IT Automation
Terraform Driver
【Classroom】

In this Document, “IT Automation” will be written as “ITA”.

Exastro IT Automation Ver 1.10

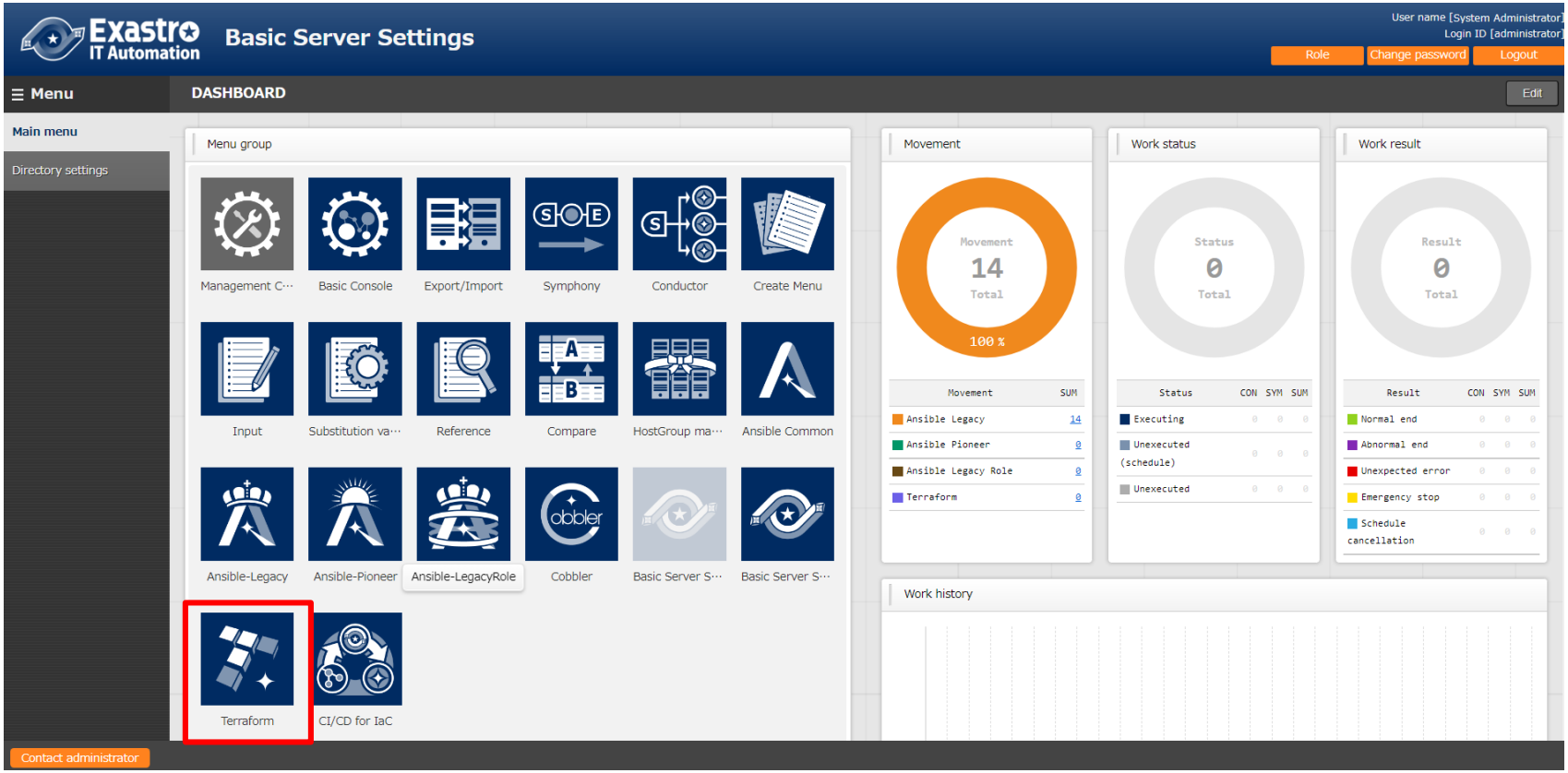
Exastro developer

Table of contents

1. Introduction

Main Menu

- This document aims to introduce the **Terraform** functionality in ITA.
- The Practice document uses the ITA Screen to provide a hand-on experience, so we recommend reading both.

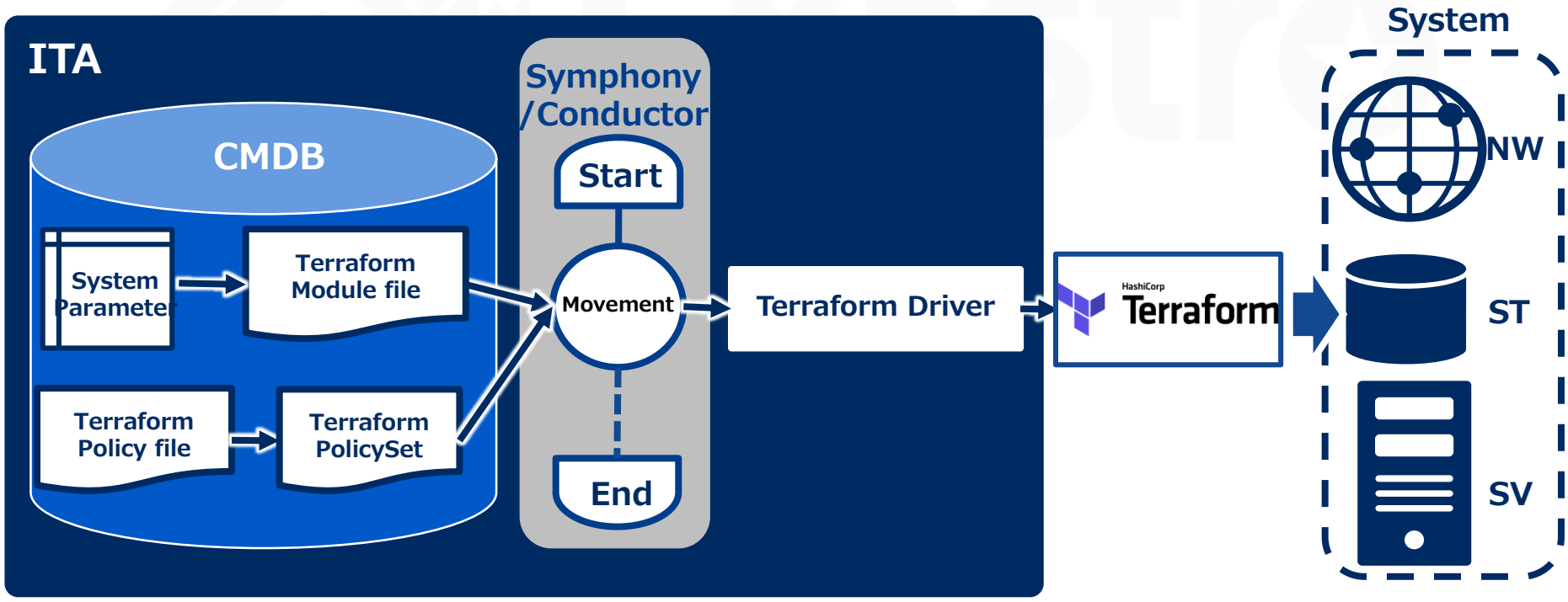


2. Terraform Driver

2.1 Terraform Driver

Terraform Driver allows us to link System parameters and IaC (Module) variables that are Centrally managed by ITA to Terraform and execute them.

- Users can create Organization/Workspaces to ITA linked Terraform Enterprise or Terraform Cloud, as well execute operations (Play/PolicyCheck/Apply) and gather the operation logs.
  ※We explain more about the differences between ITA + Terraform Enterprise andd Terraform Cloud in Chapter 3,ITA×Terraform Application example.
- Any module files and policy files used for policy checks can be turned into parts by ITA and be reused.

