Deployment Guide
Jan-2017 rev. a

Array Networks eCloud Plug-in User Guide for VMware vRealize Orchestrator (vRO)

Table of Contents

1 Introduction

This guide provides information and instructions about installing the eCloud™ plug-in and configuring eCloud workflows on the VMware vRealize Orchestrator.

1.1 Intended Audience

This guide is intended for datacenter administrators using the VMware vRealize Orchestrator for automated services. It assumes you are familiar with the VMware vRealize environment and APV/vAPV configurations and terminology.

2 Overview

The eCloud plug-in is an APV/vAPV plug-in for the VMware vRealize Orchestrator. It allows you to manage APV/vAPV services by providing interaction between the vRealize Orchestrator and APV/vAPV products.

It provides a workflow package for users to perform common tasks on APV/vAPV. Users can also use them to build workflows for their own requirements.

2.1 Plug-in Installation

The installation includes two steps: VMware vRealize Orchestrator SOAP plug-in installation and workflow package import.

Note: This guide is based on the VMware vRealize Orchestrator 5.1.1.

You can login and download the VMware vRealize Orchestrator SOAP plug-in 1.0.3 from:

https://my.vmware.com/group/vmware/get-download?downloadGroup=VCO_SOAP_PLUGIN_103

You can get a copy of Array Networks eCloud package from Array Support.

2.1.1 SOAP Plug-in Installation

1. Log into the VMware vRealize Orchestrator Configuration Interface at https://localhost:8283 or http://localhost:8282.

Note: Read VMware vRealize Orchestrator Server configuration documentation for more details.

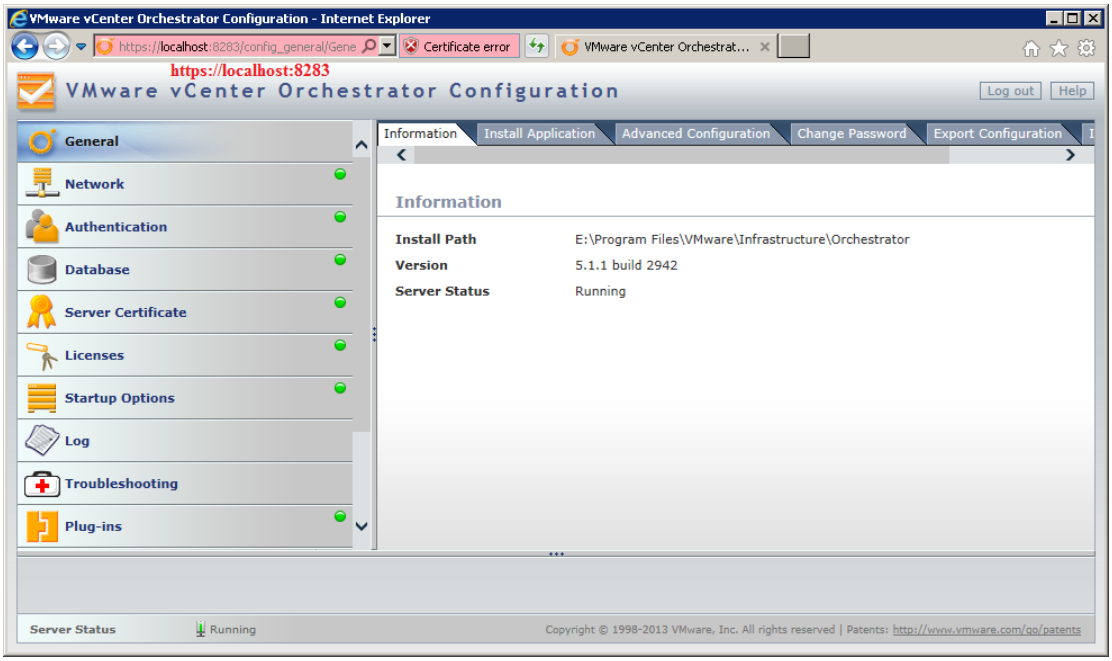

Figure 2-1 Log into the VMware vRealize Orchestrator Configuration Interface

2. In the **General** area, click the **Install Application** tab.

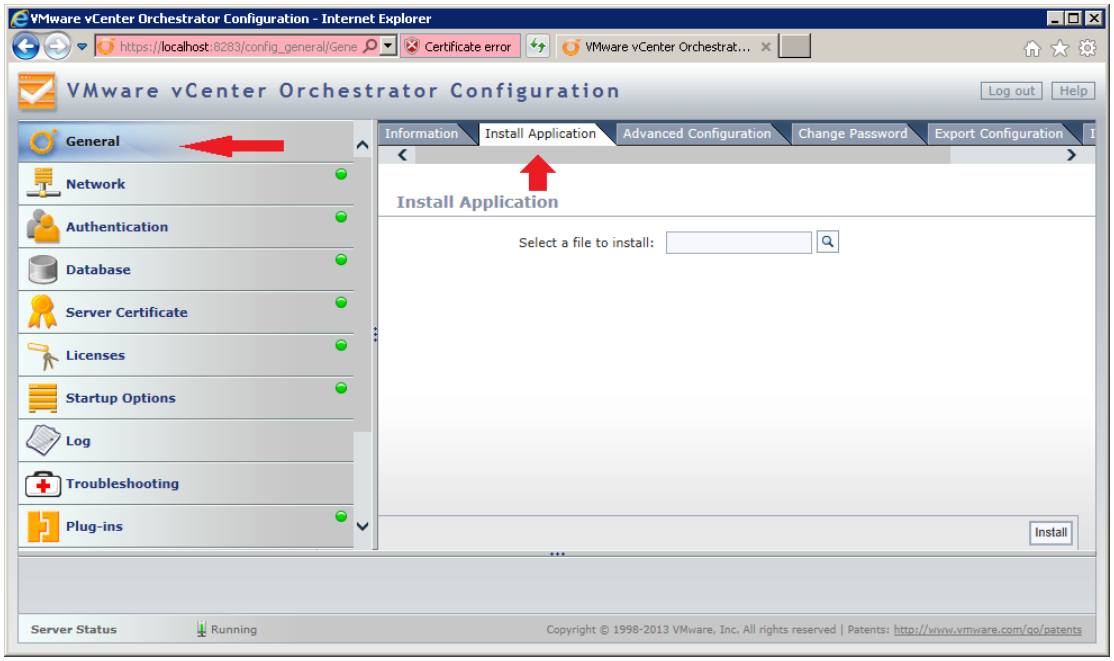

Figure 2-2 Display the Page to Install the SOAP Plug-in

3. Click the  button and select the **.vmoapp** file to upload the SOAP plug-in.

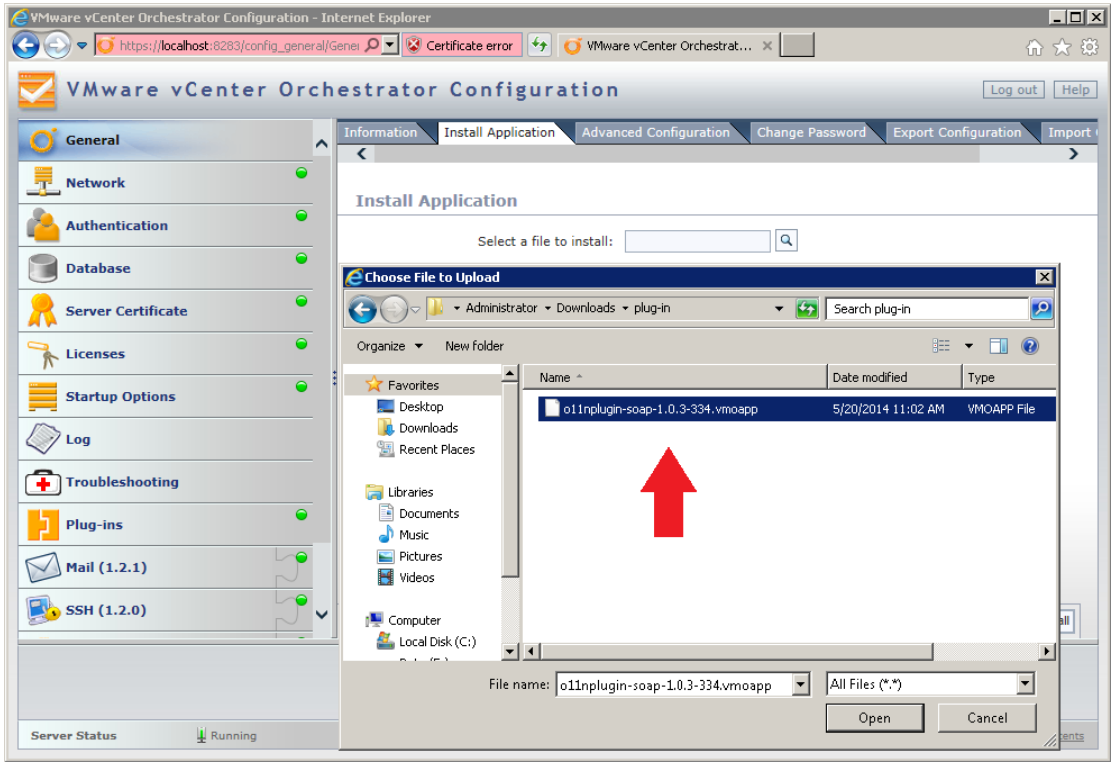

Figure 2-3 Select the SOAP Plug-in File

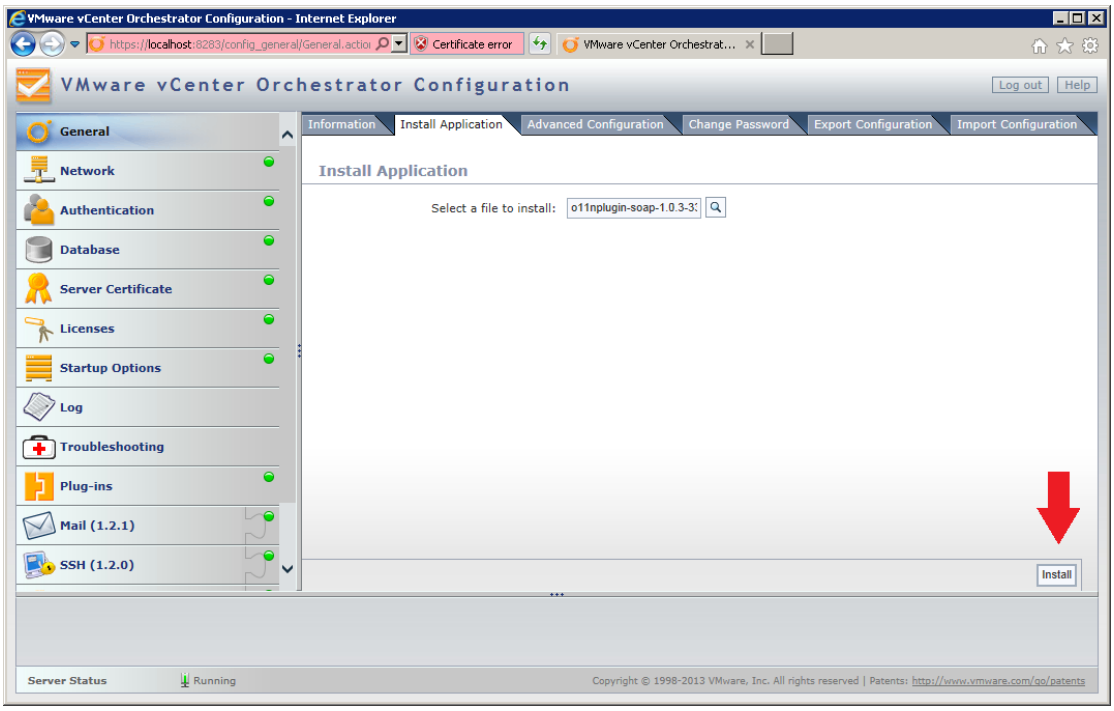

Figure 2-4 Upload the SOAP Plug-in File

4. A **SOAP** tab appears on the side bar after the SOAP plug-in is installed.

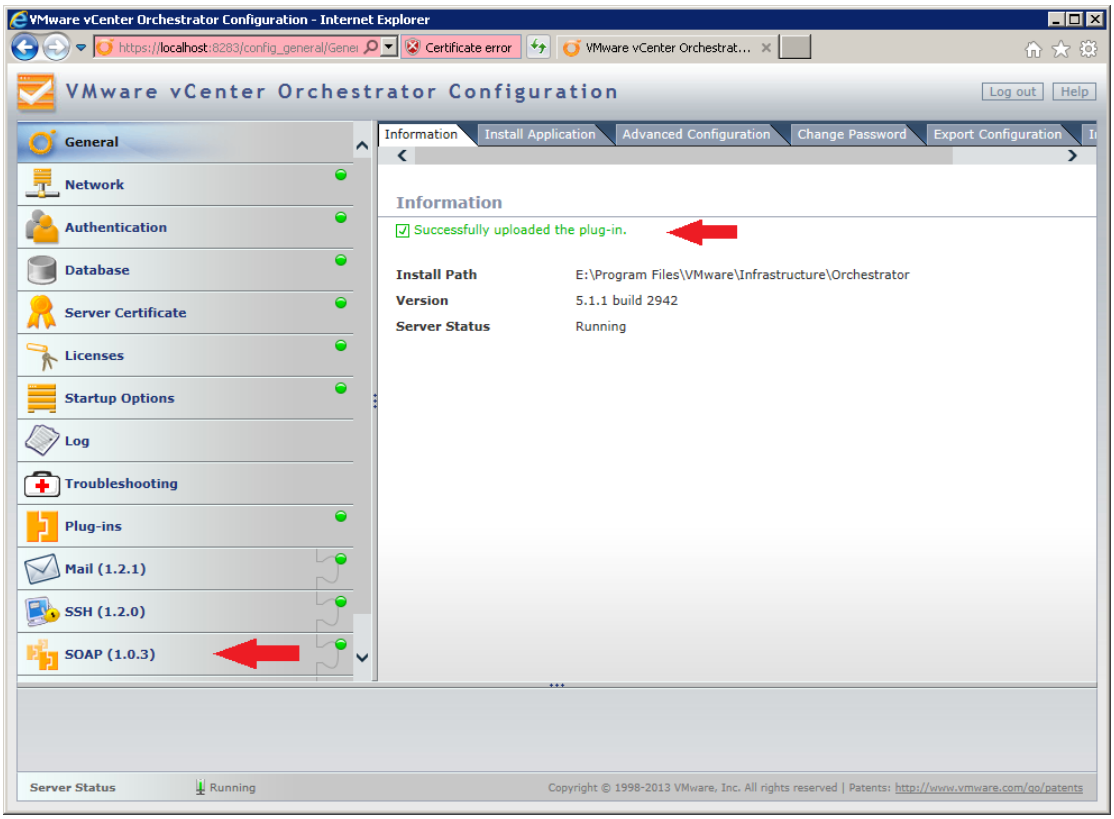

Figure 2-5 Display the Uploaded SOAP Plug-in Information

5. In the **Startup Options** area, click the link **Restart service** to complete the plug-in installation.

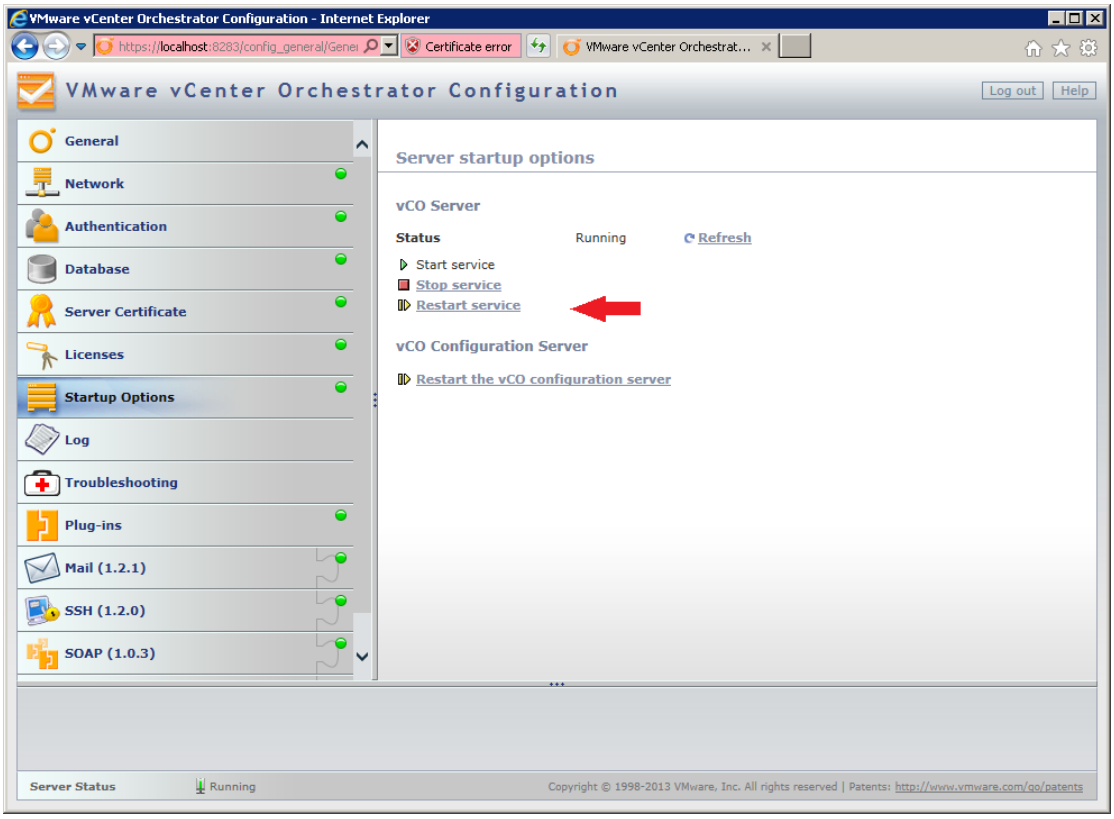

Figure 2-6 Restart Service

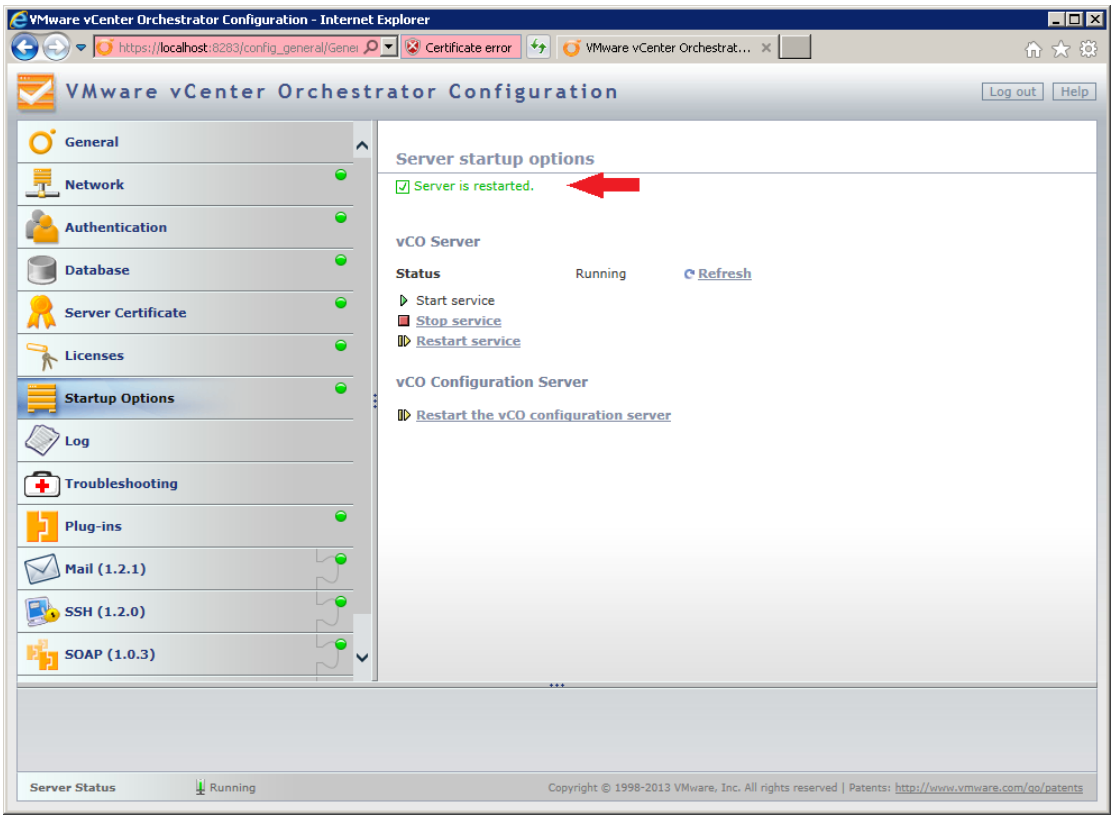

Figure 2-7 Display the Restarted Result

2.1.2 eCloud Package Import

1. Log into the vRealize Orchestrator Client, click the **Inventory** tab and a **SOAP** tab appears on the side bar after the SOAP Plug-in is installed on the VMware vRealize Orchestrator.

