



CATIA V5 Training
Foils

CATIA Freestyle Sketch Tracer

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Instructor Notes:

About this course

Objectives of the course

Upon completion of this course you will be able to:

- Use an image as a background or as a basis for design
- Import an image into CATIA V5
- Position an image in the CATIA V5 environment

Targeted audience

Shape Designers

Prerequisites

Students attending this course should have experience in the following domain(s): CATIA V5 fundamentals



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Introduction to CATIA Sketch Tracer

You will get an overview of the CATIA Sketch Tracer workbench.



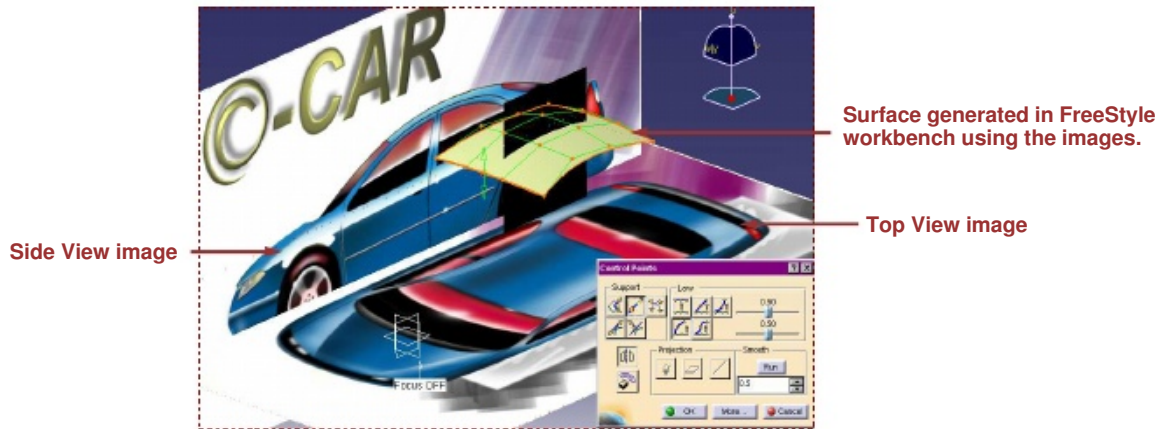
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Introduction

The CATIA Sketch Tracer workbench is part of the Shape Design group of workbenches. This workbench is used in the initial stages of product development. It enables you to import various sketches and images created by the product stylists into CATIA. In this workbench, you will first position and scale the image in 3D space, then use CATIA Freestyle workbench to draw the geometry over the Sketches.



In the above illustration the roof surface of the car has been designed using Side and Top view images.

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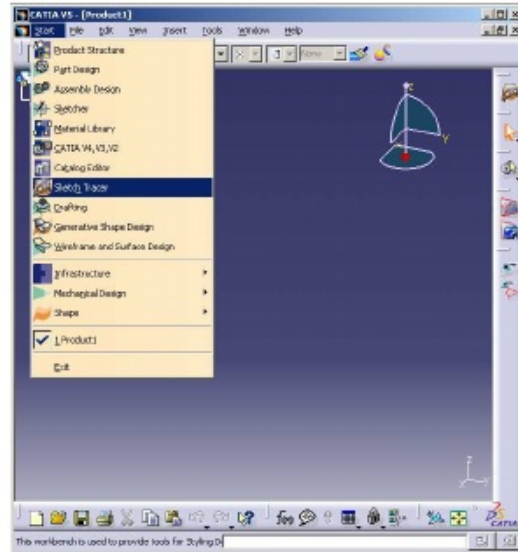
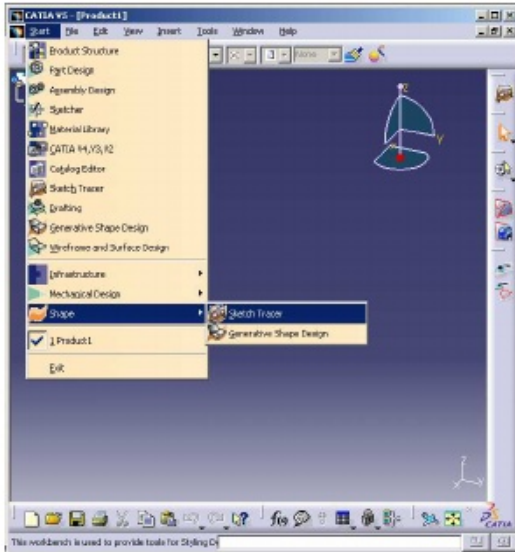


