

Sub-ActionTemplates

The concept of Sub-ActionTemplates is to reuse the Action Sequence System which normally runs the Triggers ActionTemplates, to conditionally run an ActionTemplate from within an Action. The Sequence System uses the Blackboard component to make variables visible to any Actions being run. This allows data to be either passed into an ActionTemplate from other scripts or to be passed between Actions.

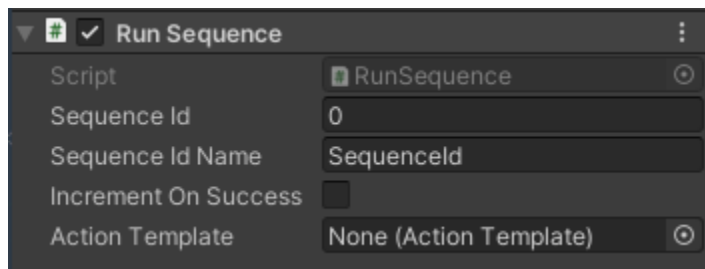
The full lifecycle of the Actions is beyond the scope of this document, but the main points to know are;

- A sequence is run over multiple 'ticks' (frames) starting at the first action.
- The sequence will only increment to the next Action if the current Action completes successfully. If it fails the whole sequence terminates.
- An Action can return a Running status, and the Sequence will call the same Action on the next tick. For example, this could be used to wait for a GUI to be closed. This point is especially important for successfully using Sub-Action Templates.

Note: For this to work the Blackboard component needs to be added to the gameObject.

Actions

Run Sequence



Use to conditionally run Action Templates.

Sequence Id

An integer value, when this equals the value in the Blackboard variable the Action Template will be run.

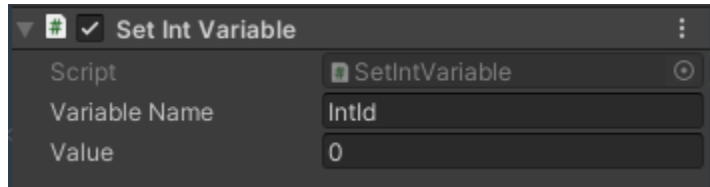
Sequence Id Name

The variable name that is used in the Blackboard. If it is not present then 0 is used.

Increment On Success

A convenience function to simplify certain behaviours. When set and the Action Template complete successfully the Sequence Id Name variable is incremented and stored to the Blackboard.

Set Int Variable



Used to set an Integer variable in the Blackboard.

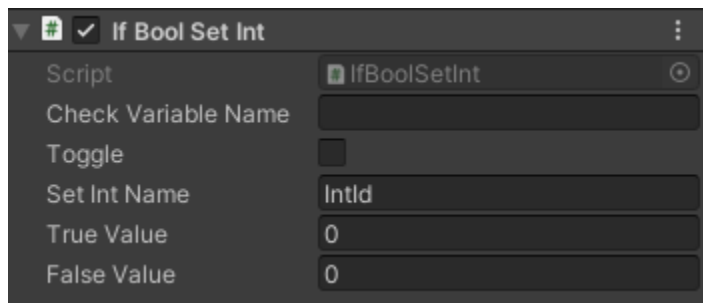
Variable Name

The name of the Blackboard variable that is to be set.

Value

The integer value is to be set in the Blackboard.

If Bool Set Int



Used to conditionally set an integer in the Blackboard based on the value of a bool variable in the Blackboard.

Check Variable Name

The name of the bool variable in the Blackboard that is used for the conditional. If it does not exist false is used.

Toggle

If it is checked the Check Variable will be toggled each time the action is run. Useful for Doors, lights etc.

Set Int Name

The name of the Blackboard variable that is to be set.

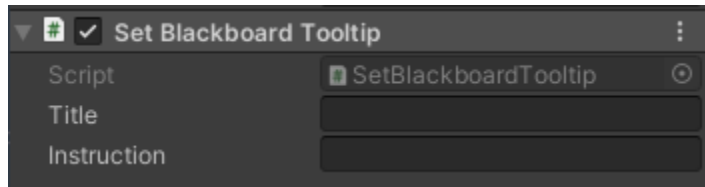
True Value

The value that is used if the bool is true.