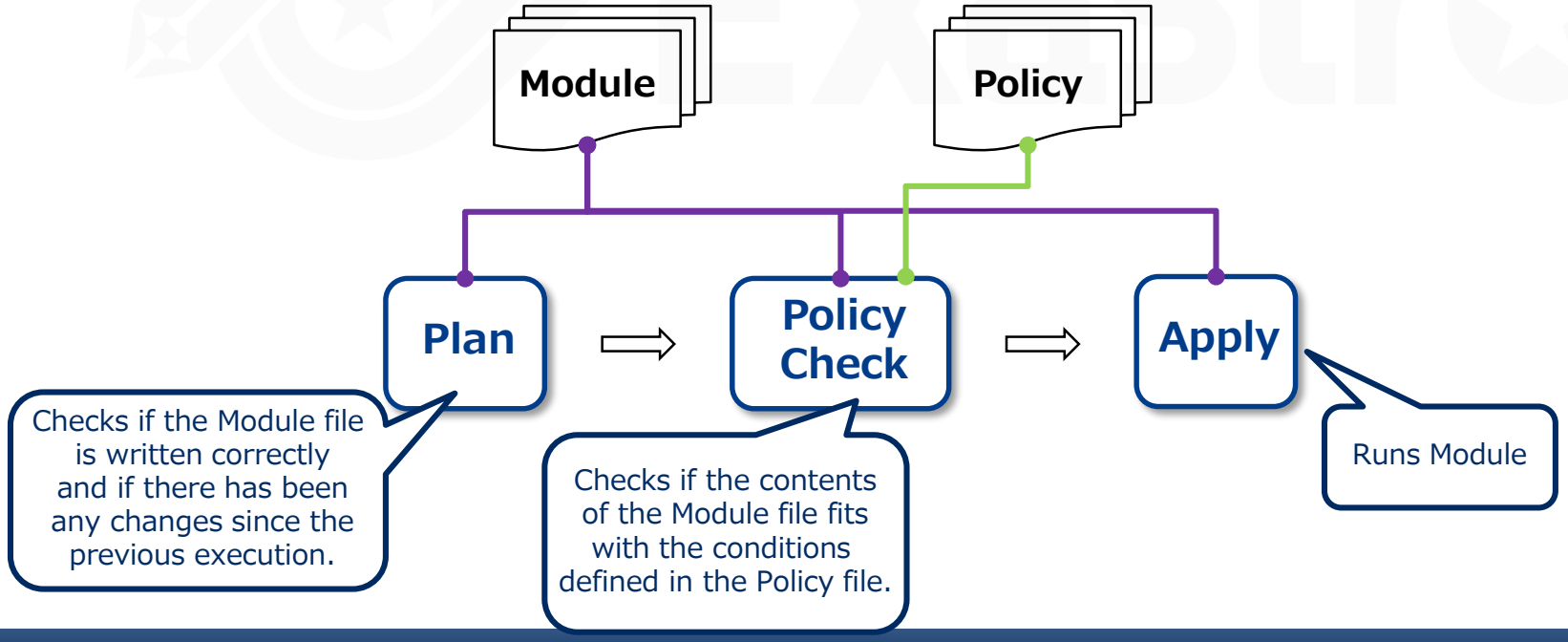


Registration file types and their operations

- There are two files that are registered to the Terraform Driver. Modules and Policies.
- “Modules” are Terraform’s main execution files. They are written in HCL (Hashicop Config Language) and is used for provisioning for environments for Azure, AWS, GCP, Vmware and so on.
- Policy files are files that define policies when executing Terraform.

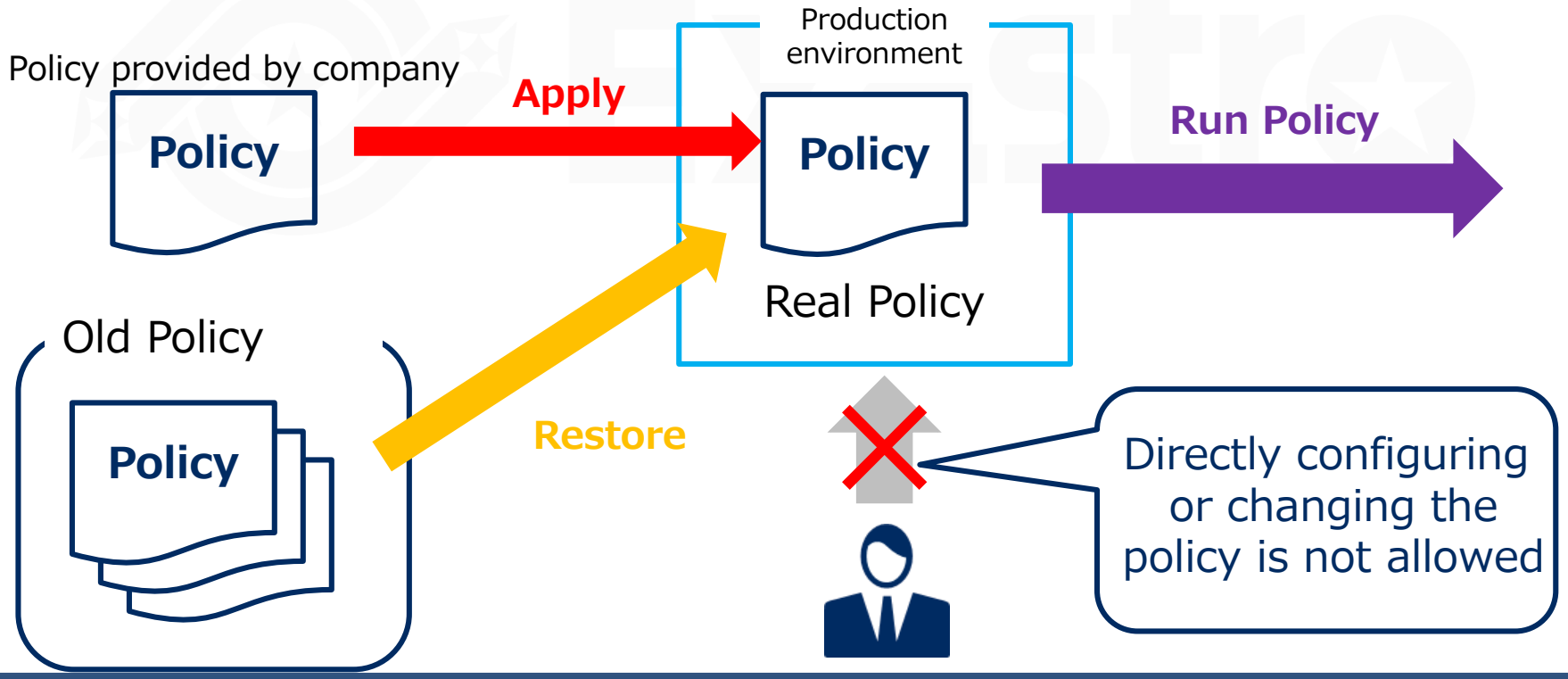
※For more information regarding Policies, please see Chapter 2.3 Policy files.

- Terraform follows the following order[**Plan**]>[**PolicyCheck**]>[**Apply**]



Policy files(PaC)

- PaC(Policy as Code) manages policies as codes and are used in Terraform as "**Sentinel**".
- By applying coded policies to the environment and limiting the scope of changes, it is possible to ensure that the policies set by the organization (budget, corporate governance, security, laws, etc.) match the actual policies, which prevents errors in places such as setting permissions, etc. It also makes it easier for companies and users to return to old policies.

