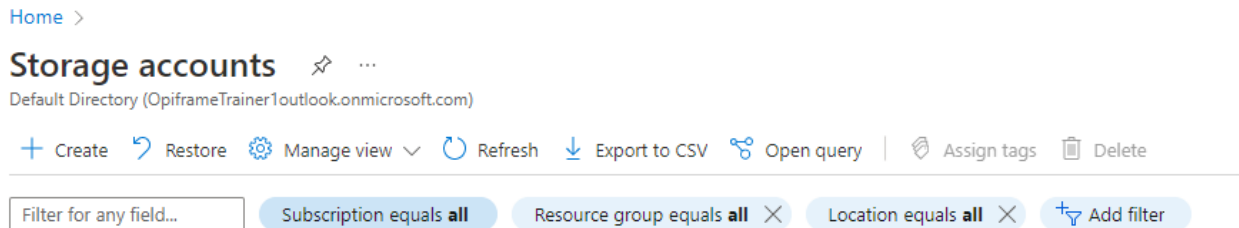


Harjoitus 6A: Storage-palvelut

Tehtävä 1: Azure Storagen konfigurointi

1. Avaa portaali portal.azure.com. Kirjoita yläosan hakuruutuun ja valitse **Storage Accounts**.



2. Luo uusi Storage account valinnalla **+ Create** ja määrittele se seuraavilla tiedoilla:

Resource Group: Luo uusi resource group klikkaamalla **Create New** ja anna ryhmälle haluamasi nimi.

Storage Account Name: Anna tähän yksilöllinen nimi (Huom! Vain pieniä kirjaimia ja numeroita)

Location: (Europe) North Europe

Performance: Standard

Redundancy: Locally-redundant storage (LRS)

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription * Pay-As-You-Go ▼

Resource group * (New) ztan ▼

[Create new](#)

Instance details

If you need to create a legacy storage account type, please click [here](#).

Storage account name ⓘ * ztanstorage

Region ⓘ * (Europe) Norway East ▼

Performance ⓘ *

☒ **Standard:** Recommended for most scenarios (general-purpose v2 account)

☐ **Premium:** Recommended for scenarios that require low latency.

Redundancy ⓘ * Locally-redundant storage (LRS) ▼

3. Luo Storage Account klikkaamalla **Review + Create** ja kun validointi on valmis, klikkaa Create.

Home >

ztanstorage_1670407720344 | Overview 🔗 ⋮

Deployment

⏪ 🗑️ Delete ⏸️ Cancel 🔄 Redeploy ⬇️ Download 🔄 Refresh

Overview

Inputs

Outputs

Template

... Deployment is in progress

Deployment name: ztanstorage_1670407720344
 Start time: 12/7/2022, 12:08:44 PM

Subscription: [Pay-As-You-Go](#)
Correlation ID: d3ca7564-a6ad-45b7-a613-9f6722fa73c4

Resource group: [ztan](#)

Deployment details

Resource	Type	Status	Operation details
No results.			

Tehtävä 2: Katso Accountin ominaisuudet

1. Klikkaa **Go to Resource**. Tarkastele perusnäkömän tietoja. Kiinnitä **huomio** Data Storage- kohtaan

2, Mene **Security + networking** -osioon ja valitse sieltä **Access Keys**. Mihin tarvitset **connection stringiä**, mihin **Access Keyiä**?

Data storage

Containers

File shares

Queues

Tables

Security + networking

Networking

Azure CDN

Access keys

Shared access signature

Encryption

Microsoft Defender for Cloud



ztanstorage | Access keys

Storage account

Search

Overview

Activity log

Tags

Diagnose and solve problems

Access Control (IAM)

Data migration

Events

Storage browser

Data storage

Containers

File shares

Queues

Tables

Security + networking

Networking

Azure CDN

Access keys

Set rotation reminder

Refresh

Access keys authenticate your applications' requests to this storage account. Keep your keys in a secure location, such as Azure Key Vault, and replace them often with new keys. The two keys allow you to replace one while still using the other.

