

Peering with Gateway Transit

Objective

- Create peering with gateway transit and test the connection between the VMs.

Comments

Today I put into practice what I learned about peering with gateway transit. It was a great experience because before I was only creating basic peering, without gateway transit or UDRs.

Using only the CLI, I created Resource Groups, VNets, subnets, VMs, and the peering configuration.

This practice was very smooth and intuitive — quick to execute — and it's rewarding to see the theory being applied and everything starting to make more sense as I prepare for the AZ-104 certification.

1. Create RG-pro-eastus

```
File Edit Selection View Go Run Terminal Help e01
Welcome x
Start Walkthroughs
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE powershell +v
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az group create `
>> --name rg-prod-eastus `
>> --location eastus
{
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d358c3cb265b/resourceGroups/rg-prod-eastus",
  "location": "eastus",
  "managedBy": null,
  "name": "rg-prod-eastus",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
```

Home > Resource groups >

Resource groups

Austriaco (dltier.onmicrosoft.com)

+ Create Manage view ...

You are viewing a new version of Browse experience. Click here to access the old experience.

- ☐ Name ↑
- ☐ NetworkWatcherRG
- ☐ rg-backoffice-eastus
- ☐ RG-Marketing
- ☒ rg-prod-eastus
- ☐ RG-Sales

rg-prod-eastus
Resource group

Search

+ Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags

Essentials

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

Settings

Cost Management

Monitoring

Automation

Help

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 6 of 6 records. Show hidden types No grouping List view

Name ↑↓	Type ↑↓	Location ↑↓	
vm-web-prod	Virtual machine	East US	...
vm-web-prod_disk1_300ac11de1d7402c9f6a6a3808ed75b5	Disk	East US	...
vm-web-prodNSG	Network security group	East US	...
vm-web-prodPublicIP	Public IP address	East US	...
vm-web-prodVMNic	Network interface	East US	...
vnet-prod	Virtual network	East US	...

2. Create RG-backoffice-eastus

Read more about the command in reference docs

```
PS c:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az group create`
>> --name rg-backoffice-eastus`
>> --location eastus`
{
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus",
  "location": "eastus",
  "managedBy": null,
  "name": "rg-backoffice-eastus",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
```

Home > Resource groups >

Resource groups

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- ☐ Name ↑
- ☐ [NetworkWatcherRG](#)
- ☒ [rg-backoffice-eastus](#)
- ☐ [RG-Marketing](#)
- ☐ [rg-prod-eastus](#)
- ☐ [RG-Sales](#)

Showing 1 - 5 of 5. Display count: auto

rg-backoffice-eastus

Resource group

Search

+ Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags ...

Overview

- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Events
- Settings
- Cost Management
- Monitoring
- Automation
- Help

Essentials

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 6 of 6 records. Show hidden types No grouping List view

Name	Type	Location
vm-backoffice	Virtual machine	East US
vm-backoffice_disk1_046d12a0827749788ecc84f9e5dca02e	Disk	East US
vm-backofficeNSG	Network security group	East US
vm-backofficePublicIP	Public IP address	East US
vm-backofficeVMNic	Network Interface	East US
vnet-backoffice	Virtual network	East US

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3.create vnet e subnet

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE
Read more about the command in reference docs
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az network vnet create `
>> --resource-group rg-prod-eastus `
>> --name vnet-prod
>> --address-prefix 10.10.0.0/16 `
>> --subnet-name subnet-web
>> --address-prefix 10.10.1.0/24
{
  "newVnet": {
    "addressSpace": {
      "addressPrefixes": [
        "10.10.1.0/24"
      ]
    },
    "enabledDdosProtection": false,
    "etag": "W/\"3c1e4d8e-91f5-48fe-8c0a-6c2f07d4961a\"",
    "id": "/subscriptions/244b09e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod",
    "location": "eastus",
    "name": "vnet-prod",
    "privateEndpointNetworkPolicies": "Disabled",
    "provisioningState": "Succeeded",
    "resourceGroup": "rg-prod-eastus",
    "resourceId": "Microsoft.Network/virtualNetworks/vnet-prod",
    "subnets": [
      {
        "addressPrefix": "10.10.1.0/24",
        "delegations": [],
        "etag": "W/\"3c1e4d8e-91f5-48fe-8c0a-6c2f07d4961a\"",
        "id": "/subscriptions/244b09e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod/subnets/subnet-web",
        "name": "subnet-web",
        "privateEndpointNetworkPolicies": "Disabled",
        "privateLinkServiceNetworkPolicies": "Enabled",
        "provisioningState": "Succeeded",
        "resourceGroup": "rg-prod-eastus",
        "type": "Microsoft.Network/virtualNetworks/subnets"
      }
    ]
  }
}
```

Home > Resource groups > rg-prod-eastus > vnet-prod

vnet-prod | Subnets

Virtual network

Search

+ Subnet Refresh | Manage users Delete

Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet.

Search subnets

<input type="checkbox"/>	Name ↑	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table		
<input type="checkbox"/>	subnet-web	10.10.1.0/24	-	250	-	-	-		

4. create vnet e subnet

