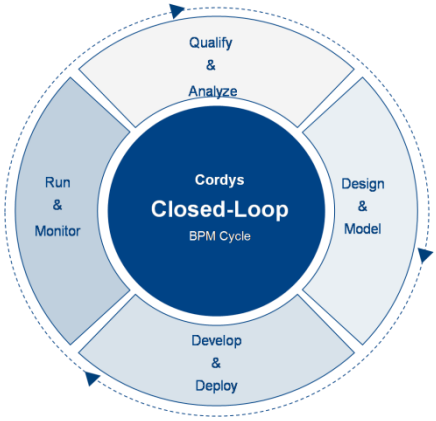
CORDYS academy

Business Process Management

Exercises



Contents

1. Module

1.1 Objectives

After completing this course module, you will be able to:

- Understand the concept of the Cordys Closed Loop BPM cycle
- Model business processes in Cordys
- Execute a business process model
- Understand the concept of process instances
- Monitor processes

1.2 Overview

This module introduces you to business process modeling and the development of process models with Cordys.

First the concept of continuous improvement with the Cordys Closed Loop BPM cycle methodology is explained, followed by the concept and usage of business process models.

2. About Business Process Management

2.1 Introduction

This module is structured based on the Cordys Closed Loop BPM cycle so you will design and develop the processes according to the following steps:

- Qualify & Analyze
- Design & Model
- Develop & Deploy
- Run & Monitor

You will learn how to design and develop business processes and case models with Cordys, and make them executable. Once the given process has been started, you will see how those running/started process instances are monitored.

2.2 References

More information about this subject is available

- Online Cordys Documentation
  Working with Business Models → Modeling Business Processes
  Working with Business Models → Modeling Cases
- http://community.cordys.com (here you can find more details on the Cordys Closed Loop BPM cycle as well)

3. Business Process Models

3.1 Prerequisites

Before you can start with this module, note the following prerequisites. The exercises are written based on their successful completion.

You must have completed the following modules

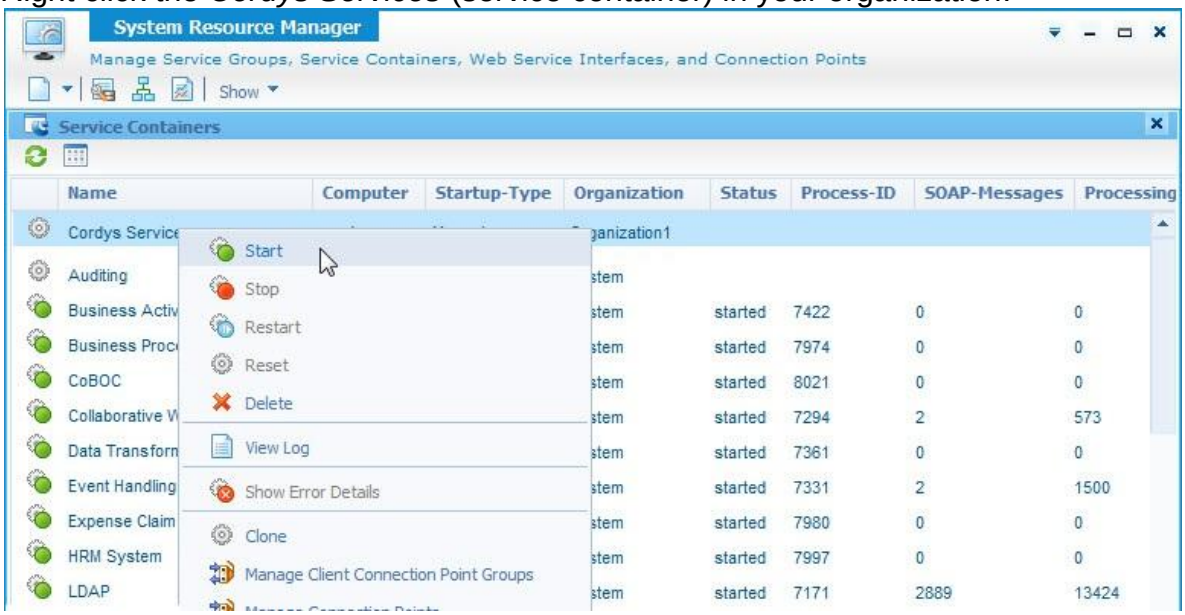
- Application Management.

You must have ONLY the following roles assigned to yourself

- Administrator
- Developer
- Analyst
- Cordys Fundamentals Trainee

Starting the Cordys Services service container

1. Open the *System Resource Manager*.
2. Right click the *Cordys Services* (service container) in your organization:



3. Click *Start*.

   Starting this service container takes some time because of the complexity of this service. You will learn about service containers in the module W*eb Services and the Cordys SOA grid*.
4. Close the *System Resource Manager*.

3.2 Qualify & Analyze

The first step in the Closed Loop BPM cycle is to qualify and analyze the current situation. Deliverable of this step is a business case for making a next step in process improvement. Since activities do not require Cordys skills we will only describe a business situation and business case.

1. Read the following short description:

Company ACME is a growing retail company. The number of orders is expected to nearly double the coming years. As more and more orders are created automatically (via the web and email) the sales department is complaining that picking up the orders and start working on them consumes too much time.

Together with the sales department, the situation has been analyzed. A number of problems and optimizations have been identified.

A business case has been set up and a budget is allocated to improve both the stock handling process and the sales ordering process.

Target: Reduction of time spent on order processing r%
Investment: i $

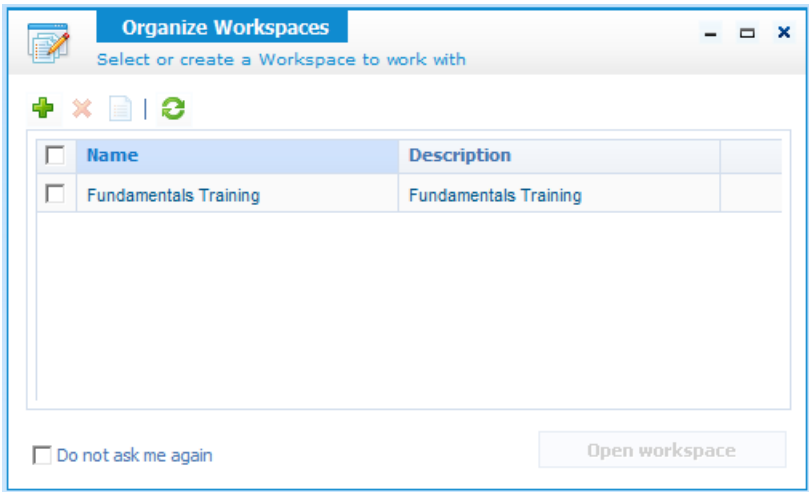
How do we know the amount of time that is currently spent on stock handling?

3.3 Designing and Modeling the Business Process

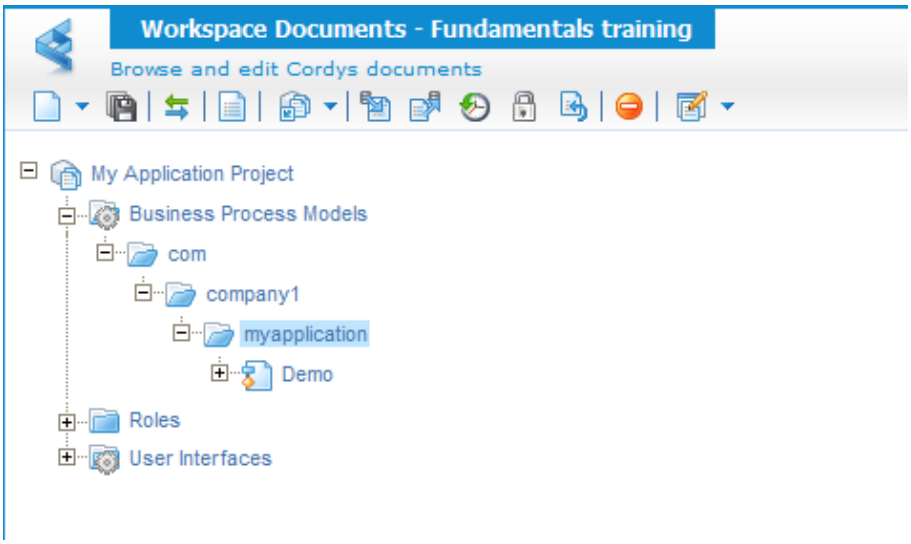
In this exercise you will design the business process model that reflects a “to be” order process. For educational purposes the process is just a fragment of the complete process, it is merely intended to get acquainted with the Cordys Business Process Model Editor.

3.3.1 Creating a Business Process Model

1. Open the *Workspace Documents* (Workspace Documents).



2. Open the Fundamentals training workspace using one of the following methods:
   - Selecting the workspace and clicking **Open Workspace**.
   - Double clicking the workspace.
3. In your project (*My Application project*) navigate to *Business Process Models → com → companyX → myapplication*.

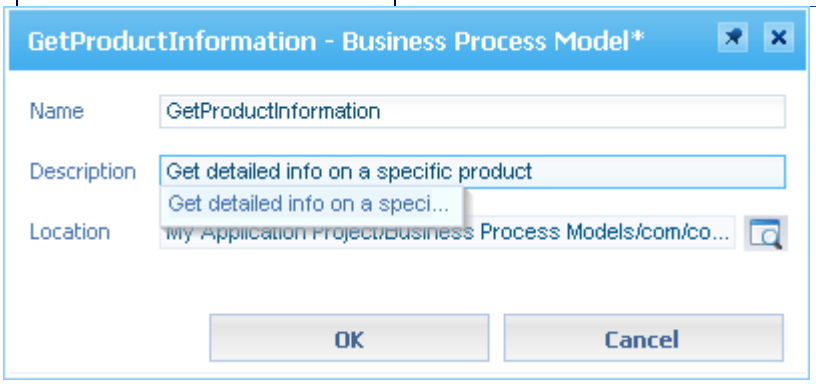


4. Right click the *myapplication* folder and create a new document of type *Business Process Model*.

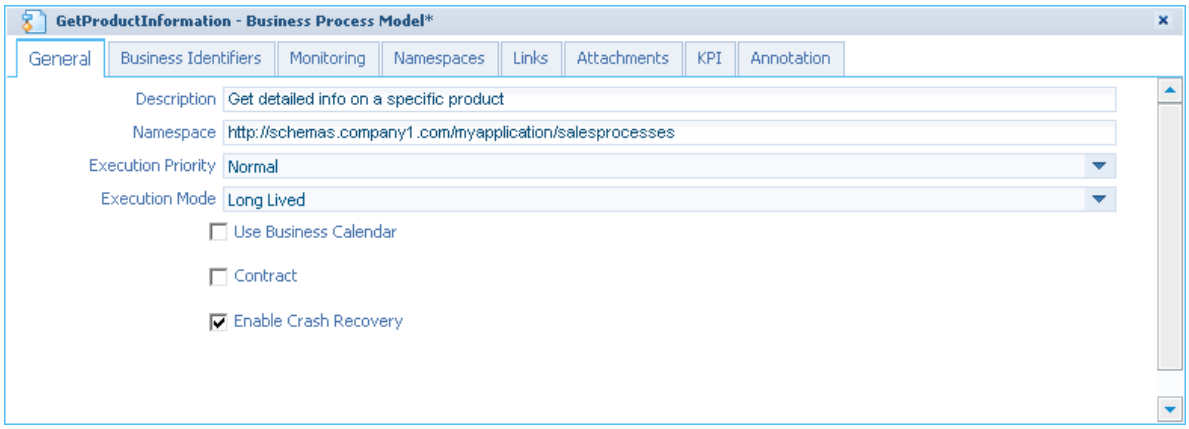
> **NOTE**
> When a document type has been selected previously, it is added to the recent document list, so you can select it from the New option. If not available in the list, select *Other* and select it from there.

