AZ-104: Microsoft Azure Administrator Exam Resources

Overview

The following resources have been assembled to help you prepare for the AZ-104 Microsoft Azure Administrator learning track during Microsoft Certification Week.

How to use this guide

Each user brings a unique set of knowledge and skills to your Microsoft Certification Week experience. Please identify and utilize the relevant links within this document to help you develop deeper understanding in those specific topic areas where you feel you need additional training. It is not required nor intended that an individual should leverage all the resources in this guide to participate in the event.

Contents

Audience profile

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

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.

Preparing with an Azure subscription

It is highly recommended when preparing for a Microsoft exam, that you have had some level of hands-on experience with the services within the objectives. Microsoft courses have a GitHub repository for labs that are recommended and available to the public.

- Azure Free Trial:
  Create your Azure free account today | Microsoft Azure.
- Suggested Lab Guides:
  https://github.com/MicrosoftLearning/AZ-104JA-MicrosoftAzureAdministrator

Self-study resources links aligned by exam objective

The following links have been curated by Microsoft's learning partners as study resources aligned by exam objective.

Objective: Manage Azure identities and governance (15-20%)

Manage Azure AD objects

What is Azure Active Directory?

- Create users and groups
  - Add or delete users using Azure Active Directory
  - Creating a new user in Azure AD

    - New-AzureADUser
- Create administrative units
    - Administrative units in Azure Active Directory
    - Manage administrative units in Azure Active Directory
- Manage user and group properties
    - Add or update a user's profile information using Azure Active Directory
    - Edit your group information using Azure Active Directory
- Manage device settings
    - Manage device identities using the Azure portal
    - How To: Manage stale devices in Azure AD
- Perform bulk user updates
    - Bulk import group members (preview) in Azure Active Directory
- Manage guest accounts
    - What is guest user access in Azure Active Directory B2B?
    - Manage guest access with Azure AD access reviews
    - Quickstart: Add guest users to your directory in the Azure portal
- Configure Azure AD Join
    - Plan your Azure AD join implementation
    - Configure hybrid Azure Active Directory join for managed domains
- Configure self-service password reset
    - Plan an Azure Active Directory self-service password reset
    - How it works: Azure AD self-service password reset
    - Licensing requirements for Azure AD self-service password reset

Manage role-based access control (RBAC)

What is role-based access control (RBAC) for Azure resources?

- Create a custom role
    - Tutorial: Create a custom role for Azure resources using Azure PowerShell
    - Tutorial: Create a custom role for Azure resources using Azure CLI
- Provide access to Azure resources by assigning roles

    - Add or remove role assignments using Azure RBAC and the Azure portal
- Interpret access assignments
    - List role assignments using Azure RBAC and the Azure portal
    - Understand deny assignments for Azure resources
- Manage multiple directories
    - Understand how multiple Azure Active Directory tenants interact

Manage subscriptions and governance

Overview of Management services in Azure

- Configure Azure policies
    - What is Azure Policy?
    - Create a policy assignment to identify non-compliant resources
    - Tutorial: Create and manage policies to enforce compliance
- Configure resource locks
    - Lock resources to prevent unexpected changes
    - Prevent Azure Resources from unexpected deletion using Locks
- Apply and manage tags on resources
    - Use tags to organize your Azure resources
    - Use Azure Tags to organize Resources
- Manage resource groups
    - Manage Azure Resource Manager resource groups using the Azure portal
    - Manage Azure resource groups using Azure PowerShell
    - Delete resource groups
    - Move resources to a new resource group or subscription
- Manage subscriptions
    - Create an additional Azure subscription
    - Change your Azure subscription to a different offer
- Manage costs
    - What is Azure Cost Management and Billing?
    - Quickstart: Explore and analyze costs with cost analysis

- Configure management groups
  - Create management groups for resource organization and management
  - Manage your resources with management groups

Objective: Implement and manage storage (15-20%)

