TP

a brand of

glueck kanja

TerraProvider

Terraform Provider
for Microsoft 365

Admin less,

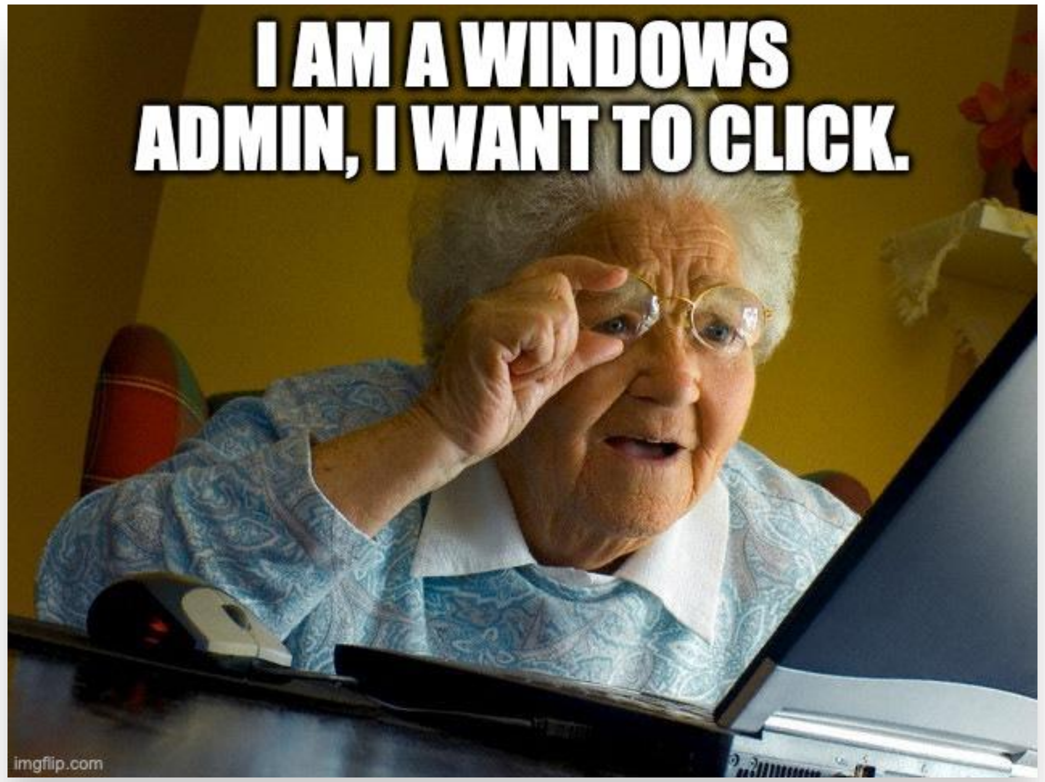
automate more.

Terraform

your Microsoft 365!

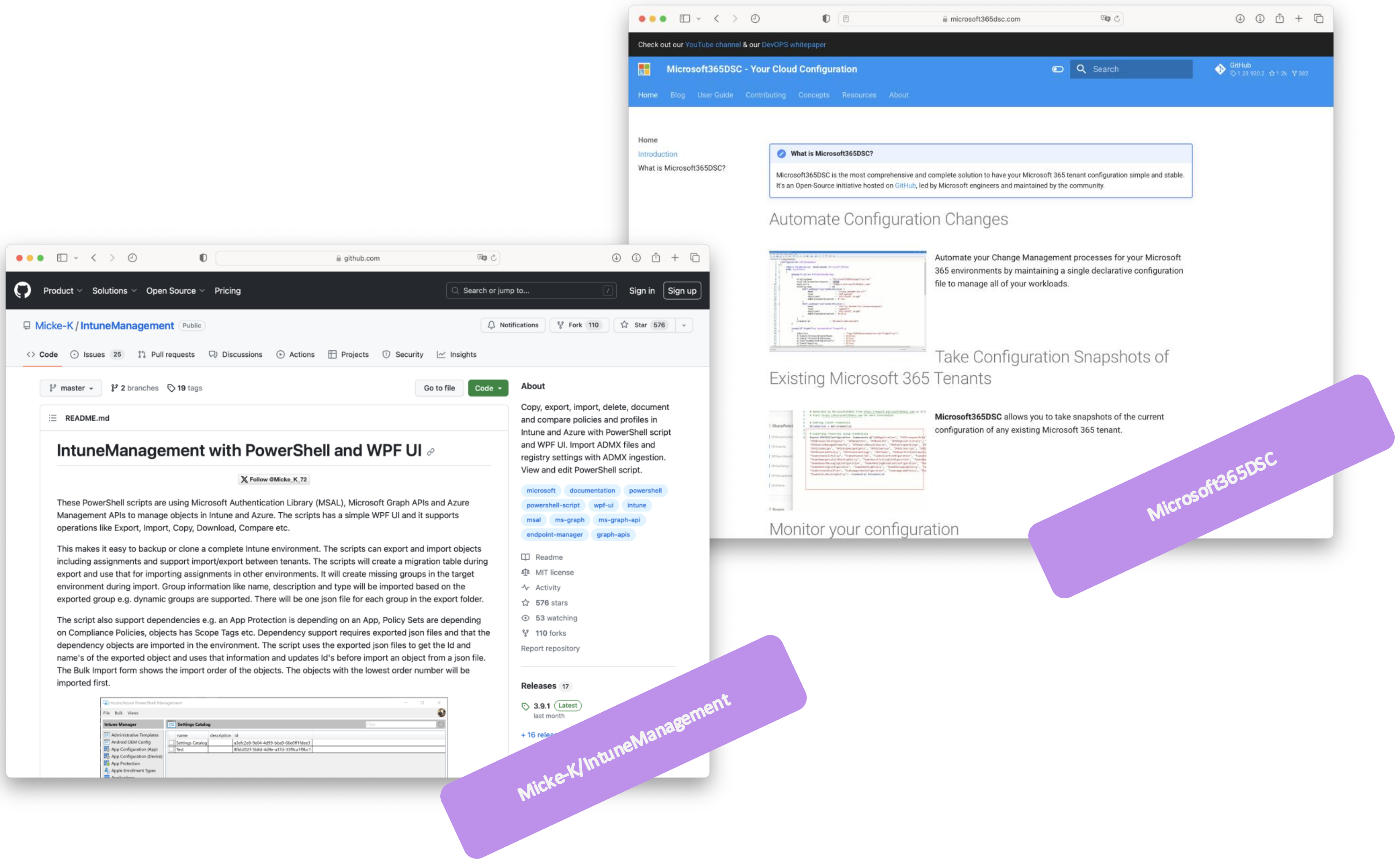
Which problem are we trying to solve?

- Microsoft 365 tenant (especially **Intune**) configuration is a complex beast
- If you are alone and have just one tenant, you may be ok with 'clicks in portals', but …
- If you are a **team of admins**, have **multiple tenants** (staging/production | MSP) to manage, **'clicks in portals' is not a scalable option**.
  - documentation
  - change tracking / versioning
  - auditing
  - detect manual changes
  - disaster recovery
  - blueprint tenant creation / automation



There are already solutions for this problem

- The general idea is called or **Configuration-as-Code** (or Desired State Configuration / Infrastructure-as-Code)
- If you search for it, you'll find an amount of community projects
- Some are kind of creative, some are kind of professional including DevOps integration



What is Microsoft365DSC?

Microsoft365DSC is the most comprehensive and complete solution to have your Microsoft 365 tenant configuration simple and stable. It's an Open-Source initiative hosted on GitHub, led by Microsoft engineers and maintained by the community.

Automate Configuration Changes

Automate your Change Management processes for your Microsoft 365 environments by maintaining a single declarative configuration file to manage all of your workloads.

Take Configuration Snapshots of Existing Microsoft 365 Tenants

Microsoft365DSC allows you to take snapshots of the current configuration of any existing Microsoft 365 tenant.

Monitor your configuration

IntuneManagement with PowerShell and WPF UI

These PowerShell scripts are using Microsoft Authentication Library (MSAL), Microsoft Graph APIs and Azure Management APIs to manage objects in Intune and Azure. The scripts has a simple WPF UI and it supports operations like Export, Import, Copy, Download, Compare etc.