FalseValue

The value that is used if the bool is false.

Set Blackboard ToolTip



A convenience action to set the Blackboard variables used by the Component 'Display Trigger Blackboard Tool Tip'.

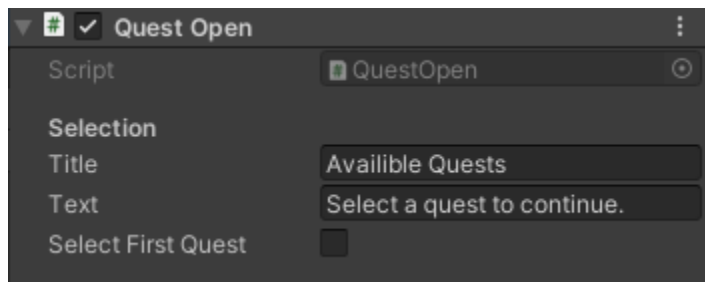
Title

The value that is displayed as the ToolTip Title.

Instruction

The value that is displayed as the ToolTip instruction.

Quest Open



A convenience action that replaces the 'Quest Window' component and allows quests to be opened from within the Triggers Action Template.

Quests are populated in the normal way via the 'Quest Collection' component.

Title

Title for the Quest Selection window if more than one quest is available.

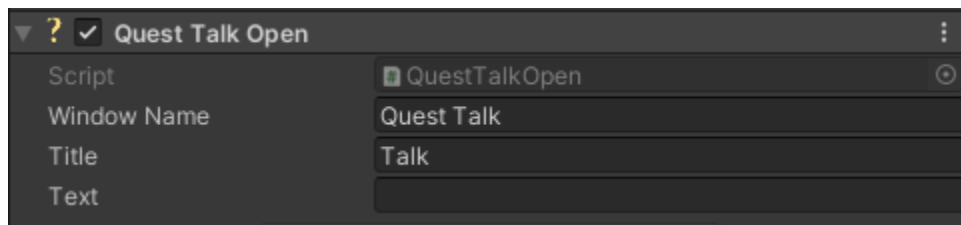
Text

Prompt for the Quest Selection window if more than one quest is available.

Select First Quest

Forces the quest system to only display the first quest if multiple are available. This allows quests to remain hidden till previous ones have been completed.

Quest Talk Open



This action opens the 'Quest Talk' window and the cause the execution of the template to pause until the window is closed. This is used for displaying multiple pages of dialog.

Note: If you do not need the execution to pause use the standard 'Show Talk Window' action.

Note: Destroying the gameobject will terminate execution even if the window is open and no further actions will be run.

Window Name

The name of the window to open.

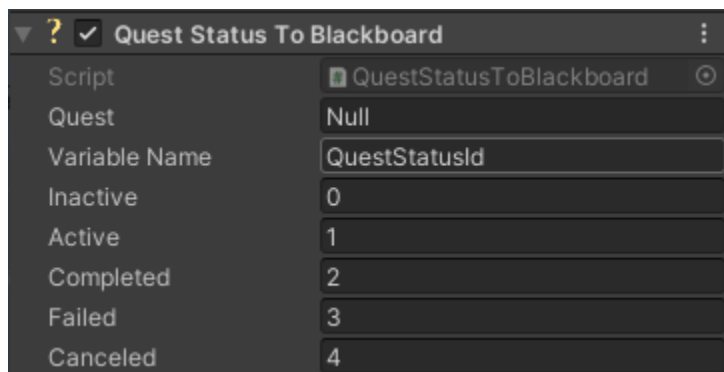
Title

Contents of the window title.

Text

The message to display.

Quest Status To Blackboard



This action retrieves the status of the selected quest and sets it in a blackboard variable. This allows the status of a quest to control the use of SubAction Templates.

