Adding EHR-S FM components

This document describes the way new components, sections, headers, functions and/ or conformance criteria can be add to a Functional Model or Profile with support of the EHR-S FM Profiling Tool. As an alternative for using the custom Toolbox it is also described how to add elements without the toolbox option. This is described at the end of this chapter.

1. Add a Section

Adding a section in the Functional Profile is not allowed. If a Realm wants to add a section and stay conformant with the EHR-S FM, then the Realm shall discuss this with the HL7 International EHR WG.

In case of a new release of the EHR-S FM a new section can be added.

To add a new section follows the next steps:

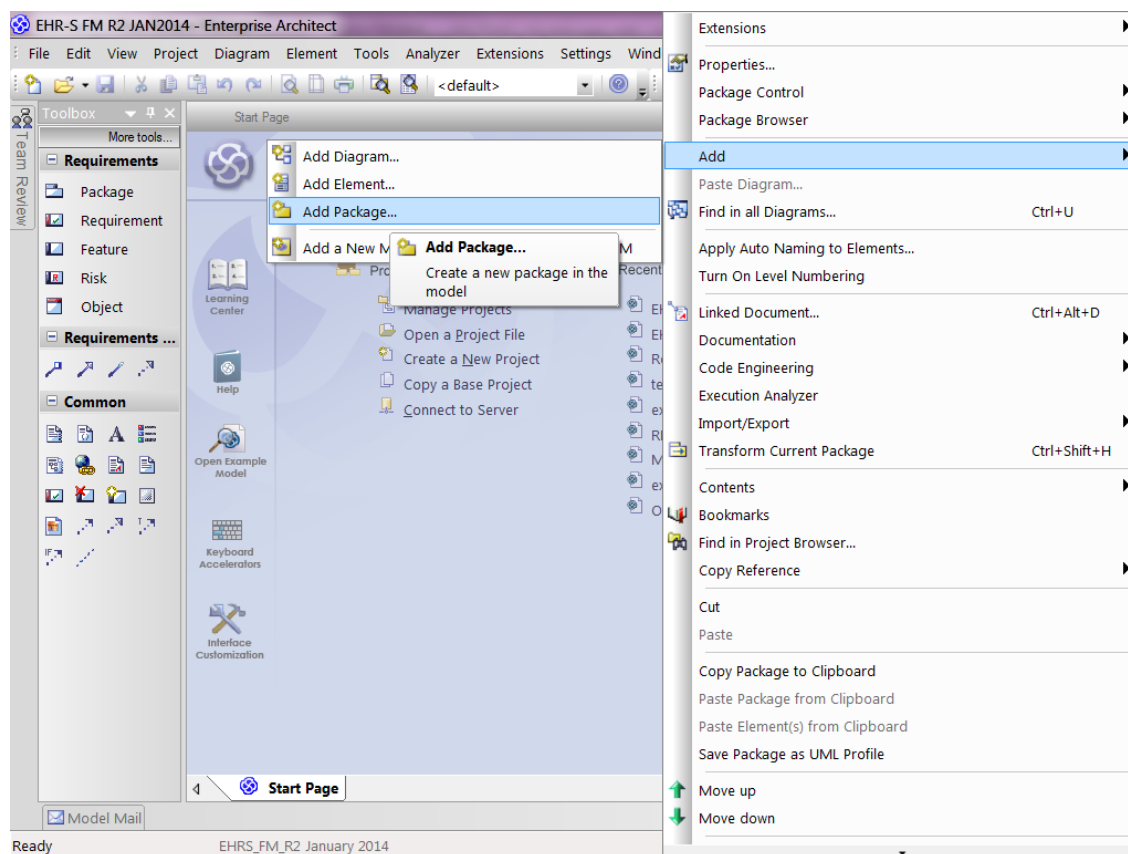• Click right on the EHR-S FM Package and add a package. See figure 1.

Figure 1. Add a package to create a new section.

