Microsoft Azure Administration Overview

Microsoft

Introduction

- The Certification Program
- Microsoft Azure Administration AZ-103
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  - Azure Administration
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  - Azure Networking
  - Azure Management
  - Azure Manage Identities

Certification Program & Paths

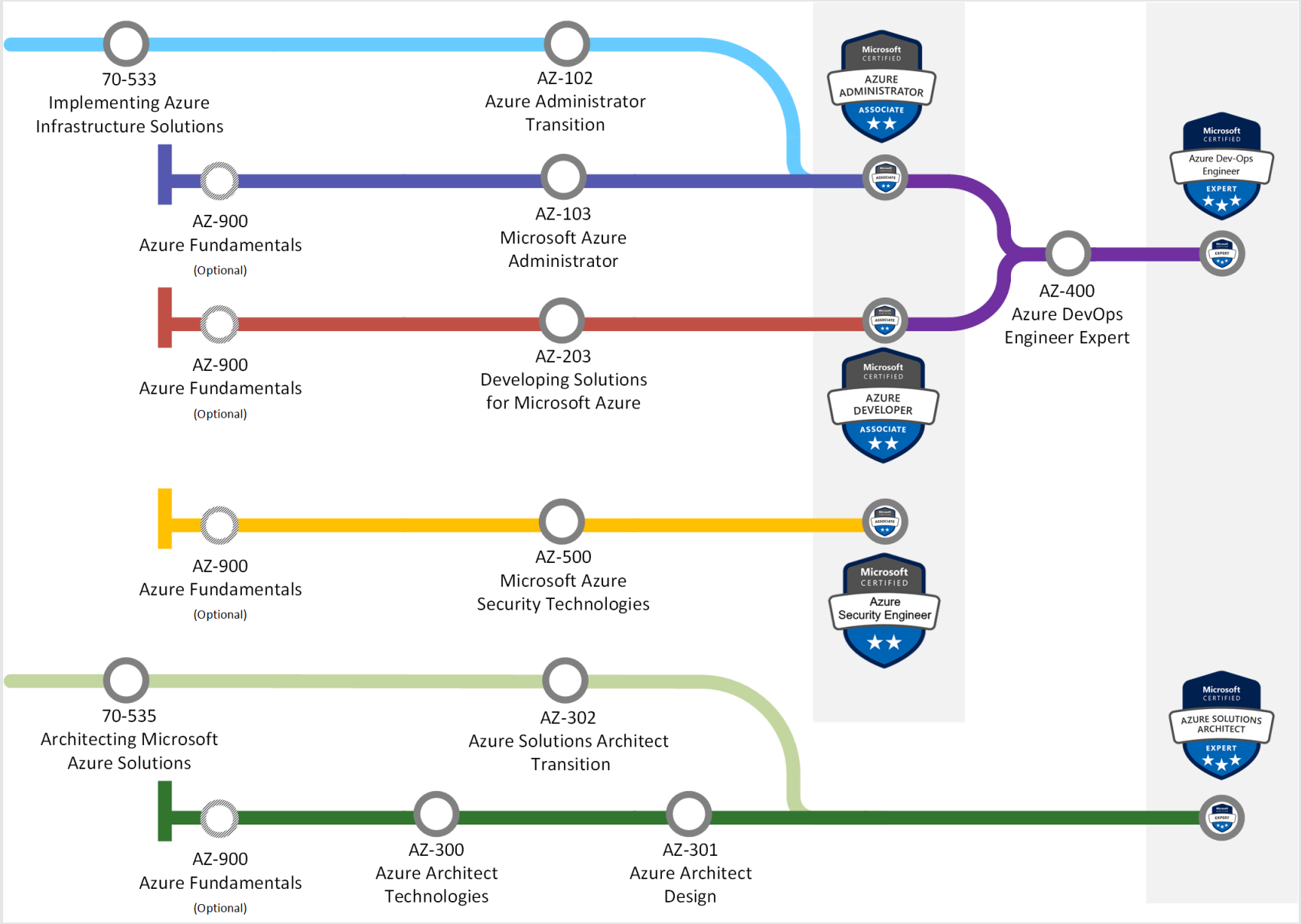
Microsoft

Microsoft certifications




	Apps & Infra	Data & AI	Modern Workplace	Business Apps
Expert	Azure Solution Architect Azure DevOps Engineer		M365 Enterprise Administrator	
Associate	Azure Administrator Azure Developer Azure Security Engineer	Azure Data Scientist Azure AI Engineer Azure Data Engineer	M365 Modern Desktop Administrator M365 Teamwork Administrator M365 Messaging Administrator M365 Security