## SysML Hands-On Exercises

# Exercise 1.1
# SysML Tool Familiarization

# MagicDraw

February 2017



## OBJECTIVES

The objective of this exercise is to provide the student some basic orientation and vocabulary with regard to the MagicDraw SysML modeling tool, specifically Cameo Systems Modeler (CSM) 18.4. No previous experience with CSM or similar tools is required. However, the student may be more comfortable also trying out introductory tutorials provided by the tool vendor before moving on to Part 2 of the course.

## PREPARATION

1. This exercise assumes the student has Cameo Systems Modeler 18.4 (or later) installed correctly on his or her machine with a valid license for use. The same exercise should work with MagicDraw 18.4 with the SysML plug-in with only minor differences.
2. The student should load the Part 1 course materials onto the computer, specifically Exercise 1.1 Tool Familiarization.mdzip.
3. The student should view the video Introduction to SysML Part 1 Exercise 1.0 in its entirety before attempting the exercise. In lieu of putting many screenshots in this document, we recommend reviewing portions of the video, as needed, during the exercise.

Note that additional software tools will need to be installed to complete Part 7, including a parametric solver and math engine to execute the parametric models created. If not already installed, the student should begin the process of obtaining and installing these tools. For assistance, contact info@intercax.com.

# EXERCISE

### 1.1.1 Start Cameo System Modeler

### 1.1.2 Set Perspective

- Left-click Options in menu bar
- Select Perspectives→Perspectives
- Select System Engineer as in Figure 1
- Check Expert Checkbox
- Click Apply

### 1.1.3 Opening a CSM Project

- Left-click File in menu bar
- Select Open Project
- Browse to Exercise 1.1 Tool Familiarization.mdzip
- Click Open

