

ScenarioViewerU3D

Version 0.23 working

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ScenarioViewerU3D views interactive 3D visualisations of historical scenarios created by the **ScenarioBuilder** application. Scenarios are placed in the subdirectory *examples* by ScenarioBuilder. When the viewer is launched, it finds out the names of the scenarios present in the *examples* subdirectory and lists them in a drop down list on the left side of the viewer window. The user clicks on an item in the list in order to open the scenario visualisation.

Launching ScenarioViewerU3D

When the program is launched, the dialog shown below in Figure 1 is displayed:

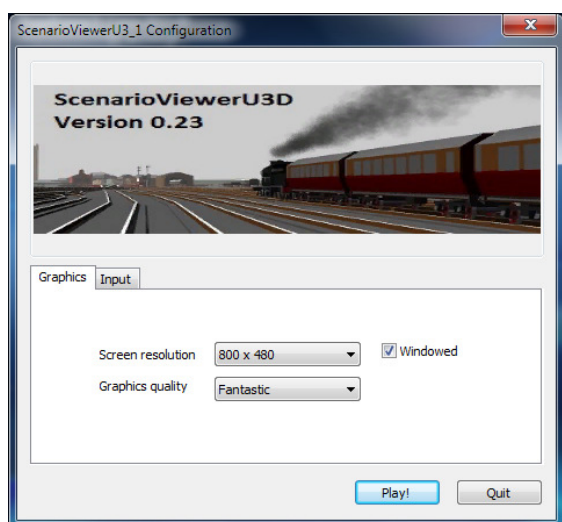


Figure 1: Viewer opening dialog

Graphics

Here you can set the window size and the level of quality of the graphics. The higher levels of quality enable shadow effects. These may be switched off as explained below.

If you clear the *Windowed* check box then the application fills the screen.

Input

Here you can customise the controls. These have not been addressed yet in the viewer.

The opening views

When you click on **Play!** in the opening dialog you will see the Unity 3D view open as shown in Figure 2 below:



Figure 2: Opening Unity 3D view

Click on the **Select a scenario** button to display the drop down list of scenarios as shown in Figure 3 below:

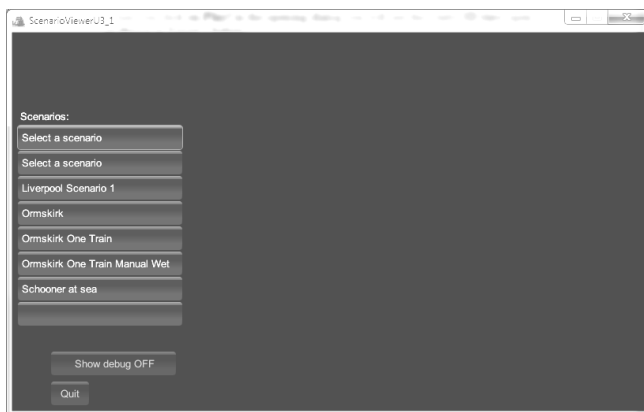


Figure 3: Selecting a scenario

Click on the name of the scenario you wish to view. This loads the scenario and displays it as shown in Figure 4 below:

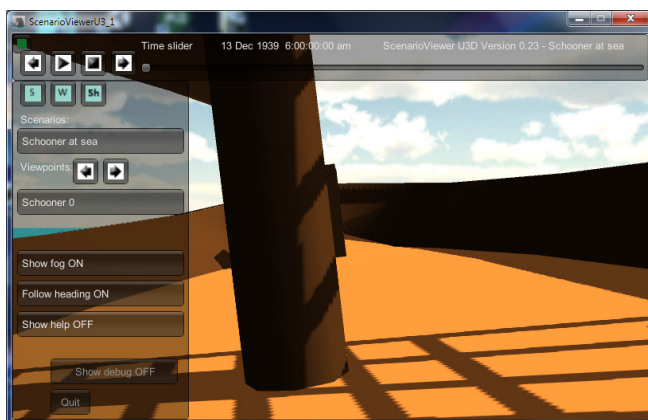


Figure 4: Opening the Schooner at sea scenario

Controlling the scenario

Viewing the scenario

Control the **view** by using mouse or keyboard as follows:

Turn left and right	Mouse drag left and right with left button down Left and right arrow keys
Look up or down	Mouse drag up and down with right button down Up and down arrow keys
Next / previous viewpoint	'N' and 'B' keys
Zoom in and out (changing the field of view)	Mouse drag with centre button down or roll the centre mouse button 'A' and 'Z' keys
Move back from the turning point to view it	'S' and 'X' keys. 'C' and 'D' keys for faster change.

The left hand control panel



Toggle S-smoke, W-ship wakes, Sh-shadows

Current scenario; click to reveal list to select from.

Buttons to switch to previous and next viewpoints

Current viewpoint; click to reveal list to select from.