Accessing the Workbench

To access the CATIA Sketch Tracer workbench:

1 Select Start > Shape > Sketch Tracer.

OR 2 Select 'Sketch Tracer' from the list of favorite workbenches (if you have earlier added it to your favorites).



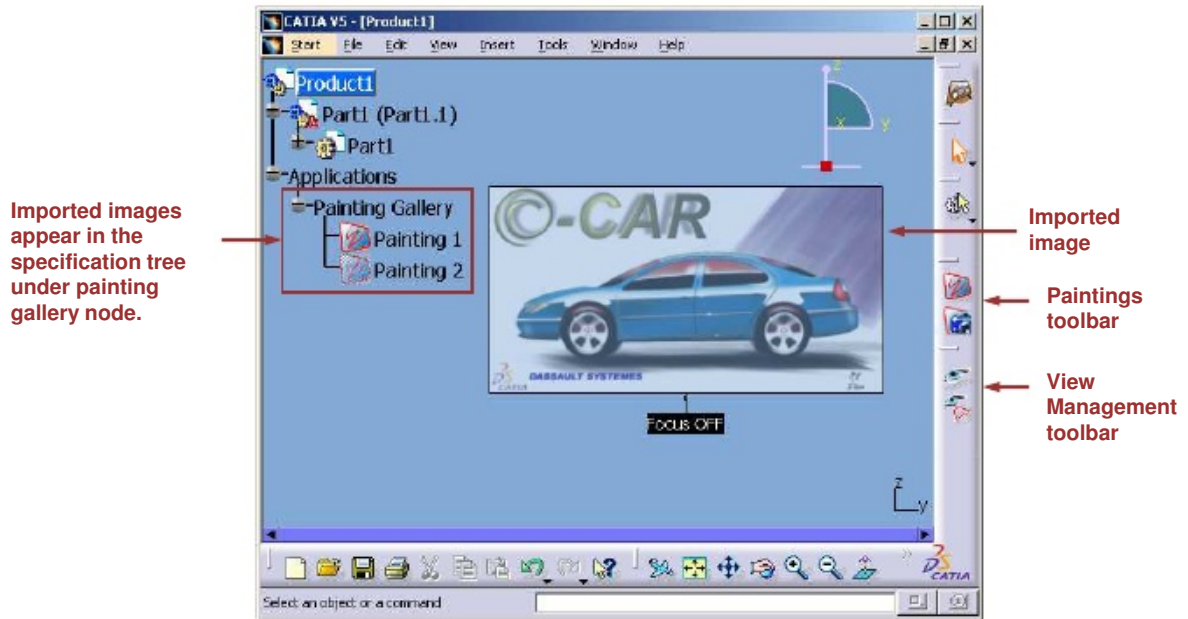
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User Interface: Sketch Tracer

The user interface of the Sketch Tracer workbench is shown below.



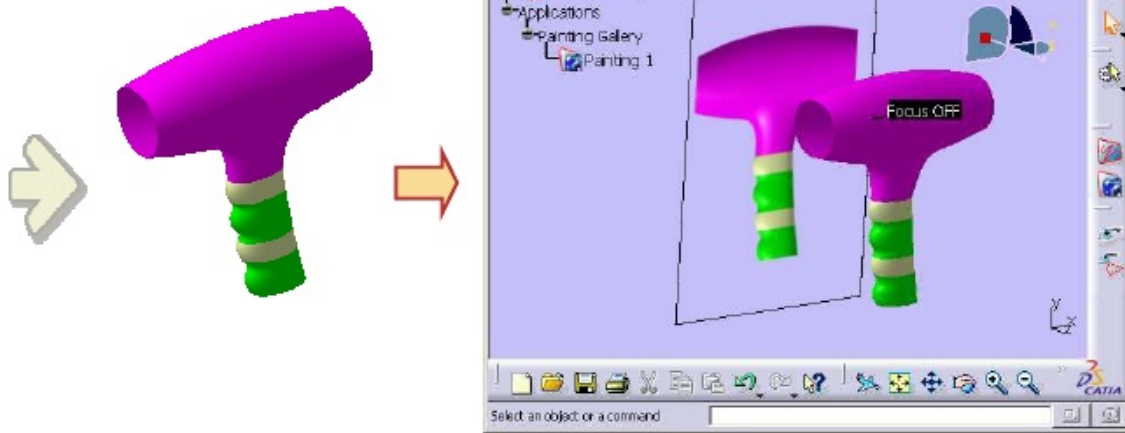
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Importing the Sketches

