



CLOUD
PRACTICE

Weboperator with Approvals vCenter Orchestrator Package

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1. Introduction

vCenter Orchestrator (vCO) provides a large library of workflows and actions out of the box. This library grows with each new plugin that gets installed. As a result, it becomes easier to build very powerful workflows with little to no knowledge of an API. This document will focus on a custom workflow built using library items and additional scripting.

The overall goal of the Weboperator with Approvals package is to provide an example of how to provide a web based form that allows non vCO Administrators to answer the vCO Workflow element “User Interaction.” The user interaction element may be answered by certain vCO users depending on the setting of the “ldap.group” property of the element:

- null – any user capable of logging in to vCO may answer the user interaction
- LDAP Group specified – Only members of the specified LDAP Group and vCO Administrators may answer the user interaction

Under many circumstances, a group of approvers will be designated to answer a given user interaction as part of an approval based workflow. It is not optimal to require these approvers to use the vCO Client as it introduces a high level of complication for what should be a simple task: approve a request. Instead, it is preferred to provide a web based solution for these approvals. This package modifies the core “weboperator” webview to allow such a solution. By default, anyone who logs into the weboperator webview has a full view into the workflow tree, tasks, workflows waiting for inputs, and policies. The modifications to the weboperator in this package are as follows:

- No change in appearance or functionality for members of the group specified as vCO Administrators
- Non vCO Administrators may login to the weboperator directly, but will be presented with a message that the webview is for approvals only and will have no links other than to logout of the webview
- The Header for users will say “Approval” instead of “weboperator”
- Users will be able to login and answer the form on the url generated by the vCO Scriptable task call:

```
workflow.getAnswerUrl();
```

1.1 Prerequisites

In order for this package to be installed and demonstrated as designed, the following prerequisites must be met:

- vCenter Orchestrator 5.1 installed and configured
- vmo.properties file updated with the following line: (Allows for proper display of HTML in the approval webpage)

```
com.vmware.o11n.webview.htmlescaping.disabled = true
```
- Mail plugin must be configured

2. Installation and Configuration

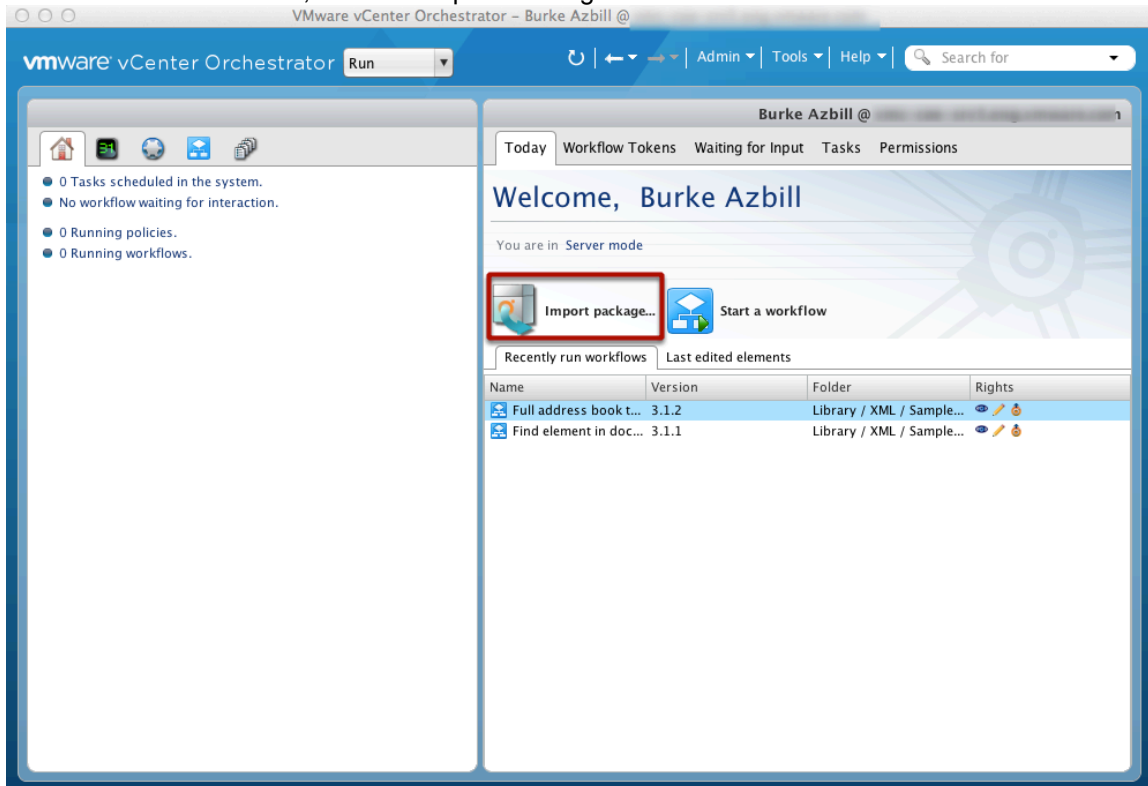
This section will step through the package installation and configuration

