

AZ-104 *Tag 2*

Administer Azure Resources

Guten Morgen!



AZ-104 Course Outline

- 01: Administer Identity
- 02: Administer Governance and Compliance
- 03: Administer Azure Resources
- 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



Tools



API

Microsoft Graph
(MSAL)

~~ADAL~~

LB AppGW
FD
TM

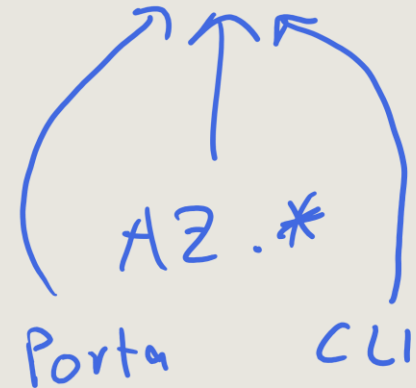
12³⁰ - 13³⁰

Azure



API

ARM



Learning Objectives - Azure Resources

- Configure Azure Resources with Tools
 - Manage services with the Azure portal
 - Introduction to PowerShell
 - Introduction to Bash
- Configure Resources with ARM Templates
- Lab 03b - Manage Azure resources by Using ARM Templates

Configure Azure Resources with the Azure Portal, PowerShell, and the CLI



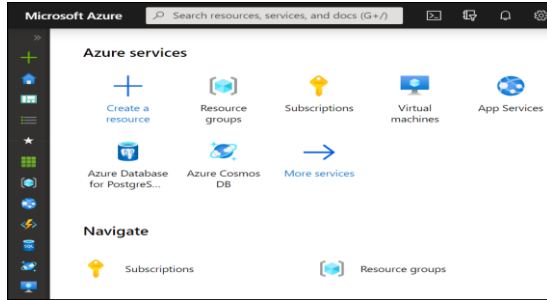
Compare Administrator tools

Browser
VS code
Terminal
Terminal
(+ + y)

PowerShell | Bash
ACI Container
Linux

Storage &
File (optionally)

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

Welcome to Azure Cloud Shell

Bash | PowerShell

- Interactive and browser-accessible with file storage
- 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