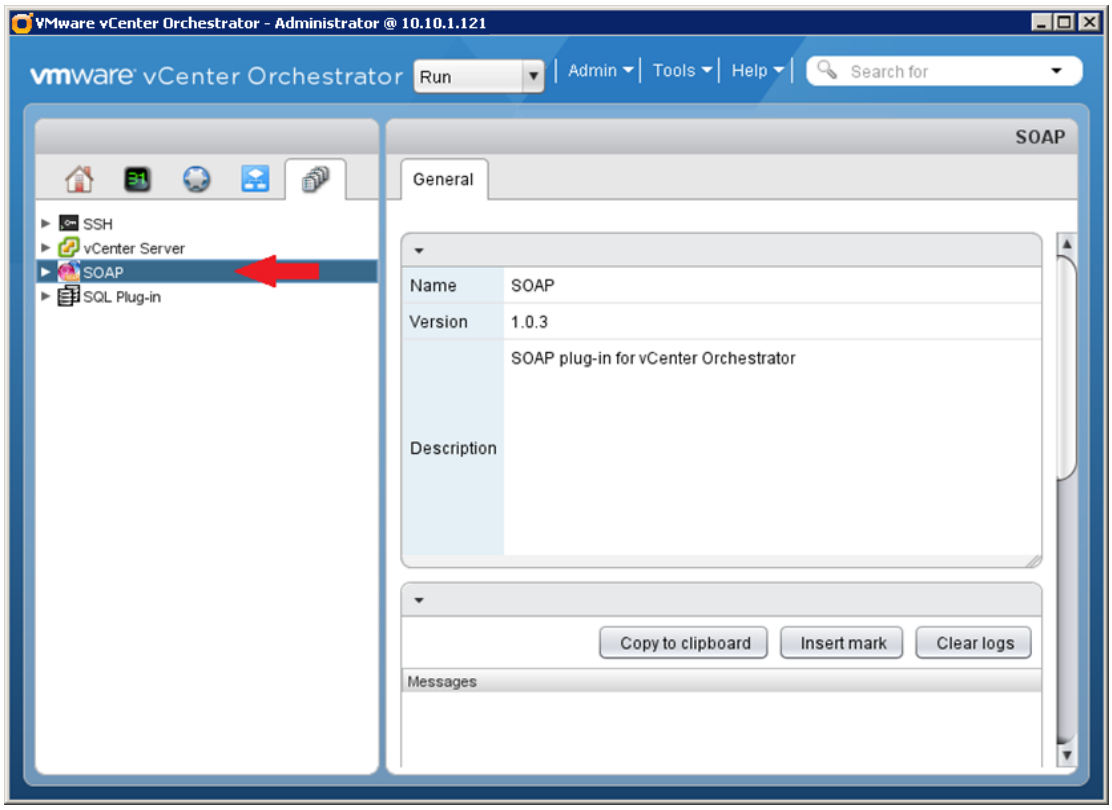

Figure 2-8 Log into the vRealize Orchestrator Client

2. On the **Packages** tab, click the **Import package** button and select the file **com.ArrayNetworks.eCloud.package.**

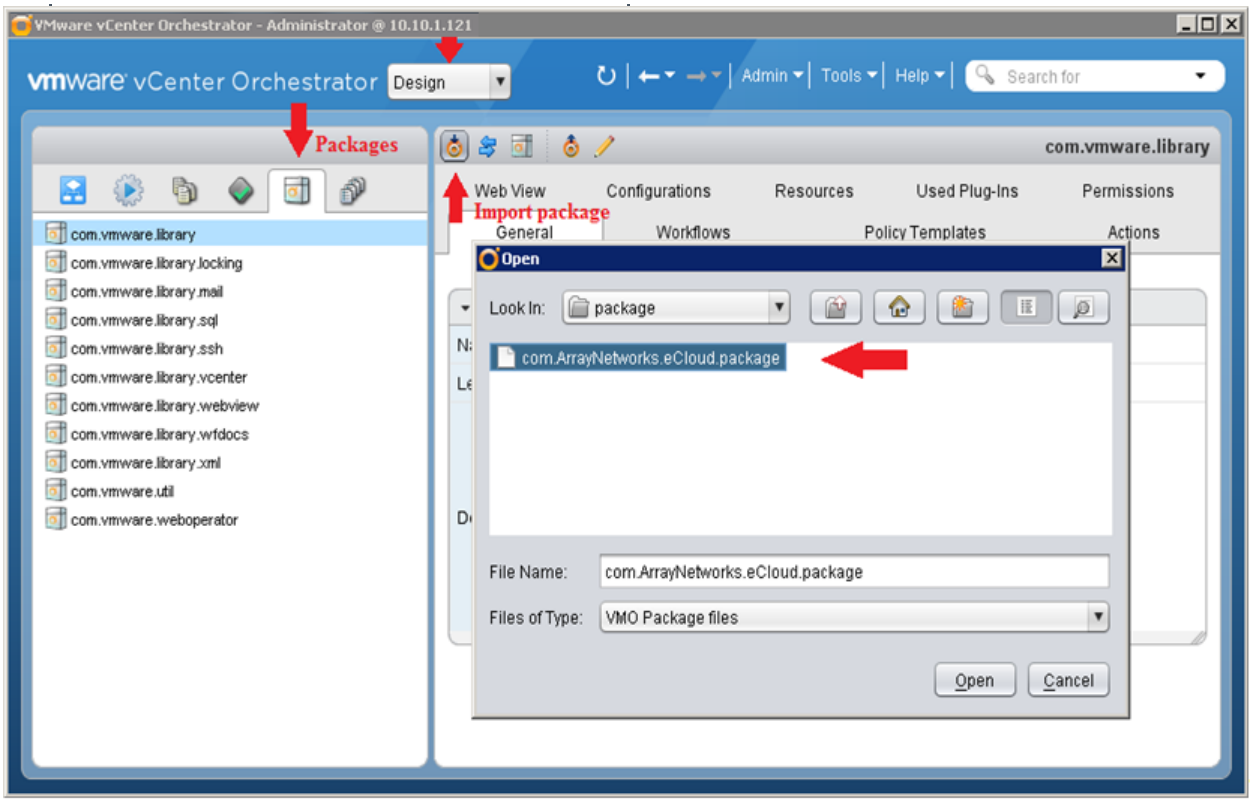

Figure 2-9 Select the Package File

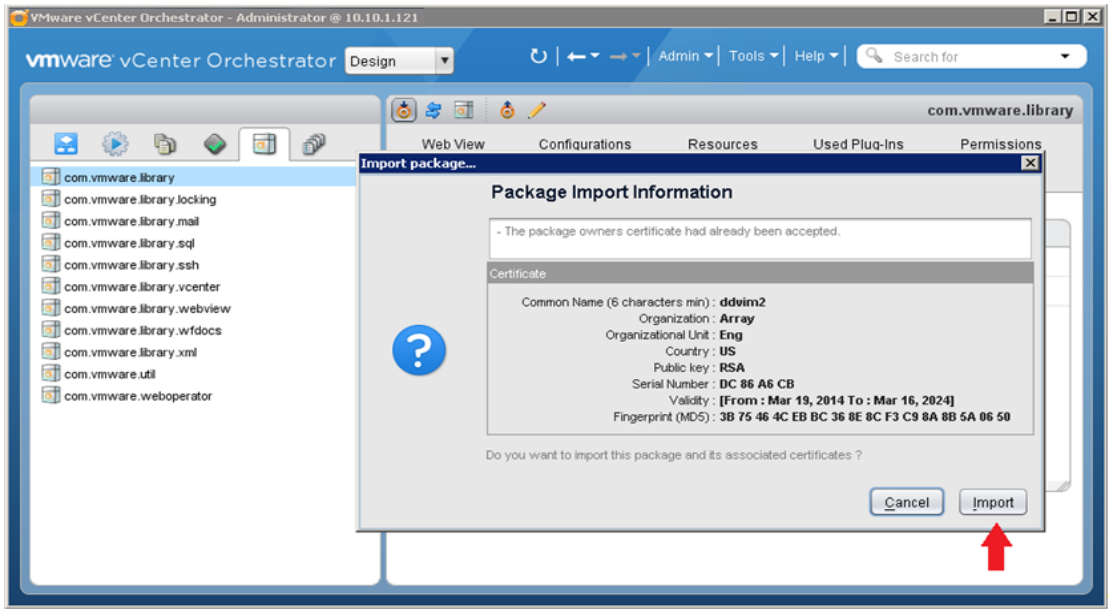

Figure 2-10 Import the Package

3. Select all check boxes of package elements to be imported.

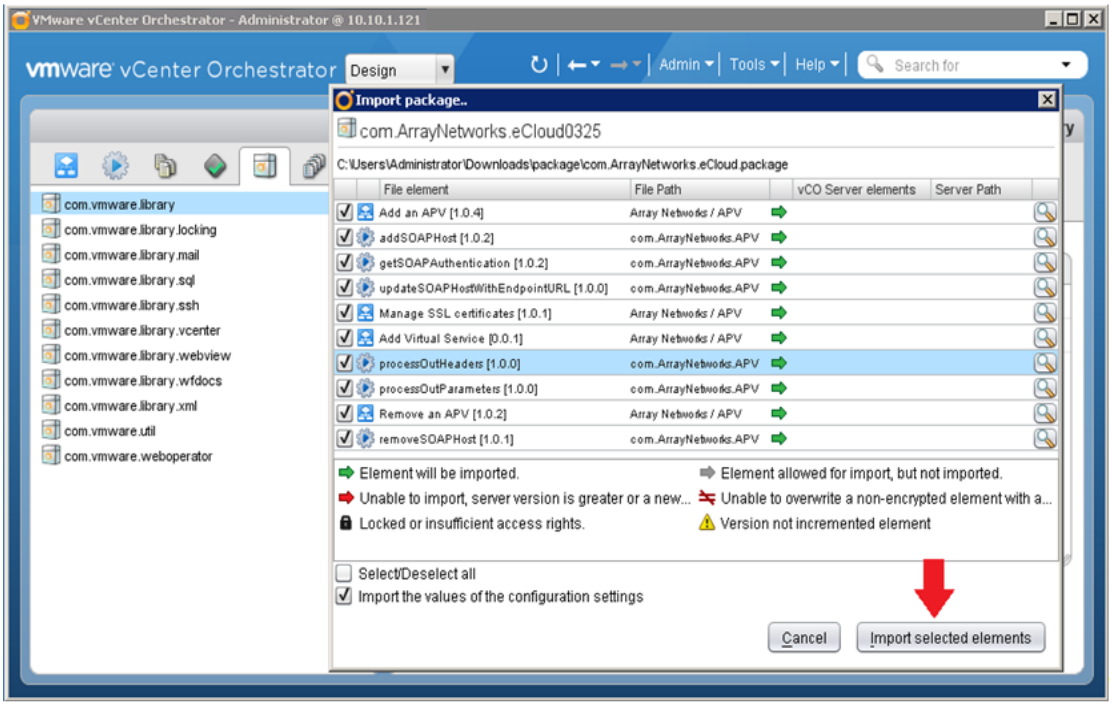

Figure 2-11 Select the Package Files

4. An eCloud package **com.ArrayNetworks.eCloud** appears on the **Packages** tab.

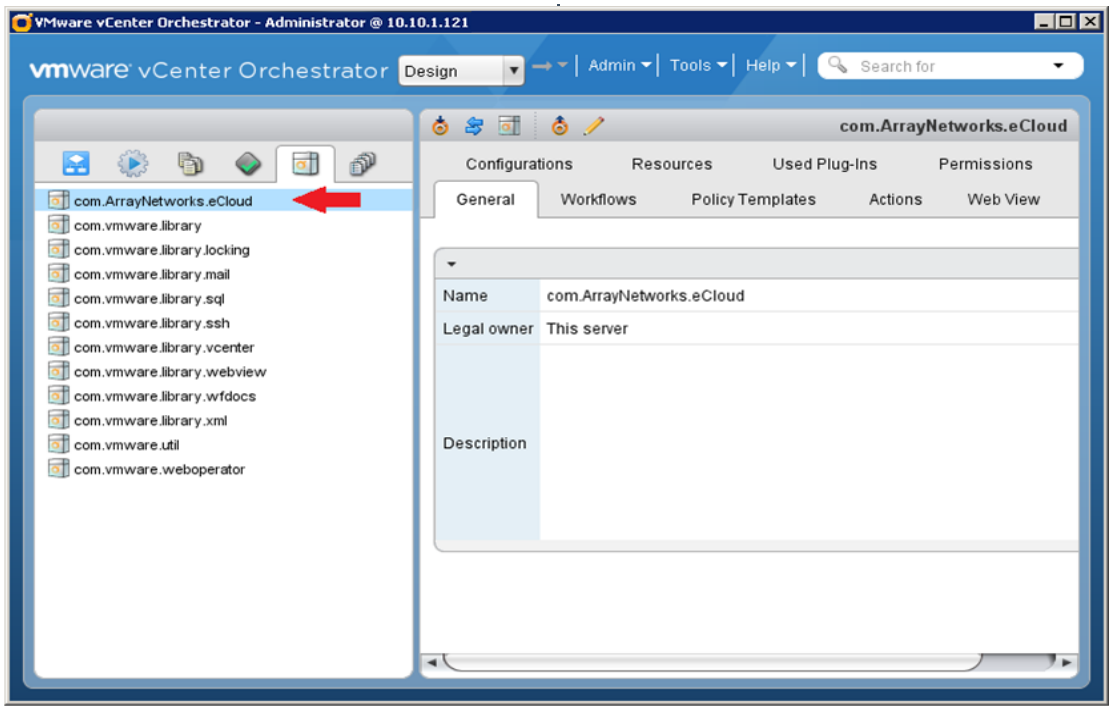

Figure 2-12 Display the Imported Package

Workflows appear under the **Workflows** tab.

