

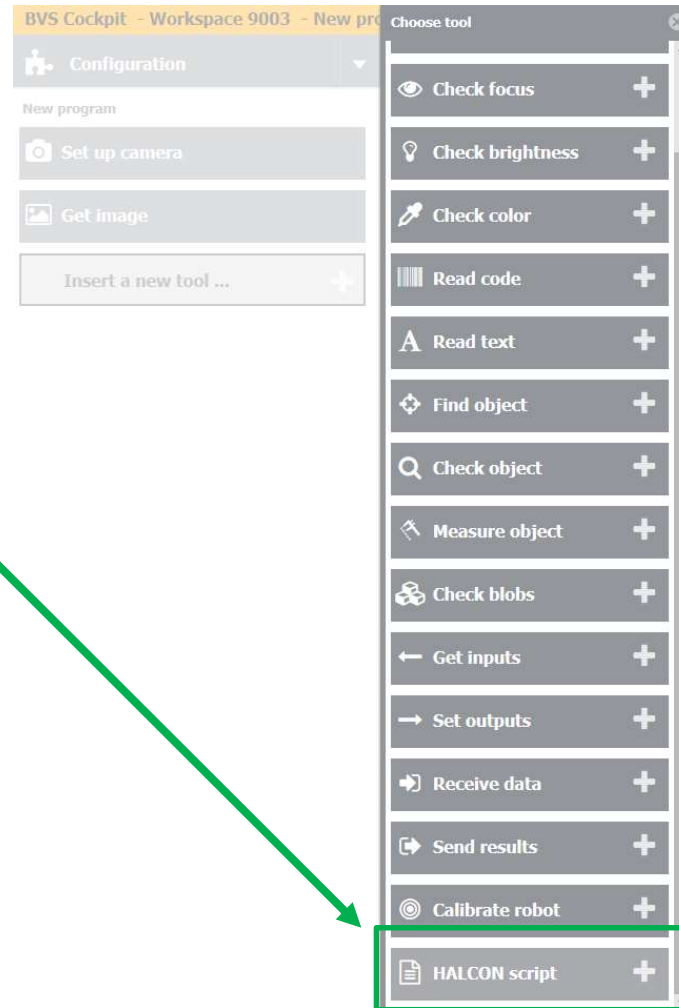
**BALLUFF**

## Step-by-Step Guide

**Use Scaled Shape Matching**

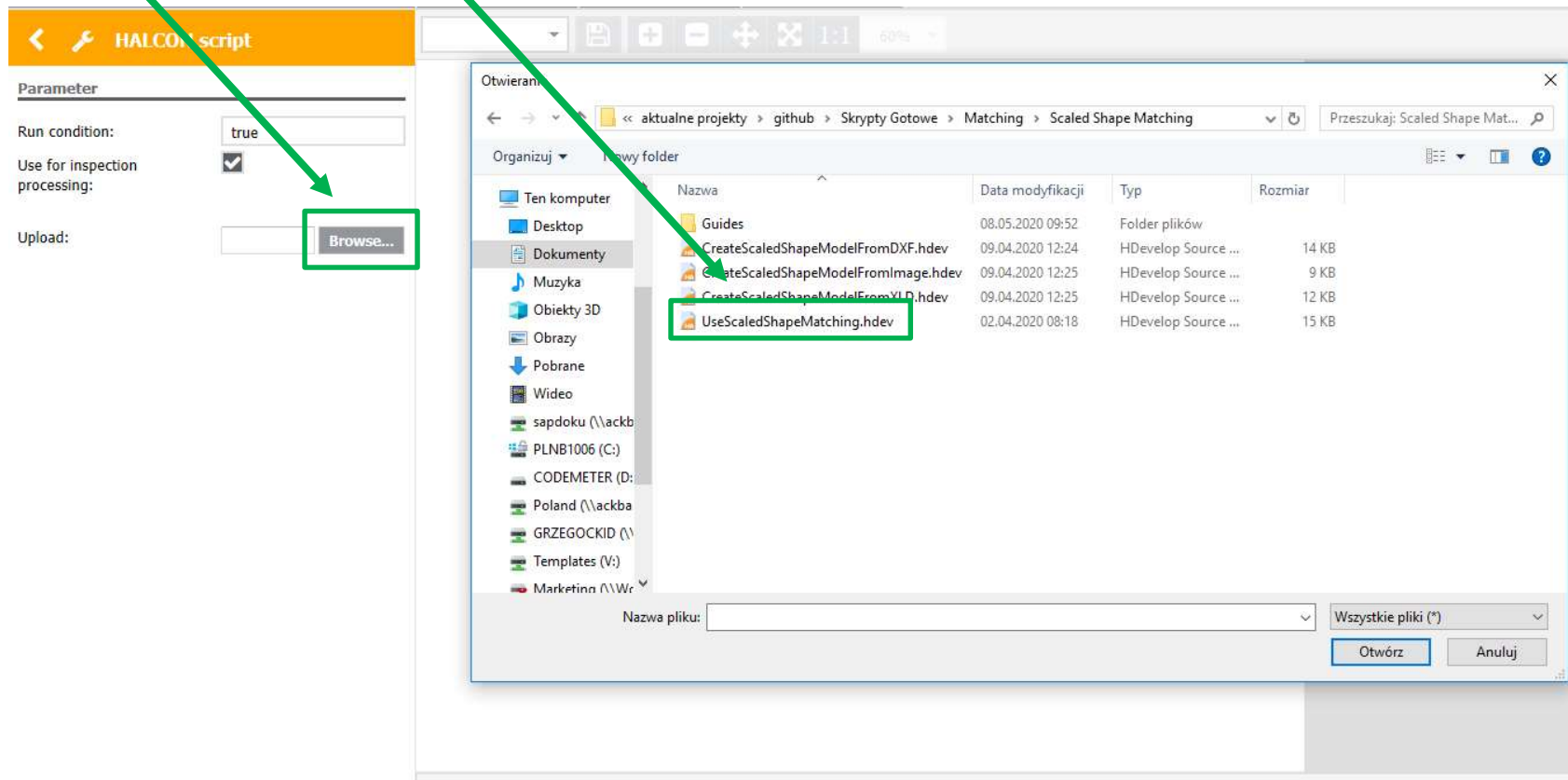
## Step 1

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



## Step 2

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



## Step 3

Set proper ModelDirectory – directory from which you want to read your shape model:

- 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/".

Set name of the shape model (ModelName) that you want to load.

InputImage:	Get image.Output im
LoadModel:	Execute
▲ InputAOI	
startX:	100 - +
startY:	100 - +
Width:	500 - +
Height:	500 - +
AngleStart:	0,000
AngleExtent:	360,000
ScaleMin:	0,900
ScaleMax:	1,100
MinScore:	0,500
NumMatches:	1
MaxOverlap:	0,500
Greediness:	0,900
UseCalibration:	<input checked="" type="checkbox"/>
ModelDirectory:	"C:/Users/User/Desktop/"
ModelName:	"Model01"

## Step 4

Click "Execute" on the right of "LoadModel" to load shape model.

InputImage: Get image.Output im

LoadModel: Execute

▲ InputAOI

startX:	100	— +
startY:	100	— +
Width:	500	— +
Height:	500	— +

AngleStart: 0,000

AngleExtent: 360,000

ScaleMin: 0,900

ScaleMax: 1,100

MinScore: 0,500

NumMatches: 1

MaxOverlap: 0,500

Greediness: 0,900

UseCalibration: ☒

ModelDirectory: "C:/Users/grzegockid/De

ModelName: "Model01"





