



**The great Eclipse Papyrus migration,  
from GMF and XWT to Sirius and EEF**

# AGENDA

- A Brief History
- The Migration
- The Result
- The Roadmap

# A brief Papyrus History / Once upon a time

- 2000 ~ CEA becomes a member of the OMG (<http://www.omg.org/>)
- 2006: Creation of Papyrus (<https://list.cea.fr/en/>)
  - initially in order to get a Profile diagram
  - afterwards extended to all other diagrams
- 2008: Papyrus becomes open-source as an Eclipse Project under EPL1
- 2008 onward: SysML (2009), MARTE (2010), many other profiles and relatives (42 projects)



# A Brief Papyrus Presentation

Several customizable views and tools

- Diagram editors (1) - GMF
- Property view (2) - XWT
- Model explorer (3)
- Table editors
- Xtext editors
- Context menu

The screenshot displays the Papyrus IDE interface. On the left, the Model Explorer shows a package structure for 'elementcreationmenumodel' containing classes like 'Folder', 'Separator', 'CreationMenu', and 'CreateRelationshipMenu'. The central Diagram Editor shows a UML class diagram with these classes and their relationships. On the right, the Property View shows the details for the 'elementcreationmenumodel' package, including its name, label, URI, visibility, and location.

```
classDiagram
    class Folder
    class Separator
    class CreationMenu
    class CreateRelationshipMenu
    class Menu
    Folder --> Menu
    Separator --|> Menu
    CreateRelationshipMenu --|> Menu
    class Menu {
        + label: EString [1]
        + icon: EString [0..1]
        + visible: EBoolean [0..1]
    }
```

UML	Name	elementcreationmenumodel
Comments	Label	
Profile	URI	http://www.eclipse.org/papyrus/infra/newchild/elementcreationmenumodel
General	Visibility	public
Style	Location	file:/D:/git/org.eclipse.papyrus/plugins/infra/newchild/org.eclipse.papyrus.infra.newchild/models/elementCreationMenuModel.uml

# The Migration

# Why are we migrating ?

Papyrus thrived for nearly 15 years but ended up with some aging technologies.


- GMF Tooling is not maintained anymore (Papyrus is using a fork since 2021)
- XWT is not maintained anymore (CEA handles its builds and releases since 2019)

Goals of the update:

- Ease the maintenance and use up-to-date technologies
- Ease the creation of new diagrams and the creation of Property Views.
- Homogenize Look And Feel between views
- Overhaul the specifications of Papyrus itself
- Prepare the migration to a future Papyrus-Web, by using shared technologies (EEF + Sirius Web + UML common java code for edition)

# What has been realized and how (1/2)



- Improve diagram codebase → Assume a GMF Tooling fork
  - GMFGen extension + xtend template overrides
    - 860 thousands lines
    - + efficiency
    - + maintainability
  - Improve GMFGen generation
- New versions for 3 diagrams (Class, StateMachine, Sequence) with  **Sirius**
  - Challenges:
    - ✓ Sirius as nested editor (open/close/save)
    - ✓ Sirius Session
    - ✓ Sirius Toolbar
    - ✗ Connect GMF ElementType used to edit UML elements (CRUD services: create, read, update, delete)

# What has been realized and how (2/2)



- The second round of work focused on:
  - Developing the other UML Diagrams with Sirius
  - Developing a new Property View with EEF
  - Exploring the connexion of CRUD Services with Sirius Diagrams and Properties



Papyrus on the Web ?



# Analyzing old and new functionalities

- Textual specifications,
- Matrix of capabilities for each diagrams used to complete specifications
- JUnit Tests
- User and developer documentations

Can we create column element inside row element representation?

	Class	Classifier Template Parameter	Comment	Component	Connectable Element Template Parameter	Constraint	Data Type	Duration Observation	Enumeration	Enumeration Literal
Class	YES						YES		YES	
Classifier Template Parameter										
Comment										
Component	YES						YES		YES	
Connectable Element Template Parameter										
Constraint										
Data Type										
Duration Observation										
Enumeration										YES
Enumeration Literal										

reate Dependency between the row (source) and the column (target)?

