Phase 2. Creating Model Animation

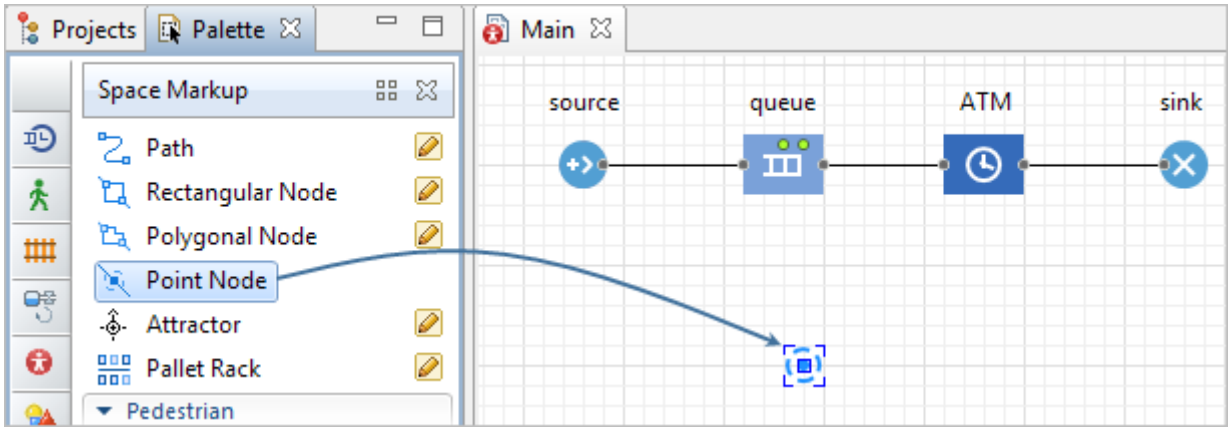
Although the flowchart is animated, you may want to see the actual bank department layout animated. That is also possible! For each model you can create an animation to visually represent your model. You can create any animation you want. Now we will draw the layout consisting of the ATM and a queue. Then we will animate clients standing in the queue and using the ATM. We also want to visualize the current status of the ATM.

Now we will draw the layout of our bank. You draw the layout on the same diagram where you draw a flowchart. However, if you have existing image of the layout, you can simply import this picture as the bank layout instead of drawing it by yourself.

Adding space markup shapes

Set up space markup for the ATM

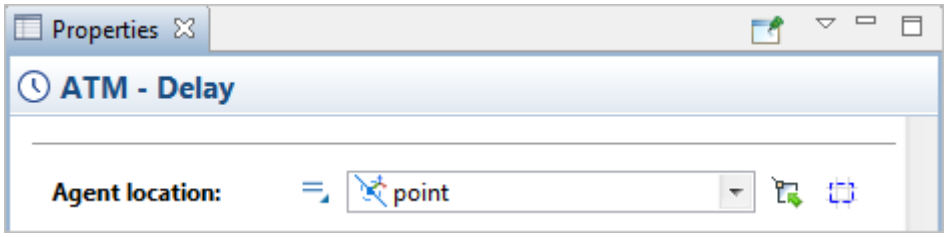
1. Draw the ATM as a point node. First, open the **Space Markup** palette in the **Palette** view.
2. Drag the element **Point node** from the **Space Markup** palette into the graphical editor and place it under the flowchart.



3. Select the point node in the graphical editor to open its **Properties** panel. Enter the run-time color expression for the shape in the **Color** property:
   `ATM.size() > 0 ? red : green`

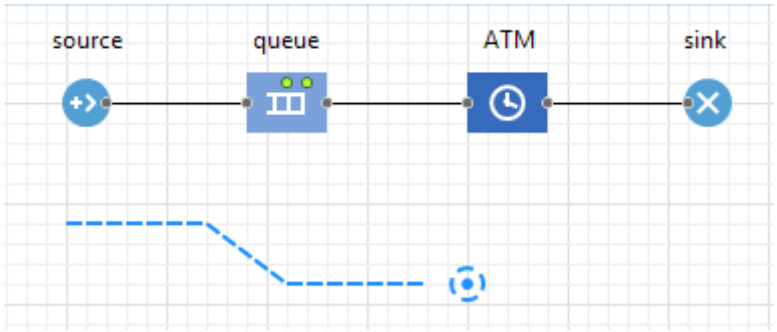
   Note that `ATM` here is the name of the **Delay** object we created. The expression determines the point node color at run time. The `size()` function returns the number of agents currently being processed. The color will be red, if a customer is served at this time, and green otherwise.

