflection channel.

Although a Value component works well in the Reflection channel, both subtler and more fantastic effects can be achieved by using a Color component. To make a highly reflective object appear more vivid (less washed out), use a variation of the same color you have in the Color channel (if the object's color is particularly bright, you might want to use a darker tint of the same color). To give reflections an unusual tint, try using a color that is markedly different from the one in the Color channel.

- When you use color data (a Color component, a Texture Map component, or a complex subshader) in the Reflection channel, its hue affects the tint of the reflection and its brightness determines the amount of reflection. Darker colors produce less reflection; brighter colors produce more.
- Using values in the Reflection channel produces the same effect as using shades of gray; only the amount of reflection is affected.

If you want varying levels and tints of reflection across the surface of an object or paint shape, you can use a texture map or a function.

The default content of the Reflection channel is a Value component, set to a value of 0.

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`{button ,AL('PRC Shader channels';0,"Defaultoverview",)} Related Topics`



## Transparency

When light strikes an opaque surface, it bounces off. When light strikes a semitransparent surface, some bounces off, but some passes through. As a result, you can see through a semitransparent object. Glass, water, and clear plastic are examples of semitransparent materials. You can specify transparency by placing shader components beneath the Transparency channel.

Although a Value component is appropriate in the Transparency channel, a Color component provides a much broader range of possible effects. Objects made of colored glass tend to look more realistic if you use a similar color in both the Color and Transparency channels (if the object's color is bright, you might want to use a darker tint in the Transparency channel).

Try using a function or a black and white texture map in the Transparency channel to create a shader that makes transparent "holes" in an object. For example, placing the Wires function in the Transparency channel creates a wireframe effect.

- When you use color data (a Color component, a Texture Map component, or a complex subshader) in the Transparency channel, its hue affects the appearance of colors viewed through the transparent shader. The brightness of the transparency determines the transparency of the shader. Darker colors produce less transparency; brighter colors produce more.
- Using Values in the Transparency channel produces the same effect as using shades of gray. Only the amount of transparency is affected.

- A 100% transparent surface might not be completely invisible  depending on the settings in the other channels, it will still refract and show highlights.

The default content of the Transparency channel is a Value component, set to a value of 0.

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`{button ,AL('PRC Shader channels','0',"Defaultoverview",)}` [Related Topics](#)



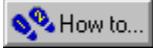
## Refraction

When light rays pass through a semitransparent object, their trajectories are deflected. This phenomenon is known as refraction. Glass, fluids, and other translucent materials refract light to some degree. This results in a distorted image of objects behind the refractive surface.

A single Value component is generally all you need to place in the Refraction channel. The setting in the Refraction channel only affects a shader with some degree of transparency.

Color has no effect on the Refraction channel; any color information in the Refraction channel is internally converted to values.

The default content of the Refraction channel is a Value component, set to a value of 0.



### Tip

- Shaders simulating glass should have Refraction values of about 20. Shaders simulating water or ice should have values that are somewhat lower. Try experimenting with different values until you achieve the effect you want.

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`{button ,AL("PRC Shader channels";0,"Defaultoverview",)}` [Related Topics](#)



## Glow

The settings in a shader's Glow channel determine the shader's luminance. An object whose shader has a high degree of luminance will appear bright, even if it is not lit by ambient light or external light sources.

Glow shaders can be used to simulate things like neon tubing, lit windows in a cityscape at night, or the LED display of a digital clock. They can also be used for the subtler purpose of brightening a particular object in a dimly lit scene. This allows you to emphasize an object without affecting the lighting and mood of your entire scene.

Although a Value component can be used in the Glow channel, a Color or Texture Map component is more appropriate. For realistic results, try using similar colors in the Color and Glow channels. To create unusual effects, you can place markedly different colors in these two channels. For example, you might create a shader that appears green when well lit, but glows red when covered in shadow.

When you use color data (a Color component, a Texture Map component, or a complex subshader) in the Glow channel, its hue determines the color of the glow. The brightness of the Glow channel determines how brightly the shader glows. Darker colors produce dimmer glows; brighter colors produce brighter glows.



### Note

- Objects with Glow shaders do not cast light on other objects in the scene.

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`{button ,AL('PRC Shader channels';'0',"Defaultoverview",)}` [Related Topics](#)

## **Building and editing shaders**



## Building and editing shaders

When you want to build a new shader or edit an existing shader, use the Shader editor. The Shader editor allows you to navigate a Shader tree and modify it by adding, changing, and removing components.

You can use the Shader editor to modify either a shader you've stored in the Shaders browser or a shader you've applied to an object or paint shape.

You build a shader by placing components and subshaders on the branches of the Shader tree. The structure of the tree is

determined by the components you place  each time you place an operator, new branches are created. To edit a Shader tree, you add, remove, and replace shader components.

CorelDREAM 3D's drag and drop interface not only lets you apply shaders, but also lets you build them. You can drag a component or subshader from one branch of the Shader tree to another, drop a shader from the Shaders browser onto a branch of the Shader tree, or drag a subshader from the tree into the browser for storage.

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`{button ,AL("OVR Shader structure and content";,0,"Defaultoverview",)}` [Related Topics](#)



## Using the Shaders browser

Unlike when you edit shaders in the browser, you must click the Apply button to apply your changes  they are not applied automatically, unless you have enabled the Auto Apply check box.

### To edit a shader from the Shaders browser

1. Double-click the shader you want to edit. Or, if the Shader editor is already open, click once on the shader you want to edit.  
The Shader editor displays the Shader tree for the shader you have chosen.
2. Edit the Shader tree by adding, removing, and modifying shader components.  
The changes you make are applied to the shader in the Shaders browser.

### To create a new shader

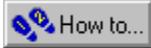
1. In the Shaders browser, click Shader, New.
2. Follow steps one and two in the above procedure to edit the new shader in the Shader editor.

### To edit an object's primer or a paint shape's shader

1. Click the [Paint Shape Selection tool](#).
2. Double-click an object to edit its primer  make sure you click an area where there are no paint shapes.  
Double-click a paint shape to edit its shader.  
If the Shader editor is already open, you need only click an object or paint shape once to edit its shader.
3. Edit the Shader tree by adding, removing, and modifying shader components.
4. When you are satisfied with the changes you've made, click the Apply button in the Shader editor.

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`{button ,AL("PRC Building and editing shaders";'0,"Defaultoverview",)}` [Related Topics](#)



## Using the Shader editor

The preview in the upper left corner of the Shader editor shows you the shader you are editing. You can choose a spherical preview that shows you how your shader will look on the surface of an object, or a flat preview that gives you an undistorted view of 2D image data such as texture maps. Each time you change the Shader tree, CorelDREAM 3D updates the preview to show you how your change affects the shader.

The status area to the right of the preview indicates whether the shader you're currently editing is from the Shaders browser or from a selected object or paint shape.

The contents of the Shader editor depend on what type of shader you're editing: a Composite shader or a Global Mix shader.

Because a Composite shader's tree can be quite complex, the Shader editor does not display the entire tree at once. At any given time, you work with only the portion of the tree that is beneath a single shader channel. You can use the eight channel tabs to move from one channel to another.

### To switch between spherical and flat preview

1. In the Shader editor, click View.
2. Enable the Flat Preview or Sphere Preview options.  
Your choice affects only the preview of the shader you are currently editing.

### To switch between shader channels

1. Click the Tab arrows until the channel you want to edit is visible.
2. Click the channel tab.
3. Change the appropriate attributes.



#### Note

- The top level of a Global Mix shader's tree is fixed  it always contains a Global Mix component with three branches. The left and right branches contain the subshaders that are being mixed, and the middle branch contains the mixing function. Because all eight channels of the subshaders are mixed with the same function, no channel tabs appear in the Shader editor when you edit the top level of a Global Mix shader.

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`{button ,AL("PRC Building and editing shaders";'0,"Defaultoverview",)}` [Related Topics](#)



## Navigating the Shader tree

A complex Shader tree has many levels. Each time the tree branches, a new level is added. When you work with a Composite shader, you can choose to view one level at a time or you can expand the tree to show all levels beneath a particular channel. Viewing all levels requires more space on your screen, but eliminates the need to jump from one level to another to edit components.

### To choose a display mode

1. In the Shader editor, Click View.
2. Enable either the One Level or All Levels options.

The All Levels option does not apply to Global Mix shaders. You must edit the subshaders on the left and right branches individually.

### To edit a subshader

- Double-click the preview of the subshader.  
**OR**
- Click the downward-pointing arrow above the subshader's preview.  
**OR**
- Click the preview to select it, then click View, Next Level.

### To finish editing a subshader

- Click the upward-pointing arrow at the subshader's root.  
**OR**
- Click View, Choose Previous Level.  
**OR**
- Click the tiny arrow in the lower right corner of the Shader editor's main preview, and hold down the mouse button. A menu appears, letting you choose any previous level.

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`{button ,AL("PRC Building and editing shaders";'0,"Defaultoverview",)}` [Related Topics](#)



## Editing the Shader tree

You build a shader by placing components and subshaders on the branches of the Shader tree. The structure of the tree is

determined by the components you place  each time you place an operator, new branches are created. To edit a Shader tree, you add, remove, and replace shader components.

### To specify a shader type Composite or Global Mix

- In the Shader editor, click Type, Composite or Global Mix.

This replaces the current contents of the Editor with an empty Composite or Global Mix Shader tree.

### To select a branch, component, or subshader

- Click the branch you want to select.

If the component you select is the root of a subshader, the entire subshader is selected.

### To place a shader component or subshader on the Shader tree

1. Select an empty branch or a branch whose contents you want to replace.
2. In the Shader editor, click Type, then the type of component you want to add.

A new component is placed on the branch you have selected, replacing any contents that might have been there before. When you add a simple component to the left or right subshader branch of a Global Mix shader, it is placed in the Color channel of the subshader.

### To place a shader component or subshader on the Shader tree (drag and drop)

- Drag a component or subshader from any location on the Shader tree and drop it onto an empty branch or a branch whose contents you want to replace.

The component or subshader you are dropping is copied onto the branch where you drop it, replacing any contents that might have been there before.

**OR**

- Drag a shader from the Shaders browser and drop it onto an empty branch or a branch whose contents you want to replace.

When you drop a shader onto the left or right branch of a Global Mix shader, the entire shader you're dropping (all eight channels) is placed on the tree.

When you drop a shader from the Shaders browser onto any branch of a Composite shader, only the contents of the applicable channel are placed on the branch. If the shader you're dropping has no components in the applicable channel, Core!DREAM 3D will notify you, and nothing will be added to the branch.

### To remove the contents of a branch

1. Select a component or subshader.
2. Click Edit, Clear, or press DELETE.

If the component you remove is the root of a subshader, the entire subshader is removed.

### To copy a component or subshader to another channel

- Drag a component or subshader from its branch and drop it onto any channel tab.

The entire contents of the channel (if any) will be replaced with the component or subshader you drop.

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`{button ,AL('PRC Building and editing shaders';,0,"Defaultoverview",)}` [Related Topics](#)

## 3D Paint



## 3D Paint

When you want to apply a shader to a limited region on the surface of an object, you use CorelDREAM 3D's [Paint tools](#). The 3D Paint tools allow you to create paint shapes directly on the surface of an object in the Perspective or Modeling window. A paint shape can be rectangular, elliptical, polygonal, or freely brushed.

Because the 3D Paint tools work with the shaders in the Shaders browser, you're not limited to painting with color. You can load your brush with gold, marble, or concrete and apply not only color, but bump, reflection, transparency, and the other shading attributes. Once you've created paint shapes, you can move them, resize them, layer them, and delete them. You can create any number of paint shapes on the surface of an object.

This section introduces the 3D Paint tools and explains how to use them. It explains how layered paint shapes relate to each other and to the object's primer. It also discusses advanced topics such as mapping modes and the Master and Object shading layers.

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`{button ,AL('OVR Shader structure and content';0,"Defaultoverview",)} Related Topics`



## 3D Paint tools

CorelDREAM 3D's [Paint tools](#) allow you to paint directly on your 3D objects. Each tool provides visual feedback as you paint to show you how your paint shape appears on the surface of your object.

The 3D Paint tools work best on objects created in CorelDREAM 3D. You can paint on an object imported from another application, but you might have to change the object's mapping mode to achieve satisfactory results.

With the exception of the Brush tool, all of the 3D Paint tools work in both the Preview and Better Preview modes. In Preview mode, you see only the outlines of your paint shapes, not the shaders they contain. The Brush tool works only in Better Preview mode.

### To draw a rectangular paint shape

1. Select the shader you want to use.
2. Click the [Rectangle tool](#).
3. Drag on the surface of an object to create a rectangle.

### To draw an elliptical paint shape

1. Select the shader you want to use.
2. Click the [Ellipse tool](#).
3. Drag on the surface of an object to create an ellipse.

### To draw a polygonal paint shape

1. Select the shader you want to use.
2. Click the [Polygon tool](#).
3. Click once to position each vertex of your polygonal paint shape.

As you position vertices, the line segments that connect the vertices are drawn. Double-click the last vertex to close the shape automatically.

Although you can later resize or "stretch" a polygonal paint shape, you can't edit its vertices.



### Note

- When you draw with the Rectangle or Ellipse tool, your first mouse click positions one corner of your paint shape's bounding box. You then drag to position the opposite corner. CorelDREAM 3D normally uses the shortest path to connect these

opposite corners  that is, the paint shape will not wrap all the way around the object. If you want the shape to wrap "the other way" around your object, hold down ALT as you drag.

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`{button ,AL('PRC 3D Paint;',0,"Defaultoverview",)}` [Related Topics](#)



## The Brush tool

The Brush tool is the most versatile 3D Paint tool. It allows you to paint free-form designs on the surface of an object. Paint shapes you create with the Brush tool are called brushed shapes.

Like other paint shapes, a brushed shape contains only one shader. If you choose a new shader while painting with the Brush tool, CorelDREAM 3D automatically creates a new brushed shape. You can create any number of brushed shapes on an object.

### Brush options

When you choose the Brush tool, CorelDREAM 3D opens the Brush Palette, allowing you to select a brush and set its options.

The Paint Brush tool gives you access to three brush types:

- The Paint Brush allows you to paint new brushed shapes and to add to existing brushed shapes.
- The Eraser modifies an existing brushed shape by "cutting away" from it.
- The Imported Shape Brush lets you import a 2D image to use as a brushed shape.

### To set brush options (Paint Brush or Eraser)

1. Click the [Paint Brush](#) or [Eraser](#).
2. Move the Size slider to make the brush smaller or larger.
3. Move the Advance slider to set the frequency at which the brush shape is drawn along the path of the moving mouse.  
A low Advance setting produces a continuous brush stroke. A high Advance setting produces a discontinuous brush stroke, giving the impression that the brush has "skipped" across the surface.
4. Move the Hardness slider to adjust the edge of the brush stroke.  
The hardest setting shades at 100% opacity all the way to the edge of the brush. Softer settings fade out the shader effect toward the edge of the brush.
5. Move the Flatness slider to adjust the width of the brush.  
Low Flatness produces a round brush. High Flatness produces a narrow brush.
6. Move the Angle slider to adjust the angle of the Brush.



### Tip

- Use Angle and Flatness together to create a calligraphic effect.

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{button ,AL('PRC 3D Paint;',0,"Defaultoverview",)} [Related Topics](#)



## Painting with the Brush tool

Like the other 3D Paint tools, the Brush tool provides real-time feedback as you work on the surface of an object. When you position the Brush tool cursor over an object in the Perspective or Modeling window, a preview outline appears on the surface of the object. This allows you to see the size, angle and shape of the brush and its position on the object.

To start painting, drag the brush across the object. As you drag, the path of your stroke is previewed in real time.

### To paint with the Brush tool

1. Select the shader you want to use.
2. Click the [Brush tool](#).
3. Choose a brush and set the brush options.
4. Drag the Brush tool over the surface of the object. Drag again to apply additional brush strokes.

A brushed shape can contain any number of brush strokes, but only one shader.

### To add to a brushed shape

1. Select a brushed shape with the [Paint Shape Selection tool](#).
2. Use the [Eyedropper tool](#) to grab the shader from the selected brush shape, or select the same shader from the Shaders browser.

When you add to a brushed shape, you must use the same shader.

3. Start your first stroke within the bounds of the selected brushed shape and follow the instructions above to add brush strokes.

### To erase part of a brushed shape

1. Select a brushed shape with the Paint Shape Selection tool.
2. Click the Brush tool and click the [Eraser](#) from the Brush palette.
3. Drag the eraser across the portions of the brushed shape you want to remove.

You can convert any other paint shape to a brushed shape, which you can then edit with the brush tool.



### Tip

- Because 3D objects can be rendered at any resolution, you rarely need to be concerned with the resolution of your final output until it's time to render your image. Because brushed shapes are pixel-based, their resolution is fixed. You can think of the surface of your object as a blank image whose greater dimension (either its height or its width) has a resolution of 1024 pixels by default. The resolution of an individual brushed shape, depends on how much of the object's surface it covers. If you plan to render your final image at high resolution, you might want to increase the default paint shape size. You can set this value in the 3D Paint section of the Preferences dialog box.

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`{button ,AL("PRC 3D Paint";'0,"Defaultoverview",)}` [Related Topics](#)



## Importing a brushed shape

The Imported Shape brush allows you to import a brushed shape from another application, in the form of a 2D image file. CorelDREAM 3D treats an imported brushed shape exactly as if it were created with one of the other brushes.

When you import a brushed shape from a 2D image file, CorelDREAM 3D ignores any color information in the file



only the brightness of each pixel is important. Therefore, bitmap (1 bit black and white) and 8-bit grayscale images are best suited for use as imported brushed shapes.

If the image you import is a bitmap, the black regions enable (turn on) the shader, and the white regions disable it. A bitmap image is an easy way to create intricately patterned, irregular, or non-contiguous paint shapes.

If you use an 8-bit image, the brightness of each pixel determines how the shader in the brushed shape blends with the primer or the shader of the paint shape below. For each black pixel in the image, the paint shape's shader is applied at 100% opacity to the corresponding point on the object. For each white pixel in the image, the shader is not applied at all. Intermediate shades of gray cause the paint shape's shader to blend with the shader below. An 8-bit brushed shape can produce extraordinary results.

### To import a brushed shape

1. Select a shader from the Shaders browser.
2. Click the [Brush tool](#).
3. Click the Imported Shape brush.
4. Drag a marquee across the surface of your object to define the limits of your imported brushed shape.
5. Use the file system tools to select your image.

Once you've chosen an image file, the dialog box closes and the image is mapped onto the object as a paint shape. The proportions of the paint shape are determined by the marquee.

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`{button ,AL('PRC 3D Paint;',0,"Defaultoverview",)}` [Related Topics](#)

## Layering



## Layering: how primer and paint shapes interact

When you create a paint shape on the surface of an object, the paint shape's shader overrides the shading characteristics of the object's primer. Likewise, when several paint shapes overlap, the topmost paint shape's shader overrides those below. There is one important corollary to this rule, however. When a paint shape's shader has one or more empty channels, it inherits the settings for these channels from the paint shape immediately below it (or from the primer, if there is no paint shape below).

For example, if you paint on an object with a bumpy primer, any paint shape you create will also be bumpy unless the shader you're painting with specifies different bump settings. To create a smooth paint shape on a bumpy object, you must use a shader with a constant value in the Bump channel.

The Shading tab in the Properties dialog box allows you to control the opacity of an object's paint shapes. Unlike a shader's Transparency setting, the opacity of a paint shape does not affect an object's translucence; rather, it controls how paint shapes interact. If a paint shape's opacity is less than 100%, its shader does not fully override the shaders of the primer and the paint shapes below; rather, the shaders effects are mixed.

In addition to opacity, the Shading tab of the Properties dialog box allows you to control the size, position, and layering of an object's paint shapes with numerical precision.

### Mapping modes

Most shader content is 2D. Texture maps, for example, are 2D images. Many shader functions  including CorelDREAM 3D's checkers and wires



also produce 2D image data. CorelDREAM 3D uses a process called mapping to apply this 2D shading information to the surface of a 3D object.

CorelDREAM 3D's 3D Paint interface allows you to shade objects without worrying about the "nuts and bolts" of mapping. Most of the time, you can paint on objects with the 3D Paint tools and let CorelDREAM 3D take care of the details. Occasionally, however, you might find that changing an object's mapping mode makes it easier for you to achieve the results you want.

When you change an object's mapping mode, CorelDREAM 3D changes the method it uses to map 2D shapes and images to the object's surface. As a result, the 3D Paint tools behave differently on the object. Depending on the shape of your object and the mapping mode you choose, the difference can be subtle or dramatic.

CorelDREAM 3D's default mapping mode is called surface mapping. Surface mapping is like applying a decal to an object's

surface  each pixel in your image maps directly to a specific point on the surface of your object. This straightforward approach minimizes distortion and loss of image quality. You use surface mapping for most objects you create in CorelDREAM 3D.

Because objects imported from other applications contain limited information, surface mapping generally cannot be used on these objects. When you shade an imported object, you must choose one of CorelDREAM 3D's projection mapping modes: box mapping, spherical mapping, or cylindrical mapping.

In the various projection mapping modes, rather than map an image directly onto an object, CorelDREAM 3D maps the image

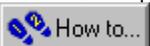
onto an invisible primitive  a box, a sphere, or a cylinder that encloses the object. The image is then projected from the primitive onto the object itself.

For best results, you should choose the primitive shape that most nearly resembles the object you are mapping. For example, spherical mapping would be appropriate for a basketball; cylindrical mapping for a wine bottle. When you choose box mapping, you can specify that face of the box primitive onto which you want to map. When you choose cylindrical or spherical mapping, you can specify the orientation of the primitive in relation to the object.

### Master and object shading layers

If your scene contains several objects based on the same Master object, you can use the Master object to specify a set of shading characteristics to be shared between all of these objects. You can also assign specific shading characteristics to each individual object.

For example, you might create a bottle and shade it with a green glass shader in the Modeling window. You could then duplicate the bottle so that three copies appear in the scene, and use the 3D Paint tools to apply a unique label to each copy. Suppose

you decided later that you wanted marble, rather than glass bottles  you could reopen the Master object in the Free-Form Modeling window and apply a marble shader, affecting all three bottles while leaving the individual labels intact.

When you create multiple copies of an object, each copy has two distinct shading layers: the Master layer and the object layer. Any shading you apply to the Master layer affects all copies of the object within the scene. The shading on the object layer, however, is unique to each copy. The two shading layers can each contain both a primer and paint shapes, but they need not share the same mapping mode.

Because the object layer is on top of the Master layer, paint shapes on the object layer always appear to be in front of paint shapes on the Master layer. Moreover, if you apply a primer to the object layer, it obscures the entire Master layer (both primer and paint shapes).

When you shade an object in the Perspective window, you're working on its object layer. To work on the Master layer, you shade the Master object in the Modeling window.

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**{button ,AL('OVR Shader structure and content;Working with Master Objects;',0,"Defaultoverview",)} Related Topics**



## Working with paint shapes

Once you've created paint shapes, you can move them, delete them, resize them, and layer them. You can also edit a paint shape's shader, or apply another shader.

### To select a paint shape

- Select the shape with the [Paint Shape Selection tool](#).

A selected paint shape, regardless of its type, is shown within a bounding box. The box has four handles, one at each corner.

### To move a paint shape

- Using the Paint Shape Selection tool, click the center of the shape and drag it along the surface of the object.

### To delete a paint shape

1. Select the shape.
2. Click Edit, Clear, or press DELETE.

### To resize a paint shape

- Using the Paint Shape Selection tool, drag one of the corner handles on the shape's bounding box. Drag toward the center of the shape to shrink it. Drag outward to stretch it.

### To crop a paint shape

- Using the Paint Shape tool, drag a corner handle while holding down CTRL.

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`{button ,AL('PRC Layering';,0,"Defaultoverview",,)} Related Topics`



## Editing shading in the Properties dialog box

The Shading tab of the Properties dialog box allows you to edit an object's 3D Paint shapes with numerical precision. All of the positioning, sizing, and layering operations that you can perform on the surface of an object with the 3D Paint tools can also be performed in this dialog box. You can also add and delete paint shapes, specify a paint shape's opacity, convert a paint shape from one type to another, remove an object's primer, and change an object's mapping mode.

### To access the Shading tab of the Properties dialog box

1. Select an object.
2. Click Edit, Properties.
3. Click the Shading tab at the top of the dialog box to access the shading controls.

### To change the layering order of an object's paint shapes

1. Select a paint shape from the list box on the left of the dialog box. The topmost paint shape appears at the top of the list box.
2. Click the Move Forward button to move the selected paint shape toward the top of the list box. Click the Send Backward button to move the selected paint shape toward the bottom of the list box.
3. Repeat these steps until you are satisfied with the layering order.

### To create a new paint shape

- Click the New button.

A new paint shape is created on the surface of the object, using the default size, position, and shader.

### To delete a paint shape

1. Select a paint shape from the list box.
2. Click the Delete button.

### To edit a paint shape's size and position

1. Select a paint shape from the list box on the left of the dialog box.
2. Edit the values in the Size and Position fields.
  - The numbers immediately to the right of the Size and Position fields represent the range of possible values for each dimension.
  - The Size values determine the size of the paint shape's bounding box.
  - The Position values determine the position of the paint shape's upper left corner on the surface of the object.
3. Click the Apply button.

