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## ATA User Guide

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## Introduction

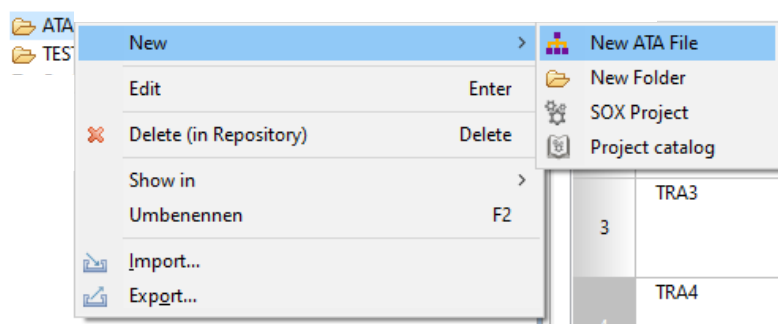
Calculate required Threat Levels in the SOX module ATA and track the progress of your analysis with the possibility to consign a status and to assign tasks. The SOX module ATA provides the possibility, besides the option to display variants, to take over the Threat from the TARA and to link Paths between the Threats simply by drag & drop.

## Step-by-Step-Guide

### Creating a new File

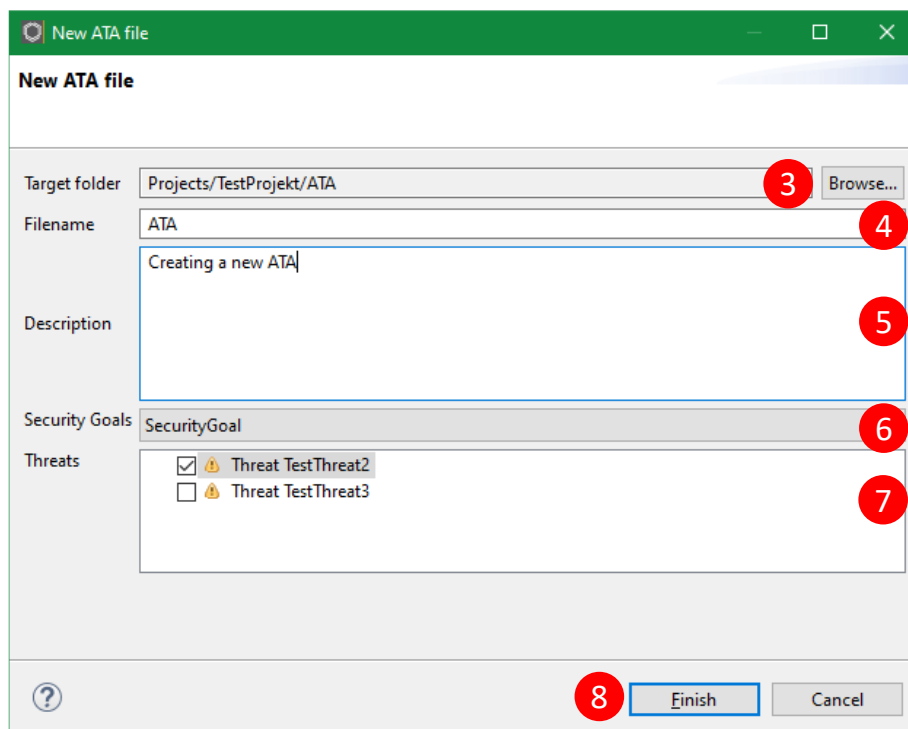
*Precondition: A SOX project was created and the Repository view is active.*

1. Go to the Repository view and right-click on the TARA folder in the project.



*fig. 1 New ATA file context menu*

2. Choose New > New **ATA File**
  - The "New ATA file" Dialog opens.



*fig. 2 New ATA file dialog*

3. Click on **Browse...** to choose ATA as target folder.

4. Enter a filename for the ATA File.
5. The Description field is optional and can be used for detailed descriptions of the ATA document.
6. Choose the Security Goal for the ATA file. (Can be assigned later as well)
7. Choose the Threat with a check mark. (Can be assigned later as well)
8. Click on **Finish**.

→ An ATA File was created and added to the Repository.

