

AZ-104 *Tag 2*

Administer Azure Resources

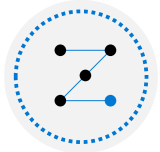
Guten Morgen!



About this course: Course Outline



01: Administer Identity

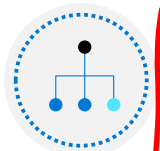


02: Administer Governance and Compliance



03: Administer Azure Resources

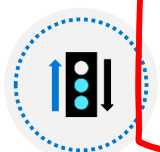
Tools



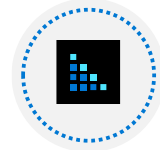
04: Administer Virtual Networking



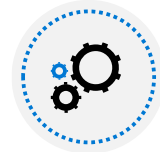
05: Administer Intersite Connectivity



06: Administer Network Traffic Management



07: Administer Azure Storage



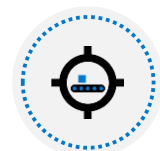
08: Administer Azure Virtual Machines



09: Administer PaaS Compute Options



10: Administer Data Protection



11: Administer Monitoring

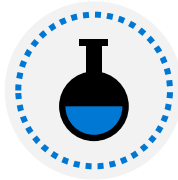
Administer Azure Resources Introduction



[Configure Azure Resources with Tools](#)



[Configure Resources with ARM Templates](#)

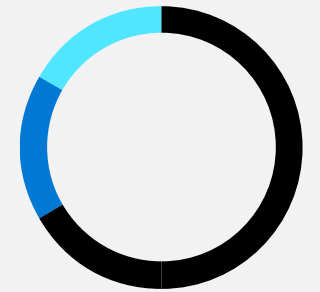


[Lab 03b - Manage Azure resources by Using ARM Templates](#)

[Lab 03c - Manage Azure resources by Using Azure PowerShell \(optional\)](#)

[Lab 03d - Manage Azure resources by Using Azure CLI \(optional\)](#)

Configure Azure Resources with Tools



Configure Azure Resources with Tools Introduction

- Compare Administration tools (4 student topics)
- Demonstration – Azure Portal
- Demonstration – Azure Cloud Shell
Linux
- Summary and Resources
SHB

PowerShell
Bash

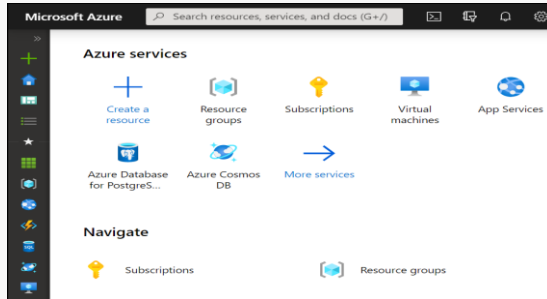
Azure
CLI
PowerShell
Modules

✓
X
✓

az group list
Binary

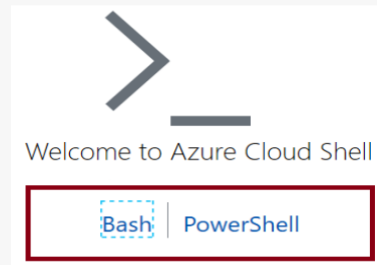
Compare Administrator tools

Azure Portal



- View and manage resources
- Visual interface
- Unified hub – training and documentation
- Personalize your experience
- Mobile app
- Access the Cloud Shell
- One-off creation scenarios

Azure Cloud Shell



- Interactive and browser-accessible
- Offers Bash or PowerShell
- Authenticates automatically
- Provided on a per-session and per-user basis
- Temporary - times out after 20 minutes