### 1.1.4 Exploring the MagicDraw Window Layout

- See Figure 2

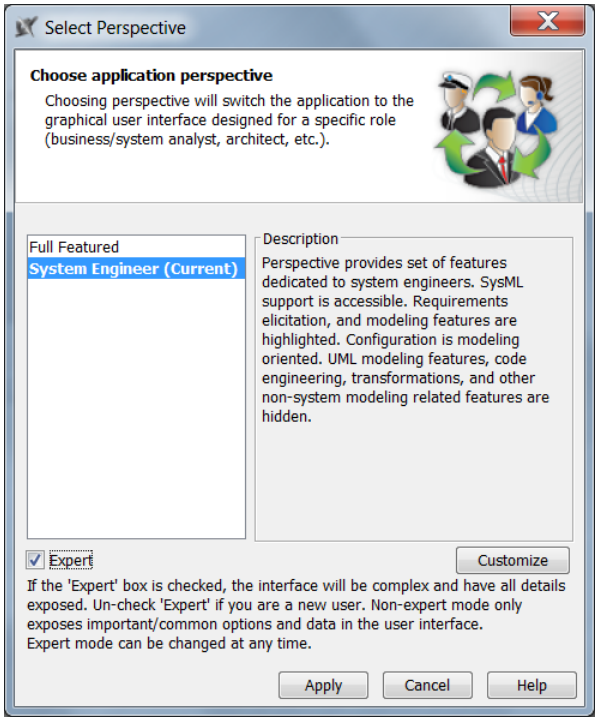


*Figure 1 Perspectives Window*

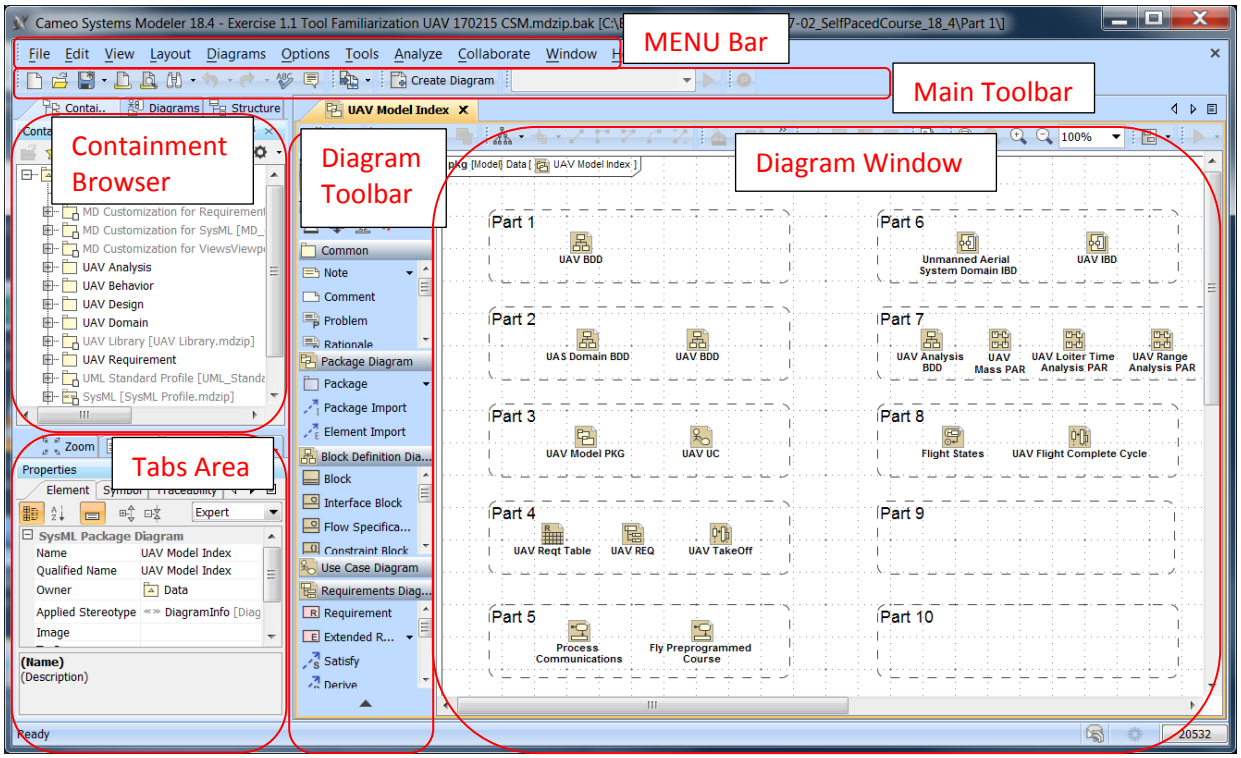


*Figure 2 MagicDraw layout*

### 1.1.5 The Containment Browser

- Explore Containment Browser
- Expand and compress hierarchy levels

### 1.1.6 The Diagram Window and Zoom Tab

- Use Zoom tab in Tabs Area to change viewing area on index diagram (Figure 3).

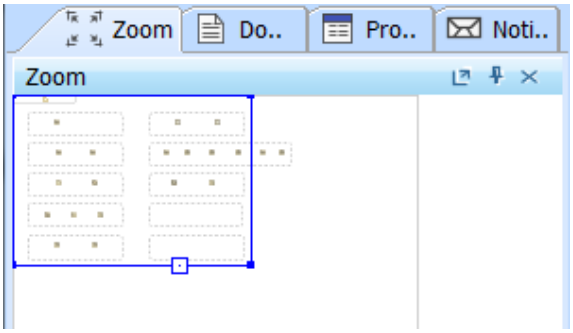


*Figure 3 Zoom Tab*

### 1.1.7 Opening the UAV BDD Diagram

- Double-click UAV BDD icon on Index diagram (Figure 4).

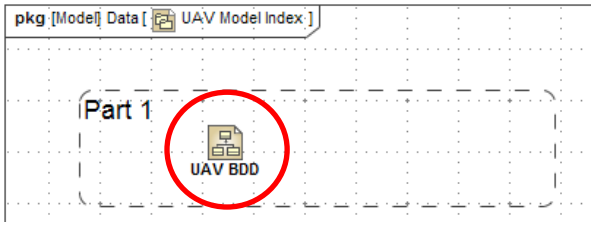


*Figure 4 Diagram hyperlink in Index diagram*

### 1.1.8 Navigating between Browser and Diagram

- To navigate from diagram to browser, right-click symbol and choose Select in Containment Tree (or Alt-B).
- To navigate from browser to diagram, right-click element and choose Go to → Usage in Diagrams. Select diagram desired.