### To set a paint shape's opacity

- Use the Opacity slider to set a value between 0 and 100%.

The opacity of a paint shape is not related to the transparency value you set in the Shader editor. Whereas a shader's transparency setting determines the degree to which light passes through a surface, the opacity setting determines the extent to which a particular paint shape hides or shows the paint shapes below it.

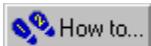
### To change a paint shape from one type to another

1. Select a paint shape from the list box on the left of the Shading Info dialog box.
2. Choose a new paint shape type from the Shape list box.
3. Click the Apply button.

The paint shape is converted to the type you have chosen, using the same bounding box.

### To remove an object's primer

- Click the Remove Primer button.



### Note

- When you apply a primer to an object in the Perspective window, it is applied over the primer of the corresponding Master object. Removing an object's primer reveals the Master object's primer.

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{button ,AL('PRC Layering';0,"Defaultoverview",)} Related Topics



## Mapping modes

When you change an object's mapping mode, CorelDREAM 3D changes the method it uses to map 2D shapes and images to the object's surface. As a result, the 3D Paint tools behave differently on the object. Depending on the shape of your object and the mapping mode you choose, the difference can be subtle or dramatic.

### To change an object's mapping mode

1. Select an object.
2. Click Edit, Properties.
3. Click the Shading tab.
4. Click one of the Mapping Mode icons to choose a mapping mode.

From left to right, the icons represent Surface mapping, Box mapping, Cylindrical mapping, and Spherical mapping.

5. If you have chosen one of the projection mapping modes, a set of additional controls appear to the right of the Mapping Mode icons.
  - For Box mapping, click the face you want to map onto.
  - For Cylindrical or Spherical mapping, click the orientation of the mapping primitive.

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`{button ,AL("PRC Layering";'0,"Defaultoverview" ,)}` [Related Topics](#)



## Master and object shading layers

If your scene contains several objects based on the same Master object, you can use the Master object to specify a set of shading characteristics that are shared between all of these objects. You can also assign specific shading characteristics to each individual object.

### To work on the Master shading layer

1. Click the Masters tab in the Hierarchy window.
2. Double-click the Master object you want to shade.  
The object is opened for editing in the Modeling window.
3. Shade the Master object in the Modeling window.  
You can edit the primer and/or work with the 3D Paint tools.
4. Click the Done button.  
The shading you have applied appears on all copies of the Master object.

### To edit the Master shading layer in the Properties dialog box

1. Click the Masters tab in the Hierarchy window.
2. Select the Master object whose shading you want to edit.
3. Click Edit, Properties.
4. Click the Shading tab to access the shading controls.

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{button ,AL('PRC Layering;',0,"Defaultoverview",,)} [Related Topics](#)

## Managing your shaders



## Managing your shaders

The shaders you use are saved with the scene file. These shaders will not necessarily appear in the Shaders browser. The Shaders browser displays only shaders that are saved in shader database files. You have complete control over these files and the shaders they contain, so you can customize the browser to display exactly the shaders you want.

### Shaders and shader files

The Shaders browser displays previews of the shaders in the shader files that are currently loaded. In the browser, all of the shaders saved within a particular file appear in the same vertical column. Columns are separated by vertical lines. By default, the name of each shader file appears at the top of its column.

By adding and removing shader files from the browser, you can manage the set of shaders you can access. The shader files that come with CorelDREAM 3D are logically organized. The files contain shaders of the same basic type (e.g., Woods, Glass, Patterns). As you create your own shader files, it makes sense to follow this convention, so that you can easily add and remove entire sets of similar shaders.

A single shader file can contain any number of shaders, and the Shaders browser can display any number of files. However, it makes sense to keep your shader files small and to display only those files you need to access for your current project. This keeps the display more manageable and reduces loading time and memory usage.

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`{button ,AL("OVR Shader structure and content";0,"Defaultoverview",)}` [Related Topics](#)



## Working with shaders in the browser

The Shaders browser displays previews of the shaders contained in the shader files that are currently loaded. In the browser, all of the shaders saved within a particular file appear in the same vertical column. Columns are separated by vertical lines. By default, the name of each shader file appears at the top of the column.

### To select a shader

- Click the shader's preview.

A border appears around the selected shader and its name appears at the top of the browser window. The selected shader is applied to selected objects when you click the browser's Apply button. The 3D Paint tools also apply the currently selected shader.

### To change a shader's name

1. Select the shader.
2. Click Shader, Properties.

CorelDREAM 3D opens a window that displays the shader's name and a field for comments.

### To create a new shader

- Click Shader, New.

CorelDREAM 3D prompts you to name the new shader. When you do so, a new, empty shader is created in the same file as the currently selected shader.

### To duplicate a shader

1. Select the shader you want to duplicate.
2. Click Shader, Duplicate.

### To copy a shader from the Shader editor into the browser

- Drag the shader's preview from the Editor into the browser, and drop it into the column where you want it.

A copy of the shader is created, and will be saved when you save the shader files. Use this feature to "grab" a shader from an object in your scene and add it to the browser.

### To delete a shader

1. Select the shader you want to delete.
2. Click Shader, Delete.

### To move a shader to a different file

- Drag the shader's preview into a different column.
- To copy a shader while dragging, hold down ALT. The original shader will remain in its current location, and a copy will be added to the column where you drop it.



### Note

- You must save your shader files to make these changes permanent.

---

{button ,AL("PRC Managing your shaders;";0,"Defaultoverview",)} [Related Topics](#)



## Managing shader files

The selection of shaders in the Shaders browser at any given time depends on which shader files are currently loaded. Each file you add increases the selection; however, it also increases memory usage and the time required to load shaders when you launch CorelDREAM 3D. It makes sense to group your shaders logically within files, and to load only those that you need for your current project.

CorelDREAM 3D keeps a list of the files currently loaded in the browser. To manage the browser selection, you add and remove files from the list. Each time you launch CorelDREAM 3D, it restores the list from your previous session.

If you move a shader file that is in the browser's "to load" list to a different location on your hard drive, CorelDREAM 3D will not be able to find it the next time you launch the application. You will have to add it to the list again.

### To create a shader file

1. In the Shaders browser, click File, New.
2. Type a name, choose a directory, and click Save.

A new column is added to the far right of the Shaders browser. A default red shader appears in the new file; you can edit it or remove it.

### To add or remove shader files from the browser

1. Click File, Add-Remove.
2. Select any file you want to remove from the browser list, then click Remove.

Removing a shaders file doesn't delete the file, but removes it from the list that the browser loads. To permanently remove a shaders file, delete it from your hard drive as you would any other file.

3. Use the file system tools on the top to locate any shader file you want to add, then click Add.

Click Add All to add all of the shader files within a particular directory.

4. When you are finished editing the browser list, click Done.

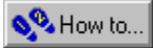


### Note

- If any of the shaders in your shader files contain Texture Map components that reference external image files, you must maintain the relative path from the shader files to the image files. If either the shader files or the image files are moved to a different directory, CorelDREAM 3D will prompt you to locate the missing image files when it loads the shader files into the browser.

---

{button ,AL("PRC Managing your shaders;";0,"Defaultoverview",)} [Related Topics](#)



## Saving changes to the browser

Whenever you make changes in the browser  even if you modify only one shader

 you must save the shader files to retain the changes the next time you load them. If you make changes you don't like, you can revert all of the shader files in the browser to their most recently saved version.

### To save shader files

- In the Shaders browser, click File, Save All.

### To revert shader files

- Click File, Revert All.

You will lose any changes you have made since you last saved.

---

`{button ,AL('PRC Managing your shaders;',0,"Defaultoverview",)}` [Related Topics](#)



# Setting lights and cameras

## Lighting and cameras

### Lighting

Much like in the real world, the appearance of objects in the CorelDREAM 3D universe is determined greatly by the light in which they are viewed. A good set of lighting conditions is an important step toward creating high quality artwork. The same scene rendered under different light can provide strikingly different results. For example, rendering with all lighting at 0 brightness is like

taking a photograph  without a flash

 in the bottom of a coal mine. Conversely, too much lighting washes out subtle effects.

### Where lighting effects are visible

In the default Preview display mode, lighting effects specific to your scene are not visible. Instead, the appearance of objects is determined by an arbitrary, fixed light source that is not visible in the Perspective window. This way, even if you are working on a dark scene, you can see your objects clearly. This also contributes to making the Preview mode significantly faster than the Better Preview mode.

The Better Preview mode uses ambient light and your scene's specific light sources to show color, highlights, gel effects, and depth shading. No other lighting effects (shadows or reflections) appear. If ambient light, which comes evenly from all directions, is your only source of light, you won't see the depth shading effect on objects. When modeling in the Free-Form Modeling window view, the Better Preview mode uses an arbitrary, fixed light source. This allows you to see the details of the object's textures and geometry clearly, regardless of the scene's actual light settings.

When you render your scene using the Production Z-Buffer or the Ray Tracer, that rendering will show color, shading, and all of the complex lighting effects selected in the renderer, including reflection and refraction (Ray Tracer only), shadows, and transparencies. Before launching the rendering process, you can preview lighting and shading effects with the same accuracy you will obtain from the Ray Tracer. The Render Preview tool in the Perspective toolbar selectively renders a marquee area of your scene.

### Cameras

Cameras provide viewpoints for the Perspective window and for renderings. As you build your scene, you can position the cameras to give you the best view for working. You can place several cameras in your scene and switch between them to get alternate perspectives on your scene. You can even create a second Perspective window to view your scene from two different angles at once.

When you are ready to render your scene, you choose one camera as the viewpoint from which to render. The camera position and settings combine with the position of the Production Frame and the rendering format to determine the scale and framing of the scene.

### For more information see the following:

{button ,JI('Setting lights')} [Setting lights](#)

{button ,JI('Using cameras')} [Using cameras](#)

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{button ,AL('Rendering;',0,"Defaultoverview",)} [Related Topics](#)

## Setting lights



## Setting lights

CorelDREAM 3D supports two categories of lighting  ambient and specific. There is one ambient light setting, but there are several types of specific light sources. You can control how your lights are seen in the Perspective window by selecting Show Lights and Cameras in the Preferences dialog box under the File menu. You can also choose specific colors to represent your lights.

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`{button ,AL("OVR Chapter Setting lights and cameras";0,"Defaultoverview",)} Related Topics`



## Ambient light

Ambient light is uniform through the scene. It has no specific origin and casts no shadows. It is the equivalent of daylight in a real-world scene. It radiates in every direction, has no position, and no source of origin.

### To set ambient light

1. Click Scene, Ambient Light.

2. Set the color for the ambient light.

Click the color swatch to display the color selector. You can select a color from the color wheel or adjust the amount of red, green, and blue using the RGB sliders. Close the color selector.

3. Move the slider to set the brightness.

For deeper shadows and high contrast with lit areas, use a lower ambient light setting. As you increase the brightness of ambient light, the intensity of shadows and other effects generated by your other lights decreases. This "flattens" the image. To rely exclusively on your other lights, set ambient light at 0. For example, to create the dramatic effect of a spot light on a theater stage, you would use no ambient light.



### Tip

- To view your changes, switch to Better Preview display mode (click View, Better Preview.)

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{button ,AL('PRC Setting lights';0,"Defaultoverview",)} [Related Topics](#)



## Creating a new light source

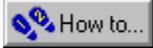
You can create several types of specific lights. The standard lights are distant, bulb, and spot.

You can add as many lights as you want, but as the number increases, so does the time it takes to render your final illustration. Most scenes can be lit with one, two, or at most three well-placed lights.

### To create a new light source

- Drag the [Create Light tool](#) into the Perspective or Hierarchy window.

The color of the light object as it appears in your scene is set in the Color section of the Preferences dialog box. Click File, Preferences, General to select a color other than the default red.



### Tip

- If you want to create a light with the same settings as an existing light, you can select the existing light then either Copy and Paste, or use the Duplicate command.

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`{button ,AL('PRC Setting lights;',0,"Defaultoverview",)} Related Topics`



## Setting light properties

After you create a new light, you must specify which type it is (distant, bulb, or spot) and set its options in the Light tab of the Properties dialog box. You can use this dialog box at any time to adjust the settings of a selected light.

### To set a light's properties

1. Select the light.
2. Click Edit, Properties.

If it's a bulb or spot light, you can also double-click it in the Perspective window. Distant lights, however, are far outside of the universe and do not have projections.

3. Select the type of light you want from the menu: distant, bulb, or spot. Depending on your choice, the tab displays the parameters appropriate to your selection.
  - A Distant Light is outside of the scene universe. The light rays from a distant source are parallel as they enter your scene. An example of this is the way the sun lights the earth.
  - A Bulb Light is a special object inside your scene that casts light in all directions.
  - A Spot Light is a special object inside your scene that casts light in a specific direction. The light rays of a spot light diverge based on parameters that you set, such as Half Angle and Distance Fall-off.

---

`{button ,AL('PRC Setting lights;',0,"Defaultoverview",)} Related Topics`



## Visualizing light-cone projections

You can display a light-cone projection and its illumination circle to check the area and objects that are illuminated by a specific spot light.

### To make a light-cone projection visible

- Click the light in the Perspective window while holding down CTRL.  
To turn the light off, CTRL + click the light source again.

### To use the circle of illumination

- When the light cone is visible, select an object from within this cone to check its illumination.  
CorelDREAM 3D automatically moves the circle of illumination along the light-cone projection axis to the perpendicular plane passing through the center of the selected bounding box.



### Note

- If no object is selected, the circle of illumination remains at the plane of the last object checked for illumination. When you open a new scene, the illumination circle is set by default to the plane perpendicular to your light-cone projection axis and passing through the origin (0, 0, 0) of the universe.

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`{button ,AL('PRC Setting lights;',0,"Defaultoverview",)}` [Related Topics](#)



## Setting the direction of a distant light source

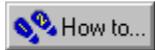


The direction of a distant light source is set indirectly by moving the highlight on the surface of the sphere in the distant light's Properties dialog box.

It is easy to set the position of the light. Imagine that the sphere is a glass ball surrounding your scene. The highlight shows where the distant light shines through the glass, and toward the center of your scene.

### To set the direction of a distant light source

1. Select a Distant light.
2. Click Edit, Properties.
3. Drag the highlight on the surface of the sphere to position the light source.
4. To shine the light from behind, enable the Back option.



### Tip

- As with ambient light, you can use a distant light to soften the shadows cast by your other light sources. Position a distant light above your scene, then experiment with light settings to diffuse your other lights.

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{button ,AL('PRC Setting lights';,0,"Defaultoverview",)} [Related Topics](#)



## Setting bulb light characteristics

Bulb lights appear in the Perspective window. You can move them anywhere in the 3D workspace with any of the positioning features, including the Selection tool, Virtual Trackball tool, and Numerical Properties dialog box. Because bulb lights shine equally in all directions, you do not need to aim them.

### To set the range of the light source

1. Select a Bulb light.
2. Click Edit, Properties.
3. Type a value in the Range box. Use the list box to select your units.

The range is the distance from the light itself to the point where the light has no effect.

### To set the distance fall-off

- Move the Distance Fall-Off slider.

The distance fall-off setting determines how the brightness of the light diminishes toward the edge of its range. A fall-off of 10% means that the light has full intensity from the source through 90% of its range, then decreases linearly to the end of the range.

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{button ,AL('PRC Setting lights;',0,"Defaultoverview",)} [Related Topics](#)



## Setting spot light characteristics

Your brightness, half angle, and angular fall-off settings are previewed in real time in the diagram to the right of the slider bars.

### To set the half angle of the light cone

1. Select a Spot light.
2. Click Edit, Properties.
3. Move the Half Angle slider.

The half angle is the angle of the radius of the cone. A narrow angle creates a beam like that of a spot light. A wide angle creates a beam like that of a flood light.

### To set the angular fall-off

- Move the Angular Fall-Off slider.

Fall-off is how the brightness of the light diminishes toward the edge of the light cone. A fall-off of 10% means that the light has full intensity from the center to 90% of the radius of the light cone, then decreases linearly to the edge of the cone.

### To set the range of the light source

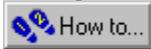
- Type a value in the Range box. Use the list box to select your units.

The range is the distance from the light itself to the point where the light has no effect.

### To set the distance fall-off

- Move the Distance Fall-Off slider.

The distance fall-off setting determines how the brightness of the light diminishes toward the edge of its range. A fall-off of 10% means that the light has full intensity from the source through 90% of its range, then decreases linearly to the end of the range.



### Tip

- The spot light parameters interact with each other. For example, if you use a light colored light with a low brightness setting, it can generate a result similar to a darker colored light with a higher brightness setting. Experiment with various settings until you achieve the lighting you want.

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`{button ,AL('PRC Setting lights;',0,'Defaultoverview',)} Related Topics`



## Positioning and aiming spot lights

Spot lights appear in the Perspective window. You can move them anywhere in the 3D workspace and change their direction with any of the positioning and orientation features, including the Selection tool, Virtual Trackball tool, and the Numerical dialog box. In addition, the Point At command lets you point a light directly at an object. This is usually the easiest way to aim a light.

### To point a spot light at an object

1. SHIFT-Click both the light and the reference object to select them.

You can select multiple lights, but only one object.

2. Click Arrange, Point At.

The light points at the hot point of the selected object.

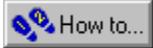


### Notes

- The Point At command does not link the light to the object selected. If you move either element, the light no longer points at the object. If you want to maintain the relationship between a light and the object it points at, place them together in a group.
- To direct a light to a particular area in your scene, you can create a temporary object for the light to point at, then delete the object. Remember that the light points at the hot point of the selected object.
- You can check where the light is cast by viewing your scene through the light. Use the Position pop-up menu in the Camera Properties dialog box to select the light source from which you will view the scene.
- The lighting you set in your scene greatly effects the look of your rendered illustration. All the different lighting controls combine to produce dramatically different effects. Experiment with different light settings to create the effects that you want in your 3D illustration.

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{button ,AL('PRC Setting lights;Grouping objects;',0,"Defaultoverview",)} [Related Topics](#)



## Using gels

The Properties dialog box has a special feature for lights that enables you to place an image as a mask or transparency in front of the light. You can use this feature to project complex patterns and images on your scene. The image you place in front of the light is called a gel.

Two types of gel  Blinds and Gradient

 are available in CorelDREAM 3D. As you adjust the settings for these gels, a preview displays to the right. Blinds gels can be horizontal, vertical, or both (grid-like). Gradient gels can be vertical or circular.

You can also use texture maps as gels. If the gel is a black and white image, it becomes a mask. White regions of the mask transmit light; black regions block it. Bitmap gels can create intricate effects, such as the shadow of a chain-link fence, or the dappled shade under a tree.

Grayscale or color images create transparencies when they are used as gels. Their image is projected onto your scene, the same way a slide projector sends an image across the room. With a color image, you can achieve magical effects, like sunlight filtering through a stained glass window. An 8-bit gel will probably provide all the color you need.

### To create your own gel

- Create the image you want to use and place it in a convenient directory.

The Map (texture map) gel is a bitmap gel. You can create your image in any 2D art program or use a CorelDREAM 3D rendering. You might scan a photograph and use filters to accentuate or nominalize some aspects of the image. The gel does not need to have a high resolution.

### To select a gel

1. Select a light.

Gels are generally used on distant or spot lights. Your choice depends on the effect you want.

2. Click Edit, Properties.
3. Click the Gel tab.
4. Choose the type of gel from the Gel list box. (None is the default.)

Blinds and Gradient are built-in gels. As you adjust the settings for these gels, a preview displays to the right. Blinds can be horizontal, vertical, or both (grid-like). Gradients can be vertical or circular.

### To set a Blinds gel

1. Set the number and width of the horizontal blinds.
2. Set the number and width of the vertical lines.

### To set a Gradient gel

- Select a vertical or circular gradient pattern.

To change the beginning and ending colors within the range of white to black (the default grayscale gradient), click the color swatch and use the color selector.

### To import a texture map as a gel

1. Choose Map from the Gel list box.
2. Select a texture map file, and click OK.
3. To see the effect of your gel, switch to Better Preview mode.

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{button ,AL('PRC Setting lights';,0,"Defaultoverview",)} [Related Topics](#)

## Using cameras



## Using cameras

Just as a photographer strategically places cameras for different views, you can set up various cameras to view your scene. After the scene is completely constructed, you can frame the view of your scene that you want to render. Framing a scene is similar to looking through a camera's viewfinder.

The position and orientation of a camera is called a viewpoint. When you select a preset view, such as a top view of your scene, your active camera (the current camera) is moved directly to that viewpoint: over your scene and pointed downward in the case of a top view. You can create multiple cameras, positioned anywhere in your scene and shift the view to any of them. It can be very useful to have multiple viewpoints while creating objects and arranging them in a scene.

What you see in the Perspective window is the projection of the scene through the lens of the current camera. At any given time, only one camera is selected as the viewpoint for the Perspective window. If you open more than one Perspective window, each has its own current camera.

By default, cameras appear in your scene as solid blue objects shaped like a 35-mm camera. You can control how your cameras are seen in the Perspective window by selecting Show Lights and Cameras in the General section of the Preferences dialog box. You can also choose specific colors to represent cameras.

### The camera's field of view

A camera's settings and position determine its field of view. The field of view of the current camera does not necessarily equal what you see in the Perspective window. The display in the Perspective window is also determined by the size of the window and its level of magnification. You can use the scroll bars or hand tool to adjust the region of the field of view that the Perspective window currently displays.

The camera's field of view is not affected by zooming (the Magnifying Glass tool) or panning (with the Hand tool or the scroll bars).

The portion of the camera's field of view that is used for the rendering is identified by the Production Frame. The Production Frame is similar to the viewfinder of a real-world camera. By default, the Production Frame appears as a green, selectable rectangle overlaid on your Perspective window.

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`{button ,AL('OVR Chapter Setting lights and cameras;Rendering';0,"Defaultoverview",)}` [Related Topics](#)



## Creating a camera

In the Hierarchy window, cameras are represented by numbered camera icons. In the Perspective window, visible cameras are represented by colored camera shapes that have projections. The current camera is not visible in the Perspective window because you are viewing the scene through it.

You can choose Preset from the View menu to change the current camera's view to the top, bottom, left, right, front or back of your scene. To return to the original view of your Perspective window, select the original camera or position.

### To create a new camera

- Drag the [Create Camera tool](#) to the area of the Perspective window where you want to place the camera.  
The new camera appears in your scene as a blue 35-mm camera that faces downward. Move it as you would any other object.

### To change the default properties for a camera

1. Select the camera.
2. Click Edit, Properties.



### Tip

- If you set up several cameras, you might want to name them according to their viewpoints. This makes it easy to select the view you want.

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{button ,AL('PRC Using cameras;',0,"Defaultoverview",)} [Related Topics](#)

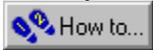


## Setting the camera lens

You can change the properties of the current camera using the Camera Properties dialog box. The CoreIDREAM 3D perspective camera is patterned after the standard 35-mm Single-lens reflex camera.

### To change a camera's lens

1. Select the camera.
2. Click Edit, Properties.
2. Choose the camera type you want from the Camera list box: Conical or Isometric.
  - The Conical camera has four settings: Normal, Wide, Telephoto, and Zoom.
  - If you select Zoom, the slider lets you set a focal length between 6 and 500 mm.



### Note

- The Isometric camera provides a view in which object size is not related to distance from the camera (that is, there is no vanishing point.) The Zoom slider adjusts the field of view. When you use Isometric cameras, you should use [Backdrops](#) instead of [Reflected Backgrounds](#) if you want to place an image behind the scene.

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`{button ,AL('PRC Using cameras;',0,"Defaultoverview",)}` [Related Topics](#)



## Positioning and aiming cameras in the scene

Cameras (other than the current camera) appear in the Perspective window. You can move them anywhere in the 3D workspace and change their angle with any of the standard positioning and orientation tools.

The Point At command is usually the easiest way to aim a camera in the general direction of an object. You can then make precise adjustments to the camera's position and aim using the navigating tools.

### To point a camera at an object

1. To aim the current camera, select the reference object. You'll probably find it is easiest to select it in the Hierarchy window.

To aim a camera other than the current one, select both the object and the camera you want to aim. You cannot point a camera at a light.

2. Click Arrange, Point At.

The Point At command does not link the camera to the selected object. If you move either element, the camera no longer points at the object.



### Tips

- To direct a camera to a particular area in your scene, you can create a temporary object for the camera to point at, then delete the object. Remember that the camera points at the hot point of the object.
- For more precise positioning of a camera, move it to the center of the Perspective window by selecting it in the Hierarchy window, and set X, Y, and Z coordinates of (0,0,0) in the Numerical Properties dialog box. This will move the camera to the center of your scene, where you can move it directly with the Selection tool and Virtual Trackball tool.

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{button ,AL('PRC Using cameras';0,"Defaultoverview",)} [Related Topics](#)



## Changing your perspective on the scene

You can work with either one or several cameras. If you are working with a single camera, you can move it to another position whenever you want a different viewpoint on your scene. If you are working with several cameras, you can switch the viewpoint of the Perspective window to a different camera by using the Camera Properties dialog box to select from your available cameras.

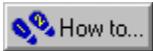
The camera used to create the view in the Perspective window is the current camera. You won't see a bounding box or

projection for this camera  it's behind the view. To move this camera, you can shift it to a different position using the preset views, or you can "navigate" the camera.

