Configuring DataSunrise

with Azure Resource

Manager Template

on Microsoft Azure

Instruction Manual

June, 2024

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1. Introduction

Manual deployment of a High Availability (HA) configuration requires accurate implementation of settings with all the dependencies applied correctly. Moreover, the product installation process may take much more time by also including the maintenance of a reliable and stable solution to run the production environment. To avoid all of the possible issues and eliminate the presuming inconveniences, DataSunrise provides a dedicated script for HA infrastructure deployment within the Microsoft Azure service based on the Azure Resource Manager (ARM) template. The deployment process is automated and does not require any manual adjusting.

Estimated deployment time: 20-30 minutes.
Required skills: basic knowledge of Azure Resource Manager deployment using the template, Azure Virtual Network and Subnets configuration skills.

1.1. Description and structural scheme of an Azure Resource Manager

The following picture displays the most important objects created by Azure Resource Manager as they are listed in the template. Creation order is parallel considering objects' dependencies (marked with arrows).
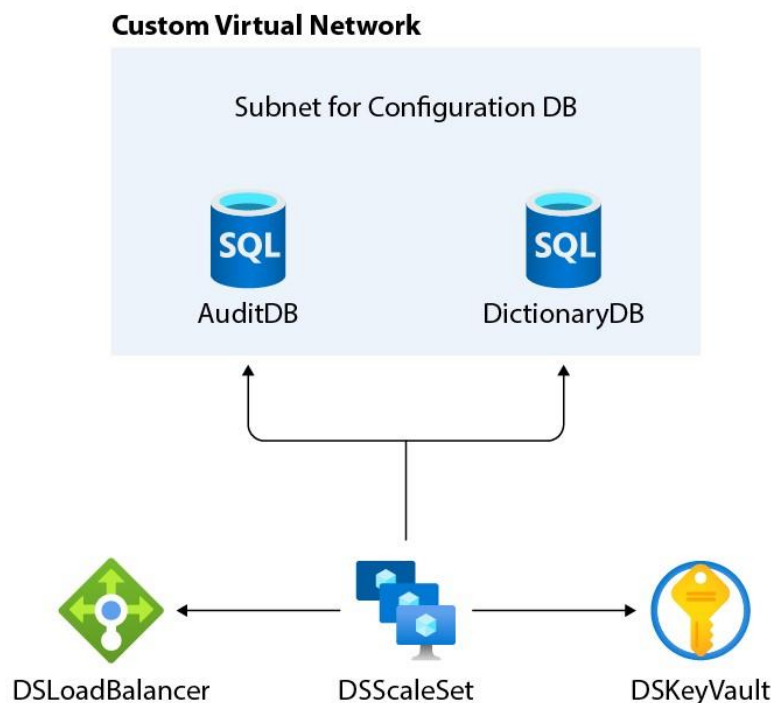
Picture 1. Structural scheme of the ARM environment

1. Custom Virtual Network (Microsoft.Network/virtualNetworks): Virtual Network where the subnets are located. Manages free communication between Azure resources;

2. DictionaryDB (Microsoft.DBforPostgreSQL/flexibleServers): Azure database instance used to store DataSunrise settings (Dictionary);

3. AuditDB (Microsoft.DBforPostgreSQL/flexibleServers): Azure database instance used to store DataSunrise's audit journal and other journals (Audit Storage);

4. DSLoadBalancer (Microsoft.Network/loadBalancers): Load Balancer;

5. DSScaleSet (Microsoft.Compute/virtualMachineScaleSets): Virtual Machine Scale Set, includes configuration of the failover cluster;

6. DSKeyVault (Microsoft.KeyVault/vaults): Key Vault used to store credentials for ARM resources;

Note: there are different dependent resources that will be created as well. Describing them here will not bring any useful information.

2. Prerequisites

There are some entities that should exist in your Azure environment before you start the deployment process. Here is the list of required items:

- Azure resource group where all the configured resources will be deployed
- Subnets within the VNET that you will designate for your DataSunrise cluster running in the specified VNET:
    - A separate subnet for Dictionary and Audit Storage databases delegated to Microsoft.DBforPostgreSQL/flexibleServers
    - A separate subnet for DataSunrise Virtual Machine ScaleSet
- Subnets to be used should have the following service endpoints attached:
    - Microsoft.Sql server endpoint : required in case MS SQL databases are used
- In case you are willing to deploy private Load Balancer, add NAT gateway to the subnet for the scaleset
- SSH key to connect to DataSunrise Virtual Machines
- In case you are going to protect Azure SQL database server, you need to modify the template in advance and open:
    - 11000-11999 ports in the Security group for the additional interface availability;
    - 11999-11990, and further in low scale in case necessary, in the Load Balancer NAT rules for the additional interface availability as well.