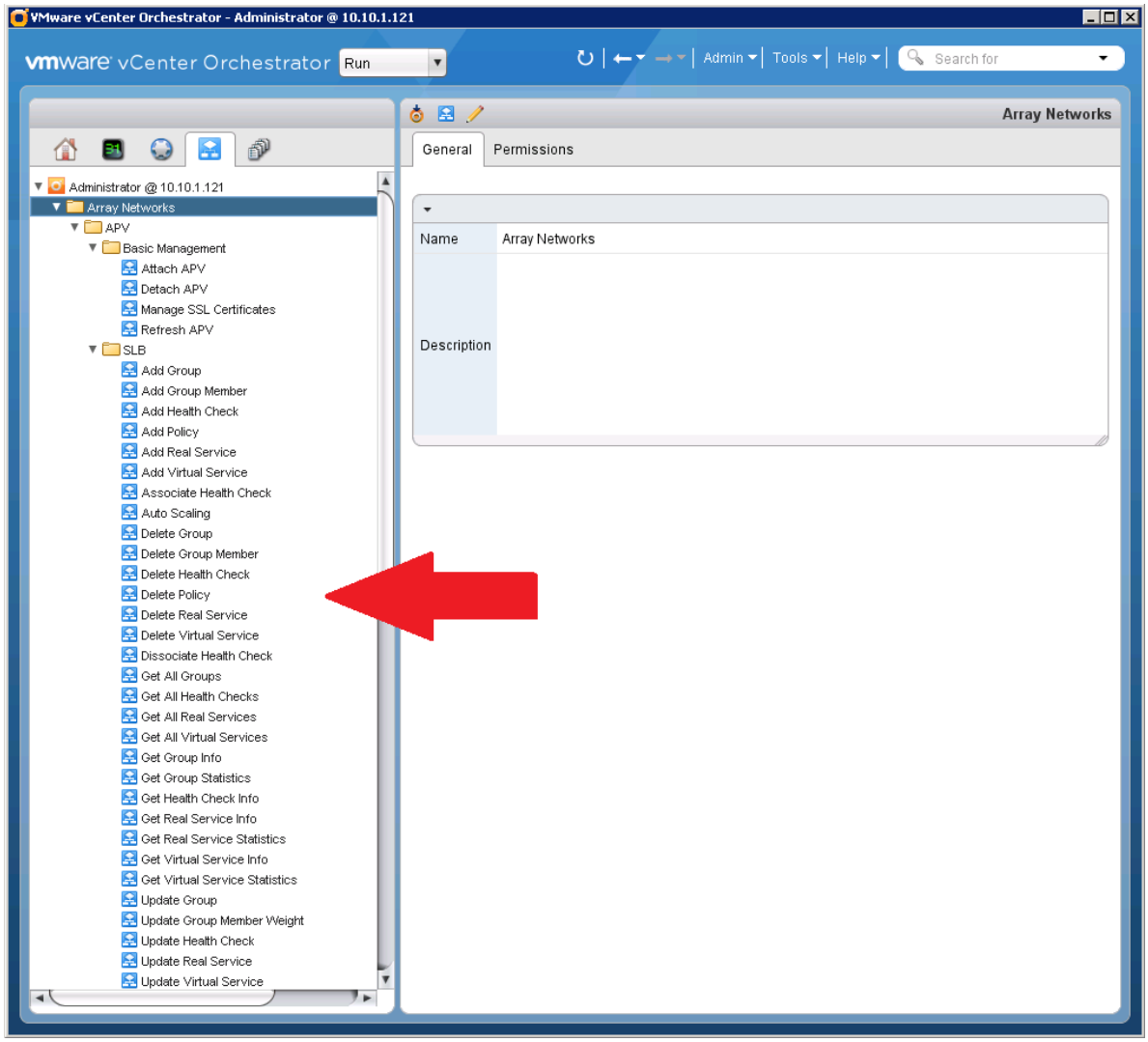

Figure 2-13 Display the Workflows

2.2 SOAP API Configuration

Note: The following configurations are based on APV 8.5 or higher version.

1. Create a user with “soapapi” level.

   Equivalent CLI

   user *<user_name> <password> [enable|config|soapapi]*

2. Enable the SOAP service. Currently, the SOAP plug-in only supports soapapi level with “https”.

   Equivalent CLI

   soapapi on *[http|https] [port]*

2.3 Workflows

2.3.1 Basic Management

Table 2-1 Basic Management Workflows

Tab	Description
Attach APV	Attach an APV/vAPV's services to the SOAP plug-in's inventory.
Detach APV	Remove an APV/vAPV service from the SOAP plug-in's inventory.
Refresh APV	Refresh an APV/vAPV service. It can be used to refresh APV/vAPV services after the vRO server reboots.
Manage SSL Certificates	This workflow is used by the "Attach APV" workflow to manage SSL certificates on the device. It is not intended to be used by administrators to manage the APV.

➢ **Attach APV**

1. Right click the **Attach APV** workflow and select **Start workflow**.

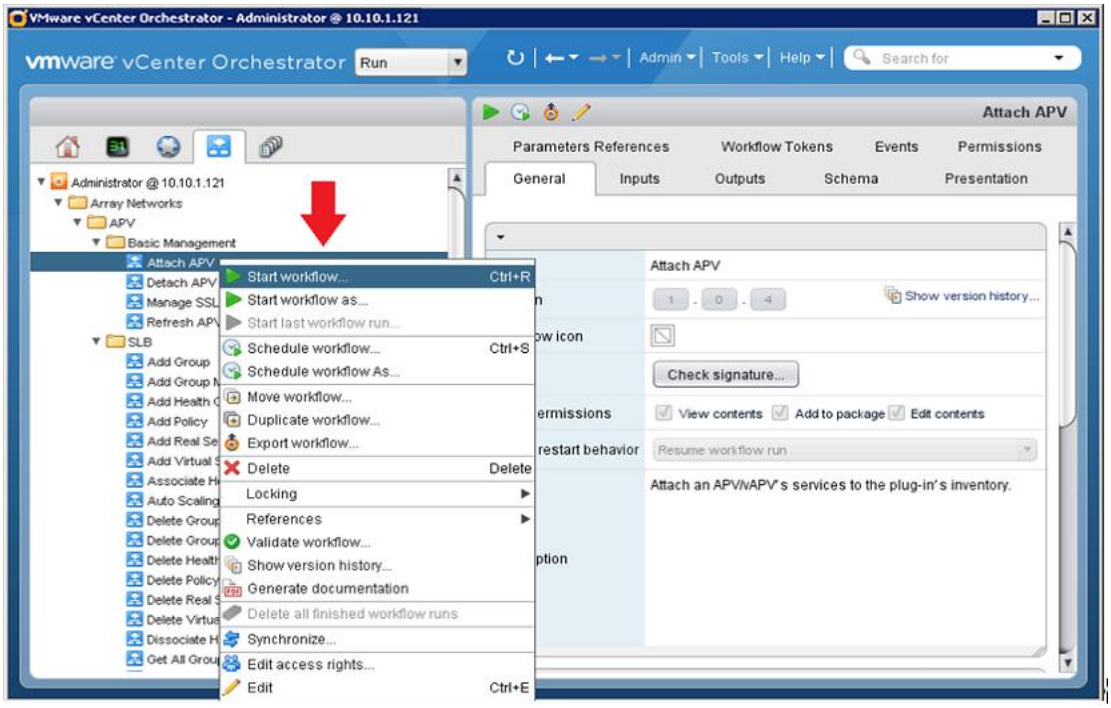

Figure 2-14 Attach APV

2. Specify the APV parameters.

   Name: Specify the name of the APV instance.

   Host IP Address: Specify the IP address of the APV instance. It will be used for the communication between the vRealize Orchestrator and APV.

Connection timeout: Specify the connection timeout value in seconds. The default value is 30 seconds.

Request timeout: Specify the request timeout value in seconds. The default value is 60 seconds.

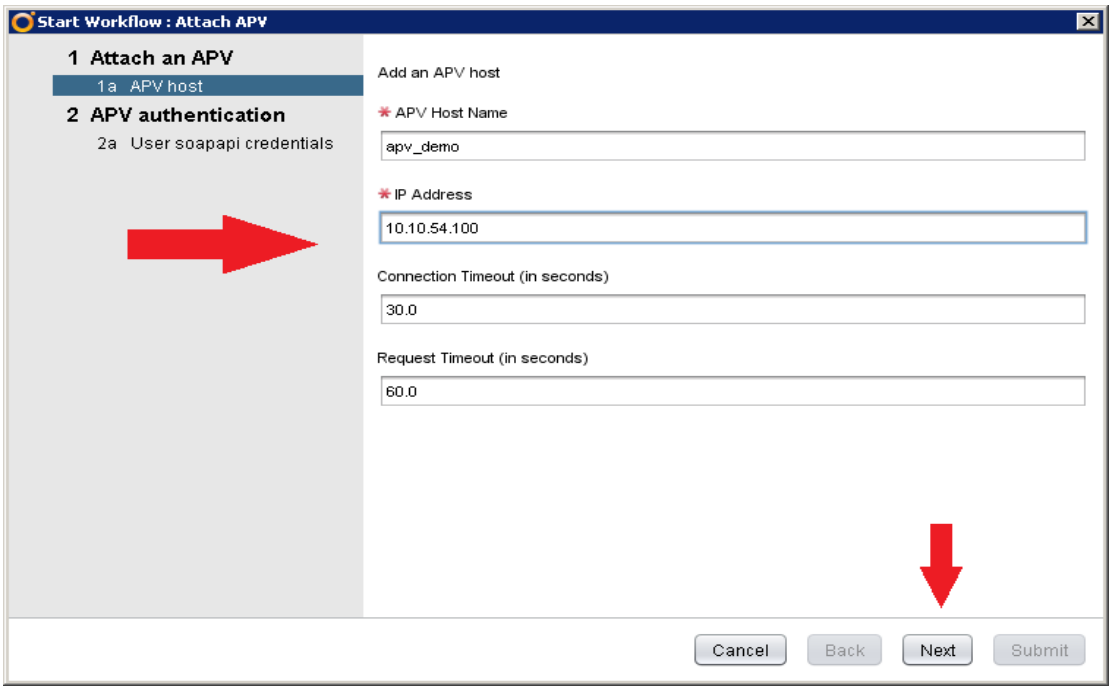

Figure 2-15 Specify the APV Parameters

3. Select “Shared Session” from the **Session Mode** drop-down list. Fill out the soapapi user login information and click the **Submit** button.

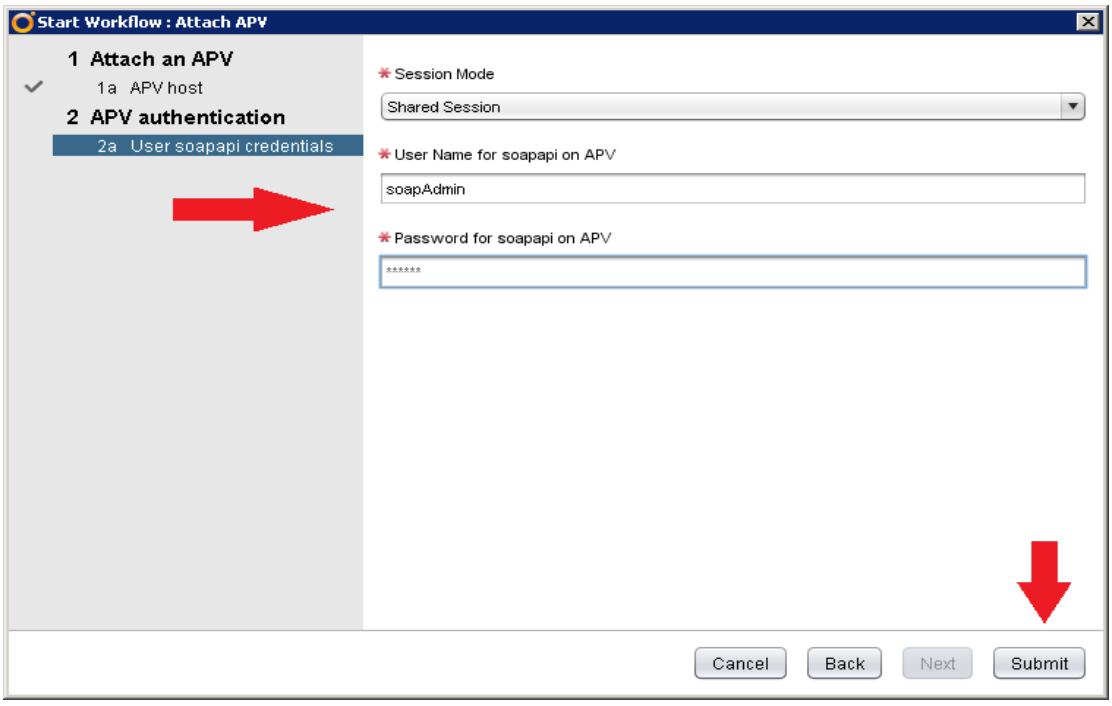

Figure 2-16 Fill out the Soapapi Configuration

4. You can see four services are created under vRealize Orchestrator Inventory for “apv_demo”, as shown in the following table.

Table 2-2 Created Services

apv_demo_group	Group
apv_demo_health	Health Check
apv_demo_rs	Real service
apv_demo_vs	Virtual service

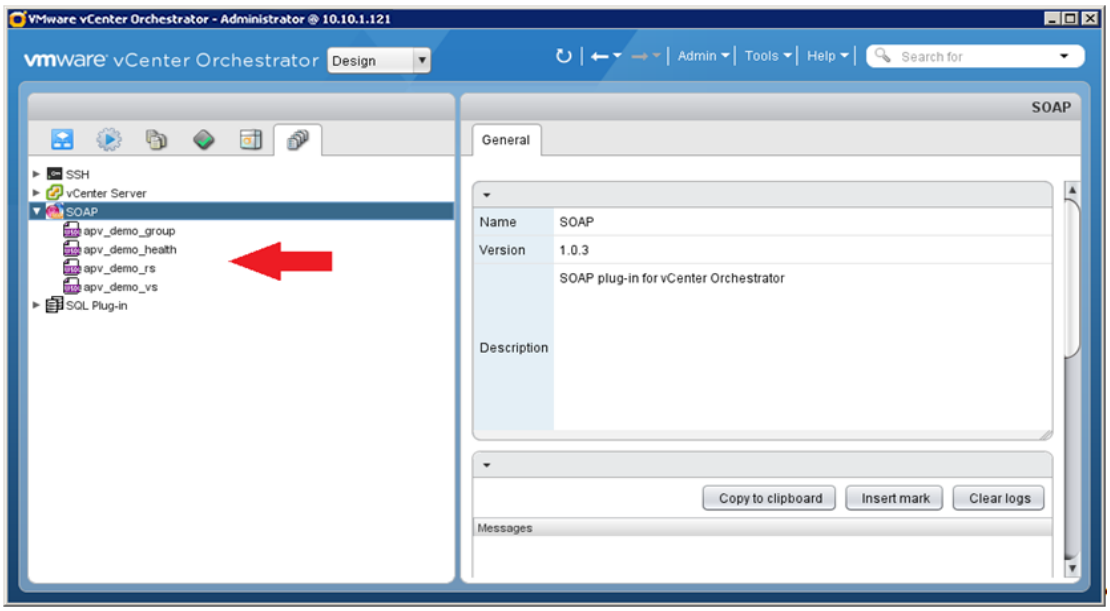

Figure 2-17 Display the Information of the Created APV Services

- **Detach APV**

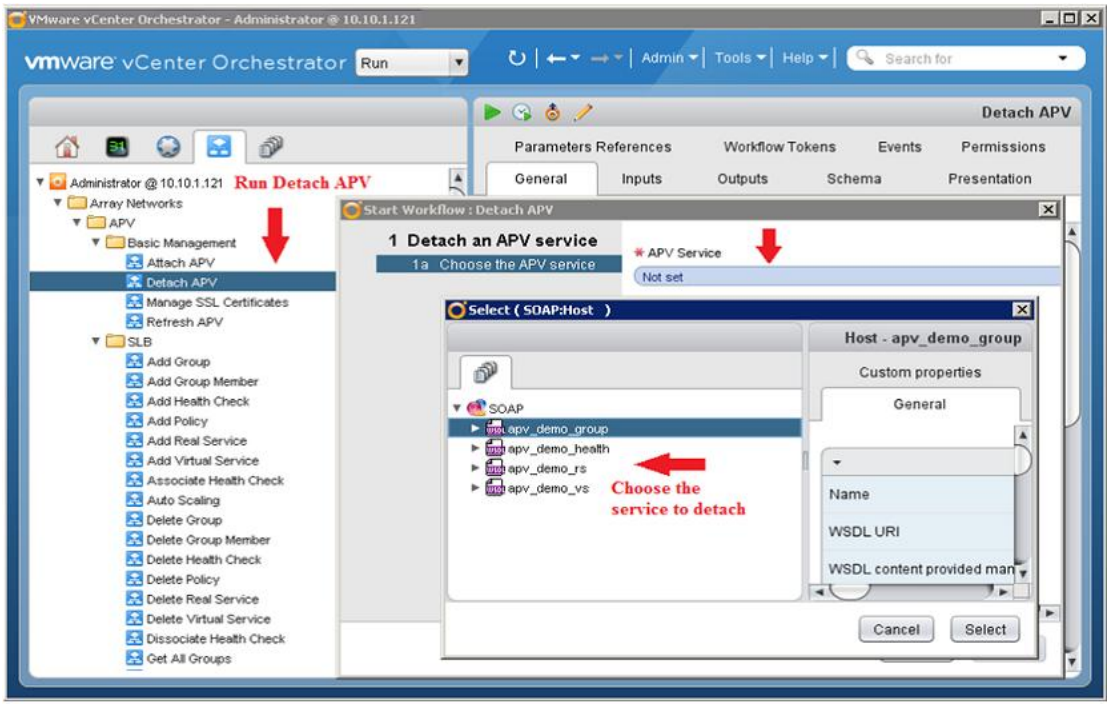

Figure 2-18 Detach APV

- **Refresh APV**

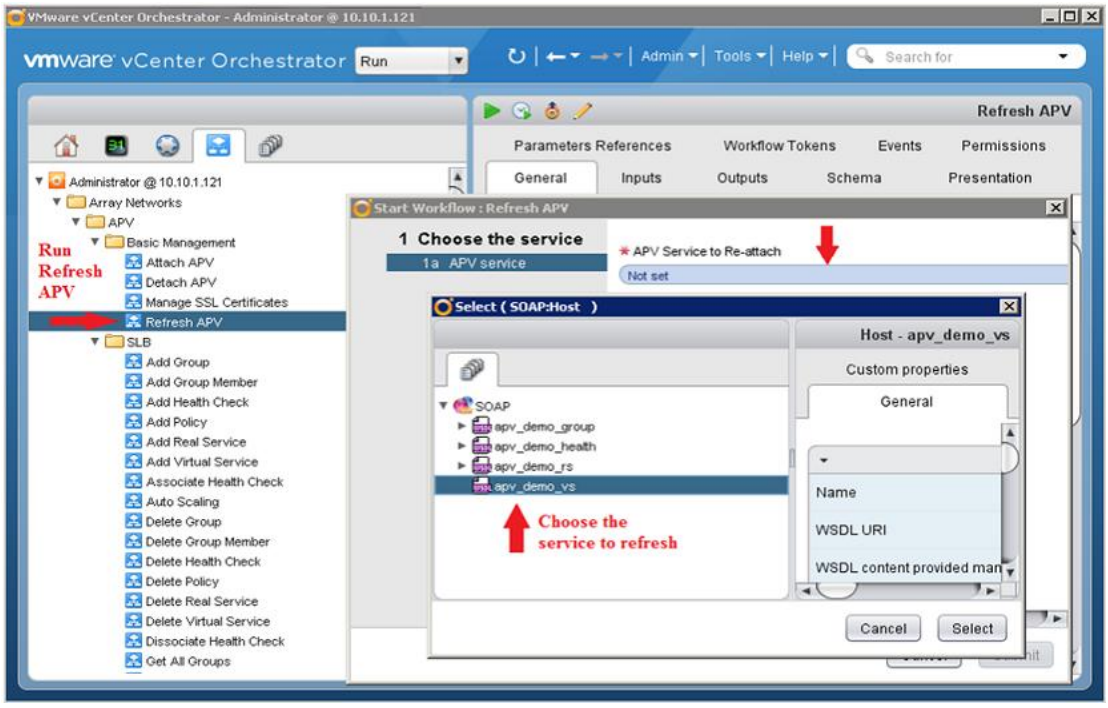

Figure 2-19 Refresh APV

2.3.2 SLB Workflows

Table 2-3 Virtual Service

Add Virtual Service	This workflow allows users to create virtual services for load balancing operations and protocols.
Delete Virtual Service	This workflow allows users to remove the specified virtual service from load balancing protocols along with all associated policies.
Get All Virtual Services	This workflow is used to display all virtual service information, which includes virtual service names, virtual service protocols, virtual service IP addresses, virtual service IP ports, whether ARP is enabled or not, policy information, proxy mode information and maximum connections per second limitation.
Get Virtual Service Info	This workflow is used to display the specified virtual service information. It includes the same categories from “Get All Virtual Services”.
Get Virtual Service Statistics	This workflow is used to display the specified virtual service statistics information, which includes maximum connections, current open connections, total connections, total bytes in, total bytes out, total packets in and total packets out.