### To move the current camera to a preset position

1. Click Scene, Camera Settings.
2. Choose a preset position from the Position list box.

The presets you have saved are at the bottom of the menu. If the camera position and orientation is not at one of the presets, the Position pop-up menu displays "Custom."



#### Note

- When you edit an object or group using any of the default preset positions, the camera goes with you  that is, it establishes the preset position and orientation relative to the local universe. A custom position, on the other hand, is kept "as is" when you edit. This could produce an empty window when you edit a group. Choose a default preset or select an object and use the Point At command to see the contents of the group.

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{button ,AL('PRC Using cameras;',0,"Defaultoverview",)} [Related Topics](#)



## Navigating the current camera

CorelDREAM 3D allows you to manipulate your cameras using the Dolly, Pan, and Track tools in the Toolbox. By selecting a Camera tool and then moving the mouse in the Perspective window, you can navigate the current camera. These three camera navigation tools are accessible directly from the Camera fly-out in the Toolbox. Whenever one of these navigation tools is selected, a green rectangle, the Production Frame, will automatically appear in your Perspective window. The Production Frame acts as a viewfinder to help you frame your scene properly. It automatically disappears when you use any other tool. If the Production Frame is not visible, reduce your magnification level in the Perspective window to the standard (1:1) ratio.

If you have set a camera position that you particularly like, you can add it to your presets so that it is available in all of your scene files.

### To rotate the camera around an object

1. From the navigation flyout, click the [Dolly tool](#).
2. Drag the mouse around the Perspective window to rotate the camera.

The Dolly tool moves the camera while keeping it pointed at the same spot in the scene. If one or more objects are selected, the camera moves around an invisible sphere centered on the selection. If no object is selected, the camera moves around an invisible sphere centered on the center of the universe.

### To rotate the camera around its own axis

1. From the navigation flyout, click the [Pan tool](#).
2. Drag the mouse around the Perspective window to rotate the camera.

The Pan tool rotates the camera on its own axis. This is similar to standing in place looking through your camera's viewfinder while turning your head (as well as tilting your head up and down).

If you pan the camera, then decide you want to level its view, you can use the Align On Gravity command (Click Arrange, Align).

### To move the camera on its reference plane

1. From the navigation flyout, click the [Track tool](#).
2. Drag the mouse around the Perspective window to move the camera.

The Track tool moves the camera up, down, left, or right in a plane perpendicular to the direction in which the camera is pointing. The up, down, left, and right positions are based on the camera's own coordinates, not those of the scene.

The tracking directions are in relation to the camera's active attitude  not to the axes of the universe or Working box.

### To move the camera toward and away from its subject

- When you use either of the three navigation modes, you can CTRL + drag upward to move the camera toward your subject; downward to move it away from your subject.

Unlike zooming with the Zoom tool, this command actually moves the camera toward or away from your subject, effectively changing your field of view and perspective (if you aren't using an Isometric camera).

### To save a position as a preset

1. In the Camera Properties dialog box, choose Save Position from the Position list box.
2. Type a name for the camera position and click OK.

This saves the position and orientation, not the lens setting. The view from this position depends on the lens setting of the camera that is positioned here.

### To remove a preset from the list

1. In the Camera Properties dialog box, choose Delete Position from the Position list box.
2. Select the position you want to remove.

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`{button ,AL('PRC Using cameras;',0,'Defaultoverview',)}` [Related Topics](#)



## Working with multiple cameras

Multiple cameras help you arrange your objects because they provide different views of your scene that you can switch between or use simultaneously. When you create a rendering, choose one of the cameras as the rendering viewpoint.

### To switch the view between cameras

1. Click Scene, Camera Settings.
2. Choose a camera from the Camera list box.

You can also look at your scene through the viewpoint of a light to check where the light is cast. Choose a light source from the Position list box.

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`{button ,AL('PRC Using cameras;',0,"Defaultoverview",)}` [Related Topics](#)



# Rendering

## Rendering

Rendering captures a view of your 3D scene and saves it as a 2D image. An image must be rendered before you can print it or open it in an image-editing or page-layout program. Rendering is analogous to taking a photograph of your scene. The result is photorealistic because the final rendering procedure considers all of the objects in a scene simultaneously and calculates not just forms, color, and texture, but the interaction of lights and surfaces within the scene. As you move around a scene, these effects change. The rendered image that you capture of a scene from one camera viewpoint is unlike any other. CorelDREAM 3D offers a choice of renderers: the Ray Tracer or the Draft Z-Buffer.



Although you create one scene, it exists in 3D space. Therefore, you can take any number of renderings of it from different angles and with different lighting conditions. If you create an object in a 2D drawing program and want to look at it from another side, you have to redraw the object. In CorelDREAM 3D, you simply move the camera to another view and render the scene again.

A rendering is distinct from the scene from which it was taken. It is a separate file and is stored on disk in one of several standard graphic formats. You can print your renderings, open them in an image-editing program, or place them into virtually any application.

The G-Buffer is a special feature of CorelDREAM 3D that allows you to include special information in data channels that are saved with the rendered image. These channels can be manipulated in an image-editing program to create special effects.

### For more information see the following:

{button ,JI('`Setting the environment')} [Setting the environment](#)

{button ,JI('`Setting up to render')} [Setting up to render](#)

{button ,JI('`Starting a rendering job')} [Starting a rendering job](#)

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{button ,AL('OVR1 Chapter Rendering;',0,"Defaultoverview",)} [Related Topics](#)

## The rendering procedure

When you have built your scene, set the lights, and chosen a viewpoint, you are ready to render. You'll probably render your

scene several times  the first couple of renderings will be low resolution proofs that you can use to check your work. You can also use the Render Preview tool to marquee an area of your scene and then ray trace it directly in the Perspective window. (The ray tracing prepared by the Render Preview tool will not show your Reflected Background or Backdrop.)

At each proof stage, you might want to change your Rendering Settings to check different aspects of your image. For example, if you're concerned only with shading and shadows, you might turn off the other ray-tracing options, like reflections and transparency, which add to rendering time. After you correct things that didn't turn out as expected, you can generate the final, high-resolution rendering.

### An Overview

Before you produce a rendered image, you must complete the following steps.

1. Arrange the objects in the scene.
2. Set up your rendering using the Settings dialog box.
3. In the Perspective window, display the Production Frame. Adjust the position and settings of the camera so that the part of the scene you want rendered is framed.
4. In the Perspective window, adjust the position and settings of any lights in the scene so that objects are lit correctly.
5. Adjust Ambient Light, Background, and Atmospheric settings.
6. Once you have verified that all settings are correct, you can start the rendering with one of the Render commands.

#### For more information see the following:

{button ,JI(`,`Setting the environment')} [Setting the environment](#)

{button ,JI(`,`Setting up to render')} [Setting up to render](#)

{button ,JI(`,`Starting a rendering job')} [Starting a rendering job](#)

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{button ,AL(`OVR1 Chapter Rendering;Building a scene;Arranging objects;Lighting and cameras;',0,"Defaultoverview",)} [Related Topics](#)

## Setting the environment



## Setting the environment

CorelDREAM 3D provides some environment options to help complete the appearance of your rendered scene.

### Backgrounds

In a rendering, regions of the image where there are no objects are considered background areas. By default, these areas appear white in the final rendered image. Real world objects, however, do not exist in white space. Without a background, your objects might appear to be floating. In CorelDREAM 3D, these areas can be filled with either Reflected Backgrounds or Backdrops. Reflected Backgrounds differ from Backdrops in that objects in your scene can reflect a Reflected Background. If your objects are transparent, the Reflected Background will show through.

Reflected Backgrounds are sometimes referred to as environment maps. These effects are achieved by projecting an image, color, or bi-gradient on the inside surface of a giant sphere that surrounds your scene. When rendered, the projection is reflected in any objects whose shaders have reflection values. An isometric camera cannot record this information. If you are using an isometric camera for your final rendering, you can only use Backdrops.

### Atmosphere

CorelDREAM 3D offers two types of fog effects: Distance Fog and Cloudy Fog. Distance Fog produces a haze-like effect with a consistent thickness. How thick it appears depends purely on distance. Cloudy fog, in contrast, has texture. It produces an effect that simulates the irregularity of clouds.

---

`{button ,AL('OVR Chapter Rendering;Ambient light;',0,"Defaultoverview",)}` [Related Topics](#)



## Reflected Backgrounds

In CorelDREAM 3D, Reflected Background options are color, bitmap, bi-gradient, or none. The background is visible in your final ray-traced image.

### To use a Reflected Background

1. Click Scene, Background.
2. Choose one of the options from the Background list box.
  - None for no Reflected Background in the scene. The background areas appear white in the final rendered image.
  - Map to choose a bit-mapped image file to use as a Reflected Background.
  - Color to set a solid color as a Reflected Background. Click the color swatch and make your selection using the color selector.
  - Bi-Gradient to create a gradation or blend to use as a Reflected Background. Think of this as a horizon line dividing the sky from the land.

### To select a map

1. Choose Map from the Background list box.
2. Select a graphic file and Click Open.
3. Click the directional buttons to change the image's orientation.
4. Enable the Tile option to make the image repeat into horizontal and vertical squares. The tiled image is displayed in the Preview box.
5. Enable the Seamlessly option to smooth the transition between tiles.
6. Enable the Better Sampling option to view a more precise preview of the background.

### To select a bi-gradient

1. Choose Bi-Gradient from the Background list box.
2. Click the color swatch for the Sky's Start Color and select a color.
3. Click the color swatch for the Sky's End Color and select a color.
4. Repeat the previous two steps for the Ground gradient.
5. Adjust the Limit Between Top And Bottom slider. Moving the slider to the left increases the proportion of ground to sky. Moving to the right increases the proportion of sky to ground. At the far left, the ratio is similar to a mountain vista; at the far right, the ratio resembles a desert vista.

---

`{button ,AL('PRC Setting the environment;',0,"Defaultoverview",)}` [Related Topics](#)



## Backdrop

A Backdrop is similar to a Reflected Background in that it covers regions of an image where there are no objects. You can compare it to the screens that photographers use to silhouette the main subject, or to add false scenes behind a subject. A Backdrop differs from a Reflected Background in that it does not interact with the lighting and the objects in the scene; it is just a backdrop.

### To use a Backdrop

1. Click Scene, Backdrop.
2. Choose one of the options from the Backdrop list box.
  - Map to choose a bit-mapped image file to use as a Backdrop.
  - Color to set a solid color as a Backdrop. Click the color swatch and make your selection using the color selector.
  - Bi-Gradient to create a gradation or blend to use as a Backdrop. Think of this as a horizon line dividing the sky from the land.

### To select a map

1. Choose Map from the Backdrop list box.
2. Select a graphic file and Click Open.
3. Click the directional buttons to change the image's orientation.
4. Enable the Tile option to make the image repeat into horizontal and vertical squares. The tiled image is displayed in the Preview box.
5. Enable the Seamlessly option to smooth the transition between tiles.
6. Enable the Better Sampling option to view a more precise preview of the backdrop.

### To select a bi-gradient

1. Choose Bi-Gradient from the Backdrop list box.
2. Click the color swatch for the Sky's Start Color and select a color.
3. Click the color swatch for the Sky's End Color and select a color.
4. Repeat the previous two steps for the "Ground" gradient.
5. Adjust the Limit Between Top And Bottom slider. Moving the slider to the left increases the proportion of ground to sky. Moving to the right increases the proportion of sky to ground. At the far left, the ratio is similar to a mountain vista; at the far right, the ratio resembles a desert vista.

---

`{button ,AL("PRC Setting the environment";',0,"Defaultoverview",)}` [Related Topics](#)



## Atmosphere

CorelDREAM 3D offers two types of fog effects: Distance Fog and Cloudy Fog. Distance Fog produces a haze-like effect with a consistent thickness. How thick it appears depends purely on distance. Cloudy fog, in contrast, has texture. It produces an effect that simulates the irregularity of clouds.

### To use the Distance Fog

1. Click Scene, Atmosphere.
2. Choose Distance Fog from the Atmosphere list box.
3. Choose the Fog Color by clicking the color swatch and selecting a color with the color selector.
4. Type the Fog Starts distance. This is the distance from the camera where the fog begins.
5. Type the visibility distance. This is the distance past the start of the fog where the fog becomes so thick that visibility through it becomes 0%.

### To use Cloudy Fog

1. Click Scene, Atmosphere.
2. Choose Cloudy Fog from the Atmosphere list box.
3. Choose the Fog Color by clicking the color swatch and selecting a color with the color selector.
4. Type values for top and bottom. This is the range, above the ground plane, where the fog appears in your scene. You can create a layer of fog between the top and bottom values.
5. Move the Density slider. This determines the thickness of the fog.
6. Move the Lumpiness slider.
7. Move the Global Scale slider. This determines how close together the wisps of fog are.



### Note

- Atmospheric effects are only visible in the final rendered image.

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`{button ,AL("PRC Setting the environment";'0,"Defaultoverview",)}` [Related Topics](#)

## **Fine tuning your rendering settings**



## Setting up to render

The Render Settings dialog box provides complete control over rendering. You can adjust settings for the size, resolution, saved file format, saved G-buffer information, rendering options, and the rendering camera used to create the rendered image. The dialog box is divided into five panels that provide control over the rendering process: Image Size, File Format, Renderer, Output File, and Camera.

After you have made all your selections in this dialog box, click OK to save these settings with your scene. Click Save if you would like the new settings to appear in the Render command.

### Image size

The resolution of a device, such as a monitor, printer, scanner, or image setter, is described as the number of pixels it can create for each inch of image area: pixels (or dots) per inch (ppi or dpi).

For example, your monitor probably has a resolution of around 72 dots per inch (dpi). Each dot is a pixel, so an image that is 72 X 72 pixels would be a one-inch square on the screen of that monitor. Many color printers are capable of 300 dpi, and some image setters can produce more than 2500 dpi.



This discrepancy in device resolution creates a slight problem. pixels are different sizes on different devices, so an image displays or prints at a different size on devices of different resolution. For example, the 72 X 72 pixel image that is one inch on the screen would be less than one-quarter inches when printed on a 300 dpi printer. (72 pixels drawn at 300 dots per inch:  $72/300 = 0.24$  inches.)

The solution is to set the rendering parameters according to the size of the image you want from a particular output device.

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{button ,AL('OVR Chapter Rendering';,0,"Defaultoverview",)} [Related Topics](#)



## Setting the image size

The Image Size panel lets you describe the dimensions and resolution of the image.

### To set the image size and resolution

1. Click Scene, Render Settings.
2. Click the Image Size tab.
3. Type the appropriate dimensions in the Width and Height boxes. Set the size according to your final output.
4. Type the resolution (dots per inch) of the expected output device in the Resolution field.  
CorelDREAM 3D automatically calculates the correct number of pixels for the image.
5. Enable Keep Proportions if you want to keep the same aspect ratio (ratio of width-to-height) when you change either the width or height.

### To check how long this rendering will take

- Click the Estimate button.

CorelDREAM 3D displays approximately how long the rendering will take at the current settings. Note that CorelDREAM 3D must perform some calculations to produce the estimate, and this might take a little time.

### To limit rendering time

- Type the amount of time you want CorelDREAM 3D to work on the rendering in the Render Time box.

CorelDREAM 3D automatically determines the optimum resolution to finish the job in the time you have allotted, plus or minus a few minutes. This would be a good choice if, for example, you wanted the rendering done by the time you got back from lunch.

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{button ,AL('PRC Fine tuning your rendering settings;',0,"Defaultoverview",)} [Related Topics](#)



## Setting the file format

CorelDREAM 3D lets you save your rendered image in a variety of file formats.

### To set the file format

1. Click Scene, Render Settings.
2. Click the File Format tab.
3. Choose a file format from the Format menu.
4. Set the G-Buffer options for the file format you have chosen.

Not all file formats can use the G-buffer options.

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`{button ,AL("PRC Fine tuning your rendering settings;',0,"Defaultoverview",)}` [Related Topics](#)



## Setting G-Buffer channels

CorelDREAM 3D can put data describing your rendered scene in more than a dozen separate channels. The first three channels are for the pixel colors: channel 1 for red, channel 2 for green, and channel 3 for blue. When these three channels are overlaid, you get the full color image.

If you are only interested in the image, these three channels contain all the data you need. However, if you are planning to composite this image or do other advanced postproduction work, such as 3D filtering, you can place G-Buffer (Geometry Buffer) data in the other channels.

### To select G-Buffer channels

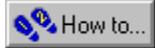
- Enable the check boxes for the features you want. Avoid enabling channels that you do not need. Each channel adds considerably to the file size.

The following channels are available.

- Pixel Color is determined not only by shading, but also by lighting effects. For example, looking through a drinking glass, we can see the wooden table behind. The color of a specific pixel in the glass appears as the color of the wood after it has filtered through the translucent glass.
- A Mask is a "shadow" image of your scene. It describes only where objects are, without detail. The mask is used as a stencil to enable portions of your image when you paste onto a background in an image-editing program. Pasting a foreground image onto a background is called compositing. CorelDREAM 3D puts the mask data in channel 4, the Alpha channel.
- The Distance channel describes the distance of each point from the camera, or viewpoint. Lighter pixels are closest to the camera, while darker pixels represent areas of the rendering that are farthest from the camera. You can load the distance channel and use it as a mask to add an "out of focus" effect or "intelligent blur" to areas that are farthest from the camera.
- The Object Index relates each pixel in the image to the corresponding point on its object.
- The Normal Vector creates three channels that describe the direction that each surface of the object faces. This information can be used after rendering to simulate additional light sources. For example, it's possible to add directional lighting or glows by loading the normal channel to select all the surfaces that face in a given direction, complete with information about how those facings fall-off.
- The Position describes the coordinate of each point in the image. 3D position uses three channels, one for the X value, one for the Y value, and one for the Z value. You could use this information to position low hanging clouds, making use of the Z, or height, channel.
- The Surface Coordinate describes the location of the point on the object in relation to the object's surface coordinate system. This is 2D information that allows you to add, replace, or reposition texture maps on 3D objects in an image-editing program as part of postprocessing, without having to render the image again.

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`{button ,AL('PRC Fine tuning your rendering settings;',0,"Defaultoverview",)} Related Topics`



## Using the Draft renderer

The Draft Z-Buffer is an excellent choice for fast proofing. The quality it produces is similar to that of the Better Preview mode in the Perspective window. You must set three parameters when you use this renderer.

### To select the Draft renderer

1. Click Scene, Render Settings.
2. Click the Renderer tab.
3. Choose Draft Z-Buffer from the Renderers list box.
4. Click the Reflected Color swatch to select a color that will be used in areas that show reflections.
5. Click the Transparent Color swatch to select a color that will be used in areas that show transparency.
6. Enable the No Shaders check box if you want the Draft Z-Buffer to calculate the rendering of the objects without shaders in place.

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`{button ,AL("PRC Fine tuning your rendering settings";,0,"Defaultoverview",)}` [Related Topics](#)



## Using the Ray Tracer

Ray tracing calculates the effects of hypothetical light rays that emanate from your light sources as they encounter the objects in your scene. Ray tracing shows most of the real-world lighting effects, including transparency, shadow, reflection, and bump maps.

The rendering time for ray tracing depends primarily on the resolution. Rendering time also depends on the number of light sources and the shading characteristics of objects.

Because of these variables, CoreIDREAM 3D allows you to disable any or all of these lighting effects channels and to set maximums. For example, there must be a limit to the number of reflections. This ensures that two mirrors placed in front of each other will not reflect each other for ever.

### To select the Ray Tracer

1. Click Scene, Render Settings.
2. Click the Renderer tab.
3. Choose RDI Ray Tracer from the Renderers list box.
4. Set the ray trace options:
  - Reflection: Select to render reflective surfaces. The maximum value for reflection sets the number of times a light ray "bounces" off objects as it travels through the scene.
  - Transparency: Select to render transparent surfaces. The maximum value for transparency sets the number of transparent objects a light ray travels through before stopping.
  - Refraction: Select to render refractive surfaces. The maximum value for refraction sets the number of times a light ray bends as it travels through refractive objects.
  - Shadows: Select to render shadows.
  - Lighting Through Transparent Objects: Select to render lighting effects through transparent objects.
  - Bump: Select to render effects created using the Bump channel in the shader editor.
  - Adaptive Oversampling: Select to use adaptive oversampling. Adaptive oversampling is a technique that resamples the picture to produce a smoother image. Adaptive oversampling is how antialiasing is done in CoreIDREAM 3D.
  - Silhouette Quality: Use the slider bar to adjust how accurately the edges of objects are calculated during the rendering. Increasing Silhouette Quality increases rendering time and RAM requirements.

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**[{button ,AL\('PRC Fine tuning your rendering settings;',0,'Defaultoverview',\)} Related Topics](#)**



## Changing the output file

Whether you are rendering an image through the Render command or through the Batch Queue, CorelDREAM 3D will automatically save the rendered image.

The options in this panel allow you to select a name for the rendered image or to save the file with a default name. The default name will use the name of the scene followed by characters noting the file format (e.g., TIF, BMP).

### To save your rendering output using a filename of your choosing

1. Click Scene, Render Settings.
2. Click the Output file tab.
3. Enable the In Named File option.
4. Type a filename for the new file.

### To save your rendering output using the default filename

- Enable the Using Default Filename option.

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{button ,AL('PRC Fine tuning your rendering settings;',0,"Defaultoverview",)} [Related Topics](#)



## Selecting a camera view to render

If you use one of the Render commands, you render by default from the current camera. To render from some other camera or if you are going to use the Batch Queue, you can identify which camera to use.

### To select the rendering camera

1. Click Scene, Render Settings.
2. Click the Camera tab.
3. Choose the camera you want from the Rendering Camera list box.



### Tip

- If you want to render one scene several times from different cameras, use the Batch Queue.

---

`{button ,AL('PRC Fine tuning your rendering settings';0,"Defaultoverview",)}` [Related Topics](#)



## Framing your scene

The Production Frame specifies the area of the scene (as seen by the camera) to be rendered in the final artwork. Think of the Production Frame as the camera's viewfinder.

You can show the Production Frame by choosing Production Frame from the View menu. The image dimensions and camera settings determine the framing of your scene in the rendering. After you set the image size in the Image Size panel of the Render Settings dialog box, turn on the Production Frame display and check the framing of your scene.

The Magnifying Glass tool and the scroll bars affect the display in the Perspective window  not the camera view. If you can't see all of the Production Frame, use the scroll bars or zoom out until you can see the full frame.

### To display the Production Frame

- Click View, Production Frame.

The Production Frame appears as a rectangle in the Perspective window. The rectangle's dimensions are determined by the width and height settings in the Image Size panel. The area of the scene the frame encloses represents the area of your rendering. You can think of the rectangle as "defining the print area" of your scene. Because rendering time is proportional to the number of pixels that must be generated, the smaller you set your Production Frame, the less time is required for rendering.

### To move the Production Frame

1. Use the Selection tool to select the Production Frame .
2. Click inside the frame and drag it to a different position.

### To resize the Production Frame

- Use the Selection tool to select and drag a corner point or a midline point. To constrain proportions as you resize, hold down SHIFT while you drag.



### Notes

- If you change the width or height of the final artwork by resizing the Production Frame in either the horizontal or vertical direction, new values for height and width appear in the Rendering Settings dialog box. The resolution (dpi) stays the same.
- The camera position does not change when you move or adjust the Production Frame. You are only cropping the camera's view.

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{button ,AL('PRC Fine tuning your rendering settings';,0,"Defaultoverview",)} [Related Topics](#)



## Preset render settings

CorelDREAM 3D allows you to save frequently used render settings and have them appear as presets in Render Settings.

### To add new render settings

1. Type the values you want to save in the Rendering Settings dialog box.
2. Click Save.
3. Type a name for the render settings.

### To remove preset render settings

1. Click Scene, Render, Remove Settings.
2. Choose the render setting you want to remove from the left window and click OK.

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`{button ,AL('PRC Fine tuning your rendering settings;',0,"Defaultoverview",)}` [Related Topics](#)

## Starting a rendering job



## Starting a rendering job

When you have set your options and framed your scene, you can start a rendering.

Rendering, especially Ray tracing, is computationally intensive, and jobs might take several hours to complete depending on the render settings. Rendering can run in the background. You can continue to work with CoreIDREAM 3D and even launch other applications.

Because rendering is time consuming, CoreIDREAM 3D provides a feature that helps you fit heavy rendering jobs into your schedule: the Batch Queue.

### The Batch Queue

CoreIDREAM 3D allows you to batch several rendering jobs in a queue for deferred, unsupervised processing. By default, batched files are rendered automatically using the saved artwork settings from the file. However, Batch Queue rendering parameters can be set to use specific artwork settings for the entire batch or to use different settings for each file in the Batch Queue.

During rendering, CoreIDREAM 3D displays and processes all scenes one at a time. Rendered images can be saved, then opened or edited in image-editing applications. Files in the Batch Queue can be added or removed at any time.

### Viewing rendered images

When you render using the Render menu commands, the image is displayed in a window when the rendering is completed. If you want to keep this rendering, you should save the file.

Renderings generated from the Batch Queue are automatically saved to disk. You can open these files in CoreIDREAM 3D by double-clicking the file icon. You can also open and view them in other graphics applications.

