CORDYS academy

Workflow

Exercises

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1. Module

1.1 Objectives

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

- Explain the usage of user interfaces in processes
- Understand the options to manage the flow of work.
- Build a process and implement varies workflow aspects
- Explain the concept of Organization models and work lists
- Use different task type assignments
- Use process identifiers to search for process
- Use task identifiers to search tasks

1.2 Overview

When human interaction is involved in a process, this process is defined as workflow process, as the human interaction typically determines the flow of the work. You want to manage the work by optimizing the work by using business calendars to determine due dates etc.

In this module, you will study the concepts of workflow processes and how you can implement workflow related components to manage the work. Business advantages are pointed out and basic implementation is covered by hands on exercises.

2. About Workflow

2.1 Introduction

Within Business Processes a lot of the activities are either done by systems or humans. In Cordys both are treated the same; it does not matter if a system or a user performs the action. Both are implemented by means of services that are included as activities in the business process or a case model.

In workflow processes, users collaborate in order to fulfill a task or a subtask. In Workflow Management, workflows are modeled out and executed. By monitoring these workflow instances, businesses can get grip on their processes. Workflow processes can be exposed or outsourced to third parties.

Workflow processes are modeled with the BPM editor. In this module, you will see how to module a workflow process and various ways to implement workflow related components to optimize business performance.

Workflow participants can receive their tasks in the Cordys Inbox or in their regular email inbox.

2.2 References

More information about this subject is available:

- Cordys Online Documentation
  Working with Business Models → Modeling Business Processes
  Developing Applications→ Working with Web Applications
  Reference → Application Development
  Reference → API → Web APIs
- http://community.cordys.com

3. Workflow Process Management

3.1 Prerequisites

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

You must have completed the following modules

- Application Management.
- Developing Business Process
- Developing User Interfaces

You must have ONLY the following roles assigned to yourself

- Administrator
- Developer
- Cordys Fundamentals Trainee

Starting the required service container

1. Make sure the *Cordys Services* (service container) in your organization is started.

3.2 Qualify and Analyze

In this exercise, you will analyze the situation on which the processes you will build in this module are based.

1. Read the following analyzed situation:

   In a retail company, ordered goods are purchased without initially executing a proper credit check for the customer who placed the order. So at the moment when orders are ready to be shipped, it is determined that the ordering customer has unpaid invoices that exceed their limit.

   Effectively, this means that the purchased goods will not be shipped until the credit validity check on the customer succeeds. This leaves the company with a disinvestment of purchased goods that are left in the warehouse waiting to be shipped (which in some cases never happens).

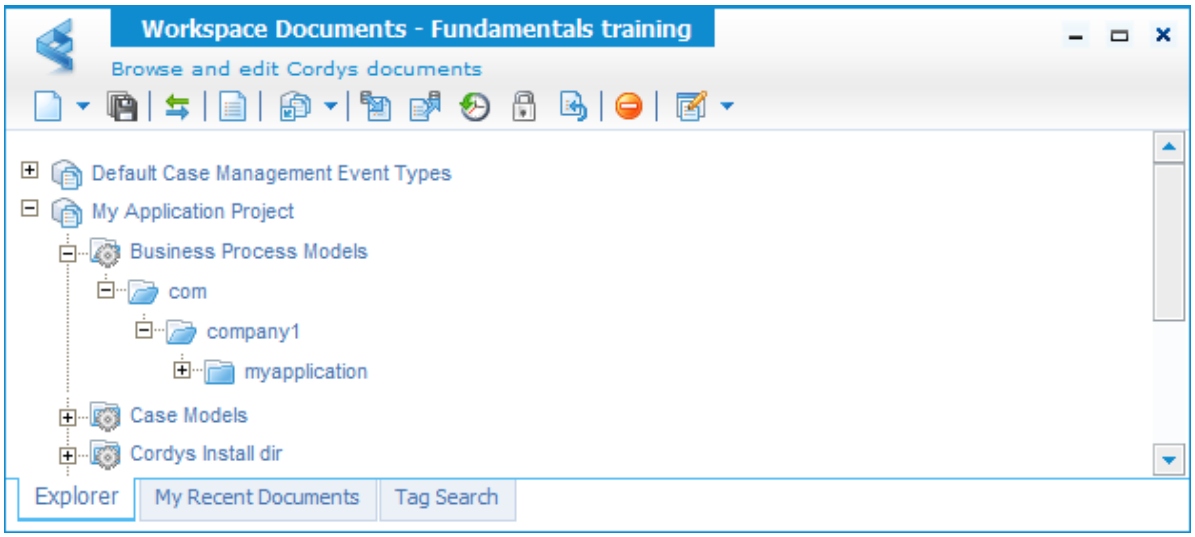
You will design a business process that validates the financial status of the customer before the ordered goods are purchased and shipped.

3.3 Designing and Modeling the Business Process

In this exercise you will design the sales order handling process. You will not model the complete process, but just a fragment, so you are able to focus on the workflow aspects without the additional complexity of a complete process design.

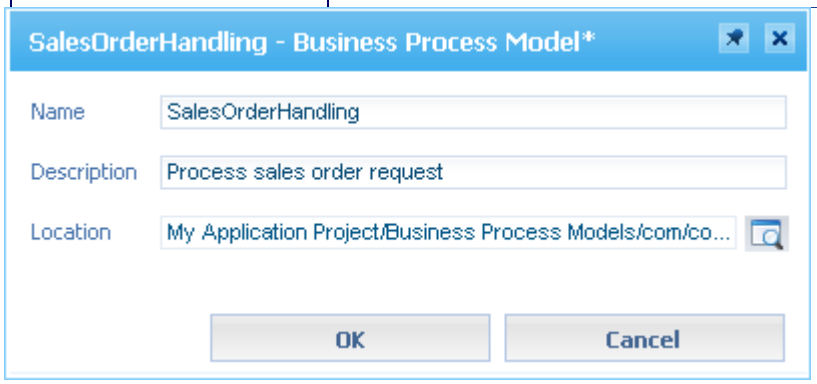
3.3.1 Creating the Business Process Model

2. Open the *Workspace Documents* ( ).
3. Open the *Fundamentals training* workspace.
4. In *My Application Project*, navigate to *Business Process Models → com → companyX → myapplication*.



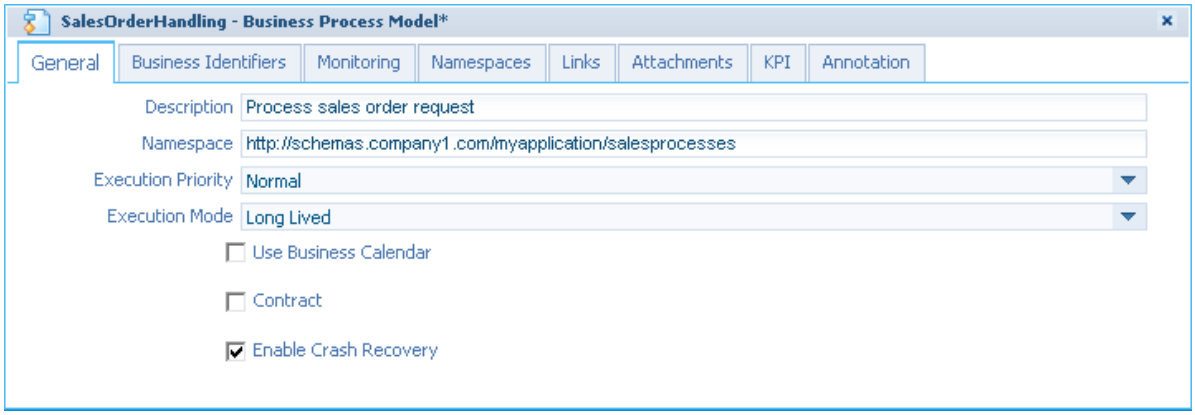
5. Right click the *myapplication* folder and create a new document of type *Business Process Model*.
6. Click the **Save** button.
7. Provide the following values:

Field	Reference
Name	SalesOrderHandling
Description	Process sales order request
Location	Prefilled with: My Application Project /Business Process Models/com/companyX/myapplication



8. Click **OK**.
9. Right click in the processes and select *Properties* (F8).

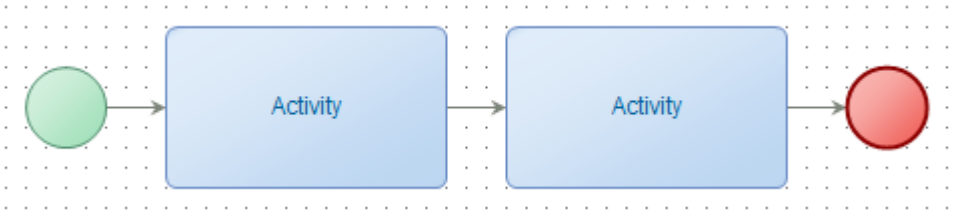
10. Change the Namespace to:
http://schemas.companyX.com/myapplication/salesprocesses



11. **Save** the process.

3.3.2 Designing the Business Process

1. Create a process design like this:



2. Rename the first activity to **Check Financial Status Customer**.
3. Rename the second activity to **Check Product Stock**.
4. **Save** the process.

3.4 Developing the BPM Activities

Both activities in the sales process are tasks. Tasks are executed by people. Therefore you need two user interfaces:

- One to check the financial status of the customer.
- One to verify whether there is enough stock to deliver the order.

For training purposes both user interfaces are just simple forms. You can learn about creating user interfaces in the module *Developing User Interfaces*.

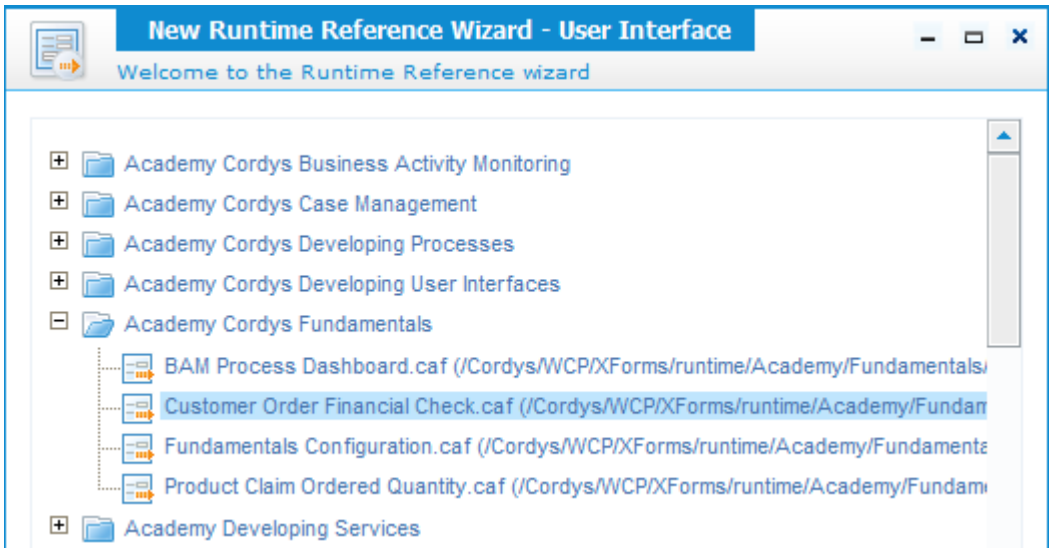
In the BPM you will use user interfaces that are delivered with the training software. The forms are comparable with the forms you have built in the module developing user interfaces. To avoid a dependency with that module and to make sure that the exercises matches the form design you will use the forms from the *Academy Cordys Fundamentals* application package.

3.4.1 Adding Runtime References

Adding the user interface references

> **NOTE**
> Although you might have completely finished all the exercises in the module *Developing User Interfaces*, you will use pre-built versions of the two user interfaces used in this module.

1. If closed, open the *Workspace Documents.*
2. Navigate to *Runtime References → User Interfaces*.
3. Right click the *User Interfaces* folder and select *Add Runtime Reference → Other*.
4. Select type **User Interface**.
5. Expand the application folder *Academy Cordys Fundamentals:*



6. Select *Customer Order Financial Check.caf*
7. Click **Finish**.
8. Repeat the steps for the *Product Claim Ordered Quantity* user interface.

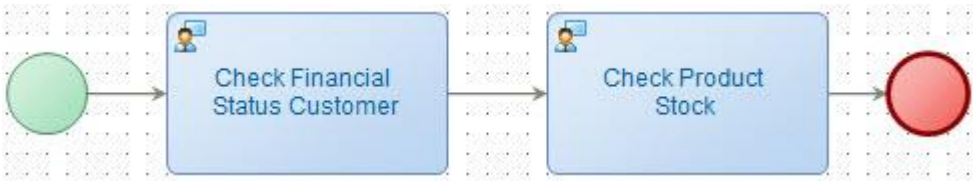
3.5 Developing and Deploying the Business Process

In this exercise you will rework your business process into an executable process. You will do this by adding the relevant user interfaces to the given activities and providing the data flow between these activities.

3.5.1 Implementing the BPM Activities

1. If closed, open the BPM *SalesOrderHandling*.
2. Using the *Workspace tab, a*dd the *Customer Order Financial Check* user interface to the first activity.
3. Add the Product Claim Ordered Quantity to the second activity. Do not change the descriptions.

4. Your process should look similar to this:



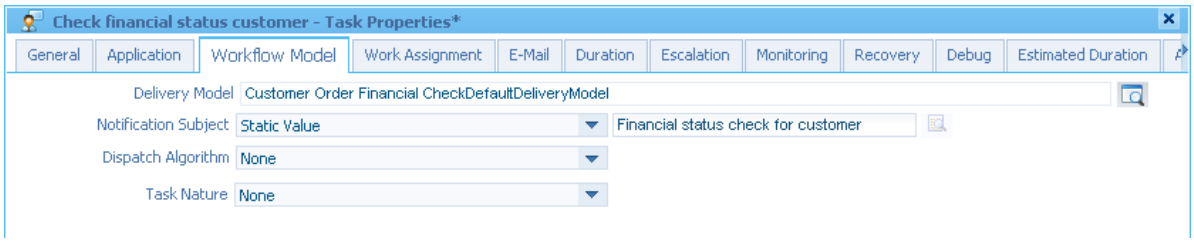
Is the message type for a user interface by default task or info?

What needs to be done to get the message in the task list of a user?

3.5.2 Configuring the Workflow Properties

In this part you will set workflow related properties.

1. Open the properties of the *Check Financial Status Customer* activity.
2. Go to the *Workflow Model* tab page.
3. Enter a static *Notification subject*: **Financial status check for customer**.



4. For the *Check Product Stock* activity, change the subject to: **Claim products for order**.

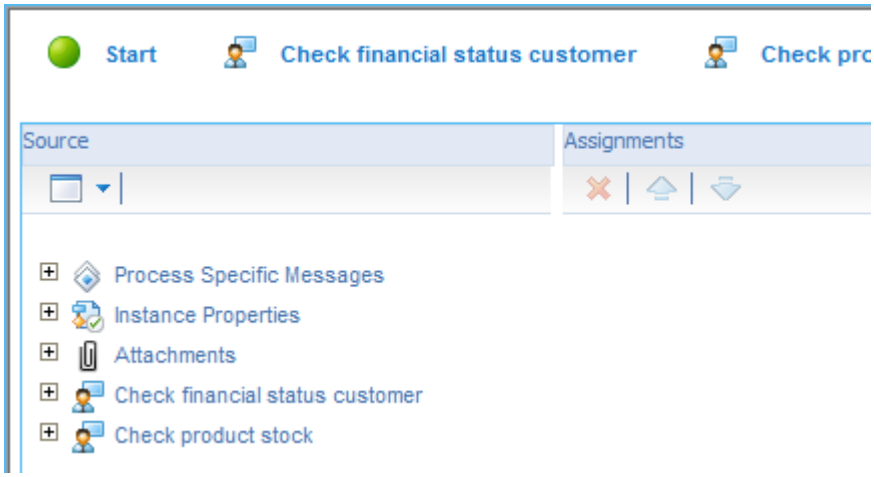
Who is the work assigned to by default?

5. **Save** the process.

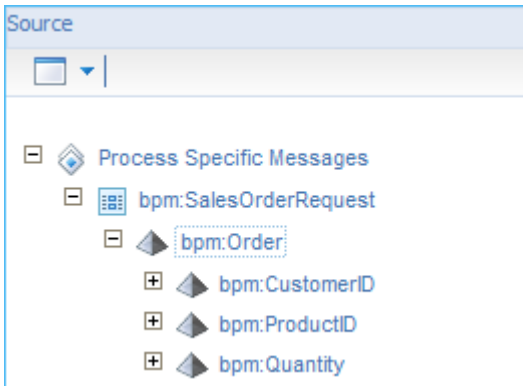
3.5.3 Creating a Process Start Message

In this part you will create the start message for the process.

1. Go to the *Message Map* tab page:

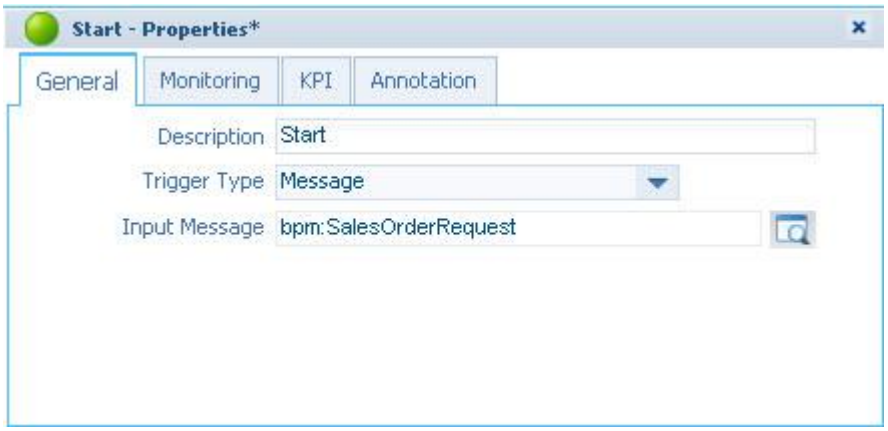


2. Right click *Process Specific Message* and select *Create Message*.
3. Specify name **SalesOrderRequest**.
4. Right click *SalesOrderRequest* message and select *Create Element*.
5. Specify name **Order**.
6. Right click element *Order* and add the following elements (one by one):
   - **CustomerID**
   - **ProductID**
   - **Quantity**



7. Go to the *Model* tab page.
8. Open the properties of the *Start* event.
9. Set *Trigger Type* to **Message**.

10. Use the **Look up** button to select the newly created message:

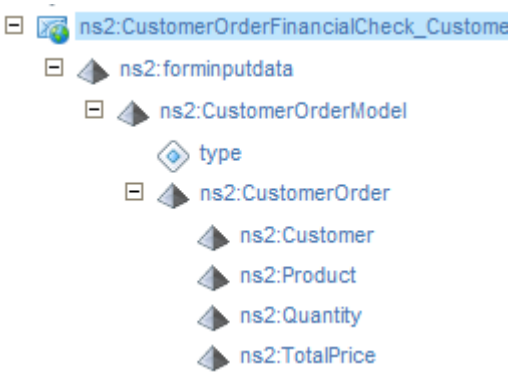


3.5.4 Defining the Data Flow

In this part you will create the assignments to control the data flow in your process between the activities.

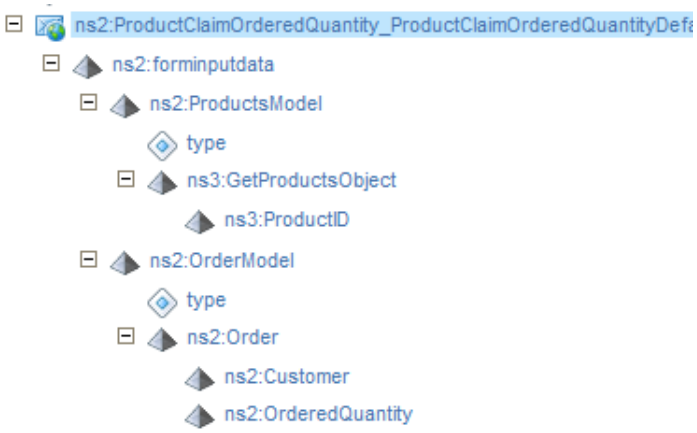
1. Go to the *Message Map* tab page.
2. Select the *Check Financial Status Customer* activity and the *Pre Assignments* tab.

