DigiCert Certificate Creation Workflow Guide

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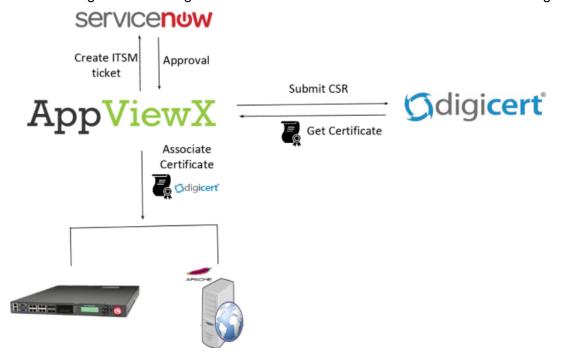
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Description

The DigiCert Certificate Creation workflow is used to enroll the DigiCert Certificate Authority (CA) with all the relevant Certificate Signing Request (CSR) details. On successful enrollment, the certificate will be retrieved from the corresponding CA and managed in the AppViewX Certificate inventory. Based on the user input a new certificate will be pushed manually or automatically to the F5 or Apache server.

The flow diagram for the DigiCert Certificate Creation workflow is shown in the image below:



Prerequisites

To run the DigiCert Certificate Creation workflow in your environment, ensure that the following prerequisites are met:

- Free AppViewX or AppViewX version 12.3.0 has been downloaded and installed.
- Each ADC device is a managed entity in AppViewX.
- The DigiCert account information has been configured in AppViewX.
- The Apache server you use is a managed entity in AppViewX
- An ITSM tool (ServiceNow) has been configured under the Change Management section of the AppViewX Settings module
- The DNS server you use must resolve the certificate domain name.
- Uncheck the "Approval required" parameter in the policy of the selected Certificate group to allow auto-implementation of the DigiCert Certificate Creation workflow.
- The standalone script push_file_to_apache.py must have been loaded in ~/aps/helper.

Compatible Software Versions

This workflow has been tested and validated on the following software versions:

- AppViewX Free AppViewX and AVX 12.3.0
- F5 (both LTM and GTM) version 11.x and 12.x
- ServiceNow Istanbul, Geneva, and Jakarta

Limitations

The DigiCert Certificate Creation workflow has the following limitations:

- The duplicate certificates are not handled by an Application connector.
- User must approve F5 Apache Certificate Push and Apache Certificate Push provisioning template.

REST API

Not applicable

Log In to AppViewX

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

https://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.

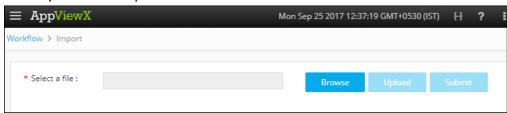
Note: It is recommended that you access AppViewX using Internet Explorer, Firefox, or Google Chrome.

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 are available.

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

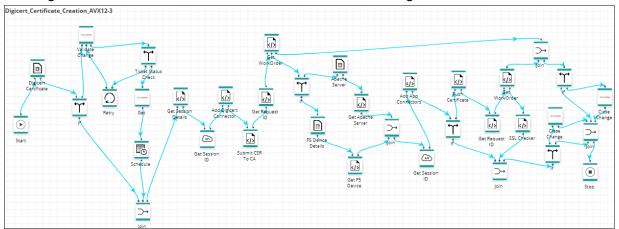
The Import screen opens.



- 4. Click the Browse button.
- 5. Select the zip file containing one or more workflows, then click **Upload**.
- 6. In the table at the bottom of the Import page, select the check box beside the unzipped workflow file.

7. Click **Submit** to deploy the workflow into your AppViewX environment.

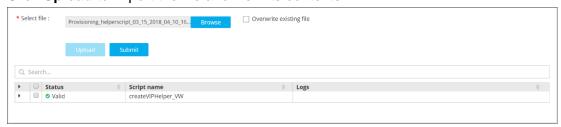
The DigiCert Certificate Creation workflow is shown in the image below:



Import Helper Scripts

Note: Free AppViewX comes preloaded with helper scripts. You will only need to use the following import instructions when newer versions of the helper scripts are available.

