

Manage Azure resources by using Azure Resource Manager Templates

Manage Azure resources by using Azure Resource Manager Templates	1
Task 1: Create an Azure Resource Manager template	1
Task 2: Edit an Azure Resource Manager template and redeploy the template.	3
Task 3: Configure the Cloud Shell and deploy a template with Azure PowerShell.	7
Task 4: Deploy a template with the CLI.	9
Task 5: Deploy a resource by using Azure Bicep.	11

Task 1: Create an Azure Resource Manager template

Disks:

Create a managed disk ...

✔ Validation passed

Basics Encryption Networking Advanced Tags Review + create

Basics

Subscription	Azure subscription 1
Resource group	(new) az104-rg3
Region	East US
Disk name	az104-disk1
Availability zone	No infrastructure redundancy required
Source type	None
VM architecture	x64

Size

Size	32 GiB
Storage type	Standard HDD LRS

Encryption

Encryption type	Platform-managed key
-----------------	----------------------

Advanced

Enable shared disk	No
--------------------	----

Networking

Network access	AllowAll
----------------	----------

Tags

(none)

Create

< Previous

Next >

[Download a template for a](#)

Figure 1. Created a manager disk.

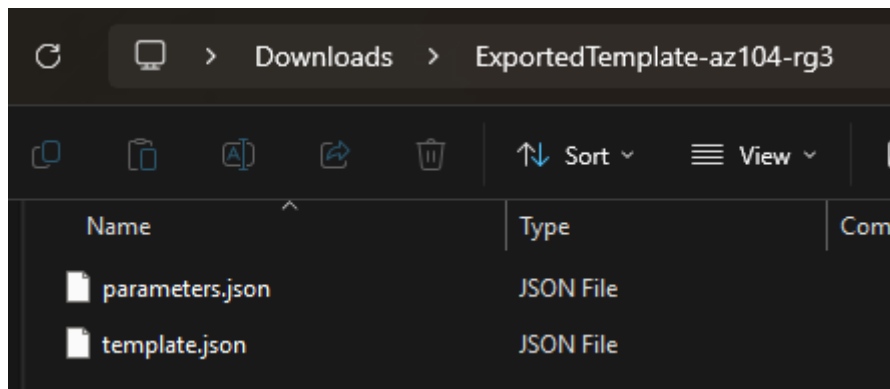


Figure 2. Exported template.

Task 2: Edit an Azure Resource Manager template and redeploy the template.

Deploy a custom template:

Edit template

Edit your Azure Resource Manager template

+ Add resource ↑ Quickstart template ↑ Load file ↓ Download

```
1 {
2   "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
3   "contentVersion": "1.0.0.0",
4   "parameters": {
5     "disks_az104_disk1_name": {
6       "defaultValue": "az104-disk1",
7       "type": "String"
8     }
9   },
10  "variables": {},
11  "resources": [
12    {
13      "type": "Microsoft.Compute/disks",
14      "apiVersion": "2024-03-02",
15      "name": "[parameters('disks_az104_disk1_name')]",
16      "location": "eastus",
17      "sku": {
18        "name": "Standard_LRS",
19        "tier": "Standard"
20      },
21      "properties": {
22        "creationData": {
23          "createOption": "Empty"
24        },
25        "diskSizeGB": 32,
26        "diskIOPSReadWrite": 500,
27        "diskMBpsReadWrite": 60,
28        "encryption": {
29          "type": "EncryptionAtRestWithPlatformKey"
30        },
31        "networkAccessPolicy": "AllowAll",
32        "publicNetworkAccess": "Enabled",
33        "dataAccessAuthMode": "None"
34      }
35    }
36  ]
37 }
```

Figure 3. Deploy a custom template.

Edit template ...