3. In the *Target* box, right click the element *forminputdata* below the message *CustomerOrderFinancialCheck_xxxx* and select *Expand all*.

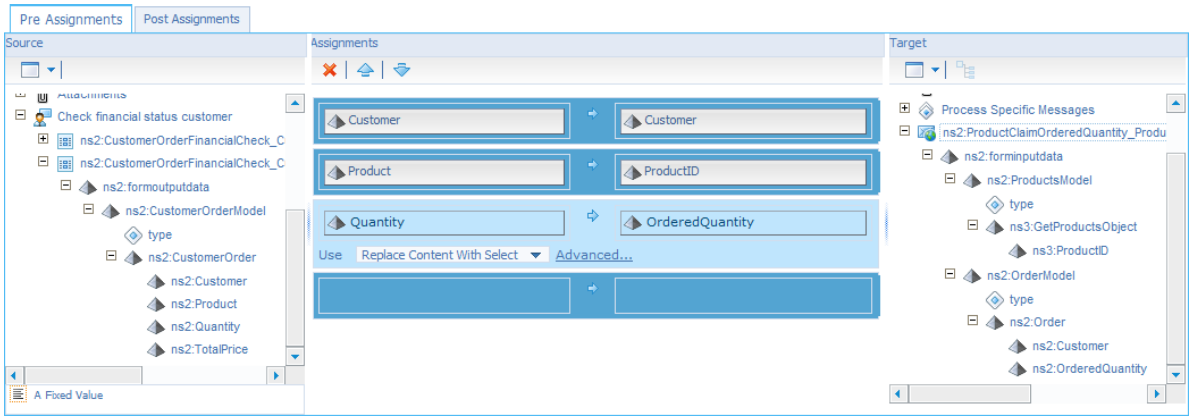


4. Create assignments for the related elements of the *SalesOrderRequest* message to the input message of the *Financial Status* task (all except *TotalPrice*).
See appendix on page 57 for instructions.

5. Select the *Check Product Stock* activity.
6. In the *Target* box, expand the message *ProductClaimOrderedQuantity_xxxx*:



7. In the *Source* pane expand the output message of the *Check Financial Status Customer* activity: *ns2:CustomerOrderFinancialCheck_CustomerOrderFinancialCheckDefaultDeliveryModel_OP*.
8. Create the assignments for the related elements to pass output data of the *Check Financial Status Customer* activity as input data to the *Check Product Stock* activity:

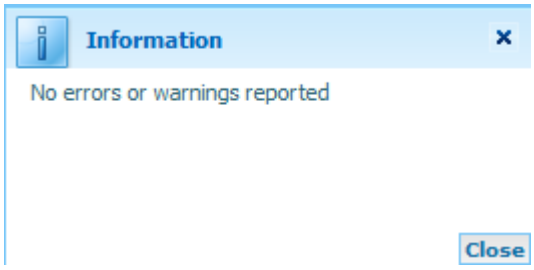


9. **Save** the process.

3.5.5 Validating and Publishing the Process

In this part you will validate and publish the created process in order to be able to run it.

1. Validate your process; (see the appendix on page 60).



2. Publish your process (see the appendix on page 60).

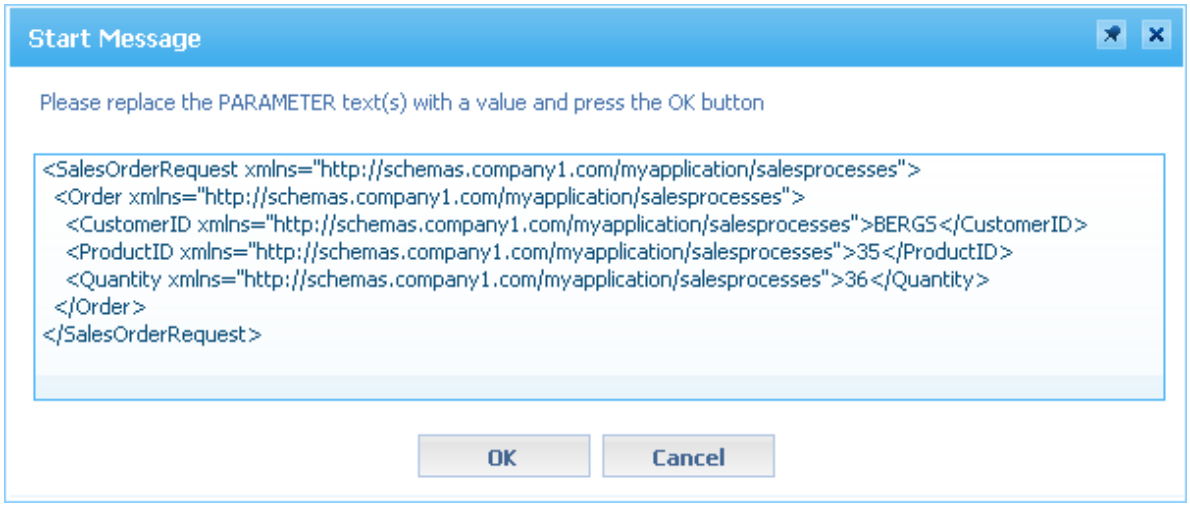
3.6 Running a Workflow Process

When you include a user interface in a process, a Delivery Model will automatically be created for the given user interface. The delivery model contains properties on how the task appears in the Cordys Inbox or email.

In this exercise you will run your developed process and explore the runtime behavior of the process. Then functionality of the Cordys Inbox is explored. Finally task identifiers are added. Optionally you can add work instructions to your Activity.

3.6.1 Running the Process from Design time

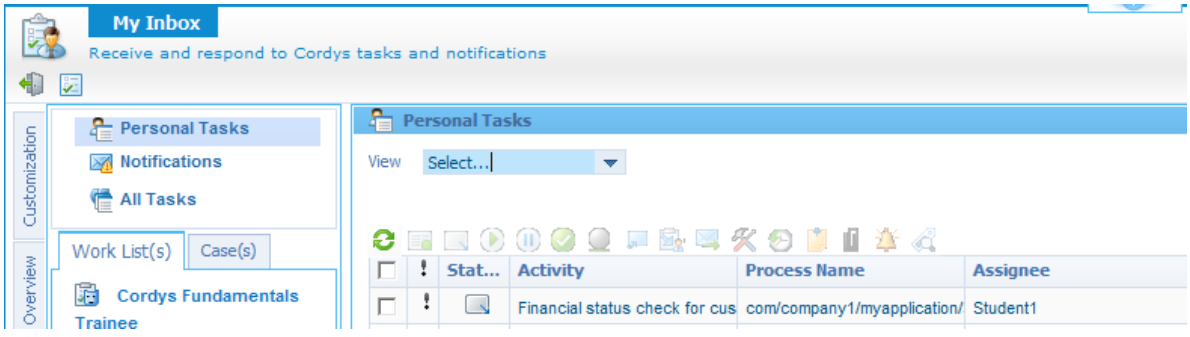
1. Run the process *SalesOrderHandling* (see the appendix on page 61).
2. Provided relevant input details (Product ID values range from 1 to 77, Customer ANTON, WOLZA or ALFKI).



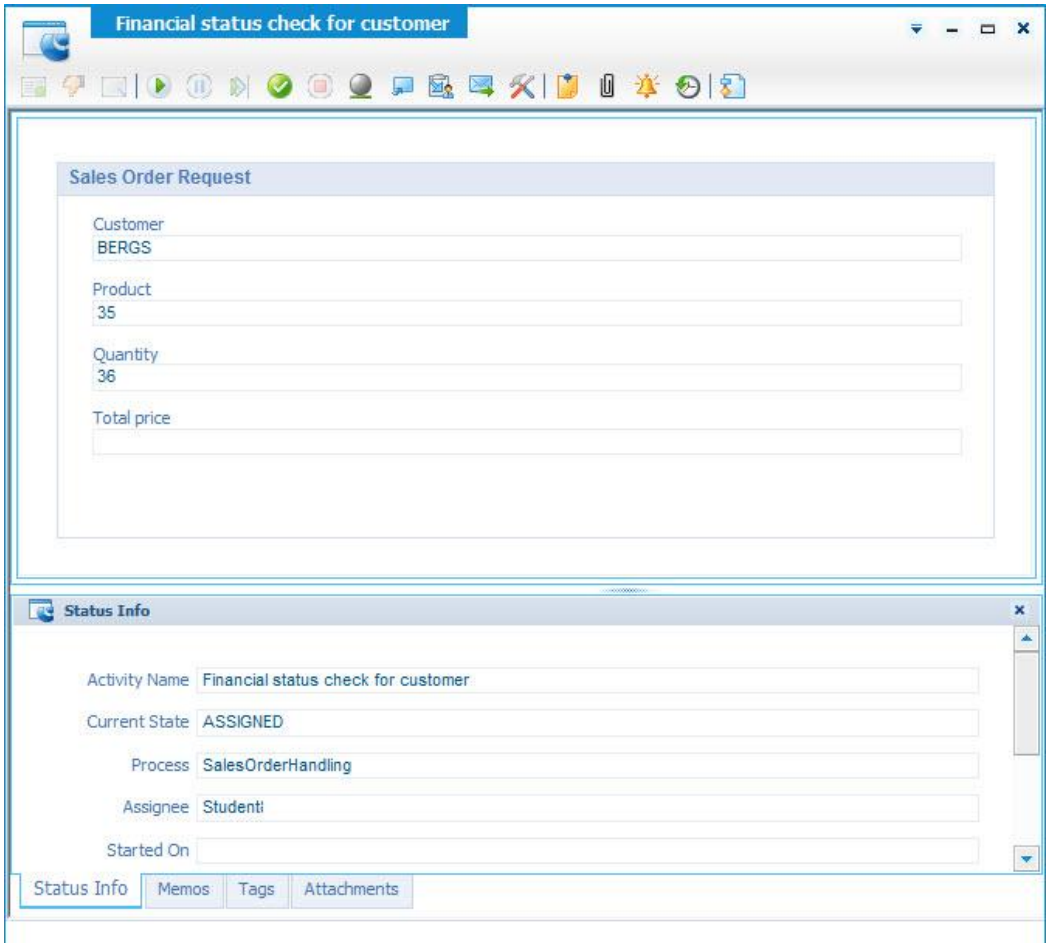
3. Click **OK**, the process is started.

3.6.2 Executing Tasks

1. Open *My Inbox* ( ) via *My Applications* App palette.
2. In the *Personal Tasks* list, you will receive the *Financial status check* task:



3. Double click the message to open it.



4. Click **View Process** ( ) to view the "current activity" within the process instance.

How can you see which activities are done, what the current activity is and which activities are not executed (yet)?

_____

_____

5. Close the *process view* window.

6. Go to tab *Memos.*

7. Click **Add Memo (** **)** and add a memo with the text **Financial status at 10%.**

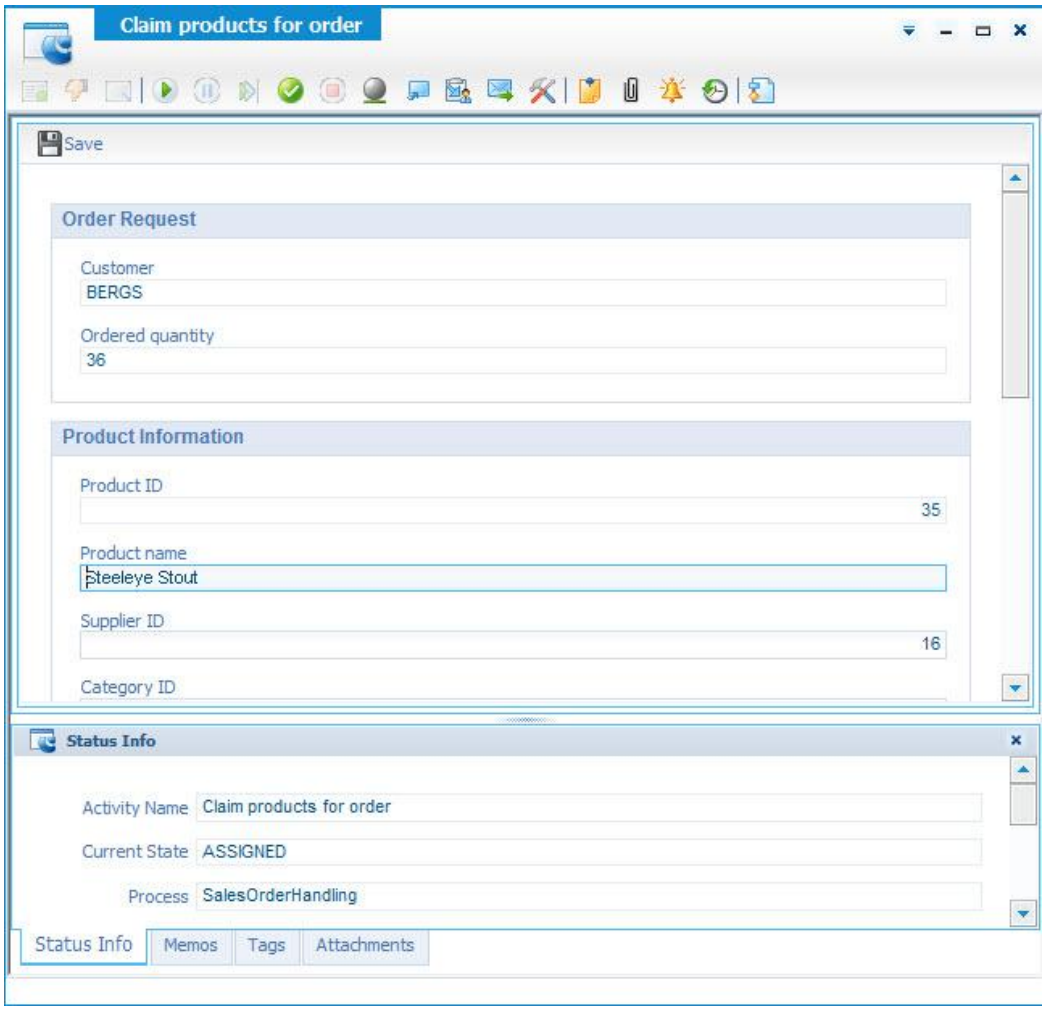
8. Click **Complete Task**( ).

NOTE

When you complete a task, the task is removed from the current list. In the *View* select box you can select *Completed Tasks* to re-view those tasks.

The process continued due to the completion of the first activity. The new task automatically appears in your inbox.

9. Open the *Claim products for order* task; check that the correct order data and product information is displayed.



10. View the *Process* model again and notice the progress.

11. Close the *Process View* form.

Can you see the memo of the former activity?

12. Explore the various icons in the toolbar without actually performing the action.

What is the difference between forward and delegate?
Tip: use the documentation.

13. Change the *Units in Stock* quantity.

What happens if two users change the quantity at the same time?

14. Complete the task.

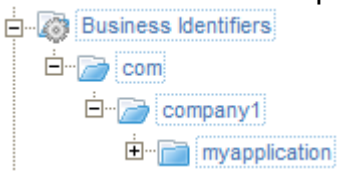
3.7 Monitoring a Workflow Process

In this exercise you will run your developed process and monitor the runtime behavior of the process.

When a customer contacts you to inquire about the status of his/her order, it can be cumbersome to find the corresponding process and task(s). Including business identifiers in your process allows you to create your own identifiers to search for the process in the process instance manager.

3.7.1 Creating the Folder Structure

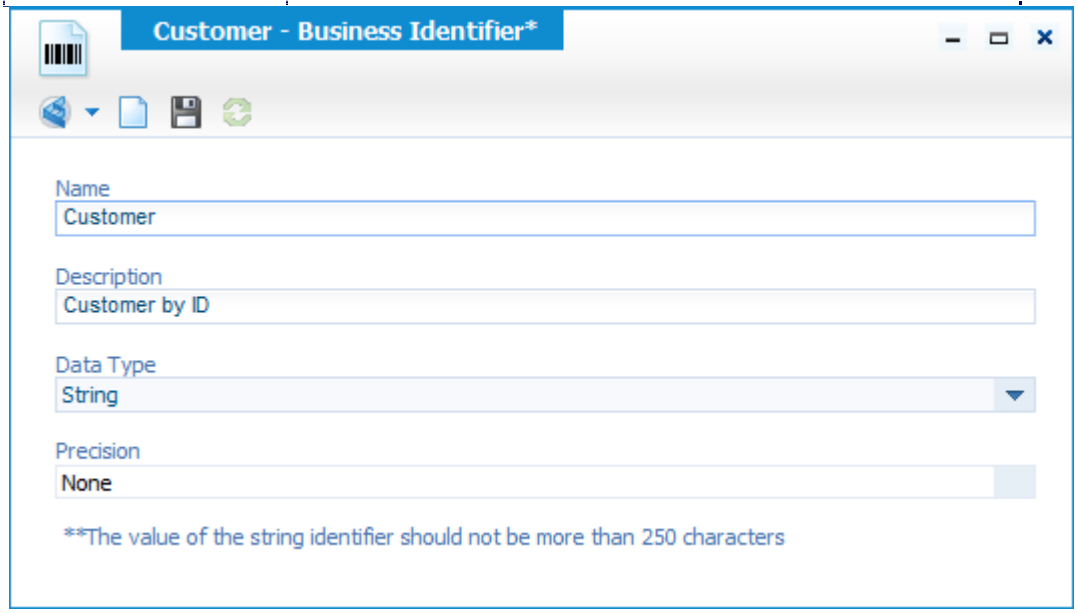
1. Open the *Fundamentals training* Workspace.
2. In *My Application Project*, create a new folder called **Business Identifiers**.
3. Right click the folder you just created and click *Set Start Point of Qualified Name*.
4. Also create the same qualified name structure **com – companyX – myapplication**.



3.7.2 Creating Business Identifiers

1. Right click *myapplication* folder and select *New → Other*.
2. Choose to create a new *Business Identifier* (Business Identifier
Define and use Business Identifiers).
3. Provide the following values:

Field	Value
Name	Customer
Description	Customer by ID
Data Type	String
Precision	None

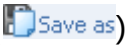


4. **Save** and close the document.

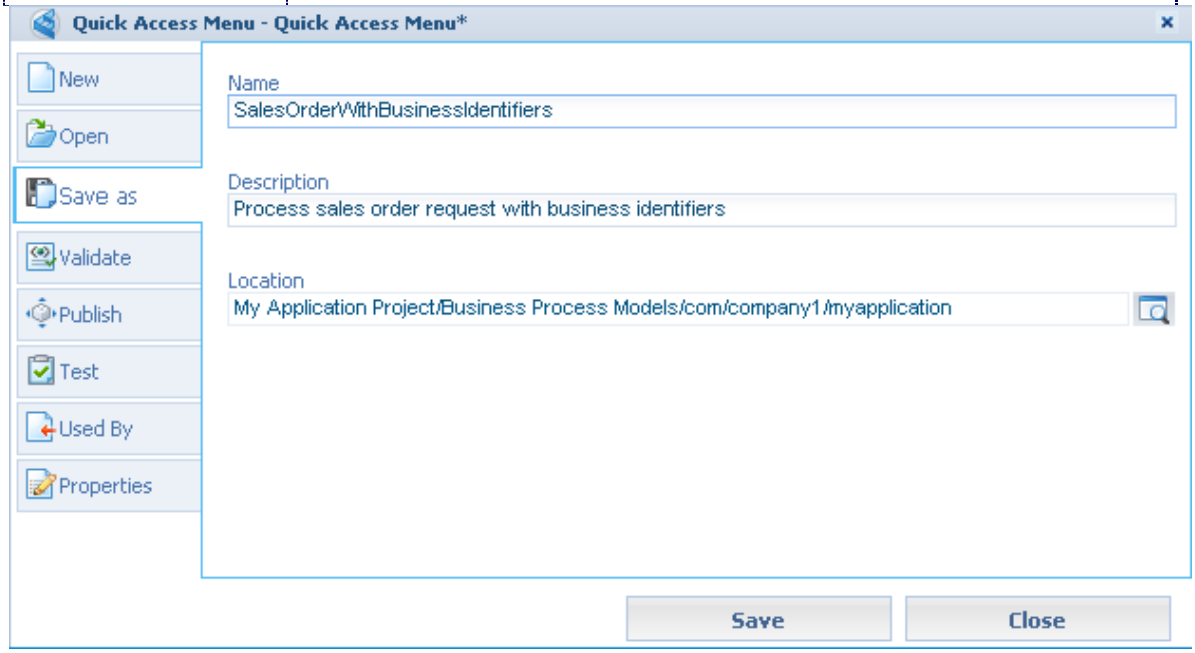
5. Create another business identifier for **Product number** with data type *Numeric* and precision *None*.

