

AWX-Management Setup

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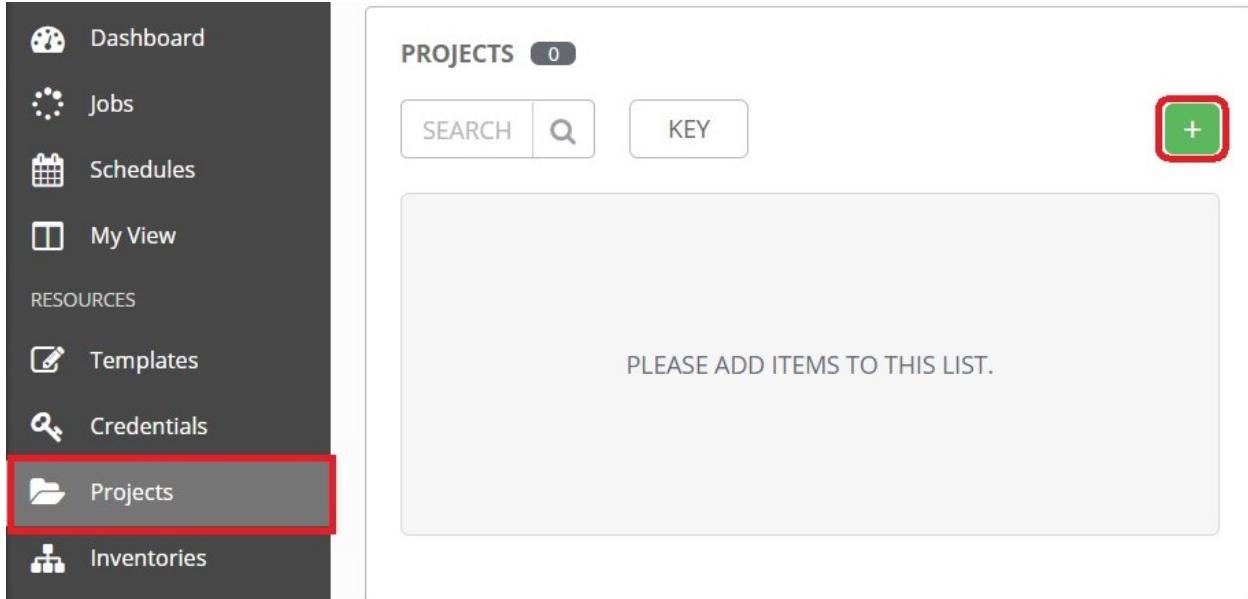
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1. Git Project Setup

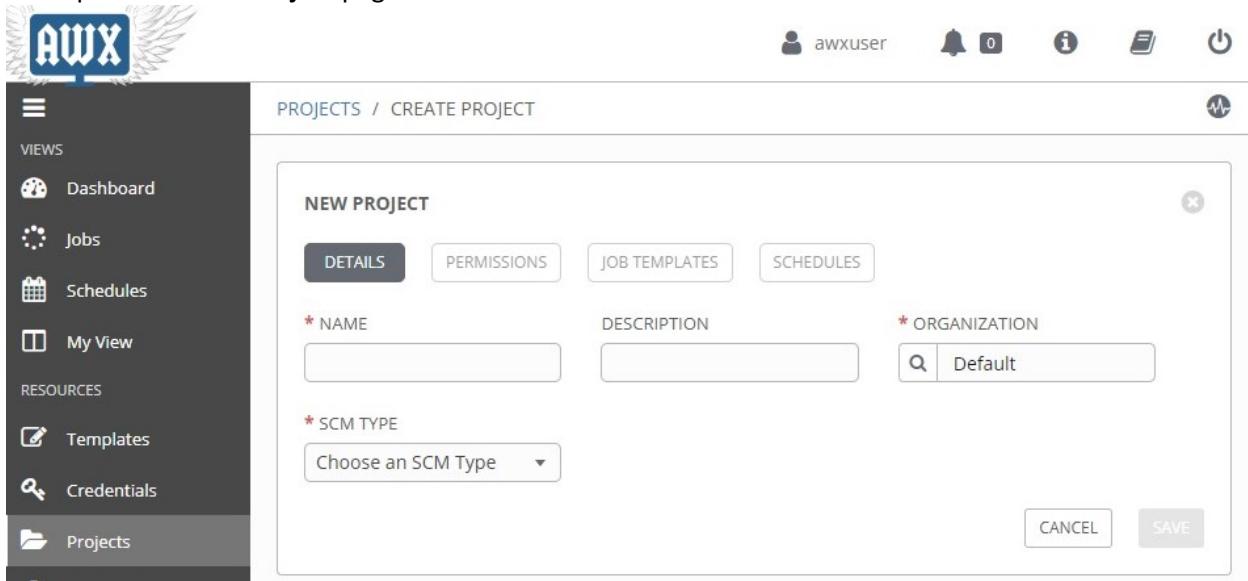
1.1 AWX-Management Project

To add the AWX-Management playbooks to a project, first click on the **Projects** menu on the left, then click the **+** button:



The screenshot shows the AWX interface. On the left, there is a dark sidebar with various menu items: Dashboard, Jobs, Schedules, My View, RESOURCES (Templates, Credentials), Projects (which is highlighted with a red box), and Inventories. The main area is titled "PROJECTS 0". It contains a search bar, a key button, and a large green "+" button with a white plus sign. Below these is a message: "PLEASE ADD ITEMS TO THIS LIST."

This opens the **New Project** page:



The screenshot shows the "New Project" page. The sidebar on the left is identical to the previous one. The main area is titled "PROJECTS / CREATE PROJECT". It features a "NEW PROJECT" dialog box. The "DETAILS" tab is active. Other tabs include "PERMISSIONS", "JOB TEMPLATES", and "SCHEDULES". The "NAME" field is empty. The "DESCRIPTION" and "ORGANIZATION" fields also have empty input fields. A dropdown menu for "SCM TYPE" is open, showing the option "Choose an SCM Type". At the bottom of the dialog are "CANCEL" and "SAVE" buttons.

Enter the following into the required fields:

NAME: Name the project "*AWX-Management*"

SCM TYPE: Select "*Git*"

SCM URL: Type in "<https://github.com/steppb/AWX-Management>".

Organization: A project must have at least one organization. Here, "*Default*" is selected.

The screenshot shows the 'New Project' dialog box. At the top, there are tabs for DETAILS (selected), PERMISSIONS, JOB TEMPLATES, and SCHEDULES. Below the tabs, there are fields for NAME, DESCRIPTION, and ORGANIZATION. The NAME field contains 'AWX-Management', the ORGANIZATION field contains 'Default', and both are highlighted with a red border. The SCM TYPE field contains 'Git'. In the SOURCE DETAILS section, the SCM URL field contains 'https://github.com/steppb/AWX-Management'. There are also fields for SCM BRANCH/TAG/COMMIT and SCM REFSPEC, both of which are empty. Under SCM CREDENTIAL, there is a search bar with a magnifying glass icon. In the SCM UPDATE OPTIONS section, there are four checkboxes: CLEAN, DELETE ON UPDATE, UPDATE REVISION ON LAUNCH, and ALLOW BRANCH OVERRIDE. The 'SAVE' button is highlighted with a green background and white text at the bottom right.

When you are finished, click **Save**.

At this point **AWX-Management** will be added to the list of projects and it will begin syncing with the Github repo. An animated green circle next to the project indicates the project is currently syncing. A static green circle indicates the project has successfully finished syncing and the playbooks are ready for use:

The screenshot shows the 'PROJECTS' list view. At the top, there is a header with 'PROJECTS' and a count of '1'. Below the header are buttons for 'SEARCH' (with a magnifying glass icon) and 'KEY', and a green '+' button. The main list area shows one project: 'AWX-Management' (GIT). To the left of the project name is a green circle with a purple outline, indicating the project is currently syncing. To the right of the project name are three icons: a refresh symbol, a copy symbol, and a trash can symbol. Below the list are filter options: 'Compact' (selected), 'Expanded', and 'Name (Ascending)'. At the bottom of the list area, there is a message 'ITEMS 1 - 1'.

A red circle would indicate a failure during syncing. You can click on the circle to bring up a status window showing the details of the syncing process.

1.2 Ruckus-ICX-AWX-Ansible Project

To add the "Ruckus-ICX-AWX-Ansible" playbooks to a project, first click the **Projects** menu on the left, then click the **+** button:

The screenshot shows the AWX web interface. On the left, there is a dark sidebar with various navigation options: Dashboard, Jobs, Schedules, My View, Templates, Credentials, and Projects. The 'Projects' option is highlighted with a red box. The main content area is titled 'PROJECTS' and shows a single project named 'AWX-Management'. There is a search bar, a key icon, and a green '+' button. Below the projects list, there are filter options: Compact (selected), Expanded, and Name (Ascending). At the bottom right of the main area, it says 'ITEMS 1 - 1'.

This opens the **New Project** page. Enter the following into the required fields:

Name: Enter the name of the project. Here, it is named "*Ruckus-ICX-AWX-Ansible*".

SCM Type: Select "Git".

SCM URL: Enter "<https://github.com/steppb/Ruckus-ICX-AWX-Ansible>".

Organization: A project must have at least one organization. Here, "Default" is selected.

The screenshot shows the 'New Project' dialog box. It has tabs for DETAILS, PERMISSIONS, JOB TEMPLATES, and SCHEDULES. The DETAILS tab is selected. Required fields are marked with asterisks: * NAME (Ruckus-ICX-AWX-Ansible), * DESCRIPTION (empty), * ORGANIZATION (Default), * SCM TYPE (Git), * SCM URL (https://github.com/steppb/Ruckus-ICX-AWX-Ansible), SCM BRANCH/TAG/COMMIT (empty), and SCM REFSPEC (empty). There is also a SCM CREDENTIAL field (empty) and a section for SCM UPDATE OPTIONS with checkboxes for CLEAN, DELETE ON UPDATE, UPDATE REVISION ON LAUNCH, and ALLOW BRANCH OVERRIDE. At the bottom right are 'CANCEL' and 'SAVE' buttons.

When you are finished, click **Save**.

1.3 AWX-ZTP Project

To setup the AWX-ZTP project, first click **Projects** from the left navigation bar, then click the **+** button. Complete the following fields on the **New Project** page:

NAME: Name the project "AWX-ZTP"

ORGANIZATION: Ensure an organization is selected.

SCM TYPE: Select **Git**.

SCM URL: Enter "<https://github.com/steppb/AWX-ZTP>".

The screenshot shows the 'New Project' dialog box with the following details:

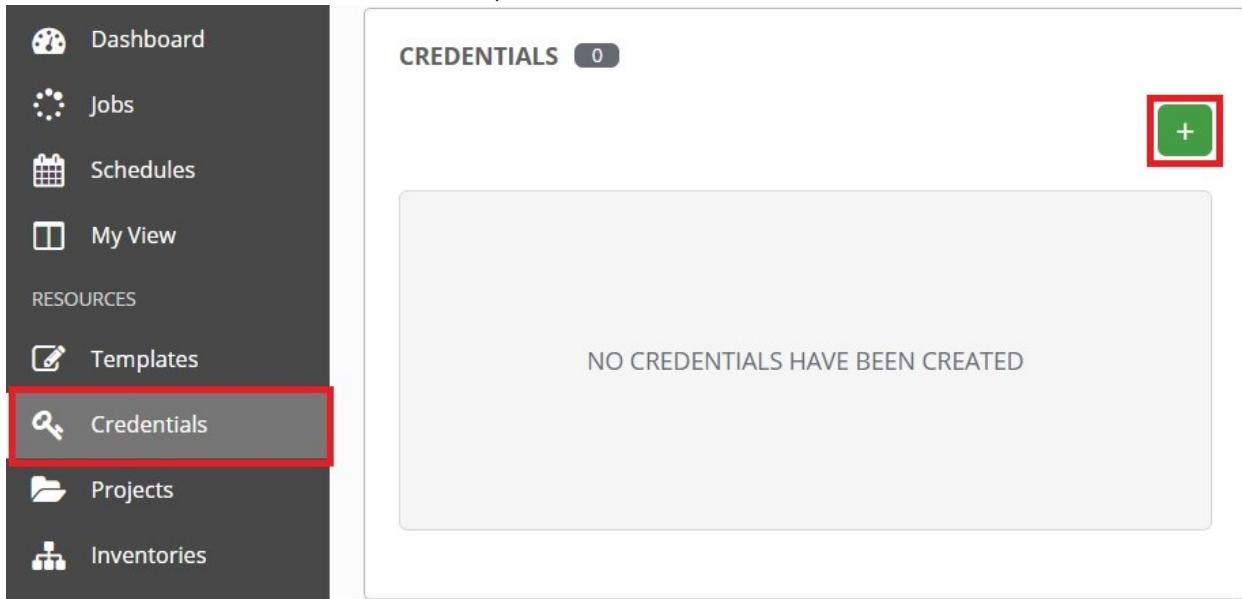
- DETAILS** tab is selected.
- * NAME**: AWX-ZTP
- DESCRIPTION**: (empty)
- * ORGANIZATION**: Default
- * SCM TYPE**: Git
- SOURCE DETAILS**
 - * SCM URL**: <https://github.com/steppb/AWX-ZTP>
 - SCM BRANCH/TAG/COMMIT**: (empty)
 - SCM REFSPEC**: (empty)
- SCM CREDENTIAL**: (empty search bar)
- SCM UPDATE OPTIONS**
 - CLEAN
 - DELETE ON UPDATE
 - UPDATE REVISION ON LAUNCH
 - ALLOW BRANCH OVERRIDE
- CANCEL** and **SAVE** buttons at the bottom right.

Click **Save**, when finished.

2. Credential Setup

2.1 Switch Login Credentials

Click on the **Credentials** menu on the left, then click the + button:



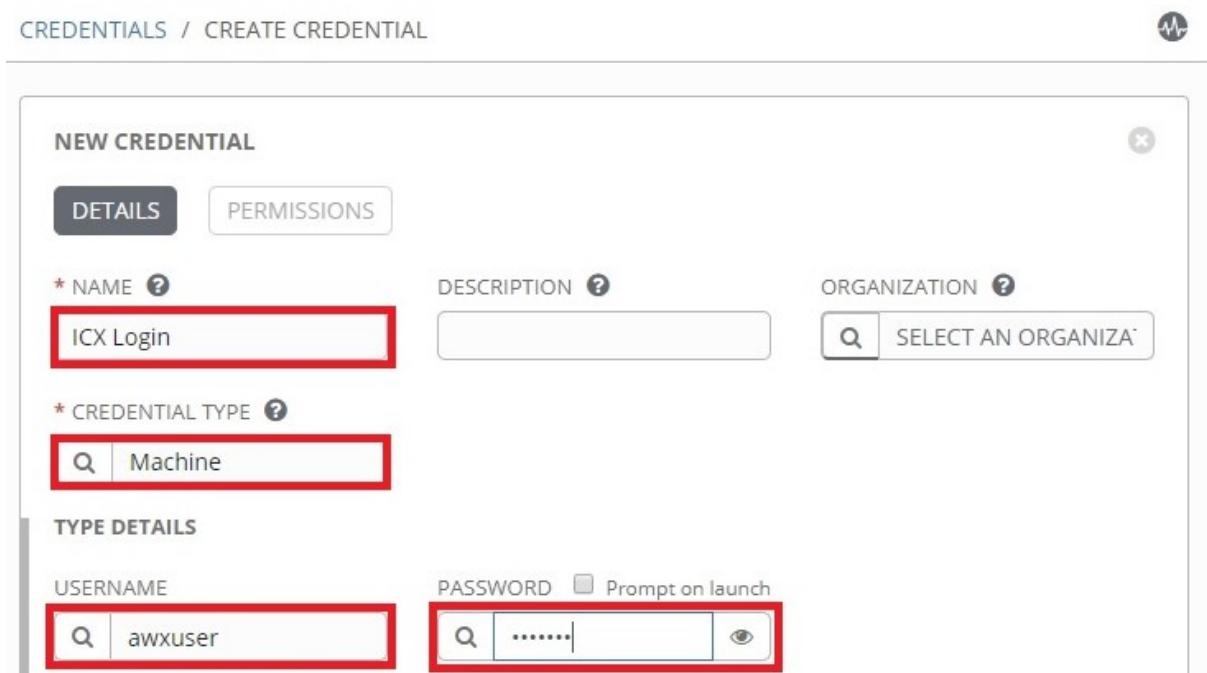
The screenshot shows a sidebar with various menu items: Dashboard, Jobs, Schedules, My View, Resources, Templates, **Credentials**, Projects, and Inventories. The **Credentials** item is highlighted with a red box. To its right is a main content area titled "CREDENTIALS 0". It displays a message "NO CREDENTIALS HAVE BEEN CREATED". In the top right corner of this area, there is a green button with a white plus sign (+) inside a red-bordered box.

The **New Credential** page will display. Complete the following fields:

NAME: Create a name for the credential set. Here it is named "*ICX Login*"

CREDENTIAL TYPE: Select **Machine**.

USERNAME & PASSWORD: Enter the username and password used to login to the switch.



The screenshot shows the "NEW CREDENTIAL" form. At the top, there are two tabs: **DETAILS** (which is selected and highlighted with a red box) and **PERMISSIONS**. Below these are three input fields: *** NAME** (containing "ICX Login", highlighted with a red box), **DESCRIPTION** (empty), and **ORGANIZATION** (with a search icon and placeholder "SELECT AN ORGANIZA...", highlighted with a red box). The next section is *** CREDENTIAL TYPE** (containing "Machine", highlighted with a red box). The final section is **TYPE DETAILS**, which includes **USERNAME** (containing "awxuser", highlighted with a red box) and **PASSWORD** (containing ".....", highlighted with a red box). There is also a checkbox for "Prompt on launch".

Scroll to the bottom of the **New Credential** page. Here you can set the enable username and/or password:

The screenshot shows the 'New Credential' page for a 'Machine' type. The 'TYPE DETAILS' section includes fields for 'USERNAME' (awxuser) and 'PASSWORD' (redacted). Below these are sections for 'SSH PRIVATE KEY' and 'SIGNED SSH CERTIFICATE', each with a placeholder for a private file. At the bottom, there are sections for 'PRIVATE KEY PASSPHRASE' (redacted), 'PRIVILEGE ESCALATION METHOD' (set to 'enable'), 'PRIVILEGE ESCALATION USERNAME' (redacted), and 'PASSWORD' (redacted). The 'SAVE' button is highlighted with a red box.

Machine

TYPE DETAILS

USERNAME: awxuser

PASSWORD: Prompt on launch

SSH PRIVATE KEY HINT: Drag and drop private file on the field below.

SIGNED SSH CERTIFICATE HINT: Drag and drop private file on the field below.

