Exam Objectives

Exam AZ-104: Microsoft Azure Administrator – Skills Measured

This exam was updated on September 24, 2021. Following the current exam guide, we have included a version of the exam guide with Track Changes set to "On," showing the changes that were made to the exam on that date.

Audience Profile

Candidates for this exam should have subject matter expertise implementing, managing, and monitoring an organization's Microsoft Azure environment.

Responsibilities for this role include implementing, managing, and monitoring identity, governance, storage, compute, and virtual networks in a cloud environment, plus provision, size, monitor, and adjust resources, when needed.

An Azure administrator often serves as part of a larger team dedicated to implementing an organization's cloud infrastructure.

A candidate for this exam should have at least six months of hands-on experience administering Azure, along with a strong understanding of core Azure services, Azure workloads, security, and governance. In addition, this role should have experience using PowerShell, Azure CLI, Azure portal, and Azure Resource Manager templates.

Skills Measured

NOTE: The bullets that follow each of the skills measured are intended to illustrate how we assess that skill. This list is not definitive or exhaustive.

NOTE: Most questions cover features that are General Availability (GA). The exam may contain questions on Preview features if those features are commonly used.

Manage Azure identities and governance (15–20%)

Manage Azure Active Directory (Azure AD) objects

- create users and groups
- create administrative units
- manage user and group properties
- manage device settings
- perform bulk user updates
- manage guest accounts
- configure Azure AD join
- configure self-service password reset

Collections - MSFTofficialCurriculum-4292 | Microsoft Docs

Reimagining the Azure Solutions Architect Expert certification - Microsoft Tech Community

Become Microsoft Certified

https://techcommunity.microsoft.com/t5/fasttrack-for-azure/the-benefits-of-infrastructure-as-code/ba-p/2069350#:~:text=What%20is%20Infrastructure%20as%20Code%3F%20The%20Azure%20Well-Architected,similar%20to%20what%20is%20used%20for%20source%20code.

Manage role-based access control (RBAC)

- create a custom role
- provide access to Azure resources by assigning roles at different scopes
- interpret access assignments

Manage subscriptions and governance

- configure Azure policies
- configure resource locks
- apply and manage tags on resources
- manage resource groups
- manage subscriptions
- manage costs
- configure management groups

Implement and manage storage (15–20%)

Secure storage

- configure network access to storage accounts
- create and configure storage accounts
- generate shared access signature (SAS) tokens
- manage access keys
- configure Azure AD authentication for a storage account
- configure access to Azure Files

Manage storage

- export from Azure job
- import into Azure job
- install and use Azure Storage Explorer
- copy data by using AZCopy
- implement Azure Storage replication
- configure blob object replication

Configure Azure files and Azure Blob Storage

- create an Azure file share
- create and configure Azure File Sync service
- configure Azure Blob Storage
- configure storage tiers
- configure blob lifecycle management

Deploy and manage Azure compute resources (20–25%)

Automate deployment of virtual machines (VMs) by using Azure Resource Manager templates

- modify an Azure Resource Manager template
- configure a virtual hard disk (VHD) template
- deploy from a template
- save a deployment as an Azure Resource Manager template
- deploy virtual machine extensions

Configure VMs

- configure Azure Disk Encryption
- move VMs from one resource group to another
- manage VM sizes
- add data disks
- configure networking
- redeploy VMs
- configure high availability
- deploy and configure virtual machine scale sets

Create and configure containers

- configure sizing and scaling for Azure Container Instances
- configure container groups for Azure Container Instances
- configure storage for Azure Kubernetes Service (AKS)
- configure scaling for AKS
- configure network connections for AKS
- upgrade an AKS cluster

Create and configure Azure App Service

- create an App Service plan
- configure scaling settings in an App Service plan
- create an App Service
- secure an App Service
- configure custom domain names
- configure backup for an App Service
- configure networking settings
- configure deployment settings

Configure and manage virtual networking (25–30%)

Implement and manage virtual networking

- create and configure virtual networks, including peering
- configure private and public IP addresses
- configure user-defined network routes
- implement subnets
- configure endpoints on subnets
- configure private endpoints
- configure Azure DNS, including custom DNS settings and private or public DNS zones

