RASWIN Module HRNi
Collaborative projects

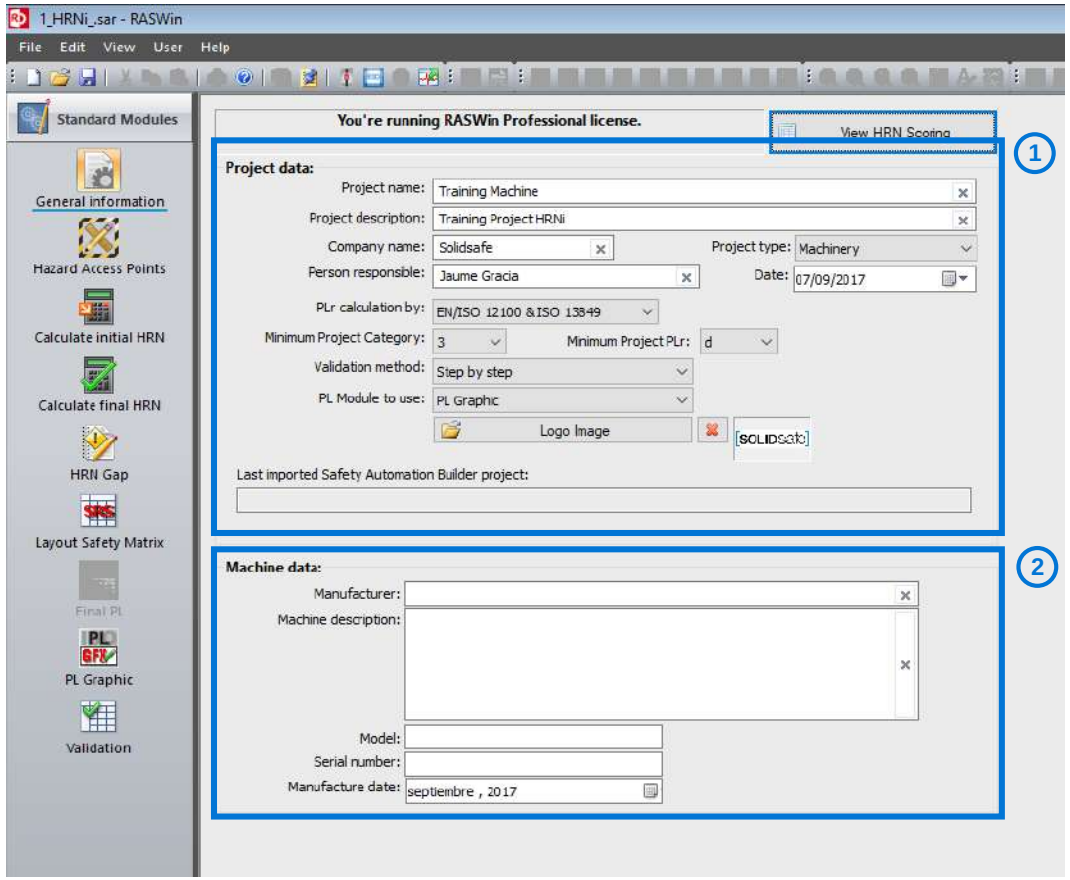
[SOLIDsafe]

RAS
Risk Assessment Software

Index

How to do Risk Assessment with RASWin?

General Information Module



1. Fill the project data information

2. Fulfill the machine data information

Step 0: Fulfill general information module

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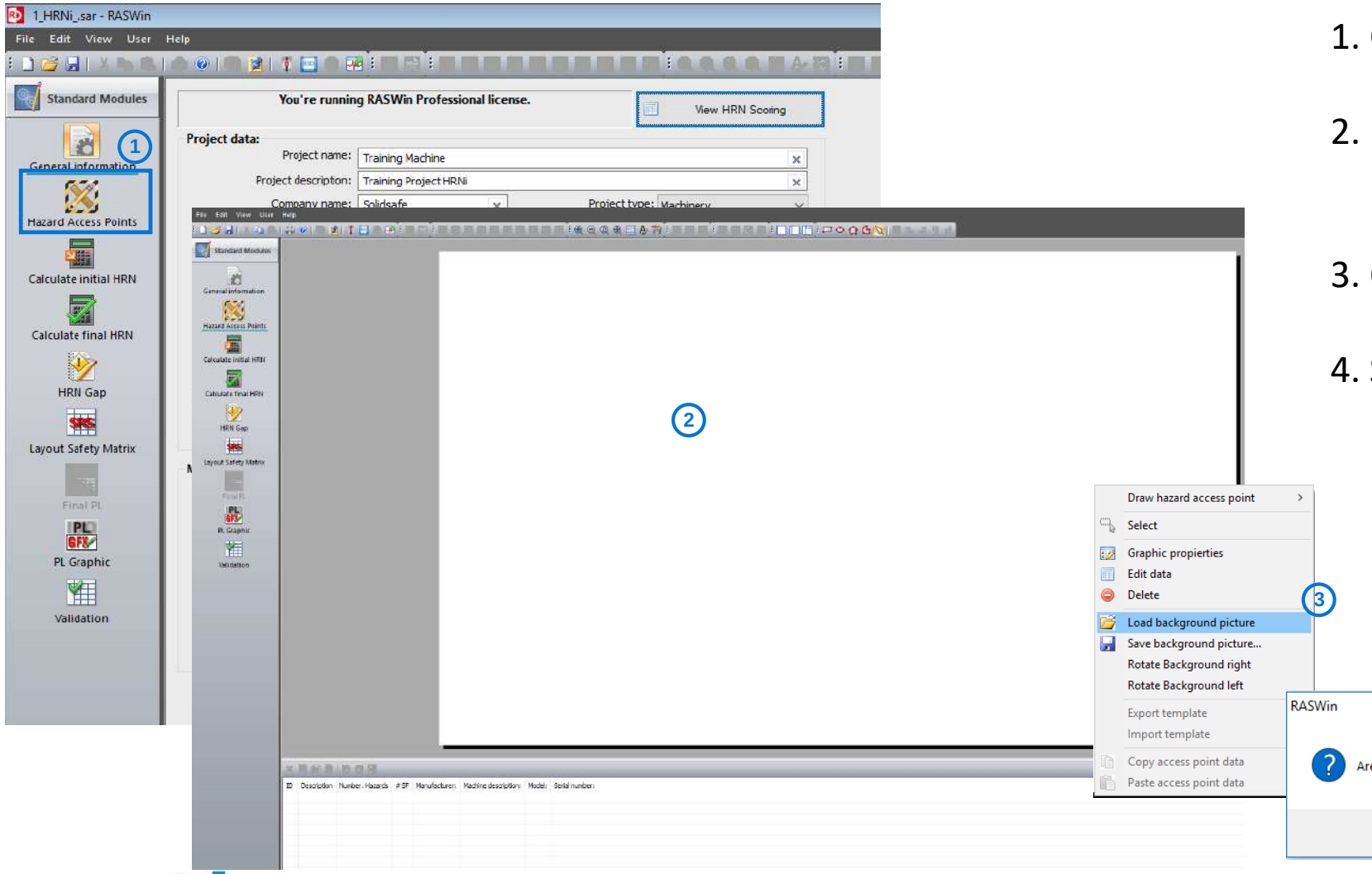
Hazard Access Points Module



1. Click on Hazard Access Points
2. Right click and select “Load background picture
3. Click yes.
4. Select the Layout image

