

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

Tool

Cloud Shell (ACI)
PowerShell | Azure CLI

~~Lab 5~~

Lab 6 !

AZ-700
Applied Skills
Praktische Prüfung
No Risk
2h max
No Costs
72h
warten
66%

Infra as Code

Azure only

ARM
Template

Bicep

json

ARM
API

Terraform
Hashicorp

HCL

Learning Objectives - Azure Resources

- Configure Azure Resources with Tools ✓
- Configure Resources with ARM Templates ✓ *Bicep* ///
- Lab 03a - Manage Azure resources by Using the Azure Portal ↵
- 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) ↵

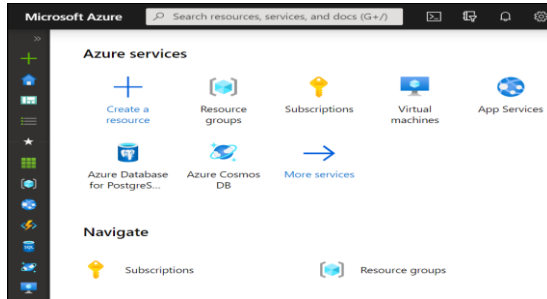
Configure Azure Resources with Tools



Compare Administrator tools

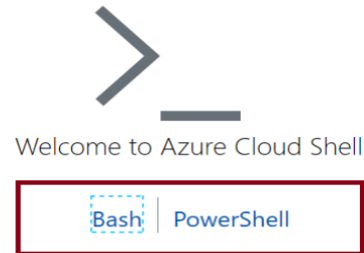
u, v, w.

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

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

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

json

Review Resource Manager Benefits

Provides a consistent management layer

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

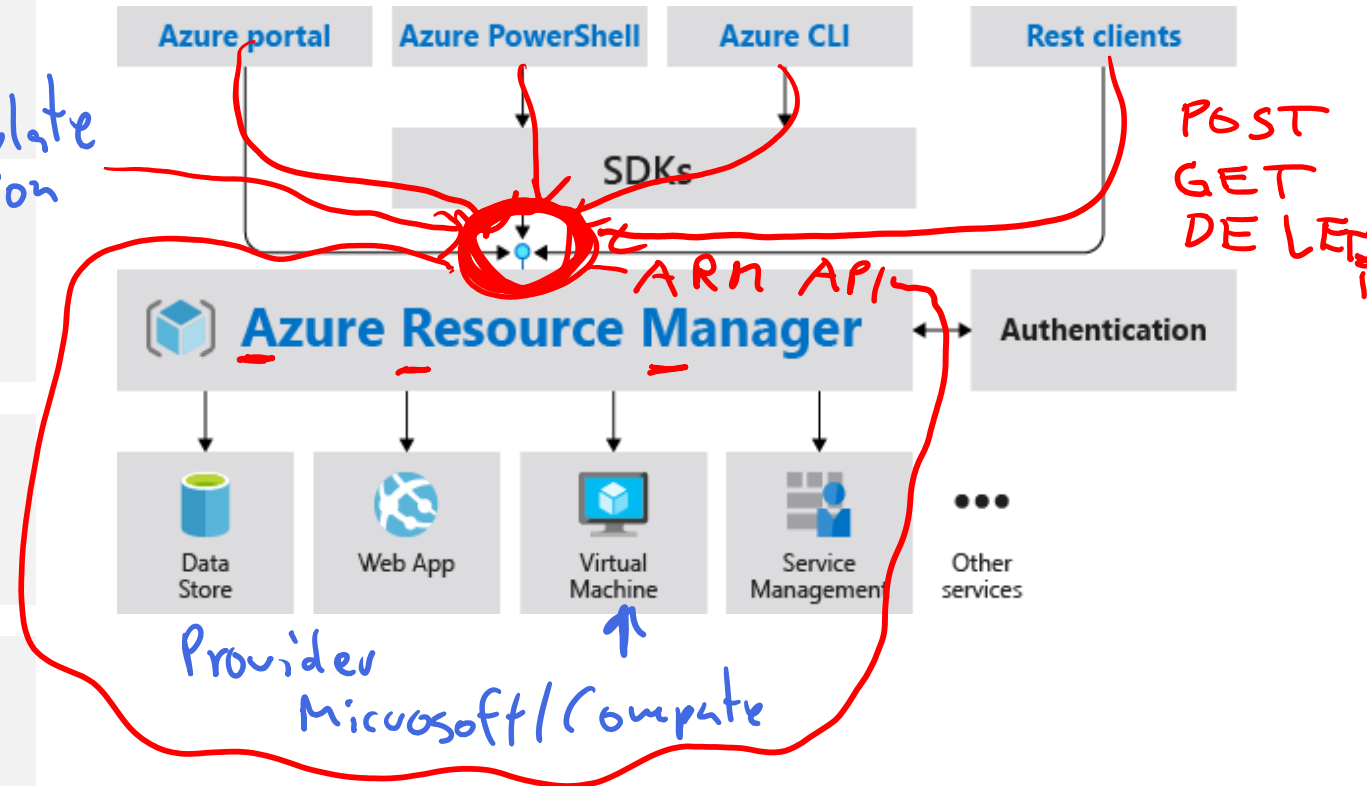
Deploy, update, or delete in a single, coordinated operation

Provides security, auditing, and tagging features

Choose the tools and APIs that work best for you

M365 ADAL (dd)
Microsoft Graph API
Postman

Bicep → ARM Template json



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

= module Az

Az.Accounts
Az.*

New-AzVm

-ResourceGroupName "CrmTestingResourceGroup"
-Name "CrmUnitTests"
-Image "UbuntuLTS"

Back Tic

Back Slash

...

