

PRISM2GSN: Eclipse Plugin for Transforming PRISM Artefacts into Goal Structuring Notation

User Guide

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The University of Manchester

Document Control

Document Title	PRISM2GSN: Eclipse Plugin for Transforming PRISM Artefacts into Goal Structuring Notation – User Guide
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Project	CRADLE, The University of Manchester
Repository	https://github.com/DhamindaA/prism2gsn-eclipse-plugin
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1. Introduction

This User Guide explains:

- Prerequisites
- How to obtain and import the project
- How to run the plug-in in a runtime workbench
- How to configure PRISM and generate GSN artefacts
- Troubleshooting and known limitations

Platform scope: Windows 10/11 (x86_64) only. macOS/Linux are out of scope for this release.

Installation note: This guide uses PDE runtime (no installation into Eclipse). You can import the source project and run it as an “Eclipse Application”.

2. Prerequisites (Windows)

- **Eclipse:** *Eclipse IDE for RCP and RAP Developers* **2025-03 (4.35.0)** or newer.
(This package includes the Plug-in Development Environment, PDE.)
- **Java: JDK 21** (recommended).
 - Verify (Command Prompt): `java -version`
- **PRISM Model Checker (Windows):** e.g., **PRISM 4.8.1** installed locally.
 - You will point the plug-in to the **PRISM bin** directory (e.g., `C:\Program Files\prism-4.8.1\bin` which contains `prism.bat`).

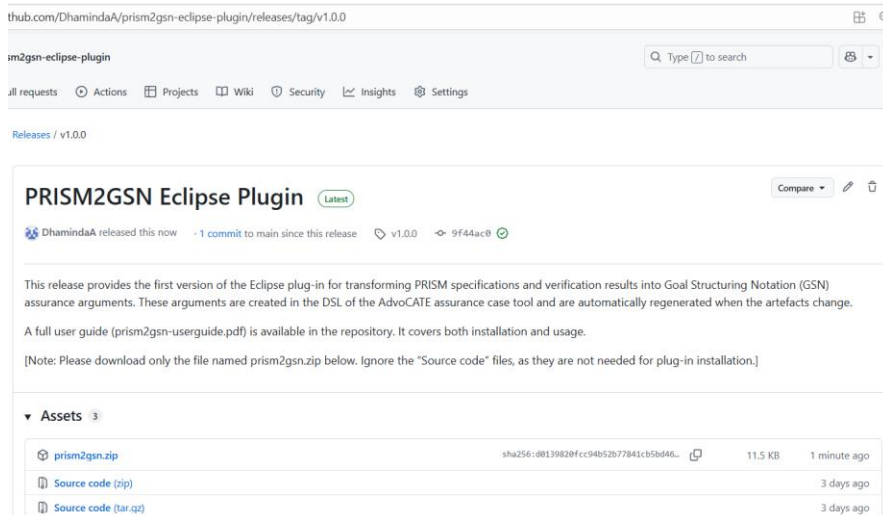
3. Obtain the PRISM2GSN Project

- GitHub Release ZIP

Please download the ZIP attached to the FMAS 2025 paper’s release:

<https://github.com/DhamindaA/prism2gsn-eclipse-plugin/releases/tag/v1.0.0>

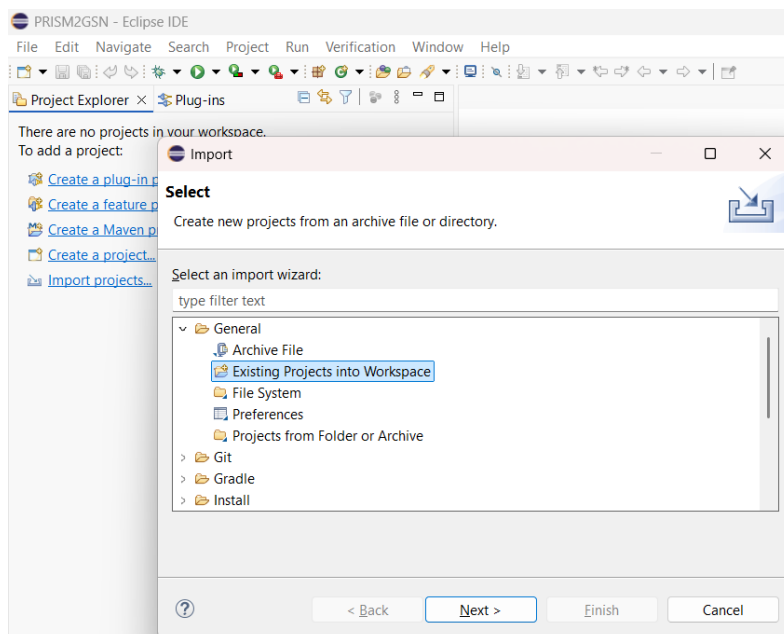
Save the ZIP file to any location on your computer.