Azure PowerShell and CLI

Azure

```
az vm restart -g  
MyResourceGroup -n MyVm
```

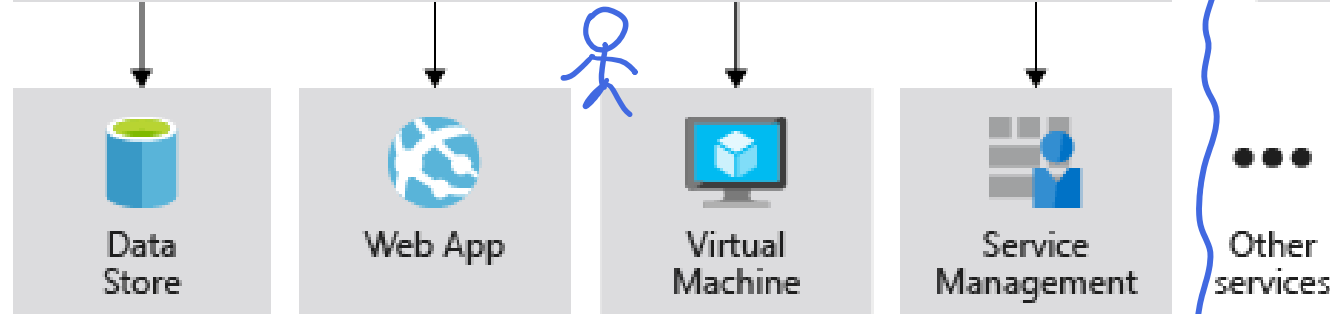
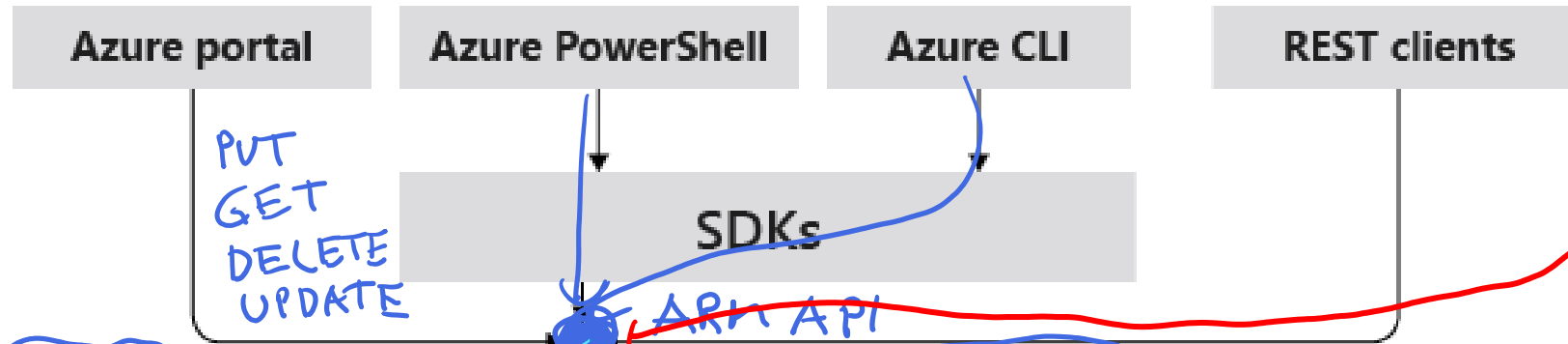
- Command line programs
- Interactive and scripting modes
- Cross-platform
- Good for repeatable deployments
- Familiar coding experience

