



**Azure Hands On Lab November 20th 2018**

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Remote Desktop Services on Azure





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# Introduction

Many companies use Remote Desktop Services (RDS) to facilitate a remote desktop or remote apps to their users. The same can be achieved by deploying RDS on Azure. However, the Azure platform has some additional features which assist to quickly create a standardized RDS deployment with minimum administration effort.

During the following exercises we will deploy several Azure services using general available templates, including virtual machines that will join Azure Active Directory Domain Services. Additionally, we will adjust resources to our needs and use automation to schedule starting and stopping of Virtual Machines. Also, automatic updates are being configured to reduce the management effort.

By leveraging the Azure Resource Manager this way, we will deploy a RDS solution in just a few hours instead of days. Also, the solution lowers the manual effort that is needed for day to day operation and management.

Estimated time to complete this lab

120 minutes

Objectives

During this lab, you will learn how to get started with Azure to;

* Make your way through the Azure Portal
* Deploy Azure Active Directory Domain Services
* Deploy a RDS farm by using a customized ARM template
* Resize workloads previously provisioned
* Use Automation to schedule your workloads
* Use Automation to arrange updates

Prequisites

To complete this course, you will be needing;

* Laptop/computer with Internet browser and WiFi connected
* Account with an Azure CSP Subscription

Materials

All student materials are available for download here:

<https://github.com/Copaco/handsonlab/>

# Activity 1 : Getting Started

Estimated time to complete this activity

30 minutes

Objectives

In this activity, you will configure the components necessary to perform this lab;

* Login to your Azure tenant
* Create a Resource Group
* Deploy Azure Active Directory Domain Services

## Exercise 1a : Login to the Azure Portal

|  |  |
| --- | --- |
| 1. Using your Work Account, you can sign in to the Azure Portal at:  <https://portal.azure.com> |  |
| 1. Using the navigation bar on the left, use the All services menu to browse to the Subscriptions pane.  The Search filter on the top will help you to find what you need. |  |
| 1. From the Subscriptions overview, click the active subscription. |  |
| 1. In the Overview pane, check the Offer type for being either **CSP, MPN, MSDN, OPEN** or **EA**  Check the Status for being **Active**. |  |
|  | We also strongly recommend that you use InPrivate browsing to ensure that you are not automatically logged on with other credentials during the registration / activation process. |

## Exercise 1b : Create a Resource Group

|  |  |
| --- | --- |
| 1. Click Resource Groups Click Add |  |
| 1. Add Resource group name **AADDSrg**  Select Subscription **Microsoft Azure (CSP)**  Select Location **West Europe** |  |
| 1. After a few moments, the Resource Group “**AADDSrg**” is created |  |
|  | You can choose a different name for the resource group if you like. However, the scripts that will be used in the following steps don’t support special characters in the Resource Group name. So please prevent the use of underscores or hyphens in the name,  as this will result in failures later on. |

## Exercise 1c : Deploy Azure Active Directory Domain Services

|  |  |
| --- | --- |
| 1. From the Azure Portal, click All services and go to the Marketplace |  |
| 1. Use the Search Everything box to search and select Azure AD Domain Services |  |
| 1. You will be presented with a summary of the service. Click the Create button. |  |
| 1. Now it is time to choose some setup preferences.   For the domain name, accept the provided value. In production environment, you would use a custom public domain name.  Choose the same Subscription, Resource Group and Location as used in earlier steps. |  |
| 1. As AAD Domain Services are deployed in a Virtual Network, we’ll have to create one.  Select Create New |  |
| 1. For this lab, we’ll be fine using the defaults for this Virtual Network. Adjust only the VNET Name, so it aligns with the naming convention. |  |
| 1. You’ll be notified that a Network Security Group will be created. We won’t be covering the details in this lab, but you can safely ignore the warning and proceed. |  |
| 1. By default, a new security group will be created in the Azure Active Directory. Accept the suggested group. |  |
| 1. You will be prompted with a summary. Please review and correct if necessary, before proceeding. |  |
| 1. After you select OK, the deployment will start. In the notification pane, the deployment task will be shown. Select the Deployment in progress for details. |  |
| 1. The deployment will be shown in detail. On the Overview pane, you’ll get an overview of the resources deployed with their progress. |  |
| 1. On the Inputs pane, the parameters used will be shown. |  |
| 1. On the Template pane, you’ll see the ARM template that the Azure Portal has generated with you input. This template can be used to redeploy this deployment or as a base for automating other deployments. |  |
| 1. Your done for this exercise! Wait for the deployment to finish. |  |
|  | This deployment will run for about 30 minutes. |

