Implement Virtual Networking

Task 1: Create a virtual network with subnets using the portal.

I'm trying to create a Resource Group for a virtual network, so I decided to use an existing one:

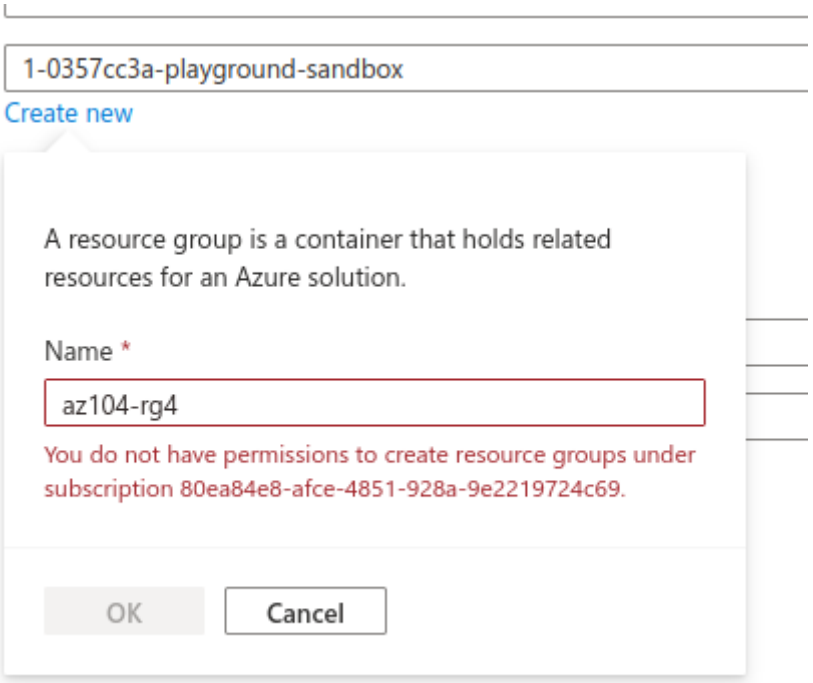

Figure 1. Try to create a resource group.

I'm building a virtual network:

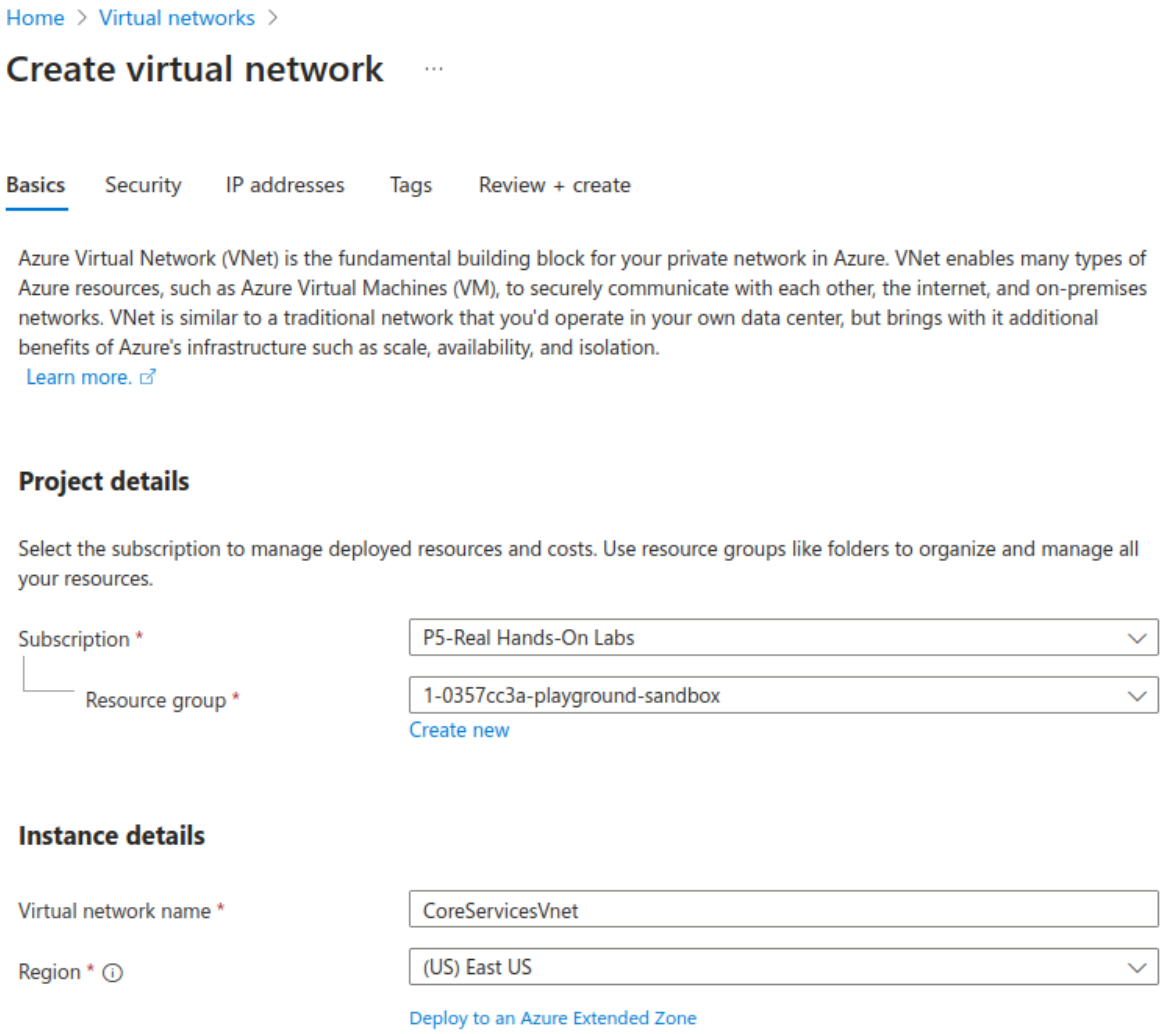

Figure 2. Creating a virtual network.

Set IP Addresses :

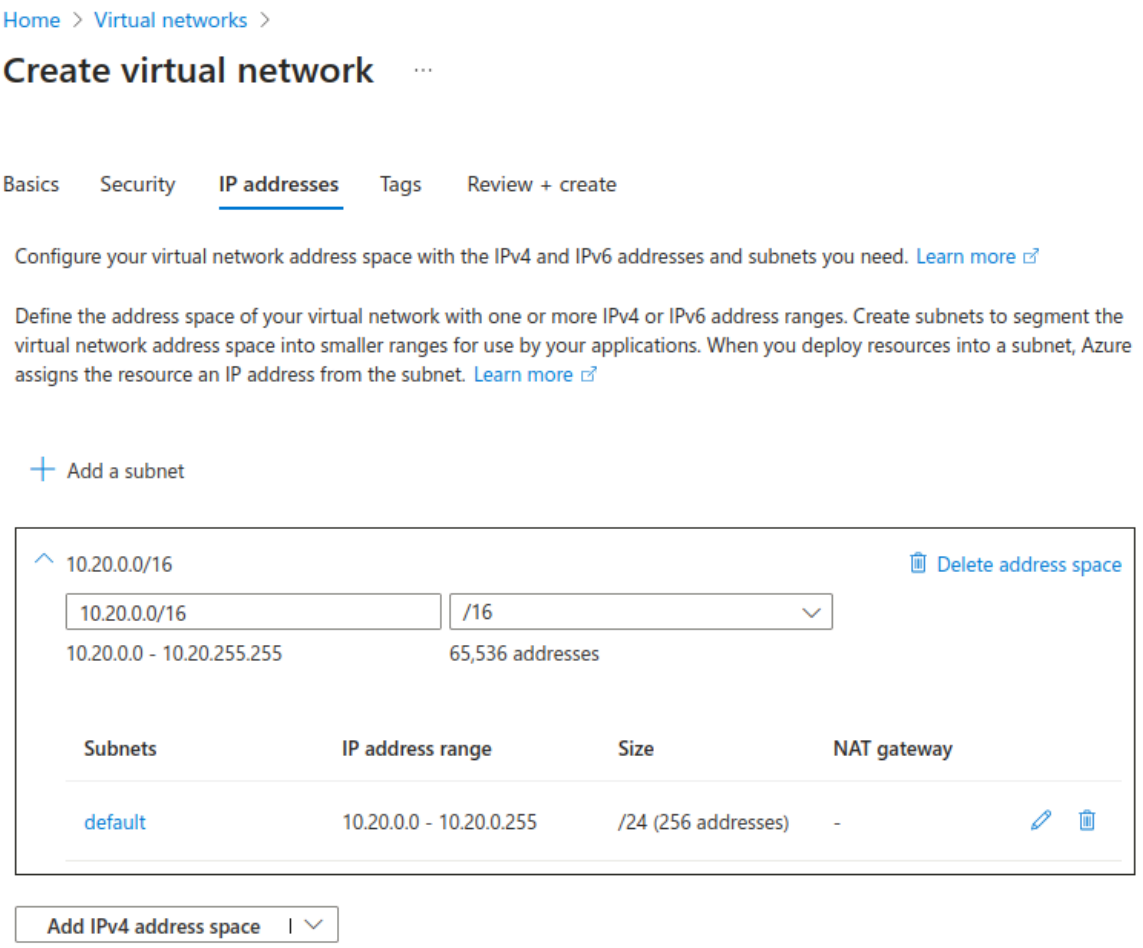

Figure 1. Creating a user.

Create a subnet:

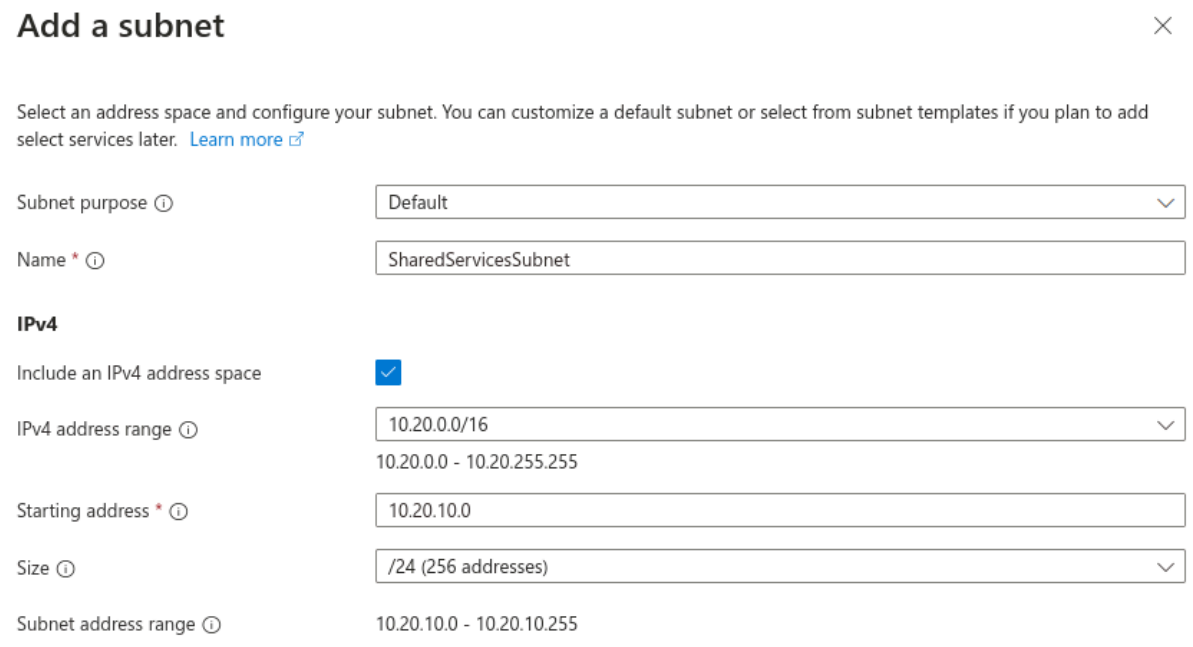

Figure 3. IP Addresses.