This makes it easy to backup or clone a complete Intune environment. The scripts can export and import objects including assignments and support import/export between tenants. The scripts will create a migration table during export and use that for importing assignments in other environments. It will create missing groups in the target environment during import. Group information like name, description and type will be imported based on the exported group e.g. dynamic groups are supported. There will be one json file for each group in the export folder.

The script also support dependencies e.g. an App Protection is depending on an App, Policy Sets are depending on Compliance Policies, objects has Scope Tags etc. Dependency support requires exported json files and that the dependency objects are imported in the environment. The script uses the exported json files to get the Id and name's of the exported object and uses that information and updates Id's before import an object from a json file. The Bulk Import form shows the import order of the objects. The objects with the lowest order number will be imported first.

	name	description	id
□	Settings Catalog		a3efc2e8-9e04-4d99-bba9-66e0ff1fdee3
□	Test		8fbb202f-5b8d-4d9e-a37d-33f9ca1f9bc1

About

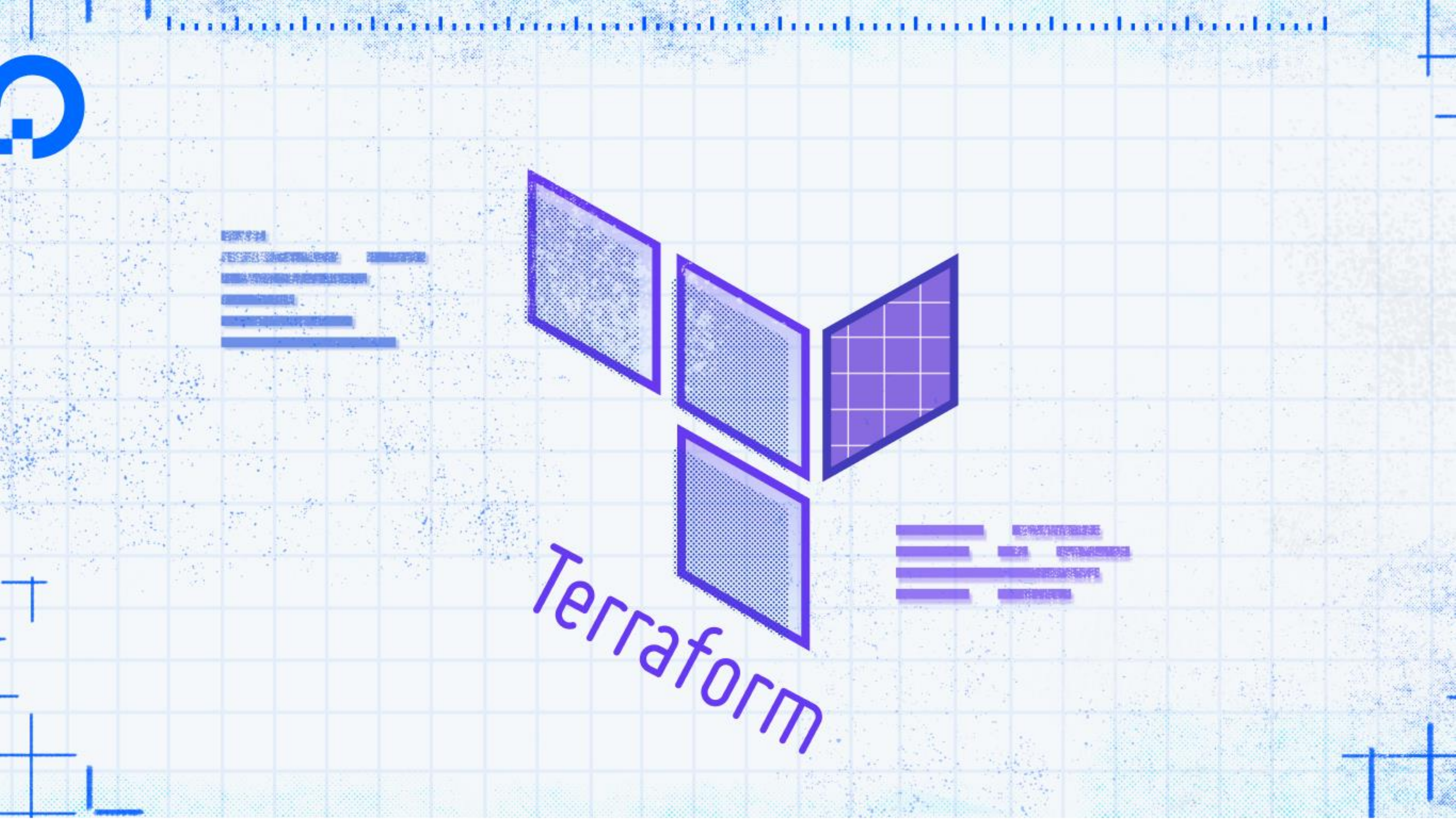
Copy, export, import, delete, document and compare policies and profiles in Intune and Azure with PowerShell script and WPF UI. Import ADMX files and registry settings with ADMX ingestion. View and edit PowerShell script.

Powershell? Nails everywhere...

- The law of the instrument, law of the hammer, … is a cognitive bias that involves an over-reliance on a familiar tool. Abraham Maslow wrote in 1966, "**If the only tool you have is a hammer, it is tempting to treat everything as if it were a nail**."

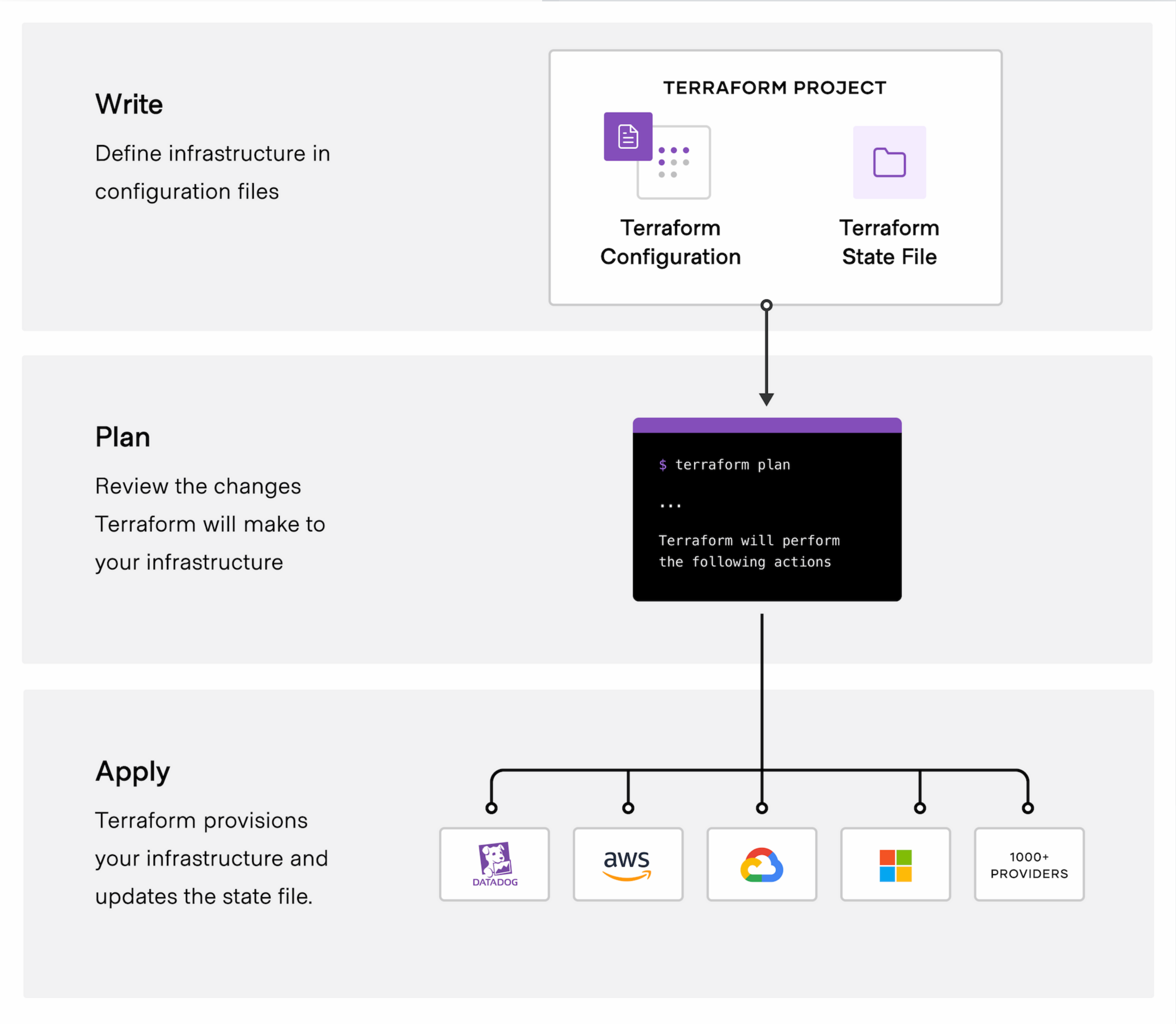
- Don't get me wrong:
  We ❤️ Powershell – but **is it the right weapon for Configuration-as-Code**?

