Terraform Documentation

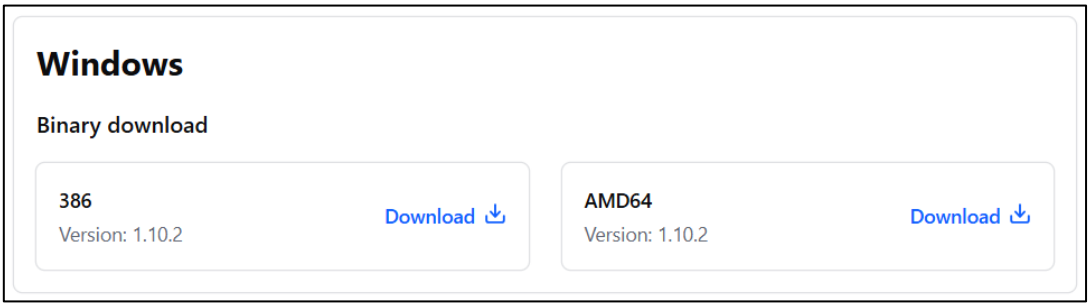
Prerequisite:

1. **System Requirements**:
    - Windows OS: Windows 10 or later (64-bit recommended).
    - Minimum 4 GB RAM (8 GB or more recommended).
    - Administrative access to the system.
2. **Installed Tools**:
    - A web browser to download Terraform.
    - Command-line interface (PowerShell, CMD, or any preferred terminal).
    - Text editor (e.g., Visual Studio Code, Notepad++).
3. **Access Permissions**:
    - An active cloud account (AWS, Azure, GCP) for infrastructure provisioning.
    - Appropriate API credentials for cloud providers.
    - Like AWS Access Key and Secret Key.

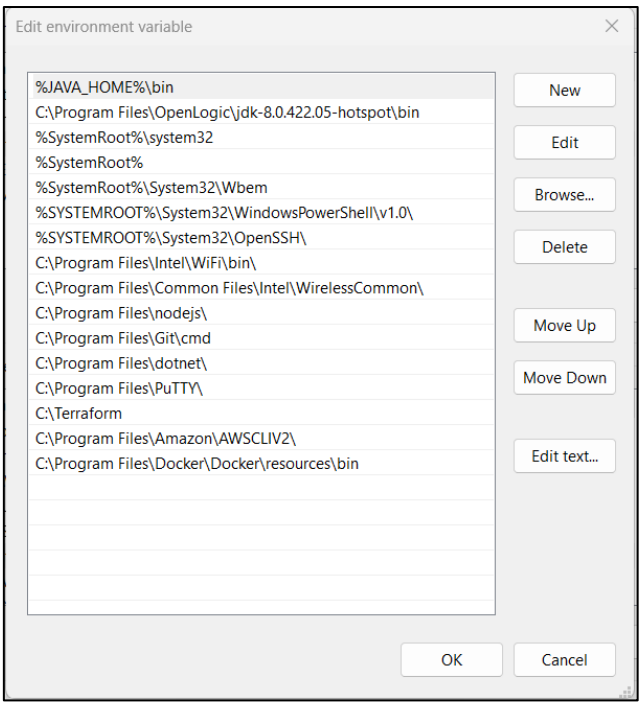
Installation Guide for Windows:

Steps to Install Terraform:

1. **Download Terraform**:
    - Visit the Terraform Downloads Page.
    - Select the appropriate version for Windows and download the zip file.



2. **Extract the Zip File**:
    - Unzip the downloaded file to a directory (e.g., C:\Terraform).
3. **Add Terraform to System Path**:
    - Open the Start Menu and search for Environment Variables.
    - Select "Edit the system environment variables".
    - In the System Properties window, click on the Environment Variables button.
    - In the "System Variables" section, find and select the Path variable, then click "Edit".
    - Add the directory path where Terraform was extracted (e.g., C:\Terraform).
    - Click OK to save changes.



4. **Verify Installation**:
    - Open PowerShell or Command Prompt.
    - Run the command: - terraform --version
    - Ensure the output displays the installed version of Terraform.

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\IQ-VIKASH> terraform --version
Terraform v1.9.2
on windows_amd64

Your version of Terraform is out of date! The latest version
is 1.10.2. You can update by downloading from https://www.terraform.io/downloads.html
PS C:\Users\IQ-VIKASH>
```

AWS CLI Configuration:

Before using Terraform with AWS, you need to configure the AWS CLI. Follow these steps:

1. **Install AWS CLI**:
    - Download the AWS CLI installer from the AWS CLI Installation Guide.
    - Run the installer and follow the instructions.
    - Verify installation by running: - aws --version

```
PS C:\Users\IQ-VIKASH> aws --version
aws-cli/2.17.18 Python/3.11.9 Windows/10 exe/AMD64
PS C:\Users\IQ-VIKASH>
```

2. **Configure AWS CLI**:
    - Open your terminal and run: - aws configure
    - Provide the following details when prompted:
        - **AWS Access Key ID**: Your AWS access key.
        - **AWS Secret Access Key**: Your AWS secret key.
        - **Default region**: The AWS region you want to use (e.g., us-west-2).
3. **Test AWS Configuration**:
    - Run the following command to confirm that your credentials and region are correctly configured: - aws s3 ls
    - This will list your S3 buckets if the configuration is correct.

Getting Started with Terraform:

1. Basic Workflow:

Terraform operates in a simple workflow:

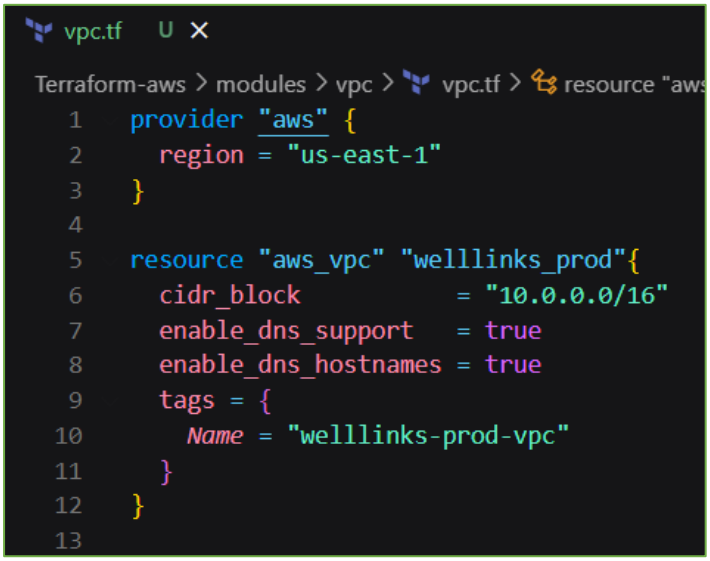
- **Write**: Define your infrastructure using HashiCorp Configuration Language (HCL) in .tf files.
- **Plan**: Preview the changes Terraform will make to your infrastructure.
- **Apply**: Execute the planned changes to create, update, or delete resources.
- **Destroy**: Clean up resources when they are no longer needed.

2. First Terraform Configuration:

Create a new directory for your project and navigate to it in your terminal.

Example: Setting Up an AWS EC2 Instance

1. Create a file named main.tf with the following content:



2. Initialize Terraform: - **terraform init**
3. Plan the changes: - **terraform plan**
4. Apply the changes: - **terraform apply**
    - Type **yes** to confirm.
5. Destroy resources when done: - **terraform destroy**