

# Práctica de PaaS Azure

## Opción escogida para la práctica

Se ha escogido la opción 2, desplegar una aplicación web en Azure App Service empleando Wordpress y MySQL.

Han sido necesarios diversos recursos de Azure:

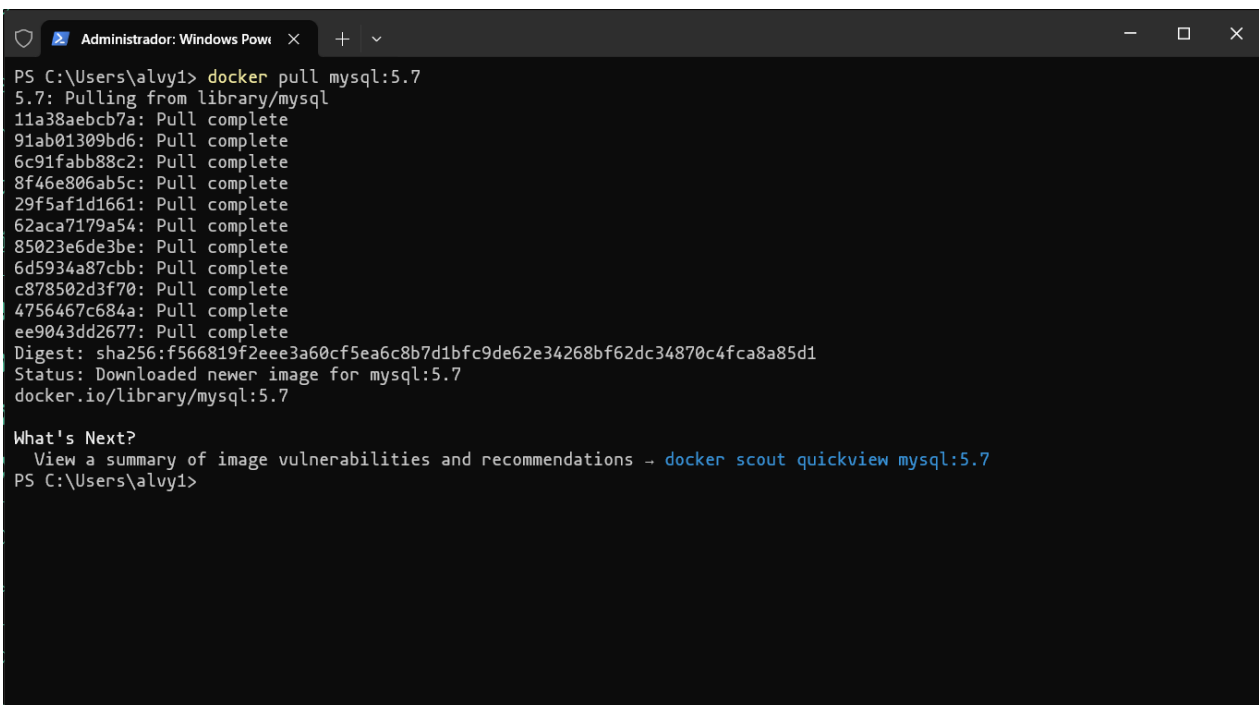
- Grupo de recursos
- Registro de contenedores
- App Service Plan
- App Service

Se ha empleado, además, docker-compose para la creación y configuración del contenedor.