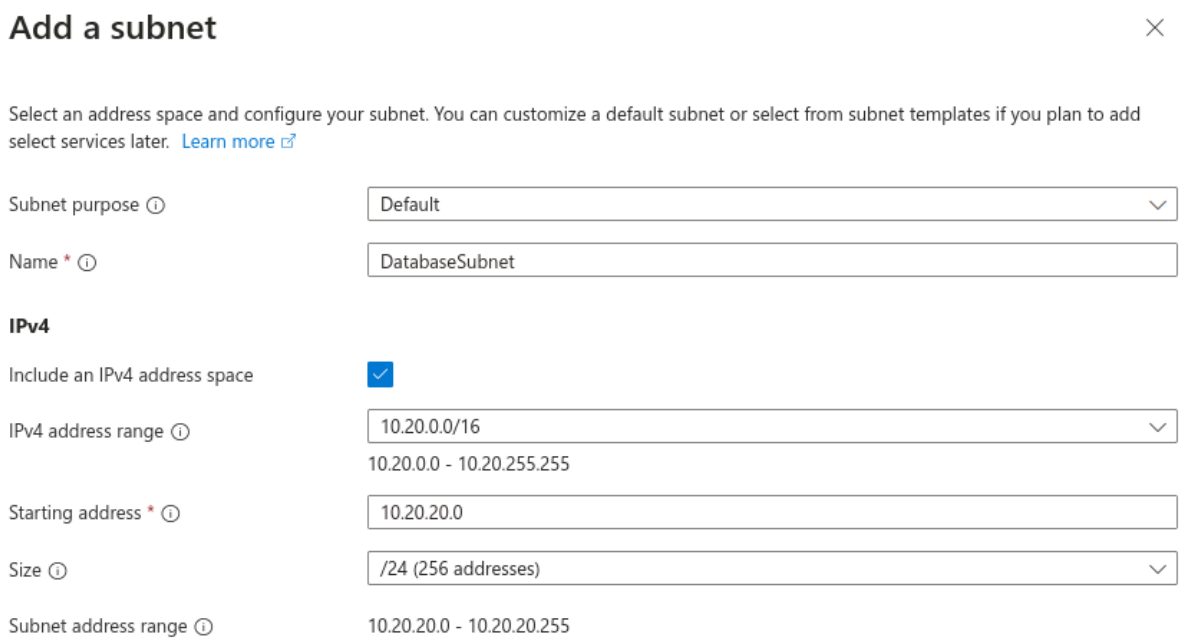

Figure 4. Add subnet.

The result of the creation:

Basics Security IP addresses Tags **Review + create**

View automation template

Basics

Subscription	P5-Real Hands-On Labs
Resource Group	1-0357cc3a-playground-sandbox
Name	CoreServicesVnet
Region	East US

Security

Azure Bastion	Disabled
Azure Firewall	Disabled
Azure DDoS Network Protection	Disabled

IP addresses

Address space	10.20.0.0/16 (65,536 addresses)
Subnet	default (10.20.0.0/24) (256 addresses)
Subnet	SharedServicesSubnet (10.20.10.0/24) (256 addresses)
Subnet	DatabaseSubnet (10.20.20.0/24) (256 addresses)

Tags

Figure 5. Review.

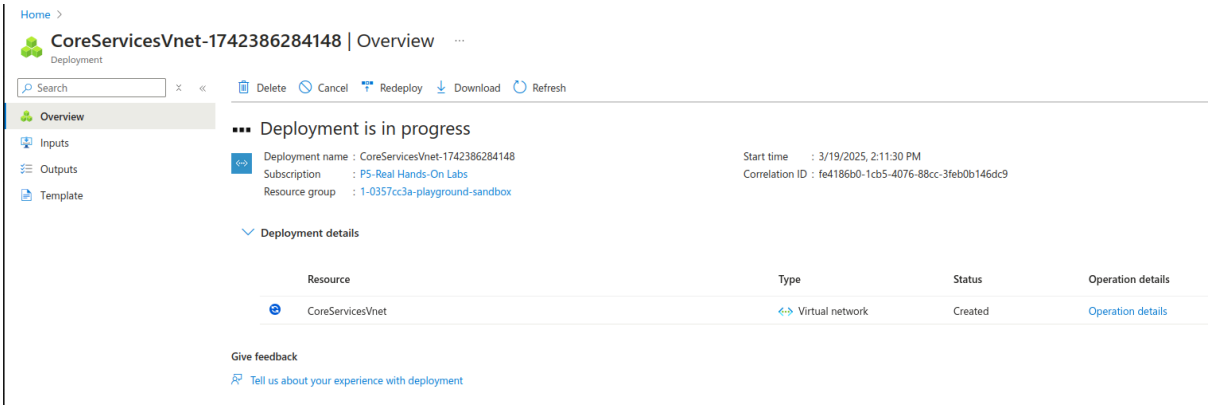

Figure 6. Deployment.

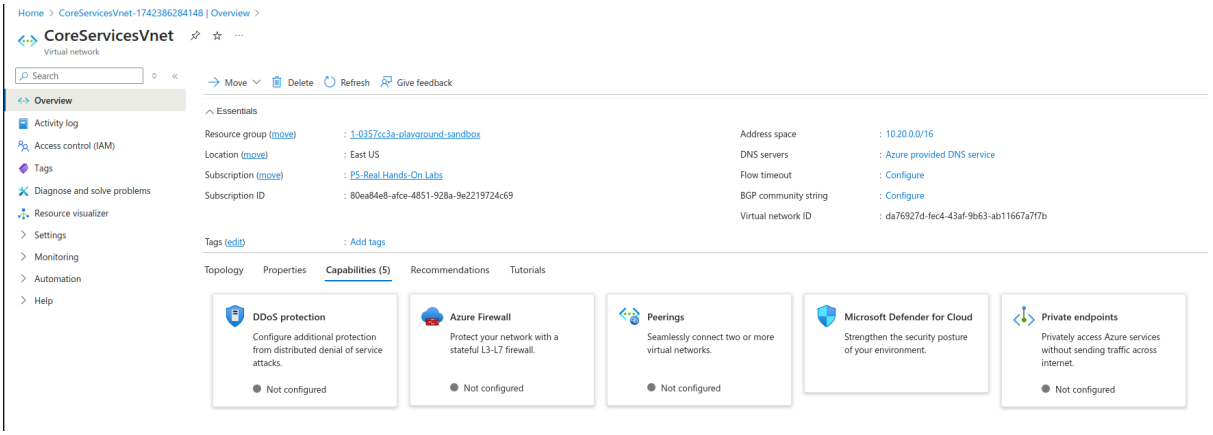

Figure 7. Deployed.

I'll get it:

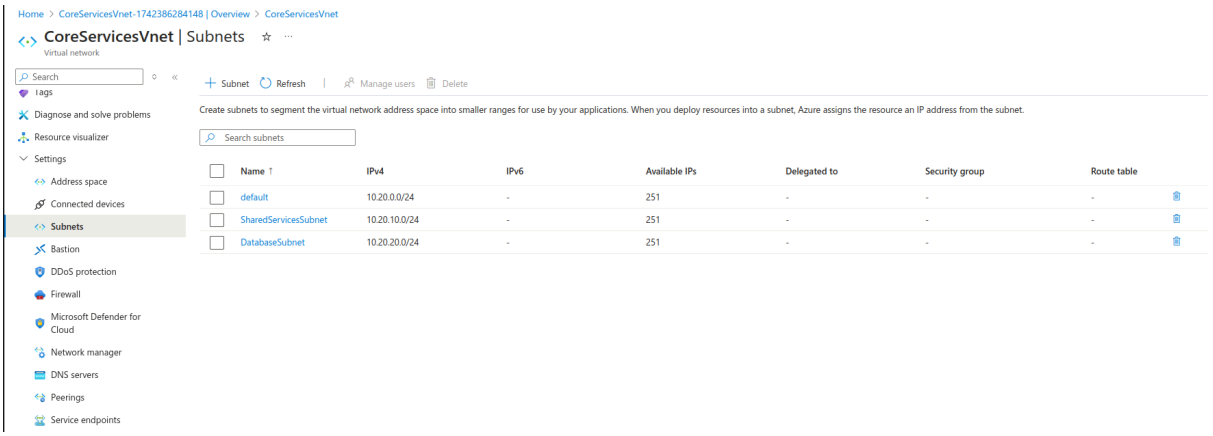

Figure 8. Subnets.

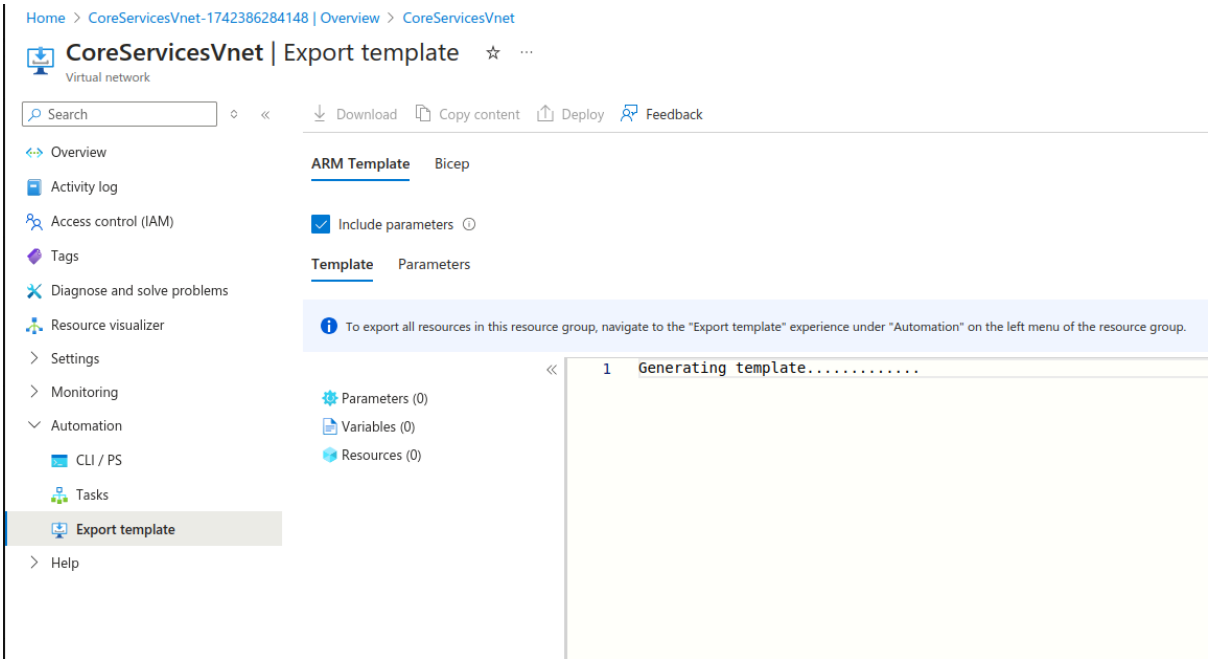

Figure 9. Generating template.

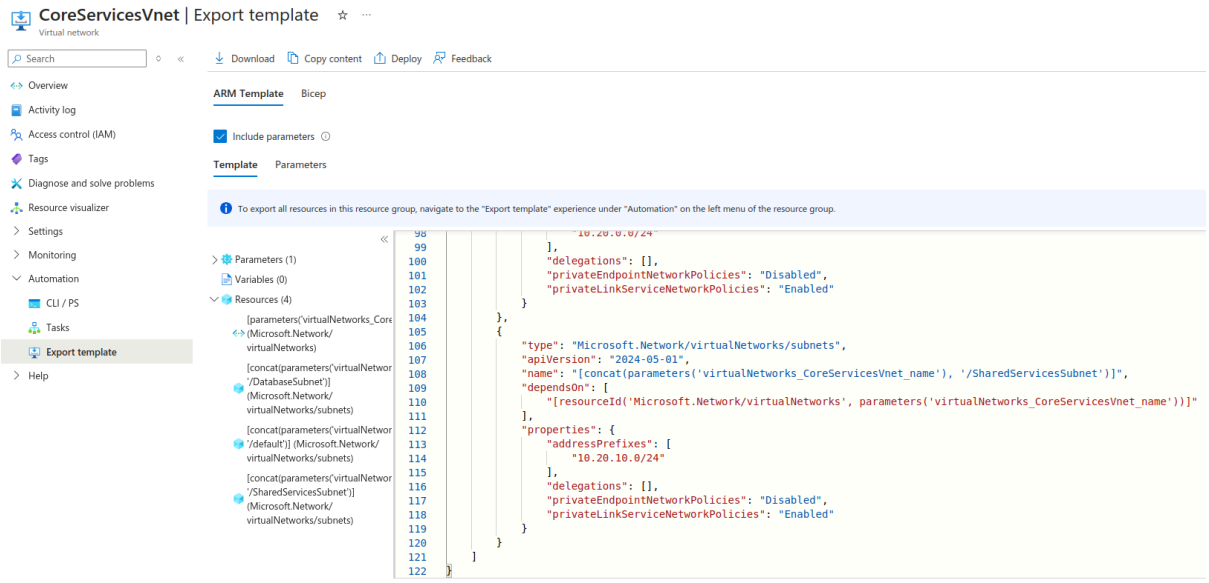

Figure 10. Generated template.

