Azure WorkShop

To start we need to install terraform and azure CLI

```
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ az version
{
  "azure-cli": "2.69.0",
  "azure-cli-core": "2.69.0",
  "azure-cli-telemetry": "1.1.0",
  "extensions": {}
}
```

```
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ terraform version
Terraform v1.11.0
on linux_amd64
+ provider registry.terraform.io/hashicorp/azurerm v4.21.1
```

Once installed we proceed to log with the university credentials with `az login`

With that we can start the project

```
code .
```

This is necessary to start our terra environment.

In this environment we will create a `main.tf` file that is the one that contains the whole infrastructure that will be deployed in azure later.

This file has the following structure

```
provider "azurerm" {
```

```
subscription_id = "xxxx-xxxx-xxxx-xxxx-61a3bf3b5c6f"
```

```
features {}
```

```
}
```

```
resource "azurerm_resource_group" "example" {
```

```
name     = "example-resources"
```

```
location = "West Europe"
```

```
}
```

```
resource "azurerm_kubernetes_cluster" "example" {
```

```
name                = "example-aks1"
```

```
location            = azurerm_resource_group.example.location
```

```
resource_group_name = azurerm_resource_group.example.name
```

```
dns_prefix          = "exampleaks1"
default_node_pool {
name       = "default"
node_count = 1
vm_size    = "Standard_D2_v2"
}
identity {
type = "SystemAssigned"
}
tags = {
Environment = "Production"
}
}
```

```
output "client_certificate" {
value     = azurerm_kubernetes_cluster.example.kube_config[0].client_certificate
sensitive = true
}
output "kube_config" {
value = azurerm_kubernetes_cluster.example.kube_config_raw
sensitive = true
}
```

And with that we can start the deployment

```
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ terraform init
Initializing the backend...
Initializing provider plugins...
- Finding latest version of hashicorp/azurerm...
- Installing hashicorp/azurerm v4.21.1...
- Installed hashicorp/azurerm v4.21.1 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ terraform validate
Success! The configuration is valid.
tdavidvergara (Hace 17 minutos)  Lín. 40, Col. 2 (899 seleccionada)  Espacios: 4  UTF-8  LF  {} Terraform  Go Live  Prettier
```