Remember to update the keys with any Azure resources and apps that use this storage account.

[Learn more about managing storage account access keys](#)

Storage account name

ztanstorage

key1 Rotate key

Last rotated: 12/7/2022 (0 days ago)

Key

.....

Show

Connection string

.....

Show

key2 Rotate key

Last rotated: 12/7/2022 (0 days ago)

Key

.....

Show

Connection string

.....

Show

3. Hyppää vasemman laidan valikossa kohtaan **Configuration**. Huomaa käytettävissä olevat vaihtoehdot.

Scrollaa vähäsen alemmaksi (vasen käyttöliittymästä)

Settings

- Configuration
- Data Lake Gen2 upgrade
- Resource sharing (CORS)
- Advisor recommendations
- Endpoints
- Locks

ztanstorage | Configuration Storage account

Search << Save Discard Refresh

Microsoft Defender for Cloud

Data management

- Redundancy
- Data protection
- Object replication
- Blob inventory
- Static website
- Lifecycle management
- Azure search

Settings

- Configuration**
- Data Lake Gen2 upgrade
- Resource sharing (CORS)
- Advisor recommendations
- Endpoints
- Locks

Monitoring

- Insights
- Alerts
- Metrics

The cost of your storage account depends on the usage and the options you choose below. [Learn more about storage pricing](#)

Account kind
StorageV2 (general purpose v2)

Performance ⓘ
☒ Standard ☐ Premium

ⓘ This setting cannot be changed after the storage account is created.

Secure transfer required ⓘ
☐ Disabled ☒ Enabled

Allow Blob public access ⓘ
☐ Disabled ☒ Enabled

Allow storage account key access ⓘ
☐ Disabled ☒ Enabled

Allow recommended upper limit for shared access signature (SAS) expiry interval ⓘ
☒ Disabled ☐ Enabled

Default to Azure Active Directory authorization in the Azure portal ⓘ
☒ Disabled ☐ Enabled

Minimum TLS version ⓘ
Version 1.2

Permitted scope for copy operations (preview) ⓘ
From any storage account

Blob access tier (default) ⓘ
☐ Cool ☒ Hot

Tehtävä 3: Storage Blobien luonti ja hallinta

1. Mene takaisin valikossa **Overview** -kohtaan ja valitse **Data Storage** -osiosta Containers. Klikkaa + **Container** luodaksesi uuden kontainerin seuraavilla tiedoilla:

+ Container

Search container

Name: Valitse kontainerille yksilöllinen nimi

Public Access Level: Private (No anonymous access) ja klikkaa Create.

New container



Name *

ztan-container



Public access level ⓘ

Private (no anonymous access)



▼ Advanced

<input type="checkbox"/>	\$logs	12/7/2022, 12:09:14 PM
<input type="checkbox"/>	ztan-container	12/7/2022, 12:14:20 PM

2. Mene kontaineriin klikkaamalla sen nimeä ja valitse **Upload** ylävalikosta.

eli kaksois klikkaa uusi container mikä äske luotiin

ztan-container

Container

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Shared access tokens

Access policy

Properties

Metadata

Upload

Change access level

Refresh

Delete

Ch...

Authentication method: Access key ([Switch to Azure AD User Account](#))
Location: ztan-container

+ Add filter

Name


No results

3. Määritä **Upload** blob -bladesta ladattava tiedosto klikkaamalla kansion kuvaketta. Valitse kansioksi the **C:\Windows\ImmersiveControlPanel\images** ja ladattavaksi tiedostoksi **splashscreen.contrast-white_scale-400.png**. Varmista **Advanced** alavetovalikosta, että **Authentication Type**-valinnan ervo on **Account Key**. Klikkaa Upload.