5. Click the **Save** button.
6. Provide the following values:

Field	Value
Name	GetProductInformation
Description	Get detailed info on a specific product
Location	Prefilled with: My Application project/Business Process Models/com/companyX/myapplication



7. Click **OK**.
8. Right click in the modeling area and select *Model Properties* (F8).



9. Modify the *Namespace*:
   http://schemas.companyX.com/myapplication/salesprocesses
10. **Save** the process.
11. Close the *Model Properties* screen.

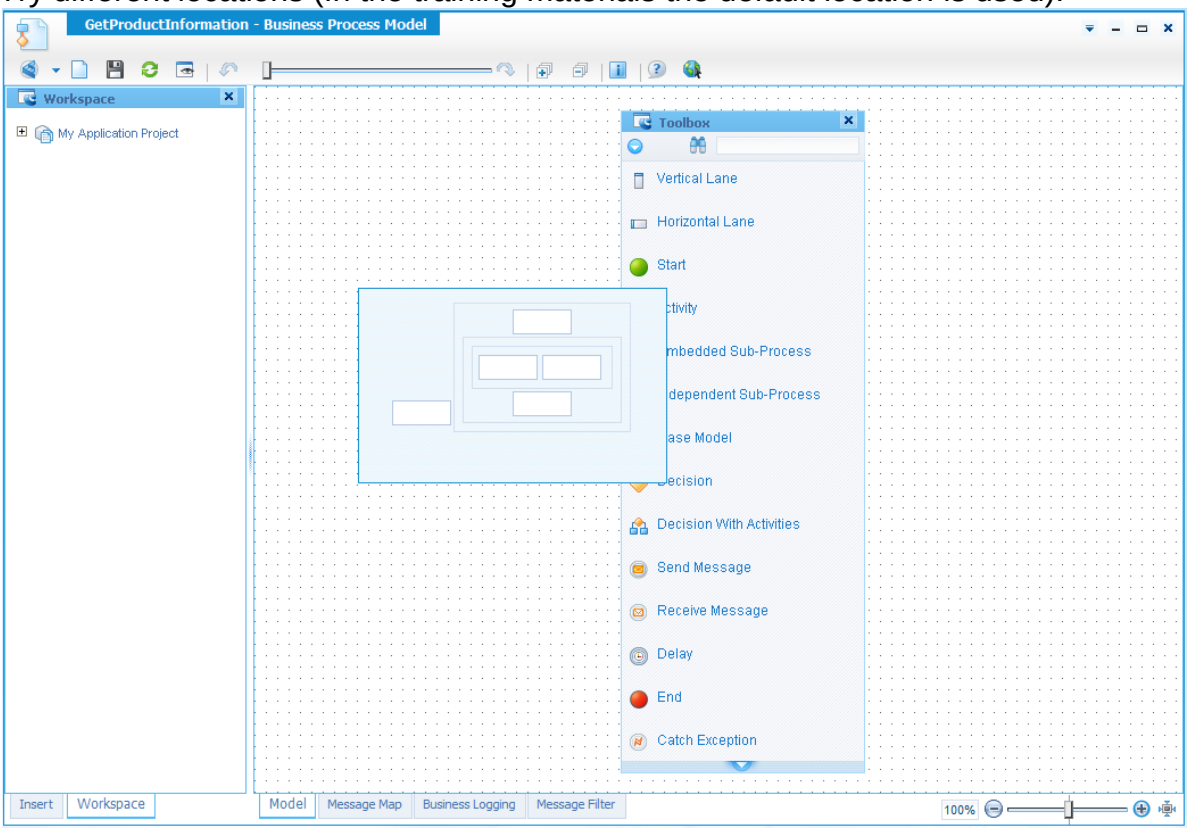
3.3.2 Changing the Look and Feel of the BPM Editor

In this paragraph you will see how the BPM editor can be customized to your personal preferences.

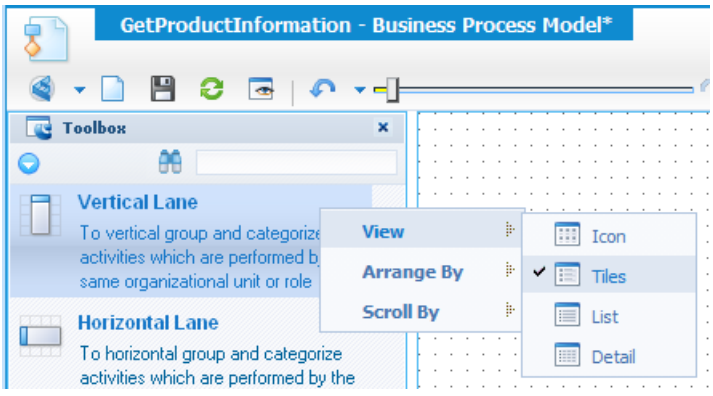
1. Move the Toolbox on the left of the editor to a desired location, by performing the following steps:

1) Click in the title bar of the Toolbox and drag it.
2) Point to a possible location, displayed in the selection box, to see a preview.
3) Drop it into the desired location.

2. Try different locations (In the training materials the default location is used).



3. Right click in the Toolbox.



4. Try out some of the display options (In the training materials the defaults are used).

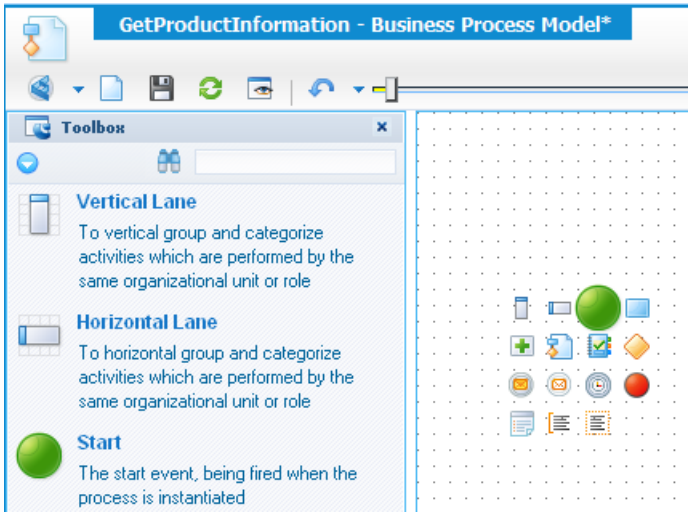
3.3.3 Adding Constructs to the Business Process

So far the model does not show anything. In this paragraph constructs like events and actions that form the essential steps in the business process are added.

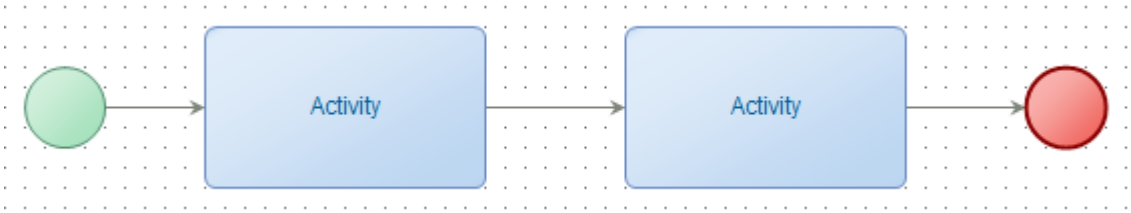
You can add constructs to the process by:

- Selecting a construct in the Toolbox and then clicking in the modeling area
- Dragging and dropping from the Toolbox into the modeling area
- Clicking somewhere in the modeling area or selecting a construct in the modeling area and choosing a construct: hold it with your mouse and drop it in the desired place.

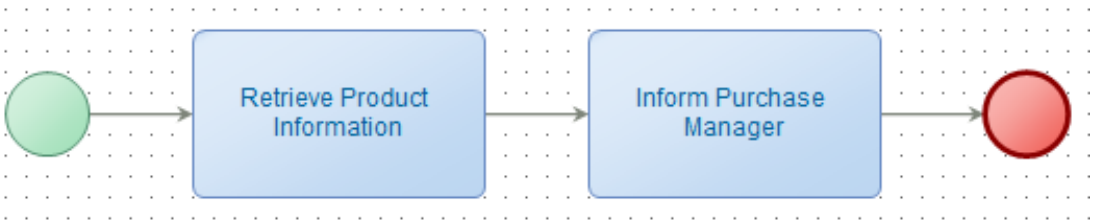
1. Add a **Start Event** ( ) to the modeling area.



2. Add two **Activity** ( ) constructs to your business process.
3. Add an **End Event** construct ( ) as well.
   Your model should look similar to:



4. Rename the first activity to **Retrieve Product Information**.
5. Rename the second activity to **Inform Purchase Manager**.



3.3.4 Manually adding connectors between constructs

When you have added constructs manually, you also need to add the connectors linking the constructs manually.

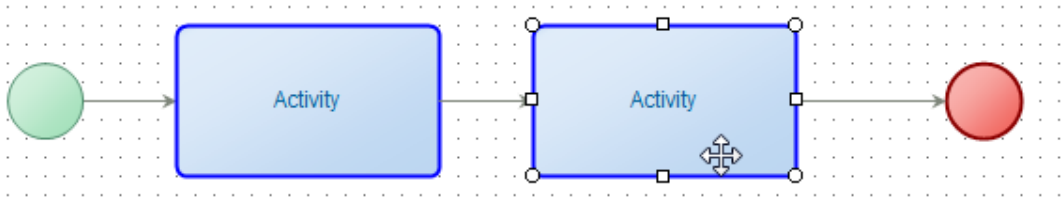
You can add connectors between constructs by:

- Select the first construct and hold down the CTRL key while clicking the relevant next construct etc. Release the CTRL key to stop adding connectors.

- Clicking on a construct and selecting the Connector from the options.

3.3.5 Aligning the Constructs

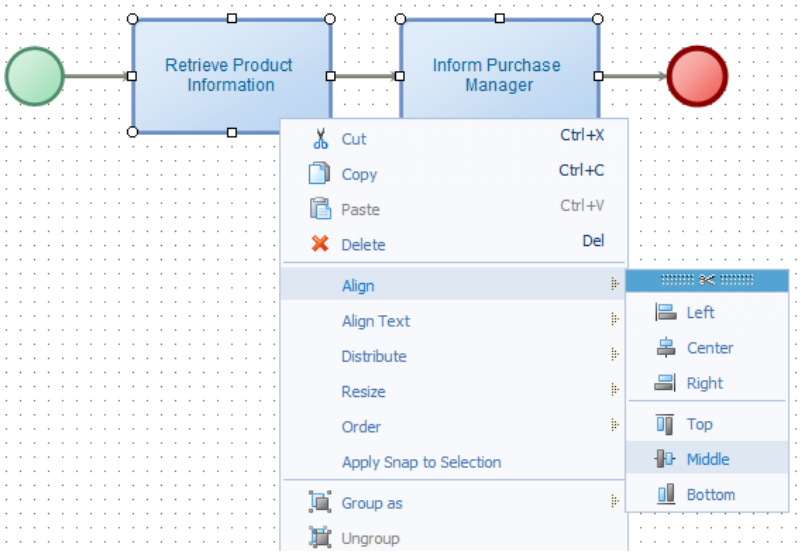
In this paragraph the constructs are aligned and space is evenly distributed. Though this does not add any functional information to your model, it makes it more readable and easier to understand. While modeling, the model editor already shows by highlighting the different constructs, when constructs are aligned the right way:



You can select all constructs by:

- making a rectangle around all constructs you want to select
- selecting the design area and using CTRL + A
- selecting the first construct and then press shift while clicking the next constructs

1. Right click and select *Align → Middle*.



2. Right click again and select *Distribute → Distribute Horizontal Space*.

> **NOTE**
> *Distribute Horizontal space* distributes the constructs evenly between the constructs. *Distribute Horizontal Center* defines an even distance between the centers of the constructs.