In this lesson, you will learn how to import images and create images from existing components.



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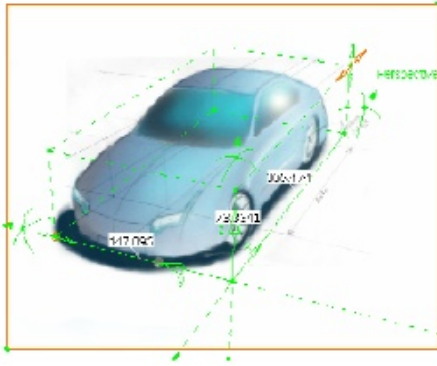


What is Importing a Sketch

In the Sketch Tracer workbench, you can import the pictures created by stylist or you can take a snapshot of an existing CATIA component. This process of importing an image is called as creating an Immersive Sketch. Immersive Sketch is the image of a product that is used in 3D environment for designing the product.

There are two ways of creating an Immersive Sketch:

Creating an Immersive Sketch using an existing image



Existing image imported in CATIA V5

Creating an Immersive Sketch using existing an assembly or a part

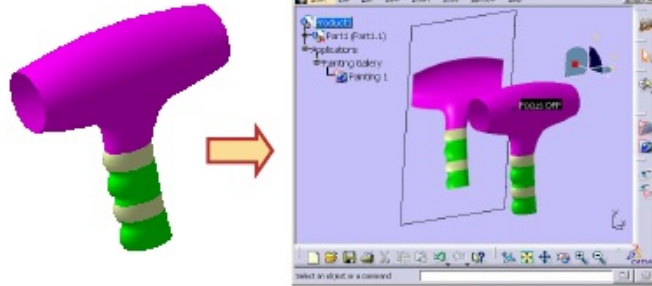


Image created using an existing CATIA component

Various file formats for images that can be imported as Immersive Sketches are tif, jpg, bmp, rgb and psd (Photoshop).

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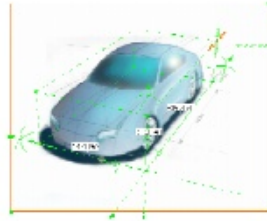
Instructor Notes:



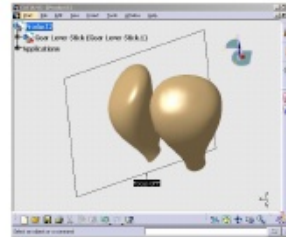
Why Import a Sketch

The CATIA Sketch Tracer workbench allows you to import images, which offers following benefits:

- The images or sketches created by a Stylist can be imported into CATIA and used to define the wireframe elements like points and curves in FreeStyle workbench. These wireframe elements will be further used for designing the parts in other workbenches.



- The images can also be captured from an existing geometry. These images can then be modified in any image editing application (e.g. Photo Shop) and then updated in CATIA environment. CATIA keeps link between original images and the product in which images are imported.




