

BEE-UP: A Modeling Tool Suite

3 Jan 2020

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Contents

1. Overview

- 1) BEE-UP tool
- 2) Modelling with the BEE-UP tool

1. Overview

- 1) BEE-UP tool
- 2) Modelling with the BEE-UP tool

1. OVERVIEW

1. Overview

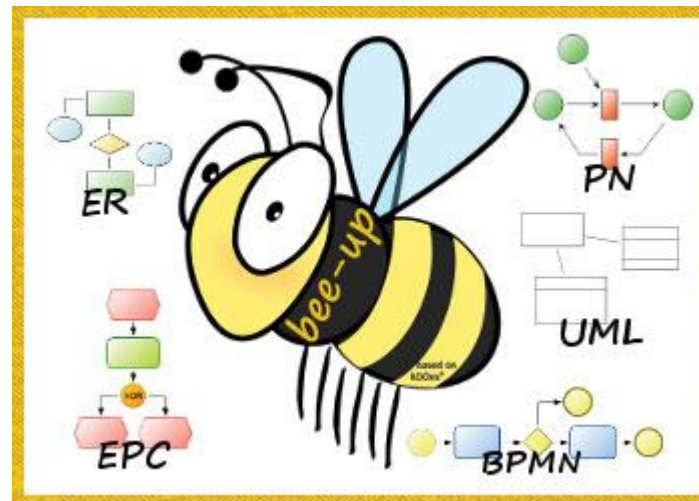
- 1) **BEE-UP tool**

- 2) Modelling with the BEE-UP tool

1) BEE-UP TOOL

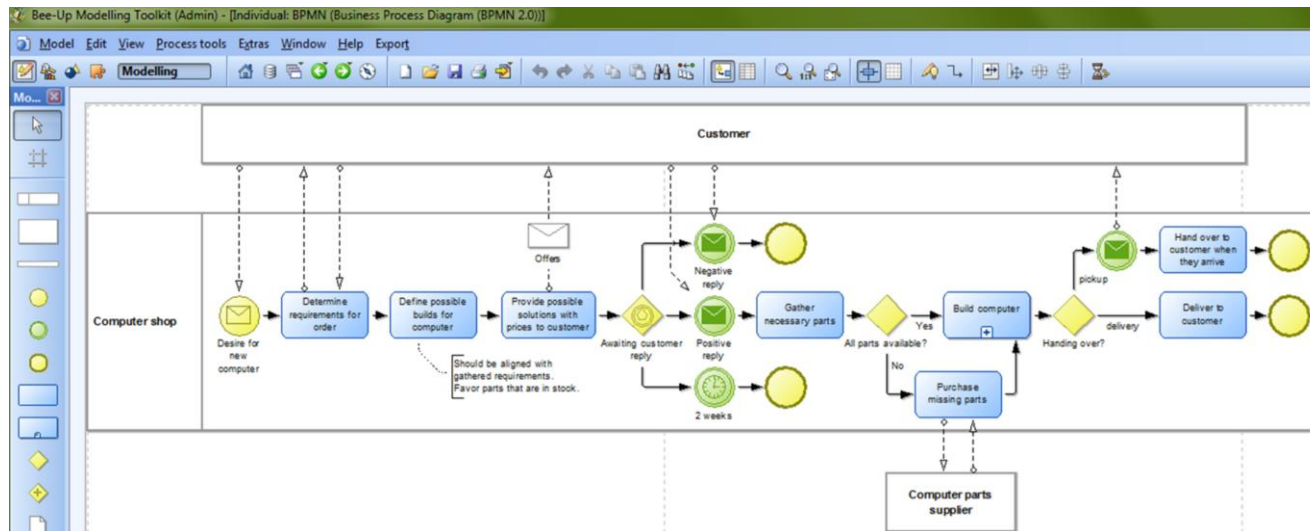
BEE-UP

- ▶ **BPMN, EPC, ER, UML, Petri nets Tool**
- ▶ Developed based on ADOxx Meta-modeling tool
- ▶ Download
 - ▶ <http://austria.omilab.org/psm/content/bee-up/info>



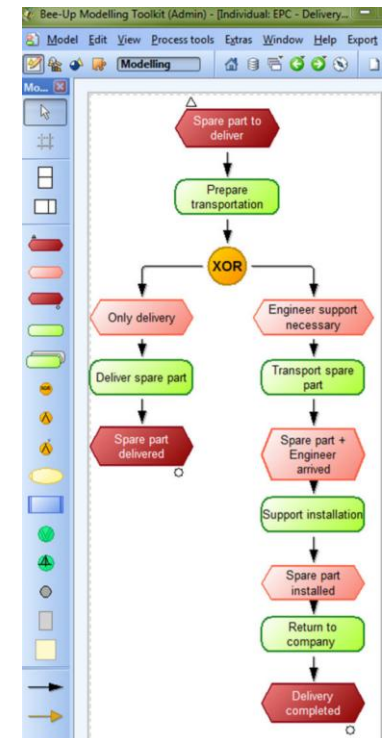
BEE-UP

- ▶ BPMN (Business Process Modeling Notation)
 - ▶ Developed based on BPMN 2.0 standard
 - ▶ Specification of business process using Gateway, Event, Task, etc.



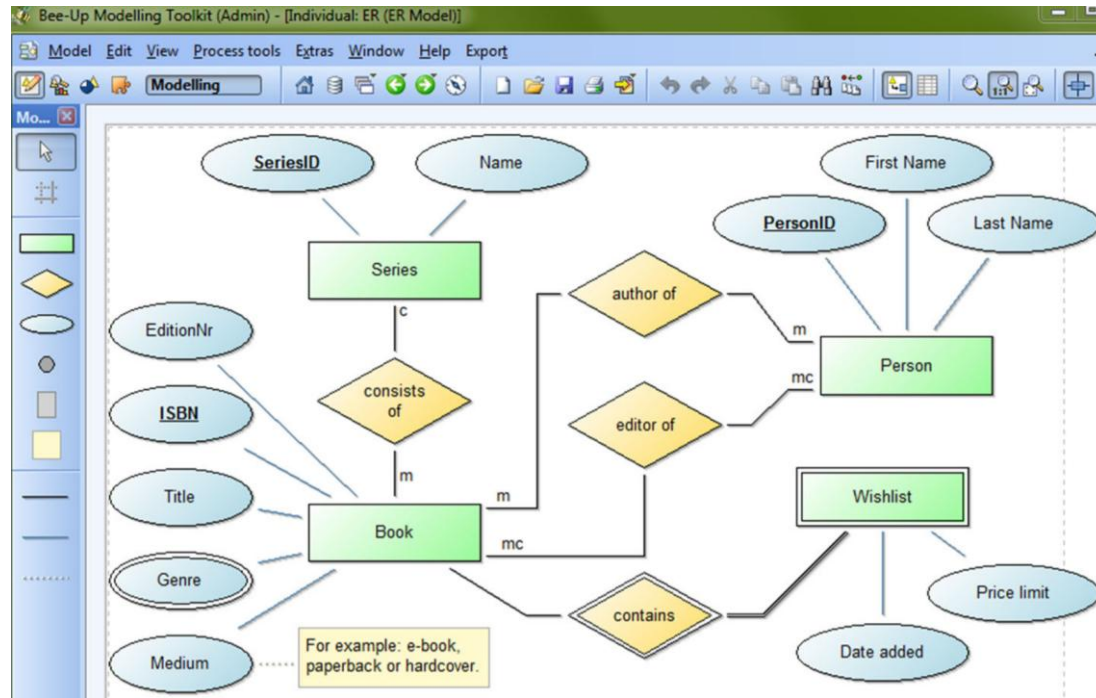
BEE-UP

- ▶ EPC (Event-driven Process Chain)
- ▶ flow chart for business process modeling
- ▶ Can be used to configure enterprise resource planning execution, and for business process improvement



