

Lab-7 Deploy Service



Get Started with Atlas

Follow the guidance **Get Started with Atlas** in the lab handout.

- i. Create an Atlas account.
- ii. Deploy a free cluster.
- iii. Add your connection IP address to your IP access list.
- iv. Connect to you cluster (test).



MongoDB Atlas

- **MongoDB Atlas** is a **fully-managed, cloud-based database service**. It is designed to simplify the process of deploying, managing and scaling MongoDB databases **in the cloud**.
- **MongoDB Atlas automates** many tasks associated with managing a database, patching, backup... It allows developers to **fully focus on building applications** rather than managing the underlying database infrastructure.



Deploy a free cluster



Deploy your database

Use a template below or set up [advanced configuration options](#). You can also edit these configuration options once the cluster is created.

M10

\$0.08/hour

For production applications with sophisticated workload requirements.

STORAGE	RAM	vCPU
10 GB	2 GB	2 vCPUs

SERVERLESS

\$0.10/1M reads

For application development and testing, or workloads with variable traffic.

STORAGE	RAM	vCPU
Up to 1 TB	Auto-scale	Auto-scale

M0

FREE

For learning and exploring MongoDB in a cloud environment.

STORAGE	RAM	vCPU
512 MB	Shared	Shared

Provider



Region

★ Recommended region ⓘ



Deploy a free cluster (cont.)

Security Quickstart

To access data stored in Atlas, you'll need to create users and set up network security controls. [Learn more about security setup](#)

1 How would you like to authenticate your connection?

Your first user will have permission to read and write any data in your project.

Username and Password

Certificate

i We autogenerated a username and password for your first database user in this project using your MongoDB Cloud registration information. **x**


Create a database user using a username and password. Users will be given the *read and write to any database* [privilege](#) by default. You can update these permissions and/or create additional users later. Ensure these credentials are different to your MongoDB Cloud username and password.


Username

CS518Admin

Password

.....

 Autogenerate Secure Password

 Copy

Create User



Test the connection to your cluster

Atlas Zheyun's Org... Access Manager Billing

Project 0 Data Services App Services Charts

DEPLOYMENT ZHEYUN'S ORG - 2023-03-16 > PROJECT 0

Database Database Deployments

Data Lake PREVIEW Find a database deployment...

SERVICES

Triggers

Data API

Data Federation

Search

SECURITY

Database Access

Network Access

Advanced

New On Atlas 4

Goto

CS518 Connect View Monitoring

Enhance Your Experience For production throughput and richer metrics, upgrade to a dedicated cluster now! Upgrade

VERSION REGION 5.0.15 Azure / Virginia-East2 (eastus2)

System Status: All Good

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Connect to CS518

✓ Setup connection security ✓ Choose a connection method Connect

I do not have the MongoDB Shell installed I have the MongoDB Shell installed

1 Select your mongo shell version

mongosh

(To check your shell version, run `mongosh --version` or `mongo --version`)

2 Run your connection string in your command line

Use this connection string in your application:

```
mongosh 'mongodb+srv://cs518.gr2ic5d.mongodb.net/myFirstDatabase' --apiVersion 1 --username CS518Admin
```

Replace `myFirstDatabase` with the name of the database that connections will use by default. You will be prompted for the password for the Database User, `CS518Admin`. When entering your password, make sure all special characters are [URL encoded](#).