Update Virtual Service	This workflow allows users to update the specified virtual service. It will remove all associated policies on the virtual service.
Add Policy	This workflow allows users to set a policy to associate a virtual service with a group. The policy includes default, backup, insert cookie and persistent cookie.
Delete Policy	This workflow allows users to remove the specified SLB policy.

Table 2-4 Real Service

Add Real Service	This workflow allows users to create real services. The real service must be created before it can be added to any SLB group.
Delete Real Service	This workflow allows users to remove the specified real service with the given name. If the real service is a member of any groups, it will be removed from those groups as well.
Get All Real Services	This workflow is used to display all real service information, which includes real service names, real service protocols, real service IP addresses, real service IP ports, maximum number of connections and whether a real service is enabled or not.
Get Real Service Info	This workflow is used to display the specified real service information. It includes the same categories from “Get All Real Services”.
Get Real Service Statistics	This workflow is used to display the specified real service statistics information, which includes maximum connections, current open connections, outstanding request count, total hits, total bytes in, total bytes out, total packets in and total packets out.
Update Real Service	This workflow allows users to update the specified real service. If the real service is a member of any groups, it will be removed from those groups.

Table 2-5 Group

Add Group	This workflow allows users to create an SLB group and specify a specific load balancing algorithm for the group.
Delete Group	This workflow allows users to remove an SLB group.
Get All Groups	This workflow is used to display all group information, which includes group names, load balance methods, parameter settings for the methods, associated virtual services, group member names, group member weight and associated health checks.
Get Group Info	This workflow is used to display the specified group service information. It includes the same categories from “Get All Groups”.
Update Group	This workflow allows users to update the specified group service. It will remove all associated policies on the group service and all group members in the group.
Add Group Member	This workflow allows users to add a real service to an SLB group.
Delete Group Member	This workflow allows users to remove a real service from a group.
Update Group Member Weight	This workflow allows users to update the weight of the specified group member.
Associate Health Check	This workflow allows users to associate the group health check condition with the specified group.
Dissociate Health Check	This workflow allows users to remove the association of the group health check condition with the specified group.

Table 2-6 Group and Virtual Service

Get Group Statistics	This workflow is used to display the specified group statistics information, which includes group current open connections, group total connections, group total bytes in, group total bytes out, group total packets in and group total packets out.

Table 2-7 Health Check

Add Health Check	This workflow allows users to create a group health check condition which can be associated with several groups.
Delete Health Check	This workflow allows users to remove the specified group health check condition.

Get All Health Checks	This workflow is used to display all health check information, which includes health check names, health check types, interval, timeout, response times for up, response times for down and parameters for HTTP health check request.
Get Health Check Info	This workflow is used to display the specified health check service information. It includes the same categories from “Get All Health Checks”.
Update Health Check	This workflow allows users to update the specified health check service. It will remove all the associations with SLB groups on the health check.

2.4 Typical User’s Scenarios

2.4.1 SLB Configuration

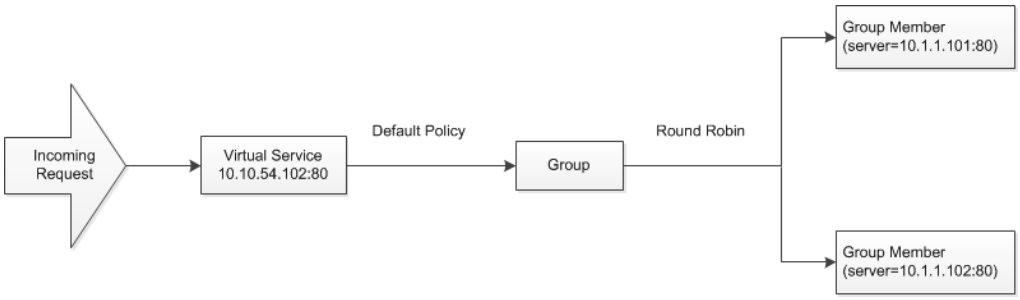

Figure 2-20 SLB Topology Example

- **Add a Virtual Service**

1. Right click the **Add Virtual Service** workflow and select **Start workflow**.

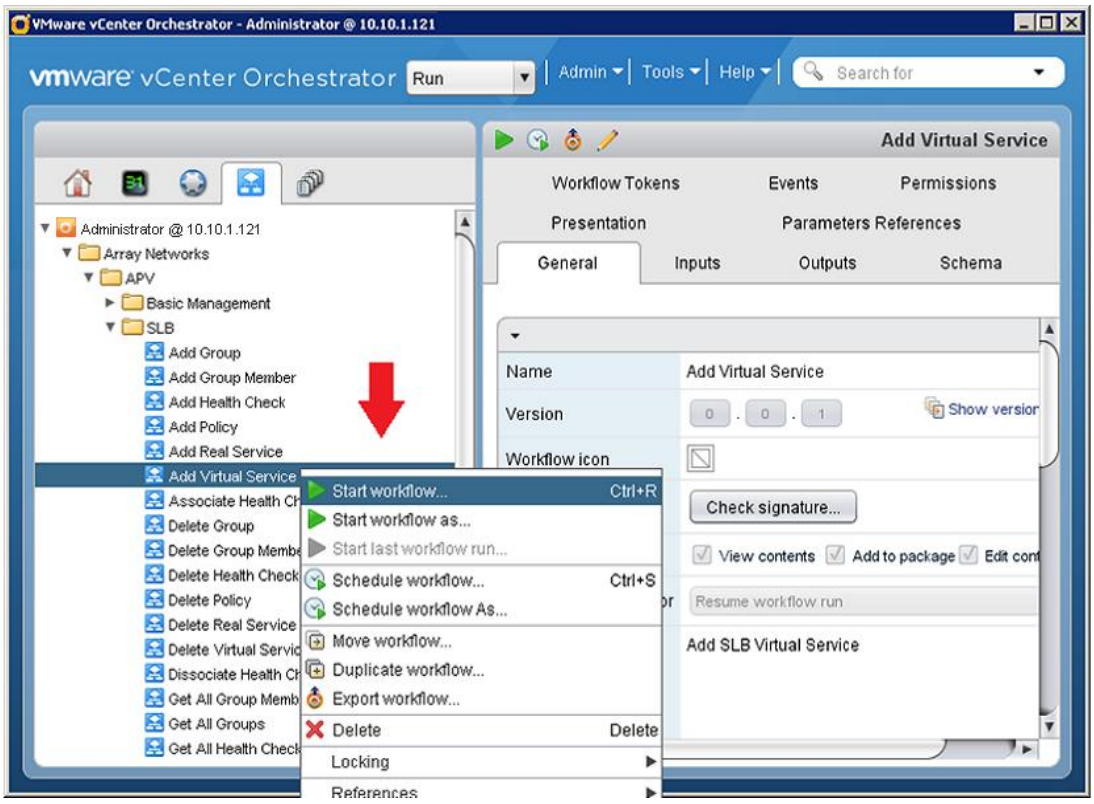

Figure 2-21 Start the Workflow

2. Select **APV Service.**

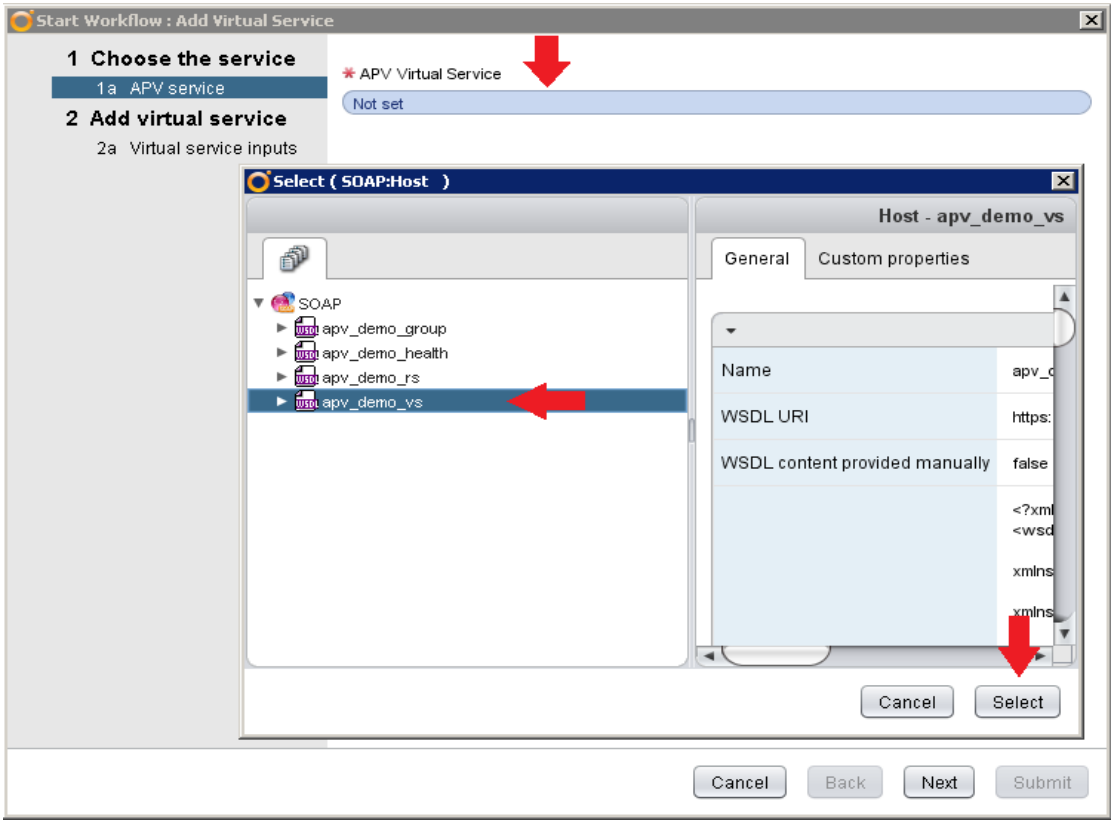

Figure 2-22 Select a Virtual Service

The Virtual Service name should end with "_vs".

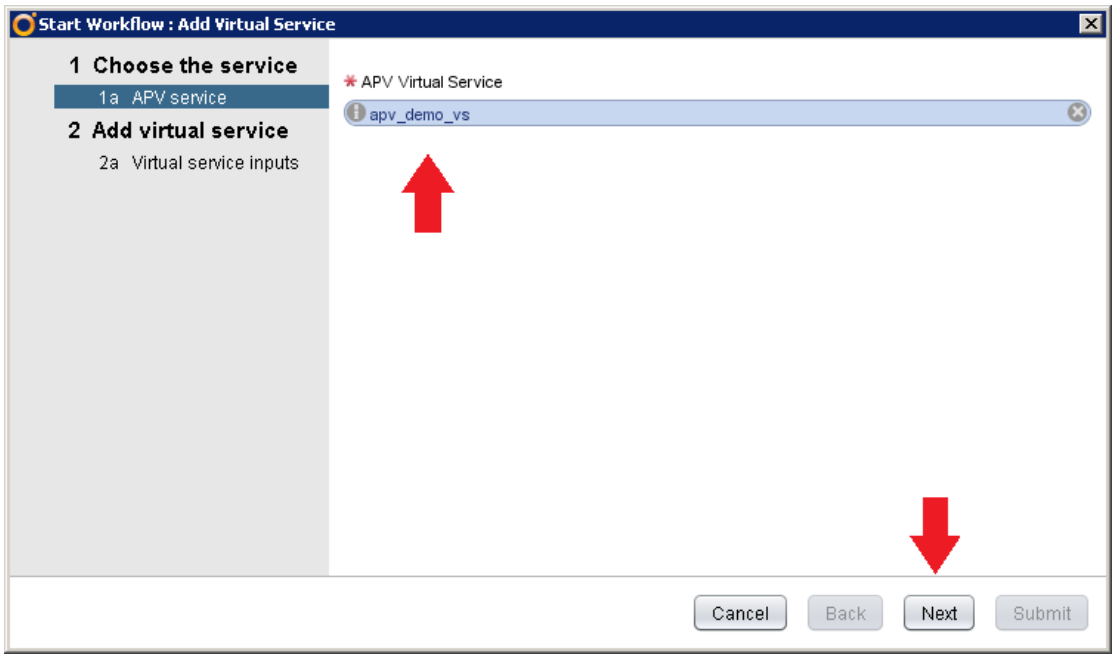

Figure 2-23 Display the Selected Virtual Service

3. Specify parameters of the virtual service.

Virtual Service Name: Specify the name of the virtual service.

Virtual Service Protocol: Specify the protocol of the virtual service. The protocol value can be PROTOCOL_HTTP, PROTOCOL_HTTPS, PROTOCOL_TCP or PROTOCOL_TCPS.

Note: PROTOCOL_HTTPS and PROTOCOL_TCPS are not supported in this version.

Virtual Service IP, port: Specify the IP and port of the virtual service.

Arp On/Off: Specify whether to support the Address Resolution Protocol (ARP). By default, the ARP protocol is supported.

Maximum Connections: Specify the maximum connections. The default value is 0.