- Give the section a name in the Name field. See figure 2. You don't need to add automatically a new diagram.
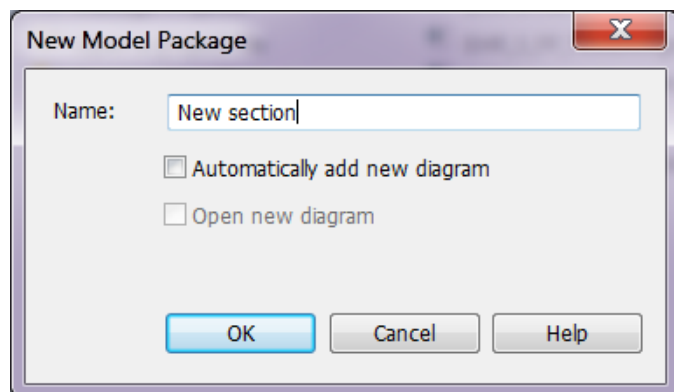

Figure 2. New package for a new section.

- The new section is shown in the project Browser. See figure 3.
- The Type of the section in the properties field is Package.
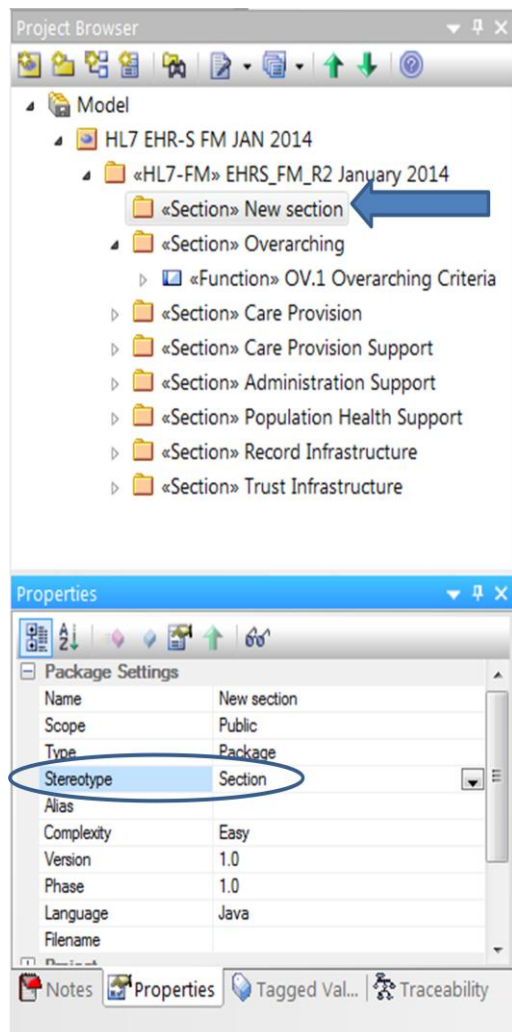- The Stereotype in that field is Section. Assign this stereotype manually. See figure 3.

Figure 3. New section in Project Browser, including Type and Stereotype.

In the new section headers, functions and criteria can be added.

2. Add a function

The addition of a new function can be done in both the Functional Model when creating a new release, as in the Functional Profile. Both are described here.

Adhere to the rules of adding a new function in a new Functional Profile. This is described in chapter 6 of the standard, 'HL7 EHR-System Public Health Functional Profile, Release 2'.

Add a function in the Functional Model

The addition of a new function in the new Functional Profile is done in the Profile Definition.

To add a new function in the Functional Model follows the next steps:

- Create a diagram of the parent for which you want to create a new child function. See chapter Traceability Elements.
- Select in the toolbox the option 'More tools' and select the HL7 FM toolbox. See figure 4.
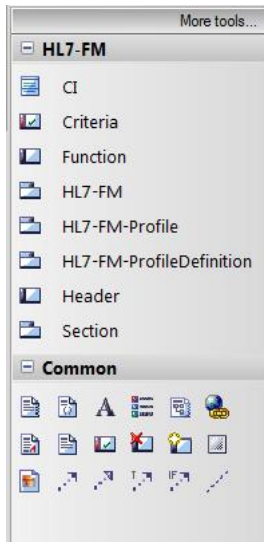

Figure 4. The HL7 FM Toolbox.