- 1. Click the (Menu) button.
- 2. Navigate to Workflow > Studio.
- 3. Click on the (Helper script) button in the Command bar. The Helper script library screen appears.
- 4. Click the (Import) button.
- 5. Click **Browse** and select the helper script zip file you want to import.
- 6. Click **Upload** to import the file and view its contents.



Note: Select the checkbox **Overwrite existing file**, only if the names of the new script file that you are trying to upload and the existing script file are the same.

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

Enable the DigiCert Certificate Creation Workflow

To enable the DigiCert Certificate Creation workflow, complete the following steps:

- 1. Click the (Menu) button.
- 2. Navigate to Workflow > Studio.

The Workflow screen opens.

- 3. Click the ☐ (Select) button on the DigiCert Certificate Creation workflow to enable. If the workflow is already selected, a ☑ (Deselect) button appears.
- 4. Click the (Enable) button in the Command bar.

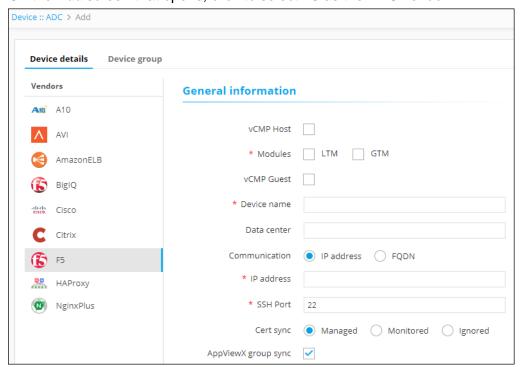
Note: You can also enable the DigiCert Certificate Creation workflow from the Card view by clicking the (**Disable**) button.



5. On the Confirmation screen that appears, click Yes.

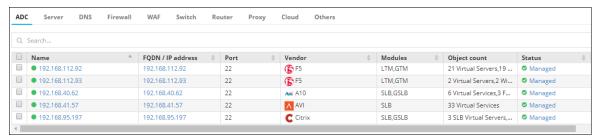
Add an ADC Device: F5

- 1. Click the (Menu) button.
- 2. Navigate to Inventory > Device.
- 3. The Device screen opens with the ADC tab displayed by default.
- 4. Click the + (Add) button in the Command bar.
- 5. On the Add screen that opens, click to select F5 as the ADC vendor.



6. Click the vCMP Host check box, if you want to add and manage the vCMP host devices

- 7. Select the module to be managed on the ADC device.
- 8. Click the **vCMP Guest** check box, if you want to add and manage the vCMP guest devices.
- 9. Create a **Device name** that is specific to AppViewX and that will identify the device in the AppViewX inventory.
- 10. Select the **IP address** or **FQDN** radio button based on how you want to establish the communication.
 - Enter the IP address or FQDN in their corresponding fields depending on what you selected.
- 11. Enter the SSH port number of the device.
- 12. (Optional) Specify a **Data center location** if you want to have the option later to filter devices based on their location.
- 13. 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**.
- 14. (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.
- 15. From the **Credential type** dropdown list, select how you want to provide the credentials:
 - a. Select **Manual entry** if you want to manually enter the credential details (user name and the associated password) every time the device is accessed.
 - b. Select Credential list if you want to retrieve the login details created in the credential template. For more details on how to add a credential to a device, refer to the Error! Reference source not found. section of this guide.
 - When you select the credential name from the dropdown list, the **user name** and **password** fields are auto-populated with the values provided in the credential template.
- 16. In the **Secondary/Alternate** device field, select how you want to fetch the details of a backup device when the primary device becomes unavailable due to failure or scheduled down time:
 - a. Select **Auto detect** if you want AppViewX to automatically detect and retrieve the configuration of the secondary/alternate device, then click **Save** to add the device to AppViewX.
 - b. Select Manual entry if you want to manually provide the details of the secondary device. At a minimum, fill in all fields that contain a red asterisk beside their names.
- 17. Click **Add** to add the secondary device to the list at the bottom of the screen.
 - **Note:** You can add more than one secondary device. The **Update** and **Delete** buttons are enabled only when you try to modify existing secondary devices.
- 18. Click **Save** to add the new ADC device. The device is then displayed in the table on the **ADC** tab.