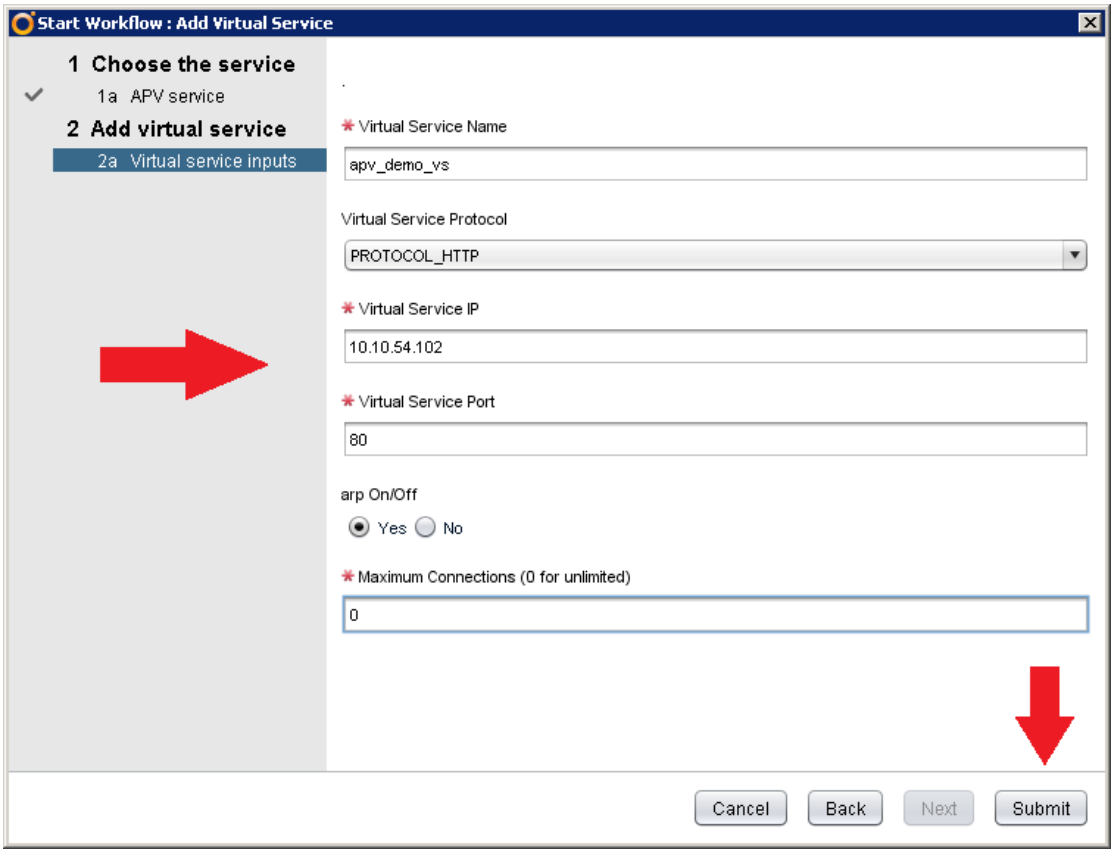

Figure 2-24 Specify Parameters of the Virtual Service

➢ **Add a Real Service**

1. Right click the **Add Real Service** workflow and select **Start workflow**.

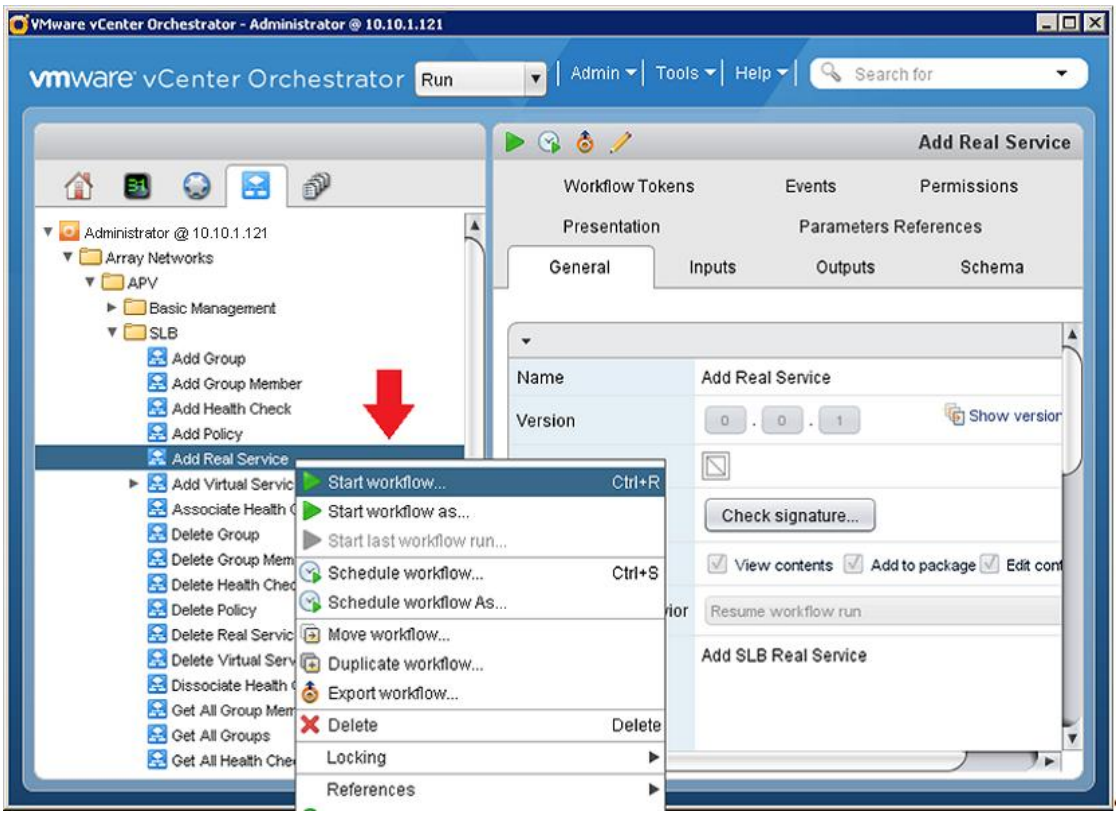

Figure 2-25 Start the Workflow

2. Select **APV Service.**

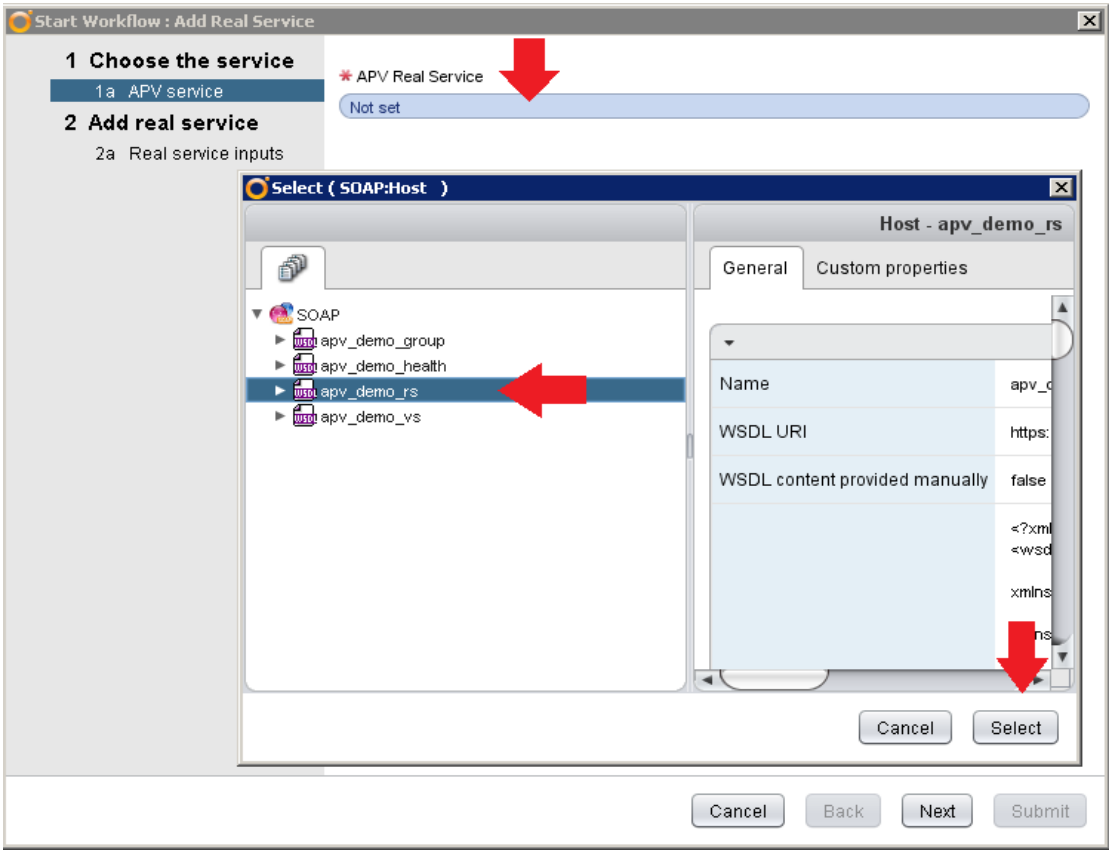

Figure 2-26 Select a Real Service

The service name should end with "_rs".

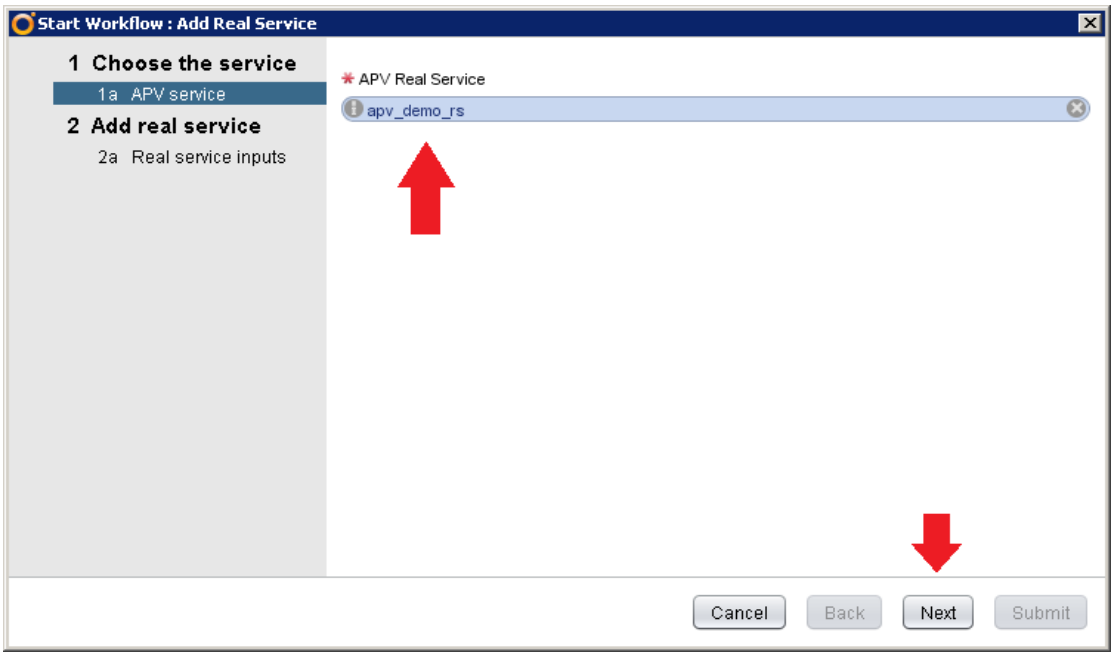

Figure 2-27 Display the Selected Real Service

3. Specify parameters of the real service.

   Real Service Name: Specify the name of the real service.

   Real Service Protocol: Specify the protocol of the real service. The protocol value can be PROTOCOL_HTTP, PROTOCOL_HTTPS, PROTOCOL_TCP or PROTOCOL_TCPS.

   Note: PROTOCOL_HTTPS and PROTOCOL_TCPS are not supported in this version.

   Real Service IP, port: Specify the IP and port of the real service.

   Maximum Connections: Specify the maximum connections. The default value is 1000.

   Enable: Enable or disable the real service.

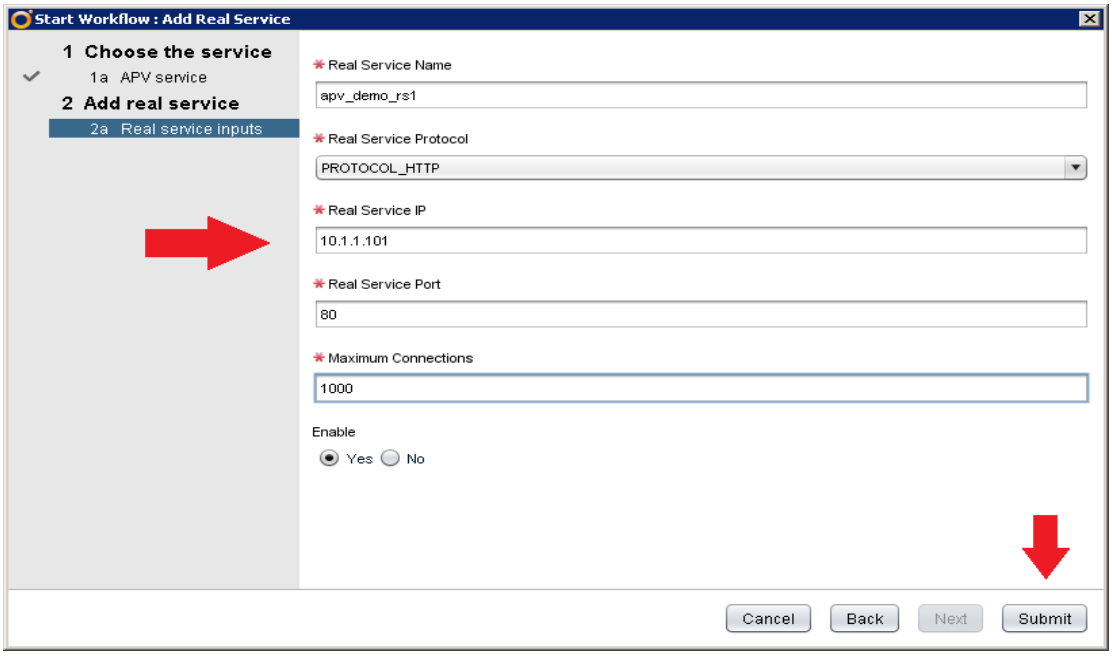

Figure 2-28 Specify Parameters of the Real Service

4. Configure the second real service (10.1.1.102) by the same steps.

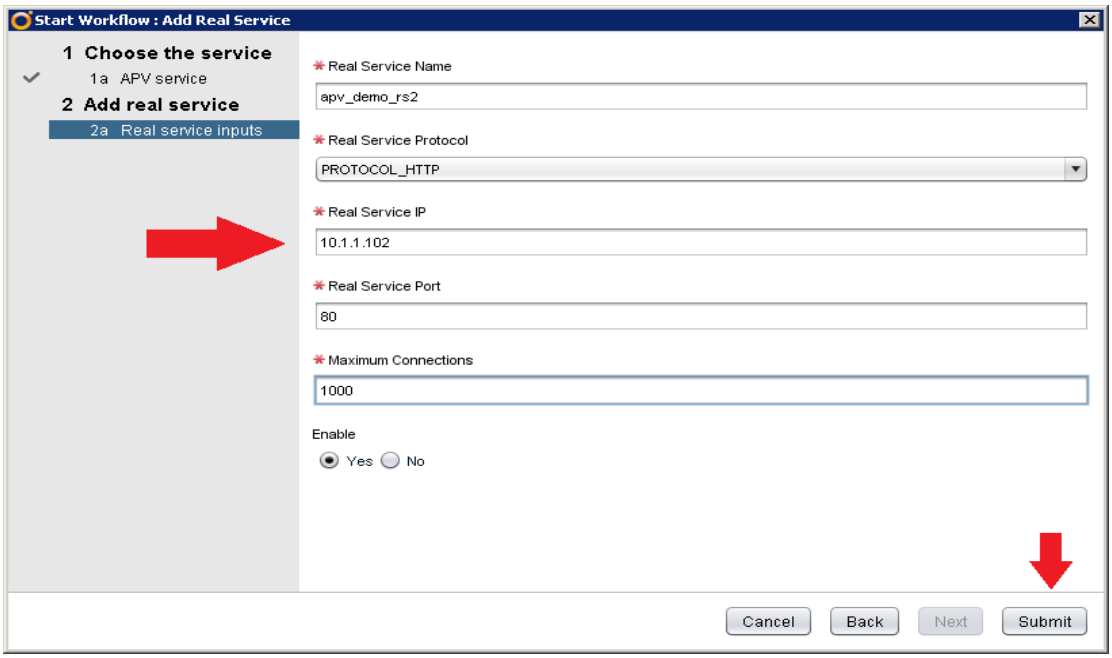

Figure 2-29 Configure the Second Real Service

- **Add a Group**

1. Right click the **Add Group** workflow and select the **Start workflow** sub-tab.

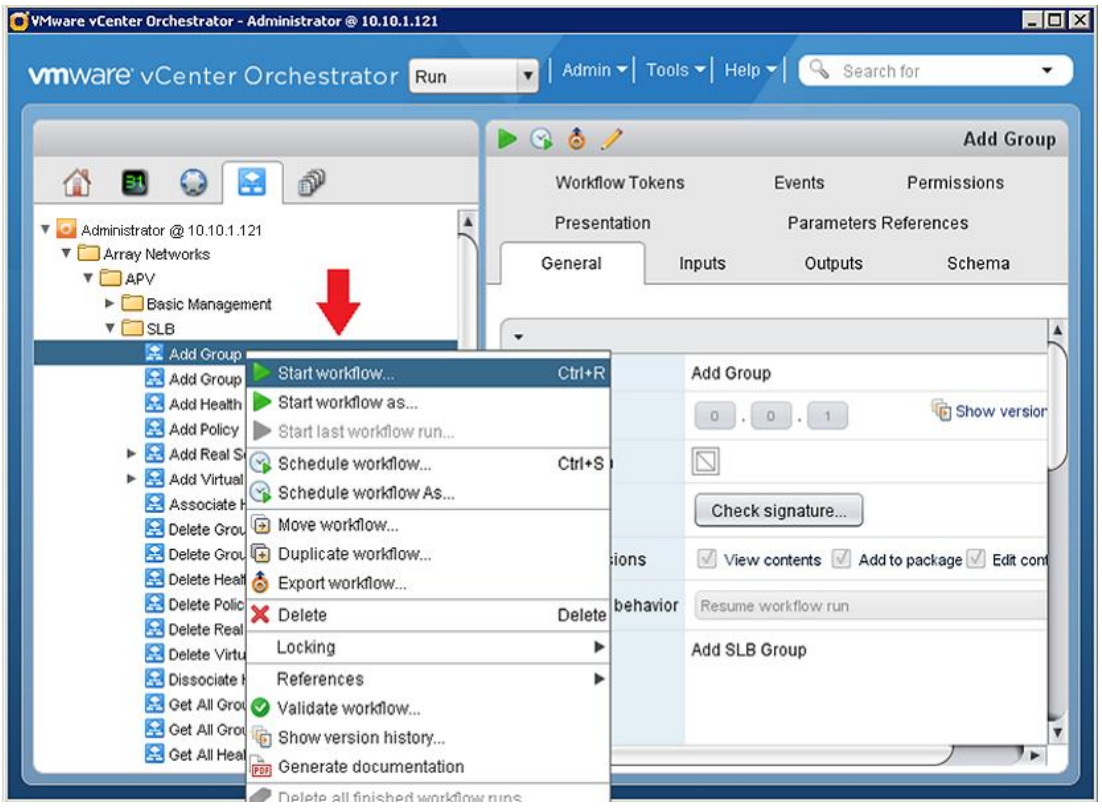

Figure 2-30 Start the Workflow

2. Select **APV Service.**

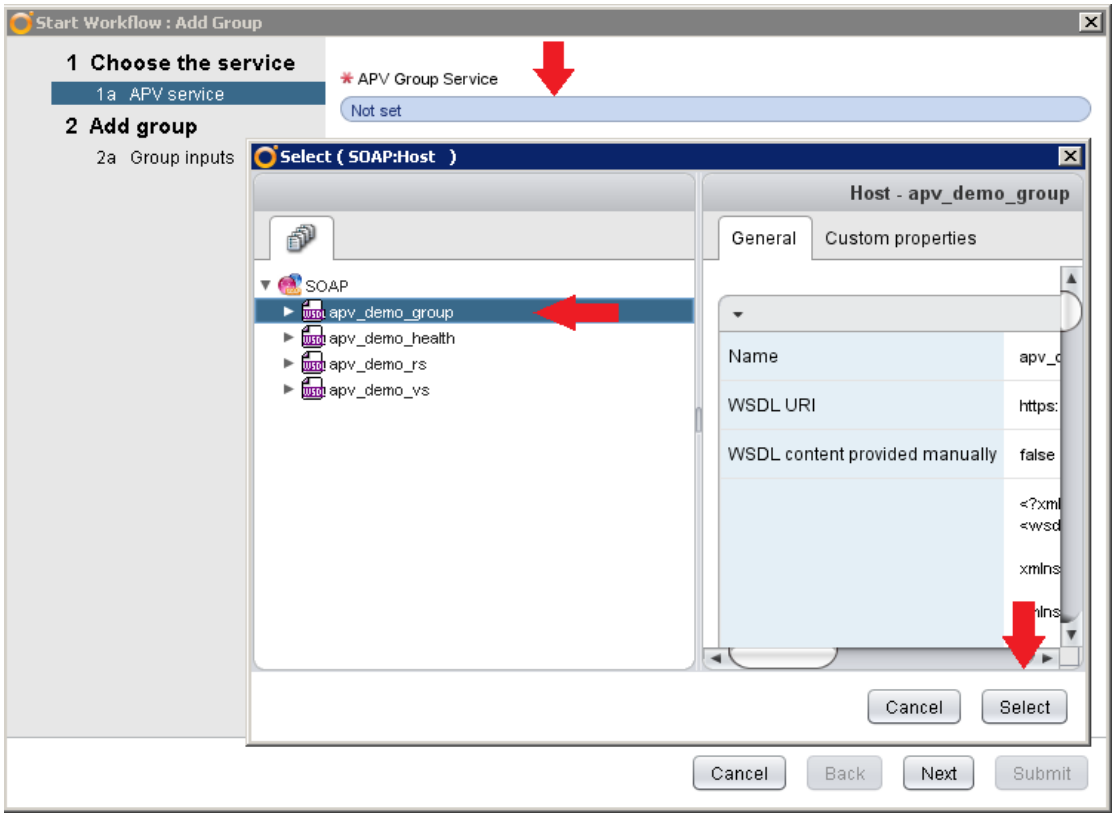

Figure 2-31 Select Group

The service name should end with “_group”.