## Imágenes Docker

Se han descargado las imágenes de Docker de `MySQL` y `Wordpress`.

```
docker pull mysql:5.7
docker pull wordpress:latest
```



```
Administrador: Windows Powe x + v
PS C:\Users\alvy1> docker pull mysql:5.7
5.7: Pulling from library/mysql
11a38aebcb7a: Pull complete
91ab01309bd6: Pull complete
6c91fabbb88c2: Pull complete
8f46e806ab5c: Pull complete
29f5af1d1661: Pull complete
62aca7179a54: Pull complete
85023e6de3be: Pull complete
6d5934a87cbb: Pull complete
c878502d3f70: Pull complete
4756467c684a: Pull complete
ee9043dd2677: Pull complete
Digest: sha256:f566819f2eee3a60cf5ea6c8b7d1bfc9de62e34268bf62dc34870c4fca8a85d1
Status: Downloaded newer image for mysql:5.7
docker.io/library/mysql:5.7

What's Next?
View a summary of image vulnerabilities and recommendations -> docker scout quickview mysql:5.7
PS C:\Users\alvy1>
```

```
Administrador: Windows Powe x + v
PS C:\Users\alvy1> docker pull wordpress:latest
latest: Pulling from library/wordpress
0bc8ff246cb8: Pull complete
6450c8e22862: Pull complete
67202b5712dc: Pull complete
296e480d34df: Pull complete
2eda4d478e98: Pull complete
ef28c0608bd5: Pull complete
41e60e5acc0c: Pull complete
52a466685717: Pull complete
035408df74c4: Pull complete
59874af597ed: Pull complete
8bec4d11c750: Pull complete
d977868bfb2d: Pull complete
0261d3a57bb7: Pull complete
14b986fa4fae: Pull complete
b06710174a63: Pull complete
08b7a85690d7: Pull complete
03f6e9715a42: Pull complete
1d9c12479402: Pull complete
b0ab1c53358f: Pull complete
8d8b1ee2016e: Pull complete
9c9c3cabaadb: Pull complete
Digest: sha256:bb47f8d43fc2e8ce0aa3f2121c6a82a1a8020286e6cddbfe62eb34ee07fc1b6d
Status: Downloaded newer image for wordpress:latest
docker.io/library/wordpress:latest

What's Next?
View a summary of image vulnerabilities and recommendations -> docker scout quickview wordpress:latest
PS C:\Users\alvy1> |
```

## docker-compose

Se ha configurado un `docker-compose` para definir la aplicación, para ello se ha creado un archivo `YAML` llamado `docker-compose.yml`.

```
version: '3'

volumes:
  db:
  wordpress:

services:
  db:
    image: mysql:5.7
    restart: always
    environment:
      MYSQL_ROOT_PASSWORD: root
      MYSQL_DATABASE: wordpress
      MYSQL_USER: test
      MYSQL_PASSWORD: test
    ports:
      - "3306:3306"
    volumes:
      - db:/var/lib/mysql

  wordpress:
    depends_on:
      - db
    image: wordpress:latest
    restart: always
    ports:
      - "8080:80"
    environment:
      WORDPRESS_DB_HOST: db:3306
      WORDPRESS_DB_USER: test
```

```
WORDPRESS_DB_PASSWORD: test
WORDPRESS_DB_NAME: wordpress
volumes:
- wordpress:/var/www/html
```

## Servicios

Este docker-compose.yml, muestra los dos servicios que se van a desplegar, mysql como gestor de base de datos y wordpress para la aplicación web.

## Puertos

Se especifica que se emplearán los puertos "3306:3306" para mysql y "8080:80" para la web.

## Dependencias

En el fragmento:

```
wordpress:
  depends_on:
    - db
```

Se indica que la aplicación de wordpress dependerá de la base de datos, esto hará que docker despliegue primero mysql, lo que evitará posibles errores.