   What does the number in the field Precision mean?

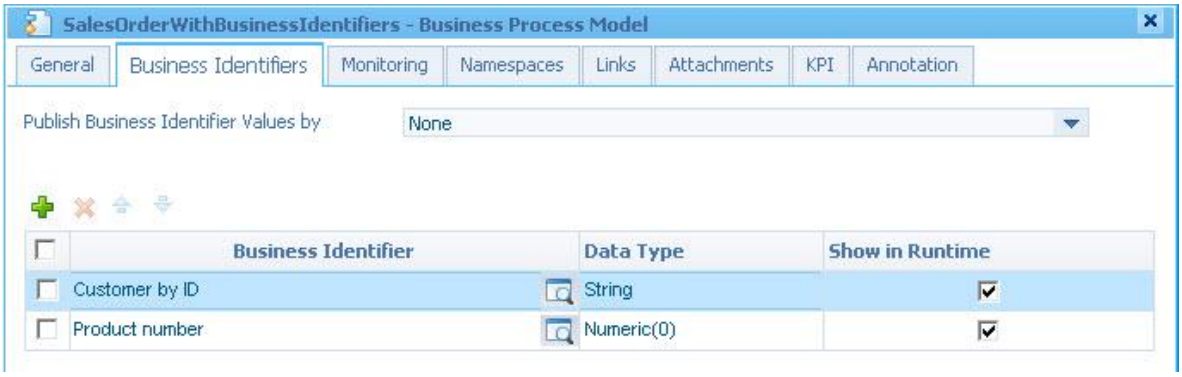
3.7.3 Using Business Identifiers in a process

1. Open the *SalesOrderHandling* business process.
2. Click **Menu** ( ) in the toolbar.
3. Click **Save as** ().
4. Provide the following values:

Field	Value
Name	*SalesOrderWithBusinessIdentifiers*
Description	Process sales order request with business identifiers

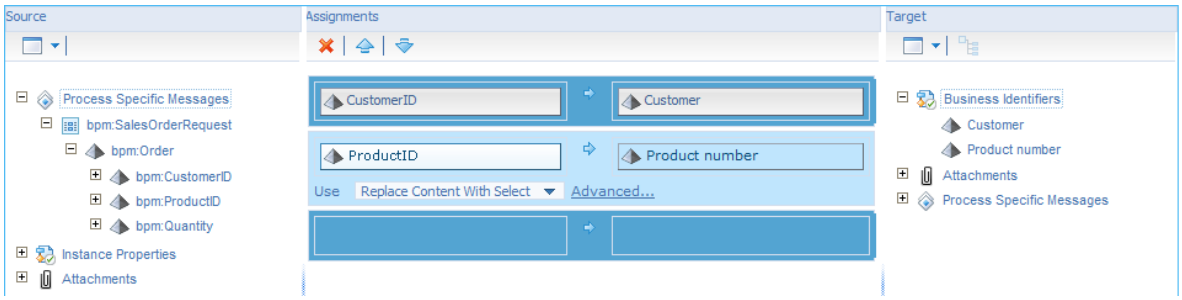


5. Click **Save**.
6. Open the properties of the process.
7. Go to tab page *Business Identifiers*.
8. Add the business identifiers you created before:



9. Go to the *Message Map* tab.

10. Select the *Start* event.
11. Create an assignment from *CustomerID* (*bpm:SalesOrderRequest*) to *Customer* (Business Identifiers).
12. Create an assignment from *ProductID* (bpm:SalesOrderRequest) to *Product number* (Business Identifiers):

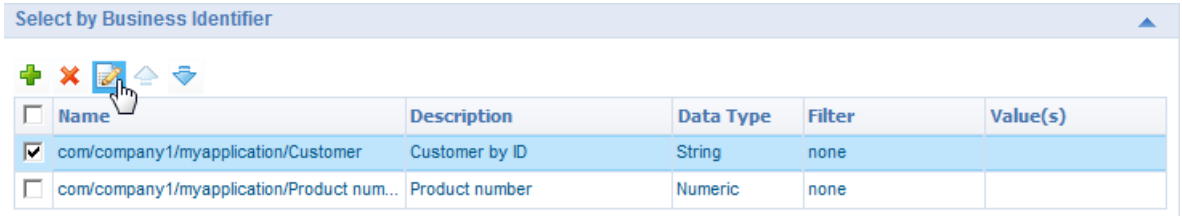


Why do you create the assignments on the start event and not, for example, the customer o the finance activity and the product number on the purchase activity?

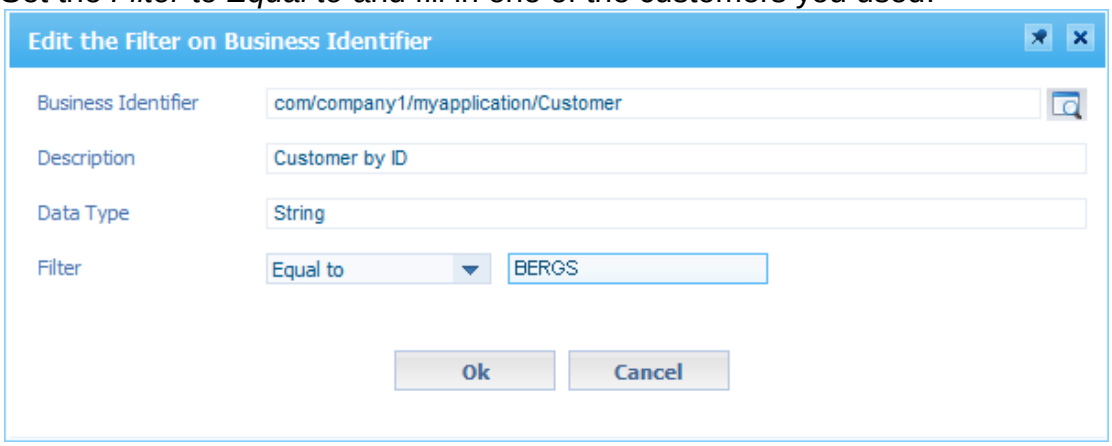
13. Save, validate and publish the process.

3.7.4 Monitoring Processes with Business Identifiers

1. Run the process *SalesOrderWithBusinessIdentifiers* twice using different customers and **same** product number.
2. Open the *Process Instance Manager (* Process Instance Manager).
3. Click **Find** ( ).
4. Select *Business Process SalesOrderWithBusinessIdentifiers*.
5. The *Select by Business Identifier* group box shows the available business identifiers for this process.
6. Check the checkbox for *Customer by ID* and click the *Edit the selected Filter on Business Identifier* button ( ):

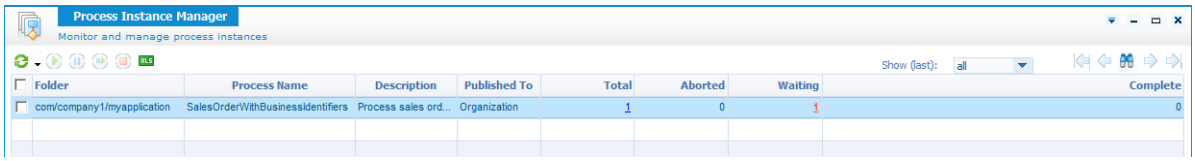


7. Set the *Filter* to *Equal to* and fill in one of the customers you used.

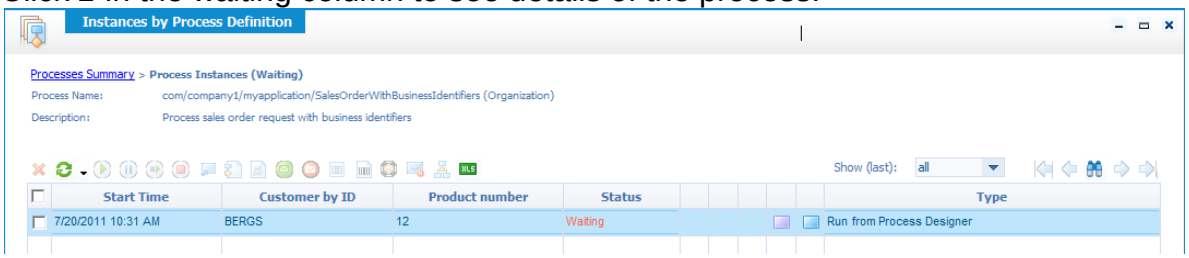


8. Click **OK** twice.

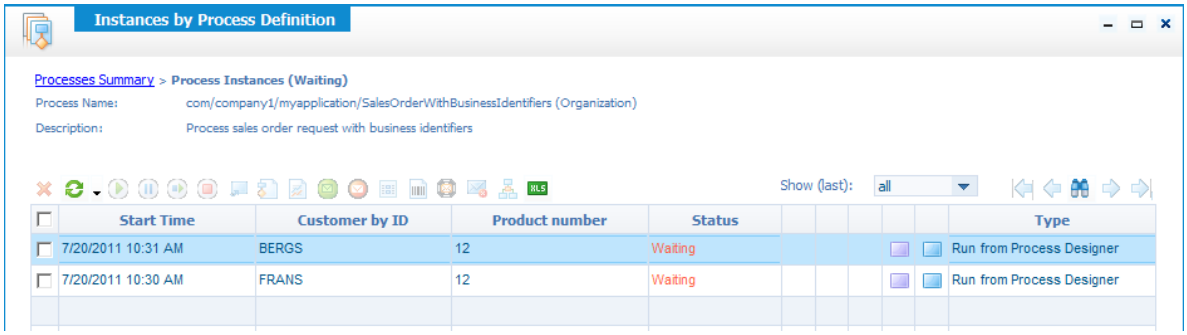
9. The *Process Instance Manager* now shows a filtered list of all processes that match the criteria you filled in:



10. Click *1* in the waiting column to see details of the process:



11. Change your search to look for all Waiting orders with the *Product number* specified earlier:



12. Close the process instance related windows.

3.8 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 after you have tested these to work correctly. This is to ensure that your team members' work is not affected when they incorporate your changes.

> **NOTE**
> This only applies when your workspace is created 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 **Workflow**.
5. Click **Make Available**.

4. Task Distribution

In this chapter you will explore the various methods to distribute the tasks within the process over the users that are involved in the process. You will learn how to apply swim lanes, roles, organization models, teams and work lists in your application.

4.1 Using Swim Lanes with Roles

In this exercise you will use swimlanes and roles to distribute tasks from your process. You will see that swim lanes provides a visible way of task distribution.

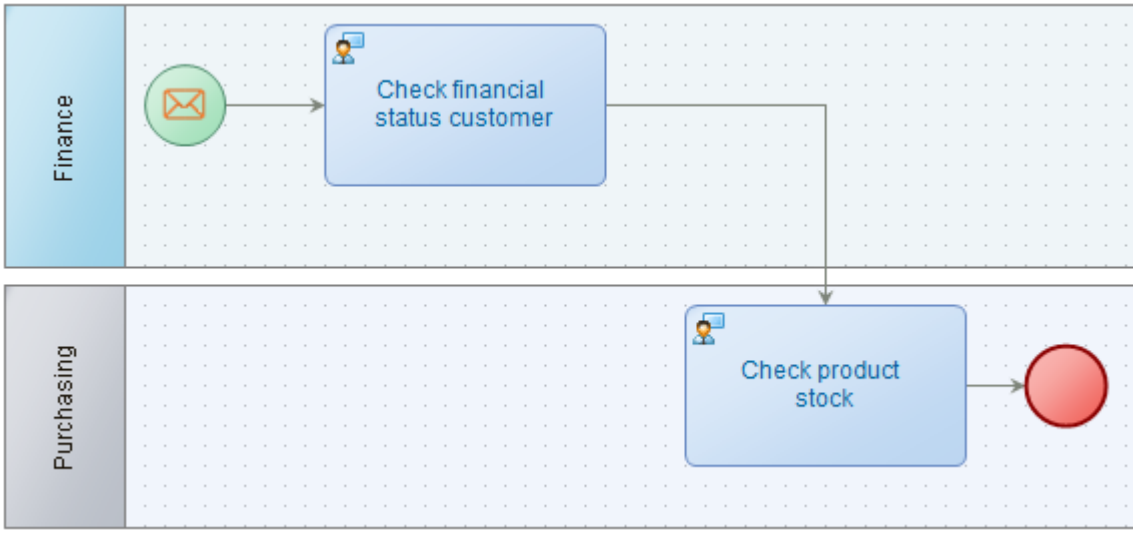
Why is it preferable to attach roles to a swim lane instead of users?

4.1.1 Adding Swim Lanes

1. Open the *SalesOrderWithBusinessIdentifiers* business process.
2. In the toolbar click **Menu** ( ) → **Save as** (Save as).
3. Provide the following details:

Field	Value
Name	SalesOrderViaSwimlanes
Description	Process sales order request using swimlanes

In the **next steps** you will re-design the model so it looks like this:



4. In the *Toolbox* select *Horizontal Lane*.
5. Click in the left top corner of the process.
6. Specify **Finance** as description for the lane.
7. Add a second lane below the finance lane with *description* **Purchasing**.
8. Move the relevant constructs to the appropriate swim lanes. Refer to the model as presented above.
9. Change the color of the lanes via the properties.

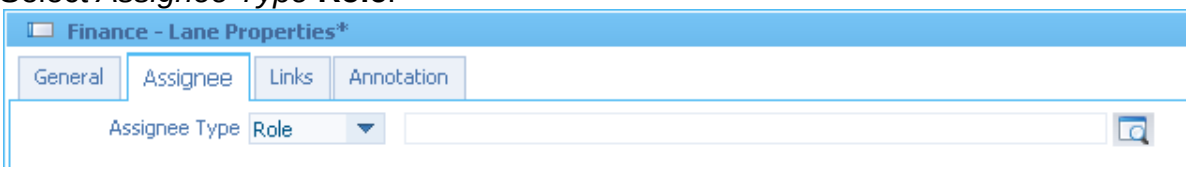
Are the lanes changing the process execution at this moment?

In this example the start event is not added to a separate lane. When would you add the start event to a lane also?

4.1.2 Assigning Roles to Swim Lanes

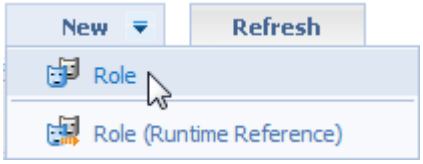
In this part you will create roles and assign them to the swim lanes.

1. Open the properties of the *Finance* lane.
2. Go to tab *Assignee*.
3. Select *Assignee Type* **Role**.



4. Click the **Look up** button to select a role.

5. Click **New** and select *Role* to create a new role.

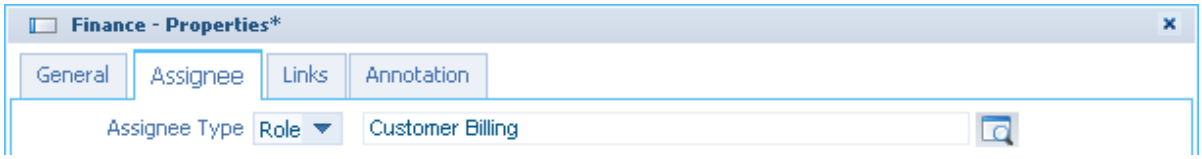


6. Enter the following details:

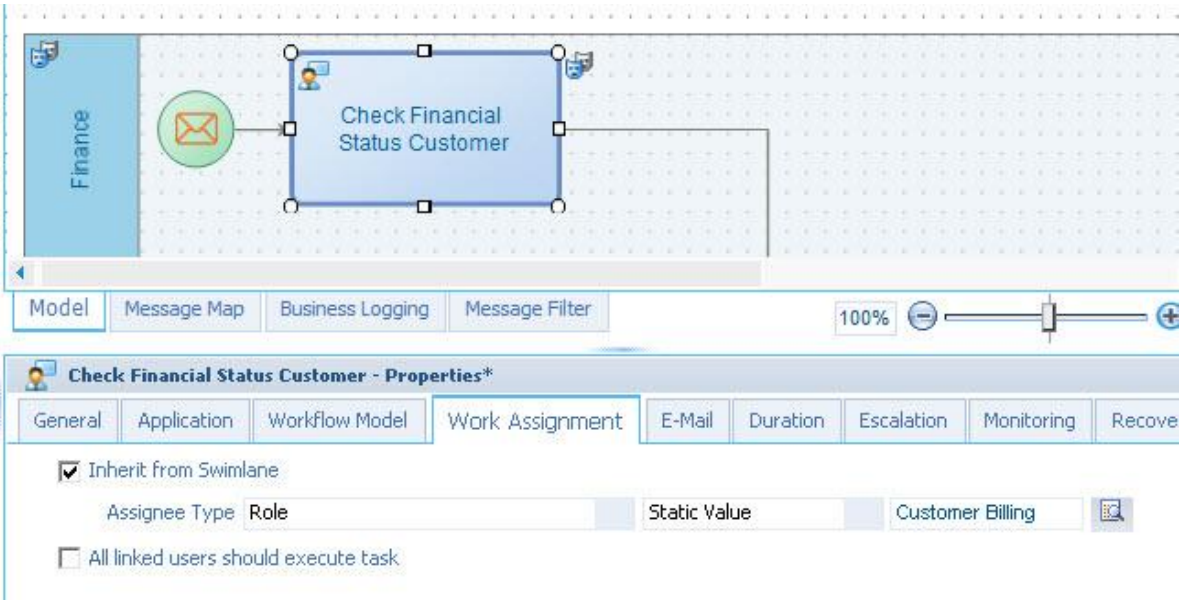
Field	Value
Name	Customer Billing
Description	Finance Customer Billing

7. Click **Save**.
8. Change the *Location* to *My Application Project/Roles*.

9. Click **OK** and close the Role editor.
10. Select the *Customer Billing* role to associate the role with this lane:



11. Open the properties for the *Check Financial Status Customer* activity.
12. Go to the tab *Work Assignment*.
13. Make sure *Inherit from Swimlane* is checked:



14. Apply the same settings to the *Purchasing* lane.
15. Create and assign a role with the following details:

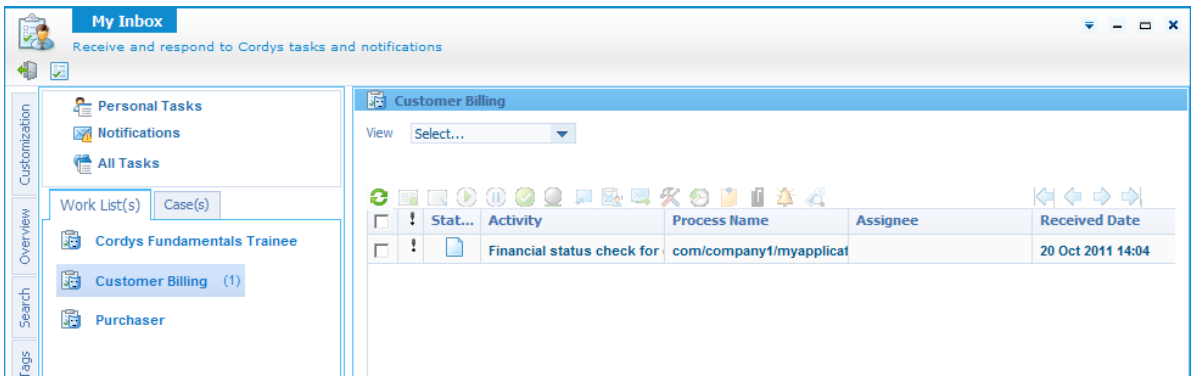
Field	Value
Name	Purchaser
Description	Purchaser External Goods
Folder	My Application Project/Roles

16. On the *Check Product Stock* activity, make sure to inherit the assignee from the swim lane.
17. **Save** the process.
18. Validate and publish the process.
19. Open the *User Manager* ( ).
20. Assign yourself both roles: *Customer Billing* and *Purchaser.*

4.1.3 Running the Process

1. Run the process and provide an appropriate start message.
2. Open the *Inbox.*

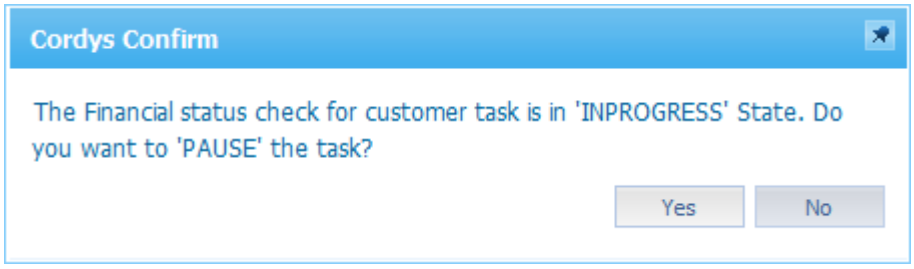
3. In the *Work List(s)* tab you can see an entry *Customer Billing*, which contains the new task:



4. Double click the *Financial Status Check* task to open it.

   Why is the complete task option disabled, although no one completed the task?