Secure storage

Introduction to Azure Storage

- Configure network access to storage accounts
  - Configure Azure Storage firewalls and virtual networks
- Create and configure storage accounts
  - Storage account overview
  - Create an Azure Storage account
  - Upgrade to a general-purpose v2 storage account
- Generate shared access signature (SAS) tokens
  - Delegate access with a shared access signature
  - Grant limited access to Azure Storage resources using shared access signatures (SAS)
- Manage access keys
  - Manage storage account access keys
- Configure Azure AD Authentication for a storage account
  - Authorize access to blobs and queues using Azure Active Directory
- Configure access to Azure Files
  - On-premises Active Directory Domain Services authentication over SMB for Azure file shares
  - Enable Azure Active Directory Domain Services authentication
  - Configure Azure Files network endpoints

Manage storage

- Export from Azure job
  - Use Azure Import/Export service to export data from Azure Blob storage
- Import into Azure job

    - Use Azure Import/Export service to import data to Azure Blob Storage
- Install and use Azure Storage Explorer
    - Get started with Storage Explorer
- Copy data by using AZCopy
    - AzCopy Reference
    - What is Azure CLI
    - Get started with Azure CLI
    - Install the Azure CLI
- Implement Azure Storage replication
    - Change how a storage account is replicated
    - Use geo-redundancy to design highly available applications
- Configure blob object replication
    - Configure object replication for block blobs

Configure Azure files and Azure blob storage

What is Azure? - Files

- Create an Azure file share
    - Quickstart: Create and manage Azure file shares with the Azure portal
    - Create an Azure file share
- Create and configure Azure File Sync service
    - Planning for an Azure File Sync deployment
    - Tutorial: Extend Windows file servers with Azure File Sync
- Configure Azure Blob Storage
    - Quickstart: Upload, download, and list blobs with the Azure portal
- Configure storage tiers
    - Azure Blob storage: hot, cool, and archive access tiers
- Configure blob lifecycle management
    - Optimize costs by automating Azure Blob Storage access tiers

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Objective: Deploy and manage Azure compute resources (20-25%)

Automate deployment and configuration of VMs

- Modify Azure Resource Manager (ARM) template
  - Extend Azure Resource Manager template functionality
  - Azure Resource Manager templates overview
  - Tutorial: Create and deploy your first Azure Resource Manager template
- Configure a virtual hard disk (VHD) template
  - Create a VM from a VHD by using the Azure portal
- Deploy from template
  - Create and deploy Azure Resource Manager templates using Azure portal
- Save a deployment as an ARM template
  - Download the template for a VM
- Deploy virtual machine extensions
  - Custom Script Extension for Windows
  - Use Azure Custom Script Extension Version 2 with Linux virtual machines

Configure VMs

- Configure Azure Disk Encryption
  - Azure Disk Encryption for Linux VMs
  - Azure Disk Encryption for Windows VMs
- Move VMs from one resource group to another
  - Move a Windows VM to another Azure subscription or resource group
- Manage VM sizes
  - Resize a Windows VM
- Add data discs
  - Attach a managed data disk to a Windows VM by using the Azure portal
  - Attach a data disk to a Windows VM with PowerShell
- Configure networking
  - Common PowerShell commands for Azure Virtual Networks
  - How to open ports to a virtual machine with the Azure portal

    - Create and manage a Windows virtual machine that has multiple NICs
- Redeploy VMs
    - Redeploy Windows virtual machine to new Azure node
- Configure high availability
    - Availability options for Azure Virtual Machines
- Deploy and configure scale sets
    - Overview virtual machine scale sets

