Get Started

With SMARTOptics

Get started with SMARTOptics

This guide will help you to understand the basic functionality of SMARTOptics.

Click here to download the assembly for this guide.

Follow the instructions on the next pages

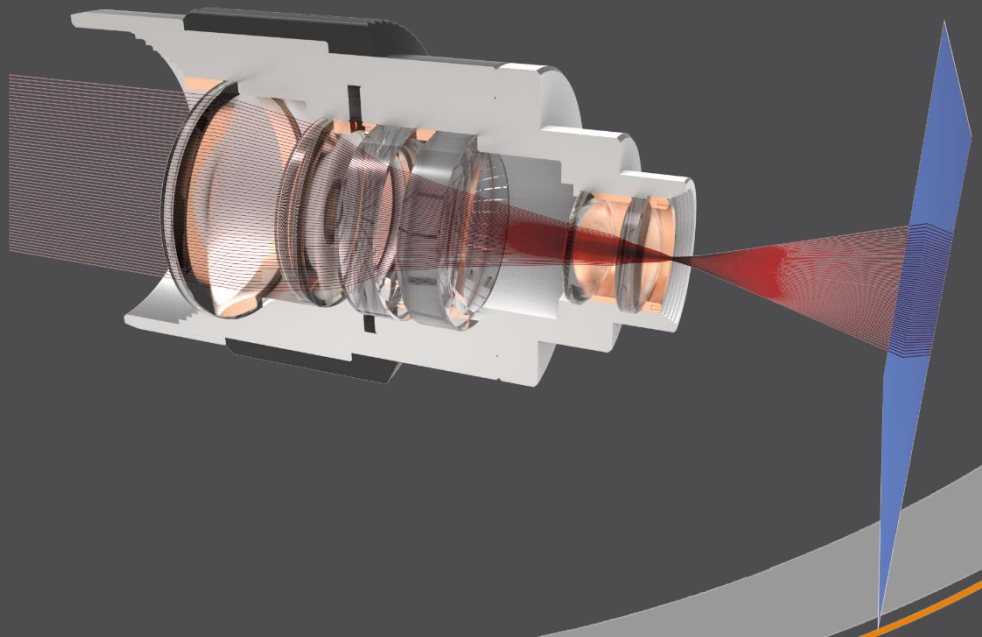
Requirements for this guide

- Creo Parametric License
- SMARTOptics License

Overview

In this guide you will learn the following skills

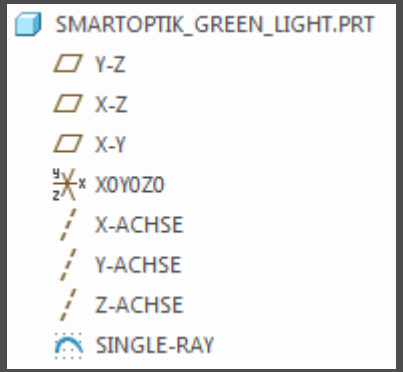
- Setup a light source
- Define your elements
  - Material
  - End
  - Absorb
  - Split
- View your results
- Output your results



Setup a light source

How to prepare your part as illuminant

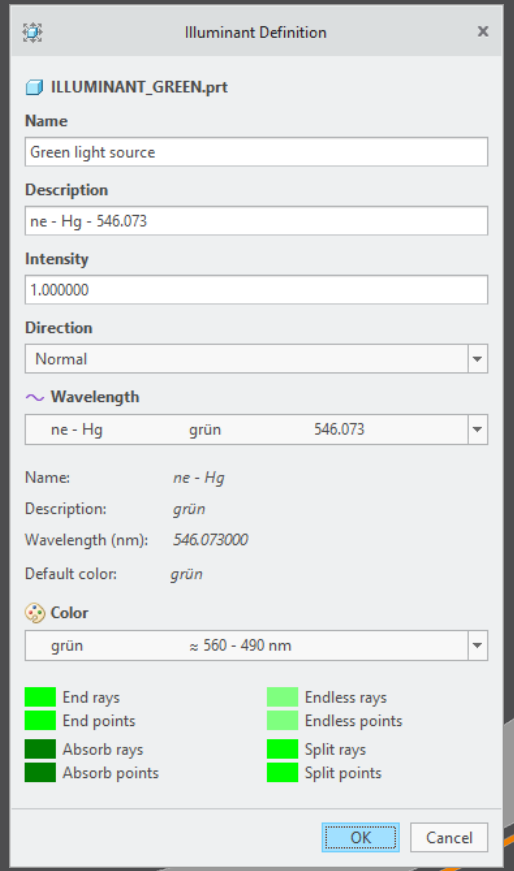
- Simply add at least ONE sketched curve to your part
- Each curve in your illuminant is interpreted as one ray
- In the model tree on the right, you see a part with a “SINGLE-RAY”
- It is also possible to pattern the curve