Quest

The quest to be inspected.

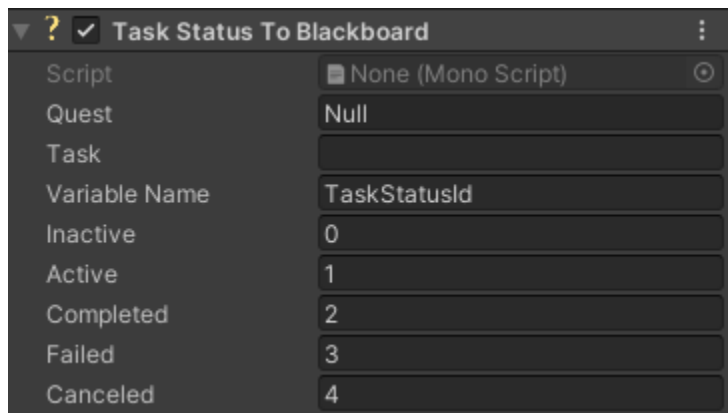
Variable Name

The name of the Blackboard variable that is to be set.

Inactive, Active, Completed, Failed, Canceled

These settings map the quest status to an integer value.

Task Status To Blackboard



This action retrieves the status of the selected quests named task and sets it in a blackboard variable. This allows the status of a quests task to control the use of SubAction Templates.

Quest

The quest to be inspected.

Task

Name of the task to be inspected.

Variable Name

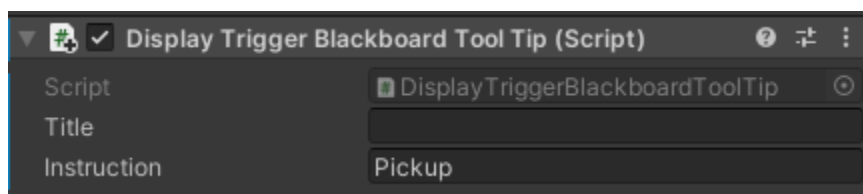
The name of the Blackboard variable that is to be set.

Inactive, Active, Completed, Failed, Canceled

These settings map the quest status to an integer value.

Components

Display Trigger Blackboard Tool Tip



This component is used with the 'Set Blackboard ToolTip' to allow the behaviour flow to change the displayed ToolTip.

Title

The initial value is displayed as the ToolTip Title.

Instruction

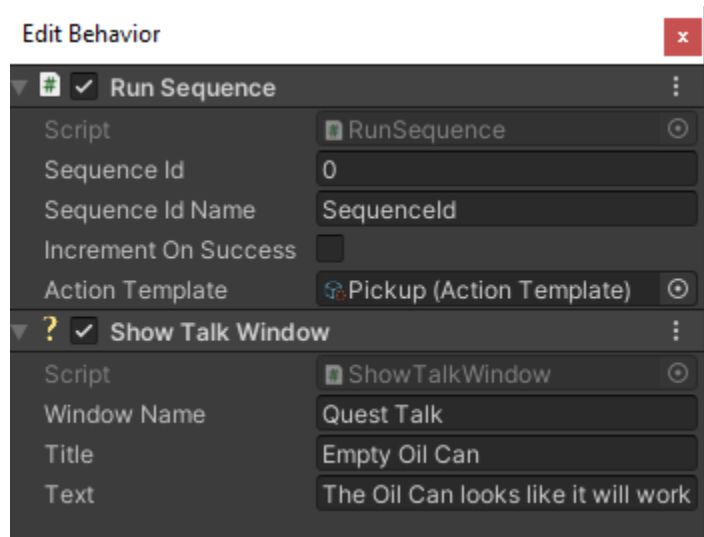
The initial value is displayed as the ToolTip instruction.