- 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

Find-Module Az

Use Azure CLI

new
show
list

json

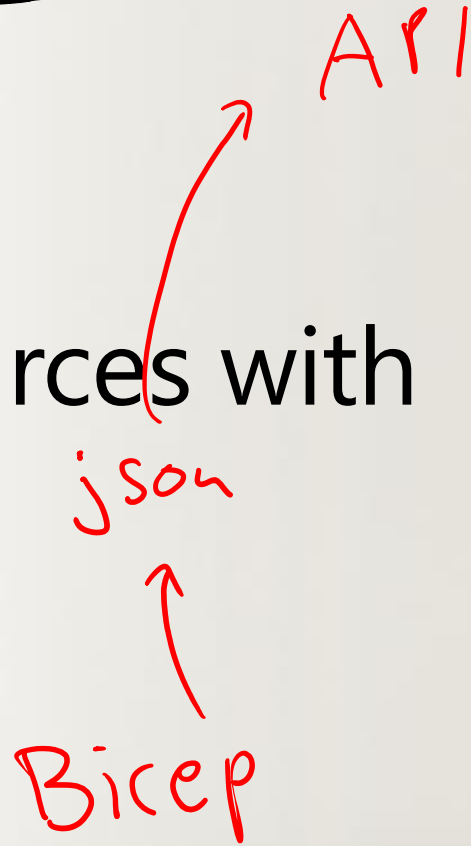
```
az vm restart -g MyResourceGroup -n MyVm
```

- 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

Infra as Code

Configure Resources with ARM Templates

API
json
Bicep



Review ARM Template Advantages

Improves consistency and promotes reuse

Reduce manual, error prone, and repetitive tasks

Express complex deployments

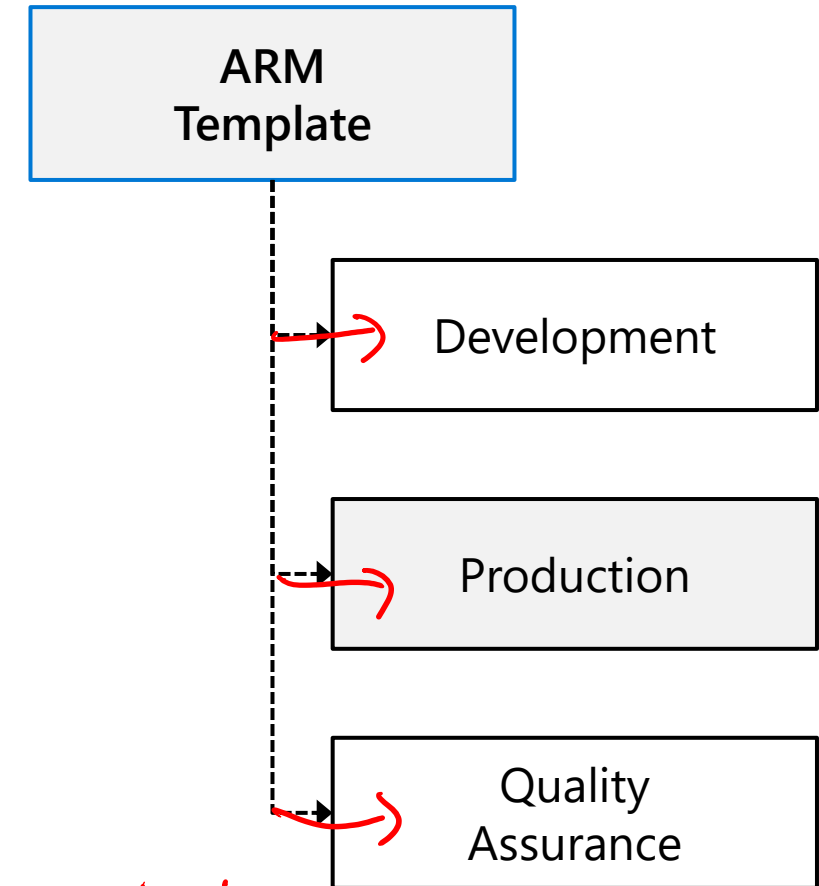
Express requirements through code

Provides validation tasks

Modular and can be linked

Simplifies orchestration

Semper idem!