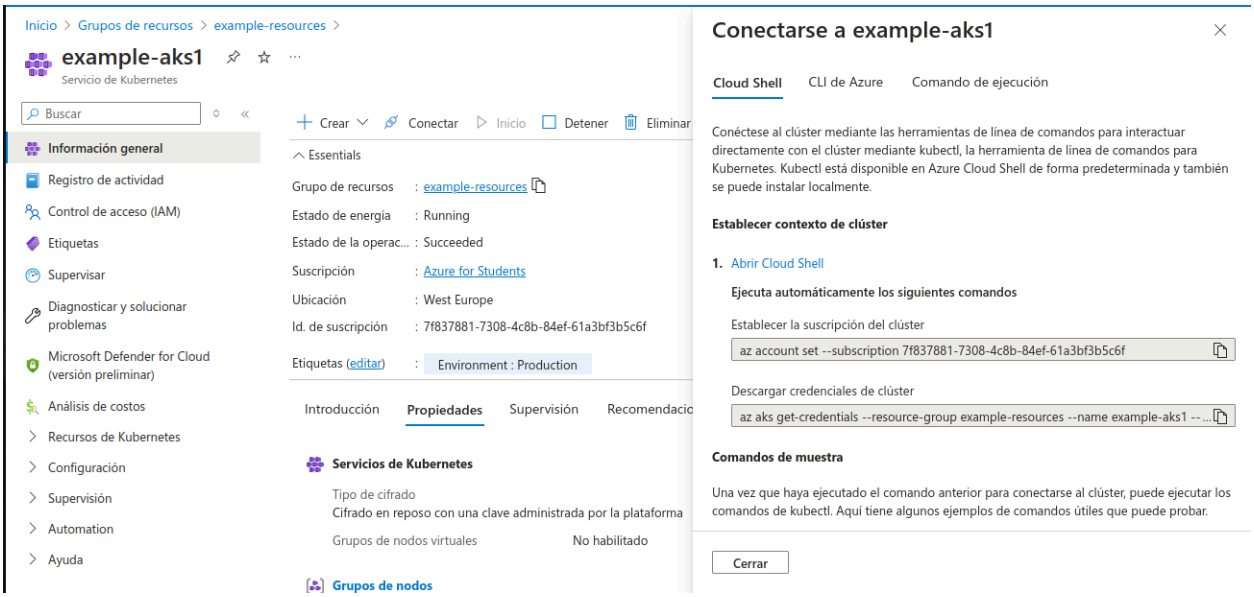
```
● david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ terraform plan

  Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
  following symbols:
    + create

  Terraform will perform the following actions:

    # azurerm_kubernetes_cluster.example will be created
    + resource "azurerm_kubernetes_cluster" "example" {
        + current_kubernetes_version          = (known after apply)
        + dns_prefix                          = "exampleaks1"
        + fqdn                                = (known after apply)
        + http_application_routing_zone_name  = (known after apply)
        + id                                  = (known after apply)
        + kube_admin_config                   = (sensitive value)
        + kube_admin_config_raw               = (sensitive value)
        + kube_config                         = (sensitive value)
        + kube_config_raw                     = (sensitive value)
        + kubernetes_version                  = (known after apply)
        + location                            = "westeurope"
        + name                                = "example-aks1"
        + node_os_upgrade_channel             = "NodeImage"
        + node_resource_group                 = (known after apply)
```

```
  you run "terraform apply" now.
● david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ terraform apply

  Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
  following symbols:
    + create

  Terraform will perform the following actions:

    # azurerm_kubernetes_cluster.example will be created
    + resource "azurerm_kubernetes_cluster" "example" {
        + current_kubernetes_version          = (known after apply)
        + dns_prefix                          = "exampleaks1"
        + fqdn                                = (known after apply)
        + http_application_routing_zone_name  = (known after apply)
        + id                                  = (known after apply)
        + kube_admin_config                   = (sensitive value)
        + kube_admin_config_raw               = (sensitive value)
        + kube_config                         = (sensitive value)
        + kube_config_raw                     = (sensitive value)
        + kubernetes_version                  = (known after apply)
        + location                            = "westeurope"
        + name                                = "example-aks1"
        + node_os_upgrade_channel             = "NodeImage"
```

After all that we see that the infrastructure has been deployed

Nombre ↑		Suscripción	Ubicación
example-resources	···	Azure for Students	West Europe
MC_example-resources_example-aks1_westeurope	···	Azure for Students	West Europe
NetworkWatcherRG	···	Azure for Students	West Europe

We now need to connect to our cluster by using `az aks get-credentials --resource-group example-resources --name example-aks1 --overwrite-existing`



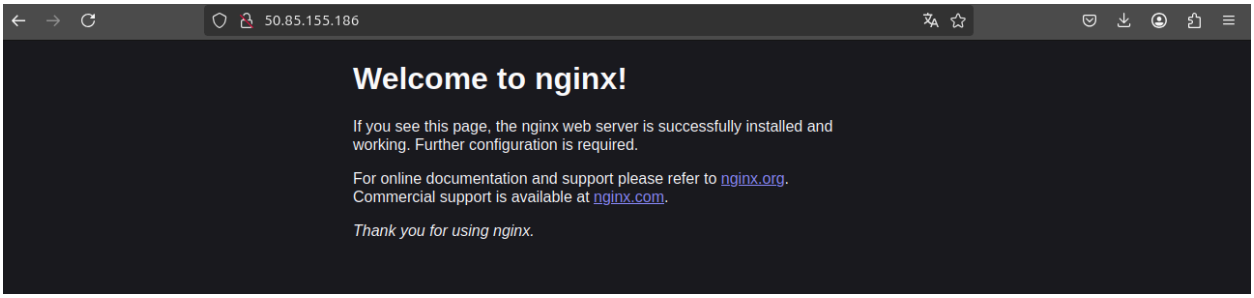
Now we need to proceed to swtich contexts

```
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ az aks get-credentials --resource-group example-resource
s --name example-aks1 --overwrite-existing
Merged "example-aks1" as current context in /home/david/.kube/config
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl --context
error: flag needs an argument: --context
See 'kubectl --help' for usage.
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl config current-context
example-aks1
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl config get-context
error: unknown command "get-context"
See 'kubectl config -h' for help and examples
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl config get-contexts
CURRENT   NAME           CLUSTER        AUTHINFO                                  NAMESPACE
*         example-aks1   example-aks1   clusterUser_example-resources_example-aks1
          minikube       minikube       minikube                                  default
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl config use-context example-aks1
Switched to context "example-aks1".
```

