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# Terraform 101: Unleash the Power of IAC

An Introduction to Infrastructure as Code (IAC) with Terraform

by

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## What is IAC?

- Definition of Infrastructure as Code (IAC)
- Benefits of IAC:
  - Faster Provisioning
  - Work on ephemeral environments
  - Less chances of human errors
  - Scalability
  - Collaboration
  - Version Control



## Different IAC Options vs Terraform?

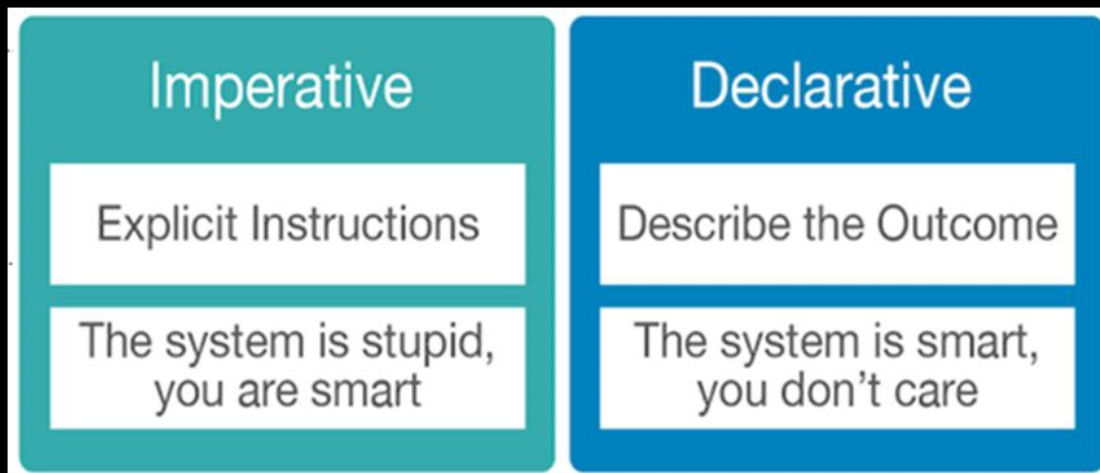
*Table 1-4. A comparison of the most common ways to use the most popular IaC tools*

	Chef	Puppet	Ansible	Pulumi	CloudFormation	Heat	Terraform
Source	Open	Open	Open	Open	Closed	Open	Open
Cloud	All	All	All	All	AWS	All	All
Type	Config mgmt	Config mgmt	Config mgmt	Provisioning	Provisioning	Provisioning	Provisioning
Infra	Mutable	Mutable	Mutable	Immutable	Immutable	Immutable	Immutable
Paradigm	Procedural	Declarative	Procedural	Declarative	Declarative	Declarative	Declarative
Language	GPL	DSL	DSL	GPL	DSL	DSL	DSL
Master	Yes	Yes	No	No	No	No	No
Agent	Yes	Yes	No	No	No	No	No
Paid Service	Optional	Optional	Optional	Must-have	N/A	N/A	Optional
Community	Large	Large	Huge	Small	Small	Small	Huge
Maturity	High	High	Medium	Low	Medium	Low	Medium



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## Imperative vs. Declarative





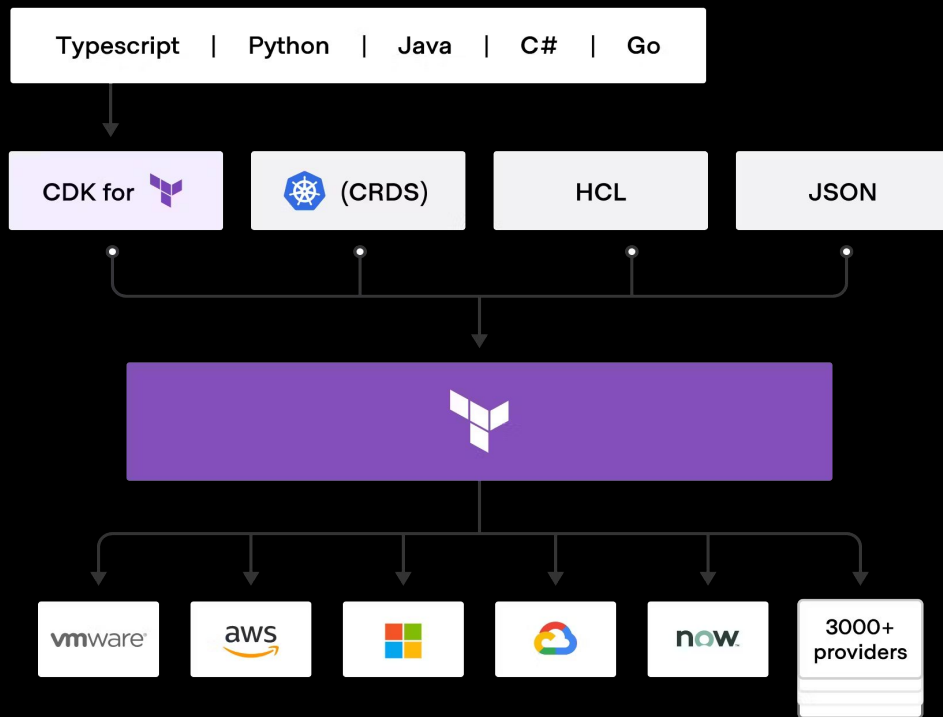
## Terraform Concepts & Benefits

- Providers
- Parallelism: Faster Provisioning
- Auto-Dependency Check: Managing Resource Order
- Declarative Nature: Desired State Configuration
- State Management: Tracking Resources
- Locking: Preventing Concurrent Modifications



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# Configuration Language







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## Terraform Document Overview for a Resource

- Resource
- Additional Arguments and Their Meanings
- Provider



# Terraform Commands

- terraform init: Initializing a Project
- terraform plan: Viewing Planned Changes
- terraform apply: Applying Changes
- terraform destroy: Destroying Resources
- Example Commands with Demo





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# Demo



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## Destruction





## Advanced Topics: State Management

- Understanding Terraform State
- Remote State Storage
- State Locking

Accidentally deletes Terraform State File  
Without any backups





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## Advanced Topics: Resources & Modules

- Introduction to Modules
- Using Variables to Parameterize Configurations



## Advanced Topics: Functions, Ternary & Loops

- Built-in Functions in Terraform
- Ternary Operators for Conditional Logic
- Loops for Iterative Tasks



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## Bonus Topics: Terraform Cheat Sheet

[https://drive.google.com/file/d/1vBHHxHBG5c0vBKWCZt43P2heXnjbZ\\_oO/view?usp=sharing](https://drive.google.com/file/d/1vBHHxHBG5c0vBKWCZt43P2heXnjbZ_oO/view?usp=sharing)





## Bonus Topics: Interview Questions

- What is a provider in terraform?
- Terraform commands: lifecycle
- Where would you store terraform state & why?



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## Bonus Topics: Certification

### Exam details

Assessment Type	Multiple choice
Format	Online proctored
Duration	1 hour
Price	\$70.50 USD plus locally applicable taxes and fees Free retake <b>not included</b>
Language	English
Expiration	2 years



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Q&A



Thank you