3. **Save** the process.

4. Close the Business Process Model Editor.

3.4 Developing and Deploying Business Process Models

In this exercise, you will transform your earlier made business process model into an executable process. Normally you would do this by creating the relevant services and user interfaces and link them to the corresponding activities. However in this exercise you will skip that and leave the modeled activities as "dummy" activities. Later on in the *Developing Business Processes* module you will implement these activities.

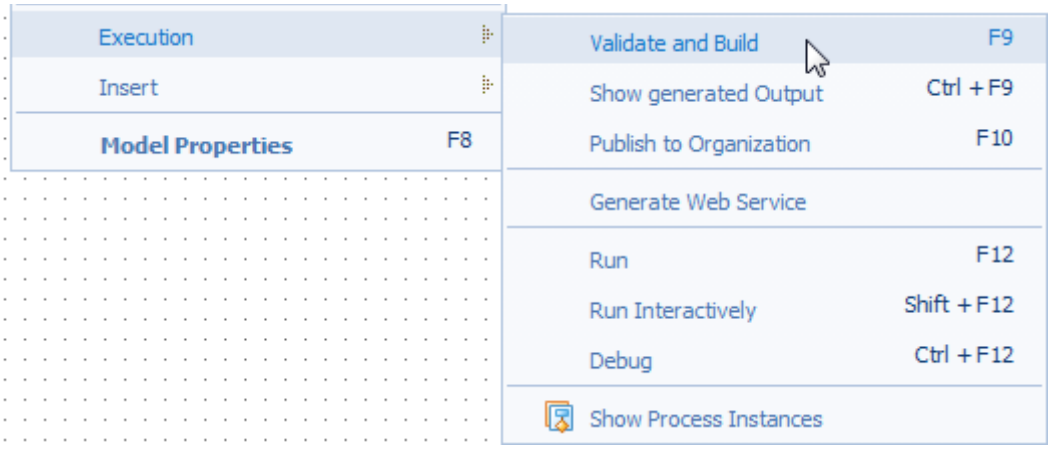
Once implementation of the BPM is finished you will validate and publish it to runtime in order to be able to run and test it.

3.4.1 Validating your Business Process Model

Whenever you have made changes to your process, you have to validate your process to see if it contains errors. Cordys will validate the process; for example it will check if all constructs are connected to each other, if assignments have corresponding messages, etc.

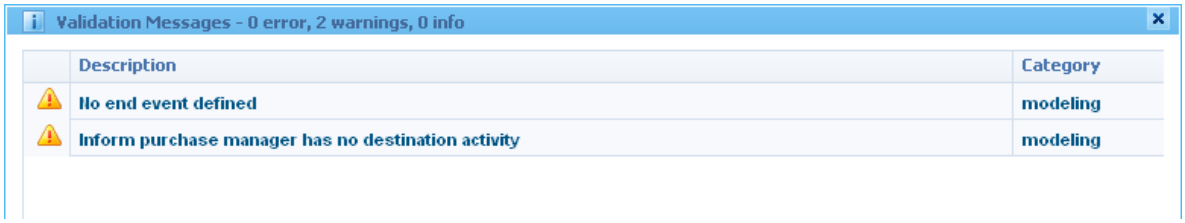
You can validate a process using one of the following methods:

- Right click in the design area of the process and select ***Execution → Validate and Build*** (F9).
- Click in the design area of the process, to get focus on the editor and press F9.
- In the *Workspace Documents* window, right click the process and select ***Validate***.
- Click **Menu** ( ) in the toolbar, Click **Validate** (Validate), click here (Click here to validate).
- Right click (Workspace Documents) on the folder where the process is located and select *Validate* (This will validate the content of the folder and its contents).
- Right click the project (Workspace Documents) and select *Validate* (This will validate the whole project. Only use this method in the course when explicitly instructed to do so).



1. If closed, open your BPM *GetProductInformation*.
2. Validate your process using one of the before mentioned methods.
3. Since the model is correct you should not have any error so a blue UFO telling you *No errors or warnings reported* will be shown.
4. Delete the End event construct.

5. **Save** and validate your process model again.

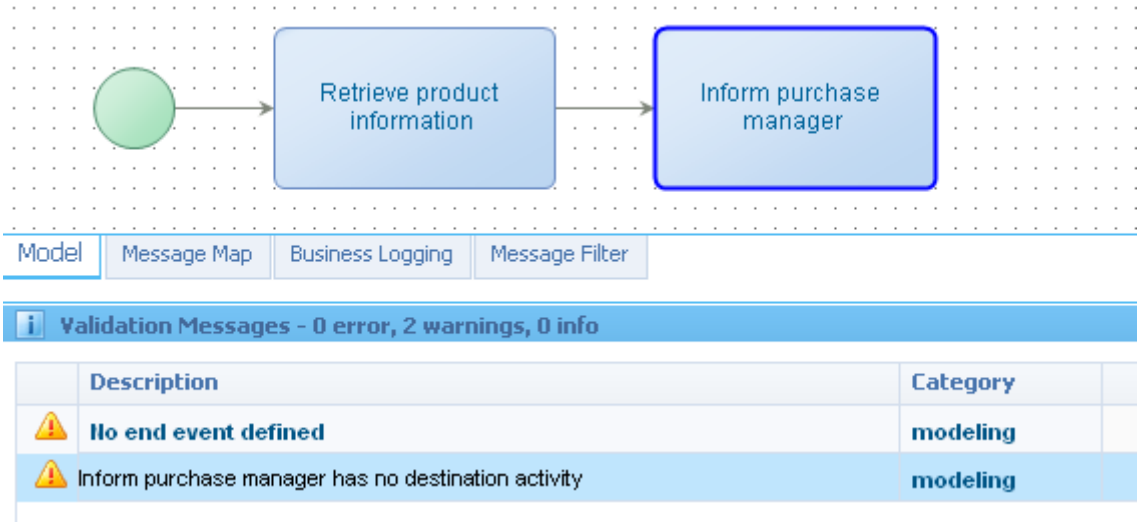


6. Select the warning *Inform purchase manager has no destination activity.*

   Why is the second activity highlighted?

   _____

   _____



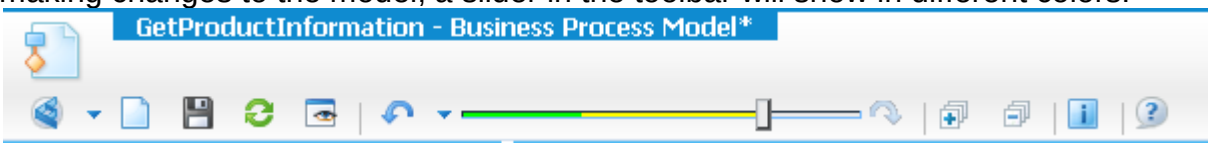
7. Right click the info line and select *Properties*.
8. Look at the information on the different tabs.

> **NOTE**
> You can (re)view the generated warning list at any time by clicking the **Show/Hide warnings** ( ) button or press F6.

9. Add the *End event* again.
10. **Save** and validate again.
11. Close the Message screen.
12. Close the Validation message screen as well.

3.4.2 Undo / redo options

Each change that is done in the model editor is logged as long as the editor is open. When making changes to the model, a slider in the toolbar will show in different colors:



The green color shows the changes that were made and have been saved. The yellow color indicates changes that have not been saved yet.

1. Make a few changes to your model, like moving constructs, adding them and deleting them again.
2. **Save** your process.
3. Make another few changes so that the slider has both green and yellow color.

4. Move the slider backwards and read the tooltips that are shown.
5. Use the **Undo** ( ) and **Redo** buttons ( ) to test the effect.
6. Click the little button ( ) next to the **Undo** button: all changes are shown. The thick line shows where you are in the changes that you want to have reverted.

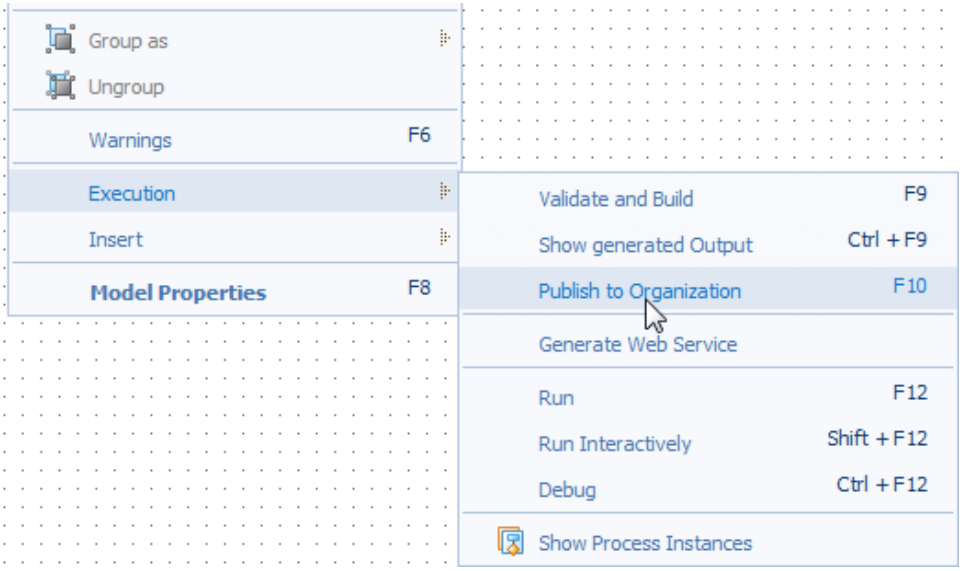
7. Make sure you have a valid process again and **Save** it.

3.4.3 Publishing your Business Process Model

To be able to execute or run a process, you first need to publish your process. At this stage, you are not ready to package and deploy your application, so you will publish the process to your own organization. This enables you to explore the runtime execution of your process.

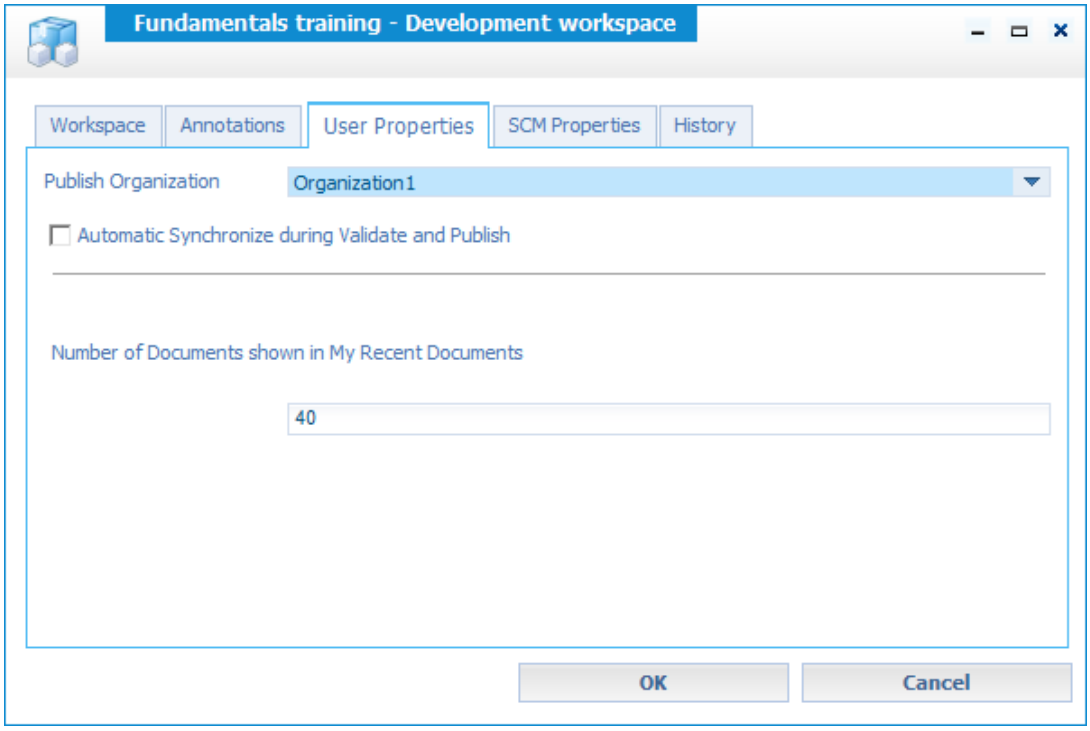
You can publish a process to an organization using one of the following methods:

- Right click the design area of the process and select *Execution → Publish to Organization* (F10).
- Select the design area of the process to get focus on the editor and press F10.
- In the Workspace Documents window, right click the process and select *Publish to Organization*.
- Click **Menu** ( ) in the toolbar, click **Publish** (Publish), click here (Click here to publish)
- Right click (Workspace Documents) the folder containing the process and select *Publish to Organization* (This will publish the content of the complete folder structure).
- Right click the project (Workspace Documents) and select *Publish to Organization* (This will publish the whole project. Only use this method in the course when explicitly instructed to do so).