Secure access to virtual networks

- create security rules
- associate a network security group (NSG) to a subnet or network interface
- evaluate effective security rules
- implement Azure Firewall
- implement Azure Bastion

Configure load balancing

- configure Azure Application Gateway
- configure an internal or public load balancer
- troubleshoot load balancing

Monitor and troubleshoot virtual networking

- monitor on-premises connectivity
- configure and use Azure Monitor for Networks
- use Azure Network Watcher
- troubleshoot external networking
- troubleshoot virtual network connectivity

Integrate an on-premises network with an Azure virtual network

- create and configure Azure VPN Gateway
- create and configure Azure ExpressRoute
- configure Azure Virtual WAN

Monitor and back up Azure resources (10–15%)

Monitor resources by using Azure Monitor

- configure and interpret metrics
- configure Azure Monitor logs

- query and analyze logs
- set up alerts and actions
- configure Application Insights

Implement backup and recovery

- create a Recovery Services vault
- create a Backup vault
- create and configure backup policy
- perform backup and restore operations by using Azure Backup
- perform site-to-site recovery by using Azure Site Recovery
- configure and review backup reports

The exam guide below shows the changes that were implemented on September 24, 2021.

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Other interesting links

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MicrosoftLearning/AZ-104-MicrosoftAzureAdministrator: AZ-104 Microsoft Azure Administrator (github.com)

Tools and Weapons: The Promise and the Peril of the Digital Age by Brad Smith (goodreads.com)

AWS to Azure services comparison - Azure Architecture Center | Microsoft Docs

Shared responsibility in the cloud - Microsoft Azure | Microsoft Docs

Preventing Rhino Poaching With Microsoft Azure - CSE Developer Blog

Home Page (ch1-retailappy37ha6.azurewebsites.net)

What is canary test (canary deployment)? - Definition from WhatIs.com (techtarget.com)

Azure Charts - Your Cloud Radar

Payment Card Industry Data Security Standard - Wikipedia

PCI DSS - Azure Compliance | Microsoft Docs

Representational state transfer - Wikipedia

YAML - Wikipedia

Microsoft Cybersecurity Reference Architectures - Security documentation | Microsoft Docs

LinkedIn Emerging Jobs Report Jobs on the Rise Reports | LinkedIn Talent Solutions This is a great resource to learn what roles/jobs are in demand.

Microsoft Certified Trainer | Microsoft Docs

Additional Study Links

MS Learn (scroll down) - [Exam AZ-104: Microsoft Azure Administrator - Learn | Microsoft Docs](#)

Tuesdays with Corey [Tuesdays With Corey | Channel 9 (msdn.com)](#)

Azure Fridays [Azure Friday | Channel 9 (msdn.com)](#)

[https://microsoftlearning.github.io/AZ-900T0x-MicrosoftAzureFundamentals/](#)

[Azure Charts - Your Cloud Radar](#)
[Browse Azure Architectures - Azure Architecture Center | Microsoft Docs](#)
[Microsoft Cloud Adoption Framework for Azure - Cloud Adoption Framework | Microsoft Docs](#)
[Microsoft Azure Well-Architected Framework - Azure Architecture Center | Microsoft Docs](#)

[Microsoft Cybersecurity Reference Architectures - Security documentation | Microsoft Docs](#)

[Become Microsoft Certified](#)

[https://techcommunity.microsoft.com/t5/microsoft-learn-blog/new-to-microsoft-certification-exams-we-have-something-you-need/ba-p/3041520](#)

[https://docs.microsoft.com/en-us/learn/certifications/exam-duration-question-types](#)

[https://docs.microsoft.com/en-us/learn/certifications/exam-scoring-reports](#)

IaC

January 21, 2022   3:42 PM

Microsoft Learn [Explore infrastructure as code and configuration management - Learn | Microsoft Docs](#)

[Explore Azure Automation with DevOps - Learn | Microsoft Docs](#)
[Implement Terraform - Learn | Microsoft Docs](#)