5. Claim ( ) the task.
6. Start the Task ( ).
7. Wait a few seconds and close the message without completing.



8. Click **Yes** (as you will work on something else first).
9. Open the message again.
10. Click **Resume Task** ( ).
11. Complete ( ) the task.
12. Complete the subsequent task from the *Purchaser* work list as well.

4.1.4 Monitoring the Process

1. Open the *Process Instance Manager* ( ).
2. Click in the **Total** Column for the *SalesOrderViaSwimlanes*.
3. Click **Show Activities** ( ).

   What is the duration for the Check Financial Status activity and how long did the user work on the task?

4. Close the *Process Instance Manager* screens.

4.2 Using Swim Lanes with Teams

In this exercise, you will learn how you can have more control over task assignment in your process by using teams. Teams are created by defining one or more Organization models.

An Organization model depicts the structure of your organization or a specific department. It is a designed and abstract model of the organization of the company or a department. An Organization model contains organization units.

An organization unit is a group of employees (or users) in the organization like a department, sub department or any other type of unit you wish to establish within the organization. The organization unit is used in business process models to assign work to. The runtime equivalent for an organization unit is called a *Team*.

In this exercise you will first build an Organization model. Next, you will explore how to use that model by distributing tasks to the teams via a business process model.

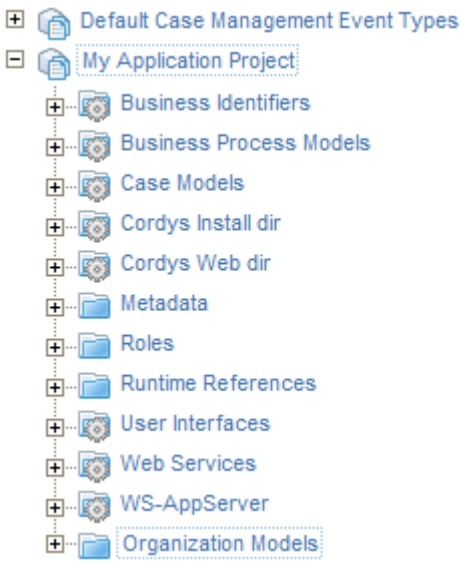
4.2.1 Creating Design Folder Structure

In this part you will configure the design time folder structure for Organization models.

1. If closed open the *Workspace Documents*.

Organization Models

1. Right click *My Application Project* and select *New → Folder*.
2. Enter the name: **Organization Models**.



Roles

Roles are an essential part of organization models as well; however you already have configured the folder that will contain the application specific roles.

4.2.2 Creating Deployment Structure

In this part you will configure the deployment structure for Organization Models.

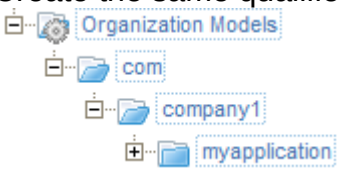
Organization model

For an organization model, there are two important components:

- **Organization Model**
  An organization model is a designed and abstract model of the organization of the company. So there is no (active) runtime component associated with it.
- **Organization Unit**
  The runtime equivalent of an organization unit is called a *Team*.

At runtime, *teams* can be selected by GUID (hard to remember) or by their path and Cordys document name.

1. Right click the *Organization Models* folder and select *Set Start Point of Qualified Name*.
2. Create the same qualified name structure: **com – companyX – myapplication**:



> **NOTE**
> Typically, an organization model (as well as business calendars) is common for a company and not specific for one application. In this training, you will add these components in the same application. However outside the training situation, you can create a separate application/project to contain those components that you wish to share with other applications as well. Effectively, when packaging these in a separate application, you can maintain them in another way/cycle as your processes, services, user interfaces etc.

4.2.3 Creating the Organization Model

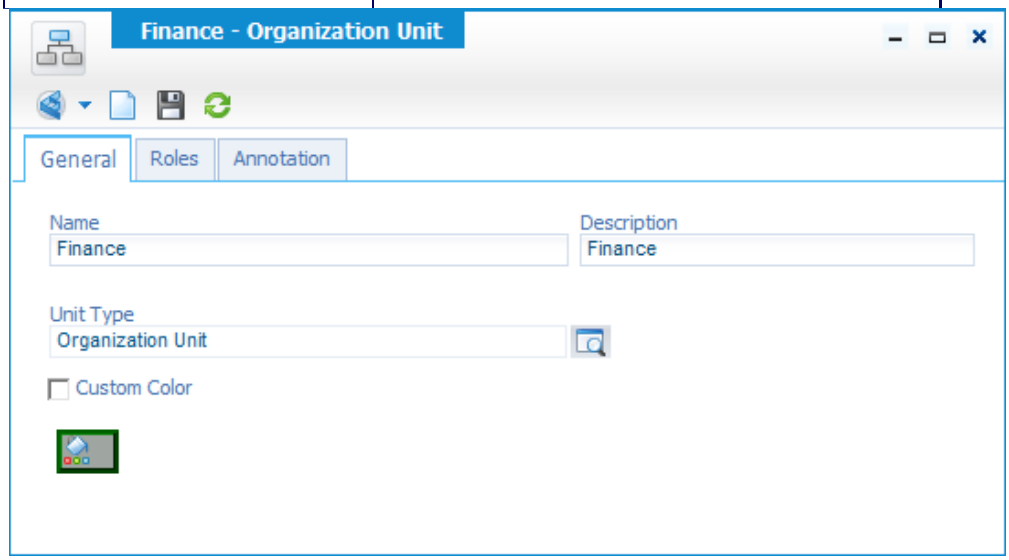
In this part you will create the organization model for your company by first creating the units and subsequently including these in an organization model.

Organization units

1. In the *My Application Project* navigate to *Organization Models → com → companyX → myapplication*.
2. Right click the folder and create a new *Organization Unit* document.

3. Enter the following details:

Field	Value
Name	Finance
Description	Finance
Unit Type	Organization Unit

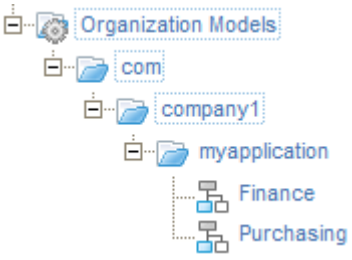


4. Click **Save**.
5. Click **New** to create another unit, and provide the following details:

Field	Value
Name	Purchasing
Description	Purchasing
Unit Type	Organization Unit

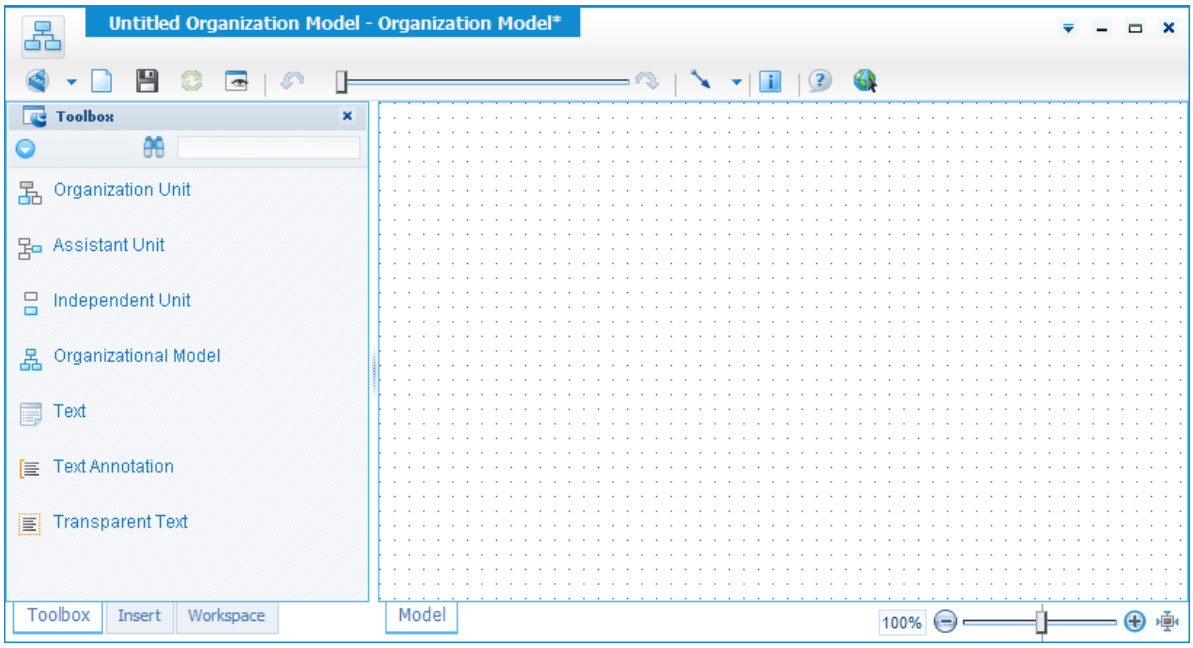
6. Click **Save**.

7. You now have two organization units:



Organization Model

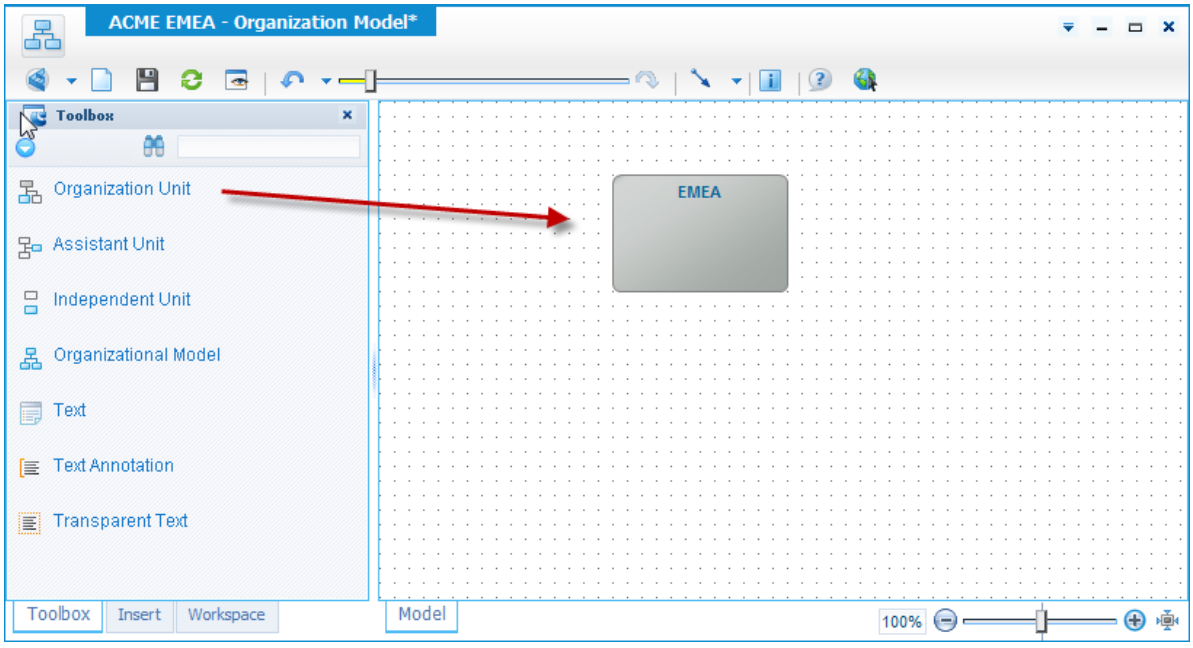
1. Navigate to *Organization Models → com → companyX → myapplication*.
2. Right click the folder *myapplication* and create a new *Organization Model* document:



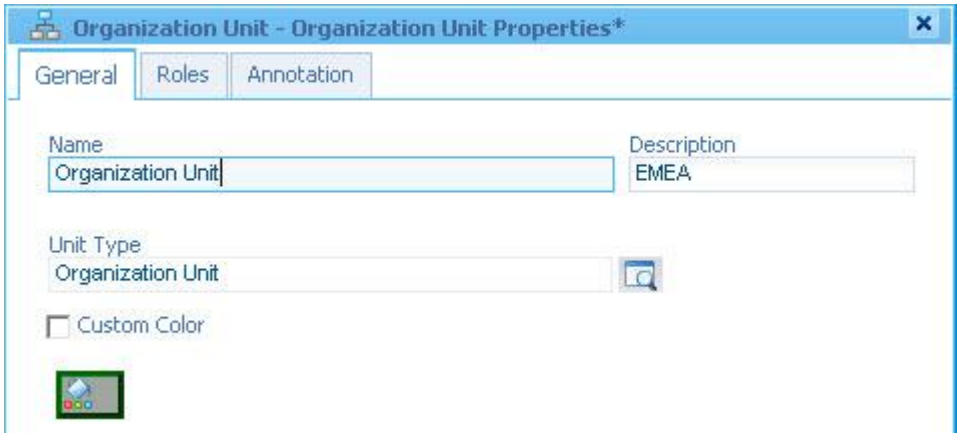
3. Click **Save**, and provide the following details:

Field	Value
Name	ACME EMEA
Description	ACME Europe, Middle East and Africa
Location	Prefilled with: My Application Project/Organization Models/com/companyX/myapplication

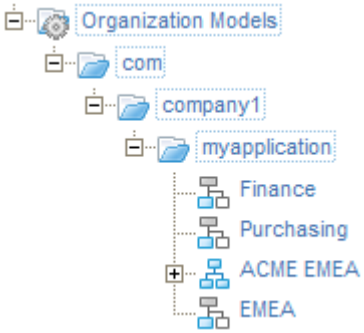
4. From the Toolbox, drag and drop an *Organization Unit* into the model editor.
5. Change the description of the Organization Unit to **EMEA**:



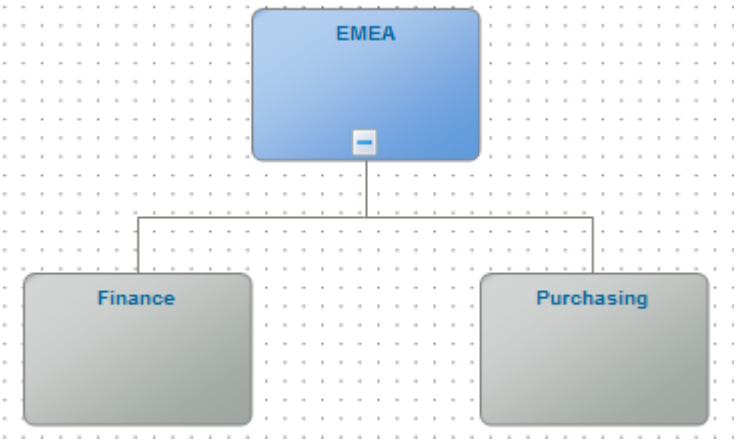
6. Right click or double click the *EMEA* unit to open its properties.



7. Provide the value **EMEA** for the *Name*.
8. **Save** the organization model.
9. Look in the *Workspace Documents* tree. Notice that, in addition to the Organization Model, an Organization Unit *EMEA* has been created as well:



10. Return to the organization model editor.
11. Change the color of the *EMEA* unit via its properties.
12. Drag and drop the units *Finance* and *Purchasing* from the Workspace tab into the model.



13. Add the Organizational Relationship between the units. (See Adding Connector Lines on page 57).

The Purchasing department is divided in more groups like, for example, company purchases (internally) and customer purchases (sales orders). How could you model this?

Roles

In an organization unit, you assign roles to the units and when you have deployed the organization model, you can assign a user to a team in the context of a role within that team.

When you add a role to a team there are two options:

1) Team Lead, this is the manager of a unit/team;
2) No Team Lead, these are the users that serve as team members.

1. If closed, open the *ACME EMEA* organization model.

2. Open the properties of the *Finance* Unit.

3. Go to the *Roles* tab and click **Insert**.

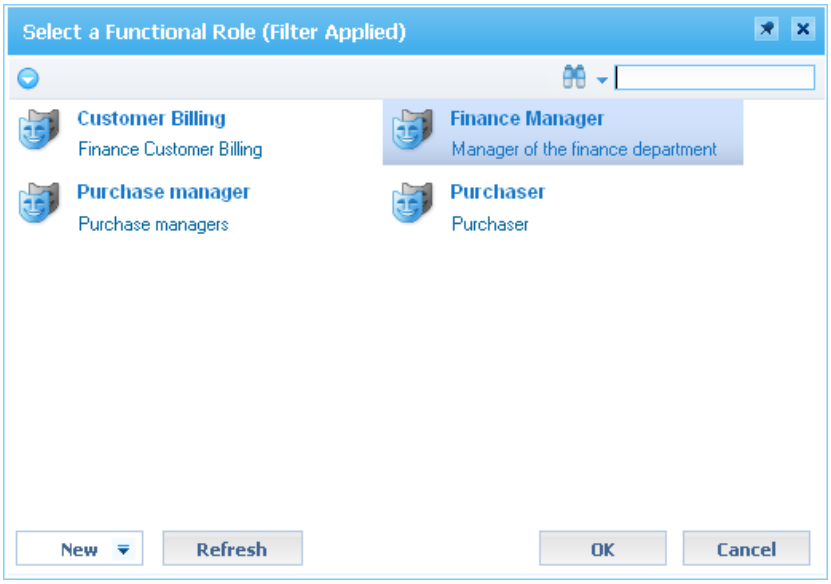
4. In the *Select a Functional Role* screen, click *New → Role*.

