

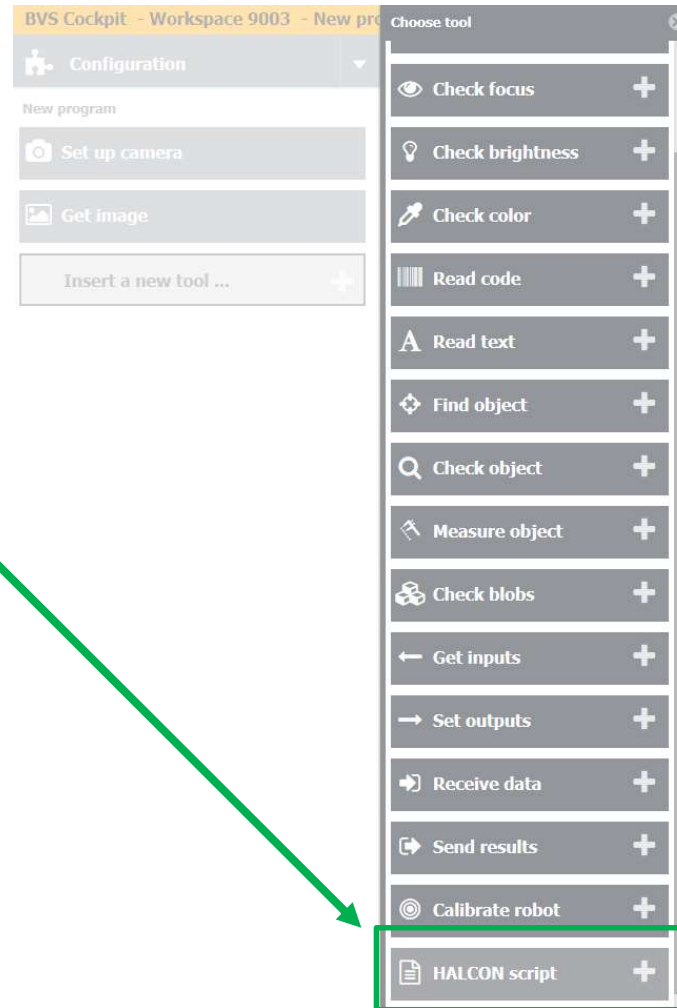
BALLUFF

Step-by-Step Guide

Create Scaled Shape Model from Image

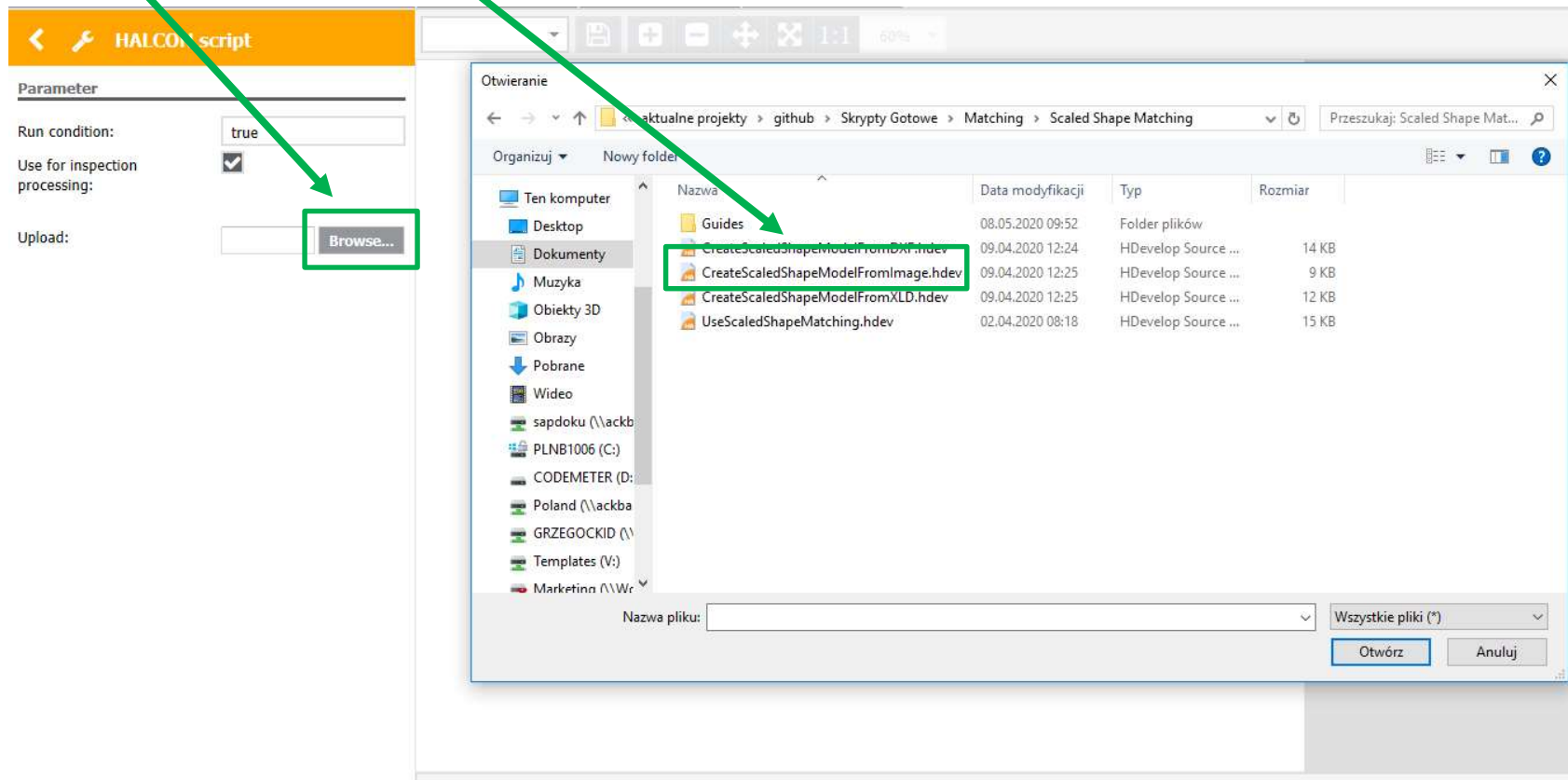
Step 1

Add new tool – Halcon Script – in your inspection program.



Step 2

Click „Browse” and choose „CreateScaledShapeModelFromImage.hdev” file.



Step 3

Set proper ModelDirectory – directory in which you want to save your shape models:

- For BVS Cockpit PC version you can set any path you want (for example: "C:/Users/User/Desktop/,,").
- For BVS Cockpit in SVC you have to set path in "/data/icsServer/share/images/"
- For BVS Cockpit in SC you have to set path in "../images/"