ARM



Azure Resource Manager

ARM Template

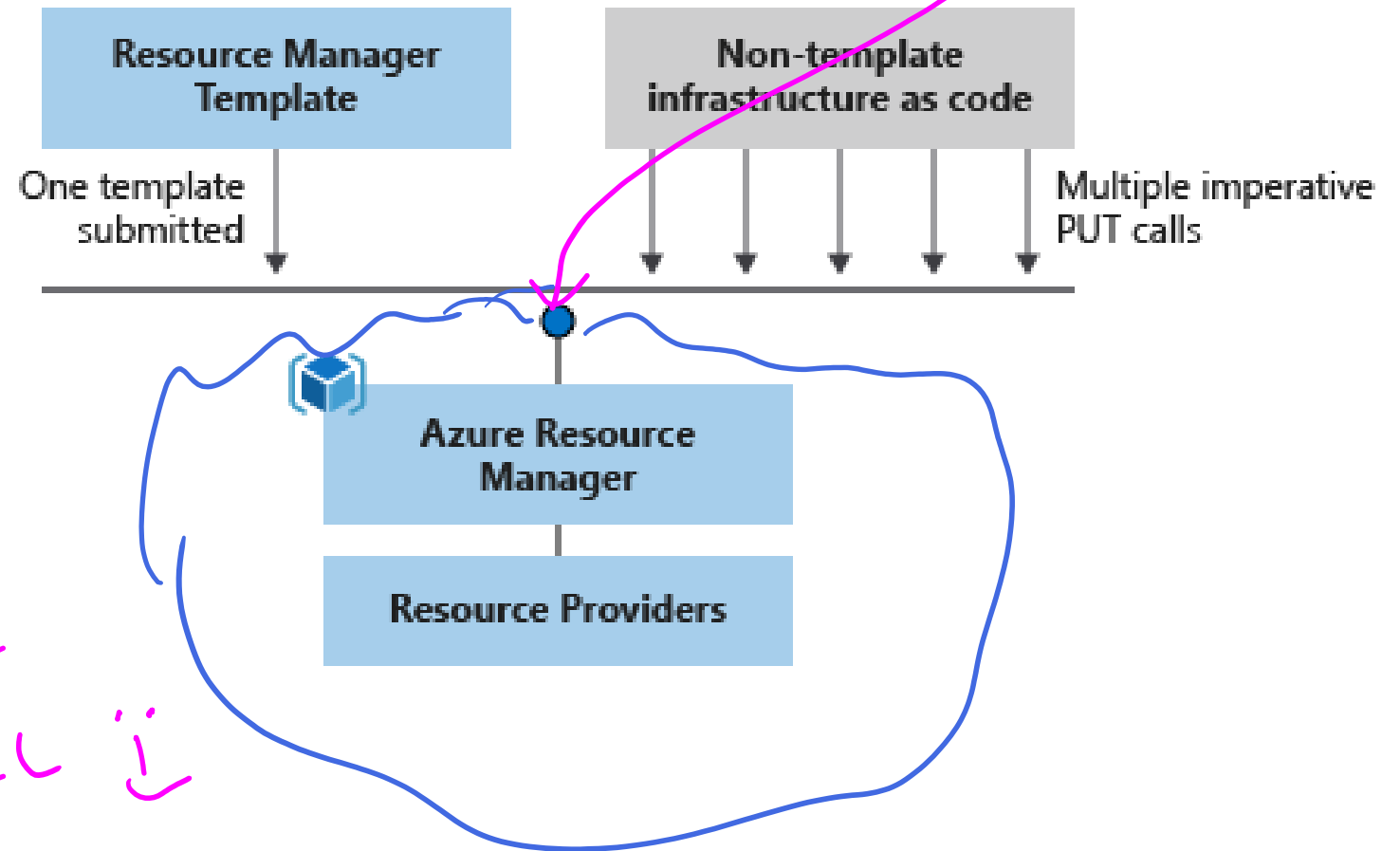


The **Azure Resource Manager (ARM)** provides a management layer that enables you to create, update, and delete resources in your Azure subscription.

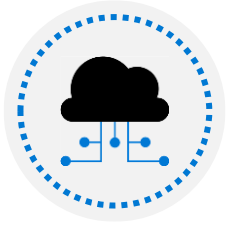
Azure Resource Manager (ARM) templates

Azure Resource Manager (ARM) templates are JavaScript Object Notation (JSON) files that can be used to create and deploy Azure infrastructure without having to write programming commands.

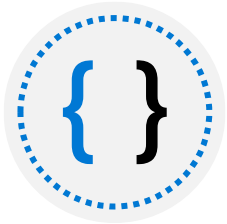
- Declarative syntax
- Repeatable results
- Orchestration
- Modular files
- Built-in validation
- Exportable code



Demonstration – Azure Portal

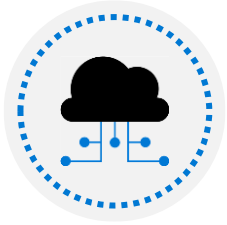


Help and keyboard shortcuts



Customizing your experience

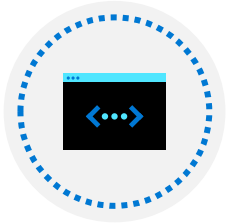
Demonstration – Cloud Shell



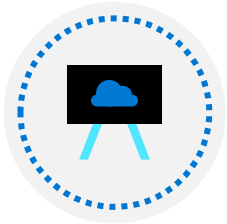
Configure the Cloud Shell



Experiment with Azure PowerShell



Experiment with Bash shell



Experiment with the Cloud Editor

Summary and Resources – Configure Azure Resources with Tools

Knowledge Check Questions



Microsoft Learn Modules (docs.microsoft.com/Learn)