1. Go to the Workspace Documents.
2. Click **Workspace Properties** ( ) in the toolbar.

3. Go to the *User Properties* tab.



4. Make sure your Publish Organization is your **Student organization**, **OrganizationX**, e.g. Organization1.
5. Close the workspace properties screen.
6. If closed, open your BPM *GetProductInformation*.
7. Publish the process to your organization using one of the methods mentioned before.

NOTE
Publishing your process will implicitly validate your process as well.

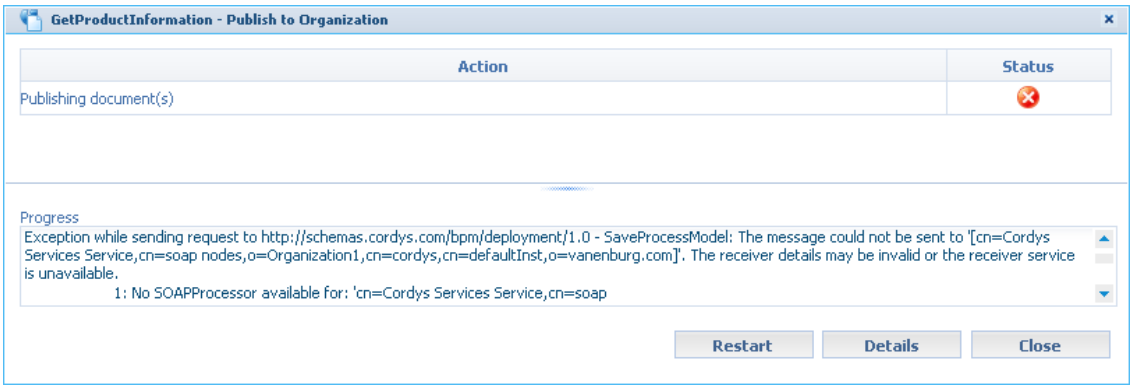
When you publish the process the following can happen:

Publish is Successful

- The process has no validation warnings and a UFO (Unified Feedback Object) is shown indicating that the process has been successfully published.
- The process has validation warnings and the validation messages are shown.

Publish is Unsuccessful

- The *Publish to Organization* details screen opens.



When Publish to Organization is unsuccessful, it is most likely that you did not comply with the prerequisites as mentioned on page 5.

3.5 Running and Monitoring the Process

In this exercise you will run your published process and monitor its runtime behavior. You can use this information as input for optimizing your process in a second iteration of the closed loop BPM cycle.

Normally after you have developed your application, you will package your application containing all components required for the application you build (like bpm, ui, roles, services etc).

You will then install this application package at your production server(s). You will most likely go through a build street also known as DTAP, Develop-server, Test~, Acceptance~ and finally at your Production server first.

However, due to time and educational constraints, in this exercise we will not package the project but deploy (publish) the content directly to our organization instead so you can perform a unit test to see if the BPM at itself works as it should.

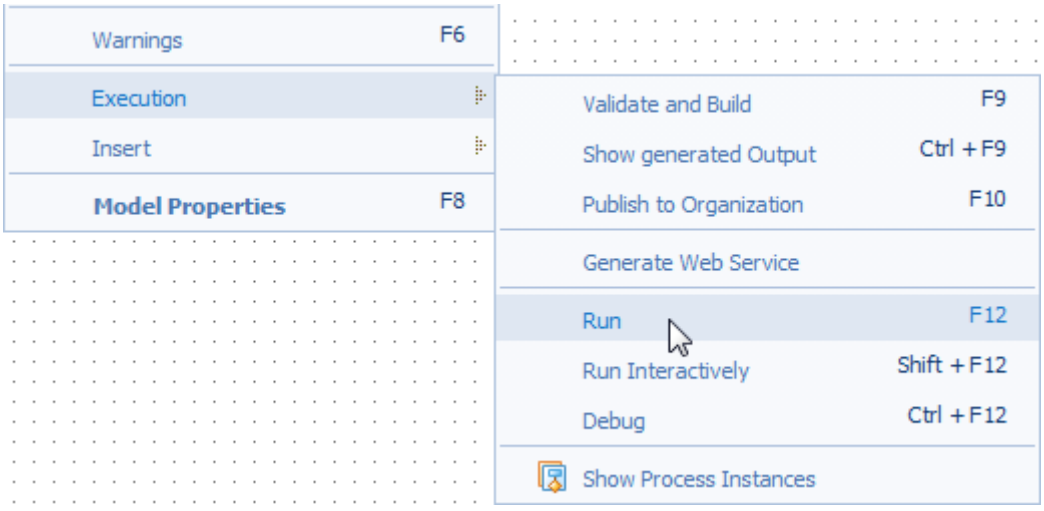
At the end you will take a look at Cordys Business Activity Monitoring functionality by monitoring the processes you have executed.

3.5.1 Running the Process from Design Time

While in the design environment of Cordys, the Workspace Documents, you can run your process directly to test it.

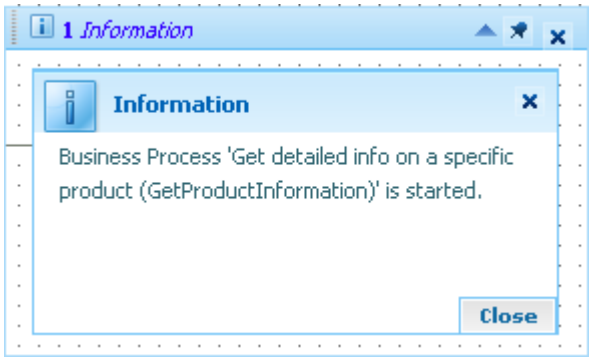
You can run a process via the following methods:

- Right click in the design area of the process and select *Execution → Run* (F12).
- Select the design area of the process, to get focus on the editor and press F12.
- In the Workspace Documents window, right click the process and select *Execution → Run*.
- Click **Menu** ( ) in the toolbar, Click **Test** (Test).



1. If closed, open your BPM *GetProductInformation*.
2. Run your process using one of the methods mentioned before.

3. A UFO (Unified Feedback Object) indicates a successful start of the process.



4. Run the process a second time.

> **NOTE**
> A Notification UFO (the blue one) is displayed for a couple of seconds and then disappears. You can set the duration time in the CUSP Preferences.

3.5.2 Monitoring the Process Instances

As soon as the process is started, you will want to see whether the process runs successfully, or if a process instance is waiting for a certain time to investigate delays etc. In addition, you may want to analyze the running and finished processes to see if you can optimize business performance as well.

You can view the various process instances from within the design environment using one of the following methods:

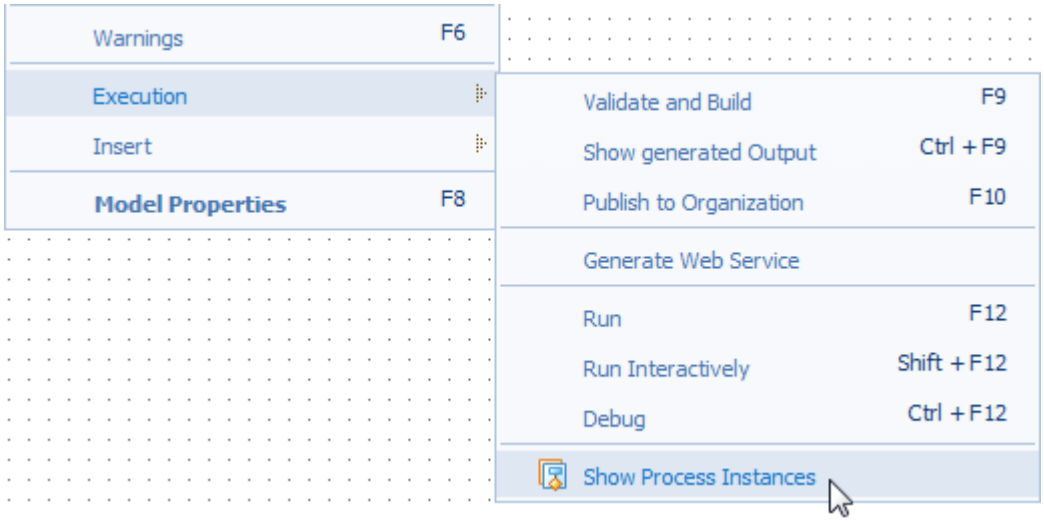
- Right click in the design area of the process and select *Execution → Show Process Instances.*
- In the Workspace Documents window, right click the process and select *Execution → Show Process Instances*.

As a (Process) Administrator, you can monitor all processes using the following artifacts from My Applications palette:

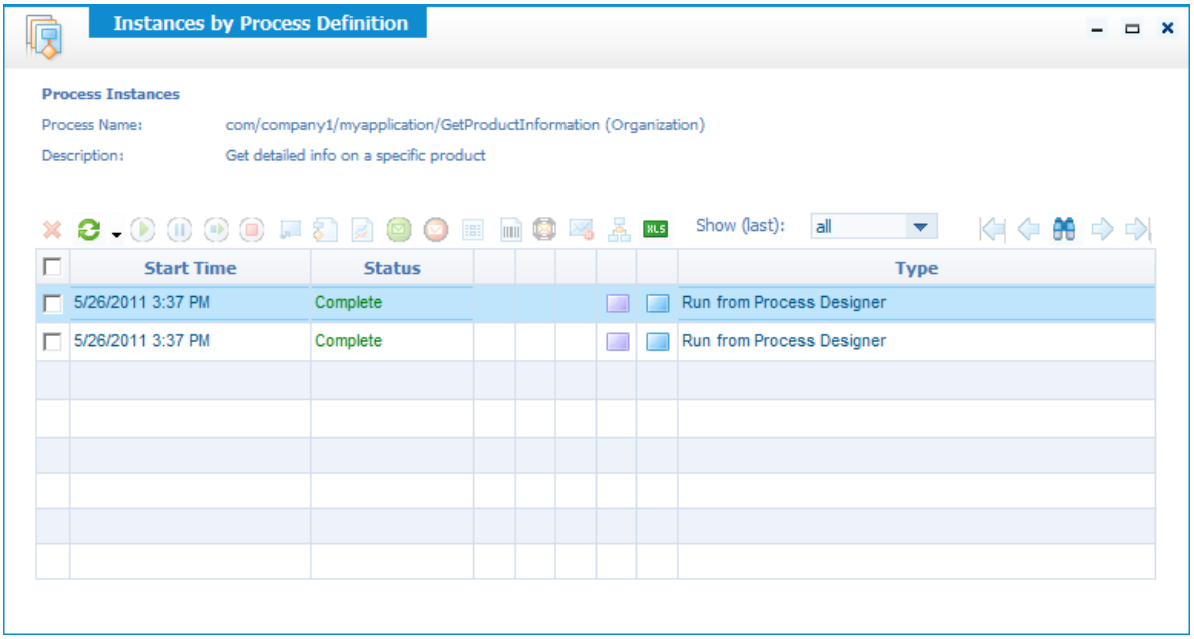
- Process Instance Manager
- Deployed Process Models

1. If closed, open your BPM *GetProductInformation*.

2. Right click the process and select *Execution → Show Process Instances:*



The *Instances by Process Definition* window for the selected business process is displayed:



Why do both processes have the status "Complete"?

