



## Modify Virtual Server Workflow

October 2017



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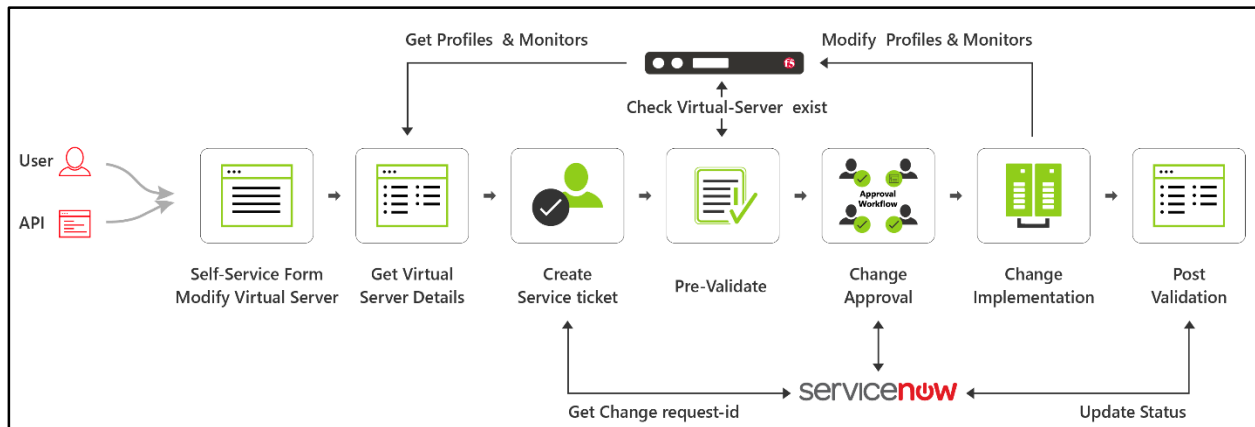
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## AppViewX Overview

Application-oriented companies can only accomplish true business agility through the automation of delivery infrastructure. At AppViewX, we believe that in order to power faster and more compliant application provisioning, Network Operations groups need to work smarter, not harder. Our platform offers a solid foundation to start your automation journey. It enables complete change management automation by integrating with leading technology providers and defining workflows for all stages of application provisioning on ADC: validation, approval, implementation, and rollback. To get started, you can download Free AppViewX, which comes with a series of preloaded application automation provisioning workflows.

## Modify Virtual Server Workflow

With the *Modify Virtual Server* automation workflow, users can add or delete iRules, profiles, monitors, and pool members on an existing virtual server. This workflow filters F5 ADC devices based on the user's access permissions, defined by Role Based Access Control (RBAC), and displays the list of virtual servers available on the selected ADC device. When a virtual server is selected, object details like iRules, profiles, monitors, and pool members are displayed in the form fields. The workflow also provides an option to modify the association of these virtual server objects and allows users to create change request tickets in ITSM systems –like ServiceNow for approvals and tracking. The service request change ID is associated with a work order and is updated based on the implementation status.



The work order that is generated confirms the existence of the virtual server and its associated objects before any changes are made. On successful pre-validation, the configuration changes are reviewed through a two-level approval process: first by ServiceNow, then by AppViewX. After approval is received, the configuration changes are implemented on the ADC device. A post-validation script ensures the virtual server and the associated objects are modified successfully.

## Prerequisites

To run this workflow in your environment, the following prerequisites must be met:

- Free AppViewX, AVX 12.1.0, or AVX 12.2.0 is downloaded and installed.
- An F5 LTM device is added to AppViewX as a managed device.
- An Infoblox device is added to AppViewX (optional).
- ServiceNow is registered to AppViewX (optional).
- Multiple server nodes are running the application.

## Compatible Software Versions

The application provisioning automation templates have been validated for the following software versions:

- AppViewX – Free AppViewX version, AVX 12.1.0, and AVX 12.2.0
- ServiceNow – Geneva version and Eureka version
- Infoblox – version 7.2.X
- F5 LTM – version 10.X, 11.X, or 12.X

## Application Provisioning Tasks

Within the AppViewX Provisioning module, you can perform a wide range of tasks, details of which are provided in this section.