### The CoreIDREAM 3D Image window

When you open a rendered image in CoreIDREAM 3D, it is displayed in the Image window.

CoreIDREAM 3D tries to load the image into RAM. If there is not enough available RAM, CoreIDREAM 3D spools the image from your hard drive. For example, CoreIDREAM 3D's spooling enables you to display a 20MB image on your system with only 16MB of RAM. The penalty of spooling is slower access time. Each time you adjust the image, the computer must read and write to the hard drive.

The zoom ratio (scaling) appears in the top left of the Image window. The ratio is "screen pixels-to-image pixels." When the ratio is 1:1, one screen dot represents one image pixel. When the ratio is 1:2, one screen dot represents two image pixels. The ratio changes as you zoom in or out with the Zoom tool.

The image resolution, color depth, and size of the image appear at the top right of the Image window.

Images produced by CoreIDREAM 3D using the Render/Use Current Settings command and Render/High Resolution are rendered and stored in 24-bit (millions of colors) format.

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{button ,AL('OVR Chapter Rendering';,0,"Defaultoverview",)} [Related Topics](#)



## Using the Batch Queue

The Batch Queue dialog box contains information about the contents and progress of the work in the Batch Queue. The window lists the files contained in the Batch Queue. Filenames are followed by the size set in the artwork settings dialog box for that file. Files that are grayed out have been rendered and saved. The file displayed in bold is currently being rendered. Files displayed in regular type are not yet rendered.

### To launch a rendering batch

1. Click Scene, Batch Queue.
2. Click Launch to start processing files in the Batch Queue.
  - Click Abort to stop processing of files in the Batch Queue.
  - Click Pause to temporarily stop processing files in the Batch Queue.
  - Click Resume to restart processing. You cannot quit the program or turn off your machine and then resume rendering.

### To add files to the Batch Queue

1. Set up each scene you want to include in the batch:
  - Set the render settings, the production format, the framing, and the default camera.
  - Save and close these files.
2. Choose Batch Queue from the Render menu.
3. Click Add.
4. Select the files to include, then click Add.
5. Repeat step 4 until all required files are included, then click Close.
6. Click Launch to start batch processing.



### Tip

- You can change the render settings of the files in the Batch Queue list. Select the files you want to change, and click Settings to access the Render Settings dialog box.

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{button ,AL('PRC Starting a rendering job;',0,"Defaultoverview",)} [Related Topics](#)



## Rendering scenes from different cameras

To render a scene from different cameras or different camera positions, copy the scene for every camera or camera position you want to render.

### To render a scene more than once from different cameras

1. Choose the rendering camera from the Render Settings dialog box.
2. Select Save As from the file menu and save the file with a different name to create a copy of the scene.
3. Repeat steps 1 and 2 until all cameras or positions have been selected.
4. Add the scenes created in steps 1 to 3 to the Batch Queue.
5. Click Done or press ENTER.
6. Click Launch to start batch processing.

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`{button ,AL('PRC Starting a rendering job;',0,"Defaultoverview",)}` [Related Topics](#)



**A**  
**B**  
**C**  
**D**  
**E**  
**F**  
**G**  
**H**  
**I**  
**J**  
**L**  
**M**  
**O**  
**P**  
**R**  
**S**  
**T**  
**U**  
**V**  
**W**  
**Y**  
**Z**

## **A**

[2D](#)

[2D Primitive tools](#)

[3D](#)

[Add Folder button](#)

[Add Point tool](#)

[Adobe Illustrator](#)

[Alignment, relative](#)

[Alignment, text](#)

[Alpha channel](#)

[Ambient Light](#)

[Anti-alias](#)

[Aspect ratio](#)

[Atmospheric Effects](#)

[Axis](#)

## **B**

[Backdrop](#)

[Background, Reflected](#)

[Bezier Curve](#)

[Bezier tool](#)

[Bit depth](#)

[Bitmap](#)

[BMP](#)

[Bounding box](#)

[Brush tool](#)

[Bump](#)

## **C**

CDR  
CGM  
Child  
Close Folder button  
Color  
Color CMYK  
Color RGB  
Complex Object  
Component, shader  
Concentric  
Constrain  
Control Point  
Convert Point tool  
Coordinate System button  
Co-planar  
Create Camera tool  
Create Light tool  
Cross section

## **D**

Deformer  
Delete Point tool  
Dither  
Dolly tool  
Drag  
Draw Text tool  
DXF

## **E**

Ellipse tool  
Eraser  
Eyedropper tool

## **F**

Face  
FH3  
Free-Form Modeler

## **G**

G-Buffer  
Global Mixer  
Global Universe  
Glow  
Grayscale  
Group

## **H**

Hand tool  
Hierarchy

[Highlight](#)

[Hot Point](#)

## **I**

[Icon](#)

## **J**

[Jaggies](#)

## **L**

[Leading](#)

[Letter Spacing](#)

[Links](#)

## **M**

[MacroMedia FreeHand](#)

[Marquee](#)

[Mask](#)

[Master Objects and Objects](#)

## **O**

[Object Properties](#)

[Object](#)

[Object/Group Coordinate System](#)

[One Axis Rotation tool](#)

[Open Folder button](#)

[Operator](#)

[Orientation](#)

[Oversampling](#)

## **P**

[Paint Brush](#)

[Paint Shape Selection tool](#)

[Paint tools](#)

[Paint Ellipse tool](#)

[Paint Polygon tool](#)

[Paint Rectangle tool](#)

[Pan tool](#)

[Path](#)

[PCX](#)

[Photoshop PSD](#)

[PICT](#)

[Pipeline](#)

[Pitch](#)

[Pixel](#)

[Pixmap](#)

[Plane Display tool](#)

[Plane](#)

[Point of view](#)

[Point](#)  
[Polygon tool](#)  
[Position, absolute](#)  
[Position, relative](#)  
[Preview](#)  
[Primer](#)  
[Production Frame](#)  
[Projection](#)

## **R**

[Ray tracing](#)  
[Rectangle tool](#)  
[Reference point](#)  
[Reflection](#)  
[Refraction](#)  
[Remove Folder button](#)  
[Render Preview tool](#)  
[Render](#)  
[Rendering Effects](#)  
[Resolution](#)  
[Roll](#)  
[Root](#)  
[Rotation tool](#)  
[Rounded Rectangle tool](#)

## **S**

[Scaling object](#)  
[Scaling text](#)  
[Selection tool](#)  
[Shader Family](#)  
[Shape](#)  
[Shininess](#)

## **T**

[Text tool](#)  
[Texture map](#)  
[TIFF](#)  
[Tiling](#)  
[Track tool](#)  
[Translation](#)  
[Translucence](#)  
[Transparency](#)

## **U**

[Universe](#)

## **V**

[Vertex](#)  
[Virtual Trackball tool](#)

## **W**

[Wizards](#)

[WMF](#)

[Word Spacing](#)

[Working Box System](#)

[Working Box](#)

## **Y**

[Yaw](#)

## **Z**

[Z-Buffer](#)

[Zoom In tool](#)

[Zoom Out tool](#)

**2D, two-dimensional**

A shape, path, or plane that exists in the dimensions of width and height only.

### 2D Primitive tools



The 2D primitive tools are available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox. One of the pictured tools will be active. Hold down the active tool to open the entire flyout, or click once to cycle to the next tool in the list.

**3D, three-dimensional**

An object or volume that exists in the dimensions of width, height and depth.

**Add Folder button**

Located in the upper-right corner of the Objects browser, this button opens the Directory Selection dialog box, where you select a folder to add to the browser. The new folder will appear as a separate tab in the Objects browser.

### Add Point tool



The Add Point tool is one of the Point tools available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**Adobe Illustrator, AI**

A vector based file format. The file name extension ".AI" is given to files saved in the Adobe Illustrator format.

**Alignment, relative**

Setting two or more objects to some meaningful spatial relationship, such as centering them or distributing them evenly along a line.

**Alignment, text**

Text alignment affects text objects of more than one line. The lines of text may be aligned to their left edge, their center, or to their right edge.

**Alpha channel**

The channel that is used for data other than color. The alpha channel may hold mask or transparency information.

**Ambient Light**

That light responsible for the overall, diffuse lighting of a 3D scene. Similar to daylight in the real world.

**Anti-alias**

The procedure of filtering an image to remove jagged edges from shapes. Anti-aliasing fills in the jagged pixels with intermediate colors (or shades of gray). This smoothes transitions between colors.

**Aspect ratio**

The ratio of the width of an image to its height (x:y). For example, the aspect ratio of an image 640 x 480 pixels is 4:3.

**Atmospheric Effects**

Atmospheric conditions or phenomena that affect the clarity or mood of a scene. Fog and smoke are good examples of atmospheric effects.

**Axis**

A hypothetical linear path. The x, y, and z axes (width, height, and depth, respectively) define the directions of the 3D universe. The axis along which an object is rotated is the axis of rotation. An object's axes are parallel to its bounding box.

**Backdrop**

A picture that is automatically composited behind a 3D scene to provide additional, hard to model or slow to render details. The matte paintings used in traditional movie making are a good example of backdrops, replacing expensive, on-location shoots.

**Background, Reflected**

Also known in computer graphics as Environment Maps, reflected backgrounds permit the use of photographic or hand painted images as stand-ins for the typical subtleties of real world environments that have not been depicted in the 3D scene itself. Reflected backgrounds will show up on reflective surfaces (metal, glass, etc.), increasing the realism of such surfaces.

**Bezier Curve**

A path defined by the position of four control points (at the ends of the tangents of the vertices). The length and angle of the tangents describe the deviation from linear that a path follows between vertices.

**Bezier tool**

The Bezier tool is available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**Bit depth**

The number of bits used to define the shade or color of each pixel in an image. A 1-bit image is black and white. An 8-bit Grayscale image provides 256 shades of gray. (2 to the 8th power is 256.) An 8-bit color image provides 256 colors. A 24-bit image provides over 16 million colors: 8 bits are used for red, 8 are for blue, and 8 for green. This gives you 256 levels for each of the color channels.

**Bitmap**

A pixel-based image in which a single bit is used to define each pixel. Because a bit is either ON or OFF each pixel may be black or white.

**BMP**

A raster (bitmapped) image format. An image file format created by Microsoft Windows PaintBrush, used frequently in other applications.

**Bounding box**

A hypothetical box drawn around an object or group. A bounding box is the smallest rectangular box in which the object (or group) will fit completely. The bounding box is parallel to the axes of the object. The bounding box is shown (around the preview of selected objects and groups) in the Perspective window, and it is the bounding box, not the object itself, that casts the projections onto the working box grid.

## Brush tool



The 3D Paint Brush tool is available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**Bump**

The bump channel creates the illusion of a bumpy surface by changing the angle at which light rays reflect off the surface at certain points. Because the bumpiness is an illusion created by the renderer, rather than an actual change in the surface, the edge of the object remains smooth.

**CDR**

A vector based file format. An image file format, created by Corel Draw, used in DOS/Windows applications

**CGM**

A vector based file format. An image file format, created by Harvard Graphics, used in DOS/Windows applications.

**Child**

An object linked to another object (its parent) in the hierarchy. When the parent is moved, the child and all grandchildren go with it. The parent-child link is used to enable articulation of complex objects.

### **Close Folder**



Located in the upper-right corner of the Objects browser, this button deletes the current folder tab. Note that removing a folder does not delete files, it only removes them from the browser.

**Color**

The Color channel determines the color of your shader. Depending on the components you place beneath the Color channel, you can specify anything from a plain color to a complex, multicolor pattern.

**Color, CMYK**

The subtractive color model, used in printing. Colors are created by assembling different densities of cyan, magenta, yellow, and black pigments on a surface. When white light strikes the surface, only specific bandwidths are reflected, depending on the density of the specific pigments. The reflected bandwidths create the perceived color. Called the subtractive model because the pigments subtract (by absorption) the bandwidths of white light that do not contribute to the specified color.

**Color, RGB**

The additive color model, used in your computer monitor. Colors are created by adding varying degrees of red, green, and blue light. For information on the varying degrees, refer to bit depth.

**Complex Object**

An object constructed of several simple objects that are linked or grouped. For example, a telephone, comprised of the grouped, simple objects: cord, handset, and cradle, would be considered a complex object.

**Component, shader**

An elementary building block used in building a shader tree.

**Concentric**

Having the same center.

**Constrain**

To restrict object movement to a particular plane, axis, or angle. The working box is the primary tool for controlling constraint.

**Control Point**

The knobs you drag at the ends of Bezier tangents.

### **Convert Point tool**



The Convert Point tool is one of the Point tools available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**Coordinate System button**

Click the coordinate system text in the bottom left hand corner of the Numerical Properties dialog box to change the coordinate system. The text will read either "Global," "Wbox" or "Object."

**Co-planar**

Occurring in the same plane.

### Create Camera tool



The Create Camera tool is available in the Perspective Toolbox. Drag the tool into the Perspective window to create a new camera.

### **Create Light tool**



The Create Light tool is available in the Perspective Toolbox. Drag the tool into the Perspective window to create a new light.

**Cross section**

One of the planes on which two-dimensional shapes are drawn to create the form of a three-dimensional object. Objects have two or more cross sections.

**Deformer**

Properties that can be applied to any object (or group of objects) to deform its geometry. Asymmetric scaling, bend, twist and shatter operations are examples of deformers.

### Delete Point tool



The Delete Point tool is one of the Point tools available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**Dither**

The process of approximating pixel colors when reducing the color depth of an image. Dithering can improve transitions between colors when reducing a 24-bit image to 8-bit format.

### **Dolly tool**



The Dolly tool is available in the Perspective Toolbox. When you move a camera with the Dolly tool, the camera moves around in 3D space as if gliding on the surface of a sphere that has the object of interest as its center.

**Drag**

To position the mouse pointer on an item (an object or an icon), depress the mouse button, move the mouse (usually putting the pointer into a specific region), and release the mouse button.

### **Draw Text tool**



The Draw Text tool is available in the Modeler toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**DXF**

DXF is a public export text file format used by many CAD applications. Because it is widely supported by animation, 3D modeling and rendering, and CAD programs, it may be used as a vehicle for importing and exporting objects between CorelDREAM 3D and other applications.

When it was first created, DXF was only a 2D format. Later, it was improved to include 3D information. As a result, a DXF file can now simultaneously contain both 2D and 3D data. DXF is pure geometry. It carries no shading information, lights or cameras.

### Ellipse tool



The Ellipse tool is one of the 2D Primitive tools available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

## Eraser



The Eraser button is located in the top left-hand corner of the Brushes dialog box. Click the Brush tool to open the Brushes dialog box.

## Eyedropper tool



The Eyedropper tool is available in the Toolbox.

**Face**

The back (first cross section shape) or front (last shape) of an extruded object.

**FH3**

A vector based file format. The extension for files saved in the Aldus Freehand 3 file format.

**Free Form Modeler**

A modeler that allows for the creation of freeform objects with a more organic and less mechanical appearance. Typically, it uses higher-level curve representation such as Bezier patches.

**G-Buffer, Geometry Buffer**

A type of information carried on optional channels of an image rendered in Designer. The G-Buffer carries an aspect of three dimensionality with the 2D rendering. This can assist 2D filters and paint tools during retouching.

**Global Mixer**

A new kind of shader editor component that allows the simultaneous mixing of all the channels of two shaders as opposed to the traditional mix component which only allows for the mixing of two shaders in one single channel.

**Global Universe**

The Global Universe is a Cartesian coordinate system with the origin of the X, Y, and Z axes (0, 0, 0) at the center of the universe. The Global Universe is fixed. It is not affected by changes made to the working box

**Glow**

The settings in a shader's Glow channel determine the shader's luminance. An object whose shader has a high degree of luminance will appear bright, even if it is not lit by ambient light or external light sources.

**Grayscale**

An image in which the pixels are defined with 8 bits, which provides 256 levels of gray.

**Group**

A set of collected objects. Grouping enables a set of simple objects to behave as one.

### Hand tool



The Hand tool is one of the Zoom tools available in the Toolbox.

**Hierarchy**

The tree structure in the Hierarchy window that shows the logical relationships of linked and grouped objects and allows you to change their relationships.

**Highlight**

Regions on an object where light reflects directly into the viewpoint. Highlights appear as bright spots on shiny objects and are almost nonexistent on rough objects.

**Hot Point**

A special, active point inside, on the surface of, or near an object or group. The hot point is used to identify the object's location in the universe for precise positioning and alignment operations. The hot point of selected objects and groups appears in the Perspective window as a small sphere. The sphere itself also casts 2D projections.

**Icon**

A pictorial representation of a tool, object, file, or other program item. An item is selected by clicking once, or sometimes double-clicking, on its icon.

**Jaggies**

The appearance of stair-step, jagged edges in a pixmap image. Jaggies can be reduced with anti-aliasing.

**Leading**

Leading determines the vertical space between lines of text. The default leading value is 120% of the font's point size. Decreasing the percentage makes vertical spacing more compact, while increasing the percentage expands it.

**Letter Spacing**

Letter Spacing adjusts the horizontal spacing between characters in an entire word, line, or text block. A negative value decreases spacing, while a positive value increases it.

**Links**

A variety of child/parent relationships and constraints on relative motion to simulate traditional, real world mechanical links. Shafts, gliders, and ball joints are all good examples of links.

**Macromedia FreeHand**

A vector based file format. The extension for files saved in the Aldus Freehand 3 file format is "F3H."

**Marquee**

When you drag diagonally to select a set of elements or region of an image, the rectangle created between the start point (mouse down) and the end point (mouse up) is called a marquee.

**Mask**

The mask is an inverted shadow that is used to occlude areas of an image that are not part of the desired foreground object. The mask enables you to paste just the object itself onto a background, a process called compositing. For more information on masking, refer to Post Production.

**Master Objects and Objects**

New names for the old terminology of “classes” and “instances.” A master object is the “mold” from which objects are duplicated. If a master object is modified, all of the objects derived from it are modified similarly. If an object is modified, only that object is modified.

**Object Properties**

In CoreIDREAM 3D, object properties are consolidated in one single, tabbed dialog that regroupes the various properties of the object selected. Scaling information, shading information, links, behaviors and deformers are good examples of object properties. The list of object properties will automatically adjust itself based on the category of the object. For instance, lights have a gel property, which only applies to light source.

**Object**

Any 3D volume or other item that appears in the universe, including cameras and lights. When objects are grouped, their group is also described as an object.

**Object/Group Coordinate System**

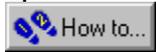
Groups and individual objects have their own local coordinate systems. The origin of a group or object coordinate system is at its hot point. The axes are parallel to the sides of the bounding box.

### **One Axis Rotation tool**



The One Axis Rotation tool is one of the Rotation tools available in the Toolbox.

### Open Folder



Located in the upper-right corner of the Objects browser, this button opens the Directory Selection dialog box, where you select a folder to add to the browser. The new folder will appear as a separate tab in the Objects browser.

**Operator**

An operator is a shader shell that combines other shaders to form a sub-shader.

**Orientation**

The direction in which an object faces. The compound effect of the object pitch, yaw, and roll. Usually, the most important aspect of an object orientation is its relation to other objects. Its relation to the viewpoint can be changed by moving the current camera.

**Oversampling**

A traditional computer graphics technique for getting rid of computer generated artifacts such as jaggedness. Smoother looking results are obtained by taking more samples (hence the name) from the 3D world and averaging them when rendering a picture.

## Paint Brush



The Paint Brush button is located in the top left-hand corner of the Brushes dialog box. Click the 3D Paint brush tool to open the Brushes dialog box.

### Paint Shape Selection tool



The Paint Shape Selection tool is one of the Selection tools available in the Toolbox.

### Paint tools



The 3D Paint tools are available in the Toolbox. One of the pictured tools will be active. Hold down the active tool to open the entire flyout, or click once to cycle to the next tool in the list.

### Paint Ellipse tool



The Paint Ellipse tool is one of the 3D paint tools available in the Toolbox.

## Paint Polygon tool



The Paint Polygon tool is one of the 3D paint tools available in the Toolbox.

### **Paint Rectangle tool**



The Paint Rectangle tool is one of the 3D paint tools available in the Toolbox.

### **Pan tool**



The Pan tool is available in the Perspective Toolbox. When you move a camera with the Pan tool, the camera acts as the “center of the sphere” and rotates at a fixed position in space to track an object or view a scene, much like a movie camera can rotate on a tripod to follow a moving object.

**Path**

The curve or line along which shapes are extruded when modeling. Called the sweep or extrusion path. The path is defined by one line on the bottom plane and one line on the back plane in the Modeling window. The compound curvature of these two lines define the path itself.

**PCX**

A raster (bitmapped) file format. An image file format, created by PC PaintBrush by Zsoft, used frequently by DOS/Windows applications.

**Photoshop PSD**

A raster (bitmapped) file format. An image file format, created by Adobe Photoshop, used frequently by DOS/Windows applications.

**PICT**

A raster (bitmapped) file format. An image file format used frequently on the Macintosh. May use up to four channels: red, green, blue, and Alpha.

**Pipeline**

An extrusion in which the cross section is always perpendicular to the sweep path.

**Pitch**

The aspect of an object attitude that describes its angular deviation along its vertical (top-to-bottom) axis.

**Pixel, picture element**

One dot in a 2D image. Computer images are created as an array of such dots, each having a specific color. See also resolution and bit depth.

**Pixmap**

An image formed as an array of pixels.

### Plane Display tool



The Plane Display tool is located in the top, left-hand corner of the CoreIDREAM 3D application window.

**Plane**

A hypothetical, two-dimensional construct that may exist at any attitude in space. You can think of a plane as a flat sheet of invisible paper that stretches infinitely in two dimensions. In Designer, you use planes to constrain the direction of translation on an object. The working box shows the angle at which the constraint planes are set. By default, the planes of the working box are set parallel to the axes of the current local universe.

**Point of view**

The position and angle from which you view a scene. The point of view (POV) is always through a camera. You may add several cameras, positioned and angled differently, and switch the Universe window POV between them. When you render an image, you choose the POV from which the image should be taken.

**Point**

As a unit of measure, a point is  $1/72$  of an inch. Point also refers to Bezier vertex and control points.

### **Polygon tool**



The Polygon tool is one of the 2D Primitive tools available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**Position, absolute**

The x, y, z coordinates of an object hot point in the Global Universe.

**Position, relative**

The placement of an object in relation to another object. For example, a book might be on top of a table.

**Preview**

The display of an object in the Perspective or Modeling window or the swatch of a shader in the Shaders Browser. Also refers to a rendering with a low resolution setting.

**Primer**

Each object you create in CoreIDREAM 3D has a base shader, called the primer, that covers the entire object. By applying a shader to an object's primer, you can control the appearance of the object's surface.

**Production Frame**

The computer equivalent of the viewfinder in a real-world camera. The production frame can be thought of as delimiting the area of the 3D scene that will be rendered into an image.

Projection The silhouette of an object's bounding box on one of the three visible planes of the grid. Used for translations.

**Projection**

The silhouette of an object bounding box on one of the three visible planes of the grid. Used for translations.

**Ray tracing**

A procedure for generating a rendering. The ray tracer sends hypothetical rays of light from the sources in the scene and calculates the visual effects, for each pixel in the rendering, as the rays encounter and reflect from the objects in the scene.

## Rectangle tool



The Rectangle tool is one of the 2D Primitive tools available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**Reference point**

A fixed point or plane used as the starting point for some operation. The hot point, the center of the bounding box, and the corners of the bounding box are common reference points.

**Reflection**

Many real-world surfaces are at least somewhat reflective. Most types of metal and glass are partially reflective, as are some types of plastic. A mirror is so reflective that it takes nearly all of its color from its surrounding environment. CoreIDREAM 3D allows you to specify reflectivity by placing shader components beneath the Reflection channel.

**Refraction**

When light rays pass through a semitransparent object, their trajectories are deflected. This phenomenon is known as refraction. Glass, fluids, and other translucent materials refract light to some degree. This results in a distorted image of objects behind the refractive surface. You can control the refraction attributes of your transparent objects using the Refraction channel.

### **Remove Folder button**



Located in the upper-right corner of the Objects browser, this button deletes the current folder tab. Note that removing a folder does not delete files, it only removes them from the browser.

## Render Preview tool



The Render Preview tool is available in the Main toolbar.

**Render**

The process of capturing a 2D image from a 3D scene.

**Rendering Effects**

A variety of effects and settings that globally affect the 3D scene to which they are applied. In CoreIDREAM 3D, rendering effects include ambient light, atmospheric effects, backgrounds, backdrops and post-processing image filters.

**Resolution**

For devices, like a printer or the monitor screen, resolution is given in dots per inch (dpi) or dots per centimeter.

**Roll**

The aspect of an object attitude that describes its angular deviation along its lateral (side-to-side) axis.

**Root**

The root describes the highest level of the hierarchy, the universe. When you are Jumped Into a group, the group box is the highest level of the hierarchy, and therefore, the local root.

## Rotation tool



The Free Rotation tool is one of the Rotation tools available in the Toolbox.

### **Rounded Rectangle tool**



The Rounded Rectangle tool is one of the 2D Primitive tools available in the Modeler Toolbox. Create or edit a free-form object to open the 2D Modeler and reveal the Modeler Toolbox.