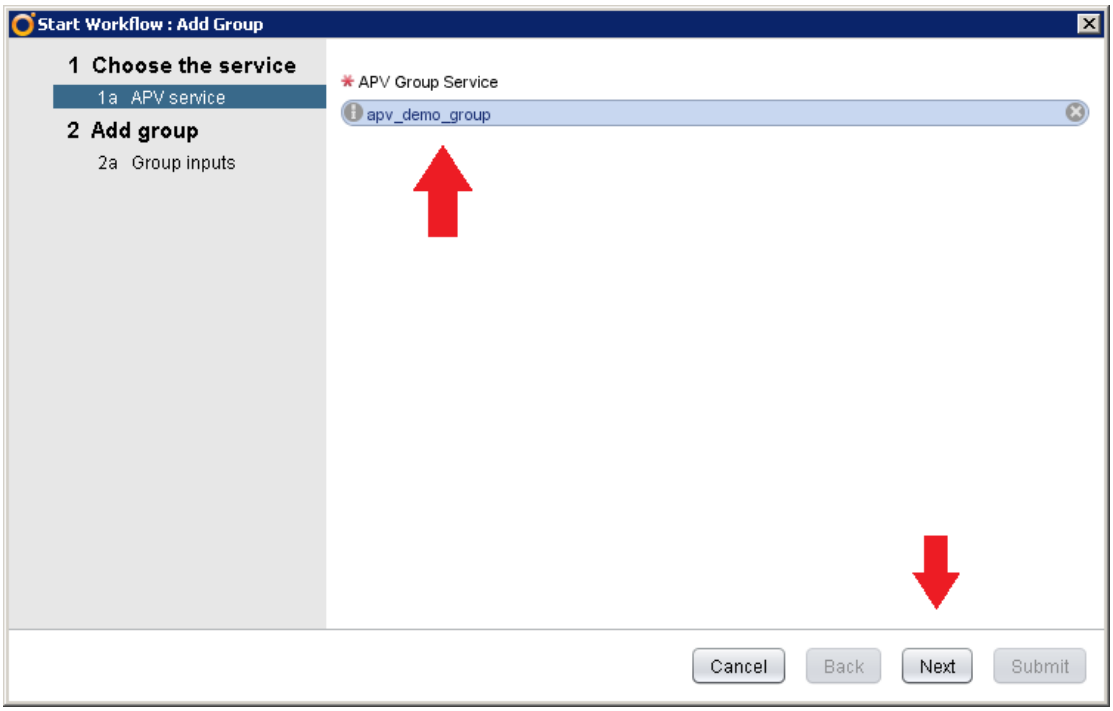

Figure 2-32 Display the Selected Group

3. Specify group parameters.

   Group Name: Specify the name of the group.

   Group Method: Specify the group method. The method can be LB_ROUND_ROBIN, LB_LEAST_CONNECTION, LB_SHORTEST_RESP_TIME, LB_HASH_IPADDR, LB_HASH_COOKIE, LB_INSERT_COOKIE or LB_PERSISTENT_IPADDR. (Some of the methods may have additional parameters. The configuration dialog box may vary with the group method the user chooses.)

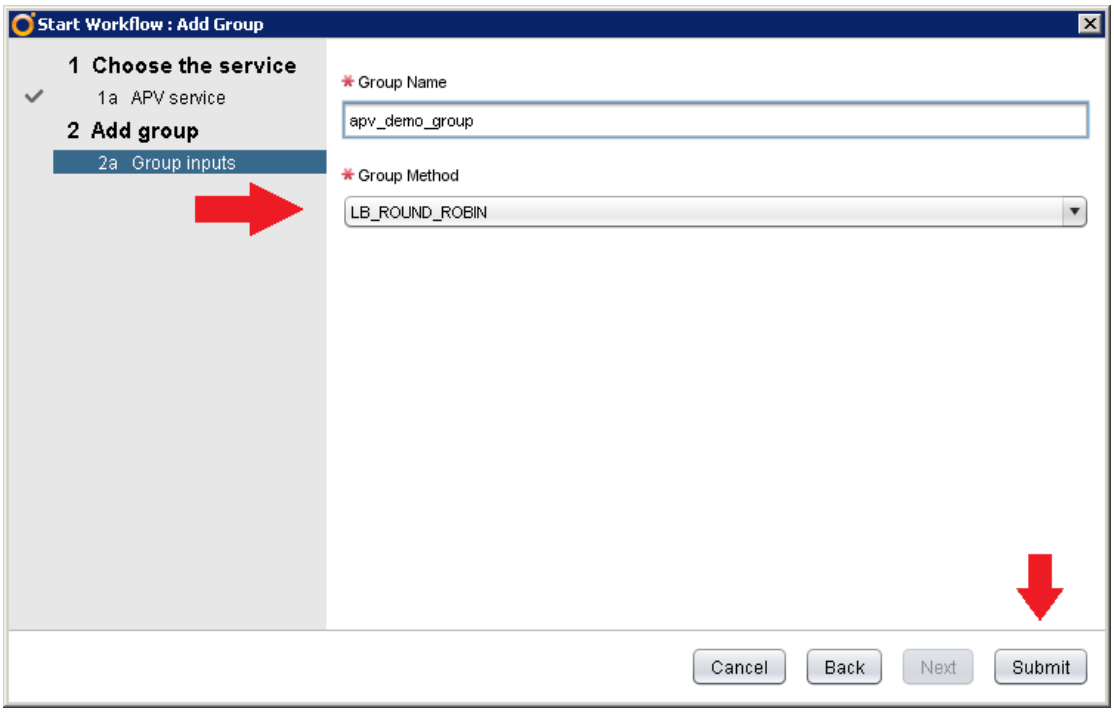

Figure 2-33 Specify Group Parameters

- **Add Group Member**

1. Right click the **Add Group Member** workflow and select **Start workflow**.

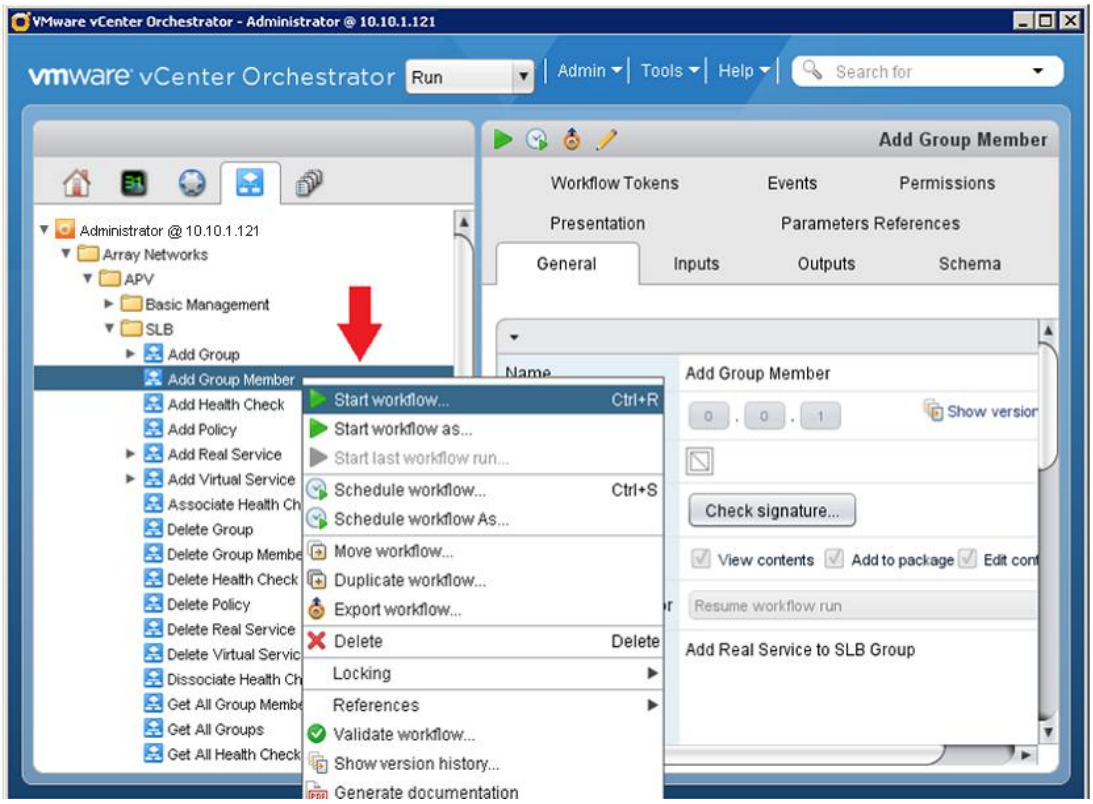

Figure 2-34 Start the Workflow

2. Select **APV Service.**

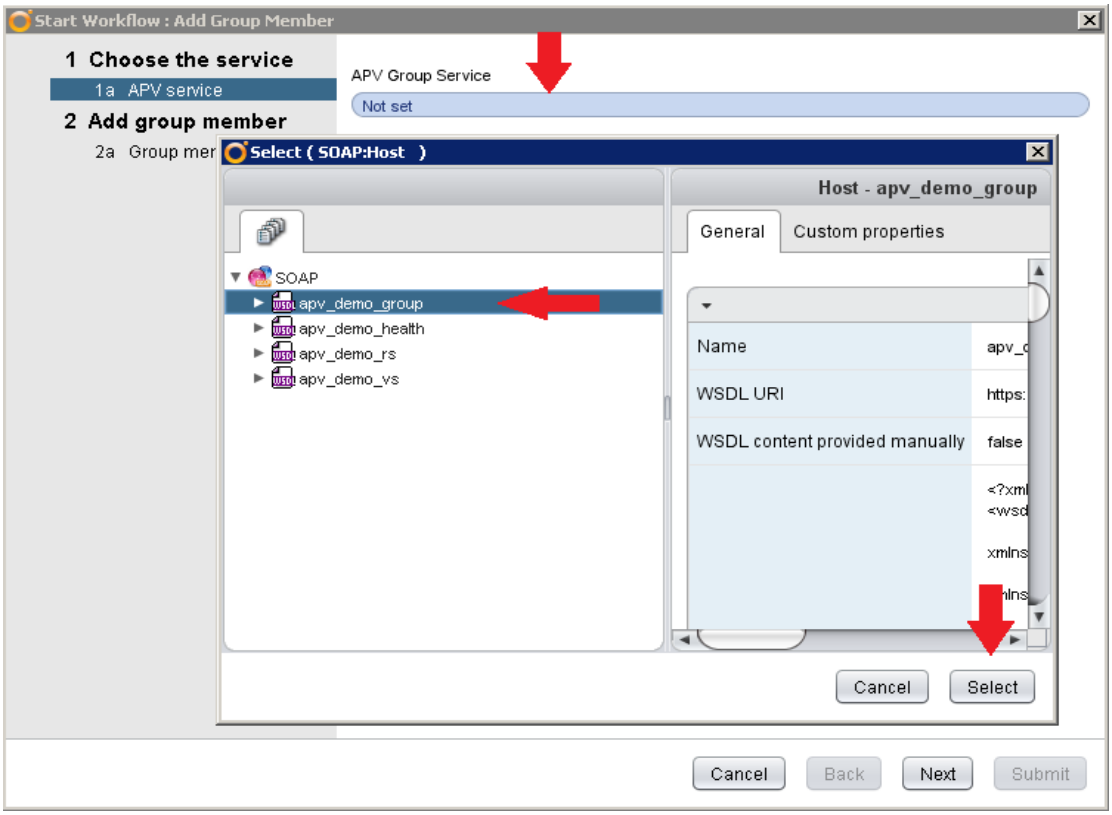

Figure 2-35 Select Group

The service name should end with "_group".

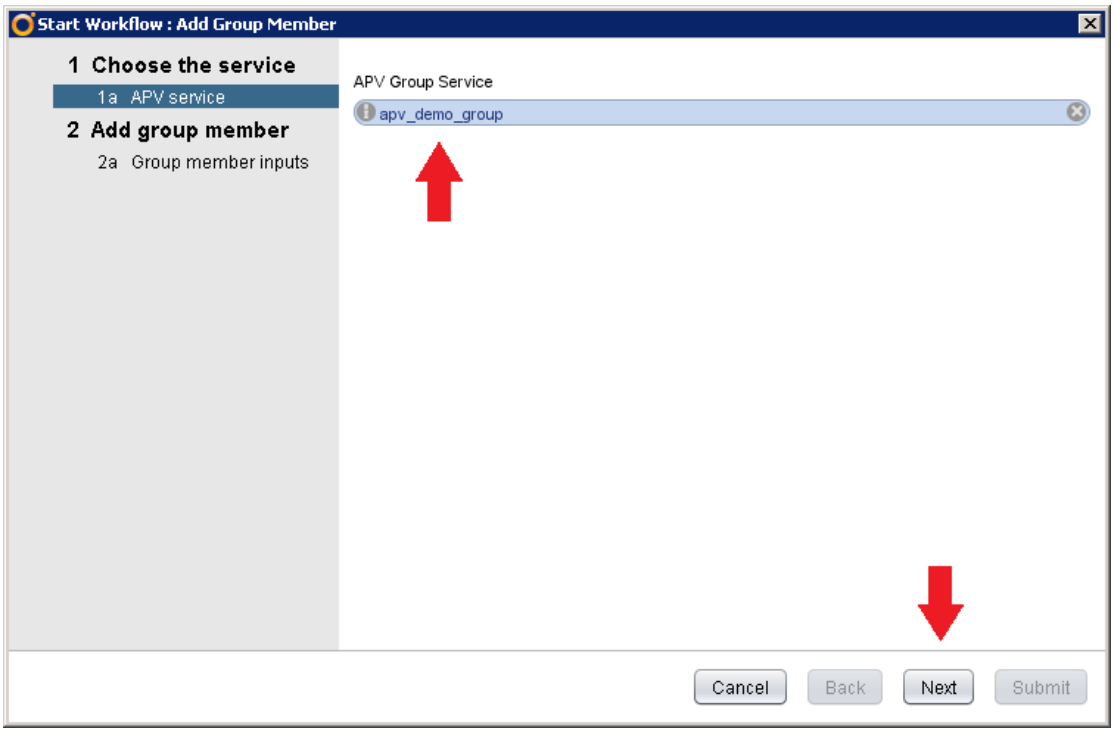

Figure 2-36 Display the Selected Group

3. Specify parameters of the group member.

   Group Name: Specify the name of the group.

   Real Service Name: Specify the name of the real service. This will be the new member added into the group.

   Weight: Specify the weight. The default value is 1.