### Log In to AppViewX

Log in to the AppViewX web interface. The standard format for a login URL is:



`http://hostname:portnumber.`

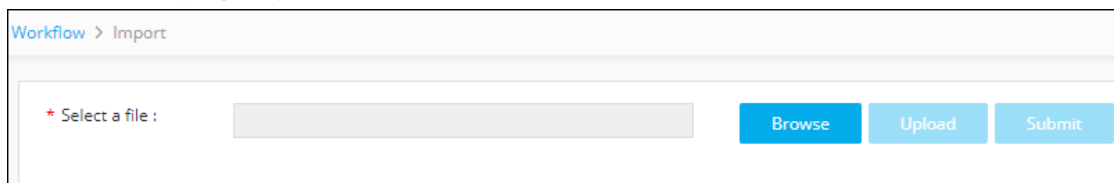
The hostname and port number are configured during deployment, with the default port number set to 5004 and the default web credentials set to `admin/AppViewX@123`.

**Note:** It is recommended that you access AppViewX using Internet Explorer, Firefox, or Google Chrome.

### Import Visual Workflows

**Note:** Free AppViewX comes preloaded with visual workflows. You will only need to use the following import instructions when newer versions of the workflows become available.

1. Click the  (Menu) button.
2. Navigate to **Workflow > Configurator**.
3. Click the  (**Import**) button in the Command bar.



4. To import a workflow, complete the following sub-steps:
  - a. Click the **Browse** button.
  - b. Select the zip file containing one or more workflows, then click **Upload**.
  - c. In the table at the bottom of the *Import* page, select the check box beside the unzipped workflow file.
  - d. Click **Submit** to deploy the workflow into your AppViewX environment.

### Import Helper Scripts

**Note:** Free AppViewX comes preloaded with application automation application provisioning workflows and helper scripts. You will only need to use the following import instructions when newer versions of the workflows and helper scripts become available.

1. In the navigation menu on the left-hand side of the AppViewX screen, navigate to **Provisioning > Template**.
2. Click on the **Helper script** button.
3. To import a helper script, complete the following sub-steps:
  - a. Select the **Helper Script** radio button.
  - b. Click **Browse** and select the helper script zip file you want to import.
  - c. Click **Upload** to import the file and view its contents.

| Status | Script name            | Logs |
|--------|------------------------|------|
| Valid  | cleanup_dns            |      |
| Valid  | appviewx               |      |
| Valid  | rs                     |      |
| Valid  | citrix                 |      |
| Valid  | bluecat_soap_connector |      |
| Valid  | collection_helper      |      |
| Valid  | infoblox               |      |
| Valid  | Decrypt                |      |

- d. In the table at the bottom of the Import page, select the check boxes beside each of the helper scripts.
- e. Click **Submit** to deploy them into your AppViewX environment.

## Add an ADC Device: F5 LTM

1. In the navigation menu on the left-hand side of the AppViewX screen, navigate to **Inventory > Device**.
2. On the *Device* screen, click the **ADC** tab if it is not already visible.
3. Click the **+** (Add) button in the Command bar.
4. On the *Add* screen that opens, click to select **F5** as the ADC vendor.

5. Select the module to be managed on the ADC device.
6. Create a **Device name** that is specific to AppViewX and that will identify the device in the AppViewX inventory.
7. Enter the **management IP address** of the device.
8. (Optional) Specify a **Data center location** if you want to have the option later to filter devices based on their location.

9. In the **Cert sync** field, select the radio button for the kind of synchronization relationship you want to establish between SSL certificates on the ADC device and AppViewX: **Managed**, **Monitored**, or **Ignored**.
10. (Optional) Select the **AppViewX group sync** check box if you need AppViewX to sync the configuration changes from an active to standby F5 ADC device. This is required in older F5 versions like v10. The latest versions of F5 sync automatically.
11. Select a **Credential type** from the drop-down menu.
12. Enter the **User name** and **Password** that are associated with the credentials.
13. **Note:** The user you enter in the **User name** field must have advanced shell access.
14. Select **Auto detect** to automatically detect and add secondary or failover devices or sync groups to the ADC device inventory.
15. Click **Save** to save the new ADC device on the ADC tab.