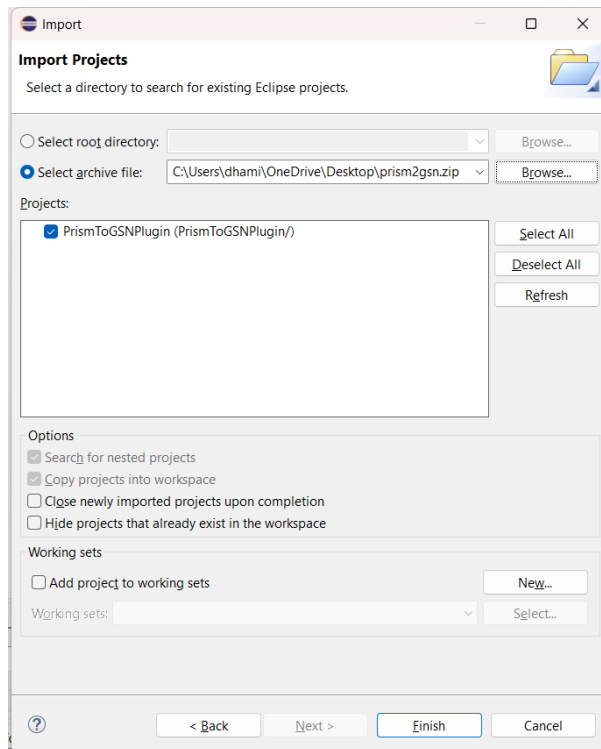


4. Import the Project (Development Workspace)

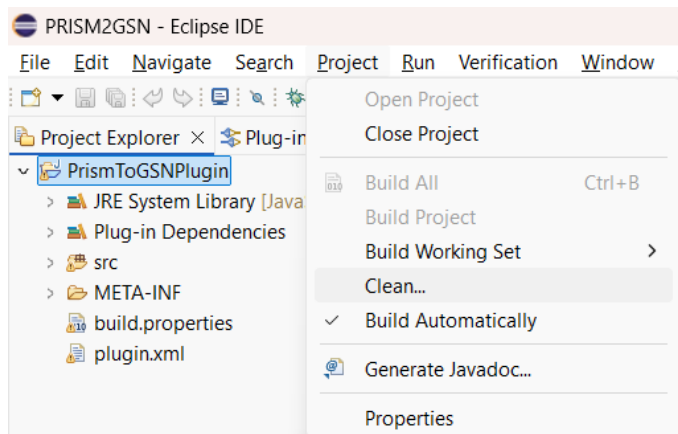
- Start **Eclipse (development workspace)**.
- **File** → **Import...** → **General** → **Existing Projects into Workspace** → **Next**.
- Choose:
 - **Select archive file** → browse to the downloaded ZIP, **or**
 - **Select root directory** → browse to the cloned project folder.
- Ensure the project (e.g., PrismToGSNPlugin) appears ticked → **Finish**.

The project should build cleanly with Java 21.





Build the Project:

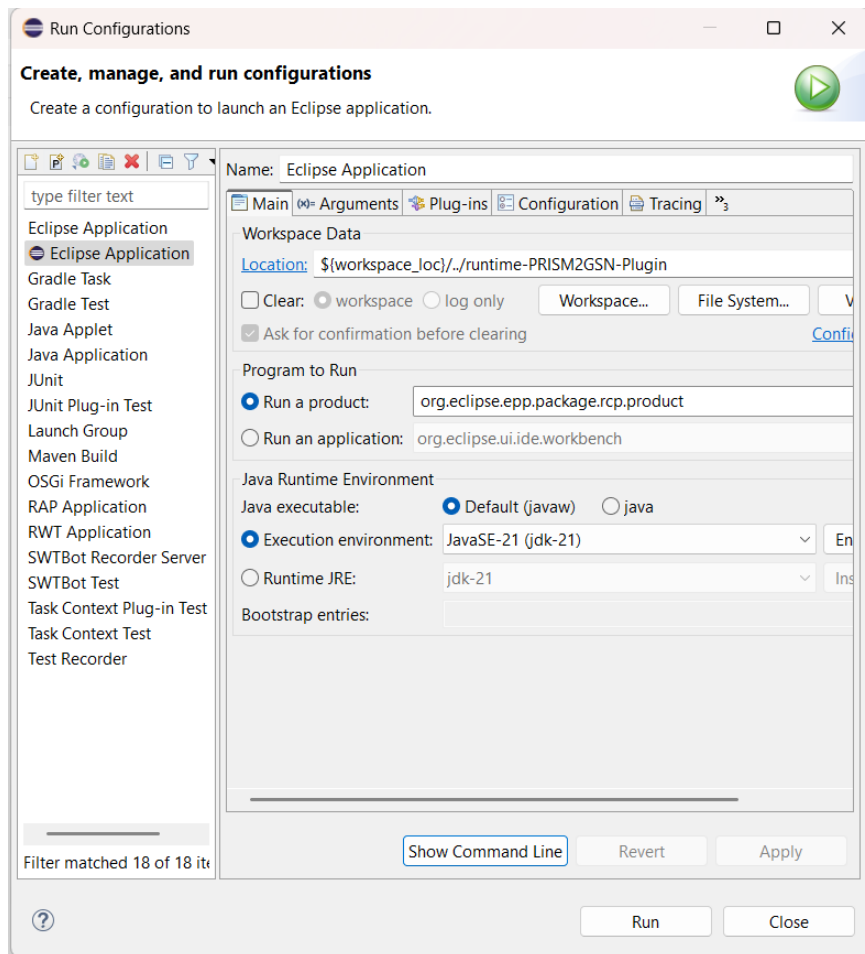
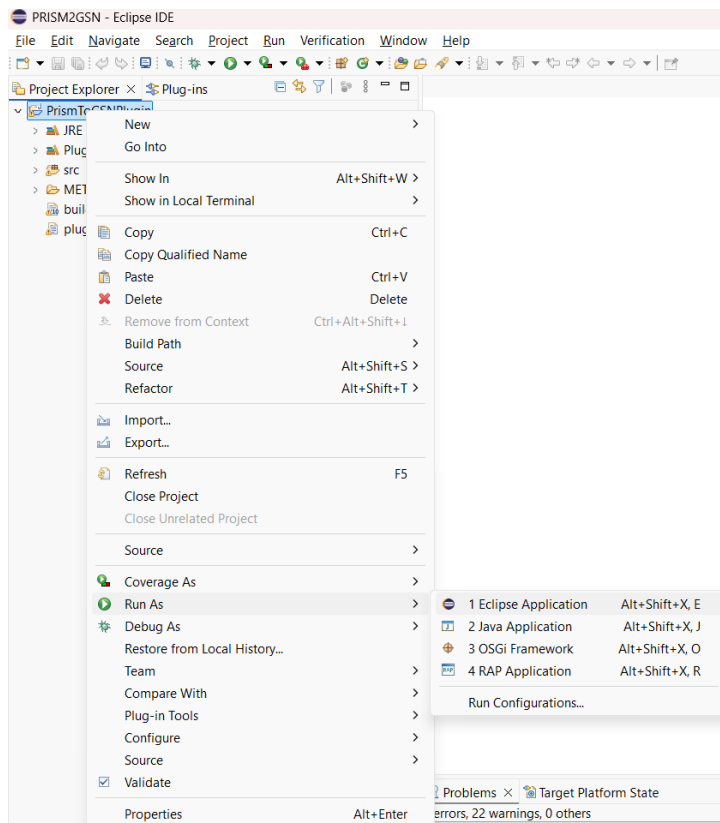