4. Click the *delay* block, called `ATM`, in the flowchart to open its **Properties** view.
5. Select the *point* node we have drawn in the **Agent location** option. You can either click the down arrow and select the point node from the list of appropriate objects, or you can click the button, located on the right, to select this space markup shape from the graphical editor (the rest of the elements in the editor will be greyed out).

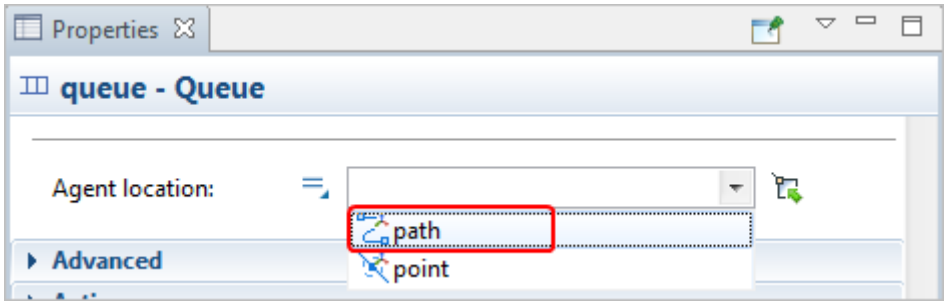


Set up space markup for the queue

1. Draw the queue as a path. First, open the **Space Markup** palette in the **Palette** view.
2. Double-click the element **Path** to switch to the drawing mode.
3. Click in the graphical editor to put the first point of the path. Do more clicks to add turning points. Finish drawing with a double-click.

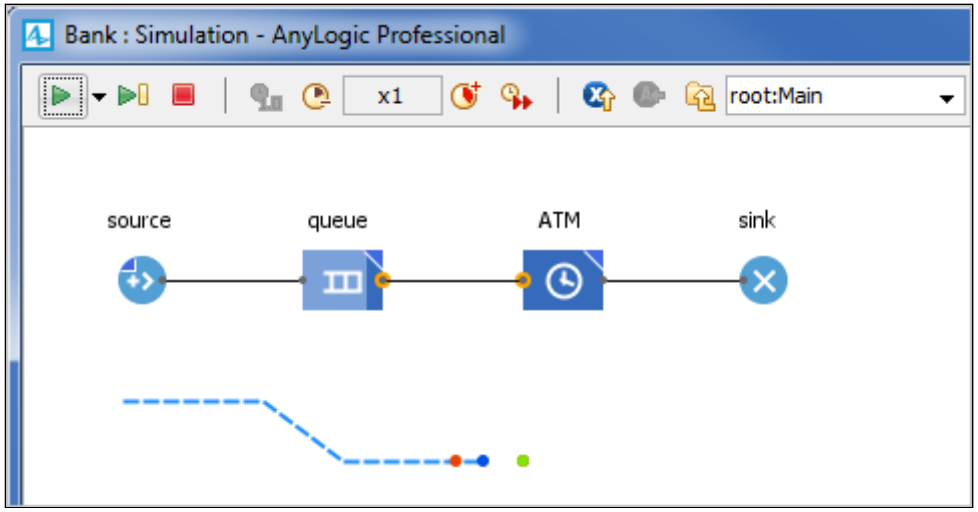


4. Click the *queue* block in the flowchart and go to its **Properties** view.
5. Select the *path* we have drawn in the **Agent location** option. You can either click the down arrow and select the path from the list of appropriate objects, or you can click the button, located on the right, to select this space markup shape from the graphical editor (the rest of the elements in the editor will be greyed out).



Now you can run the model and observe its behavior. If you want to speed up the simulation significantly, switch to virtual time mode by clicking the **Toggle real/virtual time mode** toolbar button. Switching to virtual time mode allows you to view simulation run at its maximum speed. Therefore, you can simulate a long period of time.

Note that when the ATM station is serving a customer, its animation shape becomes red, and when it is idle, it is green.