The device will display one of the following statuses:

- o **In Progress** – Device configuration fetch is in progress.
- o **Managed** - Device configurations are fetched and parsed successfully. This is the status a successfully added ADC device should have.
- o **Unresolved** – Unable to communicate with device, due to invalid login credentials.
- o **Failed** – Device configuration fetch failed, due to unsupported version.

## Add an IPAM Device: Infoblox

1. In the navigation menu on the left-hand side of the AppViewX screen, navigate to **Inventory > Device**.
2. Click the **DNS** tab.
3. Click the **+** (**Add**) button in the Command bar.
4. On the *Add* page that appears, click to select **Infoblox** and enter the device's IP address and advanced shell access credentials.



AppViewX Thu Apr 13 2017 01:19:57 GMT+0530 (IST)

Device :: DNS > Add

**Device details**

**Vendors**

- B BIND
- Infoblox
- QIP

**General Information**

\* Grid master Infoblox \* IP address 192.168.40.23

Data center San Francisco

**Credentials**

\* Credential type Manual entry

\* User name admin \* Password .....

**Secondary device information**

Grid master candidate ☐

Save Cancel

- Click the **Save** button.

The device status on the DNS tab changes to **Available** to indicate the successful addition of Infoblox.

AppViewX Fri Apr 21 2017 05:21:07 GMT+0530 (IST)

Device :: DNS

ADC Servers **DNS** Firewall WAF Switch Router Proxy Others

Search...

|                          | Name         | IP address     | Vendor   | Data center   | Object count | Version | Status    |
|--------------------------|--------------|----------------|----------|---------------|--------------|---------|-----------|
| <input type="checkbox"/> | Infoblox_SFO | 192.168.40.223 | Infoblox | San Francisco |              | 6.10    | Available |

## Register an ITSM Device: ServiceNow

- In the navigation menu on the left-hand side of the AppViewX screen, navigate to **Settings**.
- On the *Settings* page that opens, click **Change Management** in the column on the left.
- Click the **ServiceNow** plug-in.
- On the *Vendor configuration* screen that opens, enter a valid web URL
- (Optional) Enter a **Description** of the vendor to help users identify it.
- Enter the ServiceNow **username** and **password** credentials in the respective fields.
- Click **Update** to save the changes made in the system.

AppViewX Settings - Change Management - Vendor configuration

Authentication: SSH, Certificate, Provisioning, **Change Management**, Device, Log forwarding, License, iHealth report, System, AppViewX

**Information**

Name: Change URL: https://ven01189.service-now.com

Description: Upload image

Username: admin Password: \*\*\*\*\*

**General settings**

Active Provisioning Instance: ☒ Enable polling: ☒

Device / CI validation: ☒ Polling interval (mins): 5

Timezone: GMT Approve mode: Override

Implementation mode: Override

**Log / Configuration settings**

Select configuration type: Pre validation, Post validation Consolidated logs: ☒

Select log type: None selected Auto close: ☒

**Configuration command**

```
1 - {
2 -   "serviceApplist": {
3 -     "create": {
4 -       "url": "/api/now/table/change_request",
5 -       "responseDataMapping": {
6 -         "ticketNumber": "result-number"
7 -       },
8 -       "payloadDataMapping": {
9 -         "start_date": "startTime",
10 -        "end_date": "endTime",
11 -        "work_notes": "data",
12 -        "close_notes": "description",
13 -        "cmdb_ci": "cmdb_ci"
14 -       },
15 -       "apilistToCallAfter": [],
16 -       "name": "createTicket",
17 -       "method": "POST"
18 -     },
19 -     "getTicket": {
20 -       "url": "/api/now/table/change_request?sysparm_query=number=ticketNumber",
21 -       "responseDataMapping": {
22 -         "state": "result-approval",
23 -         "start_time": "result-start_date"

```

Update Reset Cancel

- (Optional) The F5 LTM device you are configuring should be present in the ServiceNow LB Hardware inventory. You can check this by opening ServiceNow and clicking to open the Load Balancers > LB Hardware section as shown below. The device name used in the ServiceNow inventory and AppViewX ADC device inventory should be the same.