Administrator	Functional Consultant Sales Functional Consultant Customer Service Functional Consultant Field Service 3/31/19 Functional Consultant Marketing 3/31/19 Functional Consultant Financials 3/31/19 Functional Consultant Manufacturing 3/31/19 Functional Consultant Supply Chain Mgt. 3/31/19
Fundamentals	Azure Fundamentals	Azure Fundamentals	Microsoft 365 Fundamentals	Dynamics 365 Fundamentals 3/31/19

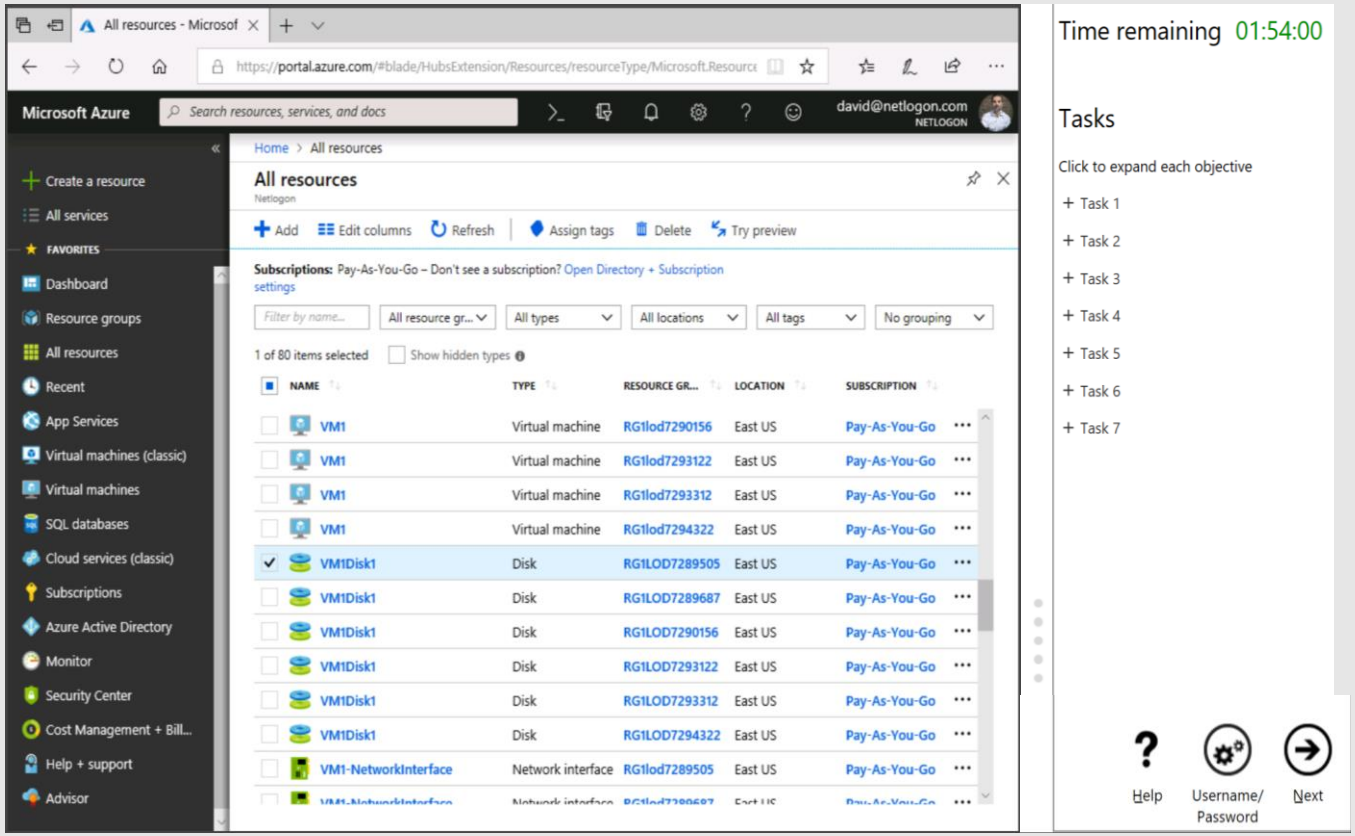
Microsoft certifications



Introducing performance-based testing

Prove your skills with hands-on labs

- Starting with Azure, each job role certification will have performance-based labs
- Map to what you do everyday
- Demonstrate your skills using the technology
- At least one exam in certification will have labs; that exam have at least 2 labs with 7-9 tasks



