**AZ-104: Prerequisites for Azure administrators**

**Configure Azure Resources with tools**

PowerShell: cmdlets requiring Azure PS module.

Azure CLI is a command-line program to connect to Azure and execute administrative commands on Azure resources. It runs on Linux, macOS, and Windows, and allows administrators and developers to execute their commands through a terminal, command-line prompt, or script instead of a web browser.

az find blob

az storage blob –help

**Use Azure Resource Manager**

Azure Resource Manager enables you to work with the resources in your solution as a group. You can deploy, update, or delete all the resources for your solution in a single, coordinated operation. You use a template for deployment and that template can work for different environments such as testing, staging, and production. Azure Resource Manager provides security, auditing, and tagging features to help you manage your resources after deployment.

* resource - A manageable item that is available through Azure. Some common resources are a virtual machine, storage account, web app, database, and virtual network, but there are many more.
* resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization.
* resource provider - A service that supplies the resources you can deploy and manage through Resource Manager. Each resource provider offers operations for working with the resources that are deployed. Some common resource providers are Microsoft.Compute, which supplies the virtual machine resource, Microsoft.Storage, which supplies the storage account resource, and Microsoft.Web, which supplies resources related to web apps.
* template - A JavaScript Object Notation (JSON) file that defines one or more resources to deploy to a resource group. It also defines the dependencies between the deployed resources. The template can be used to deploy the resources consistently and repeatedly.
* declarative syntax - Syntax that lets you state "Here is what I intend to create" without having to write the sequence of programming commands to create it. The Resource Manager template is an example of declarative syntax. In the file, you define the properties for the infrastructure to deploy to Azure.
* You can move a resource from one resource group to another group (and subscriptions).
* A resource can interact with resources in other resource groups. This interaction is common when the two resources are related but don't share the same lifecycle (for example, web apps connecting to a database).

Locks can be put in place to prevent deletion of resources, inherited by child resources.

**AZ-104: Compute Resources**

Creating virtual machines, containers, app services, maybe functions?

Virtual machines, default to windows server. Most azure commands are: provider, resource, action, parameters.

Configure networking:

Attach data disk:

Azure Disk Encryption:

Configure high availability and scalability

**Availability zones** – distribute VMs across azure regions. Located geographically near each other.

An Availability Zone is a high-availability offering that protects your applications and data from datacenter failures. Availability Zones are unique physical locations within an Azure region. Each zone is made up of one or more datacenters equipped with independent power, cooling, and networking. To ensure resiliency, there's a minimum of three separate zones in all enabled regions. The physical separation of Availability Zones within a region protects applications and data from datacenter failures. Zone-redundant services replicate your applications and data across Availability Zones to protect from single-points-of-failure. With Availability Zones, Azure offers industry best 99.99% VM uptime SLA. The full [Azure SLA](https://azure.microsoft.com/support/legal/sla/virtual-machines/) explains the guaranteed availability of Azure as a whole.

An Availability Zone in an Azure region is a combination of a fault domain and an update domain. For example, if you create three or more VMs across three zones in an Azure region, your VMs are effectively distributed across three fault domains and three update domains. The Azure platform recognizes this distribution across update domains to make sure that VMs in different zones are not scheduled to be updated at the same time.

* **Zonal services** – where a resource is pinned to a specific zone (for example, virtual machines, managed disks, Standard IP addresses), or
* **Zone-redundant services** – when the Azure platform replicates automatically across zones (for example, zone-redundant storage, SQL Database).

**Availability Sets –**

Load balanced VMs, scan scale automatically based on demand or schedule. Only pay for the price of the VMs

VHD and Snapshots