ServiceNow Service Automation

Welcome: System Administrator Logout

Configuration

- Load Balancers
- LB Hardware
- LB Applications

MID Server

Downloads

System Definition

Upload File

Load Balancer - 112.40

Name: SFO\_F5\_ADC\_R23 Company:

Asset tag: Serial number:

Manufacturer: Model ID:

Asset: Assigned to:

IP Address: 192.168.40.153


Host name:


## Enable a Workflow

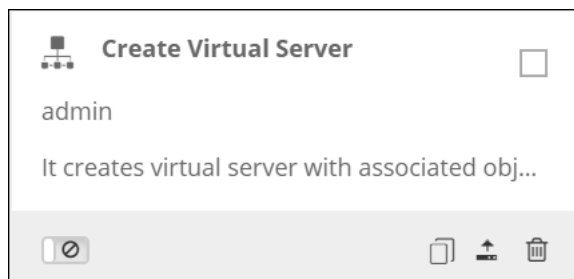
To enable the **Create Virtual Server** workflow, complete the following steps:

- Click the (Menu) button.
- Navigate to **Workflow > Configurator**.
- The *Workflow* screen opens.

- Click the ☐ (**Select**) button on the Create Virtual Server workflow to enable. If the workflow is already selected, a ☒ (**Deselect**) button appears.



- Click the  (Enable) button in the Command bar.

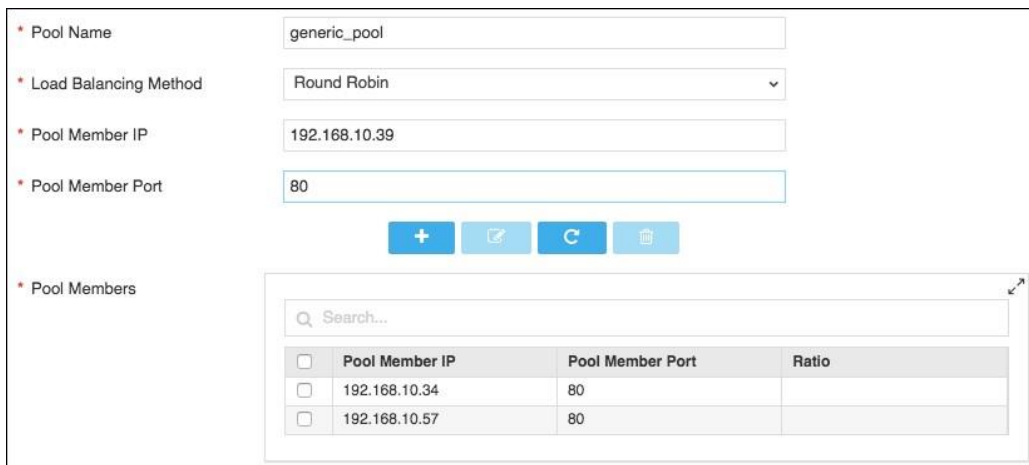
**Note:** You can also enable the required workflow from the Card view by clicking the  (**Disable**) button.



- On the *Confirmation* screen that appears, click **Yes**.

## Modify a Virtual Server Workflow




- Click the  (**Menu**) button.
- Navigate to **Workflow > Request**.  
The *Request* screen opens with **My catalog** tab displayed by default. This screen displays all enabled workflows assigned to a specific user role.
- Click the  (**Run workflow**) button from the Card view of **Modify a Virtual Server** workflow.
- Click the **Get F5 LTM Device List** button to fetch the list of managed F5 LTM devices.
- In the **F5 LTM Device** field, select the device that contains the virtual server that is to be modified.
- Click the **Get Virtual Servers** button to fetch the list of virtual servers from the device.
- Select a **Virtual Server** from the drop-down list.
- Click the **Get Virtual Server Details** button to retrieve the virtual server configurations.
- Select a **Persistence Profile** from the drop-down list.
- Select an **HTTP Profile** from the drop-down list.
- (Optional) Edit the **Pool Name** of the virtual server pool.