PRIVATE KEY PASSPHRASE Prompt on launch

PRIVILEGE ESCALATION METHOD: **enable**

PRIVILEGE ESCALATION USERNAME

PASSWORD Prompt on launch

CANCEL **SAVE**

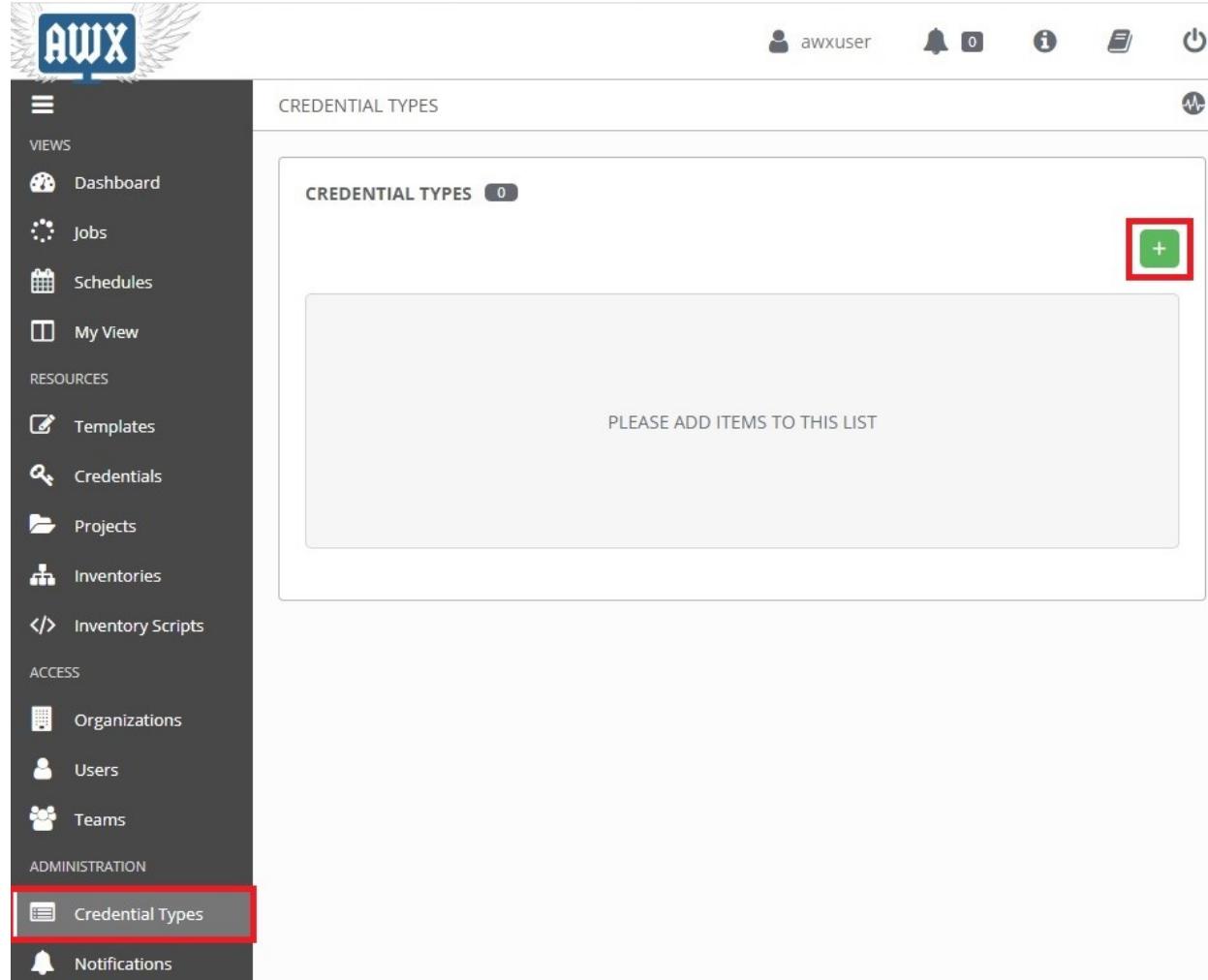
When finished, click **Save**.

2.2 AWX Login Credentials

The "AWX-Management" playbooks contain variables that need to be defined with credentials for logging into the AWX REST API framework. In order to accomplish this, a custom credential type will need to be created.

2.2.1 Create Custom Credential Type

First, click the **Credential Types** menu on the left, then click the + button:



The screenshot shows the AWX web interface. On the left, there is a dark sidebar with various navigation options: Views (Dashboard, Jobs, Schedules, My View), Resources (Templates, Credentials, Projects, Inventories, Inventory Scripts), Access (Organizations, Users, Teams), and Administration (Credential Types, Notifications). The 'Credential Types' option in the Administration section is highlighted with a red box. The main content area is titled 'CREDENTIAL TYPES 0' and contains a message 'PLEASE ADD ITEMS TO THIS LIST'. In the top right corner of this area, there is a green square button with a white plus sign (+), which is also highlighted with a red box.

This opens the **New Credential Type** page.

Enter the following into the required fields:

NAME: Enter the name of the credential type. Here, it is named "AWX REST API"

DESCRIPTION: (Optional) Enter a description.

INPUT CONFIGURATION: Ensure **YAML** is selected. Then copy and paste the following into the box:

```
fields:
  - id: username
    type: string
    label: AWX Username
  - id: password
    type: string
    label: AWX Password
    secret: true
required:
  - username
  - password
```

INJECTOR CONFIGURATION: Ensure **YAML** is selected. Then copy and paste the following into the box.

```
extra_vars:
  awxlogin_user: '{{username}}'
  awxlogin_pass: '{{password}}'
```

The screenshot shows the 'New Credential Type' dialog box. At the top, there are fields for 'NAME' (containing 'AWX REST API') and 'DESCRIPTION' (containing 'Credentials for AWX-Management Playbooks'). Below these are two configuration sections: 'INPUT CONFIGURATION' and 'INJECTOR CONFIGURATION'. Both sections have 'YAML' tabs selected. The 'INPUT CONFIGURATION' tab contains the YAML code for defining fields, and the 'INJECTOR CONFIGURATION' tab contains the YAML code for defining extra variables. Both sections have red boxes around their respective code blocks. At the bottom right of the dialog are 'CANCEL' and 'SAVE' buttons.

NEW CREDENTIAL TYPE

* NAME

AWX REST API

DESCRIPTION

Credentials for AWX-Management Playbooks

INPUT CONFIGURATION ? **YAML** JSON

```
1 fields:
2   - id: username
3     type: string
4     label: AWX Username
5   - id: password
6     type: string
```

INJECTOR CONFIGURATION ? **YAML** JSON

```
1 extra_vars:
2   awxlogin_user: '{{username}}'
3   awxlogin_pass: '{{password}}'
```

CANCEL **SAVE**

When you are finished, click **Save**.

Now that the custom credential type has been set up, a credential set for the AWX-Management playbooks can be created.

2.2.2 Add AWX Login Credentials

Click on the **Credentials** menu on the left, then click the **+** button:

The screenshot shows the AWX web interface. On the left is a dark sidebar with a navigation menu. The 'Credentials' option is highlighted with a red box. At the top right, there is a user profile icon for 'awxuser' and several status indicators (bell, 0 notifications, info, etc.). The main content area is titled 'CREDENTIALS' and shows a table of existing credentials. A green '+' button is located in the top right corner of this table area.

This opens the **New Credential** page.

Enter the following into the required fields:

NAME: Name of the credential set. Here it is named "AWX Login"

CREDENTIAL TYPE: Select the custom credential type. Here it is named "AWX REST API"

AWX USERNAME & AWX PASSWORD: Type in the credentials used to login to AWX.

The screenshot shows the 'NEW CREDENTIAL' dialog box. It has tabs for 'DETAILS' (selected) and 'PERMISSIONS'. The 'DETAILS' tab contains fields for 'NAME' (containing 'AWX Login'), 'DESCRIPTION' (empty), and 'ORGANIZATION' (button to 'SELECT AN ORGANIZAT'). Below this is a section for 'CREDENTIAL TYPE' with a dropdown containing 'AWX REST API'. Under 'TYPE DETAILS', there are fields for 'AWX USERNAME' (containing 'awxuser') and 'AWX PASSWORD' (containing '.....'). At the bottom are 'CANCEL' and 'SAVE' buttons.

When you are finished, click **Save**.

2.3 AWX SSH Login Credentials

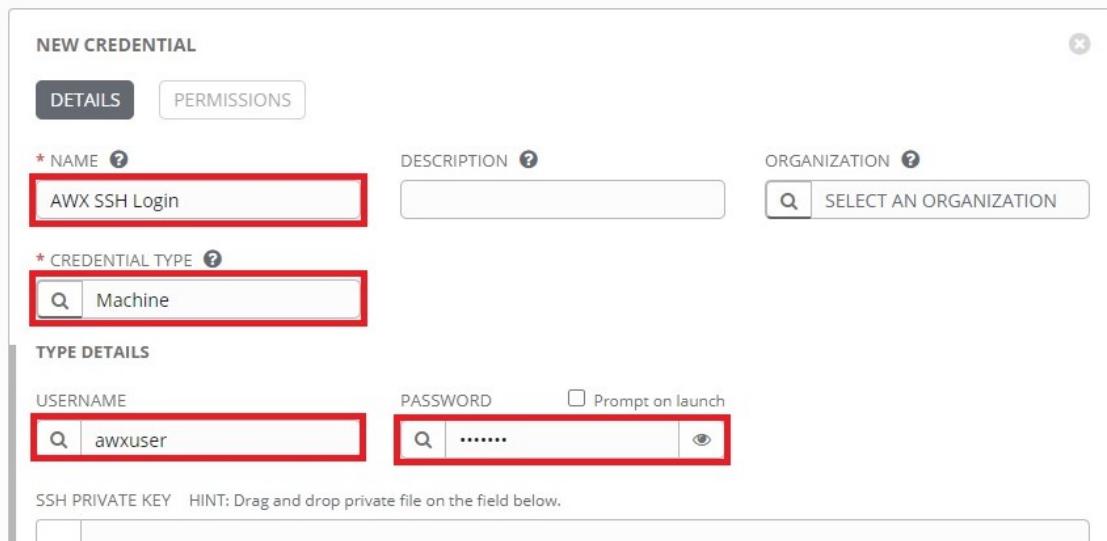
Some of the playbooks in the 'AWX-Management' and 'AWX-ZTP' projects require SSH credentials to connect to the Docker container host. To run these playbooks a new credential set will need to be added with the SSH credentials for the AWX server.

To add the localhost SSH credentials, click **Credentials** from the left navigation bar, then click the + button. Complete the following fields on the **New Credential** page:

NAME: Type a name for the credential set.

CREDENTIAL TYPE: Select **Machine**.

USERNAME & PASSWORD: Type in the username and password used to SSH into the AWX server.

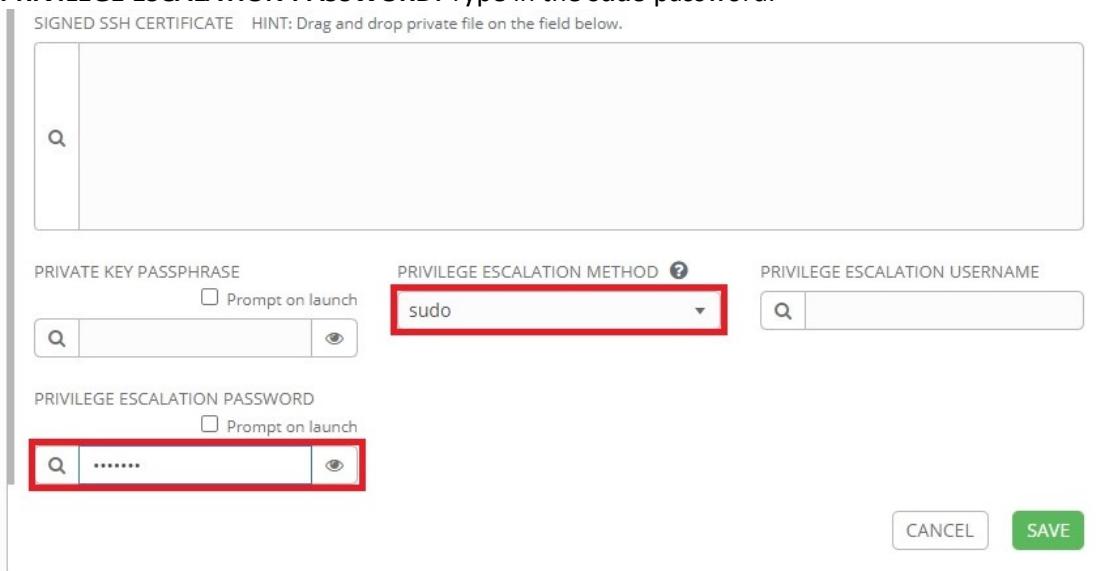


The screenshot shows the 'New Credential' dialog box with the 'DETAILS' tab selected. The 'NAME' field contains 'AWX SSH Login'. The 'CREDENTIAL TYPE' dropdown is set to 'Machine'. Under 'TYPE DETAILS', the 'USERNAME' field is 'awxuser' and the 'PASSWORD' field is redacted. There is also a checkbox for 'Prompt on launch' which is unchecked.

Scroll to the bottom and complete the following fields:

PRIVILEGE ESCALATION METHOD: Select **sudo**.

PRIVILEGE ESCALATION PASSWORD: Type in the **sudo** password.



The screenshot shows the 'PERMISSIONS' tab of the 'New Credential' dialog box. It includes fields for 'PRIVATE KEY PASSPHRASE' (redacted), 'PRIVILEGE ESCALATION METHOD' (set to 'sudo'), and 'PRIVILEGE ESCALATION PASSWORD' (redacted). There are also checkboxes for 'Prompt on launch' next to each password field. At the bottom right are 'CANCEL' and 'SAVE' buttons.

Click **Save** when finished.

3. Inventory Setup

3.1 Switch Inventory

An inventory for network devices will need to be setup before AWX can manage them.

Click the **Inventories** button from the left navigation bar. Click the **+** button, then click **Inventory** from the drop-down menu:

The screenshot shows the AWX interface. On the left, there's a sidebar with various navigation items like Dashboard, Jobs, Schedules, My View, Templates, Credentials, Projects, Inventories (which is highlighted with a red box), and Inventory Scripts. The main area has tabs for INVENTORIES and HOSTS. A large green '+' button is located in the top right corner of the INVENTORIES section. Below it, a dropdown menu shows 'Inventory' and 'Smart Inventory' with 'Inventory' highlighted with a red box. The central area says 'PLEASE ADD ITEMS TO THIS LIST' and shows 'ITEMS 1 - 1' at the bottom right.

This opens the **New Inventory** page.

Complete the following fields:

NAME: Enter a name for the Inventory. Here the inventory is named "*Ruckus Switches*".

Organization: Select the organization the inventory belongs to. Here "*Default*" is selected.

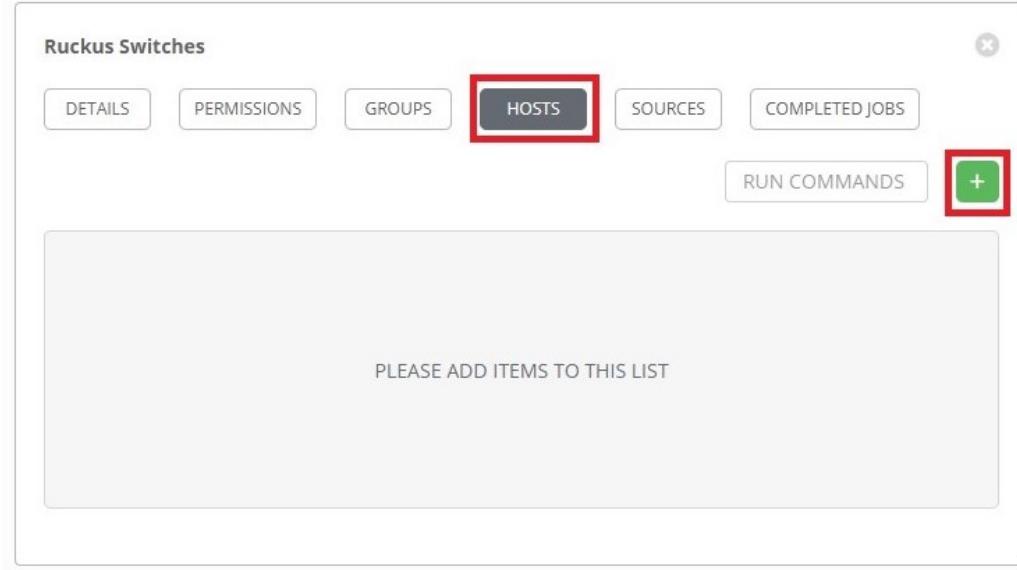
The screenshot shows the 'New Inventory' dialog box. The 'DETAILS' tab is active. The 'NAME' field contains 'Ruckus Switches' and is highlighted with a red box. The 'ORGANIZATION' dropdown shows 'Default' and is also highlighted with a red box. Other tabs include PERMISSIONS, GROUPS, HOSTS, SOURCES, and COMPLETED JOBS. There are sections for INSIGHTS CREDENTIAL and INSTANCE GROUPS, and a VARIABLES section with YAML and JSON tabs. At the bottom are CANCEL and SAVE buttons.

When you are finished, click the **Save** button.

3.2 Switch Host

Switches can now be added to the newly created inventory.

Click on the **Hosts** tab, then click the **+** button:



The **Create Host** page will display. Complete the following fields:

HOST NAME: Enter the hostname of the switch.

VARIABLES: Type "`ansible_host:`" followed by the IP address of the switch.

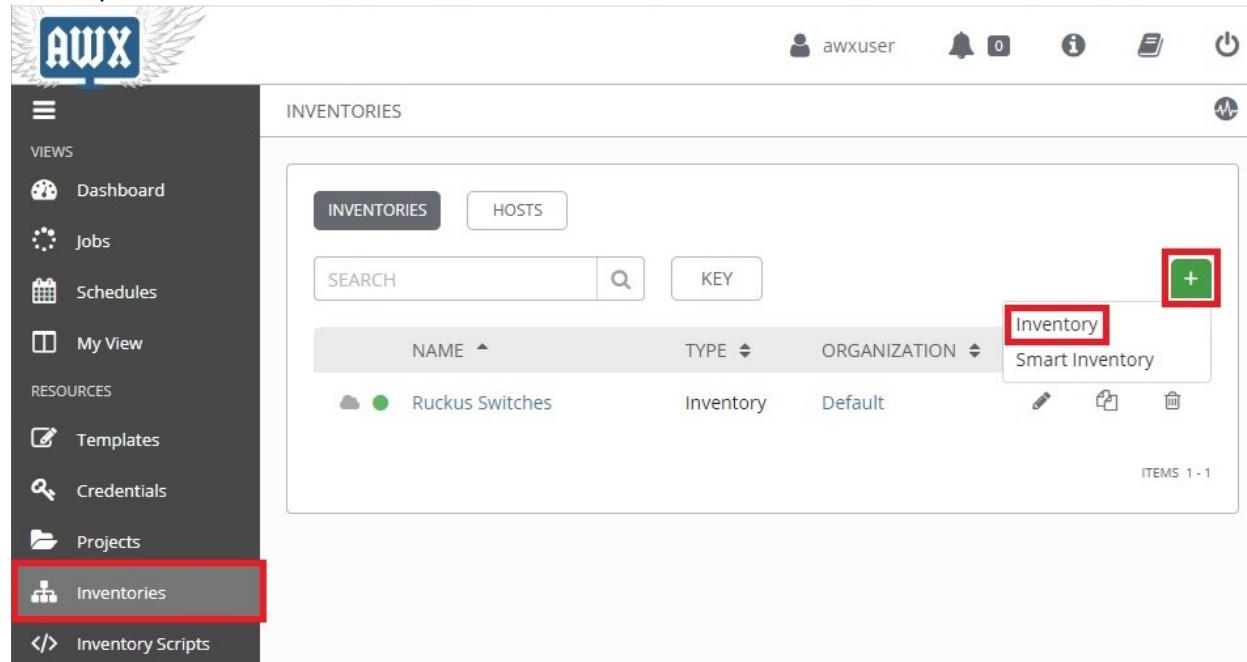
The screenshot shows the "CREATE HOST" dialog box. At the top, there is a "CREATE HOST" button with a checkmark icon and a "DETAILS" tab which is currently selected and highlighted with a dark grey background. Below the tabs are fields for "HOST NAME" (containing "NLAB-U01-AS-01") and "DESCRIPTION" (empty). Under the "VARIABLES" section, there are tabs for "YAML" (selected) and "JSON". The YAML section contains the variable "ansible_host: 192.168.20.72". At the bottom right of the dialog box is a "SAVE" button, which is highlighted with a red box.