_____

_____

3.5.3 Zoom in on Activities

Apart from the status of a process one usually is interested in which activity in the process a process is waiting at or which activities have been executed.

1. Click on the **Show Activities** ( ) icon for the first instance.

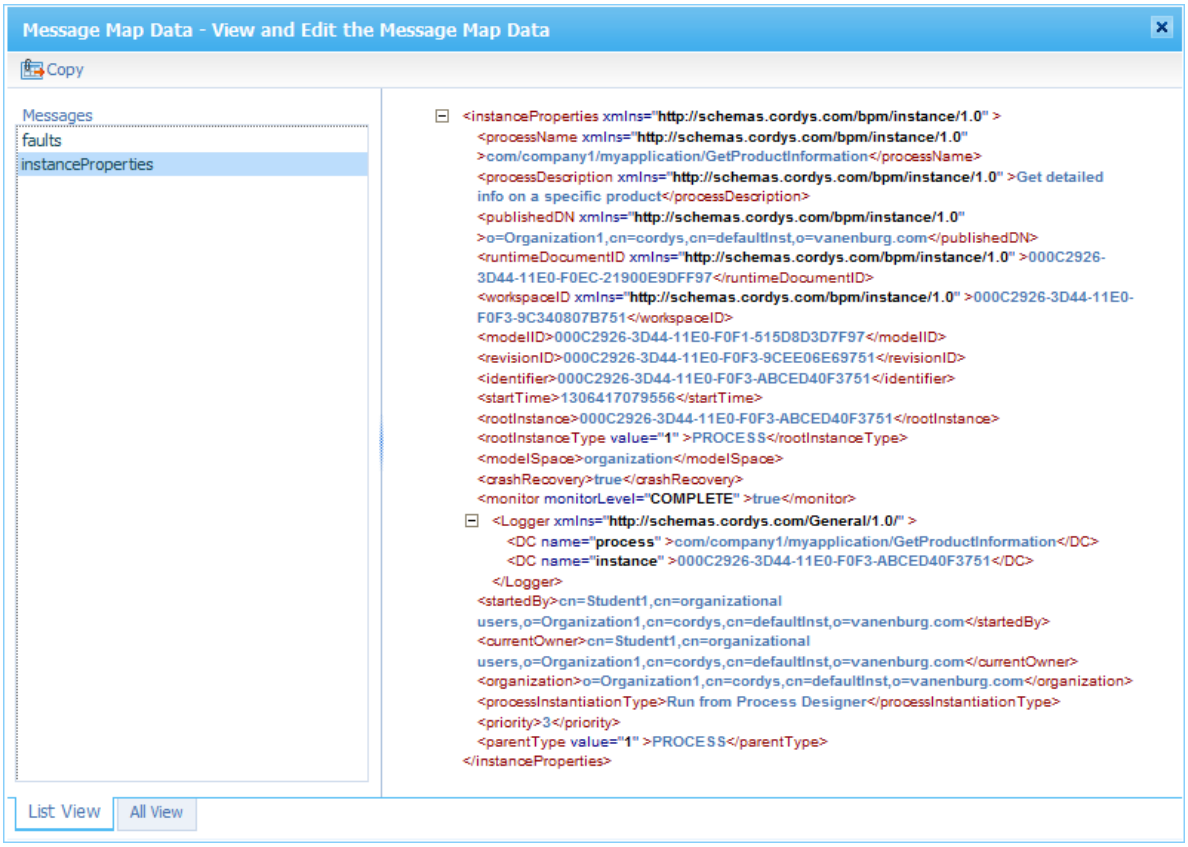
Which activities were executed?

How long did the activities take?

3.5.4 Taking a look at the *Message Map*

In this paragraph a closer look at the instance data is taken by means of the message map.

1. If closed, open the *Instances by Process Definition* view.
2. Right click the first row.
3. Select *Show/Edit Message Map*.



This shows the message map of the selected process instance:

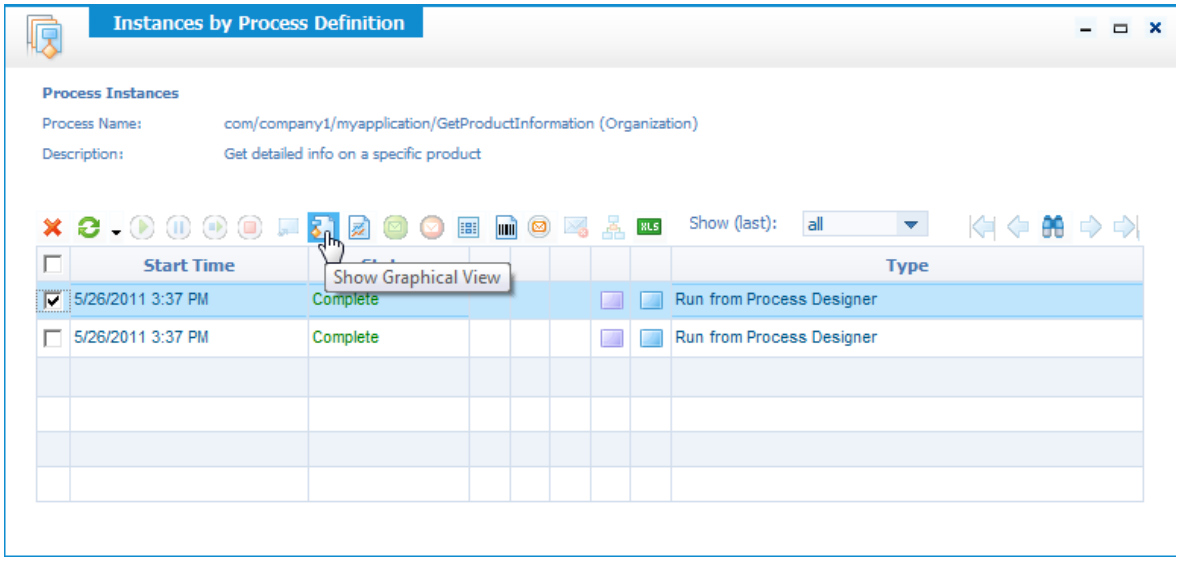
Which information can be found in instanceProperties?

4. Close the *Message Map Data* window.

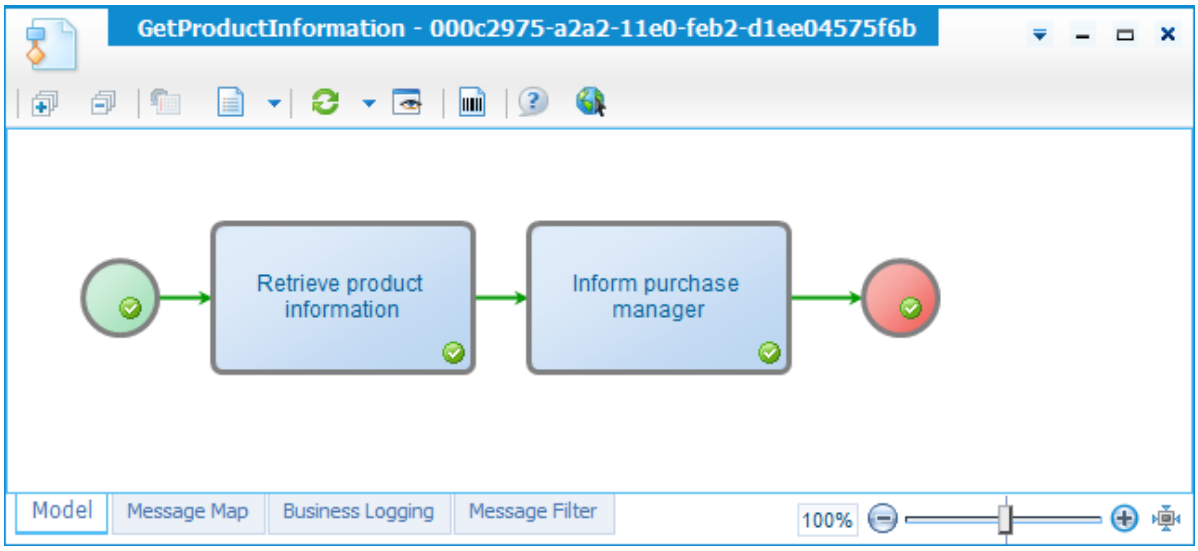
3.5.5 Opening the Process View

Another way of accessing the menu is by selecting a row and clicking an active icon.
In this paragraph we will take a look at the graphical process instance.

1. Check the first row.
2. Click *Show Graphical view* in the toolbar.



The following screen opens:



What is the difference with the designed process model?

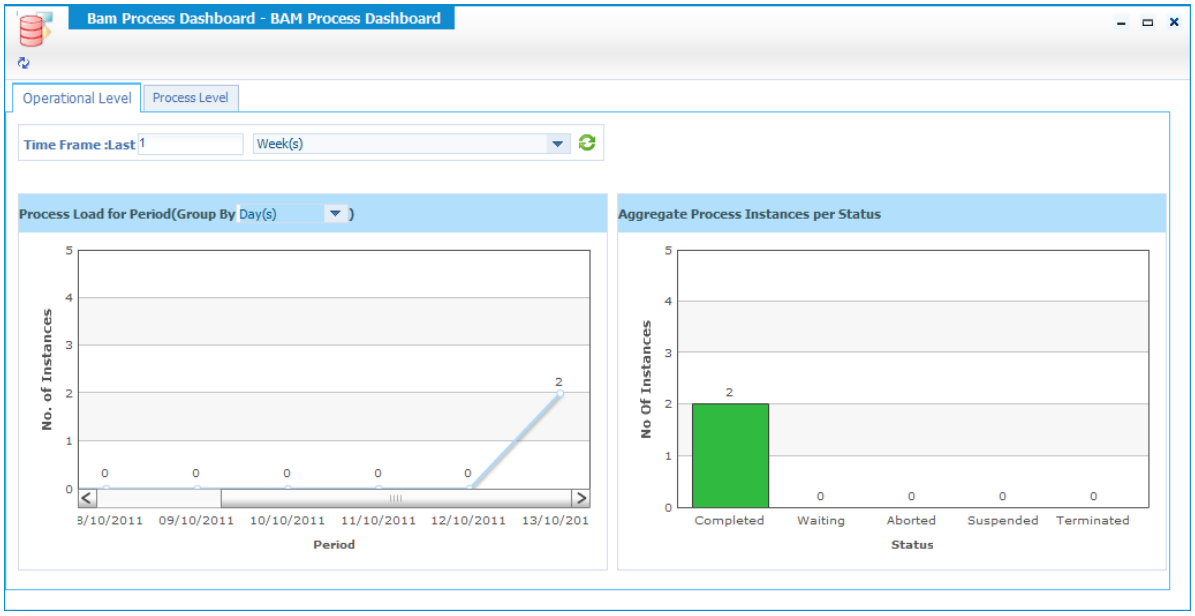
3. Check the options available in the context menu for the constructs and the whole process.
4. Close the graphical view.