Setup a light source

Exercise 1: Define a green illuminant

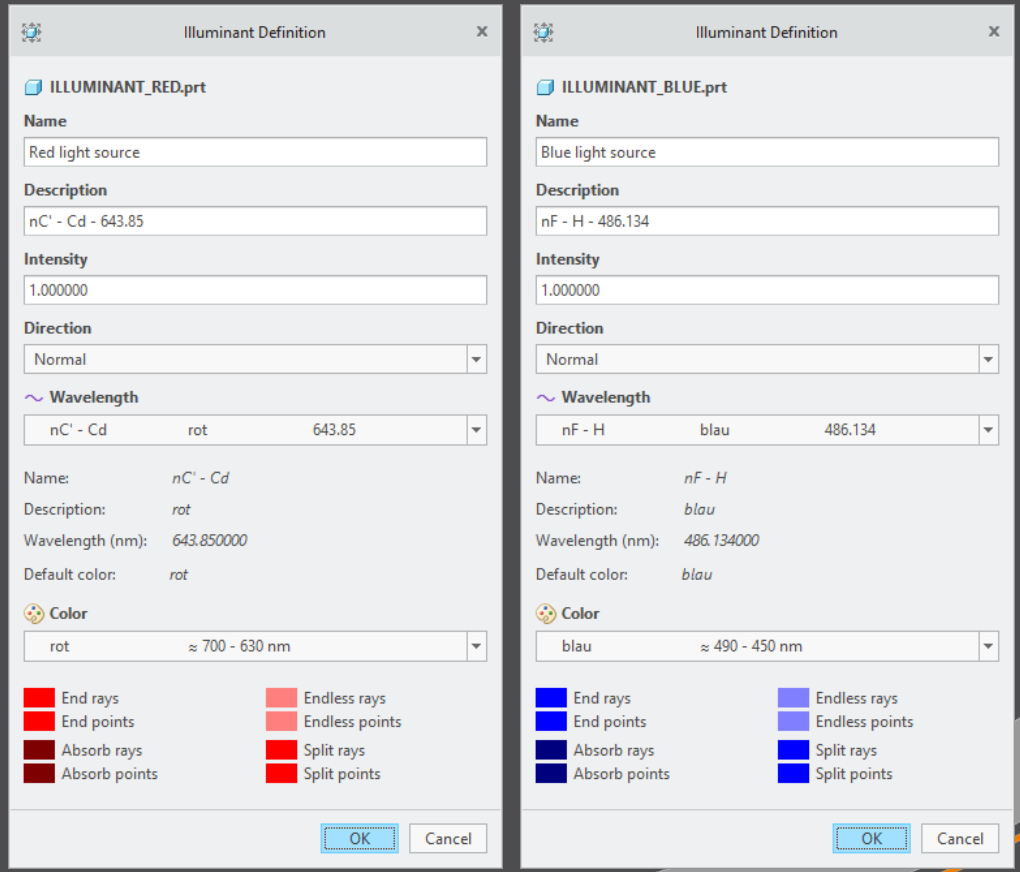
1. Open *smartoptics_get_started.asm*
2. Switch to the *SMARTOptics* tab
3. Select *Element Definition* > *Illuminant* > *Define*
4. Select *ILLUMINANT_GREEN.PRT*
5. The *Illuminant Definition* dialog opens
6. Enter *Name* and *Description* and select *Wavelength 'ne – Hg'* like shown in the image
7. Close the Dialog with *OK*
8. You are done!
   Your first illuminant is defined



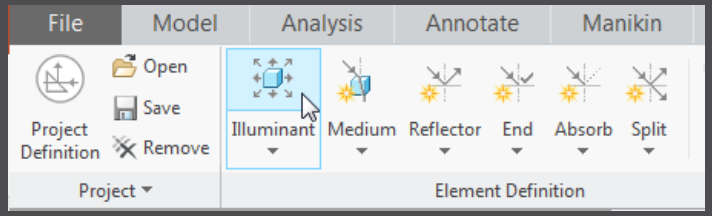
Setup a light source

Exercise 2:

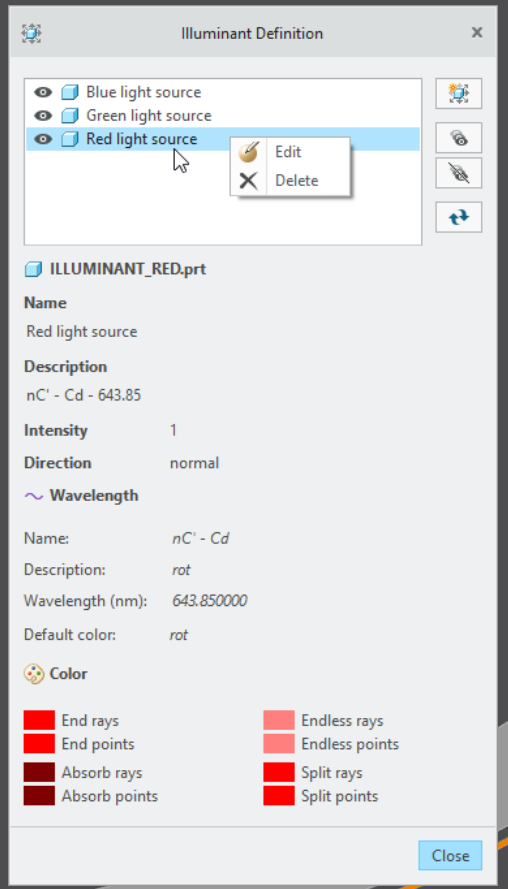
Repeat exercise 1 and define a red and a blue light source like shown in the image for the other two illuminant parts.



Show all light sources



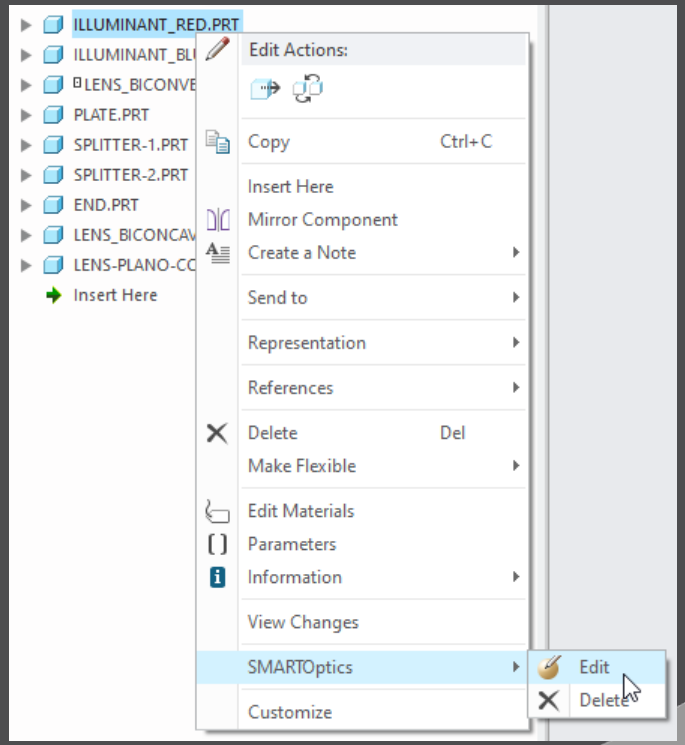
- Select *Element Definition* > *Illuminant* > *Show*
- The *Illuminant Definition* dialog with all information about your illuminants opens.
- In this dialog you have quick access to all your light sources.