Create and configure containers

- Create and configure Azure Kubernetes Service (AKS)
    - Azure Kubernetes Service (AKS)
    - Quickstart: Deploy an AKS cluster using the Azure portal
- Create and configure Azure Container Instances (ACI)
    - What is Azure Container Instances?
    - Quickstart: Deploy a container instance in Azure using the Azure portal
    - Quickstart: Deploy a container instance in Azure using the Azure CLI
- Configure storage for AKS
    - Best practices for storage and backups in AKS
    - Ephemeral OS on with AKS clusters
- Configure scaling for AKS
    - Scaling options for applications in AKS
    - Scale the node count in an AKS
- Configure network connections for Azure KS
    - Use kubenet networking with your own IP address ranges in AKS)
    - Configure Azure CNI networking in AKS
    - Use an internal load balancer with AKS
    - Use a public Standard Load Balancer in AKS
    - Create an ingress controller in AKS
    - Control egress traffic for cluster nodes in AKS
- Upgrade an AKS cluster

- Upgrade an AKS cluster
- Tutorial: Upgrade Kubernetes in AKS

Create and configure Azure App Service

- Create an App Service plan
  - Azure App Service plan overview
  - Manage an App Service plan in Azure
- Configure scaling settings in an App Service plan
  - Scale up an app in Azure App Service
- Create an App Service
  - App Service overview
  - Create an ASP.NET Core web app in Azure
- Secure an App Service
  - Security in Azure App Service
  - Azure security baseline for App Service
  - Security recommendations for App Service
  - Azure Defender - Protect your web apps and APIs
- Configure custom domain names
  - Map an existing custom DNS name to Azure App Service
- Configure backup for an App Service
  - Back up your app in Azure
  - Back up App Configuration stores automatically
- Configure networking settings
  - App Service networking features
  - Networking considerations for an App Service Environment
- Configure deployment settings
  - Set up staging environments in Azure App Service
  - Continuous deployment to Azure App Service

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Objective: Configure and manage virtual networking (25-30%)

Implement and manage virtual networking

- Create and configure virtual networks, including peering
  - What is Azure Virtual Network?
  - Quickstart: Create a virtual network using the Azure portal
  - Networking limits
  - Virtual network peering overview
  - Azure Virtual Network frequently asked questions (FAQ) VNet Peering
  - Connect virtual networks with virtual network peering using Azure portal
  - Virtual network peering – different deployment models, same subscription
  - Create, change, or delete a virtual network peering
- Configure private and public IP addresses
  - Add, change, or remove IP addresses for an Azure network interface
  - Create, change, or delete a public IP address
  - Associate a public IP address to a virtual machine
- Configure user-defined network routes
  - Virtual network traffic routing
- Implement subnets
  - Subnet extension
  - Add, change, or delete a virtual network subnet
- Configure endpoints on subnets
  - Virtual Network service endpoints
  - What is Azure Private Link?
  - Quickstart: Create a Private Endpoint
  - Tutorial: Connect to a storage account using an Azure Private Endpoint
- Configure private endpoints
  - What is Azure Private Link?
  - Quickstart: Create a Private Endpoint
  - Tutorial: Connect to a storage account using an Azure Private Endpoint

- Configure Azure DNS, including custom DNS settings and private or public DNS zones
  - What is Azure DNS?
  - What is Azure Private DNS?
  - Name resolution for resources in Azure virtual networks
  - Use Azure DNS to provide custom domain settings for an Azure service
  - Tutorial: Host your domain in Azure DNS
  - Quickstart: Create an Azure private DNS zone using the Azure portal

Secure access to virtual networks

- Create security rules
  - Create, change, or delete a network security group
- Associate an network security group (NSG) to a subnet or network interface
  - Create, change, or delete a network security group
- Evaluate effective security rules
  - Create, change, or delete a network interface
- Implement Azure Firewall
  - Tutorial: Deploy and configure Azure Firewall using the Azure portal
- Implement Azure Bastion
  - Create an Azure Bastion host