- Beside a lot of design considerations and caveats …
  why not ignoring the hammer and check out which toolchain is used for nearly 40% of worldwide cloud automation?



Terraform

Terraform Basics



Write

Define infrastructure in configuration files

Plan

Review the changes Terraform will make to your infrastructure

Apply

Terraform provisions your infrastructure and updates the state file.

```
$ terraform plan

...

Terraform will perform
the following actions
```

HashiCorp
Terraform

Terraform Configuration Language (.tf)

```
provider "azurerm" {
  # AzureRM provider 2.x
  version = "~>2.0"
}

# Create a resource group
resource "azurerm_resource_group" "ninja" {
  name     = "ninja-rg"
  location = "North Central US"
}

# Create an Azure Storage Account
resource "azurerm_storage_account" "ninjastorage" {
  name                     = "ninjastorage"
  resource_group_name      = azurerm_resource_group.ninja.name
  location                 = azurerm_resource_group.ninja.location
  account_tier             = "Standard"
  account_replication_type = "GRS"

  tags = {
    environment = "demo"
  }
}
```

Terraform Command Line

```
# Initialize Terraform
terraform init

# Example Output:
# Initializing the backend...
# Initializing provider plugins...
# Terraform has been successfully initialized!

# Generate an execution plan
terraform plan

# Example Output:
# Refreshing Terraform state in-memory prior to plan...
# ...
# Plan: 2 to add, 0 to change, 0 to destroy.
```

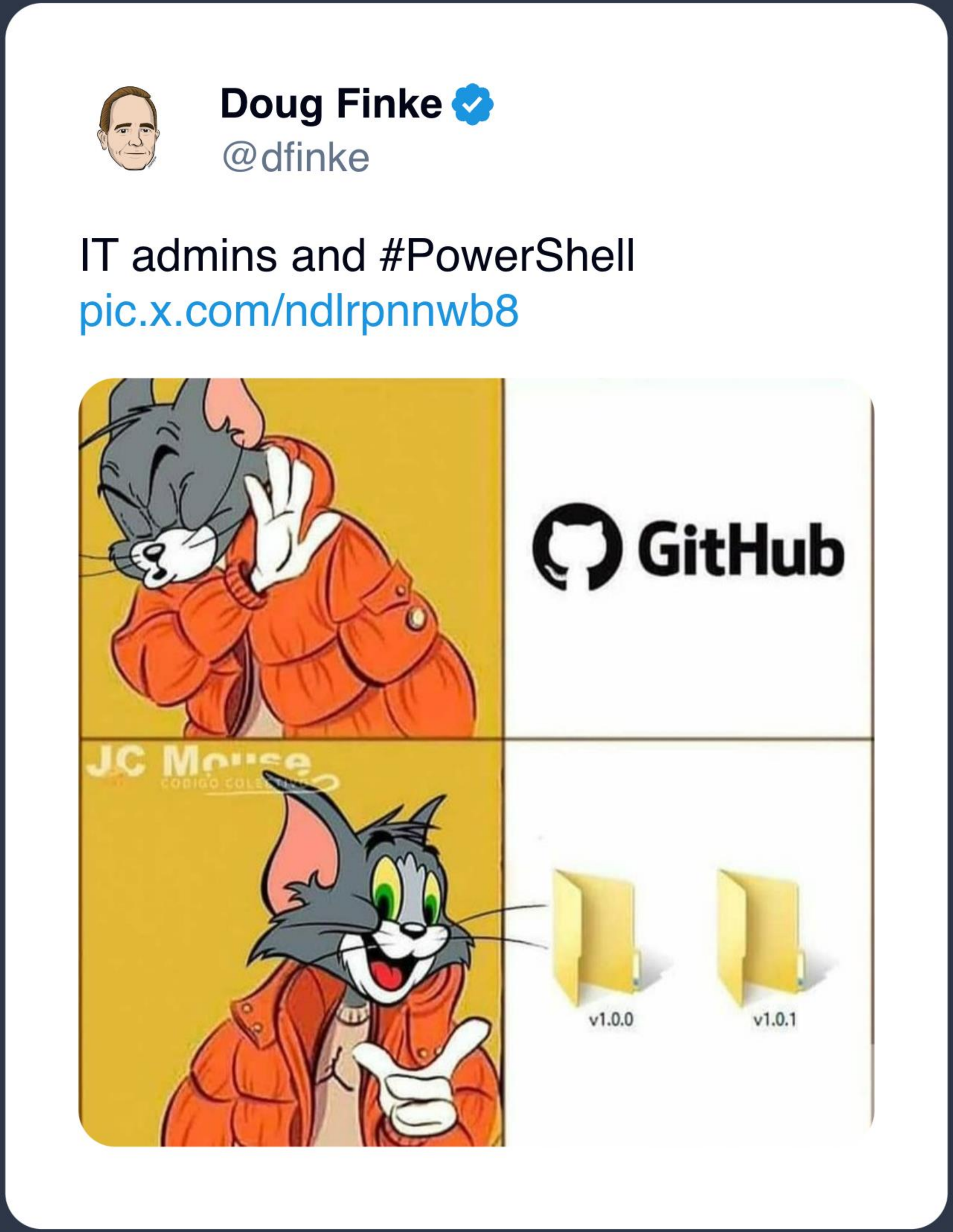
```
# Apply the configuration
terraform apply

# Example Output:
# ...
# ...
# Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

# Destroy resources (optional)
terraform destroy

# Example Output:
# ...
# ...
# ...
# Destroy complete! Resources: 2 destroyed.
```

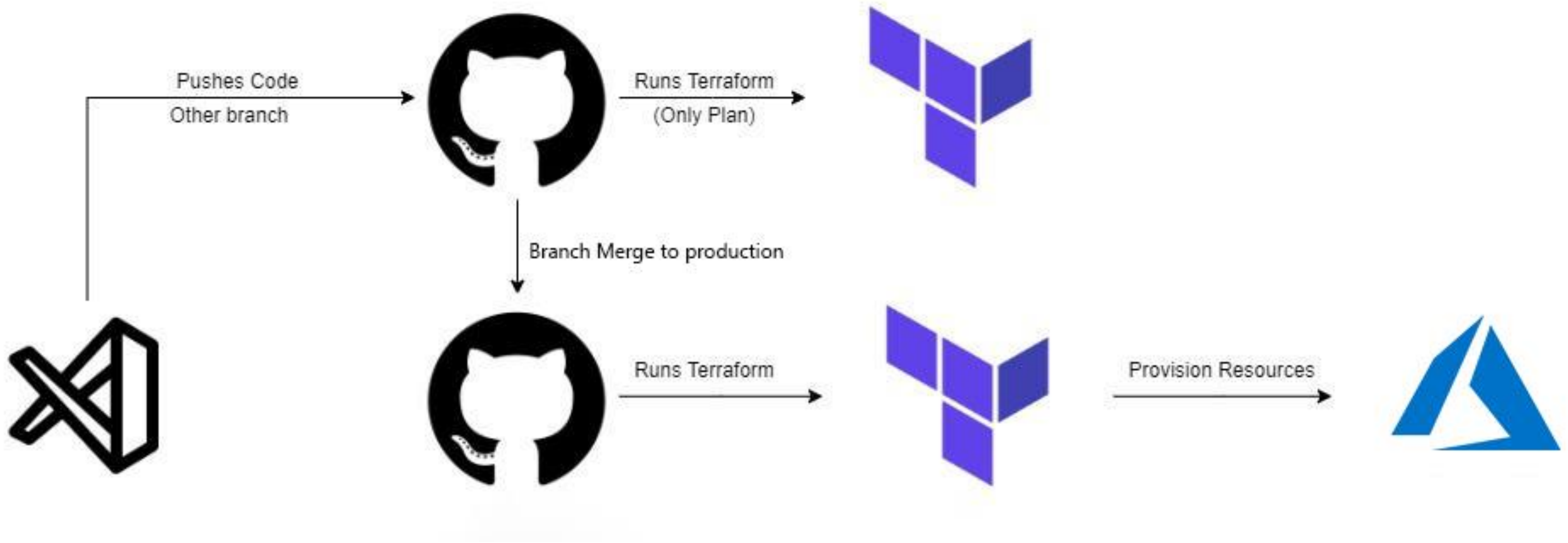
Git?