Step 1: Load background picture

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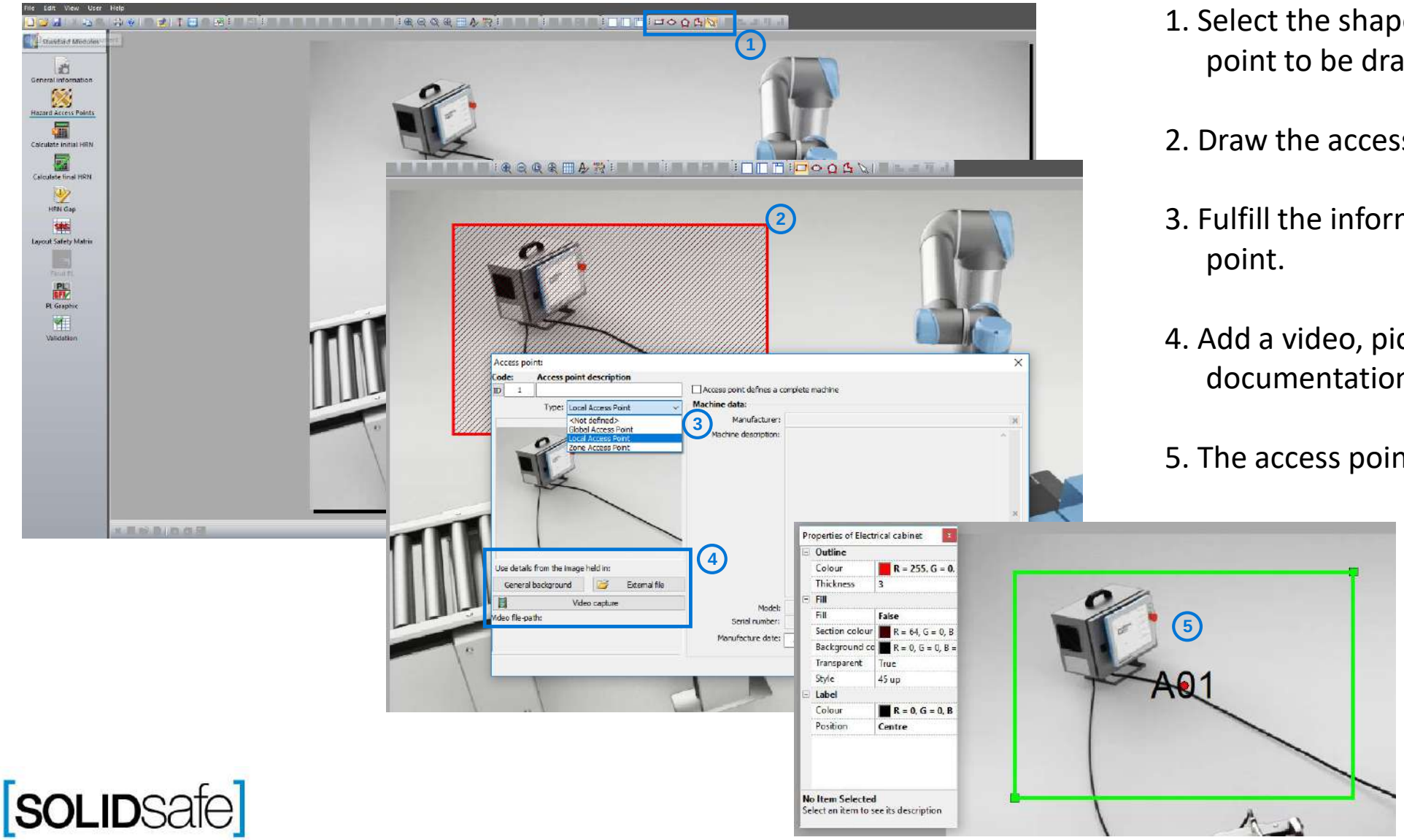
Hazard Access Points Module



1. Select the shape of the access point to be drawn.

2. Draw the access point shape.

3. Fulfill the information of the access point.

4. Add a video, picture or additional documentation (Optional).

5. The access point has been created.

Step 2: Create Access Points

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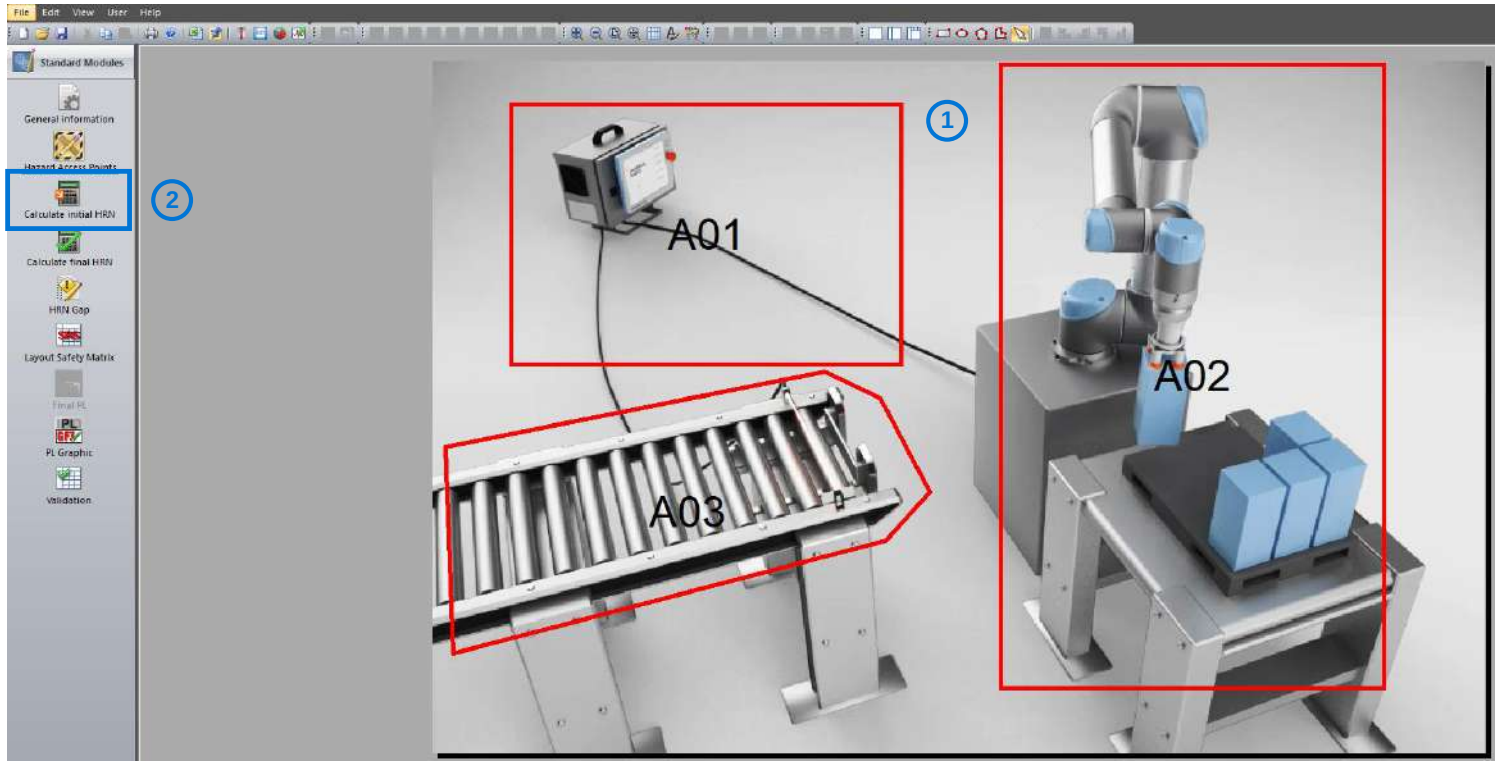
HRNi Module