3.5.6 Monitoring Business Activity

In this exercise you will take a look at a user interface that is made with the Cordys Business Activity Monitoring (BAM) components of Cordys. The user interface is part of the Fundamentals training application.

1. Open the *My Applications* App Palette.
2. Click the *BAM Process Dashboard* (

).



3. Select the *Process Level* tab page.
4. Click **Select Process** ( ) and select your process.
5. Click **Refresh** ( ).

What is the average lead time of the process?

_____

_____

6. Close all open screens except for the Workspace Documents.

3.6 Make Changes Available to SCM

In this exercise you will make your developed content/changes available to your team members by sending the changes to the SCM application.

You should only make changes available when they are working according to you.

> **NOTE**
> This only applies when your workspace is created with using an SCM application.

1. If closed open the Workspace Documents.
2. Click **Make Changes Available to Others** () in the toolbar.
3. Review the modified content
4. Provide as comment **Business Process Management**.
5. Click **Make Available**.

4. Case Models

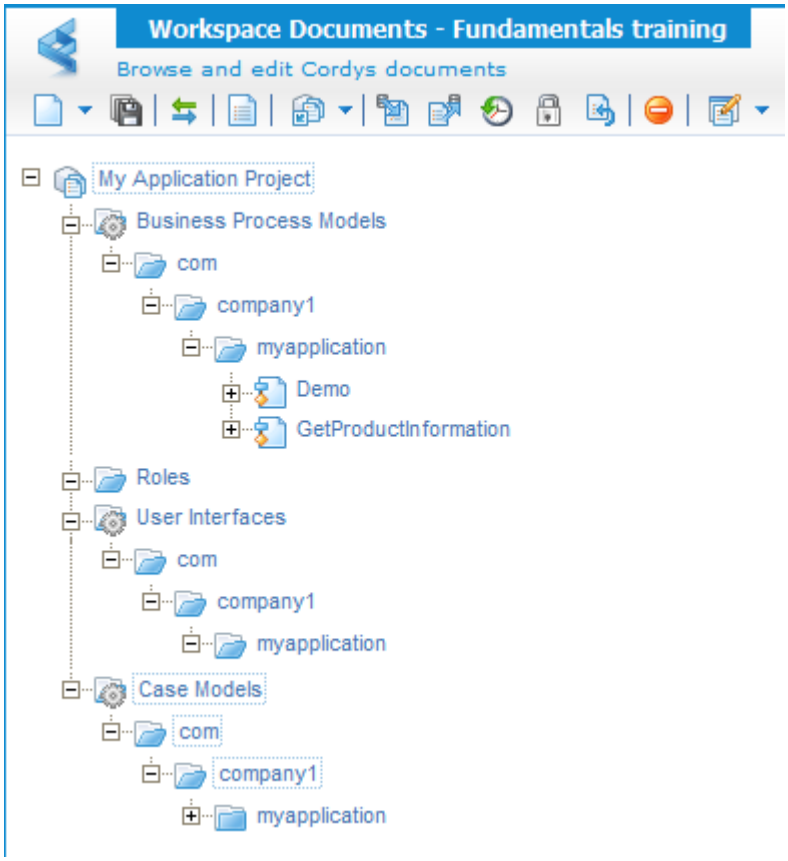
The Cordys BOP case modeler offers an intuitive modeling environment to model and manage your business cases. It equips you with a set of tools that ease the entire process of modeling and managing a case. It helps you to model activities that do not necessarily follow any defined sequence as compared to a business process model and can be executed in parallel. You can integrate various documents such as your business processes, human tasks, and also apply the business calendar wherever necessary in your case model.

4.1 Complaint handling case

In the next exercise you will model a case for complaint handling. Imagine a situation where your cell phone is not working properly and you take it back to the shop you bought it earlier.

4.1.1 Creating the folder structure

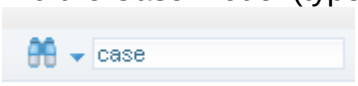
1. If closed, open the *Fundamentals training* workspace.
2. Right click your project folder and select *New → Folder*.
3. Provide the name **Case Models**.
4. Create the same deployment structure as you did for *Business Process Models* and *User Interfaces*. Your folder structure will look like this:

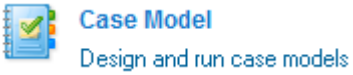


5. Right click the *Case Models* folder and select *Set Start Point of Qualified Name*.

4.1.2 Designing the Case Model

1. Right click the *myapplication* folder and select *New → Other…*.
2. Use the search box in the top right corner of the *New Cordys Document* screen to find the *Case Model* (type in e.g. *case*):



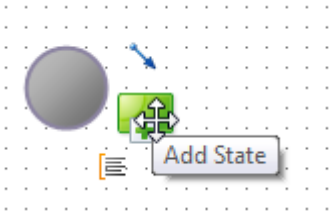
3. Select the *Case Model* document type (

) that is listed.
4. **Save** your model and call it **Complaint Handling**.

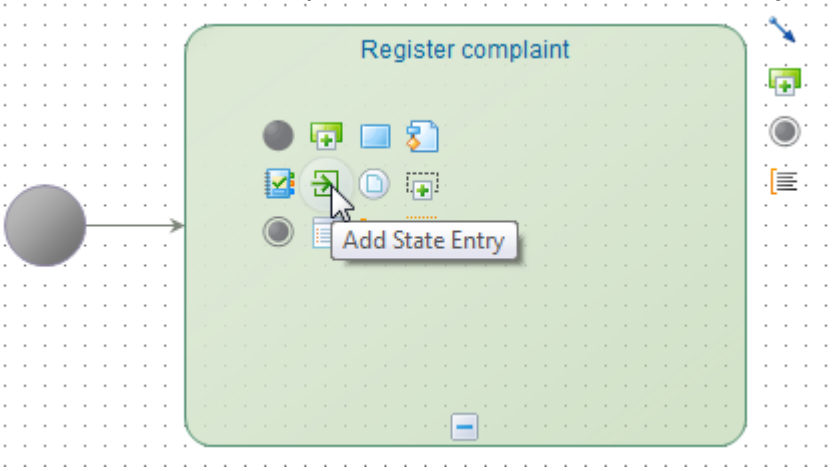
Just like Business Process Modeling there are several constructs you can add to the model. You can add them by selecting a construct in the toolbox and clicking somewhere in the model, dragging and dropping from the toolbox and just clicking in the modeling area itself and selecting the right construct from the set that is highlighted.

5. Add an *Initial State* (

) to your case model.
6. Select the initial state and choose to *add a State* from the context options that appear:

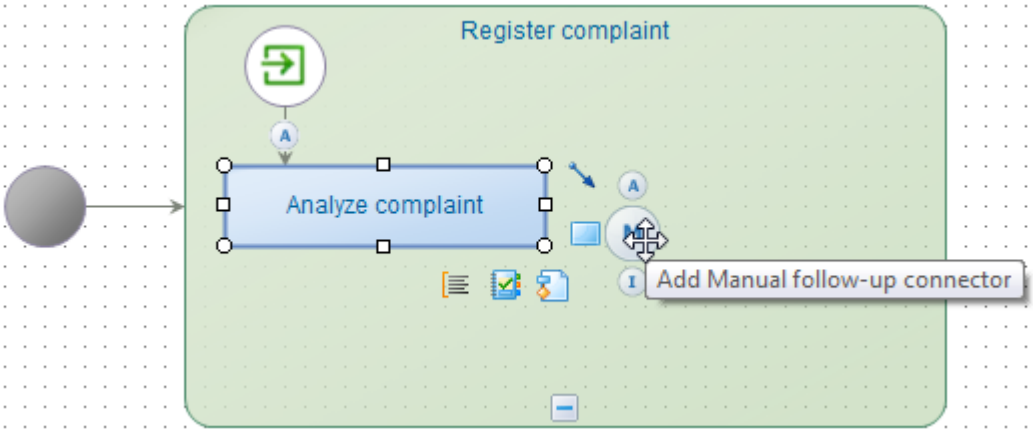


7. Delete the word *Transition* that is automatically added to the connector line.
8. Rename the state to **Register complaint**.
9. Resize the state so it can fit 3 activities and a state entry event. The box will resize automatically as well though when you add more constructs!
10. Click the state in the top left corner and add a *State Entry* event.

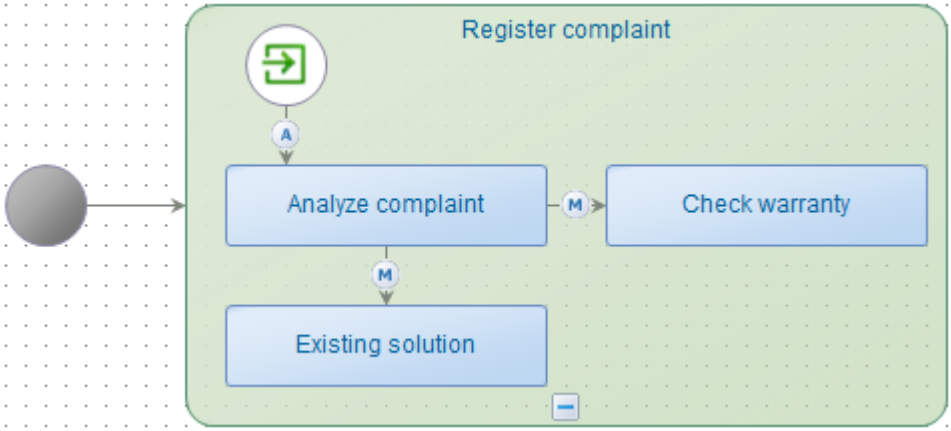


11. Click the state entry and add an *Activity*.
12. Rename the activity to **Analyze complaint**.

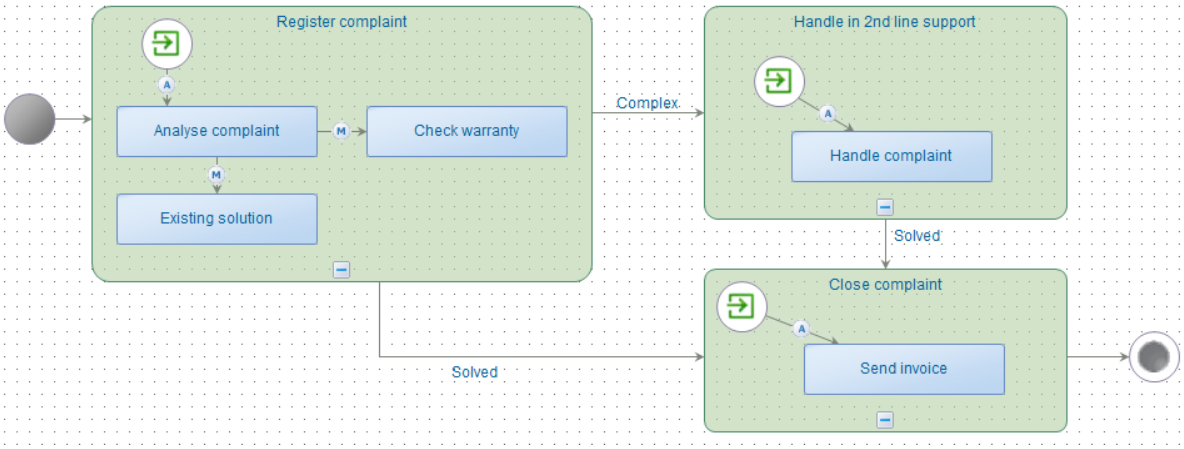
13. Click the activity and add an *Activity* with a *Manual follow-up connector*.