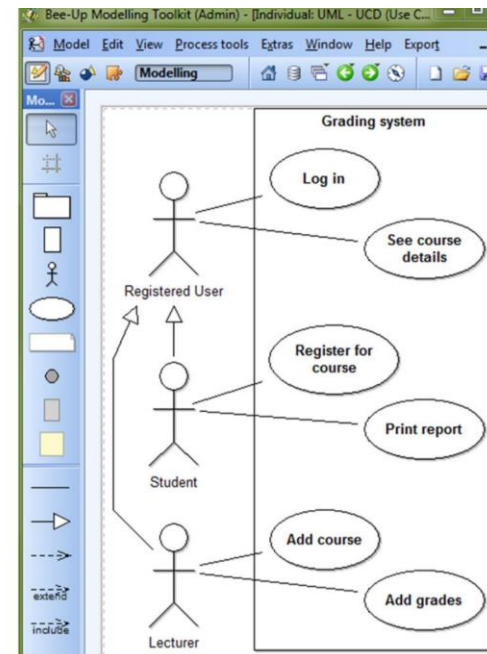
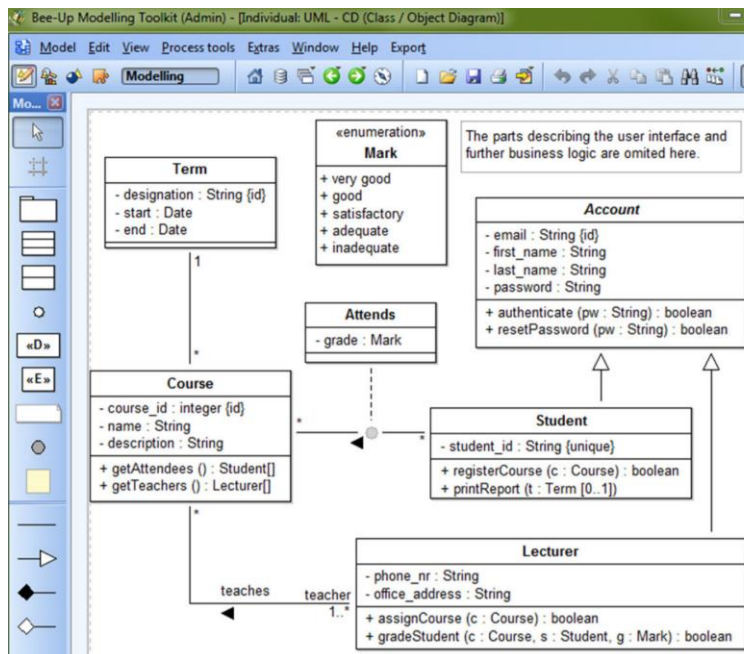
BEE-UP

- ▶ ER (Entity-Relationship)
 - ▶ Model entities and their relationship



BEE-UP

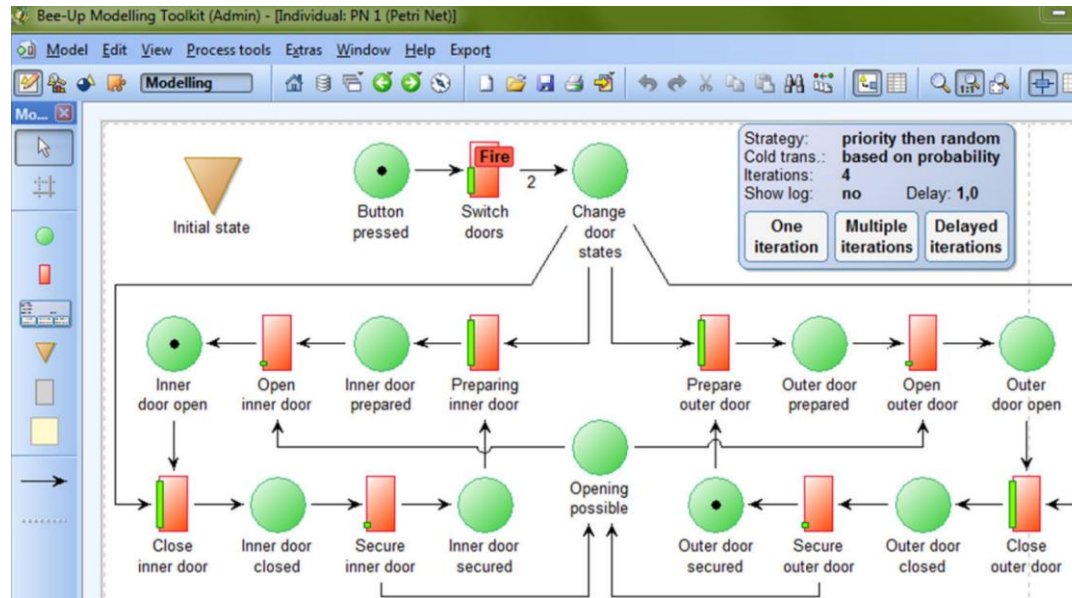
- ▶ UML (Unified Modeling Language)
 - ▶ General-purpose, developmental, modeling language in the field of software engineering that is intended to provide a standard way to visualize the design of a system.



BEE-UP

► Petri-nets

- one of several mathematical modeling languages for the description of distributed systems.



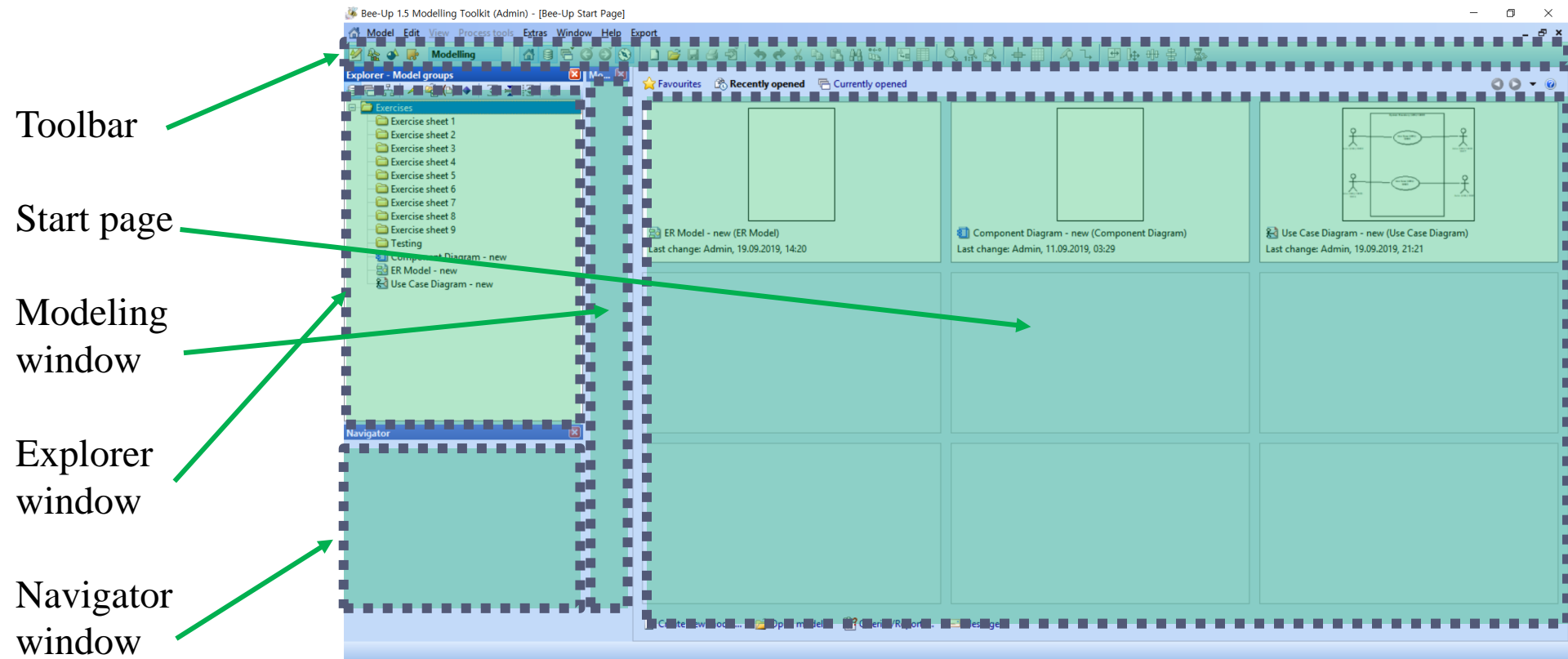
1. Overview
 - 1) BEE-UP tool
 - 2) **Modelling with the BEE-UP tool**

2)