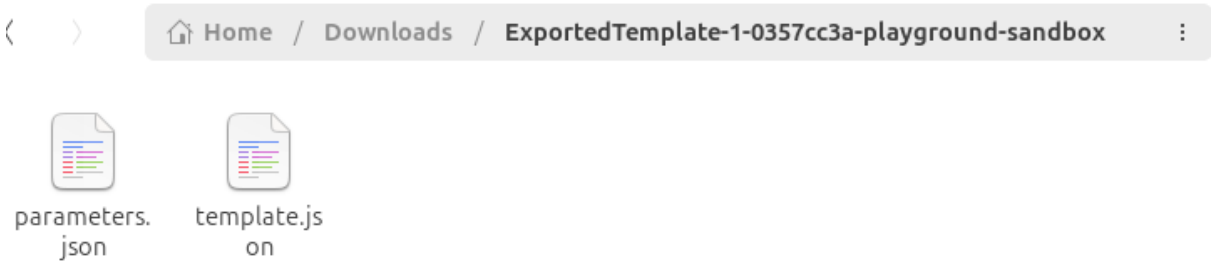

Figure 11. Downloaded template.

Figure 12. Template.json.

Task 2: Create a virtual network and subnets using a template.

I edit template.json according to the plan
Make changes for the ManufacturingVnet virtual network

1. Replace all occurrences of CoreServicesVnet with ManufacturingVnet.

2. Replace all occurrences of 10.20.0.0 with 10.30.0.0.

Make changes for the ManufacturingVnet subnets

1. Change all occurrences of SharedServicesSubnet to SensorSubnet1.

2. Change all occurrences of 10.20.10.0/24 to 10.30.20.0/24.

3. Change all occurrences of DatabaseSubnet to SensorSubnet2.

4. Change all occurrences of 10.20.20.0/24 to 10.30.21.0/24.

```
   "$schema":
"https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.js
on#",
   "contentVersion": "1.0.0.0",
   "parameters": {
       "virtualNetworks_ManufacturingVnet_name": {
           "defaultValue": "ManufacturingVnet",
           "type": "String"
       }
   },
   "variables": {},
   "resources": [
       {
           "type": "Microsoft.Network/virtualNetworks",
           "apiVersion": "2024-05-01",
           "name": "[parameters('virtualNetworks_ManufacturingVnet_name')]",
           "location": "eastus",
           "properties": {
               "addressSpace": {
                   "addressPrefixes": [
                       "10.30.0.0/16"
                   ]
               },
               "encryption": {
                   "enabled": false,
                   "enforcement": "AllowUnencrypted"
               },
               "privateEndpointVNetPolicies": "Disabled",
               "subnets": [
                   {
                       "name": "default",
                       "id":
"[resourceId('Microsoft.Network/virtualNetworks/subnets',
parameters('virtualNetworks_ManufacturingVnet_name'), 'default')]",
                       "properties": {
                           "addressPrefixes": [
                               "10.30.0.0/24"
                           ],
                           "delegations": [],
```

```
                            "privateEndpointNetworkPolicies": "Disabled",
                            "privateLinkServiceNetworkPolicies": "Enabled"
                        },
                        "type": "Microsoft.Network/virtualNetworks/subnets"
                    },
                    {
                        "name": "SensorSubnet1",
                        "id":
"[resourceId('Microsoft.Network/virtualNetworks/subnets',
parameters('virtualNetworks_ManufacturingVnet_name'), 'SensorSubnet1')]",
                        "properties": {
                            "addressPrefixes": [
                                "10.30.20.0/24"
                            ],
                            "delegations": [],
                            "privateEndpointNetworkPolicies": "Disabled",
                            "privateLinkServiceNetworkPolicies": "Enabled"
                        },
                        "type": "Microsoft.Network/virtualNetworks/subnets"
                    },
                    {
                        "name": "SensorSubnet2",
                        "id":
"[resourceId('Microsoft.Network/virtualNetworks/subnets',
parameters('virtualNetworks_ManufacturingVnet_name'), 'SensorSubnet2')]",
                        "properties": {
                            "addressPrefixes": [
                                "10.30.21.0/24"
                            ],
                            "delegations": [],
                            "privateEndpointNetworkPolicies": "Disabled",
                            "privateLinkServiceNetworkPolicies": "Enabled"
                        },
                        "type": "Microsoft.Network/virtualNetworks/subnets"
                    }
                ],
                "virtualNetworkPeerings": [],
                "enableDdosProtection": false
            }
        },
        {
            "type": "Microsoft.Network/virtualNetworks/subnets",
            "apiVersion": "2024-05-01",
            "name":
"[concat(parameters('virtualNetworks_ManufacturingVnet_name'),
'/SensorSubnet2')]",
            "dependsOn": [
                "[resourceId('Microsoft.Network/virtualNetworks',
parameters('virtualNetworks_ManufacturingVnet_name'))]"
            ],
            "properties": {
                "addressPrefixes": [
                    "10.30.21.0/24"
```

```
                ],
                "delegations": [],
                "privateEndpointNetworkPolicies": "Disabled",
                "privateLinkServiceNetworkPolicies": "Enabled"
            }
        },
        {
            "type": "Microsoft.Network/virtualNetworks/subnets",
            "apiVersion": "2024-05-01",
            "name":
"[concat(parameters('virtualNetworks_ManufacturingVnet_name'), '/default')]",
            "dependsOn": [
                "[resourceId('Microsoft.Network/virtualNetworks',
parameters('virtualNetworks_ManufacturingVnet_name'))]"
            ],
            "properties": {
                "addressPrefixes": [
                    "10.30.0.0/24"
                ],
                "delegations": [],
                "privateEndpointNetworkPolicies": "Disabled",
                "privateLinkServiceNetworkPolicies": "Enabled"
            }
        },
        {
            "type": "Microsoft.Network/virtualNetworks/subnets",
            "apiVersion": "2024-05-01",
            "name":
"[concat(parameters('virtualNetworks_ManufacturingVnet_name'),
'/SensorSubnet1')]",
            "dependsOn": [
                "[resourceId('Microsoft.Network/virtualNetworks',
parameters('virtualNetworks_ManufacturingVnet_name'))]"
            ],
            "properties": {
                "addressPrefixes": [
                    "10.30.20.0/24"
                ],
                "delegations": [],
                "privateEndpointNetworkPolicies": "Disabled",
                "privateLinkServiceNetworkPolicies": "Enabled"
            }
        }
    ]
}
```

I edit the template.json according to the plan:
Replace the one occurrence of CoreServicesVnet with ManufacturingVnet

Figure 13. Edited Parameters.json.

I upload the edited templates:

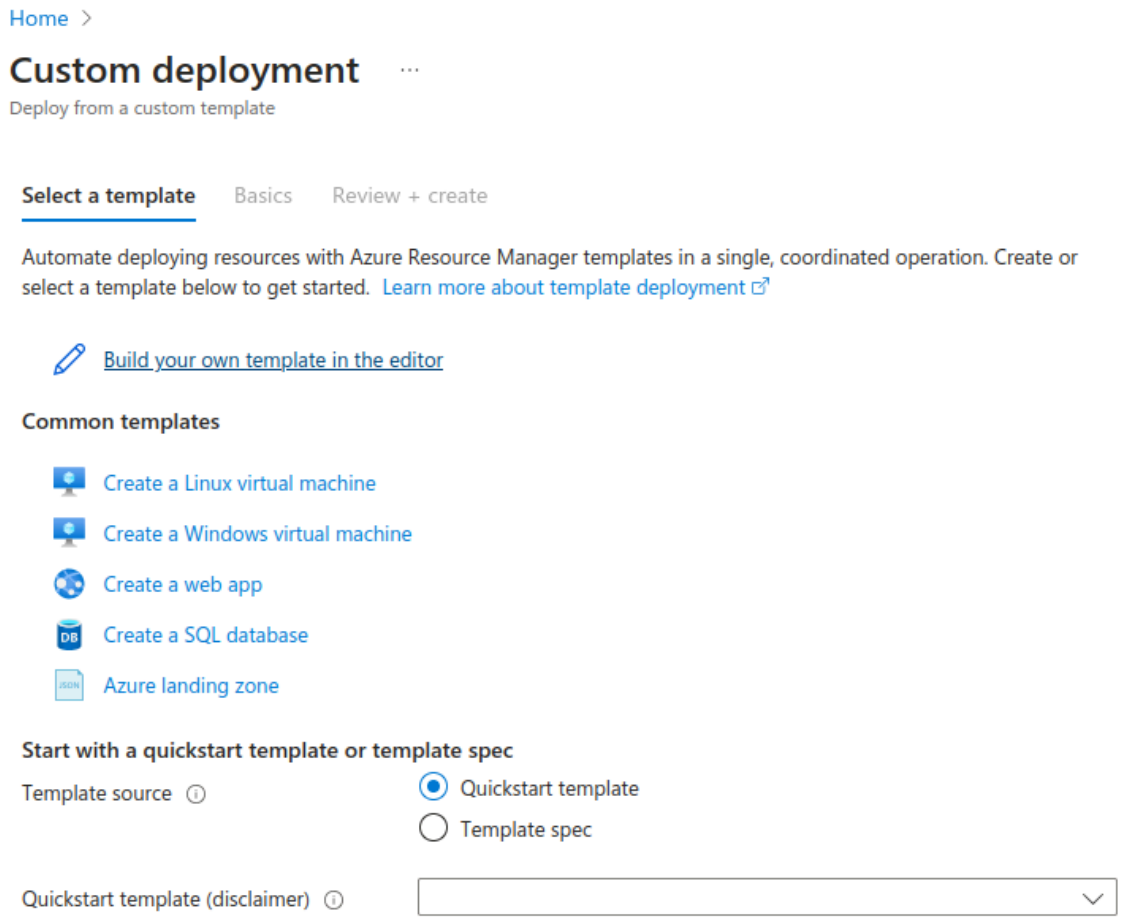

Figure 14. Uploading templates.

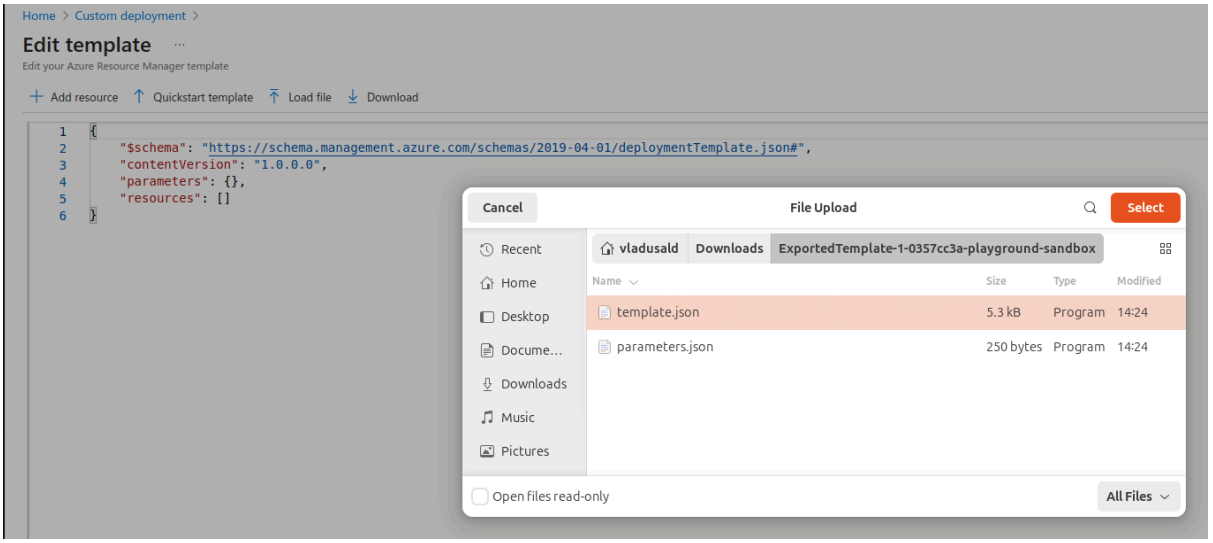

Figure 15.Uploading templates.