When finished, click **Save**.

3.3 AWX Server Inventory

An inventory for the AWX Server itself will need to be setup in order to execute the AWX-Management templates against itself.

Click the **Inventories** button from the left navigation bar. Click the **+** button, then click **Inventory** from the drop-down menu:



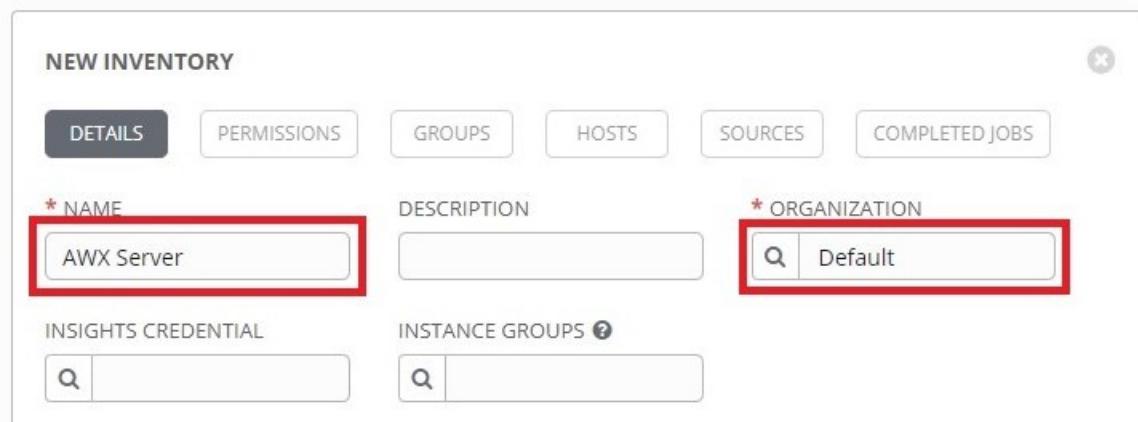
The screenshot shows the AWX interface. The left sidebar has a red box around the 'Inventories' button. The main area is titled 'INVENTORIES' and shows a table with one item: 'Ruckus Switches' (Inventory, Default). A green '+' button is highlighted with a red box, and a dropdown menu shows 'Inventory' selected.

This opens the **New Inventory** page.

Complete the following fields:

NAME: Enter a name for the Inventory. Here the inventory is named "AWX Server".

Organization: Select the organization the inventory belongs to. Here "Default" is selected.



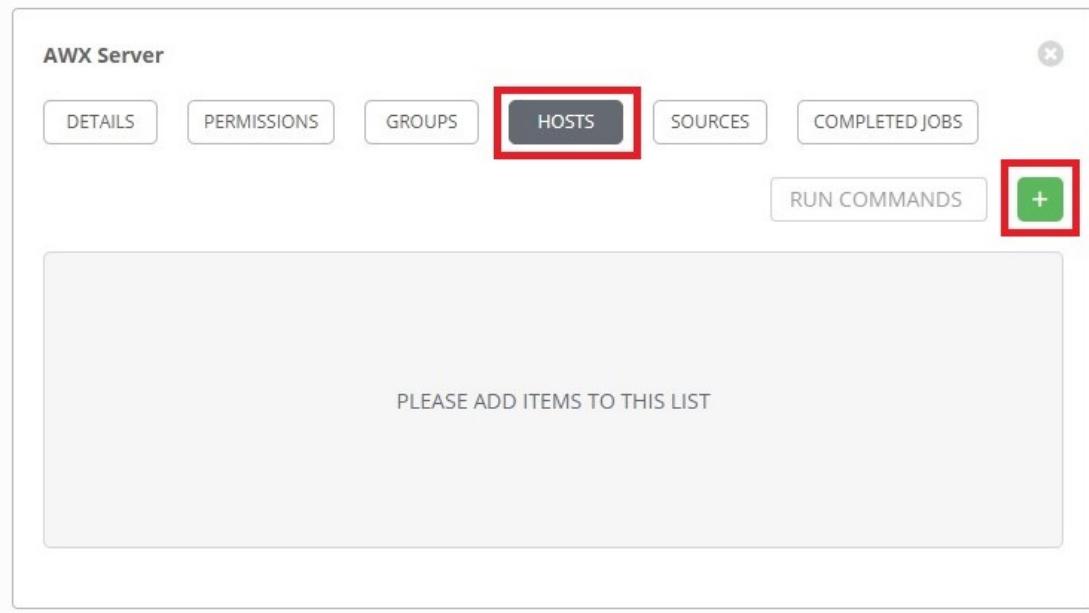
The screenshot shows the 'New Inventory' form. The 'NAME' field contains 'AWX Server' and the 'ORGANIZATION' field contains 'Default', both highlighted with red boxes.

NEW INVENTORY	
DETAILS	PERMISSIONS
GROUPS	HOSTS
SOURCES	COMPLETED JOBS
* NAME AWX Server	DESCRIPTION
* ORGANIZATION Default	
INSIGHTS CREDENTIAL	INSTANCE GROUPS

When you are finished, click the **Save** button.

3.4 AWX Server Host

Click the **Hosts** tab, then click the **+** button:



This opens the **Create Host** page.

Complete the following fields:

HOST NAME: Enter the hostname of the AWX server. Here it is called "awxserver".

VARIABLES: Type in "`ansible_host:`" followed by the IP address of the AWX server.

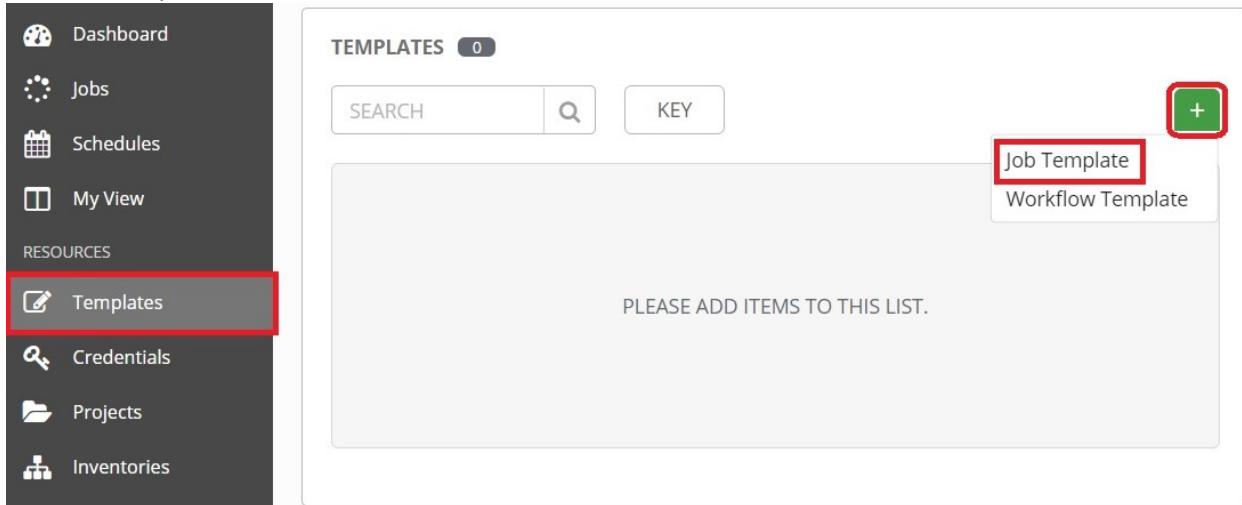
The screenshot shows the 'CREATE HOST' page. The 'HOST NAME' field contains 'awxserver' (highlighted with a red box). The 'VARIABLES' section shows a single entry: '1 ansible_host: 192.168.1.196' (also highlighted with a red box). At the bottom, there are 'CANCEL' and 'SAVE' buttons.

Click **Save** when done, and the AWX server will be added to the Inventory's list of hosts.

4. Setup AWX-Management Template

4.1 AWX-Template-Management Template

Click the **Templates** button from the left navigation bar. Click the **+** button, then click **Job Template** from the drop-down menu:



The screenshot shows the AWX interface. On the left, there's a dark sidebar with various navigation options: Dashboard, Jobs, Schedules, My View, Resources, Templates (which is currently selected and highlighted with a red box), Credentials, Projects, and Inventories. The main area is titled 'TEMPLATES 0'. It has search and key filters. A large central box says 'PLEASE ADD ITEMS TO THIS LIST.' At the top right, there's a green '+' button. A dropdown menu is open next to it, showing 'Job Template' and 'Workflow Template', with 'Job Template' also highlighted with a red box.

This opens the **New Job Template** page.

Complete the following fields:

NAME: Enter a name for the template. Here it is named "AWX-Template-Management"

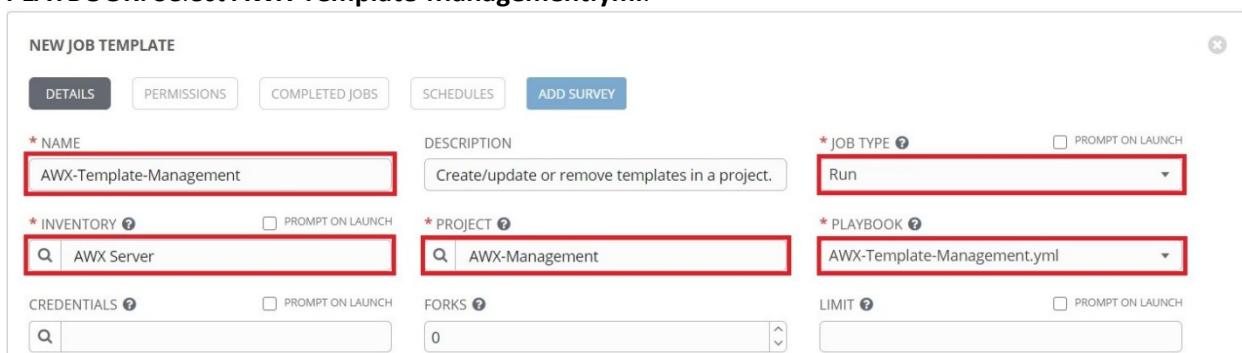
DESCRIPTION: (Optional) Enter a description of the template.

JOB TYPE: Select **Run**.

INVENTORY: Select the inventory that contains the AWX server. Here it is "AWX Server"

PROJECT: Select **AWX-Management**.

PLAYBOOK: Select **AWX-Template-Management.yml**.

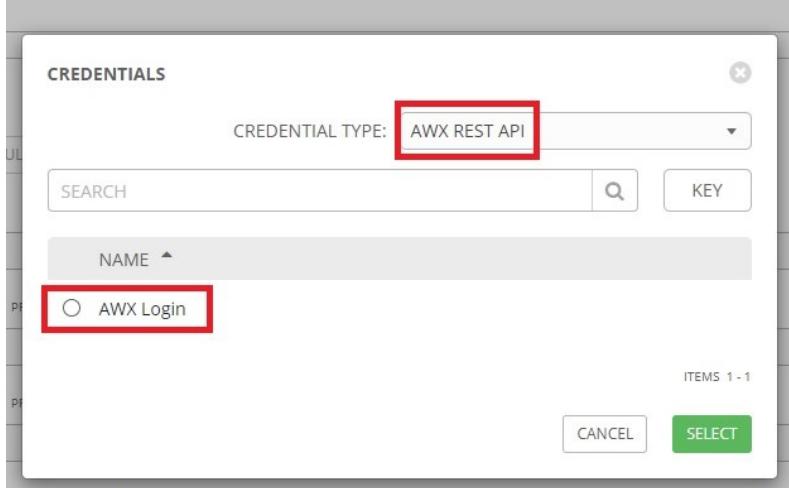


The screenshot shows the 'New Job Template' configuration form. It has tabs for DETAILS, PERMISSIONS, COMPLETED JOBS, SCHEDULES, and ADD SURVEY. The DETAILS tab is active. Required fields are marked with asterisks (*). The form includes:

- NAME:** AWX-Template-Management (highlighted with a red box)
- DESCRIPTION:** Create/update or remove templates in a project.
- JOB TYPE:** Run (highlighted with a red box)
- INVENTORY:** AWX Server (highlighted with a red box)
- PROJECT:** AWX-Management (highlighted with a red box)
- PLAYBOOK:** AWX-Template-Management.yml (highlighted with a red box)
- CREDENTIALS:** (empty field)
- FORKS:** 0
- LIMIT:** (empty field)

There are also 'PROMPT ON LAUNCH' checkboxes for some fields.

CREDENTIALS: Click the  button to open the credentials window. Select the custom credential type in the **Credential Type** drop-down menu, then select the AWX Login credentials:



Click **Select** when done, then click **Save** to save the template.

4.2 Generate AWX-Template-Management Survey Prompt

Click the **Templates** button from the left navigation bar. Then click the launch (🚀) button next to **AWX-Template-Management**:

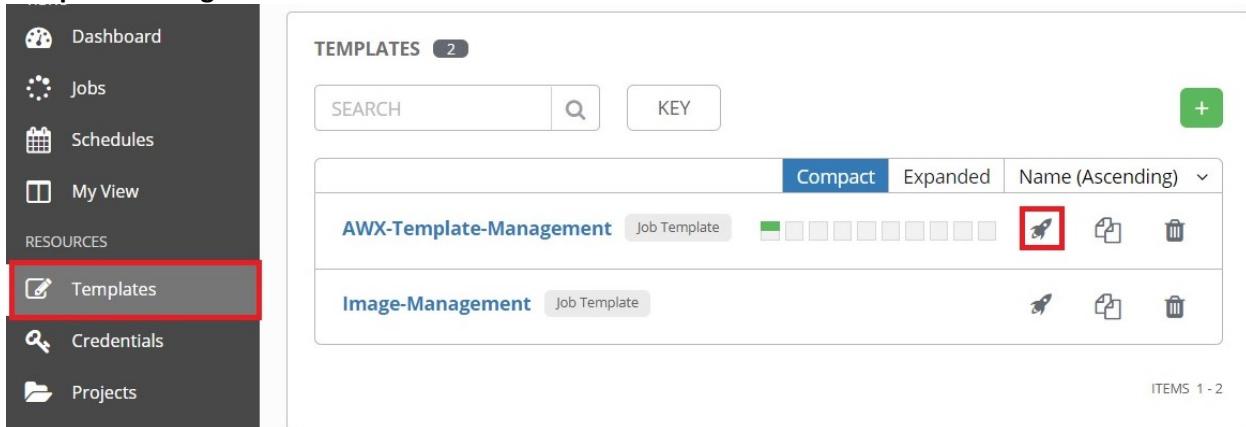
The screenshot shows the AWX interface with the left navigation bar highlighted. The 'Templates' option is selected and has a red box around it. The main content area shows a 'TEMPLATES' section with one item named 'AWX-Template-Management'. Below the list are buttons for 'Compact', 'Expanded', and 'Name (Ascending)'. To the right of the list are three icons: a red rocket ship (launch), a thumbs up, and a trash can. At the bottom right, it says 'ITEMS 1 - 1'.

Upon completion, the "AWX-Template-Management" template automatically generates a survey prompt for itself and it will also create the "Image-Management" template before ending the play.

5. Generating New Templates

5.1 Ruckus-ICX-AWX-Ansible Templates

Click the **Templates** button from the left navigation bar. Then click the launch (🚀) button next to **AWX-Template-Management**:

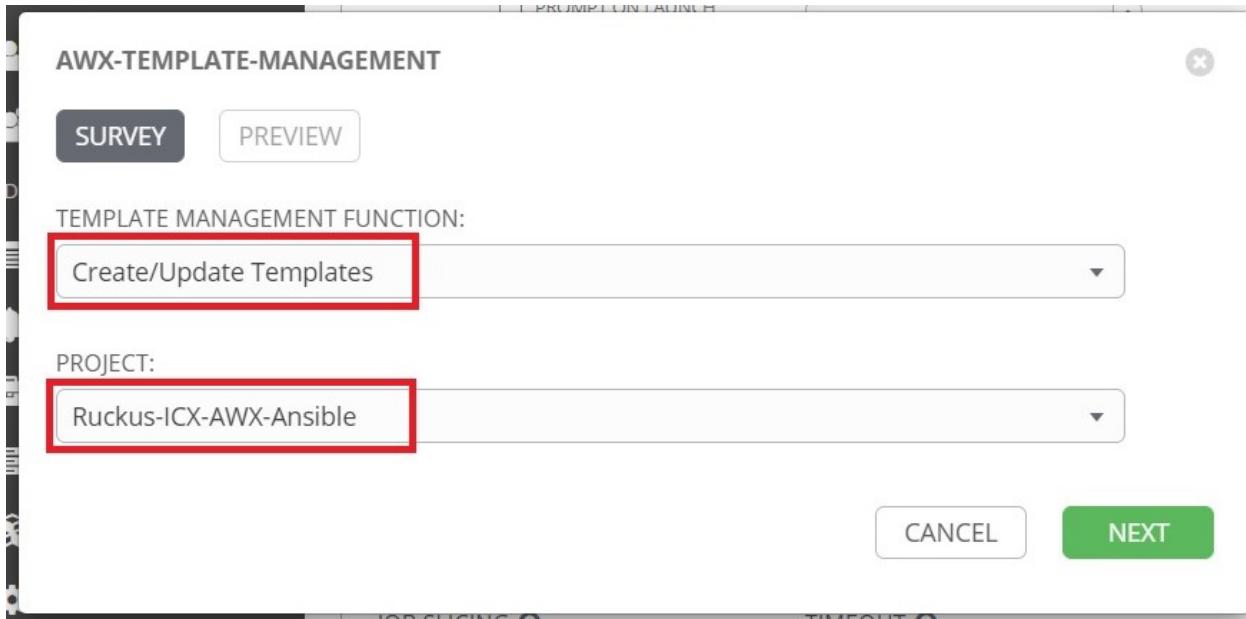


The screenshot shows the AWX interface. On the left, there's a dark sidebar with icons for Dashboard, Jobs, Schedules, My View, Resources, Templates (which is highlighted with a red box), Credentials, and Projects. The main area is titled 'TEMPLATES' and shows two items: 'AWX-Template-Management' and 'Image-Management'. Each item has a small preview image, a 'Job Template' label, and three action buttons: a green rocket (highlighted with a red box), a blue square, and a black trash can.

Complete the following fields in the Survey Prompt window that appears:

TEMPLATE MANAGEMENT FUNCTION: Select **Create/Update Templates**.

PROJECT: Select **Ruckus-ICX-AWX-Ansible**.



The screenshot shows a 'Survey Prompt' window. At the top, there are 'SURVEY' and 'PREVIEW' tabs, with 'SURVEY' being active. Below that, there are two dropdown menus: 'TEMPLATE MANAGEMENT FUNCTION' set to 'Create/Update Templates' and 'PROJECT' set to 'Ruckus-ICX-AWX-Ansible'. Both dropdowns are highlighted with red boxes. At the bottom right are 'CANCEL' and 'NEXT' buttons.

Click **Next** when finished, then click **Launch** on the Preview tab to run the template.