### Creating a Gate

*Precondition: An ATA document is selected and the ATA editor is active.*

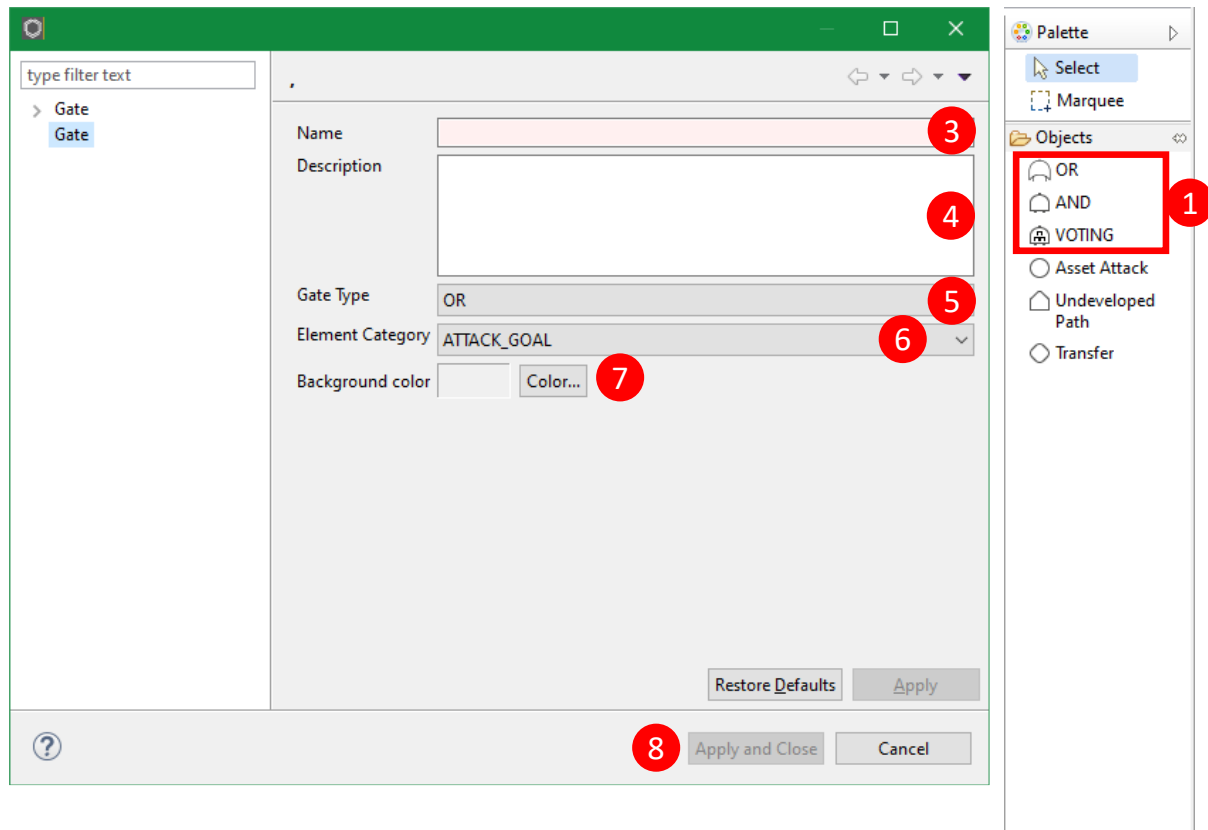


fig. 3 Palette and Element Definition

1. To the right of the editor, in the column "Palette", click on the desired gate.
  - ▶ The type of Gate is selected
2. Click on the editor.
  - ▶ The Gate dialog opens.
3. Enter a name for the gate. This will be **the name of the element**.
4. Write a description (optional).
5. The Gate Type, which was selected in the Palette is set as Default
  - ▶ The Gate Type can be switched
6. Set an Element Category
7. Set a color to adjust a color of the element.
8. Click on **Apply and Close**.

→ A Gate with the Element was created.

## Creating an Event

*Precondition: An ATA document is selected, the ATA editor is active and gates were created.*