Learning path for Azure Admin Associate

Exams

https://www.microsoft.com/en-us/learning/exam-az-103.aspx

Skills required for certification

Manage Azure subscriptions and resources (15-20%)
Implement and manage storage (15-20%)
Deploy and manage virtual machines (VMs) (15-20%)
Configure and manage virtual networks (30-35%)
Manage identities (15-20%)

How to prepare and take the Exam

What to buy or use to study with

Almost everything written that you need can be found at azure.microsoft.com
Get a Free trial account.

Microsoft Learn https://docs.microsoft.com/en-us/learn/
- Filters: Learning Paths, Administrator, Azure
- Tailored Labs: https://microsoftlearning.github.io/AZ-103-MicrosoftAzureAdministrator/

Labs: https://www.microsoft.com/handsonlabs/selfpacedlabs
- Filters: Topic: Azure

Your daily job – or equivalent practice

Exam taking

- Can be taken from the comfort of your own home
- Can be taken from a local test center
- Multiple choice, case study and labs
- The survey at the beginning does NOT impact your test
- Pass mark 700 out of 1000

Introduction

Starting on May 1, 2019, you only need to pass Exam AZ-103 to earn the Azure Administration certification. This new exam combines the skills covered in AZ-100 and AZ-101 (which retired on May 1, 2019), with the majority of the new exam coming from AZ-100.

Candidates for this exam are Azure Administrators who **manage cloud services** that span **storage, security, networking, and compute** cloud capabilities. Candidates have a deep understanding of each service across the full IT lifecycle, and take requests for infrastructure services, applications, and environments. They make recommendations on services to use for optimal performance and scale, as well as provision, size, monitor, and adjust resources as appropriate.

Candidates for this exam should have proficiency in using **PowerShell, the Command Line Interface, Azure Portal, ARM templates**, operating systems, virtualization, cloud infrastructure, storage structures, and networking

Azure Administration

Azure Administration - Documentation

There are different tools to interact with Azure you should be familiar with all of them.

Azure Portal and Cloud Shell: Azure Portal in combination with Cloud Shell allow you to build, manage, and monitor everything from simple web apps to complex cloud applications in a single, unified console and CLI.

- https://docs.microsoft.com/en-us/azure/azure-portal/
- https://docs.microsoft.com/en-us/azure/cloud-shell/overview

Azure PowerShell and CLI: Azure PowerShell and CLI are designed for managing and administering Azure resources from the command line. Use them when you want to build automated tools that use the Azure Resource Manager model and combine them with Azure Cloud Shell.

- https://docs.microsoft.com/en-us/powershell/azure/get-started-azureps?view=azps-2.2.0
- https://docs.microsoft.com/en-us/cli/azure/get-started-with-azure-cli?view=azure-cli-latest

Azure Administration - Documentation

Resource Manager: is the deployment and management service for Azure, as an administrator you should be familiar with ARM, it provides a consistent management layer that enables you to create, update, and delete resources in your Azure subscription.

- https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-overview

ARM Templates: Resource Manager templates are JSON files that define the resources you need to deploy for your solution and allow you to interact with ARM in a declarative form. Be familiar with the sintax of an ARM template and its elements.

- https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-manager-quickstart-create-templates-use-visual-studio-code?tabs=CLI
- https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-manager-quickstart-create-templates-use-the-portal
- https://docs.microsoft.com/en-us/azure/azure-resource-manager/vs-azure-tools-resource-groups-deployment-projects-create-deploy

Azure Administration – Hands on Lab

After you are familiar with the concepts of the Azure Administrative tools, practice using the HoL. For that Access the website https://www.microsoft.com/handsonlabs under the self-paced labs.

