

Einführung in das Graphical Modeling Framework

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ex|Xcellent
solutions

**Erstellung grafischer DSL Editoren
mit Hilfe von Eclipse GMF**



- xl Der GMF Baukasten
 - | Überblick
 - | Einzelteile

- xl Die GMF Spielwiese
 - | Tooling Workflow
 - | Erweiterungsmöglichkeiten

- xl Live Demo

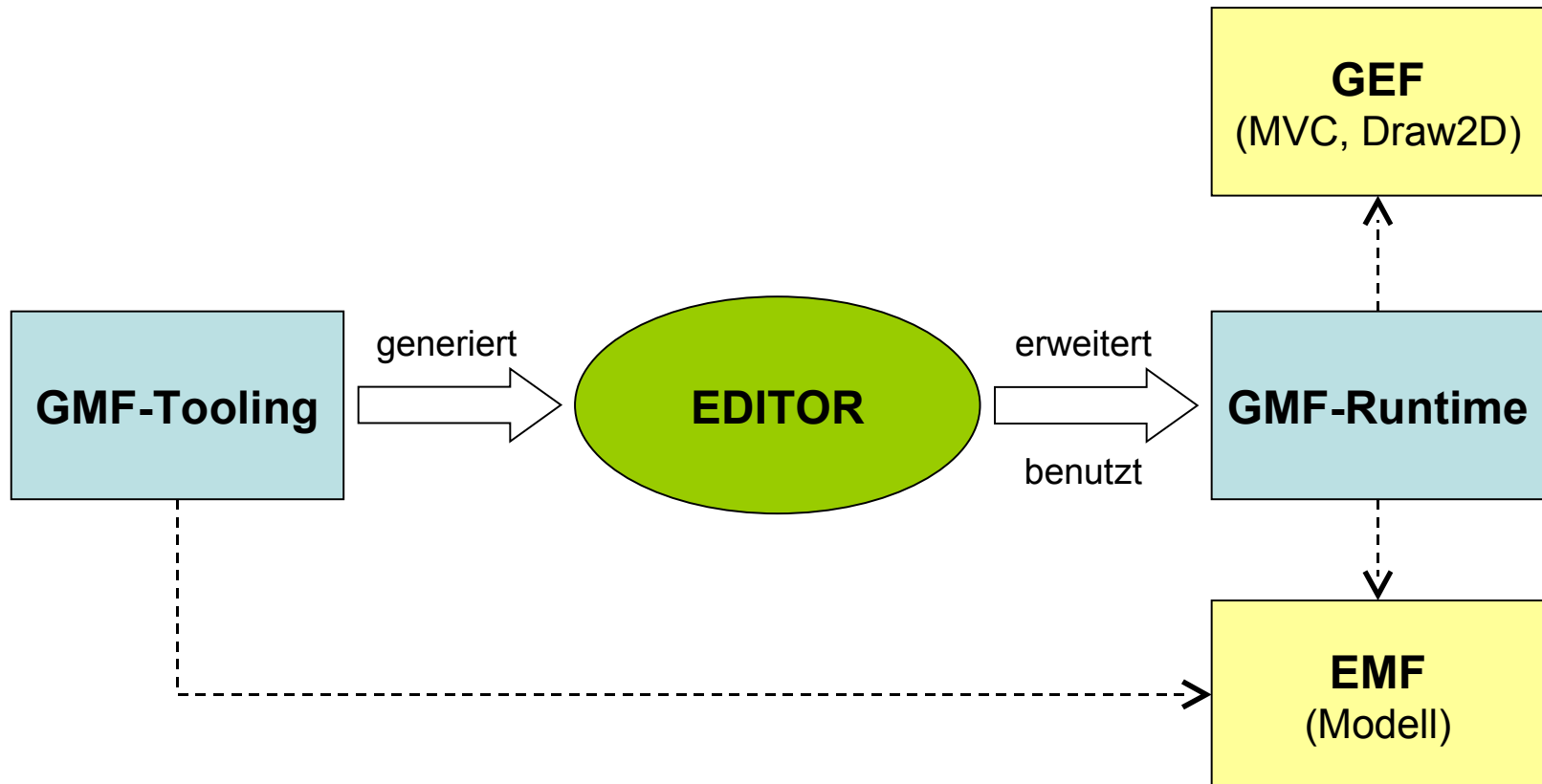
- xl Fragen und Antworten

x| Generator- und MDS- Framework zur Erstellung grafischer DSL Editoren

The screenshot shows the Eclipse IDE with the following components:

- Project Explorer:** Shows the project structure with 'demo' and 'demo.model_diagram'.
- Package Explorer:** Shows the package structure with 'demo' and 'demo' sub-packages.
- Diagram:** Displays a class diagram with 'Person' and 'Address' classes. 'Person' has attributes 'firstname', 'lastname', 'birthday', and 'addresses'. 'Address' has attributes 'street', 'city', and 'zipcode'. An association labeled 'addresses' connects 'Person' to 'Address' with a multiplicity of '0..*'.
- Palette:** Contains various modeling elements like 'Select', 'Zoom', 'Note', 'Nodes', 'Package', 'Class', 'DataType', 'Child Nodes', 'Property', 'Operation', 'Constraint', 'Connections', 'Generalization', 'Association', and 'Aggregation'.
- Outline:** Shows a simplified view of the class diagram.
- Properties:** Shows the properties of the selected 'Person' class, including 'Abstract', 'All Attributes', 'All Constraints', 'All Operations', 'Description', 'Inherited Attributes', 'Inherited Constraints', 'Inherited Operations', 'Name', and 'Overriding Operations'.

x| Überblick



x| GEF (Graphical Editing Framework)

- | Model-View-Controller
 - EditPart

- | Runtime (only)
 - Werkzeugpalette
 - Outline View
 - Regler und Lineale
 - Snap-to-Grid
 - Properties View
 - etc.

- | Low-Level-Komponenten
 - Draw2D Lightweight Toolkit

x| EMF (Eclipse Modeling Framework)

| Tooling

- Metamodell (Ecore)
- Code Generator

| Runtime

- Notification Listener
- Reflection
- Persistenz (XMI)
- Metamodell Integration
- Commands (Undo/Redo)
- Workbench Integration

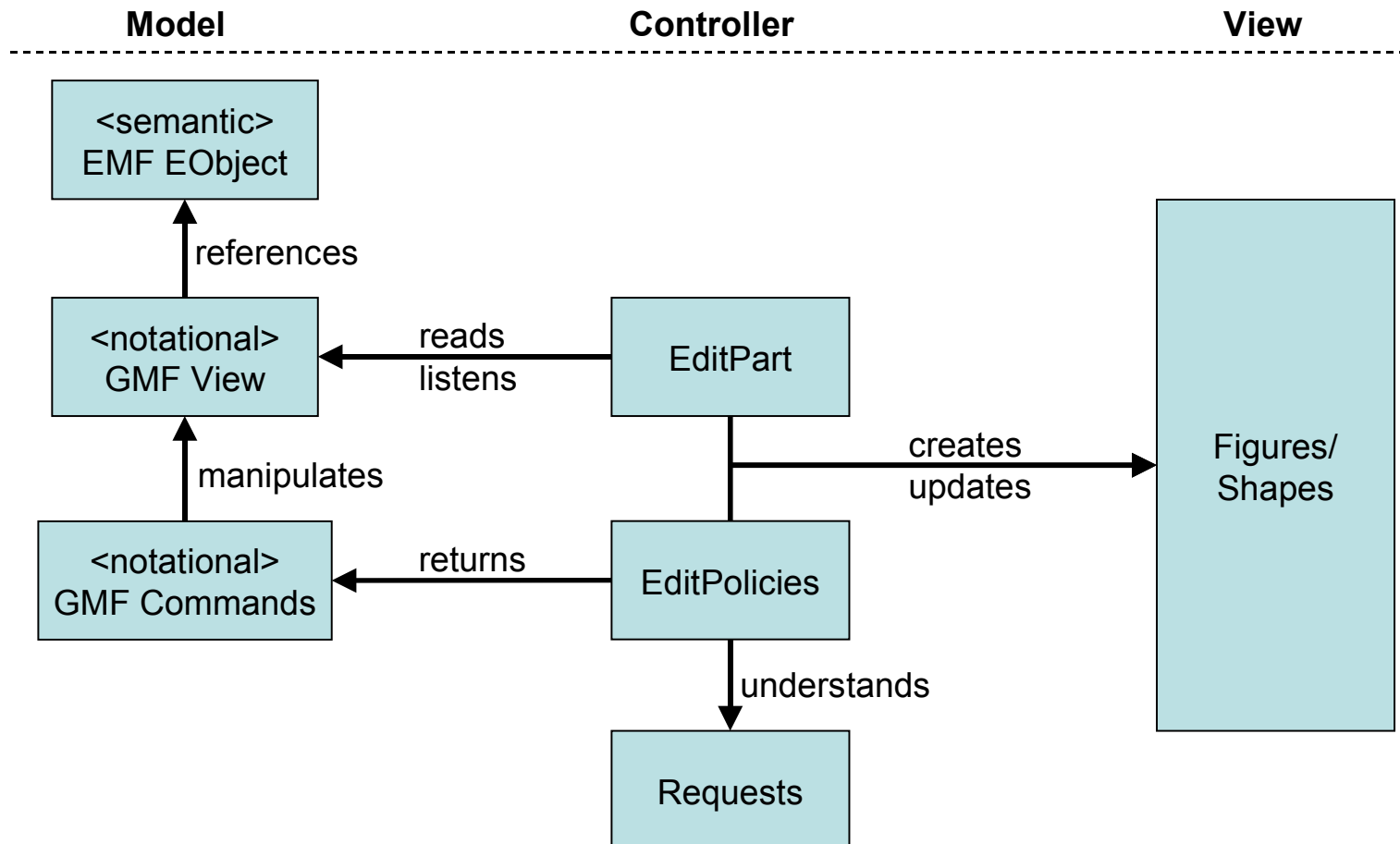
x| GMF - Runtime

- | Brücke zwischen GEF und EMF
 - MVC
 - Request → Command

- | Modelle
 - Domäne (semantic)
 - Diagramm (notational)