Examples

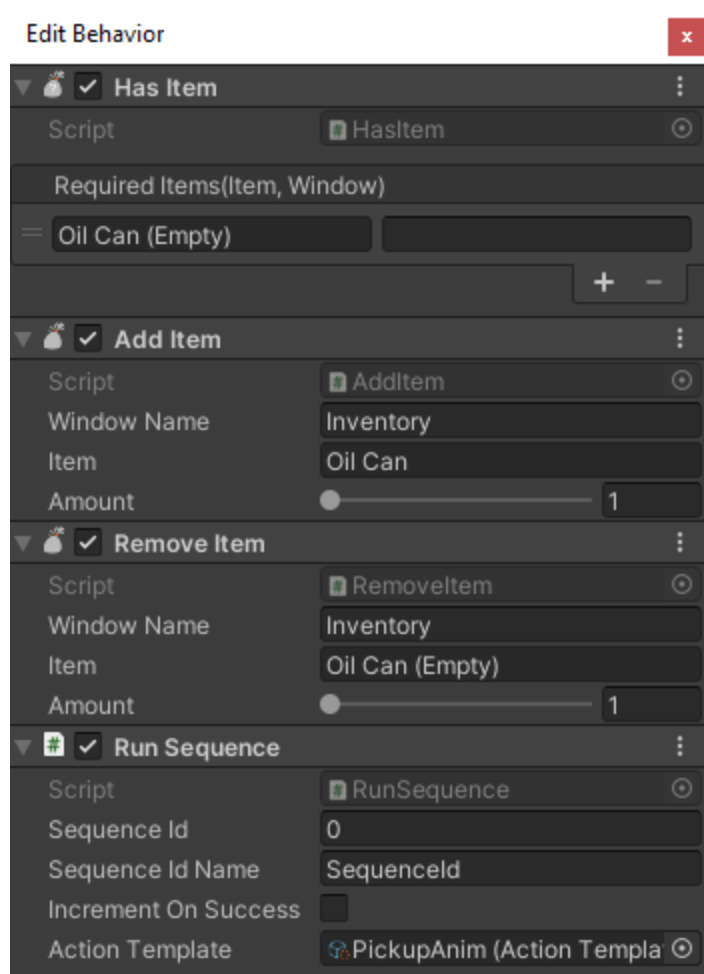
These examples are from the Rusty Door quest chain that is shown in the Demo scene.

Extending (chaining) Action Templates

It is sometimes desirable to extend or run multiple Action Templates. For the 'Oil Can' I wanted to display the Quest Talk window after pickup.



A more complicated example is the use case for the 'Motor Oil', where I wanted to appear to fill up the 'Oil Can'.

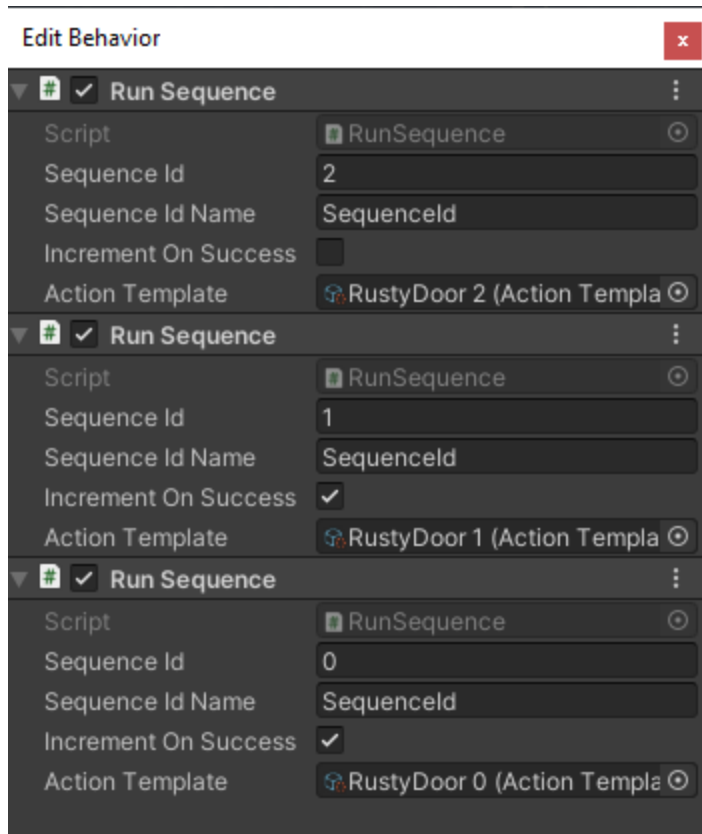


Sequentially Changing Behaviour

In the case of the RustyDoor I wanted the use case to be;