5.2 View Templates

To view the new templates, first click the **Projects** button from the left navigation bar, then click **Ruckus-ICX-AWX-Ansible**:

The screenshot shows the AWX interface with a sidebar on the left containing navigation links: Dashboard, Jobs, Schedules, My View, Resources, Templates, Credentials, Projects (which is highlighted with a red box), Inventories, and Inventory Scripts. The main area is titled 'PROJECTS' and shows three projects: AWX-Management, AWX-ZTP, and Ruckus-ICX-AWX-Ansible. The Ruckus-ICX-AWX-Ansible project is also highlighted with a red box. There are buttons for SEARCH, KEY, and a green '+' button. Below the projects, there are filter options: Compact, Expanded, and Name (Ascending). At the bottom right, it says 'ITEMS 1 - 3'.

Click the **Job Templates** tab:

The screenshot shows the 'Ruckus-ICX-AWX-Ansible' project details page. At the top, there are tabs: DETAILS (selected), PERMISSIONS, NOTIFICATIONS, JOB TEMPLATES (highlighted with a red box), and SCHEDULES. Below the tabs, there are fields for NAME (Ruckus-ICX-AWX-Ansible), DESCRIPTION, ORGANIZATION (Default), SCM TYPE (Git), and SOURCE DETAILS (SCM URL: https://github.com/steppb/Ruckus-ICX-AWX-Ansible). The 'JOB TEMPLATES' tab is currently active, showing the job templates for this project.

The new templates should now be visible in this tab:

The screenshot shows the AWX web interface. The left sidebar has a dark theme with various navigation options: Views (Dashboard, Jobs, Schedules, My View), Resources (Templates, Credentials, Projects, Inventories, Inventory Scripts), Access (Organizations, Users, Teams), Administration (Credential Types, Notifications, Management Jobs, Instance Groups, Applications, Settings). The 'Projects' option is currently selected. The main content area shows the 'PROJECTS / Ruckus-ICX-AWX-Ansible / JOB TEMPLATES' page. The title is 'Ruckus-ICX-AWX-Ansible'. Below it are tabs: DETAILS, PERMISSIONS, NOTIFICATIONS, JOB TEMPLATES (which is selected and highlighted in dark blue), and SCHEDULES. There are also SEARCH and KEY input fields. A green '+' button is located in the top right corner of the list area. The table lists ten job templates, each with a 'Job Template' badge and three icons: a rocket (Run), a clipboard (Edit), and a trash can (Delete). The templates are: L2-MSTP-Config, L2-MSTP-Instance, L2-MSTP-Interface, L2-MSTP-VLAN, L2-VLAN-Config, L2-VLAN-Default, L2-VLAN-DefaultDisablePorts, L3-IPv4-DefaultRoute, L3-IPv4-Interface, L3-IPv4-MCastPIMFilter, and L3-IPv4-OSPFGlobal.

Job Template	Action	Action	Action	
L2-MSTP-Config	Job Template			
L2-MSTP-Instance	Job Template			
L2-MSTP-Interface	Job Template			
L2-MSTP-VLAN	Job Template			
L2-VLAN-Config	Job Template			
L2-VLAN-Default	Job Template			
L2-VLAN-DefaultDisablePorts	Job Template			
L3-IPv4-DefaultRoute	Job Template			
L3-IPv4-Interface	Job Template			
L3-IPv4-MCastPIMFilter	Job Template			
L3-IPv4-OSPFGlobal	Job Template			

6. Updating Playbooks and Templates

Git projects by default do not update local playbooks when changes occur upstream. The following section covers manual and automated methods of updating the templates and playbooks in a project.

6.1 Manual update of project playbooks

Click the **Projects** button from the left navigation window, then click the refresh (⟳) button for the **Git** projects to sync playbooks with the upstream repository:

The screenshot shows the AWX interface. On the left, a dark sidebar lists navigation options: Dashboard, Jobs, Schedules, My View, Resources, Templates, Credentials, Projects (which is highlighted with a red box), Inventories, and Inventory Scripts. The main content area is titled 'PROJECTS 3'. It features a search bar with 'SEARCH' and a magnifying glass icon, and a 'KEY' button. Below these are three project entries, each with a green circular icon and a name followed by a 'GIT' badge. To the right of each project are three icons: a red square with a white circular arrow (refresh), a blue square with a white plus sign (clone), and a black square with a white trash can (delete). At the bottom right of the main area, it says 'ITEMS 1 - 3'.

Project	Type	Actions
AWX-Management	GIT	⟳, ↗, ⚡
AWX-ZTP	GIT	⟳, ↗, ⚡
Ruckus-ICX-AWX-Anisible	GIT	⟳, ↗, ⚡

Project templates can be updated by rerunning the "AWX-Template-Management" template from the instructions in the "*Generating New Templates*" section above.

6.2 Automated update of project playbooks

The following will run through a schedule-based method to update both the playbooks and templates.

Click the **Projects** button from the left navigation menu. Then click the "*Ruckus-ICX-AWX-Ansible*" project:

Dashboard
Jobs
Schedules
My View
RESOURCES
Templates
Credentials
Projects
Inventories
</> Inventory Scripts

PROJECTS 3

SEARCH KEY +

Compact Expanded Name (Ascending) ▾

● AWX-Management GIT	↻ ↻ 🗑
● AWX-ZTP GIT	↻ ↻ 🗑
● Ruckus-ICX-AWX-Ansible GIT	↻ ↻ 🗑

ITEMS 1 - 3

Click the **Schedules** tab, then click the + button:

Ruckus-ICX-AWX-Ansible

DETAILS PERMISSIONS NOTIFICATIONS JOB TEMPLATES SCHEDULES

+ PLEASE ADD ITEMS TO THIS LIST

This will open the **Create Schedule** page. Complete the following fields:

NAME: Name of the schedule.

START DATE: First day the schedule takes effect.

START TIME: Time of first run (24-Hour Clock format).

LOCAL TIME ZONE: Time zone local to AWX Server.

REPEAT FREQUENCY: How often the sync will occur.

The following is an example of a sync that will occur daily at 11:00PM ET starting 6/19/2020:

The screenshot shows the 'Create Schedule' page with the following configuration:

- NAME:** Ruckus-ICX-AWX-Ansible Sync
- START DATE:** 6/19/2020
- START TIME (HH24:MM:SS):** 23:00:00
- LOCAL TIME ZONE:** America/New_York
- REPEAT FREQUENCY:** Day
- FREQUENCY DETAILS:** Every 1 Days, End Never
- SCHEDULE DESCRIPTION:** every day
- OCCURRENCES (Limited to first 10):** 06-19-2020 23:00:00, 06-20-2020 23:00:00, 06-21-2020 23:00:00, 06-22-2020 23:00:00, 06-23-2020 23:00:00, 06-24-2020 23:00:00, 06-25-2020 23:00:00, 06-26-2020 23:00:00, 06-27-2020 23:00:00, 06-28-2020 23:00:00
- Buttons:** CANCEL (gray), SAVE (green)

When finished, click **Save**.

If desired, automating the update of other **Git** projects can be set up using the instruction above.

6.3 Automated update of project templates

Note: The "*AWX-Template-Management*" will automatically pull playbook updates from the Git server before updating the AWX templates.

Click the **Templates** button from the left navigation bar, then click "*AWX-Template-Management*":

The screenshot shows the AWX interface. On the left, there's a dark sidebar with various buttons: Dashboard, Jobs, Schedules, My View, Resources, Templates (which is highlighted with a red box), Credentials, Projects, and Inventories. The main area is titled "TEMPLATES 68". It has a search bar and a "KEY" button. Below is a list of templates: "AWX-Template-Management" (highlighted with a red box), "Image-Management", "L2-MSTP-Config", and "L2-MSTP-Instance". Each template entry includes a "Job Template" button, a set of icons (rocket, copy, delete), and a green "+" button at the top right of the list.

Click the **Schedules** tab, then click the **+** button:

The screenshot shows the "AWX-Template-Management" details page. At the top, there are tabs: DETAILS, PERMISSIONS, NOTIFICATIONS, COMPLETED JOBS, and SCHEDULES (which is highlighted with a red box). Below these tabs is a large empty box with the placeholder text "PLEASE ADD ITEMS TO THIS LIST". In the bottom right corner of this box, there is a green button with a white plus sign (+).

This will open the **Create Schedule** page. Complete the following fields:

NAME: Name of the schedule.

START DATE: First day the schedule takes effect.

START TIME: Time of first run (24-Hour Clock format).

LOCAL TIME ZONE: Time zone local to AWX Server.

REPEAT FREQUENCY: How often the sync will occur.

The following is an example of a sync that will occur daily at 11:35PM ET starting 6/19/2020:

Template Update - Ruckus-ICX-AWX-Ansible

* NAME: Template Update - Ruckus-ICX-AWX-Ansible

* START DATE: 6/19/2020

* START TIME (HH24:MM:SS): 23:35:00

* LOCAL TIME ZONE: America/New_York

* REPEAT FREQUENCY: Day

FREQUENCY DETAILS

* EVERY: 1 DAYS

* END: Never

SCHEDULE DESCRIPTION

every day

OCCURRENCES (Limited to first 10) DATE FORMAT LOCAL TIME ZONE UTC

06-19-2020 23:35:00
06-20-2020 23:35:00
06-21-2020 23:35:00
06-22-2020 23:35:00
06-23-2020 23:35:00
06-24-2020 23:35:00
06-25-2020 23:35:00
06-26-2020 23:35:00
06-27-2020 23:35:00
06-28-2020 23:35:00

PROMPT CANCEL SAVE

When finished, click the **Prompt** button to open the prompt window.

Complete the following fields on the Survey prompt:

TEMPLATE MANAGEMENT FUNCTION: Select **Create/Update Templates**.

PROJECT: Select **Ruckus-ICX-AWX-Ansible**.

SURVEY PREVIEW

TEMPLATE MANAGEMENT FUNCTION: Create/Update Templates

PROJECT: Ruckus-ICX-AWX-Ansible

CANCEL NEXT

Click **Save** when finished, then click **Confirm** on the next tab to schedule the template to run.

7. Custom Template Creation

The 'Ruckus-ICX-AWX-Ansible' project contains a playbook named 'ICX-Custom-Config.yml'. The 'AWX-Template-Management' template does not create a template for this playbook. This playbook can be used to create custom configuration templates. The following provides an example of how to create a custom configuration template.

Click the + button on the **Templates** page then click **Job Template** to open the **New Job Template** page. Complete the following fields:

NAME: Enter a name for the template.

DESCRIPTION: (Optional) Enter a description of the template.

JOB TYPE: Select **Run**.

INVENTORY: Click the checkbox next to **Prompt On Launch**.

CREDENTIALS: Click the checkbox next to **Prompt On Launch**.

PROJECT: Select **Ruckus-ICX-AWX-Ansible**.

PLAYBOOK: Select **ICX-Custom-Config.yml**.

LIMIT: Click the checkbox next to **Prompt On Launch**. This is required for ZTP.

NEW JOB TEMPLATE

DETAILS PERMISSIONS COMPLETED JOBS SCHEDULES ADD SURVEY

* NAME: Custom-VLAN-Config

DESCRIPTION:

* JOB TYPE ? PROMPT ON LAUNCH
Run

* INVENTORY ? PROMPT ON LAUNCH
Ruckus-ICX-AWX-Ansible

* PROJECT ? Ruckus-ICX-AWX-Ansible

* PLAYBOOK ? ICX-Custom-Config.yml

CREDENTIALS ? PROMPT ON LAUNCH

FORKS ? 0

LIMIT ? PROMPT ON LAUNCH

Scroll to the bottom. The switch config will be written as a variable definition in **Extra Variables**:

The screenshot shows the 'EXTRA VARIABLES' section of an Ansible configuration dialog. A red box highlights the YAML code input area. The code defines a variable 'template_config_lines' containing configuration commands for VLANs 2 and 3.

```
1 template_config_lines: |
2   vlan 2
3     tagged e 1/1/1
4     untagged e 1/1/2
5   vlan 3 name 'VLAN3'
6     tagged e 1/1/1
```

At the top of the dialog, there are sections for 'TIMEOUT', 'SHOW CHANGES', and 'OPTIONS'. Under 'OPTIONS', there are checkboxes for 'ENABLE PRIVILEGE ESCALATION', 'ENABLE PROVISIONING CALLBACKS', 'ENABLE WEBHOOK', 'ENABLE CONCURRENT JOBS', and 'ENABLE FACT CACHE'. Below the 'EXTRA VARIABLES' section, there are buttons for 'LAUNCH', 'CANCEL', and 'SAVE'.

When finished, click **Save**.

Note: The 'ICX-Custom-Config.yml' playbook pushes the configuration that is defined in the '*template_config_lines*' variable to the switch without performing error checking. Custom templates should be tested first before mass deployment.

8. Image Management

The Image Management role is included in the 'AWX-Management' project and can utilize AWX to manage the storage and deployment of application and boot-monitor images for the ICX platform. Currently only ICX7XXX series switches are supported.

8.1 Image Repository Creation

Before binary images can be imported to the AWX server, a repository will need to be created in the project directory.

Click the **Templates** button from the left navigation bar, then click the launch (🚀) button next to "Image-Management":

The screenshot shows the AWX Templates interface. On the left is a dark sidebar with navigation links: Dashboard, Jobs, Schedules, My View, Templates (which is highlighted with a red box), Credentials, Projects, and Inventories. The main area is titled 'TEMPLATES 69'. It features a search bar, a 'KEY' button, and a '+' button. Below these are three tabs: 'Compact' (selected), 'Expanded', and 'Name (Ascending)'. A list of templates is shown, each with a preview icon, a 'Job Template' label, and three action buttons (rocket, copy, delete). The 'Image-Management' template is the third item in the list, with its action button highlighted with a red box.

Complete the following field in the Survey Prompt window that appears:

IMAGE REPOSITORY NAME: Enter the name of the directory to be created or use the default "/Images".

The screenshot shows the 'IMAGE-MANAGEMENT' survey prompt window. It has two tabs: 'SURVEY' (selected) and 'PREVIEW'. The 'SURVEY' tab contains fields for 'IMAGE REPOSITORY NAME' (with 'Images' entered), 'TFTP SERVER IPV4 ADDRESS' (empty), and 'TFTP IMAGE FILE PATH' (empty). At the bottom are 'CANCEL' and 'NEXT' buttons, with 'NEXT' highlighted with a red box.

Click **Next** to continue, then click **Launch** on the Preview tab to run the template.

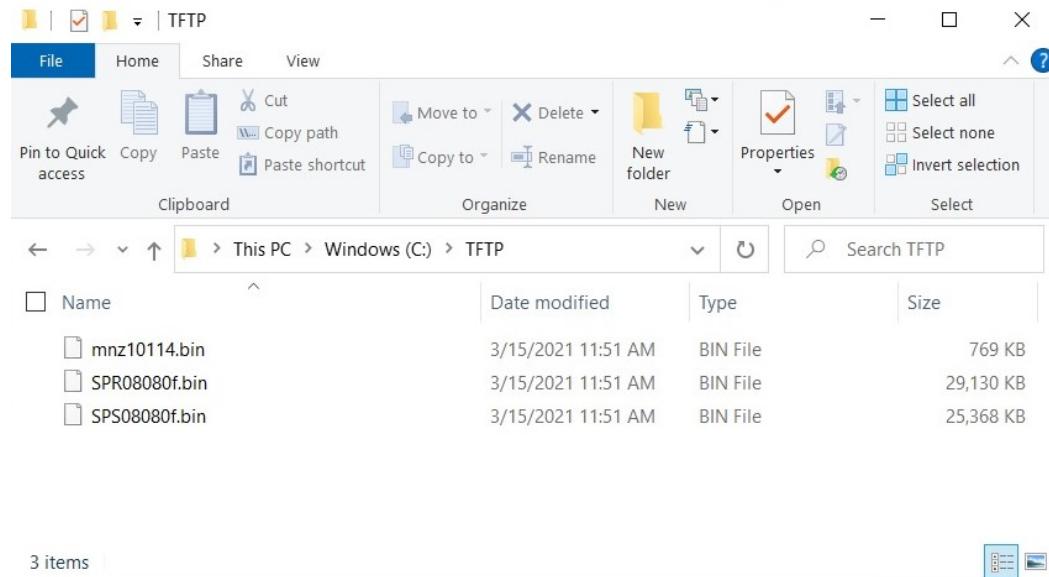
8.2 Import images to AWX server

This section details several methods of importing binary images to the AWX server.

8.2.1 (Method 1) TFTP pull from AWX server

A TFTP server can be utilized to copy binary images to the image repository directory.

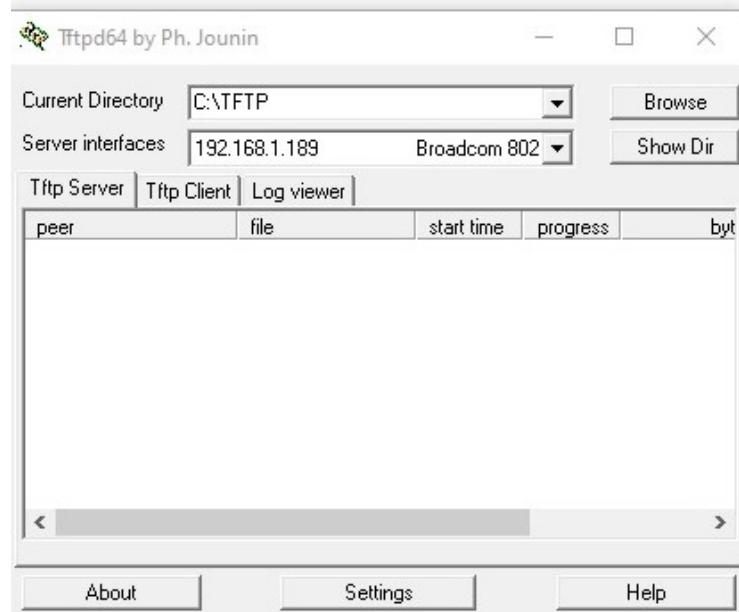
In the example below, the boot and application images have been copied to the C:\TFTP\ folder:



The following example uses tftpd64 as the TFTP server. Ensure the following options are set:

Current Directory: Ensure this is pointing to the image directory.

Server interfaces: Select the interface the TFTP server will listen on.



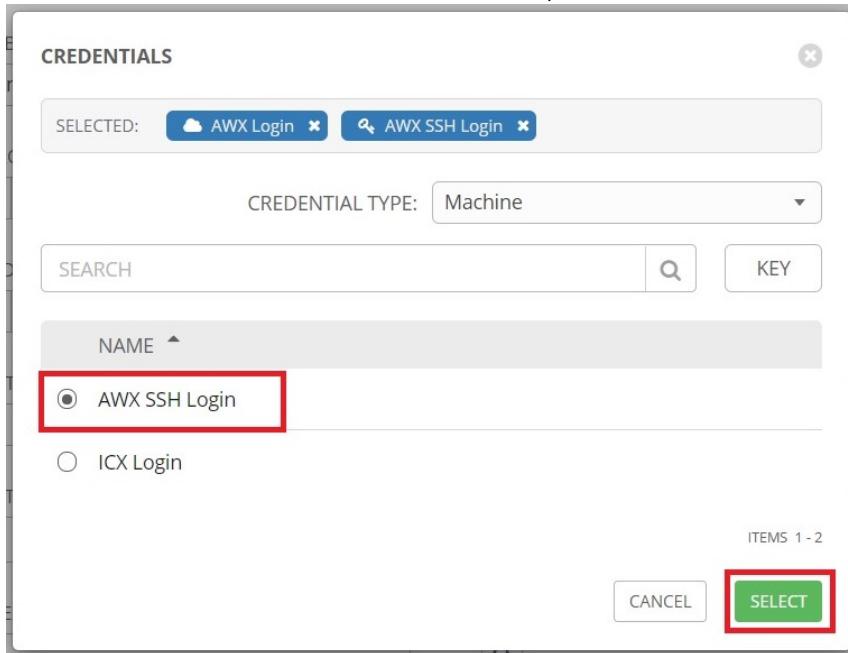
The credentials to SSH into the AWX server will need to be added to the Image-Management template to use the TFTP client. Click the **Templates** button from the left navigation bar, then click "*Image-Management*":

The screenshot shows the AWX interface with the 'TEMPLATES' page open. On the left, there is a navigation sidebar with various options like Dashboard, Jobs, Schedules, My View, Resources, Templates (which is highlighted with a red box), Credentials, Projects, and Inventories. The main area displays a list of templates under the heading 'TEMPLATES 69'. The 'Image-Management' template is highlighted with a red box. Each template entry includes a preview icon, a 'Job Template' label, and three action icons: a pencil, a magnifying glass, and a trash can.

