

IT Automation Terraform Driver [Classroom]

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

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1. Introduction



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.



2.2 Registration files

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.



- If you are using Terraform Enterprise, you can construct ITA on onpremise 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.



3.3 For Terraform Cloud(3/3)

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.

⊒ Menu
Main menu
Interface information
Organizations list
Workspaces list
Movement list
Module files
Policies list
Policy Sets list
PolicySet-Policy link list

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.

PolicySet-Workspace link list Movement module link Nested variable list Substitution value autoregistration setting Substitution value list Execution Check operation status Execution list Linked Terraform management

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]

Choose an organization ~	Ø 🔲
Settings / Tokens USER SETTINGS Profile Your API tokens can be used to access the Terra	form Cloud API and perform all the actions your user account is entitled to. For more
Sessions Organizations Password Tokens 20	Copy the displayed token to a document XYou will not be able to see it on this site once this page is closed.
ate API token × see a description to help you identify this token later. ription デモ用Token	Create API token Your new API token is displayed below. Treat: access your account without a username, pass use-factor authentication. Yz J0gNiNgcMNIw.atlasv1.YoD0R7pSjn17yBq.uffDUwZ3Ah34WQs02v1559vVnDHjs5H4y3Hb IRoJqueQrfoZSAg Marning This token will not be displayed again, so make sure to save it to a safe place.

4.2 Terraform link(2/2)

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.



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.

List/Update							
			Terraform association				
History Update Discard Organization ID	⊖ Organization Name	Email address⇔	Status check	Association status⇔	Register	update	Delete
History Update Discard	3 LearnTest1	ita-exastro@sample.co	M Association status check	No registration	Register	update	Delete
4							
Filter result count: 1							
Output Fried							
Output Excel							
	USER SETTINGS	C	Organizations				
	USER SETTINGS Profile	C	Drganizations	ing organizations:			
	USER SETTINGS Profile Organizations	Y	Drganizations	ing organizations:			
	USER SETTINGS Profile Organizations Password	Y	Drganizations Du are a member of the follow LearnTest1 OWNER	ing organizations:			
	USER SETTINGS Profile Organizations Password Two Factor Authentication	Ye	Drganizations Du are a member of the follow LearnTest1 OWNER	ing organizations:			

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.

List/Update							
History Update Discard Workspac	e ID⇔ Organization⇔ Workspace	Name⇔ Terraform Version⇔	Terrafo	rm association			
History Update Discard	1 LearnTest1 ITA-LearnTe	st Asso	itatus check Associatio	n status⇔ Register update	Delete		
			no registro				
Filter result count: 1							
Output Excel							
	LearnTest1 🗸 V	Vorkspaces Modules Settings				0	
	LearnTest1 / Workspaces						
		+ New wo	orkspace				
	All 1 Success 0	Error 0 A Needs Attention 0	Running	Ţ Filter ► Sort		Search by name	Q
	WORKSPACE NAME	RUN STATUS	RUN	REPO	LATEST CHANG	E	
	ITA-LearnTest				s ago		

4.5 Applying Modules

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.



4.6 Applying Policies

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