Adding 3D animation

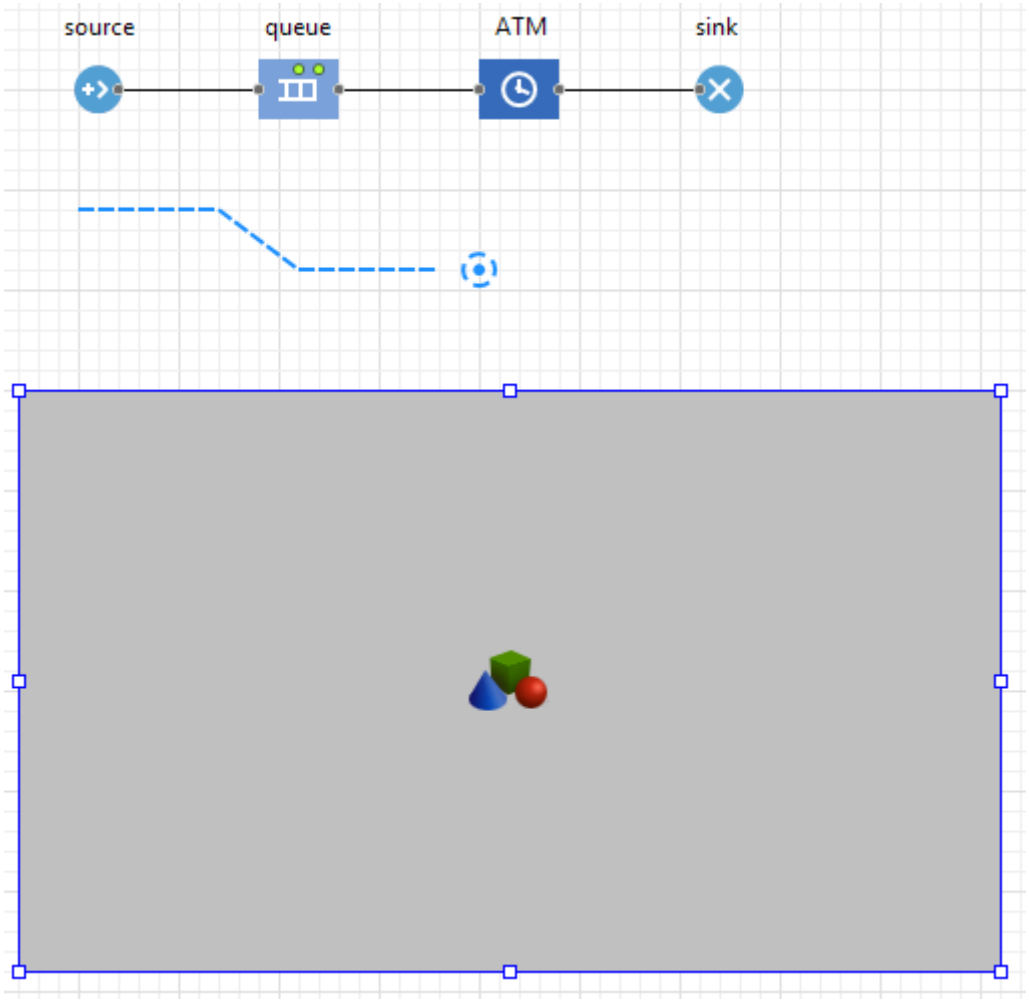
Both of the elements we have drawn by default are shown in 2D and 3D. You can check this property in the **Advanced** section of their properties view. Now we want to create 3D animation for our model.

First of all you should add 3D window on the diagram of your agent type.

> *3D window* plays the role of a placeholder for 3D animation. It defines the area on the presentation diagram where 3D animation will be shown at runtime.