Important:

Your Azure account subscription should be assigned to the Owner role to use Managed Identity resource to connect to Azure CLI and to deploy the required Azure resources for successful DataSunrise implementation. You can check it in **Subscriptions -> <Your_subscription> -> Access control -> Role assignments**.
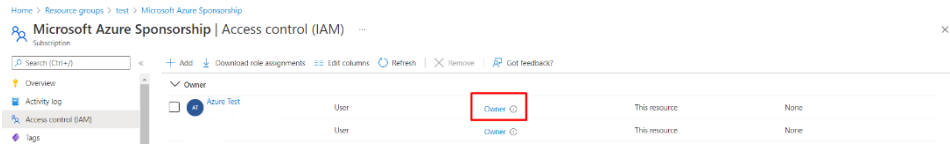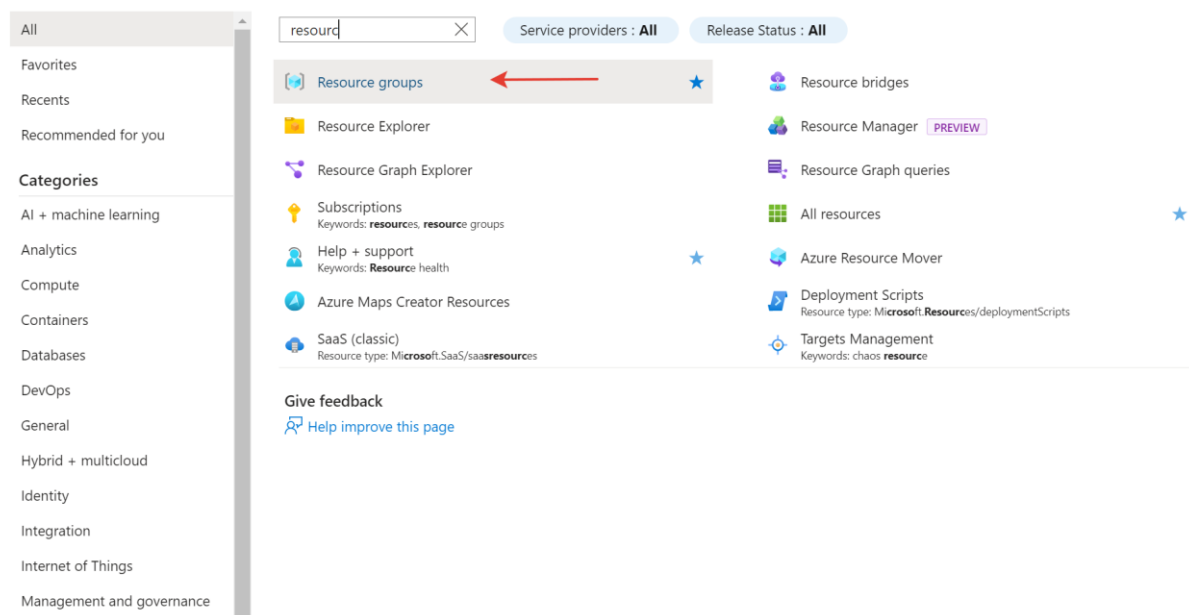

Picture 2. Access Control (IAM)

3. Deploying an Azure Resource Manager Template

First, proceed to our official GitHub repository and download the template file: https://github.com/datasunrise-github/azure-template/blob/main/ARM_template.json