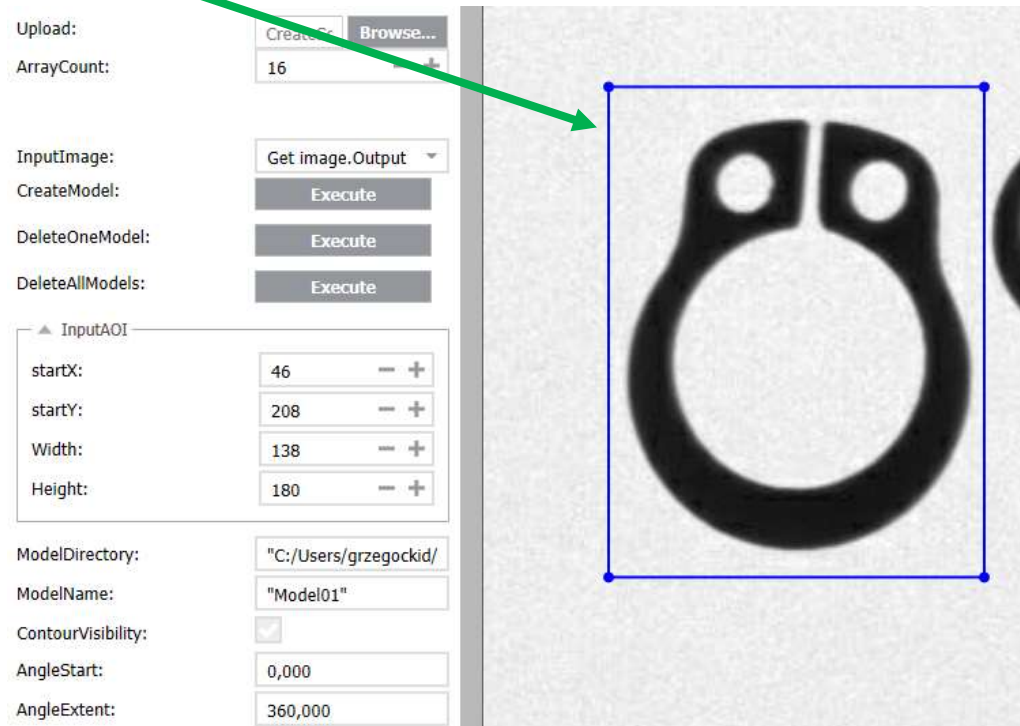
InputImage:	Get image.Output ▾
CreateModel:	Execute
DeleteOneModel:	Execute
DeleteAllModels:	Execute

▲ InputAOI	
startX:	100 - +
startY:	100 - +
Width:	500 - +
Height:	500 - +

ModelDirectory:	"C:/Users/User/Desktop/,,
ModelName:	"Model01"
ContourVisibility:	<input checked="" type="checkbox"/>
AngleStart:	0,000
AngleExtent:	360,000
ScaleMin:	0,900
ScaleMax:	1,100
Optimization:	auto ▾
Metric:	use_polarity ▾
Contrast:	1
MinContrast:	1
ContrastAuto:	<input checked="" type="checkbox"/>
MinContrastAuto:	<input checked="" type="checkbox"/>

Step 4

Set the AOI to the shape that you want to create.



Upload:

ArrayCount:

InputImage:

CreateModel:

DeleteOneModel:

DeleteAllModels:

InputAOI

startX:

startY:

Width:

Height:

ModelDirectory:

ModelName:

ContourVisibility: ☒

AngleStart:

AngleExtent:

Step 5

Set and adjust shape model parameters:

- a) ModelName – name of the shape model
- b) AngleStart – starting angle of the shape model angular position
- c) AngleExtent – angle extension from the starting angle
- d) ScaleMin – minimum scale of the shape model
- e) ScaleMax – maximum scale of the shape model
- f) Optimization – optimization method used for generating the model
- g) Metric – conditions under which the model is recognized in the image
- h) Contrast – contrast of the shape model (not used when ConstrastAuto is checked)
- i) MinContrast – minimum contrast of the shape model (not used when MinConstrastAuto is checked)
- j) ContrastAuto – automatic contrast adjustment
- k) MinContrastAuto – automatic minimum contrast adjustment

ModelDirectory:	<input type="text" value="C:/Users/grzegockid/"/>
ModelName:	<input type="text" value="Model01"/>
ContourVisibility:	<input checked="" type="checkbox"/>
AngleStart:	<input type="text" value="0,000"/>
AngleExtent:	<input type="text" value="360,000"/>
ScaleMin:	<input type="text" value="0,900"/>
ScaleMax:	<input type="text" value="1,100"/>
Optimization:	<input type="text" value="auto"/>
Metric:	<input type="text" value="use_polarity"/>
Contrast:	<input type="text" value="1"/>
MinContrast:	<input type="text" value="1"/>
ContrastAuto:	<input checked="" type="checkbox"/>
MinContrastAuto:	<input checked="" type="checkbox"/>

Step 6

Click "Execute" on the right of "CreateModel" to create new shape model.