14. Rename the second activity to **Existing solution**.
15. Add another manual activity named **Check warranty**



16. Add another state to the model called **Handle in 2nd line support** with a *State entry* event and an *automatic activity* called **Handle complaint**. Rename the *Transition* from Register complaint to Handle in 2nd line support to **Complex**.
17. Add one more state to the model called **Close complaint** also with a *State entry* event and an *automatic activity* called **Send invoice**. Rename the *Transition* from Register complaint to Close complaint to **Solved**.
18. Also create a connection from Handle in 2nd line support to Close complaint and rename the *Transition* to **Solved**.
19. Select the *Close complaint* state and add a *Final state* ( ).
20. Delete the label called *Transition*.
21. Your model should now look like this:



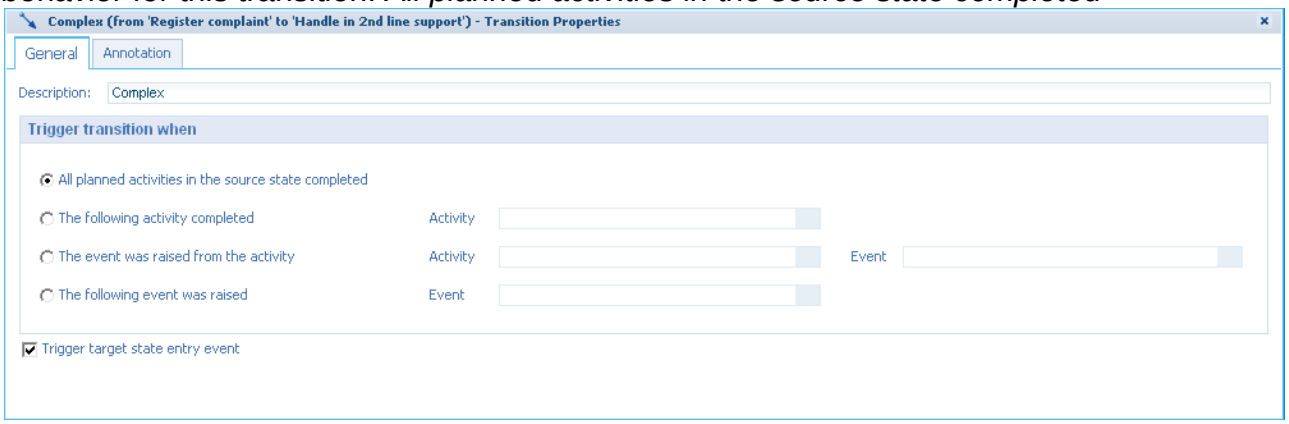
22. **Save** your case model.

4.1.3 Triggering transitions

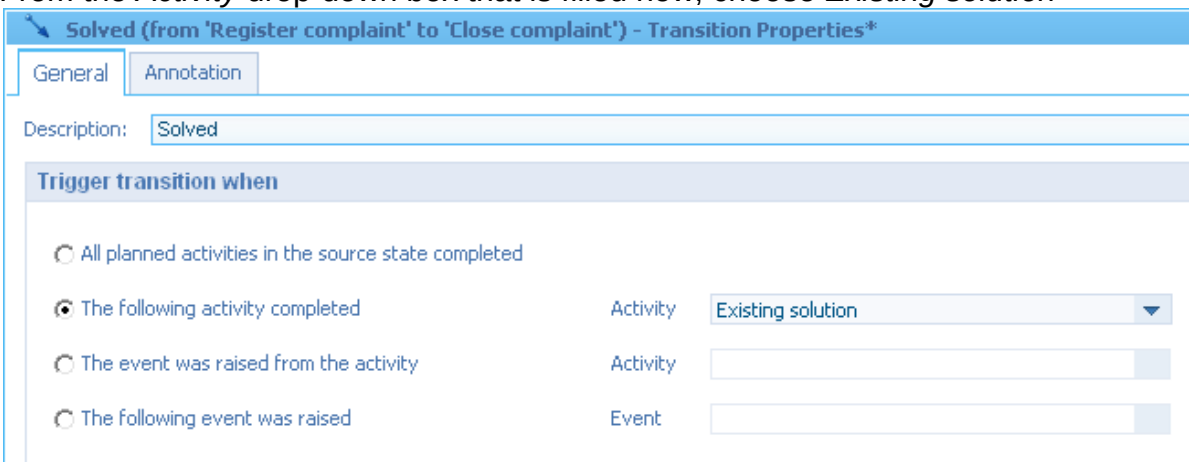
After designing the case model, you must set the properties of the transition connectors to define when they should be triggered. This is to ensure that the case model executes exactly as you intend it to and is in line with your business needs.

1. Double click the transition marked as *Complex* (or alternatively right click it and select *Properties*).

The properties screen opens up at the bottom of your case model and shows the default behavior for this transition: *All planned activities in the source state completed*



2. Leave the default as is as you want this transition to be triggered when the activity *Analyze complaint* is completed and no manual follow-ups are selected AND when the activity *Check warranty* is completed.
3. In the case model, select the transition from *Register Complaint* to *Close complaint* marked as *Solved*. Automatically its properties will be shown.
4. Select the radio button for *The following activity completed*.
5. From the *Activity* drop-down box that is filled now, choose *Existing solution*



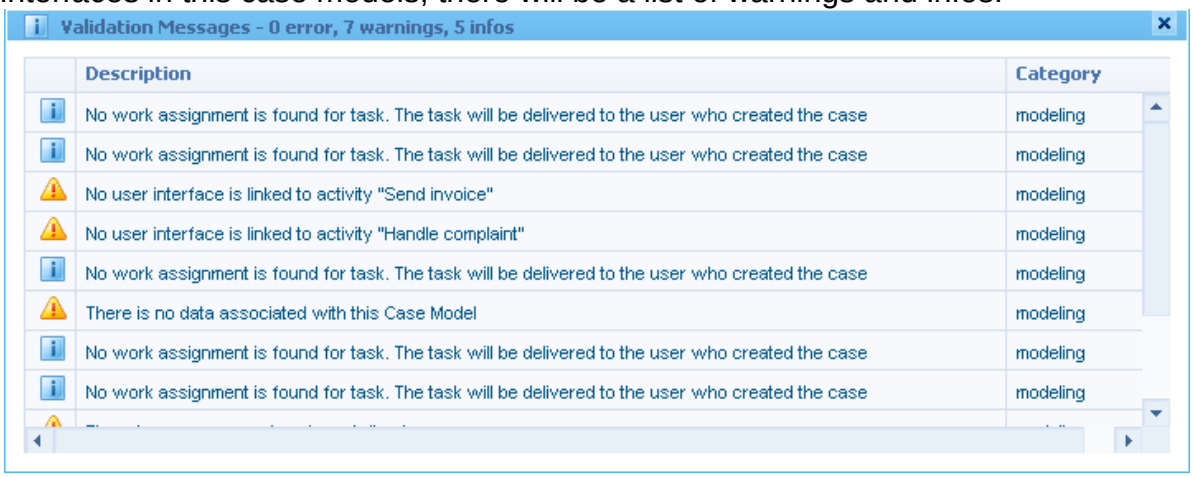
6. Verify that the third transition in this model, from *Handle in 2nd line support* to *Close complaint* is also set to *All planned activities in the source state completed*.
7. **Save** your case model.

4.1.4 Validate, build and publish

As for a Business Process Model, a Case Model should be validated, published to run time, and tested before it is deployed. See Validating your Business Process Model on

page 12 and Publishing your Business Process Model on page 14 for the various ways to validate and publish a case model.

1. Validate your case model using any of the before mentioned methods.
2. The *Validation Messages* screen opens, automatically giving you a list of errors, warnings and infos (if any). As we have not implemented any roles or user interfaces in this case models, there will be a list of warnings and infos:



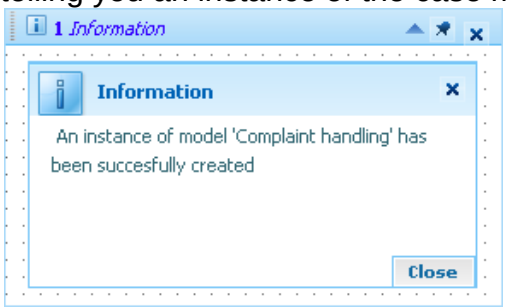
3. When you select any of the warnings or infos, automatically the corresponding construct will be highlighted in the case model. Study the list of warnings and infos to make sure you understand them.
4. Publish your case model using any of the before mentioned methods, the same list of warnings and infos will appear again.

4.2 Running the Case Model

To ensure your case model meets the business goals you have set for it, you can execute the case model now without having implemented any forms or processes yet.

4.2.1 Starting a case model

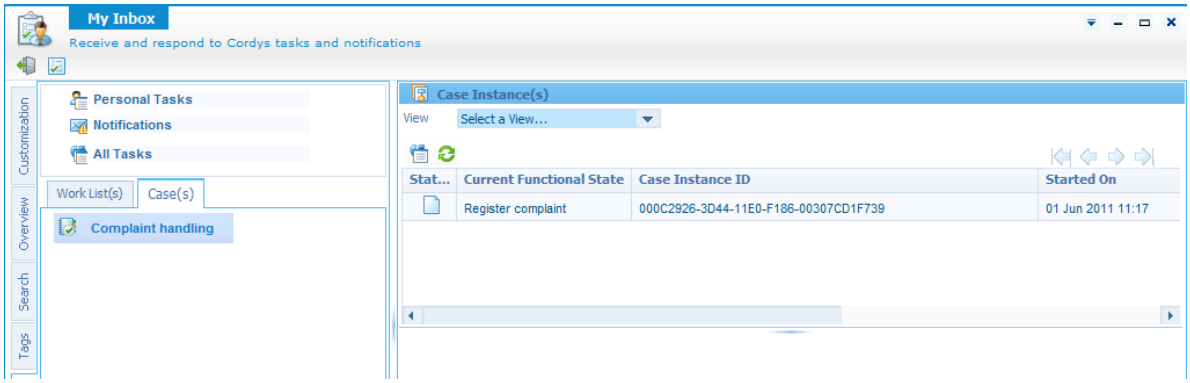
1. If closed, open your *Complaint handling* case model.
2. Right click the model and select ***Execution → Run*** (F12). A blue UFO is shown telling you an instance of the case model is started.



4.2.2 Handling the case instance

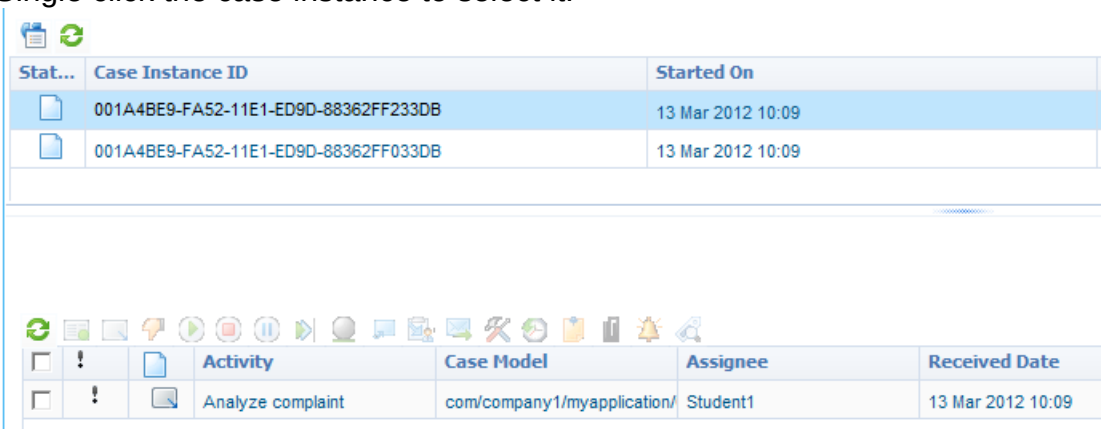
1. In the My Applications palette, click  to open *My Inbox*.