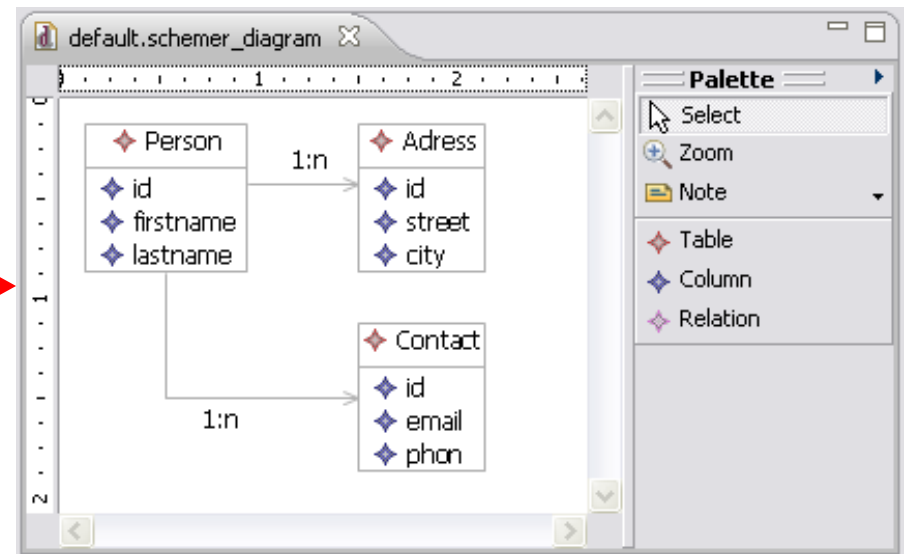
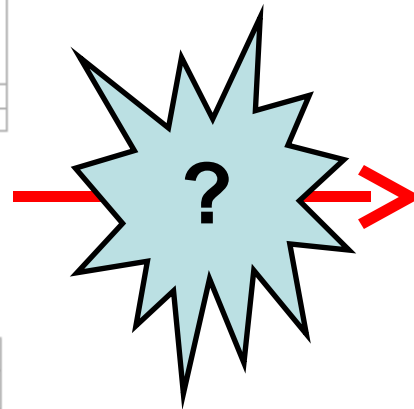
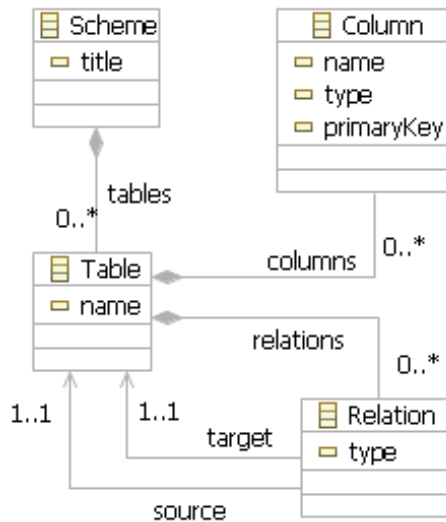
- | Wiederverwendbare Komponenten
 - Menüs / Action Bars
 - Views
 - Editor Komponenten
 - etc.