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

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

Review Resource Manager Benefits

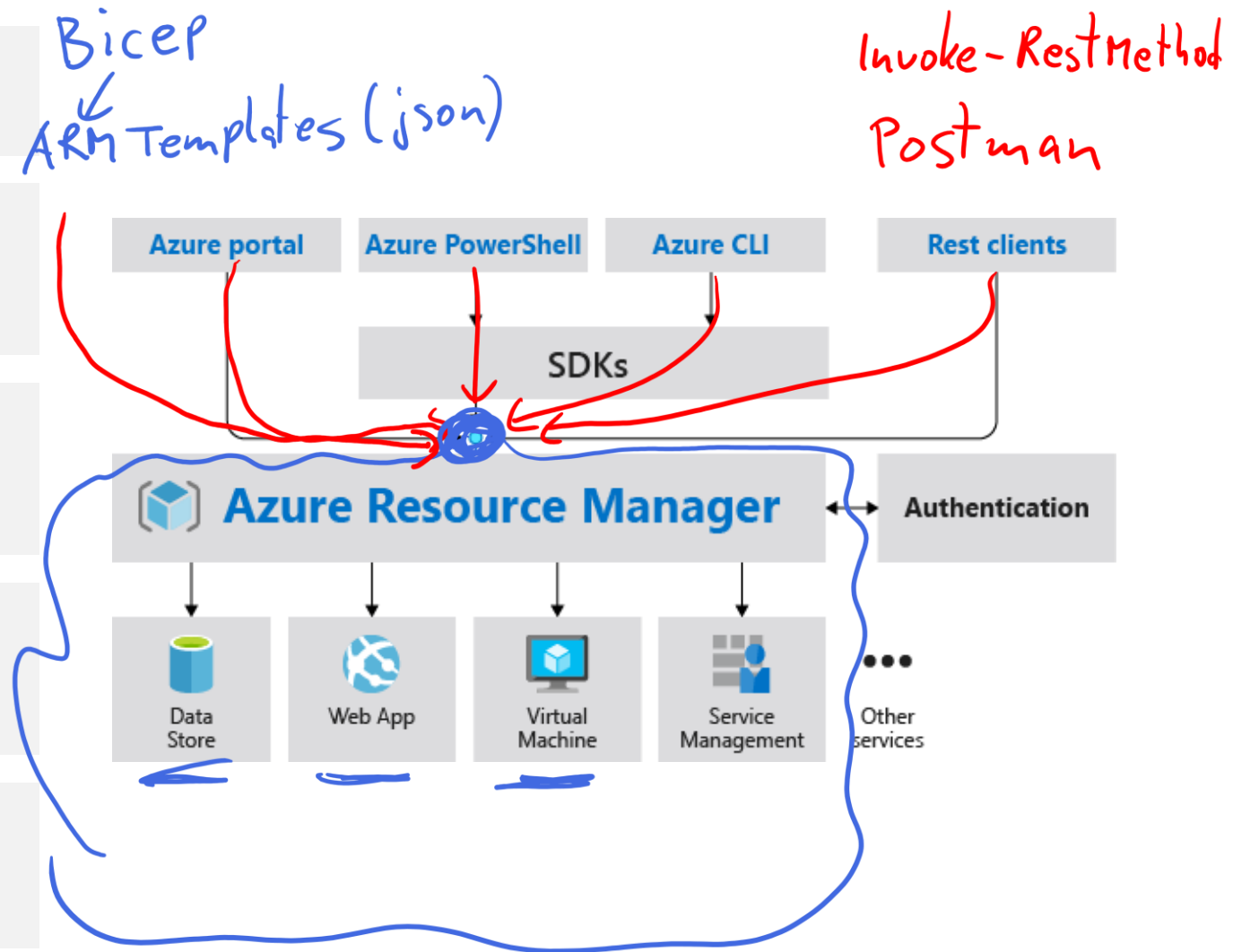
Provides a consistent management layer

Enables you to work with the resources in your solution as a group

Deploy, update, or delete in a single, coordinated operation

Provides security, auditing, and tagging features

Choose the tools and APIs that work best for you



Use Azure Cloud Shell

Interactive, browser-accessible shell

Offers either Bash or PowerShell

Is temporary and provided on a per-session, per-user basis

Requires a resource group, storage account, and Azure File share

Authenticates automatically

Integrated graphical text editor

Is assigned one machine per user account

Times out after 20 minutes



Welcome to Azure Cloud Shell

Bash

PowerShell

Use Azure PowerShell

```
New-AzVm `
  -ResourceGroupName "CrmTestingResourceGroup" `
  -Name "CrmUnitTests" `
  -Image "UbuntuLTS" `
  ...
```

- Connect to your Azure subscription and manage resources
- Adds the Azure-specific commands
- Available inside a browser via the Azure Cloud Shell
- Available as a local installation on Linux, macOS, or Windows
- Has an interactive and a scripting mode

Use Azure CLI

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

- Cross-platform command-line program
- Runs on Linux, macOS, and Windows
- Can be used interactively or through scripts
- Commands are structured in *_groups_* and *_subgroups_*
- Use *find* to locate commands
- Use *--help* for more detailed information

Learning Recap – Azure Resources with Tools



**Check your
knowledge
questions and
additional
study**

- Manage services with the Azure portal
- Introduction to PowerShell
- Introduction to Bash
- Use Azure Resource Manager

Terraform
HCL

open TOFU
Hashicorp C IBM

AzureRM

Infra as Code

IaC

"Semper idem!" idem potent

Configure Resources with ARM Templates (json)