[IaC on Azure - An introduction of Infrastructure as Code (IaC) with Azure Resource Manager (ARM) Template - Microsoft Tech Community](#)

IaC - Bicep [Introduction to infrastructure as code using Bicep - Learn | Microsoft Docs](#)
[Fundamentals of Bicep - Learn | Microsoft Docs](#)

Manage Azure Active Directory (Azure AD) objects

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What is Azure Active Directory? - Azure Active Directory | Microsoft Docs
Architecture overview - Azure Active Directory | Microsoft Docs
Sign up your organization - Azure Active Directory | Microsoft Docs
Compare Active Directory to Azure Active Directory | Microsoft Docs
Azure AD Multi-Factor Authentication versions and consumption plans | Microsoft Docs

What is device identity in Azure Active Directory? | Microsoft Docs
Service limits and restrictions - Azure Active Directory | Microsoft Docs
What is Conditional Access in Azure Active Directory? | Microsoft Docs
About admin roles in the Microsoft 365 admin center - Microsoft 365 admin | Microsoft Docs

Azure AD Connect sync: Understand and customize synchronization | Microsoft Docs

Edition compare
Azure Active Directory Pricing | Microsoft Security

⊞ create administrative units
Add and remove administrative units - Azure Active Directory | Microsoft Docs
Add, remove, and list users in an administrative unit - Azure Active Directory | Microsoft Docs
Add, remove, and list groups in an administrative unit - Azure Active Directory | Microsoft Docs
Assign and list roles with administrative unit scope - Azure Active Directory | Microsoft Docs
Administrative units in Azure Active Directory | Microsoft Docs

⊞ manage user and group properties
https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/add-users-azure-active-directory
https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-users-profile-azure-portal
https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-users-reset-password-azure-portal
Restore or permanently remove recently deleted user - Azure AD | Microsoft Docs
Groups in Microsoft 365 and Azure, and Which is Right for You | Microsoft Docs
Compare External Identities - Azure Active Directory | Microsoft Docs

Assign Azure AD roles to users - Azure Active Directory | Microsoft Docs
Assign or remove licenses - Azure Active Directory | Microsoft Docs
https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-users-restore
Rules for dynamically populated groups membership - Azure AD | Microsoft Docs
Create or edit a dynamic group and get status - Azure AD | Microsoft Docs

⊞ manage device settings
What are Azure AD registered devices? | Microsoft Docs
What is an Azure AD joined device? | Microsoft Docs
What is a hybrid Azure AD joined device? | Microsoft Docs
How Azure AD device registration works | Microsoft Docs

⊞ perform bulk user updates
Bulk create users in the Azure Active Directory portal | Microsoft Docs

⊞ manage guest accounts
Quickstart: Add guest users in the Azure portal - Azure AD | Microsoft Docs
What is B2B collaboration in Azure Active Directory? | Microsoft Docs

⊞ configure Azure AD join
Plan your Azure Active Directory device deployment | Microsoft Docs
How to plan your Azure Active Directory join implementation | Microsoft Docs
Plan hybrid Azure Active Directory join - Azure Active Directory | Microsoft Docs

⊞ configure self-service password reset
password reset
Enable Azure Active Directory self-service password reset | Microsoft Docs
Enable Azure Active Directory password writeback | Microsoft Docs
Self-service password reset policies - Azure Active Directory | Microsoft Docs
Self-service password reset deep dive - Azure Active Directory | Microsoft Docs

User admin	Assign the User admin role to users who need to do the following for all users: - Add users and groups - Assign licenses - Manage most users properties - Create and manage user views - Update password expiration policies - Manage service requests - Monitor service health The user admin can also do the following actions for users who aren't admins and for users assigned the following roles: Directory reader, Guest inviter, Helpdesk admin, Message center reader, Reports reader: - Manage usernames - Delete and restore users - Reset passwords - Force users to sign out - Update (FIDO) device keys

From <https://docs.microsoft.com/en-us/microsoft-365/admin/add-users/about-admin-roles?view=o365-worldwide>

- A role that allows you to create users in your tenant directory, like the Global Administrator role or any of the limited administrator directory roles such as guest inviter or user administrator.