Add 3D window

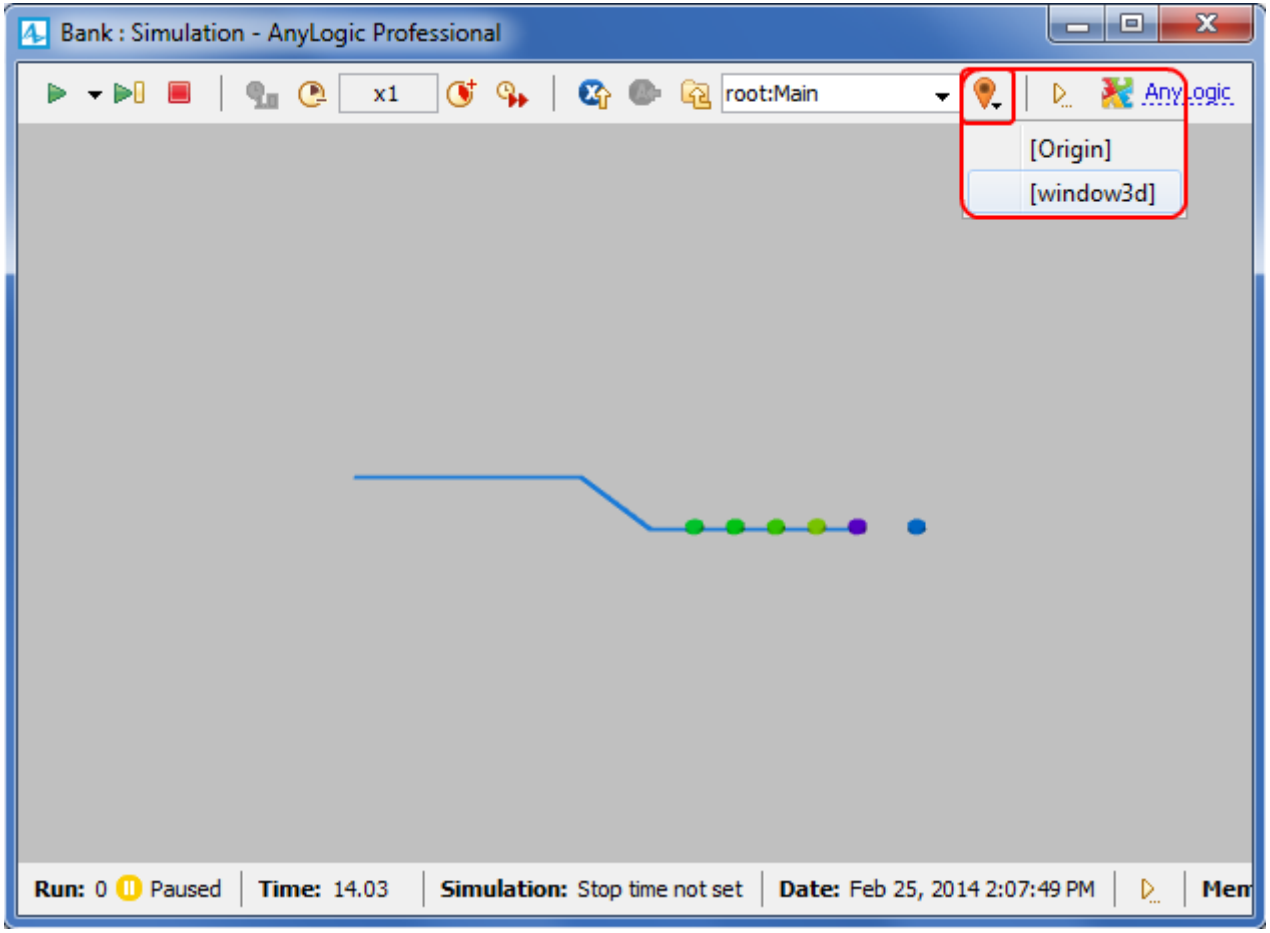
1. Drag the **3D Window** element from the **3D** section of the **Presentation** palette to the graphical editor.
2. The grey area will appear on the screen. Locate it where you want your 3D presentation to be shown at the model runtime:



Navigating through 3D animation

Now you can run your model and observe simple 3D animation.

1. Click the toolbar button **Navigate to view area...** and select **[window3D]**.



2. Navigate through the 3D scene using the commands described below:

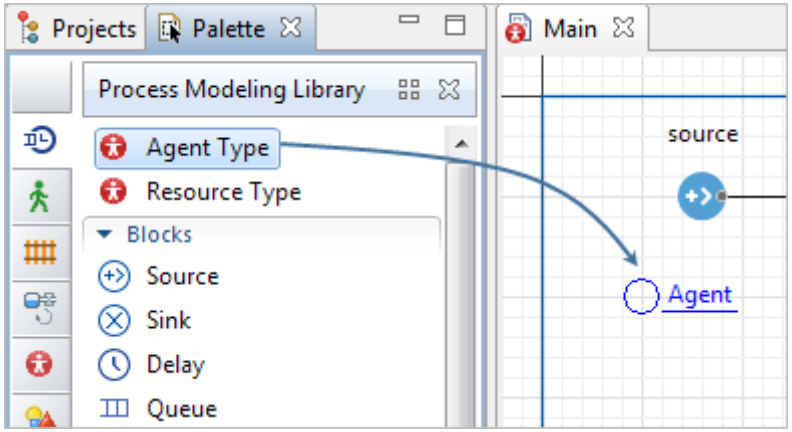
In order to	Use the mouse like described here
Move the scene	1. Press the left mouse button in the 3D view and hold the mouse button pressed. 2. Move the mouse in the required direction.
Rotate the scene	1. Press **`Alt`** key (Mac OS: `Option` key) and hold it pressed. 2. Click in the 3D scene window and, while holding `Alt` and the left mouse button down, 3. Move the mouse in the required rotation direction.
Zoom in/out the scene	1. Scroll the mouse wheel in the 3D window away from / towards you.