1. Create all access points of the layout.

2. Click on HRNi Module

Step 3: Open HRNi Module

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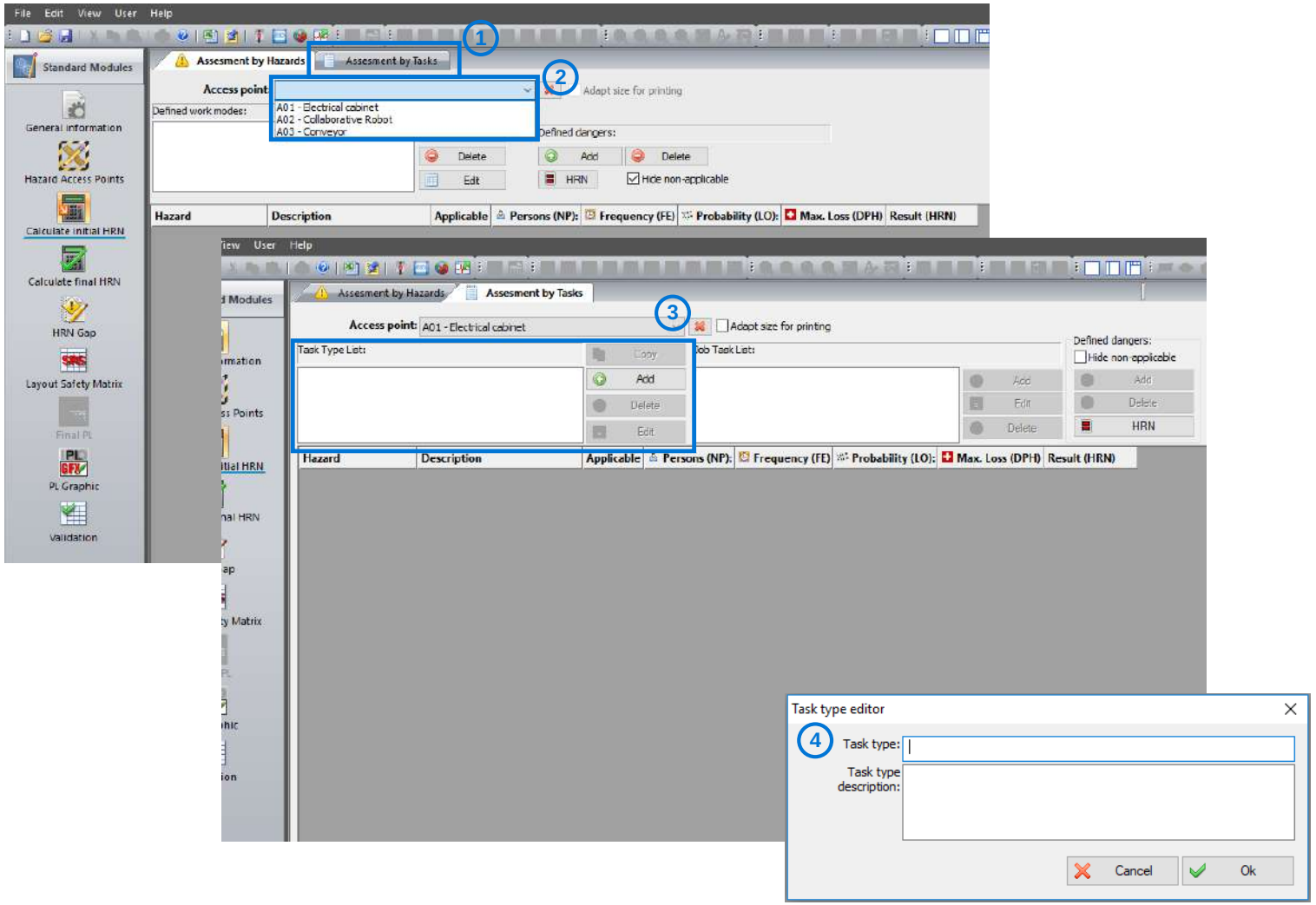
HRNi Module



1. Select “Assessment by tasks” tag.
2. Select the Access Point.
3. Add a Task type list.
4. Add a description of the task

Step 4: Create a Tasks list

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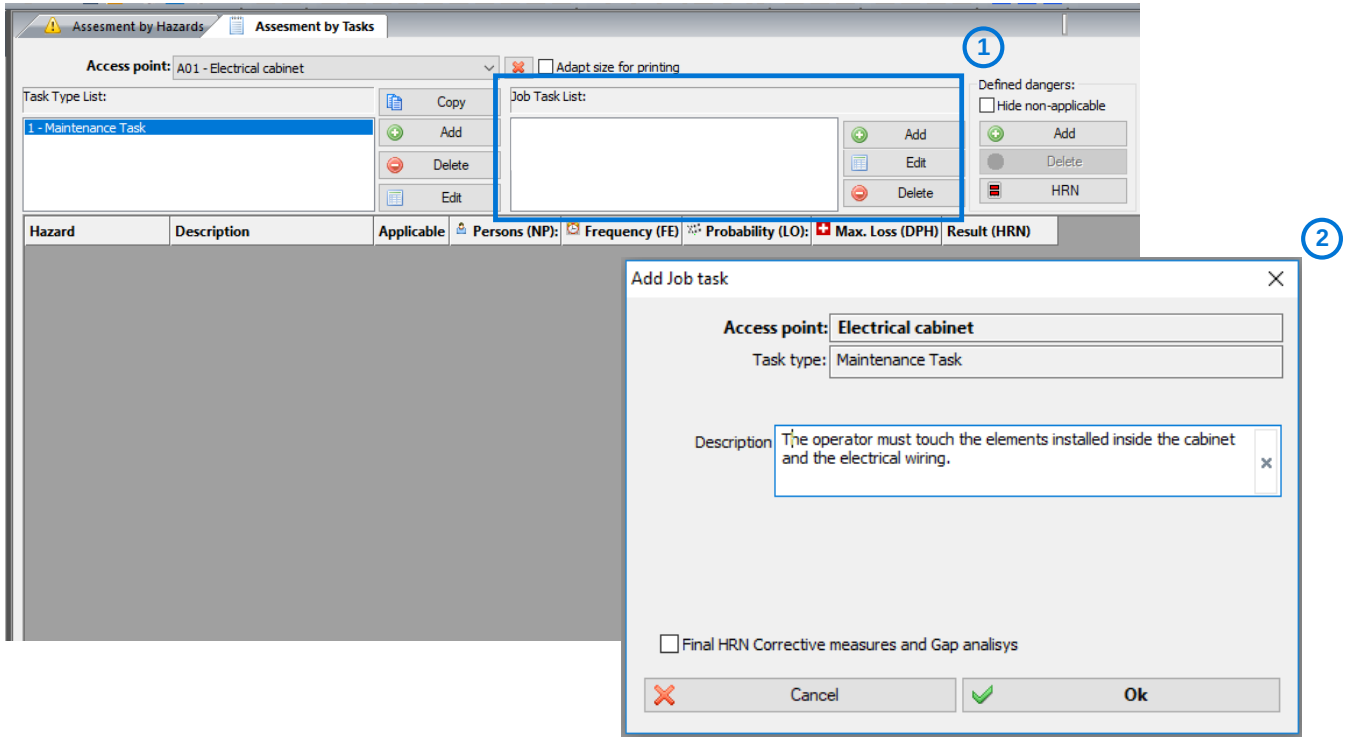
HRNi Module



1. Add a jobs list, with the operators jobs in this task.

2. Add a description of each job.

Step 5: Create a job list for each task

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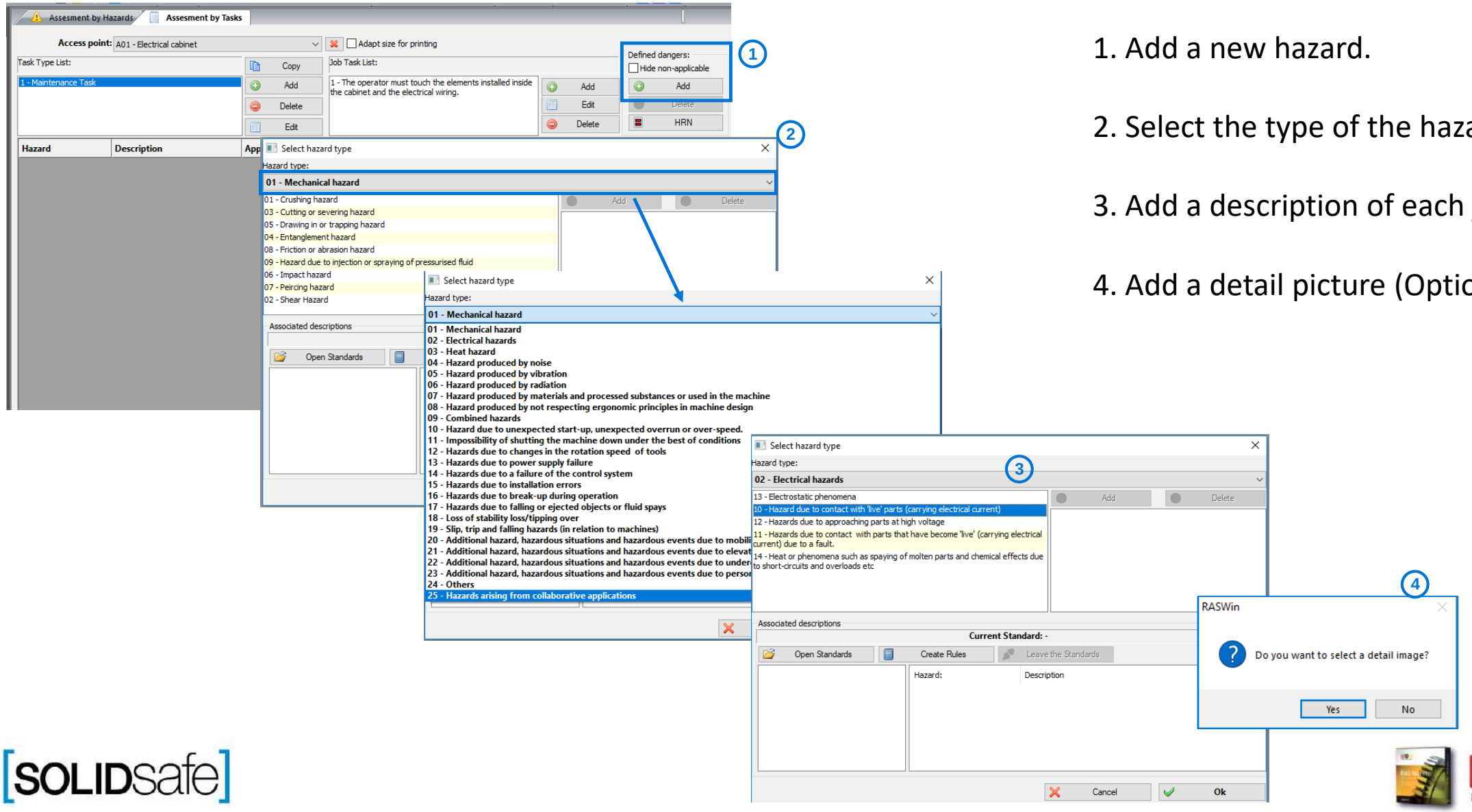
HRNi Module