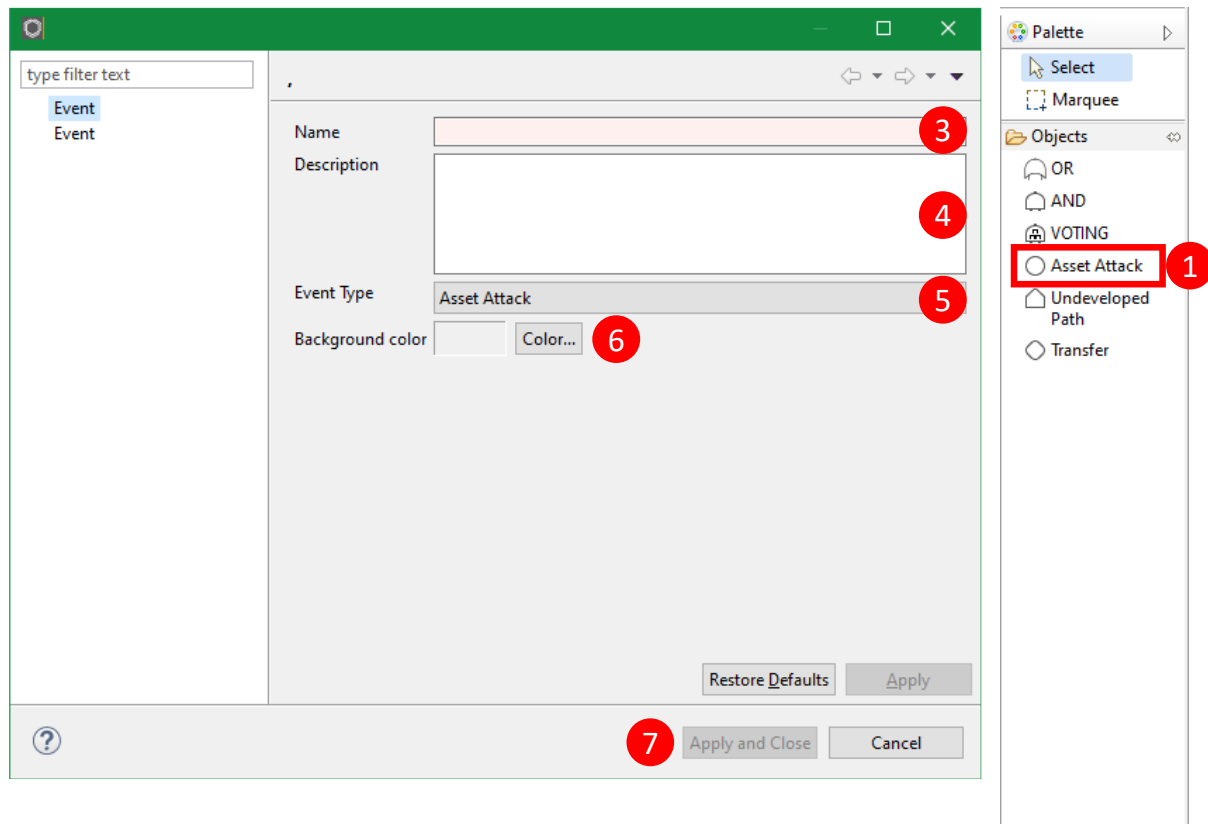


fig. 4 Palette and Element Definition

1. To the right of the editor, in the column "Palette", click on the desired gate.
  - ▶ The type of Event is selected
2. Click on the editor.
  - ▶ The Event dialog opens.
3. Enter a name for the Event. This will be **the name of the element**.
4. Write a description (optional).
5. The Event Type, which was selected in the Palette is set as Default
  - ▶ The Event Type can be switched
6. Set a color to adjust a color of the element.
7. Click on **Apply and Close**.

→ An Event with the Element was created.

## Calculation Likelihood at every element

If the Likelihood of the Threat Scenario is not obvious, Attack Paths should be defined for the assessment. The Attack Tree structure based on the Top Down approach, so that the attack can be created according to the attack of the attacker. For the calculation of the Likelihood at the top element, every element is able to be assessed with its Likelihood. It depends on the selected norm, if the Threat Level (according to the SAE J3061) or the Attack Feasibility Level (according to the ISO

21434) is been calculated. The parameters and values of the Likelihood calculation is been the same at every element.

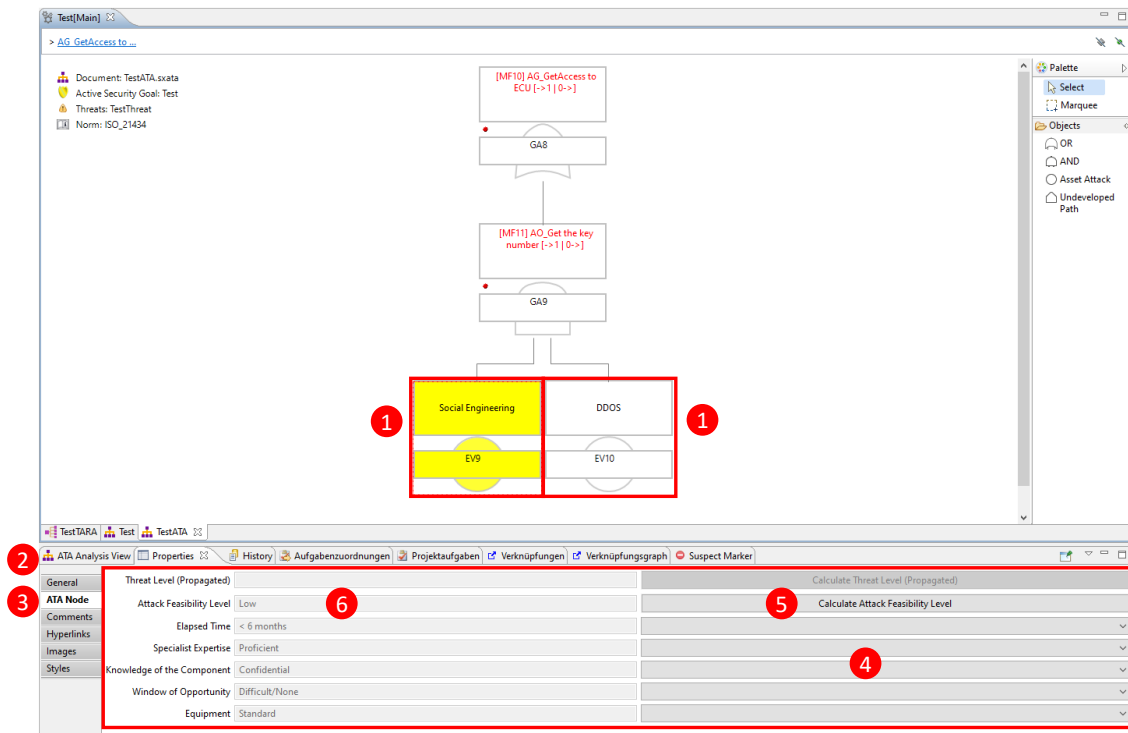


fig. 5 Likelihood calculation (Threat or Attack Feasibility Level)