This document is distributed with a vCO Package “com.vmware.coe.webview.approval.package.” The package contains the updated weboperator webview, a configuration element, a configuration workflow, and a demonstration workflow named “Sample Approval Workflow”.

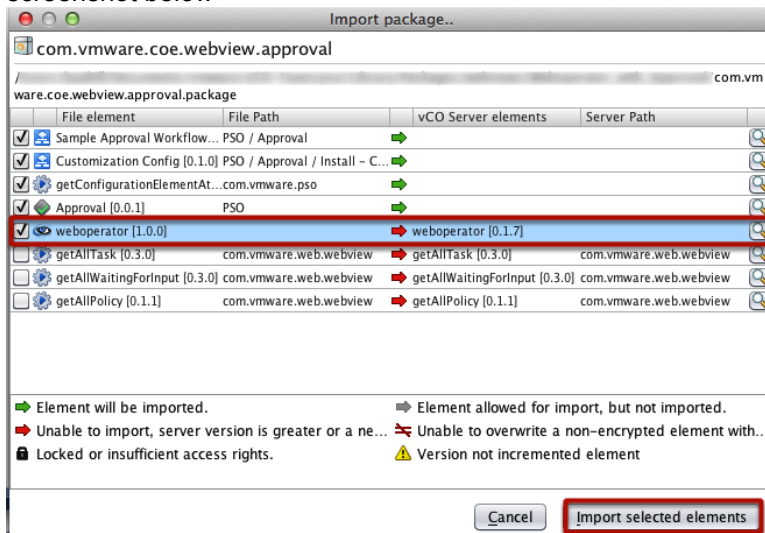
Import the package as follows:

1. Login to the vCO Client

- In the middle of the client, click on "Import Package"



- When prompted, browse for and choose the package `com.vmware.coe.webview.approval.package`
- On the Package Import Information screen, click either of the Import buttons
- On the Import page, make sure that "weboperator" webview gets checked! The other elements that should import are 2 workflows, 1 action, and 1 configuration element as shown in the screenshot below

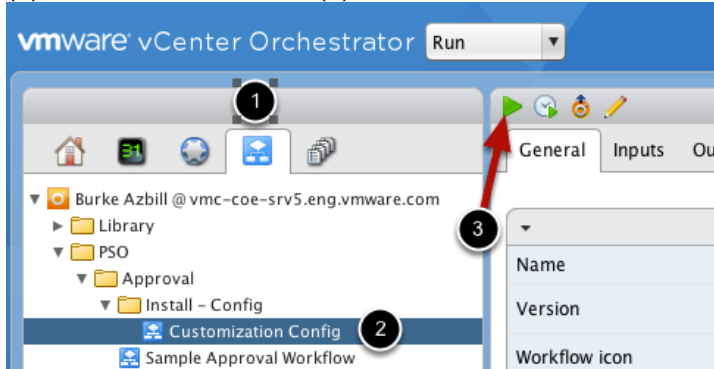


- Once the checkboxes in your environment match those in the screenshot, click the Import selected elements button

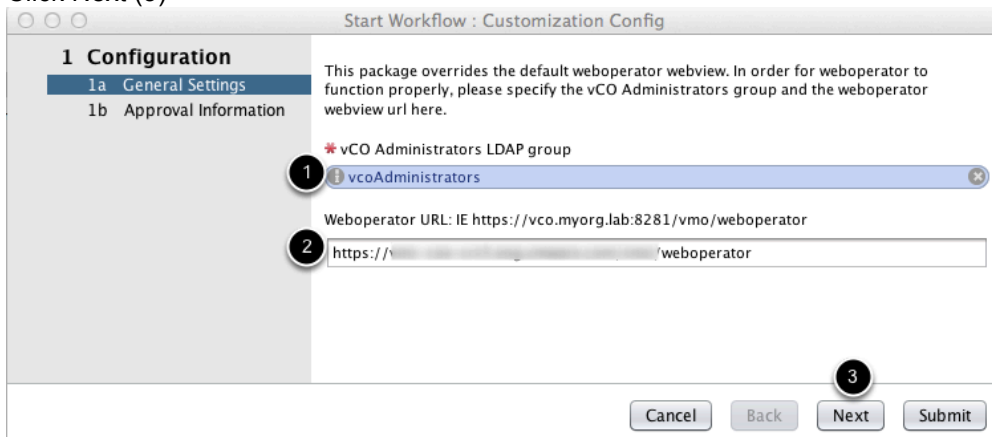
7. Select "Run" from the dropdown menu at the top of the vCO Client