Having trouble connecting? [View our troubleshooting documentation](#)

Go Back Close



Test the connection (cont.)

```
root@18.04[~] mongosh "mongodb+srv://cs518.gr2ic5d.mongodb.net/myFirstDatabase" --apiVersion 1 --username CS518Admin
Enter password: *****
Current Mongosh Log ID: 6413522c8e7e80a773cf47f1
Connecting to:      mongodb+srv://<credentials>@cs518.gr2ic5d.mongodb.net/myFirstDatabase?appName=mongosh+1.5.4
Using MongoDB:      5.0.15 (API Version 1)
Using Mongosh:      1.5.4
```

For mongosh info see: <https://docs.mongodb.com/mongodb-shell/>

```
Atlas atlas-sx1xa7-shard-0 [primary] myFirstDatabase> show tables
```

```
Atlas atlas-sx1xa7-shard-0 [primary] myFirstDatabase>
```



Find the connection string

Atlas Zheyun's Or... Access Manager Billing

Project 0 Data Services App Services Charts

DEPLOYMENT ZHEYUN'S ORG - 2023-03-16 > PROJECT 0

Database Database Deployments

Find a database deployment...

CS518 Connect View Monitoring

Enhance Your Experience For production throughput and richer metrics, upgrade to a dedicated cluster now! Upgrade

VERSION REGION 5.0.15 Azure / Virginia-East2 (eastus2)

System Status: All Good ©2023 MongoDB, Inc. Status Terms Privacy Atlas Blog Contact Sales

Connect to CS518

✓ Setup connection security ✓ Choose a connection method Connect

1 Select your driver and version

DRIVER Python VERSION 3.6 or later

2 Add your connection string into your application code

☐ Include full driver code example

your username your password

mongodb+srv://CS518Admin:<password>@cs518.gr2ic5d.mongodb.net/?retryWrites=true&w=majority

Replace <password> with the password for the CS518Admin user. Ensure any option params are URL encoded.

Having trouble connecting? View our troubleshooting documentation

Go Back Close



Create supporting Azure resources

Follow the guidance [Create Azure resources for your function](#) in the lab handout.

- i. Create a **resource group**, which is a logical container for related resources.
- ii. Create a **storage account**, which maintains the state and other information about your projects.
- iii. Create a **function app**, which provides the environment for executing your function code.



Create a resource group (Azure portal)

The screenshot shows the Microsoft Azure portal interface. At the top, the search bar contains the text "resource group". Below the search bar, a dropdown menu displays search results categorized by "Services", "Marketplace", "Documentation", "Azure Active Directory", and "Resources". The "Services" category is expanded, and the "Resource groups" option is highlighted with a red box. The left sidebar shows the "Azure services" section with a "Create a resource" button, and the "Resources" section with "Recent" and "Favorite" tabs. The "Recent" tab shows a resource named "Azure for Students". The "Navigate" section shows a "Subscriptions" link. The "Tools" section shows a "Microsoft Learn" link. The top right corner shows the user's email address "zf1025@usnh.edu" and the organization "USNH (WILDCATSUNH.ON...)".

Microsoft Azure

resource group

Azure services

Create a resource

Resources

Recent Favorite

Name

Azure for Students

See all

Navigate

Subscriptions

Tools

Microsoft Learn

Learn Azure with training from Microsoft

Services (30) Marketplace (1) Documentation (20) Azure Active Directory (2) Resources (0)

Resource Groups (0)

Services

Resource groups

Subscriptions

Resource Guards

Resource Graph Explorer

Marketplace

Resource group

Documentation

Manage resource groups - Azure portal - Azure Resource Manager

Manage resource groups - Azure PowerShell - Azure Resource Manager

Manage resource groups - Azure CLI - Azure Resource Manager

Move resources to a new resource group or subscription

Azure Active Directory

Plagiarism Resources Working Group

Vernal Pool Natural Resource Conservation (Reptile and ... Group)

Continue searching in Azure Active Directory

Searching all subscriptions.

Give feedback

Create a resource group (cont.)

Microsoft Azure

Search resources, services, and docs (G+J)

zf1025@usnh.edu
USNH (WILDCATSUNH.ON...

[Home](#) > [Resource groups](#) >

Create a resource group

✖ Basics

Tags

Review + create

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. [Learn more](#)

Project details

Subscription * ⓘ

Azure for Students Starter

Resource group * ⓘ

GIVE YOUR RESOURCE GROUP A NAME HERE

✖ Resource group names can only include alphanumeric, underscore, parentheses, hyphen, period (except at end), and Unicode characters that match the allowed characters.