- Drag a new function from the HL7 FM Toolbox to the diagram. See figure 4.
- The Type of the new function is Feature.
- The Stereotype of the new function is Function.
- Both are included, because the HL7 FM Toolbox was used.
- Connect the new function to the parent with an aggregation type of connector. See figure 5.
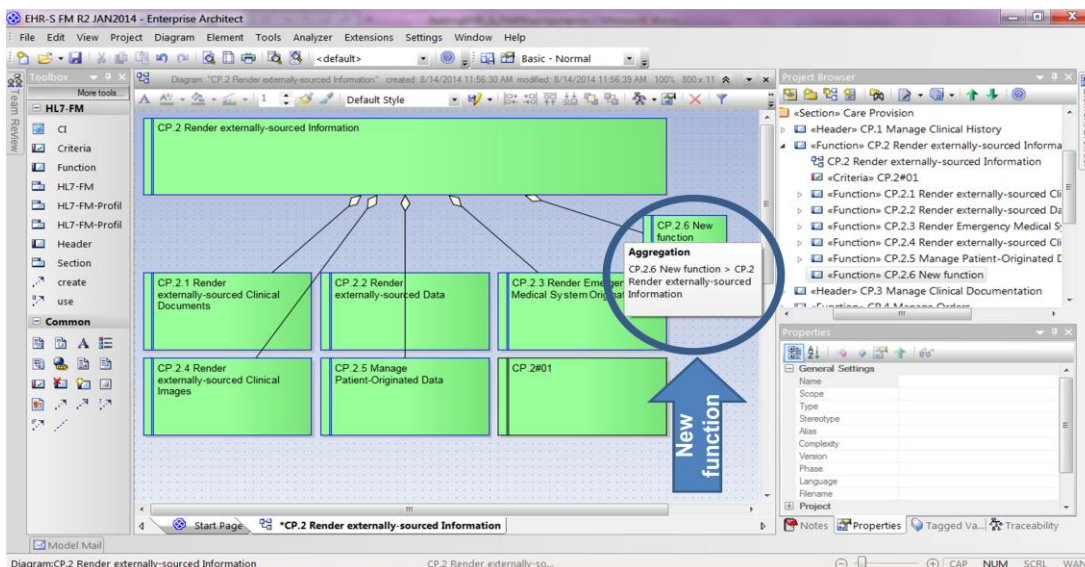
Figure 5. New child function created in a diagram.

Add a function in the Functional Profile

The addition of a new function in the Functional Profile is done in the Profile Definition. You need to follow the rules, see the How_to_Guide, chapter 4 Selecting Functions.

To link the new function to a Header or section, the parent, a UML model needs to be created. Follow the next steps:

- Add a new diagram to the package Profile Definition. See figure 1. However now you choose to add a diagram instead of adding a new package.
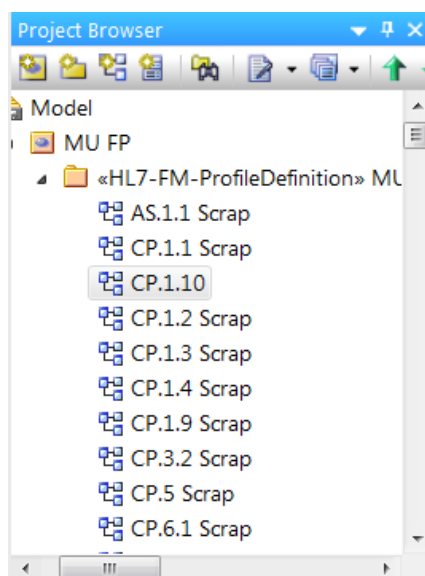- Give the diagram a name. See figure 6 as an example.

Figure 6. A diagram for adding new functions.

- Drag the parent class from the base model to the diagram. EA will ask you for the type of relationship. Select Link as in figure 7.
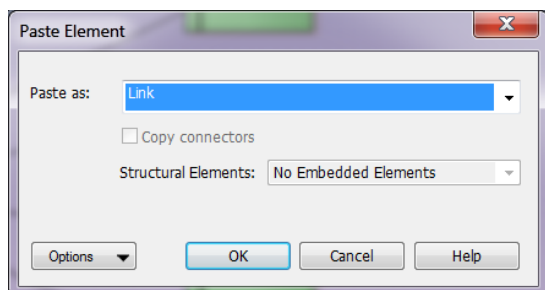

Figure 7. Relationship to the base model.