1. Add a new hazard.
2. Select the type of the hazard.
3. Add a description of each job.
4. Add a detail picture (Optional).

Step 6: Create a Electrical hazard

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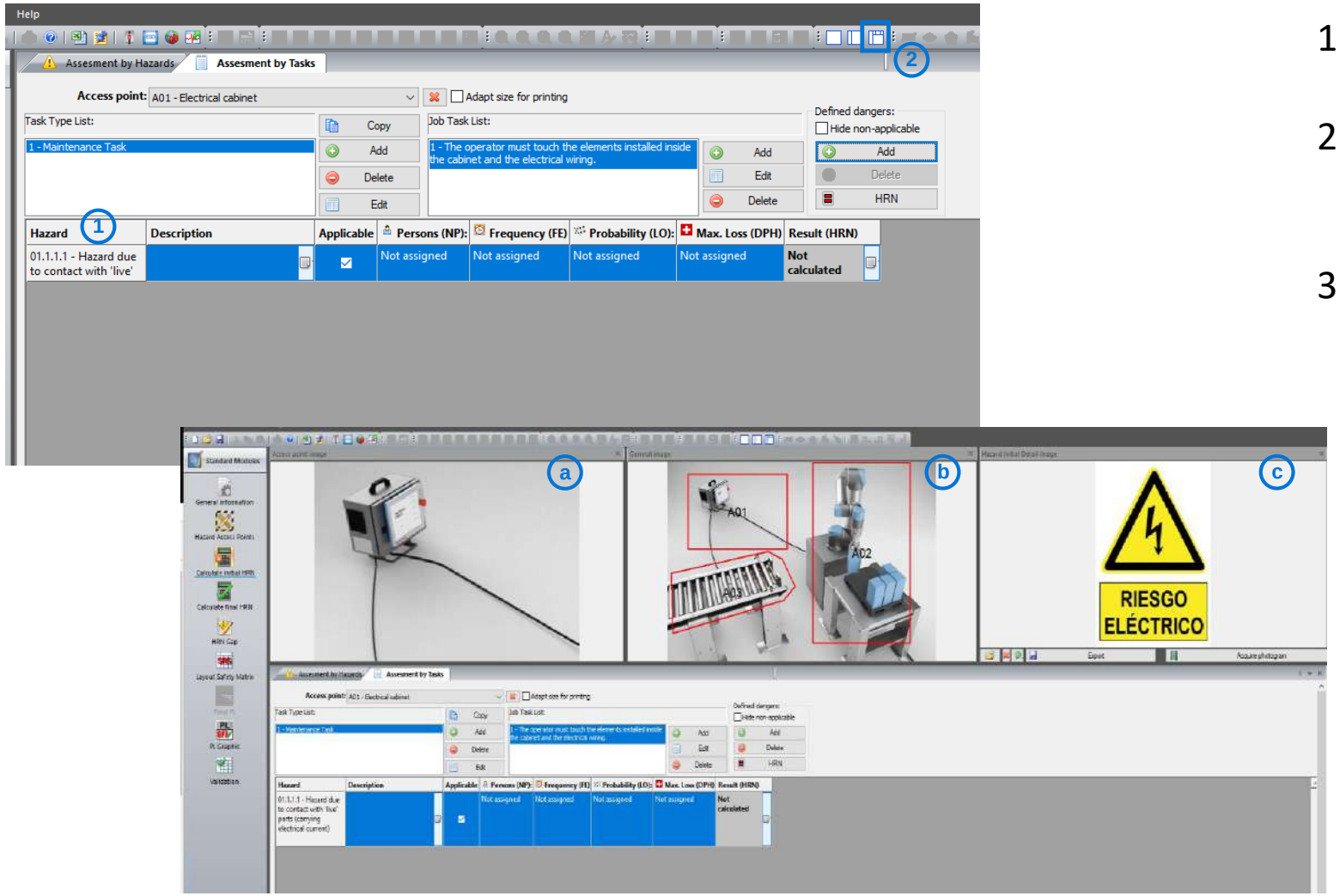
HRNi Module



1. The hazard has been created.

2. Click on collage icon, to see the detail image of the hazard.

3. Three images will appear.
   a) Access point image
   b) General layout image
   c) Hazard detail image

Step 7: See a detail image of the hazard

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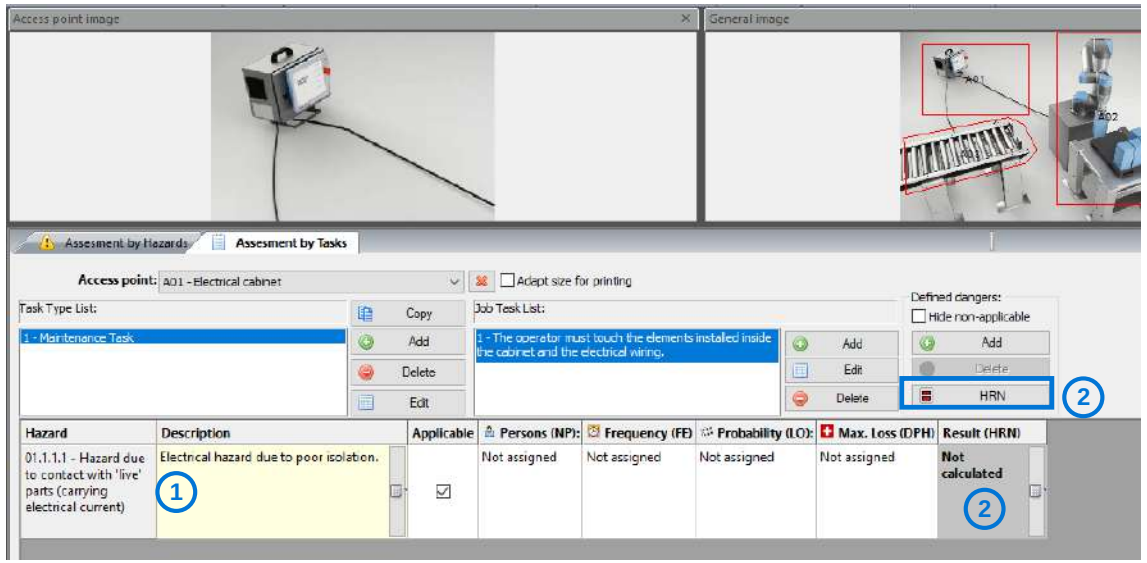
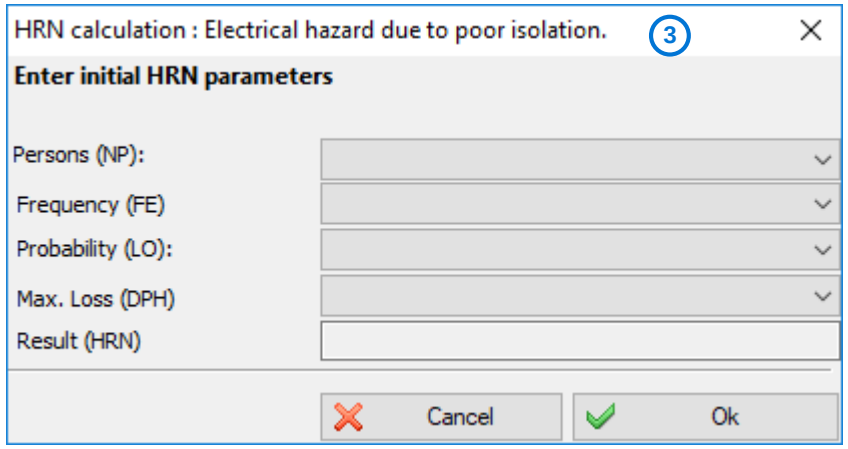
HRNi Module