# Activity 2 : Deploy Remote Desktop Services

Estimated time to complete this activity

60 minutes

Objectives

In this activity, you will configure the components necessary to perform this lab;

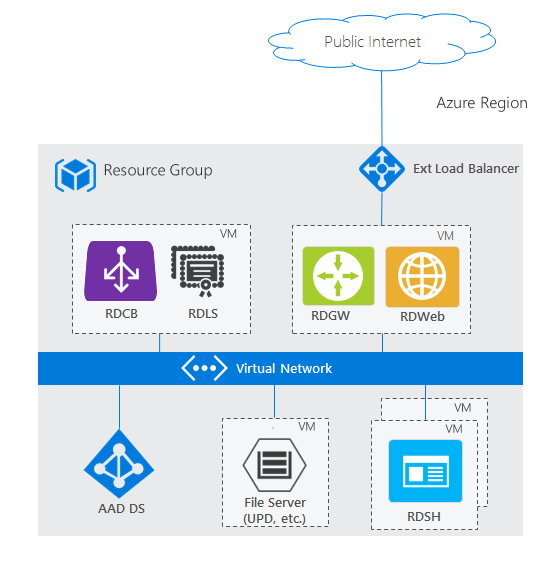
* Finalize the AAD Domain Services deployment
* Deploy RDS using a customized ARM template

## Exercise 2a : Finalize the AAD Domain Services deployment

|  |  |
| --- | --- |
| 1. Verify that the deployment has finished successfully |  |
| 1. Click Resource Groups and open AADDSrg |  |
| 1. You can see there are several resources deployed. Open the Azure AD Domain Services resource by clicking the name. |  |
| 1. You’ll see that AAD Domain Services is running. To make sure all VM’s in the virtual network will use the corresponding DNS Servers, click the Configure button.  You will be notified to reboot all servers in the virtual network. As there are none, you can safely ignore the notification. |  |
| 1. Browse to the Health pane and check if the service is Running and the synchronization between AAD and AAD Domain Services has taken place. |  |
| 1. From the Azure Portal navigation bar, select Azure Active Directory and browse to Users. |  |
| 1. Create a New User |  |
| 1. Give the new user a recognizable Name, as shown in the example. Also, choose a User Name like shown. Please be aware that you should use the same domain that AAD Domain Services is using. |  |
| 1. Make the new user member of the AAD DC Administrators group. |  |
| 1. Make sure the amount of Groups have now changed.  Please note that this user doesn’t need an administrative role in the Azure Active Directory.   Also, select the Show Password field.  Make sure you remember the User Name and Password. |  |
| 1. Open a different browser or open a new InPrivate browser session.  Browse to: myapps.microsoft.com  Log on using the newly created user account. As this is the first logon, the password has to be changed. Please do so. |  |
| 1. You will be logged on. You can safely close the browser session. |  |

## Exercise 2b : Deploy RDS using a customized ARM template

For this exercise, we will be deploying a Remote Desktop Services environment that consist of the following resources;



Just like we would do on-premises or on any other IaaS platform, we could manually deploy and configure the resources needed. However, by leveraging the Azure Resource Manager we can deploy complete solutions much faster. Besides that, deployments are standardized and re-deployable. There are many ready-to-use QuickStart templates available from Microsoft, so we don’t always have to create our own.