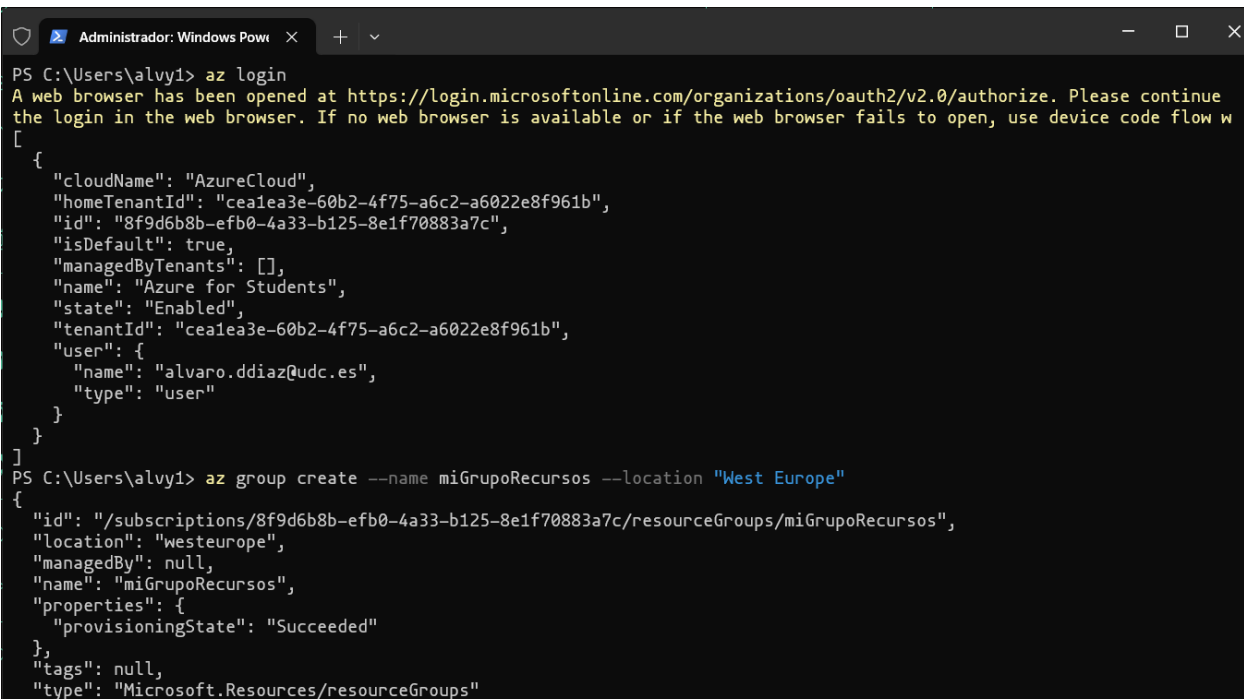
## Grupo de recursos

Lo principal para crear la aplicación es definir un grupo de recursos, para ello primero debe loguearse al usuario.

```
az login
```

Y a continuación crear el grupo de recursos:

```
az group create --name miGrupoRecursos --location "West Europe"
```



```
PS C:\Users\alvy1> az login
A web browser has been opened at https://login.microsoftonline.com/organizations/oauth2/v2.0/authorize. Please continue
the login in the web browser. If no web browser is available or if the web browser fails to open, use device code flow w
[
  {
    "cloudName": "AzureCloud",
    "homeTenantId": "cea1ea3e-60b2-4f75-a6c2-a6022e8f961b",
    "id": "8f9d6b8b-efb0-4a33-b125-8e1f70883a7c",
    "isDefault": true,
    "managedByTenants": [],
    "name": "Azure for Students",
    "state": "Enabled",
    "tenantId": "cea1ea3e-60b2-4f75-a6c2-a6022e8f961b",
    "user": {
      "name": "alvaro.ddiaz@udc.es",
      "type": "user"
    }
  }
]
PS C:\Users\alvy1> az group create --name miGrupoRecursos --location "West Europe"
{
  "id": "/subscriptions/8f9d6b8b-efb0-4a33-b125-8e1f70883a7c/resourceGroups/miGrupoRecursos",
  "location": "westeurope",
  "managedBy": null,
  "name": "miGrupoRecursos",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
```