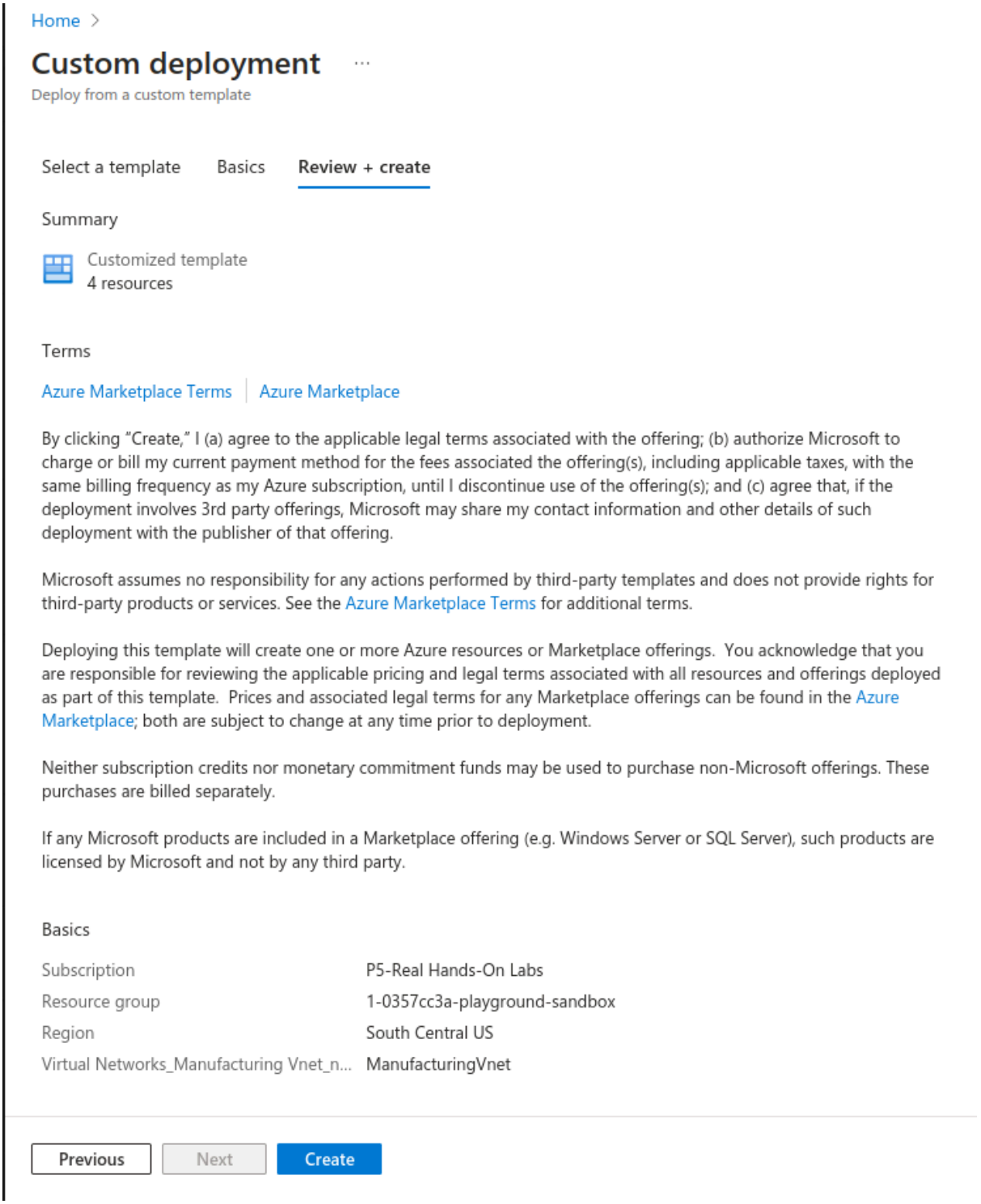

Figure 16. Review.

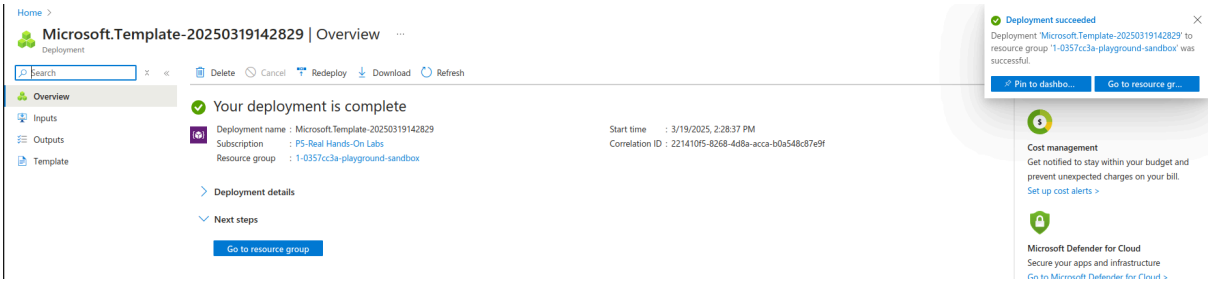

Figure 17. Complete deployment.

Task 3: Create and configure communication between an Application Security Group and a Network Security Group.

I create application security groups:

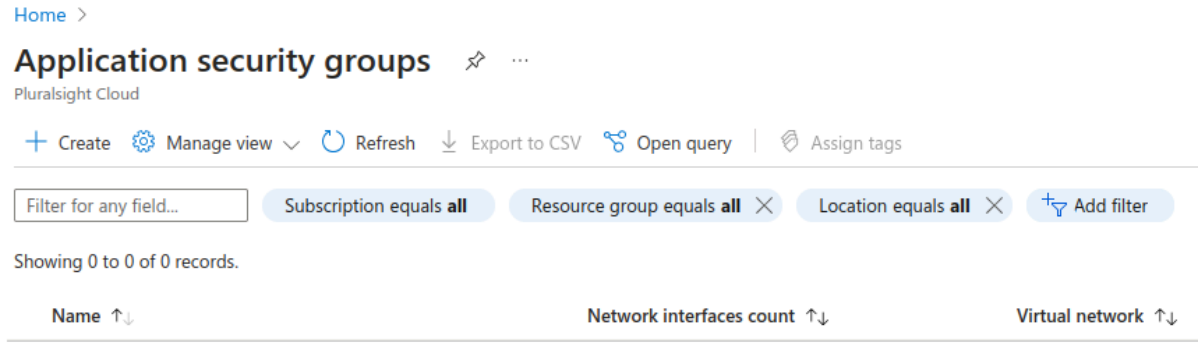

Figure 18. Creating Application security group.

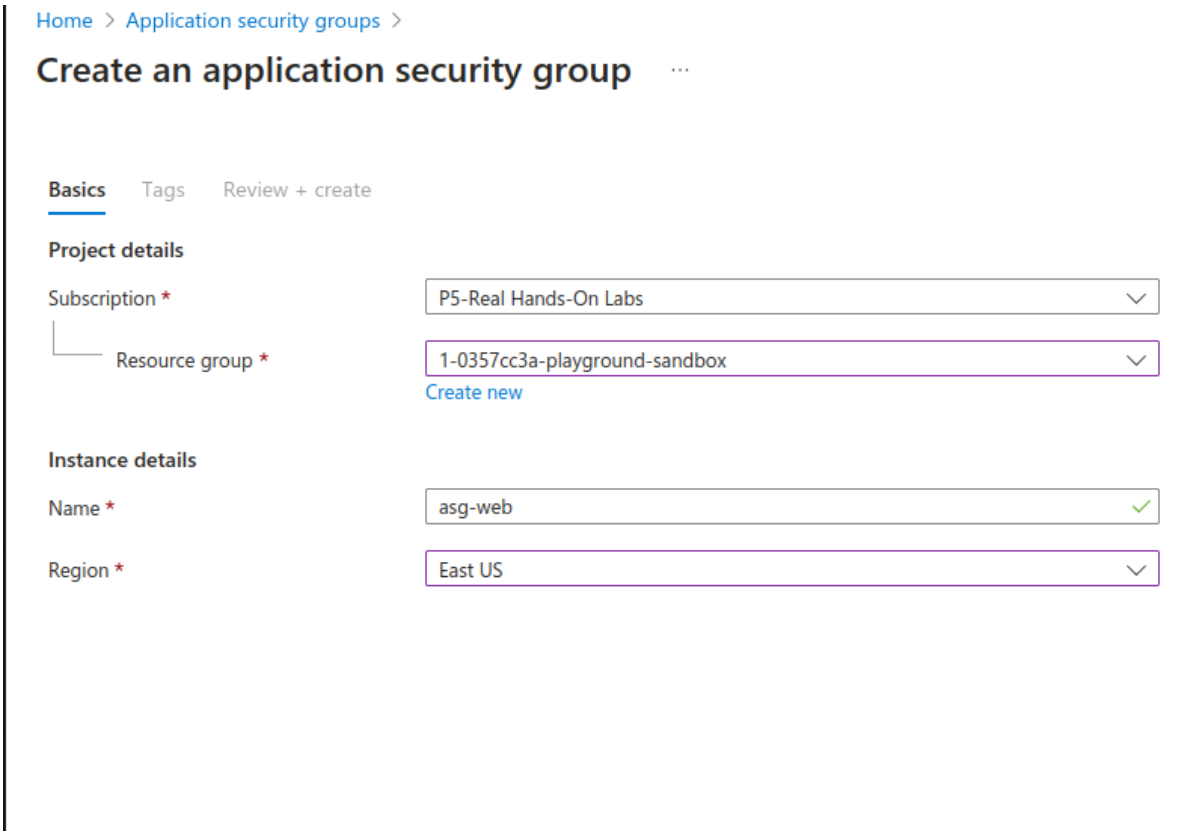

Figure 19. Basics.

Figure 20. Review.

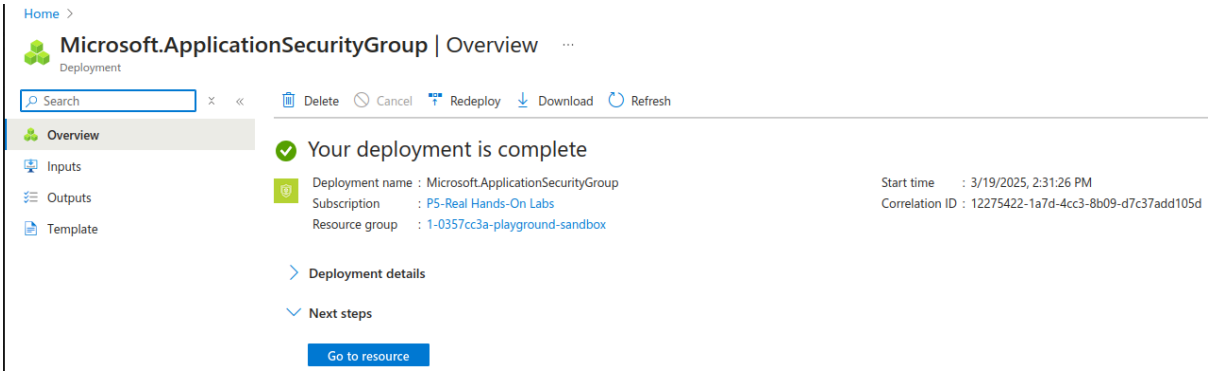

Figure 21. Complete deployment.

I create Network security groups:

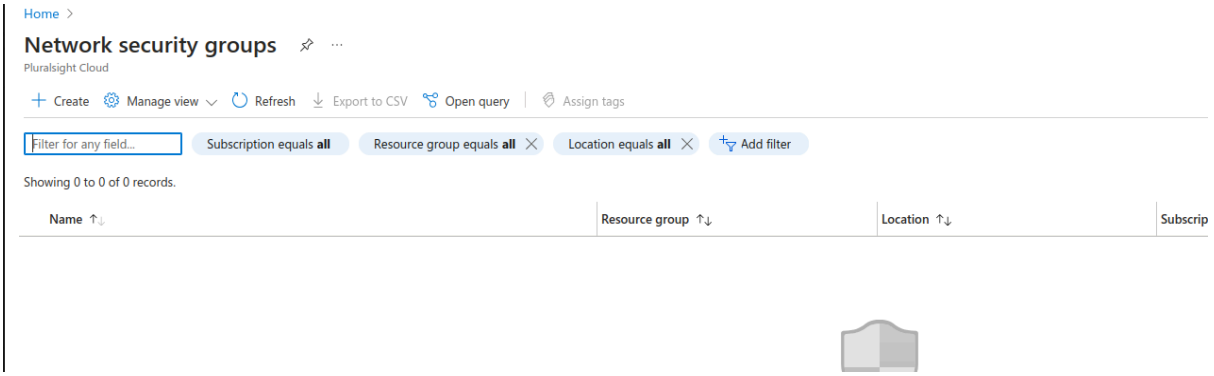

Figure 22. Creating network security groups.