1. Write a description of the hazard.

2. Click on “Result HRN” on Hazard row or in “HRN” button.

3. The Initial HRN parameter popup will appear.



Step 8: Add a description of the hazard

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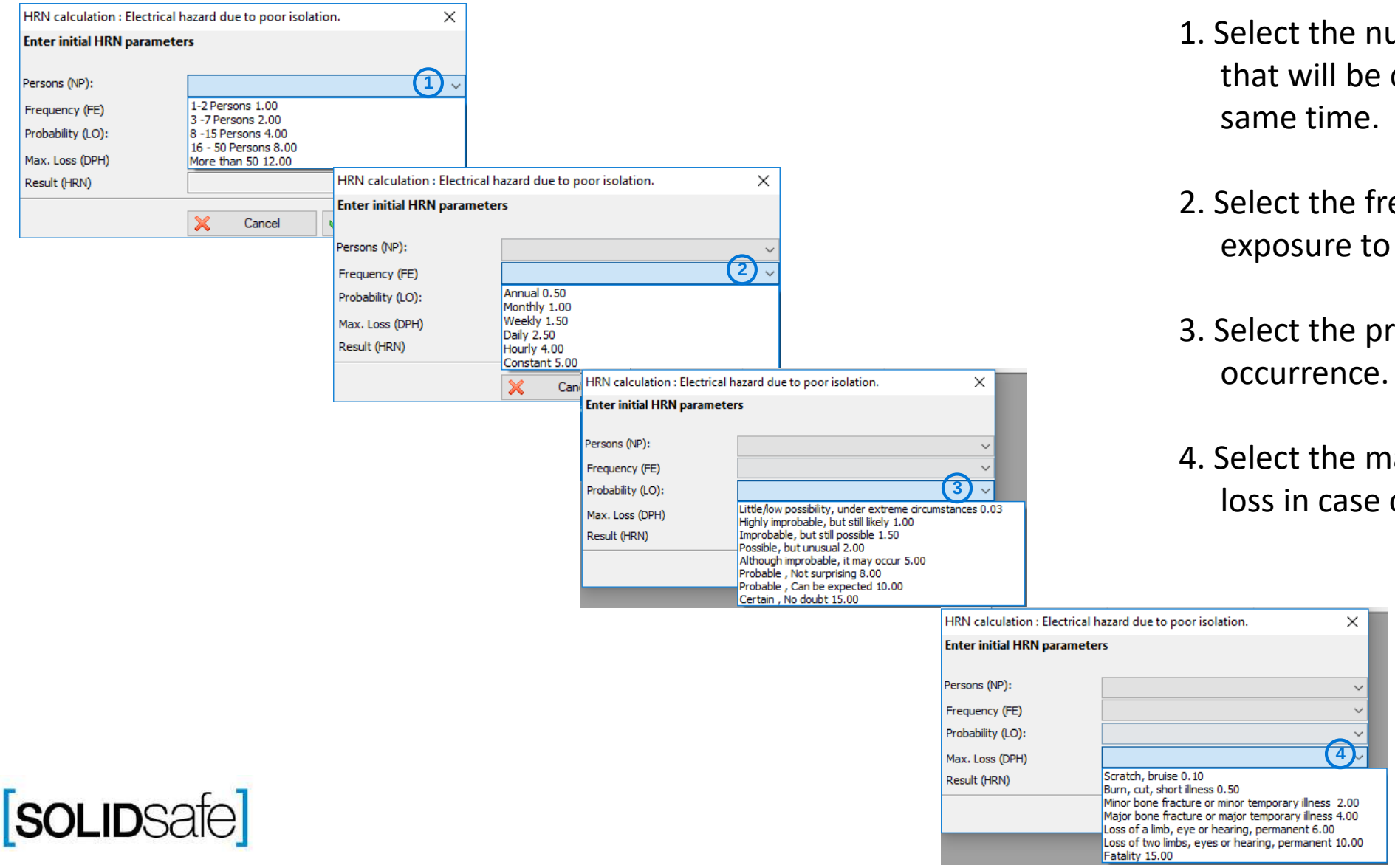
HRNi Module



1. Select the number of persons that will be doing the task at same time.
2. Select the frequency of operator exposure to hazard.
3. Select the probability of occurrence.
4. Select the maximum operator loss in case of hazard.

Step 9: Calculate the HRNi value of the hazard

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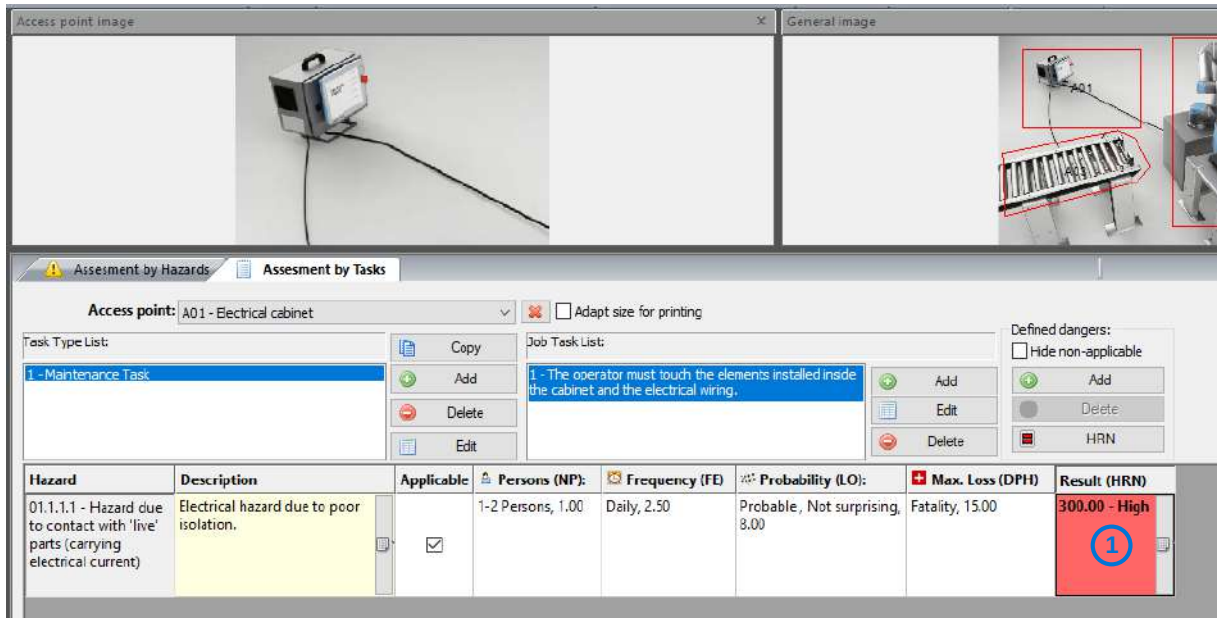
HRNi Module



1. The HRNi value has been calculated.

    a) Red: High risk. Must be reduced.

    b) Orange: Low but relevant. Should be reduced, if is not possible to reduce, it must be in Operator manual.

    c) Green: Negligible risk. No action should be taken.

