

Sub-ActionTemplates and the Rusty Door

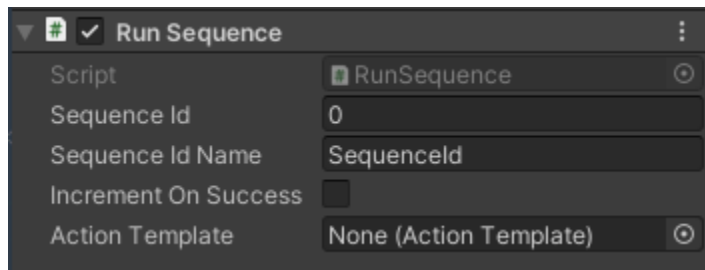
The concept of Sub-ActionTemplates is to reuse the Action Sequence System which normally runs the Triggers ActionTemplates, to conditionally run an ActionTemplate from within an Action. The Sequence System uses the Blackboard component to make variables visible to any Actions being run. This allows data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

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.

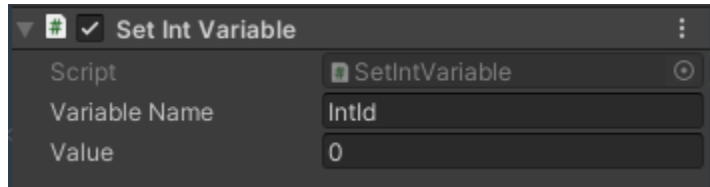
Sequence Id Name

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.

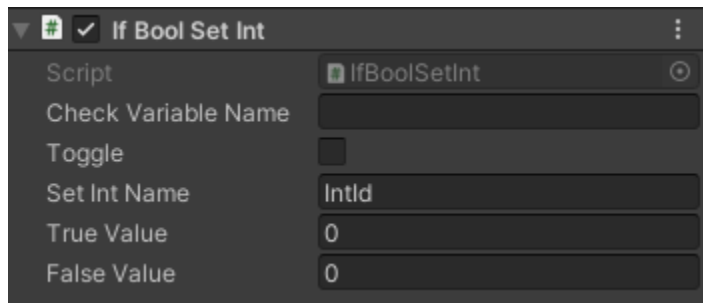
Variable Name

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 that is to be set.

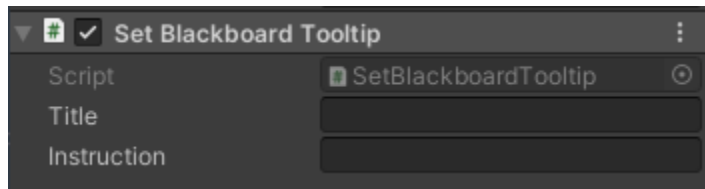
True Value

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'.

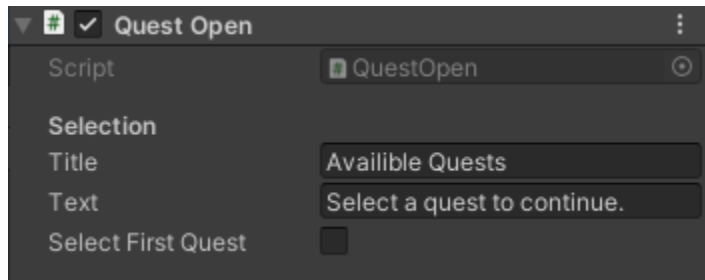
Title

The value to be displayed as the ToolTip Title.

Instruction

The value to be 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

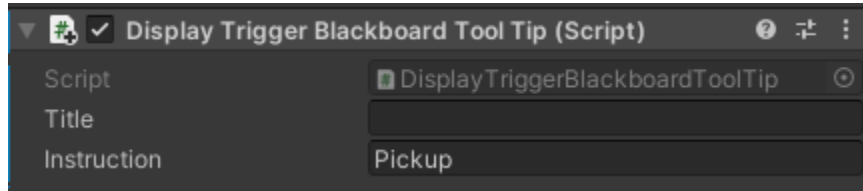
Prompt for the Quest Selection window if more than one quest is available.

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.