5. The Role editor opens.

6. Provide the following details and click **Save**:

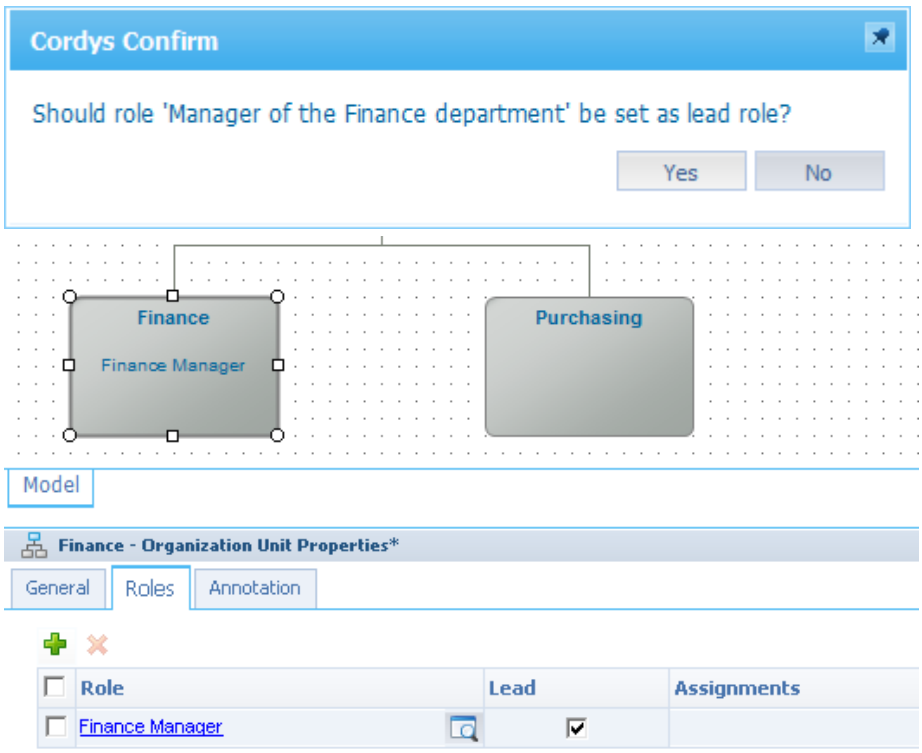
Field	Value
Name	Finance Manager
Description	Manager of the Finance department
Location	My Application Project/Roles

7. Click **OK** and close the role editor to return to the selection screen:

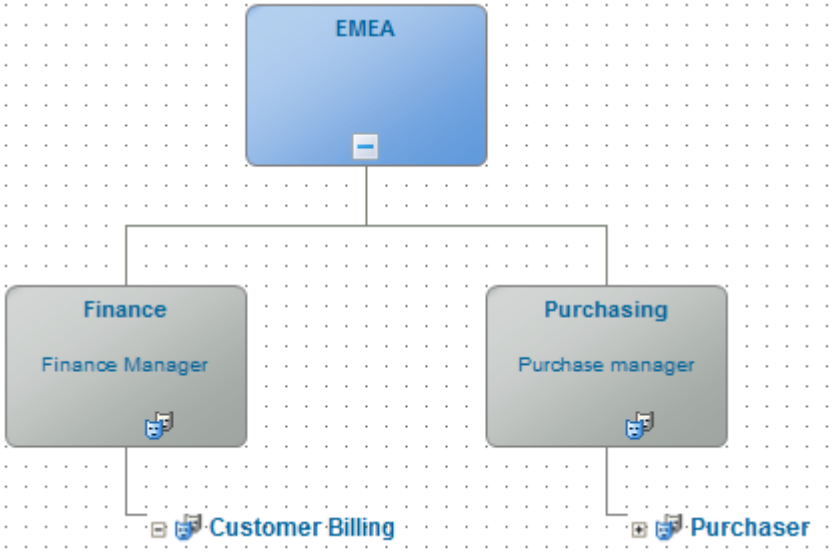


8. Select the *Finance Manager* role and click **OK**.

9. Click **Yes** when asked to confirm “Should role ‘Manager of the Finance department’ be set as lead role?”:



10. Add the role *Customer Billing* as well.
11. Repeat the steps for the *Purchasing* unit, setting the *Purchase Manager* as the lead role.
12. Save your Organization model.
13. The Organization Model should look similar to this:

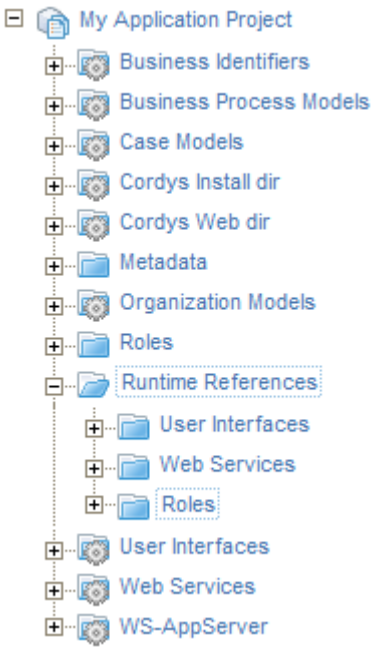


14. Close the organization model editor screen.

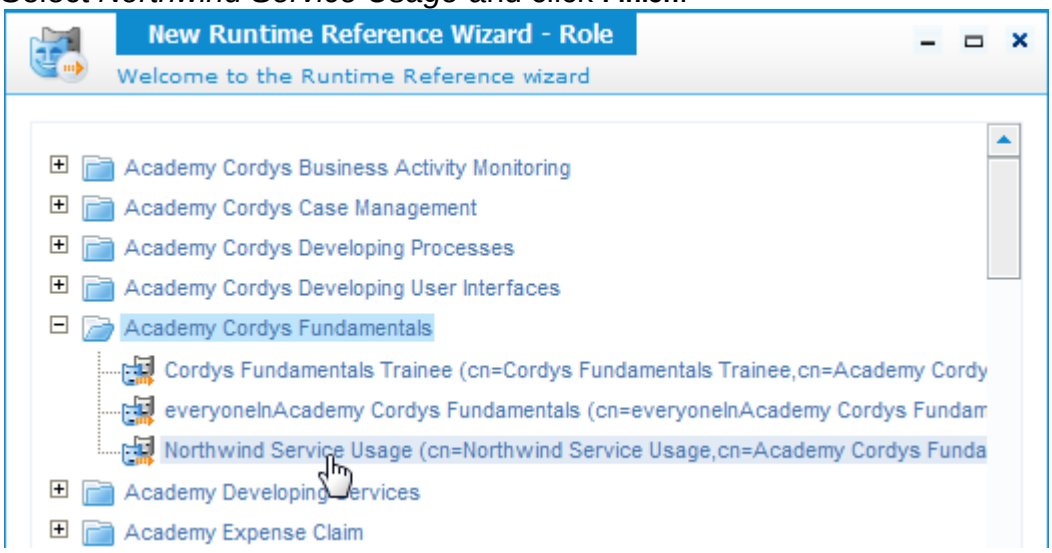
Roles Configuration

To allow your email account to use the purchasing tasks in your organization, you will now grant the required permission. See module Developing Web Services for more information about security.

1. Navigate to *My Application Project → Runtime References*.
2. Add a folder **Roles**:

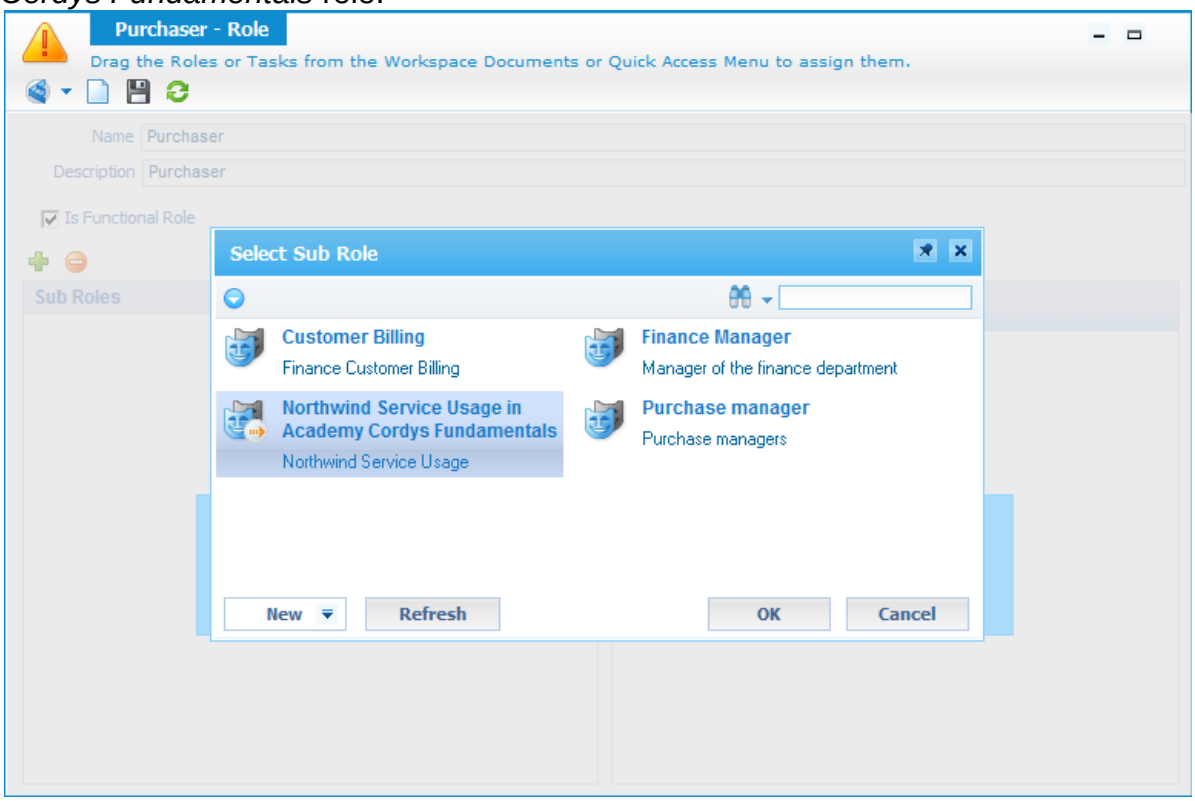


3. Right click *Roles* and select Add *Runtime Reference → (Other) → Role*.
4. Navigate to *Academy Cordys Fundamentals → Northwind Service Usage*.
5. Select *Northwind Service Usage* and click **Finish**:



6. In the *Workspace Documents*, navigate to *My Application Project → Roles*.
7. Open the *Purchaser* role.

8. Click the **add** button for *Sub Roles* to add the *Northwind Service Usage in Academy Cordys Fundamentals* role:



9. Click **OK**.
10. **Save** and close the *Purchaser* role.

4.2.4 Using Teams in Business Process

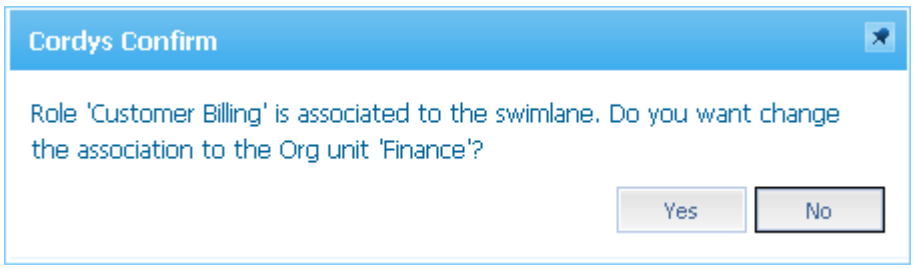
In this part you will use the organization units as teams in a business process.

1. In the *My Application Project* navigate to *Business Process Models → com → companyX → myapplication*.
2. Open the *SalesOrderViaSwimlanes* Process.
3. In the toolbar click **Menu → Save As**.
4. Provide the following details:

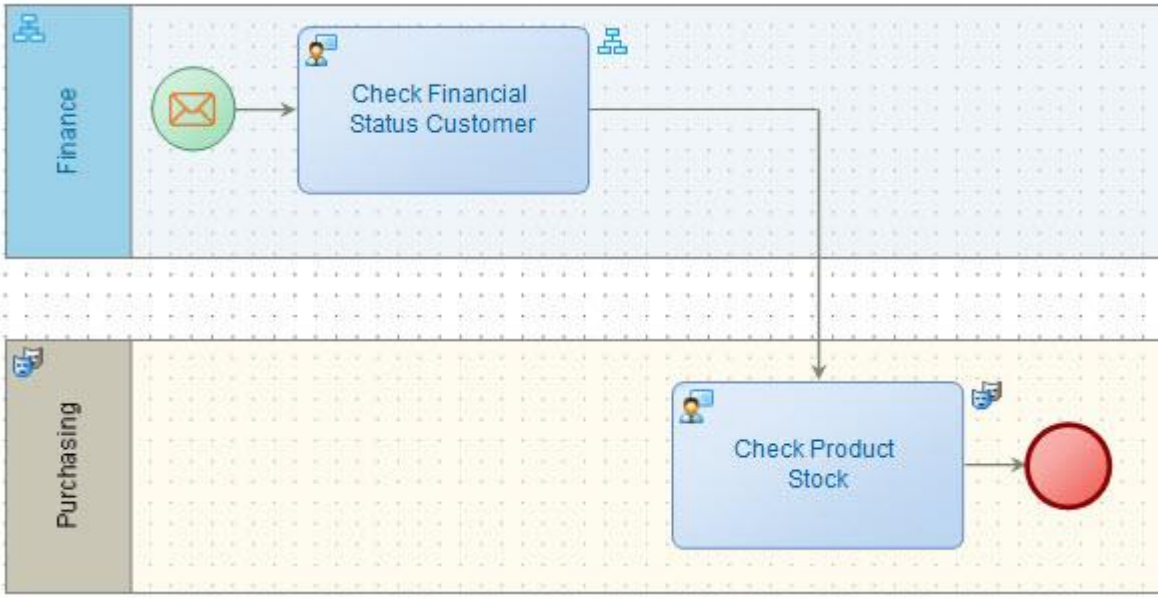
Field	Value
Name	SalesOrderViaTeams
Description	Process sales order request using organization units
Location	Prefilled with: My Application Project/Business Process Models/com/companyX/myapplication

5. Click **Save**.

6. Select the *Insert* tab and drag and drop the *Finance* organization unit on the *Finance* swimlane:



7. Click **Yes**.



How can you distinguish assignee type between the two lanes?

_____

_____

8. Right click the *Purchasing* lane and select *Ungroup.*

9. Drag and drop the Organization unit *Purchasing* directly onto the modeler.

10. Change the color of the swimlane again.

11. Make sure that both activities inherit the work assignment from the swimlane.

12. Open the properties of one swimlane.

What is the assignee type for the lane?

.....

.....

13. Save, validate and publish the process.

NOTE
The publishing process will also publish the related components like the organization units and roles.

4.2.5 Running the Process

1. Run the process, provide the start message.

   What is the status of the started process?

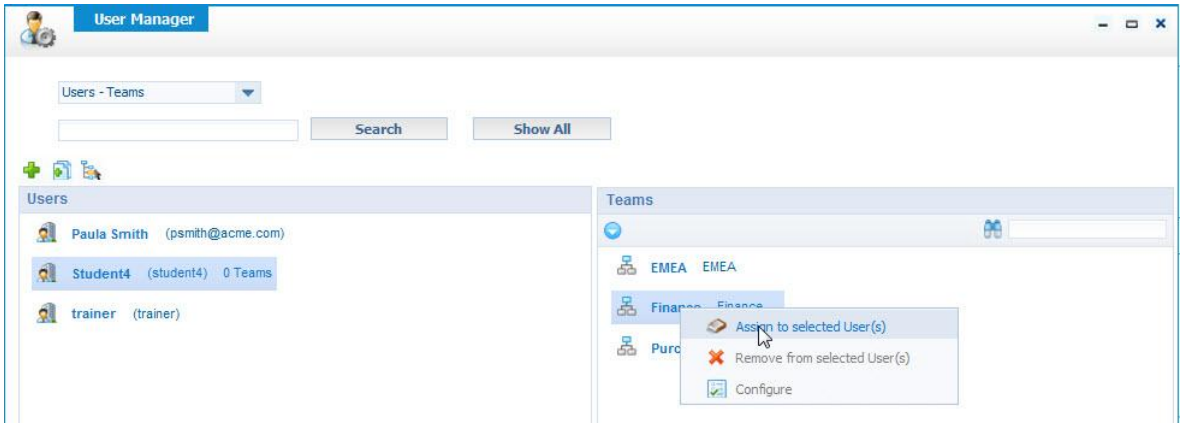
   _____

   _____

4.2.6 Assigning User to Teams

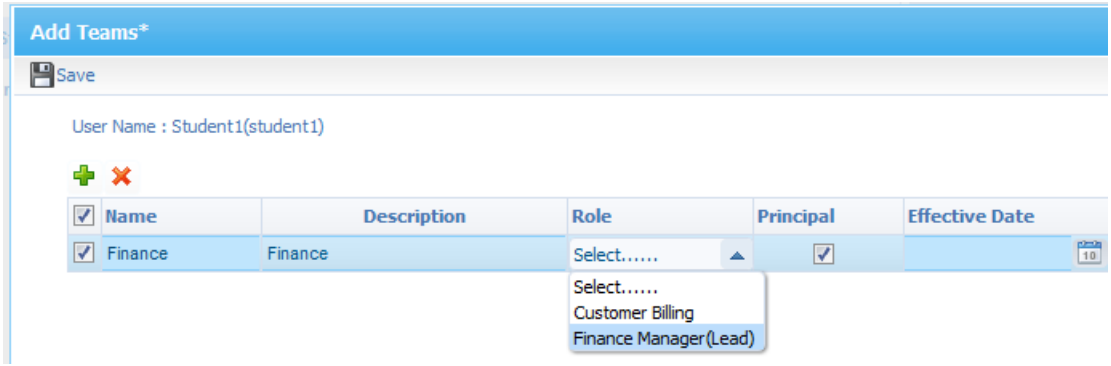
In this part you will assign users to the teams as team lead and as team member.

1. Open the *User Manager*.
2. In the select box select *Users - Teams*.
3. Click **Show All** to see all users.
4. Select your student user and right click the *Finance* team:



5. Select *Assign to Selected User(s)*.
6. The *Add Teams* screen opens.

7. Select the *Role Finance Manager(Lead)*.
8. Check *Principal* (this denotes that this team is your primary team, in case you are a member of multiple teams):



> **NOTE**
> When in case of an escalation a manager is required, Cordys will look up the manager from the lead role of the principal team of the user "delaying" the task.

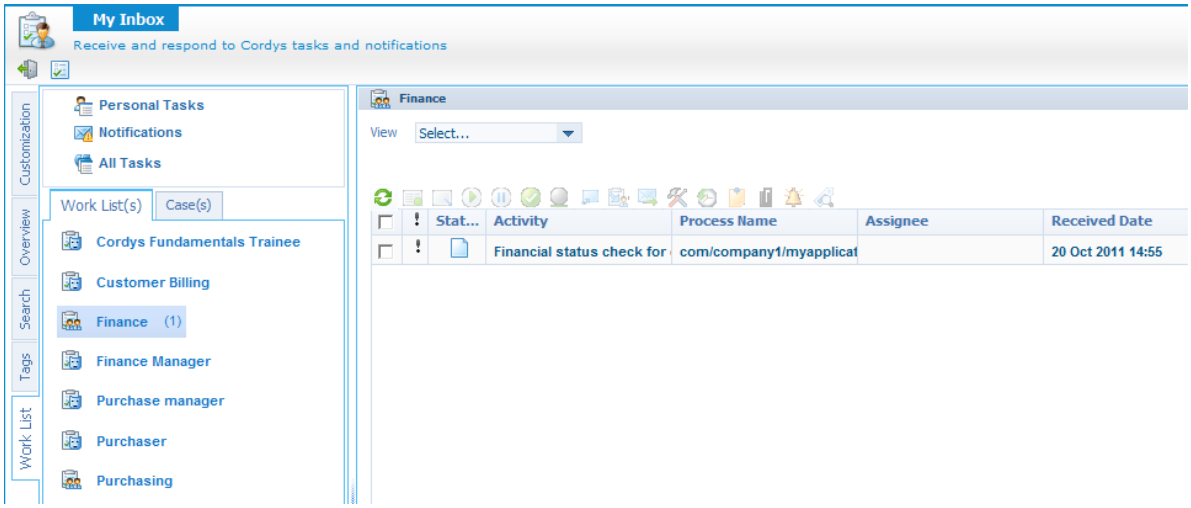
9. Click **Save**.
10. Assign the *Purchasing* team to the email address user you created (e.g. psmith@acme.com):
    - Role: *Purchaser*.
    - Check *Principal*.
11. Assign the *Purchasing* team to yourself:
    - Role: *Purchase Manager (Lead)*.
    - Unchecked *Principal*.
12. Close the User Manager.

4.2.7 Working in Teams

In this part you will explore the effects of being a member of one or more teams and how work is assigned to the members of a team.

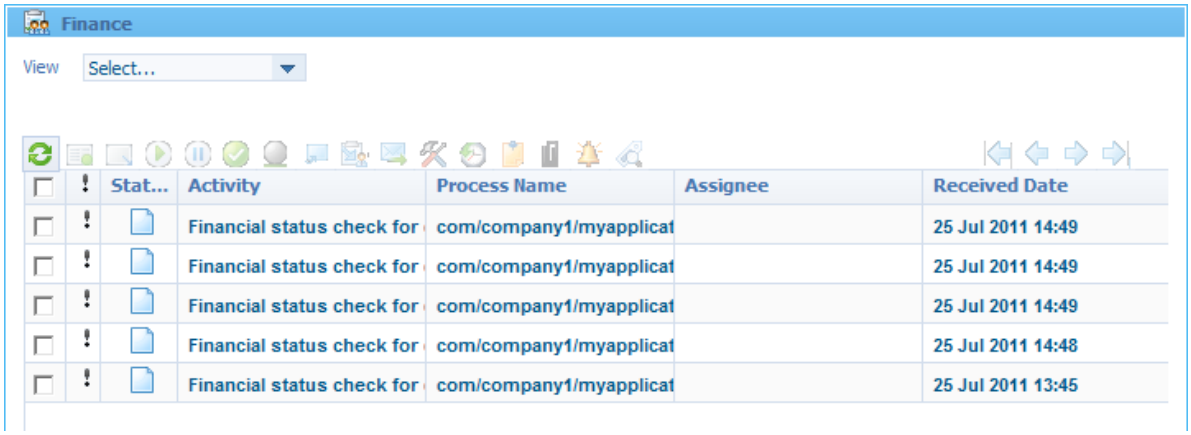
1. Open *My Inbox*.