Edit your Azure Resource Manager template

+ Add resource ↑ Quickstart template ↑ Load file ↓ Download

```
1  {
2      "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
3      "contentVersion": "1.0.0.0",
4      "parameters": {
5          "disk_name": {
6              "defaultValue": "az104-disk2",
7              "type": "String"
8          }
9      },
10     "variables": {},
11     "resources": [
12         {
13             "type": "Microsoft.Compute/disks",
14             "apiVersion": "2024-03-02",
15             "name": "[parameters('disk_name')]",
16             "location": "eastus",
17             "sku": {
18                 "name": "Standard_LRS",
19                 "tier": "Standard"
20             },
21             "properties": {
22                 "creationData": {
23                     "createOption": "Empty"
24                 },
25                 "diskSizeGB": 32,
26                 "diskIOPSReadWrite": 500,
27                 "diskMBpsReadWrite": 60,
28                 "encryption": {
29                     "type": "EncryptionAtRestWithPlatformKey"
30                 },
31                 "networkAccessPolicy": "AllowAll",
32                 "publicNetworkAccess": "Enabled",
33                 "dataAccessAuthMode": "None"
34             }
35         }
36     ]
37 }
```

Figure 4. Edit template.

Edit parameters ...

↑ Load file ↓ Download

```
1  {
2      "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentParameters.json#",
3      "contentVersion": "1.0.0.0",
4      "parameters": {
5          "disk_name": {
6              "value": null
7          }
8      }
9  }
```

Figure 5. Edit parameters.

Custom deployment ...

Deploy from a custom template

Select a template Basics Review + create

Summary



Customized template
1 resource

Terms

[Azure Marketplace Terms](#) | [Azure Marketplace](#)

By clicking "Create," I (a) agree to the applicable legal terms associated with the offering; (b) authorize Microsoft to charge or bill my current payment method for the fees associated the offering(s), including applicable taxes, with the same billing frequency as my Azure subscription, until I discontinue use of the offering(s); and (c) agree that, if the deployment involves 3rd party offerings, Microsoft may share my contact information and other details of such deployment with the publisher of that offering.

Microsoft assumes no responsibility for any actions performed by third-party templates and does not provide rights for third-party products or services. See the [Azure Marketplace Terms](#) for additional terms.

Deploying this template will create one or more Azure resources or Marketplace offerings. You acknowledge that you are responsible for reviewing the applicable pricing and legal terms associated with all resources and offerings deployed as part of this template. Prices and associated legal terms for any Marketplace offerings can be found in the [Azure Marketplace](#); both are subject to change at any time prior to deployment.

Neither subscription credits nor monetary commitment funds may be used to purchase non-Microsoft offerings. These purchases are billed separately.

If any Microsoft products are included in a Marketplace offering (e.g. Windows Server or SQL Server), such products are licensed by Microsoft and not by any third party.

Basics

Subscription	Azure subscription 1
Resource group	az104-rg3
Region	East US
Disk_name	az104-disk2

Figure 6. Creating custom deployment.

az104-rg3
Resource group

+ Create
 ⚙️ Manage view
 🗑️ Delete

Overview

- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Events
- Settings
 - Deployments
 - Security
 - Deployment stacks
 - Policies
 - Properties

Essentials

Subscription [\(move\)](#) : [Azure subscription 1](#)

Subscription ID : 415f6f1a-50f7-4a8c-857a-e

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

Resources
Recommendations

Type equals **all**

Showing 1 to 2 of 2 records. ☐ Show hidden 1

☐ **Name** ↑↓

<input type="checkbox"/>	az104-disk1
<input type="checkbox"/>	az104-disk2

Figure 7. Created disks.

az104-rg3 | Deployments
Resource group

↺ Refresh
 ⌂ Cancel
 ↺ Redeploy
 🗑️ Delete
 ⬇️ View template

Overview

- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Events
- Settings
 - Deployments**
 - Security

<input type="radio"/>	Deployment name	Status
<input type="radio"/>	Microsoft.Template-20250320181619	✓ Succeeded
<input type="radio"/>	CreateDiskBlade-20250320175226	✓ Succeeded

Figure 8. Deployments.