1. The door is stuck and a quest to find oil is available.
2. The door is waiting to be oiled.
3. The door is free to open and close.

To do this I created three Action Templates to control each state. Then there are two ways to call these templates.



To iterate through the states you could use the 'Increment on Success' on the first two. This means that only when each Action Template has been completed will the state change. The last 'Run Sequence' does not have 'Increment on Success' set so the Door can be toggled open/closed.

Note: They are placed in reverse sequence order, this is so they do not all run on the first Trigger event. As they are in reverse order, a higher value can only be run the next trigger.

The problem with this method is that currently the state of the Blackboard is not saved by the Inventory save system, this means your state is lost on reload.

Edit Behavior

?
✓
Quest Status To Blackboard

Script
QuestStatusToBlackboard

Quest
RustyDoor

Variable Name
Sequenceld

Inactive
0

Active
1

Completed
2

Failed
0

Canceled
0

#
✓
Run Sequence

Script
RunSequence

Sequence Id
2

Sequence Id Name
Sequenceld

Increment On Success
☐

Action Template
RustyDoor 2 (Action Template)

#
✓
Run Sequence

Script
RunSequence

Sequence Id
1

Sequence Id Name
Sequenceld

Increment On Success
☐

Action Template
RustyDoor 1 (Action Template)

#
✓
Run Sequence

Script
RunSequence

Sequence Id
0

Sequence Id Name
Sequenceld

Increment On Success
☐

Action Template
RustyDoor 0 (Action Template)

The better way to control the flow is to use the QuestStatusToBlackboard, this means the state of the door is determined by the state of the quest. As quest state is saved by the Quest system it means the state of the door is preserved.

Note: You could also use the possession of an item to persist the state. For example, a locked door would be unlocked if you have a key in your inventory. To test this you would use the HasItem action to test for the item.