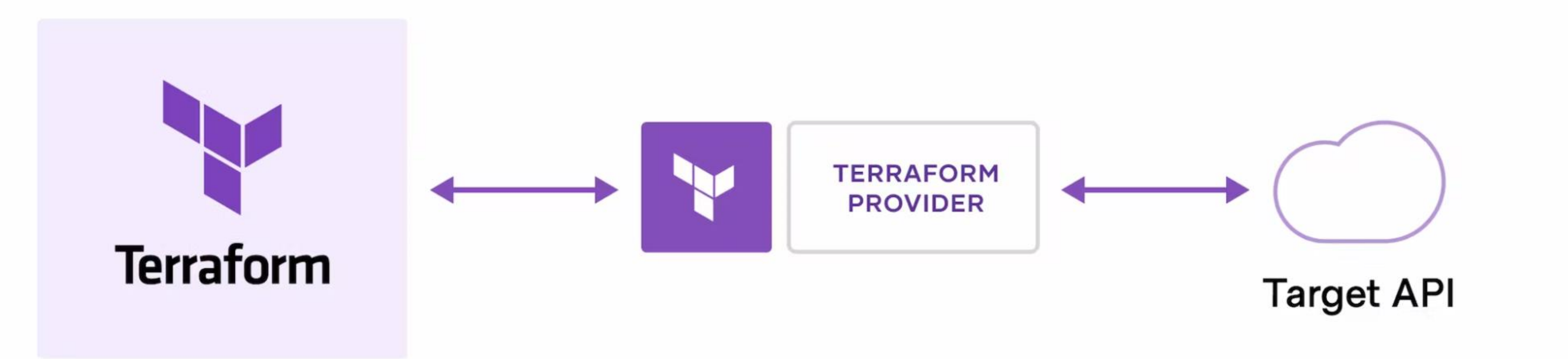
Doug Finke
@dfinke

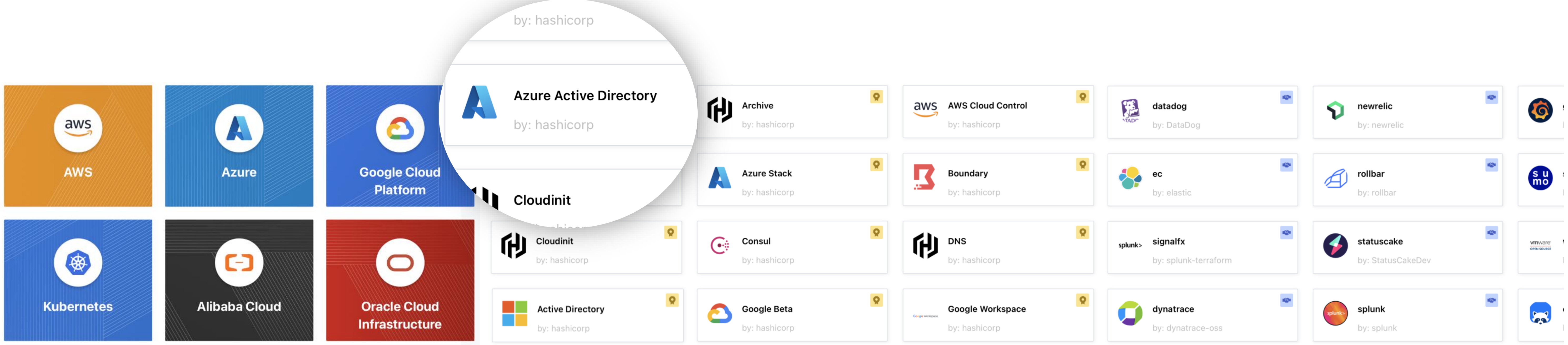
IT admins and #PowerShell
pic.x.com/ndlrpnnwb8

Basic Terraform Lifecycle



Terraform Provider & Provider Registry





by: hashicorp

Azure Active Directory
by: hashicorp

Cloudinit

Archive
by: hashicorp

AWS Cloud Control
by: hashicorp

datadog
by: DataDog

newrelic
by: newrelic

Azure Stack
by: hashicorp

Boundary
by: hashicorp

ec
by: elastic

rollbar
by: rollbar

Cloudinit
by: hashicorp

Consul
by: hashicorp

DNS
by: hashicorp

signalfx
by: splunk-terraform

statuscake
by: StatusCakeDev

Active Directory
by: hashicorp

Google Beta
by: hashicorp

Google Workspace
by: hashicorp

dynatrace
by: dynatrace-oss

splunk
by: splunk

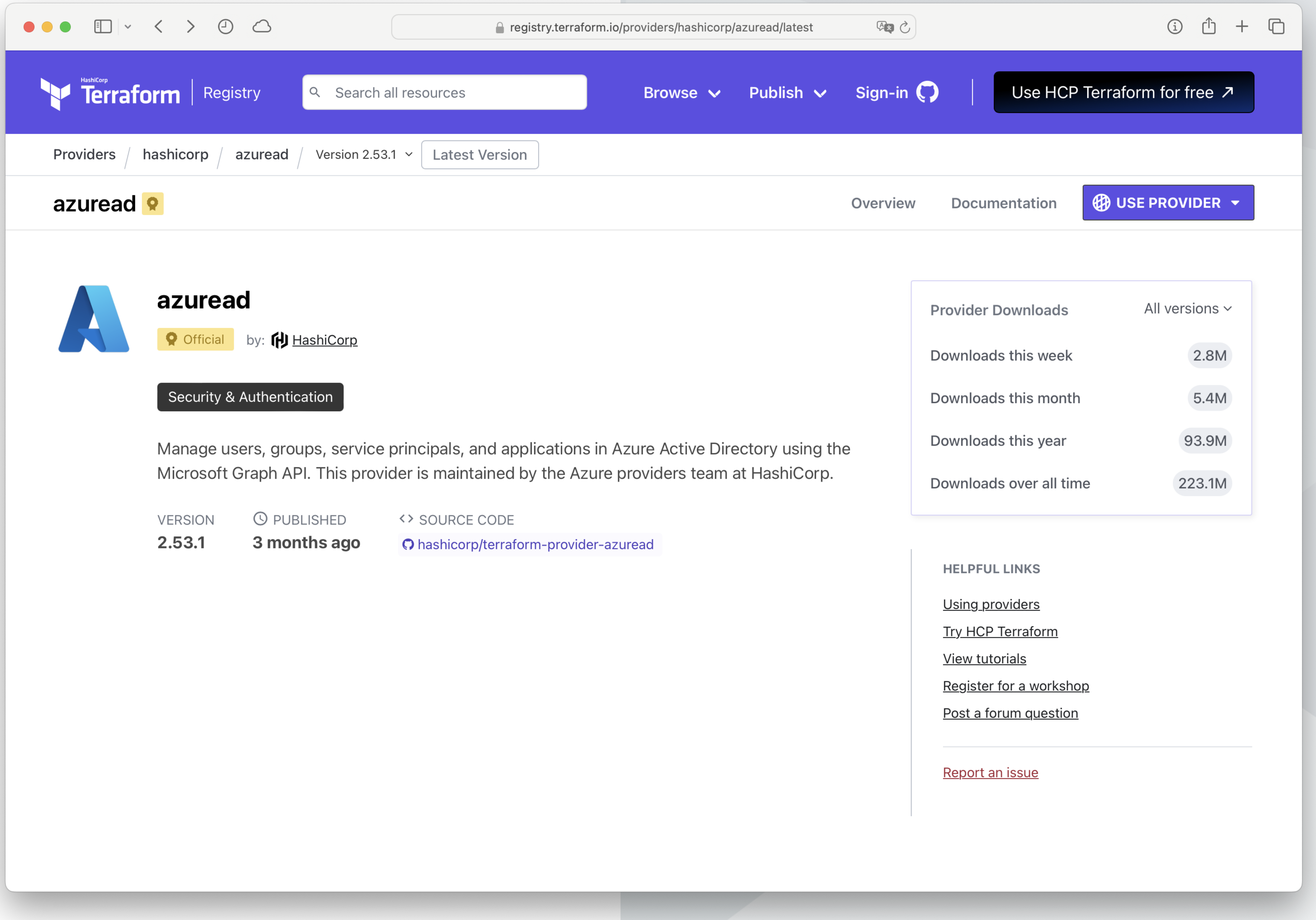
Currently there are about **4.500** providers available in the HashiCorp Registry.