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

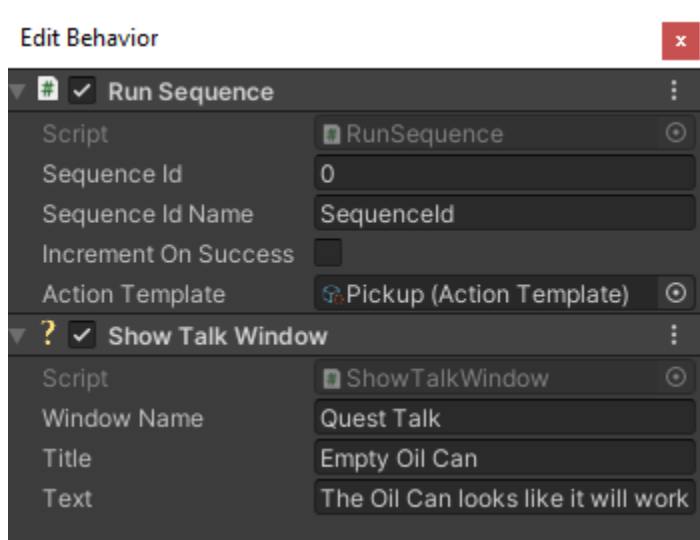
The initial value is displayed as the ToolTip instruction.

Examples

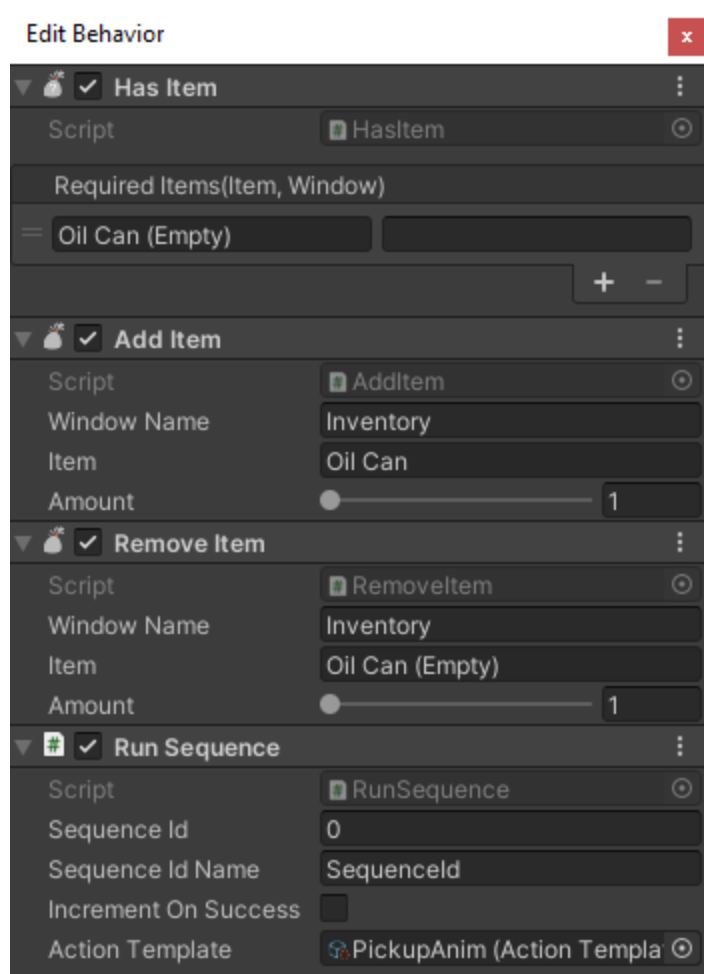
These examples are from the Rusty Door quest chain that is shown in the Demo scene.

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'.