From <https://docs.microsoft.com/en-us/azure/active-directory/external-identities/b2b-quickstart-add-guest-users-portal>

Azure Active Directory integration with MDM - Windows Client Management | Microsoft Docs

What's the difference between Azure roles and Azure AD roles? - Microsoft Tech Community

Identity and access management checklist - Azure Architecture Center | Microsoft Docs

Kerberos constrained delegation for Azure AD Domain Services | Microsoft Docs

Multitenancy and identity management - Azure Architecture Center | Microsoft Docs

Manage role-based access control (RBAC)

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[Azure AD built-in roles - Azure Active Directory | Microsoft Docs](#)
[Delegate roles by admin task - Azure Active Directory | Microsoft Docs](#)
[What is Azure role-based access control (Azure RBAC)? | Microsoft Docs](#)

[What's the difference between Azure roles and Azure AD roles? - Microsoft Tech Community](#)

 create a custom role
[Custom role permissions for app registration - Azure AD | Microsoft Docs](#)
[App permissions for custom roles in Azure Active Directory | Microsoft Docs](#)

[App consent permissions for custom roles in Azure Active Directory | Microsoft Docs](#)
[Group management permissions for Azure AD custom roles (Preview) - Azure Active Directory | Microsoft Docs](#)
[Create custom roles for Azure resources with Azure role-based access control (Azure RBAC) - Learn | Microsoft Docs](#)

 provide access to Azure resources by assigning roles at different scopes
[Assign Azure AD roles at different scopes - Azure Active Directory | Microsoft Docs](#)

 interpret access assignments
[View, add, and remove assignments for an access package in Azure AD entitlement management - Azure Active Directory | Microsoft Docs](#)

Manage subscriptions and governance

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[Azure security features that help with identity management | Microsoft Docs](#)

[Microsoft identity platform overview - Azure - Microsoft identity platform | Microsoft Docs](#)

☐ configure Azure policies
   [Overview of Azure Policy - Azure Policy | Microsoft Docs](#)
   [Tutorial: Build policies to enforce compliance - Azure Policy | Microsoft Docs](#)
   [Understand scope in Azure Policy - Azure Policy | Microsoft Docs](#)
   [Get policy compliance data - Azure Policy | Microsoft Docs](#)

☐ configure resource locks
   [Lock resources to prevent changes - Azure Resource Manager | Microsoft Docs](#)
   [Develop your naming and tagging strategy for Azure resources - Cloud Adoption Framework | Microsoft DocsLock resources to prevent changes - Azure Resource Manager | Microsoft Docs](#)

☐ apply and manage tags on resources
   [Tutorial: Manage tag governance - Azure Policy | Microsoft Docs](#)
   [Tag resources, resource groups, and subscriptions for logical organization - Azure Resource Manager | Microsoft Docs](#)
   [Resource naming and tagging decision guide - Cloud Adoption Framework | Microsoft Docs](#)

☐ manage resource groups
   [Delete resource group and resources - Azure Resource Manager | Microsoft Docs](#)
   [Manage resource groups - Azure portal - Azure Resource Manager | Microsoft Docs](#)
   [Move resources to a new subscription or resource group - Azure Resource Manager | Microsoft Docs](#)

☐ manage subscriptions
   [Create an additional Azure subscription | Microsoft Docs](#)
   [Change Azure subscription offer | Microsoft Docs](#)
   [Azure subscription limits and quotas - Azure Resource Manager | Microsoft Docs](#)

☐ manage costs
   [Plan to manage Azure costs | Microsoft Docs](#)
   [Optimize your cloud investment with Azure Cost Management | Microsoft Docs](#)
   [Analyze unexpected Azure charges | Microsoft Docs](#)
   [Introduction to analyzing costs and creating budgets with Azure Cost Management - Learn | Microsoft Docs](#)

☐ configure management groups
   [Organize your resources with management groups - Azure Governance - Azure governance | Microsoft Docs](#)
   [How to work with your management groups - Azure Governance - Azure governance | Microsoft Docs](#)
   [How to protect your resource hierarchy - Azure Governance - Azure governance | Microsoft Docs](#)
   [Azure Management Overview - Azure Governance | Microsoft Docs](#)
   [Organize your resources with management groups - Azure Governance - Azure governance | Microsoft Docs](#)
   [https://docs.microsoft.com/en-us/azure/governance/management-groups/create-management-group-portal](#)

[Azure regions decision guide - Cloud Adoption Framework | Microsoft Docs](#) - this is from Migrate but still relevant.