# Registro de contenedores

Para poder almacenar las imágenes docker en azure se debe crear un registro de contenedores.

```
az acr create --name alvarodiazregistry --resource-group miGrupoRecursos --sku Basic
```

```
PS C:\Users\alvy1> az acr create --name alvarodiazregistry --resource-group miGrupoRecursos --sku Basic
Resource provider 'Microsoft.ContainerRegistry' used by this operation is not registered. We are registering for you.
Registration succeeded.
{
  "adminUserEnabled": false,
  "anonymousPullEnabled": false,
  "creationDate": "2023-11-10T12:10:26.779047400:00",
  "dataEndpointEnabled": false,
  "dataEndpointHostNames": [],
  "encryption": {
    "keyProperties": null,
    "status": "disabled"
  },
  "id": "/subscriptions/8f9803b8-ef00-4a33-b125-8e1f70883a7c/resourceGroups/miGrupoRecursos/providers/Microsoft.ContainerRegistry/registries/alvarodiazregistry",
  "identity": null,
  "location": "westeurope",
  "loginServer": "alvarodiazregistry.azurecr.io",
  "name": "alvarodiazregistry",
  "networkPolicyOptions": "AzureServices",
  "networkRuleSet": null,
  "policies": {
    "acrAuthenticatingAuthPolicy": {
      "status": "enabled"
    },
    "exportPolicy": {
      "status": "enabled"
    },
    "quarantinePolicy": {
      "status": "disabled"
    },
    "retentionPolicy": {
      "days": 7,
      "lastModifiedDate": "2023-11-10T12:10:33.290394400:00",
      "status": "disabled"
    },
    "softDeletePolicy": {
      "lastModifiedDate": "2023-11-10T12:10:33.290431400:00",
      "retentionDays": 7,
      "status": "disabled"
    },
    "trustPolicy": {
      "status": "disabled",
      "type": "Mutual"
    }
  },
  "privateEndpointConnections": [],
  "provisioningState": "Succeeded",
  "publicNamePrefix": "enabled",
  "resourceGroup": "miGrupoRecursos",
  "sku": {
    "name": "Basic",
    "tier": "Basic"
  },
  "status": null,
  "systemData": {
    "createdBy": "2023-11-10T12:10:26.779047400:00",
    "createdBy": "alvarodiaz@out.es",
    "createdByType": "user",
    "lastModifiedBy": "2023-11-10T12:10:26.779047400:00",
    "lastModifiedBy": "alvarodiaz@out.es",
    "lastModifiedByType": "user"
  },
  "tags": {},
  "type": "Microsoft.ContainerRegistry/registries",
  "zoneRedundancy": "Disabled"
}
PS C:\Users\alvy1>
```

## Carga de las imágenes en el registro de contenedores

Se subirán ahora las imágenes docker al registro previamente creado, para permitir a la aplicación web acceder a las mismas.

Primero se debe hacer login en el registro de contenedores:

```
az acr login --name alvarodiazregistry
```

```
PS C:\Users\alvy1> az acr login --name alvarodiazregistry
Login Succeeded
PS C:\Users\alvy1>
```

A continuación se procede a etiquetar a las imágenes con el nombre del registro de contenedores, para así indicar a docker a que registro subir las imágenes.

```
docker tag mysql:5.7 alvarodiazregistry.azurecr.io/mysql:5.7
docker tag wordpress:latest alvarodiazregistry.azurecr.io/wordpress:latest
```

```
PS C:\Users\alvy1> docker tag mysql:5.7 alvarodiazregistry.azurecr.io/mysql:5.7
PS C:\Users\alvy1> docker tag wordpress:latest alvarodiazregistry.azurecr.io/wordpress:latest
PS C:\Users\alvy1> docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
alvarodiazregistry.azurecr.io/wordpress	latest	9a275eea344a	4 days ago	668MB
wordpress	latest	9a275eea344a	4 days ago	668MB
alvarodiazregistry.azurecr.io/mysql	5.7	bdba757bc933	3 weeks ago	501MB
mysql	5.7	bdba757bc933	3 weeks ago	501MB

```
PS C:\Users\alvy1> |
```

Una vez etiquetadas correctamente, se habilita el acceso como administrador en el registro.

