



Kopienas mājas lapa

# MERN aplikācijas izstrāde

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NACIONĀLAIS  
ATTĪSTĪBAS  
PLĀNS 2020



EIROPAS SAVIENĪBA  
Eiropas Jūrlietu un  
zivsaimniecības fonds



Atbalsta Zemkopības ministrija un Lauku atbalsta dienests

## Mēs zinām

- MERN aplikācija - kas tas ir
- Visual studio Code un izmantotās bibliotēkas
- Klients, Serveris un bibliotēku sagatave
- Pirmā mūsu klienta aplikācija

Iesākām pirmo Full Stack aplikāciju, ko radam paši

## Šodien uzzināsim

- Kā izveidot savu DB
- Kā pieslēgt mūsu viedoto aplikāciju DB
- Pirmā dummy API izveide

Solis tuvāk. Pirmā Full Stack aplikācija, ko radam paši

# MERN aplikācija

MERN nozīmē - MongoDB, Express, React, Node - tās ir 4 atslēgas tehnoloģijas, kas nodrošina pilnu izstrādes vidi:

- MongoDB - dokumentu datubāze
- Express(.js) - Node.js WEB framework
- React(.js) - klienta puses JavaScript framework
- Node(.js) - pamata framework JavaScript web serverim



# Ko mēs tehniski gribam uzprogrammēt?

**CRUD** Nozīme:

**CRUD** ir abreviatūra no programmēšanas pasaules, kas apzīmē 4 funkcijas. Tās nepieciešamas lai izveidot pamata lietas jebkurai aplikācijai.

C - create - izveidot ierakstu

R - read - nolasīt ierakstu no datu glabātuves

U - update - atjaunot/labot ierakstu datu glabātvē,

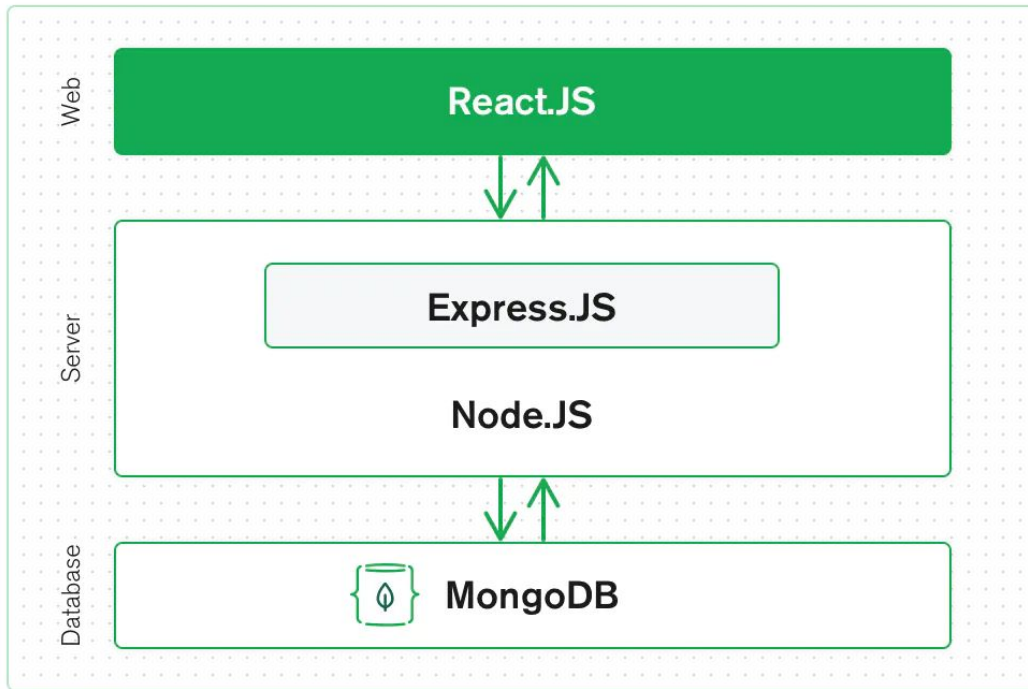
D - delete - dzēst ierakstu no datu glabātuves.