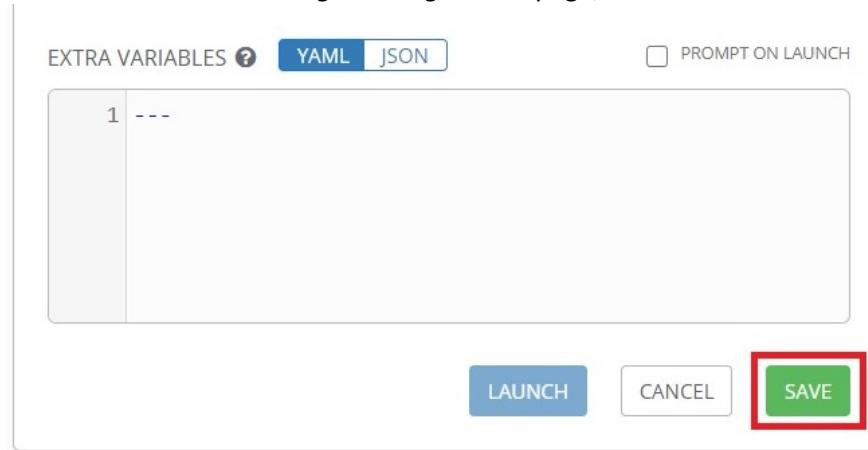
On the "*Image-Management*" template page, click the button to open the credentials window:

The screenshot shows the 'Image-Management' template configuration page. At the top, there are several tabs: DETAILS (selected), PERMISSIONS, NOTIFICATIONS, COMPLETED JOBS, SCHEDULES, and EDIT SURVEY. Below these are various configuration fields. The 'CREDENTIALS' section is highlighted with a red box. It contains a search input field, a dropdown menu showing 'AWX Login' (with a red box around the search icon), and a 'PROMPT ON LAUNCH' checkbox. Other sections include 'NAME' (Image-Management), 'DESCRIPTION' (Create image repo, import images and creat), 'JOB TYPE' (Run), 'INVENTORY' (AWX Server), 'PROJECT' (AWX-Management), 'PLAYBOOK' (Image-Management.yml), 'FORKS' (0), 'LIMIT' (empty input field), and 'VERBOSITY' (0 (Normal)).

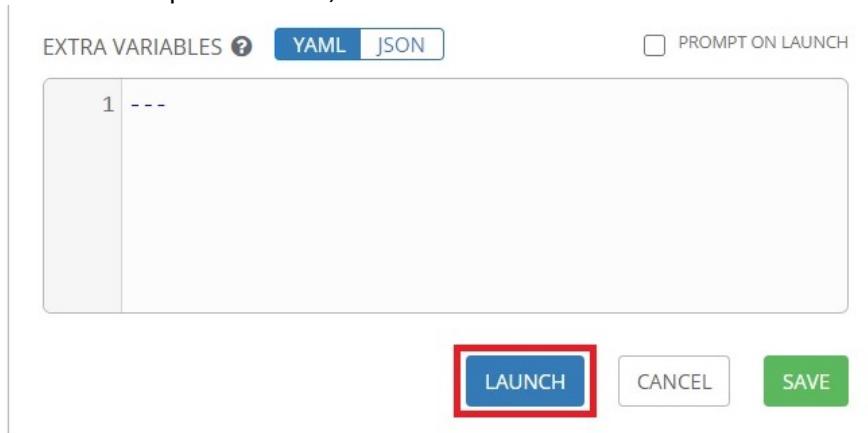
Select the SSH credentials for the AWX server, then click **Select**:



At the bottom of the "*Image-Management*" page, click **Save**:



Once the template is saved, click **Launch**:



Complete the following fields in the prompt window that opens:

IMAGE REPOSITORY NAME: Ensure this matches the name of the image repository.

TFTP SERVER IPV4 ADDRESS: Enter the IP address of the TFTP server.

TFTP IMAGE FILE PATH: Enter the path to the file to be copied from the TFTP root.

The dialog box is titled "IMAGE-MANAGEMENT". It contains three input fields with red borders:

- * IMAGE REPOSITORY NAME: Images
- TFTP SERVER IPV4 ADDRESS: 192.168.1.189
- TFTP IMAGE FILE PATH: mnz10114.bin

Below the fields are two tabs: "SURVEY" (selected) and "PREVIEW". At the bottom are "CANCEL" and "NEXT" buttons.

Click **Next** to continue, then click **Launch** on the Preview tab to run the template.

Relaunch the template to copy additional files to the image repository. When finished copying files, close the TFTP server.

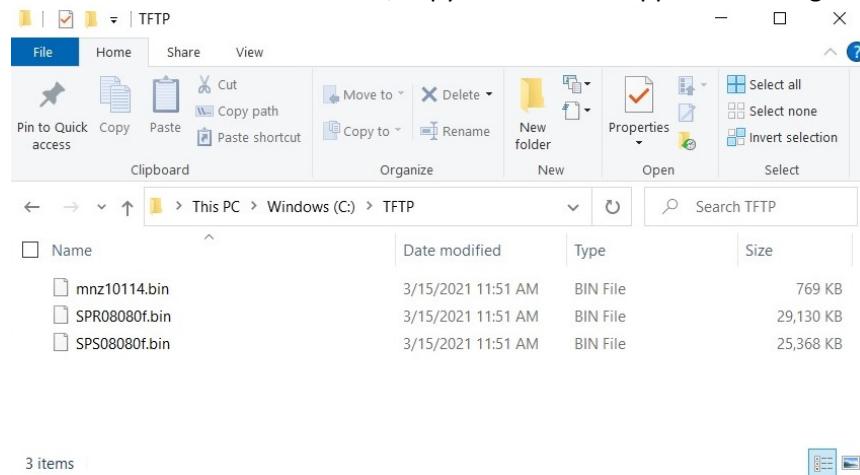
8.2.2 (Method 2) SCP push to AWX server.

TFTP is an insecure method of transferring files due to a lack of encryption and authentication. It is recommended to use SCP when possible. An additional benefit to using SCP is the ability to transfer multiple files at once. Windows 10 update 1803 includes a native SSH client. Alternatively, the PuTTY suite contains an SCP program: pscp.exe.

To prepare the AWX server to receive the files, first SSH into the server and create a folder that the files will be copied to. In this example, the "*Images*" folder is created in the user's home directory:

```
awxuser@awxserver:~$ mkdir -p ~/Documents/Images/  
awxuser@awxserver:~$
```

From the Windows workstation, copy the boot and application images to the C:\TFTP\ folder:



From the Windows workstation, open the command prompt and navigate to the directory with the images. The **dir** command can be executed to verify that the files exist:

```
C:\Users\Brian.Steppe>cd c:\TFTP  
c:\TFTP>dir  
Volume in drive C is Windows  
Volume Serial Number is CE9D-669D  
  
Directory of c:\TFTP  
  
03/19/2021 10:25 AM <DIR> .  
03/19/2021 10:25 AM <DIR> ..  
03/15/2021 11:51 AM 786,944 mnz10114.bin  
03/15/2021 11:51 AM 29,829,112 SPR08080f.bin  
03/15/2021 11:51 AM 25,976,488 SPS08080f.bin  
3 File(s) 56,592,544 bytes  
2 Dir(s) 15,008,501,760 bytes free
```

To copy the files from the workstation to the AWX server, execute the **SCP** command using this syntax:

```
scp <source><username>@<destination_ip>:<destination_path>
```

Command breakdown:

- **source:** Local path to the file that is to be copied. *.bin can be used to copy all .bin files.
- **username:** Username used to login to the AWX server.
- **destination_ip:** IP or hostname of the AWX server.
- **destination_path:** Path to the destination directory for the image files.

For example:

```
c:\TFTP>scp *.bin awxuser@192.168.1.196:/home/awxuser/Documents/Images/  
awxuser@192.168.1.196's password:  
SPR08080f.bin                                              100%   28MB  42.2MB/s  00:00  
SPS08080f.bin                                              100%   25MB  43.9MB/s  00:00  
mnz10114.bin                                              100%  769KB 133.6MB/s  00:00  
  
c:\TFTP>
```

Once the images have been copied over, SSH into the AWX server and move the image files to the image repo directory using elevated privileges:

```
awxuser@awxserver:~$ sudo mv /home/awxuser/Documents/Images/*.bin /var/lib/awx/projects/Images/  
[sudo] password for awxuser:  
awxuser@awxserver:~$
```

When the files have been moved to the image repo directory, the "*Image-Management*" template will need to be run. Click the **Templates** button from the left navigation bar, then click the launch () button next to "*Image-Management*".

The screenshot shows the AWX web interface. On the left, there is a dark sidebar with several navigation items: Dashboard, Jobs, Schedules, My View, and Resources. Under Resources, the 'Templates' item is highlighted with a red box. To the right of the sidebar is a main content area titled 'TEMPLATES 69'. At the top of this area is a search bar labeled 'SEARCH' with a magnifying glass icon, a 'KEY' button, and a green '+' button. Below the search bar is a toolbar with three buttons: 'Compact', 'Expanded', and 'Name (Ascending)'. The main list contains four entries, each with a small thumbnail, the template name, a 'Job Template' label, and three icons on the right: a rocket (for launching), a clipboard (for copying), and a trash can (for deleting). The 'Image-Management' entry has a red box drawn around its rocket icon.

Template Name	Type	Actions
AWX-Template-Management	Job Template	
Custom-VLAN-Config	Job Template	
Image-Management	Job Template	
L2-MSTP-Config	Job Template	

Complete the following field:

IMAGE REPOSITORY NAME: Ensure this matches the name of the image repository.

IMAGE-MANAGEMENT

SURVEY **PREVIEW**

* IMAGE REPOSITORY NAME:

TFTP SERVER IPV4 ADDRESS:

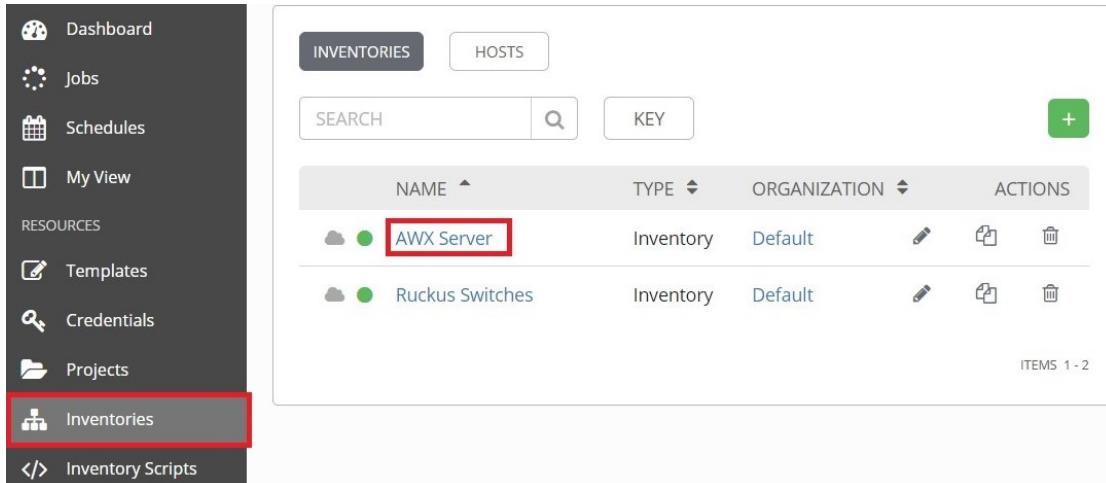
TFTP IMAGE FILE PATH:

CANCEL **NEXT**

Click **Next** to continue, then click **Launch** on the Preview tab to run the template.

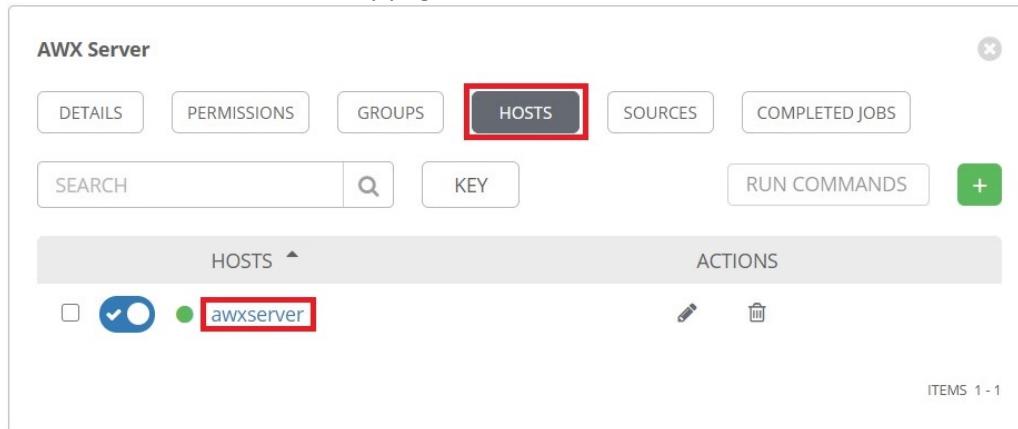
8.3 View Image Repository Files

Click the **Inventories** button from the left navigation bar, then click the inventory that contains the AWX server host:



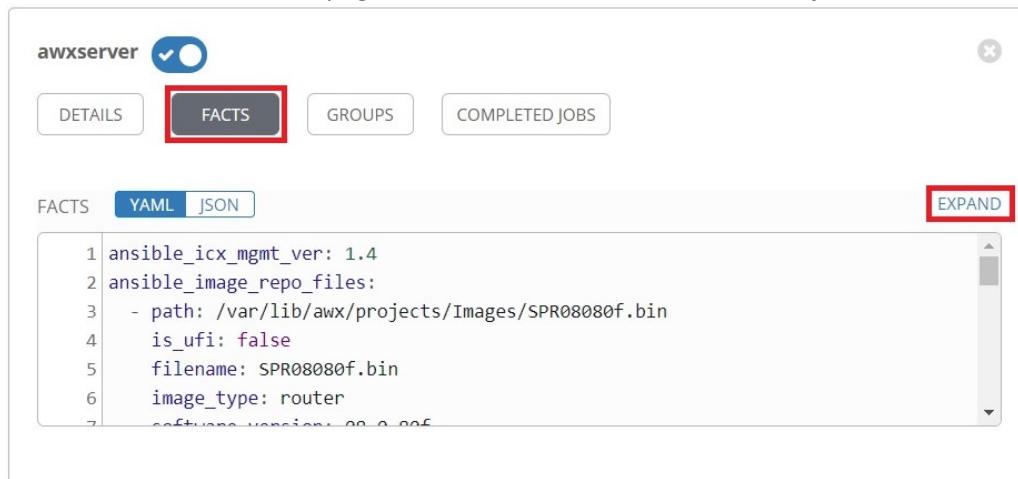
The screenshot shows the AWX interface with the left sidebar open. The 'Inventories' button is highlighted with a red box. The main area displays the 'INVENTORIES' tab selected. A search bar and a 'KEY' button are at the top. Below is a table with columns: NAME, TYPE, ORGANIZATION, and ACTIONS. Two entries are listed: 'AWX Server' (Inventory, Default) and 'Ruckus Switches' (Inventory, Default). A green '+' button is in the top right corner. The bottom right of the table area says 'ITEMS 1 - 2'.

From the AWX server inventory page, click the **Hosts** tab, then click the AWX server host:



The screenshot shows the 'awxserver' host details page. The 'HOSTS' tab is highlighted with a red box. Other tabs include DETAILS, PERMISSIONS, GROUPS, SOURCES, and COMPLETED JOBS. A search bar and a 'RUN COMMANDS' button are at the top. Below is a table with columns: HOSTS and ACTIONS. One entry is listed: 'awxserver'. A green '+' button is in the top right corner. The bottom right of the table area says 'ITEMS 1 - 1'.

From the AWX server host page, click the **Facts** tab, then click on **Expand**:



The screenshot shows the 'awxserver' host facts page. The 'FACTS' tab is highlighted with a red box. Other tabs include DETAILS, GROUPS, and COMPLETED JOBS. Below is a table with tabs: FACTS, YAML (highlighted), and JSON. The YAML tab shows the following facts:

```
1 ansible_icx_mgmt_ver: 1.4
2 ansible_image_repo_files:
3   - path: /var/lib/awx/projects/Images/SPR08080f.bin
4     is_ufi: false
5     filename: SPR08080f.bin
6     image_type: router
7     software_version: 00.0.00f
```

A red box highlights the 'EXPAND' button in the top right corner of the facts table area.

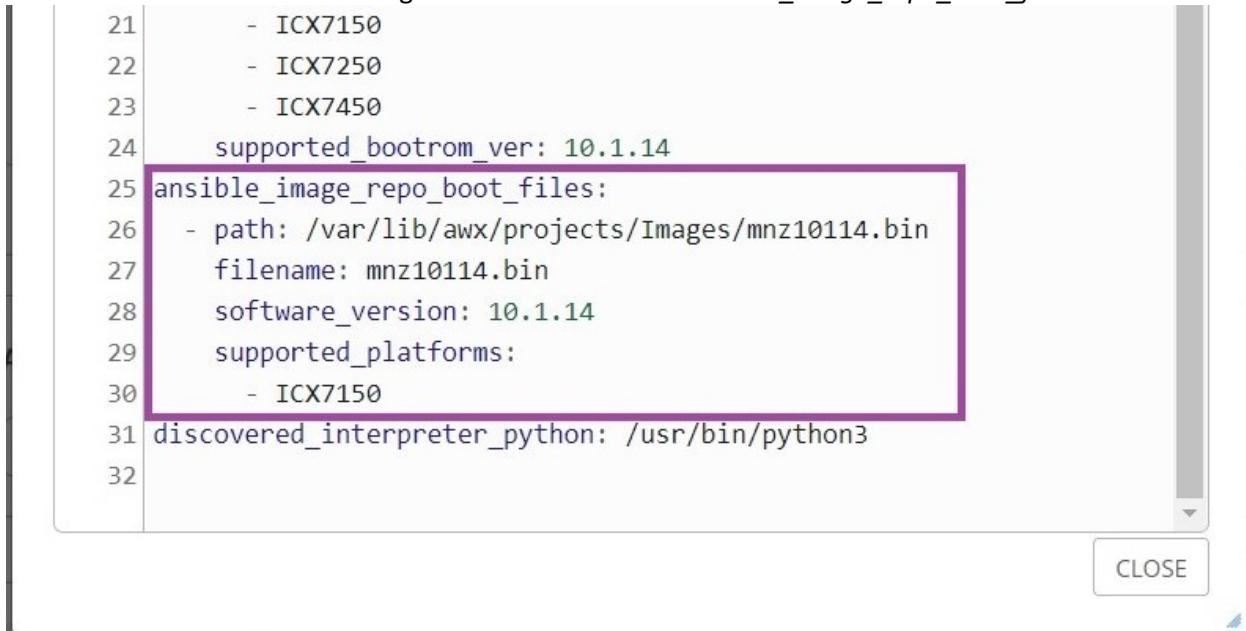
An expanded facts window will appear. The application image files will be listed under the "`ansible_image_repo_files`" variable:



The screenshot shows a modal window titled "FACTS" with tabs for "YAML" and "JSON". The "YAML" tab is selected. The content area contains a large block of YAML code. A purple rectangular box highlights the section starting at line 2, which defines the `ansible_image_repo_files` variable.

```
1 ansible_icx_mgmt_ver: 1.4
2 ansible_image_repo_files:
3   - path: /var/lib/awx/projects/Images/SPR08080f.bin
4     is_ufi: false
5     filename: SPR08080f.bin
6     image_type: router
7     software_version: 08.0.80f
8     intermediate_image: ''
9     supported_platforms:
10       - ICX7150
11       - ICX7250
12       - ICX7450
13     supported_bootrom_ver: 10.1.14
14   - path: /var/lib/awx/projects/Images/SPS08080f.bin
15     is_ufi: false
16     filename: SPS08080f.bin
17     image_type: switch
18     software_version: 08.0.80f
19     intermediate_image: ''
20     supported_platforms:
21       - ICX7150
22       - ICX7250
23       - ICX7450
24     supported_bootrom_ver: 10.1.14
```

Scroll down to view the boot image files listed under the "`ansible_image_repo_boot_files`" variable:



The screenshot shows a modal window with a vertical scroll bar on the right side. The content area contains a large block of YAML code. A purple rectangular box highlights the section starting at line 25, which defines the `ansible_image_repo_boot_files` variable.

```
21   - ICX7150
22   - ICX7250
23   - ICX7450
24   supported_bootrom_ver: 10.1.14
25 ansible_image_repo_boot_files:
26   - path: /var/lib/awx/projects/Images/mnz10114.bin
27     filename: mnz10114.bin
28     software_version: 10.1.14
29     supported_platforms:
30       - ICX7150
31 discovered_interpreter_python: /usr/bin/python3
32
```

8.4 Copy image files to switch flash

Running "*Image-Management*" will create the "*Image-Flash-Copy*" template when valid images exist in the image repository. The survey prompt in the "*Image-Flash-Copy*" template contains a list of valid images and this list is updated every time the "*Image-Management*" template is run.