1. Select an element (Gate or Event)
2. Select Properties
3. Select ATA Node
4. Insert the values of the parameters

► The parameters and values of the Likelihood calculation depends on the selected norm when creating the ATA file

5. Select "Calculate Attack Feasibility Level"
6. The calculated Attack Feasibility Level is displayed

### Propagate Likelihood Level to Top Level

For the Likelihood for the TARA for a Threat Scenario, the Likelihood at the Attack Tree needs to be propagated to the Top Level element that defines the connection between the TARA and the ATA (Threat Scenario). The Propagation only takes the calculated Likelihood level and compares it for the propagation. It depends on the gate type, if the higher or the lower Likelihood level will be propagated to the next higher element level in the Attack Tree. If the next higher level element is been assigned to an AND Gate, the higher Likelihood level will be propagated at it. If it is an OR Gate, the lower Likelihood level will be propagated at it.

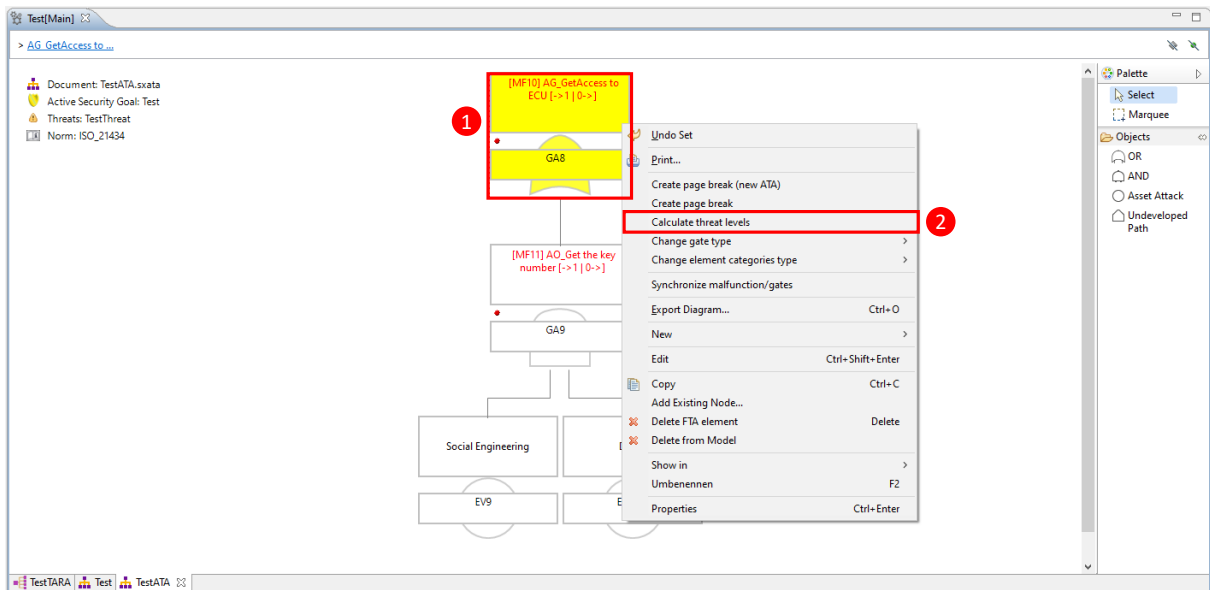


fig. 6 Likelihood propagation context menu (Threat or Attack Feasibility Level)

1. Select the element that should get the propagated Likelihood level
2. Open the context menu of the ATA element
3. Select "calculate threat levels"

The propagated Likelihood level will be shown at the Properties, like fig. 7 shows.



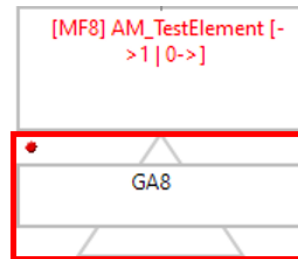
fig. 7 Propagated Likelihood level (Threat or Attack Feasibility Level)

## Creating a Page Brake

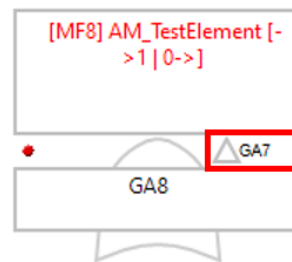
### Note

Page breaks are useful to get a better overview over your FTAs. The page breaks will not influence the Threat Level Calculation of the whole system.