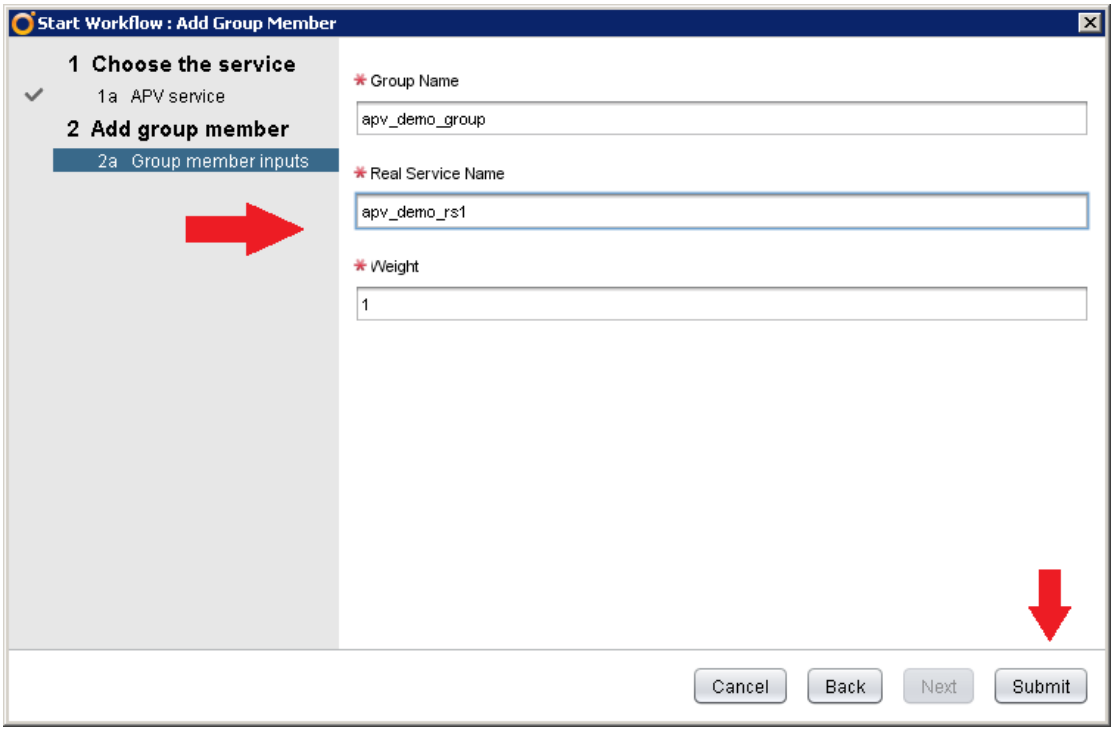

Figure 2-37 Specify Parameters of the Group Member

4. Add the second real service to the same SLB group.

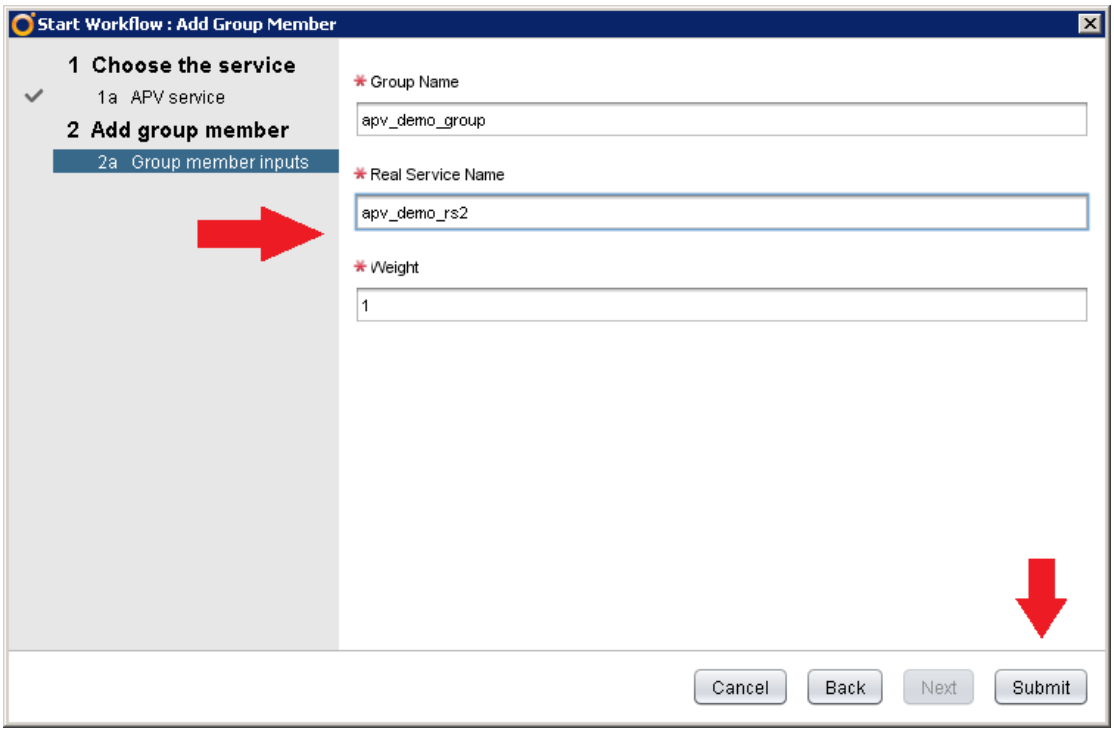

Figure 2-38 Add the Second Group Member

- **Add Policy (Default)**

1. Right click the **Add Policy** workflow and select **Start workflow**.

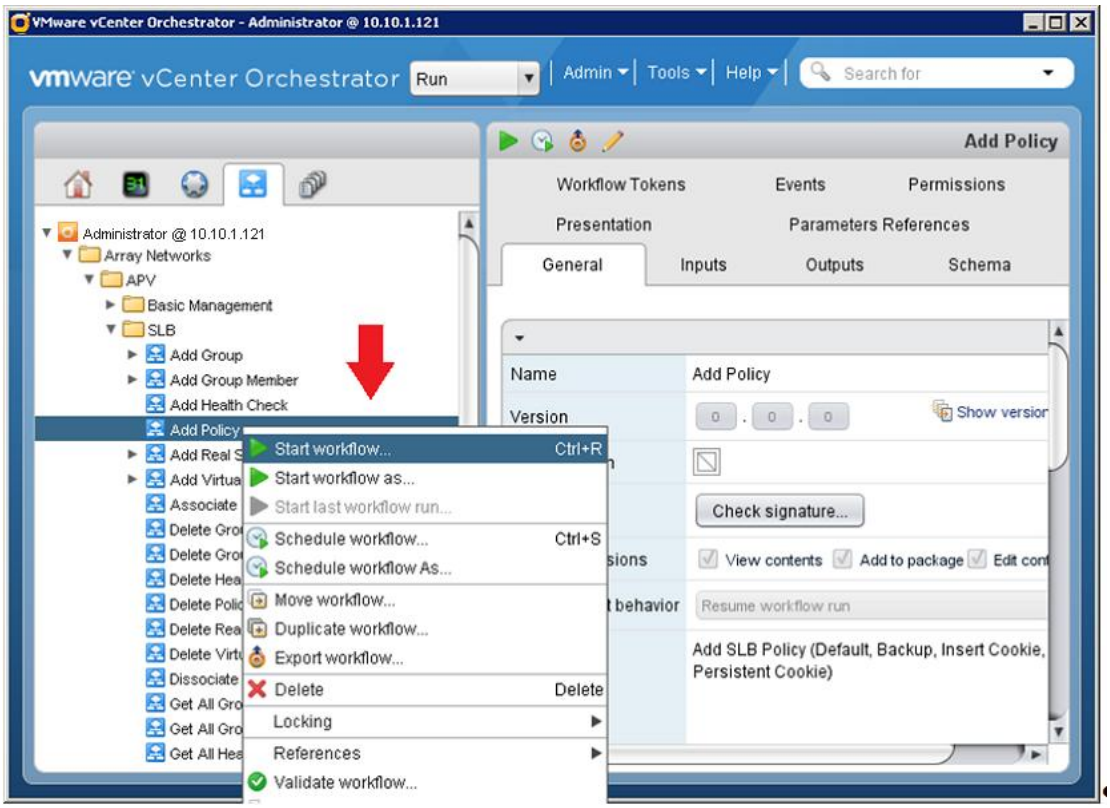

Figure 2-39 Start the Workflow

2. Select **APV Service.**

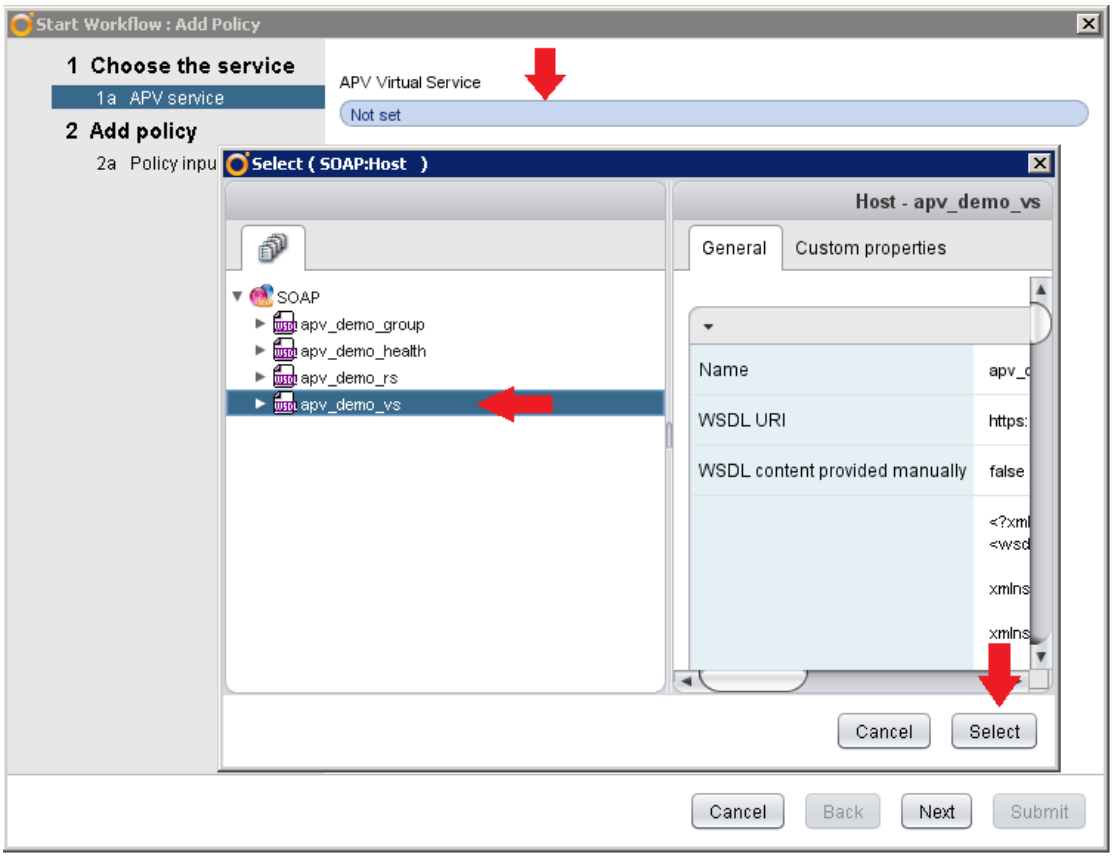

Figure 2-40 Select the APV Service

The service name should end with "_vs".

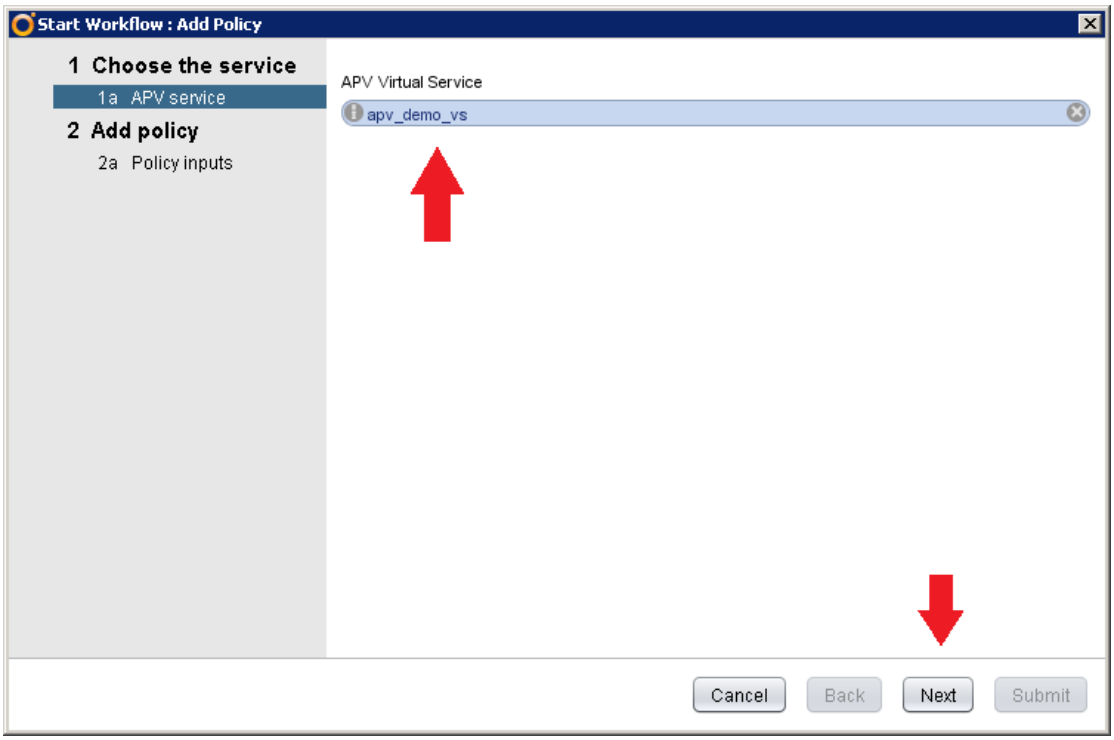

Figure 2-41 Display the Selected Virtual Service

3. Specify policy parameters.

   Virtual Service Name: Specify the name of the virtual service.

   Group Name: Specify the name of the group.

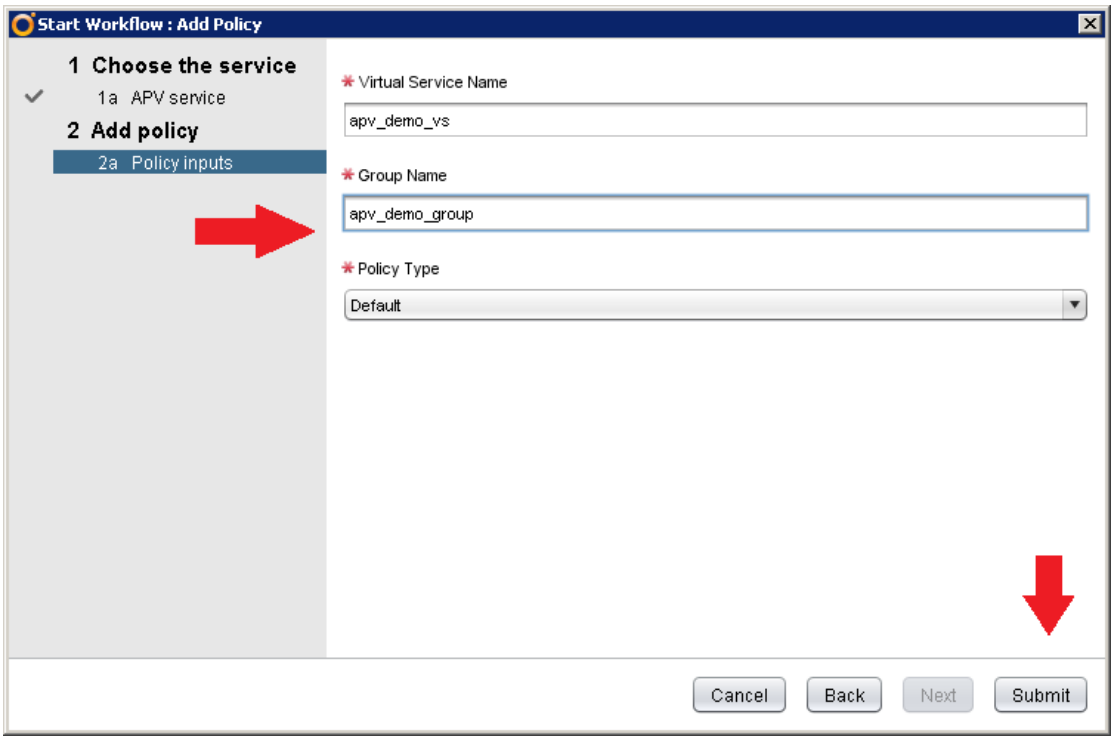

Figure 2-42 Specify Policy Parameters

2.4.2 Group Health Check

➢ **Add Health Check**

1. Right click the **Add Health Check** workflow and select **Start workflow**.

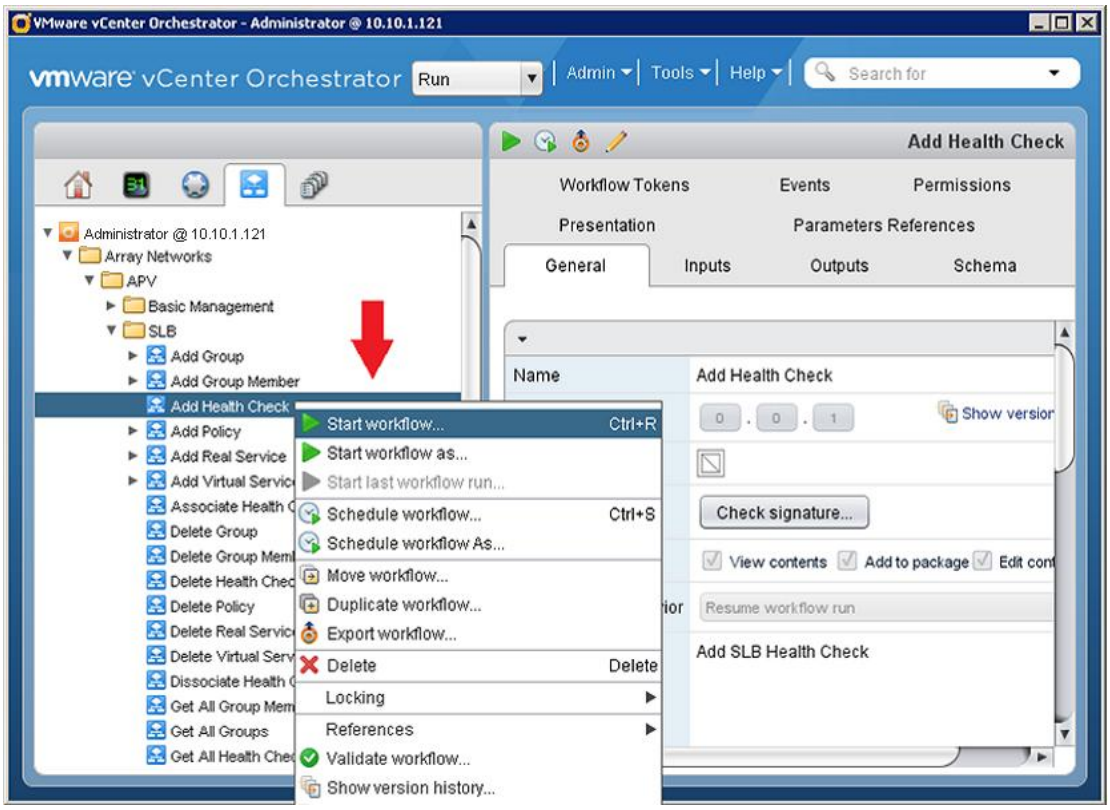

Figure 2-43 Start the Workflow

2. Select **APV Service.**

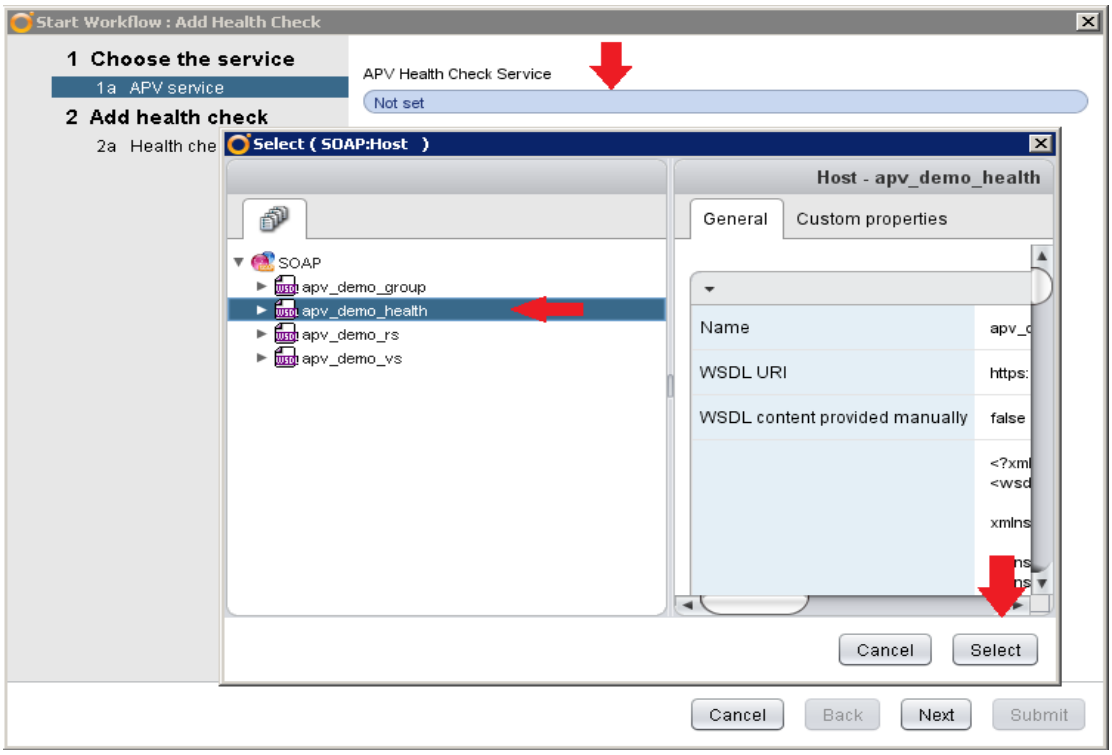

Figure 2-44 Select Health Check

The service name should end with “_health”.