**Scaling, object**

The percentage an object is resized. Each object instance may be scaled from the dimension of its class, which has a scaling of 1.

**Scaling, text**

Scaling changes the width of characters without affecting their height. A value below 100% results in characters that are narrower than usual, while a value above 100% results in characters wider than usual.

### **Selection tool**



The Selection tool is the topmost tool in the Toolbox.

**Shader Family**

A category of shader variants. In a Family, the settings in certain channels are often similar.

**Shape**

A 2D path that may be open, a line, or closed, such as an oval or a polygon. Shapes are used in cross sections when modeling. In shading, paint shapes are used to specify regions for shading.

**Shininess**

Most objects in the real world show highlights when they are illuminated. These bright spots or streaks are direct reflections of light sources, like the sun glinting off a chrome bumper. Metallic objects have small, bright highlights. Plastics have dim, but large highlights. Stones usually have no highlights unless they are polished. You can control the color, intensity and size of an object's highlights by placing shader components beneath the Highlight and Shininess channels.

**Text tool**

The Text tool is available in the Perspective toolbox. Drag the tool into the Perspective window to create a new text object.

**Texture map**

A 2D image used as a shader.

**TIFF, Tagged Image File Format**

A raster (bitmapped) file format. An image file format often used for transfer between applications or platforms. CoreIDREAM 3D will open TIFF images in RGB and CMYK formats.

**Tiling**

The technique of repeating a small image across a larger surface to cover it.

### Track tool



The Track tool is available in the Perspective Toolbox. When you move a camera with the Track tool, the camera moves in a plane perpendicular to the direction in which the camera is pointing.

**Translation**

Any manipulation of the position or attitude of an object. Also, an extrusion in which the cross section remains at one angle, regardless of the curvature of the sweep path.

**Translucence**

The characteristic of an object that allows light to pass through it.

**Transparency**

When light strikes an opaque surface, it bounces off. When light strikes a semitransparent surface, some bounces off, but some passes through. As a result, you can see through a semitransparent object. Glass, water, and clear plastic are examples of semitransparent materials. You can specify transparency by placing shader components beneath the Transparency channel.

**Universe**

The 3D workspace, shown in the Perspective window, where you place and position objects.

**Vertex**

A control point on a path. Paths begin, change angle, and end at vertices.

### Virtual Trackball tool



The Virtual Trackball tool is one of the Rotate tools in the Toolbox.

**Wizards, modeling and scene**

Visual step-by-step pictorials used to simplify a typically complex multi-stage process. CorelDREAM 3D's modeling wizards allow the quick creation of 3D objects, and the scene wizards the rapid set-up of a scene complete with lighting and props. Wizards are great learn-by-example resources that embed the know-how of experts in the field of 3D graphics.

**WMF**

A raster (bitmapped) file format. An image file format created by Microsoft Windows, used by DOS/Windows applications.

**Word Spacing**

Word Spacing adjusts the horizontal spacing between words. A negative value decreases spacing, while a positive value increases it.

**Working Box System**

The working box has its own coordinate system. The attitude of its axes and the position of its origin (at the center of the working box) change as you move and re-orient the working box.

**Working Box**

The three visible grid planes in the Perspective window. Called the working box because you will move it as you work to constrain operations to certain planes.

**Yaw**

The aspect of an object attitude that describes its angular deviation along its linear (front-to-back) axis.

**Z-Buffer**

A rendering technique that uses z (depth) information in sorting object facets.

### Zoom In tool



The Zoom In tool is one of the Zoom tools available in the Toolbox.

### Zoom Out tool



The Zoom Out tool is one of the Zoom tools available in the Toolbox.



**Bleed**

In commercial printing, the part of a layout that extends beyond the edge of the area to be printed. A bleed lets you extend an image to the edge of the page.

**Clipart**

Ready-made images that can be brought into Corel applications and edited if required. Corel applications offer thousands of Clipart images in many different formats. You can purchase additional images, including some in bitmap format, from commercial suppliers.

**Color separation**

In commercial printing: the process of splitting colors in a composite image to produce a number of separate grayscale images, one for each primary in the original. In the case of a CMYK image, four separations must be made: one of cyan, magenta, yellow, and black

**DPI**

A measure of a printer's resolution in dots per inch. Typical desktop laser printers print at 300 dpi, while image setters are capable of printing at resolutions of 1270 or 2540 dpi. Printers with higher DPI capabilities produce smoother and cleaner output.

**Halftone**

In image that has been converted from a continuous tone image to a series of dots of various sizes to represent different tones (see halftone screen). A photograph must be converted into a halftone in order to be printed on conventional devices and printing presses. Halftones are often referred to as PMT's.

On laser printers that cannot print different sizes of dots, the halftone is produced by printing different numbers of dots in a given area.

**Layout style**

The way a multi-page document is organized for printing. CorelDRAW provides preset layout styles for several types of publications, including books, booklets, and tent cards.

**lpi (Lines Per Inch)**

The screen frequency used for halftone screens for photos and tints.; the density of dots on PMT's and film output of continuous-tone images from imagesetters is measured in lpi.

**Nodes**

The points at the end of line and curve segments. You can alter the shape of a line or curve by dragging one or more of its nodes.

**Open Prepress Interface (OPI)**

A method for placing high resolution bitmaps on the printed page, while using low resolution replicas for placement.

Two images are created using a high-end scanner. A high-resolution version (which is kept on file), and a low-resolution equivalent. The low resolution image is imported into your documents, using them "for position only" (FPO). Working with FPO images keeps your document size smaller and speeds up screen redrawing time. When you send your artwork back to the service bureau for final imaging to film, your high resolution files are put in place, resulting in a final product with a high-resolution.

**Orientation**

The direction in which objects are displayed on the page. For example, a page oriented so that the horizontal dimension is greater than the vertical dimension is said to have a landscape orientation.

**PostScript textures**

A type of pattern fill designed using the PostScript language. Some textures are extremely complicated and require several minutes or more to print, or to update on the screen. Therefore, PostScript fills display as the letters "PS" rather than with the actual texture.

**PowerClip**

A feature that allows you to place objects (called contents objects) inside other objects (called container objects). If the contents object is larger than the container object, CorelDRAW automatically crops it. You see only the contents that fit inside the container.

**Process color**

In commercial printing: color produced by the process of blending levels of cyan, magenta, yellow and black This is different from a spot color, which is a solid ink color printed individually (one plate per spot color).

**Spot color**

In commercial printing: a solid ink color printed individually--one plate per spot color.

This is different from a process color, in which each color is expressed as a combination of four separate inks.

**Texture fill**

A texture fill is a fractally generated fill—a random, two-color fill—that you can use to give your objects a natural appearance. Texture fills add significantly to the size of your file and the time it takes to print. Therefore, you may want to avoid filling numerous or large objects with texture fills.



These two arrow buttons allow you flip through the pages of your document. They are located at the lower-right corner of the Preview box.

### **Selection tool**



The Selection tool is the topmost tool in the Toolbox.

### **Zoom In tool**



The Zoom In tool is one of the Zoom tools available in the Toolbox.

## No topic

Sorry, there is no specific topic for this control. Click the Contents button to open the CorelDREAM 3D table of contents.



These options allow you to resize and reposition your artwork. These options do not affect the artwork itself, only the way it is printed.

Applies positioning and sizing to all pages.

Specifies the placement of your artwork on the page. The Top value indicates the distance from the top edge of the printable page.

Specifies the placement of your artwork on the page. The Top value indicates the distance from the top edge of the printable page.

Identifies the unit of measurement that is used when you specify the layout of your artwork.

Specifies the placement of your artwork on the page. The Left value indicates the distance from the left edge of the printable page.

Specifies the placement of your artwork on the page. The Left value indicates the distance from the left edge of the printable page.

Resizes your printed artwork (not the original document) according to the width specified.

Resizes your printed artwork (not the original document) according to the width specified.

Scales the width of your printed artwork (not the original document) by the specified percentage.

Scales the width of your printed artwork (not the original document) by the specified percentage.

Resizes your printed artwork (not the original document) according to the height specified.

Resizes your printed artwork (not the original document) according to the height specified.

Scales the height of your printed artwork (not the original document) by the specified percentage.

Scales the height of your printed artwork (not the original document) by the specified percentage.

Automatically centers your artwork on the page.

Automatically scales your artwork so that it fits the printable page. Unless Maintain aspect ratio is enabled, Fit to Page will distort your image.

Constrains resizing and scaling so that the height and width ratio of the artwork is maintained.

Allows you to print large artwork on multiple sheets, or tiles, that can later be assembled to form the whole picture.

Provides preset page layouts and allows you to store custom styles.

Provides preset page layouts and allows you to store custom styles.

Opens the Edit Layout dialog box.

Specifies the number of working pages to place on a single printable page.

Specifies the number of working pages to place on a single printable page.

Places the current layout in each frame of the printable page.

Allows you to set the amount the images on each tile overlap with the images on adjacent tiles.

Allows you to set the amount the images on each tile overlap with the images on adjacent tiles.

Allows you to set the amount the images on each tile overlap with the images on adjacent tiles based on a percentage of the page width.

Allows you to set the amount the images on each tile overlap with the images on adjacent tiles based on a percentage of the page width.

Enables a limit for bleeds. The bleed limit determines how far beyond the crop marks a graphic can extend when printed. The corresponding value identifies how far beyond the crop marks the bleed can extend.

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Specifies the placement of your artwork on the page. The Left value indicates the distance from the left edge of the printable page.

Resizes your printed artwork (not the original document) according to the width specified.

Resizes your printed artwork (not the original document) according to the height specified.

Enables a limit for bleeds. The bleed limit determines how far beyond the crop marks a graphic can extend when printed. The corresponding value identifies how far beyond the crop marks the bleed can extend.

Stores the page positioning settings specified in the Positioning dialog box.

Opens the Positioning dialog box. This dialog box allows you to specify positioning settings that can be save in Positioning styles.

Stores the page positioning settings specified in the Positioning dialog box.

Places the current working page in each frame of the printable page.

This value reflects the number of steps that will be used to render any fountain fills in your artwork. A low value (less than 20) will print faster but the transition between shades may be coarse, which causes what is known as banding. A higher value (over 40) will result in a smoother blend but longer printing times.

Fountain steps that are set in the Options dialog box only affect the way fountain fills display on your monitor. To control how the fountain fills actually print, you must set the value for fountain steps here or in the Fountain Fill dialog box.

Identifies the basic halftone screen frequency that your job will print at.

Screen frequency is expressed as a number of lines per inch (lpi). This value refers to the number of lines of dots (or other shapes) that make up a halftone screen. A halftone screen is a pattern of shapes of various sizes that is used to simulate a continuous tone image. Check with your service bureau for the optimum setting for your print job.

Prints a job information sheet with your print job. This report contains information about the application that produced the job, the driver that was used, the print settings, the font information, and the file links.

Opens the Job Information Sheet dialog box, which allows you to specify which categories of information you want included in the report.

Prints only vector graphics unless combined with Print bitmaps or Print text.

Prints only bitmaps unless combined with Print vectors or Print text.

Prints only text unless combined with Print vectors or Print bitmaps.

Prints all text in black.

Prints using the full color capabilities of the selected printing device.

Prints all colors in black.

Prints all colors in grayscale.

Opens the Postscript Preferences dialog box.

Allows you to choose an option and assign a new setting to it. The Special Settings options allow you to change settings that were previously edited in the CORELPRN.INI file.

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Allows you to choose an option and assign a new setting to it. The Special Settings options allow you to change settings that were previously edited in the CORELPRN.INI file.

Scales everything that will be printed so that it fits within the printable page of the current printer. Use this setting to proof a large layout on your desktop printer.

This option is only intended for proofing, and should be disabled for the final output. If you wish to scale your artwork to fill the printable page, you should use the fit to page option. Position and size measurements reflect the size of the final output, not the size of the proof.

Allows you to choose proofing options.

Allows you to choose an option and assign a new setting to it. The Special Settings options allow you to change settings that were previously edited in the CORELPRN.INI file.

Opens the Printers' Marks And Prepress Settings dialog box. This dialog box lets you add printers' marks such as crop marks, and lets you change prepress settings such as printing a negative image.

Indicates which device driver is selected. Click the arrow to access a list of other available printer and imagesetter drivers. If the driver you need is not listed, install it by using the usual Windows procedure.

Opens a Windows dialog box which allows you to set printing options not controlled by Corel.

Provides information about the current printing device.

Provides information about the current printing device.

Provides information about the current printing device's location.

Provides information about the current printing device.

Creates a .PRN file from your print job (instead of actually printing).

Prepares the .PRN file for printing from a Macintosh computer.

Displays a list of documents that you can print.

Allows you to choose what to print.

Print all pages in your document.

Prints only the objects that are currently selected.

Prints only the page currently displayed.

Specifies the pages, or the range of pages, to print.

- A dash (-) between numbers defines a range of sequential pages (e.g., 1-5 will print pages 1 to 5).
- A comma (,) between numbers defines a series of non-sequential pages (e.g., 1,5 will print pages 1 and 5 only).
- Any combination of dashes and commas is supported (e.g., 1-3, 5, 7, 10-12 will print pages 1, 2, 3, 5, 7, 10, 11 and 12).
- Inserting a tilde (~) between two numbers will cause those two pages plus every second page in between to print. For example, 1~6 will print pages 1, 3, 5 and 6. If you enter 2~6, pages 2, 4 and 6 will print.

The option works in conjunction with the Print Odd/Even Pages option.

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- A dash (-) between numbers defines a range of sequential pages (e.g., 1-5 will print pages 1 to 5).
- A comma (,) between numbers defines a series of non-sequential pages (e.g., 1,5 will print pages 1 and 5 only).
- Any combination of dashes and commas is supported (e.g., 1-3, 5, 7, 10-12 will print pages 1, 2, 3, 5, 7, 10, 11 and 12).
- Inserting a tilde (~) between two numbers will cause those two pages plus every second page in between to print. For example, 1~6 will print pages 1, 3, 5 and 6. If you enter 2~6, pages 2, 4 and 6 will print.

The option works in conjunction with the Print Odd/Even Pages option.

Allows you to specify whether odd, even, or both odd and even pages will be printed

Identifies the number of copies that will be printed. When printing to file, request one copy only, with no collation.

Prints one full set of the selected pages before printing the second full set (e.g., a first set of pages 1 to 10 will print, before the second set of pages 1 to 10 will print, and so on).

If you do not enable Collate, the requested number of copies of each selected page will print before the next page will print (e.g., five copies of page 1 will print before five copies of page 2 will print, and so on).

Prints one full set of the selected pages before printing the second full set (e.g., a first set of pages 1 to 10 will print, before the second set of pages 1 to 10 will print, and so on).

If you do not enable Collate, the requested number of copies of each selected page will print before the next page will print (e.g., five copies of page 1 will print before five copies of page 2 will print, and so on).

Stores a configuration of print settings that can be used again.

Stores a configuration of print settings that can be used again.

Opens the Print Options dialog box which allows you to set advanced printing parameters such as sizing and positioning, halftone screening, color separations, etc.

Ensures that colors will print as expected.

The printer color profile shown here matches the printer that was chosen in the System Profile (Color Manager).

If you want your print job to be filtered through a different profile, you must go back to the Color Manager, select the appropriate printer, and generate a new System Profile.

Provides information about the current printing device.

Provides information about the current printing device.

Provides information about the current printing device's location.

Provides information about the current printing device.

Provides information about the current printing device, and allows you to change devices.

Allows you to specify the number of copies and whether to collate them.

[Open the print preview.](#)

Selects the publication

Selects the chapter.

Displays a dialog box that presents the current printing device's capabilities.

Stores a configuration of print settings that can be used again.

Saves the current print settings as a new style.

Deletes the selected style.

Prints the filename, current date, and time (and tile number, if applicable) at the bottom of the sheet.

If applicable, color separation information (color, screen frequency and angle, plate number) is printed at the top of the sheet.

To see the file information, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work. If not, you can request that the file information be printed within the page.

Prints crop marks. These marks are used as alignment aids when trimming the printed output down to its final size.

To see the crop marks, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints registration marks on each sheet. These marks serve as guides for aligning color separations.

To see the registration marks, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints a bar of the six basic colors (red, green, blue; cyan, magenta, yellow) beside your artwork. These color patches are used to verify the quality of the printed output.

To see the calibration bar, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints a Densitometer Scale, a bar of varying shades of gray, on each separation sheet. This is an advanced feature that allows you to check the accuracy, quality, and consistency of the output with an instrument called a densitometer.

To see the densitometer scale, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work

Prints a negative image when enabled.

Specifies that the film emulsion faces down when enabled.

Emulsion is the coating of light-sensitive material on a piece of film.

Causes the file information to print within the page. If the working page size is identical to the paper or film size, enable File Info Within Page. Make sure the artwork is positioned so that the file information does not overlap it.

Prints crop marks only along the outer edge of the sheet. This option is often preferable when you are printing multiple layouts per sheet.

Allows you to move back in a multi-page document.

Allows you to move forward in a multi-page document.

Displays your file as it will print and allows you to size and reposition your image. Right click on the preview window to choose one of four options: Preview Image, Preview in Color, Full Image Drag, and Print This Sheet Now. For your image to appear, you must enable Preview image. Otherwise your image will be represented by a bounding box.

Displays your file as it will print and allows you to size and reposition your image. Right click on the preview window to choose one of four options: Preview Image, Preview in Color, Full Image Drag, and Print This Sheet Now. For your image to appear, you must enable Preview image. Otherwise your image will be represented by a bounding box.

Allows you to choose whether the Preview box will display a composite view of your print job or only a specific color separation. This feature is only available when Print Separations is enabled.

Displays your file in the Preview box as it will print.

Preview Image is a handy feature. Enable it, unless the image is complex and takes a long time to display. If you disable the preview, a bounding box will still indicate the position and size of your image.

Places page numbers on the printed sheets. To see the page numbers, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Changes to a full screen preview. Click it again to return to a normal preview.

Stores a configuration of print settings that can be used again.

IDH\_PD2\_RULER

Skips the object that is causing a problem.

Continues processing your print job.

Cancels your print job.

Displays information about a printing problem.

Disables further warnings.

Separates color artwork into its component colors, causing each component color to print out on a single sheet.  
If you used a process color model (which uses four colors to simulate any color), you'll get up to four sheets per page.  
If you used spot colors, one sheet per color is printed.

Allows you to print the separations in color (i.e., on a color printer). Separations are usually printed in black, with a screen to represent shading. This option allows you to print the separations in color instead.

Converts any spot colors present in your artwork to process colors. This does not affect the artwork itself, only the way it is printed.

Prints all plates, including those that contain no image. Printing empty plates wastes film and adds to the cost of your job. Generally, you'll want to leave this option disabled.

Allows you to adjust the advanced settings of your color separations, which includes setting halftone screens and creating color trapping. Do not adjust these settings without first talking to your service bureau or printing shop.

Opens the Advanced Separations Setting dialog box that allows you to set advanced screening parameters such as screening technology, screen frequency and angle per color plate, overprinting per plate, halftone dot type, etc.

Specifies which color separation(s) to print.

The list of colors shows all separations used in your artwork. You can choose to print all separations, one separation only, or any combination of separations.

Specifies which color separation(s) to print.

The list of colors shows all separations used in your artwork. You can choose to print all separations, one separation only, or any combination of separations.

Causes any object that contains 95% black or more to overprint underlying objects. This is a useful option for artwork containing a lot of black text, but it should be used with caution on artwork with a high graphics content.

Creates color trapping by assigning an outline to an object that is the same color as the object's fill, and by then having the outline overprint underlying objects.

To be able to apply Auto-spreading to an object, it must

- not already have an outline
- be filled with a uniform fill
- not already be designated to overprint

The maximum trap value defines the amount of spread that autotrapping assigns to an object, along with the object's color. The lighter the color, the greater the percentage of the maximum trap value. The darker the color, the smaller the percentage of the maximum trap value.

The value for Text Above determines the minimum font size to which auto-spreading is applied. Applying auto-spreading to small font sizes can make the text illegible.

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The value for Text Above determines the minimum font size to which auto-spreading is applied. Applying auto-spreading to small font sizes can make the text illegible.

Allows you to specify color trapping settings.

Specifies Hexachrome process color. Hexachrome color uses 6 inks instead of 4.

Sets Hexachrome color to use high density inks when printing solid colors.

Identifies the imagesetter and screening technology that will be used to image your job.

Proprietary screening technologies supported by Corel include AGFA Balanced screening, Linotronic RT and, HQS screening.

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Proprietary screening technologies supported by Corel include AGFA Balanced screening, Linotronic RT and, HQS screening.

Identifies the resolution (in dots per inch, or "dpi") the job will be printed at.

Identifies the resolution (in dots per inch, or "dpi") the job will be printed at.

Identifies the basic screen frequency (in lines per inch, or "lpi") the job will be printed at.

The higher the screen frequency setting, the more intense the colors and the sharper the image. The lower the screen frequency, the lighter the colors and the less sharp the image.

A high frequency gives you fewer levels of gray; a low frequency gives you more levels of gray.

The upper limit of your screen frequency is define by the type of printing press to be used and the type of paper stock.

Identifies the basic screen frequency (in lines per inch, or "lpi") the job will be printed at.

The higher the screen frequency setting, the more intense the colors and the sharper the image. The lower the screen frequency, the lighter the colors and the less sharp the image.

A high frequency gives you fewer levels of gray; a low frequency gives you more levels of gray.

The upper limit of your screen frequency is define by the type of printing press to be used and the type of paper stock.

Shows all separations used in your artwork. Click each one to change frequency, angle, and to enable overprinting.

Shows all separations used in your artwork. Click each one to change frequency, angle, and to enable overprinting.

Identifies the screen frequency the selected color separation will be printed at. The default values are based on the imagesetter, screening technology, and basic screen frequency chosen; it is best not to change these values.  
Check with your service bureau before modifying these values.

Shows the screen angle for the selected color separation. Screen angles are used to offset the different films in process color separations to avoid moiré patterns. The default values are based on the imagesetter, screening technology, and basic screen frequency chosen; it is best not to change these values.

Check with your service bureau before modifying these values.

Allows you to select a color to print over any underlying color (instead of the underlying color being knocked out), thereby making white gaps impossible. This option is best used when the top color is much darker than the underlying color, otherwise an undesirable third color might result (e.g., red over yellow would result in an orange object).

When you enable Overprint color both text and graphics are selected by default. If you do not want one of these options to overprint, disable it.

Allows you to select a color to print over any underlying color (instead of the underlying color being knocked out), thereby making white gaps impossible. This option is best used when the top color is much darker than the underlying color, otherwise an undesirable third color might result (e.g., red over yellow would result in an orange object).

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When you enable Overprint color both text and graphics are selected by default. If you do not want one of these options to overprint, disable it.

Allows you to specify a halftone screen for your drawing if you are printing to a PostScript device. A halftone screen is a pattern of shapes that is used to simulate shades of colors (i.e. darker to lighter) while using the same ink. Dot, line, diamond, elliptical, and Euclidean are only a few of the available halftone types.

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Allows you to change screening options for the selected color separation.

Displays the present print style, or a name you have typed for a new style.

Provides a list of the present print options and allows you to change them.

Provides a list of the present print options and allows you to change them.

Allows you to save this dialog box's settings.

Makes the right margin equal to the left margin, and the bottom margin equal to the top margin.

Allows you to set the page margins. You can also change the units.

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Allows you to set the page margins. You can also change the units.

Automatically sets the gutters.

Allows you to specify the distance between each layout frame that is placed on the printable page. You can also change the units.

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Allows you to specify the distance between each layout frame that is placed on the printable page. You can also change the units.

Displays a model of the printable page based on the positioning settings.

Automatically sets the margins.

Specifies the number of rows of positioning frames to be placed on the printable page.

Specifies the number of columns of positioning frames to be placed on the printable page.

Allows you to specify the distance between each layout frame that is placed on the printable page. You can also change the units.

Allows you to set the page margins. You can also change the units.

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Allows you to set the page margins. You can also change the units.

Allows you to specify the distance between each layout frame that is placed on the printable page. You can also change the units.

Stores the page positioning settings specified in this dialog box.

Saves the present positioning settings.

Deletes the selected positioning style.

Specifies the number of rows of positioning frames to be placed on the printable page.

Specifies the number of columns of positioning frames to be placed on the printable page.

Stores the page positioning settings specified in this dialog box.

Specifies the number of working pages to position across the printable page.

Specifies the number of working pages to position across the printable page.

Specifies the number of working pages to position down the printable page.

Specifies the number of working pages to position down the printable page.

Places the current working page in each frame of the printable page.

Keeps the frame size equal to the working page size.

Allows you to specify the distance between each layout frame that is placed on the printable page. You can also change the units.

Allows you to set the page margins. You can also change the units.

Displays a model of how the pages will be arranged on the printed sheet.

Allows you to specify the distance between each working page that is placed on the printable page. You can also change the units.

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Allows you to print on both sides of the page. When you enable this option, and you print to a non-double sided printer, Corel automatically runs a wizard that ensures all of the pages are ordered and oriented correctly.

Provides preset page layouts and allows you to store custom styles.

Saves the present layout settings.

Deletes the selected layout style.

Selects a page to be placed on the layout sheet.

Selects a page to be placed on the layout sheet.

Allows you to specify whether the top of the selected page points up or down.