[Manage services with the Azure portal \(Sandbox\)](#)

[Introduction to PowerShell \(Sandbox\)](#)

[Control Azure services with the CLI \(Sandbox\)](#)

[Control and organize Azure resources with Azure Resource Manager](#)

A sandbox indicates a hands-on exercise.

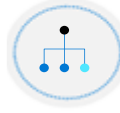
Configure Resources with ARM Templates



Configure Resources with ARM Templates Introduction



Review ARM Template Advantages



Explore the JSON Template Schema



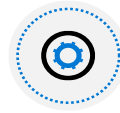
Explore the JSON Template Parameters



Consider Azure Bicep Files



Demonstration – QuickStart Templates



Demonstration – Run Templates with PowerShell (optional)



Summary and Resources

Review ARM Template Advantages

Improves consistency and promotes reuse

Reduce manual, error prone, and repetitive tasks

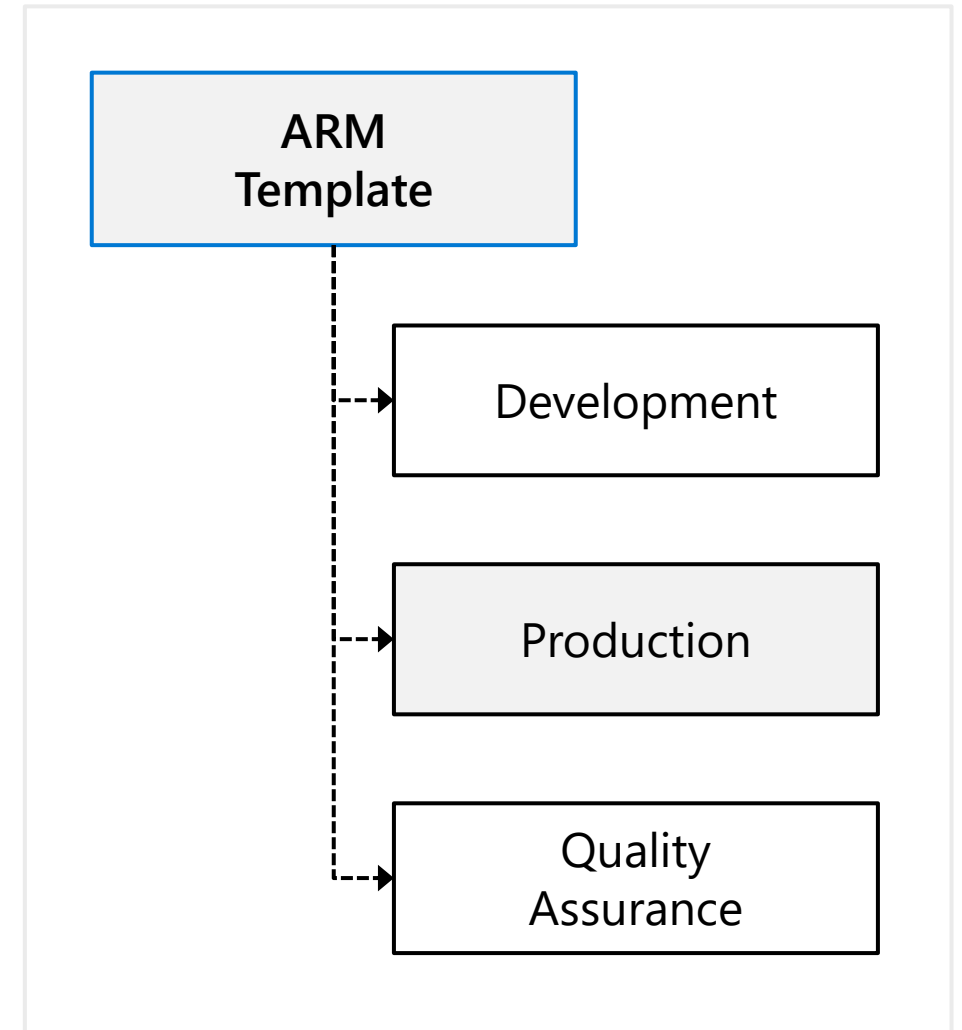
Express complex deployments

Express requirements through code

Provides validation tasks

Modular and can be linked

Simplifies orchestration



Explore the JSON Template Schema

Defines all the Resource manager resources in a deployment

Written in JSON

A collection of key-value pairs

Each key is a string

Each value can be a string, number, Boolean expression, list of values, object

```
{
  "$schema":