```
az acr update -n alvarodiazregistry --admin-enabled true
```

```
PS C:\Users\alvy1> az acr update -n alvarodiazregistry --admin-enabled true
{
  "adminUserEnabled": true,
  "anonymousPullEnabled": false,
  "creationDate": "2023-11-10T12:10:26.779047+00:00",
  "dataEndpointEnabled": false,
  "dataEndpointHostNames": [],
  "encryption": {
    "keyVaultProperties": null,
    "status": "disabled"
  },
  "id": "/subscriptions/8f9d6b8b-efb0-4a33-b125-8e1f70883a7c/resourceGroups/miduporecursos/providers/Microsoft.ContainerRegistry/registries/alvarodiazregistry",
  "identity": null,
  "location": "westeurope",
  "loginServer": "alvarodiazregistry.azurecr.io",
  "name": "alvarodiazregistry",
  "networkRuleBypassOptions": "AzureServices",
  "networkRuleSet": null,
  "policies": {
    "azureAuthenticatingAsPolicy": {
      "status": "enabled"
    },
    "exportPolicy": {
      "status": "enabled"
    },
    "quarantinePolicy": {
      "status": "disabled"
    },
    "retentionPolicy": {
      "days": 7,
      "lastUpdatedTime": "2023-11-10T12:10:33.290394+00:00",
      "status": "disabled"
    },
    "softDeletePolicy": {
      "lastUpdatedTime": "2023-11-10T12:10:33.290411+00:00",
      "retentionDays": 7,
      "status": "disabled"
    },
    "trustPolicy": {
      "status": "disabled",
      "type": "Notary"
    }
  },
  "privateEndpointConnections": [],
  "provisioningState": "Succeeded",
  "publicNetworkAccess": "Enabled",
  "resourceGroup": "miduporecursos",
  "sku": {
    "name": "Basic",
    "tier": "Basic"
  },
  "status": null,
  "systemData": {
    "createdAt": "2023-11-10T12:10:26.779047+00:00",
    "createdBy": "alvarodiaz@dc.es",
    "createdByType": "User",
    "lastModifiedAt": "2023-11-10T12:10:58.242965+00:00",
    "lastModifiedBy": "alvarodiaz@dc.es",
    "lastModifiedByType": "User"
  },
  "tags": {},
  "type": "Microsoft.ContainerRegistry/registries",
  "zoneRedundancy": "disabled"
}
```

Para conocer las credenciales de `admin` , se debe acceder a la siguiente pantalla:

[Inicio](#) > [alvarodiazregistry](#)

Inicio > alvarodiazregistry

alvarodiazregistry | Claves de acceso

Registro de contenedor

Buscar

Información general

Registro de actividad

Control de acceso (IAM)

Etiquetas

Inicio rápido

Eventos

Configuración

Claves de acceso

Nombre del Registro

alvarodiazregistry

Servidor de inicio de sesión

alvarodiazregistry.azurecr.io

Usuario administrador

☒

Nombre de usuario

alvarodiazregistry

Nombre

Contraseña

Regenerar

password

AHCKnwSUnwpllmHW2wLkodeGEsmox4+kr7kOUh21Rz+...

password2

x3K8gUr6qxBltpMpcs1PyvvH+GRmi7yjK5vKOV4LJ+ACRD...

Con el acceso de administrador habilitado y las credenciales del mismo conocidas, se procede a iniciar sesión como tal.

```
docker login alvarodiazregistry.azurecr.io
```

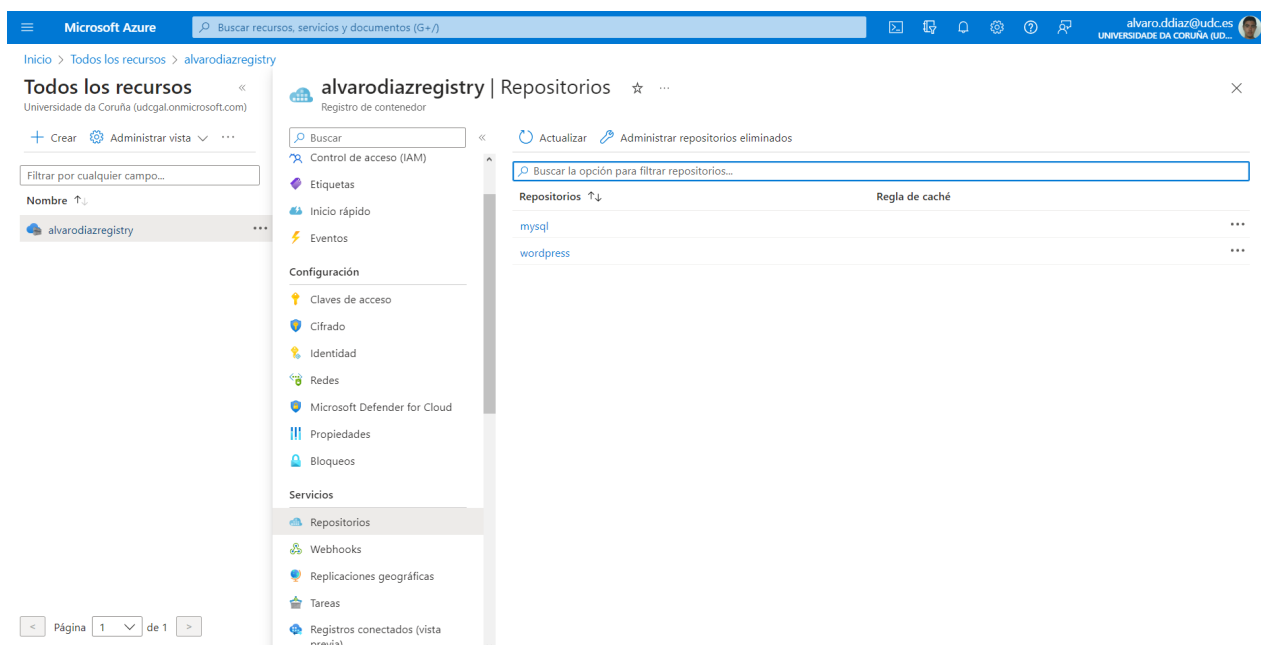
```
Administrador: Windows Pow x + v
PS C:\Users\alvy1> docker login alvarodiazregistry.azurecr.io
Username: alvarodiazregistry
Password:
Login Succeeded
PS C:\Users\alvy1>
```

Finalmente, se podrán subir las imágenes al registro de contenedores de azure.