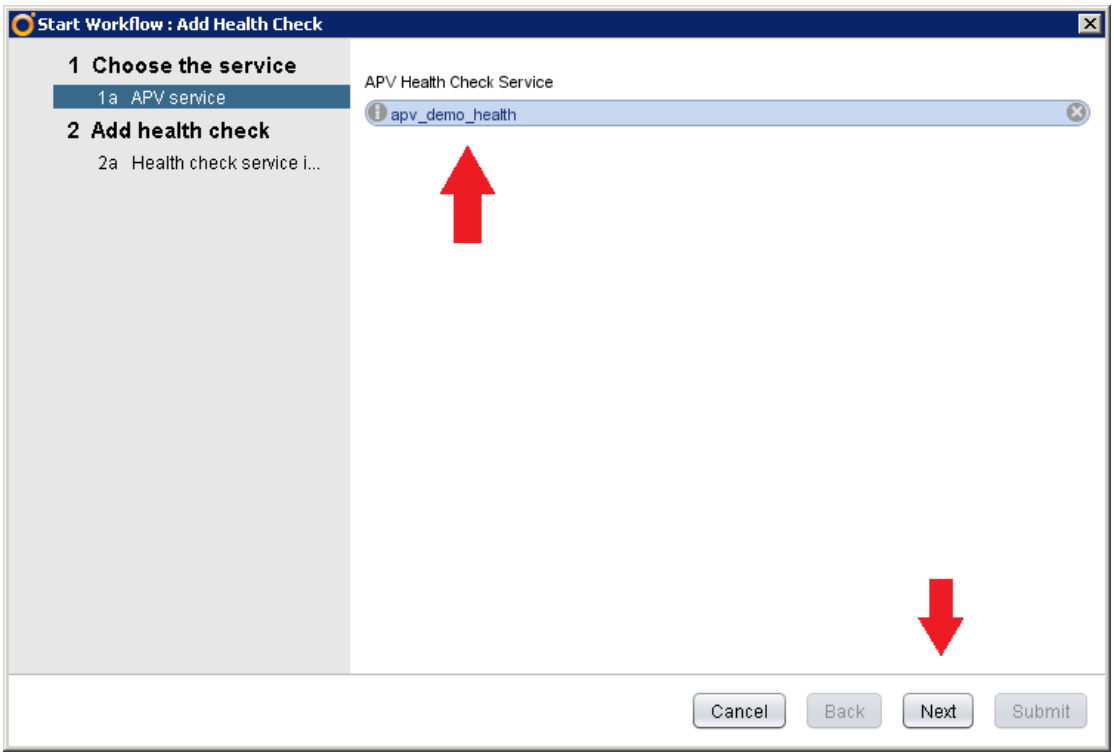

Figure 2-45 Display the Selected Health Check

3. Specify parameters of the health check.

   Health Check Name: Specify the name of the health check.

   Health Check Type: Specify the type of the health check. The type can be HCTYPE_ICMP, HCTYPE_TCP, HCTYPE_TCPS, HCTYPE_HTTP or HCTYPE_HTTPS. (If the users select HCTYPE_HTTP or HCTYPE_HTTPS, there will be one more configuration dialog box for additional parameters.)

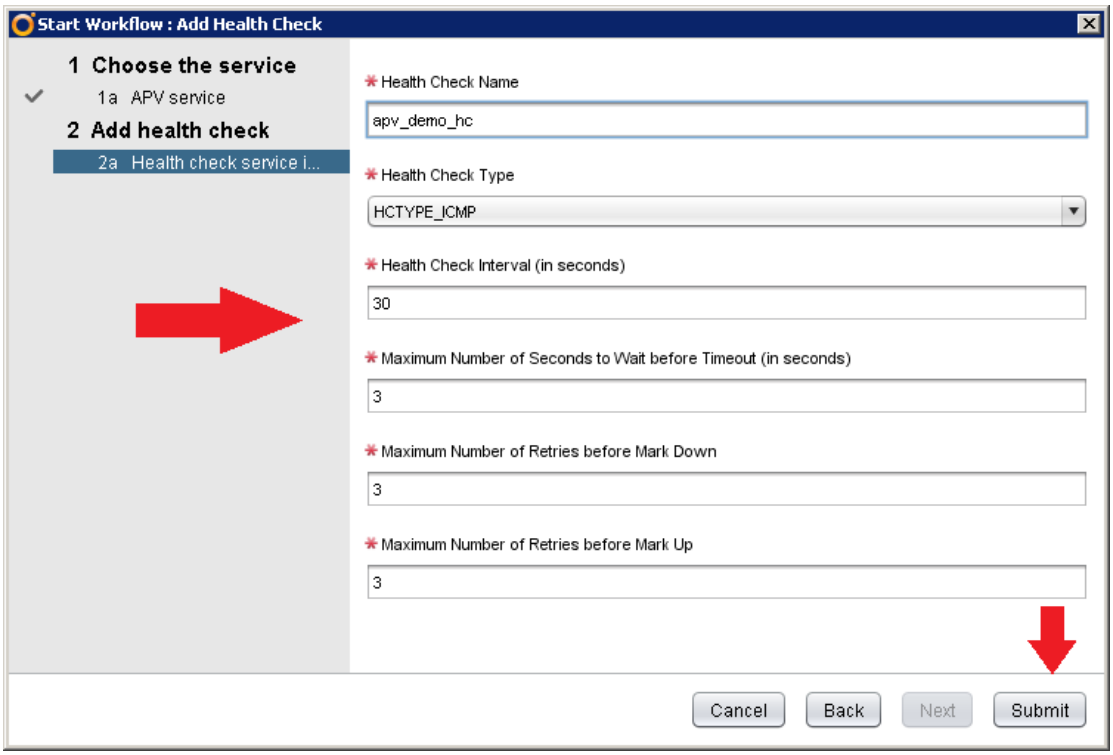

Figure 2-46 Specify Parameters of the Health Check

- **Associate Health Check**

1. Right click the **Associate Health Check** workflow and select **Start workflow**.

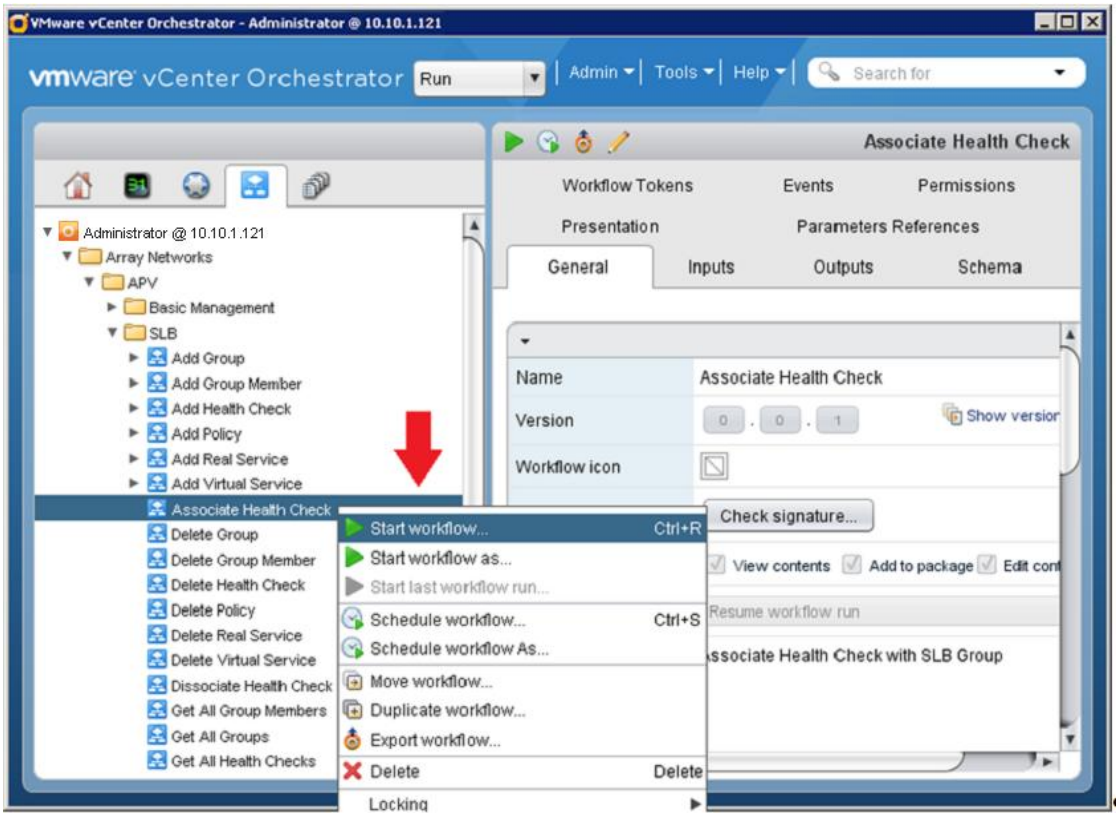

Figure 2-47 Start the Workflow

2. Select **APV Service.**

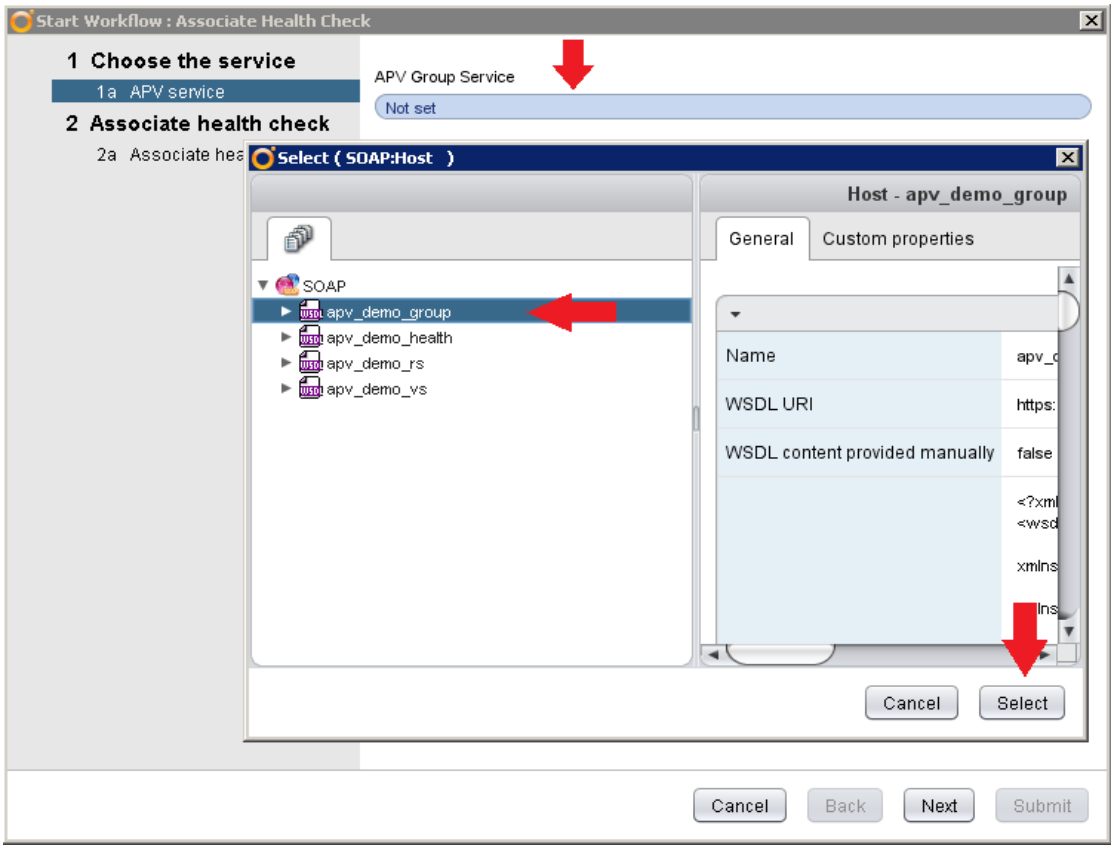

Figure 2-48 Select Group

The service name should end with “_group”.

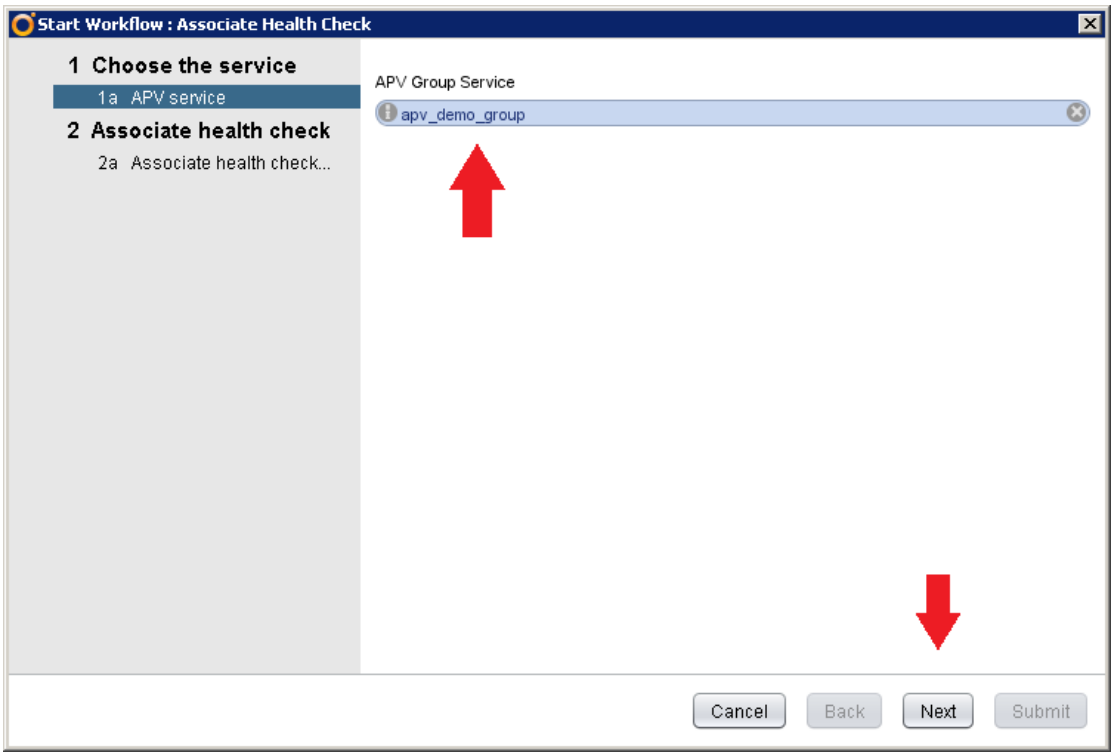

Figure 2-49 Display the Selected Group

3. Specify parameters of the group health check.

   Group Name: Specify the name of the group.

   Health Check Name: Specify the name of the group health check.

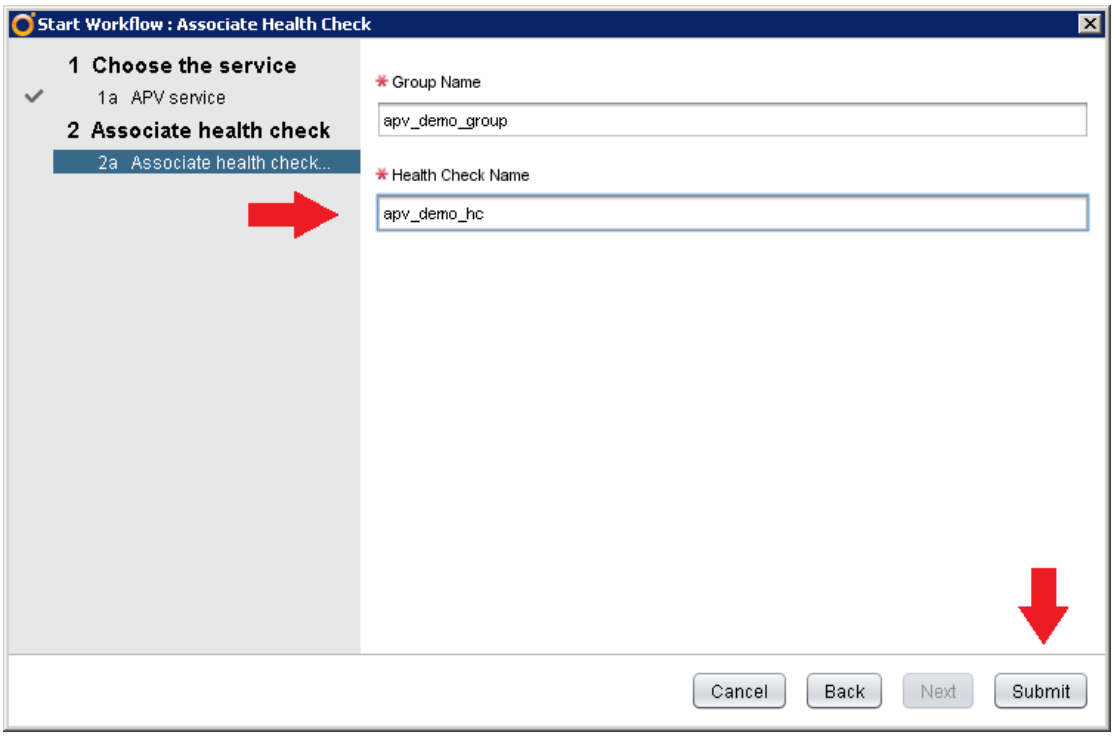

Figure 2-50 Specify Parameters of the Group Health Check

About Array Networks

Array Networks is a global leader in application delivery networking with over 5000 worldwide customer deployments. Powered by award-winning SpeedCore software, Array application delivery, WAN optimization and secure access solutions are recognized by leading enterprise, service provider and public sector organizations for unmatched performance and total value of ownership. Array is headquartered in Silicon Valley, is backed by over 250 employees worldwide and is a profitable company with strong investors, management and revenue growth. Poised to capitalize on explosive growth in the areas of mobile and cloud computing, analysts and thought leaders including Deloitte, IDC and Frost & Sullivan have recognized Array Networks for its technical innovation, operational excellence and market opportunity.

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