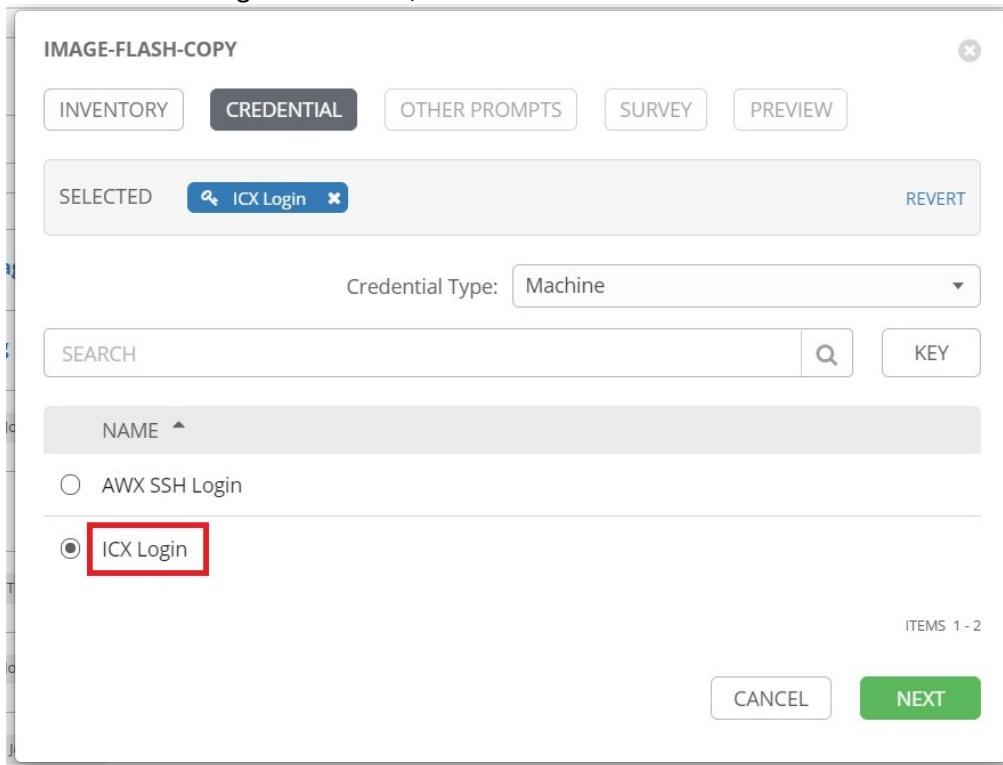
To flash an image to a switch, first click the **Template** button from the left navigation bar, then click the launch (🚀) button next to "*Image-Flash-Copy*":

The screenshot shows the AWX interface. On the left, there's a dark sidebar with various navigation items: Dashboard, Jobs, Schedules, My View, Resources, Templates (which is highlighted with a red box), Credentials, and Projects. The main area is titled "TEMPLATES 70". It contains three template cards: "AWX-Template-Management" (Job Template), "Custom-VLAN-Config" (Job Template), and "Image-Flash-Copy" (Job Template). The "Image-Flash-Copy" card has a green "+" button at the top right, followed by "Compact", "Expanded", and "Name (Ascending)" dropdowns. Below the card are three icons: a rocket (highlighted with a red box), a copy symbol, and a trash can.

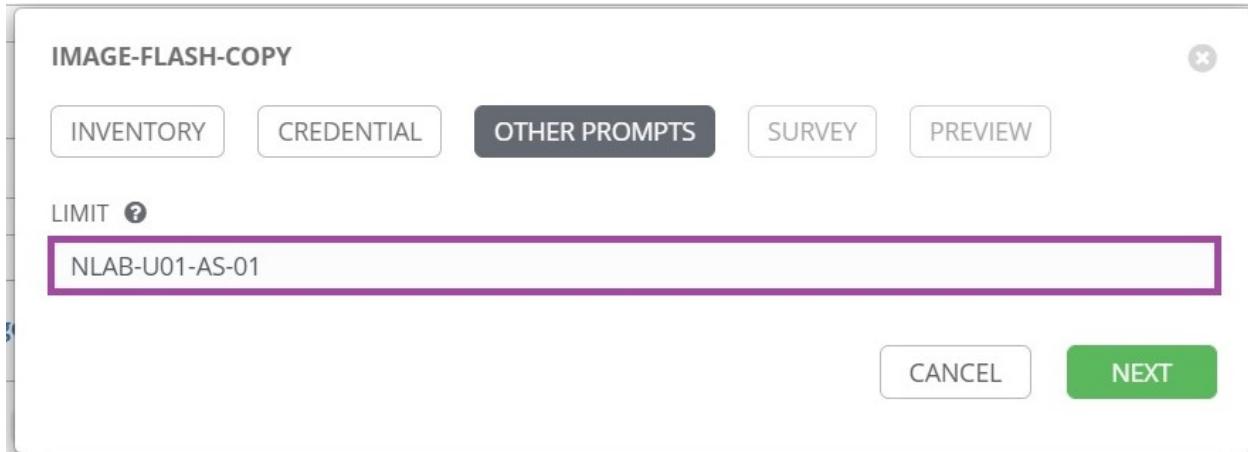
Select the inventory containing the switch hosts, then click **Next**:

The screenshot shows the "IMAGE-FLASH-COPY" configuration dialog. At the top, there are tabs: INVENTORY (which is selected and highlighted with a red box), CREDENTIAL, OTHER PROMPTS, SURVEY, and PREVIEW. Below the tabs, there's a "SELECTED" field containing "Ruckus Switches" with a close button. To the right of the field are "REVERT" and "KEY" buttons. A "SEARCH" field with a magnifying glass icon and a "NAME" dropdown are below. The dropdown shows "NAME" with an upward arrow, followed by two options: "AWX Server" and "Ruckus Switches" (which is highlighted with a red box). At the bottom right, there are "ITEMS 1 - 2" and "NEXT" (highlighted with a red box) and "CANCEL" buttons.

Select the switch login credentials, then click **Next**:



The Limit prompt can limit the execution of the template to a single host in an inventory. If left blank, the template will run against all hosts in the inventory. The host's name can be entered into the prompt to limit execution to that host:



Click **Next** to continue.

In the Survey prompt, complete the following fields:

SELECT THE IMAGE FILE TO FLASH: Select the application image from the drop-down menu.

FLASH PARTITION: Select the partition on the switch to copy the image to.

CONFIGURE SELECTED FLASH PARTITION AS FIRST IN BOOT ORDER: Select **Yes** to ensure selected flash partition has priority during boot.

SELECT BOOT IMAGE TO FLASH: Selecting **Auto Select** will attempt to match the targeted switch model and application version to an installed boot image. Select **None** to skip copying of boot image. Select a boot image from the list to attempt to force installation of that boot image.

REBOOT INTO NEW IMAGE AFTER DEPLOYMENT: Select **Yes** to perform a boot into the selected boot partition of the switch after the image(s) have been copied.

IMAGE-FLASH-COPY

SURVEY

* SELECT THE IMAGE FILE TO FLASH:
SPR08080f.bin

* FLASH PARTITION:
Secondary

* CONFIGURE SELECTED FLASH PARTITION AS FIRST IN BOOT ORDER?
Yes

* SELECT BOOT IMAGE TO FLASH:
Auto Select

* REBOOT INTO NEW IMAGE AFTER DEPLOYMENT?
Yes

CANCEL **NEXT**

The screenshot shows a survey configuration window titled 'IMAGE-FLASH-COPY'. It has tabs for 'INVENTORY', 'CREDENTIAL', 'OTHER PROMPTS', 'SURVEY' (which is selected), and 'PREVIEW'. The 'SURVEY' tab contains several dropdown menus with red outlines. The first dropdown is labeled 'SELECT THE IMAGE FILE TO FLASH' and contains the value 'SPR08080f.bin'. The second dropdown is labeled 'FLASH PARTITION' and contains the value 'Secondary'. The third dropdown is labeled 'CONFIGURE SELECTED FLASH PARTITION AS FIRST IN BOOT ORDER?' and contains the value 'Yes'. The fourth dropdown is labeled 'SELECT BOOT IMAGE TO FLASH' and contains the value 'Auto Select'. The fifth dropdown is labeled 'REBOOT INTO NEW IMAGE AFTER DEPLOYMENT?' and contains the value 'Yes'. At the bottom right are 'CANCEL' and 'NEXT' buttons, with 'NEXT' being green.

When finished, click **Next**, then click **Launch** on the Preview tab to run the template.

9. Setup AWX-ZTP

Zero-Touch Provisioning (ZTP) is a feature that allows for automatic provisioning and configuration of network devices when they come online. The 'AWX-ZTP' project utilizes AWX to provide zero-touch provisioning of Ruckus ICX switches.

9.1 Create 'ZTP-Install' Template

Click the **Templates** button from the left navigation bar. Then click the launch (🚀) button next to **AWX-Template-Management**:

The screenshot shows the AWX interface with the 'Templates' page open. The left sidebar has a red box around the 'Templates' option. The main area displays three templates: 'AWX-Template-Management' (Job Template), 'Custom-VLAN-Config' (Job Template), and 'Image-Flash-Copy' (Job Template). Each template row includes a search bar, a green plus icon, and a launch button (represented by a rocket icon).

Complete the following fields in the Survey Prompt window that appears:

TEMPLATE MANAGEMENT FUNCTION: Select **Create/Update Templates**.

PROJECT: Select **AWX-ZTP**.

The screenshot shows the 'AWX-TEMPLATE-MANAGEMENT' survey prompt window. It has two tabs: 'SURVEY' (selected) and 'PREVIEW'. The 'TEMPLATE MANAGEMENT FUNCTION:' dropdown is set to 'Create/Update Templates'. The 'PROJECT:' dropdown is set to 'AWX-ZTP'. At the bottom are 'CANCEL' and 'NEXT' buttons.

Click **Next** when finished, then click **Launch**. The "ZTP-Install" template will appear in the "AWX-ZTP" project upon completion.

9.2 Launch "ZTP-Install"

The "ZTP-Install" template installs several components necessary for ZTP.

Click **Projects** from the left navigation bar, then click on the "AWX-ZTP" project:

Dashboard
Jobs
Schedules
My View
RESOURCES
Templates
Credentials
Projects (selected)
Inventories
Inventory Scripts

PROJECTS 3

SEARCH KEY +

Compact Expanded Name (Ascending) ▾

● AWX-Management GIT	⟳ ↻ 🗑
● AWX-ZTP GIT	⟳ ↻ 🗑
● Ruckus-ICX-AWX-Ansible GIT	⟳ ↻ 🗑

ITEMS 1 - 3

Click the **JOB TEMPLATES** tab, then click the Launch (🚀) button next to "ZTP-Install":

AWX-ZTP

DETAILS PERMISSIONS NOTIFICATIONS **JOB TEMPLATES** SCHEDULES

SEARCH KEY +

Compact Expanded Name (Ascending) ▾

ZTP-Install Job Template	🚀 ↻ 🗑
--------------------------	-------

ITEMS 1 - 1

Select the inventory that holds the AWX Server as a host, then click **Next**:

The screenshot shows the 'INVENTORY' tab of the ZTP-INSTALL interface. At the top, there are tabs for INVENTORY, CREDENTIAL, OTHER PROMPTS, and PREVIEW. The INVENTORY tab is active. Below the tabs, a 'SELECTED' section shows 'AWX Server' with a delete icon. A 'REVERT' button is to the right. A 'SEARCH' bar with a magnifying glass icon and a 'KEY' button are below it. The main list is titled 'NAME' and contains two items: 'AWX Server' (selected, highlighted with a red box) and 'Ruckus Switches'. At the bottom right, there are 'ITEMS 1 - 2', 'CANCEL', and 'NEXT' buttons.

On the **CREDENTIAL** tab, two sets of credentials will need to be selected, one for the SSH Login to the AWX server and one for the REST API credentials. First select the AWX SSH Login credentials, then open the drop-down menu for **Credential Type**:

The screenshot shows the 'CREDENTIAL' tab of the ZTP-INSTALL interface. At the top, there are tabs for INVENTORY, CREDENTIAL, OTHER PROMPTS, and PREVIEW. The CREDENTIAL tab is active. A 'Credential Type:' dropdown menu is open, showing 'Machine' with a red box around the dropdown arrow. Below the dropdown is a 'SEARCH' bar with a magnifying glass icon and a 'KEY' button. The main list is titled 'NAME' and contains two items: 'AWX SSH Login' (selected, highlighted with a red box) and 'ICX Login'. At the bottom right, there are 'ITEMS 1 - 2', 'CANCEL', and 'NEXT' buttons.

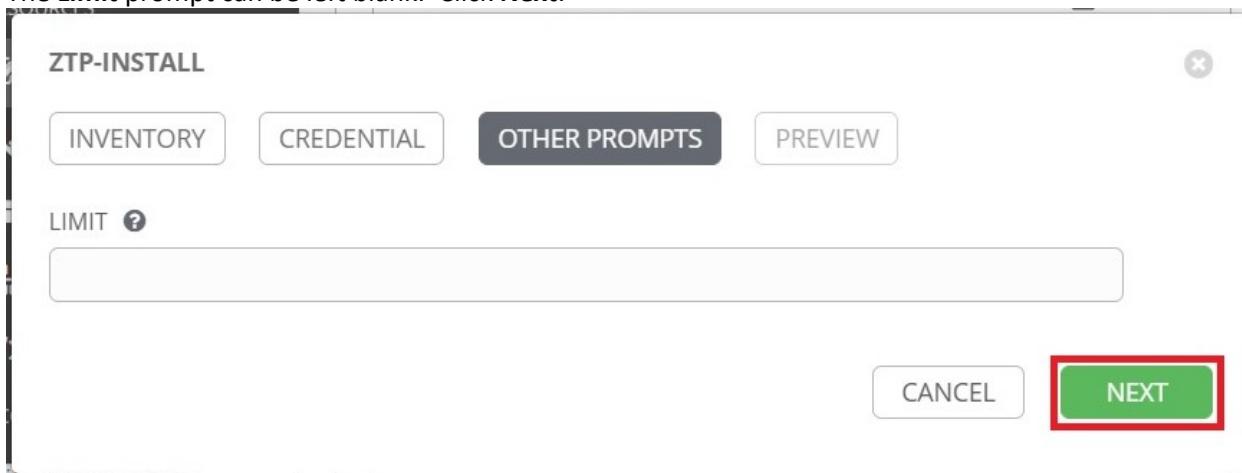
Select **AWX REST API** from the drop-down menu:

The screenshot shows the 'ZTP-INSTALL' dialog with the 'CREDENTIAL' tab selected. In the 'SELECTED' section, 'AWX SSH Login' is listed. Below it, a dropdown menu titled 'Credential Type' shows a list of options: Machine, Amazon Web Services, Ansible Tower, AWX REST API (which is highlighted with a red box), Google Compute Engine, Microsoft Azure Resource Manager, and OpenStack. A search bar labeled 'SEARCH' is also present. At the bottom right are 'CANCEL' and 'NEXT' buttons.

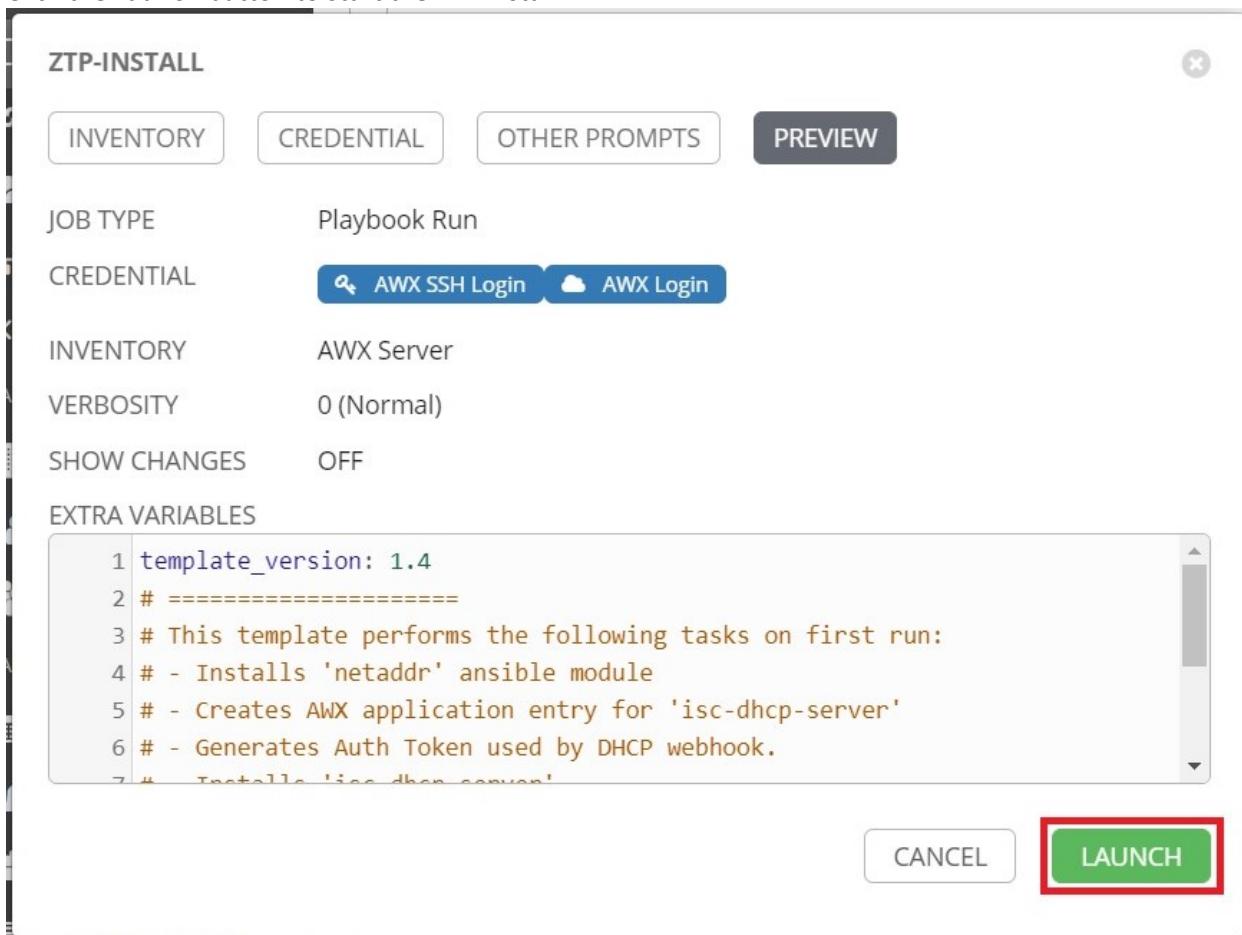
Select the credentials for the AWX REST API:

The screenshot shows the 'ZTP-INSTALL' dialog with the 'CREDENTIAL' tab selected. In the 'SELECTED' section, 'AWX SSH Login' and 'AWX Login' are listed. Below it, a dropdown menu titled 'Credential Type' shows 'AWX REST API'. A search bar labeled 'SEARCH' and a 'KEY' button are also present. In the 'NAME' section, 'AWX Login' is selected (highlighted with a red box). At the bottom right are 'CANCEL' and 'NEXT' buttons, with 'NEXT' being highlighted with a red box.