Modify a light source

Exercise 3: Modify red illuminant

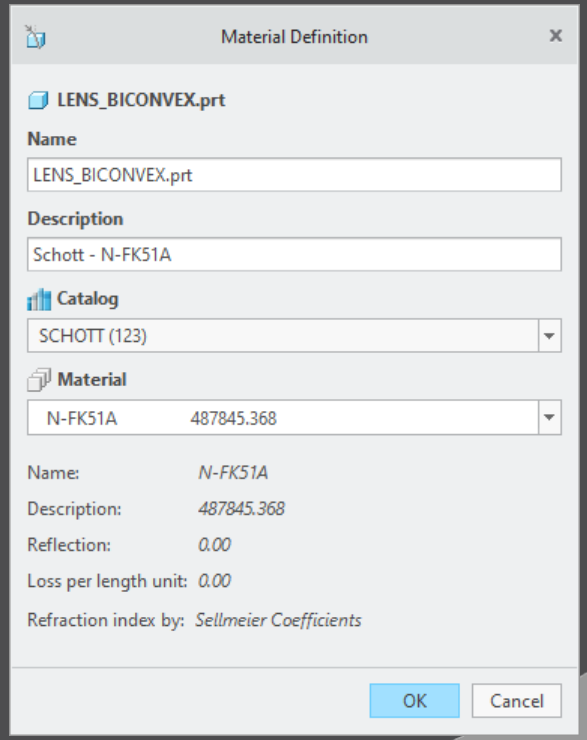
1. Right click on *ILLUMINANT_RED.PRT*
2. In the popup menu select *SMARTOptics* > *Edit*
3. The *Illuminant Definition* dialog opens
4. Change the *Direction* to *Normal*
5. Close the Dialog with *OK* to assign the changes.



Define your Elements - Material

Exercise 4: Define a material

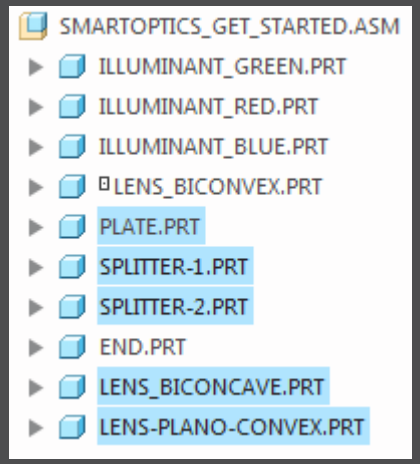
1. Select *Element Definition* > *Material* > *Define*
2. Select the *LENS_BICONVEX.PRT*
3. The *Material Definition* dialog opens
4. You can enter a *Name* and a *Description* if you want
5. Select the Schott Material *N-FK51A* for this lens
6. Note: The refraction index for this material is defined in the database by Sellmeier Coefficients.

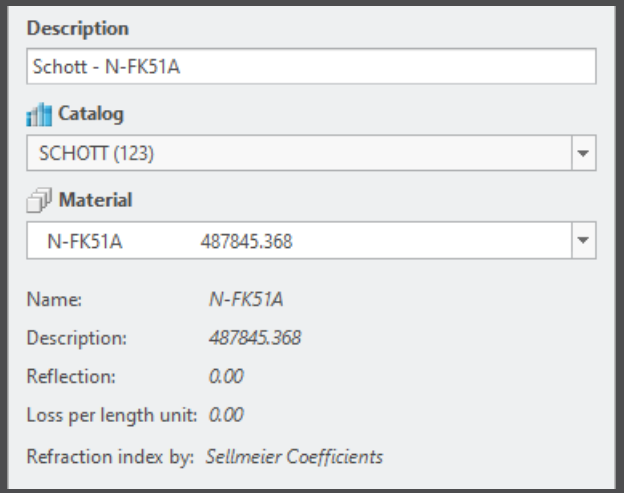


Define your Elements - Material

Exercise 5: Define all materials

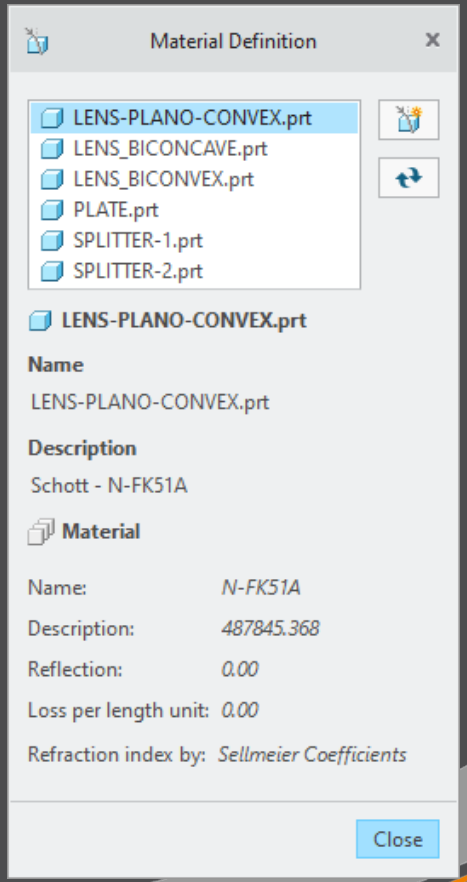
Repeat Exercise 4 for all highlighted parts