x| GMF - Runtime

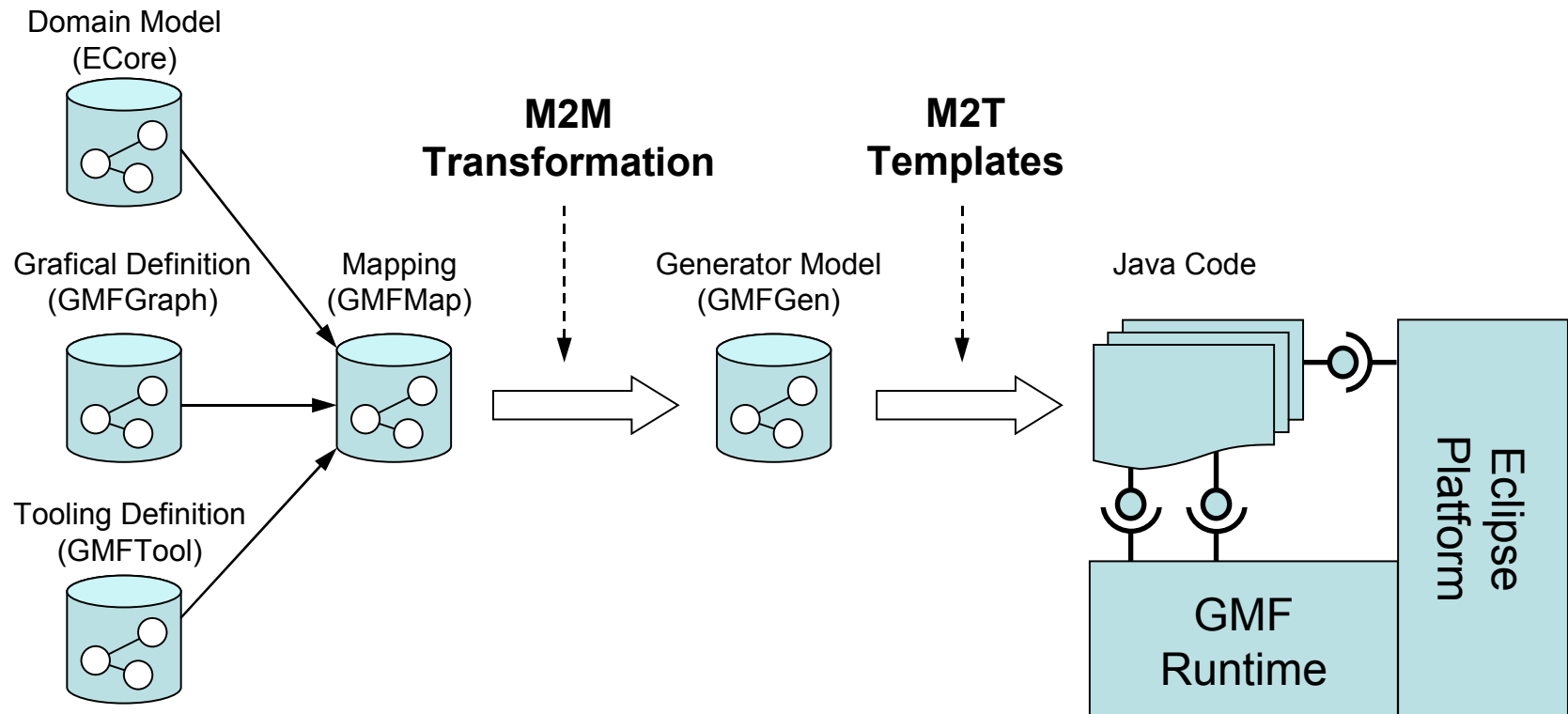


x| GMF - Tooling: von der Domäne über das Modell zum Editor






| | Feld | Typ | Kollation | Attribute | Null |
|--------------------------|------------------|--------------|-------------------|-----------|------|
| <input type="checkbox"/> | id | bigint(20) | | | Nein |
| <input type="checkbox"/> | firstname | varchar(255) | latin1_general_ci | | Nein |
| <input type="checkbox"/> | lastname | varchar(255) | latin1_general_ci | | Nein |