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How to Create an Immersive Sketch (1/2)

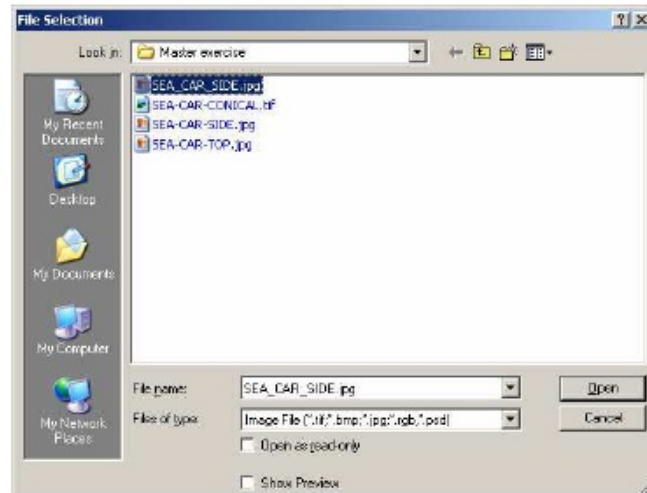
'Immersive Sketch' is an image of a product that is used in 3D environment for Designing the product.

- 1 Click the 'Create an Immersive Sketch' icon. 
- 2 Use the File Selection dialog box to select the image that you want to import.



SEA_CAR_SIDE.jpg

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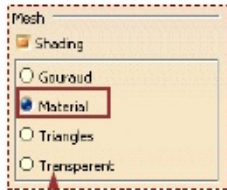


How to Create an Immersive Sketch (2/2)

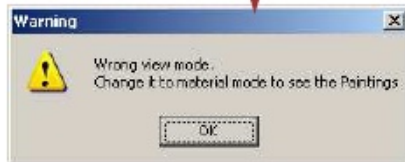
3 Select the orientation view you want for the screenshot.



4 Click OK in the 'Sketch Parameters' dialog box.



Ensure that current render style is set to 'Shading with Material' View. If this option is not active, a warning is displayed while importing and you may get only a black picture.



The Sketch appears as a 'Painting' under 'Painting Gallery' node.

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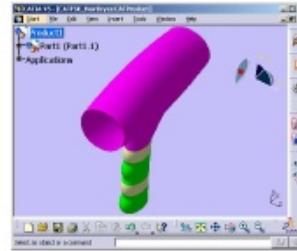
How to Create an Immersive Sketch Using Screen Shot

An image of a geometry can be captured in CATIA itself. This is called as creating an Immersive Sketch using screen shot.

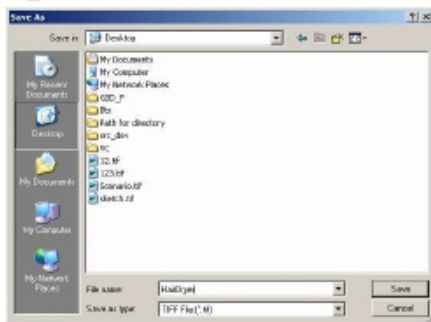
- 1 Select the orientation view that you want for the screenshot.



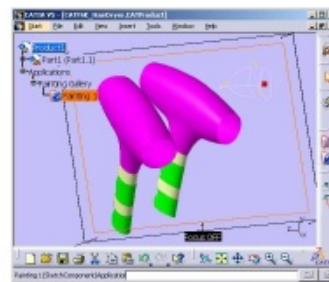
- 2 Click the 'Create an Immersive Sketch using screen shot' icon.



- 3 Save the picture at the required location.



- 4 You can see the image in 3D space by rotating the view.