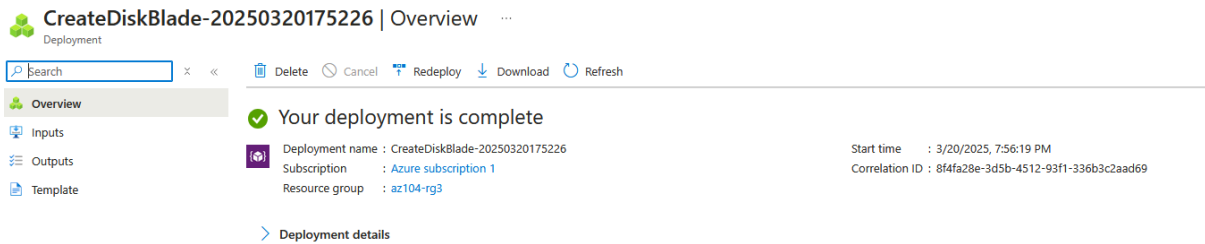


Figure 9. complete deployment.

Task 3: Configure the Cloud Shell and deploy a template with Azure PowerShell.

Cloud Shell:

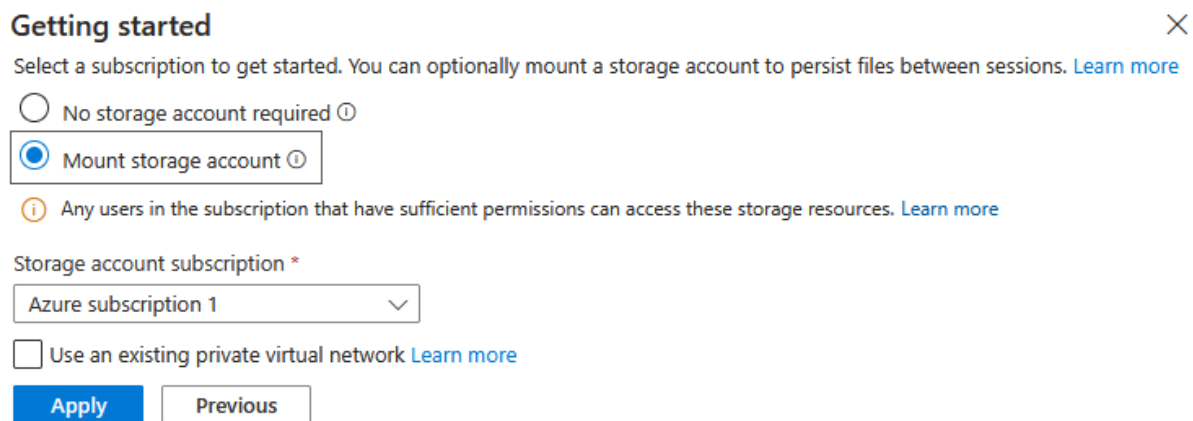


Figure 10. Setting Cloud Shell.

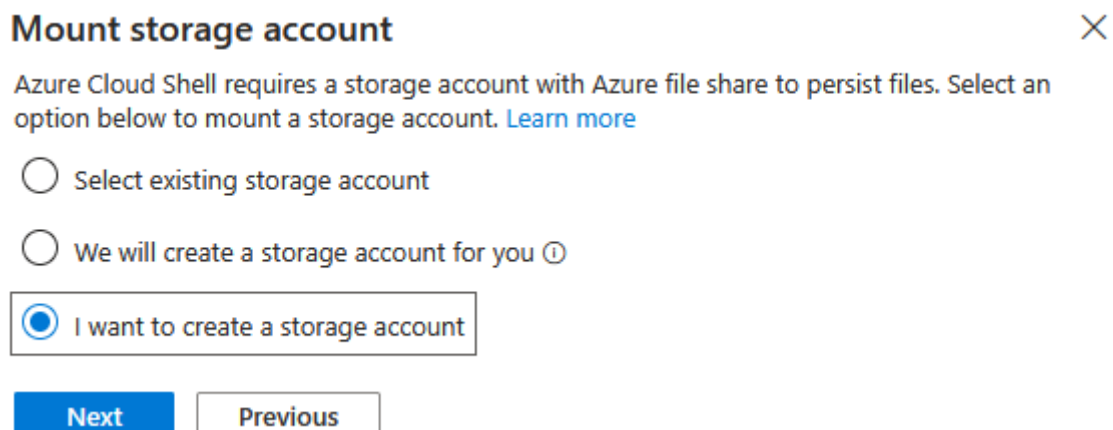


Figure 11. Setting Cloud Shell.