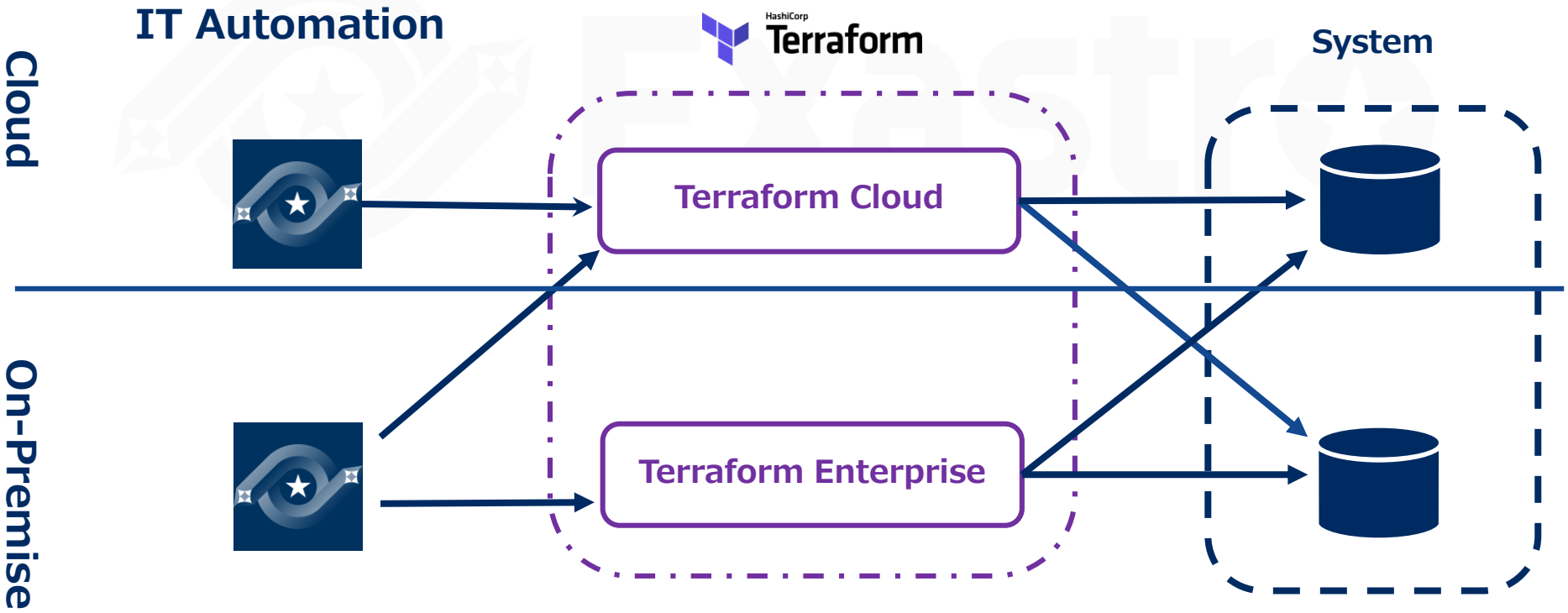


3. ITA×Terraform Application example

3.1 What types of Terraform can link with ITA?

Linkable Terraforms

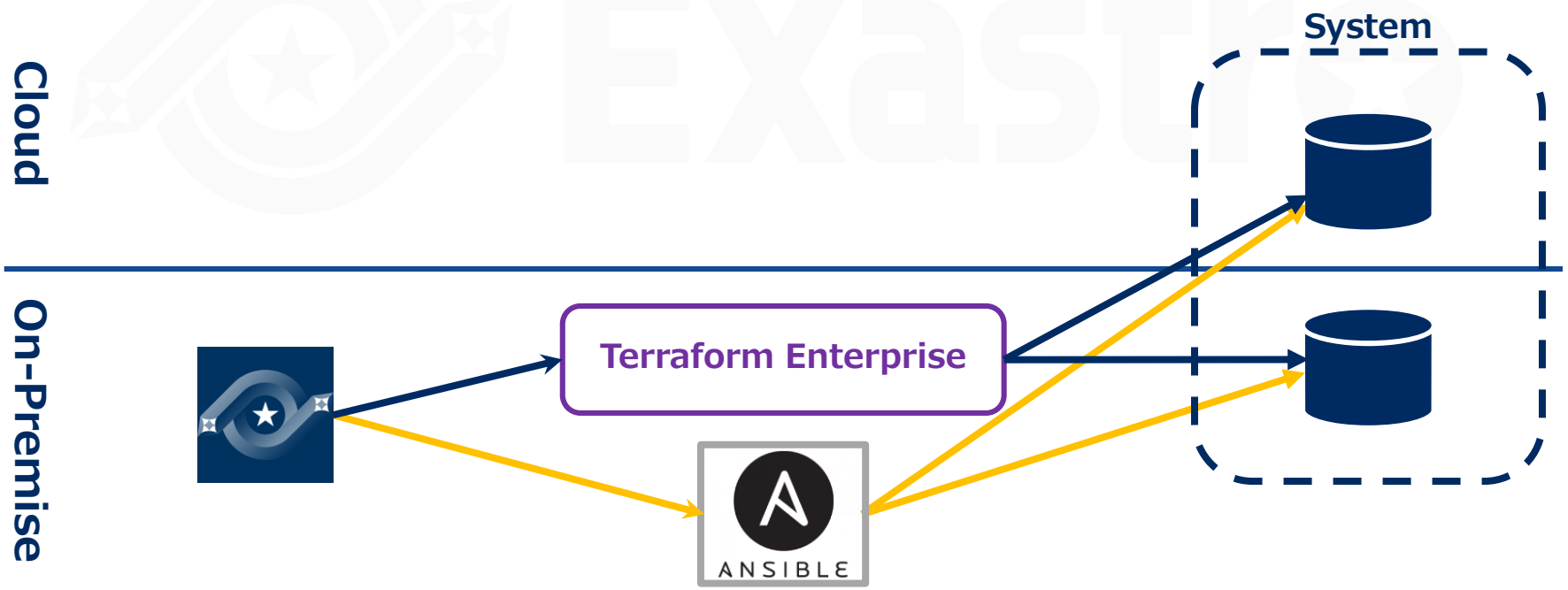
- ITA can connect to both “Terraform Enterprise” and “Terraform Cloud”
- In this document, we will combine ITA and “Terraform Enterprise”/”Terraform Cloud” and create an application example that creates a system on cloud or on-premise.



3.2 For Terraform Enterprise

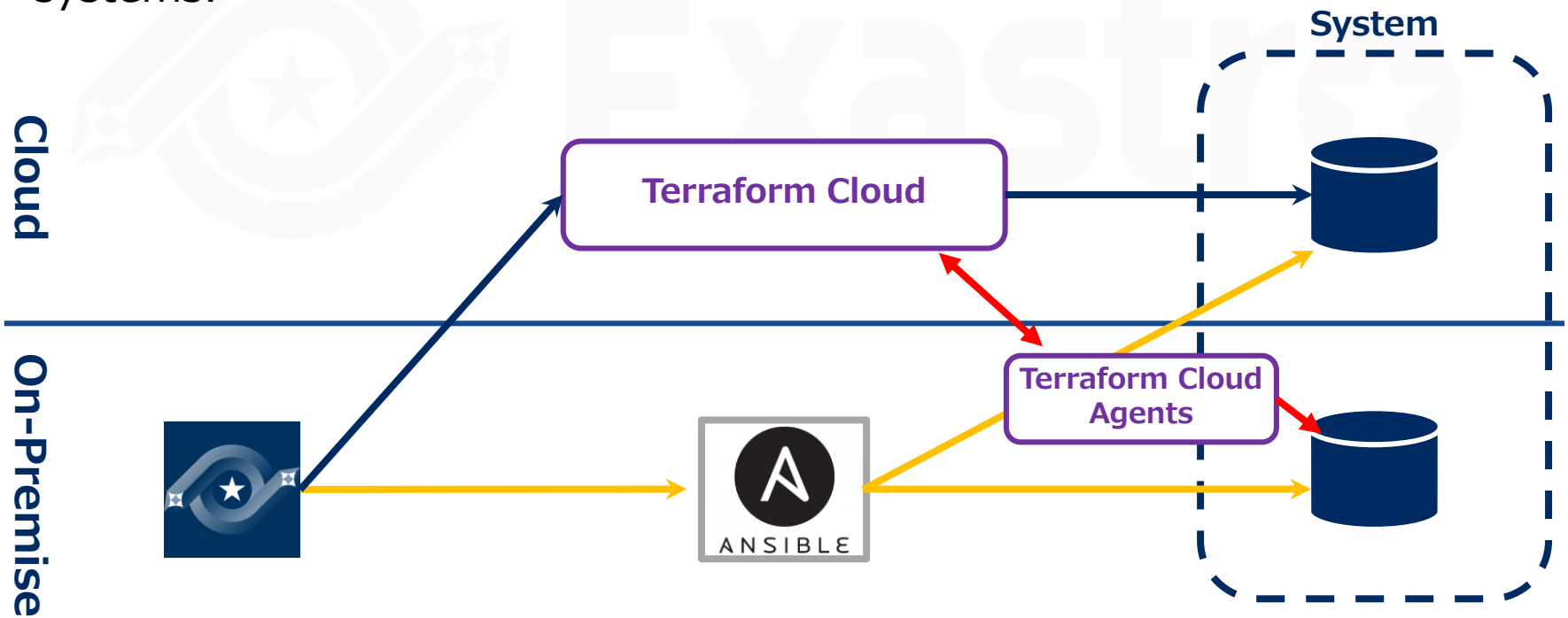
- If you are using Terraform Enterprise, you can construct ITA on on-premise and you can provision systems on cloud/ on-premise.
- Additionally, by implementing Ansible, you can configure various settings for the created system.