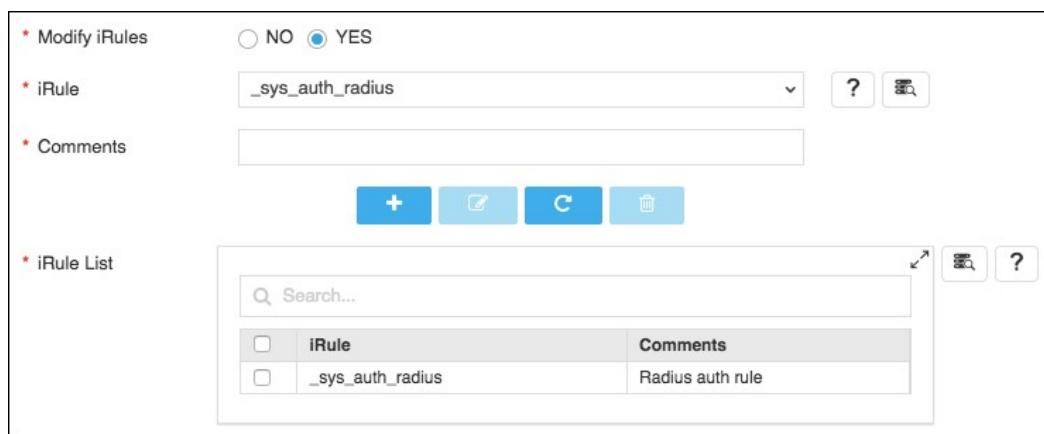


|                          | Pool Member IP | Pool Member Port | Ratio |
|--------------------------|----------------|------------------|-------|
| <input type="checkbox"/> | 192.168.10.34  | 80               |       |
| <input type="checkbox"/> | 192.168.10.57  | 80               |       |


12. Select a **Load Balancing Method** for the pool members from the drop-down list.

The Pool Members corresponding to the selected virtual server are displayed in the table.




- (Optional) Modify an existing pool member by selecting the check box beside its name and clicking the  (**Modify**) button.
- (Optional) Delete an existing pool member by selecting the check box beside its name and clicking the  (**Delete**) button.
- (Optional) Add a new pool member by filling in the Pool Member IP and Pool Member Port fields and clicking the  (**Add**) button.

13. In the **Modify iRules** field, select the **YES** radio button.


\* Modify iRules ☐ NO ☒ YES

\* iRule  ? 






\* Comments

+   

\* iRule List

Q Search...

| <input type="checkbox"/> | iRule            | Comments         |
|--------------------------|------------------|------------------|
| <input type="checkbox"/> | _sys_auth_radius | Radius auth rule |

- Click the  (**Fetch**) button at the right side of the **iRule** field to retrieve the list of available iRules for the selected F5 LTM device.
- In the **iRule** field, select an iRule from the drop-down list.
- In the **Comments** field, enter comments related to the iRule.
- Click the  (**Add**) button to associate the iRule with the virtual server.
- Click the  (**Fetch**) button under the iRule List field to retrieve the list of iRules already associated with the virtual server.
- (Optional) Modify or delete iRules in the **iRule List** using the  (**Modify**) button or the  (**Delete**) button.

14. In the **Modify Monitors** field, select the **YES** radio button.

\* Modify Monitors ☐ NO ☒ YES

\* Monitors  ?

\* Comments

+

\* Monitor List

|                          | Monitors | Comments |
|--------------------------|----------|----------|
| <input type="checkbox"/> | http     |          |

- Click the (**Fetch**) button at the right side of the **Monitors** field to retrieve available monitors for the selected F5 LTM device.
  - In the **Monitors** field, select a monitor from the drop-down list to associate it with virtual server.
  - In the **Comments** field, enter comments related to the monitor.
  - Click the (**Add**) button to associate the monitor with the virtual server.
  - Click the (**Fetch**) button at the right side of the **Monitor List** field to retrieve the list of monitors already associated with the virtual server.
  - (Optional) Modify or delete monitors in the **Monitor List** using the (**Modify**) button or the (**Delete**) button.
15. In the **ITSM Integration** field, select the **Yes** radio button. This creates a ServiceNow change request ticket and binds it to the work order to update the ServiceNow status.