Create storage account

Subscription *

Azure subscription 1

Resource group *

az104-rg3

Region *

(Europe) North Europe

Create a resource group

Storage account name *

vladus43ku

File share *

fs-cloudshell

Create

Previous

Figure 12. Creating a storage account.

Terminal upload status dialog

Upload destination: /home/vladuslav

parameters.json

COMPLETE

template.json

COMPLETE

Figure 13. Uploaded template and parameters.

```

template.json
{
  "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {
    "disks_az104_disk1_name": {
      "defaultValue": "az104-disk3",
      "type": "String"
    }
  }
}

```

Figure 14. Template.

```

PS /home/vladuslav> New-AzResourceGroupDeployment -ResourceGroupName az104-rg3 -TemplateFile template.json -TemplateParameterFile parameters.json

DeploymentName      : template
ResourceGroupName  : az104-rg3
ProvisioningState   : Succeeded
Timestamp          : 3/20/2025 6:28:05 PM
Mode               : Incremental
TemplateLink        :
Parameters          :
                    Name                        Type                        Value
                    =====
                    disks_az104_disk1_name      String                     "az104-disk3"

Outputs
DeploymentDebugLogLevel :

```

Figure 15. deployed to a resource group.

```

ResourceGroupName      : AZ104-RG3
ManagedBy             :
ManagedByExtended     : {}
Sku                    : Microsoft.Azure.Management.Compute.Models.DiskSku
Zones                  :
TimeCreated            : 3/20/2025 6:27:59 PM
OsType                 :
HyperVGeneration       :
CreationData           : Microsoft.Azure.Management.Compute.Models.CreationData
DiskSizeGB             : 32
DiskSizeBytes          : 34359738368
UniqueId               : d38742ca-fede-446f-aaf6-b6bc3ae100cc
EncryptionSettingsCollection :
ProvisioningState       : Succeeded
DiskIOPSReadWrite       : 500
DiskMBpsReadWrite       : 60
DiskIOPSReadOnly        :
DiskMBpsReadOnly        :
DiskState               : Unattached
Encryption              : Microsoft.Azure.Management.Compute.Models.Encryption
MaxShares               :
ShareInfo               : {}
Id                      : /subscriptions/415f6f1a-50f7-4a8c-857a-eaa331f34e4d/resourceGroups/AZ104-RG3/providers/Microsoft.Compute/disks/az104-disk3
Name                    : az104-disk3
Type                    : Microsoft.Compute/disks
Location                : eastus
ExtendedLocation        :
Tags                    : {}
NetworkAccessPolicy     : AllowAll
DiskAccessId            :
Tier                    :
BurstingEnabled         :
PurchasePlan            :
SupportsHibernation     :
SecurityProfile         :
PublicNetworkAccess     : Enabled
SupportedCapabilities    :
DataAccessAuthMode      : None
CompletionPercent       :
OptimizedForFrequentAttach :

```

Figure 16. Created disk.

Task 4: Deploy a template with the CLI.

Bash:

```

Requesting a Cloud Shell.Succeeded.
Connecting terminal...

Storage fileshare subscription 415f6f1a-50f7-4a8c-857a-eaa3
ons will have restricted access to CloudShell service.

vladuslav [ ~ ]$ ls
clouddrive Microsoft parameters.json template.json
vladuslav [ ~ ]$

```

Figure 17. Switch to Bash.

```
template.json
{
  "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {
    "disks_az104_disk1_name": {
      "defaultValue": "az104-disk4",
      "type": "String"
    }
  }
},
```