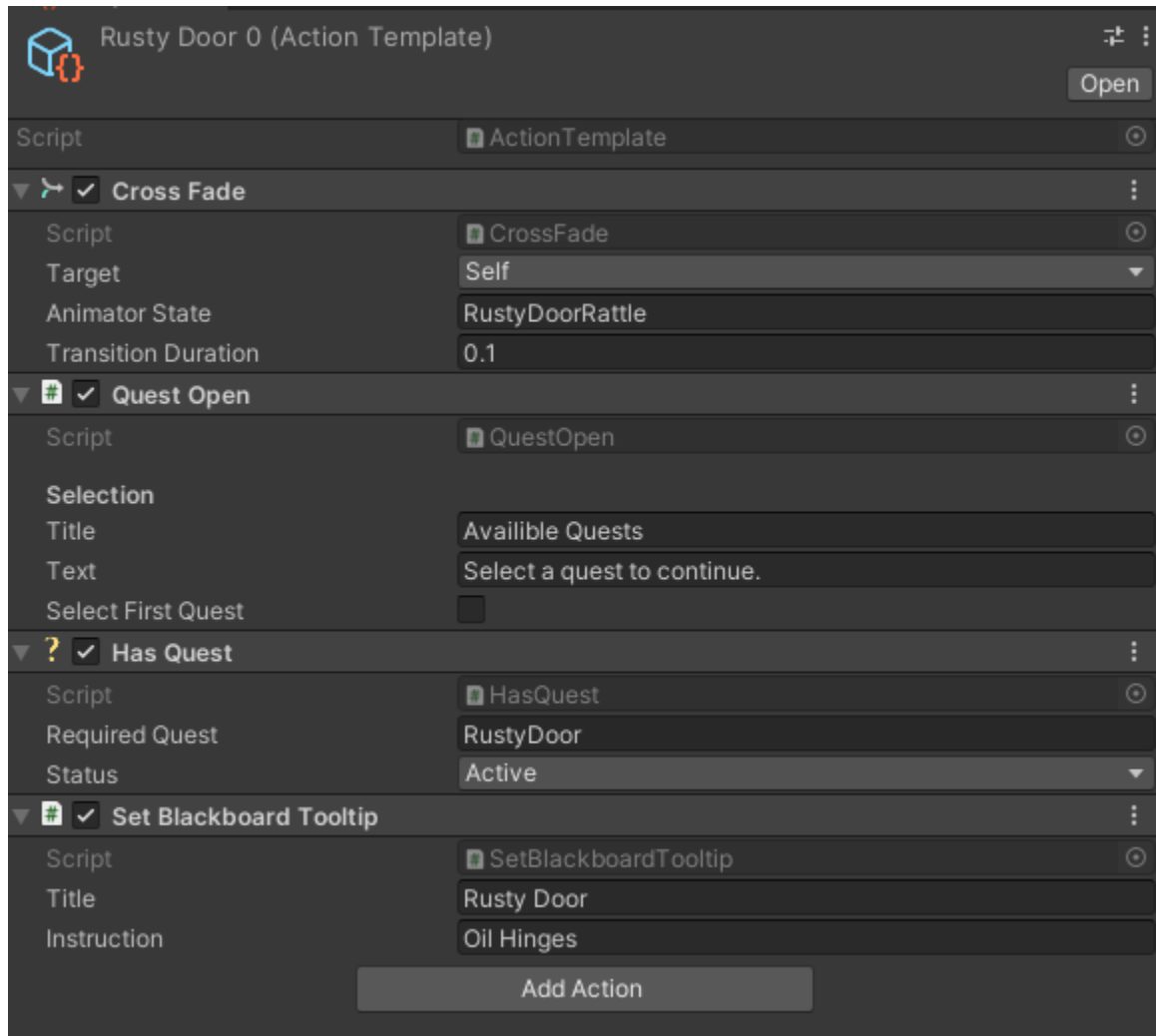
Template 'RustyDoor 0'

Template 'RustyDoor 0' Ensures that the RustyDoor quest is given and will only allow the state to change if it has been accepted.

It first plays the animation of the stuck door. Note: The audio is played via an event on the animation.

After that, it opens the Quest Window, and if the quest is accepted, it then moves on to set the displayed ToolTip.