### 1.1.9 The Properties Tab, Elements and Symbols

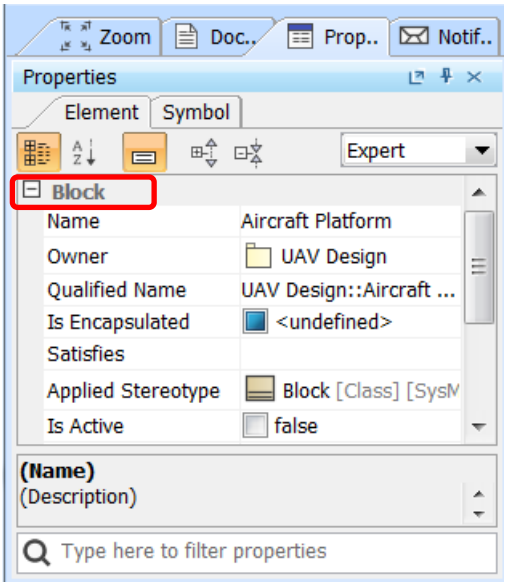


*Figure 5 Element tab under Properties tab (Element type highlighted in red)*

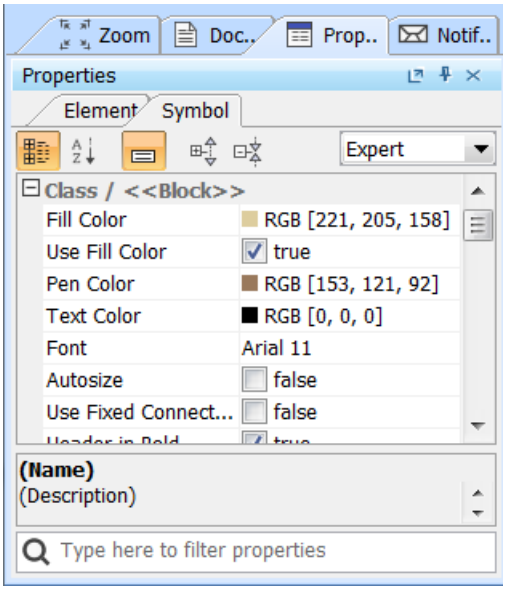


*Figure 6 Symbol tab under Properties tab*

### 1.1.10 The Specification and Symbol Properties Windows

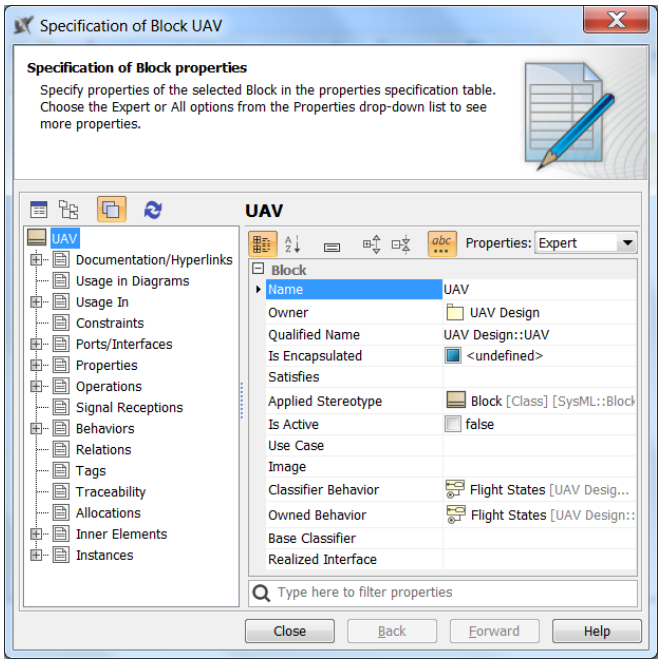


*Figure 7 Specification window*

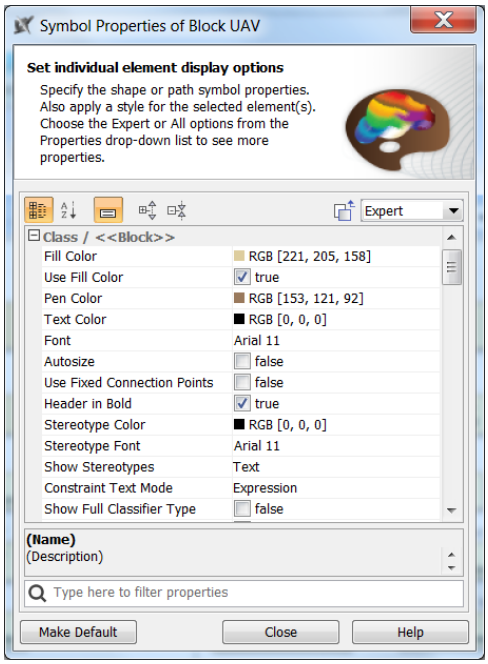


*Figure 8 Symbol Properties window*

### 1.1.11 Suppressing Compartments

- Click on square on left border of symbol (see Figure 9
- Choose compartments to display
- To hide compartment, click again and choose Suppress All

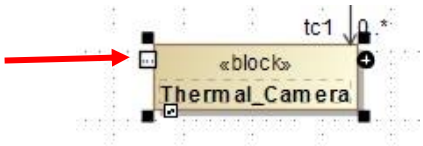


*Figure 9 Compartments icon*

### 1.1.12 Creating a new part from the Diagram Toolbar

- Click on Block in Diagram Toolbar (Figure 10)
- Click inside block definition diagram
- Enter name in block.

### 1.1.13 Creating a new part in the Containment Browser

- Right-click on package UAV Design in containment browser
- Select Create Element → Block
- Enter name of block
- Drag into block definition diagram UAV BDD

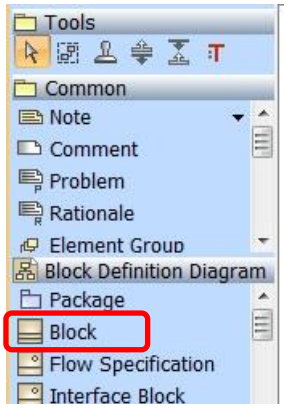


*Figure 10 Diagram Toolbar*

### 1.1.14 Adding a Note, Floating Toolbars

- Click on Note in Diagram Toolbar
- Enter text in note
- Select note (may need to unselect, then select again
- Click on Anchor icon in floating Toolbar
- Drag end of anchor onto target


*Figure 11 Floating Toolbar*

### 1.1.15 Deleting a part from a Diagram

- Select symbol in diagram and press Delete key.

### 1.1.16 Deleting a part from the Model

- Select element in Containment Browser and press Delete key.

### 1.1.17 Saving and Closing the Model

- Left-click File in menu bar and select Save Project.
- Left-click File in menu bar and select Close Project.