Upload blob

ztan-container/

Files ⓘ

"splashscreen.contrast-white_scale-400.png" 

☐ Overwrite if files already exist

Advanced

Upload

Advanced

Authentication type ⓘ

Azure AD user account Account key

Blob type ⓘ

Block blob

☒ Upload .vhd files as page blobs (recommended)

Block size ⓘ

4 MB

Access tier ⓘ

Hot (Inferred)

Upload to folder

Blob index tags ⓘ

Key	Value

Encryption scope

☒ Use existing default container scope

☐ Choose an existing scope

4. Sulje **Upload blob** -blade.

Tehtävä 4: blobin sisällön käyttäminen

1, Klikkaa **container** -bladessa vasta ladattua tiedostoa ja kopioi avautuvasta ikkunasta URL -kentän osoite.

The screenshot shows the Azure Storage portal interface. On the left, the 'Container' blade is active, displaying a list of blobs. A green box highlights the blob named 'splashscreen.contrast-white_sc...'. The right pane shows the 'Overview' tab for the selected blob. A green box highlights the 'URL' property, which displays the blob's URL: 'https://ztanstorage.blo...'. Other properties shown include 'LAST MODIFIED', 'CREATION TIME', 'VERSION ID', 'TYPE', 'SIZE', 'ACCESS TIER', 'ACCESS TIER LAST MODIFIED', and 'ARCHIVE STATUS'.

Container

Authentication method: Access key (Switch to Azure AD User Account)
Location: ztan-container