The **Limit** prompt can be left blank. Click **Next**:



Click the **Launch** button to start the ZTP install:



In addition to installing necessary components for ZTP, the "ZTP-Install" template also creates two additional templates: "ZTP-Configure" and "ZTP-Regen-AuthToken". The "ZTP-Regen-AuthToken" template can be run to regenerate the AWX Application Authentication Token used by the DHCP webhook script.

9.3 Launch "ZTP-Configure"

The "*ZTP-Configure*" template can perform several tasks including:

Configures a secondary interface on the AWX server with an IP address.

Creates a provisioning inventory in AWX. Hosts discovered by DHCP are placed here.

Configures DHCP on the AWX server.

Creates an IP pool for configuring a static IP address on a host interface.

Creates a hostname pool to configure a hostname on a host.

The following provides a guide for running the "*ZTP-Configure*" template.

Click **Projects** from the left navigation bar, then click on the "*AWX-ZTP*" project:

PROJECTS 3

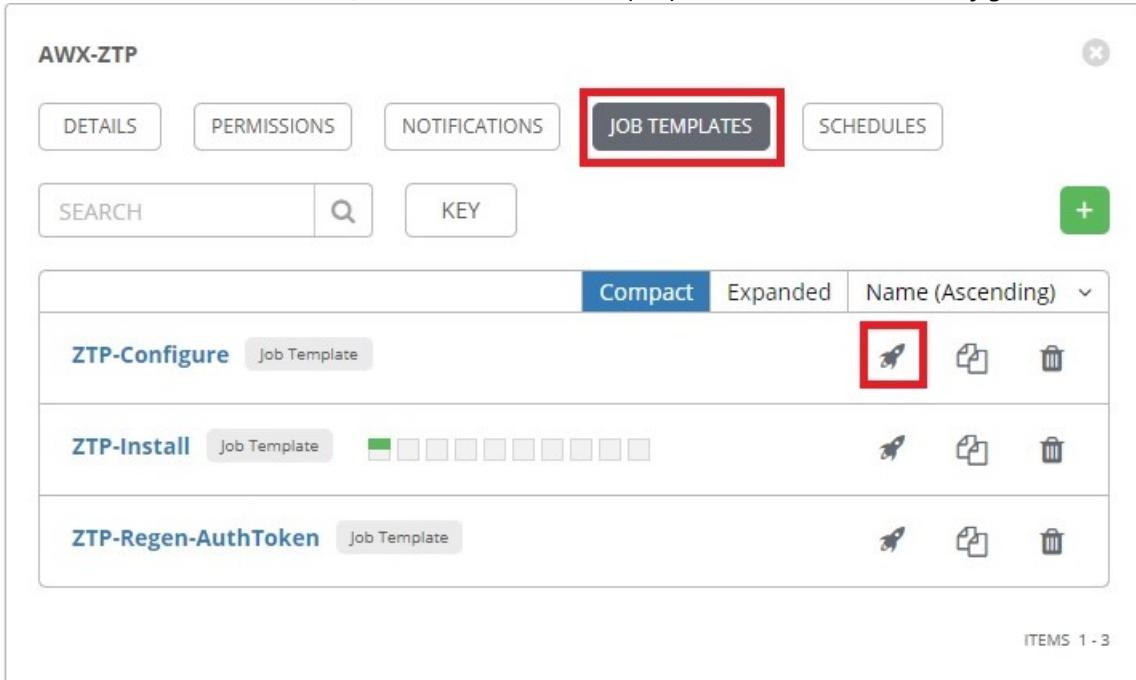
SEARCH KEY +

Compact Expanded Name (Ascending) ▾

● AWX-Management GIT	↻	📄	🗑
● AWX-ZTP GIT	↻	📄	🗑
● Ruckus-ICX-AWX-Ansible GIT	↻	📄	🗑

ITEMS 1 - 3

Click the **JOB TEMPLATES** tab, then click the Launch () button next to "ZTP-Configure":



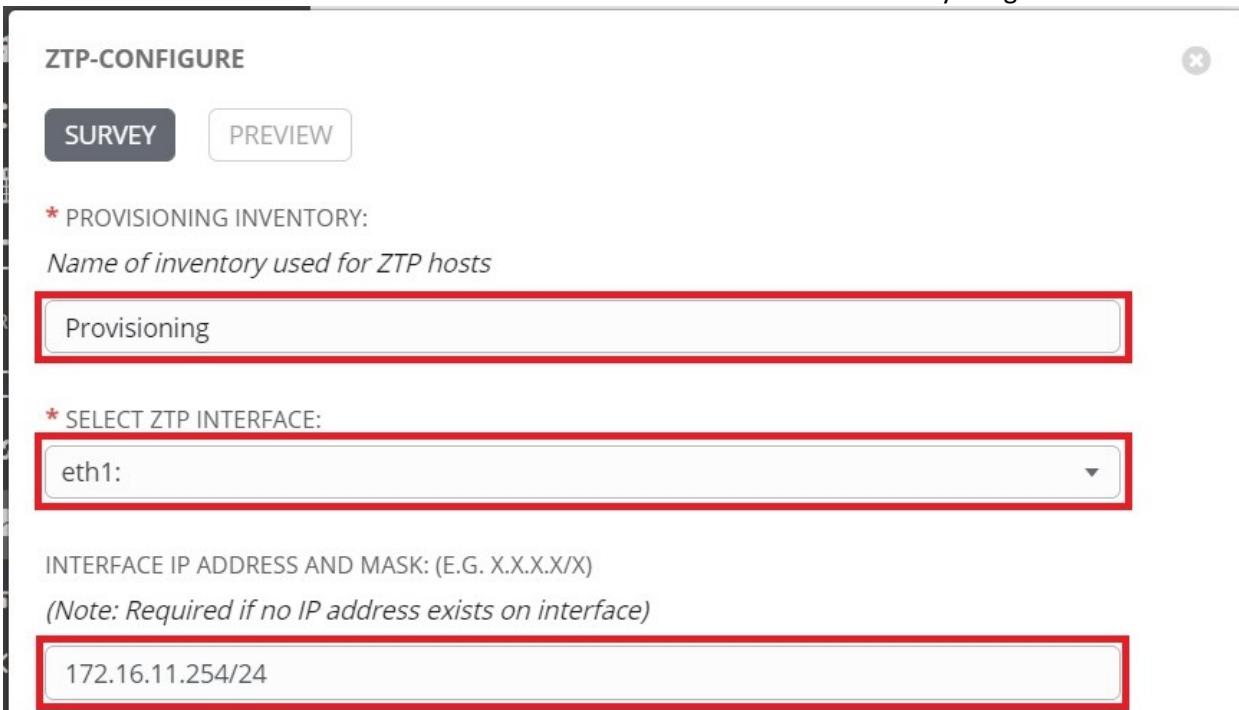
The screenshot shows the AWX-ZTP interface with the 'JOB TEMPLATES' tab selected. The list contains three items: 'ZTP-Configure', 'ZTP-Install', and 'ZTP-Regen-AuthToken'. Each item has a 'Launch' button (rocket ship icon) and other standard file operations buttons (copy, delete).

Complete the following fields:

PROVISIONING INVENTORY: Name of ZTP Inventory to create.

SELECT ZTP INTERFACE: Select the interface configure a static IP address on.

INTERFACE IP ADDRESS AND MASK: Enter the IP address and mask to statically assign to the interface.



The screenshot shows the ZTP-CONFIGURE configuration form. The 'SURVEY' tab is selected. It requires input for 'PROVISIONING INVENTORY' (set to 'Provisioning'), 'SELECT ZTP INTERFACE' (set to 'eth1'), and 'INTERFACE IP ADDRESS AND MASK' (set to '172.16.11.254/24'). All input fields are highlighted with a red border.

Scroll down to complete the DHCP config fields:

DHCP SUBNET IP AND MASK: Enter the DHCP subnet prefix and mask.

DHCP SUBNET RANGE: Enter the IP range to be used as the DHCP allocation pool.

* DHCP CONFIG - SUBNET IP AND MASK:

(e.g. 192.168.0.0/24)

* DHCP CONFIG - SUBNET RANGE:

(e.g. 192.168.0.100-192.168.0.200)

DHCP CONFIG - DEFAULT ROUTER

(e.g. 192.168.0.1)

Scroll down to complete the remaining fields.

STATIC IP POOL SWITCH INTERFACE: Interface on switch where static IP will be configured.

STATIC IP POOL SUBNET: Enter the prefix and mask of static IP pool network.

STATIC IP POOL RANGE: Enter the IP range to be used to allocate static IP addresses.

HOSTNAME POOL BASE NAME: Enter the base name to be used for hostname allocation.

STATIC IP POOL CONFIG - SWITCH INTERFACE

(e.g. management1 or e1/1/1)

STATIC IP POOL CONFIG - SUBNET

(e.g. 192.168.0.0/24)

STATIC IP POOL CONFIG - IP RANGE

(e.g. 192.168.0.10-192.168.0.99)

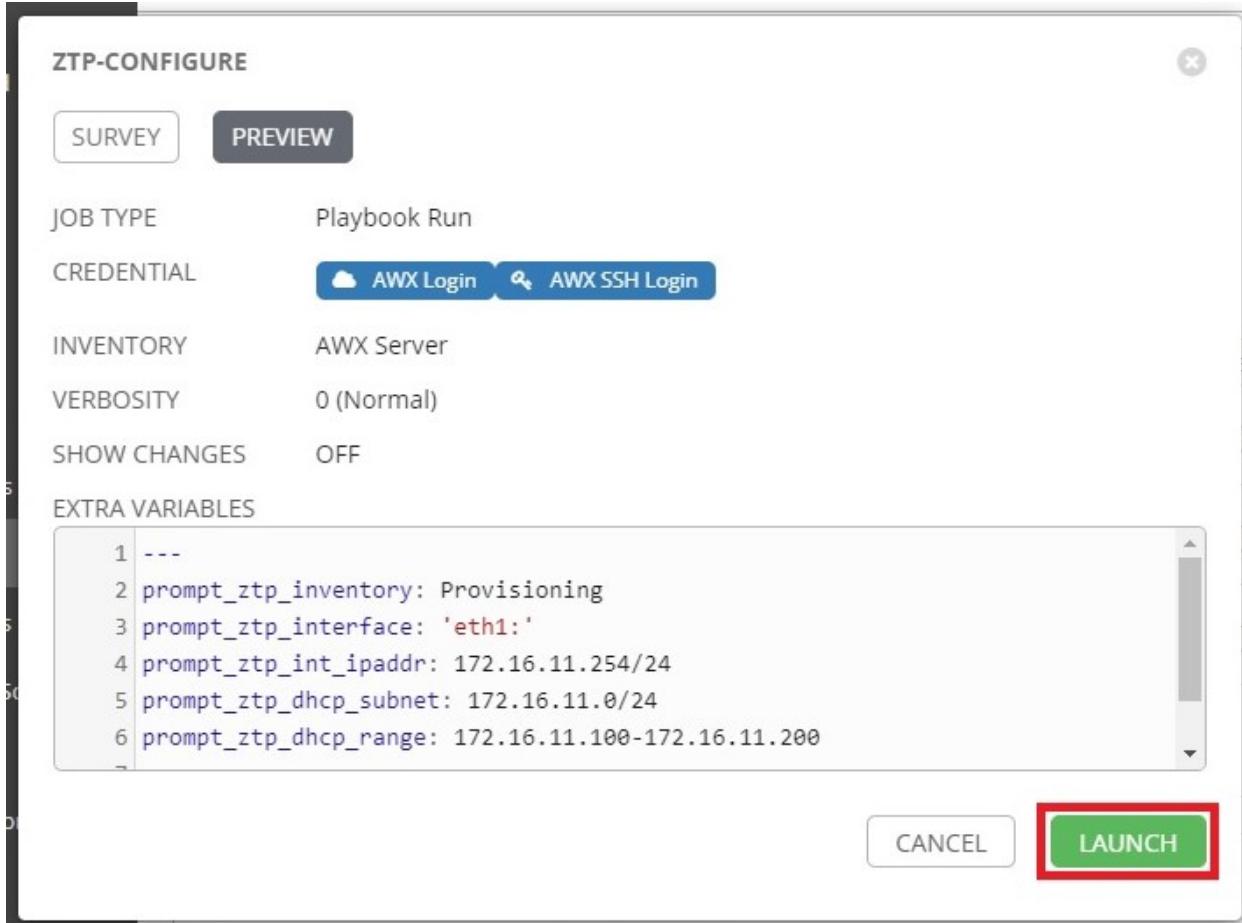
HOSTNAME POOL CONFIG - BASE NAME

CANCEL

NEXT

Click **Next** when finished.

Click **Launch**:



When the template has successfully completed, the DHCP server will begin listening for hosts.

Note:

- The 'Provisioning-Finalize' template handles the assignment of static IP addresses from the pool as well as the assignment of hostnames.
- If the **Static IP Pool Interface** is left blank with the rest of the static IP pool configuration defined, the 'Provisioning-Finalize' template will replace the IP address on the interface that received a DHCP address with an address from the static IP pool.

9.4 Workflow Creation

A workflow created in AWX can be automatically launched by the "*Provisioning-Init-Login*" template. The following provides an example of creating a workflow.

Click **Templates** from the left navigation bar. Then click the **+** button and select **Workflow Template**:

The screenshot shows the AWX interface with the 'Templates' menu item highlighted. In the main content area, there is a list of templates. The 'Workflow Template' option is highlighted with a red box. A green '+' button is located in the top right corner of the list area.

NAME: Type in a name for the workflow.

LIMIT: Click the checkbox next to **Prompt On Launch**. This is necessary to run the workflow against a single host.

NEW WORKFLOW JOB TEMPLATE

DETAILS **PERMISSIONS** **COMPLETED JOBS** **SCHEDULES** **ADD SURVEY** **WORKFLOW VISUALIZER**

*** NAME** **DESCRIPTION** **ORGANIZATION**

Provisioning-Workflow

INVENTORY **PROMPT ON LAUNCH** **LIMIT** **PROMPT ON LAUNCH**

SCM BRANCH **PROMPT ON LAUNCH**

LABELS **OPTIONS**

ENABLE CONCURRENT JOBS **ENABLE WEBHOOK**

EXTRA VARIABLES **PROMPT ON LAUNCH**

1 ---

LAUNCH **CANCEL** **SAVE**

When finished, click **Save**.

The **Workflow Visualizer** will open. Click the **Start** button:



The list of templates will appear on the right. The templates can be added to a workflow here. For this example, click on the **Remote-User-LocalAcct** template, then click **Prompt**:

WORKFLOW VISUALIZER | Provisioning-Workflow

TOTAL NODES 1

ADD A NODE

Template

SEARCH

KEY

?

Remote-Telnet-Disable

Remote-User-EnablePW

Remote-User-LocalAcct

Remote-User-StrictMode

System-Misc-Banner

System-Misc-ConsoleHarden

System-Misc-DNS

System-Misc-DoS

System-Misc-Hostname

System-QoS-Profiles

« < 4 5 6 7 8 > PAGE 6 OF 8 ITEMS 51 - 60 OF 73

* RUN

Always

PROMPT CANCEL SELECT

```
graph LR; START([START]) --> D(( ));
```

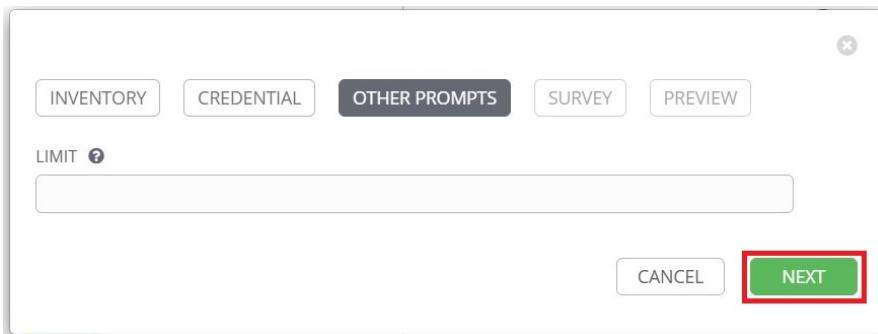
Select the name of the provisioning inventory, then click **Next**:

The screenshot shows a modal dialog for selecting an inventory. At the top, there are tabs: INVENTORY (selected), CREDENTIAL, OTHER PROMPTS, SURVEY, and PREVIEW. Below the tabs, a 'SELECTED' section shows 'Provisioning' with a delete icon. A 'REVERT' button is to the right. A 'SEARCH' input field with a magnifying glass icon and a 'KEY' button are below it. The main list is titled 'NAME' with a sorting arrow. It contains three items: 'AWX Server' (radio button), 'Provisioning' (radio button, highlighted with a red border), and 'Ruckus Switches'. At the bottom right, there are 'ITEMS 1 - 3', 'CANCEL', and a large green 'NEXT' button.