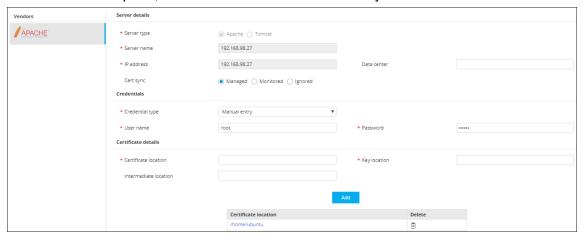
The device will display one of the following statuses:

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

Add a Server

To add a server, complete the following steps:

- 1. Click the (Menu) button on the left-hand side of the AppViewX screen
- Navigate to Inventory > Device.
 The Device screen opens with ADC tab displayed by default.
- 3. Click the Server tab.
- 4. Click the + (Add) button in the Command bar.
 The Add screen opens, with the APACHE tab selected by default.



- 5. Select the **Apache** or **Tomcat** radio button depending on what type of server you want to configure.
- 6. In the **Server name** field, enter a name for the server to help users identify it.
- 7. In the **IP address** field, enter the IP address for which the connection must be established.
- (Optional) In the **Data center** field, enter the data center name in which the device resides.

- 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. From the **Credential type** dropdown list, select how to want to provide the credentials:
 - Select Manual entry if you want to manually enter the credential details (user name and the associated password) every time the device is accessed.
 - Select Credential list if you want to retrieve the login details created in the
 credential template. For more details on how to add a credential to a device, refer
 to the Error! Reference source not found. section of this guide. After you select
 the credential name from the dropdown list, the user name and password fields
 are auto-populated with the values provided in the credential template.
- 11. Enter the location, where the **certificate**, **key**, and **intermediate** CA are available in the server, in their respective fields.
- 12. Click **Add**. The Certificate location details are then added to the table at the bottom of the screen. You can delete the location details by clicking the (**Delete**) button beside the certificate location name and to modify, select the certificate location name in the table at the bottom of the screen.
- 13. Click **Save**. A new server is added to the AppViewX inventory and appears on the *Server* tab.



The device will display one of the following statuses:

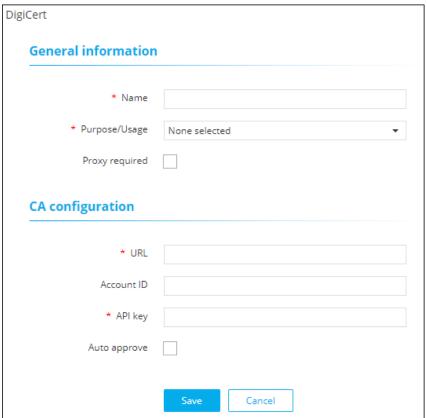
- In Progress Device configuration fetch is in progress.
- Managed Device configurations are fetched and parsed successfully. This is the status a successfully added ADC device should have.
- Unresolved Unable to communicate with device, due to invalid login credentials.
- **Failed** Device configuration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

Configure the Certificate Manager Accounts

To configure DigiCert certificate manager accounts, complete the following steps:

- 1. Click the (Menu) button.
- 2. Navigate to Inventory > Certificate.
 - The *Certificate* screen opens.
- 3. If the **Server** tab is not displayed, click to open it.
- 4. Click the (Settings) button in the Command bar.
- 5. The **Settings** screen opens, listing in the left-hand column each certificate authority (CA) available in AppViewX.

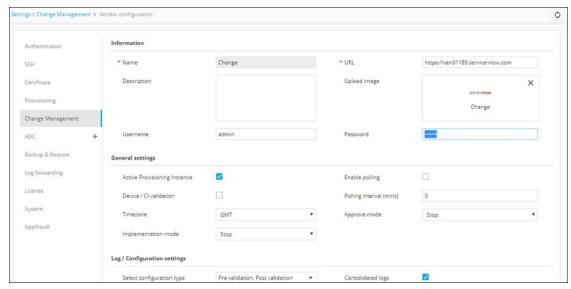
- 6. Click the **digicert** tab to configure the certificate manager account.
- 7. On the Certificate authority screen that appears, click the (Add) button
- 8. At a minimum, complete all fields designated with a red asterisk (*).