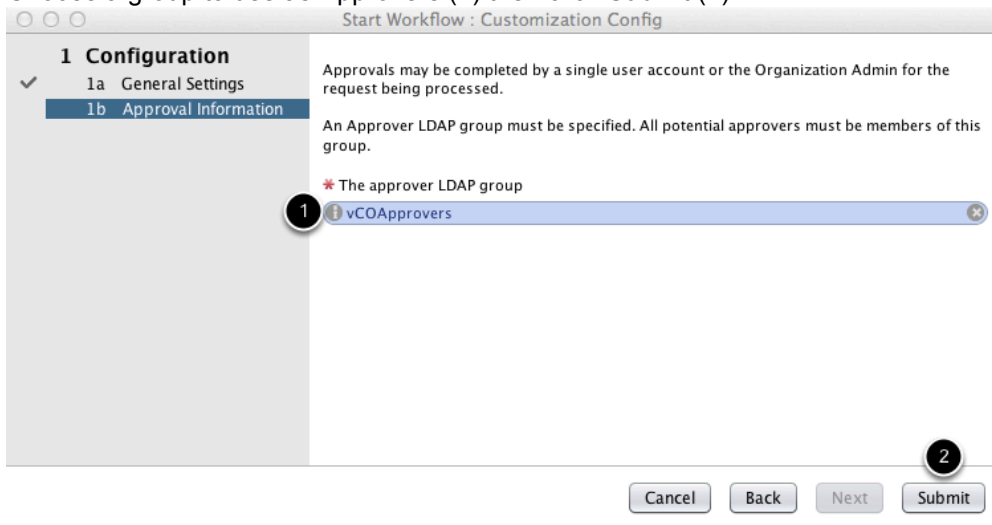
8. Click on the Workflows icon (1), expand the tree and select the "Customization Config" workflow (2) and Start the workflow (3)



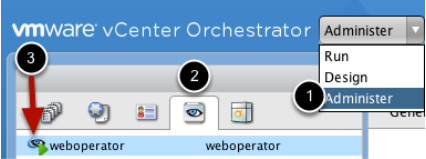
9. Use the form to choose the group specified in vCO as vCO Administrators (1). Also enter the full url to the weboperator webview (2). For example: <https://vco.myorg.lab:8281/weboperator> Click Next (3)



10. Choose a group to use as Approvers (1) then click Submit (2)

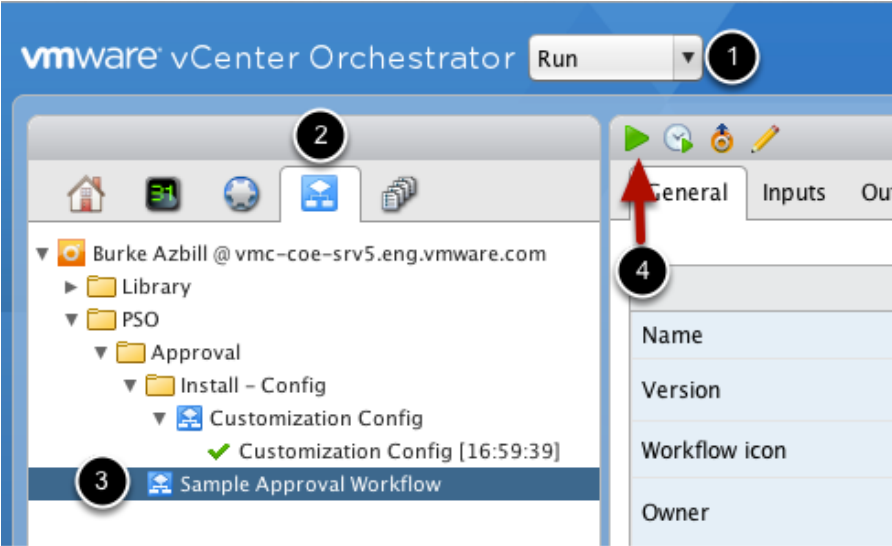


- 11. Using the dropdown at the top of the vCO Client, choose Administer (1), Click on the WebViews tab (2), and confirm that the weboperator (3) is running