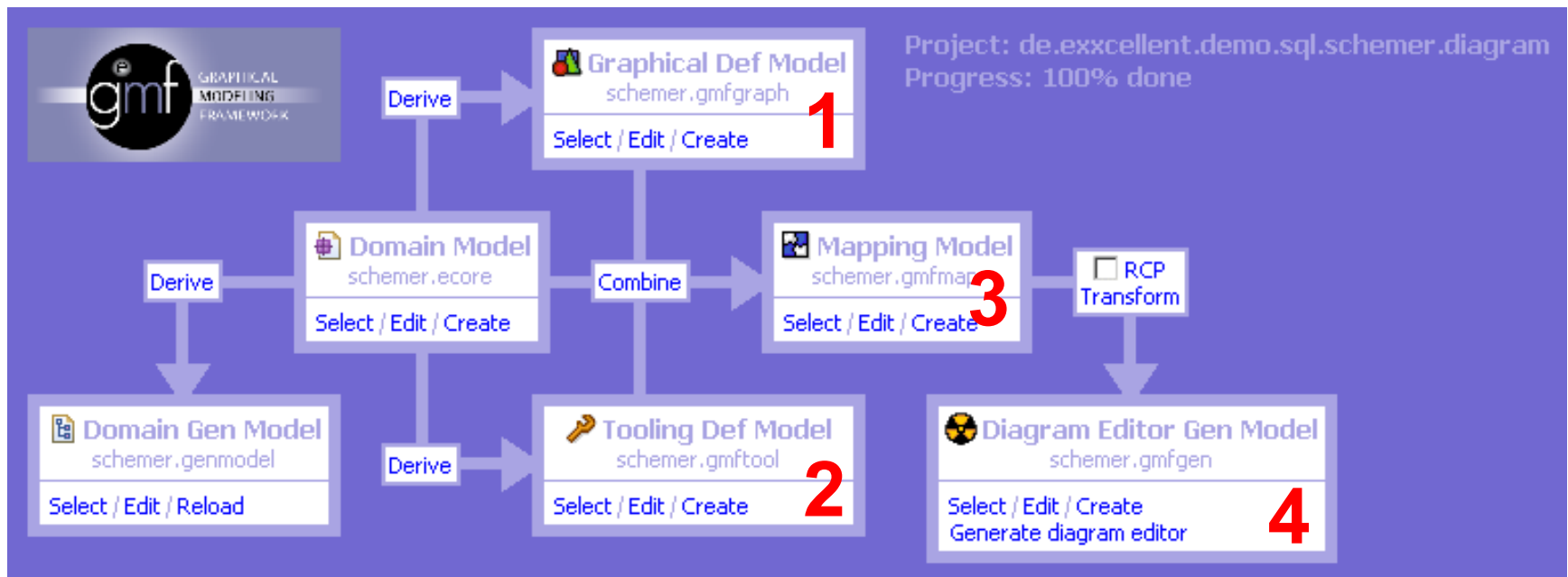


x| GMF – Tooling: Workflow

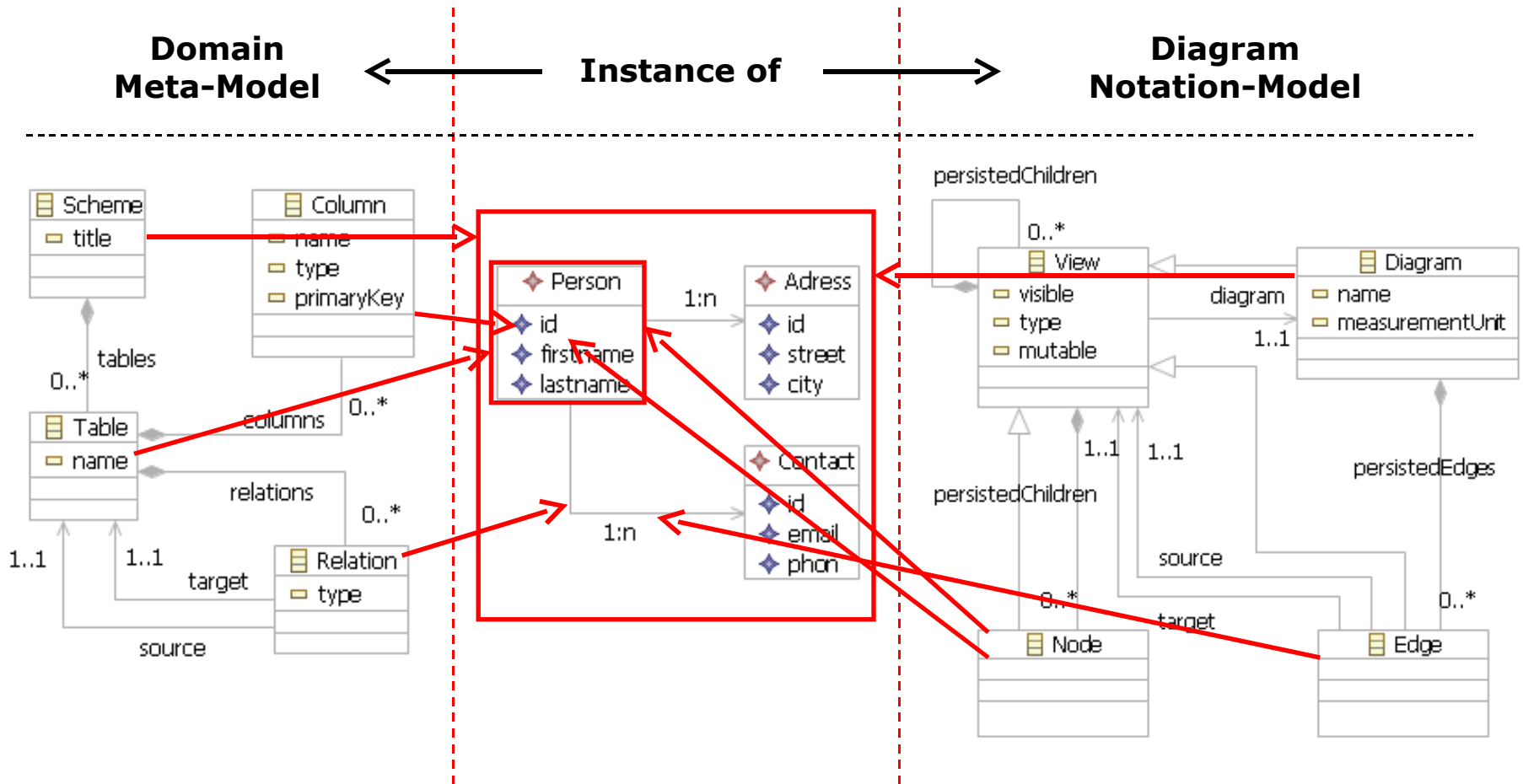


x| GMF – Tooling: Dashboard

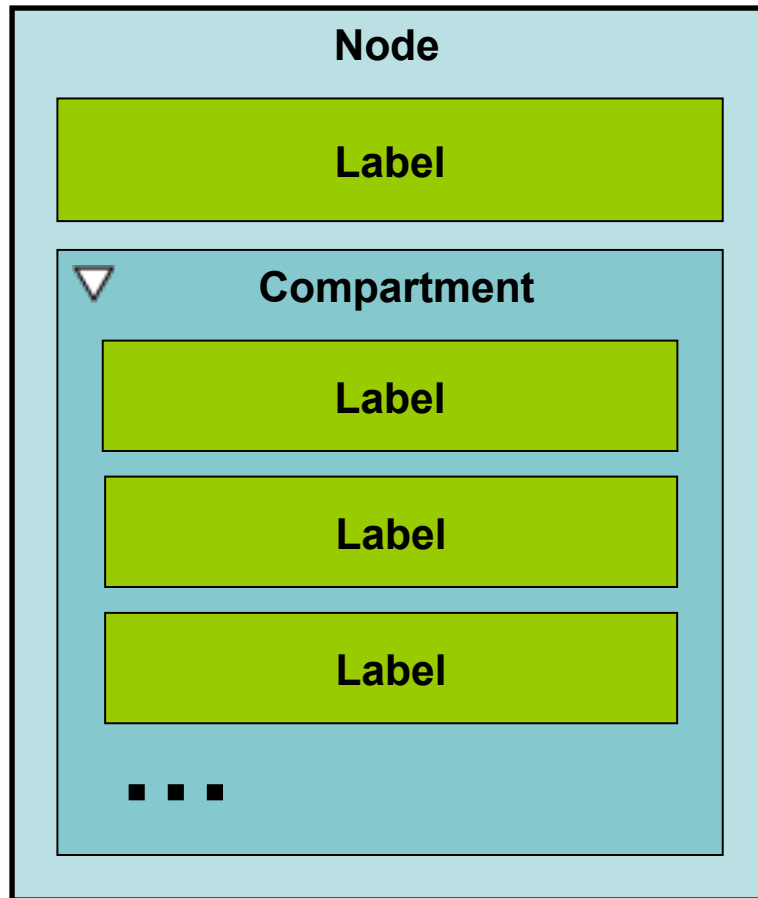
- | Metamodell  } EMF
- | 1. Grafische Definition  }
- | 2. Werkzeug Definition  } GMF
- | 3. Mapping Definition  }
- | 4. Generatormodell  }



x| Grafische Definition




x| Grafische Definition



platform:/resource/de.excellent.demo.sql.schemer.diagra

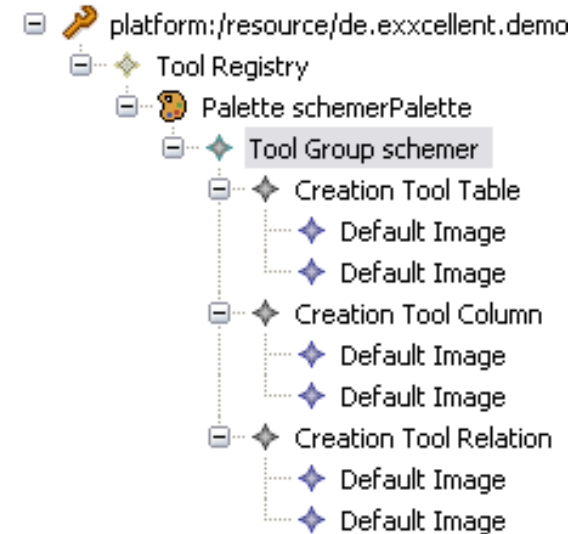