5. Launch the Runtime Workbench (PDE)

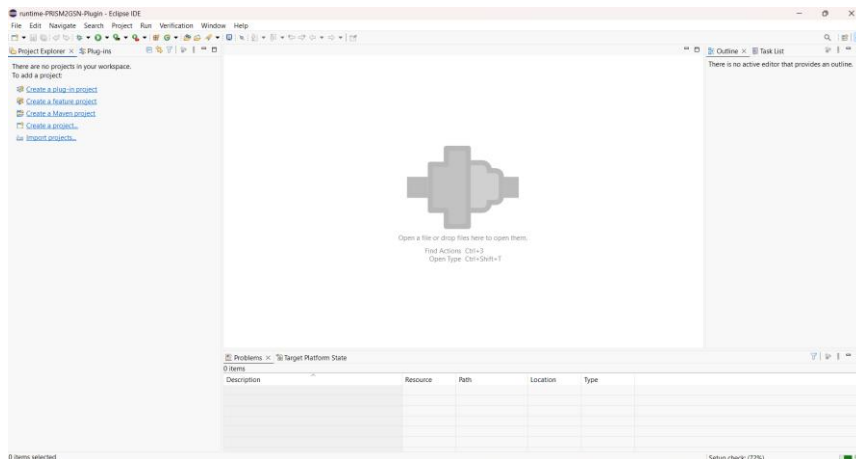
- In **Project Explorer**, select the project.
- **Run → Run As → Eclipse Application.**

A **second Eclipse** window opens: this is the **runtime workbench** where the plug-in is active.

Select Run Configurations:



Runtime Workbench:

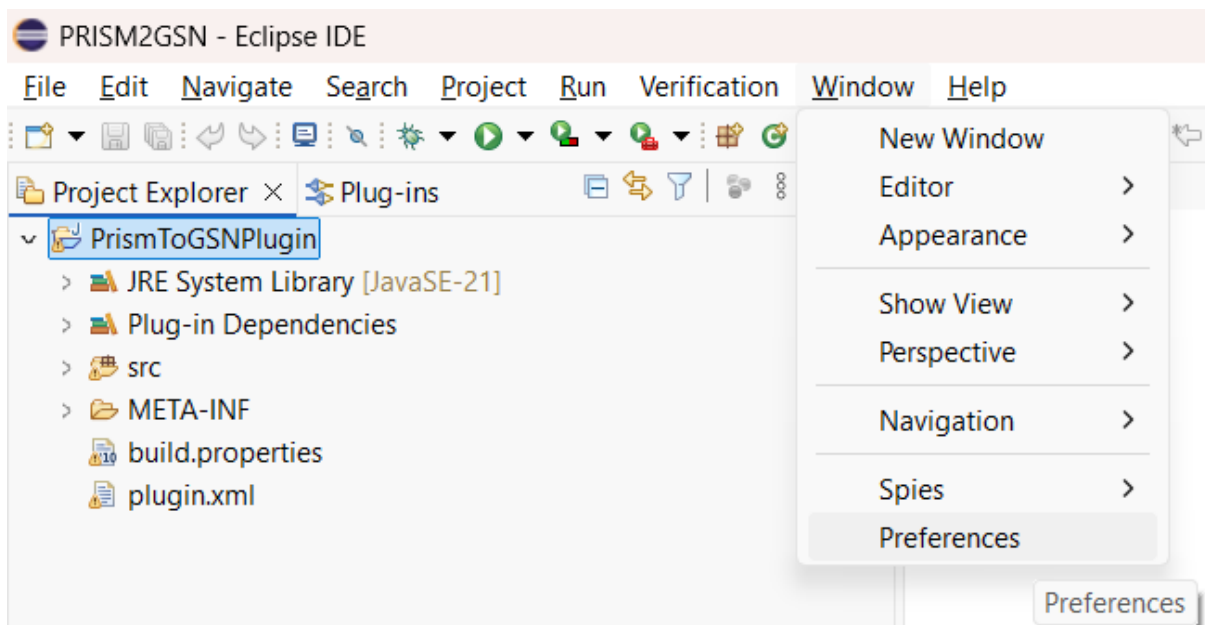


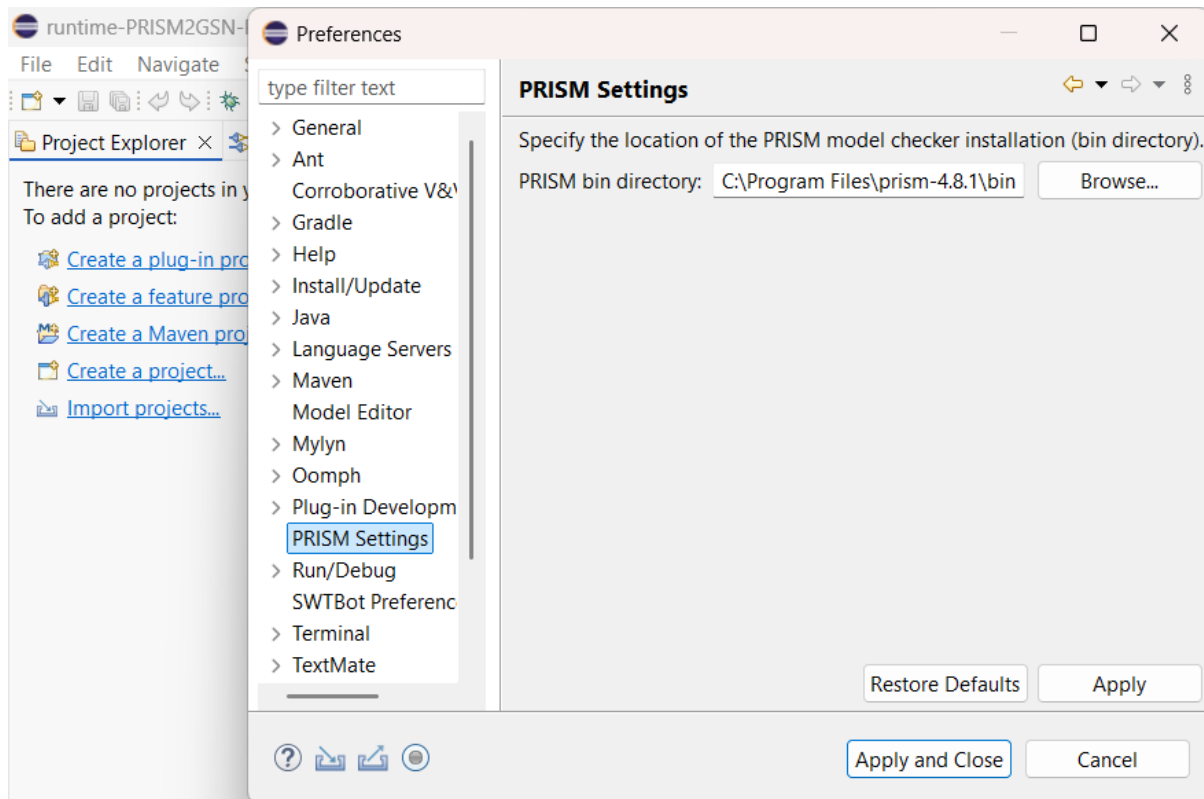
6. Configure PRISM (in the Runtime Window)

Important: Perform this in the **runtime** window (the second Eclipse), not the development window.

- **Window → Preferences → PRISM Settings.**
- Set **PRISM bin directory** to the folder that contains **prism.bat**, e.g.:
C:\Program Files\prism-4.8.1\bin
- **Apply and Close.**

No restart is required. The plug-in reads this setting each time it invokes PRISM.





7. Create a Test Project (Runtime Window)

- **File** → **New** → **Project...** → **General** → **Project** → name it (e.g.) TestPRISM2GSN → **Finish**.
- Right-click the project → **New** → **File** → create model.prism.

You can use the model.prism provided in GitHub:

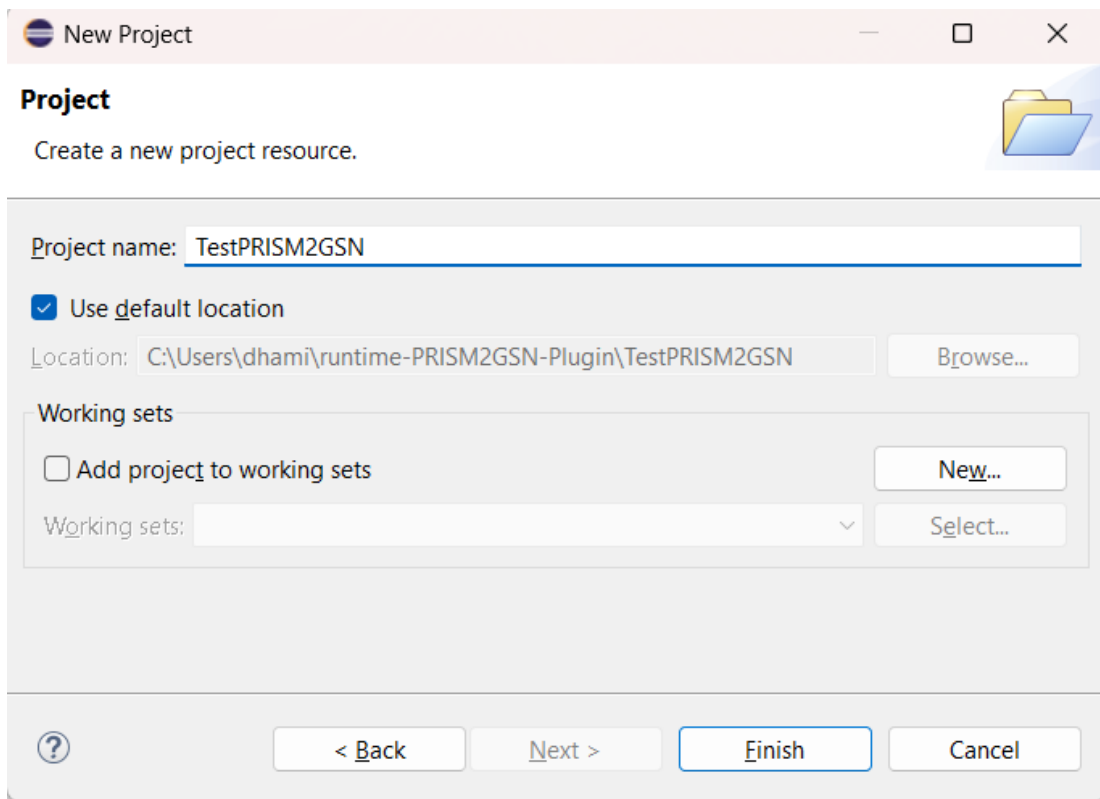
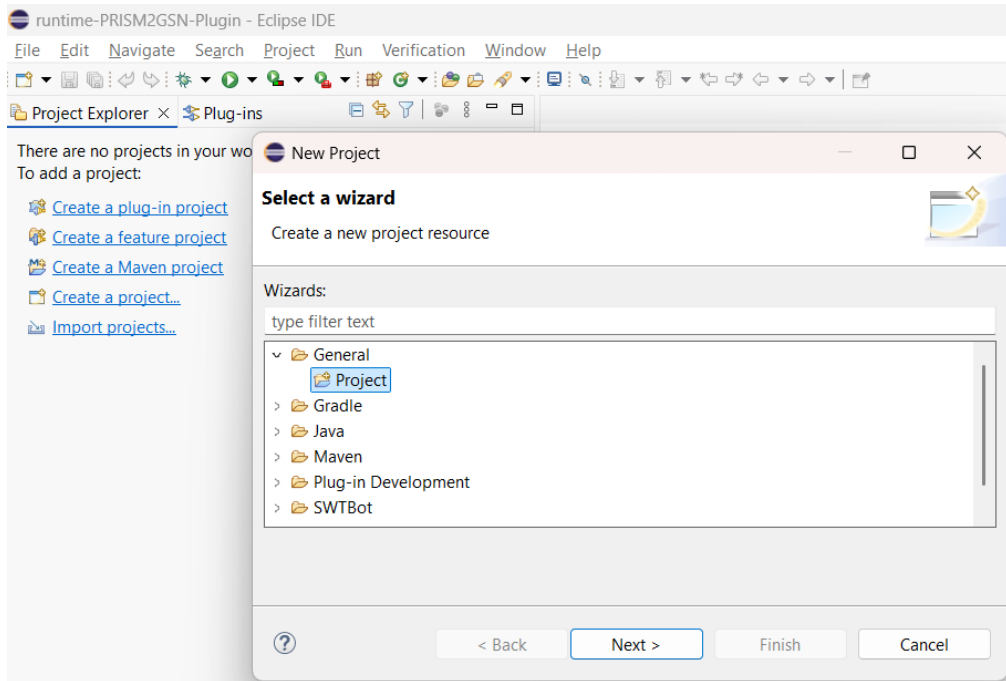
<https://github.com/DhamindaA/prism2gsn-eclipse-plugin/blob/main/model.prism>

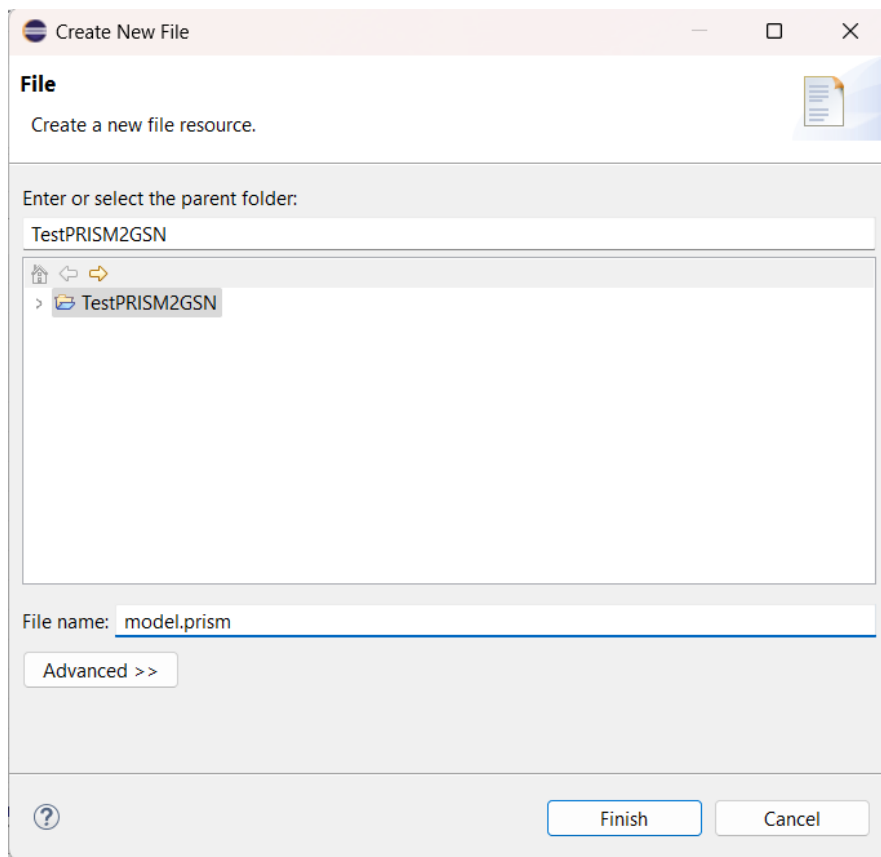
- Right-click the project → **New** → **File** → create properties.props.
Add one property **per line**, for example:

You can use the properties.props file provided in GitHub:

<https://github.com/DhamindaA/prism2gsn-eclipse-plugin/blob/main/properties.props>

Note: Keep model.prism and properties.props in the **same folder**.

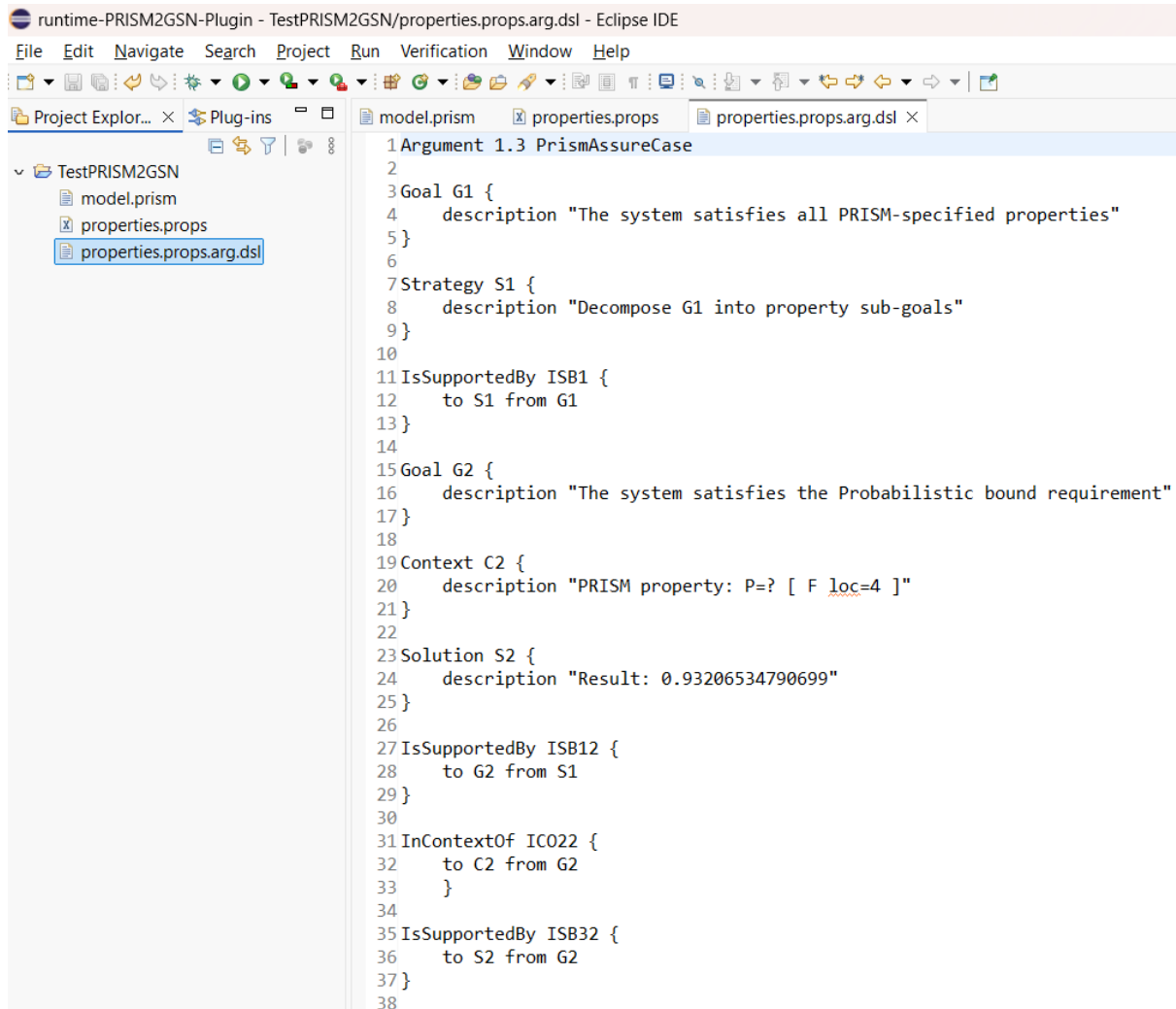
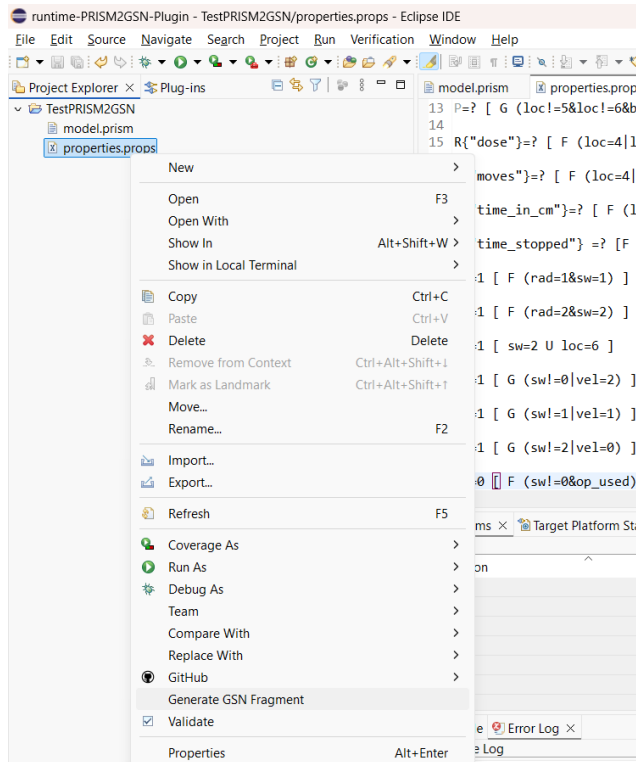