    "http://schema.management.
    azure.com/schemas/2019-04-
    01/deploymentTemplate.json#",
  "contentVersion": "",
  "parameters": {},
  "variables": {},
  "functions": [],
  "resources": [],
  "outputs": {}
}
```

Explore the JSON Template Parameters

Specify which values are configurable when the template runs

This example has two parameters: one for a VM's username (adminUsername), and one for its password (adminPassword)

```
"parameters": {  
  "adminUsername": {  
    "type": "string",  
    "metadata": {  
      "description": "Username for the VM."  
    }  
  },  
  "adminPassword": {  
    "type": "securestring",  
    "metadata": {  
      "description": "Password for the VM."  
    }  
  }  
}
```


Consider Azure Bicep Files

Simpler syntax for writing templates

Smaller module files you can reference from a main template

Automatically detect dependencies between your resources

Visual Studio Code extension with validation and IntelliSense

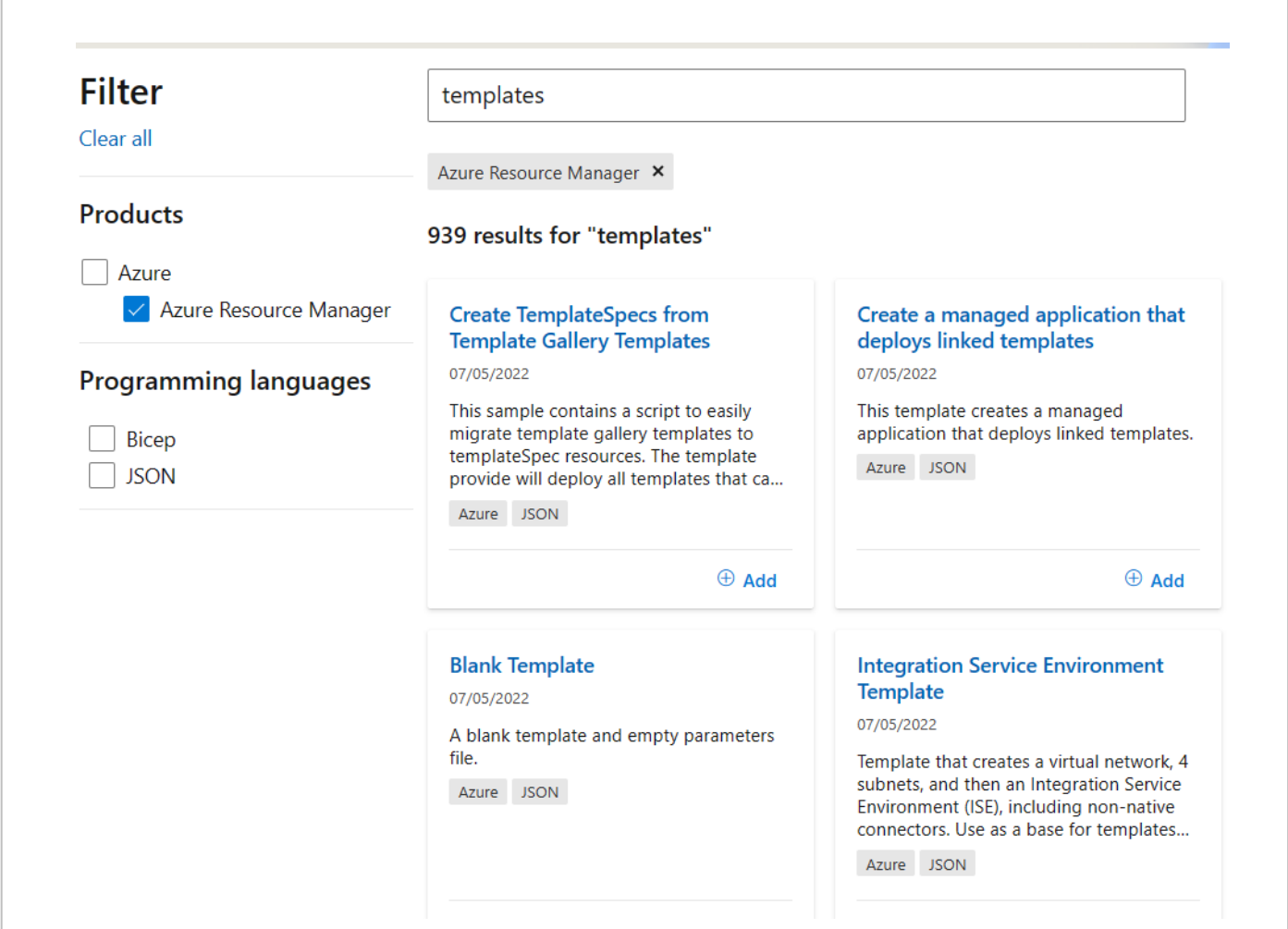
Bicep file

```
resource storageAccount
'Microsoft.Storage/storageAccounts@
2021-01-01' = {
  name: storageAccountName
  location: location
  tags: {
    displayName: storageAccountName
  }
  kind: 'StorageV2'
  sku: {
    name: 'Standard_LRS'
  }
}
```