Modelling with the BEE-UP tool

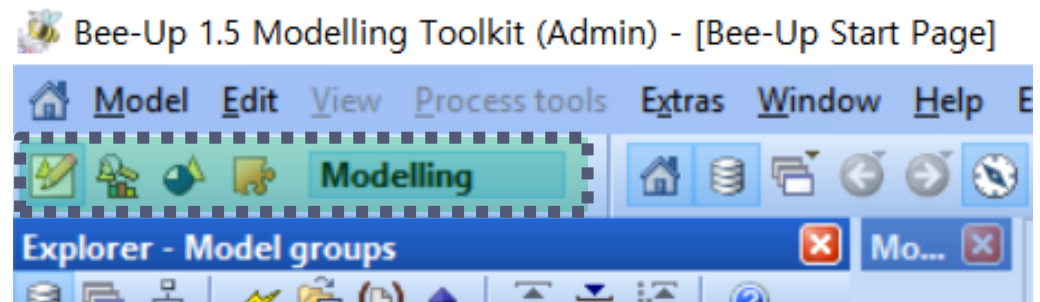
BEE-UP

► Tool overview



BEE-UP

- ▶ Tool overview
 - ▶ Toolbar
 - ▶ 4 types of components
 - ☐ Modeling
 - ☐ Analysis
 - ☐ Simulation
 - ☐ Import/export



BEE-UP

► Tool overview

► Toolbar

► Modeling

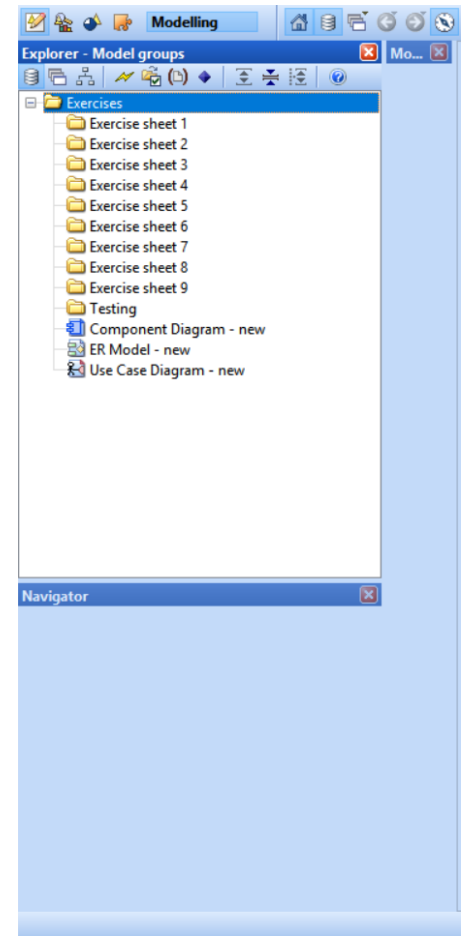
- show the modelling objects and relations available for the currently opened model

► Explorer

- show all folders (called model groups) and the models, stored in a model group

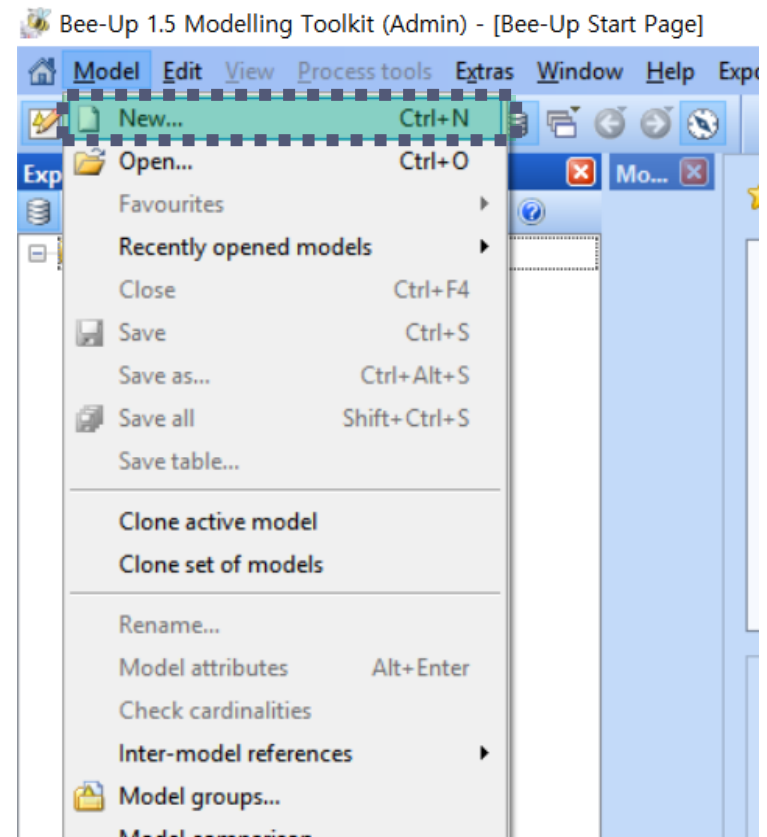
► Navigator

- show an overview of the currently opened model



BEE-UP

- ▶ Create new model
 - ▶ Menu item “Model -> New...”