Search blobs by prefix (case-...)
Show deleted blobs

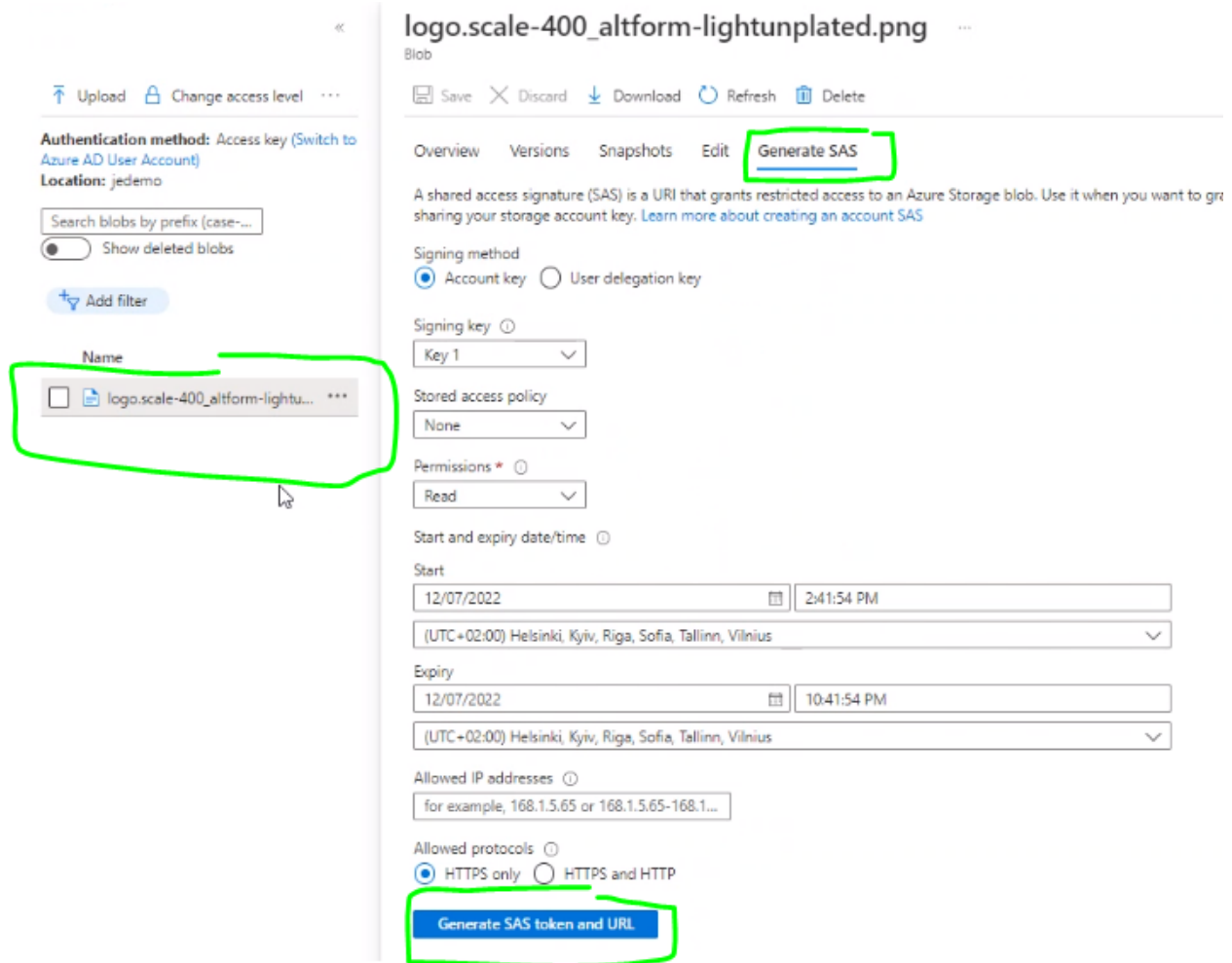
Add filter

Overview Versions Snapshots Edit Generate SAS

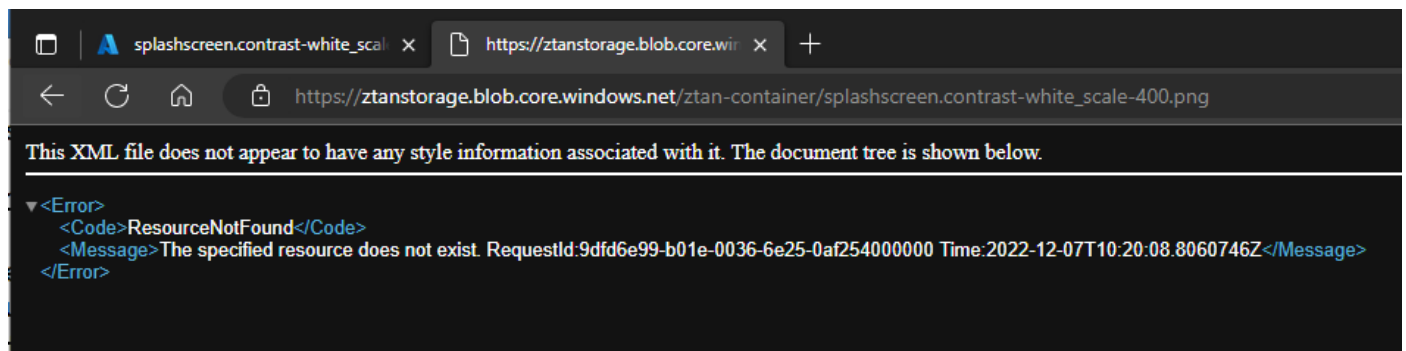
Properties



URL: <https://ztanstorage.blo...>

LAST MODIFIED	12/7/2022, 12:18:02 PM
CREATION TIME	12/7/2022, 12:18:02 PM
VERSION ID	-
TYPE	Block blob
SIZE	21.29 KiB
ACCESS TIER	Hot (Inferred)
ACCESS TIER LAST MODIFIED	N/A
ARCHIVE STATUS	-



2. Avaa selain ja liitä kopioimasi URL-osoite Address -kenttään selaimessa. Saa eteesi ilmoituksen: **Resource Not Found**. Tämä johtuu siitä, että et antanut **bloihin public** -oikeuksia.



ztanstorage | Storage browser   ...

