Red Hat

Integrate

Ansible Automation Platform 2.6

May 12, 2026

Contents

1 Integrate

Integrate with IBM HashiCorp Terraform

Learn about the supported integrations between IBM HashiCorp products and Red Hat Ansible Automation Platform, the integration workflows, and migration paths to help determine the best options for your environment.

About the Terraform integration

Many organizations find themselves using both Ansible Automation Platform and Terraform Enterprise or HCP Terraform, recognizing that these can work in harmony to create an improved experience for developers and operations teams.

While Terraform Enterprise and HCP Terraform excel at Infrastructure as Code (IaC) for provisioning and de-provisioning cloud resources, Ansible Automation Platform is a versatile, all-purpose automation solution ideal for configuration management, application deployment, and orchestrating complex IT workflows across diverse domains.

This integration directly addresses common challenges such as managing disparate automation tools, ensuring consistent configuration across hybrid cloud environments and accelerating deployment cycles. By bringing together Terraform's declarative approach to infrastructure provisioning with Ansible Automation Platform's procedural approach to configuration and orchestration, users can achieve:

- **Optimized costs:** Reduce cloud waste, minimize manual processes, and combat tool sprawl. This integration can lead to a significant reduction in infrastructure costs and a high return on investment.
- **Reduced risk:** Lower the risk of breaches, enforce policies, and significantly decrease unplanned downtime. The ability to review Terraform plan output before applying it in a workflow, with approval steps, enhances security and compliance.
- **Faster time to value:** Boost developer productivity and deploy new compute resources more rapidly, leading to a faster time to market. This is achieved through unified lifecycle management and automation for Day 0 (provisioning), Day 1 (configuration), and Day 2 (ongoing management) operations.

By enabling direct calls between Ansible Automation Platform and Terraform Enterprise or HCP Terraform, organizations can unlock time to value by creating combined workflows, reduce risk through enhanced product integrations, and enhance Infrastructure-as-Code with Ansible Automation Platform content and practices. This allows for unified lifecycle management, enabling tasks from initial provisioning and configuration to ongoing health checks, incident response, patching, and infrastructure optimization.

Integration options for Terraform

Depending on your existing setup, you can integrate these products from Ansible Automation Platform or from Terraform. Migration paths are provided for community users and for migrating from the `cloud.terraform` collection to `hashicorp.terraform`.

Ansible-initiated workflow

Ansible automation hub collections allow Ansible Automation Platform users to leverage the Terraform Enterprise or HCP Terraform provisioning capabilities.

hashicorp.terraform collection

This collection provides API integration between Ansible Automation Platform and Terraform Enterprise or HCP Terraform. This solution works natively with Ansible Automation Platform and reduces setup complexity because it doesn't require a binary installation and it includes a default execution environment.

cloud.terraform collection

This collection provides CLI integration between Ansible Automation Platform and Terraform Enterprise or HCP Terraform. To use this collection, you must install a binary and create an execution environment.

Although this collection is supported, we recommend using the `hashicorp.terraform` collection instead to take advantage of its API capabilities.

Migration workflows

Community edition users can migrate to Terraform Enterprise or HCP Terraform, and then integrate the Ansible Automation Platform capabilities using the `cloud.terraform` (CLI) collection. However, we recommend using the `hashicorp.terraform` (API) collection instead.

If you are already using the `cloud.terraform` collection, you can migrate to `hashicorp.terraform`.

Terraform-initiated workflow

For existing Terraform Enterprise or HCP Terraform users, Terraform can directly call Ansible Automation Platform at the end of provisioning for a more seamless and secure workflow. This enables Terraform Enterprise or HCP Terraform users to enhance their immutable infrastructure automation with Ansible Automation Platform Day 2 automation capabilities and manage infrastructure updates and lifecycle events.

Use hashicorp.terraform

After installing or migrating to `hashicorp.terraform`, users must create credentials to use with job templates in Ansible Automation Platform.

Create a credential for hashicorp.terraform

Users must create a credential to use with job templates in Ansible Automation Platform.

Before you begin

- You must have a Terraform API token.

Procedure

1. Log in to Ansible Automation Platform.
2. From the navigation panel, select **Automation Execution > Infrastructure > Credentials**, and then select **Create credential**.
3. From the **Credential type** list, select the **HCP Terraform** credential type.
4. In the **Token** field, enter the Terraform API token.
5. (Optional) Edit the **Description** field and select the TF organization from the **Organization** list.
6. Click **Save credential**. You are ready to use the credential in a job template.

Related information
Terraform API tokens

Ansible-initiated workflows and patterns

After you set up authentication with Ansible Automation Platform, there are many possible Ansible-initiated workflows and patterns that you can apply.

Some workflows to consider include:

- **Performing traditional infrastructure set up.** You first configure Ansible Automation Platform to do a task that Terraform cannot manage. Then perform `terraform apply`. For example, configure Ansible Automation Platform to set up the state backend for an initial run. Or use Ansible Automation Platform to set up initial cloud credentials or users to interact with a cloud provider's API.

- **Modifying infrastructure with Terraform.** In this case, turn off Ansible monitoring for the infrastructure that you are modifying. Then perform `terraform apply` with your changes. Finally, turn monitoring back on.
- **Automating `terraform apply` based on an event.** For example, you might want to trigger an event when a ServiceNow ticket is opened or a service catalog order is placed. Set up a webhook with in the Ansible Automation Platform UI so that Terraform is able to receive the event.

Integrate with the cloud.terraform collection

When you integrate with `cloud.terraform`, you must create a credential, build an execution environment, and launch a job template in Ansible Automation Platform.

Create a credential for using cloud.terraform

You can set up credentials directly from the Ansible Automation Platform user interface. The credentials are provided to the execution environment and Ansible Automation Platform reads them from there. This eliminates the need to manually update each playbook.

Before you begin

- You must have a Terraform API token.
- Install the certified `cloud.terraform` collection from automation hub. (You need an Ansible subscription to access and download collections on automation hub.)

Procedure

1. Log in to Ansible Automation Platform.
2. From the navigation panel, select **Automation Execution > Infrastructure > Credential Types**.
3. Click **Create credential type**. The **Create Credential Type** page opens and displays the **Details** tab.
4. For the **Credential Type**, enter a name.
5. In the **Input configuration** field, enter the following YAML parameter and values:

```
fields:
  - id: token
    type: string
    label: token
    secret: true
```

6. In the **Injector configuration** field, enter the following configuration.
   - For Terraform Enterprise, the hostname is the location where you have deployed TFE:

     ```
     env:
       TF_TOKEN_<hostname>:  '{{ token }}'
     ```

   - For HCP Terraform, use:

     ```
     env:
       TF_TOKEN_app_terraform_io:   '{{ token }}'
     ```

7. To save your configuration, click **Create Credential Type** again. The new credential type is created.
8. To create an instance of your new credential type, select **Automation Execution > Infrastructure > Credentials** page, and select **Create credential**.
9. From the **Credential type**, select the name of the credential type you created earlier.
10. In the **Token** field, enter the Terraform API token.
11. (Optional) Edit the **Description** and select the TF organization from the **Organization** list.
12. Click **Save credential**.

Related information
cloud.terraform collection
Terraform API tokens
Terraform CLI configuration

Build an execution environment in Ansible Automation Platform

You must build an execution environment using the automation controller so that Ansible Automation Platform can provide the credentials necessary for using its automation features.

Before you begin

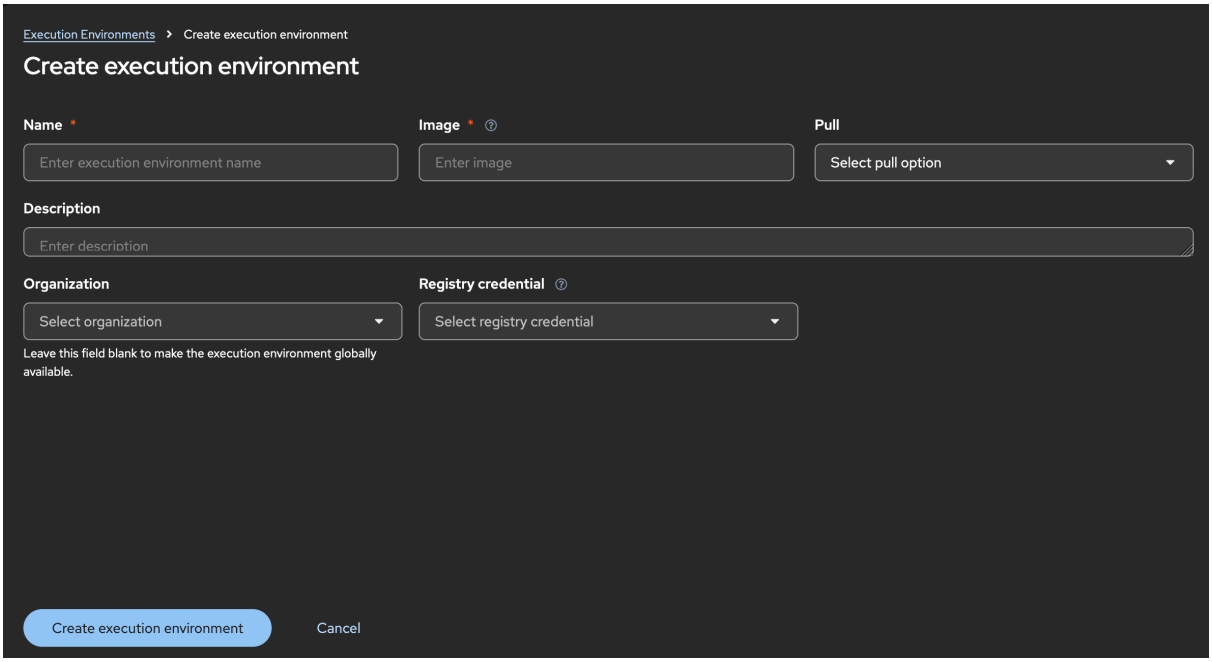
- You need a pre-existing execution environment with the latest version of `cloud.terraform` collection before you can create it using an automation controller. You cannot use the default execution environment provided by Ansible Automation Platform because the default environment does not include the `terraform` CLI binary.

> **NOTE:**
> If you have migrated from Terraform Community Edition, you can continue to use your existing execution environment and update it to the latest version of `cloud.terraform`.

- Install the `terraform` CLI binary in your pre-existing execution environment. See **Additional resources** below for a link to the binary.

Procedure

1. From the navigation panel, select **Automation Execution > Infrastructure > Execution Environments**.
2. Click **Create execution environment**.



3. For **Name**, enter a name for your Ansible Automation Platform execution environment.

4. For **Image**, enter the repository link to the image for your pre-existing execution environment.
5. Click **Create execution environment**. Your newly added execution environment is ready to be used in a job template.

Related information
CLI binary
Red Hat ecosystem catalog
Build a definition file

Create and launch a job template

Create and launch a job template to complete the integration and use the automation features in Ansible Automation Platform.

Procedure

1. From the navigation panel, select **Automation Execution > Templates**.
2. Select **Create template > Create Job Template**.
3. From the **Execution Environment** list, select the environment you created.
4. From the **Credentials** list, select the credentials instance you created previously. If you do not see the credentials, click **Browse** to see more options in the list.
5. Enter any additional information for the required fields.
6. Click **Create job template**.
7. Click **Launch template**.
8. To launch the job, click **Next** and **Finish**. The job output shows that the job has run.

Result

To see that the job has run successfully from the Terraform user interface, select **Workspaces > Ansible-Content-Integration > Run**. The Run list shows the state of the Triggered via CLI job. You can see it go from the Queued to the Plan Finished state.

Related information
Add an execution environment to a job template
Hashicorp Terraform Enterprise documentation

Migrate from `cloud.terraform` to `hashicorp.terraform`

If you are using the existing `cloud.terraform` (CLI-based) collection, you can migrate your existing playbooks to the `hashicorp.terraform` (API-based) collection. The main modules for

`hashicorp.terraform` that you must configure are `hashicorp.terraform.configuration_version` and `hashicorp.terraform.run`.