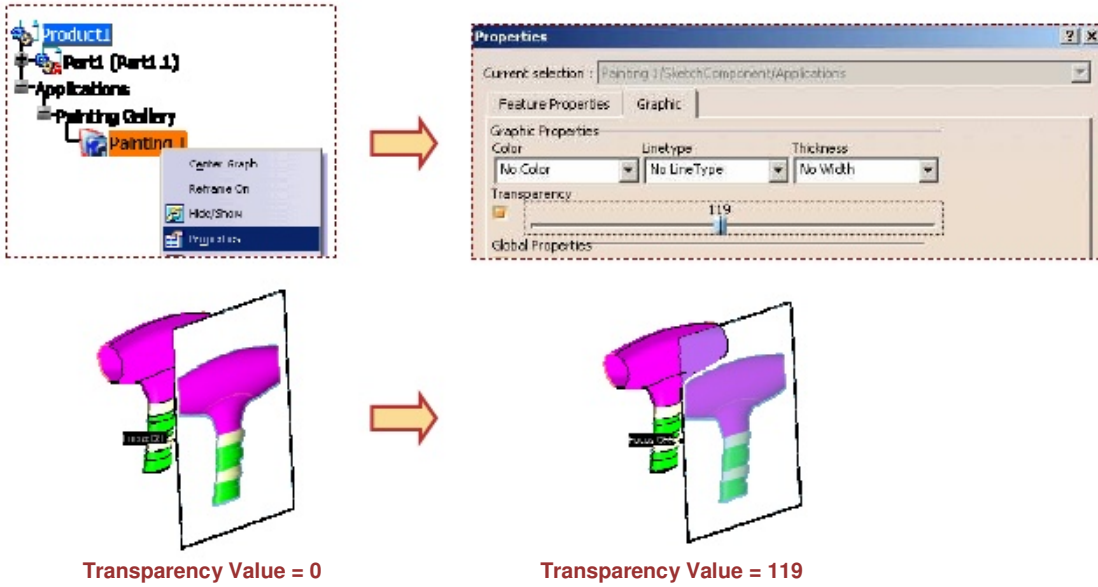


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Modifying the Appearance of a Sketch

You can apply transparency to the image for improving the visualization. To apply transparency to a sketch, edit the 'Graphic Properties' of the Sketch and increase the value of transparency.



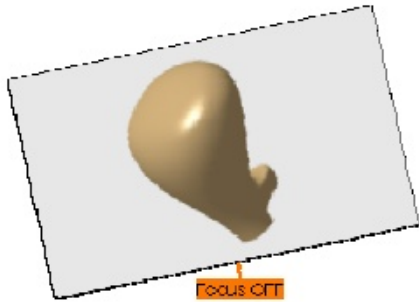
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Instructor Notes:

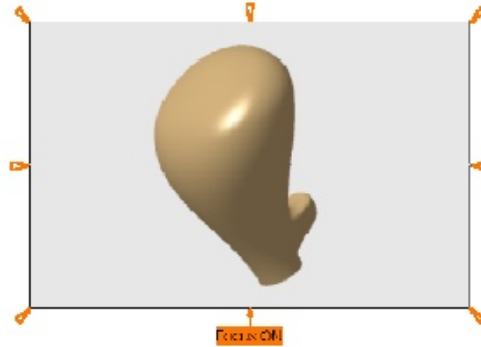


Manipulating the Focus

When you click on 'Focus ON' tag of a Sketch, the Sketch is oriented normal to the screen. Focus ON/ Focus OFF is always indicated by a tag at the bottom of the Sketch. You can toggle between Focus ON/ Focus OFF by clicking on the tag.



Focus OFF:
All manipulations of the view, such as pan, rotation, zoom are allowed.



Focus ON:
Rotation is disabled. Only translation in the Sketch plane and zoom are allowed.

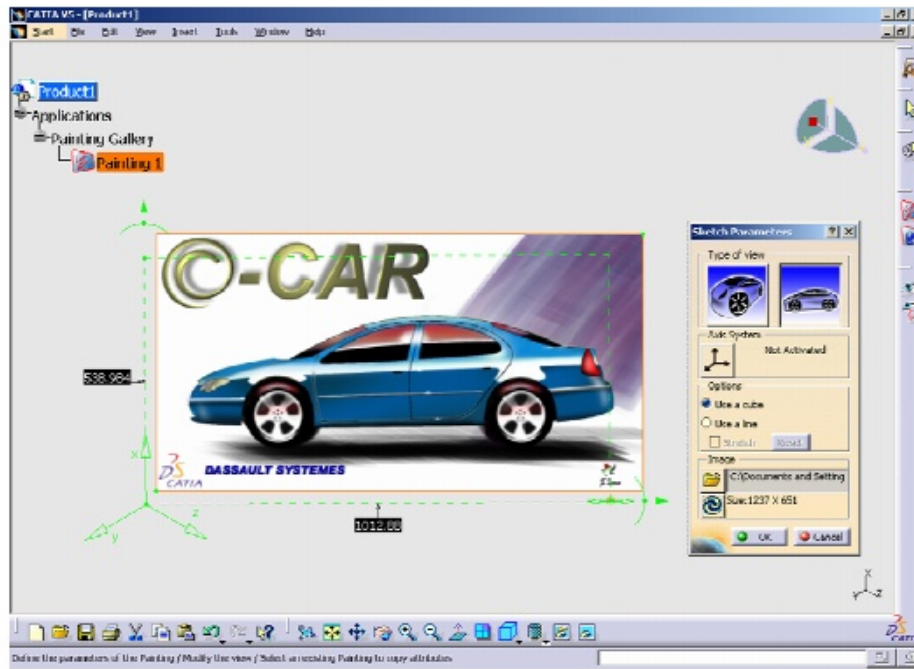
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Positioning the Sketches