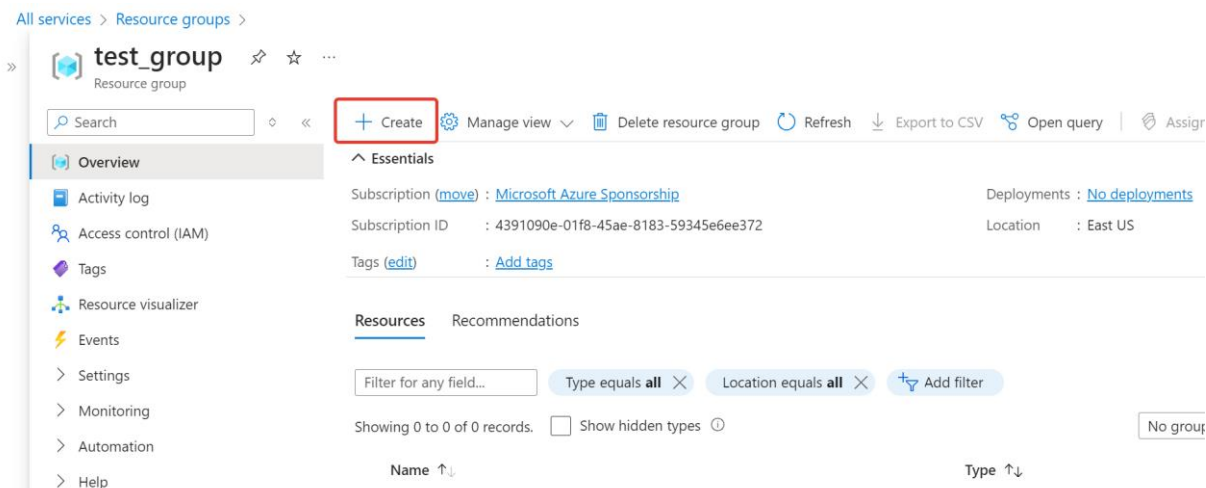To deploy DataSunrise in HA configuration, navigate to the **Resource groups** subsection of **All services** page**:**
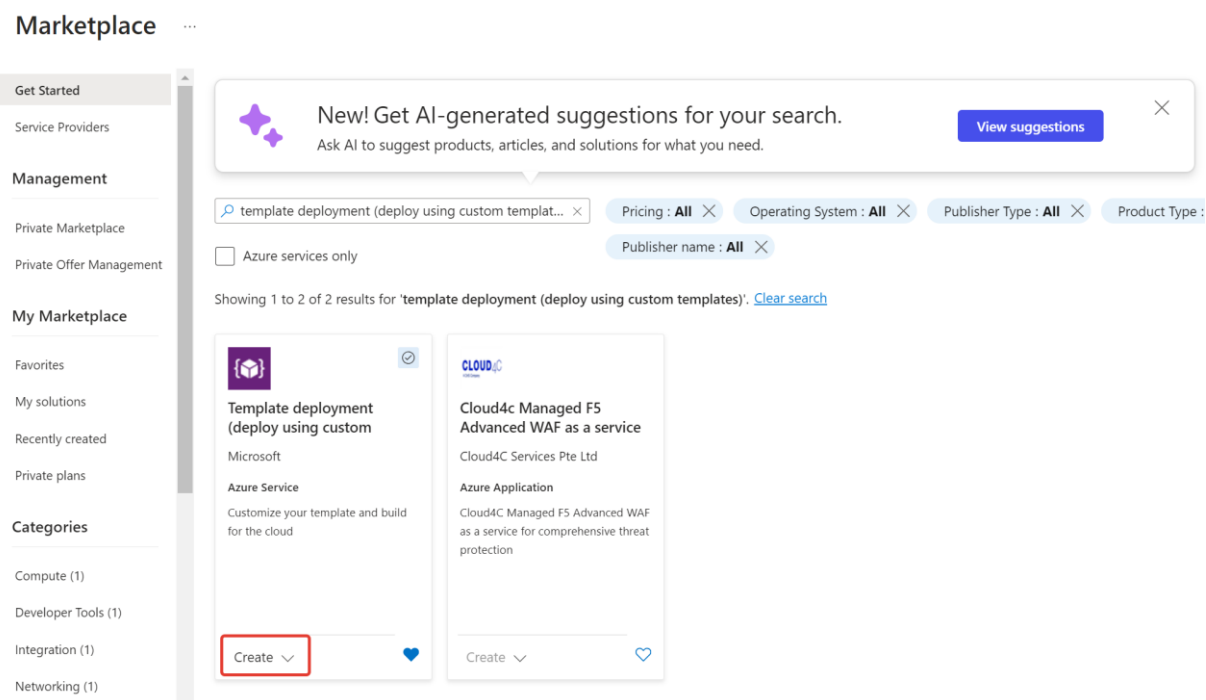

Picture 3. Resource Group

Select the required Resource group or create a new one.

Inside the selected resource group, click **+Create** to configure the ARM template deployment:

Picture 4. Creating an ARM Template

Select **Template deployment (deploy using custom templates)** (you can use the *Search services...* functionality)*,* then **Build your own template in the editor***:*

Picture 5. Template Deployment

Custom deployment ···

Deploy from a custom template

Select a template   Basics   Review + create

Automate deploying resources with Azure Resource Manager templates in a single, coordinated operation. Create or select a template below to get started. Learn more about template deployment ☐

✏️ Build your own template in the editor

Common templates

🖥️ Create a Linux virtual machine

🖥️ Create a Windows virtual machine

⊙ Create a web app

🗄️ Create a SQL database

📄 Azure landing zone

Start with a quickstart template or template spec

Template source ⓘ   ⦿ Quickstart template
                   ○ Template spec

Quickstart template (disclaimer) ⓘ   [⌄]

Picture 6. Select a Template Section

Then select *Load file*. In the next window select the downloaded *.json* file and upload it to the portal. Having uploaded the template configuration file, click **Save**.