2. Repeat the same procedure for each hazard.

Step 9: Calculate the HRNi value of the hazard

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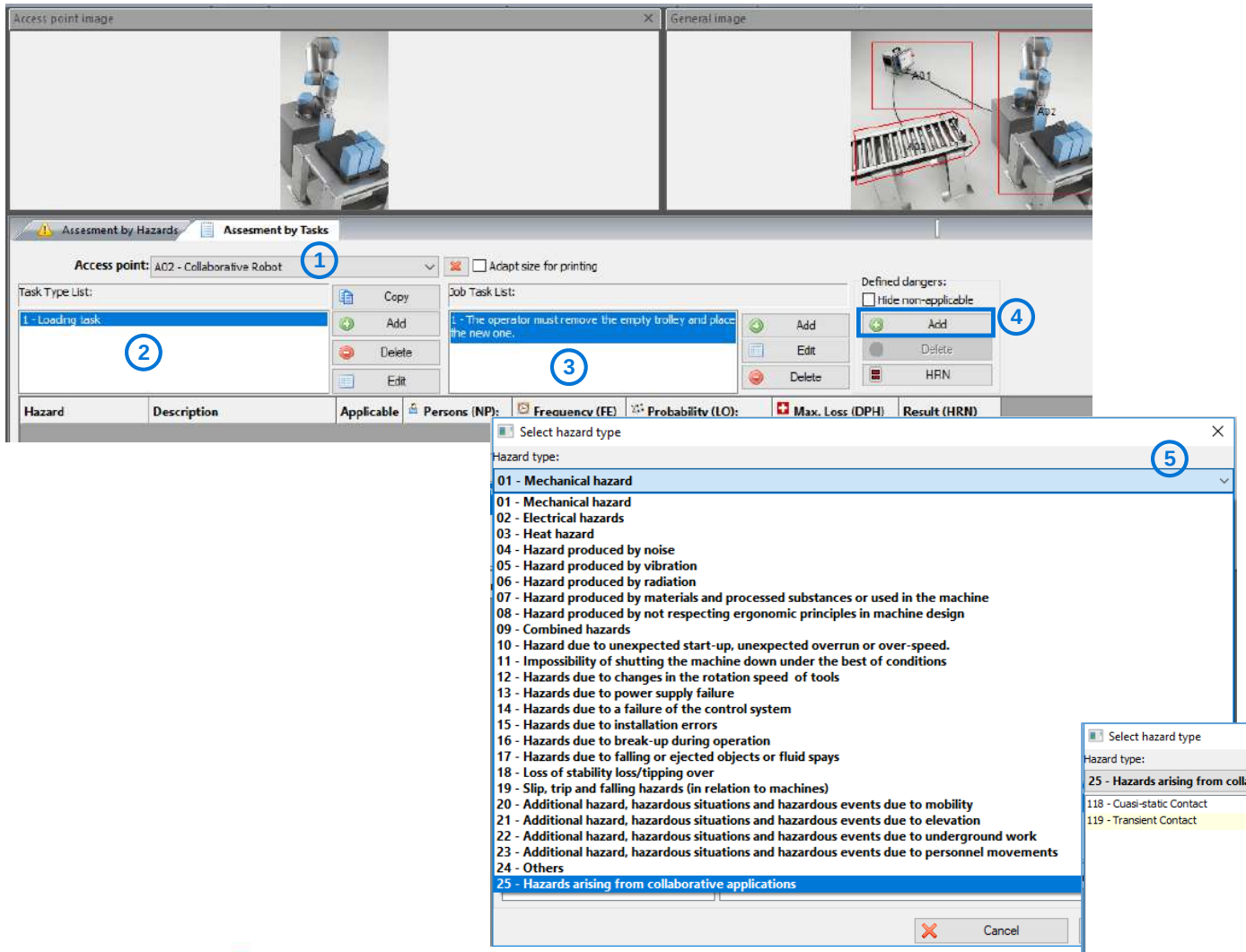
HRNi Module



1. Select the Collaborative Robot access point
2. Create a task.
3. Create a job.
4. Add a new hazard
5. Select “Hazards arising from collaborative applications”.
6. Select a Cuasi-static contact hazard.

Step 10: Create a Collaborative Cuasi-Static hazard

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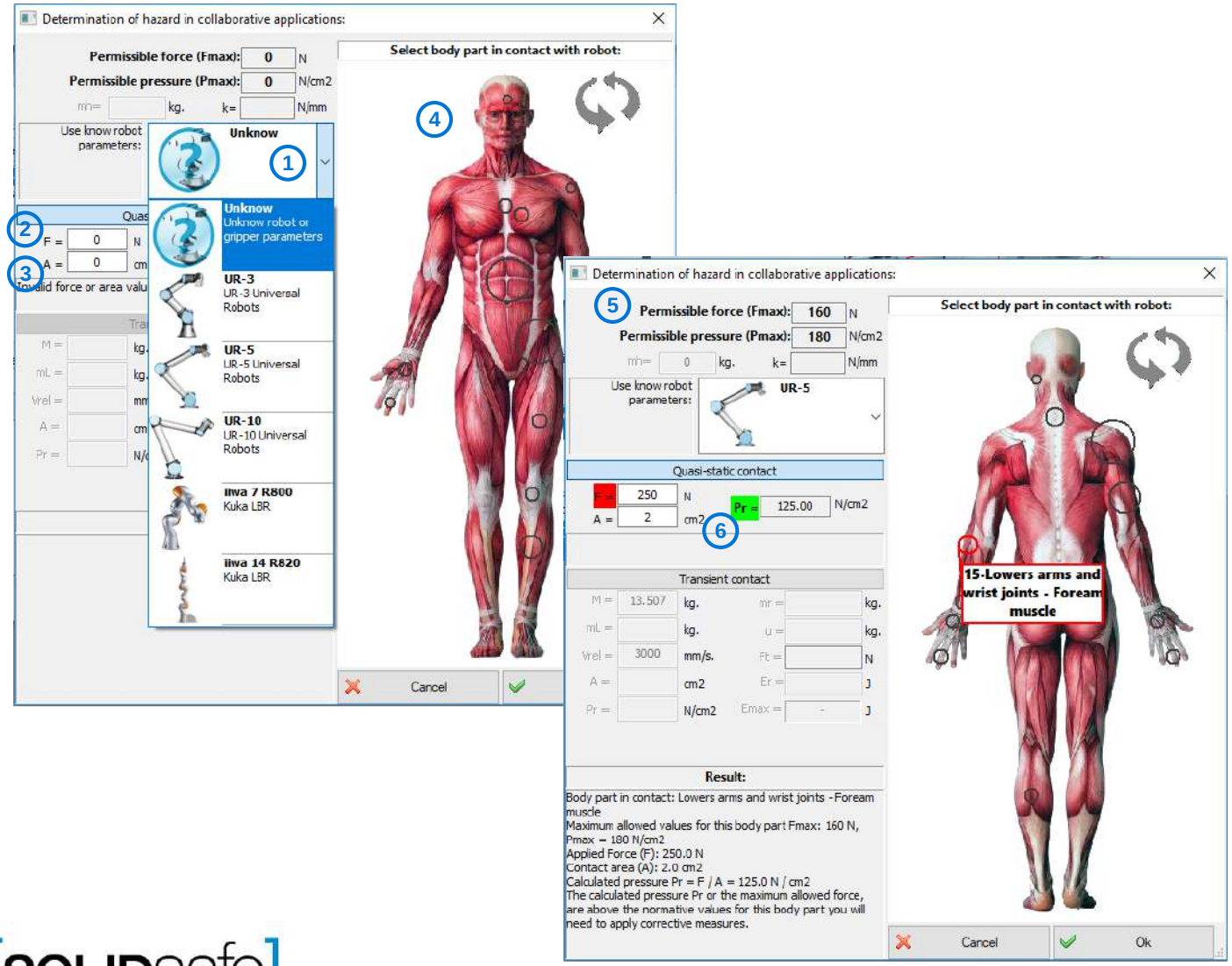
How to do Risk Assessment with RASWin?