- Drag a new function from the HL7 FM Toolbox to the diagram. See figure 4.
- The Type of the new function is Feature.
- The Stereotype of the new function is Function.
- Both are included, because the HL7 FM Toolbox was used.
- Connect the new function with an Aggregation to the whole connector from the new function to the parent from the Base Model. See figure 8.
- Select the new function, and click on the small arrow, hold and drag a connector, select Aggregation to the whole.
- (from Care Provision) indicates that this class is coming from the base model.
- Notice that the new function has the right color belonging to the section in where they were created. This is because of the use of the ID. If you change the ID, for example CP to TI, the color will change automatically to the color belonging to CP section.
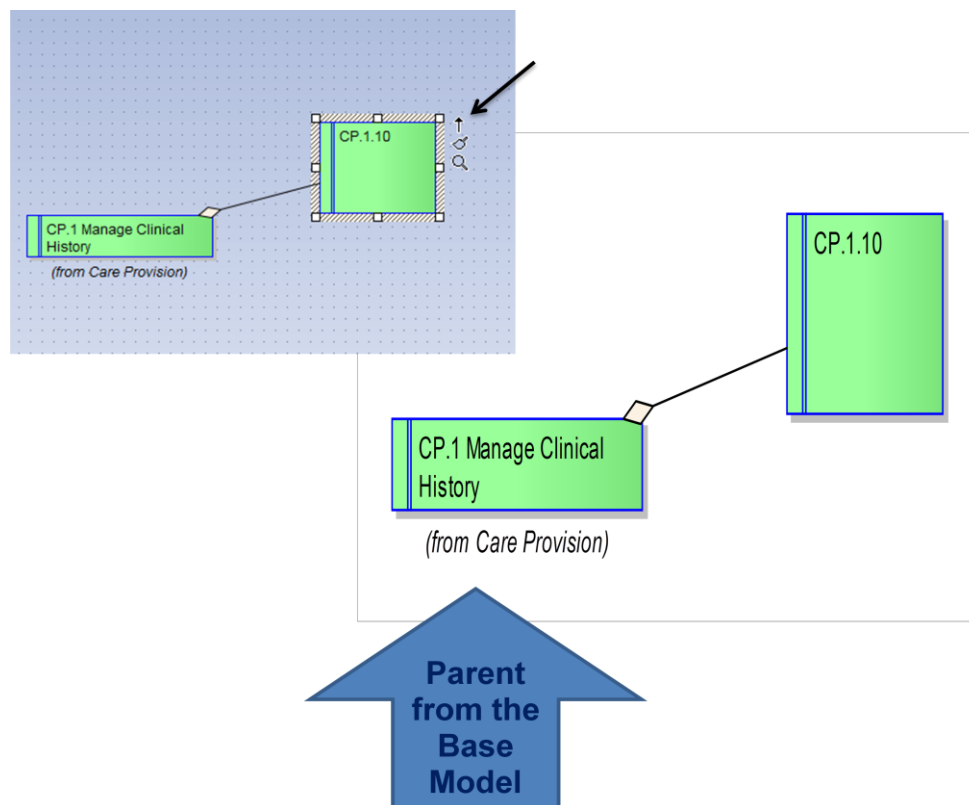

Figure 8. Model for new function.

3. Add a criterion

The addition of a new criterion can be done in both the Functional Model when creating a new release, as in the Functional Profile. Both are described here.

Add a criterion in the Functional Model

To add a new criterion follow the next steps:

- Create a diagram of the function in where you want to create a new criterion. See chapter Traceability Elements in part Browse.
- Select in the toolbox the option 'More tools' and select the HL7 FM toolbox. See figure 4.
- Drag a new criterion from the HL7 FM Toolbox to the diagram. See figure 4.
- The Type of the new function is Requirement.
- The Stereotype of the new function is Criteria.
- Both are included, because the HL7 FM Toolbox was used.
- Connect the new criterion to the function. The connector that is used is coming from the toolbox of a class diagram. See figure 9.
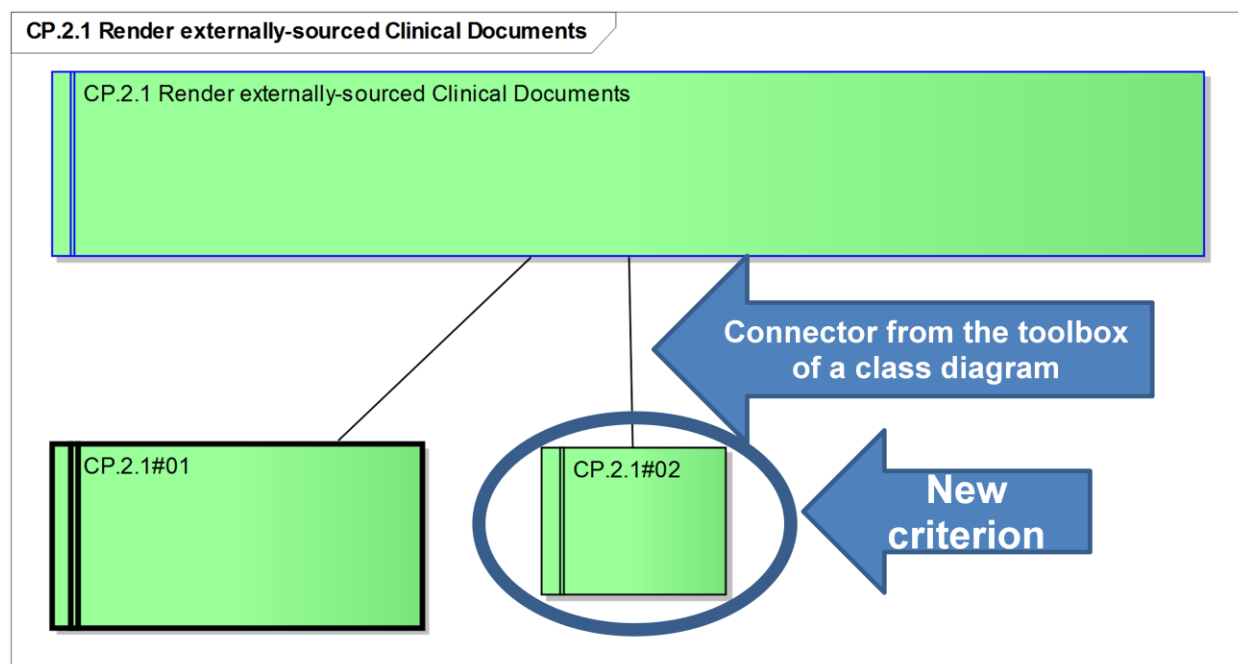

Figure 9. The addition of a new criterion to a function.

Add a criterion in the Functional Profile

The addition of a new criterion in the Functional Profile is done in the Profile Definition. Again, adhere to the rules of creating new conformance criteria. To link the new criterion to a function a UML model needs to be created. Follow the next steps:

- Add a new diagram to the package Profile Definition. See figure 1. However now you choose to add a diagram.
- Give the diagram a name. See figure 6 as an example. In the example the ID of the function was used for the name.
- Drag the function, in which you want to add a new criterion, from the Base Model to the diagram.
- Drag a new criterion from the HL7 FM Toolbox to the diagram. See figure 4.
- The Type of the new function is Requirement.