1. In the editor, right-click on the desired gate where the page break should be.
  - ▶ The context menu opens.
2. Choose **Create page break**.
  - ▶ The page break will be shown as triangle.



3. Double-click on the triangle to open the page break.



4. Double-click on the triangle under the gate to get a level above.

## Editing an ATA

The ATA can be edited on document, module and object level.

1. In the Repository view, right-click on the ATA document.

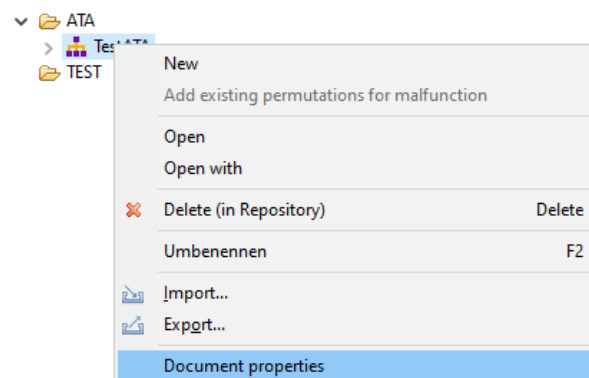


fig. 8 Context menu for document properties

2. Choose **Document properties**.

▶ The properties for dialog with the entries "ATA Document" and "ATA module" opens

## Document

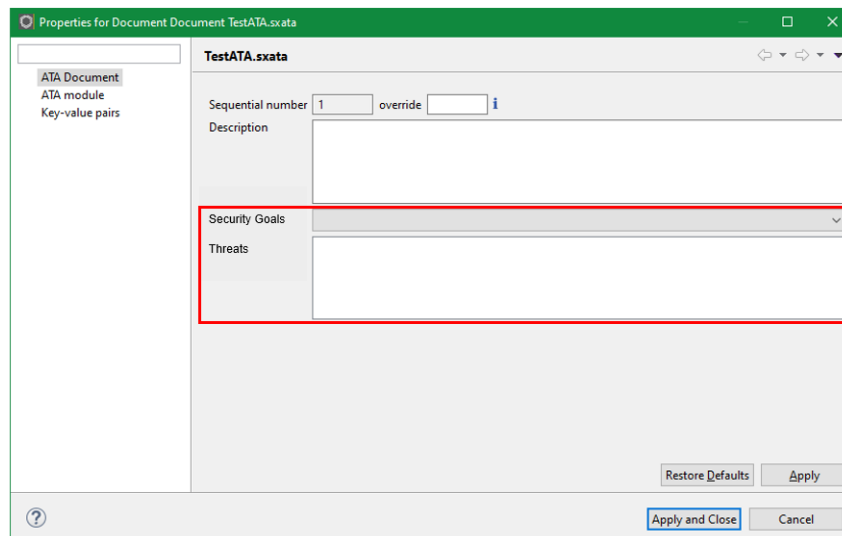


fig. 9 Dialog "Properties for ATA Document"

In this dialog the Security Goal (if Security Goals have been created) can be assigned here or in the Security Goal view.

## Module

### Note

The changes will be active for every ATA Document.

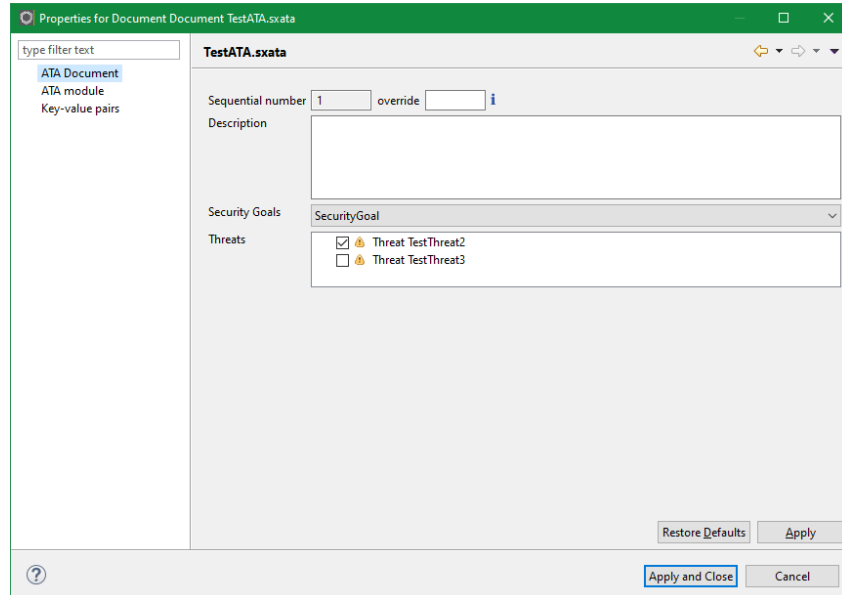


fig. 10 Dialog "Properties for ATA Module"

In this dialog the general ATA module properties can be changed.