Storage account

Search

Overview

Activity log

Tags

Diagnose and solve problems

Access Control (IAM)

Data migration

Events

Storage browser

Search

Overview

Activity log

Tags

Diagnose and solve problems

Access Control (IAM)

Data migration

Events

Storage browser

ztanstorage

Favorites

Recently viewed

Blob containers

File shares

Queues

Tables

Blob containers

Search containers by prefix

Showing all 2 items

- | <input type="checkbox"/> | Name |
|--------------------------|----------------|
| <input type="checkbox"/> | \$logs |
| <input type="checkbox"/> | ztan-container |

☒ ztan-container

12/7/2022, 12:14:20 PM

Private

- Container properties
- Edit metadata
- Change access level
- Generate SAS
- Access policy
- Acquire lease
- Add to favorites
- Delete

Generate SAS



A shared access signature (SAS) is a URI that grants restricted access to an Azure Storage container. Use it when you want to grant access to storage account resources for a specific time range without sharing your storage account key. [Learn more about creating an account SAS](#)

Signing method

☒ Account key ☐ User delegation key

Signing key ⓘ

Key 1

Stored access policy

None

Permissions * ⓘ

Read

Start and expiry date/time ⓘ

Start

12/07/2022 12:27:02 PM

(UTC+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius

Expiry

12/07/2022 8:27:02 PM

(UTC+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius

Allowed IP addresses ⓘ

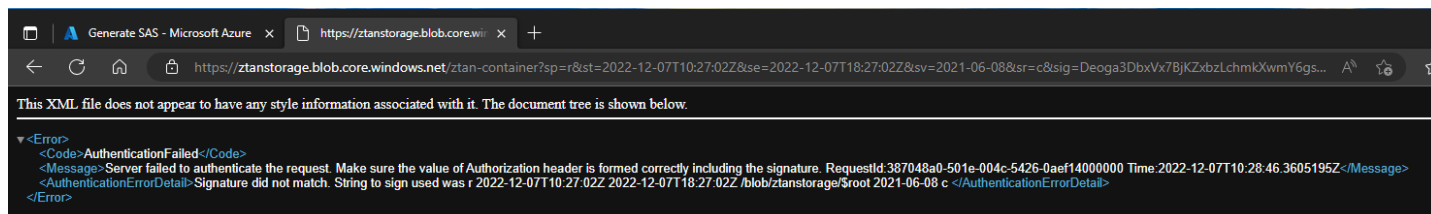
for example, 168.1.5.65 or 168.1.5.65-168.1....

Allowed protocols ⓘ

☒ HTTPS only ☐ HTTPS and HTTP

Generate SAS token and URL

4. Kopioi **Blob SAS URL**, avaa selain ja liitä kopioimasi URL-osoite **Address** -kenttään selaimessa.



5. Blobin sisällön pitäisi näkyä nyt selaimessa. Tämän jälkeen voit sulkea selaimen.

Harjoitus 6B: Azure SQL -palvelut

Tehtävä 1: Luo Azure SQL -tietokanta

1. . Avaa portaali portal.azure.com. Anna yläosan hakukenttään **SQL** ja listasta **SQL Databases**. Valitse + **Create** ja määritä tietokanta seuraavilla asetuksilla:

Resource Group: käytä samaa ryhmää kuin edellisessä harjoituksessakin.

Database Name: Anna tietokannalle yksilöllinen nimi

Server: Valitse Create new

Server Name: Anna palvelimelle nimi, esim. Sqlserver1


Location: (Europe) North Europe.

Authentication Method: Use SQL Authentication

Server admin login: Tunnus, jota käytät SQL -autentikoinnissa, esim. Sqladmin

Password: salasana yllä olevalle tunnukselle (HUOM! Kirjaa se johonkin ylös, sillä jos unohtuu, sitä ei voi resetoida!)

Vahvista salasana ja klikkaa OK.

 Did you know that new users in Azure can create a free Azure SQL Database and use it for 12 months using Azure free account? [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ

Pay-As-You-Go



Resource group * ⓘ

ztan

[Create new](#)

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

Database name *

ztandatabase

Server * ⓘ

(new) sqlserver1-ztan (North Europe)

[Create new](#)

password: admin18Data- (kaks viivaa)

Create SQL Database ...