# Kā tas izskatīsies?

The screenshot displays a web browser window with the address bar showing `localhost:3000`. The browser's tab bar contains several open tabs, including 'JavaScript basics - L...', 'All possible ways of...', 'Conditional Testing...', 'House At Khlebny -...', 'This is why now is t...', 'Engures Vizija, Onli...', 'Playground Archive...', and '30 Cool CSS Anima...'. The main content area shows a social media-style interface titled 'Ziņojumu dēlis' (Message Board) with a small profile icon. The interface features a blue geometric background and a white header. Two message cards are displayed: one for 'Daina' (7 days ago) with a dark brick background and a white text area containing '#vietējais #svaigs #jauks' and the number '26565812'; the other for 'Jolanta' (7 days ago) with a sailboat image and a white text area containing '#zemeses #vasara #2021' and the number '3425322'. Each card has 'LIKE' and 'DELETE' buttons. On the right, a 'Jauns ziņojums' (New Message) form is visible, with fields for 'Autors' (containing 'Daina'), 'Kontakti', 'Ziņojums', and 'Hashtagi'. Below the form is a file upload section with 'Choose File' and 'No file chosen' text, and two buttons: 'SAGLABĀT' (Save) and 'NOTIRĪT' (Post). The browser's taskbar at the bottom shows the Windows logo, a search bar with 'Rakstiet šeit, lai meklētu', and various application icons. The system tray on the right shows the date and time as '4:06 PM 7/7/2021' and the temperature as '30°C'.

# Arhitektūra?



# Vides sagatavošana

Šodienas uzdevums izveidot konekciju ar datubāzi un uzprogrammēt savu pirmo API

Lai to veiktu mums ir vajadzīga datubāze. Te ir mākoņrisinājums, kur katrs var izveidot savu db

Mongo DB Cloud risinājums

<https://www.mongodb.com/cloud/atlas/register>

# Vides sagatavošana

The screenshot shows the MongoDB Atlas onboarding interface in a web browser. The browser's address bar displays the URL: `cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#setup/onboarding`. The page title is "Let's get your account set up".

The main content area is titled "Name your organization and project" and contains two sections:

- Organization:** A text input field with the value "Engure's Org - 2021-07-14".
- Project Name:** A text input field with the value "Project 0".

Below this, there is a section titled "What is your preferred language?". It includes a sub-header: "We'll use this to customize code samples and content we share with you. You can always change this later." There are ten buttons for language selection: JavaScript (highlighted with a green border), C++, C# / .NET, Go, Java, C, Perl, PHP, Python, Ruby, Scala, and Other.

At the bottom right of the form area, there are two buttons: "Skip" and "Continue".

The Windows taskbar at the bottom shows the search bar with "Type here to search", several application icons, the system tray with "85°F", "LAV", and the date "7/14/2021".



# Vides sagatavošana

The screenshot shows the MongoDB Atlas website's deployment options page. The browser's address bar shows the URL `cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#clusters/pathSelector`. The page features the MongoDB Atlas logo and the heading "Deploy a cloud database". Below this, a sub-heading reads "Experience the best of MongoDB on AWS, Azure, and Google Cloud. Choose a deployment option to get started." Three deployment options are presented in cards: "Serverless" (labeled "PREVIEW"), "Dedicated" (highlighted with a green border), and "Shared" (labeled "FREE"). Each card includes a description, a list of features/benefits, a "Create" button, and pricing information. The "Dedicated" option is the most prominent, with a starting price of \$0.08/hr\* and an estimated monthly cost of \$56.94. The "Shared" option is free. The Windows taskbar at the bottom shows the system tray with a temperature of 85°F and the date 7/14/2021.