Bicep

ARM API
+ AccessToken

Azure

New-AzResourceGroupDeployment

-TemplateFile
main.bicep

Review ARM Template Advantages

Improves consistency and promotes reuse

Reduce manual, error prone, and repetitive tasks

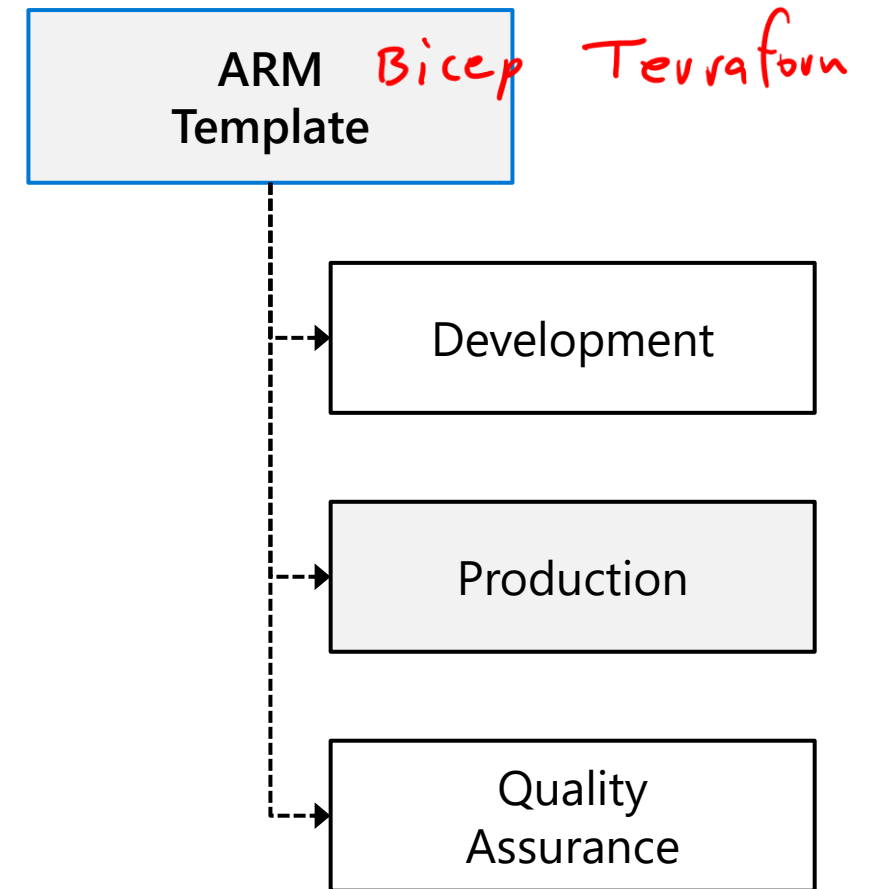
Express complex deployments

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 *mit functions*

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": {}
}
```

Annotations: Red arrows point to the URL, "contentVersion", and the closing quote of the URL. A blue arrow points to the "parameters" object. The "resources" array is circled in blue.

Explore the JSON Template Parameters

2. Datei

- Specifies 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'
  }
}
```



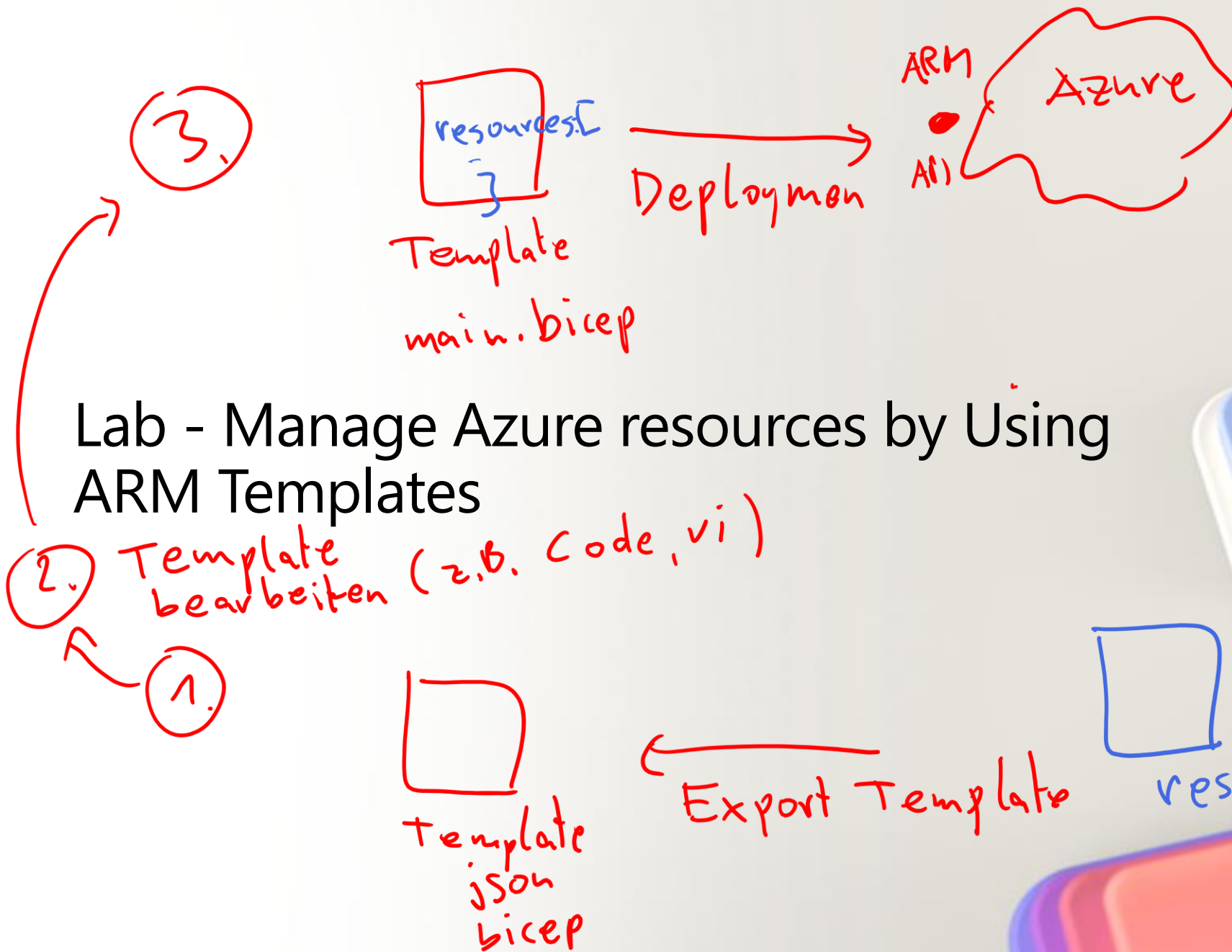
Learning Recap – Azure Resource Manager templates