```
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az network vnet create ^
>> --resource-group rg-backoffice-eastus ^
>> --name vnet-backoffice ^
>> --address-prefix 10.20.0.0/16 ^
>>
{
  "newVnet": {
    "addressSpace": {
      "addressPrefixes": [
        "10.20.0.0/16"
      ]
    },
    "enableDdosProtection": false,
    "etag": "W/\"0abdb13e-45b0-4b73-944f-221d3e0393a4\"",
    "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/virtualNetworks/vnet-backoffice",
    "location": "eastus",
    "name": "vnet-backoffice",
    "privateEndpointVnetPolicies": "Disabled",
    "provisioningState": "Succeeded",
    "resourceGroup": "rg-backoffice-eastus",
    "resourceGuid": "09bcfa38-1317-48fe-875a-49ae5a382674",
    "subnets": [],
    "type": "Microsoft.Network/virtualNetworks",
    "virtualNetworkPeerings": []
  }
}
```

```
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az network vnet subnet create ^
>> --resource-group rg-backoffice-eastus ^
>> --vnet-name vnet-backoffice ^
>> --name subnet-internal ^
>> --address-prefix 10.20.1.0/24
{
  "addressPrefix": "10.20.1.0/24",
  "delegations": [],
  "etag": "W/\"fef5bdba-dfc3-404b-84e4-f59cbe1b505f\"",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/subnets/subnet-internal",
  "name": "subnet-internal",
  "privateEndpointNetworkPolicies": "Disabled",
  "privateLinkServiceNetworkPolicies": "Enabled",
  "provisioningState": "Succeeded",
  "resourceGroup": "rg-backoffice-eastus",
  "type": "Microsoft.Network/virtualNetworks/subnets"
}
```

vnet-backoffice | Subnets ☆ ...

Virtual network

Search

+ Subnet Refresh | Manage users Delete

Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet.

Search subnets

<input type="checkbox"/>	Name ↑	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
<input type="checkbox"/>	subnet-internal	10.20.1.0/24	-	250	-	-	

5.create VM

```
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az vm create ^
>> --resource-group rg-prod-eastus ^
>> --name vm-web-prod ^
>> --vnet-name vnet-prod ^
>> --subnet subnet-web ^
>> --image Ubuntu2204 ^
>> --size Standard_B1s ^
>> --admin-username azureuser ^

>> --authentication-type password ^
>> --public-ip-sku Standard
The default value of '--size' will be changed to 'Standard_D2s_v5' from 'Standard_D51_v2' in a future release.
{
  "fqdns": "",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Compute/virtualMachines/vm-web-prod",
  "location": "eastus",
  "macAddress": "00-22-48-28-0A-BB",
  "powerState": "VM running",
  "privateIpAddress": "10.10.1.4",
  "publicIpAddress": "137.117.122.28",
  "resourceGroup": "rg-prod-eastus",
  "zones": ""
}
```

vm-web-prod

Virtual machine

Search

Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Connect

Networking

Network settings

Load balancing

Application security groups

Network manager

Settings

Availability + scale

Security

Add or remove favorites by pressing Ctrl+L+Shift+F

Essentials

JSON View

Resource group (move)	: rg-prod-eastus	Operating system	: Linux (ubuntu 22.04)
Status	: Running	Size	: Standard B1s (1 vcpu, 1 GiB memory)
Location	: East US	Public IP address	: 137.117.122.28
Subscription (move)	: Azure subscription 1	Virtual network/subnet	: vnet-prod/subnet-web
Subscription ID	: 244b05e9-ea65-4ac7-bd12-d350c3cb265b	DNS name	: Not configured
		Health state	: -
		Time created	: 7/23/2025, 8:09 AM UTC

Tags (edit) : [Add tags](#)

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine

Computer name	vm-web-prod
Operating system	Linux (ubuntu 22.04)
VM generation	V2

Networking

Public IP address	137.117.122.28 (Network interface vm-web-prodVMNic)
Public IP address (IPv6)	-
Private IP address	10.10.1.4

6.create VM