\* ITSM Integration ☐ No ☒ Yes

\* Time Zone  ?

\* Planned Start Date

\* Planned End Date

\* Change Request ID

- Select the **Time Zone** of the F5 LTM device that you are configuring.
- Schedule the maintenance window time and date using the **Planned Start Date** and **Planned End Date** fields. The configuration changes will be implemented during this maintenance window.
- Click the **Create ServiceNow Request** button to create a new ServiceNow ticket and auto-populate the **Change Request ID** field.

AppViewX then creates the ServiceNow change request and populates the change request fields like **Configuration item**, **Planned start date**, and **Planned end date** from the selfservice form. The **Change plan** field is populated

with the proposed F5 LTM configuration changes, which can be reviewed at any time by the approver.

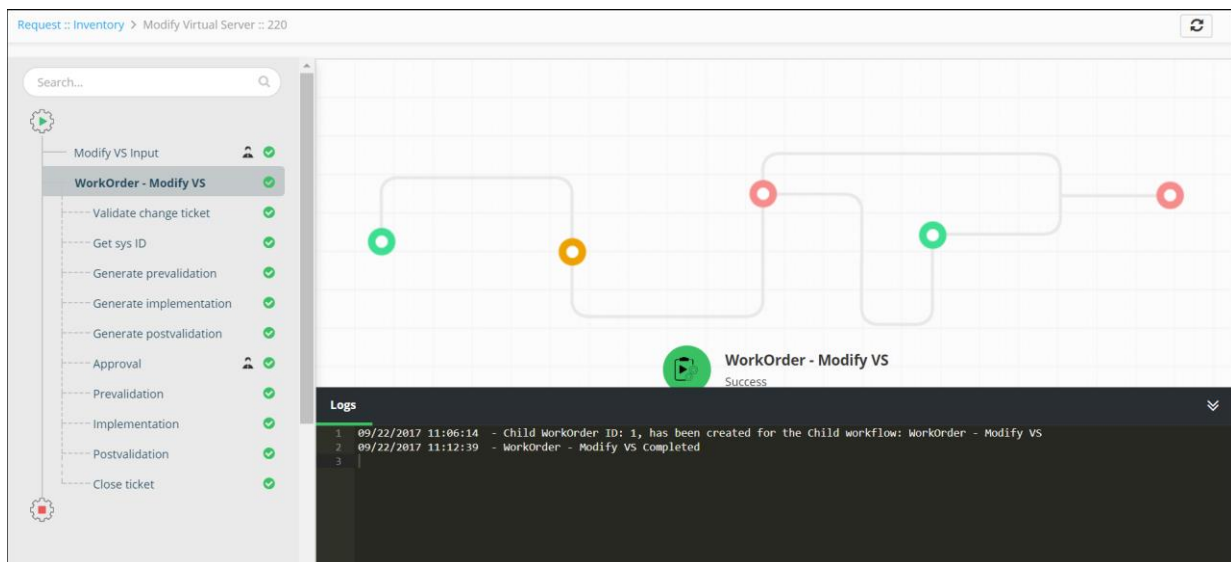
The screenshot shows the ServiceNow Self-Service interface for a change request. The left sidebar contains a 'Filter navigator' with options: Self-Service, APS Templates, Device, form1, Guided Setup, PagerDuty, Service Desk, Incident, Problem, and Change. The main form area displays details for change request CHG0035804. Fields include: Number (CHG0035804), Requested by (System Administrator), Category (Hardware), Configuration item, Priority (Low), Impact (1 - High), Description (Modify a virtual server), Approval (Requested), Type (Comprehensive), State (Open), Conflict status (Not Run), Conflict last run, Assignment group, Assigned to, and Work notes. A 'Planning' section at the bottom shows a 'Change plan' with a detailed command script for modifying F5 LTM configurations.

16. Click **Submit** to submit the self-service form and create the work order and associate it with the ServiceNow change request ID (RFC-ID) in the AppViewX system.

## Workorder Flow

Following are the workorder tasks of Modify a Virtual Server workflow.