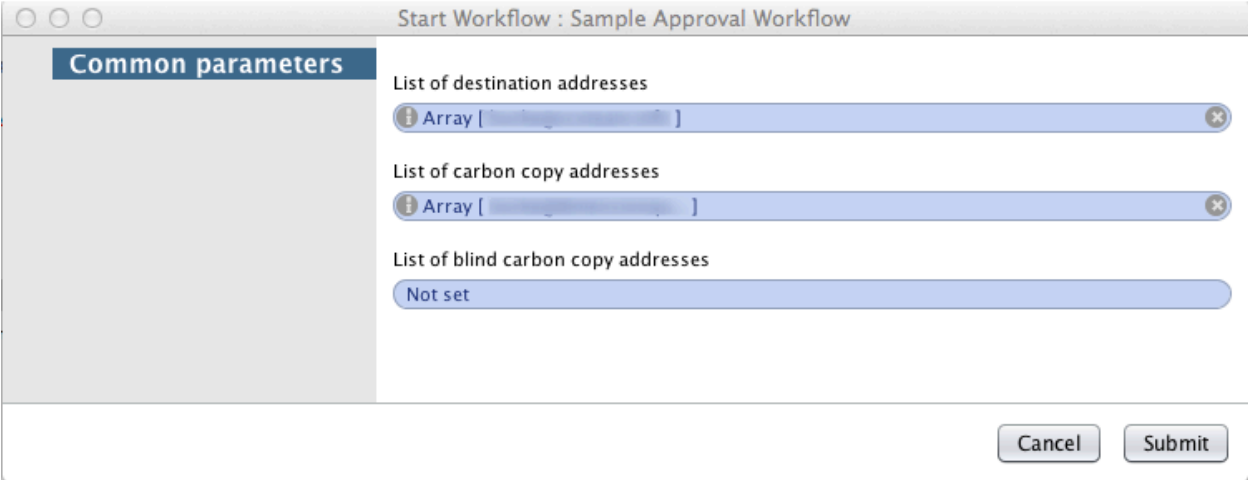


3. Solution Walk-Through

This section will step through the use of the sample workflow, e-mail notification, and approval form.