Microsoft

Basics Networking Security Additional settings Tags Review + create

Product details

SQL database
by Microsoft
[Terms of use](#) | [Privacy policy](#)

Estimated cost per month
377.89 USD

Terms



By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. For additional details see [Azure Marketplace Terms](#).

Basics



Subscription	Pay-As-You-Go
Resource group	ztan
Region	North Europe
Database name	ztandatabase
Server	(new) sqlserver1-ztan
Authentication method	SQL authentication
Server admin login	admindata
Compute + storage	General Purpose: Standard-series (Gen5), 2 vCores, 32 GB storage, zone redundant disabled
Backup storage redundancy	Locally-redundant backup storage

 Delete  Cancel  Redeploy  Download  Refresh

Deployment is in progress

 Deployment name: Microsoft.SQLDatabase.newDatabaseNewServe... Start time: 12/7/2022, 2:17:44 PM
Subscription: [Pay-As-You-Go](#) Correlation ID: b2fd022b-db4e-4389-9860-23ce9fe55866 
Resource group: [ztan](#)

Deployment details

Resource	Type	Status	Operation details
 sqlva2ddkxoojqwfpo	Microsoft.Storage/storageAccounts	Accepted	Operation details
 sqlserver1-ztan	Microsoft.Sql/servers	Accepted	Operation details

2. Klikkaa **Review + Create** ja validinnin jälkeen klikkaa **Create**. Odota, että provisiointi valmistuu, sen jälkeewn klikkaa **Go to resource**.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Microsoft.SQLDatabase.newDatabaseNewServer_99258cbd33e64c148df14 | Overview > ztandatabase (sqlserver1-ztan/ztandatabase)

ztandatabase (sqlserver1-ztan/ztandatabase) | Getting started

SQL database

Search

- Overview
- Activity log
- Tags
- Diagnose and solve problems
- Getting started
- Query editor (preview)

Settings


- Compute + storage
- Connection strings
- Maintenance
- Properties
- Locks

Data management

- Replicas
- Sync to other databases

Start working with your database


Connect to your database and start working with data with a few simple steps. [Learn more](#)



Configure access

Configure network access to your SQL server. [Learn more](#)


[Configure](#)



Connect to application

Use connection strings to connect to your SQL database from your applications and favorite tools.

[See connection strings](#)



Start developing

Work in your database by using tools to add, modify and query data. [Compare tools](#)

[Open Azure Data Studio](#)

Open in Visual Studio

3. Määritä **SQL Firewall** -sääntö. Valitse ylävalikosta **Set server firewall** ja edelleen + **Add client IP**, joka lisää oman työasemasi julkisen IP-osoitteen sallittujen asiakaskoneiden listaan. Klikkaa **Save**.

ztandatabase (sqlserver1-ztan/ztandatabase)

SQL database

Search

- Overview
- Activity log
- Tags
- Diagnose and solve problems
- Getting started
- Query editor (preview)

Settings

- Compute + storage

Copy Restore Export **Set server firewall** Delete Connect with... Feedback

This database was just created. Do you need any help [getting started](#)?

Essentials

Resource group (move) : ztan

Status : Online

Location : North Europe

Subscription (move) : Pay-As-You-Go

Subscription ID : 7b45e463-55ea-4258-a5ef-e11e05b3c4c2

Tags (edit) : [Click here to add tags](#)

Networking ...