Configure the `hashicorp.terraform.configuration_version` module

To migrate to the `hashicorp.terraform` collection, you must configure the `hashicorp.terraform.configuration_version` module. This module manages configuration versions in Terraform Enterprise or HCP Terraform.

Before you begin

- Install the Ansible Automation Platform certified `hashicorp.terraform` collection.
- Verify that a valid organization and workspace are correctly set up in Terraform Enterprise or HCP Terraform.

Procedure

1. Replicate your automation tasks from the `cloud.terraform` modules.

   Example

```
- name: Create configuration version with auto_queue_runs to false
  hashicorp.terraform.configuration_version:
    workspace_id: ws-1234
    configuration_files_path: "/usr/home/tf"
    auto_queue_runs: false
    tf_validate_certs: true
    poll_interval: 3
    poll_timeout: 15
    state: present
```

2. Configure the following required parameters:

   - **`workspace_id` or `workspace` + `organization`:** The workspace ID or the workspace name and organization where the configuration version will be created and the file will be uploaded (for `state: present`).
   - **`configuration_files_path`:** The path where the required Terraform Enterprise or HCP Terraform files will be uploaded to create a configuration version (for `state: present`). The module accepts two file types for `configuration_files_path`:

    - **Directory:** Any folder containing Terraform Enterprise or HCP Terraform files. The module auto-creates the .tar.gz file from all contents recursively.
    - **.tar.gz Archive:** Pre-compressed gzip tarball. The module validates TAR format and gzip compression.
  - **`configuration_version_id`:** The configuration version ID that will be archived (`state: archived`). This action deletes the associated uploaded .tar.gz file. Note the following:
    - Only uploaded versions that were created using the API or CLI, have no active runs, and are not the current version for any workspace can be archived.
    - When the `configuration_version_id` is unspecified, Terraform Enterprise or HCP Terraform selects the latest approved `configuration_version_id` in the workspace.
  - **auto_queue_runs:** Determines if Terraform Enterprise or HCP Terraform automatically starts a run after the configuration upload (`true` by default) or requires manual initiation (`false`).
3. Set additional optional parameters as needed.

Related information
[hashicorp.terraform collection]
[Optional parameters]

Configure the `hashicorp.terraform.run` module

The `hashicorp.terraform.run` module lets you manage Terraform Enterprise or HCP Terraform runs using create, apply, cancel, and discard operations. You can trigger plans or apply operations on specified workspaces with customizable settings.

Before you begin

- Ensure that a valid Terraform API token is properly configured to authenticate with your Terraform Enterprise or HCP Terraform environment.
- Verify that a valid organization and workspace are correctly set up in Terraform Enterprise or HCP Terraform.

Procedure

1. Create a run module.

Example

```
- name: Create a destroy run with auto_apply
  hashicorp.terraform.run:
  workspace_id: ws-1234
  run_message: "destroy vpc"
  state: "present"
  tf_token: <your token>
  is_destroy: true
  auto_apply: true
  target_addrs:
    - "aws_vpc.vpc1"
    - "aws_vpc.vpc2"
  poll: true
  poll_interval: 10
  poll_timeout: 30
```

2. Configure the following required parameters:
   - **`workspace_id` or `workspace` + `organization`:** The workspace ID or the workspace name and organization where the configuration version will be created and the file will be uploaded (for `state: present`).
   - **`run_id`:** The unique identifier of the run to apply, cancel, or discard operations.
   - **`tf_token`:** The Terraform API authentication token. If this value is not set, the `TF_TOKEN` environment variable is used.
3. (Optional) Configure the built-in polling options that determine the wait period for Terraform Enterprise or HCP Terraform operations to complete:
   - **`poll: true`:** (Default) Checks the run status every `poll_interval` seconds (default: 5s) until completion or `poll_timeout` (default: 25s) is reached, returning the final status.
   - **`poll: false`:** Returns immediately after initiating the run without waiting.
4. Set additional optional parameters as needed.

Related information
Terraform API tokens
Optional parameters

Examples for `hashicorp.terraform` modules

These before and after examples help users understand how the modules can be configured in a real world environment.

Plan Only

- **Before (`cloud.terraform.terraform`):**

```
- name: Create a plan file using check mode
  cloud.terraform.terraform:
    force_init: true
    project_path: "/usr/home/tf"
    plan_file: "/usr/home/tf/terraform.tfplan"
    state: present
    check_mode: true
    check_destroy: true
    variables:
      environment: prod
```

- **After (`hashicorp.terraform.*`):**
  - The `configuration_version` module:

```
- name: Create configuration version with auto_queue_runs to false
  hashicorp.terraform.configuration_version:
    workspace_id: ws-1234
    configuration_files_path: "usr/home/tf_files"
    auto_queue_runs: false
    tf_validate_certs: true
    poll_interval: 5
    poll_timeout: 10
    state: present
```

  - The `plan_only` run with the run module:

```
- name: Create a plan only run with variables
  hashicorp.terraform.run:
   workspace_id: ws-1234
   run_message: "plan-only vpc creation"
   poll: false
   state: "present"
   tf_token: "{{ tfc_token }}"
   plan_only: true
   variables:
    - key: "env"
      value: "production"
```

Plan and apply

- **Before (`cloud.terraform.terraform`):**
  a. Generate the plan:

```
- name: Plan and Apply Workflow - Step 1 - Generate Plan
  cloud.terraform.terraform:
   force_init: true
   project_path: "/usr/home/tf"
   plan_file: "/usr/home/tf/workflow.tfplan"
   state: present
   check_mode: true
   variables:
     environment: prod
```

  b. Apply the plan:

```
- name: Plan and Apply Workflow - Step 2 - Apply Plan
  cloud.terraform.terraform:
   project_path:  "/usr/home/tf"
   plan_file: "/usr/home/tf/workflow.tfplan"
   state: present
```

- **After (`hashicorp.terraform.run`):**

a. The `configuration_version` module:

```
- name: Create configuration version with auto_queue_runs to false
  hashicorp.terraform.configuration_version:
    workspace_id: ws-1234
    configuration_files_path: "usr/home/tf_files"
    auto_queue_runs: false
    tf_validate_certs: true
    poll_interval: 5
    poll_timeout: 10
    state: present
```

b. The run module with two options for plan and apply workflow:

- **Option 1:** Uses the `auto_apply` parameter to handle both the plan and apply workflows:

```
- name: Create a run with auto_apply
  hashicorp.terraform.run:
    workspace_id: ws-1234
    run_message: "destroy vpc"
    state: "present"
    tf_token: "{{ tfc_token }}"
    auto_apply: true
    poll: true
    poll_interval: 10
    poll_timeout: 30
```

- **Option 2:** Uses two sub-steps to create a `save_plan` run and then apply it:

a. Create the plan:

```
- name: Create a save plan run
  hashicorp.terraform.run:
    workspace_id: ws-1234
    run_message: "save plan vpc creation"
    state: "present"
    tf_token: "{{ tfc_token }}"
    poll: true
    poll_interval: 10
    poll_timeout: 30
    save_plan: true
```

b. Apply the plan. You get the `run_id` from the output of the run module task:

```
- name: Apply the save plan run
  hashicorp.terraform.run:
    run_id: run-1234
    state: "applied"
    tf_token: "{{ tfc_token }}"
    poll: true
    poll_interval: 10
    poll_timeout: 30
```

Migrate from the Terraform community edition

If you want to use Ansible Automation Platform with Terraform Enterprise (TFE) or HCP Terraform and you are currently using Terraform Community Edition (TCE), you must migrate to TFE or HCP Terraform and then update Ansible Automation Platform configurations to work with TFE or HCP Terraform.

Before you begin

- Use the latest supported version of Terraform (1.11 or higher).
- Follow the `tf-migrate` CLI instructions under **Additional resources** below.
- Ensure that the HCP Terraform or TFE workspace is not set to automatically apply plans.

When you migrate from TCE to TFE or HCP Terraform, you are not migrating the collection itself. Instead, you are adapting your existing TCE usage to work with TFE or HCP Terraform.

After you migrate, you must update the Ansible Automation Platform credentials, execution environment, and job templates.

NOTE:
The `cloud.terraform` collection only supports the CLI-driven workflow in HCP Terraform.

Procedure

1. To prevent errors when running playbooks against TFE or HCP Terraform, do the following actions before running a playbook:
    a. Confirm that the Terraform version in the execution environment is the same as the version stated in TFE or HCP Terraform.
    b. Perform an initialization in TFE or HCP Terraform:

```
terraform init
```

    c. If you have a local state file in your execution environment, delete the local state file.
    d. Get a token from HCP Terraform or Terraform Enterprise, which you will use to create the credential in a later step. Ensure the token has the necessary permissions based on the team or user token to execute the desired capabilities in the playbook.
    e. Remove the backend config and files from your playbook definition.
    f. Add the workspace within the default setting in your TF config or an environment variable if you want to define the workspace outside updating the playbook itself.

    NOTE:
    You can add the workspace to your playbook to scale your workspace utilization.

2. From the Ansible Automation Platform user interface, complete the integration with `cloud.terraform`:
    a. Create a credential.
    b. Build an execution environment in Ansible Automation Platform.
    c. Create and launch a job template.
3. (Optional) After the migration is completed and verified, you can run the additional modules and plugins from the collection in your execution environment:
    - Plan Stash module
    - Terraform module
    - Output plugin

- Output lookup plugin
- State inventory plugin

Related information
Integrate with the cloud.terraform collection
Plan Stash module
Terraform module
Output plugin
Output lookup plugin
State inventory plugin
CLI instructions

Integrate from Terraform

If you have already provisioned your environment from Terraform Enterprise, you can use the Terraform official provider to leverage Ansible Automation Platform automation capabilities.

Configure the provider

You must configure the provider to allow Terraform to reference and manage a subset of Ansible Automation Platform resources.

Before you begin

- You have installed and configured Terraform Enterprise or HCP Terraform.
- You have installed the latest release version of `terraform-provider-aap` from the Terraform registry.

> **NOTE:**
> The default latest version on the Terraform registry might be a pre-release version (such as 1.2.3-beta). Select a supported release version, which uses a 1.2.3 format without dashes.

- You have created a username and password or an API token for Ansible Automation Platform. Environment variables are also supported.

> **NOTE:**
> Token authentication is recommended because users can manage tokens for specific integrations (such as Terraform), limit token access, and have full control over token lifecycle.

The provider configuration belongs in the root module of a Terraform configuration. Child modules receive their provider configurations from the root module.

Procedure

1. Create a Terraform configuration (`.tf`) file. Include a `provider` block. The name given in the block header is the local name of the provider to configure. This provider should already be included in a `required_providers` block.

Example

```
 # This example creates an inventory named `My new inventory`
# and adds a host `tf_host` and a group `tf_group` to it,
# and then launches a job based on the "Demo Job Template"
# in the "Default" organization using the inventory created.
#
terraform {
  required_providers {
    aap = {
      source = "ansible/aap"
    }
  }
}


provider "aap" {
  host     = "https://AAP_HOST"
  token = "my-aap-token" # Do not record credentials directly in the Terraform configuration. Provide your token using the AAP_TOKEN environment variable.
}


resource "aap_inventory" "my_inventory" {
  name         = "My new inventory"
  description  = "A new inventory for testing"
  organization = 1
  variables = jsonencode(
    {
      "foo" : "bar"
    }
  )
}
```

```
resource "aap_group" "my_group" {
  inventory_id = aap_inventory.my_inventory.id
  name         = "tf_group"
  variables = jsonencode(
    {
      "foo" : "bar"
    }
  )
}


resource "aap_host" "my_host" {
  inventory_id = aap_inventory.my_inventory.id
  name         = "tf_host"
  variables = jsonencode(
    {
      "foo" : "bar"
    }
  )
  groups = [aap_group.my_group.id]
}


data "aap_job_template" "demo_job_template" {
  name              = "Demo Job Template"
  organization_name = "Default"
}


  # In order for passing the inventory id to the job template execution, the
Inventory on the job template needs to be set to "prompt on launch"
resource "aap_job" "my_job" {
  inventory_id    = aap_inventory.my_inventory.id
  job_template_id = aap_job_template.demo_job_template.id


  # This resource creation needs to wait for the host and group to be created
in the inventory
  depends_on = [
    aap_host.my_host,
    aap_group.my_group
```

```
  ]
}
```

2. Add the configuration arguments, as shown in the previous example. You must configure the host and credentials. A full list of supported schema is available on the Terraform registry for your `aap` provider release version.