Allows you to specify whether the top of the selected page points up or down.

Allows you to specify the distance between each working page that is placed on the printable page. You can also change the units.

Allows you to specify the distance between each working page that is placed on the printable page. You can also change the units.

Allows you to specify the distance between each working page that is placed on the printable page. You can also change the units.

Specifies the maximum allowable number of control points per curve. Reducing this number helps alleviate printing problems caused by objects that are too complex.

Indicates the level of flatness that will be applied to curves when you print. Increasing the flatness reduces printing time and therefore is useful when you need to produce quick proofs. Be careful however as a flatness level set too high will produce distorted curves.

Causes Corel to automatically increase the flatness in increments of 2, as needed. Attempts to print an object will stop when the flatness value exceeds the value set in the Set Flatness To box by 10. At this point, the printer skips the problematic object and goes on to the next object.

Enables an analysis of your file and the various print settings you have specified, and, if necessary, automatically increases the number of steps used to render fountain fills to avoid banding.

This option may increase print time, but it will ensure the best possible rendering of fountain fills.

Enables an analysis of your file and the various print settings you have specified. If the number of steps in a fountain fill is greater than the number that your output device can render, the number of steps used to render the fountain fill is decreased automatically.

Allows one or more warnings to be issued if objects that are too complex and could cause printing problems are detected.

Warns you of potential banding (the appearance of discrete strips in a fill) which is caused by too few steps in a fountain fill, when it is enabled.

This warning only applies to linear fountain fills.

Enables the use of PostScript level 2 features.

This option is only available to level 2 PostScript devices. If you are not certain whether you will be printing on a level 2 postscript device, DO NOT enable this option.

Downloads Type 1 fonts to the output device. Generally, this option is enabled because it is particularly beneficial when you want to print large tracts of text that use only a few fonts. Printing is faster as each font is first downloaded, and then only referenced by text that uses it.

If you disable this option, fonts are output as graphics (either curves or bitmaps). This may be useful if the file contains a large number of fonts that would take longer to download, or not download at all, because of sheer size.

Converts True Type fonts to Type 1 fonts. If you enabled the Download Type 1 Fonts option, by default the Convert True Type to Type 1 is also enabled. This ensures that True Type fonts are converted to Type 1 fonts so that they can be downloaded.  
Only disable this option if your output device has difficulty interpreting the Type 1 fonts.

Tells the service bureau's OPI server to substitute the corresponding high-resolution images for the low-resolution ones in your file. This substitution is done before your print file is rasterized and imaged to film.

Defines bitmaps in RGB values instead of the usual CMYK values that are found in PostScript files. Use this option when you are outputting to RGB devices (e.g., slidemakers). Also use this option when you are printing to CMY devices. It is easier for these devices to translate from RGB to CMY than from CMYK to CMY.

Sets PostScript font handling.

Allows you to enable PostScript warnings.

Warns you if your print job contains too many spot colors. You can change the number of colors that triggers this warning in the Special Settings list box.

Warns you if your print job contains too many fonts. You can change the number of fonts that triggers this warning in the Special Settings list box.

Compresses bitmaps using JPEG compression when printing them. Enabling this option can reduce the size of your print job.

Specifies the degree of JPEG compression used when printing bitmaps.

Shows the contents of the Print Job Information Sheet.

Allows you to specify what information the Print Job Information Sheet will contain.

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Allows you to specify what information the Print Job Information Sheet will contain.

Sends the Print Job Information Sheet to a .TXT file.

Allows you to specify the .TXT file the Print Job Information Sheet is sent to.

Sends the Print Job Information Sheet to a printer.

Allows you to specify the printer the Print Job Information Sheet is sent to.

Allows you to specify what information the Print Job Information Sheet will contain.

Allows you to choose the output format and destination of the Print Job Information Sheet.

Prints the filename, current date, and time (and tile number, if applicable) at the bottom of the sheet.

If applicable, color separation information (color, screen frequency and angle, plate number) is printed at the top of the sheet.

To see the file information, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work. If not, you can request that the file information be printed within the page.

Causes the file information to print within the page. If the working page size is identical to the paper or film size, enable File Info Within Page. Make sure the artwork is positioned so that the file information does not overlap it.

Places page numbers on the printed sheets. To see the page numbers, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints crop marks. These marks are used as alignment aids when trimming the printed output down to its final size.

To see the crop marks, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints crop marks only along the outer edge of the sheet. This option is often preferable when you are printing multiple layouts per sheet.

Prints registration marks on each sheet. These marks serve as guides for aligning color separations.

To see the registration marks, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints a bar of the six basic colors (red, green, blue; cyan, magenta, yellow) beside your artwork. These color patches are used to verify the quality of the printed output.

To see the calibration bar, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints a Densitometer Scale, a bar of varying shades of gray, on each separation sheet. This is an advanced feature that allows you to check the accuracy, quality, and consistency of the output with an instrument called a densitometer.

To see the densitometer scale, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work

Prints a negative image when enabled.

Specifies that the film emulsion faces down when enabled.

Emulsion is the coating of light-sensitive material on a piece of film.

Applies the settings in the dialog box without closing the dialog box.

Specifies the appearance of the registration marks.

Specifies the text that is displayed in the file information.

Specifies the text that is displayed in the file information.

Specifies the appearance of the registration marks.

Lets you customize the densitometer scale.

Lets you customize the densitometer scale.

Provide a graphical representation of the selected film options (emulsion up or down and negative or positive).

Sets the position of the bounding box. By repositioning the bounding box, you can change the position of printers' marks.

Sets the position of the bounding box. By repositioning the bounding box, you can change the position of printers' marks.

Sets the position of the bounding box. By repositioning the bounding box, you can change the position of printers' marks.

Sets the position of the bounding box. By repositioning the bounding box, you can change the position of printers' marks.

Resets the position of the bounding box.

Specifies the page number to go to.

Specifies the side of the page to go to.

Specifies the side of the page to go to.

Specifies the color separation to go to.

Displays a list of pages.

Changes the appearance of the page list.

IDH\_ID\_PRNPREV\_ICON

IDH\_ID\_PRNPREV\_REPORT

Specifies the color separation to go to.

Places page numbers on the printed sheets. To see the page numbers, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Sets the magnification to 200%.

Sets the magnification to 100%.

Sets the magnification to 75%.

Sets the magnification to 50%.

Sets the magnification to 25%.

Sets the magnification to display the entire page.

Sets the magnification to display the width of the page.

Sets the magnification to display the height of the page.

Sets the magnification to display the selected image.

Increase or decreases the magnification to display the entire image as large as possible.

Sets the magnification to a percentage that you specify.

Sets the magnification to a percentage that you specify.

Previews the result of the current zoom settings.

Close the print preview.

Prints the document.

Open the Print Options dialog box.

Flips to the previous page.

Flips to the next page.

Saves the current print options in a print style.

Saves the current print options in a print style with a name that you specify.

Deletes the current print style.

Prints the current page.

Exits the application.

Open the Print Setup dialog box. You can change printers and adjust printer settings in this dialog box.

Sets the image to high quality. This image setting requires more time to redraw but provides the most accurate representation of your final print job.

Sets the image to fast. This image setting requires less time to redraw but provides a less accurate representation of your final print job.

Sets the image to none. This image setting represents the position of the image with a box.

Displays the image in grayscale. This setting provides an accurate representation of non-color printer output.

Displays the image in color. This setting provides an accurate representation of color printer output.

Displays a box that represents the area of the page on which the printer can place ink.

Displays lines that represent where a large image will be tiled to fit on smaller sheets of paper.

Shows a fold at the top-right of the page.

Displays sizing and scaling handles around the selected image.

Displays the print preview's toolbar

Displays the print preview's status bar.

Displays the print preview's rulers

Specifies full screen preview.

Opens the Zoom dialog box

Opens the Go To dialog box. You can use this dialog to navigate your document.

Open the Print Options dialog box to the Layout tab.

Opens the Edit Layout dialog box.

Opens the Positioning dialog box. This dialog box allows you to specify positioning settings that can be save in Positioning styles.

Open the Print Options dialog box to the Separations tab.

Opens the Advanced Separations Setting dialog box that allows you to set advanced screening parameters such as screening technology, screen frequency and angle per color plate, overprinting per plate, halftone dot type, etc.

Opens the Printers' Marks And Prepress Settings dialog box. This dialog box lets you add printers' marks such as crop marks, and lets you change prepress settings such as printing a negative image.

Opens the Postscript Preferences dialog box.

Opens the Help.

Open the About dialog box which provides information about the application.

Lets you select, position, and scale images in your document.

Lets you magnify portions of your document.

Displays a list of available print styles.

Displays a list of preset zoom settings.

Opens the Print Job Information Sheet dialog box.

Specifies that the film emulsion faces down when enabled.

Emulsion is the coating of light-sensitive material on a piece of film.

Prints a negative image when enabled.

Prints a Densitometer Scale, a bar of varying shades of gray, on each separation sheet. This is an advanced feature that allows you to check the accuracy, quality, and consistency of the output with an instrument called a densitometer.

To see the densitometer scale, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work

Prints a bar of the six basic colors (red, green, blue; cyan, magenta, yellow) beside your artwork. These color patches are used to verify the quality of the printed output.

To see the calibration bar, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints registration marks on each sheet. These marks serve as guides for aligning color separations.

To see the registration marks, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints crop marks. These marks are used as alignment aids when trimming the printed output down to its final size.

To see the crop marks, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Places page numbers on the printed sheets. To see the page numbers, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work.

Prints the filename, current date, and time (and tile number, if applicable) at the bottom of the sheet.

If applicable, color separation information (color, screen frequency and angle, plate number) is printed at the top of the sheet.

To see the file information, you must define a working page size that is smaller than the dimensions of the actual sheet of paper or film that is used to image the work. If not, you can request that the file information be printed within the page.

IDH\_ID\_PREVCMD\_PLATE\_MENU

Opens the Duplex Printing wizard. This wizard helps you produce double-sided output using a single-sided printer.

Opens the Print Options dialog box.

IDH\_ID\_PREVCMD\_APP\_OPTIONS

Displays the Prepress toolbar.

Displays the bounding box. The bounding box is often the same size as the page, but you can change it's size which in turn changes the position of printers' marks.

Automatically sets the view options to best simulate the output of your printer.

Displays the front of a double-sided layout.

Displays the back of a double-sided layout.

Specifies fixed width auto-spreading. When this option is enabled, the auto-spread outline assigned to each object is always the same width.

BOO



# Printing

## Printing

Virtually all of the applications in the CorelDRAW Graphics Suite print in the same manner. Therefore, most of the information on printing applies to all of the applications in the suite. Where necessary, the documentation indicates when something doesn't apply to all of the applications.

If you are looking for basic printing instructions, see "Setting up your print job." This section also contains information about more advanced features such as layout styles (used to print specialized documents like greeting cards).

If you want to know how to preview and rearrange your images before you print them, see "Previewing, sizing, and positioning the printed image."

If you are using a PostScript printing device, and are having trouble printing, see "Using PostScript to optimize your print job." You can also fix certain problems by adjusting settings as explained in "Setting advanced printing options." We recommend that you do not adjust these settings unless you are having trouble.

### Choosing a printing method

There are several methods for publishing your final document. When deciding which method to use, consider the desired quality of your output and the number of copies you require. These are your options:

- Print on a desktop printer.

You can print a document using a black and white or color desktop printer (e.g., a laser printer); however, this option is impractical when printing more than a few copies. If more copies are needed, and you don't require high-quality output, consider using a photocopier to publish your document. Photocopying is ideal for publishing internal documents such as reports and newsletters, but would be less effective on high-quality color photographs or on print jobs where you plan to use special paper stock (e.g., glossy paper).

- Create camera-ready images on a laser printer and send them directly to a printing shop.

As long as they are printed on a PostScript laser printer, and do not require complicated color work, a printing shop can photograph, make printing plates from, and print your camera-ready images. This method is useful if you are printing a large quantity of material, such as a small newspaper, but would be less effective for print jobs requiring high-quality color output.

- Send your work on disk to a service bureau or printing shop.

Service bureaus use imagesetters to produce high-resolution film output which is then used to produce printing plates.

### For more information see the following:

{button ,JI(','Setting up your print job')} [Setting up your print job](#)

{button ,JI(','Previewing sizing and positioning the printed image')} [Previewing, sizing, and positioning the printed image](#)

{button ,JI(','Using PostScript to optimize your print job')} [Using PostScript to optimize your print job](#)

{button ,JI(','Finetuning your print job')} [Fine-tuning your print job](#)

{button ,JI(','Printing on a commercial press')} [Printing on a commercial press](#)

## Setting up your print job



## Setting up your print job

It is essential that you select and properly configure the appropriate printer driver. Consult the printer manufacturer's instructions, your Windows documentation, or the service bureau or printing shop that will be printing your work to find out how best to set up the printer driver.

### Paper size

When setting up your printer, it is important that you know the size of paper you are printing on. The paper size should reflect the settings in the Page Setup dialog box. If your print job is larger than the paper on which you are printing, you can "tile" your work so that it is spread across several pieces of paper. You can then assemble the separate pages to create a whole image.

### Arranging images on the printed page

In CorelDRAW, you can set up your print job so that several pages of your document print on a single sheet of paper. This feature might be useful if you want to create a catalog of the images in a file, or if you are printing relatively small pages on large sheets of paper. Depending on the settings chosen in the Page Setup dialog box, and the size of the paper on which you are printing, you have different options when you come to place several pages on a single sheet of paper. For example, if the paper on which you are printing is much larger than the page size in the Page Setup dialog box, then you may be able to fit several pages on a sheet of paper. If the paper isn't large enough to fit several pages, but you still want more than one page on each sheet of paper, you can choose to shrink the pages to fit on the paper.

### Specifying what is printed

When you print in CorelDRAW, you can choose to print specific pages, objects, or layers. You can also specify the number of copies you want to print, and whether you want your copies collated. Collating is useful when you are printing multi-page documents. If you enable the Collate check box, CorelDRAW prints a complete copy of each document before it prints the next copy. If collate is disabled, CorelDRAW prints all the copies of the first page before it starts printing copies of the second page, and so on.

Corel PHOTO-PAINT and CorelDREAM 3D include an option to print multiple documents.

### Layout styles

In CorelDRAW, layout styles determine the way the pages of your print job are placed on the printed page. For example, if you are printing a brochure, two pages from your document may appear on a single printed page. The type of document you are printing (e.g., greeting cards, or a book) determines the layout style you choose. There are preset layout styles available in the Print Options dialog box, or you can create your own custom styles.

If you are printing a specialized type of document, it's likely you chose a layout style in the Page Setup dialog box when you created your document. If this is the case, the layout style you chose is automatically selected when you open the Print Options dialog box. If you change the layout style in the Print Options dialog box, your work might not print correctly. By default, CorelDRAW uses the Full Page layout style.

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`{button ,AL('OVR Printing';,0,"Defaultoverview",)}` [Related Topics](#)



## Printing a file

You may often find that you can print your work on your desktop printer without changing any of the default settings.

### To print a file

- Click File, Print.

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{button ,AL("PRC Setting up your print job";0,"Defaultoverview",)} [Related Topics](#)



## Selecting and configuring a printing device

Before you print, you need to select the appropriate printing device and set its properties.

The Printer Color Profile helps to ensure accurate color reproduction. You can enable or disable this feature when you print, but you must initially set it up using the Color Manager.

Because printer installation is controlled by Windows, and because every type of printer has different device properties, refer to the printer manufacturer's documentation and your Windows documentation for more information about installing and setting up your printer.

By default, if you try to print an image with an orientation different from that selected in the device properties, Corel warns you and asks if you want to adjust the printer paper orientation. You can disable this warning and Corel automatically adjusts the paper orientation without asking.

### To select a printing device

1. Click File, Print.
2. Choose a printer or imagesetter from the Name list box. If the device driver you require is not listed, install it following the usual Windows procedure.

If you're proofing or printing a job in-house, choose the driver for your local printing device.

If you're sending a file to a service bureau, choose the device driver that's specified by the service bureau.

### To set the device properties

1. Click File, Print.
2. Click the Properties button.
3. If you're printing to a PostScript device, set only the following:

- Paper Size
- Orientation
- Tray
- Resolution

Leave all other options at their default settings and set them from the Print Options dialog box instead.

#### Or

If you're printing to a non-PostScript device, set all relevant options here.

### To use a printer color profile

1. Click File, Print.
2. Enable the Printer Color Profile check box.

If you want your print job to be processed using a different profile, return to the Color Manager and select another printer profile.

### To disable the Page Orientation Warning

1. Click File, Print Preview
2. Click Settings, Options.
3. Choose Page Orientation Warning from the Special Settings list box.
4. Choose Off from the Settings list box.

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`{button ,AL('PRC Setting up your print job';0,"Defaultoverview",)} Related Topics`



## Printing multiple copies

You can print multiple copies of the same document. If you are printing a document with multiple pages, you might want to collate your copies.

Choosing Collate allows you to print one full set of the selected pages before printing the second full set (e.g., a set of pages 1 to 10 prints before a second set of pages 1 to 10 prints, and so on).

### To print multiple copies

1. Click File, Print.
2. Type the number of copies you need in the Number Of Copies box.
3. If you want the copies collated, enable the Collate check box.

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`{button ,AL('PRC Setting up your print job;',0,"Defaultoverview",)}` [Related Topics](#)



## Specifying which pages to print

You can set up your print job so that all the pages print, or only some of the pages print.

### To print all pages

1. Click File, Print
2. Enable the All button.

### To print only the current page

1. Click File, Print
2. Enable the Current Page button.

### To print specific pages

1. Click File, Print
2. Enable the Pages button.
3. Choose Even Pages, Odd Pages, or Even And Odd from the Pages list box.
4. Type the pages you want printed in the Pages box.
  - A dash (-) between numbers defines a range of sequential pages (e.g., 1-5 prints pages 1 to 5).
  - A comma (,) between numbers defines a series of non-sequential pages (e.g., 1, 5 prints pages 1 and 5 only).
  - Any combination of dashes and commas is supported (e.g., 1-3, 5, 7, 10-12 prints the following pages: 1, 2, 3, 5, 7, 10, 11 and 12).
  - Inserting a tilde (~) between two numbers causes those two pages plus every second page in-between to print. For example, 1~6 prints the following pages: 1, 3, 5, and 6. If you type 2~6, pages 2, 4 and 6 print.

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**{button ,AL("PRC Setting up your print job";,0,"Defaultoverview",)} [Related Topics](#)**







## Specifying which documents to print in Corel PHOTO-PAINT and CorelDREAM 3D

If more than one document is open in Core PHOTO-PAINT or CorelDREAM 3D, you can choose to print all or some of the documents you have open.

### To print multiple documents

1. Click File, Print
2. Choose the documents you want to print from the Documents To Print list box.

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**{button ,AL("PRC Setting up your print job;',0,"Defaultoverview",)} Related Topics**





## Printing large artwork as tiles

If the image you are printing is larger than the paper on which it is being printed, you can choose to print your image as tiles. Corel prints portions of your image on separate sheets of paper that you can assemble into one large image.

### To print large artwork as tiles

1. Click File, Print Preview.
2. Click Settings, Layout.
3. Enable the Print Tiled Pages check box.
4. Indicate by how much you want the tiles to overlap. Type a value (e.g., a quarter of an inch) or a percentage of the page size in the Tile Overlap box.

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**`{button ,AL('PRC Setting up your print job';0,"Defaultoverview",)}` [Related Topics](#)**





## Using layout styles

If you choose a layout style in the Page Setup dialog box, then the appropriate layout style is automatically selected in the Print Options dialog box. If you change the layout style in the Print Options dialog box, you may cause your work to print incorrectly.

If you didn't select a layout style before in the Page Setup dialog box, then the Full Page layout style is used by default. You can select a different printing style in the Print Options dialog box. This won't effect the original images, only the way they are printed. For example, if you have a four-page document set up as full page, but would like to print it as a top-fold or side-fold card, you can choose the appropriate card style in the Print Options dialog box.

### To choose a layout style in the Print Options dialog box

1. Click File, Print Preview.
2. Click Settings, Layout.
3. Choose a layout style from the Layout Style list box.

### To edit a layout style in the Print Options dialog box

1. Follow the steps from the above procedure and click the Layout Style Edit button.
2. Type the number of pages from your document to include on each printed page in the Across and Down boxes.
3. Type the size of the gutters (space between pages) in the Horizontal and Vertical boxes. You can change the unit of measurement in the Units box on the right.
4. Click each box on the model of the printable page and choose a page number and an angle.

The angle determines whether the page is printed top up or top down. For example, if two pages are placed on a single sheet of paper and the first page is printed top up and the second is printed topdown, then one page will always appear to be upside down.

5. If you are printing on both sides of the paper, enable the Double Sided Layout check box. Click the Edit Front Frame button or Edit Back Frame button to see each side.

When you choose the Double Sided Layout option and you print on a non-duplex printer, a wizard automatically provides instructions on how to insert the pages .

### To save a layout style in the Print Options dialog box

1. Follow the steps from the "To choose a layout style in the Print Options dialog box" procedure and click .
2. Type a name for the layout style in the Layout Style box.

### To delete a layout style in the Print Options dialog box

- Follow the steps from the "To choose a layout style in the Print Options dialog box" procedure and click .

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`{button ,AL('PRC Setting up your print job;',0,"Defaultoverview",)}` [Related Topics](#)



## Printing several pages on a single sheet of paper

You can print several pages of a document on a single sheet of paper using the rows and columns feature. When you use rows and columns, each page of your work is placed into a single frame (the intersection of one row and column). The first page is placed in the frame at the top left of the sheet of paper and each subsequent page is placed from left to right and top to bottom.

If you use rows and columns with a [layout style](#) that already places several pages on a single sheet of paper (for example, Tent-Card), then the images that would have been placed on an entire sheet of paper without rows and columns (for example, the entire Tent-Card), is placed in one frame.

### To print several pages on a single sheet of paper

1. Click File, Print Preview.
2. Click Settings, Edit Positioning Style.
3. Type the number of rows and columns you want printed on each sheet of paper in the Rows and Columns boxes.
4. If you want to change the margins, do one of the following:
  - Disable the Auto Margins check box and type the size of the margins in the Left, Right, Top, and Bottom boxes. You can change the unit of measurement in the Units box on the right
  - Enable the Auto Margins check box.
5. If you want the left and right margins to be equal, and you want the top and bottom margins to be equal, enable the Equal Margins check box.
6. If you want to adjust the gutters (space between rows and columns), do one of the following:
  - Type the size of the gutters in the Horizontal and Vertical boxes. You can change the unit of measurement in the Units box on the right.
  - Enable the Auto Spacing check box.
7. Enable the Clone Frame check box if you want all the frames on each sheet of paper to contain the same page. For example, if there are nine frames to printed sheet of paper, then page one appears nine times on the first sheet of paper, and page two appears nine times on the second sheet, and so on. In this way you can print multiple copies of one page on a single sheet.
8. Enable the Maintain Document Page Size check box if you want each frame to be the same size as the page size specified in the document. For example, if you create a document on an 8.5 by 11 inch page, the frames are constrained to that size. Thus, if you print on an 11 by 17 inch sheet of paper, and specify 2 rows by 2 columns, some of the frames will not fit on the page.

### To save the settings in the Edit Positioning dialog box

1. Follow the steps from the above procedure and click .
2. Type a name for the settings in the Positioning box.

### To delete saved settings in the Edit Positioning dialog box

1. Follow steps 1 and 2 from the "To print several pages on a single sheet of paper" procedure.
2. Choose a saved settings name from the Positioning list box.
3. Click .

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`{button ,AL("PRC Setting up your print job";,0,"Defaultoverview",)} Related Topics`



## Using preset printing options

A print style is a set of saved printing options. Print styles are useful because they let you avoid setting all your printing options each time you print.

### To select a print style

1. Click File, Print Preview.
2. Choose a print style from the Print Style list box.

### To create a new print style

1. Click File, Print Preview.
2. Change the print options.
3. Click File, Save Print Style As.
4. Type a name for the style in the Print Style box.

### To edit a print style

1. Click File, Print Preview.
2. Choose a print style from the Print Style list box (at the top left corner of the Preview window).
3. Change the print options.
4. Click File, Save Print Style As.
5. Type a name for the style in the Print Style box.

### To delete a print style

- Follow steps 1 and 2 from the above procedure and click File, Delete Print Style.



### Note

- When you save a print style, a dialog box opens that includes a group box called Settings To Save In Style. The settings in this box correspond to the printing options you've already selected. Unless you want to change these settings, you don't need to use the Settings To Save In Style options.



### Tip

- If you close the Print dialog box before you print, all of the changes you have made to the print options are discarded. If you do not want to lose these changes and you need to close the dialog (i.e., you need to change your work before you print), save your settings as a print style.

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`{button ,AL("PRC Setting up your print job";0,"Defaultoverview",)}` [Related Topics](#)

## **Previewing, sizing, and positioning the printed image**



## Previewing, sizing, and positioning the printed image

### Previewing

Corel's new full-screen print preview lets you see exactly how your work will appear after you send it to a printing device. The preview shows you the position and size of your image on the paper, and you can see printers' marks such as crop marks and color calibration bars. You can use visual aids, such as the bounding box that shows you the edges of the image you are printing, to more accurately assess how your final work will appear.