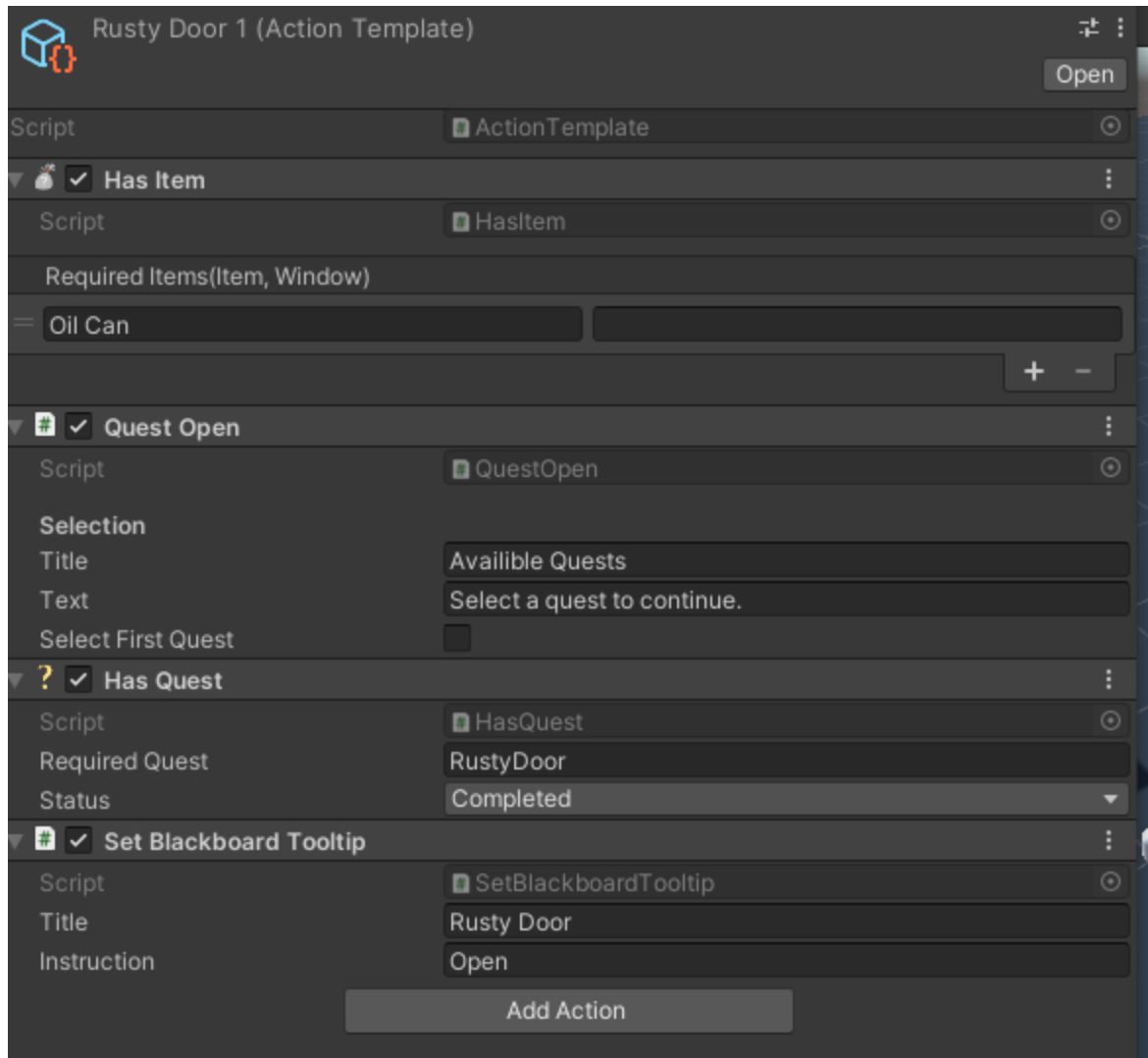
If the quest is not accepted the 'Has Quest' check will fail, which causes the whole behaviour to fail and the state will not progress.



Template 'RustyDoor 1'