BEE-UP

► Create new model

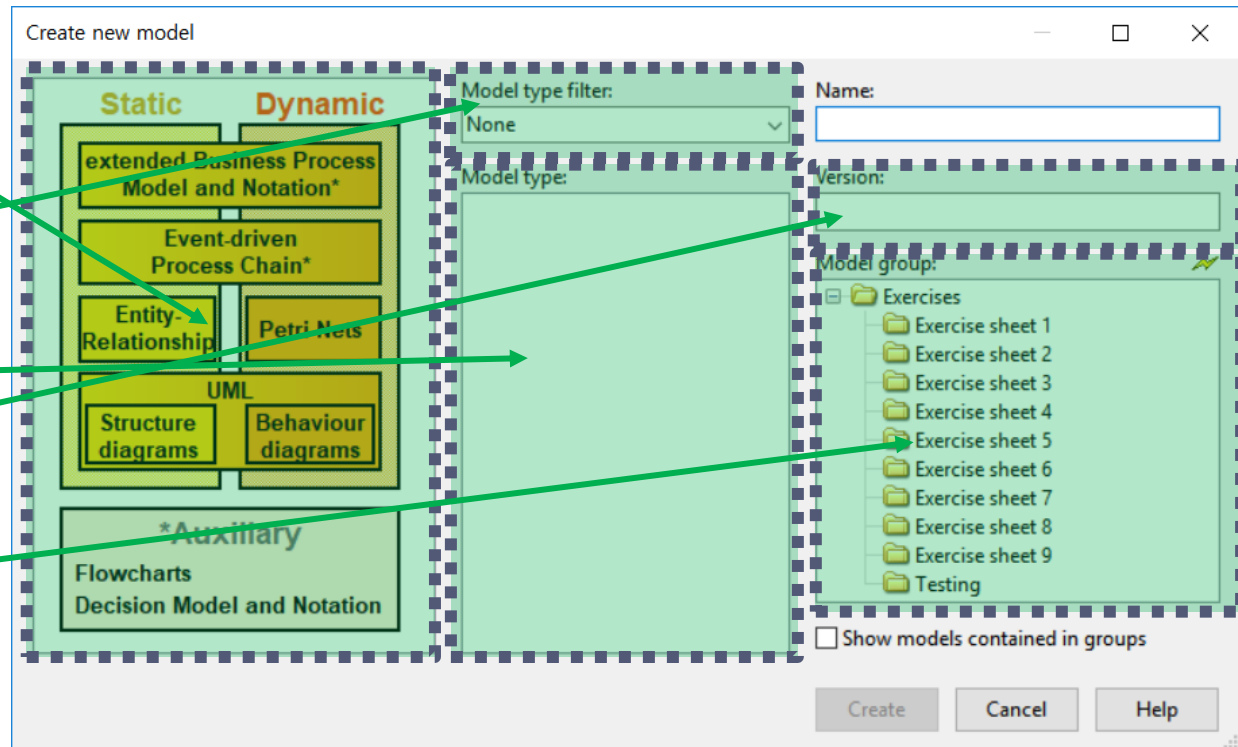
Graphical model type filter

Model type filter

Model type

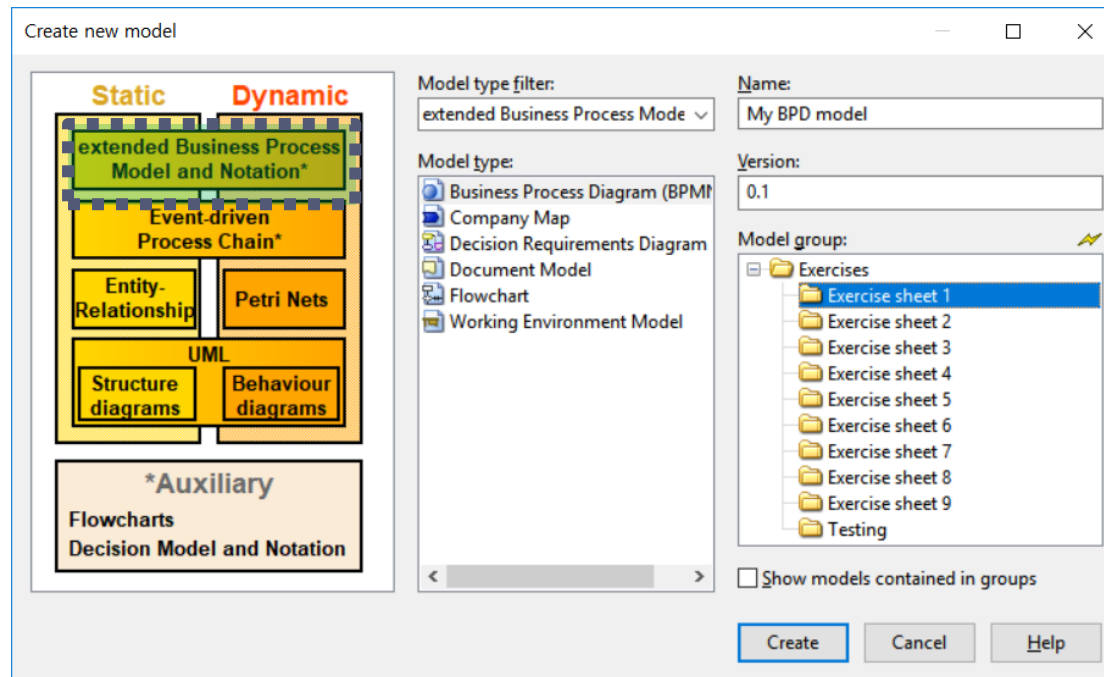
Version

Model group



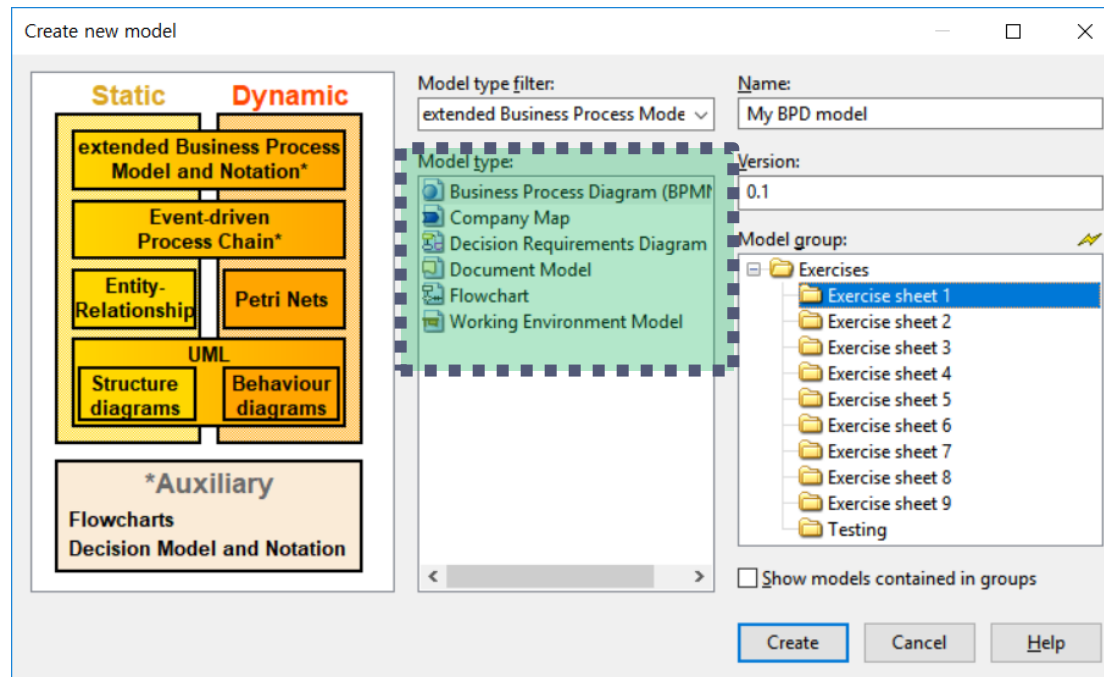
BEE-UP

- ▶ Create new model
 - ▶ ex) Create new model with model type filter
 - ▶ 1) Select graphical model type filter



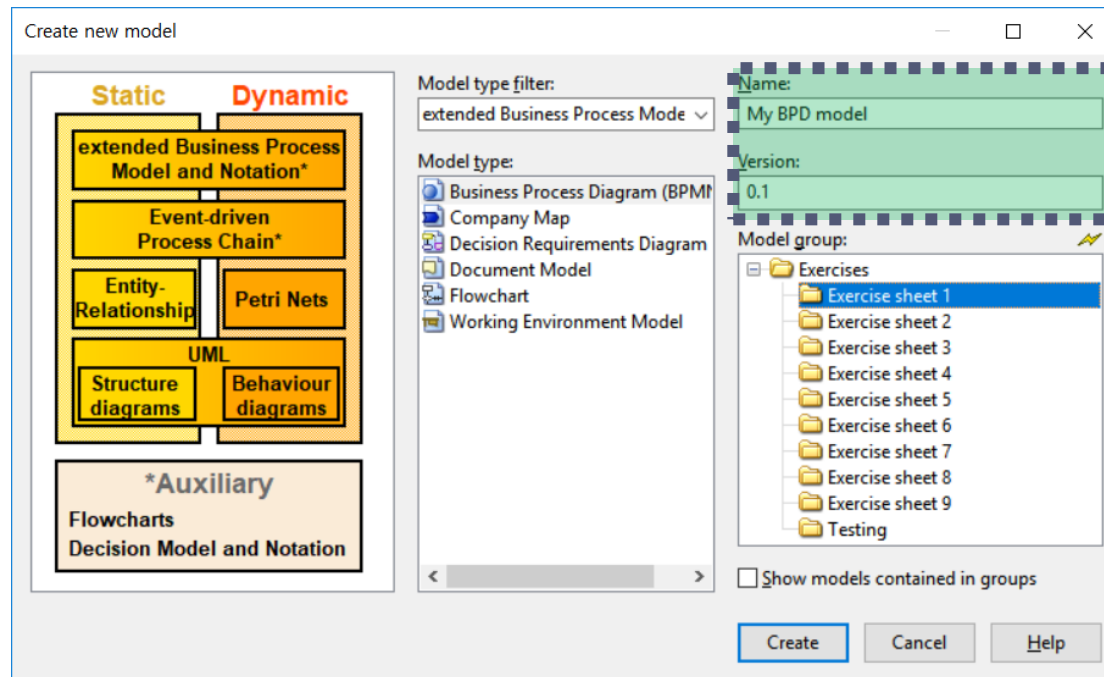
BEE-UP

- ▶ Create new model
 - ▶ ex) Create new model with model type filter
 - ▶ 2) Select model type