[Choose the Right Azure Region for You | Microsoft Azure](#)
[Azure Global Infrastructure (microsoft.com)](#)
[Global Infrastructure | Microsoft Azure](#)
[Ensure business continuity & disaster recovery using Azure Paired Regions | Microsoft Docs](#)

[Azure reservations & server subscriptions - Partner Center | Microsoft Docs](#)

[Bicep documentation | Microsoft Docs](#)
[Azure Cloud Shell overview | Microsoft Docs](#)
[Overview of Azure PowerShell | Microsoft Docs](#)
[Resource Explorer (azure.com)](#)
[Azure Quickstart Templates (microsoft.com)](#)
[Azure/azure-quickstart-templates: Azure Quickstart Templates (github.com)](#)
[Deploy Azure infrastructure by using JSON ARM templates - Learn | Microsoft Docs](#)
[Template structure and syntax - Azure Resource Manager | Microsoft Docs](#)

[https://docs.microsoft.com/en-us/azure/active-directory/hybrid/whatis-azure-ad-connect](#)
[https://azure.microsoft.com/mediahandler/files/resourcefiles/cloud-identity-and-access-management/Cloud_Identity_and_Access_Management_infographic.pdf/](#)

Tools

PowerShell
Learn Windows PowerShell in a Month of Lunches: Donald W. Jones, Jeffrey Hicks: 9781617294167: Books - Amazon.ca

https://docs.microsoft.com/en-us/powershell/scripting/learn/ps101/01-getting-started?view=powershell-7.2

CLI
Get started with Azure Command-Line Interface (CLI) | Microsoft Docs
Pricing - Cloud Shell | Microsoft Azure

Portal
Manage Azure portal settings and preferences - Azure portal | Microsoft Docs

Templates
Templates overview - Azure Resource Manager | Microsoft Docs
Introduction to JSON - Microsoft Tech Community
https://github.com/Azure/azure-quickstart-templates
azure-quickstart-templates/best-practices.md at master · Azure/azure-quickstart-templates (github.com)

Azure Resource Manager overview - Azure Resource Manager | Microsoft Docs

Pricing - Virtual Machine IP Address Options | Microsoft Azure

Develop your naming and tagging strategy for Azure resources - Cloud Adoption Framework | Microsoft Docs

Resource providers by Azure services - Azure Resource Manager | Microsoft Docs

Bicep - not an objective

Get Started With Azure Bicep - Alternative To ARM Templates | Build5Nines
Decompile ARM template JSON to Bicep - Azure Resource Manager | Microsoft Docs

Secure storage

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[About Blob (object) storage - Azure Storage | Microsoft Docs](#)
[Introduction to Azure Storage - Cloud storage on Azure | Microsoft Docs](#)
[Introduction to Blob (object) storage - Azure Storage | Microsoft Docs](#)

- configure network access to storage accounts
  - [Use private endpoints - Azure Storage | Microsoft Docs](#)

- create and configure storage accounts
  - [Quickstart: Upload, download, and list blobs - Azure portal - Azure Storage | Microsoft Docs](#)
  - [Quickstart - Create a blob with Azure Storage Explorer - Azure Storage | Microsoft Docs](#)
  - [Quickstart: Upload, download, and list blobs - Azure PowerShell - Azure Storage | Microsoft Docs](#)
  - [Create a storage account - Azure Storage | Microsoft Docs](#)

- generate shared access signature (SAS) tokens
  - [Grant limited access to data with shared access signatures (SAS) - Azure Storage | Microsoft Docs](#)