Search for the topic in question, in this case:

- ARM templates: DT00154
- Azure Portal: SP-AZ100000

Azure Virtual Machines

Azure Virtual Machines – Requirements

This section is worth 15-20% of the exam. You need to be proeficient in deploying and managing virtual machines (VMs). Knowing how to:

Create and configure a VM for Windows and Linux

- Configure high availability
- Configure monitoring, networking, storage, and virtual machine size
- Deploy and configure scale sets

Automate deployment of VMs

- Modify Azure Resource Manager (ARM) template
- Configure location of new VMs
- Configure VHD template
- Deploy from template
- Save a deployment as an ARM template
- Deploy Windows and Linux VMs

Manage Azure VM

- Add data disks and Network Interfaces
- Automate configuration management by using PowerShell Desired State Configuration (DSC) and VM Agent by using custom script extensions
- Manage VM sizes; move VMs from one resource group to another
- Redeploy VMs

Manage VM backups

- Configure VM backup
- Define backup policies
- Implement backup policies
- Perform VM restore
- Azure Site Recovery

Azure Virtual Machines – Learning Path

For this topic there is a learning path available that can be found on:

https://docs.microsoft.com/en-us/learn/paths/administer-infrastructure-resources-in-azure/

This will take you though different modules to learn this part of Azure Administration. You will review how to create, manage, secure and scale virtual machine resources.

Azure Virtual Machines - Documentation

After finishing the Learning Path you can review the documentation to get a deeper understanding.

Creating Virtual Machines: be familiar on how to create both Windows and Linux VMs using the different administration tools described previously. For that review the quickstarts:

- https://docs.microsoft.com/en-us/azure/virtual-machines/windows/quick-create-portal
- https://docs.microsoft.com/en-us/azure/virtual-machines/windows/quick-create-powershell
- https://docs.microsoft.com/en-us/azure/virtual-machines/windows/quick-create-cli
- https://docs.microsoft.com/en-us/azure/virtual-machines/linux/quick-create-cli
- https://docs.microsoft.com/en-us/azure/virtual-machines/linux/quick-create-portal
- https://docs.microsoft.com/en-us/azure/virtual-machines/linux/quick-create-powershell

Azure Virtual Machines - Documentation

After finishing the Learning Path you can review the documentation to get a deeper understanding.

Virtual Machine Availability: become familiar with the different High Availability solutions for VMs on Azure, know their differences and SLAs.

- https://docs.microsoft.com/en-us/azure/virtual-machines/windows/manage-availability
- https://docs.microsoft.com/en-us/azure/availability-zones/az-overview
- https://docs.microsoft.com/en-us/azure/best-practices-availability-paired-regions#what-are-paired-regions

Virtual Machine Extensions: extensions are small applications that provide post-deployment configuration and automation tasks on Azure VMs, as an administrator you should know how to create them and use them to customize your deployments.

- https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/features-linux
- https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/features-windows

Azure Virtual Machines – Hands on Lab

After you are familiar with the concepts of the Azure Virtual Machines, practice using the HoL. For that Access the website https://www.microsoft.com/handsonlabs under the self-paced labs.

Search for the topic in question, in this case:

- Deploy and Manage Virtual Machines: SP-AZ100004
- Virtual Machines and Scale Sets: SP-AZ100005

Also on https://microsoftlearning.github.io/AZ-103-MicrosoftAzureAdministrator/ go over Module 2

Azure Storage

Azure Storage – Requirements

This section is worth 15-20% of the exam. You need to be proeficient in deploying and managing Storage. Knowing how to:

Create and configure storage Accounts:

- Configure network access to the storage account
- Create and configure storage account
- Generate shared access signature
- Install and use Azure Storage Explorer
- Manage access keys
- Monitor activity log by using Log Analytics
- Implement Azure storage replication

Import and export data to Azure:

- Create export from Azure job
- Create import into Azure job
- Use Azure Data Box
- Configure and use Azure blob Storage
- Configure Azure content delivery network (CDN) endpoints

Configure Azure files:

- Create Azure file share
- Create Azure File Sync service
- Create Azure sync group
- Troubleshoot Azure File Sync

Implement Azure backup:

- Configure and review backup reports
- Perform backup operation
- Create Recovery Services Vault
- Create and configure backup policy
- Perform a restore operation

Azure Storage – Learning Path

For this topic there is a learning path available that can be found on:

- https://docs.microsoft.com/en-us/learn/paths/store-data-in-azure/

This will take you though different modules to learn this part of Azure Administration. You will review how to create a Storage Account, and how to choose the right model for the data you want to store in the cloud.