```
docker push alvarodiazregistry.azurecr.io/mysql:5.7
docker push alvarodiazregistry.azurecr.io/wordpress:latest
```

```
Administrador: Windows Pow x + v
PS C:\Users\alvy1> docker push alvarodiazregistry.azurecr.io/mysql:5.7
The push refers to repository [alvarodiazregistry.azurecr.io/mysql]
436b56678a69: Pushed
1beb857c14f1: Pushed
4c2c0c3207eb: Pushed
4698390b641b: Pushed
d58f1294e20b: Pushed
9746162b75a9: Pushed
704bac06a413: Pushed
d3bbfa9a693f: Pushed
87969f18f625: Pushed
b0864d064730: Pushed
2a900b79ad5f: Pushed
5.7: digest: sha256:bfb55a2be48aeb2a0f1a55ee39f56ad5bfe591946df5c3bac19637fdb6466a9 size: 2618
PS C:\Users\alvy1> docker push alvarodiazregistry.azurecr.io/wordpress:latest
The push refers to repository [alvarodiazregistry.azurecr.io/wordpress]
483ed22fa6f8: Pushed
f63113c14507: Pushed
e27935ff701c: Pushed
c47b4bc3ac77: Pushed
5c40a32d7c6c: Pushed
da8e04d1a731: Pushed
5fb9cd85040f: Pushed
89953b621ce6: Pushed
2c1a80fbb756: Pushed
e019d3dfe876: Pushed
ee97b33a619f: Pushed
3f8fa24ad378: Pushed
4833f035fd10: Pushed
16be2572633a: Pushed
5c4bad9f1d02: Pushed
0948cb4120f3: Pushed
d16406b81e78: Pushed
bb07833a9a9d: Pushed
61d15f569a3c: Pushed
e3ba1abc8bc: Pushed
74c0af6e0227: Pushed
latest: digest: sha256:76d0031ce9930987b46995908ce54f3e6b2297bc37c443e86b7b2ad1a2542343 size: 4710
PS C:\Users\alvy1>
```

Se comprueba desde la web de azure la correcta subida de las imágenes:



# App Service Plan

Para crear la aplicación, primero se debe configurar un plan para la misma.