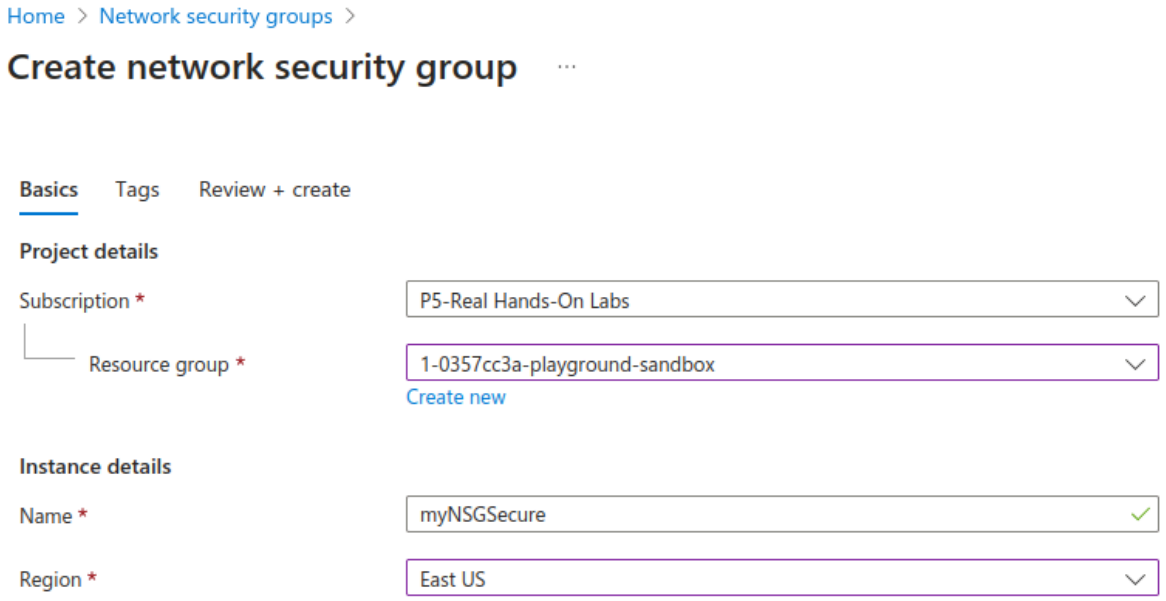

Figure 23. Basics.

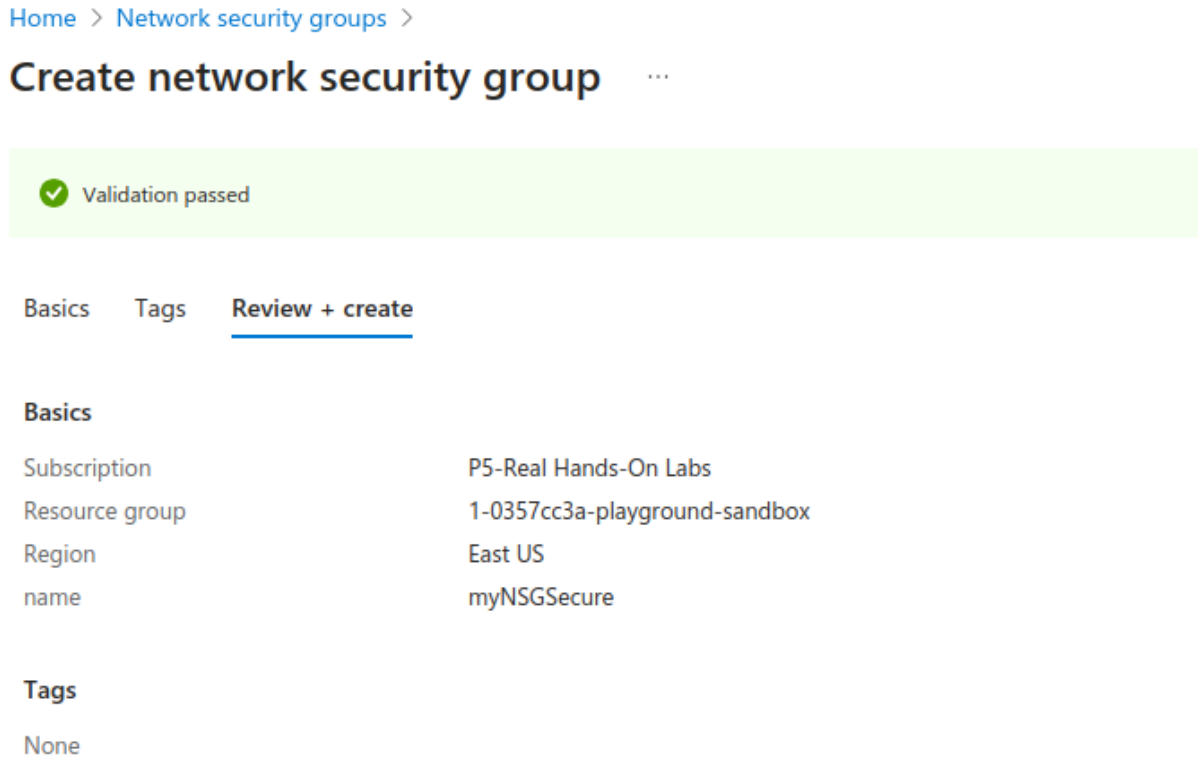

Figure 24. Review.

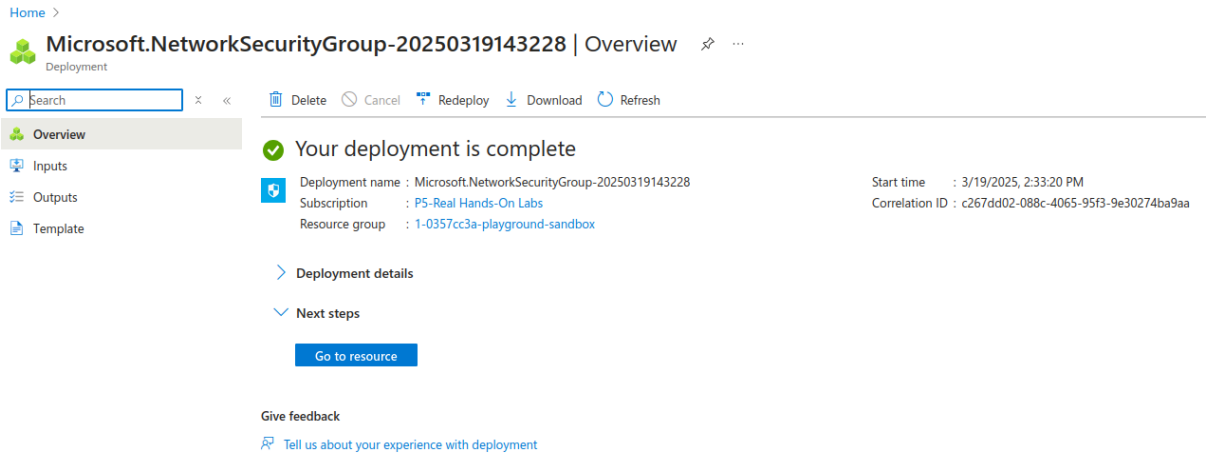

Figure 25. Complete deployment.

Adding a subnet:

Figure 26. Adding a subnet.

Configure an inbound security rule:

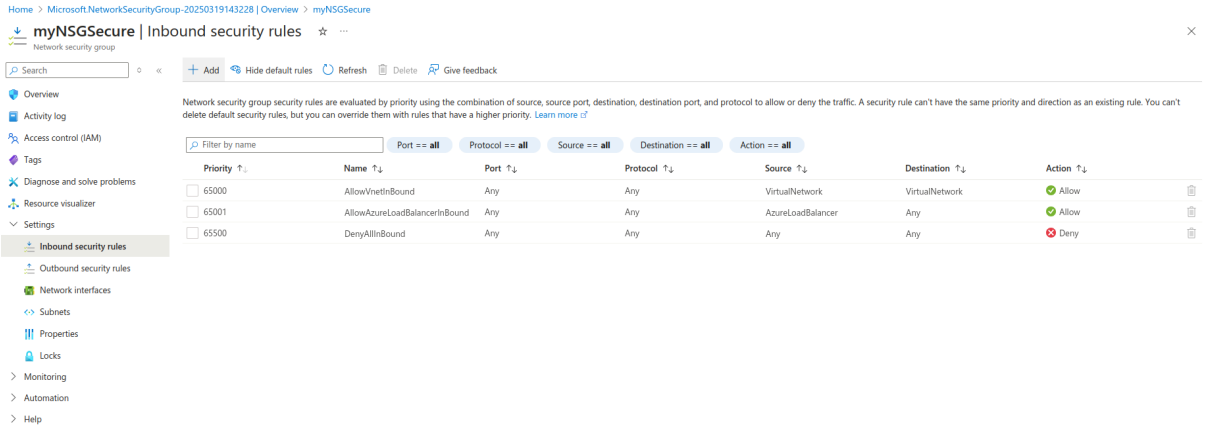

Figure 27. Configure an inbound security rule.

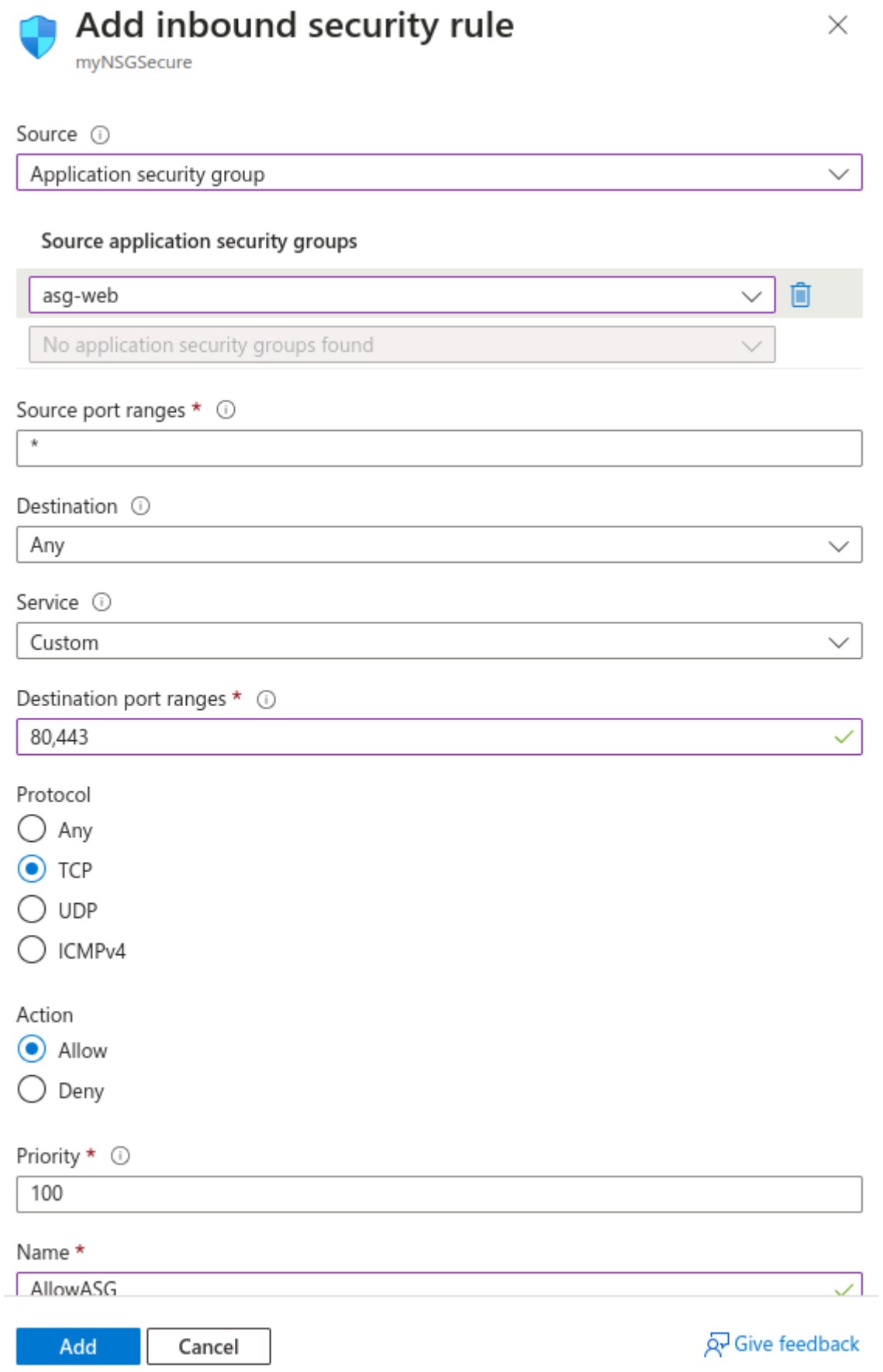

Figure 28. Configing.