For more information about Ansible, please refer to Exastro-ITA_User_Instruction_Manual_Ansible-driver.



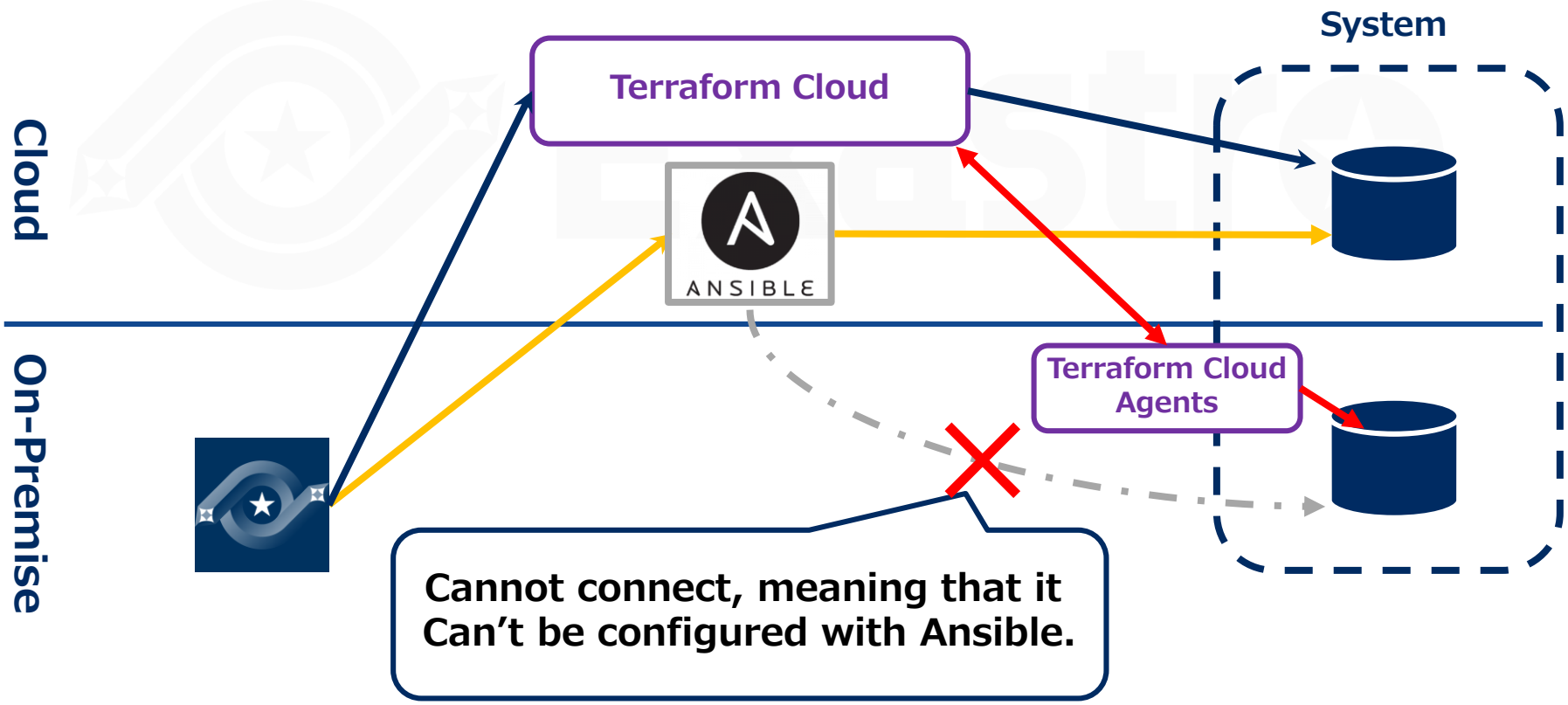
Create on-premise ITA server.

- If the user is creating an ITA Server on on-premise, they can use Terraform Cloud to provision on-premise/cloud systems.
- It is possible to provision the on-premise systems by implementing Terraform Cloud Agents.
- Users can use on-premise Ansible to configure both on-premise and cloud systems.



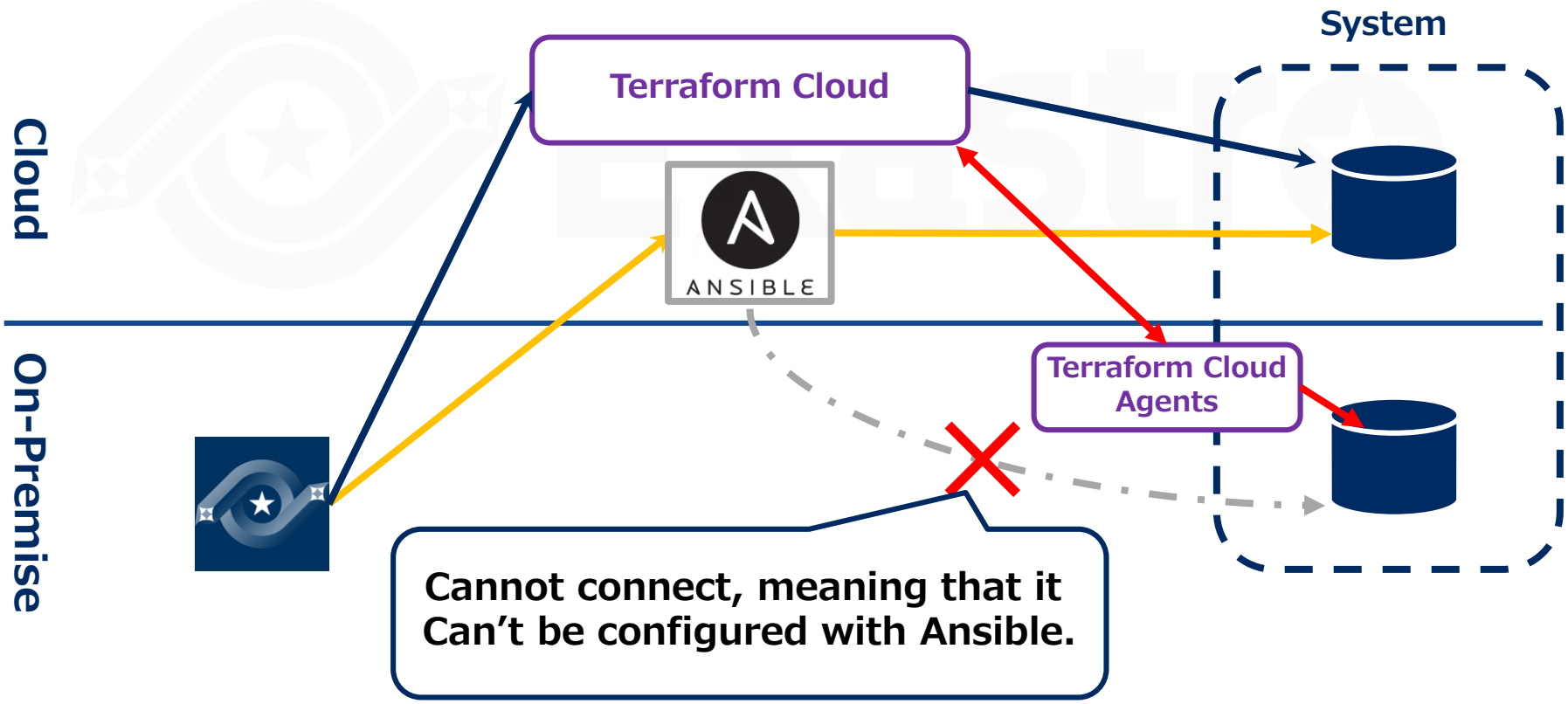
Create on-premise ITA server.