### Sizing and positioning

If you are using a Full Page or Manual [layout style](#), you can change the position and size of the images you are printing. If you are printing bitmaps, you should use caution when sizing your images. Enlarging bitmaps may cause your output to appear jagged or pixelated.

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`{button ,AL("OVR Printing";0,"Defaultoverview",)}` [Related Topics](#)



## Previewing your print job

Print preview lets you see what your work will look like when printed. You can see, for example, where printers' marks will appear, and how your color separations look.

### To preview your print job

- Click File, Print Preview.

### To preview your color separations

1. Click File, Print Preview.
2. Click View, Preview Type, Separations.

You can only view individual color separations if you have enabled color separations in the Print Options dialog box.

3. Click the appropriate tab at the bottom of the Preview window to view each color separation.

### To move from page to page in print preview

- Click one of the [Page-Flipper buttons](#). The button pointing left flips back through the pages and the button pointing right flips forward through the pages.

### To print the page being previewed

- Click File, Print This Sheet Now.

### To magnify the print preview

1. Click File, Print Preview.
2. Click View, Zoom.
3. Click one of the preset zoom levels or click percent and type a value in the Percent box.



### Tips

- You can zoom in on a portion of the print preview by using the [Zoom tool](#). To do this, click on the Zoom tool and click the area you want to magnify. Right-click to zoom out.
- The Auto (Simulate Output) preview type on the View menu automatically sets your preview type to the settings that match your printer driver. For example, if you are printing to a black and white printer, the preview is grayscale. The Auto (Simulate Output) preview type is enabled by default. If you change the preview settings, then Auto (Simulate Output) is disabled. You can revert to the automatic settings by enabling Auto (Simulate Output).

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{button ,AL("PRC Previewing sizing and positioning the printed image;";0,"Defaultoverview",)} [Related Topics](#)



## Customizing the print preview

If you want to increase the redraw speed of your print preview, you can change the quality of the preview image. You can also specify a color or a grayscale preview, and you can choose to display several visual aids that might help you prepare your print job.

### To set the preview image quality

1. Click File, Print Preview.
2. Click View, Image, and click one of the following:
  - No Image (your image is represented by a bounding box)
  - Fast (your image is represented by a low resolution image that redraws quickly)
  - High Quality

### To set the default preview image quality

1. Click File, Print Preview
2. Click Settings, Options.
3. Choose Preview Image Default from the Special Settings list box.
4. Choose the image quality you want from the Setting list box.

### To specify a color or grayscale print preview

1. Click File, Print Preview.
2. Click View, Preview Type, and click Color or Grayscale.

Displaying individual color separations in grayscale instead of color can be helpful when you are studying color distribution. Yellow in particular can be difficult to discern against a white background. Even magenta and cyan, if sparse, can be easier to discern when displayed in grayscale.

### To specify full image or marquee drag in print preview

- Right-click in the Preview window, and click Full Image Drag to keep the image visible while it is being repositioned. Disable this option to change the image to a marquee box while it is being repositioned.

### To set the print preview visual aids

1. Click File, Print Preview.
2. Click View, Visual Aids, and enable the items you want to appear. You can choose from the following:
  - Printable Area — shows the area of the paper on which the printing device can print.
  - Bounding Box — shows the edges of the printed image
  - Tiled Page Boundaries — shows where a large image will be tiled when it is being printed on several sheets of paper
  - Top Right Corner Fold
  - Selection Handles — shows black squares at the corners of the image being printed that you can use to size the image

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`{button ,AL('PRC Previewing sizing and positioning the printed image;',0,"Defaultoverview",)}` [Related Topics](#)



## Sizing an image when printing

Corel lets you alter the size of each page of your document for your print job, leaving the original image unaffected.

### To size an image

1. Click File, Print Preview.
2. Click Settings, Layout.
3. Type values in the Width and Height boxes.

You can only size an image this way when you are using the Full Page layout style with no rows or columns, or when you are using the Manual layout style.



### Tip

- You can also size an image by dragging the handles in the print preview.

### To fit an image to the page

1. Follow steps 1 and 2 from the above procedure and enable the Fit to Page check box.

Your image will be distorted if you do not enable the Maintain Aspect Ratio check box.

### To maintain the aspect ratio of an image

- Follow steps 1 and 2 from the "To size an image" procedure and enable the Maintain Aspect Ratio check box.

The height and width ratio of an image is known as its "aspect." If you are resizing or scaling an image using the print preview, it is a good idea to enable the Maintain Aspect Ratio check box to prevent image distortion.

### To apply position and size settings to all pages

- Follow steps 1 and 2 from the "To size an image" procedure and enable the Apply Settings To All Pages check box.

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{button ,AL('PRC Previewing sizing and positioning the printed image;',0,"Defaultoverview",)} [Related Topics](#)



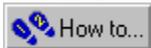
## Positioning an image when printing

Corel lets you alter the position of your image for your print job, leaving the original unaffected.

If you select the Manual Layout style, you can place several pages on a single sheet of paper. Each of these pages can be sized and positioned individually. You can also use the Clone Page option to place several copies of the same page on a single sheet of paper.

### To position an image

1. Click File, Print Preview.
2. Click Settings, Layout.
3. Type values in the Top (distance from the top of the printable area) and Left (distance from the left side of the printable area) boxes.



### Tip

- You can also position an image by dragging it to the desired position in the preview window.

### To automatically center an image

- Follow steps 1 and 2 from the above procedure and enable the Center Image check box.

### To apply position and size settings to all pages

- Follow steps 1 and 2 from "To position an image" procedure and enable the Apply Settings To All Pages check box.

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{button ,AL("PRC Previewing sizing and positioning the printed image;',0,"Defaultoverview",)} [Related Topics](#)

## **Using PostScript to optimize your print job**



## Using PostScript to optimize your print job

PostScript is a page description language used to send instructions to a PostScript device about how to print each page. All the objects in a print job (e.g., curves and fills) are represented by lines of PostScript code that the printer uses to produce your work.

PostScript is not the only method for sending a printer instructions, and some printers are not compatible with PostScript. However, there are several functions that are unavailable if you are not using the PostScript printer language. For example, without PostScript, you cannot adjust color separations and halftone screens.

There are two levels of PostScript. PostScript level 1 is the first PostScript language and it has certain limitations (see below). PostScript level 2 is the most recent version of PostScript and using it will greatly reduce potential printing errors. If you are using a level 2 printing device, make sure that you enable the level 2 features in the PostScript Options dialog box.

When purchasing a printer or choosing a service bureau, find out which level of PostScript you will be using. Where you have a choice, choose level 2.

### Limitations of PostScript level 1

There are certain problems that may arise when you are using PostScript level 1 that have been largely eliminated in level 2. Most of these problems are only relevant if you are using CorelDRAW.

- To create curves, a PostScript device prints a series of short straight lines at varying angles. Each of these lines is a segment. Also, any straight line between two nodes is a segment. Level 1 devices can't print CorelDRAW objects with more than 1500 segments. This limits the allowable number of nodes in any CorelDRAW object to approximately 500.
- If you use a complex fill (e.g., a texture fill, a PowerClip, or a PostScript fill) in an object, the allowable number of nodes is reduced to approximately 300.
- If you fill a text object with a texture fill, then a level 1 PostScript device may not be able to print it.
- If you use a texture fill in an object with any subpaths (e.g., a donut made from a circle within a circle), a level 1 PostScript device will not be able to print it.

There are several ways around these limitations:

- Wherever possible, break complex objects up into several less complex objects. This may not be possible if you are using complicated line attributes or complex fills.
- Avoid complex fills on objects that aren't large enough to warrant intricate detail.
- Avoid complex fills with complex outlines and complex fills in text objects.
- Keep the number of nodes per object to a minimum.
- Use the PostScript features designed to reduce complexity and warn you of potential printing problems.

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`{button ,AL('OVR Printing';,0,"Defaultoverview",)}` [Related Topics](#)



## Using PostScript Level 2

PostScript Level 2 is a more advanced PostScript language. Using it can reduce printing errors and let you use features that are unavailable if you use PostScript Level 1. If you try and use PostScript Level 2 features and you are not using a PostScript Level 2 device, then your work will not print properly. If you are not certain whether you will be printing on a Level 2 PostScript device, don't enable these options.

PostScript Level 2 lets you use JPEG compression to compress the bitmaps in your print job to make the file size smaller. Also, PostScript Level 2 uses a faster method for rendering vector curves and lines in CorelDRAW. Sometimes this method can change the appearance of your images. If this happens, you can disable the PostScript 2 Stroke Adjust option.

### To enable PostScript Level 2 usage

1. Click File, Print Preview.
2. Click Settings, PostScript Preferences.
3. Enable the Use PostScript Level 2 Features check box.

### To compress bitmaps in your .PRN file

1. Follow steps 1 to 3 from the above procedure and enable the Use JPEG Compression check box.
2. Move the Quality Factor slider right to increase compression and reduce the quality of your bitmaps.

### To disable the Stroke Adjust option

1. Click File, Print Preview.
2. Click Settings, Options.
3. Choose PostScript 2 Stroke Adjust from the Special Settings list box.
4. Choose Off from the Setting list box.

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`{button ,AL('PRC Using PostScript to optimize your print job';0,"Defaultoverview",)}` [Related Topics](#)



## Printing complex objects

Complex objects can often cause a PostScript Level 1 print job to fail. You can use the following options to ensure that the print jobs you send to your printing device print properly.

### To test for complex objects

1. Click File, Print Preview
2. Click Settings, PostScript Preferences.
3. Enable the Complex Objects Warnings check box.

### To reduce curve complexity by increasing flatness

1. Follow steps 1 and 2 from the above procedure and type a value in the Set Flatness To box.

This value determines how smooth a curve will appear when printed. As the flatness increases, curves begin to appear as connected straight lines. If you are having problems with complex objects, start by leaving this value at 1.00 and enable the Auto Increase Flatness check box. If this doesn't help, increase the flatness by 2 and try again.

2. Enable the Auto Increase Flatness check box if you want the printer to increase the flatness of any object that is too complex by increments of 2.

When Auto Increase Flatness is enabled, the maximum allowable flatness value is defined by the value in the Set Flatness To box plus 10. If an object is still too complex when the flatness value exceeds this limit, the printer skips the problematic object and goes on to the next object. If the printer skips an object then the object will not appear in the final output. You will not be informed that this has happened while you print. The problem only becomes evident when the print job is imaged to paper or film. For this reason it is important to inspect proofs before you publish your work.

### To reduce curve complexity by limiting control points

- Follow steps 1 and 2 from the "To test for complex objects" procedure and type a value in the Maximum Points Per Curve box. Reducing this number helps alleviate printing problems caused by objects that are too complex. A lower number of points per curve will not reduce quality but it will increase printing time.

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`{button ,AL("PRC Using PostScript to optimize your print job";0,"Defaultoverview",)} Related Topics`



## Font and spot color warnings

If your print job contains too many fonts or too many spot colors, it may not print properly. You can set your PostScript options so that Corel warns you if your print job contains more than a set number of spot colors or fonts. You can change the number of spot colors and fonts that trigger the warnings by changing the Spot Color Separations Warning and the Fonts Warning Threshold settings.

### To test for too many spot colors

1. Click File, Print Preview
2. Click Settings, PostScript Preferences.
3. Enable the Too Many Spot Colors check box.

### To test for too many fonts

- Follow steps 1 and 2 from the above procedure and enable the Too Many Fonts check box.

### To set the Spot Color Separations Warning

1. Click File, Print Preview.
2. Click Settings, Option.
3. Choose Spot Color Separations Warning from the Special Settings list box.
4. Choose an option from the Setting list box.

### To set the Fonts Warning Threshold

1. Follow steps 1 and 2 from the above procedure.
2. Choose Fonts Warning Threshold from the Special Settings list box.
3. Choose a number from the Settings list box.

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{button ,AL('PRC Using PostScript to optimize your print job';,0,"Defaultoverview",)} [Related Topics](#)



## Optimizing fountain fills

You can optimize the printing of fountain fills in two ways. First, you can test for, and correct, fountain fill banding. Banding is the appearance of strips across a fountain fill which occurs when a fountain fill does not contain enough steps. Second, you can reduce the complexity of fountain fills to decrease printing time.

By enabling both the Auto Increase Fountain Steps and Optimize Fountain Fills options, you can increase the number of fountain steps that require more steps and reduce the number of steps in fountain fills that are too complex.

These options are available for PostScript devices only.

### To verify fountain fills for banding

1. Click File, Print Preview.
2. Click Settings, PostScript Preferences.
3. Enable the Banded Fountain Fill Warnings check box.

This warning only applies to linear fountain fills.

### To automatically increase fountain steps

- Follow steps 1 and 2 from the above procedure and enable the Auto Increase Fountain Steps check box.

This option increases the number of steps that are used to render fountain fills. This may increase printing time, but will ensure the best possible rendering of fountain fills.

### To optimize fountain fills to reduce complexity

- Follow steps 1 and 2 from the "To verify fountain fills for banding" procedure and enable the Optimize Fountain Fills check box.

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{button ,AL('PRC Using PostScript to optimize your print job';,0,"Defaultoverview",)} [Related Topics](#)

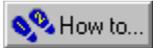


## Downloading type 1 fonts

By default, the printer driver downloads Type 1 fonts to the printing device. If you disable the Download Type 1 Fonts option; however, fonts are printed as graphics (either curves or bitmaps). This may be useful if the file contains a large number of fonts that would take an unacceptably long time to download, or would fail to download because of their size. This option is available for PostScript devices only.

### To download type 1 fonts

1. Click File, Print Preview
2. Click Settings, PostScript Preferences.
3. Enable the Download Type 1 Fonts check box.



### Note

- If you enable the Download Type 1 Fonts check box, by default the Convert True Type To Type 1 check box is also enabled. This ensures that True Type fonts are converted to Type 1 fonts so that they can be downloaded. Only disable this option if your output device has difficulty interpreting Type 1 fonts.

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`{button ,AL('PRC Using PostScript to optimize your print job;',0,"Defaultoverview",)} Related Topics`



## Setting bitmap font options

Bitmap versions of TrueType fonts look better at small point sizes and print faster than regular fonts. Because bitmap fonts consume a large amount of PostScript memory, you may need to limit the number of bitmap fonts in your print job to avoid a PostScript printing error.

A bitmap version of a font is created in a PostScript printer's memory if the font meets the following criteria:

- The printed character size is no larger than the bitmap font size threshold. The default is 75 pixels which corresponds to 18 points at 300 dpi, 9 points at 600 dpi, and 4.5 points at 1200 dpi.

You can change the bitmap font size threshold (see below).

- The text is not scaled or skewed.
- The text does not have an outline or a fill other than a uniform fill.
- The text does not have any envelopes (non-linear transformations) applied to it.
- The drawing is not being printed using the Sizing options or Fit To Page option in the Print Options dialog box.

### To limit the number of bitmap fonts created

1. Click File, Print Preview
2. Click Settings, Options.
3. Choose Bitmap Font Limit from the Special Settings list box.
4. Type a value between 0 and 250 in the Setting box.

### To set the bitmap font size threshold

1. Follow steps 1 and 2 from the above procedure and choose Bitmap Font Size Threshold from the Special Settings list box.
2. Type a value between 0 and 1000 in the Setting box.

This value represents the bitmap height in pixels.

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`{button ,AL('PRC Using PostScript to optimize your print job';,0,"Defaultoverview",)}` [Related Topics](#)



## Printing color bitmaps in RGB

PostScript output normally uses the 4-color, CMYK color model to print bitmaps. If you are printing color bitmaps to an RGB or CMY device, enable the Output Color Bitmaps in RGB check box. RGB devices receive RGB values, instead of CMYK. CMY devices have an easier time converting RGB to CMY (3-color model to 3-color model) than converting CMYK to CMY (4-color model to 3-color model). This option is available for PostScript devices only.

### To output color bitmaps in RGB

1. Click File, Print Preview
2. Click Settings, PostScript Preferences.
3. Enable the Output Color Bitmaps In RGB check box.

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`{button ,AL('PRC Using PostScript to optimize your print job;',0,"Defaultoverview",)}` [Related Topics](#)

## **Fine-tuning your print job**



## Fine-tuning your print job

The fine tuning options only need to be adjusted if you encounter a problem. If you are having trouble printing, try and determine what part of your print job is causing the problem. For example, your fonts may not be printing properly, or a bitmap may not print at all. Then, look for a topic that relates to that type of problem.

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`{button ,AL('OVR Printing;',0,"Defaultoverview",)}` [Related Topics](#)



## Setting the number of fountain steps while printing

You can specify the number of steps in the fountain fills in your print job. A low number of steps prints faster but the transition between shades may be rather coarse, causing what is known as "banding." A higher value results in a smoother blend, but the printing time is longer.

You can assign a custom fountain fill to an object in CorelDRAW. A custom fountain fill overrides the settings in the Print Options dialog box.

Fountain steps set in the Options dialog box in CorelDRAW only affect the way fountain fills display on your monitor, not how they print.

### To specify fountain steps in printing options

1. Click File, Print Preview
2. Click Settings, Options.
3. Type the number of steps to be used when rendering fountain fills in the Fountain Steps box.

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`{button ,AL("PRC Finetuning your print job";'0,"Defaultoverview",)}` [Related Topics](#)



## Printing bitmaps in small chunks

You can determine whether bitmaps are sent to non-PostScript printers all at once or in smaller blocks (below 64K) called chunks. Usually, the driver tells the application which method it can or cannot handle. If you find that bitmaps do not print as expected, try forcing bitmaps to be printed in smaller chunks. If you are already printing bitmaps as chunks, you can specify the degree to which each chunk overlaps adjacent chunks. This overlap reduces the grid pattern that can appear on some printers when printing bitmaps that have been sent as chunks.

### To print bitmaps in small chunks

1. Click File, Print Preview.
2. Click Settings, Options.
3. Choose Bitmap Printing from the Special Settings list box.
4. Choose Output In 64K Chunks from the Setting list box.

### To set Bitmap Chunk Overlap Pixels

1. Follow steps 1 to 2 from the above procedure and choose Bitmap Chunk Overlap Pixels from the Special Settings list box.
2. Type a number that represents the number of pixels by which each bitmap chunk overlaps the next in the Setting box.

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{button ,AL('PRC Finetuning your print job;',0,"Defaultoverview",)} [Related Topics](#)



## Printing color artwork in black or grayscale

When you print color work on a black and white printer, you can specify whether you want solid colors converted to solid black or a shade of gray that approximates its hue.

### To print color artwork in black or grayscale

1. Click File, Print Preview.
2. Click Settings, Options.
3. Enable the All Colors As Black or All Colors check box As Grayscale check box.

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`{button ,AL("PRC Finetuning your print job";0,"Defaultoverview",)}` [Related Topics](#)



## Controlling bitmap conversion to grayscale

By default color bitmaps are reduced to grayscale if they are sent to a grayscale device. Transmission time is much faster this way and the file size is smaller. If you choose to send bitmaps as color, the device converts the bitmaps to grayscale which results in slower transmission time and a larger file size. This option is available for PostScript devices only.

### To control bitmap conversion to grayscale

1. Click File, Print Preview.
2. Click Settings, Options.
3. Choose Grayscale Driver Bitmap Output from the Special Settings list box.
4. Choose Send Color Bitmaps As Grayscale or Send Color Bitmaps As Color from the Setting list box.

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`{button ,AL('PRC Finetuning your print job';'0,"Defaultoverview",)}` [Related Topics](#)



## Printing bitmaps as RGB images

By default, Corel sends bitmap images to the printing device without converting them to 24 bit, RGB (Red, Green, Blue) images. However, some older printers can't print bitmaps that are 8 bit or less. If you are having trouble printing a bitmap that is not a 24 bit, RGB image, try setting up your print job so that all bitmaps are converted to RGB. Please note that this operation can increase the size of your print job.

### To print bitmaps as RGB

1. Click File, Print Preview.
2. Click Settings, Options.
3. Choose Print Bitmaps As RGB from the Special Settings list box.
4. Choose On from the Setting list box.

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`{button ,AL('PRC Finetuning your print job';0,"Defaultoverview",)}` [Related Topics](#)



## Assigning control over printer bands

Some printers can't hold a full page in memory and must print the page in multiple passes, or "bands." The default setting lets the printer driver split the page into bands before sending it to the printer. If this proves too slow, or you encounter problems, send the page to the driver already split into bands. This option applies for non-PostScript printers only.

### To assign control over printer bands

1. Click File, Print Preview
2. Click Settings, Options.
3. Choose Driver Banding from the Special Settings list box.
4. Choose Let Driver Handle Banding (the printer driver creates the bands) or Send Bands to Driver (the Corel application splits the print job into bands before sending it to the printer driver) from the Setting list box.

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`{button ,AL('PRC Finetuning your print job';0,"Defaultoverview",)}` [Related Topics](#)



## Assigning control over fill clipping

Any fill other than a uniform fill (including Lenses and PowerClips) requires clipping if the object is not rectangular because these fills are sent to printers as bitmaps, and bitmaps are always rectangular. Clipping is the process through which portions of a fill that should not be visible are removed. The default setting is clipping controlled by the driver, because that usually means faster processing. If you encounter a problem printing non-uniform fills, switch to clipping controlled by the software. This option applies to non-PostScript printers only.

### To assign control over fill clipping

1. Click File, Print Preview
2. Click Settings, Options.
3. Choose Fill Clipping from the Special Settings list box.
4. Choose Use Driver Clipping For Fills or Use Software Clipping For Fills from the Settings list box.

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`{button ,AL("PRC Finetuning your print job";0,"Defaultoverview",)}` [Related Topics](#)



## Specifying the text output method for non-PostScript devices

If you are printing to a non-PostScript printing device, Corel tries to send text to the printer as text (i.e., using the appropriate font) whenever possible. However, it may sometimes be better for Corel to send text as graphics (i.e., not using the font) because text objects might be incorrectly printed over by vector graphics and raster objects.

### To set the text output method

1. Click File, Print Preview
2. Click Settings, Options.
3. Choose Text Output Method from the Special Settings list box.
4. Choose All Text As Graphics or Text As Text When Possible from the Settings list box.

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`{button ,AL('PRC Finetuning your print job';'0',"Defaultoverview",)}` [Related Topics](#)

## Using Print Merge



## **Printing on a commercial press**

## Printing on a commercial press

If your job will be printed on a commercial press, you will most likely deal with a service bureau and a printing shop. These two businesses can be separate or affiliated. Some larger establishments may offer both services under one roof. The service bureau will take your file and image it onto film. The printing shop will use the film from a service bureau to make printing plates.

Film can be created using a camera or an imagesetter. Creating film with a camera usually requires camera-ready output that you've created on your own PostScript laser printer. Producing film this way may save you money, but don't try to produce complex color material using laser printed output because desktop printers are not precise enough.

An imagesetter creates film directly from a file. There are several different types of file that a service bureau may be able to use. See "Preparing a print job for a commercial press" for more details and ask your service bureau about your options.

The service bureau should provide you with either overlay proofs, blueprints, or laminate proofs made from your film. The type of proof you require depends on the complexity of your print job. Once you are satisfied with your proofs, the film can be sent to press.

If the service bureau and printing shop are entirely separate, you must ensure that the service bureau provides your film in the form that the printing shop requires (i.e., positive or negative film, emulsion up or down, etc.). Also, make sure that the printing shop has proofs of the final product and instructions about the print job (e.g., number of copies, type and size of paper). These proofs and your instructions serve as a contract between you and the printing shop.

The press operators will set up and adjust the press so that the printed output matches your contract proofs as closely as possible. Where color quality and accuracy are crucial you may be asked to be present at printing time to approve any color adjustments that need to be made.

### For more information see the following:

{button ,JI('Preparing a print job for a commercial press')} [Preparing a print job for a commercial press](#)

{button ,JI('Working with bitmaps and halftone screens')} [Working with bitmaps and halftone screens](#)

{button ,JI('Using Open Prepress Interface')} [Using Open Prepress Interface](#)

{button ,JI('Creating color separations')} [Creating color separations](#)

{button ,JI('Printing color halftones')} [Printing color halftones](#)

{button ,JI('Ensuring predictable color when printing')} [Ensuring predictable color when printing](#)

{button ,JI('Color trapping')} [Color trapping](#)

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{button ,AL('OVR Printing';,0,"Defaultoverview",)} [Related Topics](#)

## **Preparing a print job for a commercial press**



## Preparing a print job for a commercial press

When you send a print job to a commercial press, you can either send camera-ready paper output, or send your work on disk. If you are creating a file to send to an imagesetter, talk to your service bureau about the best file format and printer settings to use.

If you are printing to a file, your service bureau will need either .PRN, .CDR, or .EPS files. Always provide a final printout of your work to the service bureau, even if it's only a black and white representation. This will help them identify and assess any potential problems.

### PRN file

Corel lets you exercise full control over prepress settings and save the print job in a .PRN file. This print file is sent directly to an output device by your service bureau.

Be sure to review and confirm all settings with your service bureau. They will not be able to verify or fix a .PRN file. Any problems will only be apparent on output.

Include a sheet with all the prepress settings that you have specified. This can be done automatically from the Options dialog box. Or, check with your service bureau representatives; they usually have an order form that outlines all the essential prepress settings.