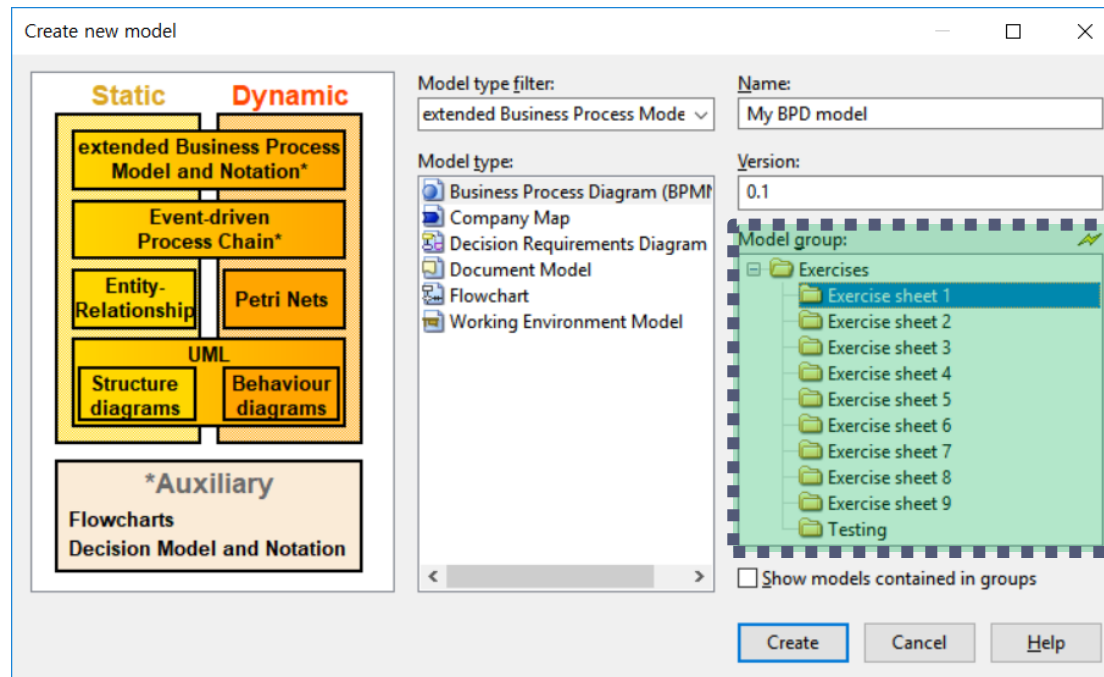
BEE-UP

- ▶ Create new model
 - ▶ ex) Create new model with model type filter
 - ▶ 3) Write name and version of model



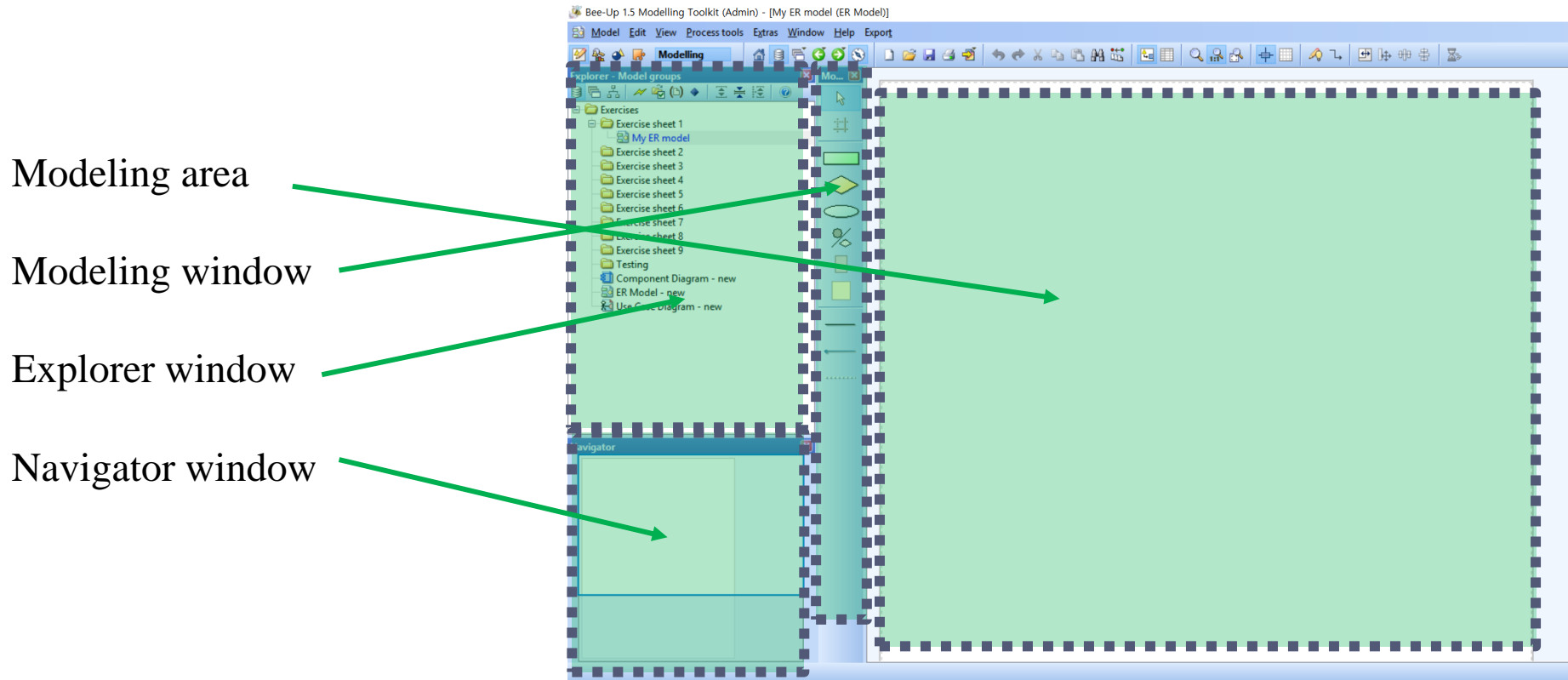
BEE-UP

- ▶ Create new model
 - ▶ ex) Create new model with model type filter
 - ▶ 4) Select model group



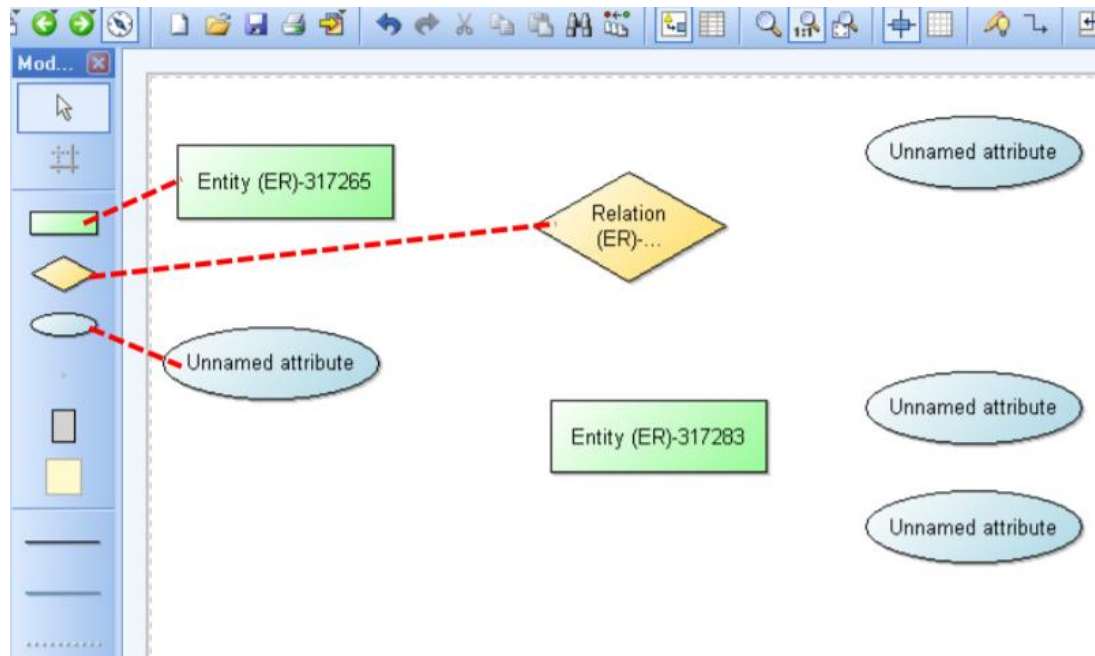
BEE-UP

► After create the model



BEE-UP

- ▶ Editing the model
 - ▶ Create new objects
 - ▶ 1) Click object in the Modeling window
 - ▶ 2) Click in the Modeling area