Configure an outbound NSG rule:

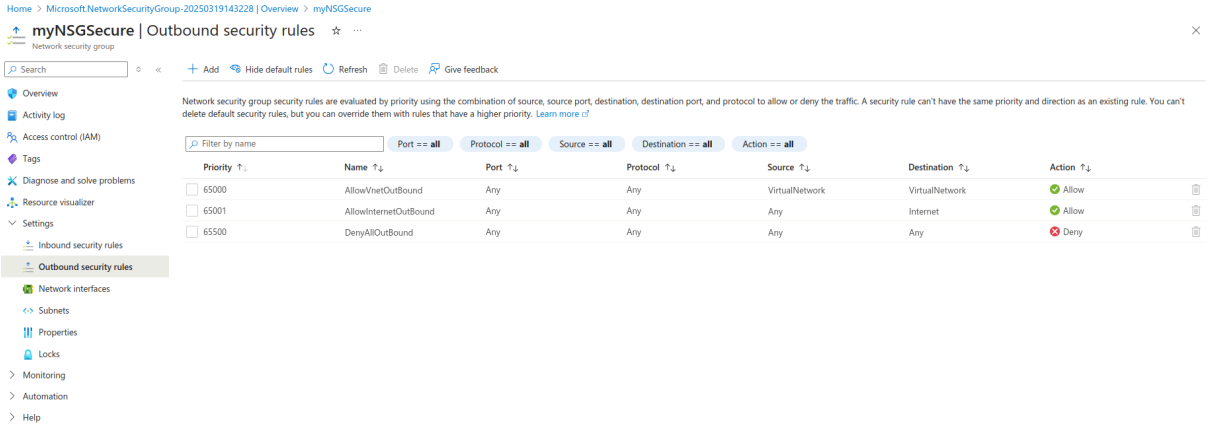

Figure 29. Configure an outbound security rule.

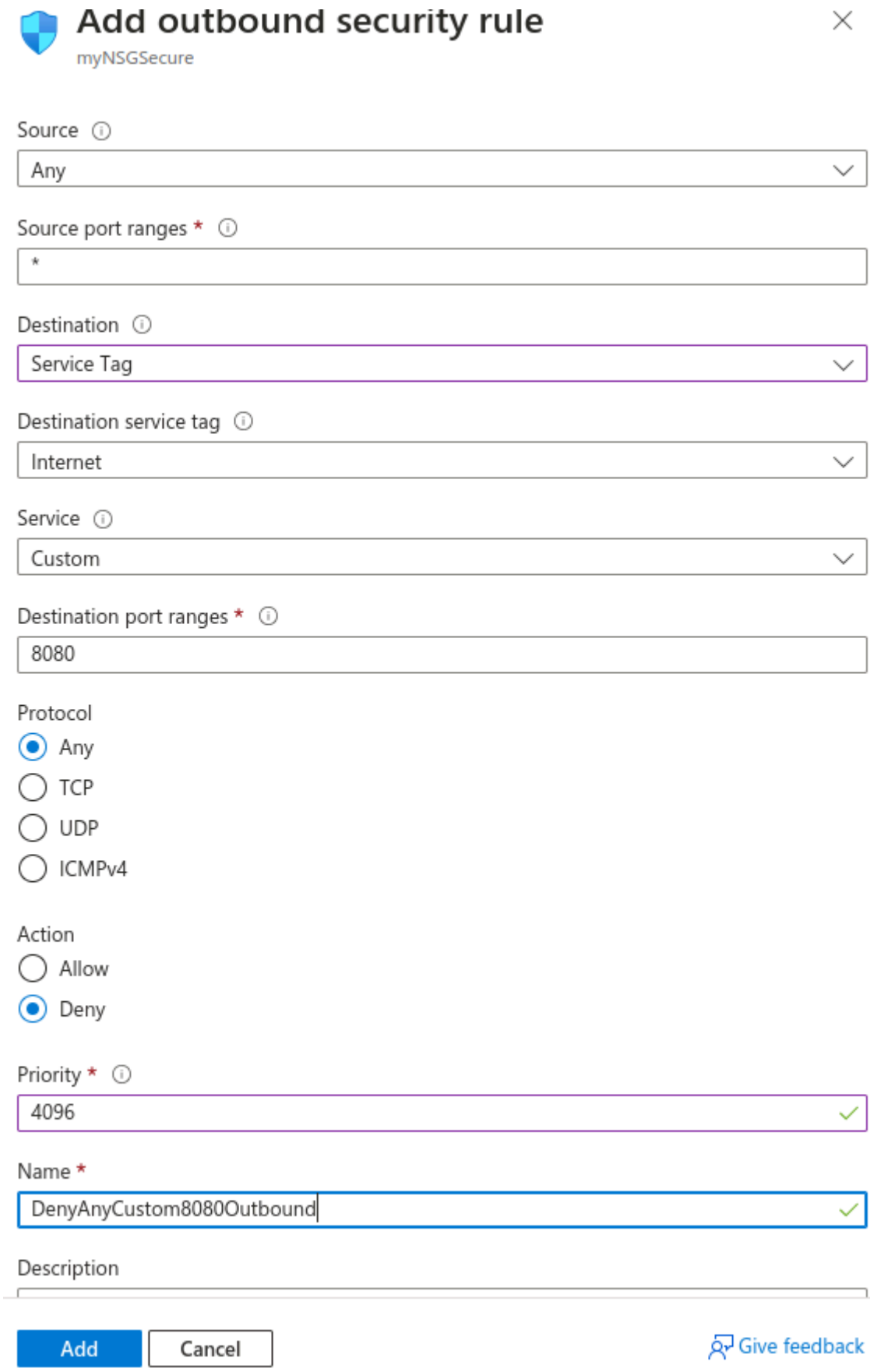

Figure 30. Configing.

Task 4: Configure public and private Azure DNS zones.

Configure a public DNS zone:

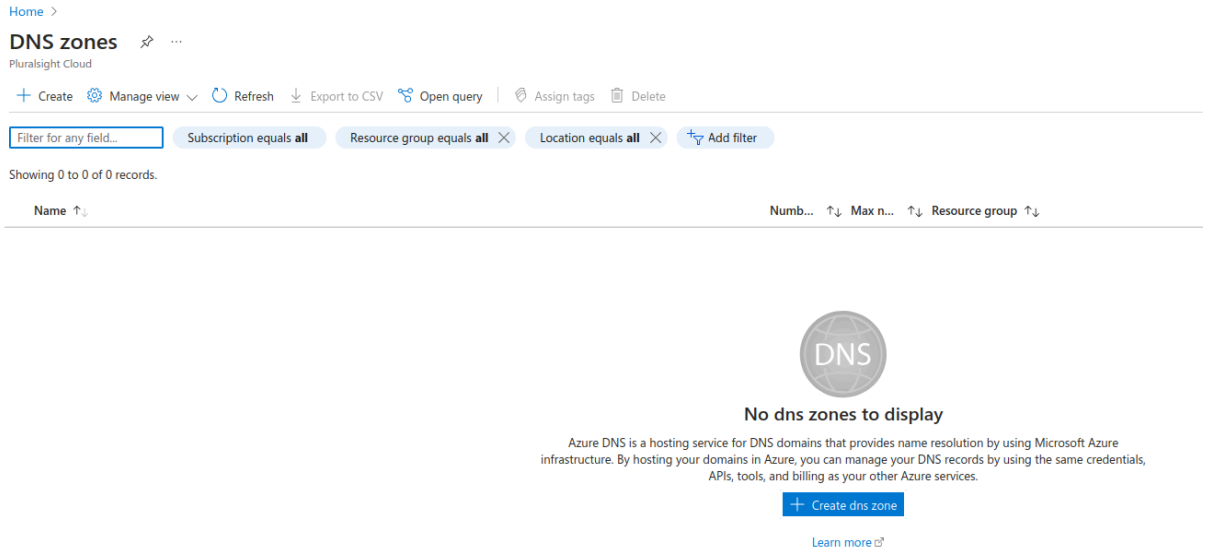

Figure 31. Creating a public DMS zone.

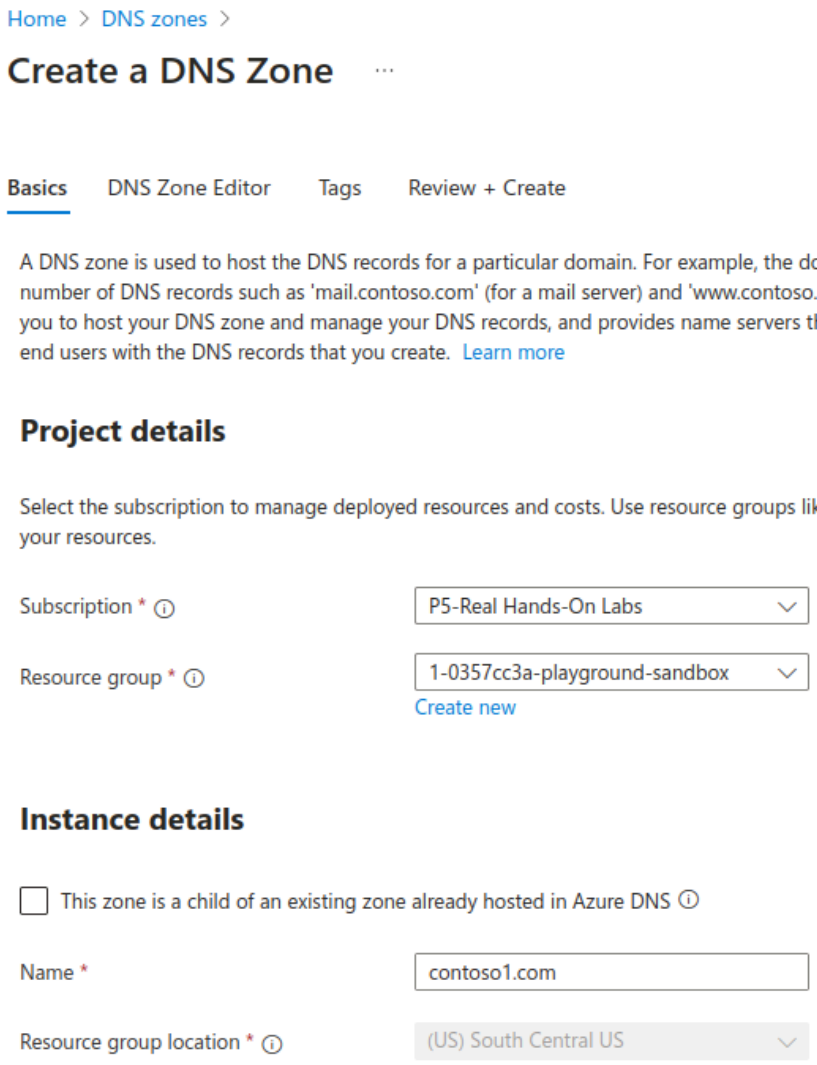

Figure 32. Basics.