Adding 3D objects

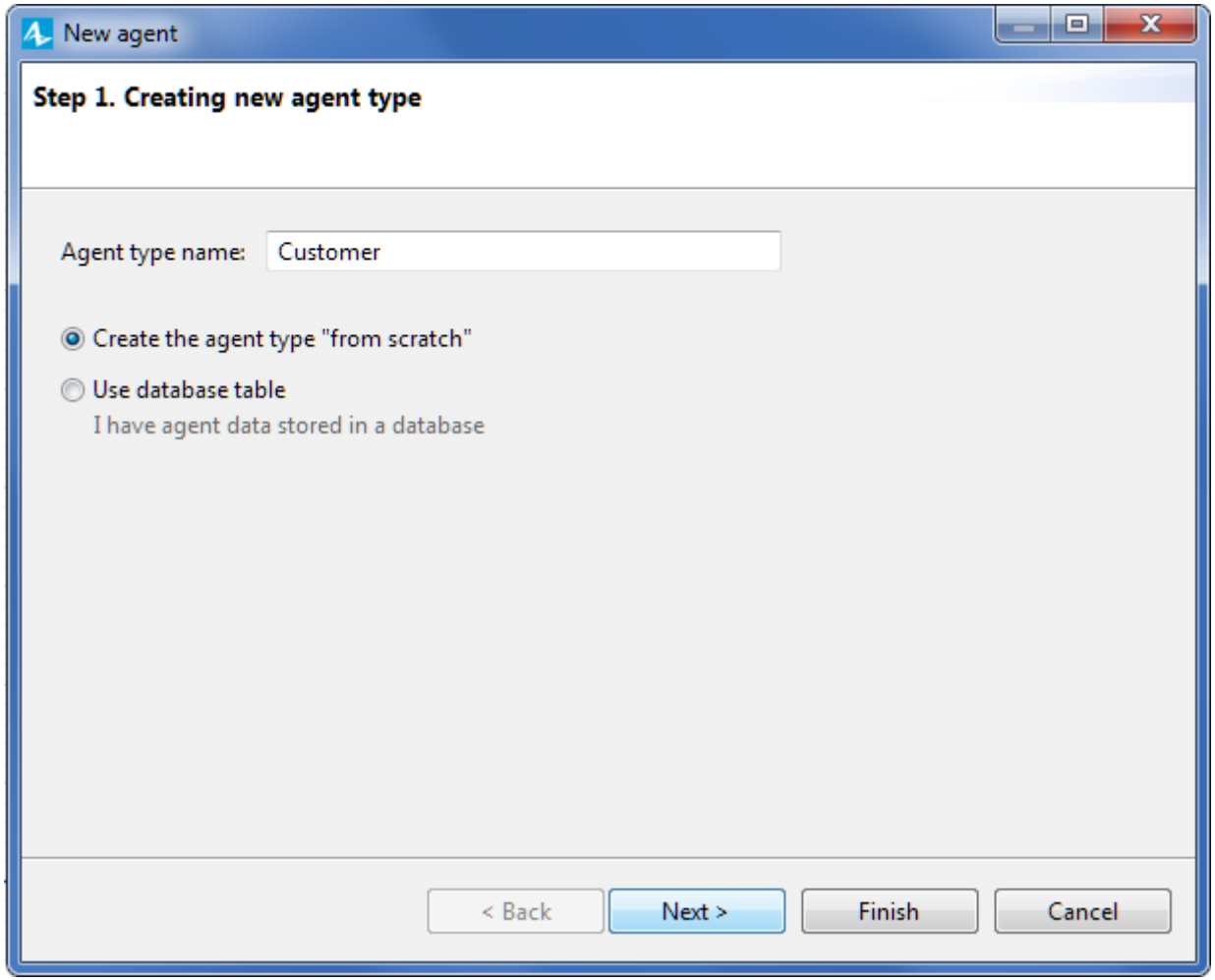
Now we want to add a customer figure. By default the customers are drawn as coloured dots and shown as colored cylinders in 3D animation. We want to create our custom type of client and animate it in 3D. We will create a new agent type for this purpose.