Edit template ···

Edit your Azure Resource Manager template

\+ Add resource   ↑ Quickstart template   ↑ Load file   ↓ Download
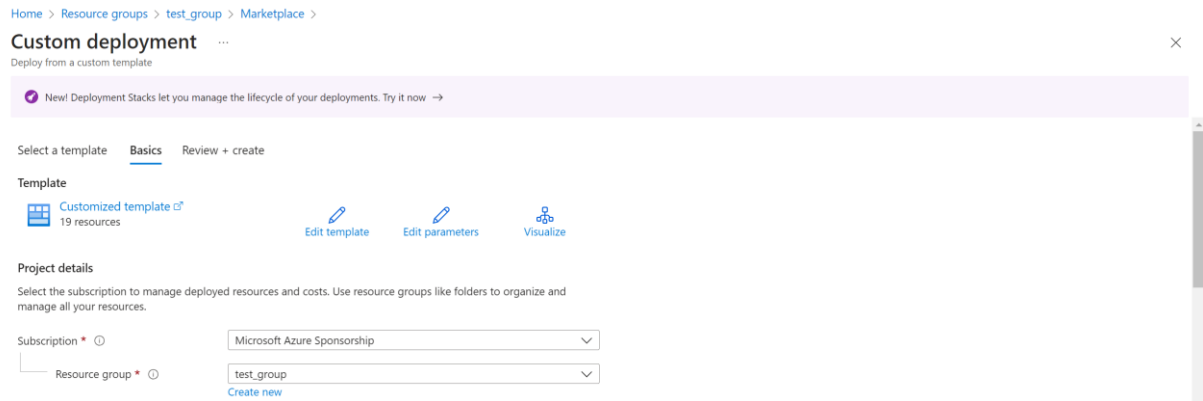
```
1  {
2      "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
3      "contentVersion": "1.0.0.0",
4      "parameters": {},
5      "resources": []
6  }
```

⚙️ Parameters (0)
📄 Variables (0)
🌐 Resources (0)

Picture 7. Load File Section

3.1. Filling In the requested parameters

3.1.1. Project details

Note: * is for required information

Picture 8. Custom Deployment Section

- *Subscription* - select the available subscription type for your Azure account.

- *Resource group* - the resource group name that was chosen in the **Deploying resource manager template** section is set automatically.

3.1.2. Instance details

In this section, ARM template parameters are presented. You need to specify the requested parameters for DataSunrise implementation on Azure.

Let's take a look at them one by one:

Picture 9. ARM Template Parameters

Virtual Machine configuration.

- *Region:* preferred location of your Azure resources. It will be set automatically after the resource group is chosen

- *Admin Username:* specify the Linux machine *admin username* here. You can leave the default value as well

- *Admin Password:* specify the *password* that will be used along with the *Admin Username* as credentials for the Linux machine where DataSunrise server will be installed

- *Admin SSH Pub Key Id:* SSH public key ID that will be used to connect to DataSunrise Virtual Machines via SSH (check *Properties* section for the SSH Public Key resource)

- *Deployment Prefix:* a prefix that will be used for all ARM resources

- *Network Security Group Name:* specify this parameter with the *network security group* name that will be environmental. You can leave the default value as well

- *Role Name:* specify the role name that will be assigned in the Managed Identity. You can leave the default value as well

- *Vm Size:* specify the *size of the virtual machine* that will be created. The default value is *Standard_B2ms*.

Note: you can choose other virtual machine size values. Enter the most appropriate value depended on your location and the availability set.

Load Balancer Type ⓘ	public ⌄
Subnet Resource Group Name * ⓘ	
Virtual Network Name * ⓘ	
Subnet Name For Scale Set * ⓘ	
Subnet Name For Configuration DB * ⓘ	

Picture 10. Subnet Environment Parameters

Subnets environment

- *Load Balancer Type:* choose the type of the Load Balancer you want to deploy
- *Subnet Resource Group Name:* specify the name of the *resource group* where the VNET is stored
- *Virtual Network Name:* specify the *virtual network name* where the subnets are stored

- *Subnet Name for Scale Set:* specify the *subnet name* that will be used for the ScaleSet deployment
- *Subnet Name for Configuration DB:* specify the subnet name that will be used for Dictionary and Audit Storage databases

Link To DS Build ⓘ	https://update.datasunrise.com/get-last-datasunrise/index?cloud=gen... ✓
DS Admin Password * ⓘ	
DS License Key * ⓘ	
Dictionary Database Name ⓘ	dsdict ✓
Dictionary Database Administrator Login ⓘ	dsuser ✓
Dictionary Database Administrator Login Password * ⓘ	
Database Backup Retention Days ⓘ	7 ✓

Picture 11. DataSunrise Parameters

DataSunrise configuration

- *Link To DS Build:* provide a *link* to download the latest DataSunrise package. By default, it is being downloaded from our official website
- *DS Admin Password:* specify the value that will be used as DataSunrise *admin* user *password* to log into the Web Console. Please, check 14.8.4 Password Settings section of the DataSunrise User Guide for password settings
- *DS License Key:* provide your DataSunrise license key
- *Dictionary Database Name:* name of the Dictionary database
- *Dictionary Database Administrator Login:* specify the *name* of the *user* that will be used to access the Dictionary database. You can leave the default value as well
- *Dictionary Database Administrator Login Password:* specify the *password* that will be used along with the *Database Administrator Login* as credentials for the Dictionary database
- *Dictionary Database Backup Retention Days:* specify the value that will be used as the number of database server backup retention days. You can leave the default value as well.