2. You have the teams Finance and Purchasing available in the *Work List(s)* tab page:



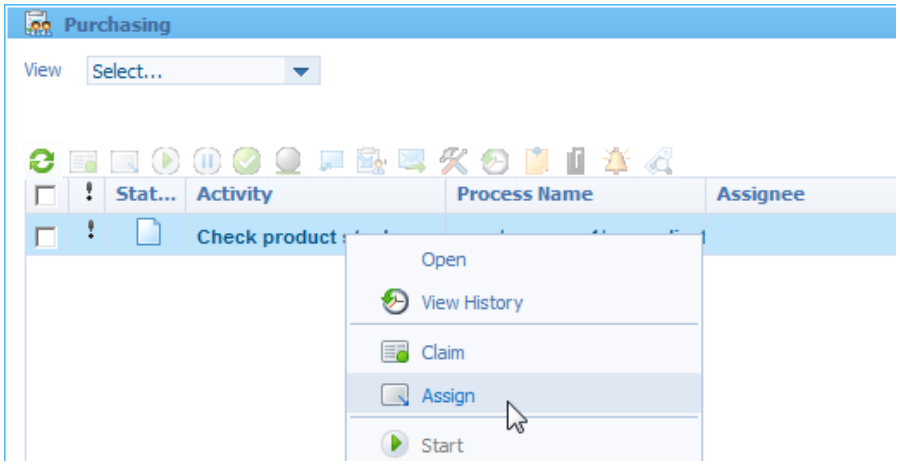
Note: If the inbox was already open, right click in the Work List(s) tab page and select *Refresh*.

3. The *Finance* team has 1 task from starting the process before you added yourself to the team.
4. Run the process *SalesOrderViaTeams* another four times.
5. In the Inbox, refresh the *Finance* team work list.

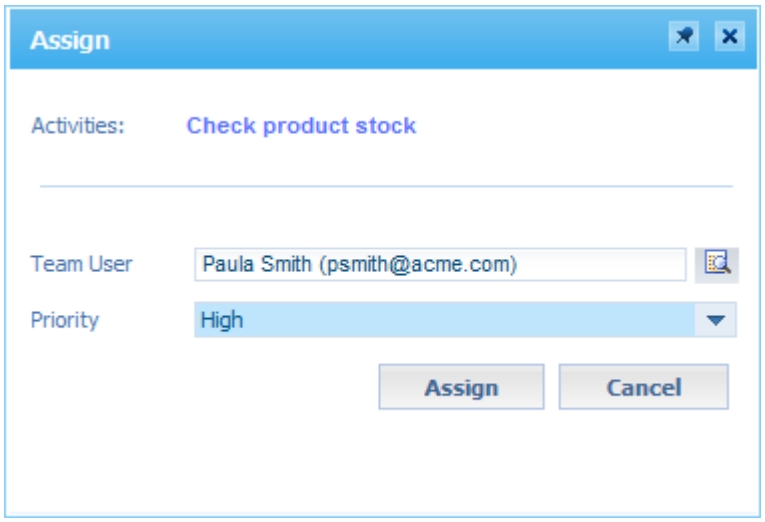


6. Check **two** of the tasks, and click **Claim Task(s)** ( ).
7. Open one of the claimed tasks.
8. Complete the task.
9. Go to the *Purchasing* team work list.

10. Right click the task and select *Assign*.



11. Select the user with your email address and set priority to *High*.



12. Click **Assign**.

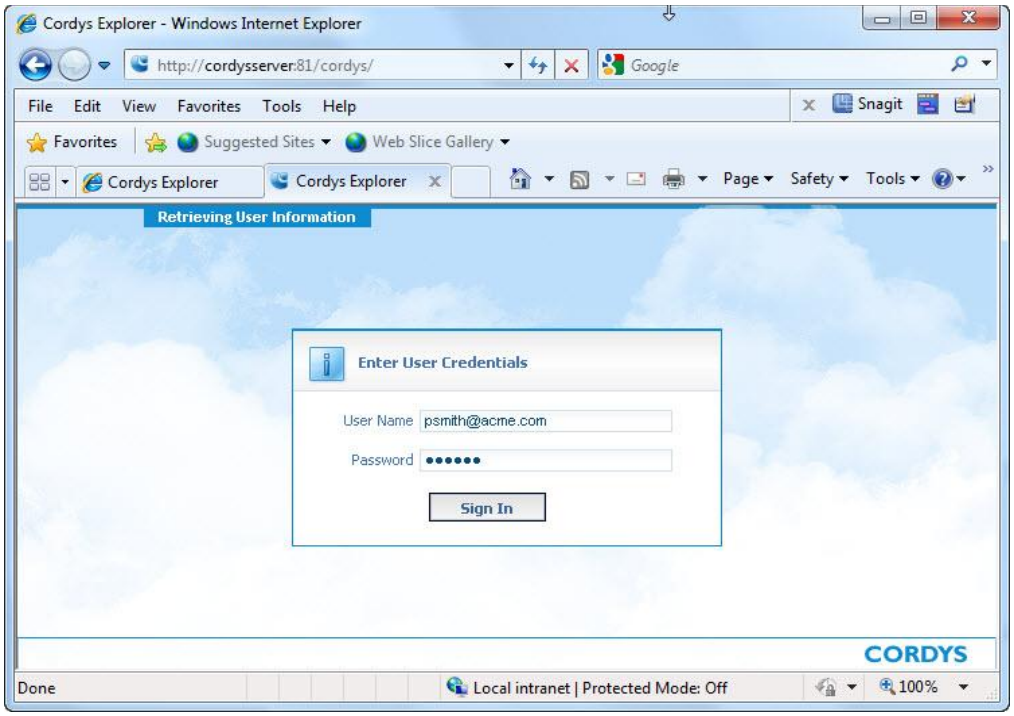
Why can you assign a task to someone else?

.....

.....

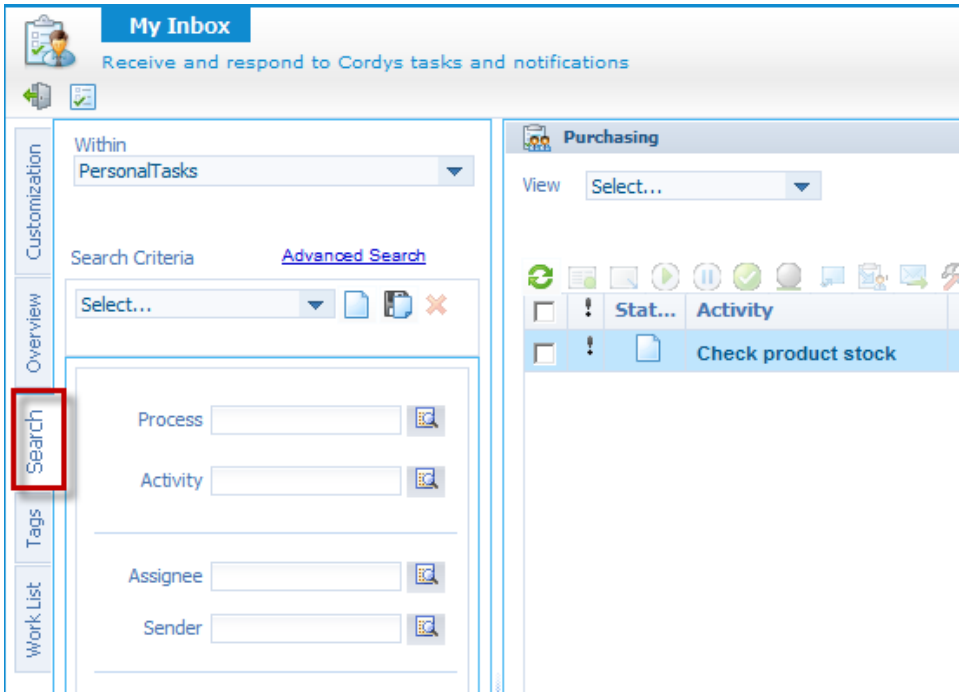
13. Open a new browser or browser tab.

14. Connect to the Cordys server using ":81/cordys" at the end
e.g. **http://cordysserver:81/cordys** or **http://192.168.85.128:81/cordys**
15. Login with your email address user:



16. Open the *Inbox*.
17. Open the assigned task for the *Purchasing* team.
18. Complete the task.
19. Close this browser or browser tab.

20. Return to your student browser.
21. Explore the different options you have in the toolbar of the inbox.
22. Open a task from your inbox and again explore the options in the toolbar of the task.
23. Click on the Search tab (left side of the inbox):



What is the difference between the basic and advanced search?

24. Complete some of the tasks for both teams.

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 after you have tested these to work correctly. This is to ensure that your team members' work is not affected when they incorporate your changes.

> **NOTE**
> This only applies when your workspace was created 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 **Task Distribution**.
5. Click **Make Available**.

5. Business Calendar and Task Duration

Typically, when your process contains one or more tasks, you want these tasks to be completed within a specific amount of time or before a specific date or number of days. Or, even more specific, a number of working days. In this exercise you will add due dates for tasks in your business process models using a business calendar for calculation of the work hours.

5.1 Configuring Design and Deployment Folder Structure

5.1.1 Creating the Design Folder Structure

In this part you will configure the design time folder structure for business calendars.

1. If closed, open the Workspace Documents.
2. Right click *My Application Project* and select *New → Folder*.
3. Provide the name **Business Calendars**.

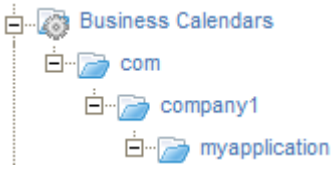
5.1.2 Creating the Deployment Structure

In this part you will configure the deployment structure for business calendars.

Business Calendars

At runtime the business calendars and calendar exceptions can be selected by GUID (hard to remember) or by their path and document name.

1. Right click the *Business Calendars* folder and select *Set Start Point of Qualified Name*.
2. In the *Business Calendars* folder add a subfolder **com**.
3. Add a subfolder **companyX**.
4. Add a subfolder **myapplication**.



> **NOTE**
> See the 29 about creating a separate application for shared content such as business calendars.

5.2 Creating a Business Calendar

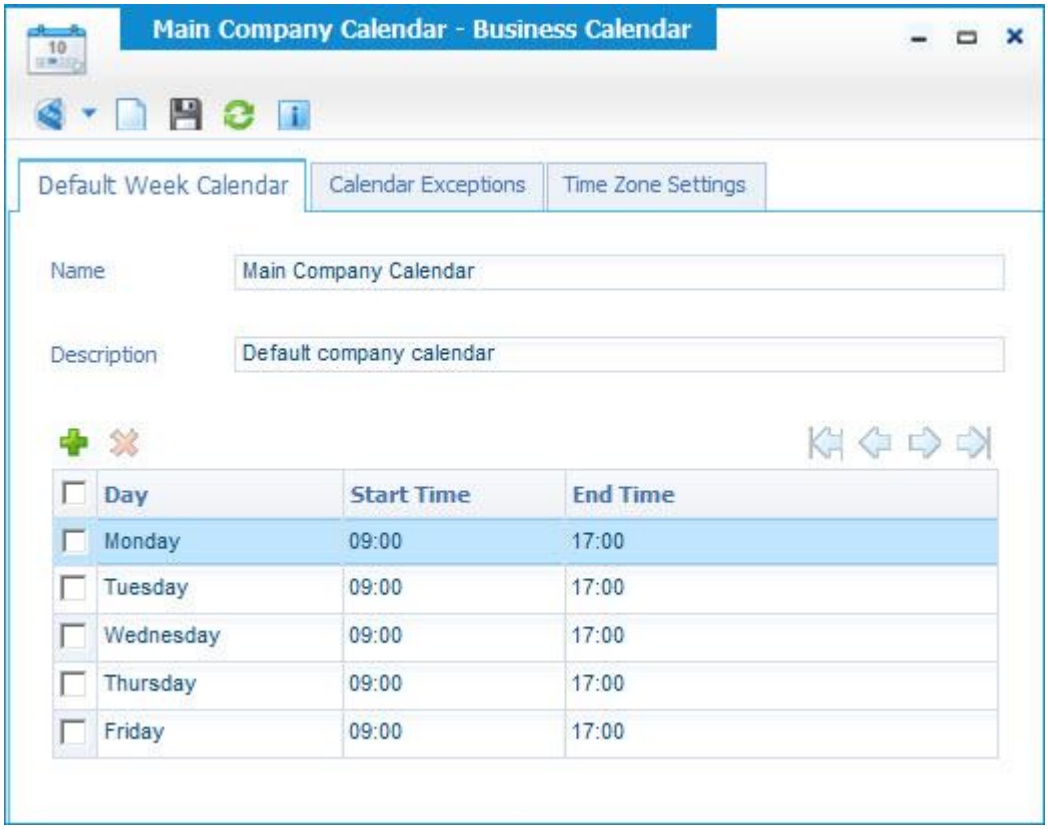
In this part you will create a business calendar with exceptions to be able to set and track the due time of tasks.

5.2.1 Adding a Business Calendar

1. Navigate to *Business Calendars → com → companyX → myapplication*.
2. Add a *Business Calendar* document to the m*yapplication* folder.
3. The Business Calendar editor opens.
4. Provide the following details:

Field	Value
Name	Main Company Calendar
Description	Default company calendar

5. Click the **Insert** button five times to add all typical working days (Monday to Friday):



6. **Save** the business calendar and leave the screen open.

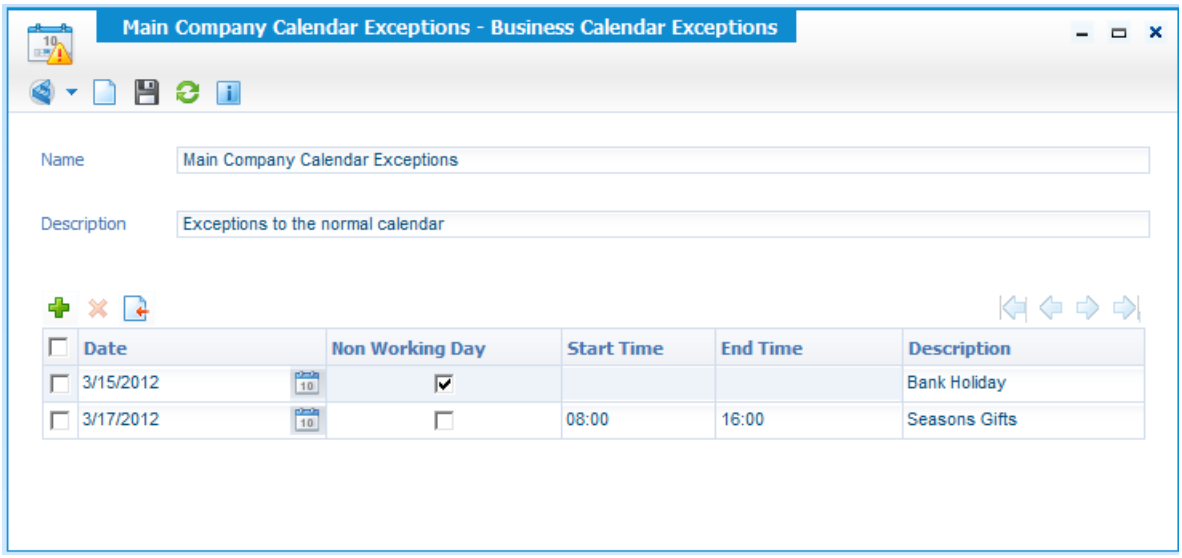
5.2.2 Adding Calendar Exceptions

1. Add a *Business Calendar Exceptions* document to the same folder as the calendar.
2. Provide the following details:

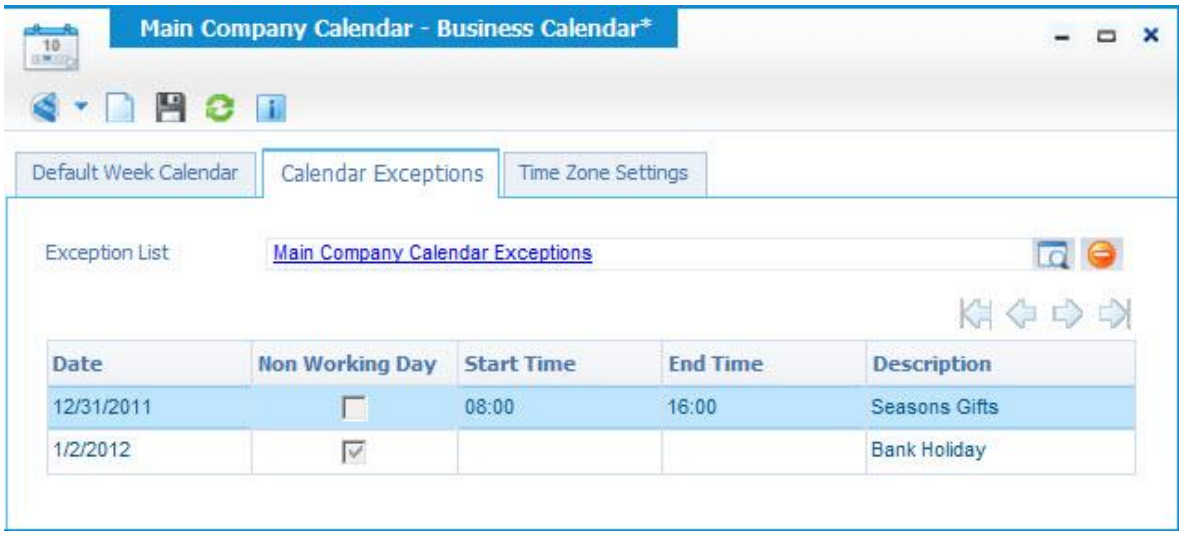
Field	Value
Name	Main Company Calendar Exceptions
Description	Exceptions to the normal calendar

3. Insert **tomorrow** as *Non Working Day* (Bank Holiday)

4. Add coming **Saturday** as *Working Day* from **8:00** to **16:00** (Seasons Gifts).



5. **Save** and close.
6. Return to the *Main Company* Calendar business calendar screen.
7. Select the created *Calendar Exceptions* list.



8. Click **Save** and close the screen.

5.3 Configuring Task Duration using Calendars

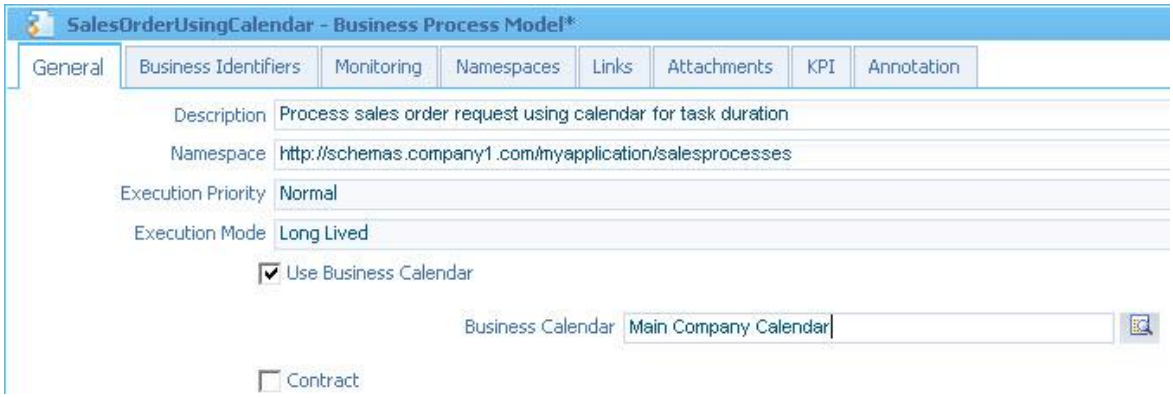
In this part you will set the due date for tasks using the calendars.