Public access Private access Connectivity

Public network access

Public Endpoints allow access to this resource through the internet using a public IP address. An application or resource that is granted access with the follow

Public network access

☐ Disable

☒ Selected networks

 Connections from the IP addresses configured in the Firewall rules section below will have access to this database. B

Virtual networks

Allow virtual networks to connect to your resource using service endpoints. [Learn more](#)

[+](#) Add a virtual network rule

Rule	Virtual network	Subnet	Address range	Endpoint status	Resource group	Subscription	State
------	-----------------	--------	---------------	-----------------	----------------	--------------	-------

Firewall rules

Allow certain public internet IP addresses to access your resource. [Learn more](#)

[+](#) Add your client IPv4 address (78.27.106.60) [+](#) Add a firewall rule

Rule name	Start IPv4 address	End IPv4 address	
ClientIPAddress_2022-12-7_14-22-48	78.27.106.60	78.27.106.60	

Tehtävä 2: Tietokannan sisällön hallinta SQL Server Management Studiolla tai vastaavalle clientillä

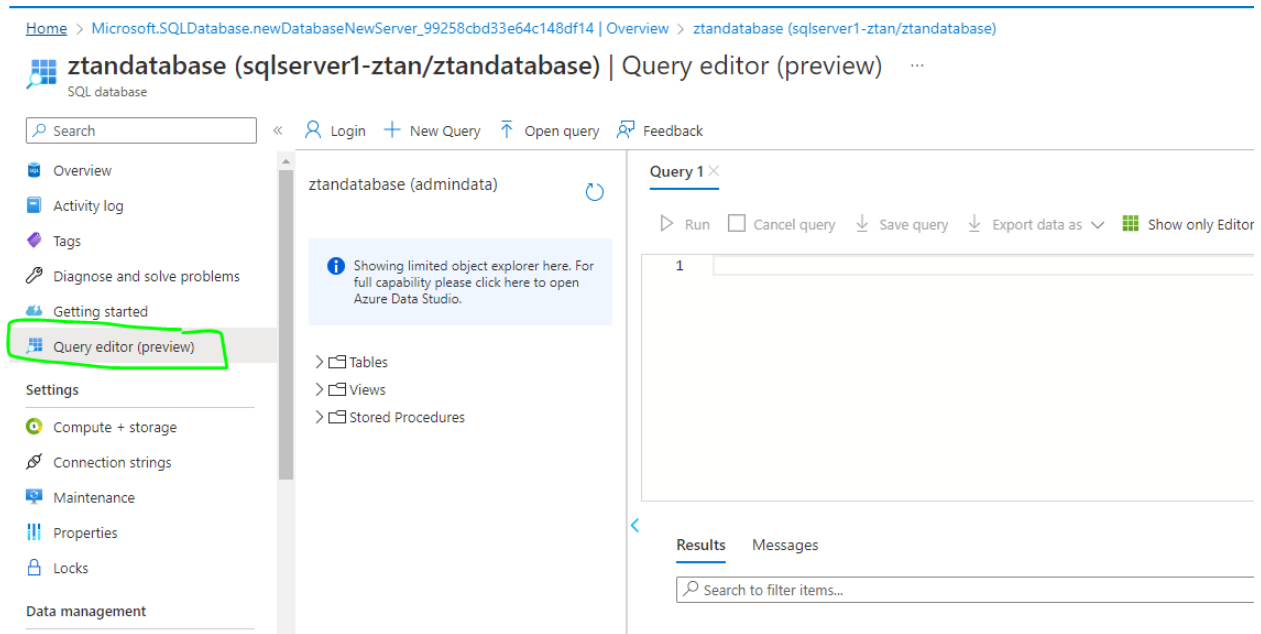
Halutessasi voit asentaa **SQL Server Management Studio** -ohjelmiston clientiksi, mutta se edellyttää laitteesi uudelleenkäynnistystä. Helpoimmalla pääset, jos käytät **Azuren** omaa **client**-ohjelmaa. **(TÄMÄ VAIHE VOI SKIPATA)**

1. Mene oman tietokantasi bladeen ja klikkaa sieltä **Query Editor** (preview).
2. Kirjaudu käyttäen SQL Server Authentication -valintaa:

Login: **tunnus** (tunnus, jonka annoit palvelinta määriteltäessä)

Password: Yllä olevalle tunnukselle määrittelemäsi salasana

Klikkaa OK..