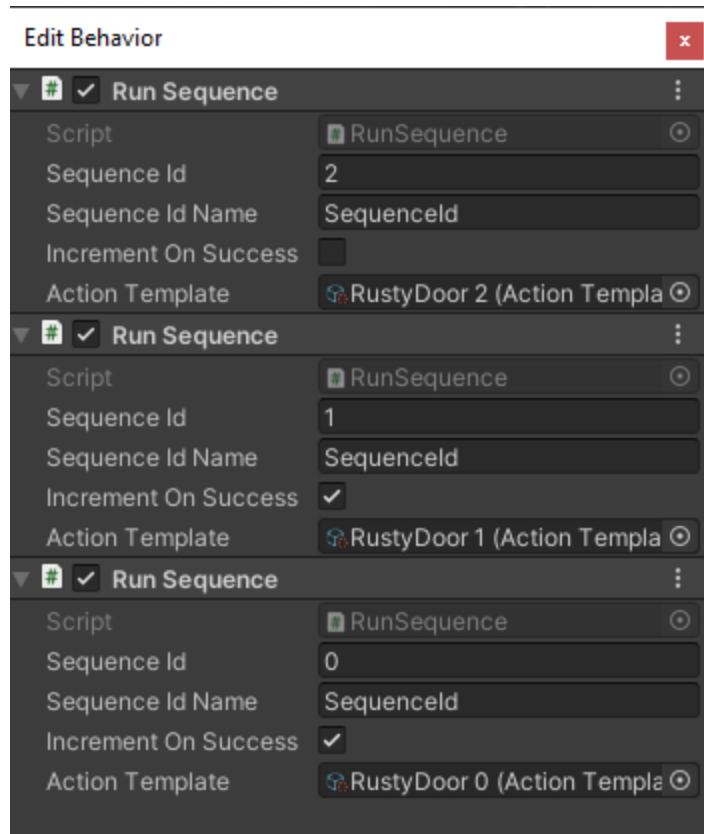
Sequentially Changing Behaviour

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. To iterate through the states I used 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 that they are placed in reverse sequence order, this is so that 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.



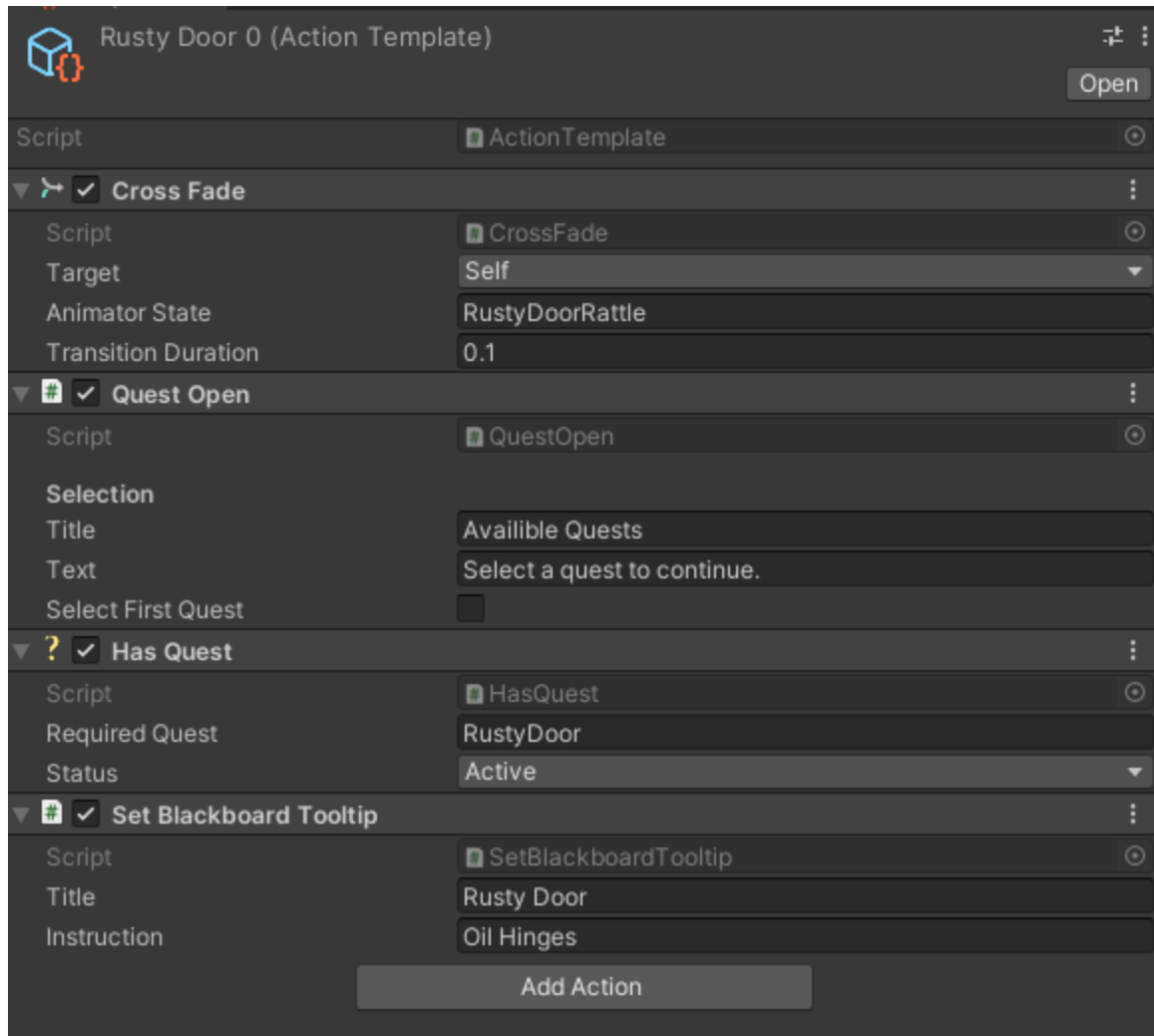
Template 'RustyDoor 0'

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 door being stuck. Note the audio is played via an event on the animation.