Figure 18. Template.

```
vladuslav [ ~ ]$ az deployment group create --resource-group az104-rg3 --template-file template.json --parameters parameters.json
{
  "id": "/subscriptions/415f6f1a-50f7-4a8c-857a-eea331f34e4d/resourceGroups/az104-rg3/providers/Microsoft.Resources/deployments/template",
  "location": null,
  "name": "template",
  "properties": {
    "correlationId": "37bcf9e1-12f3-4a8b-84cb-0e1b4e4ebee5",
    "debugSetting": null,
    "dependencies": [],
    "duration": "PT6.929174S",
    "error": null,
    "mode": "Incremental",
    "onErrorDeployment": null,
    "outputResources": [
      {
        "id": "/subscriptions/415f6f1a-50f7-4a8c-857a-eea331f34e4d/resourceGroups/az104-rg3/providers/Microsoft.Compute/disks/az104-disk4",
        "resourceGroup": "az104-rg3"
      }
    ],
    "outputs": null,
    "parameters": {
      "disks_az104_disk1_name": {
        "type": "String",
        "value": "az104-disk4"
      }
    },
    "parametersLink": null,
    "providers": [
      {
        "id": null,
        "namespace": "Microsoft.Compute",
        "providerAuthorizationConsentState": null,
        "registrationPolicy": null,
        "registrationState": null,
        "resourceTypes": [
          {
            "aliases": null,
            "apiProfiles": null,
            "apiVersions": null,
            "capabilities": null,
            "defaultApiVersion": null,
```

Figure 19. deployed to a resource group.

```
vladuslav [ ~ ]$ az disk list --output table
Name ResourceGroup Location Zones Sku SizeGb ProvisioningState
-----
az104-disk1 AZ104-RG3 eastus Standard_LRS 32 Succeeded
az104-disk2 AZ104-RG3 eastus Standard_LRS 32 Succeeded
az104-disk3 AZ104-RG3 eastus Standard_LRS 32 Succeeded
az104-disk4 AZ104-RG3 eastus Standard_LRS 32 Succeeded
```

Figure 20. Disk.

Task 5: Deploy a resource by using Azure Bicep.