```
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az vm create ^
>> --resource-group rg-backoffice-eastus ^
>> --name vm-backoffice ^
>> --vnet-name vnet-backoffice ^
>> --subnet subnet-internal ^
>> --image Ubuntu2204 ^
>> --size Standard_B1s ^
>> --admin-username azureuser ^
>> --admin-password Azure123456789 ^
>> --authentication-type password ^
>> --public-ip-sku Standard ^
The default value of '--size' will be changed to 'Standard_D2s_v5' from 'Standard_D51_v2' in a future release.
{
  "fqdns": "",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Compute/virtualMachines/vm-backoffice",
  "location": "eastus",
  "macAddress": "7C-1E-52-64-2E-24",
  "powerState": "VM_running",
  "privateIpAddress": "10.20.1.4",
  "publicAddress": "4.227.218.254",
  "resourceGroup": "rg-backoffice-eastus",
  "zones": ""
}
```

vm-backoffice Virtual machine

Search Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
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- Connect
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 - Network settings
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- Settings
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 - Security

Essentials

Resource group (move)	: rg-backoffice-eastus	Operating system	: Linux (ubuntu 22.04)
Status	: Running	Size	: Standard B1s (1 vcpu, 1 GiB memory)
Location	: East US	Public IP address	: 4.227.218.254
Subscription (move)	: Azure subscription 1	Virtual network/subnet	: vnet-backoffice/subnet-internal
Subscription ID	: 244b05e9-ea65-4ac7-bd12-d350c3cb265b	DNS name	: Not configured
		Health state	: -
		Time created	: 7/23/2025, 8:14 AM UTC

Tags (edit) : [Add tags](#)

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine		Networking	
Computer name	vm-backoffice	Public IP address	4.227.218.254 (Network interface vm-backofficeVMNic)
Operating system	Linux (ubuntu 22.04)	Public IP address (IPv6)	-
VM generation	V2	Private IP address	10.20.1.4

7. Peering with gateway Prod-to-Backoffice

```
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az network vnet peering create ^
>> --resource-group rg-prod-eastus ^
>> --name prod-to-backoffice ^
>> --vnet-name vnet-prod ^
>> --remote-vnet /subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/virtualNetworks/vnet-backoffice ^
>> --allow-vnet-access ^
>> --allow-forwarded-traffic ^
>> --allow-gateway-transit ^
{
  "allowForwardedTraffic": true,
  "allowGatewayTransit": true,
  "allowVirtualNetworkAccess": true,
  "doNotVerifyRemoteGateways": false,
  "etag": "W/\"d2e1e718-b2e7-4996-8492-9d975ee3d932\"\"",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod/virtualNetworkPeerings/prod-to-backoffice",
  "name": "prod-to-backoffice",
  "peerCompleteVnets": true,
  "peeringState": "Initiated",
  "peeringSyncLevel": "RemoteNotInSync",
  "provisioningState": "Succeeded",
  "remoteAddressSpace": {
    "addressPrefixes": [
      "10.20.0/16"
    ]
  },
  "remoteVirtualNetwork": {
    "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/virtualNetworks/vnet-backoffice",
    "resourceGroup": "rg-backoffice-eastus"
  },
  "remoteVirtualNetworkAddressSpace": {
    "addressPrefixes": [
      "10.20.0/16"
    ]
  },
  "resourceGroup": "rg-prod-eastus",
  "resourceGuid": "549cf2cb-ff44-0f0e-34ed-94dcad628224",
}
```

8. Peering with gateway Backoffice-to-prod

```
Read more about the command in reference docs
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az network vnet show ^
>> --resource-group rg-prod-eastus ^
>> --name vnet-prod ^
>> --query id --output tsv
/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod
PS C:\Users\Paulo\Desktop\Estudo\Microsoft\Azure> az network vnet peering create ^
>> --resource-group rg-backoffice-eastus ^
>> --name backoffice-to-prod ^
>> --vnet-name vnet-backoffice ^
>> --remote-vnet /subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod ^
>> --allow-vnet-access ^
>> --allow-forwarded-traffic ^
>> --allow-gateway-transit ^
{
  "allowForwardedTraffic": true,
  "allowGatewayTransit": true,
  "allowVirtualNetworkAccess": true,
  "doNotVerifyRemoteGateways": false,
  "etag": "W/\"d2c4ab41-3c20-454c-b669-2cf6b48f4dec\"\"",
  "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-backoffice-eastus/providers/Microsoft.Network/virtualNetworks/vnet-backoffice/virtualNetworkPeerings/backoffice-to-prod",
  "name": "backoffice-to-prod",
  "peerCompleteVnets": true,
  "peeringState": "Connected",
  "peeringSyncLevel": "FullyInSync",
  "provisioningState": "Succeeded",
  "remoteAddressSpace": {
    "addressPrefixes": [
      "10.10.1.0/24"
    ]
  },
  "remoteVirtualNetwork": {
    "id": "/subscriptions/244b05e9-ea65-4ac7-bd12-d350c3cb265b/resourceGroups/rg-prod-eastus/providers/Microsoft.Network/virtualNetworks/vnet-prod",
    "resourceGroup": "rg-prod-eastus"
  },
  "remoteVirtualNetworkAddressSpace": {
    "addressPrefixes": [
      "10.10.1.0/24"
    ]
  },
  "resourceGroup": "rg-backoffice-eastus",
  "resourceGuid": "549cf2cb-ff44-0f0e-34ed-94dcad628224",
}
```


9. Ping VM prod to VM backoffice