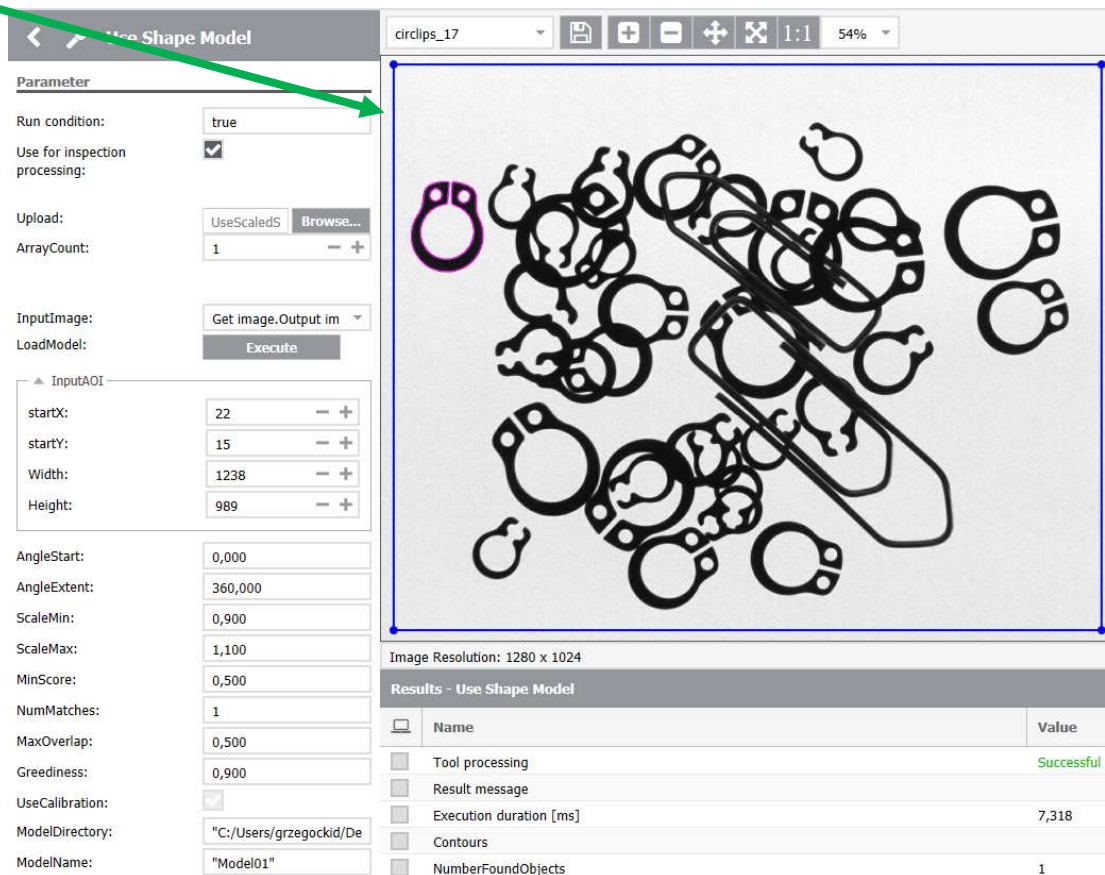
Image Resolution: 1280 x 1024

**Results - Use Shape Model**

	Name
<input type="checkbox"/>	Tool processing
<input type="checkbox"/>	Result message
<input type="checkbox"/>	Execution duration [ms]
<input type="checkbox"/>	Contours
<input type="checkbox"/>	NumberFoundObjects

# Step 5

Set the AOI to the area in which you want to find shape model.



**Parameter**

Run condition: true

Use for inspection processing: ☒

Upload: UseScaledS Browse...

ArrayCount: 1

InputImage: Get image.Output im

LoadModel: Execute

**InputAOI**

startX: 22

startY: 15

Width: 1238

Height: 989

AngleStart: 0,000

AngleExtent: 360,000

ScaleMin: 0,900

ScaleMax: 1,100

MinScore: 0,500

NumMatches: 1

MaxOverlap: 0,500

Greediness: 0,900

UseCalibration: ☒

ModelDirectory: "C:/Users/grzegockid/De

ModelName: "Model01"

Image Resolution: 1280 x 1024

**Results - Use Shape Model**

Name	Value
Tool processing	Successful
Result message	
Execution duration [ms]	7,318
Contours	
NumberFoundObjects	1