HRNi Module



1. Select the Collaborative Robot from Raswin catalog, if it not appear use “Unknow”.

2. Using a Catalog Robot, the maximum force will be auto-filled. If other robot is used, enter the value manually.

3. Write the area of contact.

4. Selects the part of the body where the contact occurs.

5. The Standard’s maximum values, will appear.

6. The contact values of Force and Pressure will be displayed.
   If value is below maximum Standard’s level, it will appear in green, if not, it will appear in red.

6. Click OK

Step 11: fulfill the hazard specifications

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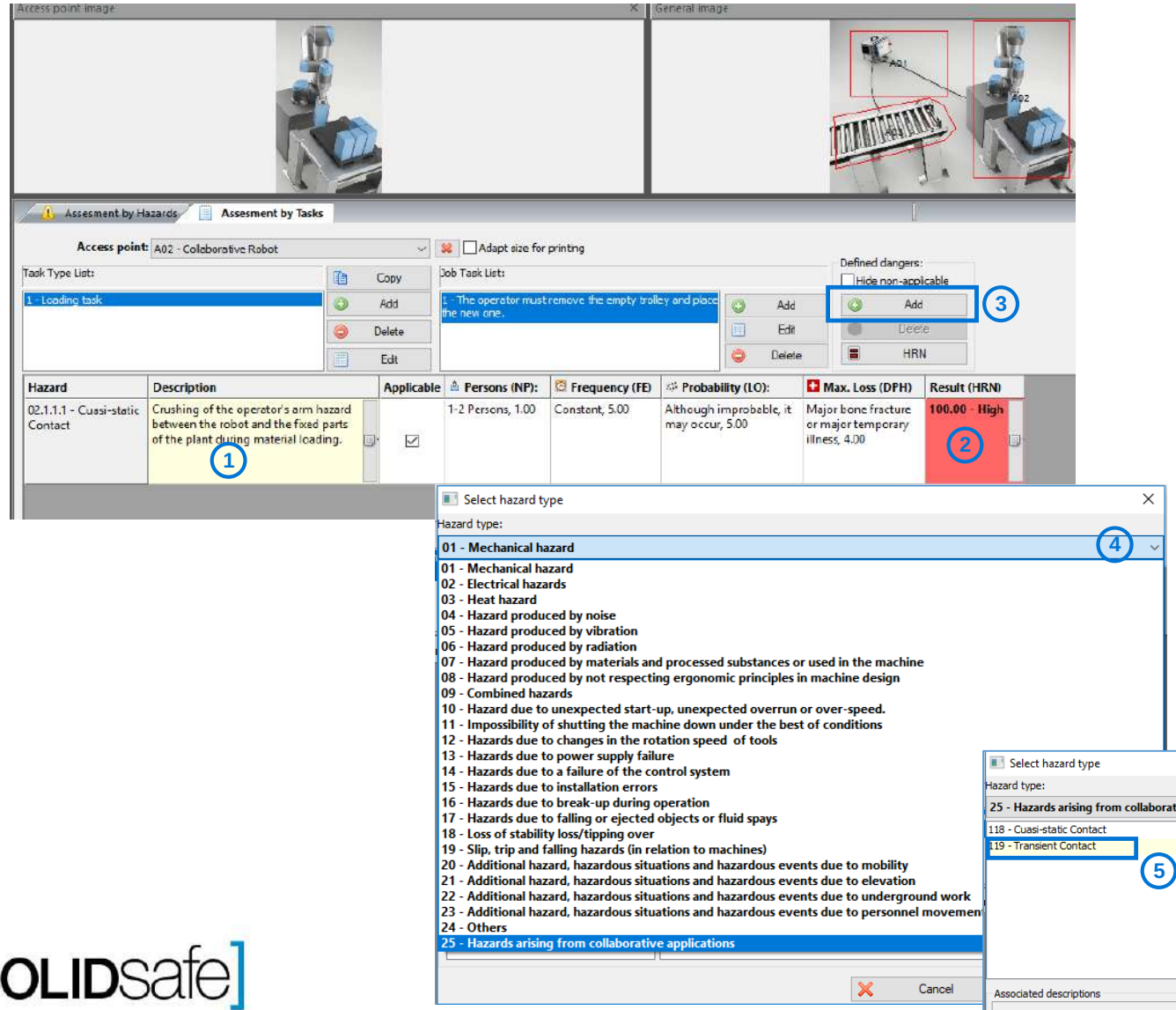
HRNi Module



1. Write a hazard description.
2. Calculate the HRNi value for this hazard.
3. Add a new hazard.
4. Select “Hazards arising from collaborative applications”.
5. Select a Transient contact hazard.

Step 12: Add a Collaborative transient contact

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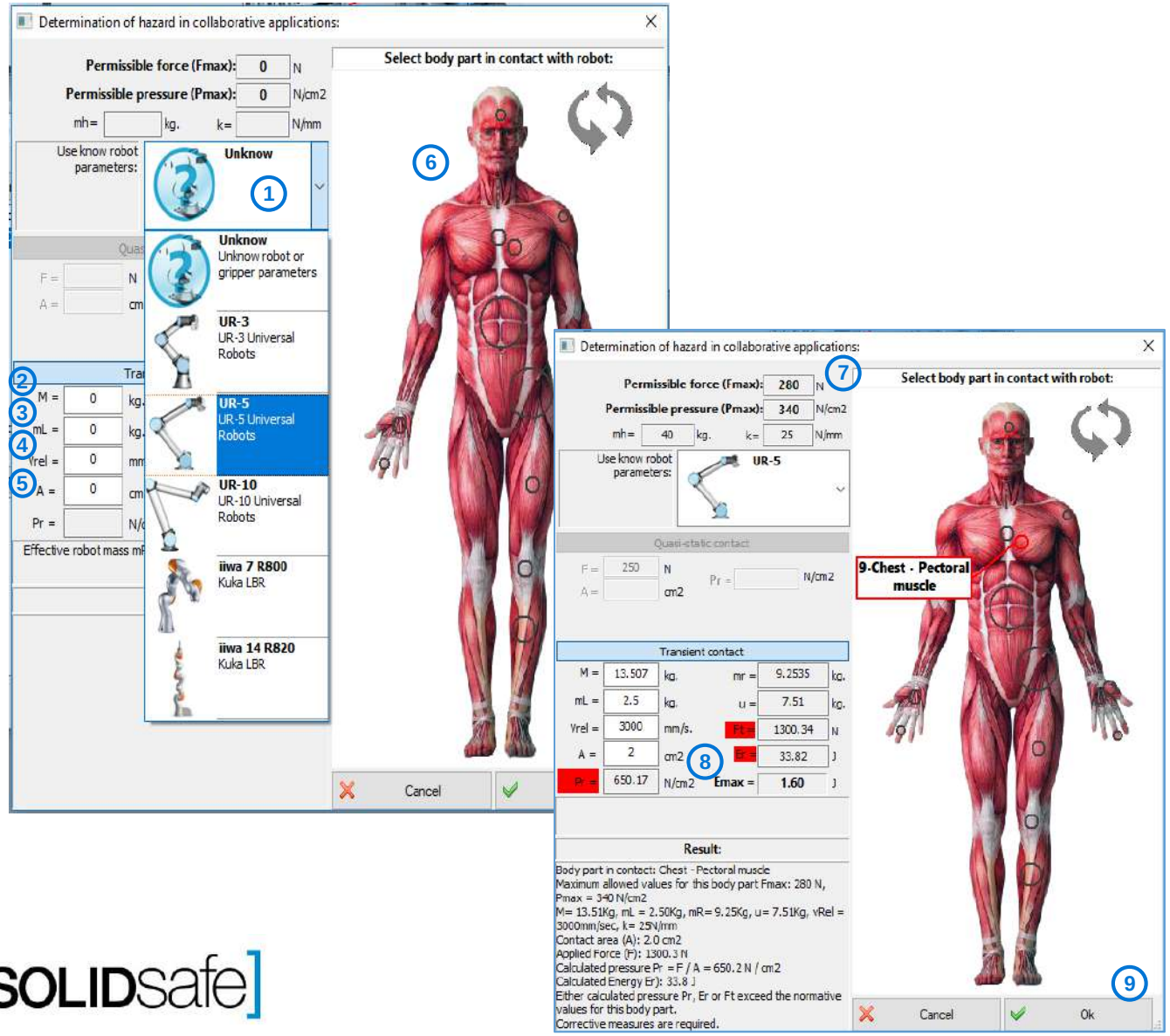
HRNi Module



1. Select the Collaborative Robot from Raswin catalog, if it not appear use “Unknow”.

2. Using a Catalog Robot, the maximum force will be auto-filled. If other robot is used, enter the value manually.

3. Write the Payload (Gripper + part).

4. Using a Catalog Robot, the maximum Speed will be auto-filled. If other robot is used, enter the value manually.

5. Write the area of contact.

6. The Standard’s maximum values, will appear.

7. The Standard’s maximum values, will appear.

8. The contact values of force, pressure and energy will be displayed.
   If value is below maximum Standard’s level, it will appear in green, if not, it will appear in red.

