

DOORS Analyst
Tutorial

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- Can you reproduce the problem? If so, what steps do you take to reproduce it?
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1

DOORS Analyst Tutorial

Introduction

Purpose of this tutorial

The purpose of this tutorial is to make you familiar with DOORS Analyst and the UML language. This tutorial primarily addresses persons with knowledge of the basic concepts of how to work with requirements modules in DOORS and also have a basic UML knowledge.

You will restore a module into DOORS and create a couple of UML diagrams in it using DOORS Analyst.

This tutorial provides step-by-step instructions on how to produce the UML diagrams. The instructions in this tutorial should be complete to let you perform all steps, but will not in detail describe normal actions in DOORS or DOORS Analyst. More information on the various work procedures can be found in the on-line help.

Note

DOORS Analyst has a separate on-line help that can be activated from DOORS through the Analyst menu.

From Module to UML

Restore the Module

This first section covers the import and restore of a requirements module and how to add UML elements to this module.

1. Open your DOORS project and go to the File menu. Restore the requirements module System_requirements.dma into DOORS. The System_requirements.dma is located at the following default location “C:\Program Files\Telelogic\DOORS_Analyst_3.1\Locale\en”
2. Enable the module for DOORS Analyst. This is done from the Analyst menu with the command **Enable analyst**.

Note

You get two new columns in the DOORS module indicating the element type. One of the columns displays a multi valued attribute and the other holds an icon indicating the type of UML element.

3. Add a new chapter called ‘Use Cases., in the module. Use the ‘Insert UML’ menu to insert three use cases. Your module should now look like [Figure 1 on page 3](#).

System	Display to level	Object Type
1 Radar data processing		
	The system shall receive radar messages containing Track Information (Position, Heading, Height, Speed, Identification.	
	The system shall assign a track ID to each track	
	The system shall check the Nationality code	
	The system shall accept and process landing and take-off commands	
	The system shall issue commands for guiding landing and take-off	
2 Guiding System		
	The system shall connect to a guiding system in commercial aircraft	
	The system shall interact with the radar system	
3 Display System		
	The system shall be able to connect to an optional display subsystem	
	The system shall display radar tracks on a CRT display	
4 Use cases		
<input type="radio"/>	4.1 TrackLandingTakeOff	Usecase
<input type="radio"/>	4.2 CheckNationality	Usecase
<input type="radio"/>	4.3 TargetGuiding	Usecase

Figure 1: DOORS module with use cases

Edit in DOORS Analyst

This section is about creating diagrams in DOORS Analyst and adding elements from a selection based on the DOORS objects created.

4. Select one of the use cases and choose **Edit in Analyst**. DOORS Analyst will pop up with the *Model Navigator* active. From the New symbol tab you create a new use case diagram that contains the selected use case.

Important!

When you move between DOORS and DOORS Analyst you should always use Edit in Analyst or by double-clicking on a diagram. When you move from DOORS Analyst to DOORS you should always close the Analyst window or use the shortcut command Edit in DOORS. This will ensure that your elements are properly synchronized. It is also possible to perform an explicit save in DOORS Analyst before changing to the DOORS window.

5. In the use case diagram right click on the drawing area and select 'Show Elements'. You will now have the possibility to select all the use cases you want to display in this diagram. The 'Show Elements' dialog displays all defined UML elements that are of the correct type for the current diagram. Select all the defined use cases and press OK.
6. Edit your diagram to look like [Figure 2 on page 4](#) and save it. Use the diagram element toolbar to insert the actors and the subject symbol.

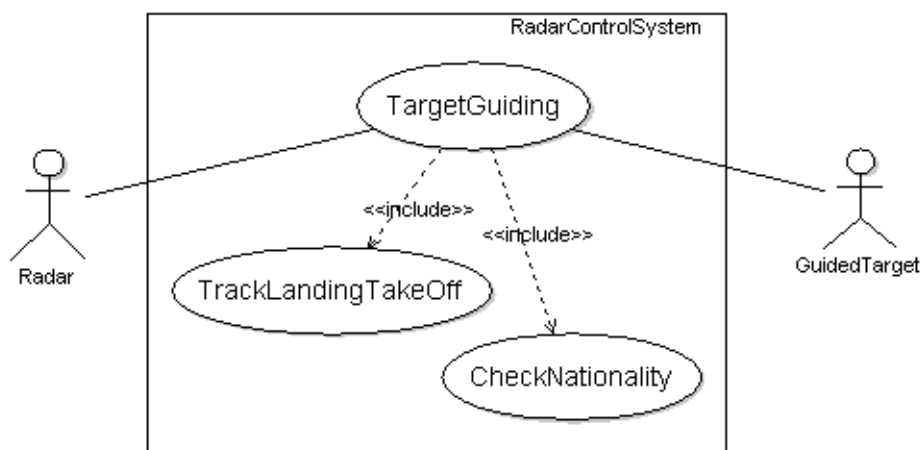


Figure 2: Use case diagram with actors

Note

We have added three new UML elements, a Subject and two Actors. When you save the diagram those are synchronized back into the DOORS module. A picture of the diagram is also transferred into the requirements module.

7. Save the model from the DOORS Analyst window.

DOORS Analyst does not know where to put the elements so it may be necessary to rearrange the new elements and put them at a correct place in the requirements module. You edit them like any normal DOORS objects, and they will at subsequent synchronizations hold their position in the requirements module.

Adding a Diagram

Another way to add visual UML information to the requirements module is to directly add diagrams at the correct place in the requirements module.