```
az appservice plan create --name alvarodiaz-appservice-plan --resourcegroup miGrupoRecursos --sku B1 --is-linux
```

```
PS C:\Users\alvy1> az appservice plan create --name alvarodiaz-appservice-plan --resource-group miGrupoRecursos --sku B1 --is-linux
Resource provider 'Microsoft.Web' used by this operation is not registered. We are registering for you.
Registration succeeded.
{
  "elasticScaleEnabled": false,
  "extendedLocation": null,
  "freeOfferExpirationTime": "2024-05-19T13:01:29.916666",
  "geoRegion": "West Europe",
  "hostingEnvironmentProfile": null,
  "hyperV": false,
  "id": "/subscriptions/8f9d6b8b-efb0-4a33-b125-8e1f70883a7c/resourceGroups/miGrupoRecursos/providers/Microsoft.Web/serverfarms/alvarodiaz-appservice-plan",
  "isSpot": false,
  "isXenon": false,
  "kind": "linux",
  "kubeEnvironmentProfile": null,
  "location": "westeurope",
  "maximumElasticWorkerCount": 1,
  "maximumNumberOfWorkers": 0,
  "name": "alvarodiaz-appservice-plan",
  "numberOfSites": 0,
  "numberOfWorkers": 1,
  "perSiteScaling": false,
  "provisioningState": "Succeeded",
  "reserved": true,
  "resourceGroup": "miGrupoRecursos",
  "sku": {
    "capabilities": null,
    "capacity": 1,
    "family": "B1",
    "locations": null,
    "name": "B1",
    "size": "B1",
    "skuCapacity": null,
    "tier": "Basic"
  },
  "spotExpirationTime": null,
  "status": "Ready",
  "subscription": "8f9d6b8b-efb0-4a33-b125-8e1f70883a7c",
  "tags": null,
  "targetWorkerCount": 0,
  "targetWorkerSizeId": 0,
  "type": "Microsoft.Web/serverfarms",
  "workerTierName": null,
  "zoneRedundant": false
}
PS C:\Users\alvy1>
```

## Despliegue de la aplicación

Una vez creado el plan para la aplicación se procede a su despliegue.

```
az webapp create --name AlvaroDiazWebApp --plan alvarodiazappservice-plan --
resource-group miGrupoRecursos --multicontainer-configfile docker-compose.yml --
multicontainer-config-type COMPOSE
```

[illegible]

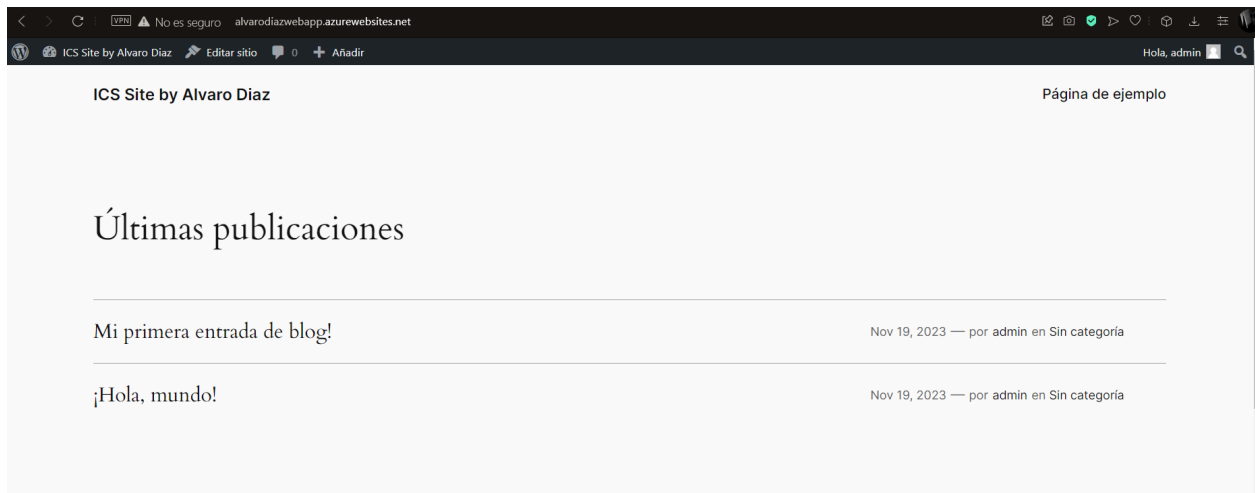






## Vista principal

Se ha creado la nueva publicación "Mi primera entrada de blog!":



## Vista publicación

Al entrar en la publicación, se pueden ver los comentarios, la fecha de publicación de la entrada y, si la tiene, la categoría.