- If you implemented Ansible to the Cloud system side, you will only be able to provision and configure cloud systems.
- It is possible to provision the on-premise systems by implementing Terraform Cloud Agents.



Create a cloud ITA server.

- If you are creating an ITA Server on cloud, you can use Terraform Cloud to provision cloud systems.
- It is possible to provision the on-premise systems by implementing Terraform Cloud Agents.



4. Terraform Driver Menu

4.1 Terraform Driver Menu overview(1/2)

Menu functions

- **Interface information**

  Manages the information of the Terraformed linked to ITA.

- **Organizations list**

  Manages the Organization information used in Terraform.

- **Workspaces list**

  Manages the Workspaces information used in Terraform.

- **Movement list**

  Manages Movements that can register to Symphony/Conductor.

- **Module files**

  Manages Module files.

- **Policies list**

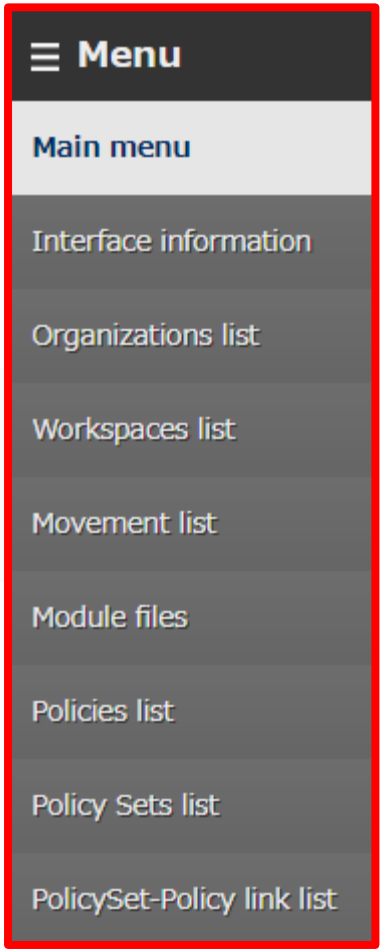
  Manages Policy files.

- **Policy Sets list**

  Manages Policy Sets.
  By linking Policy Sets to a Policy or a Workspace, users can activate Policy for the target Workspace when executing.

- **PolicySet-Policy link list**

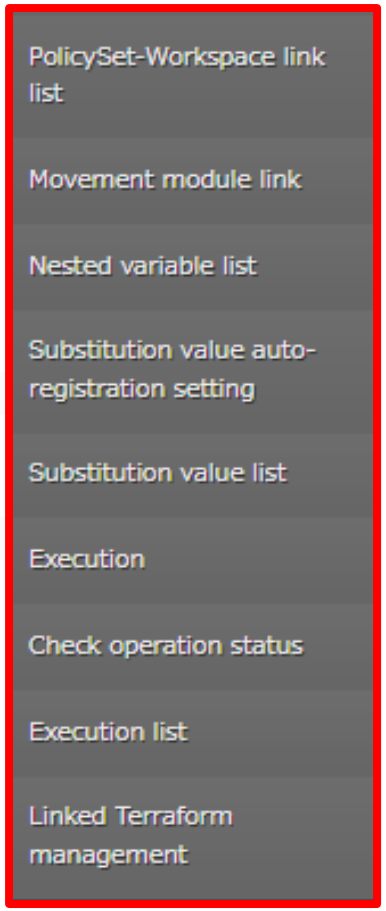
  Manages links between PolicySets and Policies.



4.1 Terraform Driver Menu overview(2/2)

Menu functions

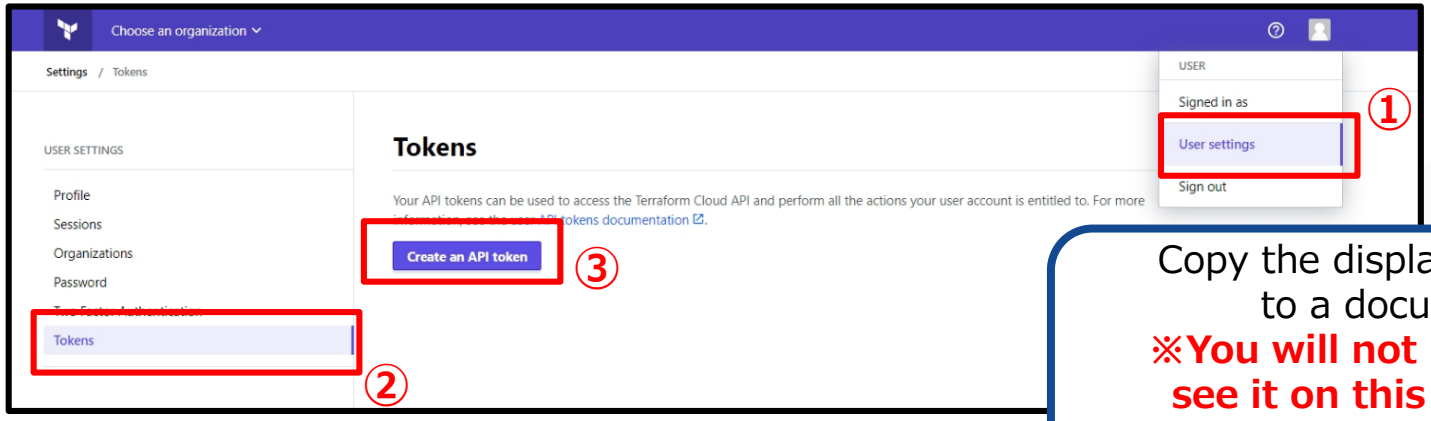
- **PolicySet-Workspace link list**
  Manages links between PolicySets and Workspaces.
- **Movement-Module link**
  Manages links between Movement and Module files.
- **Nested variable list**
  If the type of the variables inside the tf files registered to the Module file collection are "list" or "set" and "List", "set", "tuple", "object" is defined within said variables, users can use this menu to maintain (see/update) the Member variables maximum amount of repetitions.
- **Substitution value auto-registration setting**
  Manages Movements and Variables that links values and items for each operation registered in parameter sheet menus.
- **Substitution value list**
  Manages Substitution values.
- **Execution**
  Allows the users to select and execute Movement and Operations.
- **Check operation status**
  Allows the user to check the operation status.
- **Execution list**
  Manages the Execution history.
- **Linked Terraform management**
  Allows the user to view and delete Organizations, Workspaces, Policies and PolicySets registered to Terraform.