## Step 6

Set and adjust finding parameters:

- a) AngleStart – starting angle of the model to be found
- b) AngleExtent – angle extension from the starting angle of the model to be found
- c) ScaleMin – minimum scale of the model
- d) ScaleMax – maximum scale of the model
- e) MinScore – minimum score value of the models to be found
- f) NumMatches – number of the models to be found
- g) MaxOverlap – minimum overlap of the models to be found
- h) Greediness – number between 0 (slow but robust) and 1 (fast but some of the models may not be found)

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"/>
MinScore:	<input type="text" value="0,500"/>
NumMatches:	<input type="text" value="1"/>
MaxOverlap:	<input type="text" value="0,500"/>
Greediness:	<input type="text" value="0,900"/>
UseCalibration:	<input checked="" type="checkbox"/>
ModelDirectory:	<input c:="" de"="" grzegockid="" type="text" users="" value="\"/>
ModelName:	<input model01\""="" type="text" value="\"/>

## Step 7

Found models will be visible on the image as purple contours.

Run condition:

true

Use for inspection processing:

☒

Upload:

UseScaled5

Browse...

ArrayCount:

2

InputImage:

Get image.Output image

LoadModel:

Execute

▲ InputAOI

startX:

35

startY:

15

Width:

1222

Height:

985











Image Resolution: 1280 x 1024		
Results - Use Shape Model		
	PositionYCalibrated 1	0
	OutputPositioned 1	1280 x 1024 RGB_24
	PositionX 2	727,637
	PositionY 2	880,599
	Angle 2	259,023
	Scale 2	1,024
	Score 2	0,98




## Step 8

Available output parameters:

- a) NumberFoundObjects – number of found models on the image
- b) PositionX – X coordinate of the model's position
- c) PositionY – Y coordinate of the model's position
- d) Angle – model's orientation
- e) Scale – model's scale
- f) Score – model's score
- g) PositionXCalibrated – X coordinate of the model's position after calibration
- h) PositionYCalibrated – Y coordinate of the model's position after calibration

To change the number of output parameters according to number of expected objects change the value of ArrayCount.

Results - Use Shape Model		
	Name	Value
<input type="checkbox"/>	Tool processing	Successful
<input type="checkbox"/>	Result message	
<input type="checkbox"/>	Execution duration [ms]	9,506
<input type="checkbox"/>	Contours	
<input type="checkbox"/>	NumberFoundObjects	2
<input type="checkbox"/>	PositionX 1	115
<input type="checkbox"/>	PositionY 1	298
<input type="checkbox"/>	Angle 1	0,003
<input type="checkbox"/>	Scale 1	1
<input type="checkbox"/>	Score 1	1
<input type="checkbox"/>	PositionXCalibrated 1	0
<input type="checkbox"/>	PositionYCalibrated 1	0
<input type="checkbox"/>	OutputPositioned 1	1280 x 1024 RGB_24

Upload:

UseScaledS

Browse...

ArrayCount:

3

– +

InputImage:

Get image.Output im

LoadModel:

Execute

## Step 9

OutputPositioned are set of output images which can be used to position following tools.

⏪ 🔧 **Use Shape Model**

**Parameter**

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Run condition:

Use for inspection processing: ☒

Upload:

ArrayCount:  — +

InputImage:

LoadModel:

▲ InputAOI

startX:	35	— +
startY:	15	— +
Width:	1222	— +
Height:	985	— +

AngleStart:	0,000
AngleExtent:	360,000
ScaleMin:	0,900
ScaleMax:	1,500
MinScore:	0,500
NumMatches:	2

OutputPositioned 2 ▾
📄 ╯ ⬵ ⛶ ✖ 1:1 43% ▾

circles 17  
 OutputPositioned 1  
 OutputPositioned 2  
 OutputPositioned 3

## Step 10

Calibrated output parameters have proper values if the UseCalibration variable is checked and calibration data is available.

UseCalibration:



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 *innovating automation*