The scenario includes meteorological visibility e.g. 1000 metres. This can be switched off to show the scenario in full clarity using this button

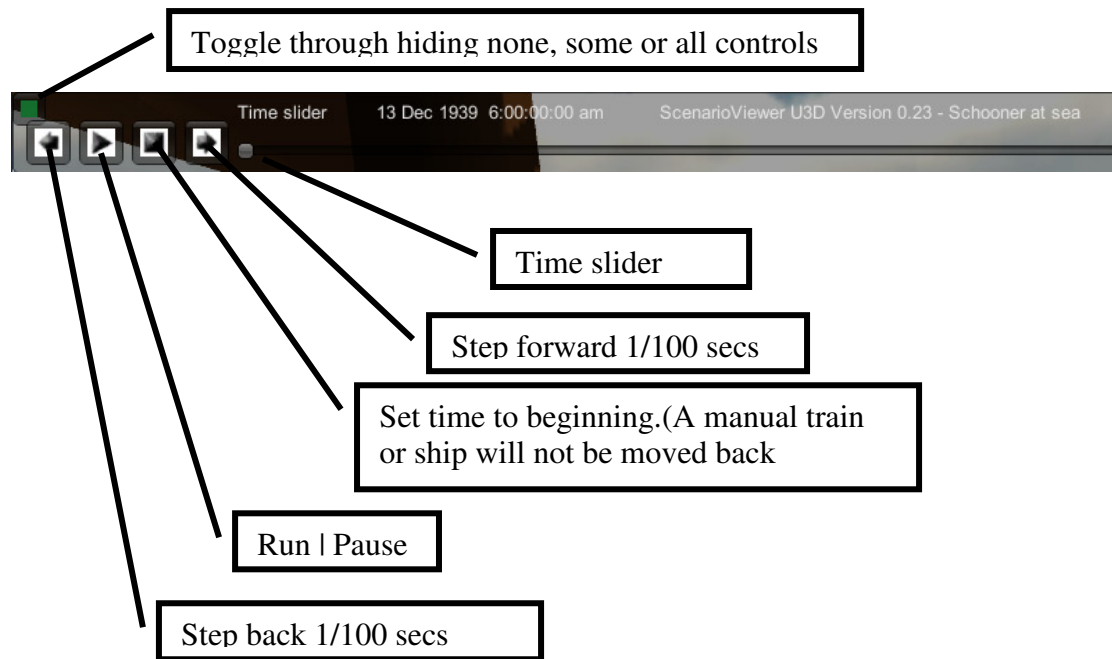
Make viewpoint on locomotive or ship turn as the locomotive or ship turns

Displays very brief help on the controls

Displays messages useful when debugging

Close the viewer

The top control panel



Manually controlled ships

It is possible to **manually control** a ship in a scenario. If a scenario has a manually controlled ship then additional controls appear in the interface along the bottom edge as shown below in Figure 5 for the case where *Side Paddle 7* is the ship that is manually controlled.

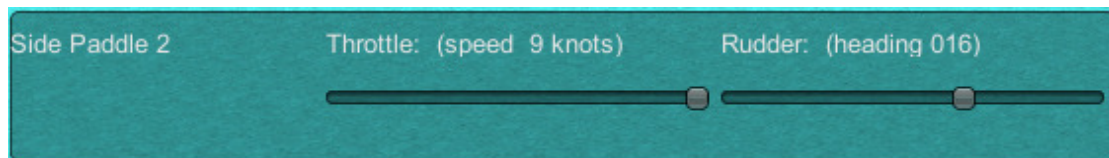


Figure 5: Manual ship controls

The sliders are used to set the ship's speed and heading as the scenario runs.

Manually controlled locomotives

It is possible to **manually control** a locomotive in a scenario.

If a scenario has a manually controlled train then additional controls appear in the at the bottom of the interface as shown below in Figure 6 for the case where *train 101* is the train that is manually controlled.



Figure 6: Manual train controls

The regulator performs the same kind of job as a car's accelerator. It controls the valve admitting steam from the boiler to the cylinders.

The reverser is the equivalent of gears in a car. Positive reverser values (slider to the right) set forward gear, negative values (slider to the left) set reverse gear.

The brake acts like a combined foot and hand brake on a car.

To start the train in the simulation:

- make sure the simulation is running (and not paused)
- slide the brake to 0% (left end)
- slide the reverser to 100% (right end)
- slide the regulator to the right

Note that in wet weather, you will need to apply the regulator very carefully. too much regulator will cause the wheels to slip.

Once the train is underway you can reduce the reverser by sliding back towards the middle a little. This has the effect of only allowing steam into the cylinders for part of the time. The steam is "cut off" from the cylinders. When steam stops entering the cylinder, it pushes the piston the rest of the way by the steam expanding. Cutting off the steam like this saves steam and hence coal and water.

To stop the train

- slide the regulator to the left (0%)
- apply the brakes

The green button at top right of the panel enables the controls to be placed on the right hand edge of the interface as in Figure 7 below:

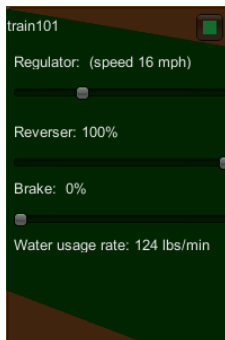


Figure 7: Locomotive controls on right hand edge (toggle with green button at top right)