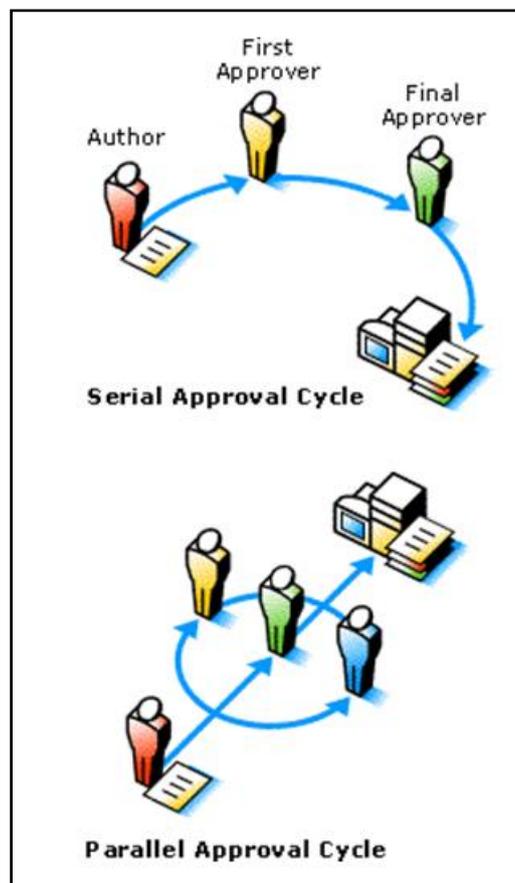


How to...

Use a dynamic number of approvers

Background:

In many approval processes, the number of people required to review or approve an item is initially unknown or undetermined when designing the workflow. It's not until run-time when the user starting the workflow will select specific users to perform a review. The following document describes how to configure a dynamic number of approvers for serial and parallel approval using Nintex Workflow 2007.

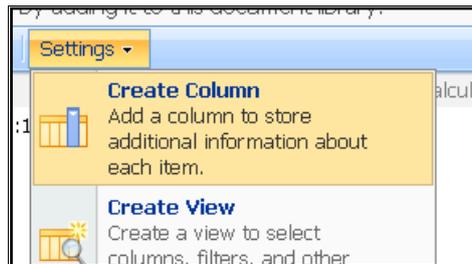


Prerequisites

The following tutorial uses a multi-value user list field to store the reviewers.

To create this field navigate to the list or library.

Select from the Settings menu -> Create Column



Give your column a name and select the “Person or Group” information type. Ensure “Allow multiple selections” is set to “Yes” then click ok (not shown).

Column name:

The type of information in this column is:

- Single line of text
- Multiple lines of text
- Choice (menu to choose from)
- Number (1, 1.0, 100)
- Currency (\$, ¥, €)
- Date and Time
- Lookup (information already on this site)
- Yes/No (check box)
- Person or Group
- Hyperlink or Picture
- Calculated (calculation based on other columns)

Description:

Require that this column contains information:
 Yes No

Allow multiple selections:
 Yes No

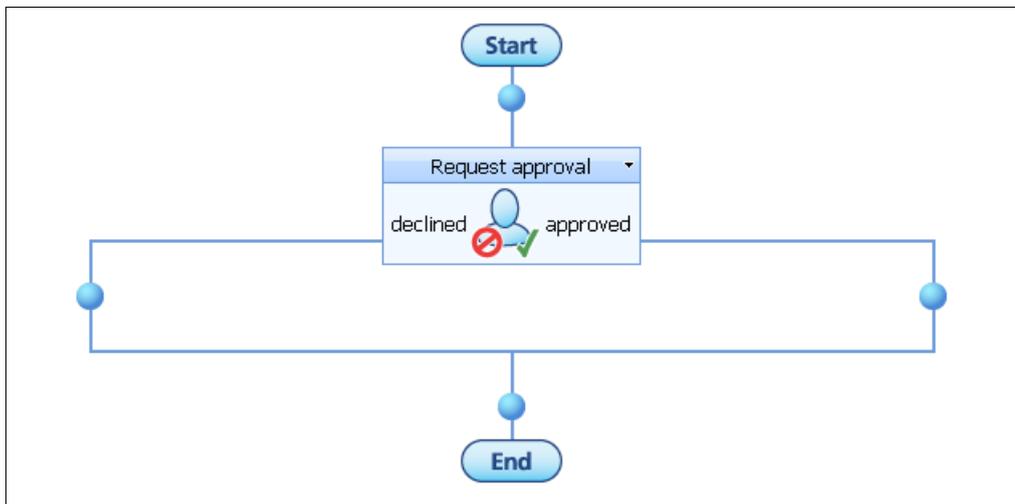
Earlier versions of client programs might not