    - **`host`:** (String) AAP server URL. Can also be configured using the `AAP_HOST` environment variable.
    - **`insecure_skip_verify`:** (Boolean) If `true`, configures the provider to skip TLS certificate verification. Can also be configured by setting the `AAP_INSECURE_SKIP_VERIFY` environment variable.
    - **`password`:** (String, Case Sensitive) Password to use for basic authentication. Ignored if the token is set. Note that hardcoded credentials are not recommended for security reasons. It is a best practice to use the `AAP_PASSWORD` environment variable instead.
    - **`timeout`:** (Number) Timeout specifies a time limit for requests made to the AAP server. Defaults to 5 if not provided. A timeout of zero means no timeout. Can also be configured by setting the `AAP_TIMEOUT` environment variable.
    - **`token`:** (String, Case Sensitive): Token to use for token authentication. Note that hardcoded credentials are not recommended for security reasons. It is a best practice to use the `AAP_TOKEN` environment variable instead.
    - **`username`:** (String) Username to use for basic authentication. Ignored if the token is set. Can also be configured by setting the `AAP_USERNAME` environment variable.
3. (Optional) You can use expressions in the values of these configuration arguments, but can only reference values that are known before the configuration is applied.
4. (Optional) You can also use an `alias` meta-argument that is defined by Terraform and is available for all provider blocks. `alias` lets you use the same provider with different configurations for different resources.

Related information
Terraform Enterprise and HCP Terraform
Terraform registry
Local names
required_providers block
Expressions
Alias configuration
Terraform State
Associate tokens with applications (2.5 and later)
Create tokens for a user (2.4)
The Module providers Meta-Argument
Module Development: Providers Within Modules

Dynamically override execution settings

As an administrator using Terraform provider, you can configure optional Prompt on Launch parameters in Ansible job and workflow templates to dynamically override default execution settings at runtime.placeholder.

This means that you can use one Ansible template with different Terraform `*.tf` files to deploy many environments. Terraform provides the values when the Ansible job or workflow runs.The Ansible playbooks and templates stored in Ansible Automation Platform remain reusable and independent of the specific Terraform configuration that provisioned them.

You must take the following steps to use Prompt on Launch:

- **Ansible UI:** Select the **Prompt on Launch** checkbox for any of the supported fields in the Ansible job or workflow template.
- **Terraform:** Set the values for the corresponding fields in the `*.tf` file that will launch jobs from that template. If the corresponding value is not set in the `*.tf` file, then the run fails and Ansible Automation Platform sends an error message.

The supported Prompt on Launch settings include:

- **Inventory:** Allows Terraform to specify the inventory that will be used by the Ansible job template.
- **Extra variables:** To use extra variables to pass data or trigger actionable workflows, provide either a JSON or YAML string.
- **Job tag:** Tags to include in the workflow job run.
- **Labels:** Labels can be used to describe a job template, such as dev or test. You can use labels to group and filter job templates and completed jobs in the display.
- **Limit:** The Prompt on Launch option restricts a job template to run against only a specific host or group of hosts within an inventory.

  NOTE: When running as part of a workflow, the workflow job template limit is used instead.

- **Skip tag:** Tags to ignore in the workflow job run.

Related information
Automation job templates
aap_job schema

Use TF Actions and Ansible Automation Platform

Use Terraform (TF) Actions with Ansible Automation Platform to trigger automated configuration after your infrastructure is provisioned.

About Terraform Actions and Ansible Automation Platform

The Terraform (TF) Actions adds an imperative `action` block to the HCL language, letting you execute steps after infrastructure is provisioned without leaving the declarative Terraform workflow. This keeps the entire infrastructure and configuration process visible in your Terraform configuration.

TF Actions can be used to trigger Ansible automation for configuration management, such as sending an event and payload to Ansible Automation Platform to configure newly provisioned virtual machines.

There are two actions implemented with the Terraform provider for Ansible Automation Platform:

- **Launch a job directly:** Runs the job as a direct, immediate execution request to Ansible Automation Platform. You must explicitly define which specific Ansible Automation Platform job template the TF Action should call.
- **Use Event-Driven Ansible:** Sends an event to Ansible Automation Platform, which then uses rulebooks to intelligently decide which playbook to run based on the event's payload. This allows for more dynamic, scalable and reactive automation.

Use TF Actions as a direct job

When you use TF Actions to launch jobs directly with Ansible Automation Platform, the process is streamlined and sequential.

Before you begin

- You have configured the AAP Terraform provider to authenticate with Ansible Automation Platform.
- You have configured the AWS Terraform provider to authenticate with Amazon Web Services.

> **NOTE:**
> The example below uses Amazon Web Services (AWS) and requires an AWS account that might incur charges. You can adapt the pattern to use a different cloud provider.

- You have job templates configured with:
  - Inventory set to **prompt on launch**.
  - A machine credential (private key) matching a public key available in a local file.

The benefit of this approach is a clean, predictable state: the Ansible job launches during the Terraform apply cycle, and Terraform receives a clear, binary status. Note that each change launches a separate job with identical configuration.

This method can be useful when you want to execute Ansible automation against newly provisioned servers. For example, last mile provisioning or applying a routine security patching job on a new host.

Procedure

1. Define the `aap_job_launch` action in your `*.tf` file.
2. Add a lifecycle job block to define which action will be invoked during the proper lifecycle event trigger.

Example

```
terraform {
  required_providers {
    aws = {
      source  = "hashicorp/aws"
      version = "~> 6.0"
    }

    aap = {
      source  = "ansible/aap"
      version = "~> 1.4.0"
    }
  }
}

provider "aap" {
  # Configure authentication as needed.
}

provider "aws" {
  region = "us-west-1"
  # Configure authentication as needed.
}
```

```
variable "public_key_path" {
  type        = string
  description = "Local path to a public key file to inject into the VM. Your AAP Job Template must have the matching private key configured as a machine credential."
}

resource "aws_key_pair" "key_pair" {
  key_name   = "aap-terraform-actions-demo-key"
  public_key = file(var.public_key_path)
}

data "aws_ami" "rhel_ami" {
  most_recent = true

  filter {
    name   = "name"
    values = ["RHEL-9*"]
  }

  filter {
    name   = "virtualization-type"
    values = ["hvm"]
  }

  owners = ["309956199498"] # Red Hat
}

resource "aws_instance" "instance" {
  ami                         = data.aws_ami.rhel_ami.id
  instance_type               = "t2.micro"
  associate_public_ip_address = true
  key_name                    = aws_key_pair.key_pair.key_name
}

# Look up Organization ID
```

```
data "aap_organization" "organization" {
  name = "Default"
}

# Create an inventory

resource "aap_inventory" "inventory" {
  name         = "Actions Demo Inventory"
  organization = data.aap_organization.organization.id
}

data "aap_job_template" "job_template" {
  name              = "Demo Job Template"
  organization_name = data.aap_organization.organization.name
}

#
# Direct job launch action example
#

resource "aap_host" "host" {
  inventory_id = aap_inventory.inventory.id
  name         = resource.aws_instance.instance.public_ip
  # Setting a value of 10 for SSH retries because terraform will mark the
  # instance 'created' before it is ready to accept connections from Ansible.
  variables = jsonencode(
    {
      "ansible_ssh_retries" : 10
    }
  )
  # Configure a job launch after the host is created in inventory
  lifecycle {
    action_trigger {
      events  = [after_create]
      actions = [action.aap_job_launch.job_launch]
    }
```

```
  }
}


action "aap_job_launch" "job_launch" {
  config {
    inventory_id        = aap_inventory.inventory.id
    job_template_id     = data.aap_job_template.job_template.id
    wait_for_completion = true
  }
}
```

3. (Required) Change the job template name and the inventory name in this example to your corresponding variables.
4. (Optional) You can set `owners` to the Red Hat RHEL image ID so that the latest image is used each time the job runs.
5. (Optional) Set additional parameters as needed. For example, you can set `wait_for_completion` to `true`, then Terraform will wait until this job is created and reaches any final state before continuing. You can also set `wait_for_completion_timeout_seconds` to control the timeout limit.
6. Update and commit the Terraform code.
7. Execute the Terraform plan and apply it.

Related information
Authenticate with Amazon Web Services
Additional parameters

Use TF Actions with Event-Driven Ansible

Event-Driven Ansible is an automation feature that allows Ansible Automation Platform to react to real-time events, instead of being triggered on a schedule or by a manual request.

Configure an event stream for TF actions

To use TF Actions with Event-Driven Ansible, you must first configure the event stream in Ansible Automation Platform. TF actions will post events to this stream.

Before you begin

- You have configured the AAP Terraform provider to authenticate with Ansible Automation Platform.
- You have configured the AWS Terraform provider to authenticate with Amazon Web Services.

> **NOTE:** The example below uses Amazon Web Services (AWS) and requires an AWS account that might incur charges. You can adapt the pattern to use a different cloud provider.

- You have an Ansible Automation Platform inventory named **EDA Actions Demo Inventory** in the **Default** organization.
- You have job templates configured with:
  - Inventory set to **EDA Actions Demo Inventory**.
  - A machine credential (private key) matching a public key available in a local file.

Procedure

1. Log in to the Ansible Automation Platform user interface.
2. Navigate to **Automation Decisions > Event Streams**.
3. Click **Create event stream**.
4. On the **Create event stream** page, edit the fields:
   - **Name:** A descriptive, unique name for your event stream (such as `Terraform provider_Events`).
   - **Organization:** Select the organization this event stream will belong to (usually `Default` or your specific organization).
   - **Event stream type:** Select the type that matches how you want to receive events. **Basic Event Stream** (username/password) is supported with this integration.
   - **Credential:** Select a credential that you have pre-created for authentication with this event stream.
   - **Headers:** (Optional) Enter comma-separated HTTP header keys that you want to include in the event payload that gets forwarded to the rulebook. Leave this empty to include all headers.
   - **Forward events to rulebook activation:** This option is typically enabled by default. Disabling it is useful for testing and diagnosing your connection and incoming data without inadvertently triggering any automation.
5. Click **Create event stream**. Then navigate to **Automation Decisions > Event Streams** to verify the event stream was created and see the number of events received so far.

   You can also click on the specific stream to see its detailed configuration, including the organization, event stream type, associated credential, and event forwarding settings.
6. Set up a rule book activation. Make sure to:

a. Add the event stream to the rulebook.
b. (Recommended) Select the **Rulebook activation enabled?** option to automatically start the activation after creation.
c. Activate the rulebook.

7. Select **Automation Decisions > Rulebook Activations** to verify that the rulebook is active and check its status.

Related information
Authenticate with Amazon Web Services
Set up a rulebook activation

Configure TF Actions

To connect the event stream to Terraform actions, you configure the main TF file (`*.tf`) in Terraform.

Procedure

1. Add a lifecycle block to call the Event-Driven Ansible event stream to your `*.tf` file. The `after_create` action will trigger the `action.aap_eda_eventstream_post.create` .