You will learn how to position an imported sketch.



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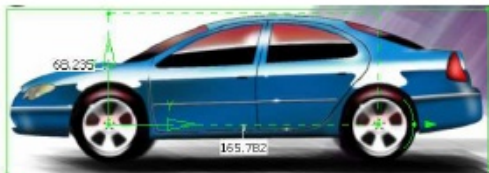
What is Positioning a Sketch?

'Positioning a sketch' is defining its position in the 3D space using manipulators. This action can be carried out during the import operation or later.

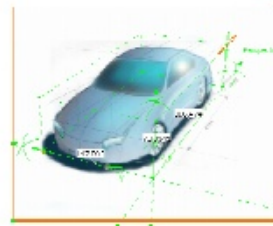
During positioning a sketch, you will:

- ▣ position the origin of the 3D space on the image.
- ▣ define the direction of the 3D axis system according to the image.
- ▣ define the dimension of the sketch according to the actual product size. For this you can use one of the dimensions of the product such as length or width.

You can position a sketch which represents a standard orthographic view of the geometry. You can also position a sketch which represents a 3D perspective image of the geometry.



Positioning a sketch using a cylindrical view
To be used for 2D sketches representing orthographic views.



Positioning a sketch using a conical view
To be used for 3D perspective sketches.

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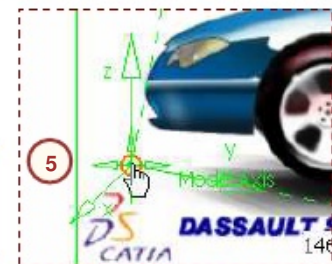
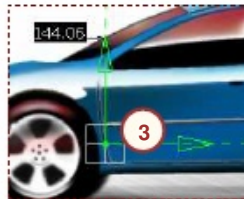
Instructor Notes:



How to Position a Sketch Using Cylindrical View (1/2)

You will learn how to position the sketches that correspond to the standard orthographic views of a product.

- 1 In the specification tree, double-click the sketch that you want to position.
- 2 In the 'Sketch Parameters' dialog box set the type of view to 'cylindrical'.
- 3 Click the 'Change Axis Reference' icon and select a different axis system from an existing part. This step is optional.
- 4 You can position the sketch using a box manipulator or line manipulator. Here you will use box manipulator. Check the 'Use a cube' option in 'Sketch Parameters' dialog box.
- 5 Position the origin by using the manipulators.



By default, the axis system is the product's one and the painting reference matches the selected axis system. Clicking the icon again re-sets the default axis system. In this mode all the options in the dialog box are grayed out until you select an axis system either in the 3D area or in the specification tree.

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How to Position a Sketch Using Cylindrical View (2/2)

6 Define the position of the axis.



Use the 'Flip this axis' option to invert the direction of the axis.



Use this manipulator to rotate the axis system about its origin.

7 Define the size of the sketch by editing the dimension values. To edit the value of a dimension, right-click on the dimension and select Edit in contextual menu to set the Dimension dialog box.

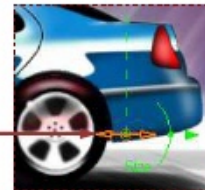


For this you can use one of the linear dimensions of the product such as length, width.

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The zoom manipulator is used to position the frame corner on the image once the product size is defined.



