**Azure PowerShell, ARM template, DSC**

Before you begin the tasks, review the following training materials and articles:

* [Protect your virtual machine settings with Azure Automation State Configuration](https://docs.microsoft.com/en-us/learn/modules/protect-vm-settings-with-dsc/)
* [Azure PowerShell](https://docs.microsoft.com/en-us/powershell/azure/overview?view=azurermps-5.7.0&viewFallbackFrom=azurermps-5.2.0), [Install Az Module](https://docs.microsoft.com/en-us/powershell/azure/install-az-ps?view=azps-1.3.0) and [Azure Virtual Machine PowerShell samples](https://docs.microsoft.com/en-us/azure/virtual-machines/windows/powershell-samples?toc=%2fpowershell%2fmodule%2ftoc.json&view=azurermps-5.2.0)
* [Getting Started with PowerShell Desired State Configuration (DSC)](https://mva.microsoft.com/en-US/training-courses/getting-started-with-powershell-desired-state-configuration-dsc-8672?l=ZwHuclG1_2504984382)
* [Introduction to Desired State Configuration (DSC)](https://accenture.percipio.com/courses/9345c8f3-14c0-11e7-92d9-0242c0a80b07/videos/9345f002-14c0-11e7-92d9-0242c0a80b07)
* [Desired State Configuration Fundamentals](https://accenture.percipio.com/courses/9345f003-14c0-11e7-92d9-0242c0a80b07/videos/9345f004-14c0-11e7-92d9-0242c0a80b07)
* [Advanced PowerShell Desired State Configuration (DSC) and Custom Resources](https://mva.microsoft.com/en-US/training-courses/advanced-powershell-desired-state-configuration-dsc-and-custom-resources-8702?l=3DnsS2H1_1504984382)
* [Internet Information Server](https://www.youtube.com/watch?v=Laib4ynCrUk&list=PLyKWK-QrXDMCSdHJ_yiD_PO9seooO9acL)

1. After logging into Azure via PowerShell, save the credentials in a file that you can use in the future in the PowerShell script for the login process. Have a look [Auto login to Azure with PowerShell](https://4sysops.com/archives/auto-login-to-azure-with-powershell/) and [Persist user credentials across PowerShell sessions](https://docs.microsoft.com/en-us/powershell/azure/context-persistence?view=azurermps-5.7.0) articles. Try logging in Azure using newly created file.(Azure PowerShell)
2. Create a storage account and a BLOB-type container. Upload some of the local folders and files to that container. (Azure PowerShell)
3. Create Azure SQL server and create 3 databases on the server. For testing purposes create and run queries against each database. [Export full backup for all 3 databases](https://github.com/Huachao/azure-content/blob/master/articles/sql-database/sql-database-export-powershell.md) and [import to another Azure SQL server](https://docs.microsoft.com/en-us/azure/sql-database/sql-database-import). (Azure PowerShell)
4. (disabled) Create an ARM template to create a Windows Server 2016 Datacenter with a DNS name and a DSC extension. In the folder where ARM template is located add a new folder named “Artifacts” and create a text file in this folder. Using PowerShell DSC extension copy this file to the C:\Artifacts folder on the Azure VM. Have a look [Structure and syntax of Azure Resource Manager templates](https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-authoring-templates), [Creating and deploying Azure resource groups through Visual Studio](https://docs.microsoft.com/en-us/azure/azure-resource-manager/vs-azure-tools-resource-groups-deployment-projects-create-deploy) , [Working with Azure ARM Templates in Visual Studio Code](https://cmatskas.com/working-with-azure-arm-templates-in-visual-studio-code/), [Key concepts of DSC Resources](https://docs.microsoft.com/en-us/powershell/scripting/dsc/resources/resources?view=powershell-7.1), [DSC xPSDesiredStateConfiguration module](https://github.com/PowerShell/xPSDesiredStateConfiguration).
5. Create an ARM template to create a Windows Server 2016 Datacenter with a DNS name, DSC and Custom Script extension. In the folder where ARM template is located add a new folder named “Shell” and create a myscript.ps1 PowerShell script in this folder. (A new folder may be automatically created when adding Custom Script resource.) Using PowerShell DSC extension copy this script to the Azure VM. From Custom Script extension run myscript.ps1 and pass two parameters by your choice, but so that results of the script can be observed. myscript.ps1 script should create 2 folders, folder names should be taken from parameters. Have a look [Custom Script Extension for Windows](https://docs.microsoft.com/en-us/azure/virtual-machines/extensions/custom-script-windows)
6. Create an ARM template to create a Windows Server 2016 Datacenter with a DNS name and a DSC extension. Through DSC create and configure two different web sites with different ports on IIS. Have a look [xWebAdministration](https://github.com/PowerShell/xWebAdministration) and [Configuring IIS with DSC](https://docs.microsoft.com/en-us/powershell/scripting/dsc/quickstarts/website-quickstart?view=powershell-7.1). Verify that web sites are accessible publicly.