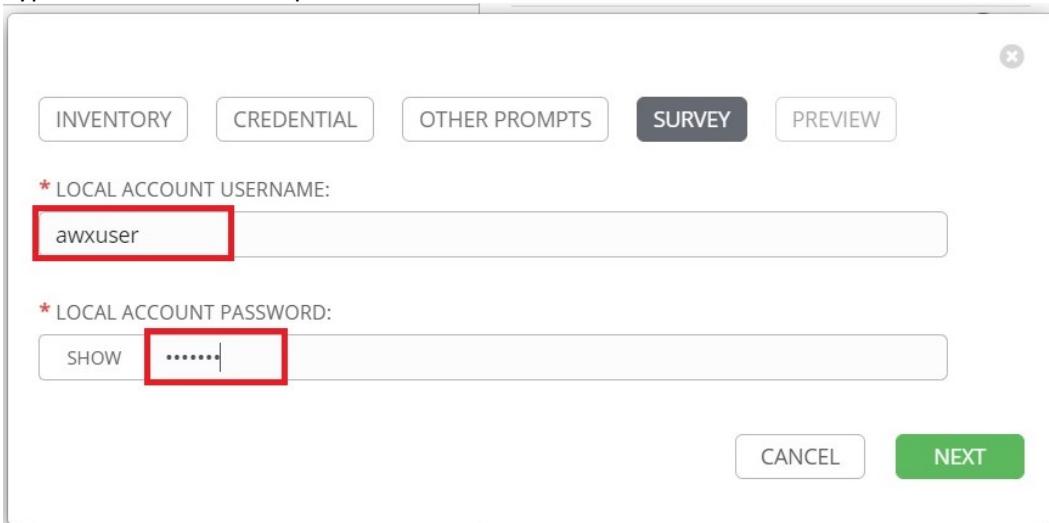
Select the **ZTP_Default_Login** credentials, then click **Next**:

The screenshot shows a modal dialog for selecting credentials. At the top, there are tabs: INVENTORY, CREDENTIAL (selected), OTHER PROMPTS, SURVEY, and PREVIEW. Below the tabs, a 'SELECTED' section shows 'ZTP_Default_Login' with a delete icon. A 'REVERT' button is to the right. A 'Credential Type:' dropdown is set to 'Machine'. A 'SEARCH' input field with a magnifying glass icon and a 'KEY' button are below it. The main list is titled 'NAME' with a sorting arrow. It contains three items: 'AWX SSH Login' (radio button), 'ICX Login' (radio button), and 'ZTP_Default_Login' (radio button, highlighted with a red border). At the bottom right, there are 'ITEMS 1 - 3', 'CANCEL', and a large green 'NEXT' button.

Click **Next**:

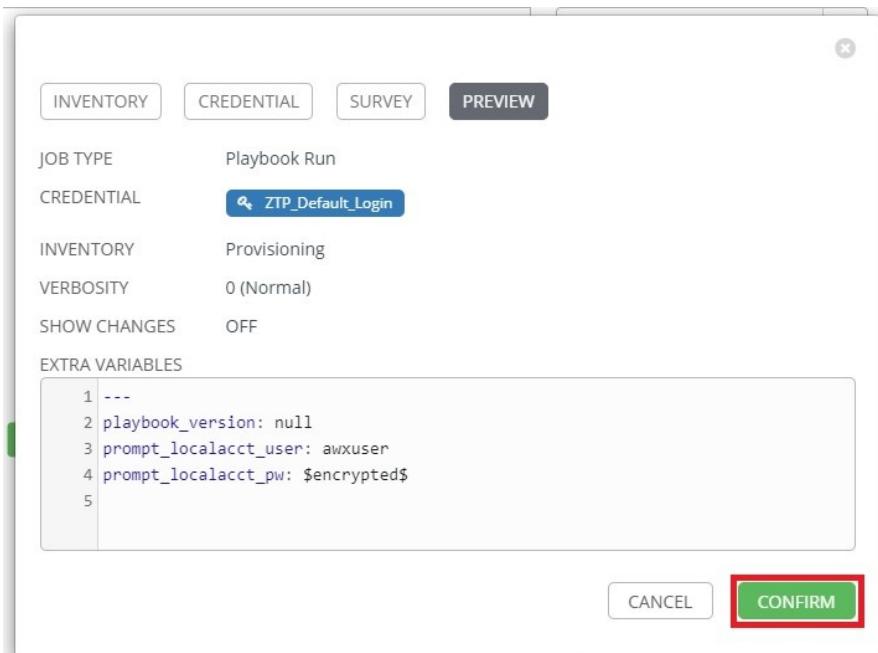


Type in a username and password to add as a local account on the switch:



When finished, click **Next**.

Click **Confirm**:



Click **Select** to add the job to the workflow:



- Remote-User-EnablePW ?
- Remote-User-LocalAcct ?
- Remote-User-StrictMode ?
- System-Misc-Banner ?
- System-Misc-ConsoleHarden ?
- System-Misc-DNS ?
- System-Misc-DoS ?
- System-Misc-Hostname ?
- System-QoS-Profiles ?

« < 4 5 6 7 8 > PAGE 6 OF 8 ITEMS 51 - 60 OF 73

* RUN

Always

PROMPT

CANCEL

SELECT

Click the  button to add a node:



Select another template then click prompt. For this example, the "L2-VLAN-Config" is selected:

WORKFLOW VISUALIZER | Provisioning-Workflow

TOTAL NODES 2

Template

SEARCH

KEY

AWX-Template-Management

ICX Facts

ICX VLAN

L2-MSTP-Config

L2-MSTP-Instance

L2-MSTP-Interface

L2-MSTP-VLAN

L2-VLAN-Config

L2-VLAN-Default

L2-VLAN-DefaultDisablePorts

< 1 2 3 4 5 > PAGE 1 OF 8 ITEMS 1 - 10 OF 73

* RUN

On Success

PROMPT

CANCEL

SELECT

Select the name of the provisioning inventory, then click **Next**:

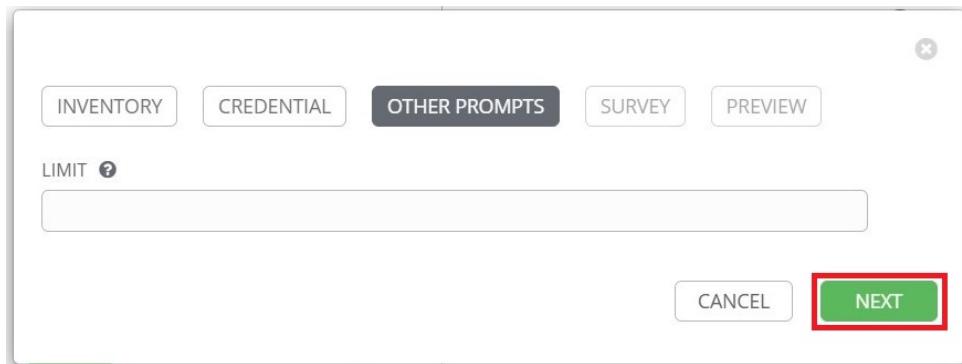
The screenshot shows a modal dialog titled 'INVENTORY'. At the top, there are tabs: INVENTORY (selected), CREDENTIAL, OTHER PROMPTS, SURVEY, and PREVIEW. Below the tabs, a 'SELECTED' section shows 'Provisioning' with a delete icon. A 'REVERT' button is to the right. A 'SEARCH' input field with a magnifying glass icon and a 'KEY' button are below it. The main list is titled 'NAME' with a sorting arrow. It contains three items: 'AWX Server' (radio button), 'Provisioning' (radio button, highlighted with a red border), and 'Ruckus Switches' (radio button). At the bottom right, there are 'ITEMS 1 - 3', 'CANCEL', and a green 'NEXT' button.

If the login credentials configured for the job in the previous step match the credentials that are saved in AWX, they can now be selected:

The screenshot shows a modal dialog titled 'CREDENTIAL' (selected). At the top, there are tabs: INVENTORY, CREDENTIAL (selected), OTHER PROMPTS, SURVEY, and PREVIEW. Below the tabs, a 'SELECTED' section shows 'ICX Login' with a delete icon. A 'REVERT' button is to the right. A 'Credential Type:' dropdown is set to 'Machine'. A 'SEARCH' input field with a magnifying glass icon and a 'KEY' button are below it. The main list is titled 'NAME' with a sorting arrow. It contains three items: 'AWX SSH Login' (radio button), 'ICX Login' (radio button, highlighted with a red border), and 'ZTP_Default_Login' (radio button). At the bottom right, there are 'ITEMS 1 - 3', 'CANCEL', and a green 'NEXT' button.

Click **Next** when finished.

Click **Next**:



Complete the Survey prompt on the next page, then click **Next**. In this example, a VLAN named "Workstation" with an ID of 301 will be created and ports 1/2/1 and 1/2/2 will be tagged:

The screenshot shows a software window with a title bar and several tabs at the top: INVENTORY, CREDENTIAL, OTHER PROMPTS, SURVEY (selected and highlighted in dark grey), and PREVIEW. Below the tabs are several configuration fields:

- * VLAN ID:** 301
- VLAN NAME:** Workstation
- VLAN TAGGING:** tagged
- INTERFACE(S):** Enter single interface or range (e.g. e1/1/1 or e1/1/1 to 1/1/10)
e1/2/1 e1/2/2
- REMOVE INTERFACE(S) FROM VLAN?** no
- CREATE ROUTER INTERFACE?** no

At the bottom right are two buttons: 'CANCEL' and 'NEXT', with 'NEXT' being highlighted by a red rectangular border.

Click **Confirm** on the next window to close the prompt window.

Click **Select** to add the job to the workflow:

The screenshot shows a partial workflow on the left and a list of templates on the right.

Workflow Visualizer (Left):

- A node labeled "Remote-User-LocalAcct" is connected to a dashed rectangular placeholder.

List of Templates (Right):

- L2-MSTP-Interface
- L2-MSTP-VLAN
- L2-VLAN-Config** (radio button selected)
- L2-VLAN-Default
- L2-VLAN-DefaultDisablePorts

Below the list are navigation buttons: < 1 2 3 4 5 > » PAGE 1 OF 8 ITEMS 1 - 10 OF 73.

Action Buttons:

- * RUN
- On Success
- PROMPT
- CANCEL
- SELECT** (highlighted with a red border)

Other templates can be added to the workflow to build out a baseline configuration. Other workflows can also be added to a workflow. The last template to add to the provisioning workflow should be the "*Provisioning-Finalize*" template. This template will configure a static IP address and hostname onto the switch.

To add the "*Provisioning-Finalize*" template to the workflow, click the button:



Select "*Provisioning-Finalize*" from the list of templates on the right:

The screenshot shows the "Workflow Visualizer" interface with the "Provisioning-Workflow".

Workflow Nodes:

- A dashed rectangular placeholder node is connected to the "Remote-User-LocalAcct" node.

Action Buttons:

- The "L2-VLAN-Config" node has a green button with a red border above it.

Template Selection:

ADD A NODE

Template: Provisioning-Finalize (radio button selected)

SEARCH: KEY:

List of Templates:

- PortSec-StickyMac
- Provisioning-Finalize** (radio button selected, highlighted with a red border)
- Provisioning-Init-Login

Click **Prompt** at the bottom of the template list:

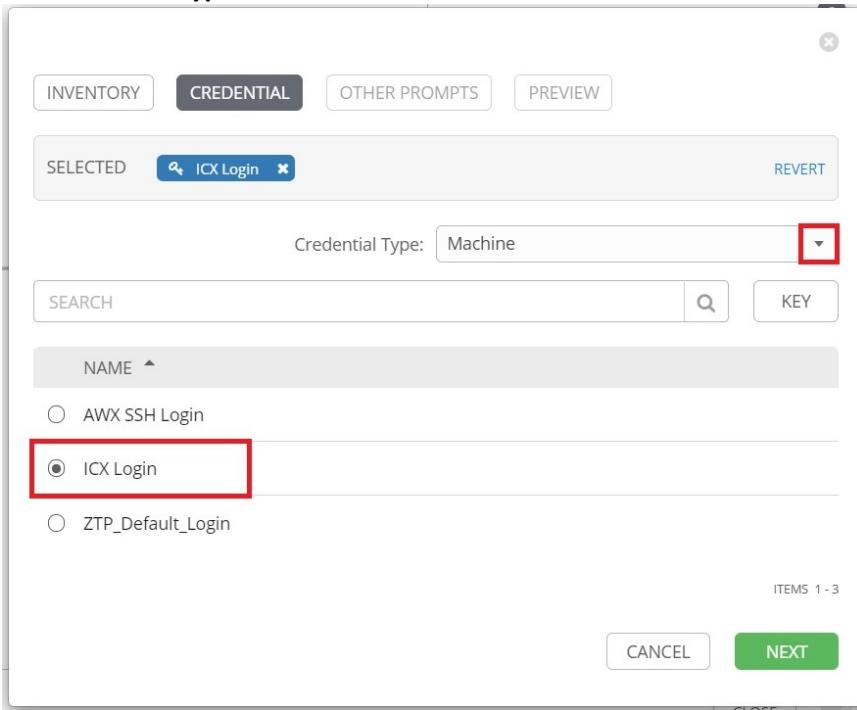
The screenshot shows a configuration dialog with two main sections: **RUN** and **CONVERGENCE**. Under **RUN**, the dropdown is set to **On Success**. Under **CONVERGENCE**, the dropdown is set to **Any**. At the bottom right, there are three buttons: **PROMPT** (highlighted with a red box), **CANCEL**, and **SELECT**. Below the dialog are two more buttons: **CLOSE** and **SAVE**.

Select the name of the provisioning inventory, then click **Next**:

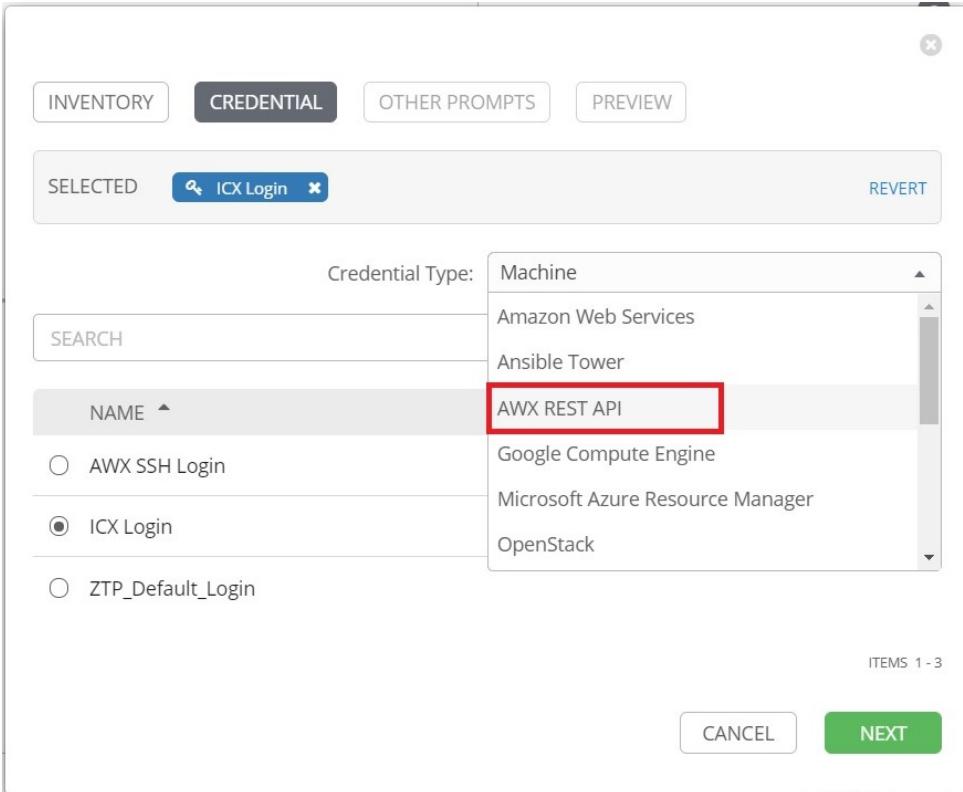
The screenshot shows an inventory selection dialog with the following interface elements:

- INVENTORY** tab is active.
- SEARCH** input field.
- NAME** dropdown menu.
- AWX Server**: Unselected radio button.
- Provisioning**: Selected radio button (highlighted with a red box).
- Ruckus Switches**: Unselected radio button.
- REVERT** button.
- KEY** button.
- ITEMS 1 - 3** status message.
- CANCEL** and **NEXT** buttons at the bottom.

The "Provisioning-Finalize" template requires two set of credentials, the switch login credentials and the REST API credentials. First select the credentials used for switch login, then click the drop-down menu for **Credential Type**:



Select **AWX REST API** from the drop-down menu:



Select the credentials for the AWX REST API, then click **Next**:

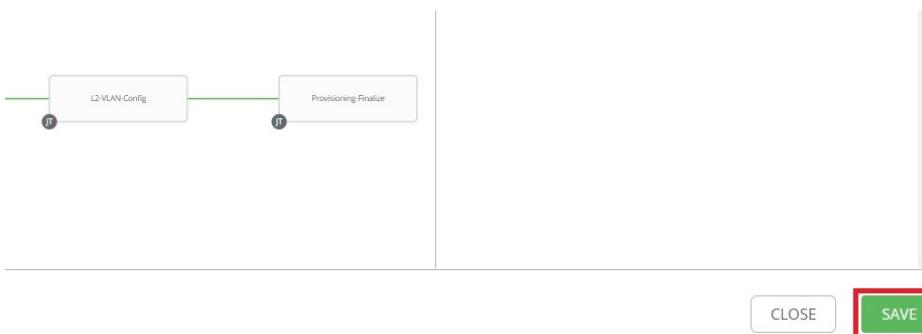
The screenshot shows a modal dialog titled 'CREDENTIAL'. At the top, there are tabs for 'INVENTORY', 'CREDENTIAL' (which is selected and highlighted in dark grey), 'OTHER PROMPTS', and 'PREVIEW'. Below the tabs, under 'SELECTED', are two items: 'ICX Login' (with a delete icon) and 'AWX Login' (with a delete icon). A 'REVERT' button is to the right. A dropdown menu labeled 'Credential Type:' shows 'AWX REST API'. Below this is a search bar with a magnifying glass icon and a 'KEY' button. A table lists one item: 'NAME' with 'AWX Login' and a radio button next to it. To the right of the table, it says 'ITEMS 1 - 1'. At the bottom are 'CANCEL' and 'NEXT' buttons.

Click **Next** on the Other Prompts page, then click **Confirm** on the Preview page.

Click **Select** to add the job to the workflow:

The screenshot shows a modal dialog for workflow configuration. It has sections for 'RUN' (set to 'On Success') and 'CONVERGENCE' (set to 'Any'). At the bottom are 'PROMPT', 'CANCEL', and a large green 'SELECT' button, which is highlighted with a red box. Below the dialog are 'CLOSE' and 'SAVE' buttons.

Click **Save** to save the workflow:



9.5 Adding Workflow to ZTP

Now that the workflow is created, it can be added to ZTP.

Click **Inventories** from the left navigation bar, then select the provisioning inventory:

The screenshot shows the Ansible Tower interface. On the left, a sidebar lists 'Inventories' with a red box around it. The main area is titled 'INVENTORIES' and contains two tabs: 'INVENTORIES' (selected) and 'HOSTS'. Below the tabs are search and key filters. A table lists three inventories: 'AWX Server' (Inventory, Default), 'Provisioning' (Inventory, Default), and 'Ruckus Switches' (Inventory, Default). Each row has edit, view, and delete icons. At the bottom right of the table, it says 'ITEMS 1 - 3'.

Find the inventory variable named "`icx_inv_ztp_vars.provisioning_vars.workflow`" and define it with the name of the workflow as shown below, then click **Save**:

The screenshot shows the 'Edit Inventory' dialog. It has sections for 'ORGANIZATION' (Default), 'INSIGHTS CREDENTIAL' (empty search bar), 'INSTANCE GROUPS' (empty search bar), and 'VARIABLES' (YAML tab selected). The YAML code in the variables section is:

```
1 icx_inv_ztp_vars:
2   provisioning_vars:
3     default_pass: 'PasswordPassword'
4     workflow: 'Provisioning-Workflow'
5     awx_api_cb: 'https://172.19.200.131/api/v2'
6     static_ip_pool:
7       ...

```

At the bottom are 'CANCEL' and 'SAVE' buttons.