And we now need to add some file that will allow us to expose the service with the pod

```
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ ^C
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ nano ngnix-pod.yaml
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl get svc nginx-service
Error from server (NotFound): services "nginx-service" not found
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl apply -f ngnix-pod.yaml
pod/nginx-pod created
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ nano ngnix-service.yaml
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl apply -f ngnix-service.yaml
service/nginx-service created
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl get svc nginx-service
NAME            TYPE           CLUSTER-IP   EXTERNAL-IP   PORT(S)        AGE
nginx-service   LoadBalancer   10.0.89.42   <pending>     80:30941/TCP   10s
david@david-Aspire-A315-57G:~/Documentos/Plataformas/Terraform$ kubectl get svc nginx-service
NAME            TYPE           CLUSTER-IP   EXTERNAL-IP     PORT(S)        AGE
nginx-service   LoadBalancer   10.0.89.42   50.85.155.186   80:30941/TCP   31s
```

Here we can verify that the service is working

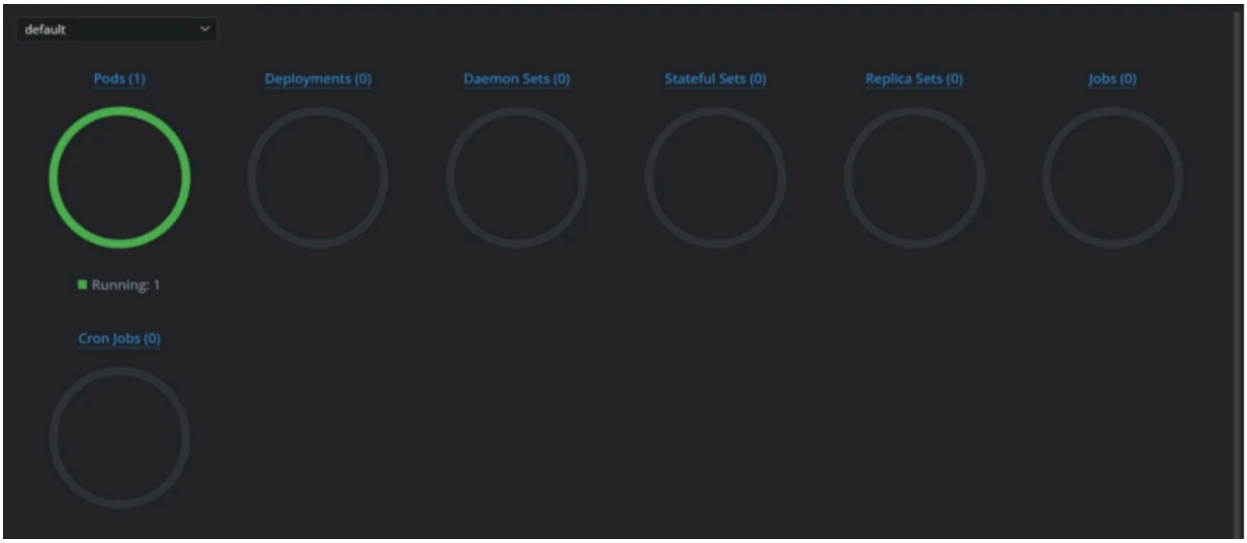


Now i need to download Lens, go to `add kubeconfig by pasting`

Use this distribution

```yaml
apiVersion: v1
kind: Config
clusters:
  - name: "WSL Cluster"
    cluster:
      server: http://localhost:8001
users:
  - name: nouser
contexts:
  - name: "WSL Cluster"
    context:
      cluster: "WSL Cluster"
      user: nouser
current-context: "WSL Cluster"
preferences: {}
```

And the len will connect to our cluster


default
Pods (1)
Deployments (0)
Daemon Sets (0)
Stateful Sets (0)
Replica Sets (0)
Jobs (0)
Running: 1
Cron Jobs (0)