Choose a Path | Atlas: MongoDB

cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#clusters/pathSelector

JavaScript basics - L... All possible ways of... Conditional Testing... House At Khlebny ... This is why now is t... Engures Vizija, Onli... Playground Archive... 30 Cool CSS Anima... FF Free Online XSL Tra... Reading list

MONGODB ATLAS

## Deploy a cloud database

Experience the best of MongoDB on AWS, Azure, and Google Cloud. Choose a deployment option to get started.

**PREVIEW**

### Serverless

For serverless applications that aren't critical with variable traffic. Minimal configuration required.

- ✓ Pay only for the operations you run
- ✓ Resources scale seamlessly to meet your workload
- ✓ Always-on security and backups

Create

Starting at  
**\$0.30/1M reads**

### Dedicated

For production applications with sophisticated workload requirements. Advanced configuration controls.

- ✓ Network isolation and fine-grained access controls
- ✓ On-demand performance advice
- ✓ Multi-region and multi-cloud options available

Create

Starting at  
**\$0.08/hr\***  
\*estimated cost \$56.94/month

**FREE**

### Shared

For learning and exploring MongoDB in a cloud environment. Basic configuration options.

- ✓ No credit card required to start
- ✓ Explore with sample datasets
- ✓ Upgrade to dedicated clusters for full functionality

Create

Starting at  
**FREE**

Dismiss

Advanced Configuration Options

Type here to search

85°F 1:01 PM 7/14/2021

# Vides sagatavošana

Create Deployment | Atlas: Mong x +

cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#clusters/edit?filter=starter

Welcome to MongoDB Atlas: we've recommended some of our most popular options, but feel free to customize your cluster to your needs. For more information, check our [documentation](#).

PREVIEW Serverless    Dedicated    **FREE Shared**

For learning and exploring MongoDB in a sandbox environment. Basic configuration controls.  
No credit card required to start. Upgrade to dedicated clusters for full functionality.  
Explore with sample datasets. Limit of one free cluster per project.

Cloud Provider & Region    **AWS, N. Virginia (us-east-1)**

aws    Google Cloud    Azure

★ Recommended region ⓘ

NORTH AMERICA	EUROPE	ASIA
<b>N. Virginia (us-east-1) ★</b>	Ireland (eu-west-1) ★	Mumbai (ap-south-1)
Oregon (us-west-2) ★	Frankfurt (eu-central-1) ★	Singapore (ap-southeast-1) ★
AUSTRALIA		
Sydney (ap-southeast-2) ★		

Cluster Tier    M0 Sandbox (Shared RAM, 512 MB Storage)

**FREE** Free forever! Your M0 cluster is ideal for experimenting in a limited sandbox. You can upgrade to a production cluster anytime.    Back    **Create Cluster**

1:02 PM 7/14/2021

# Vides sagatavošana

The screenshot shows the MongoDB Atlas web interface. At the top, a blue banner reads "We are deploying your changes". The main heading is "Database Deployments" with a search bar. A "Cluster0" card is visible with buttons for "Connect", "View Monitoring", and "Browse Collections". A "FREE SHARED" badge is present. A "Connect to Atlas" modal is open on the left, showing a 20% progress bar and a checklist:

- Build your first cluster
- Create your first database user
- Add IP Address to your Access List
- Load Sample Data (Optional)
- Connect to your cluster

Below the modal, a table shows the cluster status:

REGION	CLUSTER TIER	TYPE	BACKUPS	LINKED REALM APP	ATLAS SEARCH
US / N. Virginia (us-east-1)	MO Sandbox (General)	Replica Set - 3 nodes	Inactive	None Linked	Create Index

At the bottom, a "Get Started" button and "System Status: All Good" are visible. The Windows taskbar at the bottom shows the time as 1:02 PM on 7/14/2021.

# Vides sagatavošana

The screenshot shows a web browser window displaying the MongoDB Atlas interface. The address bar shows the URL: `cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#security/database/users`. The browser tabs include "JavaScript basics - L...", "All possible ways of...", "Conditional Testing...", "House At Khlebny...", "This is why now is t...", "Engures Vizija, Onl...", "Playground Archive...", "30 Cool CSS Anima...", "Free Online XSL Tra...", and "Reading list".