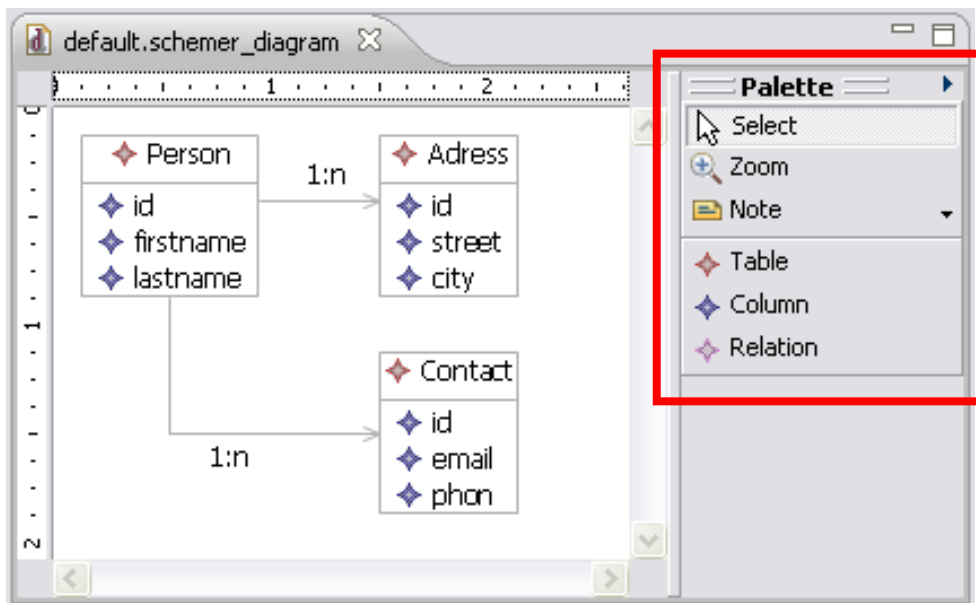
- Canvas schemer
 - Figure Gallery Default
 - Polyline Decoration Arrow
 - Figure Descriptor TableFigure
 - Rectangle TableFigure
 - Flow Layout true
 - Label TableNameFigure
 - Child Access getFigureTableNameFigure
 - Figure Descriptor RelationFigure
 - Figure Descriptor LabelFigure
 - Figure Descriptor CompartmentFigure
 - Node TableNode (TableFigure)
 - Connection RelationLink
 - Compartment Compartment (CompartmentFigure)
 - Diagram Label TableLabel
 - Diagram Label Label