A new Security Goal and a new Threat can be selected.

## Object

Right-click on a gate/event and choose **Properties**.



- ▶ The gate dialog opens.
- ▶ The event dialog opens.

If only the type of the object should be changed, right-click on a gate/event and choose **Change gate/event type**.

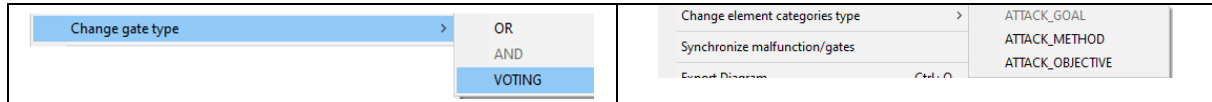


fig. 11 Context menu for changing gate/event type

## Exporting as a Picture

Precondition: The desired ATA is open.

1. Right-click in the ATA editor.
  - ▶ The context menu opens.

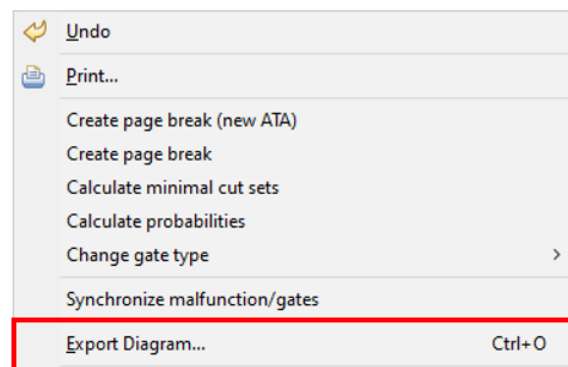


fig. 12 Context menu for exporting diagrams

2. Choose **Export Diagram...**
  - ▶ The "Export Diagram" dialog opens.

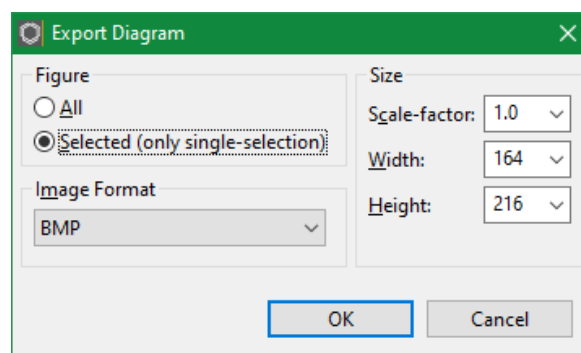
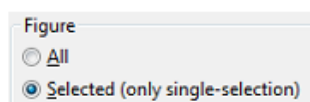


fig. 13 Dialog "Export Diagram"

## Note

You can export only on object, if you select the desired one and do a right-click on it.



3. Change the export preferences to your desire with the following image formatting possibilities:
  - BMP (Window Bitmap)
  - GIF (Graphic Interchange Format)
  - JPG (Joint Photographic Experts Group)
  - PNG (Portable Network Graphic)
  - RLE (Run-Length encoding)
  - SVG (Scalable Vector Graphic) – the SVG-File will only be converted properly to PDF if Inkscape (File → Save as...) is used – printing the file to PDF (with any tool) did not perform very well.

Use a higher Scale-factor (Pixel), for a more detailed resolution.

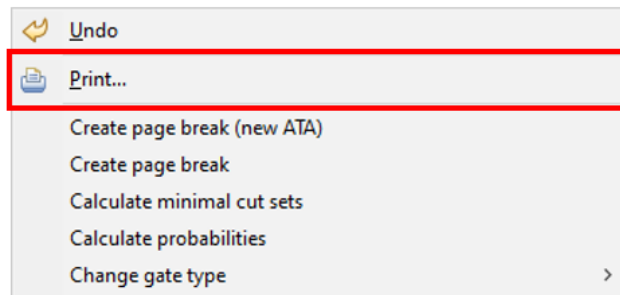
4. Click on **OK**.
5. Choose a file path.

→ The ATA is exported with the chosen preferences.