```
austriaco@LAPTOP-1DJED4Q6:~$ ssh azureuser@137.117.122.28
The authenticity of host '137.117.122.28 (137.117.122.28)' can't be established.
ED25519 key fingerprint is SHA256:dmJni09WHjL10ZlER7in4HoFIumwh6abtszDIlnsmSA.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '137.117.122.28' (ED25519) to the list of known hosts.
azureuser@137.117.122.28's password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1031-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Wed Jul 23 08:34:55 UTC 2025

System load:  0.08          Processes:            105
Usage of /:   5.3% of 28.89GB Users logged in:       0
Memory usage: 29%          IPv4 address for eth0: 10.10.1.4
Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.
```

```
azureuser@vm-web-prod:~$ ping 10.20.1.4
PING 10.20.1.4 (10.20.1.4) 56(84) bytes of data:
64 bytes from 10.20.1.4: icmp_seq=1 ttl=64 time=2.71 ms
64 bytes from 10.20.1.4: icmp_seq=2 ttl=64 time=2.12 ms
64 bytes from 10.20.1.4: icmp_seq=3 ttl=64 time=1.17 ms
64 bytes from 10.20.1.4: icmp_seq=4 ttl=64 time=1.98 ms
64 bytes from 10.20.1.4: icmp_seq=5 ttl=64 time=1.75 ms
64 bytes from 10.20.1.4: icmp_seq=6 ttl=64 time=1.41 ms
64 bytes from 10.20.1.4: icmp_seq=7 ttl=64 time=1.60 ms
64 bytes from 10.20.1.4: icmp_seq=8 ttl=64 time=1.23 ms
^C
--- 10.20.1.4 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7010ms
rtt min/avg/max/mdev = 1.166/1.746/2.710/0.481 ms
azureuser@vm-web-prod:~$ exit
```

10. Ping VM backoffice to VM prod

```
austriaco@LAPTOP-1DJED4Q6:~$ ssh azureuser@4.227.218.254
The authenticity of host '4.227.218.254 (4.227.218.254)' can't be established.
ED25519 key fingerprint is SHA256:6zn9LXlav9STiSxhG00c+fU10JLWjV18C8z/YyfdoJs.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '4.227.218.254' (ED25519) to the list of known hosts.
azureuser@4.227.218.254's password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1031-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Wed Jul 23 08:36:58 UTC 2025

System load:  0.08               Processes:            104
Usage of /:   5.4% of 28.89GB    Users logged in:     0
Memory usage: 31%               IPv4 address for eth0: 10.20.1.4
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
```

```
azureuser@vm-backoffice:~$ ping 10.10.1.4
PING 10.10.1.4 (10.10.1.4) 56(84) bytes of data:
64 bytes from 10.10.1.4: icmp_seq=1 ttl=64 time=2.42 ms
64 bytes from 10.10.1.4: icmp_seq=2 ttl=64 time=2.17 ms
64 bytes from 10.10.1.4: icmp_seq=3 ttl=64 time=1.71 ms
64 bytes from 10.10.1.4: icmp_seq=4 ttl=64 time=1.97 ms
64 bytes from 10.10.1.4: icmp_seq=5 ttl=64 time=2.94 ms
64 bytes from 10.10.1.4: icmp_seq=6 ttl=64 time=1.81 ms
64 bytes from 10.10.1.4: icmp_seq=7 ttl=64 time=2.62 ms
64 bytes from 10.10.1.4: icmp_seq=8 ttl=64 time=1.36 ms
^C
--- 10.10.1.4 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7011ms
rtt min/avg/max/mdev = 1.360/2.123/2.940/0.484 ms
azureuser@vm-backoffice:~$ exit
logout
Connection to 4.227.218.254 closed.
austriaco@LAPTOP-1DJED4Q6:~$ |
```

Thank you if you've seen this far, it may seem a little, but for those who are studying for the AZ-104 exam, this is the way, because practicing every day is what will make me become an excellent Cloud Engineer, thank you all, let's go for more!!!