Safe looping workflows

By default, Nintex Workflow will insert a delay action after each iteration of a loop and whenever moving from one state to the next in a state machine. This is done to prevent excessive use of server resources if a user accidentally creates a workflow process that loops forever. If using the Serial Approval example below, you may experience delays between changing states if Safe looping workflows is enabled. This can be disabled in SharePoint Central Administration. Application management -> Nintex Workflow Management -> Global settings.

Parallel Approval

In this scenario, a workflow task is created for all reviewers to act simultaneously.

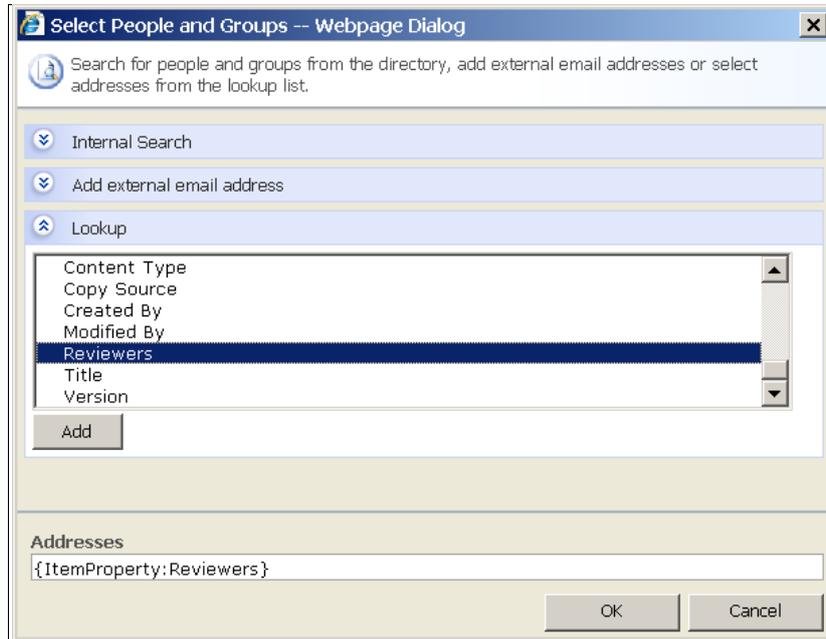


Depending on the configuration of the approval action, the workflow will wait until all tasks have been completed before moving on.

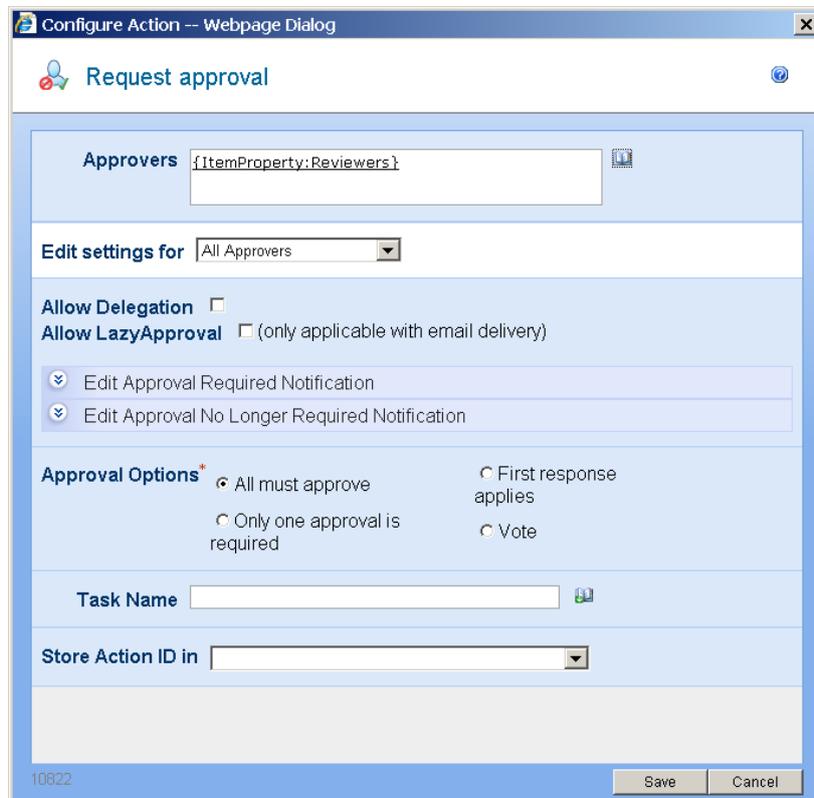
Drag on a "Request approval" action from the tool box.