- manage access keys
  - [Manage account access keys - Azure Storage | Microsoft Docs](#)

- configure Azure AD authentication for a storage account
  - [Use the Azure Identity library to get an access token for authorization - Azure Storage | Microsoft Docs](#)

- configure access to Azure Files
  - [Overview - On-premises AD DS authentication to Azure file shares | Microsoft Docs](#)
  - [Managing file locks (FileREST API) - Azure Files | Microsoft Docs](#)

[Data redundancy - Azure Storage | Microsoft Docs](#)

[Azure Storage Blobs Pricing | Microsoft Azure](#)
[Data lakes - Azure Architecture Center | Microsoft Docs](#)
[Azure Data Lake Storage Gen2 Introduction | Microsoft Docs](#)
[SLA for Storage Accounts | Microsoft Azure](#)
[Disaster recovery and storage account failover - Azure Storage | Microsoft Docs](#)
[Data residency in Azure | Microsoft Azure](#)

[Azure Policy Regulatory Compliance controls for Azure Storage | Microsoft Docs](#)
[Pricing - Bandwidth | Microsoft Azure](#)
[Azure encryption overview | Microsoft Docs](#)

[MD5 hash checks on Azure Blob Storage files (galdin.dev)](#)

Storage account best practices from Build. Refer to slide 24. [3-628.pptx (live.com)](#)

[Azure and other Microsoft cloud services compliance offerings - Azure Compliance | Microsoft Docs](#)

[Overview of immutable storage for blob data - Azure Storage | Microsoft Docs](#)

Manage storage

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Introduction to Azure Storage - Cloud storage on Azure | Microsoft Docs

Data redundancy - Azure Storage | Microsoft Docs
Storage account overview - Azure Storage | Microsoft Docs

Requirements for Azure Import/Export service | Microsoft Docs
FAQ for Azure Import/Export service | Microsoft Docs

Overview of immutable storage for blob data - Azure Storage | Microsoft Docs

- export from Azure job
  - Using Azure Import/Export to transfer data to and from Azure Storage | Microsoft Docs
  - Tutorial to export data from Azure Blob storage with Azure Import/Export | Microsoft Docs

- import into Azure job
  - Tutorial to import data to Azure Blob Storage with Azure Import/Export service | Microsoft Docs
  - Tutorial to import data to Azure Blob Storage with Azure Import/Export service | Microsoft Docs

- install and use Azure Storage Explorer
  - Get started with Storage Explorer | Microsoft Docs

- copy data by using AZCopy
  - Copy or move data to Azure Storage by using AzCopy v10 | Microsoft Docs
  - Transfer data to or from Azure Files by using AzCopy v10 | Microsoft Docs

- implement Azure Storage replication
      Change how a storage account is replicated - Azure Storage | Microsoft Docs

- configure blob object replication
  - Configure object replication - Azure Storage | Microsoft Docs

Criteria for data store choice - Azure Application Architecture Guide | Microsoft Docs

Azure Storage Blobs Pricing | Microsoft Azure

Configure Azure Storage firewalls and virtual networks | Microsoft Docs

SLA for Storage Accounts | Microsoft Azure
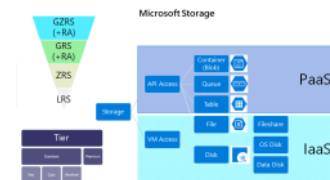
Use Azure AD Domain Services to authorize access to file data over SMB | Microsoft Docs

Configure Azure files and Azure Blob Storage

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[Introduction to Azure Files | Microsoft Docs](#)
[Planning for an Azure Files deployment | Microsoft Docs](#)
[SMB file shares in Azure Files | Microsoft Docs](#)
[NFS file shares in Azure Files | Microsoft Docs](#)

[Choose an Azure solution for data transfer | Microsoft Docs](#)

[Tutorial - Extend Windows file servers with Azure File Sync | Microsoft Docs](#)

- create an Azure file share
    - [Create and use an Azure file shares on Windows VMs | Microsoft Docs](#)
    - [Quickstart for managing Azure file shares | Microsoft Docs](#)