1. Open the *SalesOrderViaTeams* business process.

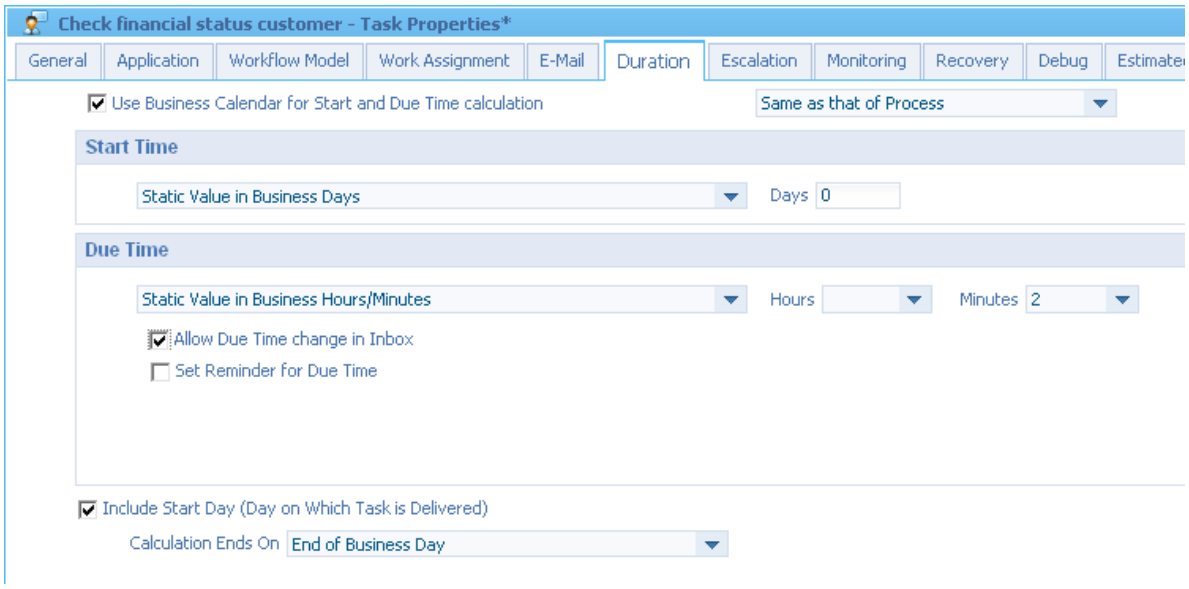
2. Use **Save as** and save the process with the following details:

Field	Value
Name	SalesOrderUsingCalendar
Description	Process sales order request using calendar for task duration
Location	Prefilled with: My Application Project/Business Process Models/com/companyX/myapplication

3. Open the properties of the business process.
4. Check the *Use Business Calendar* and select the created *Calendar*.

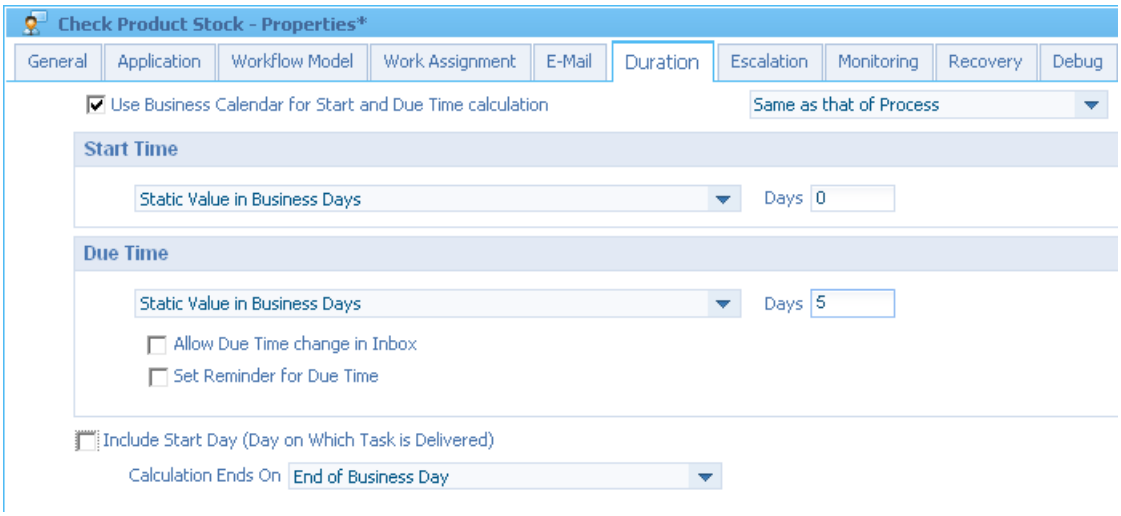


5. Open the properties of the *Check Financial Status Customer* activity.
6. Go to the *Duration* tab page.
7. Check *Use Business Calendar for Start and Due Time* calculation and select *Same as that of Process* from the adjacent list box (if not selected already).
8. In the *Due Time* group, select:
   Static Value in Business Hours/Minutes with the number of *Minutes* **2**.
   Allow Due Time change in inbox checked:



9. Open the properties of the *Check Product Stock* task.
10. Go to the *Duration* tab page.
11. Check *Use Business Calendar… – Same as that of the process*.

12. In the *Due Time* group, select:
    Static Value in Business Days, and enter *Days:* **5**.
13. Uncheck *Include Start Day (Day on which Task is Delivered)*.
14. Verify the setting of *Calculation End On* to be set on ***End of Business Day***:



When would you set a reminder to the due date?

15. **Save**, validate and publish the process.

5.4 Working with Task Duration

In this part, you will explore the effects of having set limits on the task duration.

1. Run the process.
2. Wait a number of minutes (at least two!).
3. In the *Inbox* open the *Finance team* work list.

What happens if the due date is expired?

4. Complete the *Financial Status* task.
5. Check the *Due date* for the *Product Stock* task.

Is the due date correctly set based on the calendar and task duration settings?

5.5 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 after you have tested these to work correctly. This is to ensure that your team members' work is not affected when they incorporate your changes.

> **NOTE**
> This only applies when your workspace was created 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 Calendar and Task Duration**.
5. Click **Make Available**.

6. Optional Exercises

6.1 Using Work Lists

In the previous exercise, you have applied teams (organization units) to assign work to. When you add more users to these teams, you will be able to handle more work as there are more users to handle the work load.

In some cases, you would like to decouple your process work assignments from the Organization model. By using work lists you can associate your teams (organization units) with a work list (and have more than one team associated with a work list), while assigning the tasks in your business process model to a work list (and not specific users, roles or teams). This enables you to distribute tasks more flexible and work (task) oriented into work lists.

In this exercise you will explore the usage of work lists.

6.1.1 Creating the Design Folder Structure

In this part you will configure the design time folder structure for applying work lists.

1. If closed open the *Workspace Documents*.
2. Right click the *My Application Project* and select *New → Folder*.
3. Provide the name **Work Lists**.

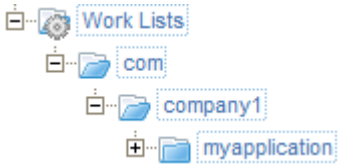
6.1.2 Creating the Deployment Structure

In this part you will configure the deployment structure for Work Lists.

Work Lists

The work lists can at runtime be selected by GUID (hard to remember) or by their path and document name.

1. Right click the *Work Lists* folder and select *Set Start Point of Qualified Name*.
2. In the *Work Lists* folder add a subfolder **com**.
3. Add a subfolder **companyX**. (X is your student number)
4. Add a subfolder **myapplication**:

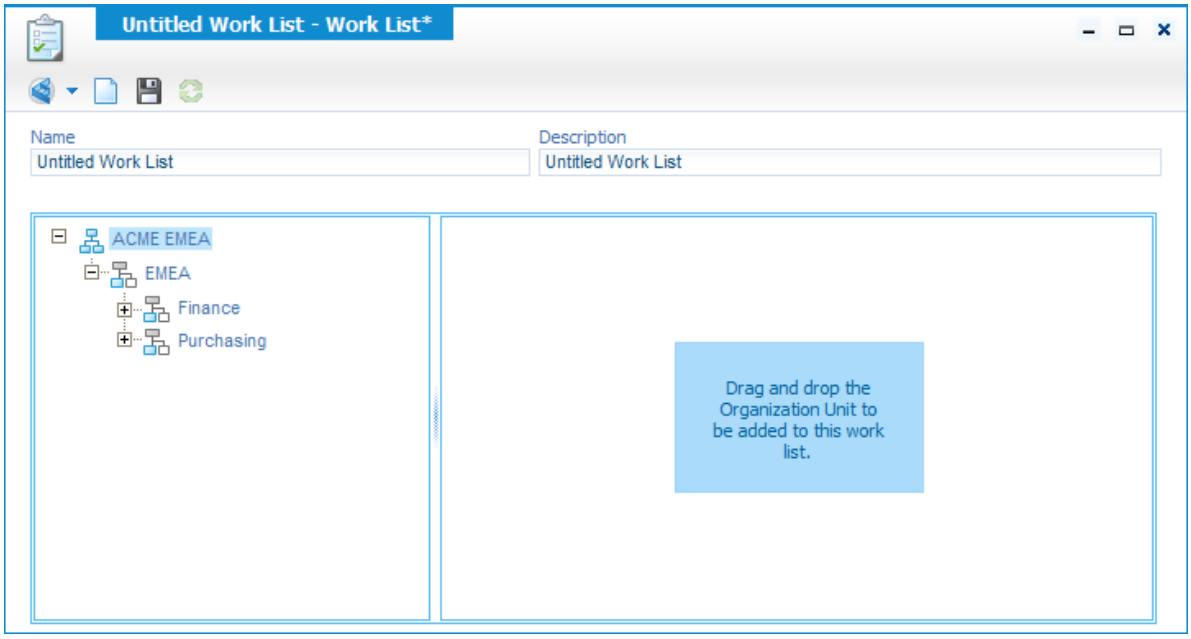


6.1.3 Creating a Work List

In this part you will create work lists to be used for work assignment in your business process.

1. Navigate to *Work Lists → com → companyX → myapplication*.
2. Right click the folder *myapplication* and create a new *Work List* document.

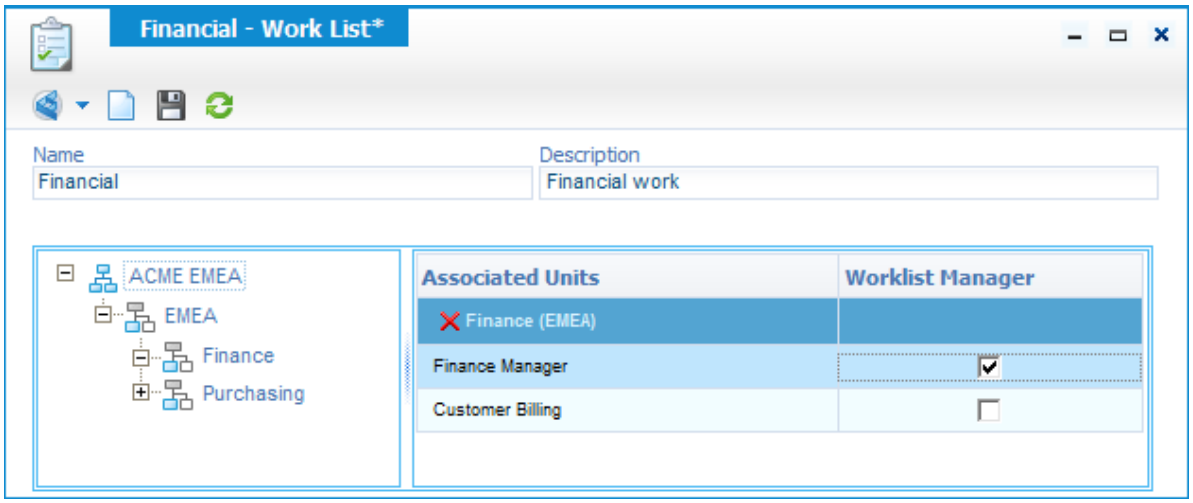
3. Expand the *Organization units* list:



4. Save the work list with the following details:

Field	Value
Name	Financial
Description	Financial work

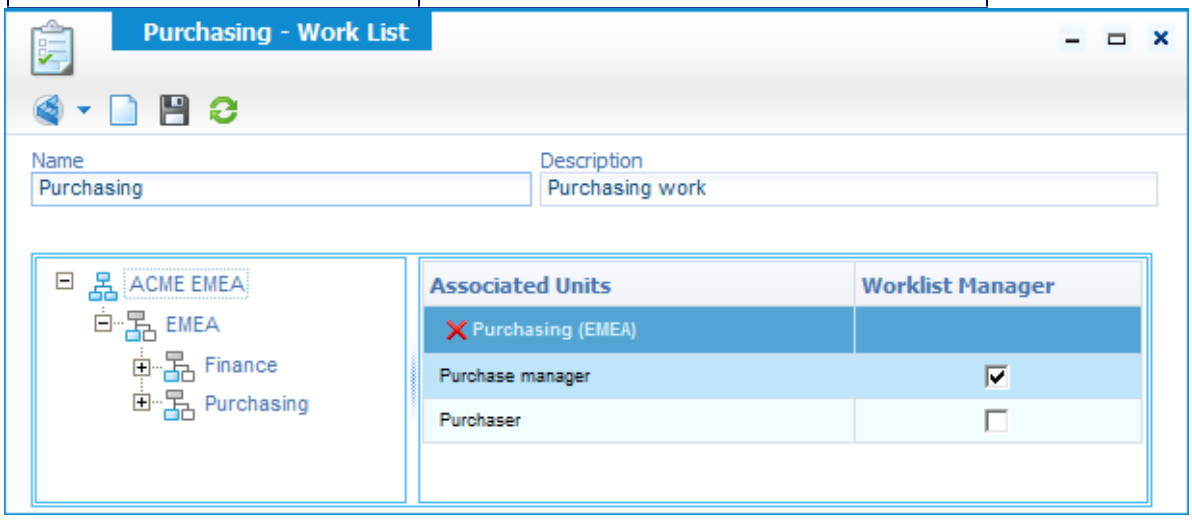
5. Click **OK**.
6. Drag and drop the *Finance* unit into the work list area.
7. Check *Work List Manager* for the *Finance Manager* role:



8. **Save** the work list.

9. Create a second *Work List* with the following details:

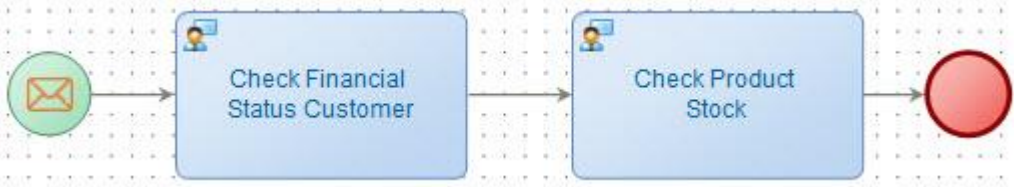
Field	Value
Work list Name	Purchasing
Description	Purchasing work
Organization unit	Purchasing
Work List Manager	Purchase Manager
Location	My Application Project/Work Lists/com/companyX/myapplication



6.1.4 Using Work Lists in a Business Process

In this part you will include the work lists in your business process to distribute the tasks within your business process.

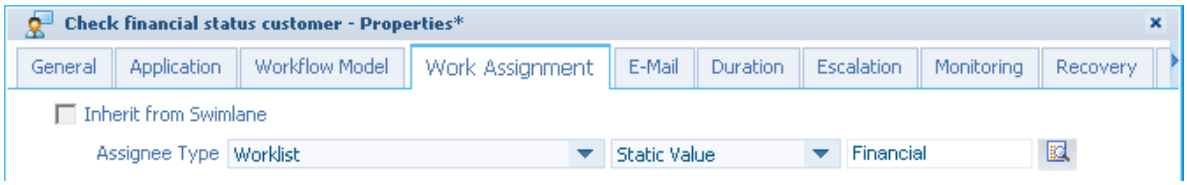
1. Navigate to *Business Process Models → com → companyX → myapplication*.
2. Open the *SalesOrderHandling* Process.



3. In the toolbar click **Menu → Save As**.
4. Save with the following details:

Field	Value
Name	SalesOrderViaWorkList
Description	Process sales order request using work lists
Location	Prefilled with: My Application Project/Business Process Models/com/companyX/myapplication

5. For the *Check Financial Status Customer* activity set the *Work Assignment* to the *Financial* work list.



6. For the *Check Product Stock* activity set the *Work Assignment* to the *Purchasing* work list.
7. **Save**, validate and publish the process.

6.1.5 Associating Users with Work Lists

You cannot assign users directly to work lists. You assign users to a team with a certain role and as this team (organization unit) is used in the work list, the user associated to the teams in the work list has access to the given work list and the tasks.

For more information see Assigning User to Teams on page 38.

6.1.6 Working with Work Lists

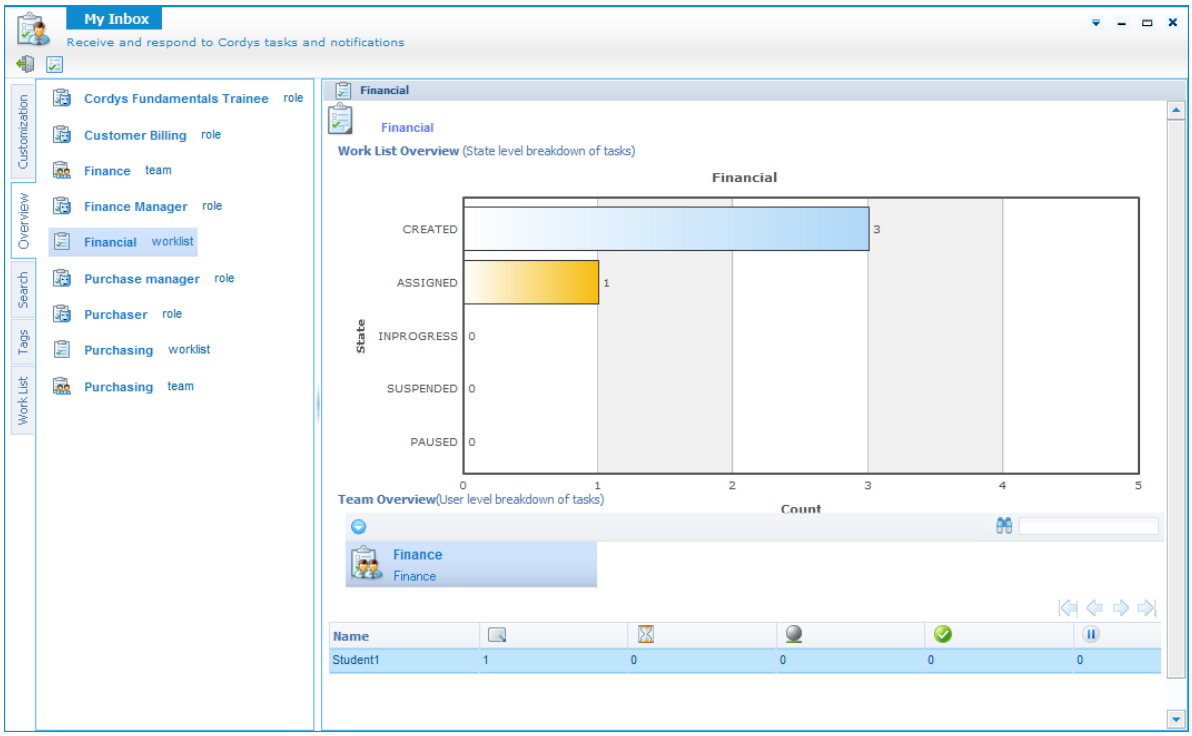
In this part you will explore the concepts of using work lists as part of the inbox and task distribution.

1. Reopen *My Inbox*.
2. You have the work lists Financial and Purchasing available in the *Work List(s)* tab. (right click and refresh if your inbox was open).
3. Run the process *SalesOrderViaWorkList* four times.
4. In the Inbox, refresh the *Financial* work list:

5. **Claim** or **Assign** one of the tasks.
6. On the left of the Inbox go to the *Overview* tab.

> **NOTE**
> When you do not see the overview tab, either close and open the Inbox or make yourself a work list manager.

7. Select the *Financial work list* to look at the state level breakdown of the tasks of the work list:



8. Start one of the tasks.

9. Complete another task.

10. Check the *Overview* for both the *Financial* and *Purchasing* work lists.

Does the second user in your organization (with your email address) have access to the purchasing work list and/or the Overview page?

What is the advantage of using work lists?

6.2 Applying Page Flow to a Process

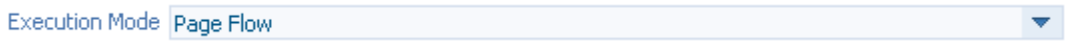
When your process contains several tasks that are fulfilled by the same user, you can put the process in Page Flow mode. On completion of a task, the next and succeeding task (for the same user) is automatically opened within the same window.

Page Flow allows you to build a logical sequence of operations or decisions in a process which are presented as one flow of user interface screens. This enables you to include the logic server side for the sequence in (backend) processes, instead of building (complex) logic in the closely related forms.