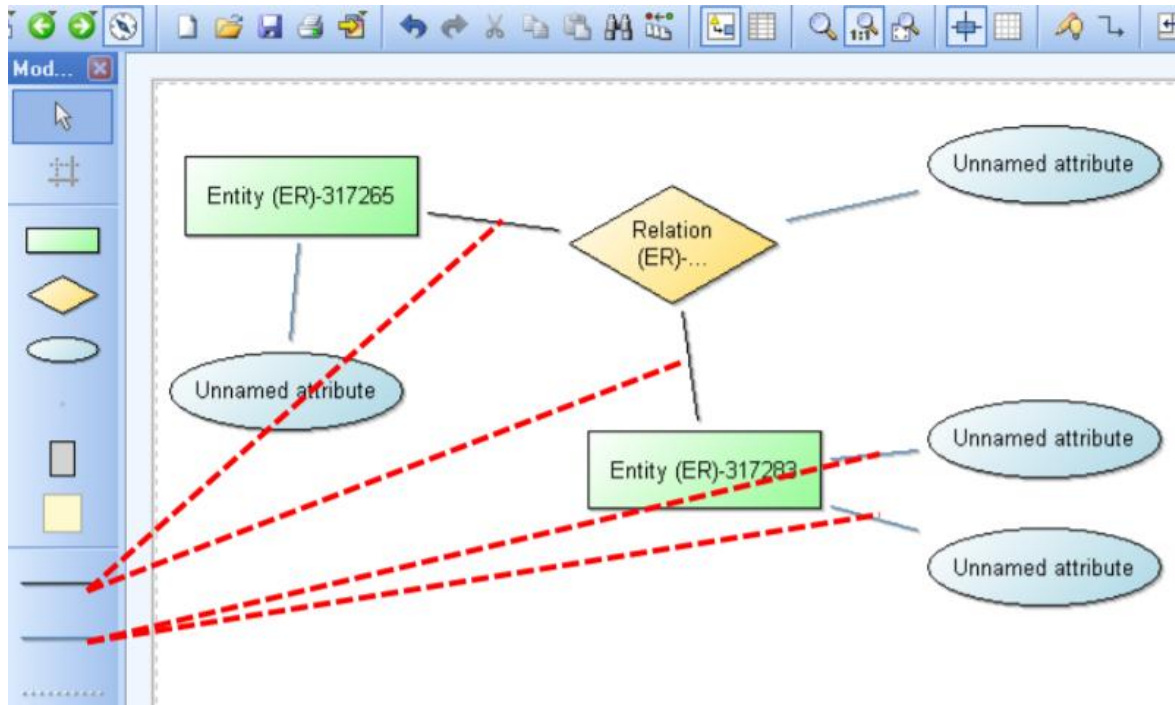


BEE-UP

▶ Editing the model

▶ Create new relations

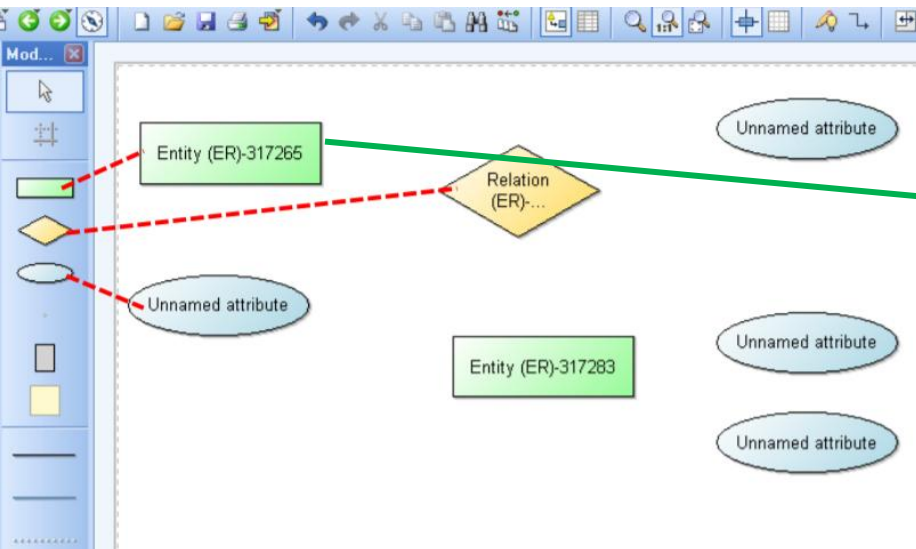
- ▶ 1) Click relation in the Modeling window
- ▶ 2) Click source and target object in the Modeling area



BEE-UP

▶ Editing attributes

- ▶ 1) Double click a object or relation
- ▶ 2) Editing attributes



Entity (ER)-317265 (Entity (ER))

Name: Entity (ER)-317265

Description:

Comment:

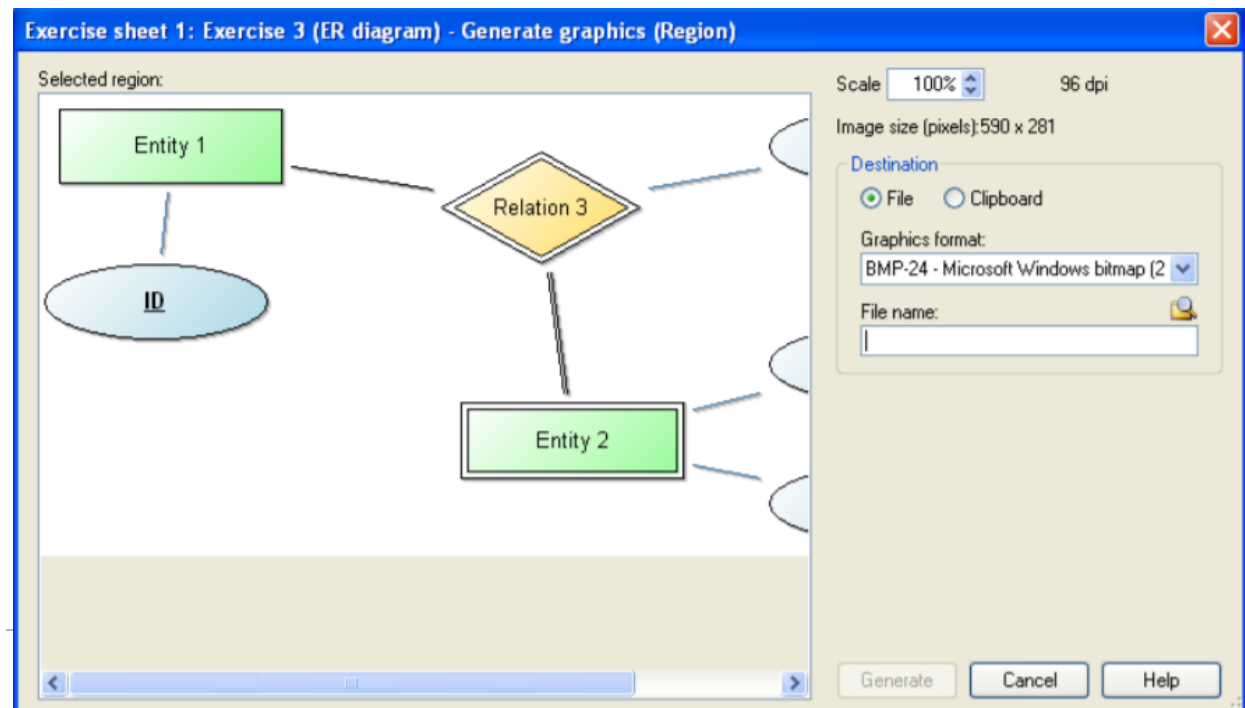
Open questions:

☐ Weak entity

Close Reset

BEE-UP

- ▶ Creating a graphic from a model
 - ▶ 1) Click “Generate graphics...”