[Frequently asked questions (FAQ) for Azure Files | Microsoft Docs](#)

- create and configure Azure File Sync service
    - [Deploy Azure File Sync | Microsoft Docs](#)

- configure Azure Blob Storage

- configure storage tiers
    - [Hot, Cool, and Archive access tiers for blob data - Azure Storage | Microsoft Docs](#)
    - [Blob rehydration from the Archive tier | Microsoft Docs](#)

- configure lifecycle management
    - [Optimize costs by automatically managing the data lifecycle - Azure Storage | Microsoft Docs](#)

Automate deployment of virtual machines

[Templates overview - Azure Resource Manager | Microsoft Docs](#)
[Best practices for templates - Azure Resource Manager | Microsoft Docs](#)
[ARM template frequently asked questions | Microsoft Docs](#)

- modify an Azure Resource Manager template
  - [Template structure and syntax - Azure Resource Manager | Microsoft Docs](#)
  - [Create and deploy Azure Resource Manager templates - Learn | Microsoft Docs](#)

- ▯ configure a virtual hard disk (VHD) template
  - ○

- ▯ deploy from a template
  - [Deploy template - Azure portal - Azure Resource Manager | Microsoft Docs](#)
  - [Tutorial - Deploy a local Azure Resource Manager template - Azure Resource Manager | Microsoft Docs](#)
  - [Tutorial - Deploy a linked template - Azure Resource Manager | Microsoft Docs](#)
  - [Deployment modes - Azure Resource Manager | Microsoft Docs](#)

- ▯ save a deployment as an Azure Resource Manager template
  - ○

- ▯ deploy virtual machine extensions
  - [Deploy VM extensions with template - Azure Resource Manager | Microsoft Docs](#)
  - [https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/features-windows?toc=%2Fazure%2Fvirtual-machines%2Fwindows%2Ftoc.json](#)
  - [https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/dsc-overview](#)

[Reference a custom image in an Azure scale set template - Azure Virtual Machine Scale Sets | Microsoft Docs](#)

Configure VMs

https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/ready/azure-best-practices/resource-naming

- configure Azure Disk Encryption
  - Overview of managed disk encryption options - Azure Virtual Machines | Microsoft Docs
  - Server-side encryption of Azure managed disks - Azure Virtual Machines | Microsoft Docs
  - Enable Azure Disk Encryption for Windows VMs - Azure Virtual Machines | Microsoft Docs
  - Enable Azure Disk Encryption for Linux VMs - Azure Virtual Machines | Microsoft Docs

- move VMs from one resource group to another
  - Move Azure VMs to new subscription or resource group - Azure Resource Manager | Microsoft Docs

- manage VM sizes
  - VM sizes - Azure Virtual Machines | Microsoft Docs
  -

- add data disks
  - Attach a managed data disk to a Windows VM - Azure - Azure Virtual Machines | Microsoft Docs
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- configure scaling settings in an App Service plan
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- create an App Service
  - [Configure apps in the portal - Azure App Service | Microsoft Docs](#)
  - [Configure deployment credentials - Azure App Service | Microsoft Docs](#)

- secure an App Service
  - [Add and manage TLS/SSL certificates - Azure App Service | Microsoft Docs](#)
  - [Azure App Service access restrictions - Azure App Service | Microsoft Docs](#)
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  - [Tutorial: Map existing custom DNS name - Azure App Service | Microsoft Docs](#)

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  - What is Azure DNS? | Microsoft Docs
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  - Introduction to Effective security rules view in Azure Network Watcher | Microsoft Docs

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  - What is Azure Firewall? | Microsoft Docs
  - Tutorial: Deploy & configure Azure Firewall and policy using the Azure portal | Microsoft Docs
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  - [What is Azure Load Balancer? - Azure Load Balancer | Microsoft Docs](#)
  - [Quickstart: Create a public load balancer - Azure portal - Azure Load Balancer | Microsoft Docs](#)
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Integrate an on-premises network with an Azure virtual network