**Note:** You can click each task to view its details. Wherever applicable, all logs related to the selected task are displayed in the Logs pane at the bottom of the screen.



1. **Validate change ticket** — to validate the ticket, you will have to log in to the ITSM tool- ServiceNow and manually approve the ticket.

The screenshot shows the ServiceNow interface for a workflow titled 'CHG0035804'. The left sidebar contains a 'Filter navigator' with options like Self-Service, APS Templates, Device, form1, Guided Setup, PagerDuty, Service Desk, Incident, Problem, and Change. The main form area has the following fields:

- Number:** CHG0035804
- Requested by:** System Administrator
- Category:** Hardware
- Configuration item:** (empty)
- Priority:** Low
- Impact:** 1 - High
- Description:** Modify a virtual server
- Approval:** Approved (highlighted with a red box)
- Type:** Comprehensive
- State:** Open
- Conflict status:** Not Run
- Conflict last run:** (empty)
- Assignment group:** (empty)
- Assigned to:** (empty)
- Work notes:** (empty)

The 'Planning' section at the bottom shows a 'Change plan' with the following commands:

```
tmsh,create cli transaction,modify ltm virtual vs_vip10test_80 profiles delete [ prof_http_vip10test_80 ] profiles add [ http ],modify ltm virtual vs_vip10test_80 persist none,modify ltm pool pool_vip10test_80 load-balancing-mode round-robin,modify ltm pool pool_vip10test_80 members delete [ 23.23.23.23:8080 ],modify ltm pool pool_vip10test_80 members add [ 48.56.36.3:80 ],modify ltm pool pool_vip10test_80 monitor mon_http_grt1_80,submit cli transaction,save sys config
```

2. **Get Sys ID** — the Sys-ID for the Modify a Virtual Server workflow is generated to track the ServiceNow request.
3. **Generate Prevalidation** — the pre-validation commands are generated in order to initiate the pre-validation process
4. **Generate Implementation** — the configuration commands are generated to implement the modification of a virtual server from a source device.
5. **Generate Postvalidation** — the post validation commands are generated in order to initiate the post-validation process
6. **Approval** — approval of a work order is based on the role assigned to the user (who has an access to approve and implement). After you submit the request form, the configuration changes are reviewed and approved at AppViewX. The configuration changes are implemented on the device only when the approval is received.
7. **Prevalidation** — check the following:
  - A list of virtual servers available in the selected device.
  - The performance metrics such as CPU and memory utilization on the destination device are validated.
8. **Implementation** — the configuration commands are implemented for the modification of a virtual server from a source device.
9. **Post-Validation** — checks if the virtual server you has been modified successfully.
10. **Close ticket** — after the virtual server modification is successful, the status of the ServiceNow ticket will be updated automatically.


## Request Inventory

To go to Request inventory, complete the following steps:


1. Click the  (**Menu**) button.
2. Navigate to **Workflow > Request**.

The *Request* screen opens with **My catalog** tab displayed by default.

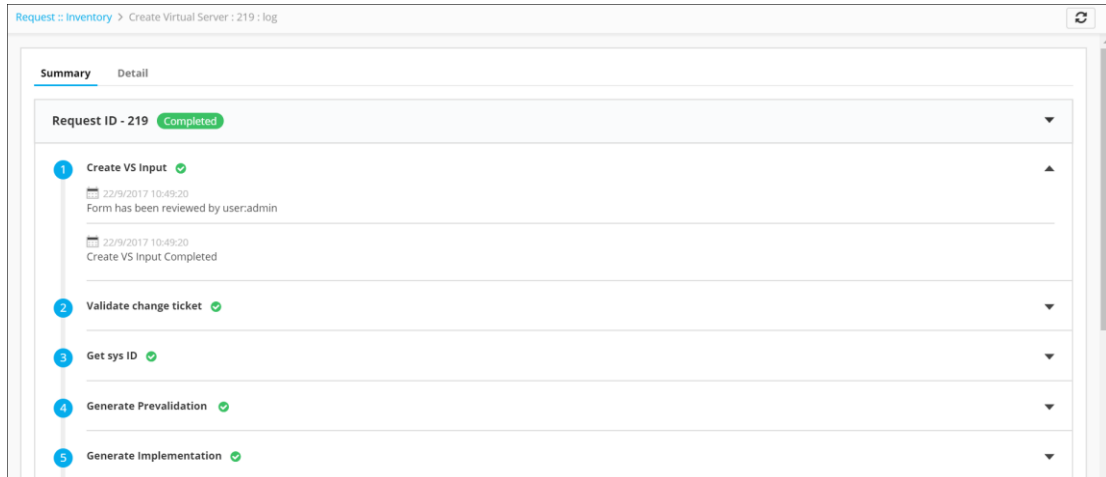
3. Click the **Request Inventory** tab.