9. Click OK

Step 13: Fulfill the hazard specifications

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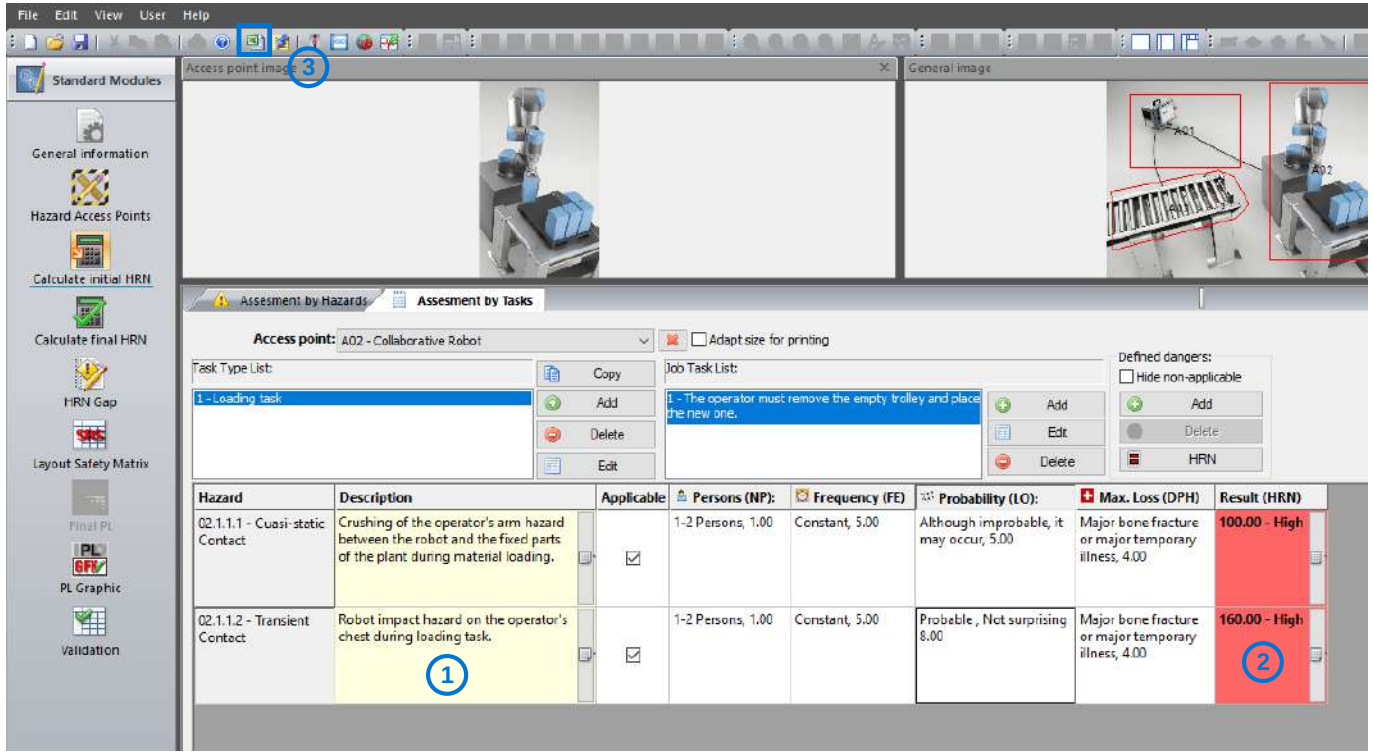
How to do Risk Assessment with RASWin?

HRNi Module



1. Write a hazard description.

2. Calculate the HRNi value for this hazard.

3. Add a new hazard.

4. Click on “Export generic hazard” to create an excel report.

Step 14: Export the HRNi to Excel

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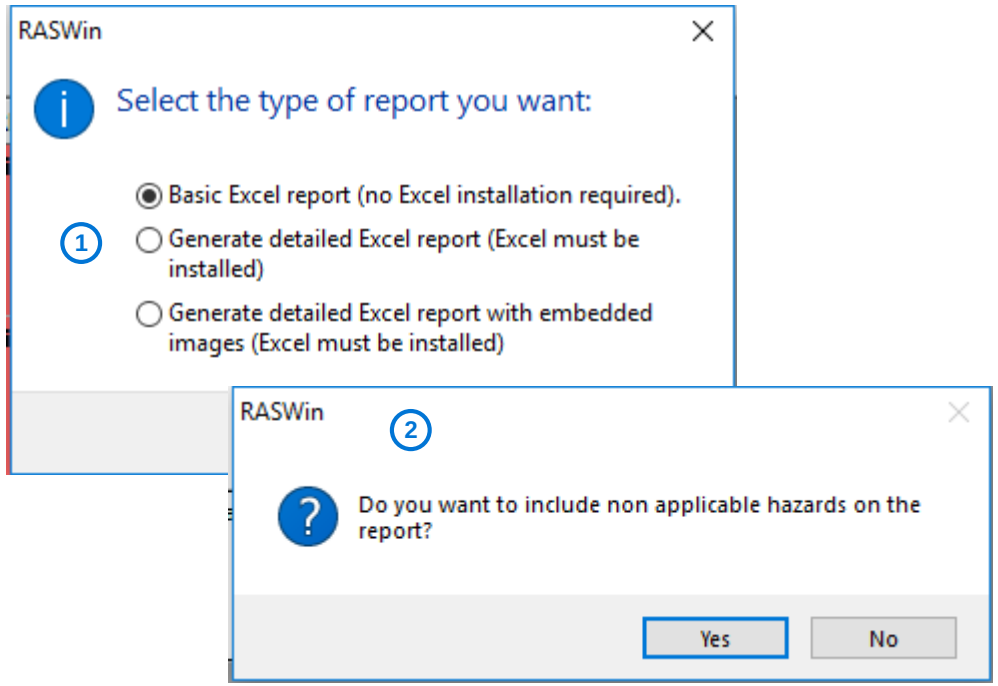
How to do Risk Assessment with RASWin?

HRNi Module



1. Select the detailed Excel report as type of report.

   a) Basic Excel report: If Excel is not installed on your computer.

   a) Detailed Excel report: Initial Risk Assessment report, in excel format, without images.

   b) Detailed Excel report with embedded images: Initial Risk Assessment report, in excel format, with images.

2. Select “No”.

3. The excel report has been created.

3

Access point:	Mode:	Task type:	Hazard:	Description	Number of exposed persons (NP):	Exposure frequency (FE):	Probability (LO):	Probable maximum loss (DPH):	Level	Result (HRN):
A01 - Electrical cabinet	The operator must touch the elements installed inside the cabinet and the electrical wiring.	Maintenance Task	01.1 - Hazard due to contact with 'live' parts (carrying electrical current)	Electrical hazard due to poor isolation.	1-2 Persons, 1,00	Daily, 2,50	Probable , Not surprising, 8,00	Fatality, 15,00	High	300,00
A02 - Collaborative Robot	The operator must remove the empty trolley and place the new one.	Loading task	02.1 - Cuasi-static Contact	Crushing of the operator's arm hazard between the robot and the fixed parts of the plant during material loading.	1-2 Persons, 1,00	Constant, 5,00	Although improbable, it may occur, 5,00	Major bone fracture or major temporary illness, 4,00	High	100,00
A02 - Collaborative Robot	The operator must remove the empty trolley and place the new one.	Loading task	02.2 - Transient Contact	Robot impact hazard on the operator's chest during loading task.	1-2 Persons, 1,00	Constant, 5,00	Probable , Not surprising, 8,00	Major bone fracture or major temporary illness, 4,00	High	160,00

Step 15: Select the type of report