

# Ubuntu Installation Guide for Azure & AKS Demo

## 1. Install Azure CLI

```
curl -sL https://aka.ms/InstallAzureCLIDeb | sudo bash
```

### Verify Installation:

```
az version
```

### Login to Azure:

```
az login
```

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## 2. Install Kubectl (Kubernetes CLI)

```
az aks install-cli
```

### Verify Installation:

```
kubectl version --client
```

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## 3. Install Helm (Kubernetes Package Manager)

```
curl -fsSL https://raw.githubusercontent.com/helm/helm/main/scripts/get-helm-3 | bash
```

### Verify Installation:

```
helm version
```

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## 4. Install Docker (Corrected Method)

```
sudo apt update
sudo apt install -y ca-certificates curl gnupg
sudo mkdir -m 0755 -p /etc/apt/keyrings
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo tee
/etc/apt/keyrings/docker.asc > /dev/null
echo "deb [arch=$(dpkg --print-architecture)
signed-by=/etc/apt/keyrings/docker.asc]
https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo
tee /etc/apt/sources.list.d/docker.list > /dev/null
sudo apt update
sudo apt install -y docker-ce docker-ce-cli containerd.io
docker-buildx-plugin docker-compose-plugin
```

### **Start and Enable Docker:**

```
sudo systemctl start docker
sudo systemctl enable docker
```

### **Verify Installation:**

```
docker --version
```

### **Ensure the user has Docker permissions (Optional)**

```
sudo usermod -aG docker $USER
newgrp docker
```

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## **5. Install Terraform**

```
sudo apt update && sudo apt install -y gnupg software-properties-common
curl -fsSL https://apt.releases.hashicorp.com/gpg | sudo tee
/usr/share/keyrings/hashicorp-archive-keyring.gpg > /dev/null
echo "deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg]
https://apt.releases.hashicorp.com $(lsb_release -cs) main" | sudo tee
/etc/apt/sources.list.d/hashicorp.list
sudo apt update
sudo apt install -y terraform
```

### **Verify Installation:**

```
terraform --version
```

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## **6. Install ArgoCD CLI**

```
sudo curl -sSL -o /usr/local/bin/argocd
https://github.com/argoproj/argo-cd/releases/latest/download/argocd-linux-amd
64
sudo chmod +x /usr/local/bin/argocd
```

### **Verify Installation:**

```
argocd version
```

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## **7. Install Minikube (Optional)**

```
curl -LO
https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
sudo install minikube-linux-amd64 /usr/local/bin/minikube
```

### **Start Minikube Cluster (Optional)**

```
minikube start --driver=docker
```

### Verify Minikube:

```
kubectl get nodes
```

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## 8. Install Git & GitHub CLI

```
sudo apt install -y git gh
```

### Verify Installation:

```
git --version  
gh --version
```

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## 9. Install Jenkins

```
sudo apt update && sudo apt install -y openjdk-11-jdk  
wget -q -O - https://pkg.jenkins.io/debian/jenkins.io.key | sudo tee  
/usr/share/keyrings/jenkins-keyring.asc > /dev/null  
echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc]  
https://pkg.jenkins.io/debian-stable binary/" | sudo tee  
/etc/apt/sources.list.d/jenkins.list > /dev/null  
sudo apt update && sudo apt install -y jenkins
```

### Start and Enable Jenkins:

```
sudo systemctl start jenkins  
sudo systemctl enable jenkins
```

### Verify Installation:

```
sudo systemctl status jenkins
```

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## 10. Install Prometheus & Grafana (Monitoring)

```
kubectl create namespace monitoring  
helm repo add prometheus-community  
https://prometheus-community.github.io/helm-charts  
helm repo update  
helm install prometheus-stack prometheus-community/kube-prometheus-stack -n  
monitoring
```

### Retrieve Grafana Admin Password:

```
kubectl get secret --namespace monitoring prometheus-stack-grafana -o  
jsonpath="{.data.admin-password}" | base64 --decode
```

---

## 11. Install ELK Stack (Optional for Logging)

```
helm repo add elastic https://helm.elastic.co
```

```
helm install elasticsearch elastic/elasticsearch
helm install kibana elastic/kibana
```

### Access Kibana:

```
kubectrl port-forward svc/kibana-kibana 5601:5601
```

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## 12. Install VS Code & Extensions

- Download [VS Code](#)
  - Install recommended extensions:
    - **Azure Account**
    - **Kubernetes**
    - **Terraform**
    - **Docker**
    - **Helm**
    - **ArgoCD**
- 

## Final Verification Steps

Ensure all tools are correctly installed:

```
az version
kubectrl version --client
helm version
docker --version
terraform --version
argocd version
git --version
gh --version
minikube version
jenkins --version
```