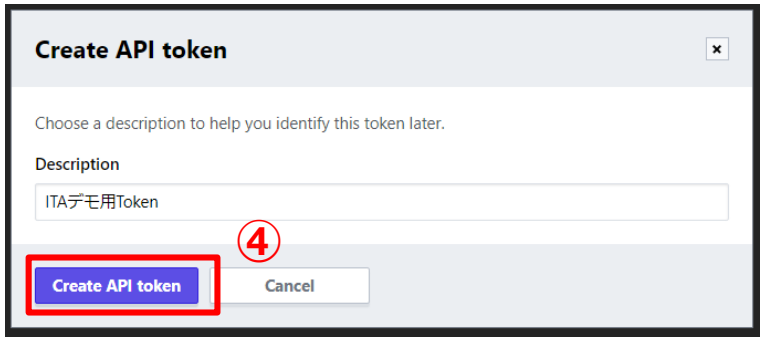


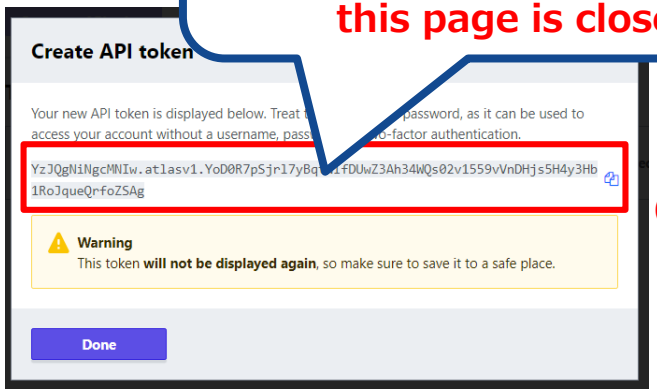
4.2 Terraform link(1/2)

Creating Tokens that we will register to Interface information.

- In order to link the Terraform Driver and Terraform, we need to create a user token from Terraform.
- Use your browser to log in to Terraform and access the Token page by pressing the following buttons. [User Setting]→[Tokens]→[Create an API token]







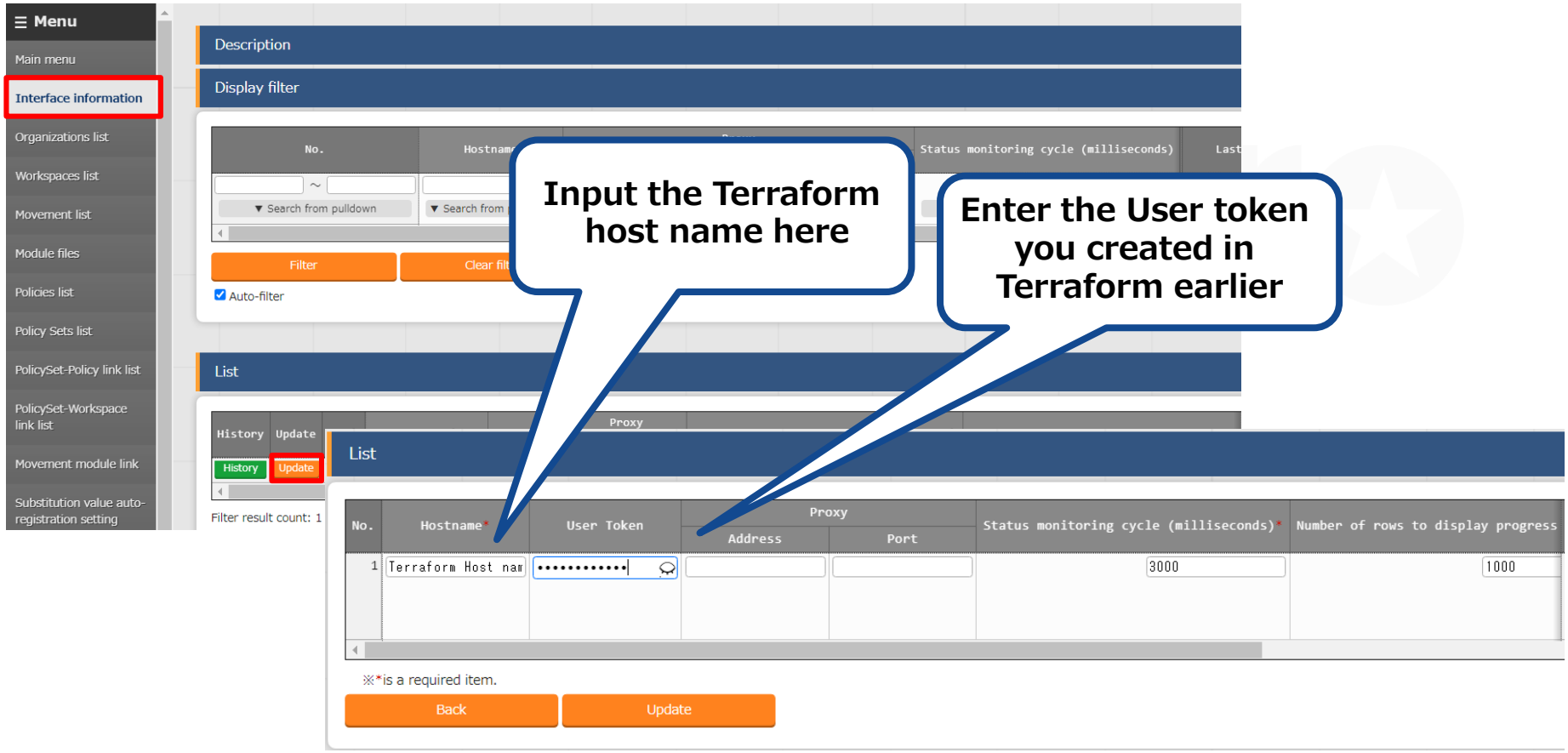
Copy the displayed token to a document

※You will not be able to see it on this site once this page is closed.

Interface Information

- Enter the Terraform Host name and the UserToken you created.

※Only 1 Terraform can be linked to ITA at once, so if you want to change, you will need to update all the items present from when you installed it.



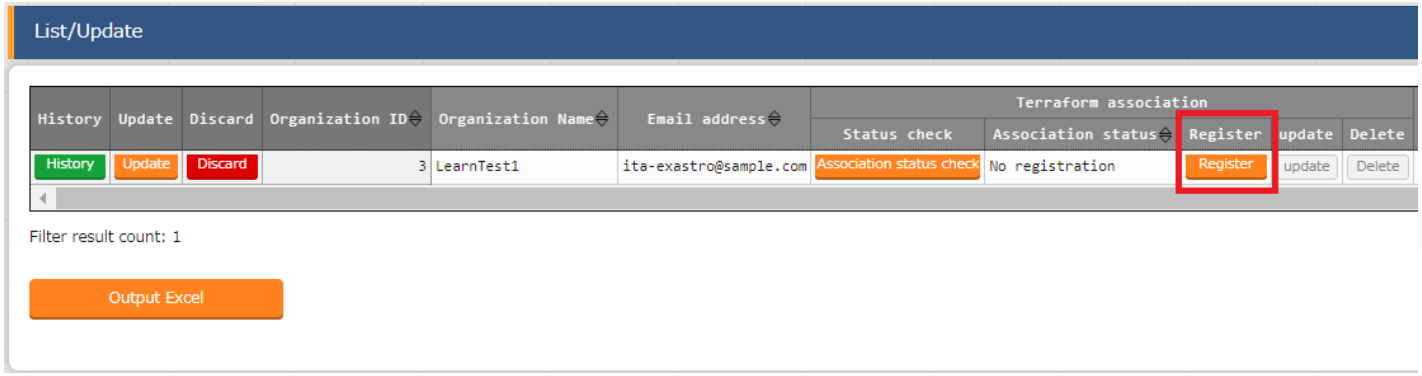
4.3 Organizations link

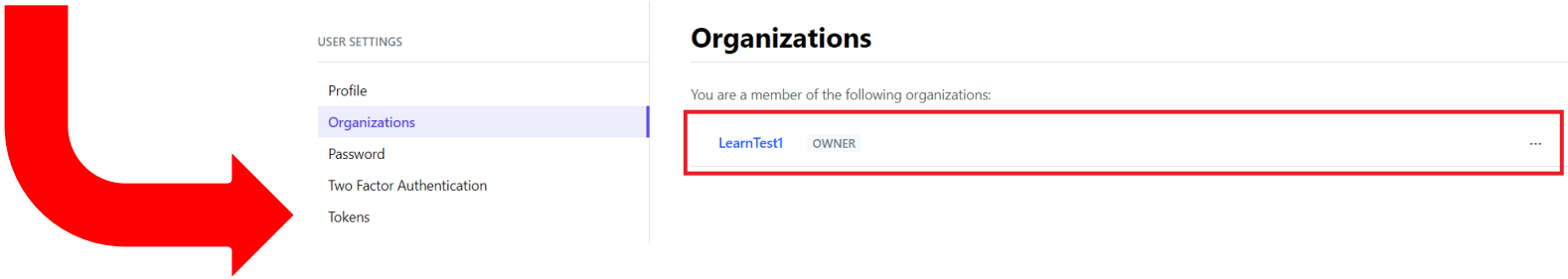
Organization list

- After you have created the Organization item from the Organization list,

  You can use the “Check operation status” function to check if the added Organization is in the target Terraform or not.