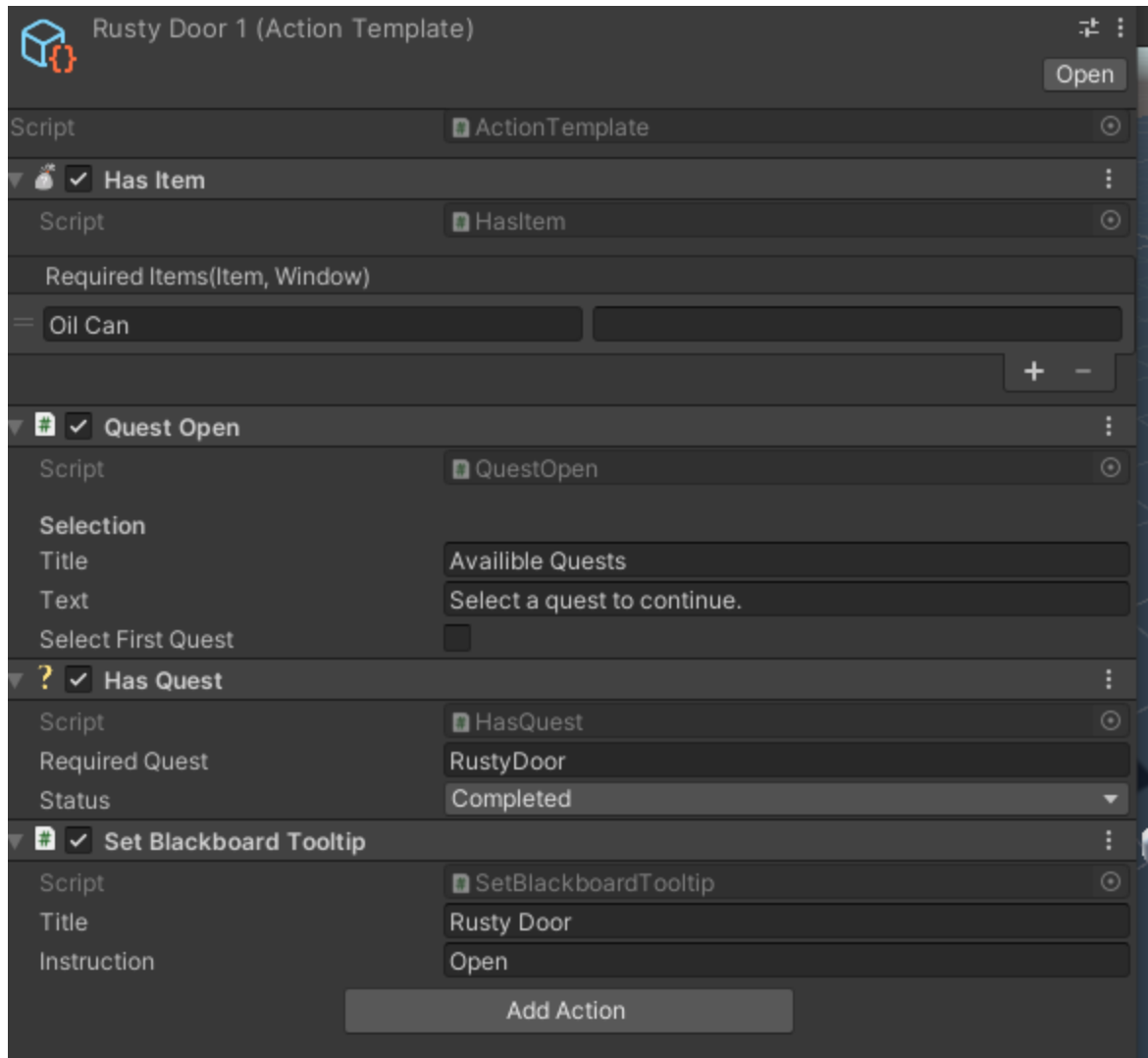
After that, it opens the Quest Window, and if the quest is accepted then moves on to set the displayed ToolTip.