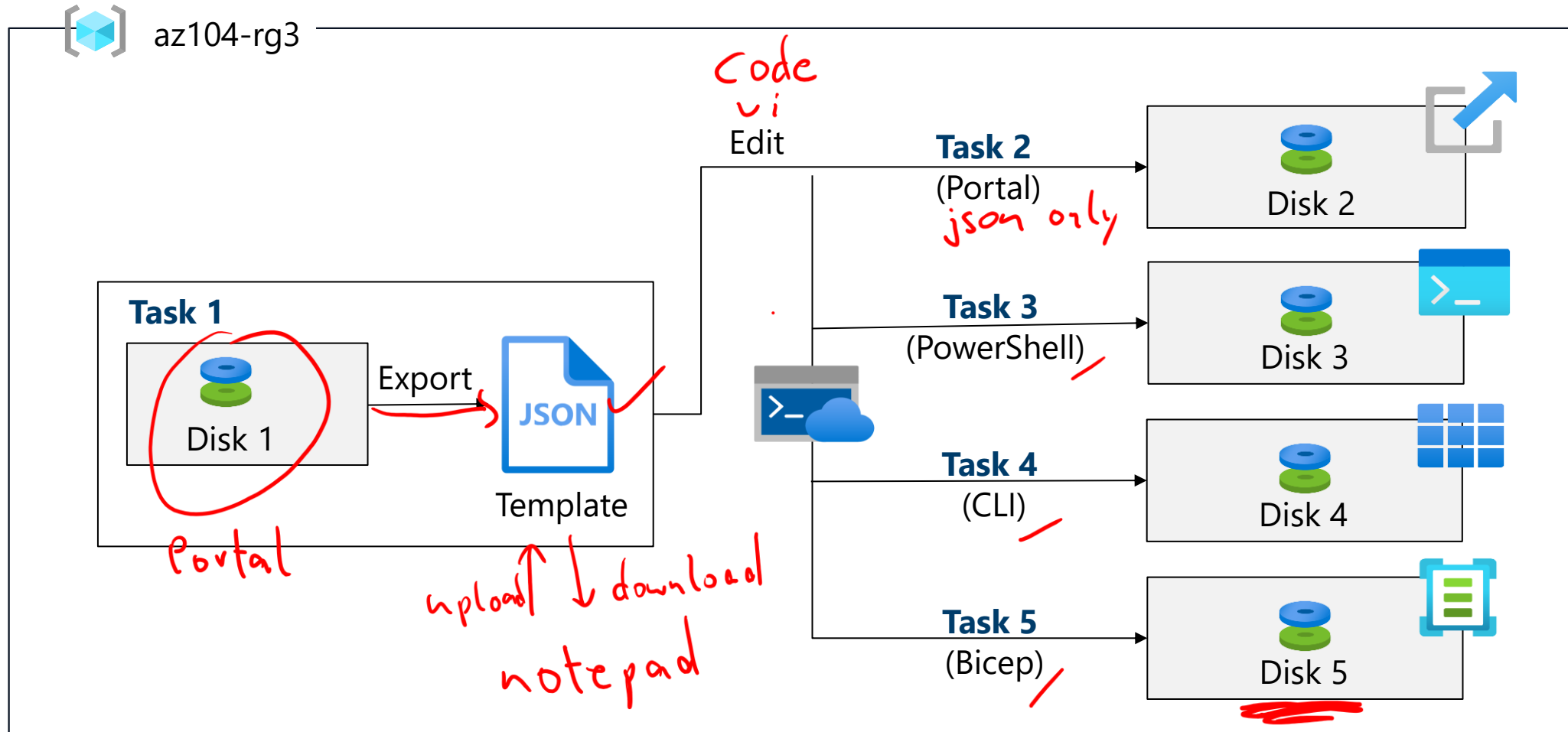
**Check your
knowledge
questions and
additional
study**

- Create Azure resources using Azure Resource Manager templates
- Deploy Azure infrastructure by using JSON ARM templates
- Introduction to infrastructure as code using Bicep
- Build your first Bicep template

Lab - Manage Azure resources by Using ARM Templates



Lab 03 – Architecture diagram



End of presentation