Example

The following example shows a `lifecycle` block added to the provisioning of an AWS EC2 server. After the new server is provisioned, the action runs.

```
terraform {
  required_providers {
    aws = {
      source  = "hashicorp/aws"
      version = "~> 6.0"
    }

    aap = {
      source  = "ansible/aap"
      version = "~> 1.4.0"
    }
  }
}

provider "aap" {
  # Configure authentication as needed.
```

```
}


provider "aws" {
  region = "us-west-1"
  # Configure authentication as needed.
}


variable "public_key_path" {
  type        = string
  description = "Local path to a public key file to inject into the VM. Your
AAP Job Template must have the matching private key configured as a machine
credential."
}


variable "event_stream_username" {
  type = string
}


variable "event_stream_password" {
  type = string
}


resource "aws_key_pair" "key_pair" {
  key_name   = "aap-terraform-actions-demo-key"
  public_key = file(var.public_key_path)
}


data "aws_ami" "rhel_ami" {
  most_recent = true


  filter {
    name   = "name"
    values = ["RHEL-9*"]
  }


  filter {
    name   = "virtualization-type"
```

```
    values = ["hvm"]
  }

  owners = ["309956199498"] # Red Hat
}

resource "aws_instance" "instance" {
  ami                         = data.aws_ami.rhel_ami.id
  instance_type               = "t2.micro"
  associate_public_ip_address = true
  key_name                    = aws_key_pair.key_pair.key_name
}

# Look up an inventory

data "aap_inventory" "inventory" {
  name              = "EDA Actions Demo Inventory"
  organization_name = "Default"
}

#
# EDA Event launch action example
#

resource "aap_host" "host" {
  inventory_id = data.aap_inventory.inventory.id
  name         = resource.aws_instance.instance.public_ip
  # Configure an EDA eventstream POST after the host is created in inventory
  lifecycle {
    action_trigger {
      events  = [after_create]
      actions = [action.aap_eda_eventstream_post.event_post]
    }
  }
}
```

```
data "aap_eda_eventstream" "eventstream" {
  name = "TF Actions Event Stream"
}


action "aap_eda_eventstream_post" "event_post" {
  config {
    limit             = "all"
    template_type     = "job"
    job_template_name = "Demo Job Template"
    organization_name = "Default"
    event_stream_config = {
      username = var.event_stream_username
      password = var.event_stream_password
      url      = data.aap_eda_eventstream.eventstream.url
    }
  }
}
```

2. (Required) Configure the following parameters:
    - **`event_stream_config`:** (Attributes) Details for the Event-Driven Ansible event stream. You must include:
        - **`username`:** (String) Username to use when performing the POST to the event stream URL
        - **`password`:** (String) Password to use when performing the POST to the event stream URL
        - **`url`:** (String) URL to receive the event POST
    - **`limit`:** (String) Ansible Automation Platform limit for job execution
    - **`organization_name`:** (String) Organization name
    - **`template_type`:** (String) Template type: either `job` or `workflow_job`
3. (Optional) You can set `owners` to the Red Hat RHEL image ID so that the latest image is used each time the job runs.
4. (Optional) Set additional parameters as needed.
5. Configure an action integration with event payload specifications and target rulebook mapping.

   Example:

```
- name: Dispatch TF Workflow Job Template Action
      condition: event.payload.template_type == "workflow"
      throttle:
        once_after: 1 minute
        group_by_attributes:
          - event.payload.workflow_template_name
          - event.payload.limit
          - event.payload.organization_name
      actions:
        - debug:
            msg: "Executing Workflow Template
{{ event.payload.workflow_template_name }}"
        - run_workflow_template:
            name: "{{ event.payload.workflow_template_name }}"
            organization: "{{ event.payload.organization_name }}"
        - debug:
            msg: "Executed Workflow Job Template
{{ event.payload.workflow_template_name }}"
```

Related information
Additional parameters for event stream
Terraform provider documentation
IBM Hashicorp YouTube Demo

Create and apply the plan

After you configure your Terraform plan to include Event-Driven Ansible events, you create and apply the plan to trigger the events.

Procedure

1. Run `terraform init` to initialize your working directory.
2. Use `terraform plan` to commit to create the plan. The following example also saves the plan to a file named `tfplan.out`, but you can specify any name for the plan. Saving the plan is a best practice for automation because the saved plan is strictly enforced.

```
terraform plan -out=tfplan.out
```

3. Review the plan output.

4. Apply the saved plan.

```
terraform apply tfplan.out
```

This creates and sends an event to the specified event stream. As each resource is created, TF actions are invoked and the corresponding Ansible Automation Platform playbooks are executed sequentially.

Result

1. Verify that the runs are updated in the Terraform user interface. Drill down on a resource to see that the action was invoked and a post event was executed.
2. From the Ansible Automation Platform user interface, verify that the event is successfully received by (EDAName} and triggers the appropriate rulebook activation:
   a. Check the **Event Streams** dashboard to see the TF Actions events were received.
   b. Check the **Jobs** dashboard to see the jobs running sequentially and with a **Success** status.
   c. Check the **Inventory** dashboard to see the updates. For example, if you created new servers, check the **Hosts** tab for the Terraform provisioned inventory.

Related information
Terraform workflow for provisioning infrastructure

Example rulebook

The following rulebook example shows how to use TF actions and Event-Driven Ansible to listen for events on a webhook.

```
- name: Listen for events on a webhook
  hosts: all


  ## Define our source for events


  sources:
    - ansible.eda.webhook:
        host: 0.0.0.0
        port: 5000
      filters:
        - ansible.eda.insert_hosts_to_meta:
            host_path: payload.limit
```

```
  ## Define the conditions we are looking for


  rules:
    - name: Dispatch TF Job Template Action
      condition: event.payload.template_type == "job"
      throttle:
        once_after: 1 minute
        group_by_attributes:
          - event.payload.job_template_name
          - event.payload.limit
          - event.payload.organization_name
      actions:
        - debug:
            msg: "Executing Job Template {{ event.payload.job_template_name }}"
        - run_job_template:
            name: "{{ event.payload.job_template_name }}"
            organization: "{{ event.payload.organization_name }}"
        - debug:
            msg: "Executed Job Template {{ event.payload.job_template_name }}"
    - name: Dispatch TF Workflow Job Template Action
      condition: event.payload.template_type == "workflow"
      throttle:
        once_after: 1 minute
        group_by_attributes:
          - event.payload.workflow_template_name
          - event.payload.limit
          - event.payload.organization_name
      actions:
        - debug:
            msg: "Executing Workflow Template
{{ event.payload.workflow_template_name }}"
        - run_workflow_template:
            name: "{{ event.payload.workflow_template_name }}"
            organization: "{{ event.payload.organization_name }}"
        - debug:
```

```
            msg: "Executed Workflow Job Template
{{ event.payload.workflow_template_name }}"
```

Integrate with IBM HashiCorp Vault

The integration of Red Hat Ansible Automation Platform and IBM HashiCorp Vault provides fully automated lifecycle management for Vault.

Authenticate to `hashicorp.vault`

After you install or migrate to the `hashicorp.vault` collection, authentication is configured in the Ansible Automation Platform user interface. An administrator creates a custom credential type to authenticate to Vault. Then users create credentials to use with job templates.

About the Vault integration

Vault lets you centrally store and manage secrets securely. The Ansible Automation Platform certified `hashicorp.vault` collection provides fully automated lifecycle and operation management for Vault. You can create, update, and delete secrets through playbooks.

- **Existing `community.hashi_vault` users:** The `hashicorp.vault` solution is intended to replace unsupported `community.hashi_vault` collection. Use the migration path to keep your existing playbooks.
- **New Vault users:** The `hashicorp.vault` collection is included in the supported execution environment from automation hub.

NOTE:
Although the `hashicorp.vault` and `hashi.terraform` collections work independently of each other and are designed for different tasks, you can use them together in advanced workflows.

Related information
Migrate from community.hashi_vault

Authentication architecture

The `hashicorp.vault` collection manages authentication through environment variables and client initialization. This approach enhances security by preventing sensitive credentials from being passed directly as module parameters within playbook tasks.

The `hashicorp.vault` collection injects credentials into job templates with environment variables, so you get simpler, cleaner task definitions while ensuring that authentication details remain secure.

The following authentication types are supported:

- **appRole authentication:** Use either one of the following methods when using appRole authentication:
  - Set the `VAULT_APPROLE_ROLE_ID` and `VAULT_APPROLE_SECRET_ID` environment variables. When you use environment variables, you must also create a custom credential type and credentials that will be passed to the job template.
  - Directly pass the `role_id` and `secret_id` parameters to the tasks, for example:

```
- name: Create a secret with AppRole authentication
  hashicorp.vault.kv2_secret:
    url: https://vault.example.com:8200
    auth_method: approle
    role_id: "{{ vault_role_id }}"
    secret_id: "{{ vault_secret_id }}"
    path: myapp/config
    data:
      api_key: secret-api-key
```

- **Token authentication:** Set the `VAULT_TOKEN` environment variable.
  Optionally, you can configure parameters for the token. If parameters are not provided, then the module uses environment variables.

Create a custom credential type for Vault

As an admin, you create a secure credential type in Ansible Automation Platform, which is used to authenticate to Vault.

Before you begin

Do *one* of the following:

- **New users:** Install the Ansible Automation Platform certified `hashicorp.vault` collection from Automation hub.
- **`community.hashi_vault` collection users:** Migrate from `community.hashi_vault`.

You can configure role-based (appRole) authentication or allow users to directly provide a token.

Procedure

1. Log in to Ansible Automation Platform.
2. From the navigation panel, select **Automation Execution > Infrastructure > Credential Types**.
3. Click **Create a credential type**. The **Create Credential Type** page opens.
4. Enter a name and a description in the corresponding fields.
5. If you want to configure token authentication for individual users:
    a. For **Input configuration**, enter:

```
fields:
 - id: vault_token
   type: string
   label: Hashicorp Vault Token
   secret: true
```

    b. For **Injector configuration**, enter:

```
env:
   VAULT_TOKEN: '{{ vault_token }}'
```

6. If you want to configure appRole authentication using `role_id` and `secret_id`:
    a. For **Input configuration**, enter:

```
fields:
  - id: vault_approle_role_id
    type: string
    label: Hashicorp Vault appRole Role ID
    secret: true
  - id: vault_approle_secret_id
    type: string
    label: Hashicorp Vault appRole Secret ID
    secret: true
```

b. For **Injector configuration**, enter:

```
env:
    VAULT_APPROLE_ROLE_ID: '{{ vault_approle_role_id }}'
    VAULT_APPROLE_SECRET_ID: '{{ vault_approle_secret_id }}'
```

7. Click **Create credential type**.

Next steps

- Create a custom credential

Related information
Automation hub
Migrate from community.hashi_vault
Vault API documentation

Create a custom credential

Vault users must create a custom credential to use with job templates in Ansible Automation Platform.

Before you begin

- Your administrator has created a Vault credential type.

Procedure

1. Log in to Ansible Automation Platform.

2. From the navigation panel, select **Automation Execution > Infrastructure > Credentials**, and then select **Create credential**.
3. Enter a name and a description in the corresponding fields.
4. (Optional) From the **Organization** list, select an organization.
5. From the **Credential type** list, select a Vault credential type. The fields that display depend on the credential type.
6. Do *one* of the following:
    a. For the token authentication, add your Vault token and edit any fields as needed.
    b. For the appRole authentication method, enter the IDs in the **appRole Role ID** and **appRole Secret ID** fields. Edit any other fields as needed.
7. Click **Save credential**. You are ready to use the credential in a job template.

Migrate from `community.hashi_vault`

If you are using the `community.hashi_vault` collection, you can migrate your existing playbooks to the `hashicorp.vault` collection.

Configure KV1 modules

If you are using KV1 with `community.hashi_vault` collection, configure the corresponding modules in the `hashicorp.vault` collection.

Configure the `hashicorp.vault.kv1_secret` module

Configuring this module is not required, but you can configure the defaults if needed after the migration.

- Configuring this module is not required for migration because there are no corresponding modules in `community.hashi_vault`. However, you might want to configure something other than the defaults for `auth_method` and `state` after the migration. You can use the examples on Ansible automation hub for reference.

Configure the `hashicorp.vault.kv1_secret_info` module

The `hashicorp.vault.kv1_secret_info` module reads KV1 secrets.

