# Terraform Setup and Script Execution Documentation

## Overview

This guide will help you install **Terraform**, configure necessary settings, and run a Terraform script to create a **Hysecure multi-node cluster**. It also includes steps to set up dependencies and use a predefined Terraform script stored on a **NAS** (Network-Attached Storage).

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## Prerequisites

1. Internet required before installing terraform.
2. **Copy the Folder:**
   - Copy the **HYS** folder from the shared network location
     `\\172.25.0.11\Public\Automation\Terraform` to your local machine.
   - The folder will contain the necessary **Terraform configurations** and **scripts** for setting up infrastructure, including the **Hysecure multi-node cluster** setup.
3. **Operating System**: This guide assumes you are using **Windows**.
4. **Hysecure Client**: Ensure that the **Hysecure client** is installed on the Windows machine where the Terraform script will be executed.
5. **Administrator Privileges**: You need administrative rights to install software (such as Terraform) and modify system environment variables (e.g., adding Terraform to the system **Path**).

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## Step 1: Install Terraform

Before you can run Terraform scripts, you must first install **Terraform** on your Windows machine.

### 1.1. Run the Installation Script

To install Terraform, you can use a PowerShell script that will automatically download and install Terraform for you. Follow the steps below:

1. **Locate the Installation Script**:
   - Find the install_terraform.ps1 script inside the folder you copied from the `\\172.25.0.11\Public\Automation\Terraform` location. This script is located in the **\HYS\dependency** folder.
2. **Run PowerShell as Administrator**:
   - Press Win + X and select **Windows PowerShell (Admin)** to run PowerShell with administrative privileges.
3. **Execute the Installation Script**:
   - In the **Administrator PowerShell** window, navigate to the folder where the install_terraform.ps1 script is located.
   - `cd \HYS\dependency,`

4. **Run the script to install Terraform**:
   o `.\install_terraform.ps1`
   o If getting error **running scripts is disabled** : `Set-ExecutionPolicy AllSigned`

   This script will:

   o Download the latest version of **Terraform**.
   o Install Terraform in the appropriate directory.
   o Add Terraform to your system **Path** environment variable.

## 1.2. Verify the Installation

Once the installation is complete, verify that Terraform was installed correctly by running the following command in PowerShell:

   o `terraform --version`

# Step 2: Hysecure Gateway Creation

In this step, you will configure **Terraform** to create the **Hysecure multi-node cluster**. This process involves providing the necessary details in the configuration file and executing the Terraform commands.

## 2.1. Add Hysecure Node Details in terraform.tfvars

1. In the copied HYS folder, locate the terraform.tfvars file. This file contains the variable values used by the Terraform configuration.

2. **Edit the terraform.tfvars file**:

   o Open the file with a text editor (such as Notepad or Visual Studio Code).

   o Enter the necessary details for your **Hysecure nodes** (e.g., node IPs, credentials, etc.) & save.

   o Based on the entered details, the first entry will be designated as the active option, the second as standby, and the remaining entries will be categorized as real.

## 2.2. Remove the terraform.tfstate File (Important)

Before running the terraform apply command, you need to ensure that there are no leftover state files from previous runs that might interfere with the deployment.

1. Navigate to the folder where the **Terraform configuration** files are located.

2. Delete the **terraform.tfstate file** (if it exists)

## 2.3. Initialize the Terraform Directory

Execute the following command in the directory where the Terraform project is located to initialize the Terraform working environment. This will download the required provider plugins (e.g. for Proxmox, HTTP, etc.) and prepare the environment for the Terraform configuration.

   o `terraform init`

This step is crucial before running the terraform apply command to ensure that all necessary plugins and providers are set up.

### 2.4. Apply the Terraform Script

1. Once initialization is complete, you are ready to deploy the Hysecure multi-node cluster using Terraform.

   Run the following command to create the infrastructure:

   o `terraform apply`

2. Terraform will prompt you to confirm the action. Type **yes** to proceed with creating the infrastructure.

   Terraform will now:

   Create the **Hysecure multi-node cluster** based on the configuration and values defined in the terraform.tfvars.

# Step 3: Verify the Deployment

After the terraform apply process is completed, which may take 45 minutes to 1 hour, verify that the Hysecure multi-node cluster has been successfully created by logging into the Hysecure gateway with the admin credentials provided during the configuration.

### 3.1. Log into the Hysecure Gateway

1. Use the IP addresses of the nodes you defined in the terraform.tfvars file to access the **Hysecure gateway**.
2. Log in with the provided **admin password** and verify that the nodes are properly configured and that the multimode cluster is operational.