The Atlas interface shows the "Project 0" navigation menu with sections for "DEPLOYMENT" (Databases, Triggers, Data Lake) and "SECURITY" (Database Access, Network Access, Advanced). The "Database Access" page has a blue banner that says "We are deploying your changes". Below this, the breadcrumb "ENGURES ORG - 2021-07-14 > PROJECT 0" is visible, followed by the heading "Database Access". There are two tabs: "Database Users" (selected) and "Custom Roles".

The main content area features a large green icon of a person with a plus sign, the heading "Create a Database User", and the text "Set up database users, permissions, and authentication credentials in order to connect to your clusters." A prominent green button labeled "Add New Database User" is centered on the page, with a "Learn more" link below it.

At the bottom left, there is a "Get Started" badge with a notification count of 4 and a "Feature Requests" link. The system status is "All Good", and the footer includes "©2021 MongoDB, Inc. Status Terms Privacy Atlas Blog Contact Sales". The Windows taskbar at the bottom shows the search bar, system tray with the date and time (1:03 PM, 7/14/2021), and various application icons.

# Vides sagatavošana

Database Access | Atlas: Mongo...

cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#security/database/users

Engure's Org - 2021... Access Manager Billing

Project 0 Atlas Realm

DEPLOYMENT We are deploying your changes

Databases ENGURE'S ORG - 2021-07-14 > PROJECT 0

### Database Access

Database Users Custom Roles

SECURITY Database Access

Network Access Advanced

System Status: All Good ©2021 MongoDB, Inc. Status Terms Privacy

Get Started

Feature Requests

Create a database user to grant an application or user, access to databases and collections in your clusters in this Atlas project. Granular access control can be configured with default privileges or custom roles. You can grant access to an Atlas project or organization using the corresponding [Access Manager](#).

#### Authentication Method

Password Certificate AWS IAM (MongoDB 4.4 and up)

MongoDB uses SCRAM as its default authentication method.

#### Password Authentication

etech

..... SHOW

Autogenerate Secure Password Copy

#### Database User Privileges

Select a built-in role or privileges for this user.

Read and write to any database

#### Restrict Access to Specific Clusters/Data Lakes

Enable to specify the resources this user can access. By default, all resources in this project are accessible. OFF

#### Temporary User

This user is temporary and will be deleted after your specified duration of 6 hours, 1 day, or 1 week. OFF

Cancel Add User

1:03 PM 7/14/2021

# Vides sagatavošana

The screenshot shows the MongoDB Atlas interface for configuring Network Access. The browser address bar shows the URL: `cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#security/network/accessList`. The page title is "Network Access" under the "IP Access List" tab. A blue banner at the top indicates a deployment in progress: "We are deploying your changes (current action: creating a plan)". The main content area features a large green plus icon with a list icon, followed by the heading "Add an IP address" and the instruction "Configure which IP addresses can access your cluster." Below this is a prominent green "Add IP Address" button and a "Learn more" link. The left sidebar contains navigation options for Deployment, Security, and Network Access. The bottom of the page shows the system status as "All Good" and a "Get Started" button. The Windows taskbar at the bottom displays the date and time as 1:03 PM on 7/14/2021.

Network Access | Atlas: MongoD

cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#security/network/accessList

Engure's Org - 2021... Access Manager Billing All Clusters Get Help Engure

Project 0 Atlas Realm Charts

DEPLOYMENT

Databases

Triggers

Data Lake

SECURITY

Database Access

Network Access

Advanced

We are deploying your changes (current action: creating a plan)

ENGURE'S ORG - 2021-07-14 > PROJECT 0

## Network Access

IP Access List Peering Private Endpoint

+

### Add an IP address

Configure which IP addresses can access your cluster.