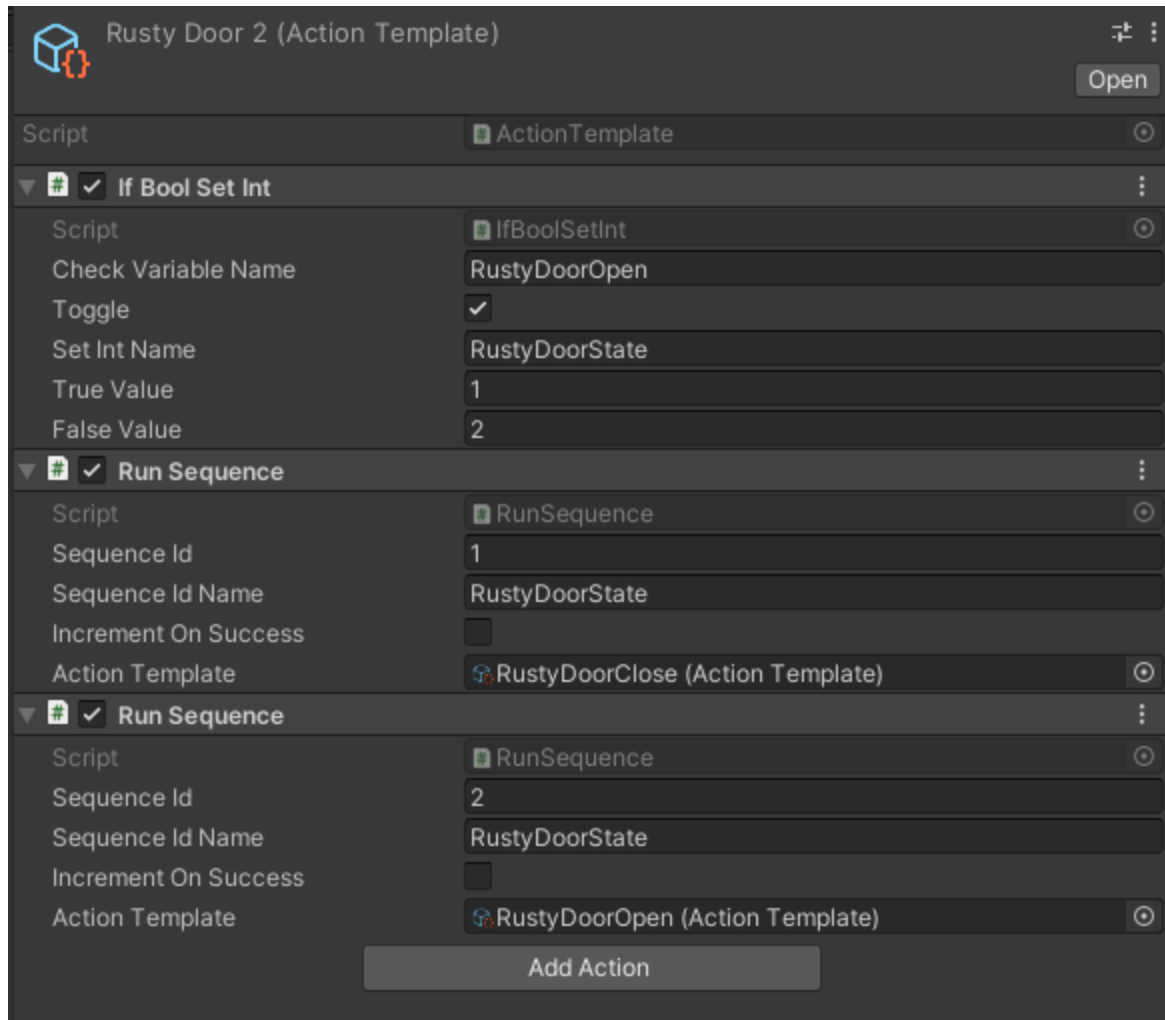
Template 'RustyDoor 1' handles the completion of the quest. The requirement for the 'Oil Can' fulfils the hinge oiling. Then the quest window is opened to complete the quest.

After this it is checked that the quest has been completed before setting the prompt to open the door.




Template 'RustyDoor 2'

Template 'RustyDoor 2' handles the opening and closing of the door. In this, I use the `IfBoolSetInt` with the toggle set to open and close the door via `RustyDoorOpen` and `RustyDoorClose` templates.




Templates 'RustyDoorOpen' and 'RustyDoorClose'

These templates simply play the open/close animation and set the ToolTip appropriately.




Rusty Door Open (Action Template)




Script

ActionTemplate



☒ Cross Fade



Script

CrossFade

Target


Self

Animator State


RustyDoorOpen

Transition Duration

0.1



☒ Set Blackboard Tooltip



Script

SetBlackboardTooltip


Title

Rusty Door


Instruction

Close

Add Action




Rusty Door Close (Action Template)




Script

ActionTemplate



☒ Cross Fade



Script

CrossFade

Target


Self

Animator State


RustyDoorClose

Transition Duration

0.1



☒ Set Blackboard Tooltip



Script

SetBlackboardTooltip

Title

Rusty Door

Instruction

Open

Add Action