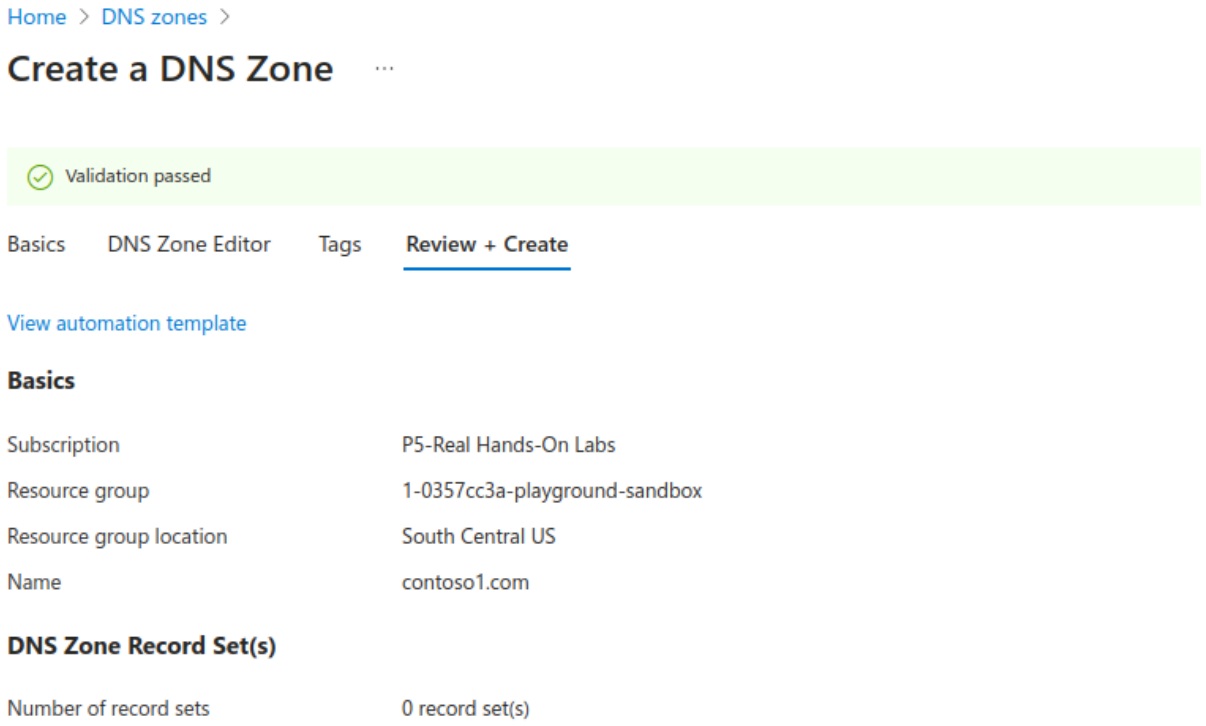

Figure 33. Review.

I changed the name a bit because it gave an error when deploying:

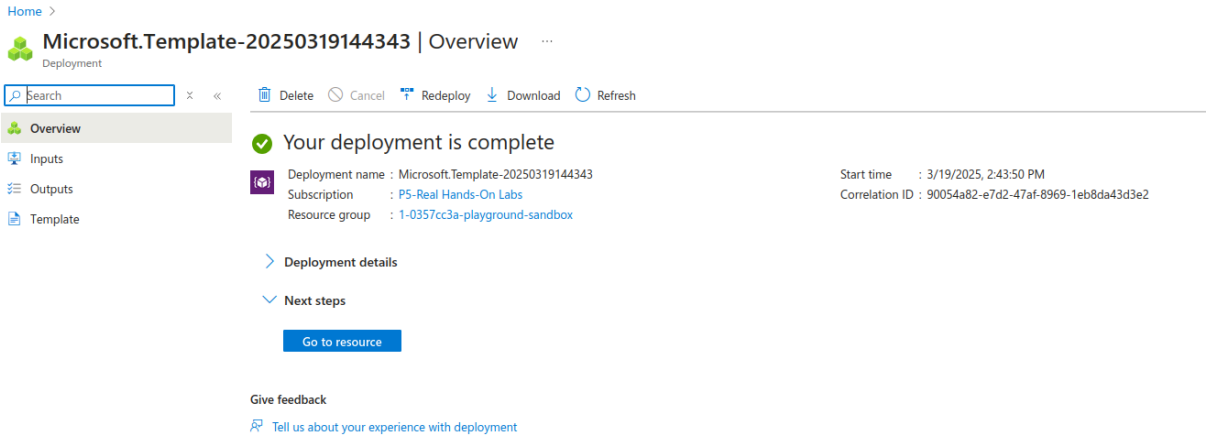

Figure 34. Complete deployment.

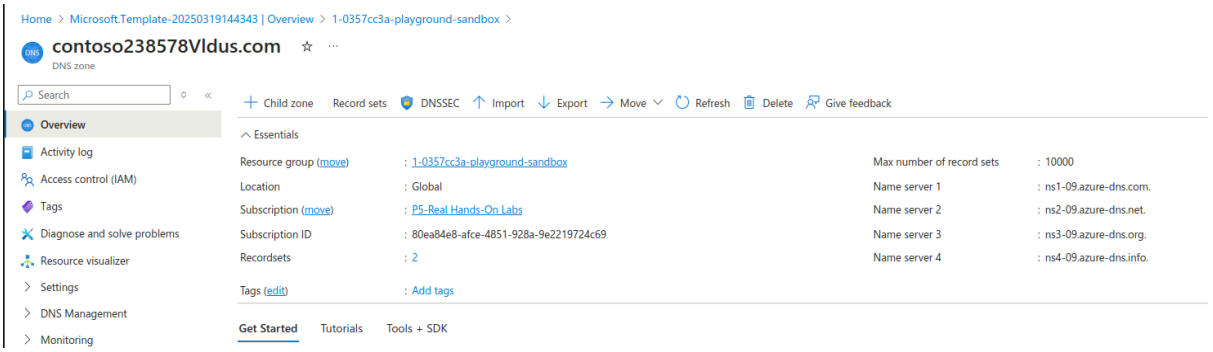

Figure 35. Public DNS zone.

Add a Record set:

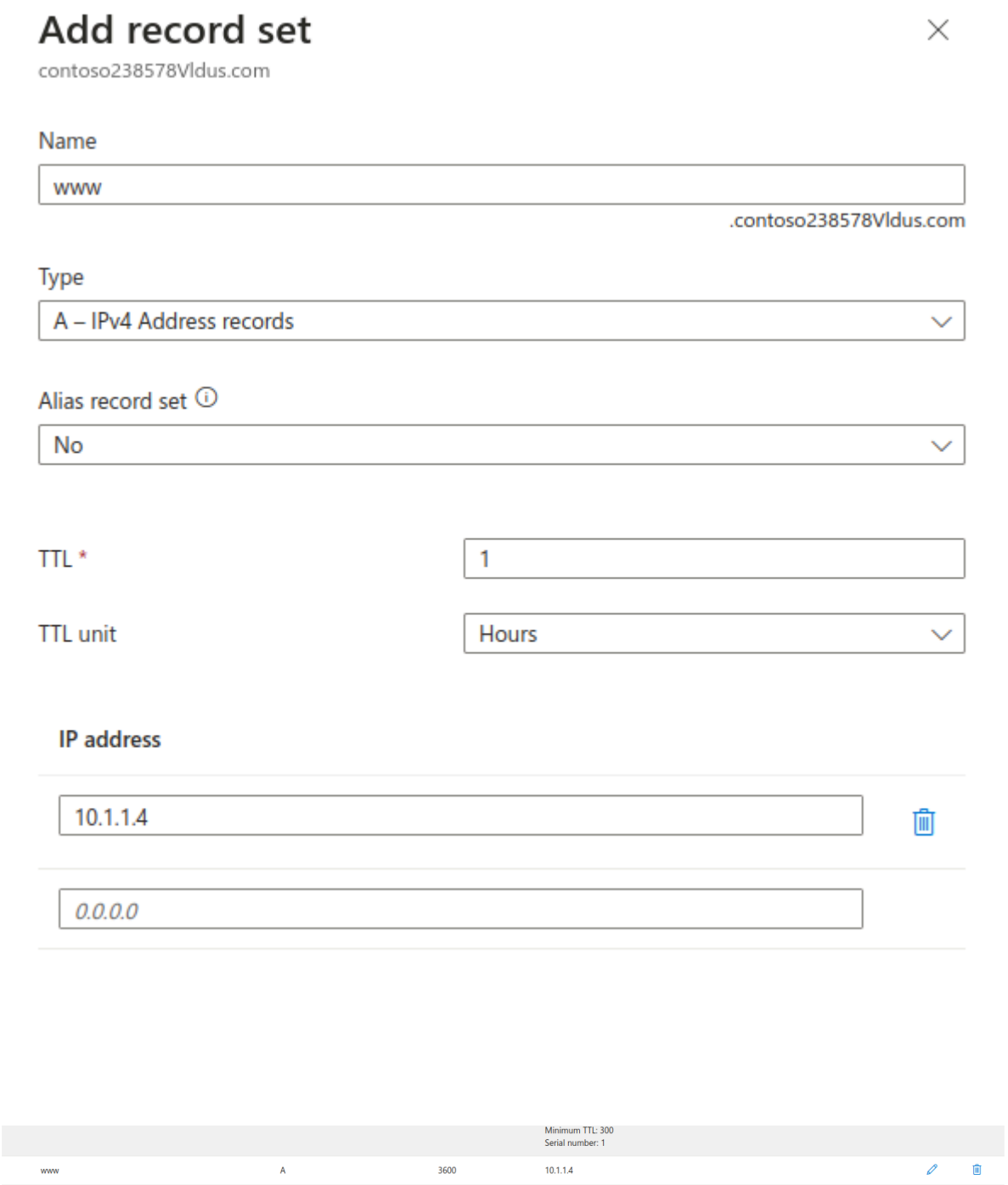

Figure 36. Add record set.

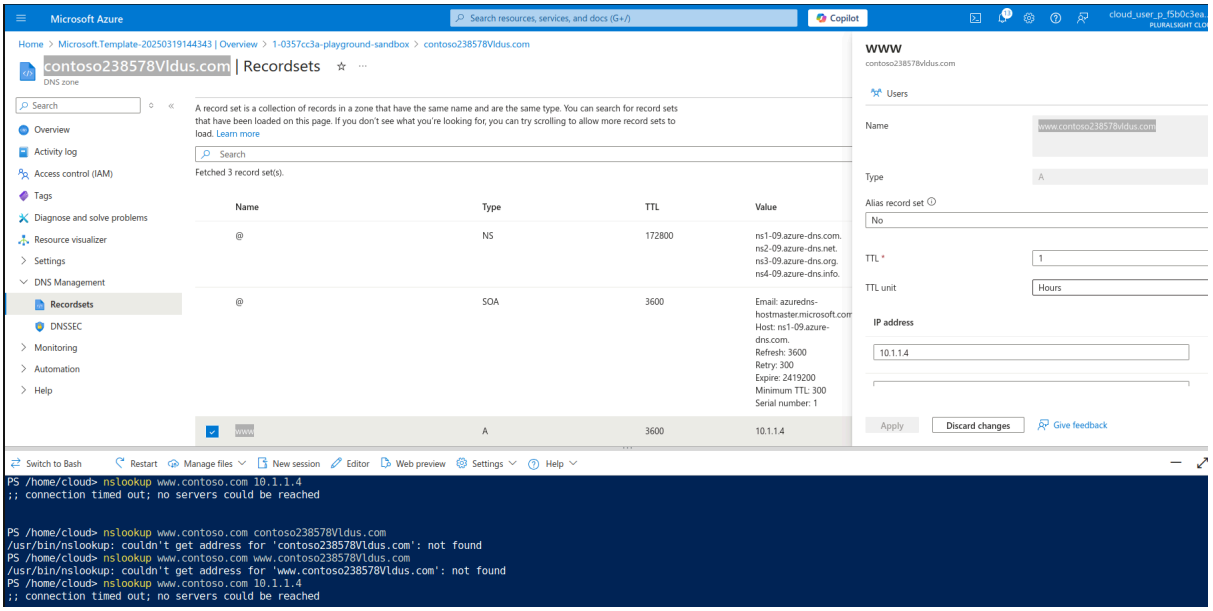

Figure 37. Try to check recordsets.

Configure a private DNS zone:

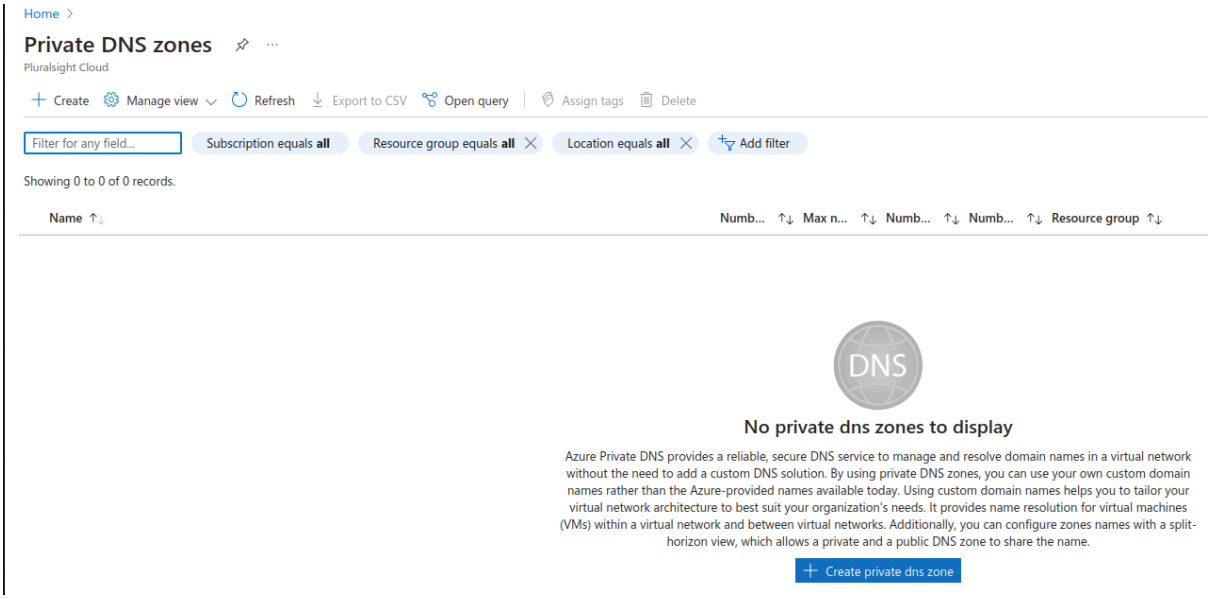

Figure 38. Creating a private DNS zone.