Terraform Provider for Entra

Side Story:
Static vs Dynamic Configuration

It is not a good idea to create groups for daily operations via TF. Conf-as-Code is primarily intended for fundamental configuration. That’s why this provider exist (Azure Identities, etc.)

HashiCorp Terraform


registry.terraform.io/providers/hashicorp/azuread/latest
Terraform | Registry
Search all resources
Browse
Publish
Sign-in
Use HCP Terraform for free ↗
Providers / hashicorp / azuread / Version 2.53.1
Latest Version
azuread
Overview
Documentation
USE PROVIDER

azuread

Official by: HashiCorp

Security & Authentication

Manage users, groups, service principals, and applications in Azure Active Directory using the Microsoft Graph API. This provider is maintained by the Azure providers team at HashiCorp.

VERSION 2.53.1
PUBLISHED 3 months ago
SOURCE CODE hashicorp/terraform-provider-azuread

Provider Downloads (All versions)

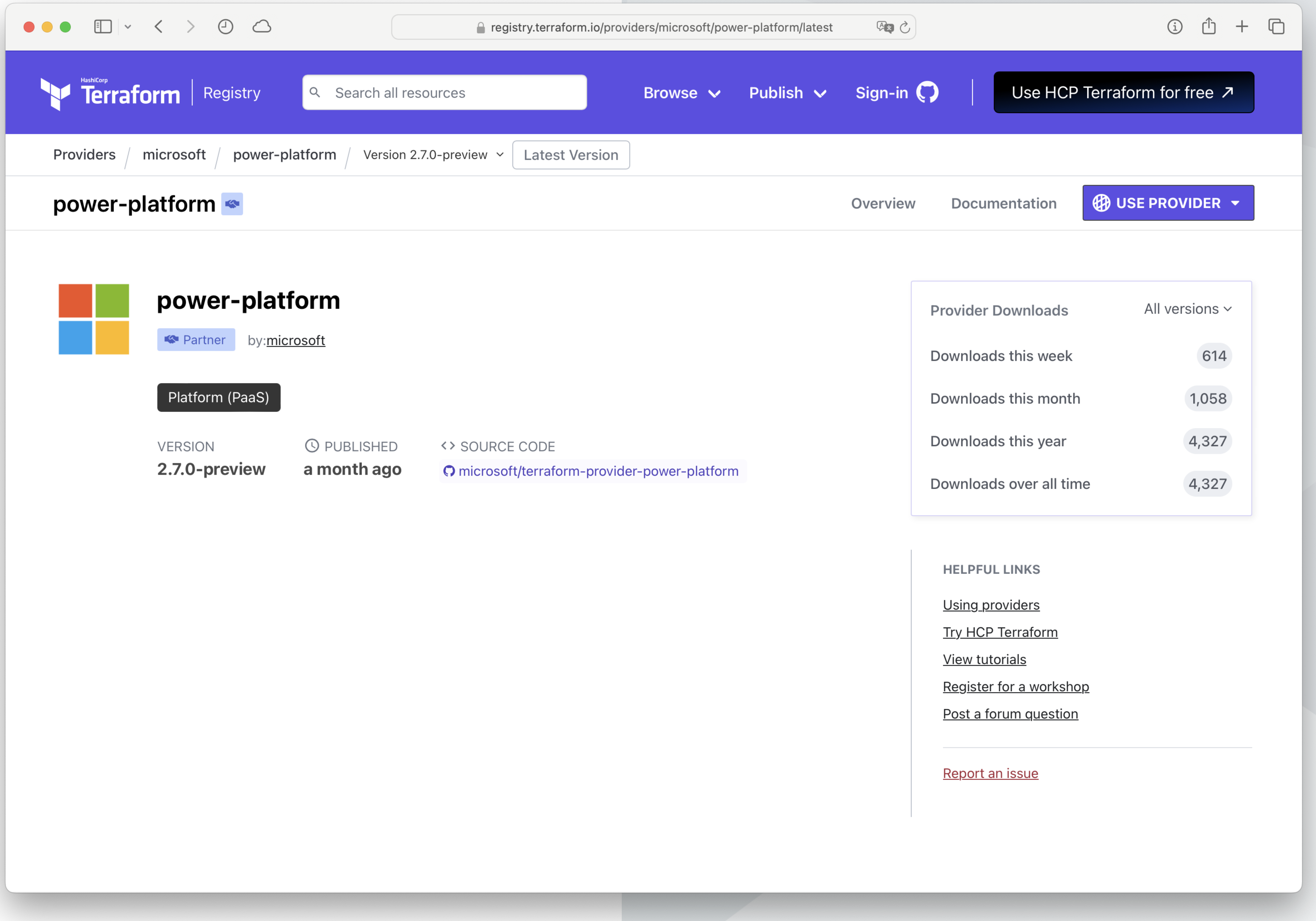
Downloads this week	2.8M
Downloads this month	5.4M
Downloads this year	93.9M
Downloads over all time	223.1M

HELPFUL LINKS

- Using providers
- Try HCP Terraform
- View tutorials
- Register for a workshop
- Post a forum question

Report an issue

Terraform Provider for Power Platform



registry.terraform.io/providers/microsoft/power-platform/latest

Providers / microsoft / power-platform / Version 2.7.0-preview | Latest Version

power-platform

power-platform

Partner by:microsoft

Platform (PaaS)

VERSION	PUBLISHED	SOURCE CODE
2.7.0-preview	a month ago	microsoft/terraform-provider-power-platform

Provider Downloads	All versions
Downloads this week	614
Downloads this month	1,058
Downloads this year	4,327
Downloads over all time	4,327