Selection Parent List Tree Table Tree with Columns

Properties  GMF Dashboard

| Property | Value |
|-------------|-------------------------------|
| Descriptor | Figure Descriptor TableFigure |
| Fill | true |
| Line Kind | LINE_SOLID |
| Line Width | 1 |
| Name | TableFigure |
| Outline | true |
| Xor Fill | false |
| Xor Outline | false |

x| Werkzeugpalette 🗝️

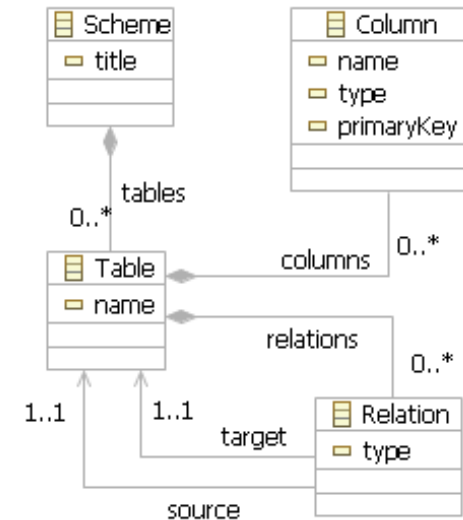
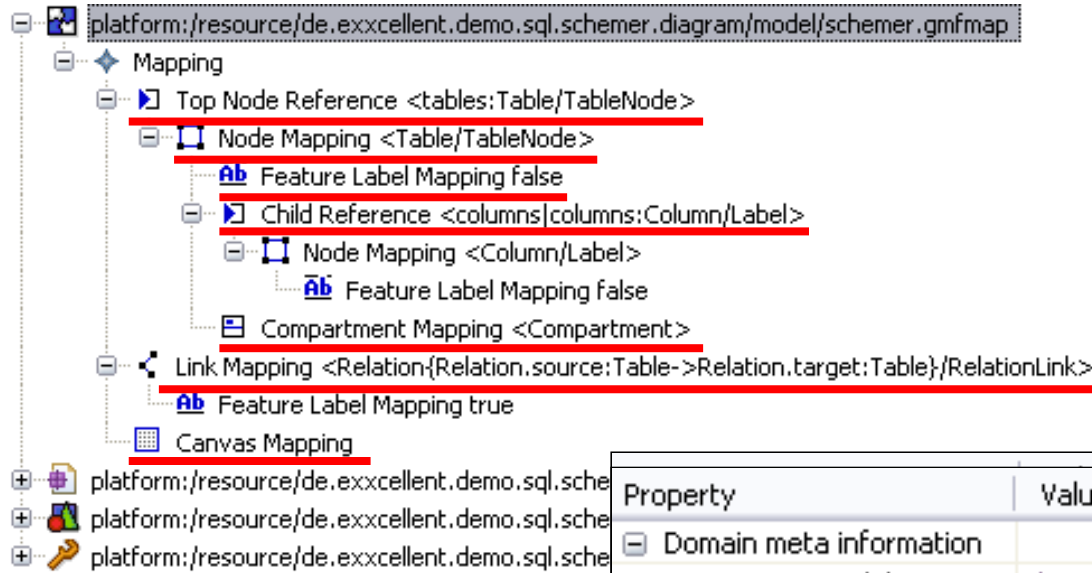


Selection Parent List Tree Table Tree with

Properties X GMF Dashboard

| Property | Value |
|-------------|---|
| Active | |
| Collapsible | <input checked="" type="checkbox"/> false |
| Description | <input type="checkbox"/> |
| Stack | <input checked="" type="checkbox"/> false |
| Title | <input type="checkbox"/> schemer |