Create a new agent type

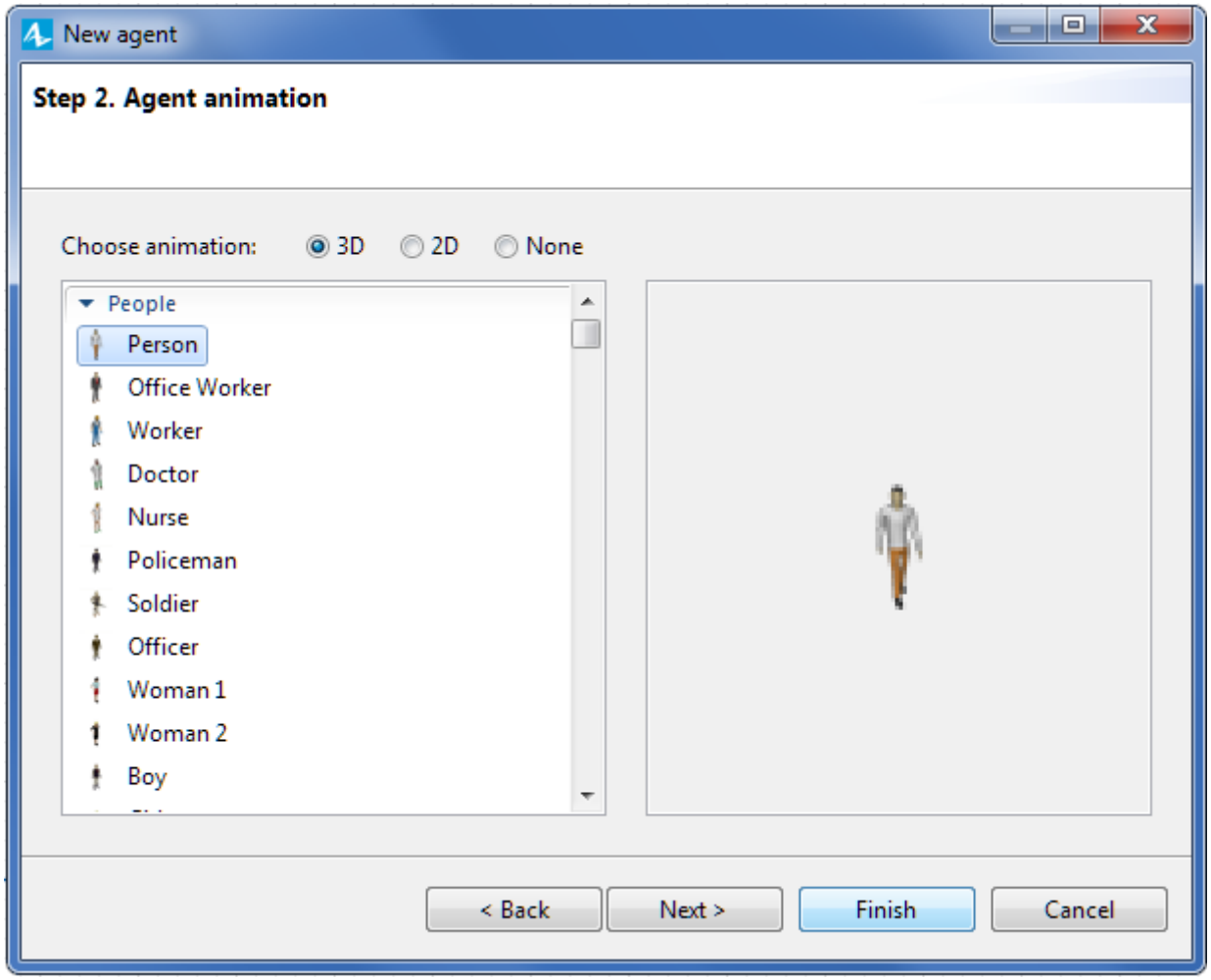
1. Open the **Process Modeling Library** in the **Palette** view.
2. Drag the element **Agent Type** into the graphical editor.