Audit Database Name ⓘ	dsaudit	✓
Audit Database Administrator Login ⓘ	dsuser	✓
Audit Database Administrator Login Password * ⓘ		

Picture 12. Audit Parameters

- *Audit Database Name:* name of the Audit Database Storage

- *Audit Database Administrator Login:* specify the *name* of the *user* that will be used to access the Audit database

- *Audit Database Administrator Login Password:* specify the *password* that will be used along with the Database Administrator as the credentials for the Audit database

| Target DB Type * ⓘ	⌄
Target DB Name * ⓘ	
Target DB Host * ⓘ	
Target DB Port * ⓘ	
Target DB Login * ⓘ	
Target DB Login Password * ⓘ	

Picture 13. Target Database Parameters

Target database configuration

- *Target DB Type:* choose the *type* of the target database

- *Target DB Name:* specify the *name* of your target database

- *Target DB Host:* specify the target database *host* value

- *Target DB Port:* enter the target database *port number*

- *Target DB Login:* enter the target database *username* that will be used to connect to the target database

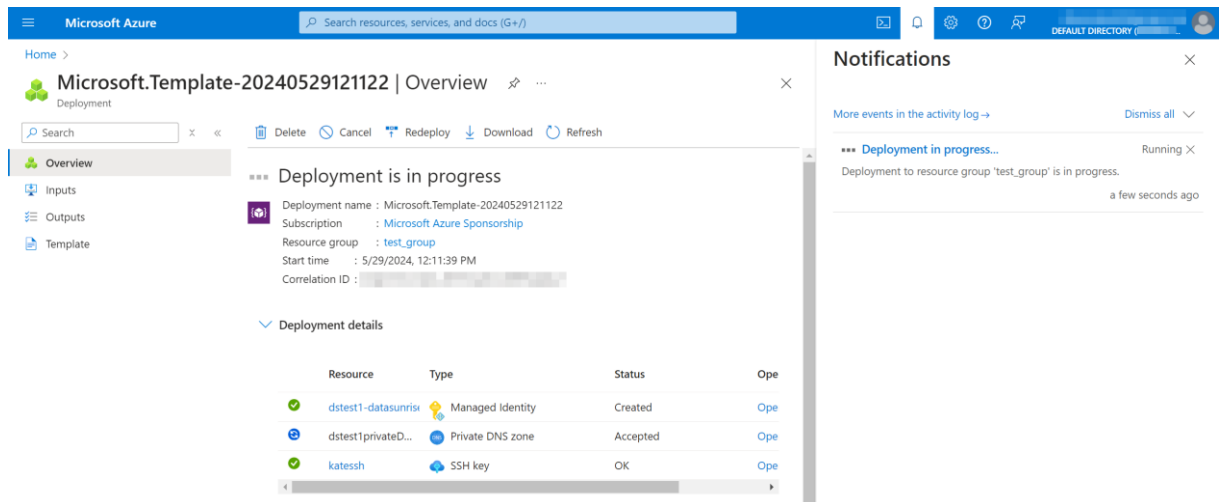- *Target DB Login Password:* enter the target database user *password*