BEE-UP

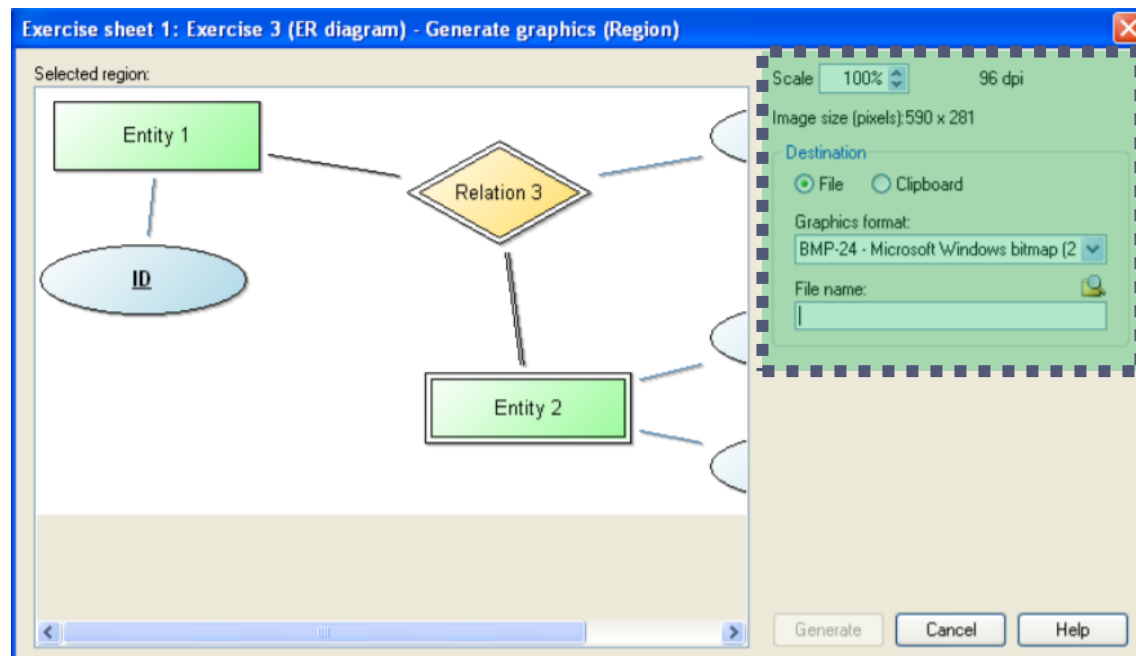
► Creating a graphic from a model

► 2) Select generate options

► Scale

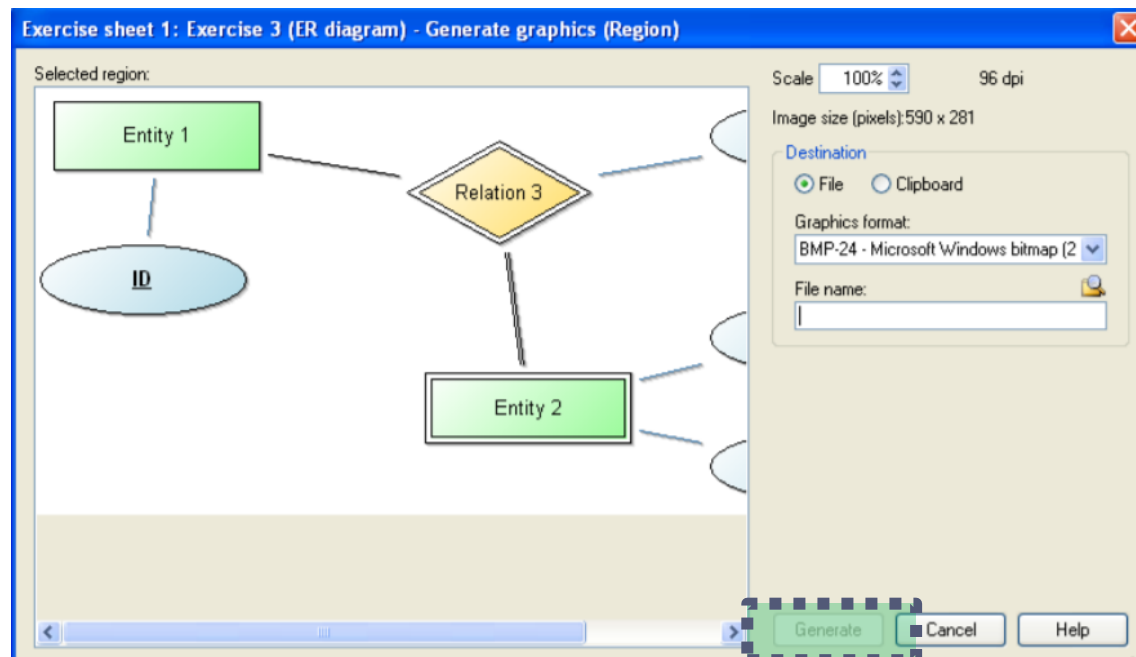
► Graphics format

► ...



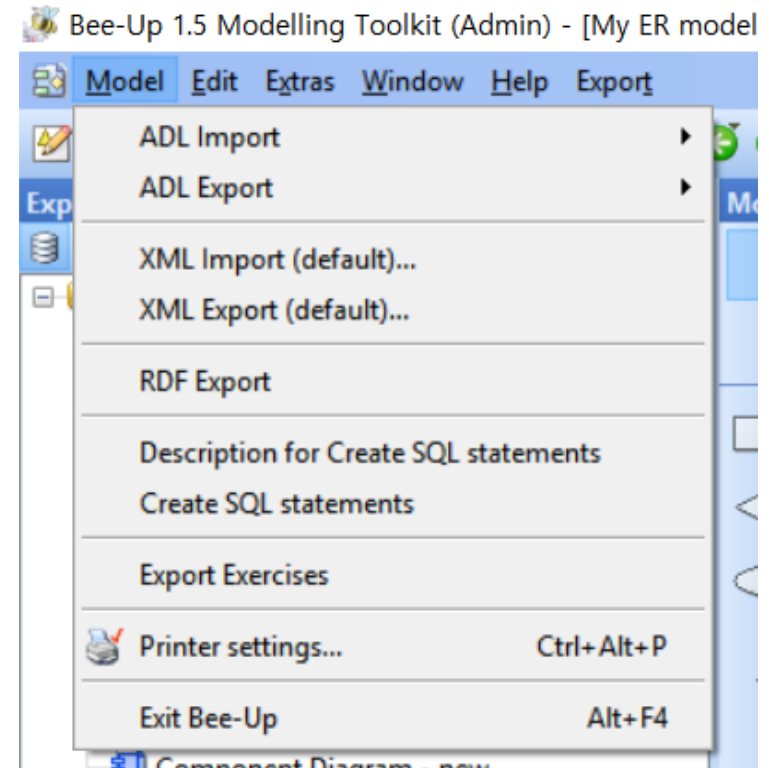
BEE-UP

- ▶ Creating a graphic from a model
 - ▶ 3) Click generate button



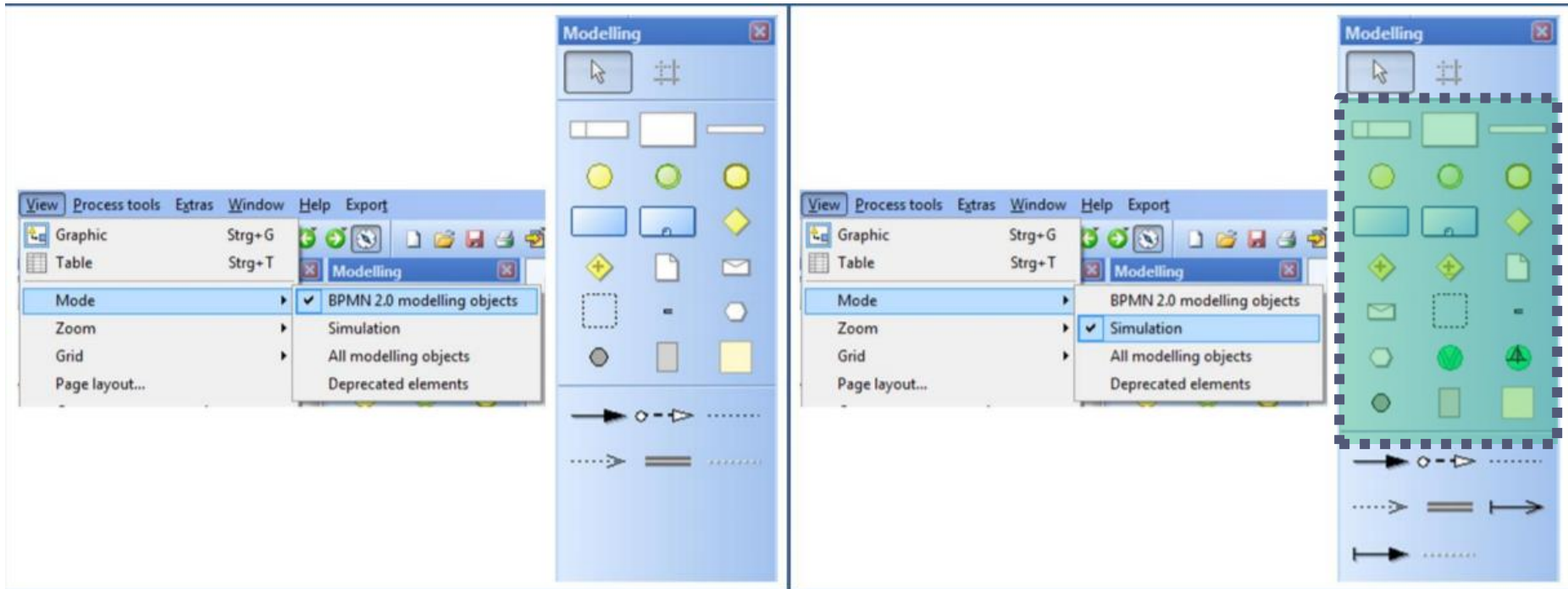
BEE-UP

- ▶ Import/export a model
 - ▶ ADL import/export
 - ▶ XML import/export
 - ▶ RDF import/export