Demonstration - Quickstart templates

- ✓ Explore the QuickStart gallery
- ✓ Explore a template



The screenshot displays the Azure Quickstart templates gallery interface. On the left, there is a 'Filter' section with a search bar containing the text 'templates'. Below the search bar, there are two filter categories: 'Products' and 'Programming languages'. Under 'Products', 'Azure Resource Manager' is selected with a blue checkmark, while 'Azure' is unselected. Under 'Programming languages', 'Bicep' and 'JSON' are both unselected. The main area shows '939 results for "templates"'. Four template cards are visible, each with a title, a date (07/05/2022), a description, and tags for 'Azure' and 'JSON'. The first card is titled 'Create TemplateSpecs from Template Gallery Templates', the second 'Create a managed application that deploys linked templates', the third 'Blank Template', and the fourth 'Integration Service Environment Template'. Each card has an 'Add' button with a plus icon in the bottom right corner.

Filter

Clear all

Products

☐ Azure

☒ Azure Resource Manager

Programming languages

☐ Bicep

☐ JSON

templates

Azure Resource Manager ✕

939 results for "templates"

Create TemplateSpecs from Template Gallery Templates

07/05/2022

This sample contains a script to easily migrate template gallery templates to templateSpec resources. The template provide will deploy all templates that ca...

Azure JSON

⊕ Add

Create a managed application that deploys linked templates

07/05/2022

This template creates a managed application that deploys linked templates.

Azure JSON

⊕ Add

Blank Template

07/05/2022

A blank template and empty parameters file.

Azure JSON

Integration Service Environment Template

07/05/2022

Template that creates a virtual network, 4 subnets, and then an Integration Service Environment (ISE), including non-native connectors. Use as a base for templates...

Azure JSON

Summary and Resources

Knowledge Check Questions



Microsoft Learn Modules (docs.microsoft.com/Learn)

[Create Azure resources using Azure Resource Manager templates](#)

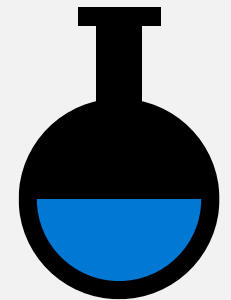
[Deploy Azure infrastructure by using JSON ARM templates \(Sandbox\)](#)

[Introduction to infrastructure as code using Bicep](#)

[Build your first Bicep template \(Sandbox\)](#)

A sandbox indicates a hands-on exercise.