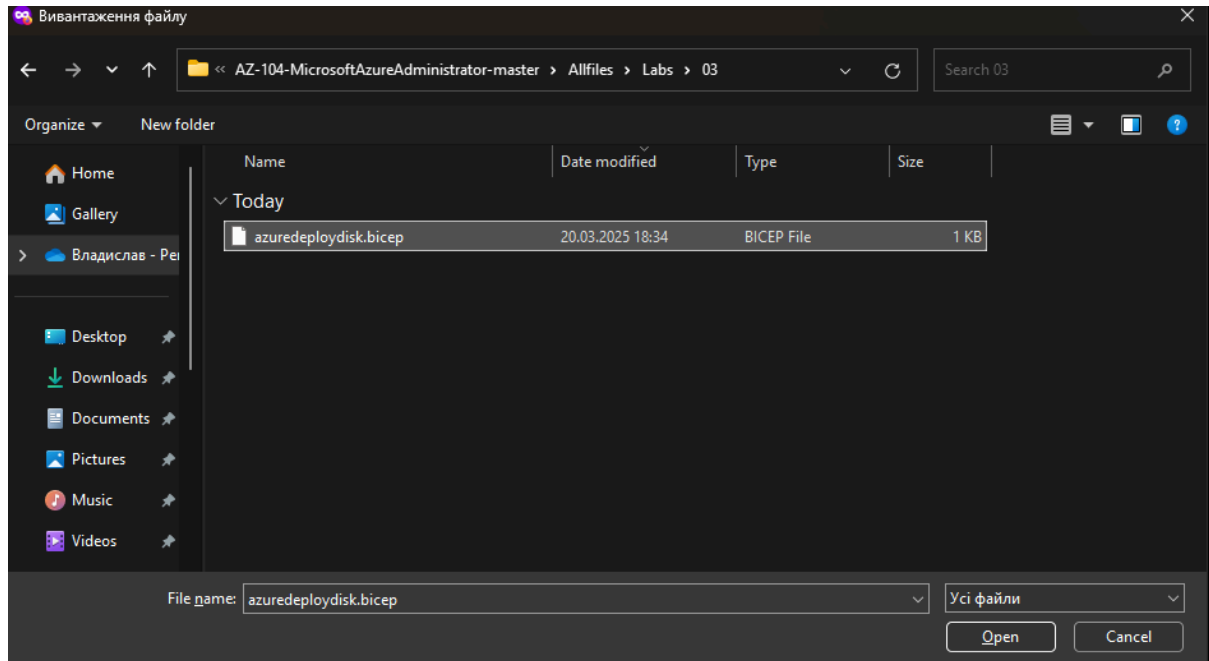


Figure 21. Upload the bicep file.

Upload destination: /home/vladuslav

azuredeploydisk.bicep **COMPLETE**

Figure 22. Uploaded the bicep file.

```

azuredeploydisk.bicep

@description('Name of the managed disk to be copied')
param managedDiskName string = 'Disk4'

@description('Disk size in GiB')
@minValue(4)
@maxValue(65536)
param diskSizeinGiB int = 32

@description('Disk IOPS value')
@minValue(100)
@maxValue(160000)
param diskIopsReadWrite int = 100

@description('Disk throughput value in MBps')
@minValue(1)
@maxValue(2000)
param diskMbpsReadWrite int = 10

@description('Location for all resources.')
param location string = resourceGroup().location

resource managedDisk 'Microsoft.Compute/disks@2020-09-30' = {
  name: managedDiskName
  location: location
  sku: {
    name: 'StandardSSD_LRS'
  }
  properties: {
    creationData: {
      createOption: 'Empty'
    }
    diskSizeGB: diskSizeinGiB
    diskIOPSReadWrite: diskIopsReadWrite
    diskMbpsReadWrite: diskMbpsReadWrite
  }
}

```

Figure 23. Azuredeploydisk.bicep.

```

vladuslav [ ~ ]$ az deployment group create --resource-group az104-rg3 --template-file azuredeploydisk.bicep
The configuration value of bicep.use_binary_from_path has been set to 'false'.
{
  "id": "/subscriptions/415f6f1a-50f7-4a8c-857a-eea331f34e4d/resourceGroups/az104-rg3/providers/Microsoft.Resources/deployments/azuredeploydisk",
  "location": null,
  "name": "azuredeploydisk",
  "properties": {
    "correlationId": "0b4dfb54-27f5-4f5c-b334-50c0fd254832",
    "debugSetting": null,
    "dependencies": [],
    "duration": "PT7.5540524S",
    "error": null,
    "mode": "Incremental",
    "onErrorDeployment": null,
    "outputResources": [
      {
        "id": "/subscriptions/415f6f1a-50f7-4a8c-857a-eea331f34e4d/resourceGroups/az104-rg3/providers/Microsoft.Compute/disks/Disk4",
        "resourceGroup": "az104-rg3"
      }
    ],
    "outputs": null,
    "parameters": {
      "diskIopsReadWrite": {
        "type": "Int",
        "value": 100
      },
      "diskMbpsReadWrite": {
        "type": "Int",
        "value": 10
      },
      "diskSizeinGiB": {
        "type": "Int",
        "value": 32
      }
    },
    "location": {
      "type": "String",
      "value": "eastus"
    }
  }
}

```

Figure 24. deployed to a resource group.

```

vladuslav [ ~ ]$ az disk list --output table

```

Name	ResourceGroup	Location	Zones	Skus	SizeGb	ProvisioningState
az104-disk1	AZ104-RG3	eastus		Standard_LRS	32	Succeeded
az104-disk2	AZ104-RG3	eastus		Standard_LRS	32	Succeeded
az104-disk3	AZ104-RG3	eastus		Standard_LRS	32	Succeeded
az104-disk4	AZ104-RG3	eastus		Standard_LRS	32	Succeeded
Disk4	AZ104-RG3	eastus		StandardSSD_LRS	32	Succeeded

```

vladuslav [ ~ ]$

```

Figure 25. Disk.