If the quest is not accepted the 'Has Quest' check will fail and the whole behaviour fails and the state will not progress.



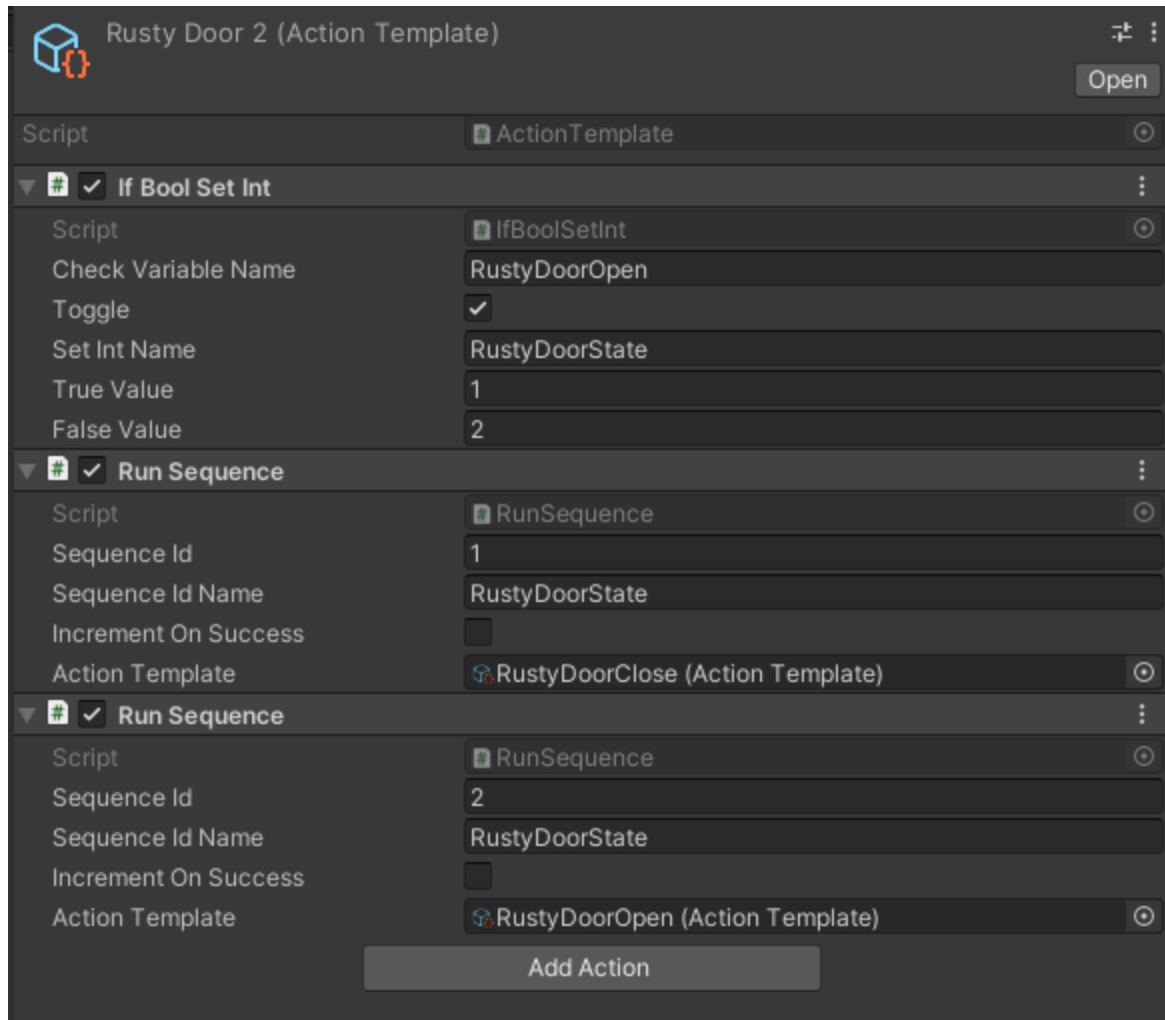
Template 'RustyDoor 1'

Template 'RustyDoor 1' handles the completion of the quest. The requirement for the 'Oil Can' fulfils the hinge oiling. Then after that 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.




Template '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