Add IP Address

[Learn more](#)

System Status: All Good

©2021 MongoDB, Inc. Status Terms Privacy Atlas Blog Contact Sales

Get Started

Feature Requests

Type here to search

85°F 1:03 PM 7/14/2021

# Vides sagatavošana

The screenshot displays the MongoDB Atlas interface for adding an IP access list entry. The main window shows the 'Network Access' configuration page with a sidebar on the left containing sections like 'DEPLOYMENT', 'SECURITY', and 'Network Access'. A modal dialog titled 'Add IP Access List Entry' is open in the center. The dialog contains the following elements:

- Buttons:** 'ADD CURRENT IP ADDRESS' and 'ALLOW ACCESS FROM ANYWHERE'.
- Text:** 'Atlas only allows client connections to a cluster from entries in the project's IP Access List. Each entry should either be a single IP address or a CIDR-notated range of addresses. [Learn more.](#)'
- Form Fields:**
  - 'Access List Entry:' with the value '213.100.186.54'.
  - 'Comment:' with the value '2008'.
- Options:** A toggle switch for 'This entry is temporary and will be deleted in' followed by a dropdown menu set to '6 hours'.
- Actions:** 'Cancel' and 'Confirm' buttons.

Below the dialog, the main page content is visible, including the heading 'Add an IP address' and the subtext 'Configure which IP addresses can access your cluster.' with an 'Add IP Address' button and a 'Learn more' link.

At the bottom of the screen, the Windows taskbar is visible, showing the search bar with the text 'Type here to search', various application icons, and the system tray with the date '7/14/2021' and time '1:04 PM'.

# Vides sagatavošana

The screenshot shows the MongoDB Atlas interface for a 'Cluster0' deployment. The page title is 'Database Deployments' and it includes a search bar and a '+ Create' button. The main content area displays the cluster name 'Cluster0' with buttons for 'Connect', 'View Monitoring', and 'Browse Collections'. It also shows a 'FREE' and 'SHARED' label. Below this, there are four performance metrics: Read/Write operations (100.0/s), Connections (0), In/Out data (100.0 B/s), and Data Size (0.0 B). An 'Upgrade' button is present next to these metrics. At the bottom, a table provides details about the deployment:

VERSION	REGION	CLUSTER TIER	TYPE	BACKUPS	LINKED REALM APP	ATLAS SEARCH
4.4.6	AWS / N. Virginia (us-east-1)	M0 Sandbox (General)	Replica Set - 3 nodes	Inactive	None Linked	<a href="#">Create Index</a>

System Status: All Good  
©2021 MongoDB, Inc. Status Terms Privacy Atlas Blog Contact Sales