3.2. Finishing the Deployment

After all the parameters are filled in and the *Validation is passed*, click the **Create** button.
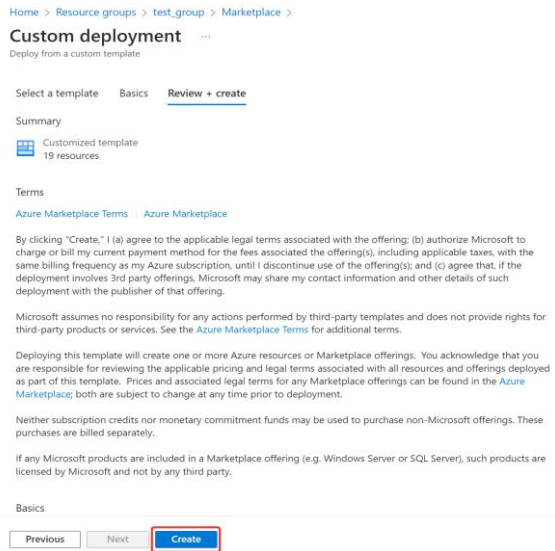
Picture 14. Finishing deployment
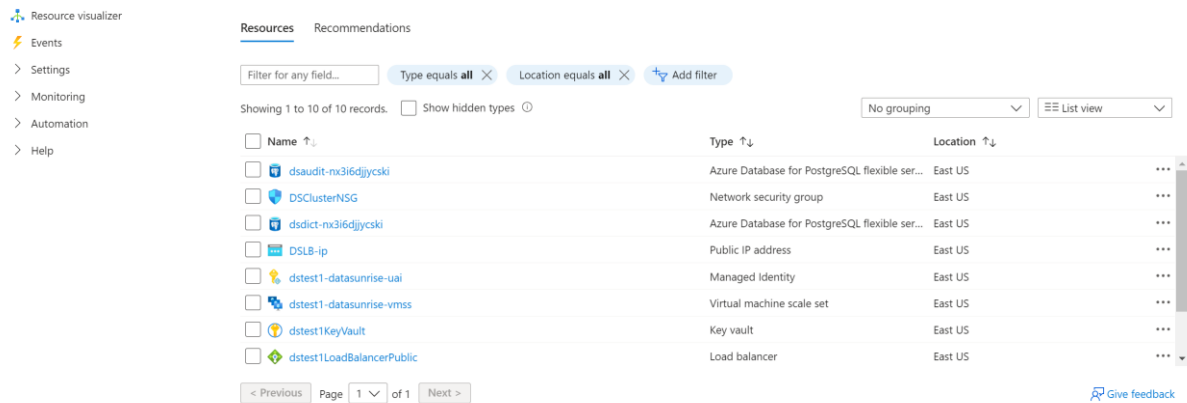
Deployment process has been started.

Picture 15. Deployment of the Template

Once the deployment is finished successfully, the *Your deployment is complete* message will be displayed. Click **Go to resource group** to view the created resources:
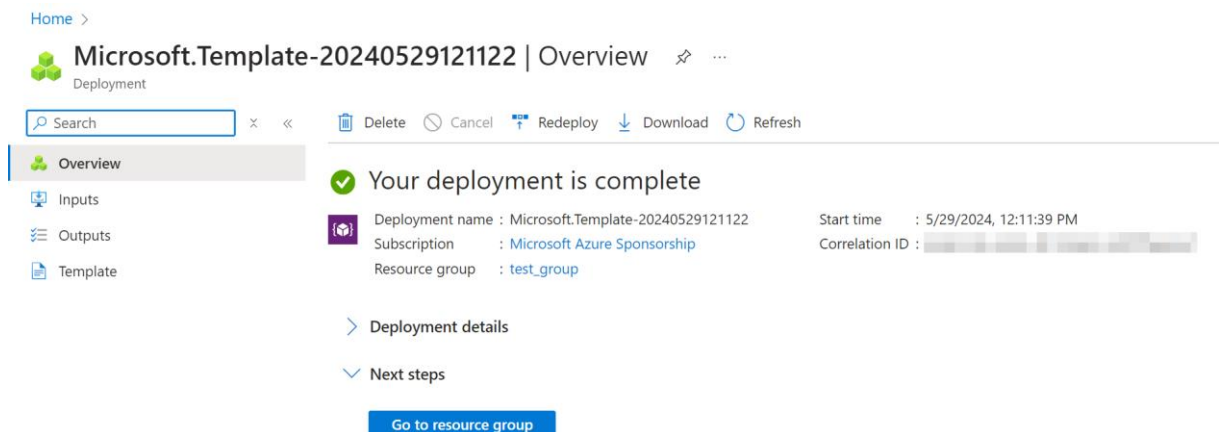
Picture 16. Successful Deployment

All the resources are successfully deployed and listed inside the resource group.

Picture 17. Resources

3.3. Connecting to the DataSunrise Web Console

To connect to the DataSunrise's Web Console, use DataSunrise ScaleSet public IP address. It will automatically connect to one of the configured nodes. You also need to use this IP address to connect to your protected database through a proxy and to connect to your Virtual Machine using SSH.