2. Go to the tab *Case(s)* and select the case *Complaint handling* to view instances for this case model



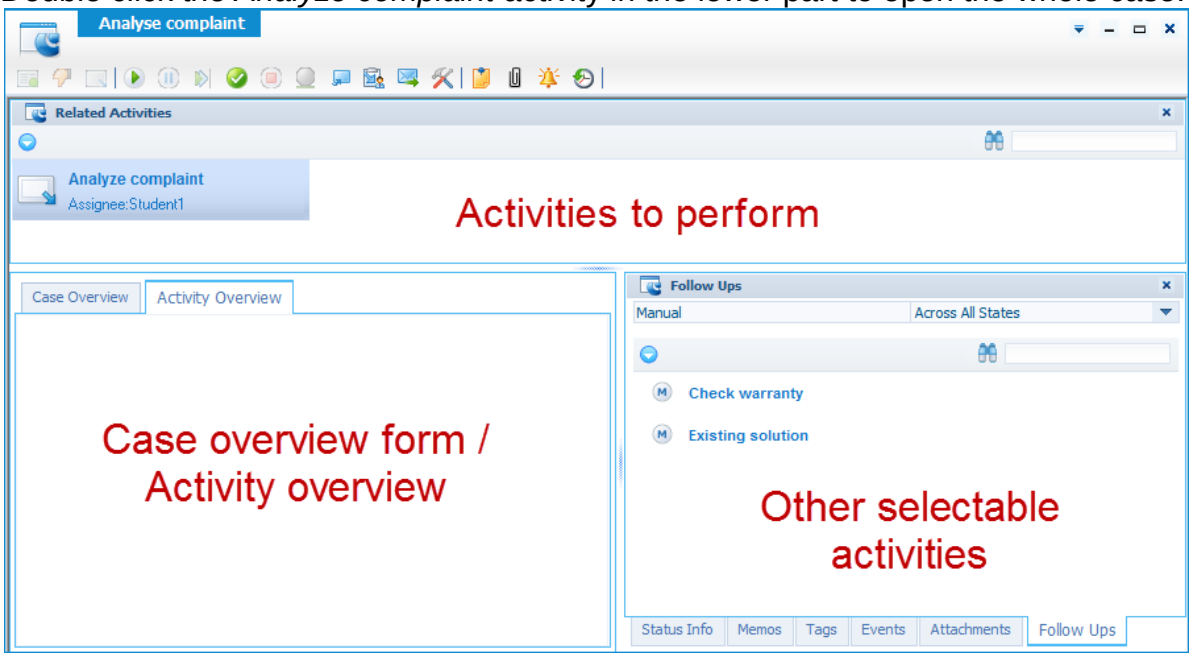
Currently you only see default information of the case instance. When you have added case data and case identifiers you will see additional information like customer name.

3. Single click the case instance to select it:

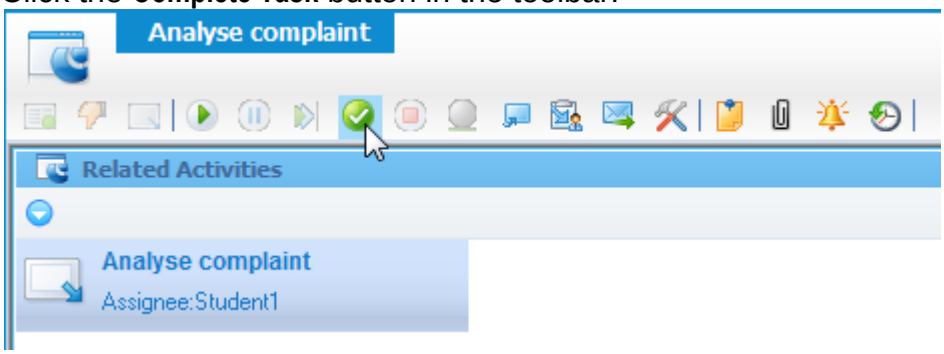


In the lower part you will see all the activities that are assigned to you.

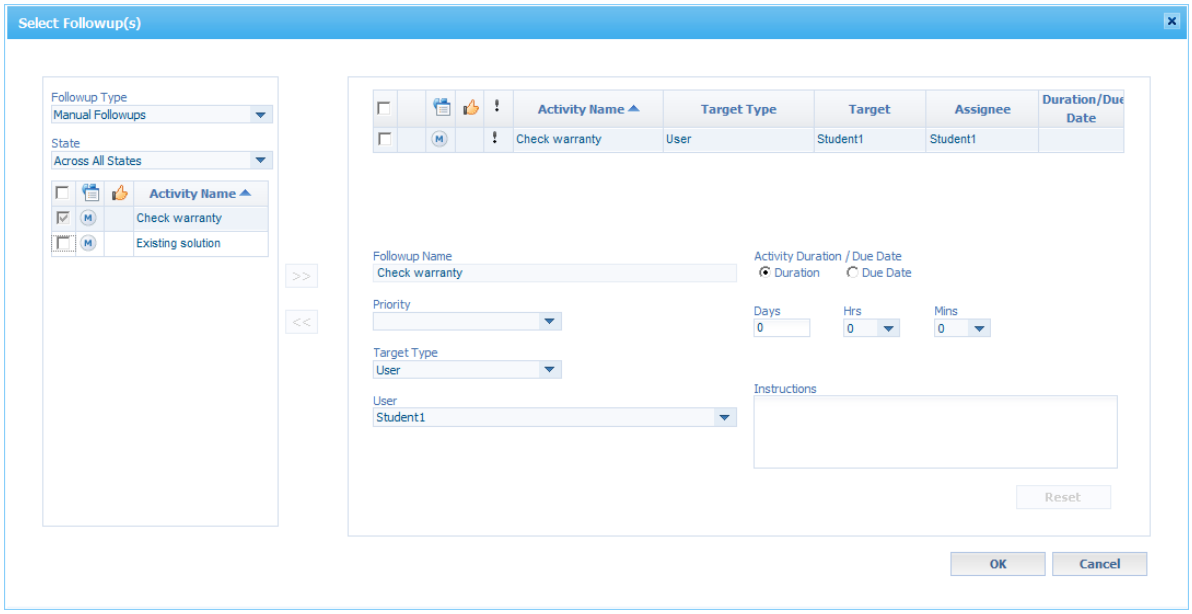
4. Double click the *Analyze complaint* activity in the lower part to open the whole case:



5. Click the **Complete Task** button in the toolbar.



6. In the *Select Followup(s)* screen that opens up, check the activity *Check warranty* and click the >> button.



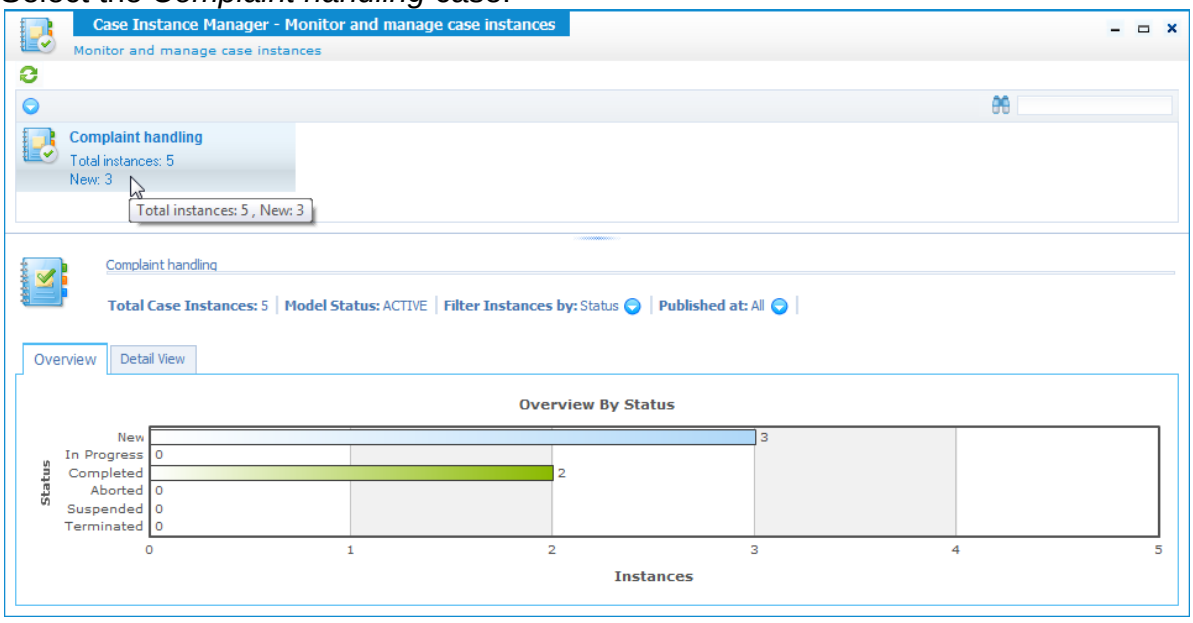
7. Click the **OK** button. The *Check warranty* activity is listed in *Related Activities.*
8. Use the Complete Task button to complete the *Check warranty, Handle complaint* and the *Send invoice* activities to finish this case.
9. Start another case instance, now choosing the *Existing solution* as a manual follow up to test that option as well. Run though all the activities till the case completes.
10. Start 3 more instances of the case model, but do not start working on any of them.

4.2.3 Case Monitoring

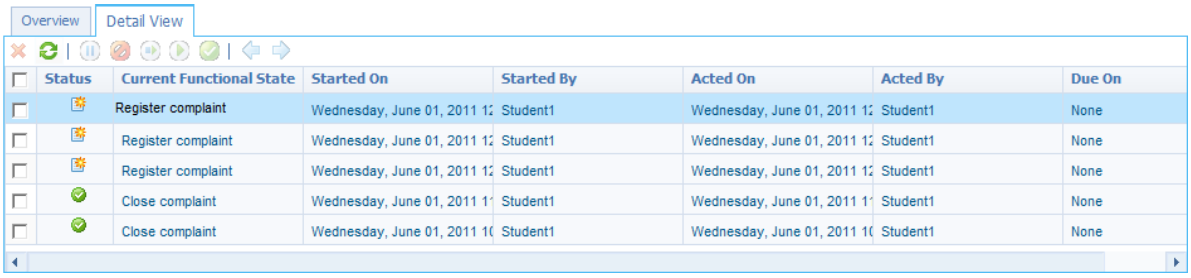
In this exercise you will be introduced into the concept of monitoring case instances. This is the area for the administrator that is responsible for monitoring the progress of a case, review previous case information and check workload.

1. In the *My Applications App Palette*, click *Case Instance Manager* ().

2. Select the *Complaint handling* case:



3. Select the *Detail View* tab to get more detailed information about which state all of the cases are in:



4. Close the *Case Instance Manager*.

4.3 Make Changes Available to SCM

In this exercise you will make your developed content/changes available to your team members by sending the changes to the SCM application.

You should only make changes available when they are working according to you.

> **NOTE**
> This only applies when your workspace is created with using an SCM application.

6. If closed open the Workspace Documents.
7. Click **Make Changes Available to Others** ( ) in the toolbar.
8. Review the modified content
9. Provide as comment **Case Models**.
10. Click **Make Available**.

5. Learning Report

Achievements

- ❑ I know the Cordys Closed Loop BPM Cycle concept
- ❑ I am able to make a business process model
- ❑ I know the process instance concept
- ❑ I am able to validate and publish a process
- ❑ I can monitor instances of started process

Notes