The corresponding community.hashi_vault modules are:

- **`community.hashi_vault.vault_kv1_get`:** Retrieves secrets from the HashiCorp Vault KV version 1 secret store.
- **`community.hashi_vault.vault_kv1_get lookup`:** Retrieves secrets from the HashiCorp Vault KV version 1 secret store.

Procedure

1. Replicate the `community.hashi_vault modules` to the following `hashicorp.vault.kv1_secret_secret_info` parameters.

```
    engine_mount_point:
      description: KV secrets engine mount point.
      default: secret
      type: str
      aliases: [secret_mount_path]
    path:
      description:
        - Specifies the path of the secret.
      required: true
      type: str
      aliases: [secret_path]
extends_documentation_fragment:
  - hashicorp.vault.vault_auth.modules
```

2. (Required) Configure the `path` parameter. This is the path to the secret in the `community.hashi_vault.hashi_vault` modules. **Alias:** `secret_path`
3. If needed, configure the optional parameters.

Next steps

- Configure the `hashicorp.vault.kv1_secret_get` lookup plugin.

Related information
Optional parameters

Configure the `hashicorp.vault.kv1_secret_get` lookup plugin

The `hashicorp.vault.kv1_secret_get` lookup plugin module reads KV1 secrets.

The corresponding `community.hashi_vault` modules are:

- **`community.hashi_vault.hashi_vault`:** Retrieves secrets from HashiCorp Vault.

- **`community.hashi_vault.vault_kv1_get lookup :`** Gets secrets from the HashiCorp Vault KV version 1 secret store.

Procedure

1. Replicate `the community.hashi_vault` modules to the following `hashicorp.vault.kv1_secret_get` parameters.

```
 auth_method:
   description: Authentication method to use.
   choices: ['token', 'approle']
   default: token
   type: str
 engine_mount_point:
   description:
     - The KV secrets engine mount point.
   default: secret
   type: str
   aliases: ['mount_point', 'secret_mount_path']
 secret:
   description:
     - The Vault path to the secret being requested.
   required: true
   type: str
   aliases: ['secret_path']
```

2. (Required) Configure the secret parameter. This maps to secret in the `community.hashi_vault.hashi_vault` modules. **Alias:** `secret_path`
3. If needed, configure the optional parameters.

Next steps

- Create a credential type

Related information
Optional parameters

Example: `hashicorp.vault.kv1_secret_info` module

The following migration example shows before and after configurations for the `hashicorp.vault.kv1_secret_info` module.

Example:

Before (community.hashi_vault)

```
- name: Read a kv1 secret from Vault (community collection)
  community.hashi_vault.vault_kv1_get:
    url: https://vault:8201
    token: "{{ vault_token }}"
    path: hello
  register: response
```

After (hashicorp.vault)

```
- name: Read a kv1 secret from Vault (hashicorp.vault collection)
  hashicorp.vault.kv1_secret_info:
    url: https://vault.example.com:8201
    token: "{{ vault_token }}"
    path: sample
```

Example: `hashicorp.vault.kv1_secret_get` lookup

The following migration example shows the KV1 secret get lookup.

Example:

Before (community.hashi_vault)

```
- name: Retrieve a secret from the Vault
  ansible.builtin.debug:
    msg: "{{ lookup('community.hashi_vault.vault_kv1_get', 'hello', url='https://
vault:8201') }}"
```

After (hashicorp.vault)

```
- name: Retrieve a secret from the Vault
  ansible.builtin.debug:
    msg: "{{ lookup('hashicorp.vault.kv1_secret_get',
                    secret='hello',
                    url='https://myvault_url:8201') }}"
```

Configure KV2 modules

If you are using KV2 with `community.hashi_vault` collection, configure the corresponding modules in the `hashicorp.vault` collection.

Configure the `hashicorp.vault.kv2_secret` module

The `hashicorp.vault.kv2_secret` module performs Create, Update, and Delete (CRUD) operations on KV2 secrets through a unified interface.

Before you begin

- Install the Ansible Automation Platform certified `hashicorp.vault` collection.

The corresponding `community.hashi_vault` modules are:

- **`community.hashi_vault.vault_kv2_write`** - Write KV2 secrets.
- **`community.hashi_vault.vault_kv2_delete`** - Delete KV2 secrets.

Procedure

1. Replicate your automation tasks from both of the `community.hashi_vault` modules to the following `hashicorp.vault.kv2_secret` parameters. The `hashicorp.vault.kv2_secret` parameters are similar to `community.hashi_vault`.

```
auth_method:
 description: Authentication method to use
 type: str
 choices: [token, approle]
 default: token
 required: false


cas:
```

```
 description: Perform a check-and-set operation.
 type: int
 required: false

data:
 description: KV2 secret data to write.
 type: dict
 required: true

engine_mount_point:
 description: The path where the secret backend is mounted.
 type: str
 default: secret
 required: false
 aliases: [secret_mount_path]

namespace:
 description: Vault namespace where secrets reside.
 type: str
 default: admin
 aliases: [vault_namespace]

path:
 description: Vault KVv2 path to be written to.
 type: str
 required: true
 aliases: [secret_path]

url:
 description: URL of the Vault service
 type: str
 aliases: [vault_address]
 required: true

versions:
 description: One or more versions of the secret to delete.
```

```
  type: list of int
  required: false


state:
  description: Desired state of the secret
  type: str
  choices: [present, absent]
  default: present
```

2. You must add the `state` parameter to the `hashicorp.vault.kv2_secret` module, as shown above. Valid options are:

    - **`present`:** This is the equivalent of `create` or `update` in the `community.hashi_vault.vault_kv2` modules.
    - **`absent`:** This is the equivalent of `delete secret` in the `community.hashi_vault.vault_kv2` modules.

Next steps

- Configure the `hashicorp.vault.kv2_secret_info` module.

Configure the `hashicorp.vault.kv2_secret_info` module

The `hashicorp.vault.kv2_secret_info` module reads KV2 secrets.

The corresponding `community.hashi_vault` module is:

- **`community.hashi_vault.vault_kv2_get`:** Gets secrets from the HashiCorp Vault KV version 2 secret store.

Procedure

1. Replicate the `community.hashi_vault` modules to the following `hashicorp.vault.kv2_secret_info` parameters.

```
    engine_mount_point:
      description: KV secrets engine mount point.
      default: secret
      type: str
      aliases: [secret_mount_path]
    path:
      description: Path to the secret.
      required: true
      type: str
      aliases: [secret_path]
    version:
      description: The version to retrieve.
      type: int
extends_documentation_fragment:
  - hashicorp.vault.vault_auth.modules
```

2. Configure the required parameters:
    - **`path`:** The path where the secret is located in the community.`hashi_vault.hashi_vault` modules. **Alias:** `secret_path`
    - **`url`:** Maps to `url` in the `community.hashi_vault.hashi_vault` modules. Uses the same aliases as `vault_address`.
3. If needed, configure the optional parameters.

Next steps

- Configure the `hashicorp.vault.kv2_secret_get` lookup plugin.

Related information
Optional parameters

Configure the `hashicorp.vault.kv2_secret_get` lookup plugin

The `hashicorp.vault.kv2_secret_get` lookup plugin module reads KV2 secrets.

The corresponding `community.hashi_vault` modules are:

- **`community.hashi_vault.hashi_vault`:** Retrieves secrets from HashiCorp Vault.
- **`community.hashi_vault.vault_kv2_get` lookup:** Gets secrets from the HashiCorp Vault KV version 2 secret store.

Procedure

1. Replicate the `community.hashi_vault` modules to the following `hashicorp.vault.kv2_secret_get` parameters.

```
 auth_method:

  description: Authentication method to use

  type: str

  choices: [token, approle]

  default: token

  required: false


mount_point:

  description: Vault mount point

  type: str

  required: false

  aliases: [secret_mount_path]


namespace:

  description: Vault namespace where secrets reside.

  type: str

  default: admin

  aliases: [vault_namespace]

secret:

  description: Vault path to the secret being requested in the format
path[:field]

  type: str

  required: true

  aliases: [secret_path]


url:

  description: URL of the Vault service

  type: str

  aliases: [vault_address]

  required: true


version:

  description: Specifies the version to return. If not set the latest is
returned.

  type: int

  required: false
```

2. Use the following guidance to configure the `hashicorp.vault.kv2_secret_get` parameters:

    - **`auth_method`:** Maps identically to `auth_method` in the `community.hashi_vault.hashi_vault` modules.
    - **`mount_point`:** Maps to `mount_point` in the `community.hashi_vault.hashi_vault` modules. **Alias:** `secret_mount_path`.
    - **`namespace`:** Maps to `namespace` in the `community.hashi_vault.hashi_vault` modules. **Alias:** `vault_namespace`.
    - **`secret`:** Maps to `secret` in the `community.hashi_vault.hashi_vault` modules.
    - **`url`:** Maps to `url` in the `community.hashi_vault.hashi_vault` modules. Uses the same aliases as `vault_address`.
    - **`version`:** Maps identically to `version` in the `community.hashi_vault.hashi_vault` modules.

Next steps

- Create a credential type

Examples: `hashicorp.vault.kv2_secret` module

The following migration examples show basic before and after configurations for the `hashicorp.vault.kv2_secret` module.

NOTE:
KV2 delete operations are `soft-delete`.

Example 1: Basic Secret Write/Create

Before (`community.hashi_vault`):

```
- name: Write/create a secret
  community.hashi_vault.vault_kv2_write:
    url: https://vault:8200
    path: hello
    data:
      foo: bar
```

After (`hashicorp.vault`):

```
- name: Write/create a secret
  hashicorp.vault.kv2_secret:
    url: https://vault:8200
    path: hello
    data:
      foo: bar
```

Example 2: Basic Secret Delete

Before (`community.hashi_vault`):

```
- name: Delete the latest version of the secret/mysecret secret.
  community.hashi_vault.vault_kv2_delete:
    url: https://vault:8201
    path: secret/mysecret
```

After (`hashicorp.vault`):

```
- name: Delete the latest version of the secret/mysecret secret.
  hashicorp.vault.kv2_secret:
    url: https://vault:8201
    path: secret/mysecret
    state: absent
```

Example 3: Secret Delete - specific version

Before (`community.hashi_vault`):

```
- name: Delete versions 1 and 3 of the secret/mysecret secret.
  community.hashi_vault.vault_kv2_delete:
    url: https://vault:8201
    path: secret/mysecret
    versions: [1, 3]
```

After (`hashicorp.vault`):

```
- name: Delete versions 1 and 3 of the secret/mysecret secret.
  hashicorp.vault.kv2_secret:
    url: https://vault:8201
    path: secret/mysecret
    versions: [1, 3]
    state: absent
```

Related information
Delete data

Examples: `hashicorp.vault.kv2_secret_info` module

The following migration examples show before and after configurations for the `hashicorp.vault.kv2_secret_info` module.

Example 1: Read a secret with token authentication

Before (community.hashi_vault)

```
- name: Read the latest version of a kv2 secret from Vault
 community.hashi_vault.vault_kv2_get:
    url: https://vault.example.com:8200
    token: "{{ vault_token }}"
    path: myapp/config
  register: response
```

After (hashicorp.vault)

```
- name: Read a secret with token authentication
  hashicorp.vault.kv2_secret_info:
    url: https://vault.example.com:8200
    token: "{{ vault_token }}"
    path: myapp/config
```

Example 2: Read a secret with a specific version

Before (community.hashi.vault)

```
- name: Read version 5 of a secret from kv2
  community.hashi_vault.vault_kv2_get:
    url: https://vault.example.com:8200
    path: myapp/config
    version: 5
```

After (hashicorp.vault)

```
- name: Read a secret with a specific version
  hashicorp.vault.kv2_secret_info:
    url: https://vault.example.com:8200
    path: myapp/config
    version: 1
```

Examples: `hashicorp.vault.kv2_secret_get` lookup

The following migration example shows the KV2 secret get lookup for retrieving the latest version.