Get Started 2  
Feature Requests

85°F 1:07 PM 7/14/2021



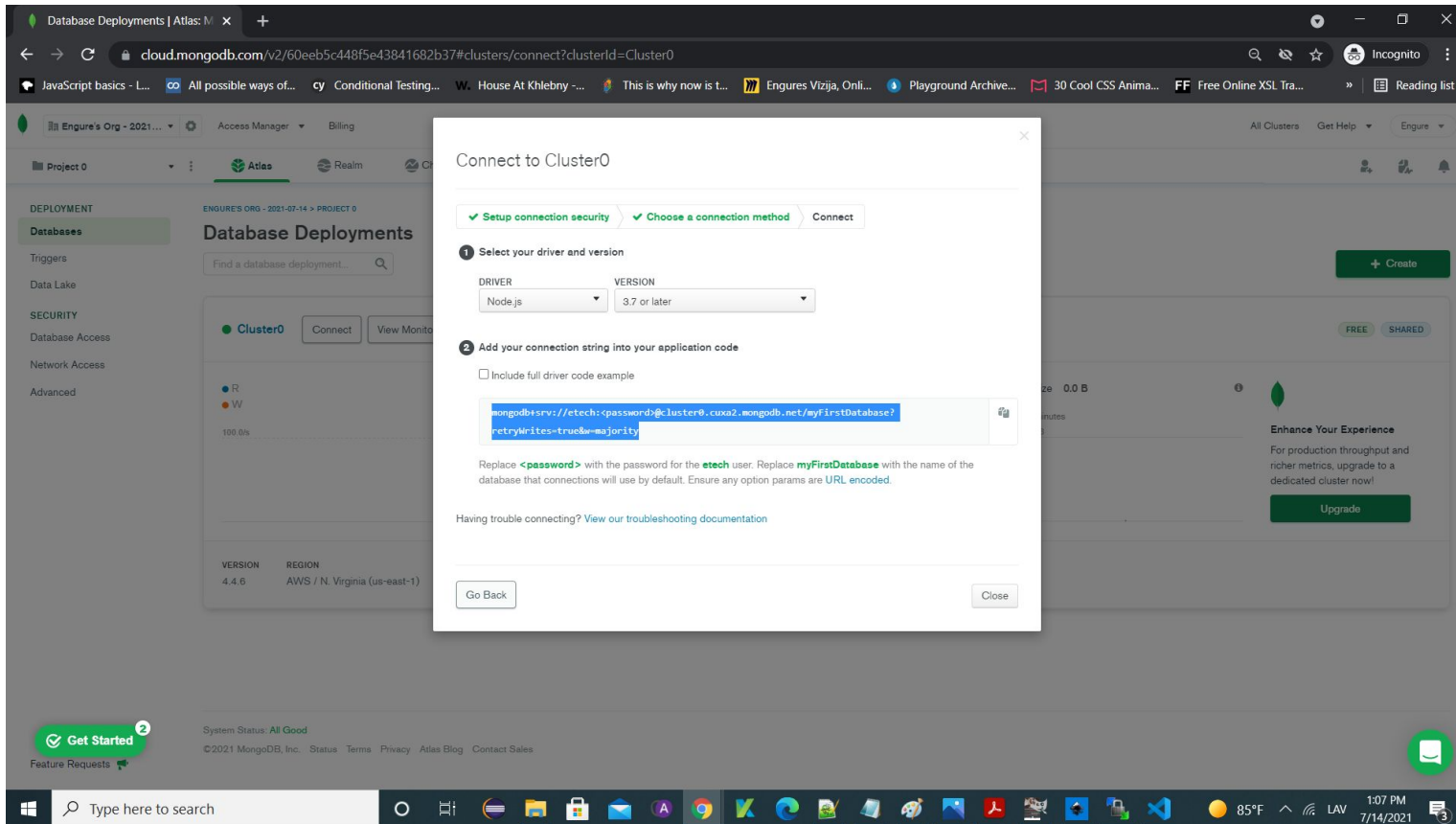
# Vides sagatavošana

The screenshot displays the MongoDB Atlas web interface. The main page shows the 'Database Deployments' section for 'Cluster0'. A modal dialog box titled 'Connect to Cluster0' is open in the center. The dialog has three tabs: 'Setup connection security' (which is active and has a green checkmark), 'Choose a connection method', and 'Connect'. Under the 'Choose a connection method' tab, there are three options, each with a right-pointing arrow:

- Connect with the MongoDB Shell**: Interact with your cluster using MongoDB's interactive Javascript interface.
- Connect your application**: Connect your application to your cluster using MongoDB's native drivers.
- Connect using MongoDB Compass**: Explore, modify, and visualize your data with MongoDB's GUI.

At the bottom of the dialog are 'Go Back' and 'Close' buttons. The background interface shows a sidebar with 'Project 0', 'Atlas', and 'Realm' tabs. The main content area has a search bar and a 'Create' button. The bottom of the screen shows a Windows taskbar with various application icons and system information like '85°F' and '1:07 PM 7/14/2021'.