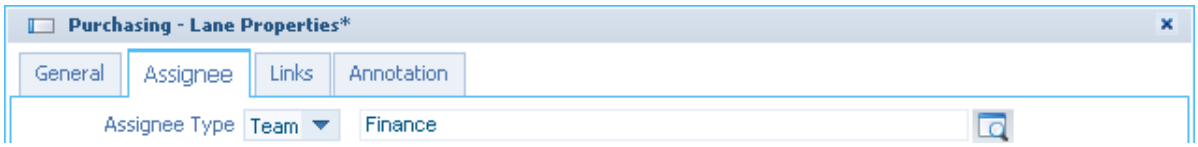
1. Open the *SalesOrderViaTeams* business process.
2. Use **Save as** and save the process with the following details:

Field	Value
Name	SalesOrderUsingPageFlow
Description	Process sales order request using page flow tasks
Location	Prefilled with: My Application Project/Business Process Models/com/companyX/myapplication

3. Open the properties of the business process.
4. Set the *Execution Mode* to **Page Flow**.



5. Open the properties of the *Purchasing* swim lane.
6. On the *Assignee* tab, select the *Finance* team.



7. **Save**, validate and publish the process.

> **NOTE**
> Page flow only takes place when tasks are sent to the same assignee (e.g. user, role, team).

8. Run the process.
9. In the *Inbox* open the *Finance team* work list.
10. Open the task *Financial Status Check For Customer* that was just added.
11. **Claim** and **Complete** the task.

The next *Claim products for order* task is opened automatically within the same window.

What is the advantage of using page flow?

6.3 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 after you have tested these to work correctly. This is to ensure that your team members' work is not affected when they incorporate your changes.

> **NOTE**
> This only applies when your workspace was created 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 **Optional workflow exercises**.
5. Click **Make Available**.

7. Appendix

7.1 Adding Construct to the Process

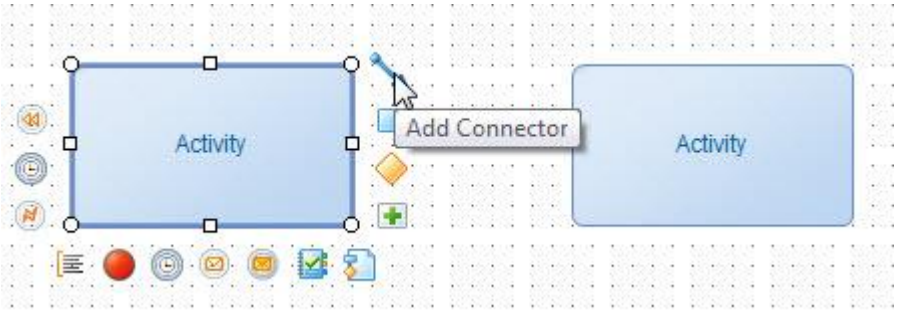
You can add constructs to your process using one of the following methods:

- Click in the modeling area and choose from the options that appear.
- Click to select a construct in the Toolbox then click in the modeling area.
- Drag and drop from the Toolbox into the modeling area.

7.2 Adding Connector Lines

You can add connector lines using one of the following methods:

- Select a construct and use the connector line from intellisense and drag and drop to the next construct

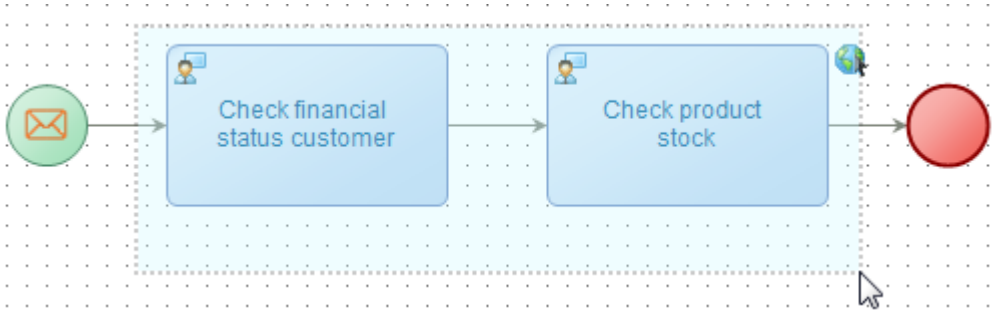


- Select the first construct and hold down the CTRL key while clicking the relevant next construct etc. Release the CTRL key to stop adding connectors.

7.3 Selecting Constructs

You can select multiple construct using one of the following methods:

- Keep left mouse button pressed and draw a rectangle around all constructs you want to select:

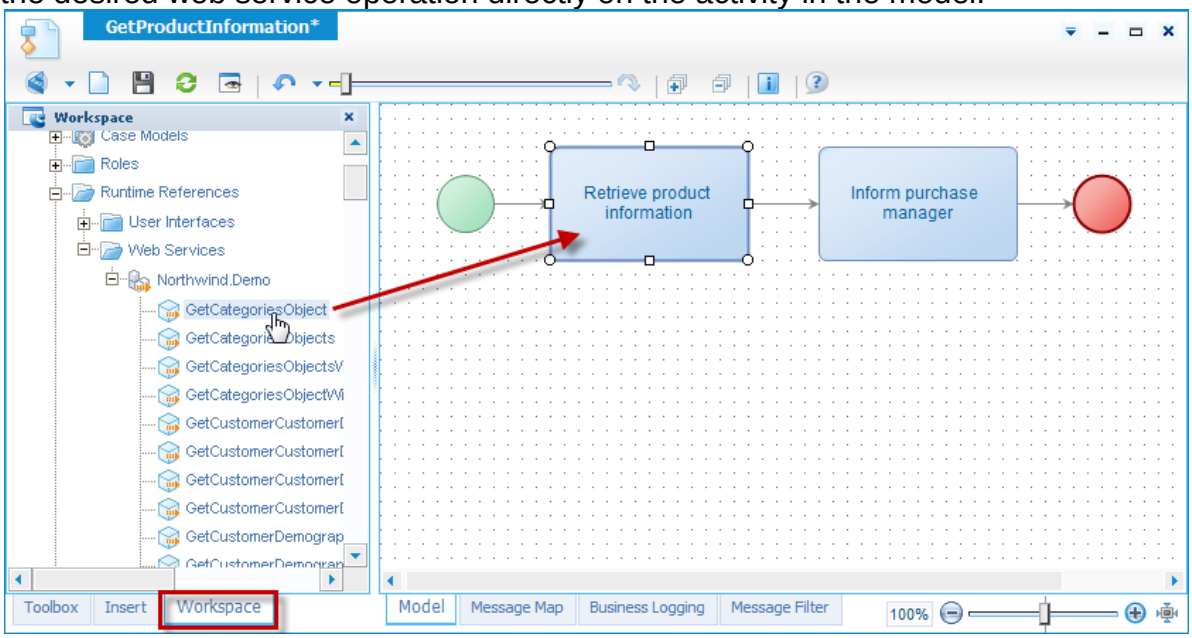


- Select the first construct and use SHIFT + click to select the next construct
- Click the modeling area and use CTRL + A (select all constructs of the process).

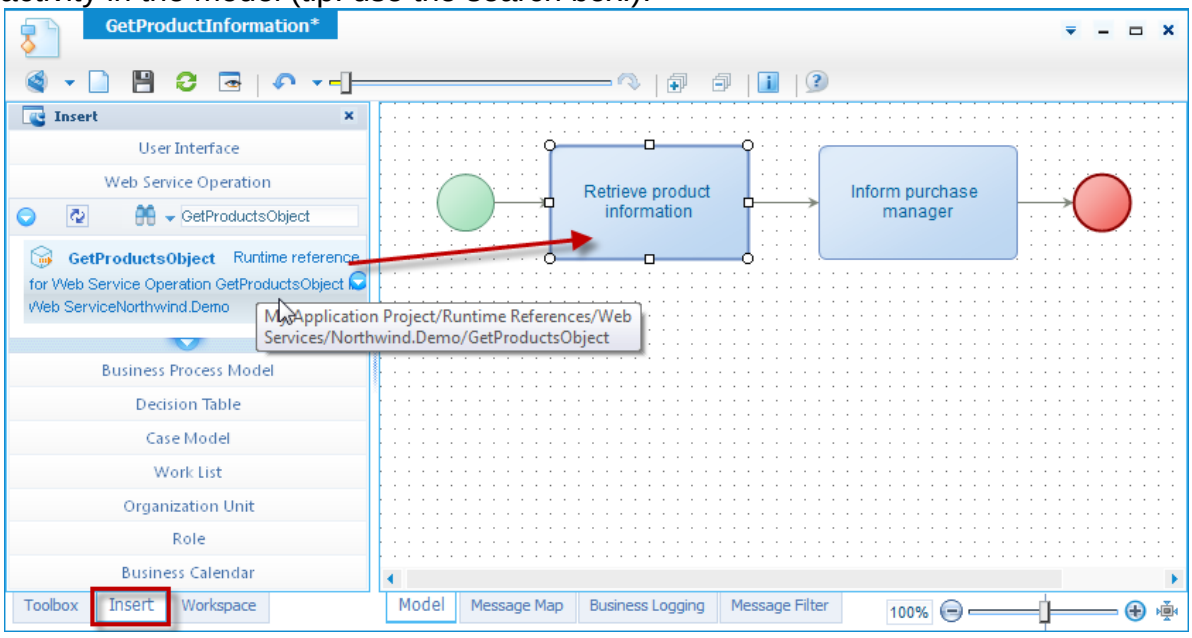
7.4 Adding/Implementing Activities

You can add web services or forms to your model using one of the following methods:

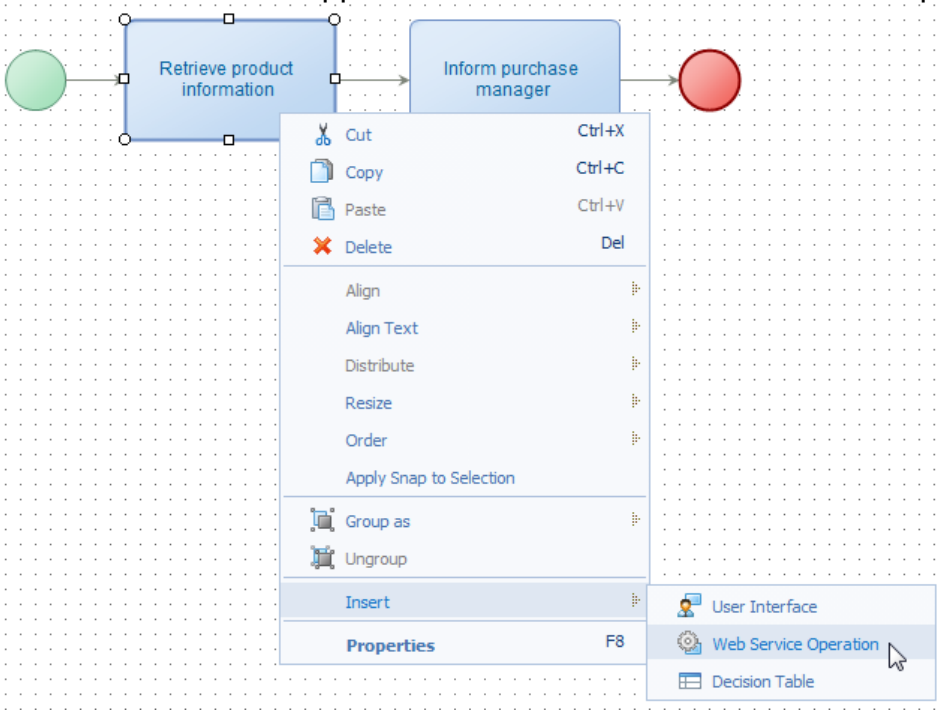
- **Via Workspace tab**
  Select the *Workspace* tab at the bottom of where your *Toolbox* is and drag and drop the desired web service operation directly on the activity in the model:



- **Via Insert tab**
  Select the *Insert* tab at the bottom of where your toolbox is. Select *Web Service Operation* and drag and drop the desired web service operation directly on the activity in the model (tip: use the search box!):



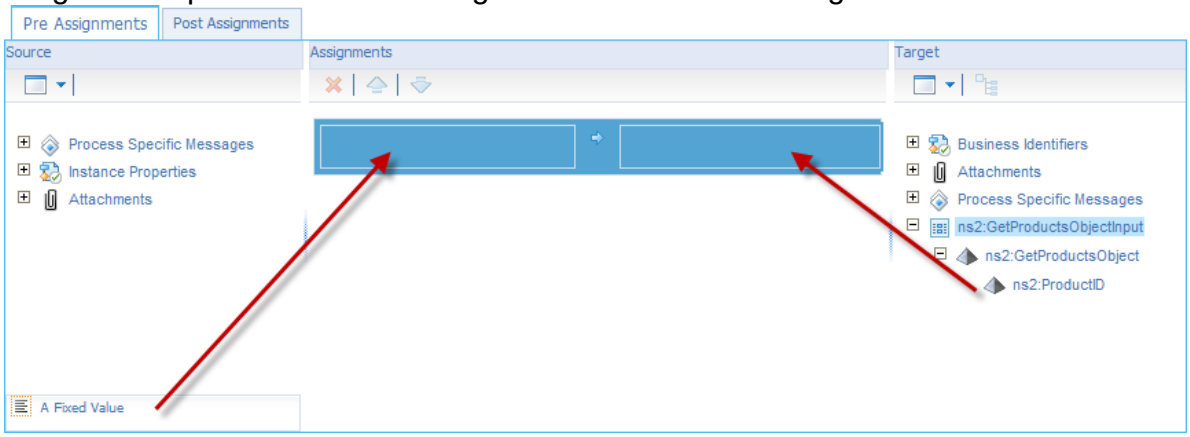
- **Via Insert on Activity**
  Right click the activity and select *Insert → Web Service Operation.* Use the search box in the screen that appears to select the desired web service operation.



7.5 Creating Assignments in the Message Map

You can create assignments using one of the following methods:

- Drag and drop the source and target element in to the assignment

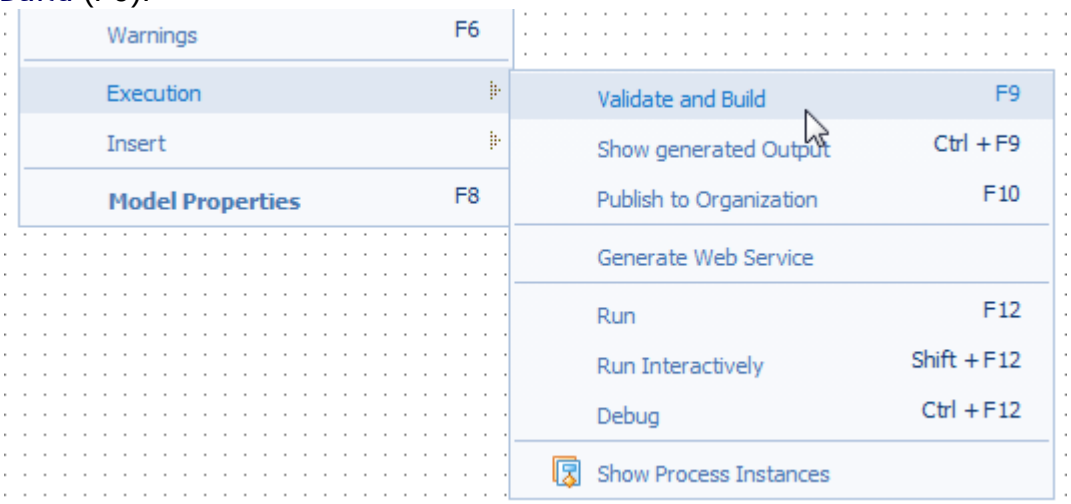


- Click the source element and CTRL+click the target element

7.6 Validating a Business Process Model

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

- Right click the design area of the process and select *Execution → Validate and Build* (F9).



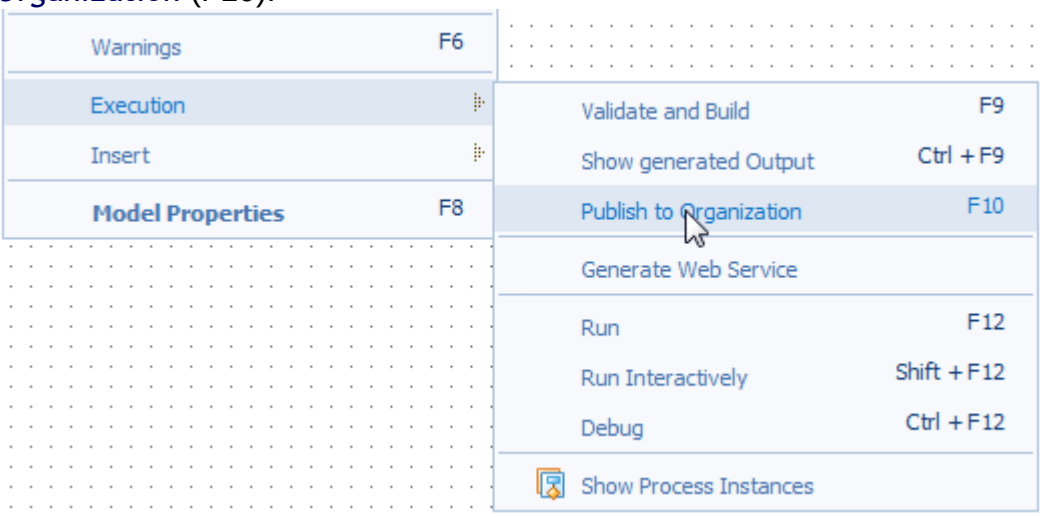
- Click the design area of the process, to get focus to the model editor and press **F9**.
- Click **Menu** ( ) in the toolbar, Click **Validate** (Validate), click here (Click here to validate)
- In the Workspace Documents window, right click the process and select *Validate*.
- In the Workspace Documents window, right click the folder containing the process and select *Validate* (This will validate the content of the complete folder structure).

In the Workspace Documents window, right click the project and select *Validate* (This will validate the whole project, only choose this method when explicitly instructed to do so).

7.7 Publishing a Business Process Model

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).



- Click the design area of the process, to get focus to the model editor and press **F10**.
- Click **Menu** ( ) in the toolbar, Click **Publish** (Publish), click here (Click here to publish)

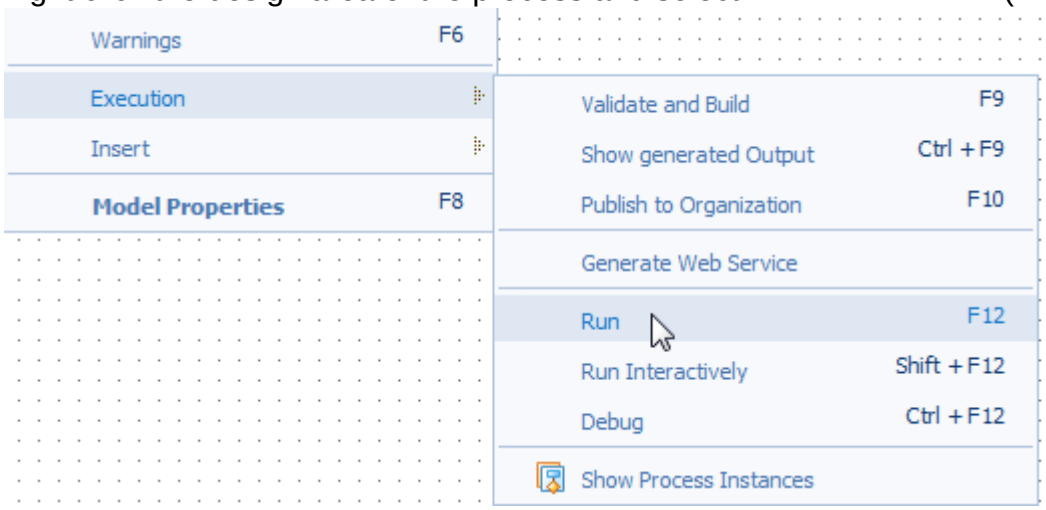
- In the Workspace Documents window, right click the process and select *Publish to Organization*.
- In the Workspace Documents window, right click the folder the process exists in and select *Publish to Organization* (This will publish the content of the complete folder structure).

  In the Workspace Documents window, right click the project and select *Publish to Organization* (This will publish the whole project, only choose this methods when explicitly instructed to do so).

7.8 Running a Process

You can run a process from the design environment, using one of the following methods:

- Right click the design area of the process and select *Execution → Run* (F12)



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

8. Learning Report

Achievements

- ❑ I know the concepts of workflow.
- ❑ I can include user interfaces in processes.
- ❑ I can apply various methods of task assignments (swim lanes, roles, teams, work lists).
- ❑ I can use a calendar for calculating task durations.
- ❑ I can use identifiers to search for processes and tasks.

Notes