- If it displays “ Nothing registered”, you can press the “Register” button to create an Organization in the Terraform.





4.4 Workspaces link

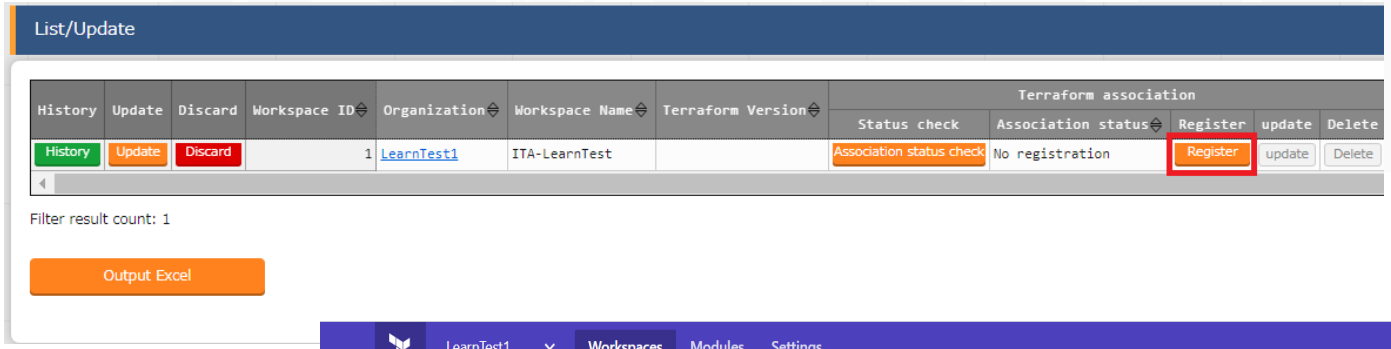
Workspaces list

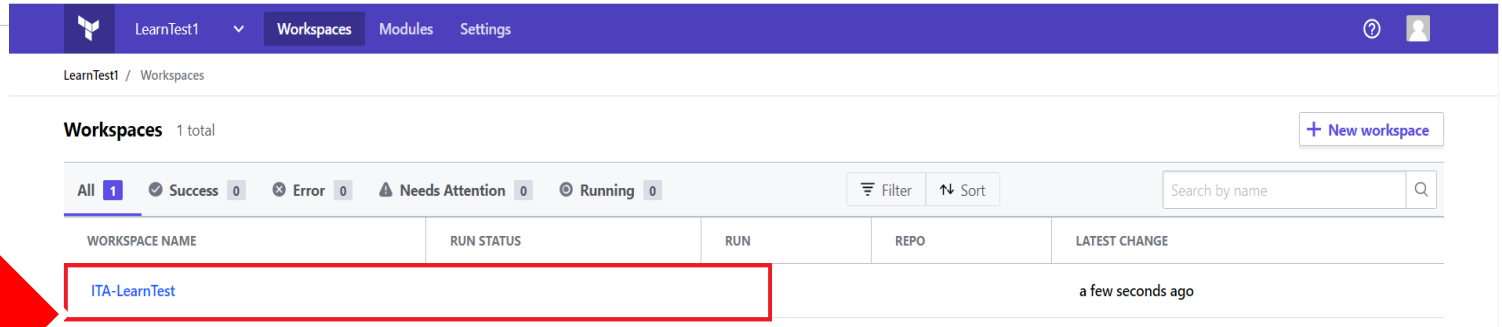
- After you have created the Workspace item from the Workspaces list,

  You can use the “Check operation status” function to check if the added Workspace is in the target Terraform or not.

- If it displays “ Nothing registered”, you can press the “Register” button to create Workspace in the Terraform.

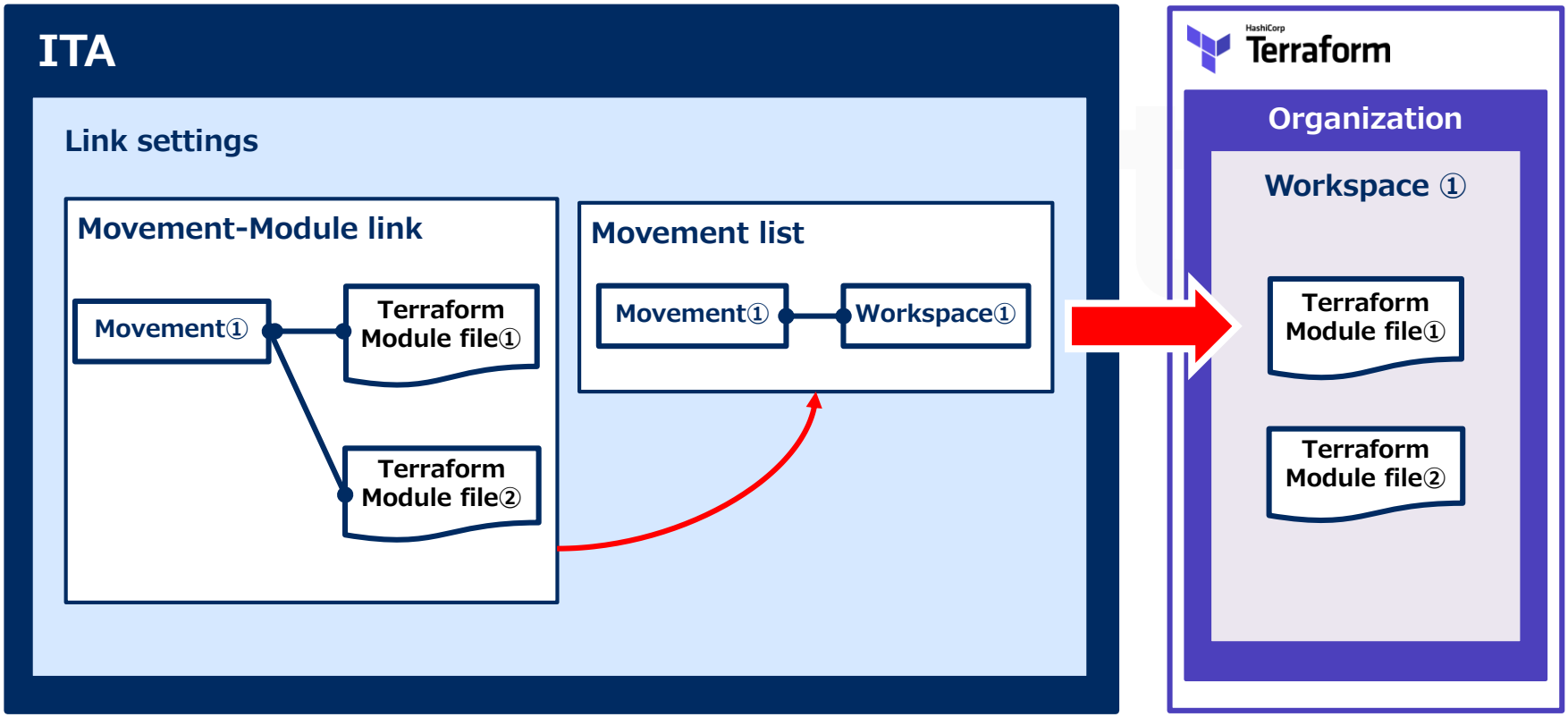
※As Workspaces are created in Organizations, you must create an Organization in Terraform first.