*idempotent
soll - 1st Vergleich*

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": {}
```

}

List

Object

Explore the JSON Template Parameters

- 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'
  }}


```



output location: storageAccount.location

Quickstart templates

- Locate the Azure Quickstart template gallery
- Deploy a JSON or Bicep template



Filter

[Clear all](#)

Products

☐ Azure
☒ Azure Resource Manager

Programming languages

☐ Bicep
☐ JSON

templates

Azure Resource Manager x

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

[+ Add](#)

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

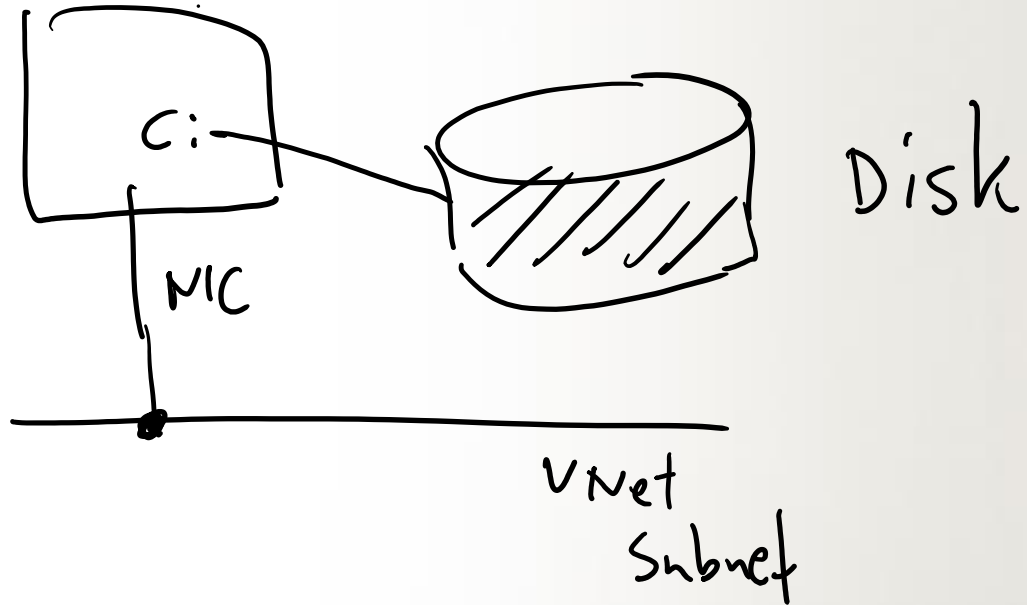
[+ Add](#)

Lab 03a - Manage Azure resources by Using the Azure Portal ✓

Lab 03b - Manage Azure resources by Using ARM Templates ✓

Lab 03c - Manage Azure resources by Using Azure PowerShell ✓

Lab 03d - Manage Azure resources by Using Azure CLI ✓



Lab 03b – Manage Azure resources with templates



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

Objectives

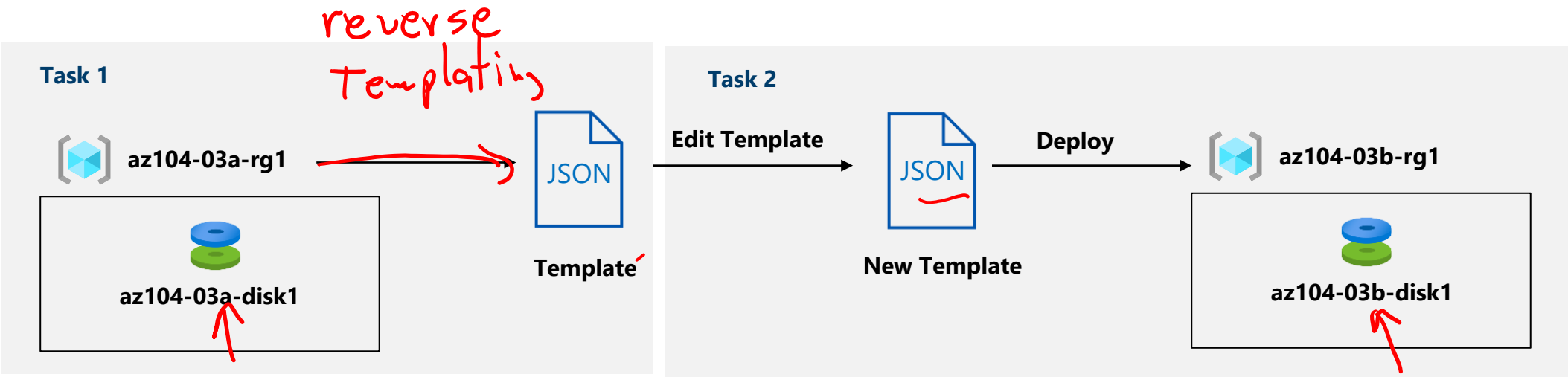
Task 1: Review an ARM template for deployment of an Azure managed disk

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)



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)



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