## Print

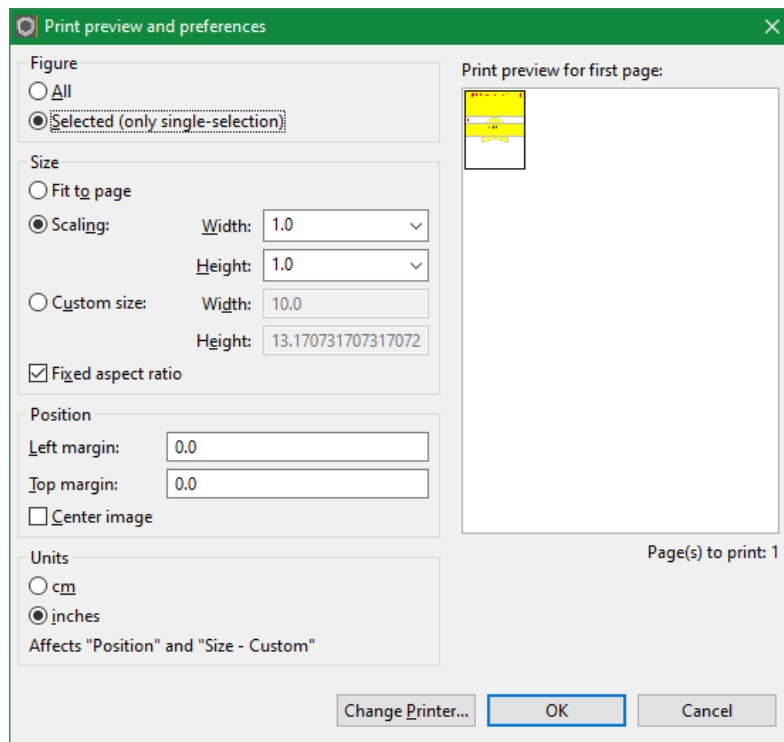
*Precondition: The desired ATA has to be opened.*

1. Right-click somewhere in the ATA editor.
  - ▶ The context menu opens.



*fig. 14 Context menu for printing*

2. Choose **Print...**
  - ▶ The "Print preview and preferences" dialog opens.



*fig. 15 Dialog "Print previews and preferences"*

3. Change the printing preferences to your desire.
4. Click on **OK**.

→ The ATA will be printed with the chosen preferences.

## The User Interface

This is the default ATA perspective:

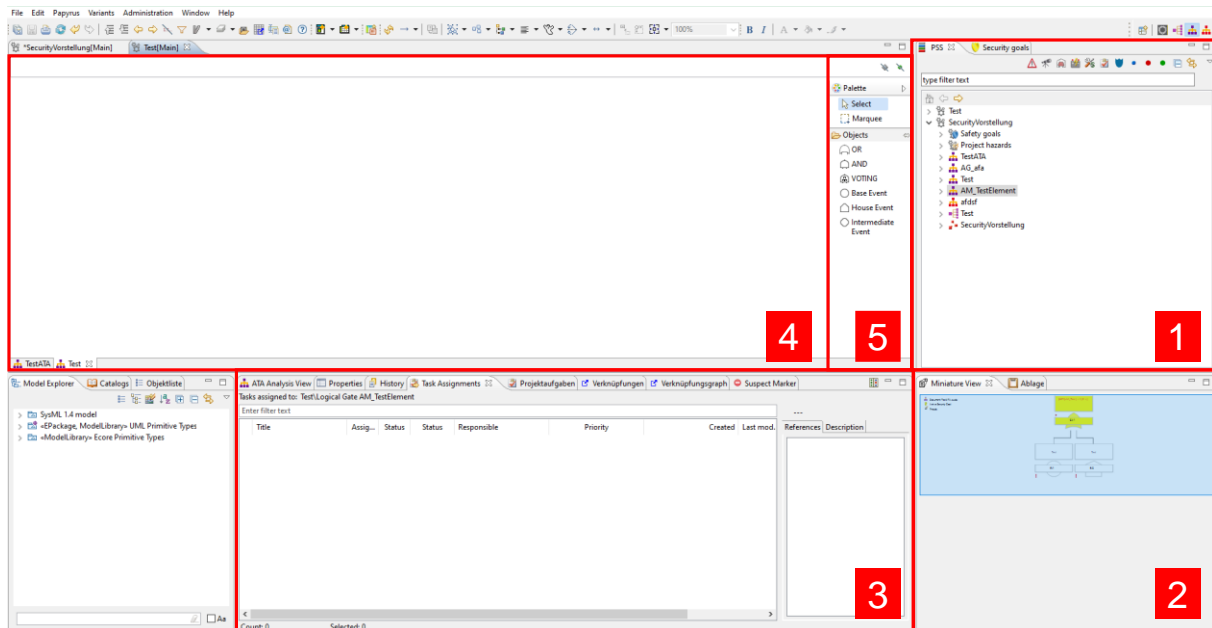


fig. 16 The User Interface

[1] PSS view, Project security goal view

[2] Miniature view of the opened ATA document

[3] ATA Analysis view

[4] ATA Editor

[5] Sidebar

### PSS/Project Security Goal View

The Project System Structure view (PSS) gives you an overview of all documents that belong to the project.