Show all Materials

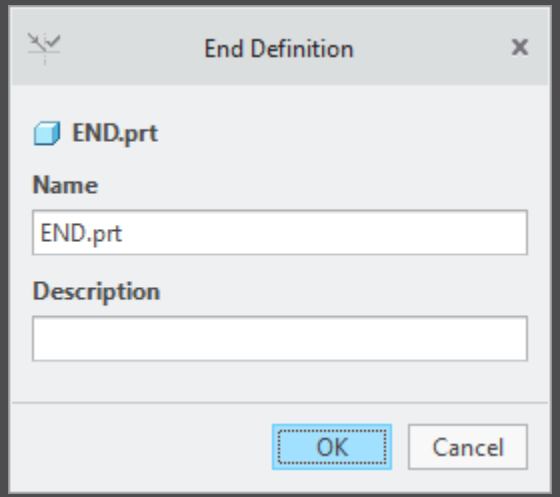
- Select *Element Definition* > *Material* > *Show*
- The *Material Definition* dialog with all information about your materials opens
- In this dialog you have quick access to all your materials



Define your Elements - End

Exercise 6: Define an End part

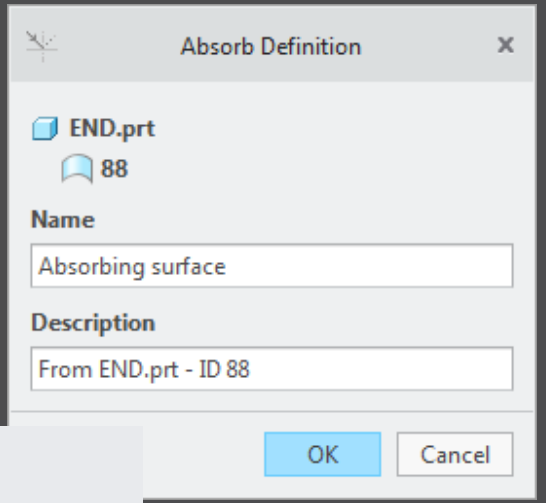
1. Select *Element Definition* > *End* > *Define*
2. Select the *END.PRT*
3. The *End Definition* dialog opens
4. You can enter a *Name* and a *Description* if you want

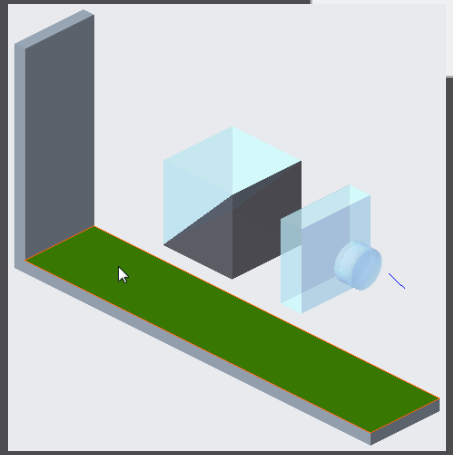


Define your Elements - Absorb

Exercise 7: Define an absorbing surface

1. Select *Element Definition* > *Absorb* > *Define*
2. Select the surface shown in the image
3. The *Absorb Definition* dialog opens
4. You can enter a *Name* and a *Description* if you want