Resource details

Region * ⓘ

(US) East US

Review + create

< Previous

Next : Tags >

Create a storage account (Azure portal)

The screenshot shows the Microsoft Azure portal interface. At the top, the search bar contains the text "storage account". Below the search bar, a dropdown menu displays search results categorized by "All", "Services (19)", "Marketplace (3)", "Documentation (20)", "Resources (0)", and "Resource Groups (0)".

The "Services" section is expanded, showing a list of storage-related services. The "Storage accounts" option is highlighted with a red box. Other services listed include "Storage accounts (classic)", "Storage browser", "Storage movers", "Automation Accounts", "Batch accounts", "Genomics accounts", and "Integration accounts".

The "Marketplace" section shows "Storage account" and "Azure Storage Mover (preview)".

The "Documentation" section lists several links related to storage accounts, including "Storage account overview", "Create a storage account", "Introduction to Azure Storage", "Get storage account configuration information", "Manage account access keys", "Data redundancy", "Create an Azure Storage account", and "Upgrade to a general-purpose v2 storage account".

The left sidebar of the portal includes sections for "Azure services", "Resources", "Navigate", and "Tools". The "Resources" section shows "Recent" and "Favorite" tabs, with "Azure for Students" listed under "Recent". The "Tools" section includes links to "Microsoft Learn", "Azure Monitor", "Microsoft Defender for Cloud", and "Cost management".

Create a storage account (cont.)

Home > Storage accounts >

Create a storage account

Basics ✖ Advanced Networking Data protection Encryption Tags Review

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 * Azure for Students

Resource group * select the resource you just created [Create new](#)

Instance details

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

Storage account name ⓘ * give your storage account a name here

✖ The field can contain only lowercase letters and numbers. Name must be between 3 and 24 characters.

Region ⓘ * (US) East US

[Deploy to an edge zone](#)

Performance ⓘ *

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

☐ Premium: Recommended for scenarios that require low latency.

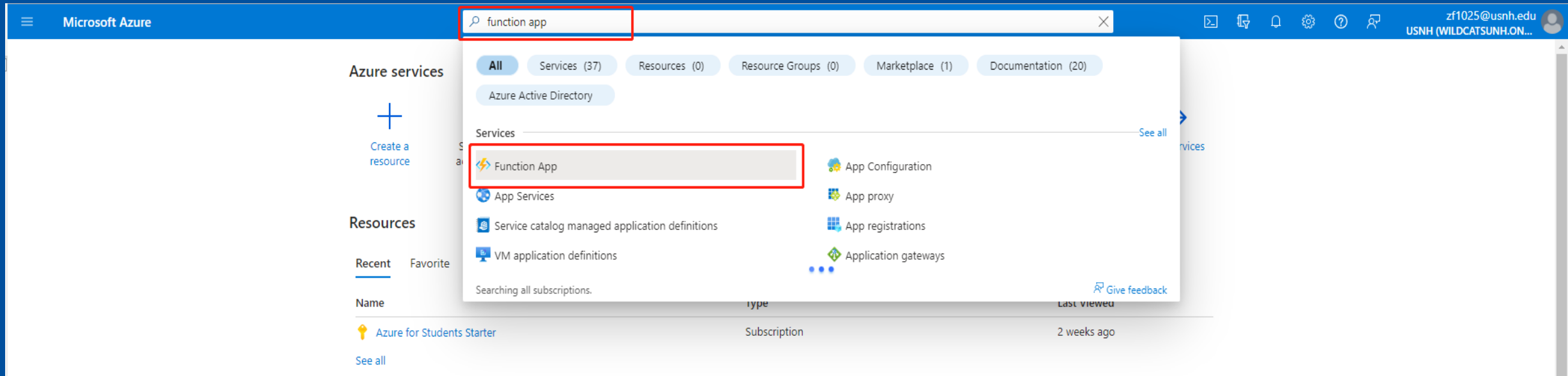
Redundancy ⓘ * Locally-redundant storage (LRS)

go with the lowest cost option

[Review](#) < Previous Next : Advanced >

[Give feedback](#)

Create a function app (Azure portal)



Create a function app (cont.)