3. The **New agent** wizard will open on the **Creating new agent type** step. Enter *Customer* as the **Agent type name**, and leave the **Create the agent type "from scratch"** selected. Press **Next**.



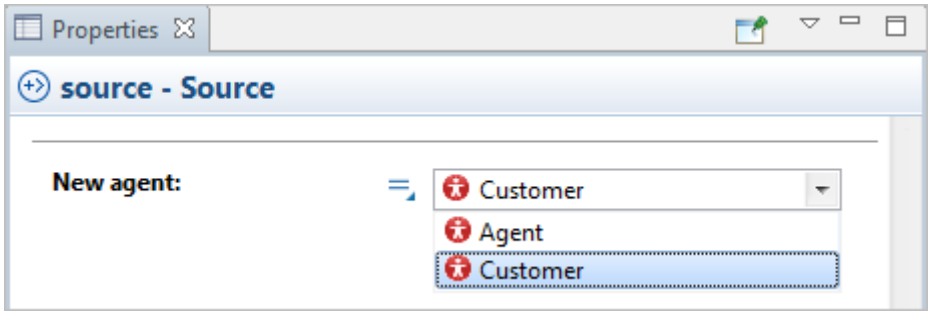
4. In the next step select **3D** as the animation type and select *Person* from the list of the 3D figures.



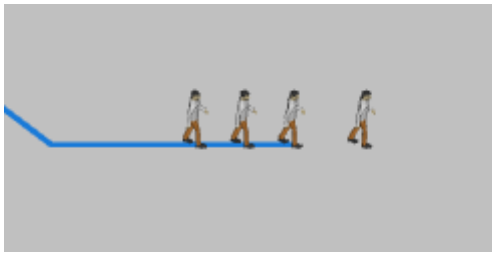
5. Click **Finish**. The new `Customer` diagram will open. You can find the *Person* 3D figure in the axis origin. Switch back to the `Main` diagram.

Configure flowchart to use the new type

1. On the `Main` diagram, select the block *source* in the graphical editor.
2. Choose `Customer` in the **New agent** drop-down list.