Example:

Before (`community.hashi_vault`)

```
- name: Return latest KV v2 secret from path
  ansible.builtin.debug:
    msg: "{{ lookup('community.hashi_vault.hashi_vault', 'secret=secret/data/hello
  token=my_vault_token
  url=http://myvault_url:8200') }}"
```

After (`hashicorp.vault`)

```
name: Return latest KV v2 secret from path
  ansible.builtin.debug:
    msg: "{{ lookup('hashicorp.vault.kv2_secret_get', 'secret=secret/data/hello
  url=http://myvault_url:8200') }}"
```

Manage database secrets with hashicorp.vault

Use the `hashicorp.vault.database_connection` and `hashicorp.vault.database_connection_info` modules to manage the lifecycle of Vault database secrets. These unified modules enable a supported migration from `community.hashi_vault` for consistent, validated creation and retrieval of connection data.

Configure the hashicorp.vault.database_connection module

The hashicorp.vault.database_connection module performs **Create**, **Update**, **Delete**, and **Reset** operations on database connections for plug-ins.

The corresponding community.hashi_vault modules are:

- `vault_database_connection_configure module` : Creates and updates the database connection.
- `vault_database_connection_delete module` : Delete a database connection.
- `vault_database_connection_reset module` : Closes a connection_name and its underlying plugin and restarts it with the configuration stored.

Procedure

1. Map the parameters from your existing `community.hashi_vault` modules to the corresponding `hashicorp.vault.database_connection` parameters.

```
---

module: database_connection

short_description: Manage database secrets engine connections in HashiCorp
Vault.

version_added: 1.2.0

author: my-name

description:

  - This module manages (create, update, delete, and reset) the lifecycle of
database

    connection configurations within the HashiCorp Vault Database secrets
engine.
```

```
options:
 state:
   description:
     - Goal state for the database connection.
     - Use V(present) to create or update the connection.
     - Use V(reset) to trigger a connection reset.
     - Use V(absent) to remove the connection configuration.
   choices: [present, absent, reset]
   default: present
   type: str
 database_mount_path:
   description: Database secret engine mount path.
   type: str
   default: database
   aliases: [vault_database_mount_path]
 name:
   description: The name of the database connection configuration.
   required: true
   type: str
   aliases: [connection_name]
 username:
   description:
     - The username to connect to the database.
   required: false
   type: str
   aliases: [connection_username]
 password:
   description:
     - The password to connect to the database.
   required: false
   type: str
   aliases: [connection_password]
 disable_escaping:
   description: Determines whether special characters in the username and
password fields will be escaped.
   type: bool
```

```
    default: false
  connection_url:
    description: The connection string used to connect to the database.
    type: str
  plugin_name:
    description:
      - The name of the plugin to use for this connection.
      - Required when O(state=present).
    required: false
    type: str
  plugin_version:
    description:
      - The semantic version of the plugin to use for this connection.
    type: str
    required: false
  plugin_options:
    description:
      - Additional parameters specific to the plugin.
      - This should be a dictionary of options required by the specific
database plugin.
    type: dict
  verify_connection:
    description: Specifies if the connection is verified during initial
configuration.
    default: true
    type: bool
  allowed_roles:
    description: A list of roles authorized to use this connection.
    type: list
    elements: str
  root_rotation_statements:
    description:
      - Specifies the database statements to be executed to rotate the root
user's credentials.
      - Refer to the specific Vault database plugin documentation for supported
formatting.
    type: list
    elements: str
```

```
 password_policy:

   description:

     - The name of the password policy to use when generating passwords for
this database.

     - If not specified, Vault uses a default policy (20 characters, mixed
case, number, dash).

   type: str

extends_documentation_fragment:

 - hashicorp.vault.vault_auth.modules
```

2. Configure the following parameters:
    - **Name**: The name of the database connection configuration. Alias: connection_name
    - **plugin_name**: If 0 (state=present) you must include the name of the plugin to use for this connection.
3. **Optional:** Configure the Parameters for your `hashicorp.vault.database_connection` module.

Configure the hashicorp.vault.database_connection_info module

The `hashicorp.vault.database_connection_info` module lists the available database connections or reads the configuration for a specified connection.

The corresponding `community.hashi_vault` modules are:

- `vault_database_connection_read module`: Returns the configuration settings for a connection_name.
- `vault_database_connections_list module`: Returns a list of available connections.

Procedure

1. Replicate the `community.hashi_vault` modules to the following `hashicorp.vault.database_connection_info` parameters.

```
---

module: database_connection_info

short_description: List available connections or read configuration for a
specific connection.

version_added: 1.2.0

author: my-name

description:

  - This module retrieves configuration details for a specific Vault database
connection.

  - When a connection name is provided, it returns its full settings; if the
name is omitted,

    the module returns a comprehensive list of all available database
connections within the specified mount path.

options:

  name:

    description: The name of the database connection to read.

    required: false

    type: str

  database_mount_path:

    description: Database secret engine mount path.

    type: str

    default: database

    aliases: [vault_database_mount_path]

extends_documentation_fragment:

  - hashicorp.vault.vault_auth.modules
```

2. To retrieve the configuration details for a specific database connection, specify a name for the name parameter. If name is omitted, a list of available database connections is returned.
3. **Optional:** Configure the Parameters for your `hashicorp.vault.database_connection_info` module.

Examples for the hashicorp.vault.database_connection module

The following examples show basic configurations for the `hashicorp.vault.database_connection` module.

Example 1: Create a database connection with a PostgreSql plugin

Before (`community.hashi_vault`):

```
- name: Example 1 - Create a database connection (PostgreSQL plugin, default
database mount)
  community.hashi_vault.vault_database_connection_configure:
    url: https://vault.example.com:8200
    namespace: "{{ vault_namespace | default(omit) }}"
    auth_method: userpass
    username: "{{ vault_auth_username }}"
    password: "{{ vault_auth_password }}"
    connection_name: postgres-main
    plugin_name: postgresql-database-plugin
    connection_url:
postgresql://{{'{{username}}'}}:{{'{{password}}'}}@postgres.example.com:5432/appdb?
sslmode=disable
    connection_username: "{{ db_static_user }}"
    connection_password: "{{ db_static_password }}"
    allowed_roles:
      - app-readonly
      - app-readwrite
  register: db_connection_result
```

After (`hashicorp.vault`):

```
- name: Create database connection with PostgreSQL plugin

  hashicorp.vault.database_connection:

    name: postgres-sample-connection

    plugin_name: "postgresql-database-plugin"

    allowed_roles:

      - "readonly"

    connection_url: "host=localhost port=5432 user='{{ username }}'
password='{{ password }}'"

    plugin_options:

      max_open_connections: 5

      max_connection_lifetime: "5s"

    username: "admin_user"

    password: "secure_password"
```

Example 2: Update a database connection with MySQL

Before (`community.hashi_vault`):

```
- name: Example 2 - Update an existing database connection (MySQL plugin)

  community.hashi_vault.vault_database_connection_configure:

    url: https://vault.example.com:8200

    namespace: "{{ vault_namespace | default(omit) }}"

    auth_method: token

    token: "{{ vault_token }}"

    connection_name: mysql-main

    plugin_name: mysql-database-plugin

    connection_url: "{{'{{username}}'}}:{{'{{password}}'}}
@tcp(mysql.example.com:3306)/"

    connection_username: "{{ db_static_user }}"

    connection_password: "{{ db_static_password }}"

    allowed_roles:

      - readonly

      - readwrite

  register: mysql_connection_result
```

After (`hashicorp.vault`):

```
- name: Update a database connection with MySQL
  hashicorp.vault.database_connection:
    name: mysql-sample-connection
    state: present
    connection_url: "mysql://vaultuser:secretpassword@localhost:3306/mydb"
    verify_connection: true
    plugin_name: "mysql-database-plugin"
    database_mount_path: "database-conn-config-integration-tests"
    allowed_roles:
      - "readonly"
      - "readwrite"
    username: "vaultuser"
    password: "secretpassword"
```

Example 3: Reset a database connection

Before (`community.hashi_vault`):

```
- name: Reset a Database Connection with the default mount point
  community.hashi_vault.vault_database_connection_reset:
    url: https://vault:8201
    auth_method: userpass
    username: '{{ user }}'
    password: '{{ passwd }}'
    connection_name: mysql-sample-connection
  register: result
```

After (`hashicorp.vault`):

```
- name: Reset a database connection
  hashicorp.vault.database_connection:
    name: mysql-sample-connection
    state: reset
```

Example 4: Delete a database connection

Before (`community.hashi_vault`):

```
- name: Delete a Database Connection with the default mount point
  community.hashi_vault.vault_database_connection_delete:
    url: https://vault:8201
    auth_method: userpass
    username: '{{ user }}'
    password: '{{ passwd }}'
    connection_name: SomeName
  register: result

- name: Display the result of the operation
  ansible.builtin.debug:
    msg: "{{ result }}"
```

After (`hashicorp.vault`):

```
- name: Delete a database connection
  hashicorp.vault.database_connection:
    name: mysql-sample-connection
    state: absent
```

Example for the hashicorp.vault.database_connection_info module

The following example shows a basic configuration for the `hashicorp.database_connection_inf` o module.

Example: List available database connections

```
- name: Read database connection mysql
  hashicorp.vault.database_connection_info:
    name: mysql
```

Integrate with the external policy engine Open Policy Agent (OPA)

Integrating Ansible Automation Platform with Open Policy Agent (OPA) enforces policies at automation runtime. Use encoded rules to define, manage, and enforce how users interact with the platform. Automate policy management to improve security, compliance, and operational efficiency.

Integrating with OPA helps you to:

- **Enforce policies at runtime**: Stop automation actions that violate organizational policies and provide users with clear information about policy violations before jobs run.
- **Centralize policy management**: Offload policy decisions to your OPA server and manage automation governance rules alongside organizational policies.
- **Improve compliance and security**: Apply policy rules to automation content at the organization, inventory, or job template level to ensure consistent governance.

How Ansible Automation Platform supports OPA integration

When you trigger policy enforcement, policies are retrieved from your OPA server. These policies are applied to automation content before jobs run. If a violation is detected, the action stops and you receive information about the specific policy violation.

Associate policies with organizations, inventories, or job templates to control where policy enforcement occurs.

Implement policy enforcement

Policy enforcement at automation runtime is a feature that uses encoded rules to define, manage, and enforce policies that govern how your users interact with your Ansible Automation Platform instance. Policy enforcement automates policy management, improving security, compliance, and efficiency.

Open Policy Agent, or OPA, is a policy engine that offloads policy decisions from your Ansible instance. When it is triggered, the policy enforcement feature connects to OPA to retrieve policies specified in your configuration, and applies policy rules to your automation content. If OPA detects a policy violation, it will stop the action and give your user information about the policy violation. For more information, see *Open Policy Agent* in the Related Links section.

Prerequisites

Before you can implement policy enforcement in your Ansible Automation Platform instance, you must have:

- Access to an OPA server that is reachable from your Ansible Automation Platform deployment.
- Configured Ansible Automation Platform with settings required for authenticating to your OPA server.
- Some familiarity with OPA and the Rego language, which is the language policies are written in.

For policy enforcement to work correctly, you must both configure the OPA server in your policy settings, and associate a specific policy with a particular resource. For example, a particular organization, inventory, or job template.

NOTE:
OPA API V1 is the only version currently supported in Ansible Automation Platform.

Related information
Open Policy Agent

Configure policy enforcement settings

You can specify how your Ansible Automation Platform instance interacts with OPA by modifying your global settings.

Before you begin

- To configure policy enforcement, you must have administrative privileges.

NOTE:
If you do not configure the OPA server in your policy settings, policy evaluation will not occur when you run the job.

Procedure

1. From the navigation panel, select **Settings > Automation Execution > Policy**.

2. Click **Edit policy settings**.
3. On the Policy Settings page, fill out the following fields:

   OPA Server hostname

   Enter the name of the host that connects to the OPA service.