You also have a specific learning path for Azure Storage Accounts:

- https://docs.microsoft.com/en-us/learn/modules/create-azure-storage-account/_

As far as security in Azure Storage you should complete this other learning path:

- https://docs.microsoft.com/en-us/learn/modules/secure-azure-storage-account/

Azure Storage - Documentation

After finishing the Learning Path you can review the documentation to get a deeper understanding.

Storage Accounts: an Azure storage account contains all of your Azure Storage data objects: blobs, files, queues, tables, and disks. You should know its concepts, types of storage accounts and how to create and manage one:

- https://docs.microsoft.com/en-us/azure/storage/common/storage-account-overview
- https://docs.microsoft.com/en-us/azure/storage/common/storage-quickstart-create-account?tabs=azure-portal

You should become familiar with the following services:

Azure Blobs:

- https://docs.microsoft.com/es-es/azure/storage/blobs/storage-blob-storage-tiers
- https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-create-account-block-blob

Azure Files:

- https://docs.microsoft.com/en-us/azure/storage/files/storage-files-introduction
- https://docs.microsoft.com/en-us/azure/storage/files/storage-files-quick-create-use-windows

Azure Storage - Documentation

Azure Backup:

- https://docs.microsoft.com/en-us/azure/backup/

Azure File Sync:

- https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide?tabs=azure-portal
- https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide?tabs=azure-portal

Content Delivery Network:

- https://docs.microsoft.com/en-in/azure/cdn/cdn-overview
- https://docs.microsoft.com/en-in/azure/cdn/#step-by-step-tutorials

Import and Export Service:

- https://docs.microsoft.com/en-us/azure/storage/common/storage-import-export-service

Data Box:

- https://docs.microsoft.com/en-us/azure/databox/data-box-overview

Azure Storage - Documentation

Another important topic in Storage is Data Protection:

Data Replication

- https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy
- https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-overview

File and Folder Backups and VM backups

- https://docs.microsoft.com/en-us/azure/backup/backup-overview
- https://docs.microsoft.com/en-us/azure/backup/#step-by-step-tutorials

Azure Storage– Hands on Lab

After you are familiar with the concepts of the Azure Storage, practice using the HoL. For that Access the website https://www.microsoft.com/handsonlabs under the self-paced labs.

Search for the topic in question, in this case:

- Implement and Manage Storage: SQ00207
- Azure Site Recovery Between Regions: SP-AZ100074

Also follow the How-to Guide and Step-by-steps for Azure File Sync

- https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide?tabs=azure-portal

Also on https://microsoftlearning.github.io/AZ-103-MicrosoftAzureAdministrator/ go over Module 3 and 12

Azure Networking

Azure Networking – Requirements

This section is worth 30-35% of the exam. You need to be proeficient in deploying and managing networking. Knowing how to:

Create connectivity between virtual networks:
- Create and configure VNET peering
- Create and configure VNET to VNET
- Verify virtual network connectivity
- Create virtual network gateway

Implement and manage virtual networking:
- Configure private and public IP addresses, network routes, network interface, subnets, and virtual network

Configure name resolution:
- Configure Azure DNS
- Configure custom DNS settings
- Configure private and public DNS zones

Create and configure a Network Security Group (NSG)
- Create security rules
- Associate NSG to a subnet or network interface
- Identify required ports
- Evaluate effective security rules

Implement Azure load balancer:
- Configure internal load balancer, configure load balancing rules, configure public load balancer, troubleshoot load balancing

Monitor and troubleshoot virtual networking:
- Monitor on-premises connectivity, use Network resource monitoring, use Network Watcher, troubleshoot external networking, troubleshoot virtual network connectivity

Integrate on premises network with Azure virtual network:
- Create and configure Azure VPN Gateway, create and configure site to site VPN, configure Express Route, verify on premises connectivity, troubleshoot on premises connectivity with Azure

Azure Networking – Learning Path

For this topic there is a learning path available that can be found on:

- https://docs.microsoft.com/en-us/learn/modules/intro-to-azure-networking/

This will take you though different modules to learn this part of Azure Administration. You will

- Learn how virtual networking helps you isolate network and compute resources
- Learn how Azure Load Balancer helps improve resiliency, or the ability to recover when your service goes down
- Learn how Traffic Manager can route traffic to different endpoints, including the endpoint with the lowest latency to the user

Azure Networking - Documentation

Review the documentation to get a deeper understanding on Azure Networking

Virtual Networks: Azure Virtual Networks are a foundational concept of networking in Azure.