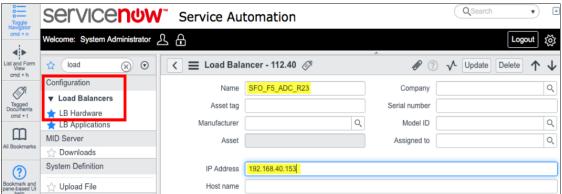
9. Click **Save**. The DigiCert certificate manager account you added will be displayed in the table.

Register an ITSM Device: ServiceNow

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



8. (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 shown below. The device name used in the ServiceNow inventory and AppViewX ADC device inventory should be the same.



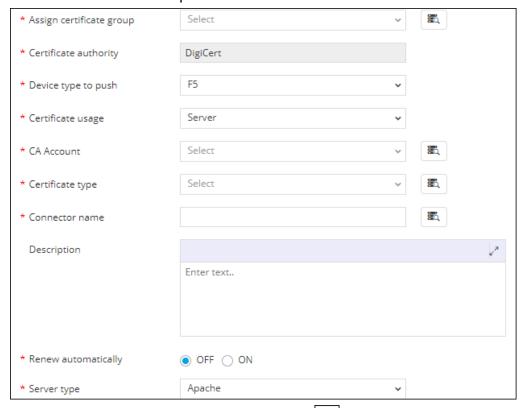
DigiCert Certificate Creation Workflow

To submit the DigiCert Certificate Creation workflow, complete the following steps:

- 1. Click the (Menu) button.
- 2. Navigate to Workflow > Request.
- 3. The *Request* screen opens with the **My catalog** tab displayed by default. This screen displays all enabled workflows assigned to a specific user role.
- 4. Click the Play button on the DigiCert Certificate Creation workflow to execute.

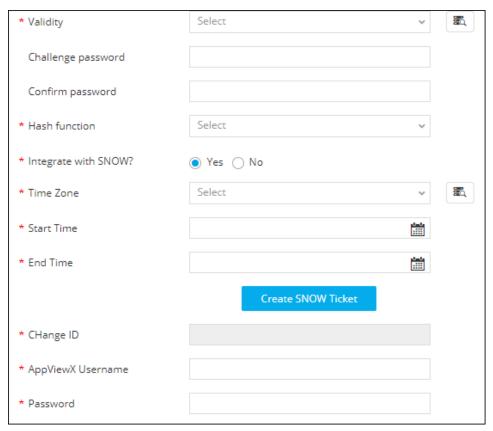


The FormBuilder screen opens.



- 5. In the **Assign certificate group** field, click the (Retrieve field values) button to fetch the list of available groups and select the required group to which the certificate will be assigned.
- 6. The Certificate authority is automatically displayed as DigiCert.
- 7. From the **Device type to push** dropdown list, select the device to which you want to push the certificate.
- 8. From the **Certificate usage** dropdown list, select the type of certificate you want to use for DigiCert creation.
- 9. In the **CA Account** field, click the (Retrieve field values) button to fetch the list of CA accounts that are configured under AppViewX and select the required account from where you want the certificate to be generated.
- 10. In the **Certificate type** field, click the (Retrieve field values) button to fetch the list of available certificates at AppViewX and select the required type of certificate which you want to be created.

- 11. In the **Connector name** field, click the (Retrieve field values) button to fetch the connector that is associated with the type of certificate you selected.
- 12. (Optional) Enter a description for the connector. This description shows up when you hover your cursor over the connector within the Certificate topology.
- 13. If you want certificates to be renewed automatically select the **ON** radio button and enter the number of days you want the certificate to be valid.
- 14. From the **Server type** dropdown list, select the type of server to which you want the certificate to be pushed.
- 15. From the **Key type** dropdown list, select either RSA or DSA depending on the type of security algorithm you want to use.
- 16. In the **Bit length** field, click the (Retrieve field values) button to fetch the list of dimensions corresponding to the selected key and choose the required length of the key you want to generate.
- 17. In the **Common name** field, enter the fully qualified domain name (FQDN) or common name that exactly matches your web browser.
- 18. Enter the name of the organization requesting the certificate.
- 19. The remaining fields are optional and can be used later to help distinguish between multiple policies within the system:
 - a. **Organizational unit** The division for the organization requesting the certificate.
 - b. **Organization address** The location for the organization requesting the certificate.
 - c. City The city in which the organization is located.
 - d. **State** The state in which the organization is located.
 - e. **Country** The country in which the organization is located.
 - f. **ZIP Code** The postal code of the organization.
- 20. Enter the email contact details for the person responsible for maintaining the certificate.
- 21. In the **Validity** field list, click the (Retrieve field values) button to fetch the list of duration period (in years) and select how long you want the certificate to be valid.