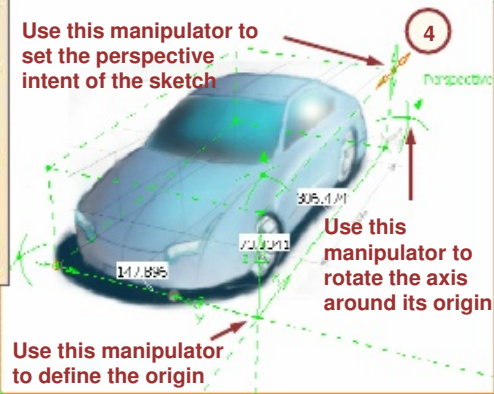
Instructor Notes:



How to Position a Sketch Using Conical View

You will learn how to position sketches which will represent a 3D perspective image of a geometry.

- 1 In the specification tree double-click the sketch you want to position.
- 2 Set the type of view 'conical' in the 'Sketch Parameters' dialog box.
- 3 Click the 'Change Axis Reference' icon to select an axis system of a part, then select the part or its axis system.
- 4 Using various manipulators set the cubical view to fit to the stylist's intent.
- 5 Right-click the Dimension manipulator and select 'Edit' to get the dimension menu. Enter the linear dimension in the Dimension dialog box and click OK.



For this you can use one of the dimensions of the product such as length or width.

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Instructor Notes:

Managing Views

You will see how to change the views using view manipulation tools.



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Instructor Notes:



What is Managing Views?

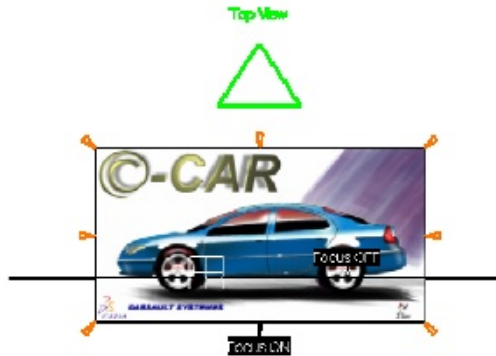
You can quickly access the standard views (top, bottom, front, back, right and left) using the 'View Management' toolbar.



View Management toolbar

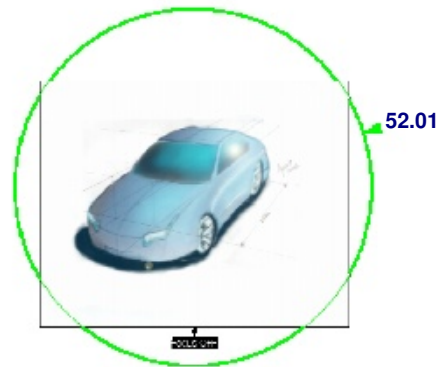
Managing Interactive Views

A pyramid-shaped manipulator appears, along with an information about the view position.



Managing Conical Views

You can choose from perspective or parallel view mode. For a perspective view mode, a green circle appears with an arrow indicating the current view angle as shown.




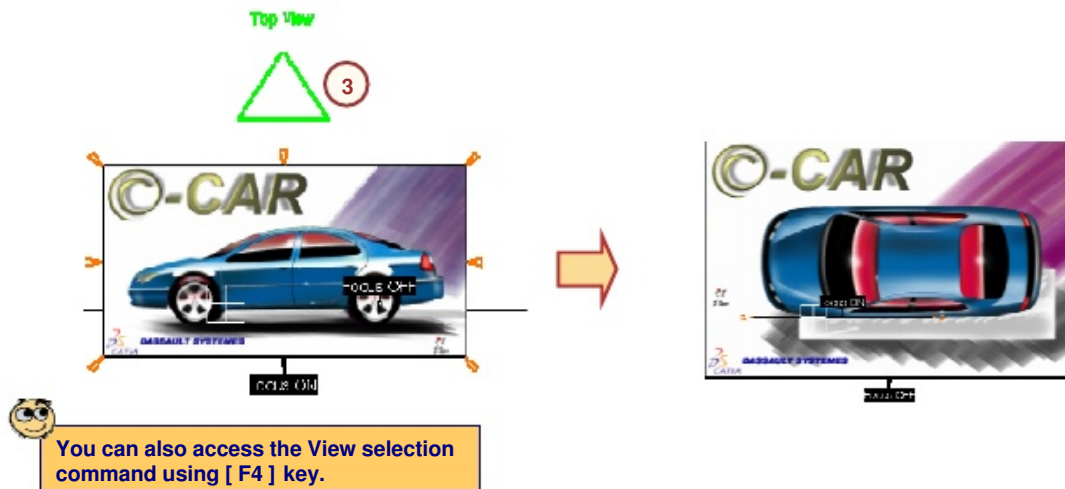
Instructor Notes:



How to Manage Interactive Views

You will learn how to manage interactive views in FreeStyle Sketch Tracer workbench.

- 1 Click the 'View Selection' icon 
- 2 Move the mouse to change the manipulator position
- 3 Click on the desired view to change the view



Instructor Notes:



How to Manage Conical Views

You will learn how to manage conical views in FreeStyle Sketch Tracer workbench.

1 Click the 'View Modification' icon 

2 Select the View Render style, default style is 'Perspective'



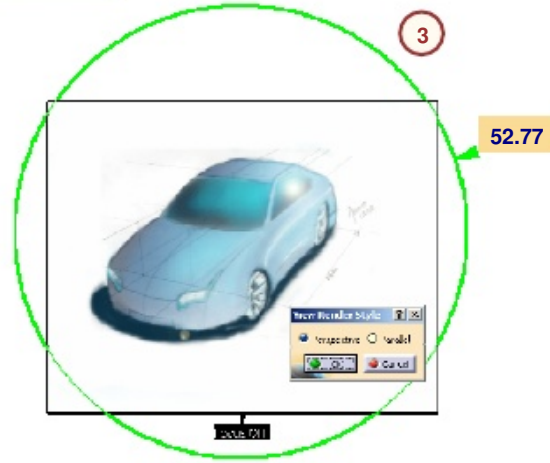
You can also access the View selection command using [F2] key.

3 For Perspective style, drag the green arrow to change the view angle

4 Click OK to accept the new angle

5 Again click the 'View Modification' icon

6 Set the View Render Style to 'Parallel' and click OK






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Master Exercise: Sea Car

In this exercise you will create sketches which represent the side and top views of the Sea Car and then position the sketches.

-  **Sea Car: Exercise Presentation**
-  **Step 1: Creating the First Sketch**
-  **Step 2: Creating the Second Sketch**

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Instructor Notes:

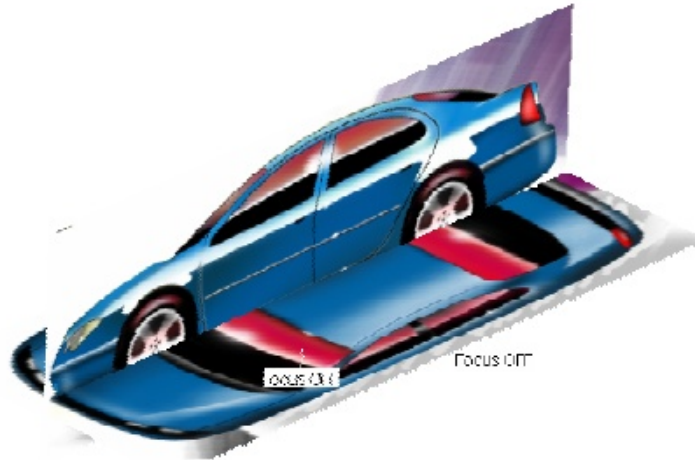
Sea Car –Sketch Tracer

Master Exercise Presentation



20 min

In this exercise you will create sketches which represent the top and side views of Sea Car. To do so you will have to create Immersive sketches, position the sketches and define the size of the sketches.



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Sea Car –Sketch Tracer

Step 1 – Creating the First Sketch



10 min

In this step you will:

- Import “SEA_CAR_SIDE.jpg”
- Position the sketch
- Define the size of the sketch



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Instructor Notes:

Sea Car –Sketch Tracer

Step 2 – Creating the Second Sketch



10 min

In this step you will:

- Import “SEA_CAR_TOP.jpg”
- Position the sketch
- Define the size of the sketch



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