Click on the address book to browse for approvers.



Under “Lookup” select the “Reviewers” list item. When the workflow runs, an approval task will be created for each user in the “Reviewers” field.



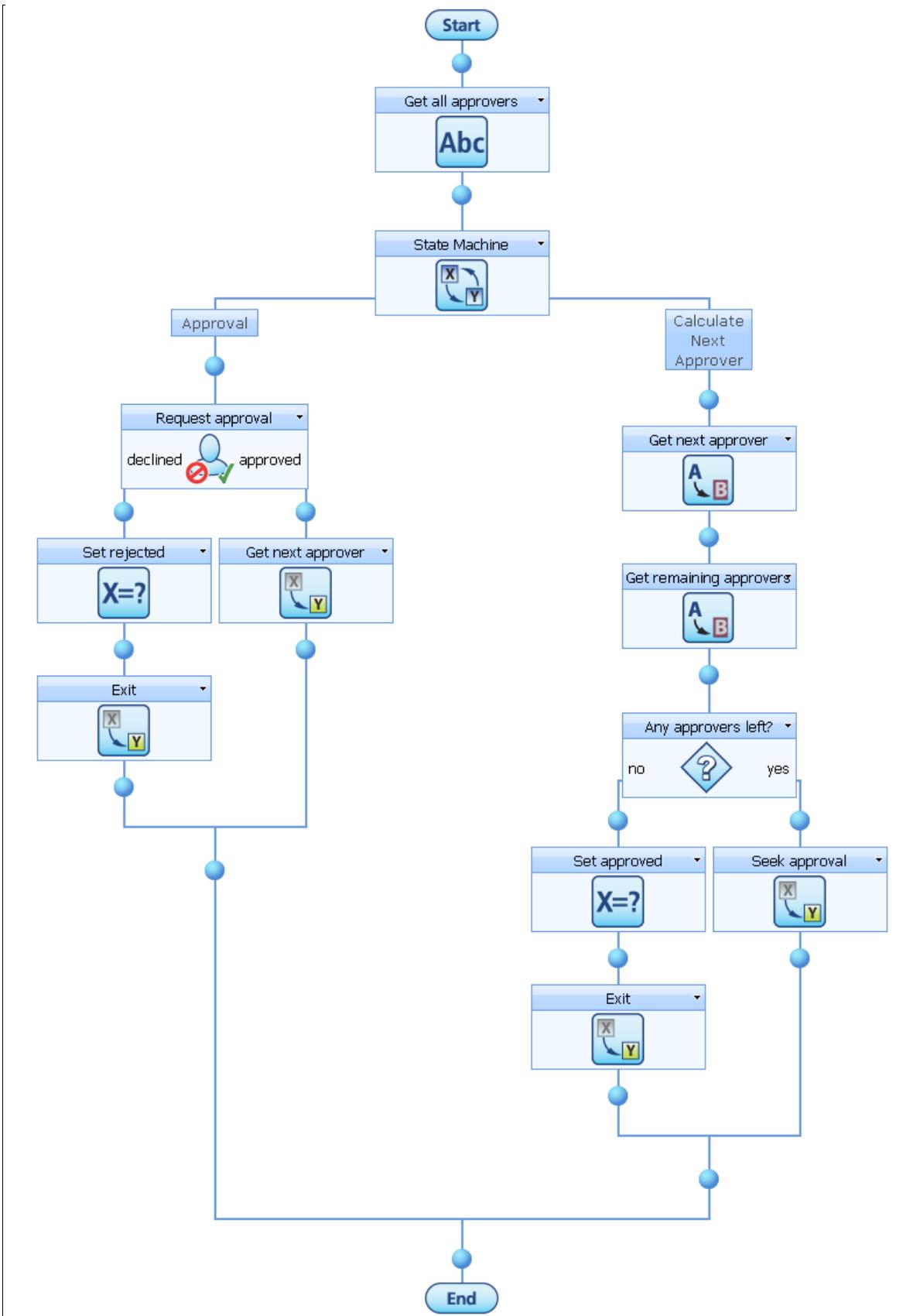
You can now configure different approval options depending on your business requirements.