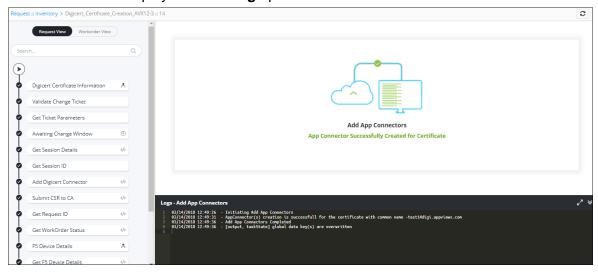
- 22. Enter the challenge password and confirm password in the corresponding fields using which you can access the key.
- 23. From the **Hash function** dropdown list, select either **SHA256** or **SHA160**, depending on which hash algorithm you want to use.
- 24. Depending on whether or not you want to integrate the ITSM tool ServiceNow, select the **Yes** or **No** radio button. To integrate the ITSM tool, enter the following details:
 - a. In the **Time Zone** dropdown list, click the (Retrieve field values) button to retrieve the time zone. Select the time zone for the F5 LTM device that you are configuring.
 - b. Schedule the service window time and date using the **Start Date** and **End Date** fields. Click the (**Calendar**) button to select the start and end date respectively. Configuration changes will be implemented during this service window.
- 25. Click the **Create SNOW Ticket** button to retrieve the ticket number. The ticket number automatically appears in the **Change ID** field.
- 26. Enter the AppViewX username and its associated password of the user who is trying to create the DigiCert Certificate.
- 27. Click Submit.

A new **Request ID** is created. To view all requests, refer to the <u>Request Inventory</u> section of this guide.

Work Order Flow

The following are the workorder tasks of DigiCert Certificate Creation 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, log in to the ITSM tool-ServiceNow and manually approve the ticket.
- Get Ticket Parameters The Sys-ID for the DigiCert certificate creation workflow is generated to track the ServiceNow request.
- 3. **Get Session Details** The session details and ID will be generated to issue the required API commands.
- 4. **Add Digicert Connector** The CA Connector is created for the certificate with a common name you mentioned in the form field.
- 5. **Submit CSR to CA** The CSR is created and submitted to the CA through the provisioning templates.
- 6. **Get Request ID** The APS request ID is retrieved to track the CSR that you submitted.
- 7. **Get WorkOrder Status** The workorder status regarding implementation of the provisioning templates (to generate a new certificate) will be displayed.
- 8. **F5 Device Details** Information such as the device name, SSL profile, certificate and its associated key file name, and whether the certificate is pushed manually or automatically to the f5 device are displayed.
- 9. **Get Apache Server Details** An Apache Payload Data is generated to get the complete Apache server details.
- 10. Apache Server Details Apache server information such as name, certificate and its associated key file name, FQDN, configuration file path and file name, and whether the certificate is pushed manually or automatically to the server.
- 11. **Add App Connectors** The Application Connector is created for the certificate with a common name you mentioned in the form field.
- 12. **Push Certificate to Device** A provisioning template is created to push the certificate to the corresponding device you selected.

- 13. **Get Request ID** The request is created and submitted to push the certificates through the provisioning templates.
- 14. **Get WorkOrder Status** The workorder status regarding implementation of the provisioning templates (to push the certificate) will be displayed.
- 15. **SSL Checker** The SSL checker is to validate the certificate that is created.

Rollback a Workflow

A rollback action can be performed only on the completed workflows. To trigger a rollback action, complete the following steps:

- 1. Click the (Menu) button.
- Navigate to Workflow > Request.
 The Request screen opens with My catalog tab displayed by default.
- 3. Click the Request Inventory tab.