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    - ○
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    - ○ [Tutorial - Create and manage a VPN gateway: Azure portal - Azure VPN Gateway | Microsoft Docs](#)
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    - ○ [Azure ExpressRoute Overview: Connect over a private connection | Microsoft Docs](#)
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  o Tutorial - Analyze metrics for an Azure resource - Azure Monitor | Microsoft Docs

- configure Azure Monitor logs
  o Tutorial - Collect resource logs from an Azure resource - Azure Monitor | Microsoft Docs

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  o Tutorial - Create a log query alert for an Azure resource - Azure Monitor | Microsoft Docs
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- configure Application Insights
  o What is Azure Application Insights? - Azure Monitor | Microsoft Docs

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- create and configure backup policy
  - [Auto-Enable Backup on VM Creation using Azure Policy - Azure Backup | Microsoft Docs](#)
  - [Tutorial - Back up multiple Azure virtual machines - Azure Backup | Microsoft Docs](#)

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  - [Tutorial - Restore a VM with Azure CLI - Azure Backup | Microsoft Docs](#)
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  - [Set up Azure VM disaster recovery to a secondary region with Azure Site Recovery - Azure Site Recovery | Microsoft Docs](#)
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Monitor your servers available disk space using Azure Log Analytics - Pixel Robots.

Create a Vnet & Subnet

January 19, 2022   5:03 PM

```
#Create a Resource Group
New-AzResourceGroup -Name RG01 -Location "EastUS"

#create the network
$myVNet2 = New-AzVirtualNetwork -ResourceGroupName RG01 -Location EastUS -Name myVNet2 -
AddressPrefix 10.0.0.0/16

#view network
Get-AzVirtualNetwork -Name myVNet2

#Create subnet
$mySubnet2 = Add-AzVirtualNetworkSubnetConfig -Name mySubnet2 -AddressPrefix 10.0.0.0/24 -
VirtualNetwork $myVNet2

#View Subnet
Get-AzVirtualNetworkSubnetConfig -Name mySubnet2 -VirtualNetwork $myVNet2

#Associate subnet
$myvnet2 | Set-AzVirtualNetwork

#Delete Resource Group
Remove-AZResourceGroup -Name RG01 -Force
```

Create a Basic default VM

```
#Create a Basic default VM

#Variables
$ResourceGroup = "AZ104_Jan20"
$location = "CanadaCentral"
$VMName = "vm1"

#Create a Resource Group
New-AzResourceGroup -Name $ResourceGroup -Location $location

#Create a VM
New-AzVm `
   -ResourceGroupName $ResourceGroup `
   -Name $VMName `
   -Location $location `
   -VirtualNetworkName "myVnet" `
   -SubnetName "mySubnet" `
   -SecurityGroupName "myNetworkSecurityGroup" `
   -PublicIpAddressName "myPublicIpAddress"

#Delete the Resource Group
Remove-AZResourceGroup -Name $ResourceGroup -Force
```

Create a storage account

```powershell
#Create a storage account

#Variables
$resourceGroup = "AZ104_Jan20"
$location = "CanadaCentral"

#Create a RG
New-AzResourceGroup -Name $resourceGroup -Location $location

#Create the storage account
New-AzStorageAccount -ResourceGroupName $resourceGroup `
  -Name az104sbennettlsa `
  -Location $location `
  -SkuName Standard_RAGRS `
  -Kind StorageV2

#Remove RG
Remove-AZResourceGroup -Name $resourceGroup -Force
```

Create a New Group & User

January 23, 2022   3:24 PM

```
#Create a Group
New-AzADGroup -DisplayName Developers -MailNickname Devs

#Get the Group ID
Get-AzADGroup

#Get the User ID
Get-AzADUser

#Add the user to the group
Add-AzADGroupMember -MemberUserPrincipalName "email@domain.com" - TargetGroupDisplayName "MyGroupDisplayName"


Add-AzADGroupMember -MemberUserPrincipalName "lucy@az500sbl.onmicrosoft.com" - TargetGroupDisplayName "Devs"

#Verify the members
Get-AzADGroupMember -GroupDisplayName "MyGroupDisplayName"
```