- https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-overview

IP Addressing and Endpoints: after understanding vNETs you should know service endpoints and how to create vNET peerings

- https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-service-endpoints-overview
- https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-ip-addresses-overview-arm
- https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-peering-overview

Azure Networking - Documentation

Review the documentation to get a deeper understanding on Azure Networking

Azure DNS: you should really know DNS concepts and records and then become familiar with Azure DNS service

- https://docs.microsoft.com/en-in/azure/dns/dns-overview

Network Security Groups: as part of networking security get to know NSGs

- https://docs.microsoft.com/en-us/azure/virtual-network/security-overview https://docs.microsoft.com/en-us/azure/virtual-network/tutorial-filter-network-traffic

vNET Peering and vNET to vNET connections

- https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-peering-overview
- https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-howto-vnet-vnet-resource-manager-portal

ExpressRoute Connections:

- https://docs.microsoft.com/en-us/azure/expressroute/expressroute-introduction
- https://docs.microsoft.com/en-us/azure/expressroute/expressroute-howto-circuit-portal-resource-manager

Azure Networking - Documentation

Review the documentation to get a deeper understanding on Azure Networking

Networking Resources:

- Network Routing:

  https://docs.microsoft.com/en-us/azure/virtual-network/virtual-networks-udr-overview

- Azure Load Balancer:

  https://docs.microsoft.com/en-us/azure/load-balancer/load-balancer-overview

- Azure Traffic Manager:

  https://docs.microsoft.com/en-us/azure/traffic-manager/traffic-manager-overview

Azure Networking– Hands on Lab

After you are familiar with the concepts of the Azure Netwoking, practice using the HoL. For that Access the website https://www.microsoft.com/handsonlabs under the self-paced labs.

Search for the topic in question, in this case:

- VNet Peering and Service Chaining: SP-AZ100001

Also it is important to be familiar with Azure DNS, there is no HoL available at this point, but you should review the How-to guides:

- https://docs.microsoft.com/en-in/azure/dns/dns-delegate-domain-azure-dns

Also follow the step by steps of Azure Traffic Manager and Load Balancer:

- https://docs.microsoft.com/en-us/azure/traffic-manager/#step-by-step-tutorials
- https://docs.microsoft.com/en-us/azure/load-balancer/#step-by-step-tutorials

Also on https://microsoftlearning.github.io/AZ-103-MicrosoftAzureAdministrator/ go over Module 4 and 5

Azure Management

Azure Management – Requirements

This section is worth 15-20% of the exam. You need to be proeficient in deploying and managing resource. Knowing how to:

Manage Azure subscriptions
- Assign administrator permissions
- Configure cost center quotas and tagging
- Configure Azure subscription policies at Azure subscription level

Analyze resource utilization and consumption
- Configure diagnostic settings on resources
- Create baseline for resources
- Create and rest alerts
- Analyze alerts across subscription
- Analyze metrics across subscription
- Create action groups
- Monitor for unused resources
- Monitor spend
- Report on spend
- Utilize Log Search query functions
- View alerts in Log Analytics

Manage resource groups
- Use Azure policies for resource groups
- Configure resource locks
- Configure resource policies
- Identify auditing requirements
- Implement and set tagging on resource groups
- Move resources across resource groups
- Remove resource groups

Managed role based access control (RBAC)
- Create a custom role
- Configure access to Azure resources by assigning roles
- Configure management access to Azure, troubleshoot RBAC, implement RBAC policies, assign RBAC Roles

Azure Management – Learning Path

For this topic there is a learning path available for Azure Governance that can be found on:

- https://docs.microsoft.com/en-us/learn/modules/intro-to-governance/

This will take you though different modules to learn this part of Azure Administration. You will

- Apply policies to control and audit resource creation
- Learn how role-based security can fine-tune access to your resources
- Understand Microsoft's policies and privacy guarantees
- Learn how to monitor your resources

Azure Management - Documentation

Review the documentation to get a deeper understanding on Azure Management

Management Groups and subscriptions:

- https://docs.microsoft.com/en-us/azure/governance/management-groups/

Role-Based Access Control (RBAC):

- https://docs.microsoft.com/en-us/azure/role-based-access-control/overview

Users and Groups:

- https://docs.microsoft.com/en-us/azure/active-directory/users-groups-roles/#5-minute-quickstarts

Azure Policy:

- https://docs.microsoft.com/en-us/azure/governance/policy/overview
- https://docs.microsoft.com/en-us/azure/governance/policy/#step-by-step-tutorials

Azure Management - Documentation

Review the documentation to get a deeper understanding on Azure Management

Azure Monitor:

- https://docs.microsoft.com/en-us/azure/azure-monitor/overview, https://docs.microsoft.com/en-us/azure/azure-monitor/learn/quick-collect-azurevm

Azure Alerts:

- https://docs.microsoft.com/en-us/azure/azure-monitor/platform/alerts-overview
- https://docs.microsoft.com/en-us/azure/azure-monitor/learn/tutorial-response
- https://docs.microsoft.com/en-us/azure/azure-monitor/learn/tutorial-alert

Azure Management - Documentation

Review the documentation to get a deeper understanding on Azure Management

Log Analytics:

- https://docs.microsoft.com/en-us/azure/azure-monitor/log-query/log-query-overview
- https://docs.microsoft.com/en-us/azure/azure-monitor/learn/quick-create-workspace
- https://docs.microsoft.com/en-us/azure/azure-monitor/platform/log-analytics-agent

Network Watcher:

- https://docs.microsoft.com/en-in/azure/network-watcher/

Azure Management – Hands on Lab

After you are familiar with the concepts of the Azure Management, practice using the HoL. For that Access the website https://www.microsoft.com/handsonlabs under the self-paced labs.

Search for the topic in question, in this case:

- Governance and Compliance: SP-AZ100159

Also it is important to be familiar with Azure tools, there is no HoL available at this point for all of them, but you should review the How-to guides:

- RBAC: https://docs.microsoft.com/en-us/azure/role-based-access-control/overview
- Network Watcher: https://docs.microsoft.com/en-in/azure/network-watcher/#step-by-step-tutorials

Also on https://microsoftlearning.github.io/AZ-103-MicrosoftAzureAdministrator/ go over Module 6-8 and 11

Azure Manage Identities

Azure Manage Identities – Requirements

This section is worth 15-20% of the exam. You need to be proeficient in Azure Identity. Knowing how to:

Manage Azure Active Directory (AD)

- Add custom domains
- Azure AD Join
- Configure self-service password reset
- Manage multiple directories

Manage Azure AD objects (users, groups, and devices)

- Create users and groups
- Manage user and group properties
- Manage device settings
- Perform bulk user updates
- Manage guest Accounts

Implement and manage hybrid identities

- Install Azure AD Connect, including password hash and pass-through synchronization
- Use Azure AD Connect to configure federation with on-premises Active Directory Domain Services (AD DS)
- Manage Azure AD Connect
- Manage password sync and password writeback

Implement multi-factor authentication (MFA)

- Configure user accounts for MFA, enable MFA by using bulk update, configure fraud alerts, configure bypass options, configure Trusted IPs, configure verification methods

Azure Manage Identities - Documentation

Review the documentation to get a deeper understanding on Azure Identity

Azure Active Directory:

- https://docs.microsoft.com/en-us/azure/active-directory/fundamentals/active-directory-whatis

Azure AD Connect:

- https://docs.microsoft.com/en-us/azure/active-directory/hybrid/whatis-hybrid-identity

Azure AD Join:

- https://docs.microsoft.com/en-us/azure/active-directory/devices/azureadjoin-plan

Azure Manage Identities - Documentation

Review the documentation to get a deeper understanding on Azure Identity

Multi-Factor Authentication:

- https://docs.microsoft.com/en-us/azure/active-directory/authentication/concept-mfa-howitworks

Azure AD Identity Protection:

- https://docs.microsoft.com/en-us/azure/active-directory/identity-protection/overview

Self-Service Password Reset:

- https://docs.microsoft.com/en-us/azure/active-directory/authentication/concept-sspr-howitworks

Azure Manage Identities – Hands on Lab

After you are familiar with the concepts of the Azure Manage Identities, practice with a more hands-on approach. There is no HoL available at this point for this section, but you should review the How-to guides:

- Azure AD Identity Protection: https://docs.microsoft.com/en-us/azure/active-directory/identity-protection/enable
- Self-Service Password Reset: https://docs.microsoft.com/es-es/azure/active-directory/authentication/quickstart-sspr

Also on https://microsoftlearning.github.io/AZ-103-MicrosoftAzureAdministrator/ go over Module 9-10