Upload:

ArrayCount: 16

InputImage:

CreateModel:

DeleteOneModel:

DeleteAllModels:

▲ InputAOI

startX: 46
startY: 208
Width: 138
Height: 180

ModelDirectory: "C:/Users/grzegockid/"

ModelName: "Model01"

ContourVisibility: ☒

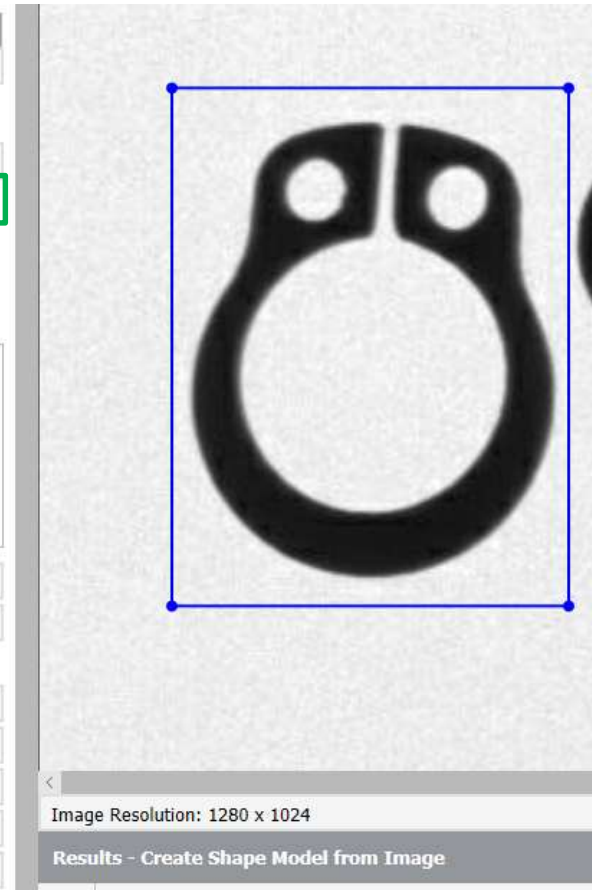
AngleStart: 0,000

AngleExtent: 360,000

ScaleMin: 0,900

ScaleMax: 1,100

Optimization: auto



Step 7

Created models will be visible in ModelTuple output variable. Number of shape models in the directory will be shown in NumberOfFiles variable.

* After creating the model refresh output variables by clicking „Run once”.

** It is possible to save up to 16 shape models in one directory. To save more change the saving directory.

Results - Create Shape Model from Image		
	Name	Value
<input type="checkbox"/>	Tool processing	Successful
<input type="checkbox"/>	Result message	
<input type="checkbox"/>	Execution duration [ms]	3,066
<input type="checkbox"/>	ShapeModel	1280 x 1024 Mono_8
<input type="checkbox"/>	ShapeContours	
<input type="checkbox"/>	ModelTuple 1	C:\Users\grzegockid\Desktop\Model01.shm
<input type="checkbox"/>	ModelTuple 2	C:\Users\grzegockid\Desktop\Model02.shm
<input type="checkbox"/>	ModelTuple 3	
<input type="checkbox"/>	ModelTuple 4	
<input type="checkbox"/>	ModelTuple 5	
<input type="checkbox"/>	ModelTuple 6	
<input type="checkbox"/>	ModelTuple 7	
<input type="checkbox"/>	ModelTuple 8	
<input type="checkbox"/>	ModelTuple 9	
<input type="checkbox"/>	ModelTuple 10	
<input type="checkbox"/>	ModelTuple 11	
<input type="checkbox"/>	ModelTuple 12	
<input type="checkbox"/>	ModelTuple 13	
<input type="checkbox"/>	ModelTuple 14	
<input type="checkbox"/>	ModelTuple 15	
<input type="checkbox"/>	ModelTuple 16	
<input type="checkbox"/>	NumberOfFiles	2
<input type="checkbox"/>	InfoString	

Step 8

Created shape model will be imprinted into ShapeModel output image.