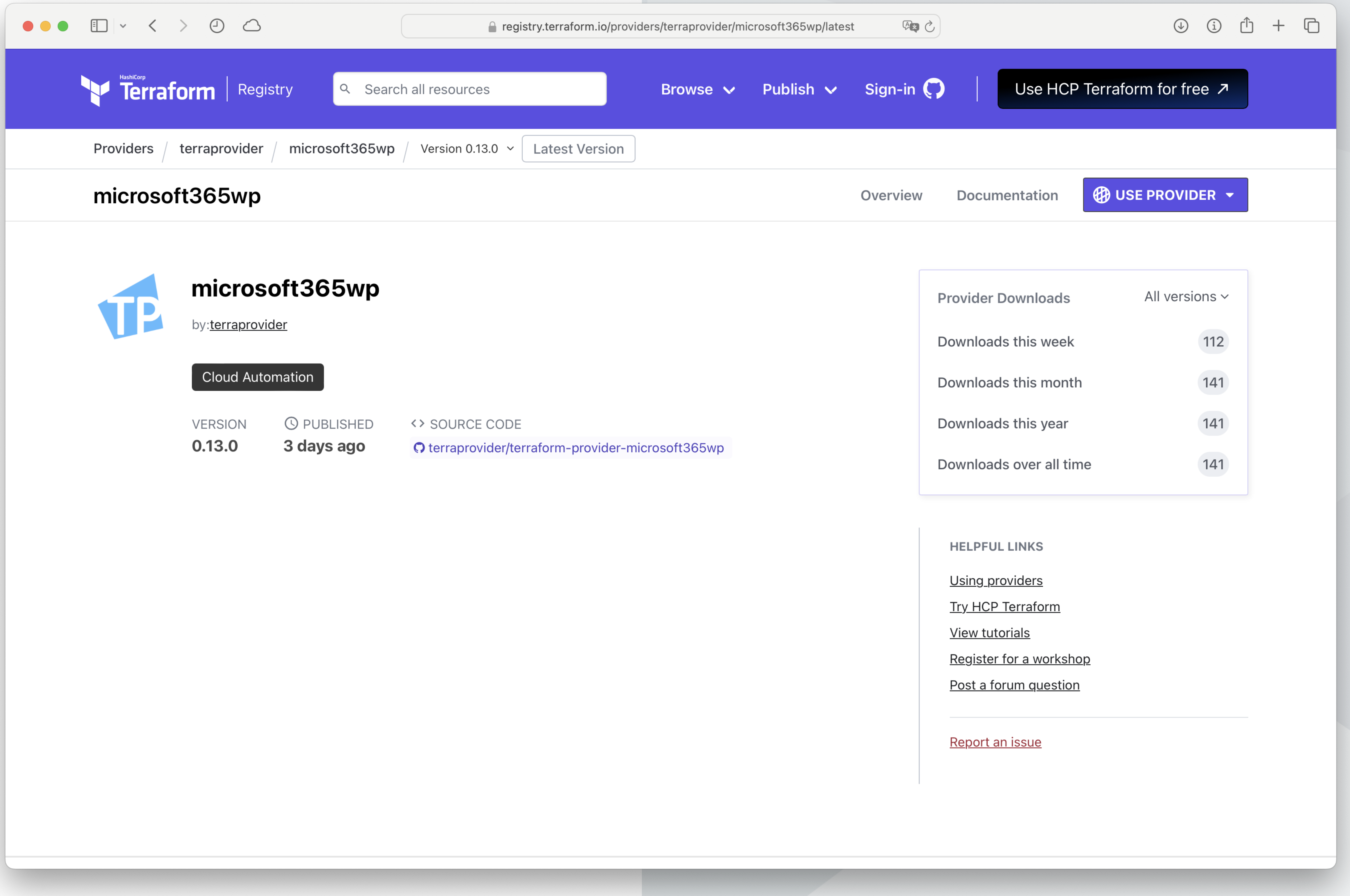
HELPFUL LINKS

- Using providers
- Try HCP Terraform
- View tutorials
- Register for a workshop
- Post a forum question

Report an issue

HashiCorp Terraform

Terraform Provider for M365



registry.terraform.io/providers/terraprovider/microsoft365wp/latest

Providers / terraprovider / microsoft365wp / Version 0.13.0 Latest Version

microsoft365wp

microsoft365wp

by:terraprovider

Cloud Automation

VERSION	PUBLISHED	SOURCE CODE
0.13.0	3 days ago	terraprovider/terraform-provider-microsoft365wp

Provider Downloads — All versions

Downloads this week	112
Downloads this month	141
Downloads this year	141
Downloads over all time	141

HELPFUL LINKS

- Using providers
- Try HCP Terraform
- View tutorials
- Register for a workshop
- Post a forum question

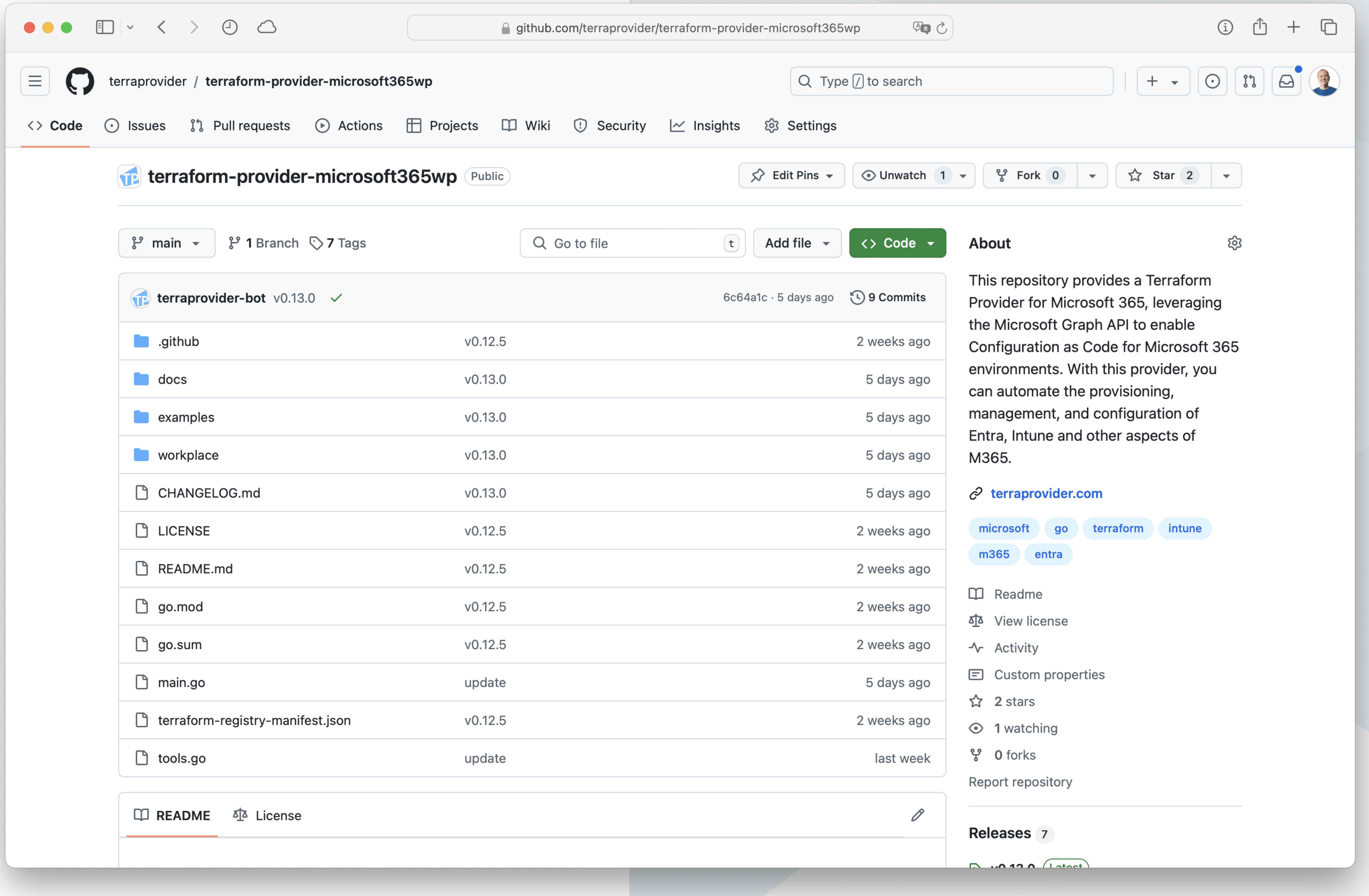
Report an issue

HashiCorp Terraform

Provider Story – Some Background

- We have been searching for the **holy grail of automation** for years
- We and many customers have been working with Configuration as Code with Terraform on Azure and AWS for years
- The logical consequence: **we build a provider**
- **Problem:** The Microsoft Graph is constantly getting new functionalities, we would have to keep coding new features into the provider
- **Solution:** **We created a code generator for Graph**
- It took us more than two years, but we think we have all the graph structures and wild exceptions in the code generator
- Long Story Short: **We expect to build new releases every two to three weeks, covering new graph areas with high code quality**.

TerraProvider = Source Available



github.com/terraprovider/terraform-provider-microsoft365wp

terraprovider / terraform-provider-microsoft365wp

terraform-provider-microsoft365wp

terraprovider-bot v0.13.0 ✓ 6c64a1c · 5 days ago 9 Commits

.github	v0.12.5	2 weeks ago
docs	v0.13.0	5 days ago
examples	v0.13.0	5 days ago
workplace	v0.13.0	5 days ago
CHANGELOG.md	v0.13.0	5 days ago
LICENSE	v0.12.5	2 weeks ago
README.md	v0.12.5	2 weeks ago
go.mod	v0.12.5	2 weeks ago
go.sum	v0.12.5	2 weeks ago
main.go	update	5 days ago
terraform-registry-manifest.json	v0.12.5	2 weeks ago
tools.go	update	last week

About

This repository provides a Terraform Provider for Microsoft 365, leveraging the Microsoft Graph API to enable Configuration as Code for Microsoft 365 environments. With this provider, you can automate the provisioning, management, and configuration of Entra, Intune and other aspects of M365.