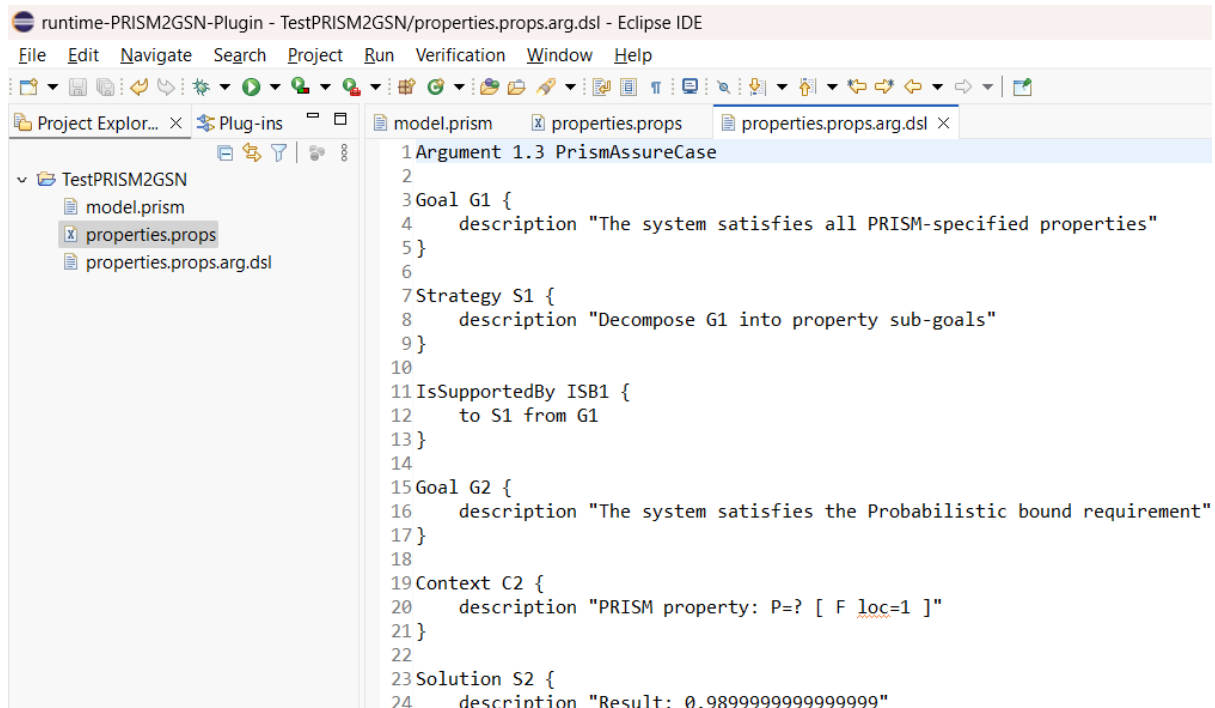
8. Generate GSN Artefacts

You can generate in two ways:

- **Automatic on Save**
 - Open properties.props, make a small edit (even a space), **Save**.
 - The plug-in runs PRISM and writes:
properties.props.arg.dsl (in the same folder).
- **Manual via Context Menu**
 - Right-click properties.props → **Generate GSN Fragment**.
 - Also produces **properties.props.arg.dsl**.
- **Notes**
 - For **multi-property** output, use a *.props file with **one property per line**.



A new file appears next to your .props file: properties.props.arg.dsl. Whenever the properties are changed and saved DSL will be updated.



Console (Runtime):

When the runtime window starts, you should see messages like:

[Prism2GSNPlugin] earlyStartup() called

[Prism2GSNPlugin] Listener registered in earlyStartup

When generating GSN:

[Prism2GSNPlugin] Transform called for: /TestPrism/properties.props

[Prism2GSNPlugin] Loaded PRISM path from preferences: C:\Program Files\prism-4.8.1\bin

[PRISM] Version: 4.8.1

...