	Class	Classifier Template Parameter	Comment	Component
Class	YES			YES
Classifier Template Parameter				
Comment				
Component	YES			YES
Connectable Element Template Parameter				
Constraint	YES			YES
Data Type	YES			YES
Duration Observation	YES			YES
Enumeration	YES			YES
Enumeration Literal				
Information Item	YES			YES
Instance Specification	YES			YES
Interface	YES			YES

# Papyrus architecture migration result

- Model Edition - CRUD -> GMF  
ElementType + EditionService → ● UML-DomainService - a new  
project (git repository)  
dedicated to the CRUD
- GMF Diagram Editor → ● Sirius Diagram
- XWT for the Properties Views → ● EEF Properties Views

# Behavior and diagram changes

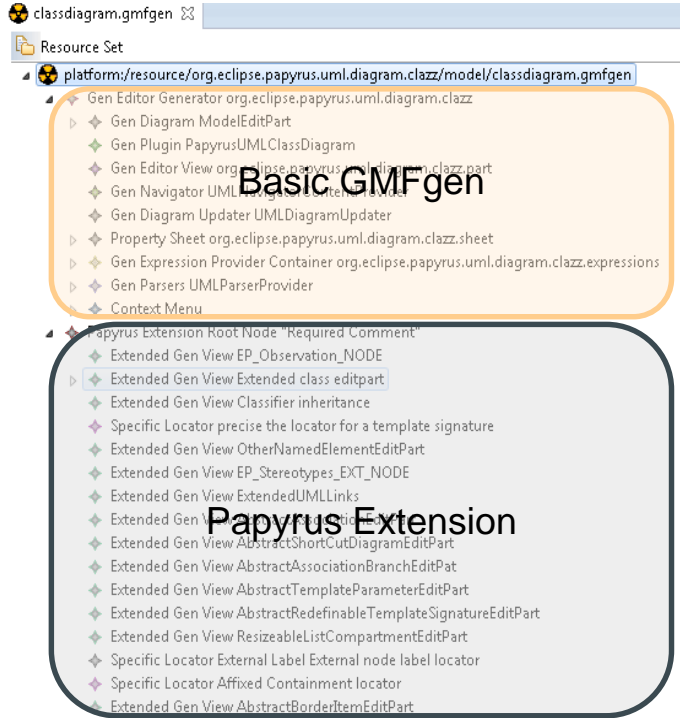
- New Diagrams are integrated as nested editor into Papyrus
- Appearance of elements is preserved
- Capabilities are preserved
- Harmonize of UML keywords usage (« interaction », « import », ...)
- Harmonize of UML icons usage in the diagrams
- Harmonize of some behaviors between diagrams (typing Property by DnD)
- Easier to maintain for the Papyrus Team

GMF	Sirius
oep.uml.diagram.common : ~94 thousand lines	oep.sirius.uml.diagram.common : 10 699 lines
oep.uml.diagram.clazz : 74 881 lines	oep.sirius.uml.diagram.clazz : 4 284 lines

# New Diagrams, customizing in the new architecture

- Old specialization
  - Create a UML profile for the usecase
  - New ElementTypes inheriting from UML ones
  - New Diagrams inheriting from UML ones (figure, behavior, palette)
  - New Properties Views
- New specialization :
  - Create a UML Profile
  - Create a dedicated domain service
  - Create new diagrams
  - Create new EEF Properties views