https://your_public_ip_address:11000
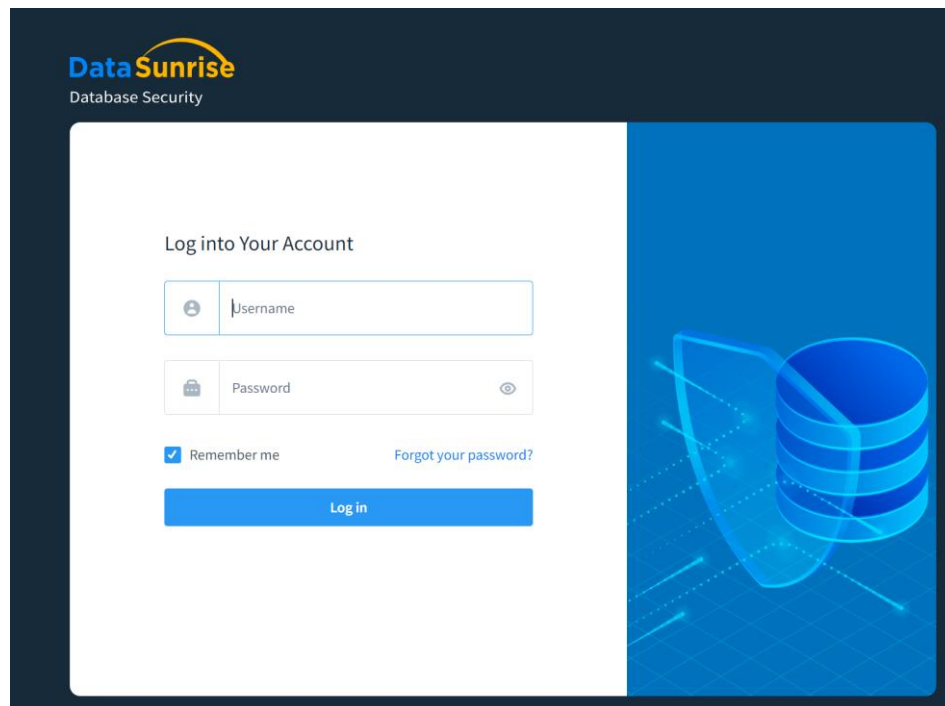
Picture 18. DataSunrise Log In Page

The Target DB will be automatically added to the DataSunrise server:
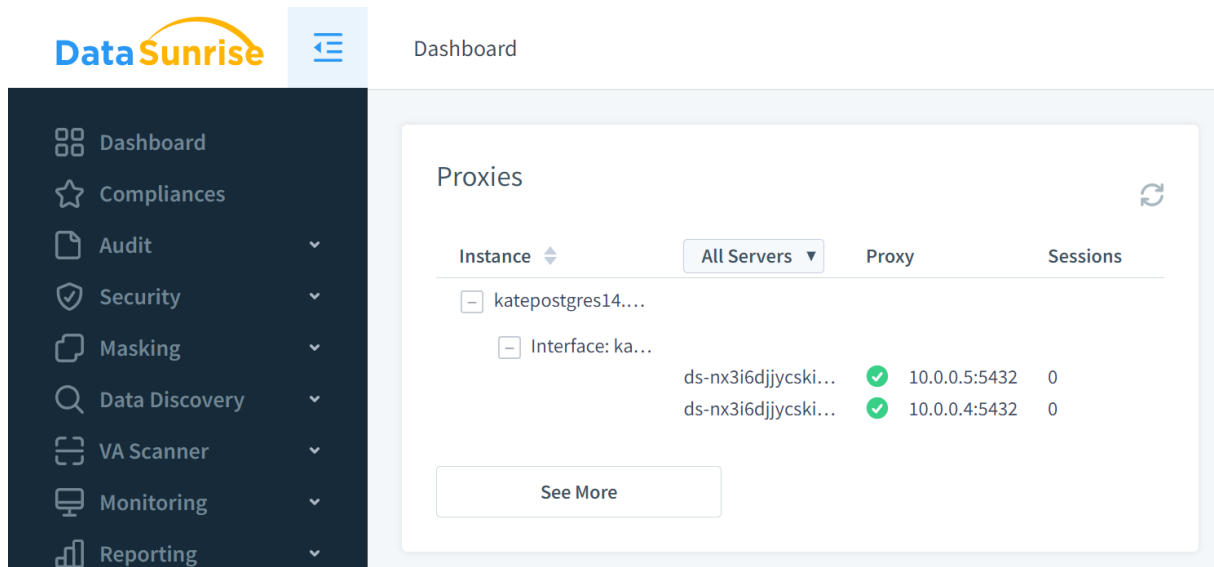
Picture 19. DataSunrise servers

4. Summary

DataSunrise ARM template is successfully deployed. DataSunrise Configuration and Audit databases are configured on a PostgreSQL server. Public Load Balancer IP address is configured to access the Web Console and the protected databases.

HA configuration is set. Autoscaling settings are applied depending on the amount of the DataSunrise servers being alive. Virtual machine contributor role is assigned to the Virtual machine scale set to access the Azure CLI.