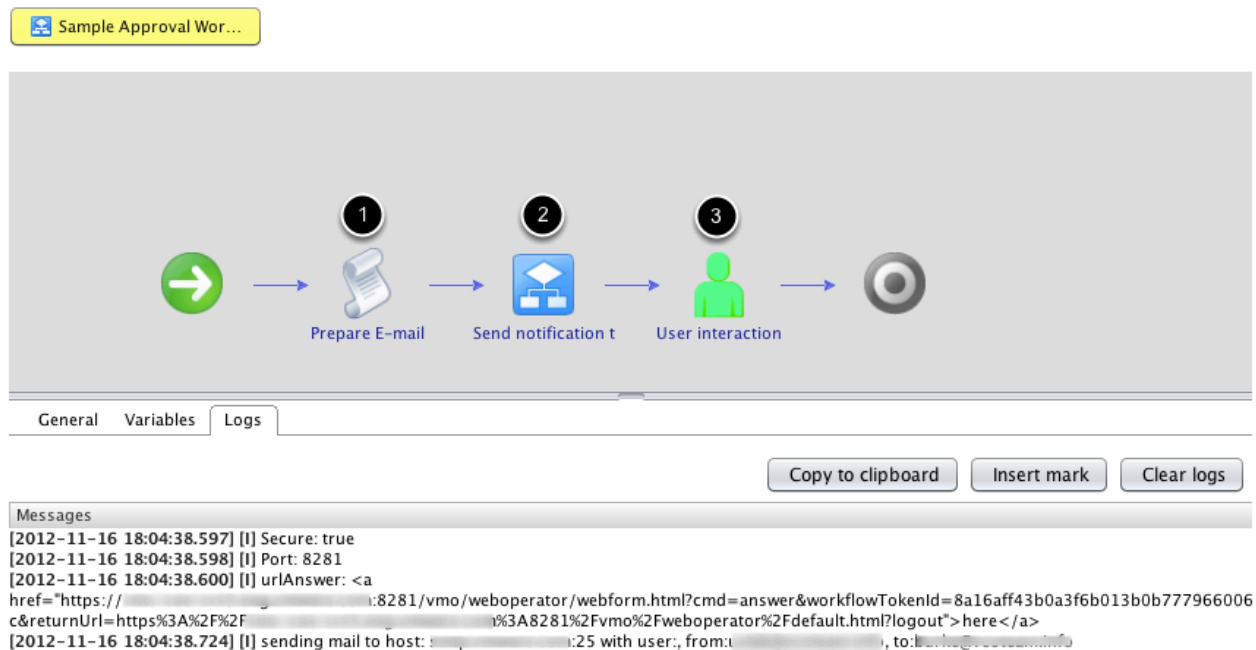


- 1. Login to the vCO client
- 2. Confirm that "Run" is selected from the dropdown at the top of the vCO client
- 3. Click on the Workflows tab in the left pane
- 4. Select the "Sample Approval Workflow"
- 5. Start the workflow



Specify one or more addresses in the Destination, carbon copy, and blind carbon copy inputs as desired. Click Submit

If the vCO Client is configured to display user interactions automatically, just hit Cancel on the window that pops up. The goal here is to answer the user interaction via a web interface using a non administrative account. Under most circumstances, such approval workflows would be triggered via a portal or policy. For simplicity and demonstration purposes, this workflow is run manually.



1. The sample workflow starts by preparing the e-mail message. This element creates the subject and content for the message. For the content, it parses the weboperator URL that was provided during configuration and passes the host, port, and protocol into the workflow.getAnswerUrl() method to generate a link to the approval page.
2. The Send notification to distribution list element is used to actually send the e-mail message containing the link to a list of recipients and optionally to CC recipients and BCC recipients
3. The User interaction defines which group is permitted to answer (approve) the request and prevents the workflow from completing until an authorized user responds via the vCO Client, webview, or API.

To: [redacted]
Cc: [redacted]
Reply-To: [redacted]
Example Subject for Approval...

Approval Required for the following:

- item 1
- item 2

[here](#)

The e-mail is received by all recipients specified in the example workflow. The content of the e-mail includes basic HTML formatting and a link at the bottom of the message that may be clicked on to load the approval webpage.



Click on the link in the e-mail. The web browser should open up and present the screen shown above. If the page says weboperator is not published (even though it was confirmed earlier), try restarting the vCO Server service and then refresh the page.

Login to this page using a member of the Approver group defined when the configuration workflow was run.

The screenshot shows the 'Approval' page for a vCO Approver. The header includes a gear icon, the word 'Approval', and the user 'vCO Approver (vcoapprover)' with version 'weboperator 1.0.0' and a 'Logout' link. The main content area is titled 'Sample Approval Workflow : User interaction' and contains a 'Display Sample' section. This section asks for approval for 'item 1' and 'item 2' and includes a radio button control for 'approve' with 'Yes' selected. At the bottom are 'Reset', 'Cancel', and 'Submit' buttons. The footer contains 'POWERED BY VMWARE VCENTER ORCHESTRATOR', copyright information, a patent link, and the VMware logo.

Review the details of the request and click Submit. Upon submitting the form, the approver is then shown the following confirmation page:

The screenshot shows the 'Approval' page for a vCO User. The header includes a gear icon, the word 'Approval', and the user 'vCO User (vcouser)' with version 'weboperator 1.0.1' and a 'Logout' link. The main content area displays the message 'Thank you, your response has been processed.' The footer contains 'POWERED BY VMWARE VCENTER ORCHESTRATOR', copyright information, a patent link, and the VMware logo.

Note: This is what a non vCO Administrator sees when logging in to the weboperator using a user interaction link provided via the e-mail. If the user were to login as a vCO Administrator, the page would look a bit different.



Curious approvers may try to log back into the weboperator form, but since the approval has already been submitted or cancelled, the screen will provide a notice as shown in the screenshot here. If an approver had cancelled out of the form, they would need to re-click the link from the e-mail to load the approval page.

4. Next Steps

Take a look inside the code presented in this package and copy/paste/modify as needed into your solutions to add web based approvals to your vCO workflows.

Be sure to visit the Orchestrator Communities often to get more packages like this:
<http://communities.vmware.com/community/vmtn/server/vcenter/orchestrator>