Lab 03b - Manage Azure resources by Using ARM Templates
Lab 03c - Manage Azure resources by Using Azure PowerShell (optional)
Lab 03d - Manage Azure resources by Using Azure CLI (optional)



Lab 03b – Manage Azure resources with templates

Lab scenario

Now that you explored the basic Azure administration capabilities associated with provisioning resources and organizing them based on resource groups by using the Azure portal, you need to carry out the equivalent task by using Azure Resource Manager templates

Objectives

Task 1:

Review an ARM template for deployment of an Azure managed disk

Task 2:

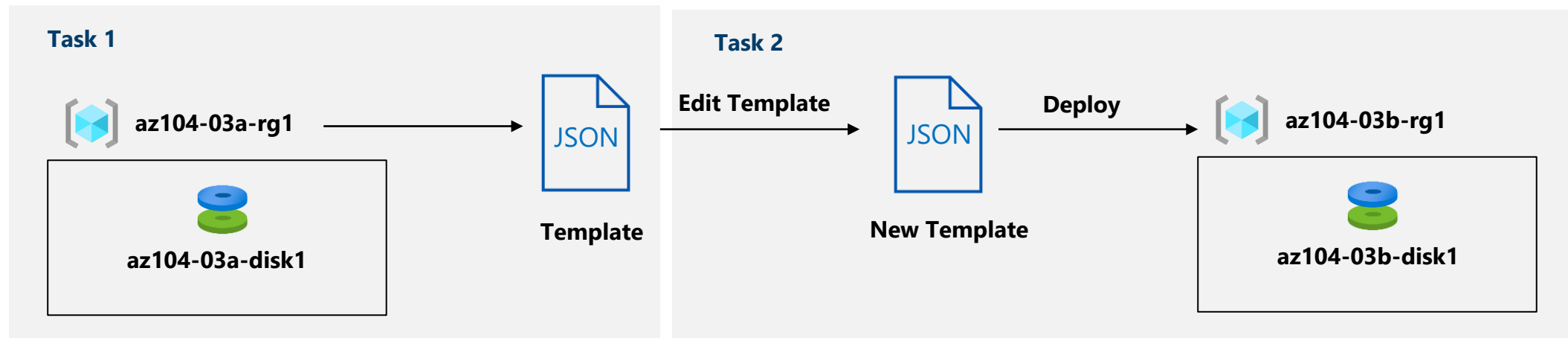
Create an Azure managed disk by using an ARM template

Task 3:

Review the ARM template-based deployment of the managed disk

Next slide for an architecture diagram 

Lab 03b – Architecture diagram



Lab 03c – Manage Azure resources with PowerShell (optional)

Lab scenario

Now that you explored the basic Azure administration capabilities associated with provisioning resources and organizing them based on resource groups by using the Azure portal and Azure Resource Manager templates, you want the equivalent tasks with Azure PowerShell. To avoid installing Azure PowerShell modules, you will leverage the Azure Cloud Shell

Objectives

Task 1:

Start a PowerShell session in Azure Cloud Shell

Task 2:

Create a resource group and an Azure managed disk with Azure PowerShell

Task 3:

Configure the managed disk by using Azure PowerShell

Next slide for an architecture diagram 

Lab 03c – Architecture diagram

Task 1, Task 2, Task 3



az104-03c-rg1



az104-03c-disk1

Lab 03d – Manage Azure resources with the Azure CLI (optional)

Lab scenario

Now that you explored the basic Azure administration capabilities associated with provisioning resources and organizing them based on resource groups by using the Azure portal, Azure Resource Manager templates, and Azure PowerShell, you need to carry out the equivalent task by using Azure CLI. To avoid installing Azure CLI, you will leverage Bash environment available in Azure Cloud Shell

Objectives

Task 1:

Start a Bash session in Azure Cloud Shell

Task 2:

Create a resource group and a managed disk by using Azure CLI

Task 3:

Configure the managed disk by using Azure CLI

Next slide for an architecture diagram 

Lab 03d – Architecture diagram

Task 1, Task 2, Task 3



az104-03d-rg1



az104-03d-disk1

End of presentation