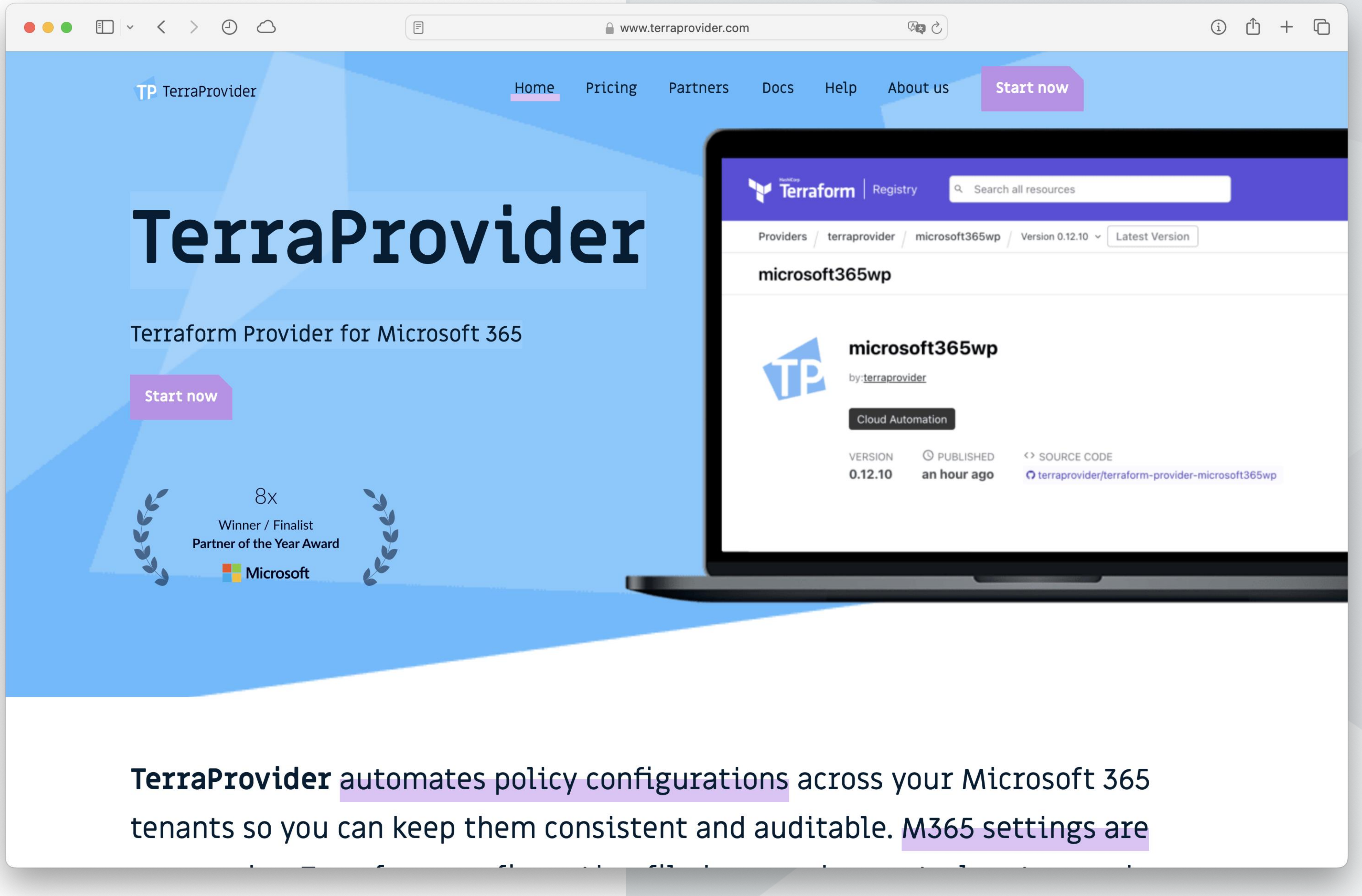
terraprovider.com

microsoft go terraform intune m365 entra

Releases 7

HashiCorp
Terraform

TerraProvider License + Community Edition



TerraProvider

Terraform Provider for Microsoft 365

Start now

microsoft365wp

microsoft365wp

by:terraprovider

VERSION 0.12.10

PUBLISHED an hour ago

SOURCE CODE terraprovider/terraform-provider-microsoft365wp

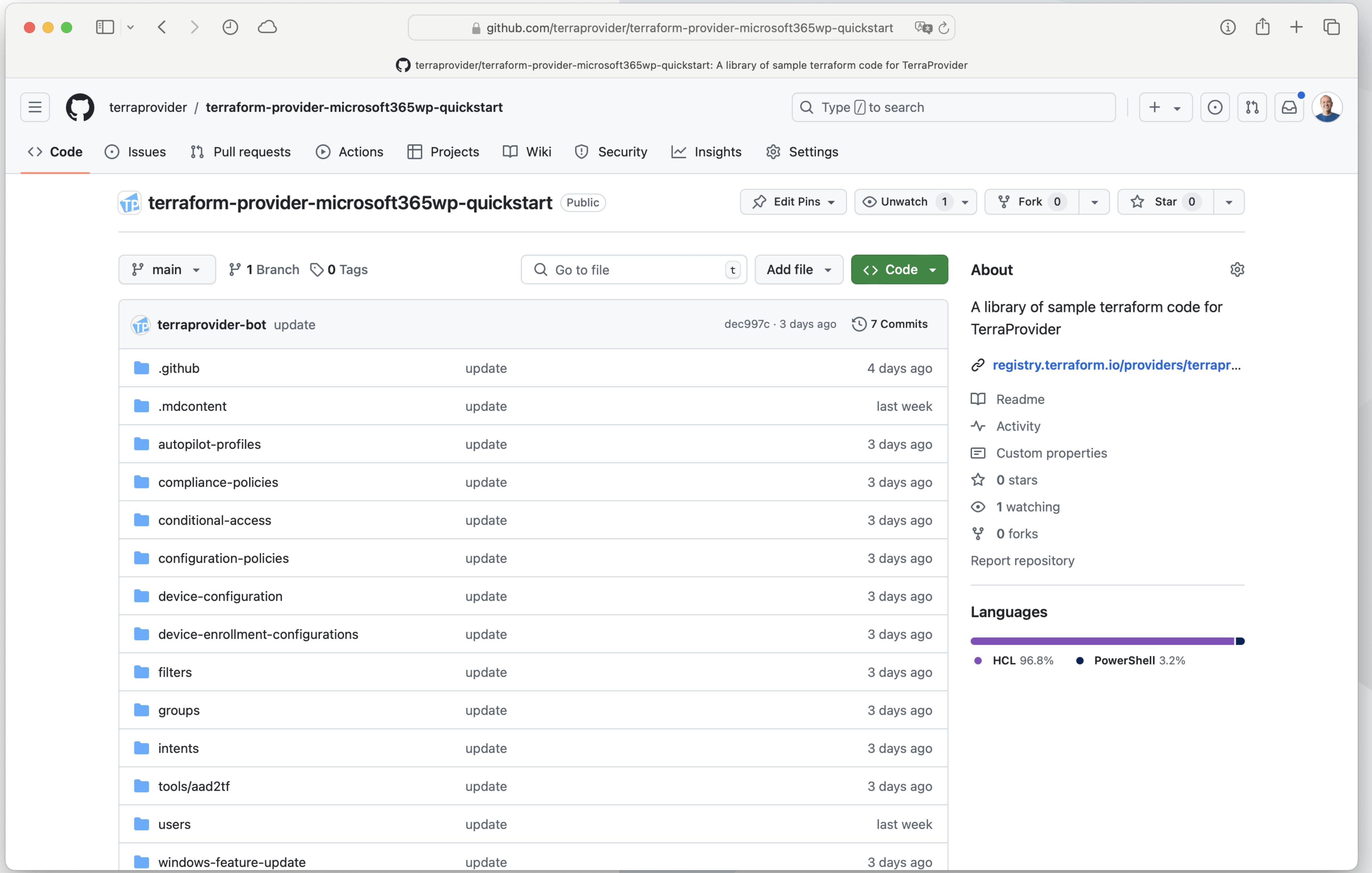
TerraProvider automates policy configurations across your Microsoft 365 tenants so you can keep them consistent and auditable. M365 settings are

Community Edition is **free** for non-productive use **and for all tenants with less than 100 users.**

HashiCorp Terraform

TerraProvider
Quick Start Framework*

* Our Quick Start Framework is not just an immediately functional starter for a Tenant configuration. It also provides a **tool that translates existing tenant policies into Terraform code**.


github.com/terraprovider/terraform-provider-microsoft365wp-quickstart
terraprovider/terraform-provider-microsoft365wp-quickstart: A library of sample terraform code for TerraProvider
terraprovider / terraform-provider-microsoft365wp-quickstart
Type / to search
Code
Issues
Pull requests
Actions
Projects
Wiki
Security
Insights
Settings
Public
Edit Pins
Unwatch 1
Fork 0
Star 0
main
1 Branch
0 Tags
Go to file
Add file
Code

terraform-provider-microsoft365wp-quickstart

terraprovider-bot update · dec997c · 3 days ago · 7 Commits

.github	update	4 days ago
.mdcontent	update	last week
autopilot-profiles	update	3 days ago
compliance-policies	update	3 days ago
conditional-access	update	3 days ago
configuration-policies	update	3 days ago
device-configuration	update	3 days ago
device-enrollment-configurations	update	3 days ago
filters	update	3 days ago
groups	update	3 days ago
intents	update	3 days ago
tools/aad2tf	update	3 days ago
users	update	last week
windows-feature-update	update	3 days ago

About

A library of sample terraform code for TerraProvider

registry.terraform.io/providers/terrapr...