Serial approval

In this scenario, reviewers act one at a time. It is possible to customize what happens when an approver approves or rejects. In this example, if all approvers approve, the item gains the status of “Approved”. If any approver rejects, no more approvers are notified and the item is rejected.

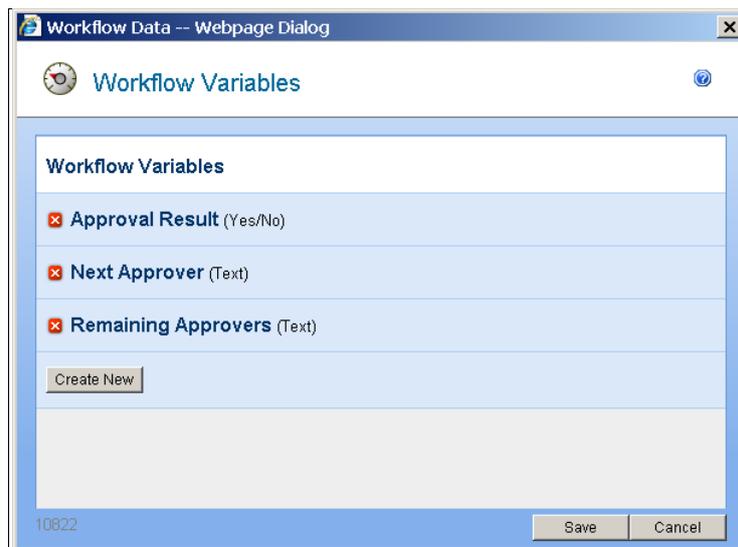
It is important to note that a multi-value user field stores user login names separated by semi-colons “;”. For example, “domain\user1;domain\user2;domain\user3”. By using the regular expression action and a state machine, we are able to perform string manipulation and take one username at a time and assign an approval task.

An overview of the workflow is seen below. Its construction is explained afterwards.



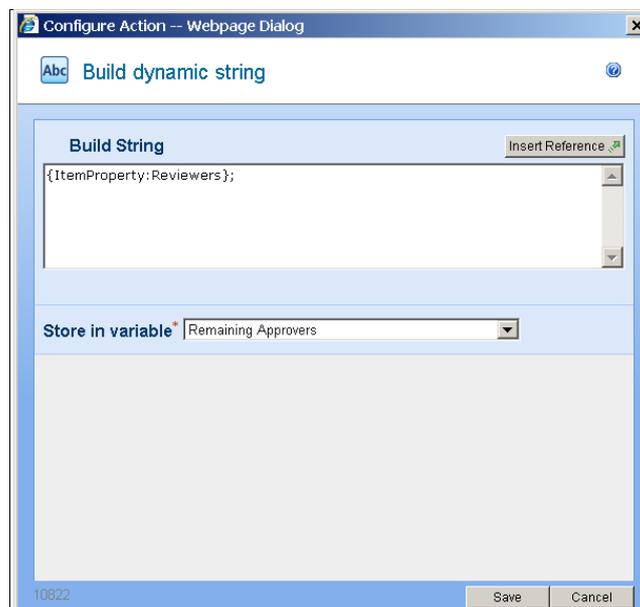
Configuring workflow variables

Some workflow variables are required to keep track of the overall approval result, the next approver and remaining approvers. To configure the variables, from the top of the design canvas select “Settings” then “Workflow Variables”.



Store all approvers in a variable

Using a “Build dynamic string” action, set the “Remaining Approvers” variable to the item property “Reviewers”. The list of approvers from the item column will then be stored as a string in this variable.