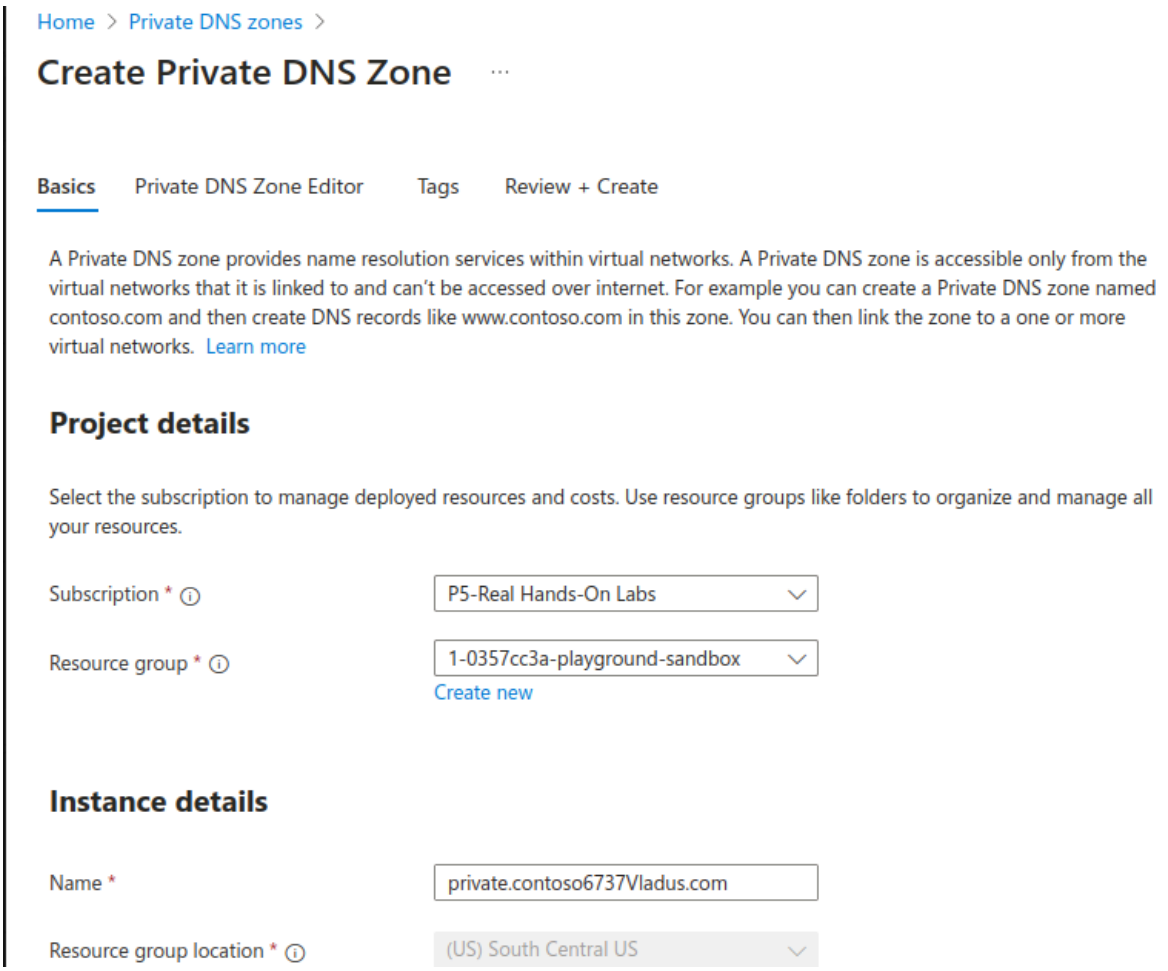

Figure 39. Basics.

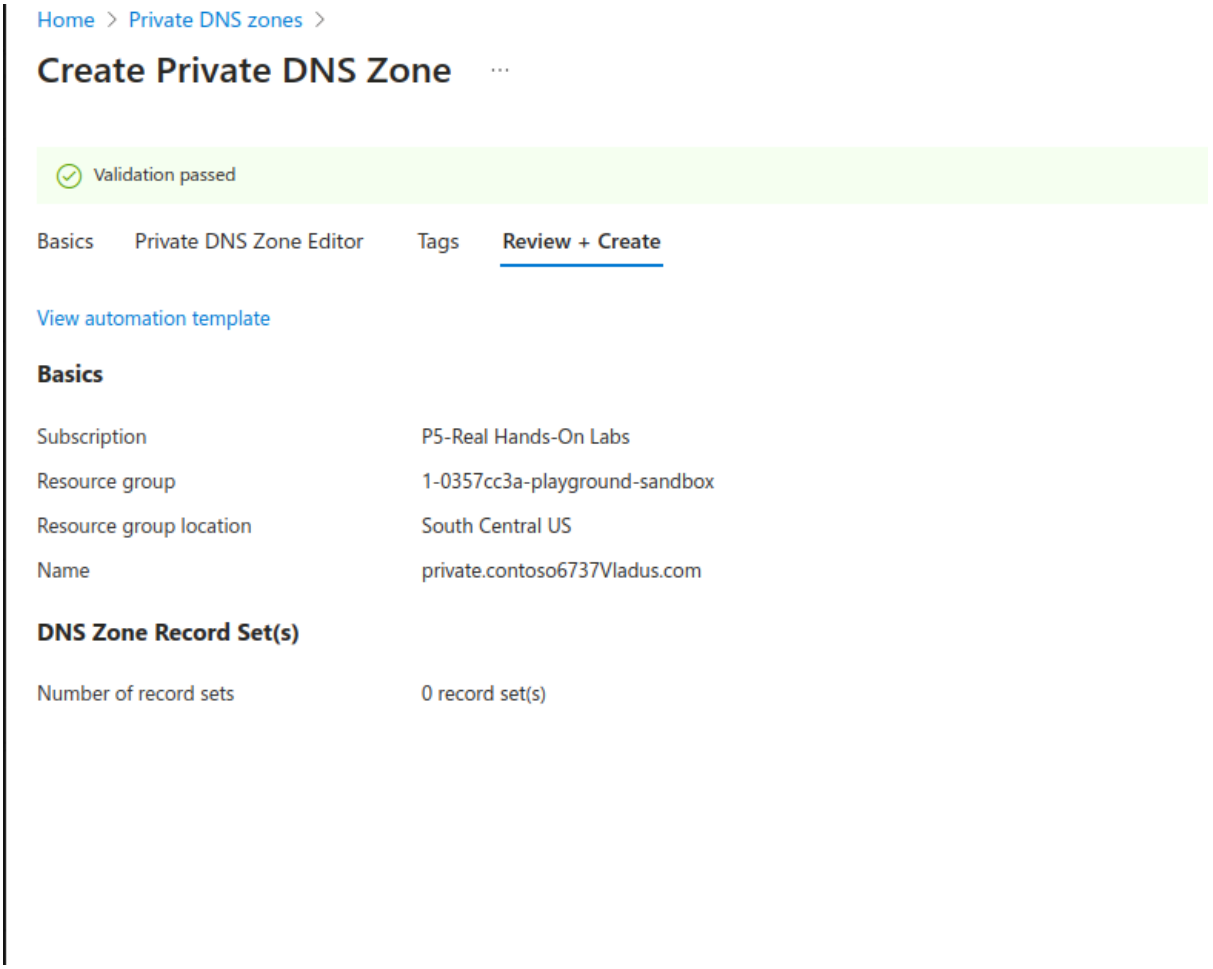

Figure 40. Review.

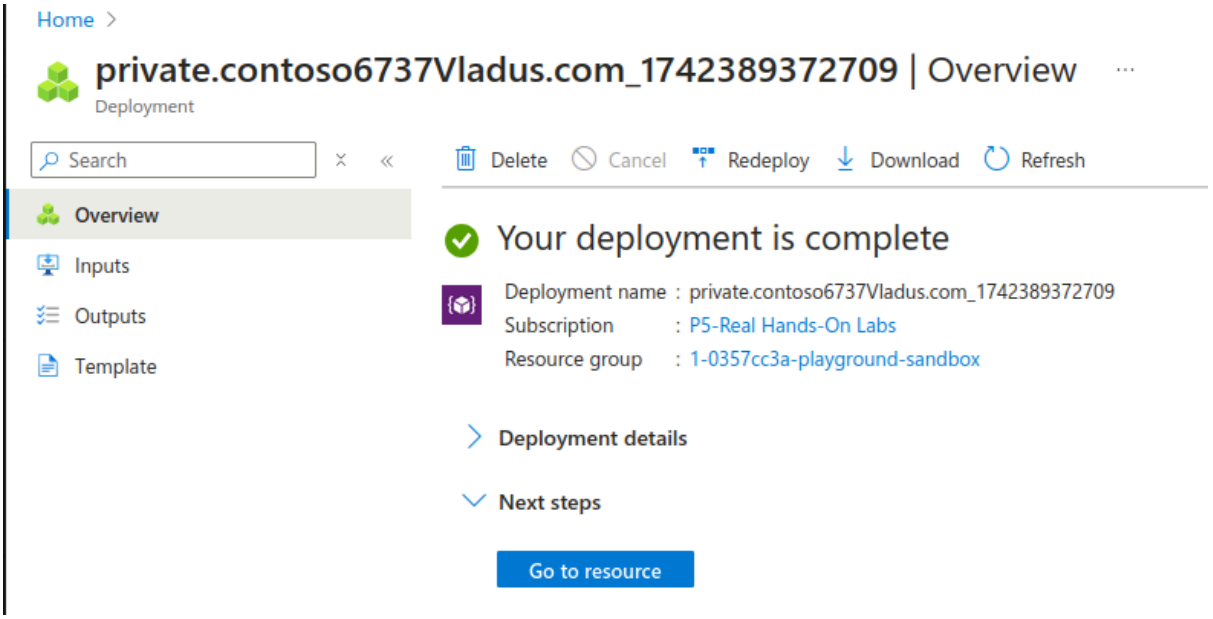

Figure 41. Complete deployment.

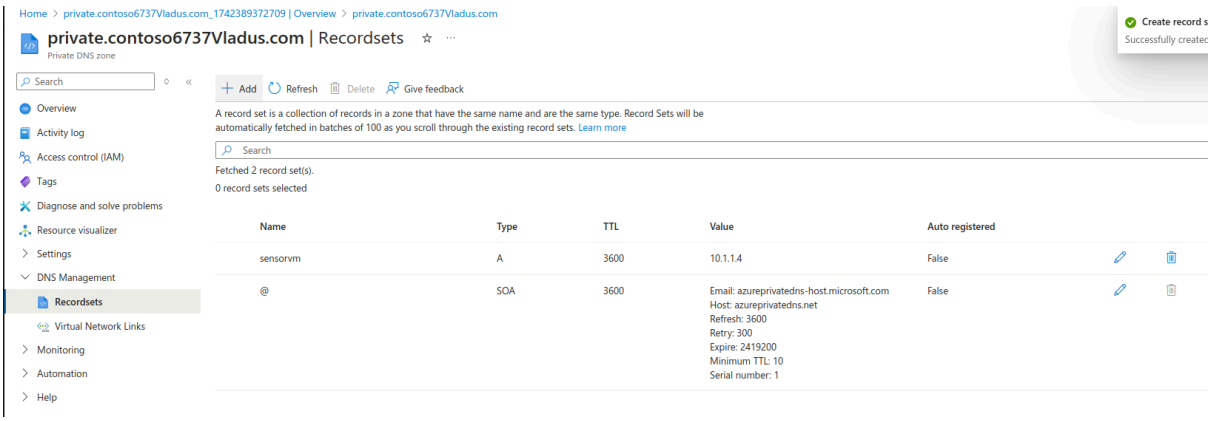

Figure 42. Check Recordsets.