You can also visualize model's contours by checking ContourVisibility.

The screenshot displays the BALLUFF software interface. On the left is the 'Configuration' panel, and on the right is the main image window. The 'Configuration' panel includes the following settings:

- Run condition: ☐ true
- Use for inspection processing: ☒
- Upload: CreateSc | Browse...
- AngleStart: 16
- InputImage: Get image, Output
- CreateModel: Execute
- DeleteOneModel: Execute
- DeleteAllModels: Execute
- InputAOI:
 - startX: 46
 - startY: 208
 - Width: 138
 - Height: 180
- ModelDirectory: "C:/Users/grzegockid/"
- ModelName: "Model02"
- ContourVisibility: ☒
- AngleStart: 0,000
- AngleExtent: 360,000
- ScaleMin: 0,900
- ScaleMax: 1,100

The main image window shows a white shape on a black background. The shape has two small circles at the top. The contours of the shape are highlighted in red. The window title is 'ShapeModel'. Below the image window, there is a 'Results - Create Shape Model from Image' section with a table:

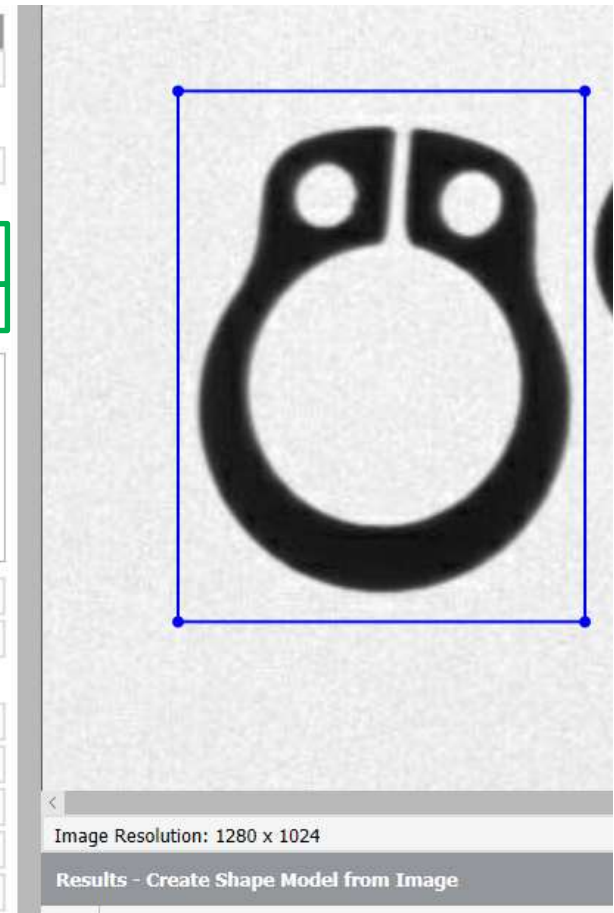
Name	Value
Image Resolution: 1280 x 1024	

Step 9

To delete shape model click "Execute" on the right of "DeleteOneModel". Shape model which name is in ModelName variable will be deleted.

To delete all shape models click "Execute" on the right of "DeleteAllModels". All shape models from ModelDirectory will be deleted.

Upload:	CreateSc	Browse...
ArrayCount:	16	- +
InputImage:	Get image.Output	
CreateModel:	Execute	
DeleteOneModel:	Execute	
DeleteAllModels:	Execute	
▲ InputAOI		
startX:	46	- +
startY:	208	- +
Width:	138	- +
Height:	180	- +
ModelDirectory:	"C:/Users/grzegockid/"	
ModelName:	"Model01"	
ContourVisibility:	<input checked="" type="checkbox"/>	
AngleStart:	0,000	
AngleExtent:	360,000	
ScaleMin:	0,900	
ScaleMax:	1,100	
Optimization:	auto	



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 *innovating automation*