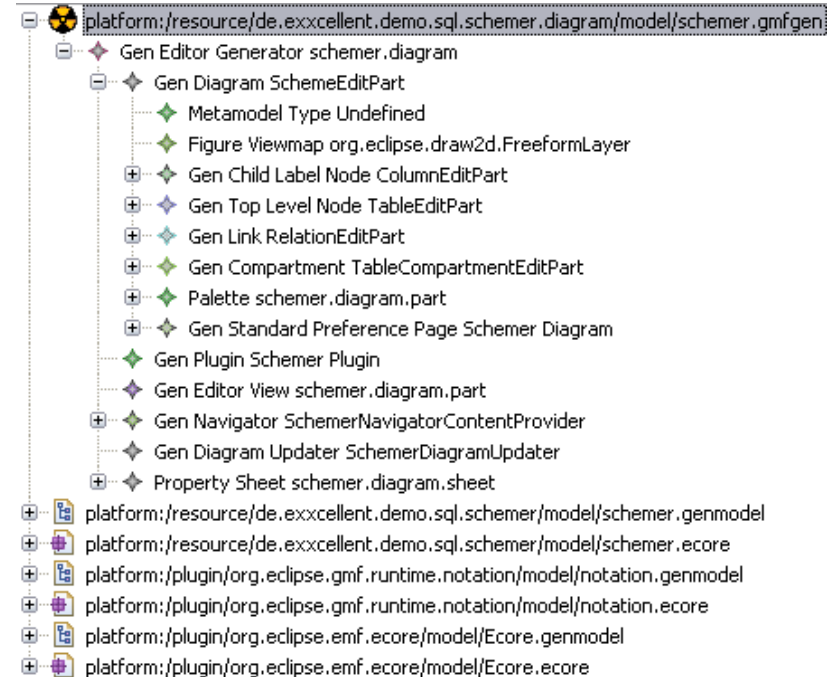
xl Mapping Definition



| Property | Value |
|-------------------------|---|
| Domain meta information | |
| Domain Model | schemer |
| Element | Scheme |
| Misc | |
| Menu Contributions | |
| Palette | Palette schemerPalette |
| Toolbar Contributions | |
| Visual representation | |
| Diagram Canvas | Canvas schemer |
| Diagram Link | Connection RelationLink (CompartmentFigure) |
| Tool | Creation Tool Relation |

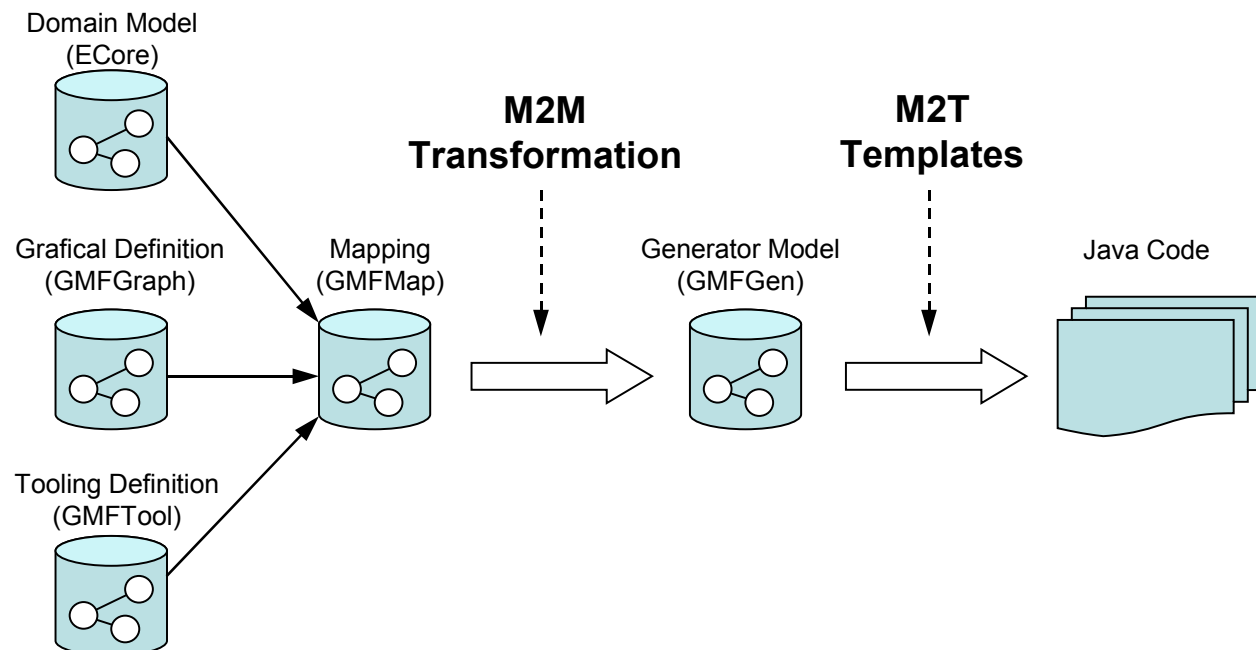
x| Generator Modell

- | Konfiguration des Plugins
- | Diagrammelemente (EditParts)
 - Klassennamen,
 - IDs,
 - Factories, etc.
- | Werkzeugpalette
- | Diagram Navigator View
- | Property Sheets
- | Preference Pages
- | Diagram Updater
- | Content Provider



x| Anpassungs- und Erweiterungsmöglichkeiten

- | Modelle
- | Transformation
- | Templates
- | Code
- | Extensionpoints



Live Demo

x| Diskussion / Fragen

**x| Weiterführende Informationen gerne am Stand
| Ausstellungsbereich**

x| Besten Dank!