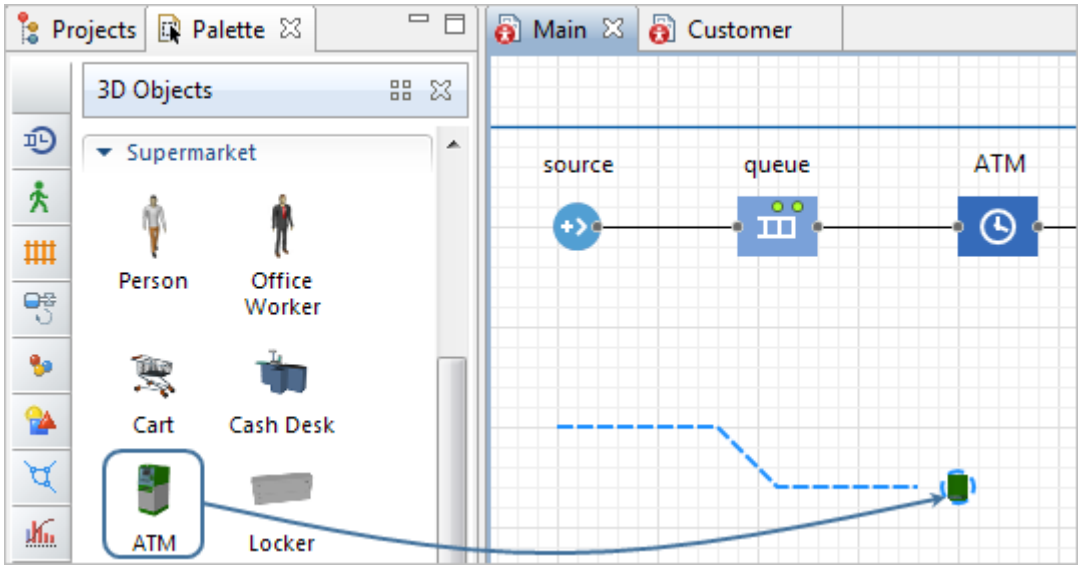


3. Run the model and switch to 3D view to see our customers moving in the queue.



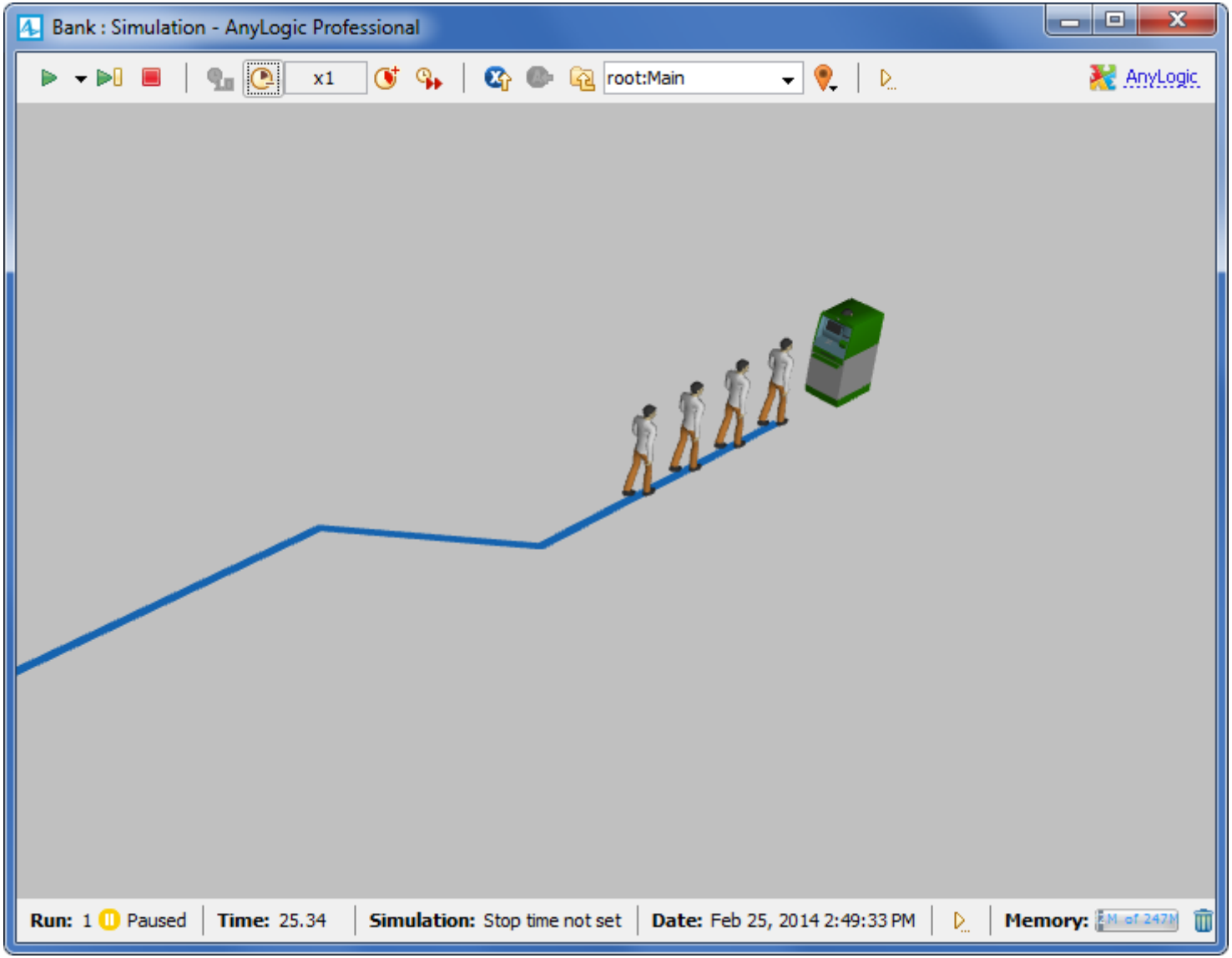
Add an ATM figure

1. Open the **3D Objects** palette in the **Palette** view.
2. Drag the **ATM** 3D figure from the **Supermarket** section of this palette onto the point node shape in the graphical editor.



3. If you run the model now and check 3D animation in **window3D** mode, you will notice that our ATM does not face the customers' flow and we need to rotate it.

4. Select the *atm* 3D object in the graphical editor and open the section **Position** in its properties view.
5. Choose *0* degrees from the drop-down list of the **Rotation Z** option.
6. Run the model to double-check that the ATM is facing the customers now.



Reference model: Bank - Phase 2

Phase 1, Creating a simple model

Phase 3, Adding tellers