|  |  |
| --- | --- |
| 1. Open the ARM template we will be using to deploy the RDS farm to our existing Active Directory. | <https://azure.microsoft.com/en-us/resources/templates/rds-deployment-existing-ad/> |
| 1. You will be presented an overview of the solution. Click to Deploy to Azure.  The template contains a predefined solution with multiple Virtual Machines and roles. It makes use of the already existing Domain Services, in the next step we will adjust the parameters to connect with the existing infrastructure. |  |
| 1. Specify the following parameters;  1) Resource Group **ADDSrg**  2) DNS Label Prefix Choose **a unique value**. This will result in a new FQDN.  3) AD Domain Name As specified in the Domain Services Domain Name in Exercise 1c  4) AD VNET Name **AADDSvn**  5) AD VNET RG **AADDSrg**  6) AD Subnet Name **default**  7) Admin username As specified in Exercise 2a  8) Admin password As specified in Exercise 2a  9) Amount of RDS Session Host. For this lab, we will deploy **2** instances.  10) RDS Session Host VM type. Select the **Standard D2 v2** instance. |  |
| 1. Select the Edit template button |  |
| 1. As we’re not using a traditional DNS Server, we will have to remove some references. Use the search function (CTRL-F) to find the string **DNSServers**. There should be 3 results |  |
| 1. Remove all the lines that define the DNSsettings, as shown in the example. A before and after have been included.  **Repeat for all 3 results**. Select the Save button will validate if the syntax is still correct. | Before    After |
| 1. When the changes are made, click the Purchase button to deploy the solution with the customized ARM template and specified parameters. Don’t forget to accept the terms at the bottom. |  |
| 1. Navigate to Resource Groups > AADDSrg > Deployments |  |
| 1. Select the Microsoft.Template deployment from the list. |  |
| 1. Check how the resources that are included in the ARM template are being deployed. |  |
| 1. [Optional] If the deployment fails, you will get additional details from here. Remove the resources that were deployed. Try to resolve the issue and use the Redeploy button to try again. |  |
| 1. Your done for this exercise! Wait for the deployment to finish. |  |
|  | This deployment will run for about 55 minutes. |

## Exercise 2c : Verify the RDS deployment

|  |  |
| --- | --- |
| 1. Click Resource Groups and open AADDSrg |  |
| 1. Find and select the publicIP |  |
| 1. Collect the DNS Name, which contains the prefix that was given during deployment. |  |
| 1. From a internet browser, open the URL.  To verify, try to logon using the admin account user credentials. Please note you can use the UPN instead of domain\username from this point. | **https://[DNS Name]/RDweb** |
| 1. We now have a basic working deployment of Remote Desktop Services. We won’t focus on configuration in this lab. Feel free to finetune the RDS configuration. For starters, make sure you add the RDS certificate to the trusted certificates on your computer’s certificate store. |  |

# Activity 3 : Customize your RDS environment

Estimated time to complete this activity

45 minutes

Objectives

In this activity, you will configure the components necessary to perform this lab;

* Optimize the performance of the Virtual Machines and Managed Disks
* Deploy the Start/Stop VM Solution
* Implement Update Management using Automation

## Exercise 3a : Optimize the performance of the Virtual Machines and Managed Disks

In the previous exercises we have deployed our environment with predefined VM sizes. To size this to match the organization needs, we’d like to change the VM sizes. Along with the CPU and memory specifications, a RDS Session Host should probably use Premium (SSD) Storage to meet IOPS demands. Therefor, also the disk size will be adjusted in this exercise.

|  |  |
| --- | --- |
| 1. Browse to Virtual Machines and filter on the correct Resource Group. |  |
| 1. Select RDSH-0 and the VM Overview will open. |  |
| 1. Stop the VM, so we can make changes to the configuration. Some changes can be made on a running VM, but changing the disk for instance can only be applied on a stopped VM. |  |
| 1. Browse to Size. |  |
| 1. To select the wanted size, first Add Filters:  Premium Disk **Supported**  RAM (GB) between **8 and 16**  For this lab, select **B2ms** Select Resize. |  |
| 1. Browse to Disks and select the OS Disk. Please note that it’s currently a Standard HDD, which is not recommended for RDS Session Hosts. |  |
| 1. From Configuration, change the Account Type to **Premium SSD** and Save. |  |
| 1. Please repeat steps 2-7 for Virtual Machine RDSH-1, so both RDS Session Hosts have equal specifications. |  |
| 1. Navigate back to the Virtual Machines from Resource Group AADDSrg |  |
| 1. Select both RDS Session Host and select Start |  |