This displays all workflows that have been triggered. On the **Request Inventory** screen, you can perform the following tasks: Search for a request using the **Search** field. Click the  (**Filter**) button to select the options you want to use to sort the requests.

| Request ID | Workflow              | Created by | Created time        | Last updated        | Status      | Activity log         |
|------------|-----------------------|------------|---------------------|---------------------|-------------|----------------------|
| 229        | Modify Virtual Server | admin      | 26/09/2017 03:00 PM | 26/09/2017 03:00 PM | In Progress | <a href="#">View</a> |
| 228        | ASM Policy Creation   | admin      | 26/09/2017 03:00 PM | 26/09/2017 03:00 PM | In Progress | <a href="#">View</a> |
| 227        | ASM Policy Creation   | admin      | 26/09/2017 02:58 PM | 26/09/2017 02:58 PM | In Progress | <a href="#">View</a> |
| 226        | ASM Policy Creation   | admin      | 26/09/2017 02:53 PM | 26/09/2017 02:53 PM | In Progress | <a href="#">View</a> |
| 225        | ASM Policy Creation   | admin      | 26/09/2017 02:47 PM | 26/09/2017 02:47 PM | In Progress | <a href="#">View</a> |
| 224        | ASM Policy Creation   | admin      | 26/09/2017 02:41 PM | 26/09/2017 02:41 PM | In Progress | <a href="#">View</a> |
| 223        | ZTP of BIG-IP VE      | admin      | 22/09/2017 11:56 AM | 22/09/2017 11:56 AM | Completed   | <a href="#">View</a> |
| 222        | ASM Policy Migration  | admin      | 22/09/2017 11:26 AM | 22/09/2017 11:26 AM | Completed   | <a href="#">View</a> |



4. Click the **Request ID** of the requested workflow to view the tasks or phases of a request in a tree-view.
5. You can also view the following details of the request that are created: by whom and when the Request was created, Last updated time, Status and the Activity log.
6. Click **View** in the **Activity log** column to display the request in a stage-view. In the **Summary** tab, click the  (**Expand**) icon to view the details of each task. Click the **Details** tab to view log messages and other particulars of a request.








## Schedule a Workflow

To schedule a workflow, complete the following steps:

1. Click the  (**Menu**) button.
2. Navigate to **Workflow > Request**.  
The *Request* screen opens with **My catalog** tab displayed by default.
3. Click the  (**Schedule workflow**) button on the respective workflow.
4. On the window that opens, select the frequency of the policy migration process: once, hourly, daily, weekly, monthly, or yearly. The remaining fields in the Scheduler region update depending on what you select here.
5. Click **Save**.

## Scheduled workflows

Displays all workflows that have been scheduled. To go to the scheduled workflow screen, complete the following steps:

1. Click the  (**Menu**) button.
2. Navigate to **Workflow > Request**.
3. The *Request* screen opens with **My catalog** tab displayed by default.
4. Click the **Scheduled workflows** tab.
5. On the Scheduled workflow screen that appears, you can perform the following tasks:
  - a. In the **View log** column, click **View** to display the details of a scheduled workflow.
  - b. Click the  (Pause) or  (Resume) button to temporarily stop or continue the execution of a workflow.

## Troubleshooting

### I cannot find the workflow in the Request Catalog

You must enable the workflow from the Configurator section. For more details on how to enable a workflow, refer to the Enable a Workflow section of this guide.