Home > Function App >

Create Function App

of resources. Functions lets you execute your code in a serverless environment without having to first create a VM or publish a web application.

Project Details

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

Subscription * ☐ Azure for Students

Resource Group * ☐ select the resource group you created [Create new](#)

Instance Details

Function App name * .azurewebsites.net

Publish * ☒ Code ☐ Docker Container

Runtime stack *

Version * go with the Python version you use to build the functions

Region *

Operating system

Linux is the only supported Operating System for your selection of runtime stack.

Operating System * ☒ Linux ☐ Windows

Plan

The plan you choose dictates how your app scales, what features are enabled, and how it is priced. [Learn more](#)

Plan type *

[Review + create](#) [< Previous](#) [Next : Hosting >](#)

Home > Function App >

Create Function App

Basics Hosting Networking Monitoring Deployment Tags Review + create

Storage

When creating a function app, you must create or link to a general-purpose Azure Storage account that supports Blobs, Queue, and Table storage.

Storage account * [Select a resource group to enable create new storage account option.](#)

Basics Hosting Networking Monitoring Deployment Tags Review + create

Azure Monitor application insights is an Application Performance Management (APM) service for developers and DevOps professionals. Enable it below to automatically monitor your application. It will detect performance anomalies, and includes powerful analytics tools to help you diagnose issues and to understand what users actually do with your app. Your bill is based on amount of data used by Application Insights and your data retention settings. [Learn more](#)

[App Insights pricing](#)

Application Insights

Enable Application Insights * ☐ No ☒ Yes

Application Insights * [Create new](#)

Region



Deploy your functions to Azure

Follow the guidance [Deploy the function project to Azure](#) in the lab handout.

i. Do it at the function project level (**cd DataService/**)!

ii.

```
Deployment successful. deployer = Push-Deployer deploymentPath = Functions App ZipDeploy. Extract zip. Remote build.  
Remote build succeeded!  
Syncing triggers...  
Functions in CS518:  
  CreateRecord - [httpTrigger]  
    Invoke url: https://cs518.azurewebsites.net/api/createrecord  
  
  ReadRecords - [httpTrigger]  
    Invoke url: https://cs518.azurewebsites.net/api/readrecords
```



*Debug your functions

Home > CS518

CS518 | Failures

Application Insights

Search

Refresh View in Logs Analyze with Workbooks Copy link Feedback

Server Browser Local Time: Last 24 hours Roles = All

Operations Dependencies Exceptions Roles

Failed request count

Request count

Select operation

OPERATION NAME	COUNT (FAILED)	COUNT	PIN
Overall	5	5	
ReadRecords	5	5	

Top 3 response codes

	COUNT	FILTER...
500	5	

Top 3 exception types

	COUNT	FILTER...
RpcException	10	

Top 3 failed dependencies

	COUNT	FILTER...
--	-------	-----------

Drill into...

5 Samples

Select a sample operation

Filtered on client_Type !=...

Success == false with Response code 500

Suggested

3/18/2023, 9:11:18 PM
ReadRecords
Duration: 50.7 ms Response code: 500

All

Sort by Relevance

3/18/2023, 9:11:18 PM
ReadRecords
Duration: 50.7 ms Response code: 500

3/18/2023, 9:19:28 PM
ReadRecords
Duration: 39.8 ms Response code: 500

3/18/2023, 9:12:38 PM
ReadRecords
Duration: 29.5 ms Response code: 500

3/18/2023, 9:14:07 PM
ReadRecords
Duration: 18.4 ms Response code: 500

3/18/2023, 9:21:17 PM
ReadRecords
Duration: 20.2 ms Response code: 500



*Debug your functions (cont.)