## Exercise 3b : Deploy the Start/Stop VM Extension

|  |  |
| --- | --- |
| 1. Using the navigation bar on the left, use the Create a resource menu to create the Automation Account. 2. Enter **Automation** in the Search bar. 3. Select **Automation** at the marketplace items results. |  |
| 1. Click Create |  |
| 1. Enter **rdsauto** 2. Select Resource Group **AADDSrg** 3. Select Location   **West Europe**   1. Click Create |  |
| 1. Select Create a Resource and search for the **Start/Stop VM’s** solution |  |
| 1. You will be introduced with a summary of the solution. Create the solution. |  |
| 1. Select the Workspace we created before. **rdslaw**  Define the Resource Group where our VM’s are located in **AADDSrg**  Specify the daily start & stop times for the VM’s to boot and shutdown.  And optional, specify an email address to get a notification on each run. |  |
| 1. Wait for the deployment to finalize. You can check using the notification button on the top right. |  |
| 1. Click Resource Groups and open AADDSrg |  |
| 1. Open the **rdsauto** Automation Account |  |
| 1. From Schedules, verify that the Start and Stop times correspond with the given values. Please note that a different timezone could adjust the values entered before. |  |

## Exercise 3c : Implement Update Management using Automation

|  |  |
| --- | --- |
| 1. Using the navigation bar on the left, use the Create a resource menu to create the Log Analytics Workspace. 2. Enter **Log Analytics** in the Search bar. 3. Select Log Analyticsat the marketplace items results. |  |
| 1. Click Create |  |
| 1. Enter **rdslaw** 2. Select Resource Group **AADDSrg** 3. Select Location **West Europe** 4. Select Pricing tier **Free** |  |
| 1. Click Resource Groups and open AADDSrg |  |
| 1. You can see there are several resources deployed. Open the Virtual machine “gw-vm” resource by clicking the name. |  |
| 1. Scroll down. Open the Update management resource by clicking the name. |  |
| 1. Now let’s configure   Update management.  Select **Enable for VMs in this subscription** and **Click to select machines to enable** |  |
| 1. Click CUSTOM 2. Click Change |  |
| 1. Select Location   **West Europe**   1. Select Workspace   **rdslaw**   1. Select Subscription **Microsoft Azure** 2. Select Account **rdsauto** 3. Click OK |  |
| 1. Click Enableto start the Update management deployment |  |
| 1. Search for **Automation** in the top bar |  |
| 1. Select Automation Account rdsauto |  |
| 1. In the navigation bar select Update Management |  |
| 1. It can take a while until the VMs appear. Have a look at the **Update Management** solution. |  |

# Extra resources

RDS 2016 on Azure video

<https://www.youtube.com/watch?v=Xi89A2b5b5w>

RDS architecture designs

<https://docs.microsoft.com/nl-nl/windows-server/remote/remote-desktop-services/desktop-hosting-logical-architecture#highly-available-deployment>

RDS Geo redundant datacenter deployment

<https://docs.microsoft.com/nl-nl/windows-server/remote/remote-desktop-services/rds-multi-datacenter-deployment>

MFA extension

<https://docs.microsoft.com/nl-nl/azure/active-directory/authentication/howto-mfa-nps-extension-rdg>

Azure AD Domain Services

<https://docs.microsoft.com/nl-nl/windows-server/remote/remote-desktop-services/rds-azure-adds>

Azure AD Application Proxy

<https://docs.microsoft.com/nl-nl/azure/active-directory/manage-apps/application-proxy-integrate-with-remote-desktop-services>