   OPA server port

   Enter the port that connects to the OPA service.

   OPA authentication type

   Select the OPA authentication type.

   OPA custom authentication header

   Enter a custom header to append to request headers for OPA authentication.

   OPA request timeout

   Enter the number of seconds until the connection times out.

   OPA request retry count

   Enter a figure for the number of times a request can attempt to connect to the OPA service before failing.

4. Depending on your authentication type, you might need to fill out the following fields.
   a. If you selected Token as your authentication type:

      OPA authentication token

      Enter the OPA authentication token.

   b. If you selected Certificate as your authentication type:

      OPA client certificate content

      Enter content of the CA certificate for mTLS authentication.

      OPA client key content

      Enter the client key for mTLS authentication.

      OPA CA certificate content

      Enter the content of the CA certificate for mTLS authentication.

5. Beneath the heading labeled **Options**:

   Use SSL for OPA connection

   Check this box to enable an SSL/TLS connection to the OPA service.

6. Click **Save policy settings**.

Understand OPA packages and rules

An OPA policy is organized in packages, which are namespaced collections of rules. The basic structure of an OPA policy looks like this:

```
package aap_policy_examples  # Package name


import rego.v1  # Import required for Rego v1 syntax


# Rules define the policy logic
allowed := {
    "allowed": true,
    "violations": []
}
```

The key components of the rule's structure are:

Package declaration

This defines the namespace for your policy.

Rules

This defines the policy's logic and the decision that it returns.

These components together form the OPA policy name, with the format `[package]/[rule]`. Enter the OPA policy name when you configure enforcement points.

Configure enforcement points

After you have set up your Ansible Automation Platform instance to communicate with the OPA server, you can set up enforcement points where you want the policy to be applied.

- You can associate a policy with a job template, an inventory, or an organization. Enforcement then occurs in the following ways:

  Organization

  Jobs launched from a template owned by an organization will fail if the policy is violated. This configuration provides broad control over automation within organizational boundaries.

  Inventory

Jobs that use an inventory associated with a policy fail if the policy is violated. This configuration allows you to control access to specific infrastructure resources.

Job template

Jobs launched from a template associated with a policy fail if the job violates the associated policy. This configuration provides granular control over specific automation tasks.

> **NOTE:**
> If you do not associate a policy with a resource, policy evaluation will not occur when you run the related job.

Associate a policy with an organization

Learn how to associate a policy with an organization.

Procedure

1. From the navigation panel, select **Access Management > Organizations**.
2. On the **Organizations** page:
   a. To edit an existing organization, find the organization you want to edit and click the pencil icon to go to the editing screen.
   b. To create a new organization, click **Create organization**.
3. In the field labeled **Policy enforcement**, enter the query path associated with the policy you want to implement. You must format the query path as `package/rule`.
4. Click **Next** and then **Finish** to save your settings.

Associate a policy with an inventory

Learn how to associate a policy with an inventory.

Procedure

1. From the navigation panel, select **Automation Execution > Infrastructure > Inventories**.
2. On the **Inventories** page:
   a. To edit an existing inventory, find the inventory you want to edit and click the pencil icon to go to the editing screen.
   b. To create a new inventory, click **Create inventory**.

3. In the field titled **Policy enforcement.**, enter the query path associated with the policy you want to implement. You must format the query path as `package/rule`.
4. Click **Save inventory** if you are editing an existing inventory, or click **Create inventory** if you are creating a new inventory.

Associate a policy with a job template

Learn how to associate a policy with a job template.

Procedure

1. From the navigation panel, select **Automation Execution > Templates**.
2. On the **Automation Templates** page:
   a. To edit an existing job template, find the job template you want to edit and click the pencil icon to go to the editing screen.
   b. To create a new job template, click **Create template**.
3. In the field titled **Policy enforcement**, enter the query path associated with the policy you want to implement. You must format the query path as `package/rule`.
4. Click **Save job template** if you are editing an existing job template, or click **Create job template** if you are creating a new job template.

Policy enforcement input and output options

Use the following inputs and outputs to craft policies for use in policy enforcement.

Input data

Input	Type	Description
`id`	Integer	The job's unique identifier.
`name`	String	Job template name.
`created`	Datetime (ISO 8601)	Timestamp indicating when the job was created.
`created by`	Object	Information about the user who created the job.

Input	Type	Description
		• `id` (integer): Unique identifier for the user • `username` (string): creator username • `is_superuser` (boolean): indicates if the user is a superuser
`credentials`	List of objects	Credentials associated with job execution. • `id` (integer): the credential's unique identifier • `name` (string): credential name • `description` (string): credential description • `organization` (integer or null): organization identifier associated with the credential • `credential_type` (integer): credential type identifier • `managed` (boolean): indicates if the credential is managed internally • `kind` (string): credential type (such as `ssh` , `cloud` , or `kubernetes`)
`execution_environment`	Object	Details about the execution environment used for the job.

Input	Type	Description
		• `id` (integer): the execution environment's unique identifier • `name` (string): execution environment name • `image` (string): container image used for execution • `pull` (string): pull policy for the execution environment
`extra_vars`	JSON	Extra variables provided for job execution.
`forks`	Integer	The number of parallel processes used for job execution.
`hosts_count`	Integer	The number of hosts targeted by the job.
`instance_group`	Object	Information about the instance group handling the job, including: • `id` (integer): the instance group's unique identifier • `name` (string): the instance group name • `capacity` (integer): the available capacity in the group • `jobs_running` (integer): the number of currently running jobs

Input	Type	Description
		• `jobs_total` (integer): total jobs handled by the group • `max_concurrent_jobs` (integer): maximum concurrent jobs allowed • `max_forks` (integer): maximum forks allowed
`inventory`	Object	Inventory details used in the job execution, including: • `id` (integer): the inventory's unique identifier • `name` (string): The inventory's name • `description` (string): inventory description • `kind` (string): the inventory type • `total_hosts` (integer): the total number of hosts in the inventory • `total_groups` (integer): the total number of groups in the inventory • `has_inventory_sources` (boolean): indicates if the inventory has external sources • `total_inventory_sources` (integer): the

Input	Type	Description
		number of external inventory sources • `has_active_failures` (boolean): indicates if there are active failures in the inventory • `hosts_with_active_failures` (boolean): the number of hosts with active failures • `inventory_sources` (array): external inventory sources associated with the inventory
`job_template`	Object	Information about the job template, including: • `id` (integer): the job template's unique identifier • `name` (string): the job template's name • `job_type` (string): type of job (for example, `run`)
`job_type`	Choice (String)	Type of job execution. Allowed values are: • `run` • `check` • `scan`
`job_type_name`	String	Human-readable name for the job type.
`labels`	List of objects	Labels associated with the job, including:

Input	Type	Description

		• `id` (integer): the label's unique identifier
		• `name` (string): the label name
		• `organization` (object): the organization associated with the label
		  ◦ `id` (integer): the organization's unique identifier
		  ◦ `name` (string): the organization name

`launch_type`	Choice (String)	How the job was launched. Allowed values include: • `manual` : manual • `relaunch` : relaunch • `callback` : callback • `scheduled` : scheduled • `dependency` : dependency • `workflow` : workflow • `webhook` : webhook • `sync` : sync • `scm` : SCM update
`limit`	String	The limit applied to the job execution.

Input	Type	Description
`launched_by`	Object	Information about the user who launched the job, including: • `id` (integer): the user's unique identifier • `name` (string): the user name • `type` (type): the user type (for example, `user` or `system`) • `url` (string): the user's API URL
`organization`	Object	Information about the organization associated with the job, including: • `id` (integer): the organization's unique identifier • `name` (name): the organization's name
`playbook`	String	The playbook used in the job execution.
`project`	Object	Details about the project associated with the job, including: • `id` (integer): the project's unique identifier • `name` (string): the project name • `status` (choice-string): the project status ◦ `successful`: Successful

Input	Type	Description
		◦ `failed` : failed ◦ `error` : error • `scm_type` (string): source control type (such as `git`, or `svn`) • `scm_url` (string): the source control repository URL • `scm_branch` (string): the branch used in the repository • `scm_refspec` (string): RefSpec for the repository • `scm_clean` (boolean): whether the SCM is cleaned before updates • `scm_track_submodules` (boolean): whether submodules are tracked • `scm_delete_on_update` (boolean): whether SCM deletes files on update
`scm_branch`	String	The specific branch to use for SCM.
`scm_revision`	String	SCM revision used for the job.
`workflow_job`	Object	Workflow job details, if the job is part of a workflow.
`workflow_job_template`	Object	Workflow job template details.

The following code block shows example input data from a demo job template launch:

```
{
  "id": 70,
  "name": "Demo Job Template",
  "created": "2025-03-19T19:07:03.329426Z",
  "created_by": {
    "id": 1,
    "username": "admin",
    "is_superuser": true,
    "teams": []
  },
  "credentials": [
    {
      "id": 3,
      "name": "Example Machine Credential",
      "description": "",
      "organization": null,
      "credential_type": 1,
      "managed": false,
      "kind": "ssh",
      "cloud": false,
      "kubernetes": false
    }
  ],
  "execution_environment": {
    "id": 2,
    "name": "Default execution environment",
    "image": "registry.redhat.io/ansible-automation-platform-25/ee-supported-
rhel8@sha256:b9f60d9ebbbb5fdc394186574b95dea5763b045ceff253815afeb435c626914d",
    "pull": ""
  },
  "extra_vars": {
    "example": "value"
  },
  "forks": 0,
  "hosts_count": 0,
  "instance_group": {
    "id": 2,
```

```
    "name": "default",
    "capacity": 0,
    "jobs_running": 1,
    "jobs_total": 38,
    "max_concurrent_jobs": 0,
    "max_forks": 0
  },
  "inventory": {
    "id": 1,
    "name": "Demo Inventory",
    "description": "",
    "kind": "",
    "total_hosts": 1,
    "total_groups": 0,
    "has_inventory_sources": false,
    "total_inventory_sources": 0,
    "has_active_failures": false,
    "hosts_with_active_failures": 0,
    "inventory_sources": []
  },
  "job_template": {
    "id": 7,
    "name": "Demo Job Template",
    "job_type": "run"
  },
  "job_type": "run",
  "job_type_name": "job",
  "labels": [
    {
      "id": 1,
      "name": "Demo label",
      "organization": {
        "id": 1,
        "name": "Default"
      }
    }
```

```
  ],
  "launch_type": "workflow",
  "limit": "",
  "launched_by": {
    "id": 1,
    "name": "admin",
    "type": "user",
    "url": "/api/v2/users/1/"
  },
  "organization": {
    "id": 1,
    "name": "Default"
  },
  "playbook": "hello_world.yml",
  "project": {
    "id": 6,
    "name": "Demo Project",
    "status": "successful",
    "scm_type": "git",
    "scm_url": "https://github.com/ansible/ansible-tower-samples",
    "scm_branch": "",
    "scm_refspec": "",
    "scm_clean": false,
    "scm_track_submodules": false,
    "scm_delete_on_update": false
  },
  "scm_branch": "",
  "scm_revision": "",
  "workflow_job": {
    "id": 69,
    "name": "Demo Workflow"
  },
  "workflow_job_template": {
    "id": 10,
    "name": "Demo Workflow",
    "job_type": null
```

```
  }
}
```

Output data

Input	Type	Description
`allowed`	Boolean	Indicates whether the action is permitted
`violations`	List of strings	Reasons why the action is not permitted

The following code block shows an example of expected output from the OPA policy query:

```
{
  "allowed": false,
  "violations": [
    "No job execution is allowed",
    ...
  ],
  ...
}
```

Integrate with Red Hat Lightspeed (formerly Insights)

Automation controller supports integration with Red Hat Lightspeed.

When a host is registered with Red Hat Lightspeed, it is scanned continually for vulnerabilities and known configuration conflicts. Each problem identified can have an associated fix in the form of an Ansible Playbook.