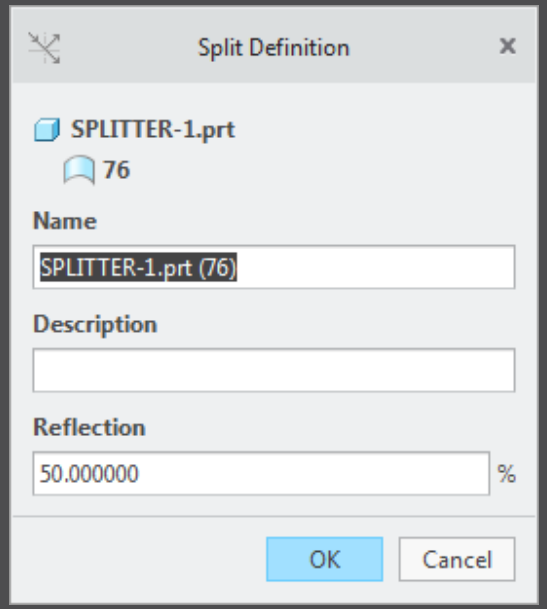




Define your Elements - Split

Exercise 8: Define two splitting surfaces

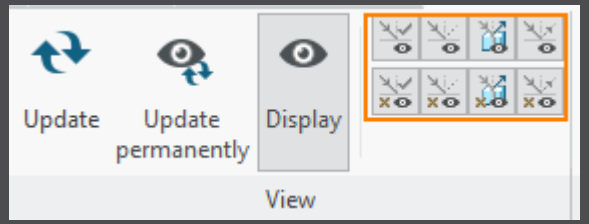
1. Select *Element Definition* > *Split* > *Define*
2. Select the connecting surface between both splitter parts.
3. The *Split Definition* dialog opens
4. You can enter a *Name* and a *Description* if you want
5. Repeat this step for the other connection surface



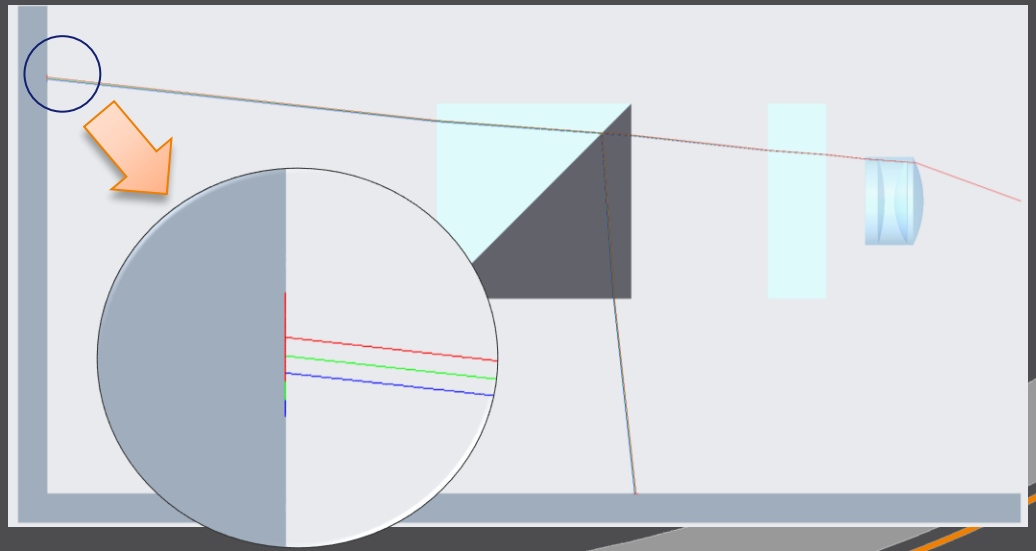
View your Results

Exercise 9: Show your results in Creo graphic window

1. Select *View* > *Update*
2. Select *View* > *Display*
3. Depending on the buttons state you can now see your results in Creo.



Note: Since we have defined 3 different wavelengths, the refraction is different for each ray.



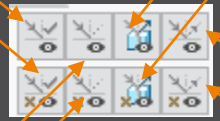
The Ray-types

End rays

*Rays which ends on the element type **End***

Diffused rays

Rays which are splitted



Absorb rays

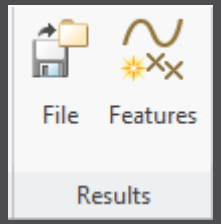
*Rays which ends on the element type **Absorb***

Endless rays

Rays with no end

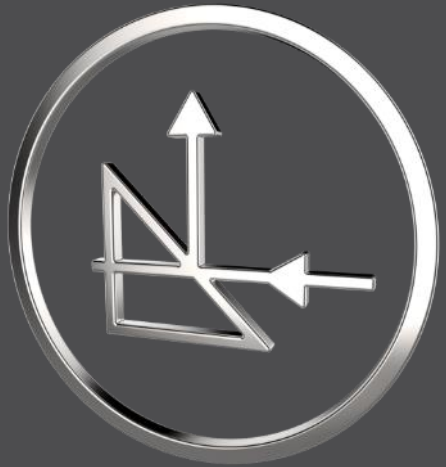
Output your Results

- What you see is what you get. Depending on your view button state, the result can be changed.
- You can output your results to *.ibl and *.pts file.
- You can output your results directly to the Creo model. Simply press a reference coordinate system and create your results.



Contact

If there are any problems, question or even concerns, do not hesitate to contact us.



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