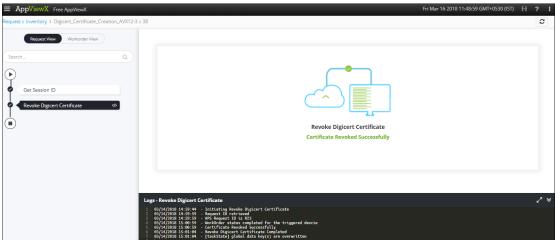
This displays all workflows that have been triggered. On the **Request Inventory** screen, you can search for a request created for DigiCert Certificate Creation workflow using the **Search** field and/or click the (Filter) button.

- 4. Right-click the request and select Rollback.
- 5. On the Confirmation screen that appears, click Yes.
- Select the Request or Workorder radio button based on how you want to set the rollback type.
- 7. Click **Rollback** to trigger the action.

WorkOrder Flow

The following are the workorder tasks of DigiCert Certificate Creation workflow, when you perform a rollback action:

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.



Get Session ID – The session details and ID will be generated to issue the required API commands.

2. Revoke Digicert Certificate – The enrolled digicert certificate will be revoked.

Request Inventory

To go to the Request inventory, complete the following steps:

- 8. Click the (Menu) button.
- Navigate to Workflow > Request.
 The Request screen opens with My catalog tab displayed by default.
- 10. Click the **Request Inventory** tab.

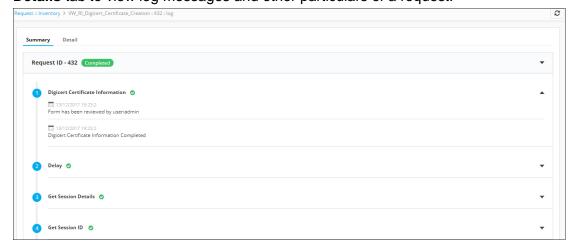
This displays all workflows that have been triggered. On the **Request Inventory** screen, you can search for a request using the **Search** field and/or click the $\boxed{\hspace{-0.1cm}}$ (**Filter**) button to select the options you want to use to sort the requests.



11. Click the **Request ID** created for DigiCert Certificate Creation to view its details.

The screen opens with the **Request View** tab selected by default.

- a. After the workflow execution is complete, the **Request View** tab displays the tasks or phases of a request in a tree view. For more details, refer to the <u>Work Order Flow</u> section of this guide.
- b. Click the **Workorder View** tab to view the work order details such as work order ID, date and time when the work order was created and updated, status, RFC ID, and RFC status.
- 12. In the *Request Inventory* screen, you can also view the following details of the request: request creator, request time, last updated time, status, and activity log.
- 13. 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 the My catalog tab displayed by default.

- 3. Click the (Schedule workflow) button on the DigiCert Certificate Creation workflow.
- 4. On the ASM Policy Migration 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.
- 5. Click Save.

View Scheduled Workflows

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 the 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:
 - o In the View log column, click View to display the details of a scheduled workflow.
 - Click the (Pause) or (Resume) button to temporarily stop or continue the execution of a workflow.

Add a Credential

To add a credential to a device, complete the following steps:

- 1. Click the (Menu) button.
- 2. Navigate to **Inventory > Device**.

The Device screen opens with the ADC tab selected by default.

- 3. Click the corresponding tab.
- 4. Click the check box beside the device name, then click the (Credential) button in the Command bar.
- 5. On the *Add credential* screen that appears, enter the name of the credential you want to add to the device.
- 6. Enter the **username** and **password** associated with the credential.
- 7. (Optional) If a secondary credential password was created by a vendor in order to communicate with the device, thus allowing different levels of control over the credential, enter this password in the **Secondary password** field.
- 8. Click Save.

The credential is then added to the table at the bottom of the screen. You can delete a credential or modify its name, user name, or password by selecting the check box

beside the credential name in the table at the bottom of the screen and then clicking either the **Modify credential** or **Delete** button in the Command bar.

Troubleshooting

I cannot find the DigiCert Certificate Creation 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 <u>Enable the DigiCert Certificate Creation Workflow</u> section of this guide.