Red Hat Lightspeed users create a maintenance plan to group the fixes and can create a playbook to mitigate the problems. Automation controller tracks the maintenance plan playbooks through a Red Hat Lightspeed project.

Authentication to Red Hat Lightspeed through Basic Authorization is backed by a special credential, which must first be established in automation controller.

To run a Red Hat Lightspeed maintenance plan, you need a Red Hat Lightspeed project and inventory.

Create Red Hat Lightspeed credentials

To create a Red Hat Lightspeed credential, use the following procedure.

Before you begin

- To use token-based authentication, you must create a Red Hat service account to generate a **Client ID** and **Client secret**.
- Assign this service account to the appropriate **User Access** group with necessary permissions.

To enable integration between Ansible Automation Platform and Red Hat Lightspeed, assign the service account the following permissions:

- **inventory:hosts:read** (included in the Inventory Hosts viewer role)
- **patch:read** (included in the Patch viewer role)
- **remediations:remediation:read** and **playbook-dispatcher:run:read** (included in the Remediations user role)

You might consider associating your service account with an existing user access group that already has the required permissions, or creating a new user access group.

NOTE:
In adherence to security guidelines, service accounts are not automatically included in the default access group. To grant access, you must manually add them to the appropriate user access groups.

If you are not an organization administrator, you can create a service account and then ask your administrator to add your account to the appropriate user access groups.

After you have created a service account and assigned it the appropriate permissions, you can create a new credential for use with Red Hat Lightspeed.

Procedure

1. From the navigation panel, select **Automation Execution > Infrastructure > Credentials**.
2. Click **Create credential**.
3. Enter the appropriate details in the following fields:
    - **Name**: Enter the name of the credential.
    - Optional: **Description**: Enter a description for the credential.
    - Optional: **Organization**: Enter the name of the organization with which the credential is associated, or click the search icon and select it from the **Select organization** window.

- **Credential type**: Enter **Red Hat Lightspeed** or select it from the list.

> **NOTE:**
> Use the **Username** and **Password** fields for Basic authentication. You can leave these blank if using **Client ID** and **Client secret**.

- **Client ID**: Enter the client ID you received when you created your service account.
- **Client secret**: Enter the client secret you received when you created your service account.

4. Click **Create credential**.

   You can now use this credential in an Source an inventory from Red Hat Lightspeed and Red Hat Lightspeed project.

- If you receive a project sync failure, see the steps in Remediating a Red Hat Lightspeed inventory and check your analytics logs.

> **IMPORTANT:**
> You must recreate existing credentials and reassociate them with existing projects and inventory sources to support token-based authentication.

Related information
Creating and Managing Service Accounts
How to use Service Accounts on the Hybrid Cloud Console
Support for token-based authentication via Service Account for Red Hat Lightspeed in Ansible Automation Platform

Create a Red Hat Lightspeed project

Create an automation controller project linked to Red Hat Lightspeed and retrieve remediation playbooks. This streamlines your efforts to address vulnerabilities and keep system configurations.

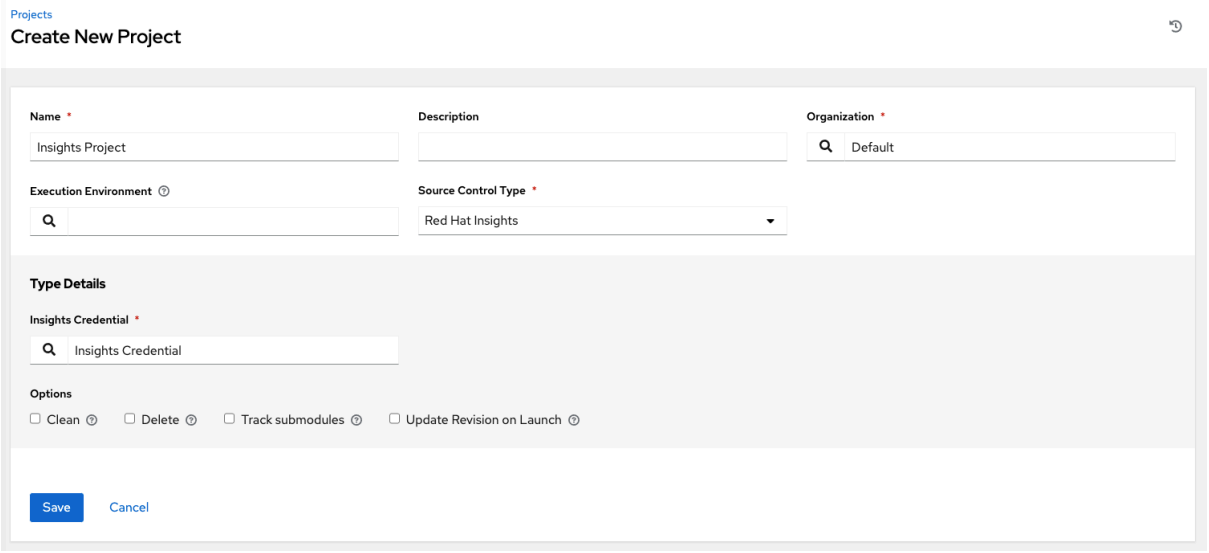
Procedure

1. From the navigation panel, select **Automation Execution > Projects**.
2. Click **Create project**.
3. Enter the appropriate details in the following fields. Note that the following fields require specific Red Hat Lightspeed related entries:

   - **Name**: Enter the name for your Red Hat Lightspeed project.
   - Optional: **Description**: Enter a description for the project.

- **Organization**: Enter the name of the organization with which the credential is associated, or click the search icon and select it from the **Select organization** window.
- Optional: **Execution environment**: The execution environment that is used for jobs that use this project.
- **Source control type**: Select **Red Hat Lightspeed**.
- Optional: **Content signature validation credential**: Enable content signing to verify that the content has remained secure when a project is synced.
- **Red Hat Lightspeed credential**: This is pre-populated with the Red Hat Lightspeed credential you created before. If not, enter the credential, or click the search icon and select it from the **Select Red Hat Lightspeed Credential** window.

4. Select the update options for this project from the **Options** field and provide any additional values, if applicable. For more information about each option click the tooltip icon next to each one.



5. Click **Create project**.

   All SCM and project synchronizations occur automatically the first time you save a new project.

Next steps

If you want them to be updated to what is current in Red Hat Lightspeed, manually update the SCM-based project by clicking the **Update** icon under the project's available actions.

This process syncs your Red Hat Lightspeed project with your Red Hat Lightspeed account solution. Note that the status dot beside the name of the project updates once the sync has run.

Create a Red Hat Lightspeed inventory

The Red Hat Lightspeed playbook contains a `hosts:` line where the value is the hostname supplied to Red Hat Lightspeed, which can be different from the hostname supplied to automation controller.

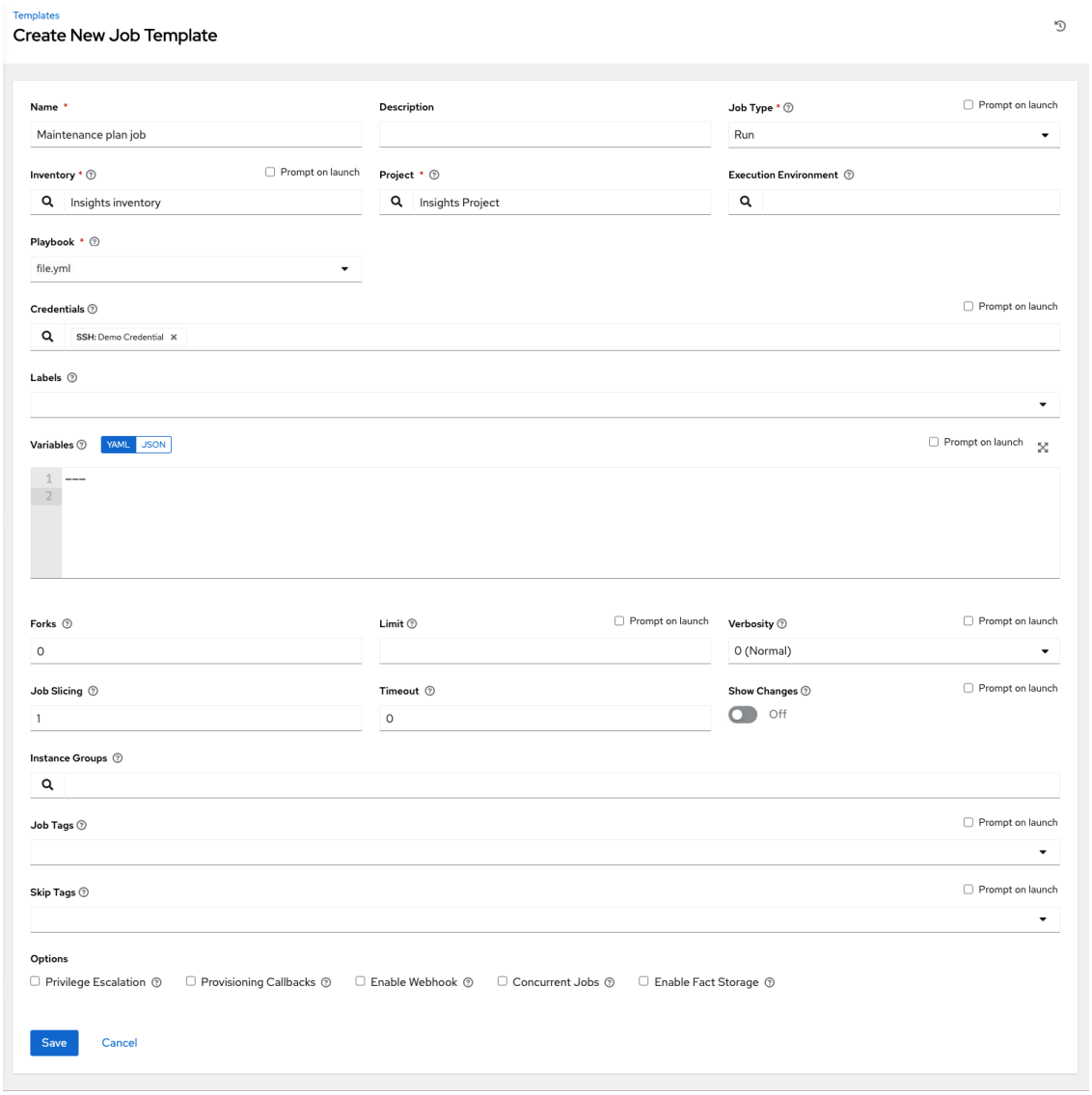
Remediate a Red Hat Lightspeed inventory

Remediation of a Red Hat Lightspeed inventory enables automation controller to run Red Hat Lightspeed playbooks with a single click.

You can do this by creating a job template to run the Red Hat Lightspeed remediation.

Procedure

1. From the navigation menu, select **Automation Execution > Templates**.
2. On the **Templates** list view, click **Create template** and select from the list.
3. Enter the appropriate details in the following fields. Note that the following fields require specific Red Hat Lightspeed related entries:
    - **Name**: Enter the name of your Maintenance Plan.
    - Optional: **Description**: Enter a description for the job template.
    - **Job Type**: If not already populated, select **Run** from the job type list.
    - **Inventory**: Select the Red Hat Lightspeed inventory that you previously created.
    - **Project**: Select the Red Hat Lightspeed project that you previously created.
    - Optional: **Execution Environment**: The container image to be used for execution.
    - **Playbook**: Select a playbook associated with the Maintenance Plan that you want to run from the playbook list.
    - Optional: **Credentials**: Enter the credential to use for this project or click the search ( ) icon and select it from the pop-up window. The credential does not have to be a Red Hat Lightspeed credential.
    - **Verbosity**: Keep the default setting, or select the required verbosity from the list.



4. Click **Create job template**.
5. Click the launch icon to launch the job template.

Result

When complete, the job results in the **Job Details** page.

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Version 3, 29 June 2007

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