Home > CS518 | Failures >

End-to-end transaction details

CS518

Search results

Filtered on

- timestamp > 2023/3/17 21:2...
- timestamp < 2023/3/18 21:2...
- client_Type != ...
- Success == false
- with Response code 500

Suggested

3/18/2023, 9:11:18 PM
ReadRecords
Duration: 50.7 ms Response code: 500

3/18/2023, 9:11:18 PM
ReadRecords
Duration: 50.7 ms Response code: 500

3/18/2023, 9:19:28 PM
ReadRecords
Duration: 39.8 ms Response code: 500

3/18/2023, 9:12:38 PM
ReadRecords
Duration: 29.5 ms Response code: 500

3/18/2023, 9:14:07 PM
ReadRecords
Duration: 18.4 ms Response code: 500

3/18/2023, 9:21:17 PM
ReadRecords
Duration: 20.2 ms Response code: 500

Sort by Relevance

5 All 2 Traces 0 Events

End-to-end transaction
Operation ID: 9ac3bdd7ff676a369a28f45ece4cb6b6

Request (incoming) Exception

EVENT

	RES.	DURATION
cs518 ReadRecords	500	20.2 ms
EXCEPTION Microsoft.Azure.WebJobs.Script.Workers.Rpc.RpcException		
EXCEPTION Microsoft.Azure.WebJobs.Script.Workers.Rpc.RpcException		

10 MS 20 MS

EXCEPTION
Microsoft.Azure.WebJobs.Script.Workers.Rpc.RpcException

Exception Properties

Event time 3/18/2023, 9:21:17.6887855 PM (Local time)

Message Exception while executing function: Functions.ReadRecords Result: Failure Exception: ModuleNotFoundError: No module named 'pymongo'. Please check the requirements.txt file for the missing module. For more info, please re... [show more]

Exception type Microsoft.Azure.WebJobs.Script.Workers.Rpc.RpcException

Failed method System.Runtime.ExceptionServices.ExceptionDispatchInfo.Throw

Custom Properties

ProcessId	61
EventName	FunctionCompleted
prop_invocationId	657847e2-22cf-4512-83b9-c4143114932e
FormattedMessage	Executed 'Functions.ReadRecords' (Failed, Id=657847e2-22cf-4512-83b9-c4143114932e, Duration=7ms)
EventId	3
prop_status	Failed
HostInstanceId	b3afb68d-f02f-4b2a-8b0e-b8b6784d0053
InvocationId	657847e2-22cf-4512-83b9-c4143114932e
Category	Function.ReadRecords



Access to your cluster (in MongoDB Atlas)

DEPLOYMENT

Database

Data Lake PREVIEW

SERVICES

Triggers

Data API

Data Federation

Search

SECURITY

Database Access

Network Access

Advanced

New On Atlas 3

Goto

ZHEYUN'S ORG - 2023-03-16 > PROJECT 0

Network Access

IP Access List

Peering

Private Endpoint

+ ADD IP ADDRESS

You will only be able to connect to your cluster from the following list of IP Addresses:

IP Address	Comment	Status	Actions
0.0.0.0/0 (includes your current IP address)		Active	<div><div>EDIT</div><div>DELETE</div></div>

System Status: All Good

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Submission (due 3/28 11:59 p.m.)

- Canvas (**group** submission)
 - i. Deployed URL to CreateRecord (<https://...../api/createrecord>)
 - ii. Deployed URL to ReadRecords (<https://...../api/readrecords>)
- GitLab
 - i. Push your **DataService/** folder to GitLab
 - ii. CreateRecord/, ReadRecords/, data_manager.py, data_service_API_tests.py, all auto-generated config files (host.json, local.settings.json.....)





More Questions?