8. Add a new chapter called **Domain Model** in your requirements module.
9. In the chapter Domain Model add a class diagram using the **Analyst** menu choice **Insert UML**, select **Diagram Below**, then point to **Class Diagram**.
10. Double click the new diagram object and the DOORS Analyst window will open with an empty class diagram. Edit it to look like [Figure 3 on page 6](#).

Hint

*To create an active class you right-click on the class symbol and select **Active** in the shortcut menu. To create a composition you select the class symbol and use the left most handle to drag an association line to the part class. Then point to the line close to the originating class and select **Composition** on the shortcut menu. Finally type in the part name next to the part class in the right/upper text field.*

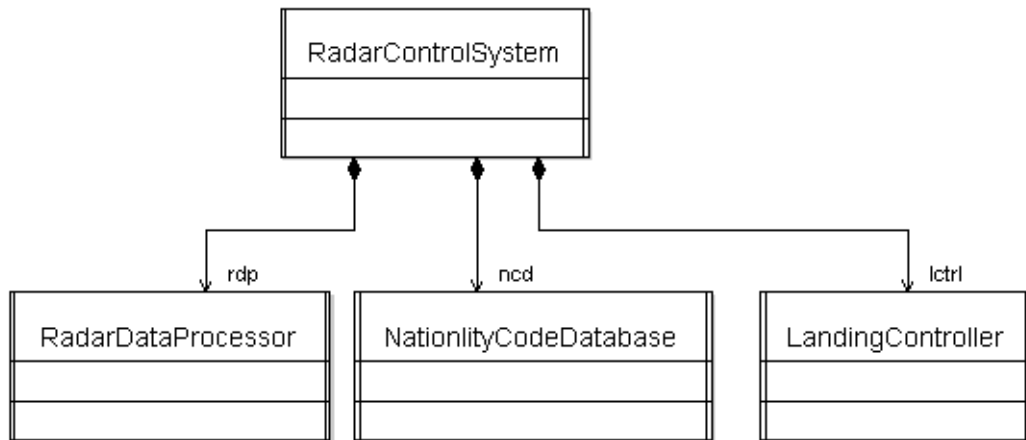


Figure 3: Class diagram with associations

11. Save from DOORS Analyst and go to the DOORS view. Move the new UML elements in the requirements module to a suitable place.

Additional features

In this section you will be guided through a couple of other features in DOORS Analyst.

Icon file

It is possible to replace the symbols in the diagrams with an image of your own. For this to work you must prepare a bitmap file to represent one of your elements.

Important!

It is recommended that you keep your image files in a well defined location that is common for all users that should be able to view the documents.

12. To insert an icon of your choice you must first enable the add-in. Go to the **Tools** menu and select **Customize**. Select the **Add-ins** tab. Check the ImageSelector add-in.

Note

To enable the menus you right-click in the tool bar area and select Menu bar.

13. Go to the use case diagram and select an element, for example one of the actors. Right-click and select **Load image** from the shortcut menu. Use the file browser to select a bitmap file of your choice. See [Figure 4 on page 7](#).

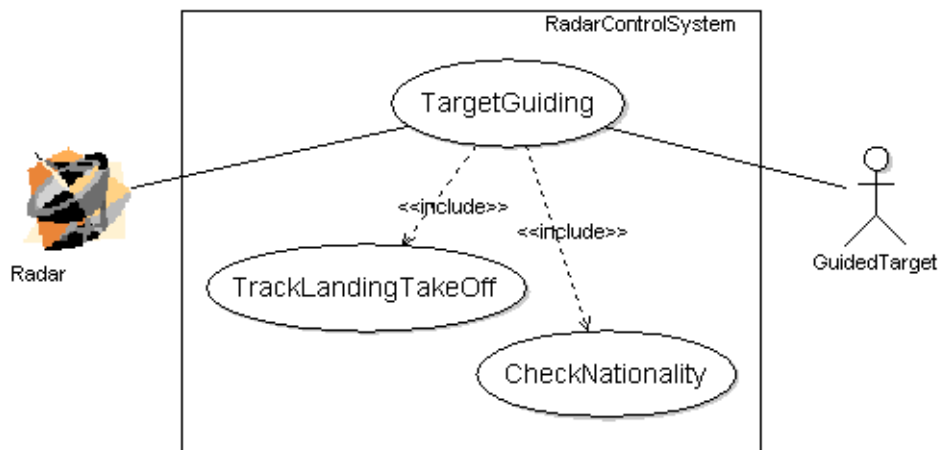


Figure 4: Use case diagram with icon image

14. Save from DOORS Analyst to synchronize the diagram back into DOORS.

Navigation

It is possible to navigate from DOORS to DOORS Analyst and back. The following simple exercise allows you to get an idea of the possibilities.

15. Navigate from the diagram area in Analyst to the corresponding element in the requirements module by right-clicking one of the classes and selecting **Edit in DOORS**. The requirements module will open with the correct element selected.

DOORS object to UML element

It is possible to convert DOORS objects to UML elements.

16. Create a new object in your doors module or select an object that you would like to give a UML element property. Double-click in the Object Type column for the object and select the appropriate type.

Conclusions

Diagrams

You should now feel familiar with working with the UML diagrams in DOORS Analyst. The tutorial has in some situations shown different ways of drawing similar constructions. Which to use in a given situation depends on the characteristics of the problem but is also many times a personal preference.

Workflow

The scope of the tutorial is focused on demonstrating the tool rather than imposing a methodology. You can find some more information on workflow methodology in the chapter Description of Workflow in the online help of DOORS Analyst.

What's next?

You have now completed the tutorial and are ready to start working on your own with UML and DOORS Analyst. If you would like to have more information on model driven work it is recommended that you study the chapter "Working with Models" in the online help.