- The stereotype of the new function is Criteria.
- Both are included, because the HL7 FM Toolbox was used.
- Connect the new criterion with a Compose connector from the toolbox (of the class diagram toolbox). See figure 10.
- Notice that the new criterion has the right color belonging to the section in where they were created. This is because of the use of the ID. If you change the ID, for example TI to CP, the color will change automatically to the color belonging to CP section.
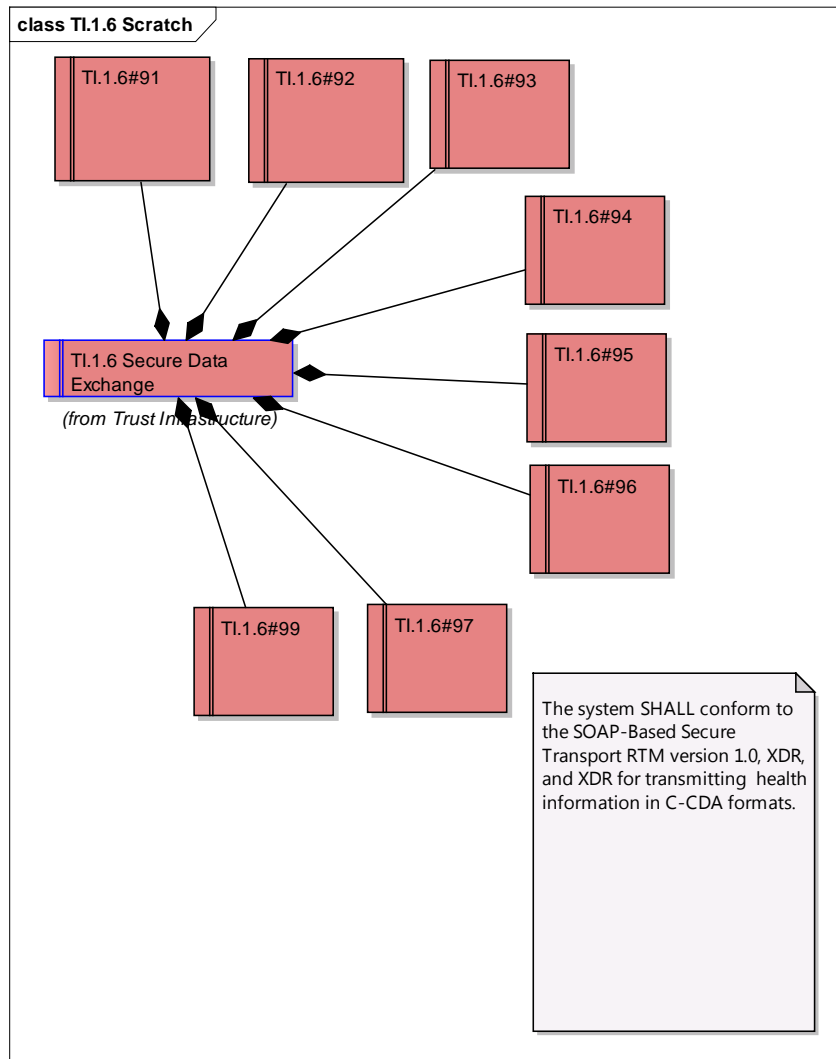

Figure 10. Model for new criteria.

NOTE: After the models are created and saved, the diagram can be deleted. However, in the process of a FP development it is possible that it is necessary to add more new functions and/or criteria to the same parent. You can use the diagram you already created.

NOTE: During the development of the Meaningful Use Functional Profile I created several diagram for the addition of criteria. For me is was more clear to do it this way instead of creating a big overall diagram.

What if there is no Toolbox for the HL7 FM?

It can happen that in a newer version of EA the Toolbox HL7 FM is not working. If this is the case, you still can add new functions and criteria to the Profile Definition of your new Functional Profile.