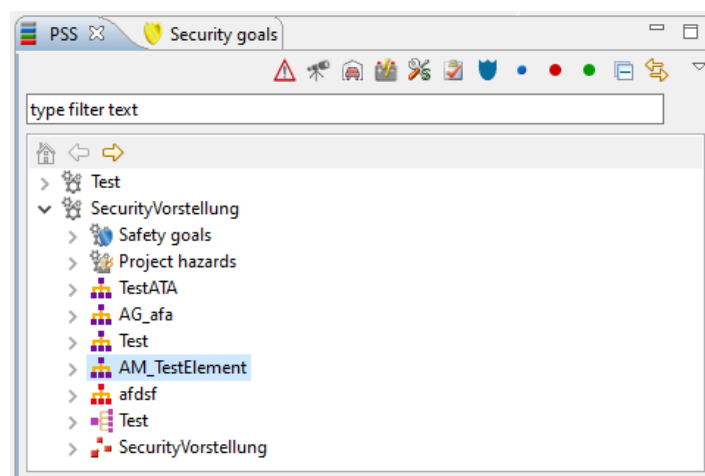


fig. 17 „PSS“ view

The Project security goals view shows all created security goals of the project. They can be edited here.

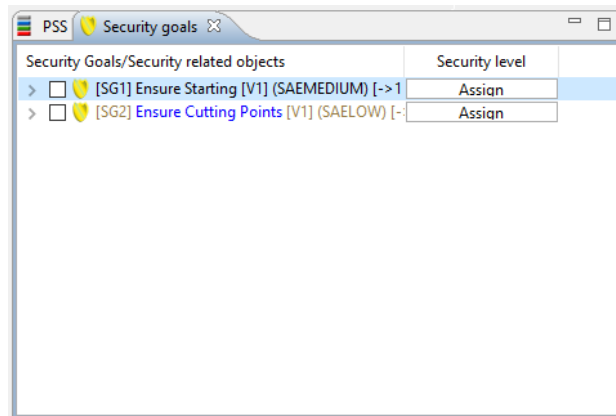


fig. 18 "Project security goals" view

### Miniature View

The miniature view shows the active ATA or active page breaks. The miniature view is synchronized with the editor, so you can use the view to navigate in the ATA.

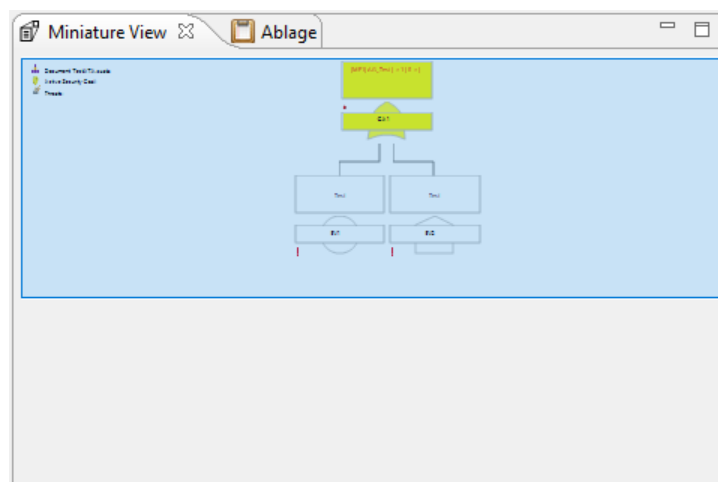


fig. 19 "Miniature" view

### ATA Analysis View

- Gates

Minimal cut sets				
Gates		Events	Threat Level	
<input type="checkbox"/> Filter page <input type="checkbox"/> Show gates without children				
Enter filter text				
ID	Name	Gate type	Status	
GA1	AG_Test	OR	OK	
GA3	AM_TestAM	OR	OK	
GA2	AO_TestAO	AND	OK	

fig. 20 Gates

If the “Filter page” function is activated by a check mark, only the gates and events which are part of the active page break.

If the “Show gates without children” function is active by a check mark, only the gates without a Asset Attack, Undeveloped Path or Transfer Event will be shown.

The Gates table shows the ID, name, gate type, element type, threat level and status of an open ATA document.

- Events

Minimal cut sets   Gates   Events   Threat Level				
<input type="checkbox"/> Filter page				
Enter filter text				
	ID	Name	Event type	Status
<input type="radio"/>	EV2	Brute Force	PRIMARY_FAILURE	OK
<input type="radio"/>	EV1	Man in the Middle Attack	PRIMARY_FAILURE	OK
<input type="checkbox"/>	EV3	Undeveloped Path	HOUSE	OK
Count: 3                      Selected: 0				

fig. 21 Events



If the “Filter pages” function is active, only the gates and events will be shown which are part of the active page break.

### ATA Editor




The ATA Editor shows the ATA, the Security Goal that should protect the Main Element from the Threat.

### Sidebar

- Palette

 Select	Select individual objects
 Marquee	Select several objects

- Objects

Objects
 OR
 AND
 VOTING
<input type="radio"/> Asset Attack
<input type="checkbox"/> Undeveloped Path
<input type="checkbox"/> Transfer