3 Näkymään avautuu oletuksena Query 1 -niminen kysely

4. Lisää kyselyyn seuraava sisältö:

```
CREATE TABLE dbo.testTable (id integer identity primary key, dataval nvarchar(50));  
GO
```

5. Klikkaa Run.

6. Avaa uusi kysely valinnalla + New Query. Liitä siihen seuraava lauseke:

```
DECLARE @cnt INT = 0;  
  
WHILE @cnt < 100  
BEGIN  
    INSERT INTO dbo.testTable VALUES (newid());  
    SET @cnt = @cnt + 1;  
END;
```

Varmista, että lopputuloksena on Query succeeded: Affected rows: 100

The screenshot shows the Azure Data Studio interface. At the top, a tab labeled 'Query 1' contains a SQL statement to create a table: `CREATE TABLE dbo.testTable (id integer identity primary key, dataval nvarchar(50));`. Below the editor, the 'Messages' tab shows 'Query succeeded: Affected rows: 0'. A green circle highlights the '+ New Query' button in the toolbar. Below the toolbar, the left sidebar shows the 'Object Explorer' for 'ztandatabase (admindata)' with folders for 'Tables', 'Views', and 'Stored Procedures'. The main editor area now shows a new tab 'Query 2' with a SQL script to insert 100 rows: `DECLARE @cnt INT = 0; WHILE @cnt < 100 BEGIN INSERT INTO dbo.testTable VALUES (newid()); SET @cnt = @cnt + 1; END;`. The 'Messages' tab for Query 2 shows 'Query succeeded: Affected rows: 100'.

7. Avaa uusi kysely ja anna siihen seuraava lauseke ja klikkaa Run:

```
SELECT * FROM dbo.testTable
```

Sinun pitäisi saada näkyviin 100 riviä dataa, joka on tietokantasi sisältö.

Login + New Query Open query Feedback

ztandatabase (admindata)

Showing limited object explorer here. For full capability please click here to open Azure Data Studio.

- Tables
- Views
- Stored Procedures

Query 1 × Query 2 × Query 3 ×

Run Cancel query Save query Export data as Show only Editor

```
1 SELECT * FROM dbo.testTable
```

Results Messages

Search to filter items...

id	dataval
1	5A0A99F3-9074-40EC-8D59-B46FCAC78F18
2	E0A8A318-85F5-4779-B41B-A26C25CCF673
3	A73387DF-0964-4413-8D07-8AD29A98E70E
4	EF3BA0AE-3040-4DAF-ADB3-AC9460EBDB78
5	4DEA0D51-3384-4EC2-ABE0-CC4E29804558
6	B669EF6E-96E4-4AA0-BDEF-8306DC63E332

toistui 100 riviä

ztandatabase (sqlserver1-ztan/ztandatabase) SQL database

Search

Copy Restore Export Set server firewall Delete Connect with... Feedback

This database was just created. Do you need any help [getting started?](#)

Essentials

Resource group (move) : ztan

Status : Online

Location : North Europe

Subscription (move) : Pay-As-You-Go

Subscription ID : 7b45e463-55ea-4258-a5ef-e11e05b3c4c2

Tags (edit) : [Click here to add tags](#)

Server name : sqlserver1-ztan.database.windows.net

Elastic pool : No elastic pool

Connection strings : [Show database connection strings](#)

Pricing tier : General Purpose: Standard-series (Gen5)_2 vCores

Earliest restore point : 2022-12-07 12:23 UTC

Show data for last: 1 hour 24 hours 7 days Aggregation type: Max

Compute utilization

CPU percentage (Max) : 0%

Data IO percentage (Max) : 0%

Log IO percentage (Max) : 0%

Workers percentage (Max) : 1%

9. Mene Azure -portaalissa hakuruudun avulla kohtaan Resource Groups, avaa resource group, jota olet tässä harjoituksessa käyttänyt ja poista se.