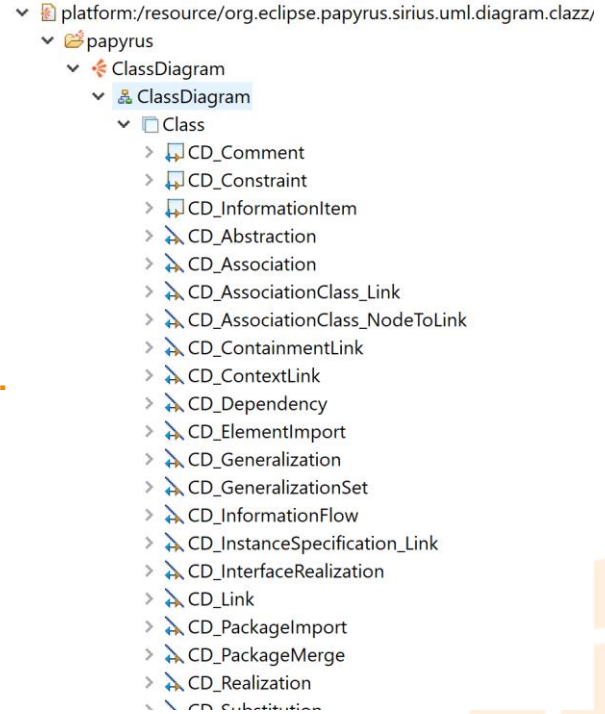
# How to create a new diagram ?



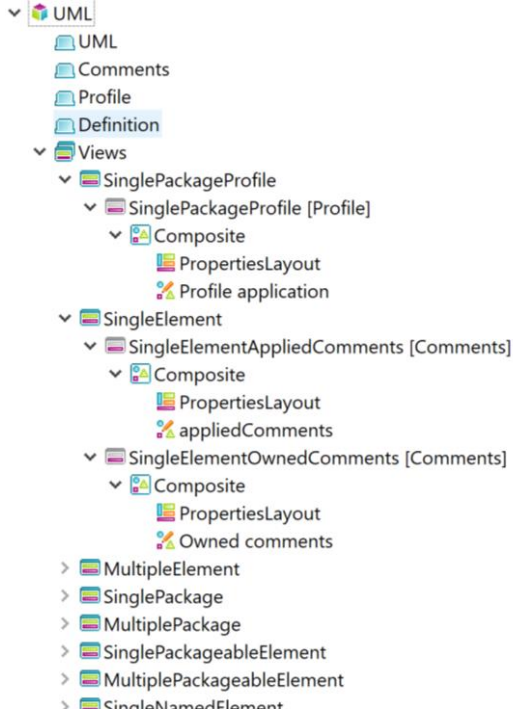
Basic GMFgen

Papyrus Extension

Easier,  
Better,  
Faster,  
Stronger...

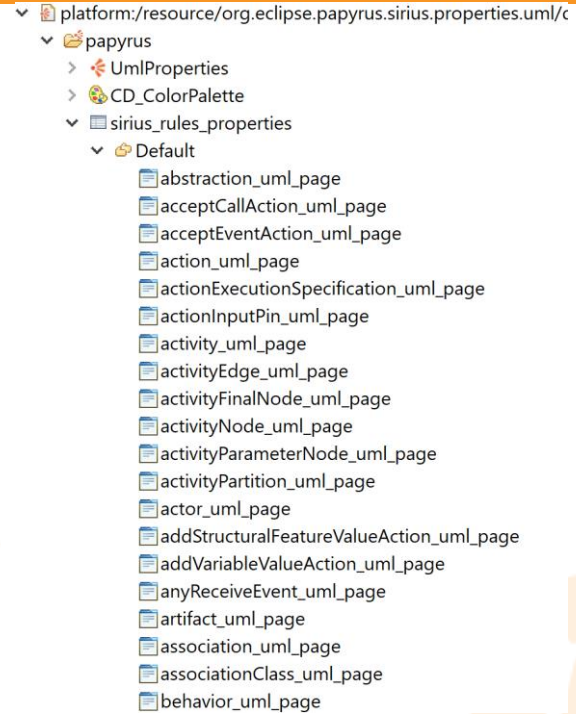


# How to create a new property view ?



Easier,  
Better,  
Faster,  
Stronger...

(One more time!)



# DEMO

# Papyrus roadmap

- **2023-12: Sirius based Papyrus (Alpha version)**
  - New Property view (update site)
  - New diagram based on Sirius (update site)
- **2024-06: Sirius based Papyrus (Beta version)**
- **Q3 2024: Diagram migration**

Starting 2025, the plan is to not do any new developments on the Papyrus heavy client.





# Thank you!

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