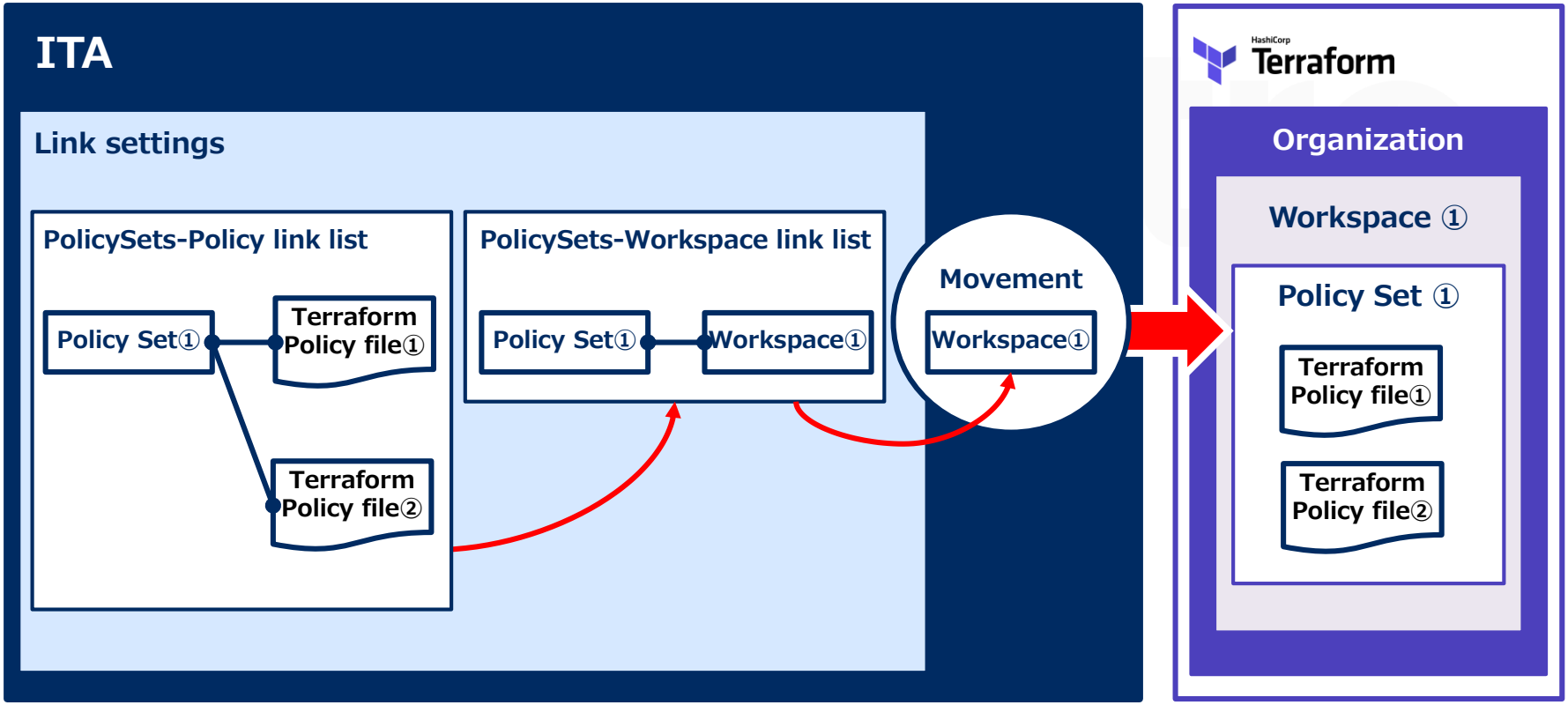
Applying Modules

- In order to apply a Module to an operation, you will need to register all the settings related to the module and configure the different links.
- The Module is applied to the Workspace linked with the Movement when the operation is executed.

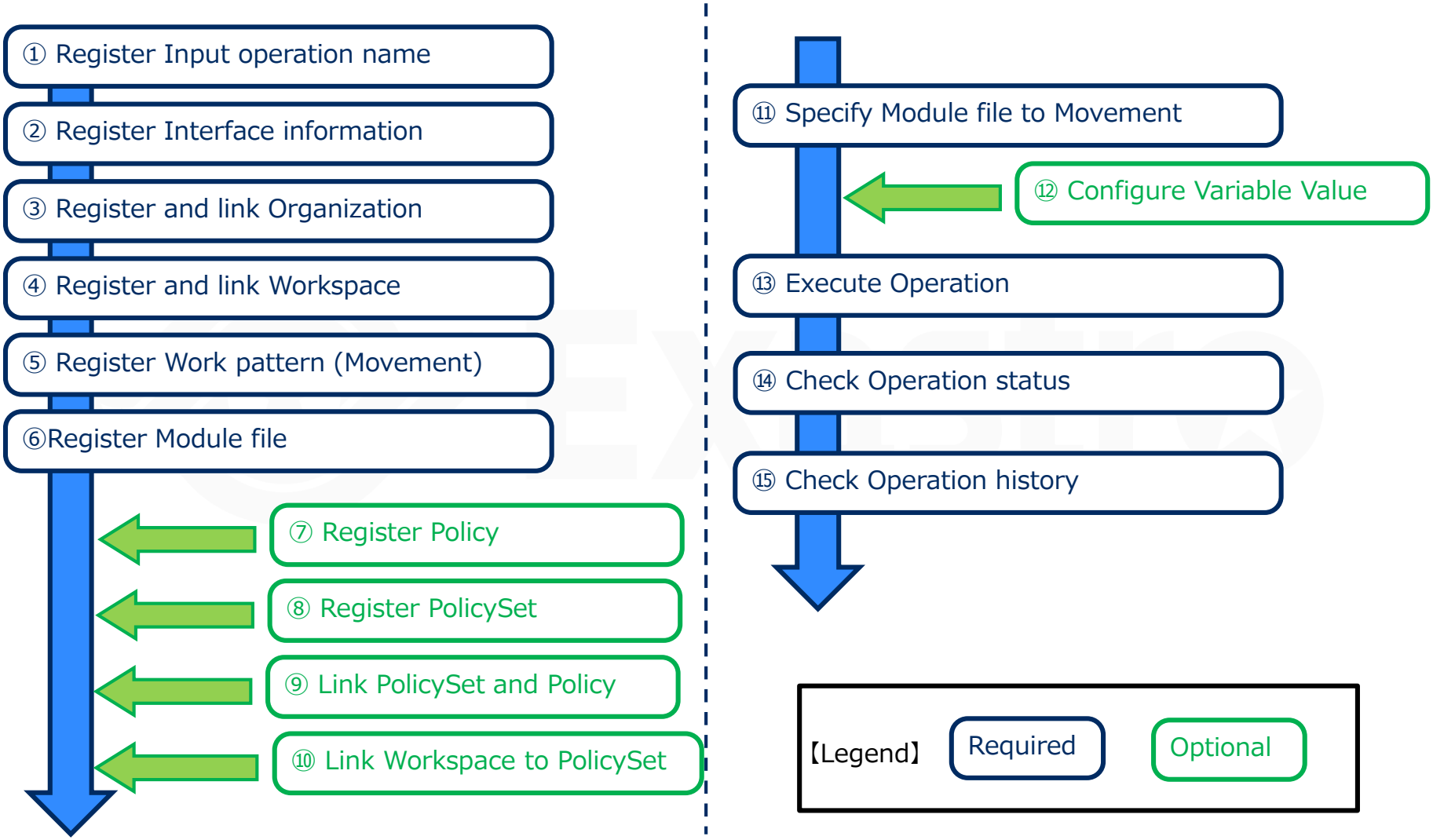


Applying Policies

- In order to apply a Policy to an operation, you will need to register all the settings related to Policy and configure different links.
- The PolicySet and the Policy linked to is applied to the Workspace linked with the Movement when the operation is executed.



4.7 Terraform Driver Workflow

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