- Add a diagram to the Profile Definition as described above.
- Drag the parent for the new function from the Base Model into the empty diagram field. Or drag the function in which you want to create new criteria from the Base Model into the empty diagram field.
- Right-click in the empty diagram field.
- Select New Element or Connector, select 'Other' and then 'Requirements' and after that 'Feature' for a function or 'Requirement' for a criterion. See figure 11.
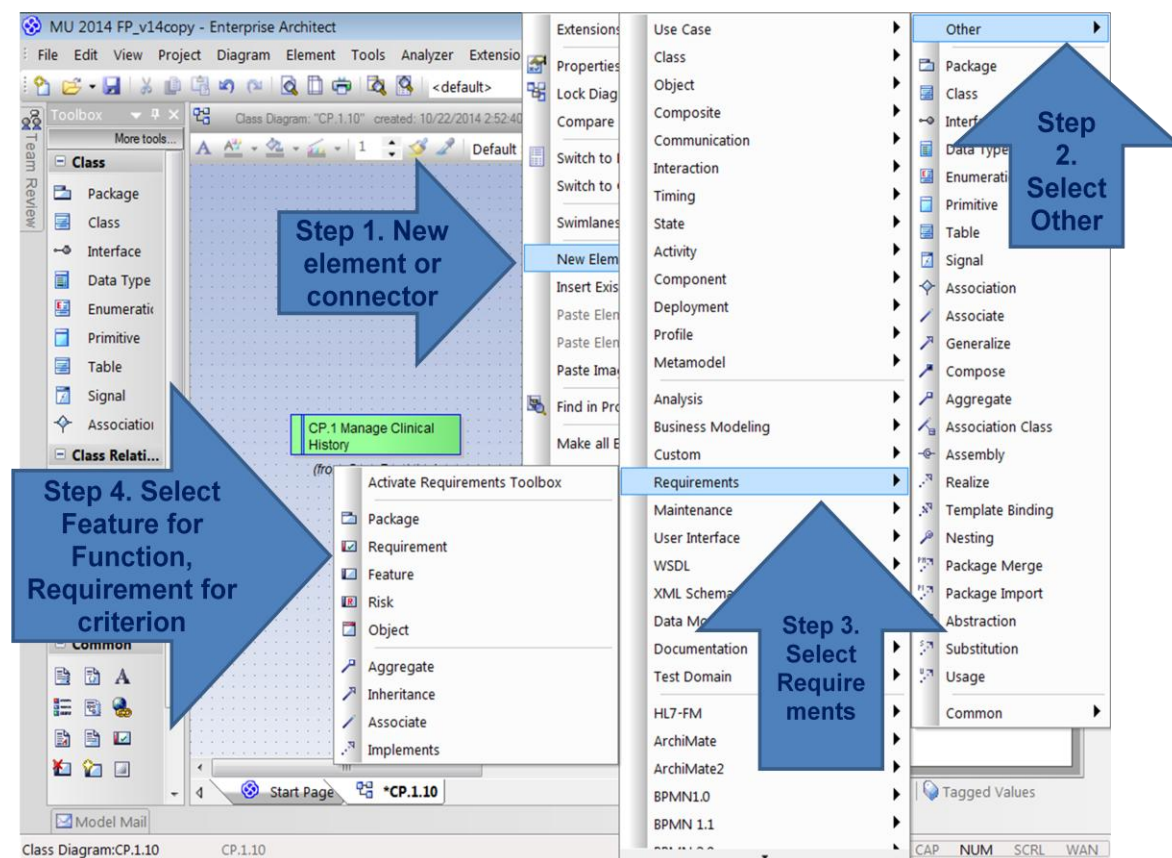

Figure 11. Adding functions and criteria in a diagram.

- The Properties window will open. See example in figure 12. Click OK.

Figure 12. Properties of a new function.

- Review the properties in the Properties window underneath the Project Browser.
- The Type in the properties for a function is Feature and for a criterion is Requirement.
- Change the Stereotype: for a function this is Function, for a criterion this is Criteria.
- Now the class in the diagram will get the corresponding color for the section in where the function/ criterion are created.
- Connect the new function to its parent with a connector 'Aggregation to the whole'. This is dragging the small arrow next to the class to the parent. EA will ask you which connector you want to use.
- Connect the new criterion to the function with the Compose connector form the Class Toolbox in EA.
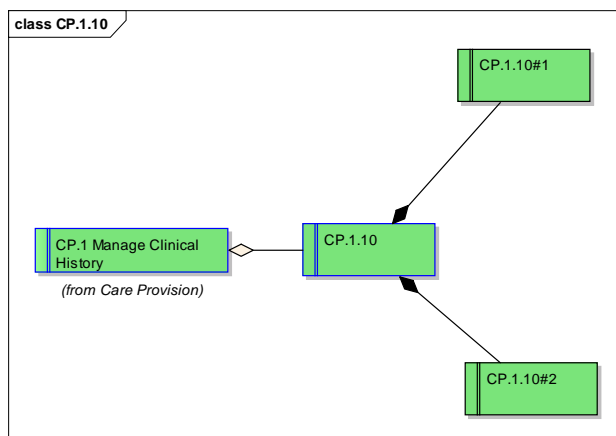- Save the diagram.

Example:

Figure 13. Created diagram without custom toolbox for HL7 FM.

You also see the new function and criteria in the Profile Definition in the Project Browser.