Readme

Activity

Custom properties

0 stars

1 watching

0 forks

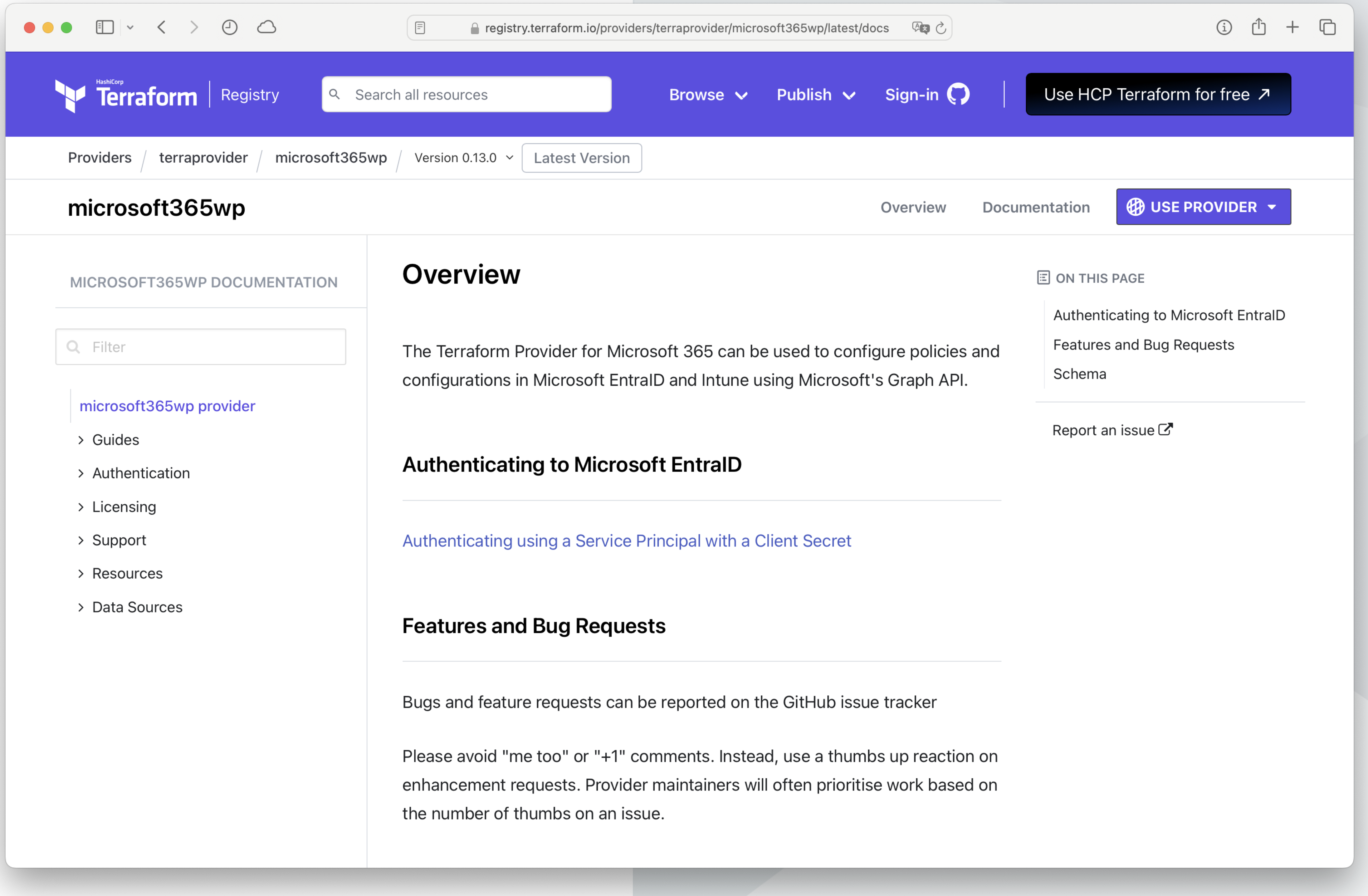
Report repository

Languages

HCL 96.8% · PowerShell 3.2%

HashiCorp Terraform

TerraProvider Documentation



registry.terraform.io/providers/terraprovider/microsoft365wp/latest/docs
HashiCorp Terraform | Registry
Search all resources
Browse
Publish
Sign-in
Use HCP Terraform for free ↗
Providers / terraprovider / microsoft365wp / Version 0.13.0
Latest Version
Overview
Documentation
USE PROVIDER

microsoft365wp

MICROSOFT365WP DOCUMENTATION

Filter

- microsoft365wp provider
- › Guides
- › Authentication
- › Licensing
- › Support
- › Resources
- › Data Sources

Overview

The Terraform Provider for Microsoft 365 can be used to configure policies and configurations in Microsoft EntraID and Intune using Microsoft's Graph API.

Authenticating to Microsoft EntraID

Authenticating using a Service Principal with a Client Secret

Features and Bug Requests

Bugs and feature requests can be reported on the GitHub issue tracker

Please avoid "me too" or "+1" comments. Instead, use a thumbs up reaction on enhancement requests. Provider maintainers will often prioritise work based on the number of thumbs on an issue.

ON THIS PAGE

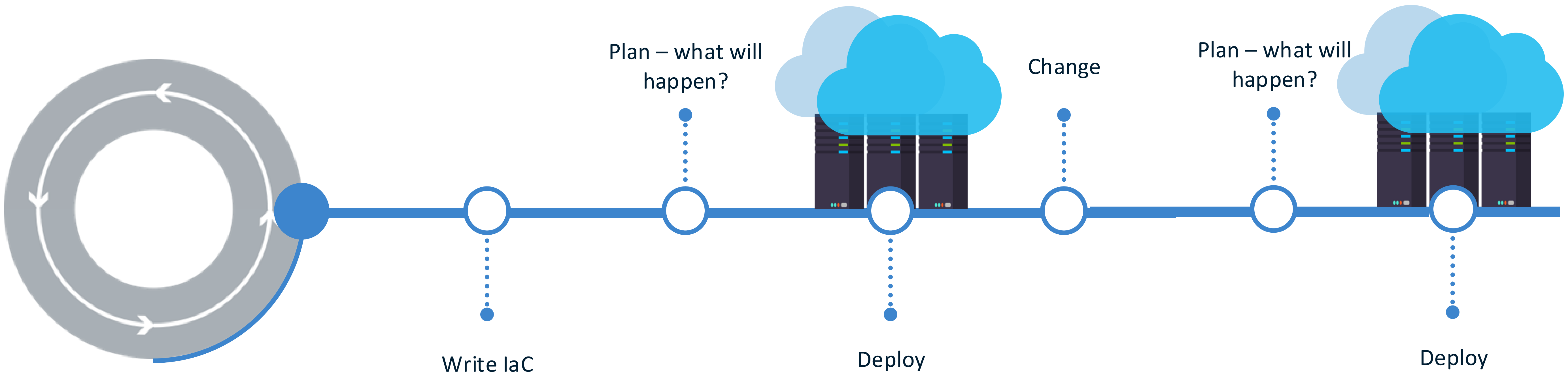
- Authenticating to Microsoft EntraID
- Features and Bug Requests
- Schema

Report an issue

HashiCorp Terraform

Summary: Infrastructure as Code

- declarative description of the target infrastructure
- describe what you want in code (desired state configuration)
- write once - deploy many
- documentation of IT estate, standardized deployment model



Thanks.

Questions?