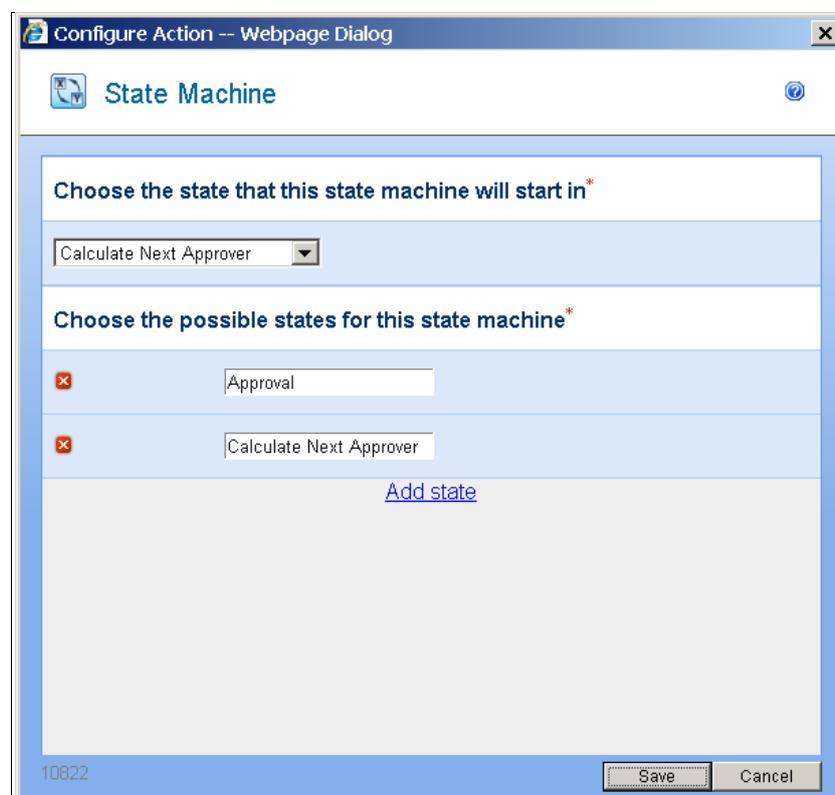
Please note: A semi-colon “;” is added to the end of the string. This is required for the parsing of the usernames later in the workflow.

Construct a state machine

Now drag on and configure a state machine action to have two states:

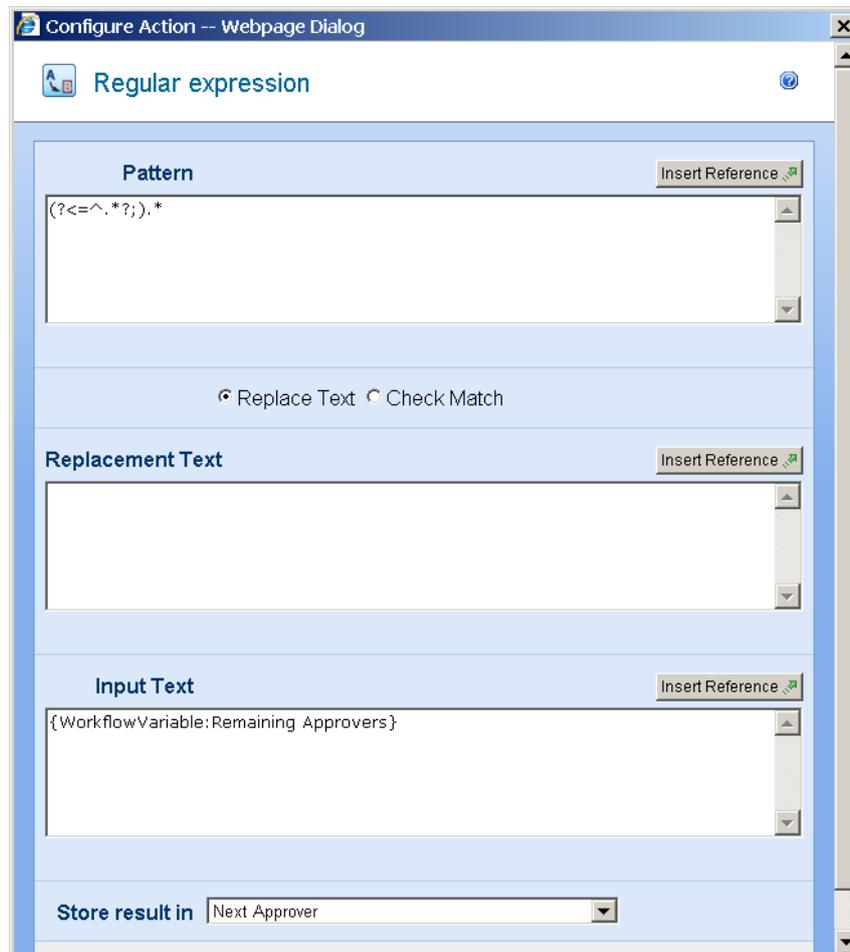
“Approval” and “Calculate Next Approver”

Set the default state to “Calculate Next Approver”.