### CDR file

If you don't have the time or knowledge to prepare printing files, service bureaus equipped with CorelDRAW can take your .CDR files and apply the required prepress settings. Some service bureaus may actually prefer to handle the prepress settings themselves.

### EPS file

Some service bureaus may accept .EPS files (as exported from CorelDRAW). These files can be imported into other applications by the service bureau and adjusted and printed from there.

### Using a bleed to extend images to the edge of the page

Most printing presses are unable to print images to the edge of the paper. If you plan for certain areas of your artwork to extend to the edge of the page, you need to print on paper that is larger than the size you ultimately want. This larger paper can then be trimmed so that the image extends to the paper's edge. When you use this method for printing to the edge of the page, it is wise to allow for a "bleed." A bleed is the amount that images extend past the edge of the final page size. By bleeding your images, you allow for a margin of error during the printing and trimming process.

### Printers' marks

Printers' marks provide information about how your work should be printed. You can place printers' marks in your .PRN or .EPS files, or on camera-ready paper output. The available printers' marks are crop marks, registration marks, color calibration bars, densitometer scales, page numbers, and file information.

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`{button ,AL("OVR Printing on a commercial press";0,"Defaultoverview",)}` [Related Topics](#)



## Printing to a file

Printing to a file is required when you want to send a .PRN file to a service bureau to be printed on an imagesetter. Make sure you select the appropriate printer driver when you print to file. Consider the following when printing to a file:

- When you are preparing a file for printing on an imagesetter, the page size of your print job (i.e., the size of the film on which your document is imaged) will be larger than the page size of the document (i.e., the size of the document in CorelDRAW) to allow for printers' marks.
- An imagesetter produces images on film which usually need to be negatives. You can set up your print job to produce negative images, but if the service bureau's equipment also produces negatives, then you will end up with positive film.
- You need to specify emulsion up or emulsion down. Emulsion is the coating of light-sensitive material on a piece of film. Normally, images printed to a laser printer are printed with the emulsion up (button not enabled). Other types of reproduction may call for either emulsion up or down. Printing with the emulsion down produces a backwards image.
- If you are printing to a Level 2 PostScript device, you can use make your print job smaller by compressing bitmaps using JPEG compression.
- Your service bureau may require that your .PRN file conforms to the Document Structuring Convention (DSC). If this is the case, you will need to enable the Conform To DSC setting.

If you unsure about which settings to choose, consult with your service bureau.

### To print to file

1. Click File, Print.
2. Enable the Print To File check box.
3. Enable the For Mac check box if your print file is being printed with Macintosh equipment.

PostScript files created using the Print To File option contain two Control-D (^D) characters that prevent them from printing on any PostScript device controlled by Macintosh computers. Enabling the For Mac option removes the ^D characters from the files.

4. Click OK.
5. Choose a destination and type a filename in the File Name box. The appropriate extension (.PRN) is appended to your filename.

### To print a negative image

1. Click File, Print Preview.
2. Click Settings, Marks and Prepress.
3. Enable the Print Negative check box.

Do not choose negative film if you are printing to a desktop printer.

### To specify emulsion down

- Follow step 1 and 2 from the above procedure and enable the Print Emulsion Side Down check box.

### To compress bitmaps in your .PRN file

1. Click File, Print Preview.
2. Click Settings, PostScript Preferences.
3. Enable the Use PostScript Level 2 Features check box.
4. Enable the Use JPEG Compression check box.
5. Move the Quality Factor slider right to increase compression and reduce the quality of your bitmaps.

### To conform to DSC

1. Click File, Print Preview.
2. Click Settings, Options.
3. Choose Conform to DSC from the Special Settings list box.
4. Choose On from the Setting list box.



## Setting a bleed limit

When you use a **bleed** to extend your image to the edge of the page, set a bleed limit. A bleed limit is the extent to which an image can extend beyond the crop marks. Usually, a bleed limit of .125 to .25 inches is sufficient. Any object extending beyond that needlessly uses up memory and may cause problems when you print multiple pages with bleeds on a single sheet of paper.

Remember, a bleed requires that the paper you are printing on is larger than the size of paper you ultimately want, and the printed image must extend beyond the edge of the final paper size.

Consult your service bureau or printing shop to determine the appropriate bleed limit for your job.

### To set a bleed limit

1. Click File, Print Preview.
2. Click Settings, Layout.
3. Enable the Bleed Limit check box.
4. Type a bleed limit in the Bleed Limit box.

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`{button ,AL('PRC Preparing a print job for a commercial press';,0,"Defaultoverview",)}` [Related Topics](#)



## Printing crop marks and registration marks

Crop marks are printed at the corners of the printed image and represent the size of the paper. Crop marks can be used as guides for trimming the paper.

If you are printing multiple pages per sheet (e.g., 2 rows by 2 columns), and you are not cutting these pages into individual sheets, you might want to enable the Exterior Crop Marks Only check box. If you disable this option, crop marks will be placed around each row and column.

Also, if you are printing process color separations, and you are printing to a PostScript device, you can set up your crop marks on every separation rather than on the black separation only. This may be useful if you want to trim individual separations.

Registration marks print on each sheet of a color separation. Registration marks are required to line up the printing plates on a color press (see "[Creating color separations](#)"). If you are printing to a PostScript device, you can select from several different registration mark styles.

To see crop marks and registration marks the paper you are printing on must be larger than the page size of the document you are printing.

### To print crop marks

1. Click File, Print Preview.
2. Click Settings, Marks and Prepress.
3. Enable the Print Crop Marks check box.
4. Enable the Exterior Crop Marks Only check box if only want crop marks to print at the corners of the paper.

### To print composite crop marks

1. Click File, Print Preview.
2. Click Settings, Options.
3. Choose Composite Crop Marks from the Special Settings list box.
4. Choose Output In CMYK from the Setting list box.

### To print registration marks

1. Follow steps 1 and 2 from the "To print crop marks" procedure and enable the Print Registration Marks check box.
2. Choose a registration mark style from the Style preview.

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`{button ,AL('PRC Preparing a print job for a commercial press';,0,"Defaultoverview",)}` [Related Topics](#)



## Printing color calibration bars and densitometer scales

Color calibration bars are color scales that print on each sheet of a color separation. Calibration bars are required to ensure accurate color reproduction (see "[Creating color separations](#)"). To see calibration bars the page size of your print job must be larger than the page size of the work you are printing.

A densitometer scale is a series of gray boxes, ranging from light to dark. These boxes are required to test the density of halftone images (see Printing bitmaps and Halftones). You can position the densitometer scale anywhere on the page. You can also customize the levels of gray that appear in each of the seven squares on the densitometer scale.

### To print color calibration bars

1. Click File, Print Preview.
2. Click Settings, Marks and Prepress.
3. Enable the Color Calibration Bar check box.

### To print a densitometer scale

1. Follow steps 1 and 2 from the above procedure and enable the Print Registration Marks check box.
2. If you want to customize the levels of gray in one of the densitometer scale squares, click the appropriate number in the Densities list box (the top of the list is the lightest box) and type a new density for that square.

### To position a densitometer scale

1. Click File, Print Preview.
2. Click and drag the densitometer scale to its new position.

In most circumstances it is best to position the densitometer scale outside of the printed image.

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`{button ,AL('PRC Preparing a print job for a commercial press';0,"Defaultoverview",)}` [Related Topics](#)



## Printing page numbers and file information

Page numbers are useful when collating material that does not include page numbers in the printed image.

File information includes the color profile you used, your halftone settings, the name of the file, the date and time the work was created, and the plate number (useful when printing color separations). When you enable the Print File Information check box, you can specify a job name (also called a slug line) that will be included with the file information.

To see page numbers and file information the paper on which you are printing must be larger than the page size of the document you are printing. However, you can print file information inside the document's page by enabling the Position Within Page option.

### To print page numbers

1. Click File, Print Preview.
2. Click Settings, Marks and Prepress.
3. Enable the Print Page Numbers check box.

### To print a file information

1. Follow steps 1 and 2 from the above procedure and enable the Print File Information check box.
2. Enable the Position Within Page check box if you want the file information to appear on the document's page.
3. Type text in the Job Name/Slug Line box if you want the Job Name/Slug Line to be different.

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`{button ,AL('PRC Preparing a print job for a commercial press;',0,"Defaultoverview",)}` [Related Topics](#)



## Positioning printers' marks

You can change the position of all the printers' marks by changing the position of the bounding box in the print preview.

### To change the position of printers' marks

1. Click File, Print Preview.
2. Click Settings, Marks And Prepress.
3. Type values in the Top, Bottom, Left, and Right boxes.



### Tip

- You can also change the position of printers' marks by dragging the bounding box in the print preview.

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{button ,AL('PRC Preparing a print job for a commercial press;',0,"Defaultoverview",)} [Related Topics](#)



## Printing a job information sheet

Including a job information sheet with your print job will help your service bureau or print shop to more effectively deal with any problems that arise.

### To print a job information sheet

1. Click File, Print Preview.
2. Click Settings, Options.
3. Enable the Print Job Information Sheet check box.
4. To customize this report, click the Info Settings button and indicate which categories of information are to be included. Also specify whether the job information is to be saved to a file, printed, or both.

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`{button ,AL("PRC Preparing a print job for a commercial press";0,"Defaultoverview"),}` [Related Topics](#)

**Working with bitmaps and halftone screens**



## Working with bitmaps and halftone screens

If the document you are sending to the service bureau or print shop contains bitmaps (e.g., scanned images or photographs), you will need to set up halftone screens for your bitmaps.

### Halftones

Commercial printing presses are unable to produce true shading, but can create the illusion of shading by printing images made up of tiny dots. The size of the dots determines the different levels of shading (i.e., the bigger the dots, the darker the shade). A halftone screen is necessary to convert images with true shading into images made up of tiny dots.

Originally, a halftone screen was an opaque screen with thousands of tiny holes. An image with shading was photographed through this screen using special photographic paper or film. The resulting image would consist entirely of dots. This image could then be used to create printing plates.

Now, however, Corel lets you create halftoned images without using screens or cameras. You can use software to simulate the effect of a halftone screen on a bitmap. To ensure that your bitmaps print correctly, you must correctly set the halftone screen frequency and bitmap resolution.

### Halftone screen frequency

The halftone screen frequency determines the number of dots used to create the image. The screen frequency is measured in lines per inch (lpi). This measurement refers to the number of rows of dots per inch.

When you choose a screen frequency, remember that the higher the screen frequency, the sharper the image. However, there are limits to screen frequency which are determined by the type of printing press on which you are printing, and the type of paper you are using. In general, a screen frequency of 85 lpi works on newsprint, and a frequency of 100 lpi works on bond and glossy paper. If possible, consult your service bureau or printing shop to find out the screen frequency you should use.

### Bitmap resolution

When creating a halftone, the bitmap's resolution, measured in dots per inch (dpi), should be no less than twice the halftone screen frequency. For example, if you are using a 150 lpi screen, the bitmap should have a resolution of at least 300 dpi.

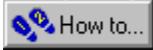
---

**[Related Topics](#)**



## Using Open Prepress Interface

Corel now offers Open Prepress Interface (OPI) support. OPI is a way for you to include high resolution scanned images in your work without dramatically increasing your file size. To accomplish this, your service bureau professionally scans your images on a high-end scanner. They keep the high-resolution version of the scans and give you low-resolution equivalents. You import the low resolution images into your documents, using them for position only (FPO). Working with FPO images keeps your document size smaller and speeds up screen redrawing time. When you send your print job back to the service bureau for final imaging to film, your high resolution files are automatically substituted.



### Notes

- You must import FPO images correctly or they will not be replaced at print time.
- You can only scale, crop, and rotate FPO images. You can not use any other effects on the image.

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**[{button ,AL\('OVR Printing on a commercial press';0,"Defaultoverview",\)} Related Topics](#)**



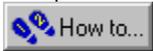
## Setting the halftone screen frequency

If you are printing halftone images, you need to set the screen frequency properly. Consult your service bureau to determine the appropriate screen settings.

This option is available for PostScript devices only.

### To set the screen frequency

1. Click File, Print Preview.
2. Click Settings, Options.
3. Type a screen frequency in the Screen Frequency box, expressed in lines per inch (lpi). Consult your service bureau for the optimum setting for your job.



### Note

- When the screen frequency is set to Default, the image is printed using the default screen frequency of the output device.

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`{button ,AL('PRC Working with bitmaps and halftone screens;',0,"Defaultoverview",)}` [Related Topics](#)



## Maintaining OPI links

Open Prepress Interface (OPI) lets you use low resolution images as placeholders for the high resolution images that appear in your final work. To use OPI links, you must enable the Link To High Resolution File For Output Using OPI check box when importing your TIFF (or CT) files. These TIFF (or CT) images become known as OPI images. When your service bureau receives your print file, the OPI server substitutes the high-resolution images for the low-resolution images. If there are no OPI images in your file, the Maintain OPI Links option will not be available at print time.

If you import your bitmaps correctly, the Maintain OPI Links option is enabled automatically. To proof a file that contains OPI images on a device that doesn't have the high-resolution files (e.g., your desktop printer), disable the Maintain OPI Links option.

Your service bureau may also send you a Desktop Color Separation (DCS) file to act as the low resolution placeholder. If they do this, make sure you find out whether the service bureau wants you to let them resolve the DCS links. If they want to resolve the links themselves, then you will have to change the Resolve DCS Links setting.

This option is available for PostScript devices only.

### To maintain OPI links

1. Click File, Print Preview.
2. Click Settings, PostScript Preferences.
3. Enable the Maintain OPI Links check box.

### To let your Service bureau resolve DCS links

1. Click File, Print Preview.
2. Click Settings, Options.
3. Choose Resolve DCS Links from the Special Settings list box.
4. Choose Leave DCS Links Unresolved from the Setting list box.

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`{button ,AL('PRC Working with bitmaps and halftone screens;',0,"Defaultoverview",)} Related Topics`

## Creating color separations



## Creating color separations

If you are sending color work to a service bureau or printing shop, either you or the service bureau will need to create color separations.

Color separations are necessary because a printing press applies only one color of ink to a sheet of paper at a time. A color separation is created by first isolating each color element in an image. Each color element is then used to create a sheet of film. Each sheet of film is used to apply one color of ink to the sheet of paper.

Printing presses produce color using either process color or spot colors. The number of colors you plan to use will be the main factor in deciding which method to use.

### Process color

If your project requires full color (e.g., it contain scans of color photographs), then you will need to use process color. Process color is a method of producing virtually any color using only four ink colors: cyan, magenta, yellow, and black (known as CMYK). The final colors are produced by mixing percentages of these four inks. Process color only requires four color separations.

Corel now supports a new type of process color, called hexachrome. Hexachrome color uses six different ink colors (cyan, magenta, yellow, black, orange and green) to produce full color images. Talk to your service bureau about whether you should use hexachrome color.

### Spot color

If your project makes use of only one, two or three colors (including black) then you'll probably use spot colors, such as those offered by Pantone. Spot color uses a different ink for each color and each color requires its own color separation. If your budget is limited, consider:

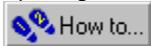
- obtaining a two-color look by printing on colored paper and using only one spot color
- using tints (percentages) of spot colors to create shadows or highlights, thus giving the impression of a broader color range

### Both process and spot color

Some projects require both spot and process colors. For example, a marketing brochure may require the use of a spot color to faithfully render the corporate color and the use of process color to reproduce scans of photographs. Remember, though, that each additional spot color requires extra film, plates and ink, adding to the cost of printing.

### A word about palettes

CorelDRAW allows you to work on different elements of your document from different palettes and different color models. Ultimately however, all colors must be printed with process and spot color inks. Colors defined in the RGB or HSB models are translated automatically into CMYK (process) values. As for spot colors, CorelDRAW allows you to convert them to CMYK at printing time.



#### Note

- Pay close attention to the number of colors used, especially if you are importing clipart. Make sure you only use the colors you have chosen (i.e., process color or spot color).

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{button ,AL('OVR Printing on a commercial press;',0,"Defaultoverview",,)} [Related Topics](#)



## Printing color halftones

If you are printing process color halftones, you need to use a halftone screen for each different color separation (see "[Working with bitmaps and halftone screens](#)" for more information).

### Screen angle

Because each halftone screen consists of a regular pattern of shapes, it creates a pattern on the printed image. When the separations are combined, the patterns created by each separate halftone screen interact. This interaction can create an undesirable effect called a moiré pattern.

Moiré patterns are eliminated by changing the screen angle of each color separation. If you were using an actual screen and a camera, you would rotate the screen 15 degrees for each separation by hand. However, since you are using software to create halftone screens, you have to change certain print options to change the screen angle.

When you print color separations, the screen angles are set automatically. If you change these settings incorrectly, your image might not print properly.

### Screen technology

The screen technology should be set to match the type of imagesetter your service bureau will be using. Talk to your service bureau to determine the correct setting. If you are not using an imagesetter, or you are unable to speak to your service bureau, use the standard defaults.

### Halftone type

The halftone type refers to the type of dot that is being used to create the halftone. Typically, a halftone screen consists of rows of evenly spaced, round, or diamond-shaped dots. However, it is possible to use halftone screens that have dots that are shaped differently. In fact, halftone screens can even use straight lines to create an image, instead of dots. You can experiment with different halftone types to create interesting effects.

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{button ,AL('OVR Printing on a commercial press;',0,"Defaultoverview",)} [Related Topics](#)



## Ensuring predictable color when printing

### Color management

Accurate and consistent color rendition from device to device is essential when printing in color. All components of your computer system (scanner, monitor, and printer) must exchange color information in a manner that ensures a predictable result. This is accomplished by calibrating the various devices in your computer and establishing a system profile using the Color Manager.

### Color correction

For the colors on your screen to approximate the colors on the printed page as closely as possible, enable the Color Correction feature. This option will use the chosen system profile to ensure predictable color rendering.

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`{button ,AL("OVR Printing on a commercial press";0,"Defaultoverview",)}` [Related Topics](#)



## Printing color separations

When printing [color separations](#) to file, you can create a .PRN file that includes all separations, one separation only, or any combination of separations, depending on the complexity of the image.

Generally, you should be able to save all the color separation information in one .PRN file. However, if the image contains special effects and several color separations (e.g., CMYK plus a number of spot colors), saving all color separation information in one .PRN file might result in an unacceptably large file. In this case, create a .PRN file for each separation. Include the separation name in the filename for easier file identification.

When printing color separations, you can produce a sheet of paper or film even when there is nothing on it (e.g., there may be only yellow and black on a page but the cyan and magenta plates will be printed anyway). Normally, you would leave this option disabled to avoid wasting costly film. However, there may be instances when you want to force plates that are blank to print.

### To print color separations

1. Click File, Print Preview.
2. Click Settings, Separations.
3. Enable the Print Separations check box.

### To use Hexachrome process color

1. Follow the above procedure and enable the Hexachrome plates check box.
2. If you are printing on a device that uses high solid ink density, then enable the High Solid Ink Density check box. Consult your service bureau to determine whether you need to enable this option.

### To select specific color separations

- Follow steps 1 to 3 from the "To print color separations" procedure and choose the color separations to be printed from the color separations list box.

### To print empty plates

- Follow the steps from the "To print color separations" procedure and enable the Print Empty Plates check box.



### Tip

- To print separations in color, enable the In Color check box.

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{button ,AL('PRC Creating color separations;',0,"Defaultoverview",)} [Related Topics](#)



## Converting spot colors to process colors

If your document contains spot colors, but you want to print using process color, you can convert your spot colors to process colors. If you don't convert, each spot color is printed on a different color separation. Changing the spot colors to process colors when you print does not affect the document itself, only the way it is printed.

### To convert spot colors to process colors

1. Click File, Print Preview.
2. Click Settings, Separations.
3. Enable the Print Separations check box.
4. Enable the Convert Spot Colors To CMYK check box.

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`{button ,AL("PRC Creating color separations";0,"Defaultoverview",)}` [Related Topics](#)



## Customizing a halftone screen

Setting the halftone screens correctly is critical when printing color separations. Screens that are improperly set can result in undesirable moiré patterns and poor color reproduction. Consult your service bureau before you change any of these settings. If you are uncertain, use the default settings.

### To customize a halftone screen

1. Click File, Print Preview.
2. Click Settings, Separations.
3. Enable the Print Separations check box.
4. Enable the Use Advanced Settings check box.
5. Click Advanced.
6. Change any of the following settings:
  - Screening technology
  - Halftone type (e.g., Line or Diamond)
  - printer or imagesetter resolution
  - the screen frequency and angle of any or all of the color separations.



### Tip

- You can set the screen frequency, screen angle, and overprint options for spot colors as well as process colors. For example, if you have a fountain fill made up of two spot colors, you can now set one to print at 45 degrees and the other at 90 degrees.

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`{button ,AL("PRC Creating color separations";'0,"Defaultoverview",)}` [Related Topics](#)

## **Color trapping**



## Color trapping

Color trapping is necessary to compensate for poor color registration. Poor color registration occurs when the printing plates used to print each color, called color separations, are not aligned perfectly. Poor registration causes unintentional white slivers to appear between adjoining colors. Trapping is accomplished by intentionally overlapping colors so that minor problems with alignment will not be noticed.

Your work needs color trapping if two colors touch. Many service bureaus prefer to create color trapping themselves by using a specialized trapping program. Consult your service bureau about trapping if you are unfamiliar with the process.

Color trapping in Corel applications is achieved by overprinting. Normally, portions of an object that are obscured by another object are not printed. However, if the top object is set to overprint, the obscured portions of any underlying objects print anyway, causing an overlap. This makes white gaps between different colors impossible. Overprinting works best when the top color is much darker than the underlying color; otherwise, an undesirable third color might result (e.g., red over yellow might result in an orange object).

Depending on the color trapping options you choose, overprinting might only affect an object's outline or its fill. This means that if an object with a red outline is set to overprint its outline only, then any portions of another object that are obscured by the first object's outline are printed. This overlap creates a color trap.

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`{button ,AL('OVR Printing on a commercial press';,0,"Defaultoverview",)}` [Related Topics](#)



## Color trapping by overprinting selected objects

You can set specific objects to overprint before you open the Print dialog box. You can overprint each object's fill, outline, or both. The Overprint Fill option causes obscured portions of objects to print when they are under the overprinted object's fill. The Overprint Outline option causes obscured portions of objects to print when they are under the overprinted object's outline. When setting the outline thickness, keep in mind that the outline straddles the path that defines the object's shape. Therefore, an outline of 0.30 points actually creates a trap of 0.15 points.

### To trap by overprinting selected objects

1. Right click the object that requires color trapping with the Pick tool and click Overprint.
2. Click Fill or Outline or both.

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`{button ,AL('PRC Color trapping;',0,"Defaultoverview",)}` [Related Topics](#)



## Color trapping by overprinting selected color separations

Corel lets you overprint specific color separations. You can specify whether you want to overprint graphics, text, or both. Remember that if you set a light color to overprint, dark colors that would normally be obscured by the lighter color are printed and show through. Therefore, it is best not to overprint a light color separation.

### To trap by overprinting selected color separations

1. Click File, Print Preview.
2. Click Settings, Separations.
3. Enable the Print Separations check box.
4. Enable the Use Advanced Settings check box.
5. Click the Advanced button.
6. Click the color separation to overprint in the Color List.
7. Enable the Overprint Color check box.
8. Enable the Graphics check box, Text check box, or both.

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{button ,AL('PRC Color trapping;',0,"Defaultoverview",)} [Related Topics](#)



## Color trapping automatically

Corel offers two methods for automatically creating color trapping: always overprint black and auto-spreading.

Always overprint black creates a color trap by causing any object that contains 95% black or more to overprint any underlying objects. It is a useful option for artwork containing a lot of black text, but it should be used with caution on artwork with a high graphics content. If your service bureau recommends a black threshold value other than 95%, click the Options tab, choose Overprint Black Threshold from the Special Settings Option list box, and change the setting as required.

Auto-spreading creates color trapping by assigning an outline to an object that is the same color as its fill, and having it overprint underlying objects. Auto-spreading is created for all objects in your file that meet these three conditions:

- They don't already have an outline.
- They are filled with a uniform fill.
- They haven't already been designated to overprint.

### To trap by always overprinting black

1. Click File, Print Preview.
2. Click Settings, Separations.
3. Enable the Print Separations check box.
4. Enable the Always Overprint Black check box.

### To set the Overprint Black Threshold

1. Click File, Print Preview.
2. Click Settings, Options.
3. Choose Overprint Black Threshold from the Special Settings list box.
4. Type a number in the Setting box. The number you type represents the percentage of black above which black objects overprint.

### To trap by auto-spreading

1. Follow steps 1 to 3 from the "To trap by always overprinting black" procedure and Enable the Auto-Spreading check box.
2. Type a value in the Maximum box.

The amount of spread assigned to an object depends on the maximum trap value and the object's color. The lighter the color, the greater the percentage of the maximum trap value. The darker the color, the smaller the percentage of the maximum trap value.

2. If you want the spread width to be fixed, then enable the Fixed Width check box.

The Maximum Value box changes to the Width box when you enable the Fixed Width check box. The value in this box determines the fixed width of the color spread.

3. Type a value for Text Above (i.e., the minimum size to which auto-spreading is applied).

If you set this value too low, small text may be rendered illegible when auto-spreading is applied.

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`{button ,AL('PRC Color trapping';,0,"Defaultoverview",)}` [Related Topics](#)