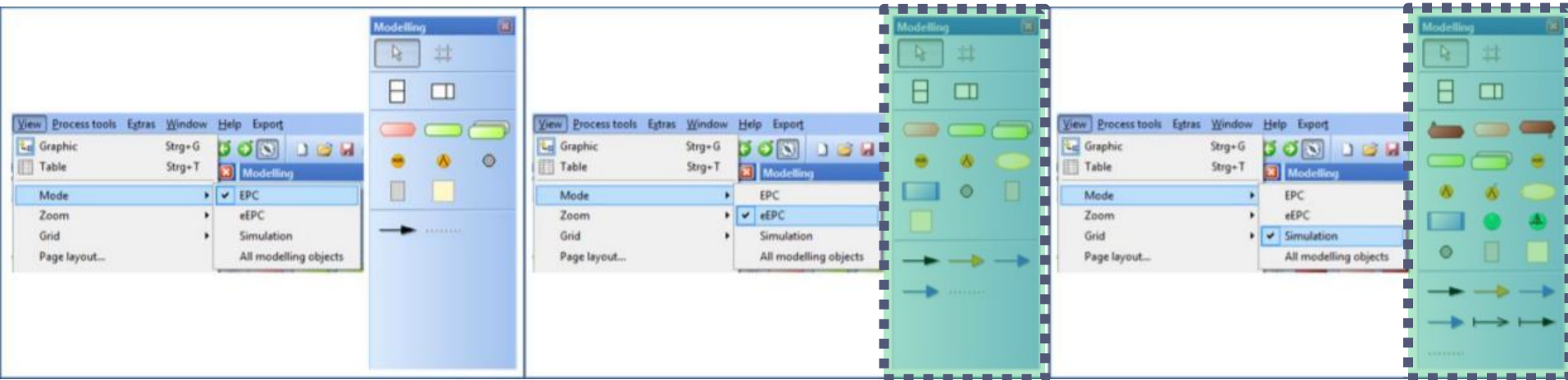
BEE-UP

- ▶ Specific information (BPMN)
 - ▶ Simulation
 - ▶ Get new class for simulation



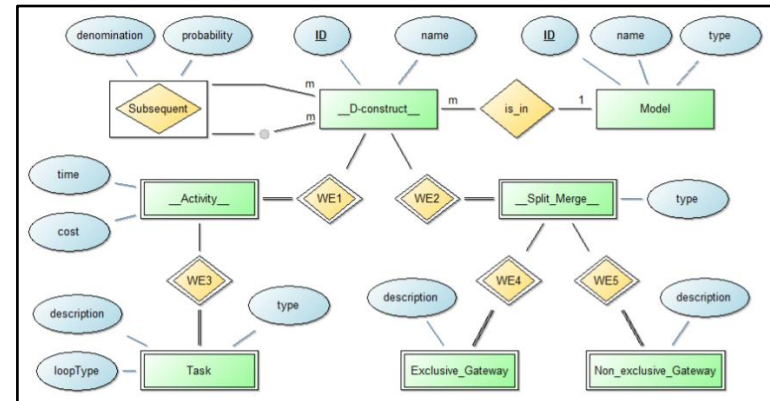
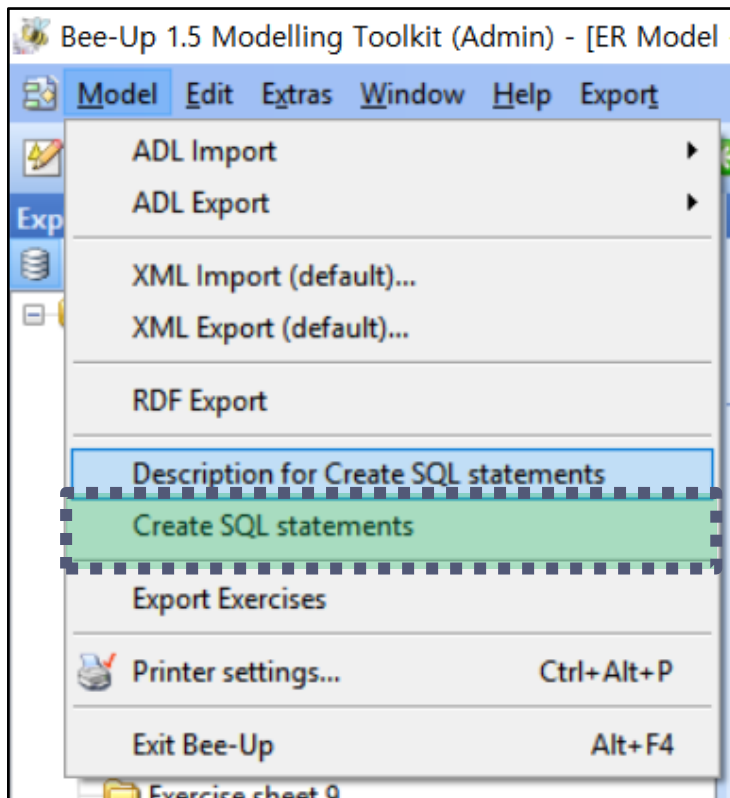
BEE-UP

- ▶ Specific information (EPC)
 - ▶ eEPC (extended EPC)
 - ▶ Organizational unit
 - ▶ Information object
 - ▶ Simulation



BEE-UP

- Specific information (ER)
- Generate SQL



```
CREATE TABLE Subsequent (
  source_ID VARCHAR(32) NOT NULL,
  target_ID VARCHAR(32) NOT NULL,
  denomination VARCHAR(128),
  probability FLOAT,
  CONSTRAINT pk_Subsequent PRIMARY KEY (source_ID,target_ID)
);

CREATE TABLE _D_construct_ (
  ID VARCHAR(32) NOT NULL,
  name VARCHAR(128),
  model_ID VARCHAR(32),
  CONSTRAINT pk__D_construct__ PRIMARY KEY (ID)
);

CREATE TABLE Model (
  ID VARCHAR(32) NOT NULL,
  name VARCHAR(128),
  type VARCHAR(128),
  CONSTRAINT pk_Model PRIMARY KEY (ID)
);

CREATE TABLE _Activity_ (
  ID VARCHAR(32) NOT NULL,
  time TIME,
  cost FLOAT,
  CONSTRAINT pk__Activity__ PRIMARY KEY (ID)
);

CREATE TABLE _Split_Merge_ (
  ID VARCHAR(32) NOT NULL,
  type CHAR(3),
  CONSTRAINT pk__Split_Merge__ PRIMARY KEY (ID)
);

ALTER TABLE Subsequent ADD CONSTRAINT fk_Subsequent_source__D_construct__ FOREIGN KEY (source_ID) REFERENCES _D_construct_ (ID);
ALTER TABLE Subsequent ADD CONSTRAINT fk_Subsequent_target__D_construct__ FOREIGN KEY (target_ID) REFERENCES _D_construct_ (ID);
ALTER TABLE _D_construct_ ADD CONSTRAINT fk__D_construct__model_Model FOREIGN KEY (model_ID) REFERENCES Model (ID);
ALTER TABLE _Activity_ ADD CONSTRAINT fk__Activity__D_construct__ FOREIGN KEY (ID) REFERENCES _D_construct_ (ID);
ALTER TABLE _Split_Merge_ ADD CONSTRAINT fk__Split_Merge__D_construct__ FOREIGN KEY (ID) REFERENCES _D_construct_ (ID);
```

BEE-UP

► Specific information (Petri Net)

► Fire

- Place
- Transition
- Arc



► Simulation

► Simulation configurator

- ☐ Select simulation options

The simulation configurator dialog box contains the following settings:

Strategy:	default
Cold trans.:	always fire
Iterations:	10
Show log:	yes
Delay:	1.0

Below the settings are three buttons: One iteration, Multiple iterations, and Delayed iterations.