Configure load balancing

- Configure Application Gateway
  - Application Gateway configuration overview
- Configure an internal or public load balancer
  - Tutorial: Balance internal traffic load with a Basic load balancer in the Azure portal
  - Create an internal load balancer by using the Azure PowerShell module
  - Quickstart: Create a Load Balancer to load balance VMs using the Azure portal
- Troubleshoot load balancing
  - Troubleshoot Azure Load Balancer

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Monitor and troubleshoot virtual networking

- Monitor on-premises connectivity
  - Diagnose on-premises connectivity via VPN gateways
- Configure and use Azure Monitor for Networks
  - Network Connectivity Monitoring with Connection Monitor
  - Azure Monitor Network Insights
- Use Azure Network Watcher
  - What is Azure Network Watcher?
- Troubleshoot external networking
  - Troubleshoot Virtual Network Gateway and Connections using Azure Network Watcher Azure CLI
- Troubleshoot virtual network connectivity
  - Troubleshoot connections with Azure Network Watcher using Azure portal

Integrate an on-premises network with an Azure virtual network

- Create and configure Azure VPN Gateway
  - Create a route-based VPN gateway using the Azure portal
  - Create a Site-to-Site connection in the Azure portal
- Create and configure ExpressRoute
  - ExpressRoute overview
  - Tutorial: Create and modify an ExpressRoute circuit
- Configure Azure Virtual WAN
  - About Azure Virtual WAN
  - Tutorial: Create a Site-to-Site connection using Azure Virtual WAN

Objective: Monitor and back up Azure resources (10-15%)

Monitor resources by using Azure Monitor

- Configure and interpret metrics
  - Metrics in Azure Monitor
  - Quickstart: Monitor an Azure resource with Azure Monitor

- Configure Azure Monitor logs
  - What can you do with Azure Monitor Logs?
  - Get started with Log Analytics in Azure Monitor
- Query and analyze logs
  - Overview of log queries in Azure Monitor
- Set up alerts and actions
  - Create, view, and manage metric alerts using Azure Monitor
  - Metric Alerts with Dynamic Thresholds in Azure Monitor
  - Create Metric Alerts for Logs in Azure Monitor
- Configure Application Insights
  - Manage Application Insights resources using PowerShell

Implement backup and recovery

- Configure and review backup reports
  - Configure Azure Backup reports
- Perform backup and restore operations by using Azure Backup
  - Back up a virtual machine in Azure
  - Restore a disk and create a recovered VM in Azure
- Create a Recovery Services Vault
  - Create a Recovery Services vault
- Use soft delete to recover Azure VMs
  - Soft delete for virtual machines
- Create and configure backup policy
  - Manage Azure VM backups with Azure Backup service
- Perform site-to-site recovery by using Azure Site Recovery
  - About Site Recovery
  - Set up disaster recovery of on-premises VMware virtual machines or physical servers to a secondary site

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Microsoft Learning Path

The Microsoft Learning Path for AZ-104 – Microsoft Asure Administrator provides online courses and resources to help you gain the skills you need to become certified

AZ-104 Microsoft Azure Administrator Learning Path

Additional on-demand training from Microsoft Learn

New to the cloud? Azure fundamentals is a six-part series that teaches you basic cloud concepts, provides a streamlined overview of many Azure services, and guides you with hands-on exercises to deploy your very first services for free.

Azure Fundamentals part 1: Describe core Azure Concepts

Azure Fundamentals part 2: Describe core Azure Services

Azure Fundamentals part 3: Describe core solutions and management tools on Azure

Azure Fundamentals part 4: Describe general security and network security features

Azure Fundamentals part 5: Describe identity, governance, privacy, and compliance features

Azure Fundamentals part 6: Describe Azure cost management and service level agreements

Additional resources to help you prepare for the AZ-104 – Microsoft Asure Administrator exam:

Prerequisites for Azure administrators

Manage identities and governance in Azure

Implement and manage storage in Azure

Deploy and manage Azure compute resources

Configure and manage virtual networks for Azure administrators

Monitor and back up Azure resources