4.1 Troubleshooting

In order to troubleshoot the ARM deployment you need to allow SSH access to DataSunrise ScaleSet. There are several ways to do that:

1. You can add a load balancing rule with 22 port opened
2. You can create a bastion machine to connect to your DataSunrise ScaleSet

Once the SSH access has been granted, connect to DataSunrise ScaleSet Virtual Machines one by one to check the log file. The log file can be found by the following path: **/tmp/ds-install-output.log**

You can contact our support@datasunrise.com if you face any issues with the ARM configuration.
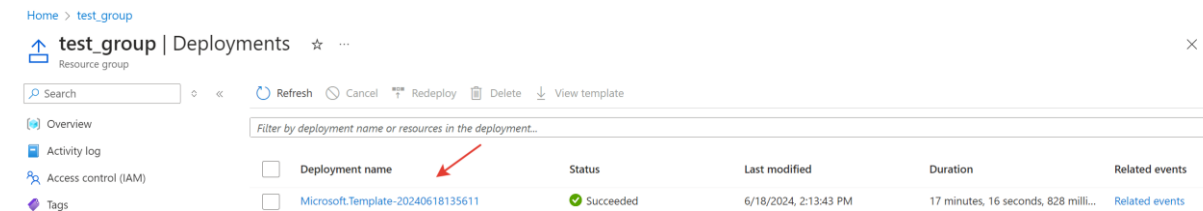
4.2 DataSunrise Upgrade

In order to perform the upgrade of your environment, for example, to install the latest DataSunrise version you need to proceed to Your Resource Group -> Settings -> Deployments:
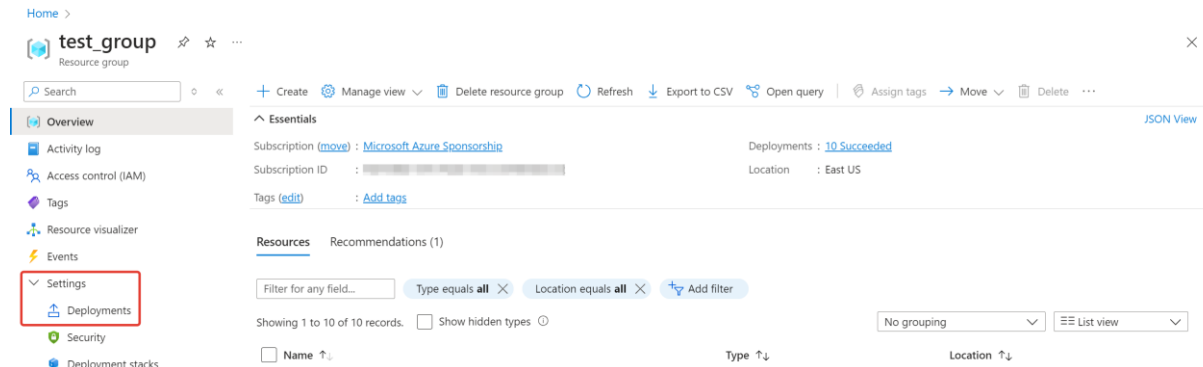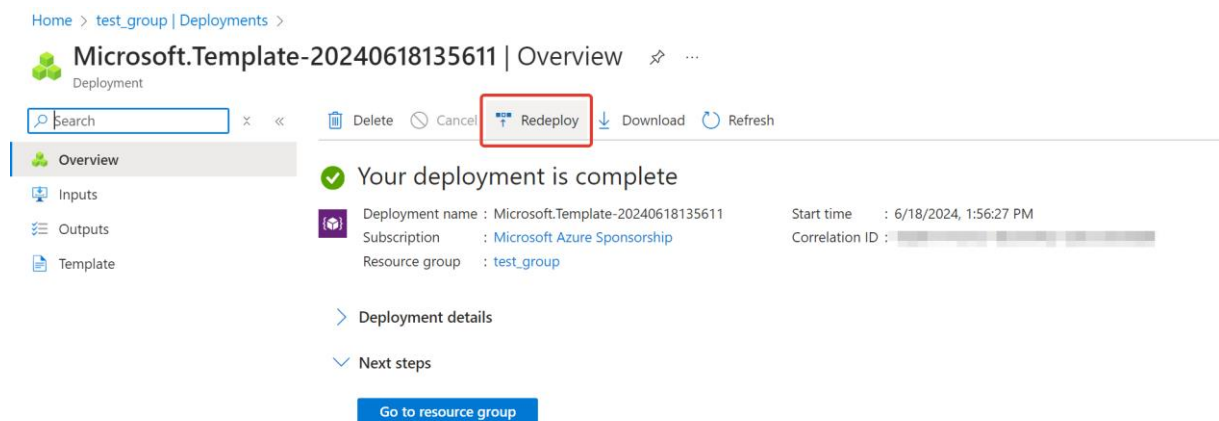

Picture 20. Deployments

Click on your deployment:

Picture 21. The list of Deployments

And then *Redeploy*:

Picture 22. Redeploy

Update the field – *Link To DS Build*, with the link to the DataSunrise version you want to perform the upgrade on. Fill in all the missing fields as well:

Picture 23. Upgrading Datasunrise

Click *Review+Create* and then *Create.* Wait till the deployment is finished.

Login to DataSunrise Web Console and check the app version:

Picture 24. DataSunrise Version

If there are any issues, please check the *4.1 Troubleshooting* section.

DataSunrise environment upgrade has been finished successfully.