[Prism2GSNPlugin] PRISM returned <n> result(s)

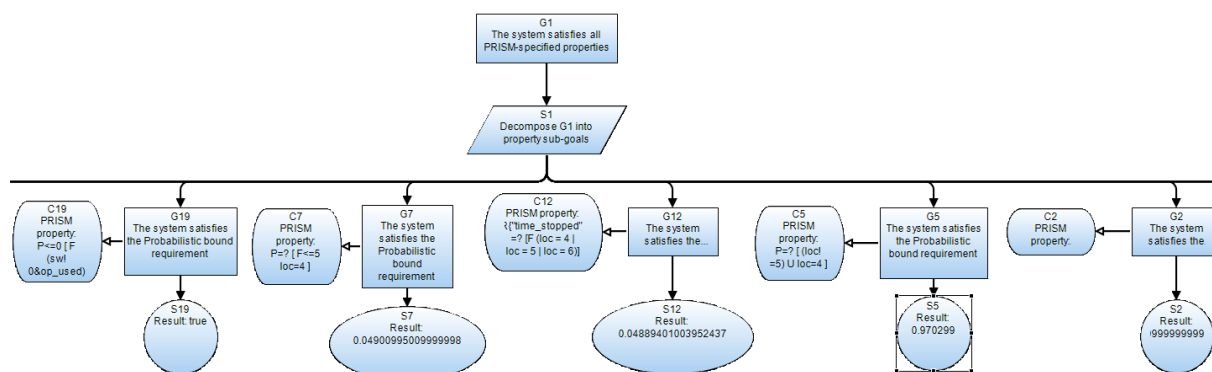
[Prism2GSNPlugin] Wrote /TestPrism/properties.props.arg.dsl

```

PRISM2GSN - Eclipse IDE
File Edit Navigate Search Project Run Verification Window Help
Eclipse Application [Eclipse Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (29 Aug 2025, 00:30:32 elapsed: 0:31:37) [pid: 33380]
[PRISM] Property satisfied in 1 of 1 initial states.
[PRISM]
[PRISM] Time for model checking: 0.001 seconds.
[PRISM]
[PRISM] Result: true
[PRISM]
[PRISM] -----
[PRISM]
[PRISM] Model checking: P>=1 [ G (sw!=2|vel=0) ]
[PRISM]
[PRISM] Probability bound in formula is 0/1 so not computing exact probabilities...
[PRISM]
[PRISM] yes = 0, no = 142, maybe = 0
[PRISM]
[PRISM] Property satisfied in 1 of 1 initial states.
[PRISM]
[PRISM] Time for model checking: 0.0 seconds.
[PRISM]
[PRISM] Result: true
[PRISM]
[PRISM] -----
[PRISM]
[PRISM] Model checking: P<=0 [ F (sw!=0&op_used) ]
[PRISM]
[PRISM] Probability bound in formula is 0/1 so not computing exact probabilities...
[PRISM]
[PRISM] Prob0: 4 iterations in 0.00 seconds (average 0.000000, setup 0.00)
[PRISM]
[PRISM] Prob1: 3 iterations in 0.00 seconds (average 0.000000, setup 0.00)
[PRISM]
[PRISM] yes = 56, no = 58, maybe = 28
[PRISM]
[PRISM] Property satisfied in 0 of 1 initial states.
[PRISM]
[PRISM] Time for model checking: 0.002 seconds.
[PRISM]
[PRISM] Result: false
[PRISM]
[Prism2GSNPlugin] PRISM returned 21 result(s)
[Prism2GSNPlugin] Wrote /TestPRISM2GSN/properties.props.arg.dsl
[Prism2GSNPlugin] Resource change event detected

```

To visualize the generated DSL file as a partial assurance case (goal structuring notation model), create an Argument Model in the AdvoCATE assurance case tool and paste the DSL into the underlying DSL of the diagram.



9. Uninstall / Clean-up

Because this workflow uses the **PDE runtime**, nothing is installed into your Eclipse. To remove:

- Close the **runtime** window.
- In the **development** workspace, delete the imported project if desired.
- No actions in *About* → *Installation Details* are needed for this workflow.

10. Troubleshooting

- **“PRISM not found” / CreateProcess error=2**
 - You likely didn’t set the PRISM path **in the runtime window**.
→ **Window** → **Preferences** → **PRISM Settings** (runtime window), point to the folder that contains prism.bat (e.g., ...\\prism-4.8.1\\bin).
- **No .arg.dsl appears on save**
 - The file must be named ***.props** and be **co-located** with a *.prism or *.pm model.
 - Make a small edit and **Save** to trigger the automatic transformation, or use the **Generate GSN Fragment** menu.
- **Context menu item missing**
 - Right-click a **file** (not a folder). For multi-property output, right-click the *.props file.
- **Java / bundle errors in the development workspace**
 - If Eclipse shows bundle-resolution errors, confirm you’re using the **RCP/RAP** package and that the project’s Java compliance is **21**.
Use **JDK 21** and the **RCP/RAP** Eclipse package.
- **Different machine with a different PRISM path**
 - Just re-set **PRISM Settings** in the **runtime** workspace you launch on that machine. No code changes required.

11. Known Limitations

- **Windows-only** artifact (this release does not support macOS/Linux).
- PRISM path preference is stored **per runtime workspace**—if you create a new runtime workspace, set it again.
- Multi-property generation expects **one property per line** in a *.props file, located next to the model.

12. Support

For any questions, please contact: Dhaminda.Abeywickrama@manchester.ac.uk

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