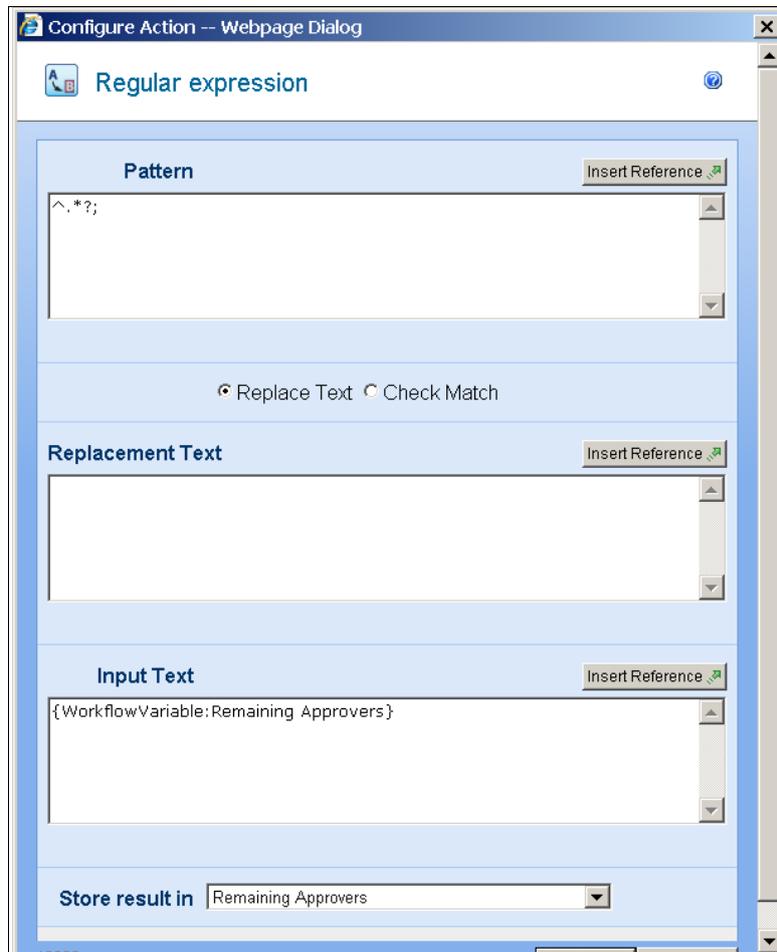
In the Calculate Next Approver state, add a Regular Expression action. This will be used to extract the first user name from the “Remaining Approvers” variable. The text in the “Pattern” area is:

```
(?<=^.*?;).*
```

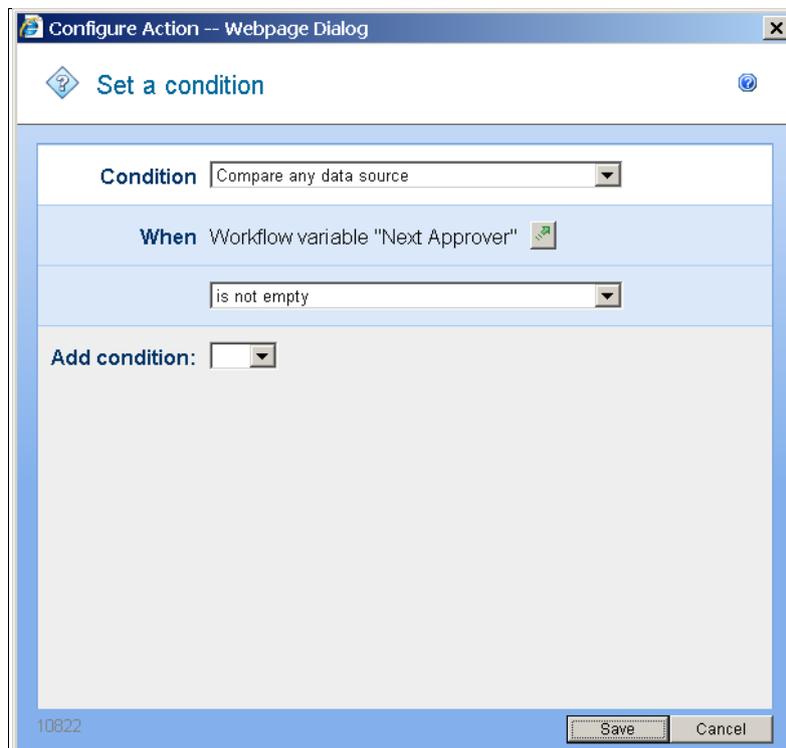


Add another regular expression action to re-calculate the remaining approvers (see the image below). The text in that “Pattern” area is:

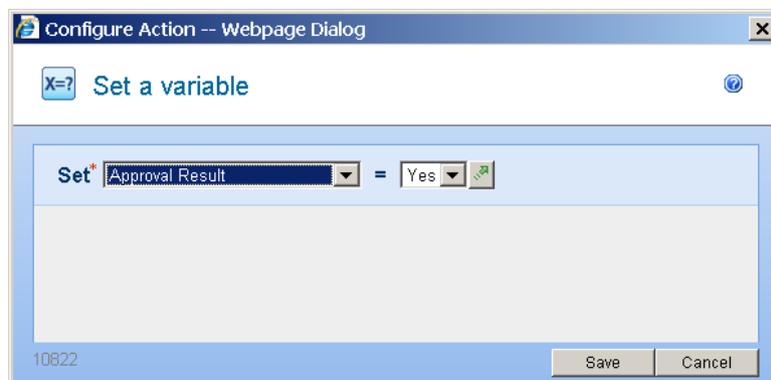
`^.*?;`



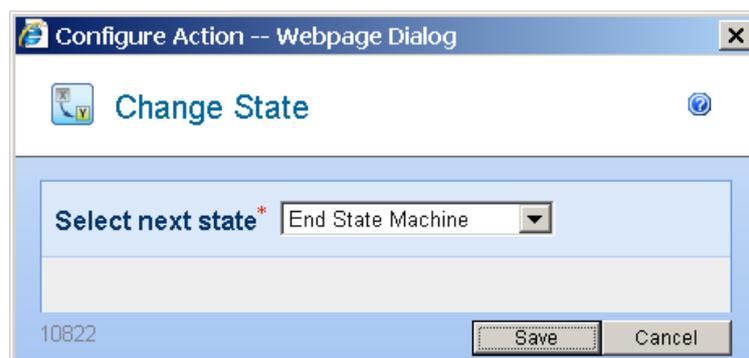
Now add a “Set a condition” action to determine if the value of “Next Approver” contains a username. If it doesn’t, it means there are no more approvers and we should exit the state machine. If it does contain a username we need to move to the Approval state and seek approval from this approver.



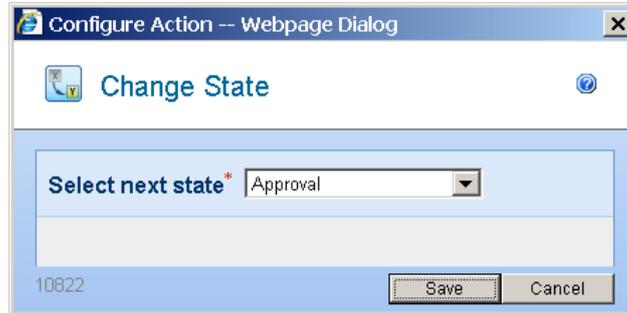
On the left hand side of the branch, add a “Set a variable” action to set the value of the “Approval Result” to “Yes”.



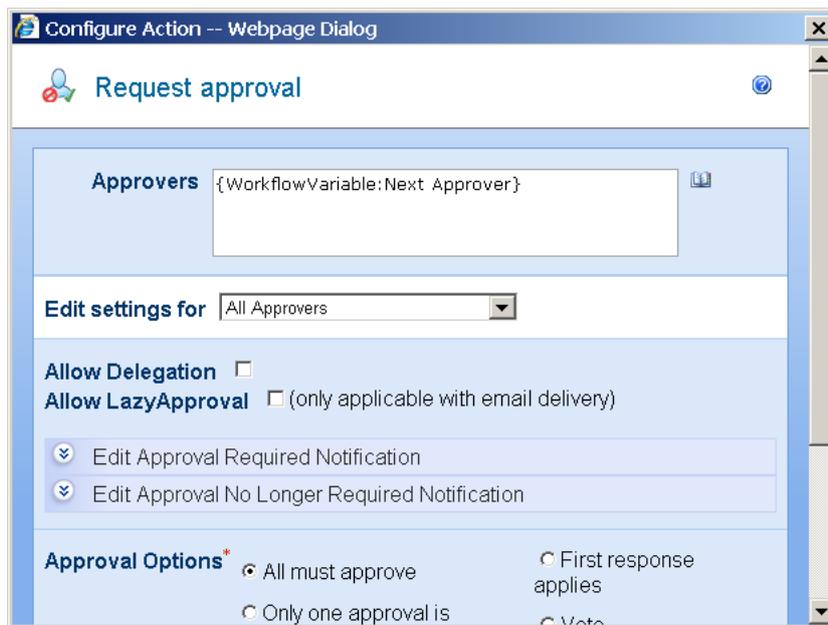
Also add a “Change State” action to end the state machine.



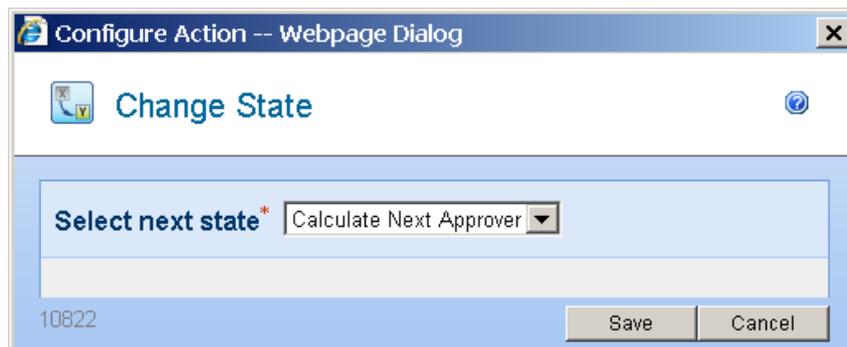
On the right hand side of the branch add a “Change State” action to move to the “Approval” state.



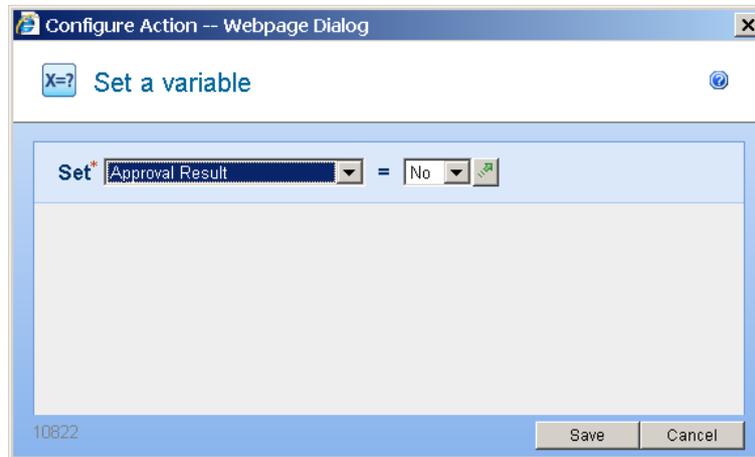
In the “Approval” state, add a “Request approval” action and configure it to use the “Next Approver” workflow variable as the approver.



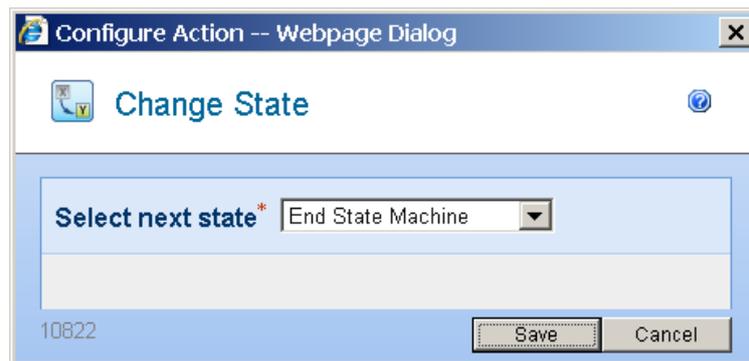
On the “Approved” side of the action’s outcome path, add a “Change state” action to move to the “Calculate Next Approver” state.



On the “Declined” side of the action’s outcome path, add a “Set a variable” action to set the value of “Approval Result” to “No”.



Also add a “Change State” action to end the state machine.



Now the Approval Result is populated you can use this to branch and perform additional workflow actions after the state machine.