# Vides sagatavošana



Database Deployments | Atlas: M x +

cloud.mongodb.com/v2/60eeb5c448f5e43841682b37#clusters/connect?clusterId=Cluster0

JavaScript basics - L... All possible ways of... Conditional Testing... House At Khlebny ... This is why now is t... Engures Vizija, Onl... Playground Archive... 30 Cool CSS Anima... FF Free Online XSL Tra... Reading list

Engure's Org - 2021... Access Manager Billing

Project 0 Atlas Realm

DEPLOYMENT ENGURE'S ORG - 2021-07-14 > PROJECT 0

Databases Database Deployments

Triggers Find a database deployment...

Data Lake

SECURITY Database Access Cluster0 Connect View Monitor

Network Access

Advanced

100.0%

VERSION REGION  
4.4.6 AWS / N. Virginia (us-east-1)

Go Back Close

Connect to Cluster0

Setup connection security Choose a connection method Connect

1 Select your driver and version

DRIVER VERSION  
Node.js 3.7 or later

2 Add your connection string into your application code

Include full driver code example

```
mongodb+srv://etech:<password>@cluster0.cuxa2.mongodb.net/myFirstDatabase?retryWrites=true&majority
```

Replace <password> with the password for the etech user. Replace myFirstDatabase with the name of the database that connections will use by default. Ensure any option params are URL encoded.

Having trouble connecting? View our troubleshooting documentation

Go Back Close

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

System Status: All Good  
©2021 MongoDB, Inc. Status Terms Privacy Atlas Blog Contact Sales

Get Started 2  
Feature Requests

Type here to search

85°F 1:07 PM 7/14/2021

# Testējam DB sakarus

Mums ir DB pieslēguma virknīte, nokopēta no MongoDB

```
mongodb+srv://etech:<password>@cluster0.cuxa2.mongodb.net/myFirstDatabase?retryWrites=true&w=majority
```

Lai to lietotu, <password> ir jānomaina ar mūsu reģistrēto user paroli, kad to izmantos kodā.

Tagad atveram MS Visual Studio code un sāksim darboties **server** sadaļā

Šodien darbs būs tikai **server** daļā. Testēsim sakarus ar DB un uztaisīsim pirmo dummy API

# DB sakaru izveide no js koda sever daļā

## server

1. Atveram failu index.js

2. index.js pievienojam

```
//inicializējam aplikāciju  
const app = express();  
app.use(express.json({limit:"30mb",extended:true}));  
app.use(express.urlencoded({limit:"30mb",extended:true}));  
app.use(cors());
```

# DB savienojuma definēšana

## server

3. index.js definējam savu Mongo DB savienojumu ar URL, ko mums iedeva MongoDB cloud instance -

```
mongodb+srv://etech:<password>@cluster0.cuxa2.mongodb.net/myFirstDatabase?retryWrites=true&w=majority
```

index.js pievienojam

```
// https://www.mongodb.com/cloud/atlas
const PORT = process.env.PORT || 5000;
const CONNECTION_URL = 'mongodb+srv://etech:<password>@cluster0.cuxa2.mongodb.net/myFirstDatabase?retryWrites=true&w=majority';
```

```
mongoose.connect(CONNECTION_URL, {useNewUrlParser:true, useUnifiedTopology:true})
.then (() => app.listen(PORT, () => console.log(`Server running on port: ${PORT}`)))
.catch ((error) => console.log(error.message));
```

```
mongoose.set('useFindAndModify', false);
```

# DB sakaru izveide - Testējam

**server**

**4. Notestējam konsolē ka viss ir ok**

npm start

Konsoles log saka:

Server running on port: 5000

# dummy API izveide

## server

5. Veidojam API puse (routes)

jauna direktorija projektā - **server/routes** un fails tur **posts.js**

6. Te būs visi API ienākošie pieprasījumi. Mēs te rakstīsim ko ar to visu darīt.

```
import express from 'express';  
const router = express.Router();  
router.get('/', (req, res) => {  
  res.send('DUMMY WORKS!');  
});  
export default router;
```

6. index.js ieliekam router importu

```
import postRoutes from './routes/posts.js';
```

un zemāk

```
app.use('/posts', postRoutes);
```

# Testējam sakarus

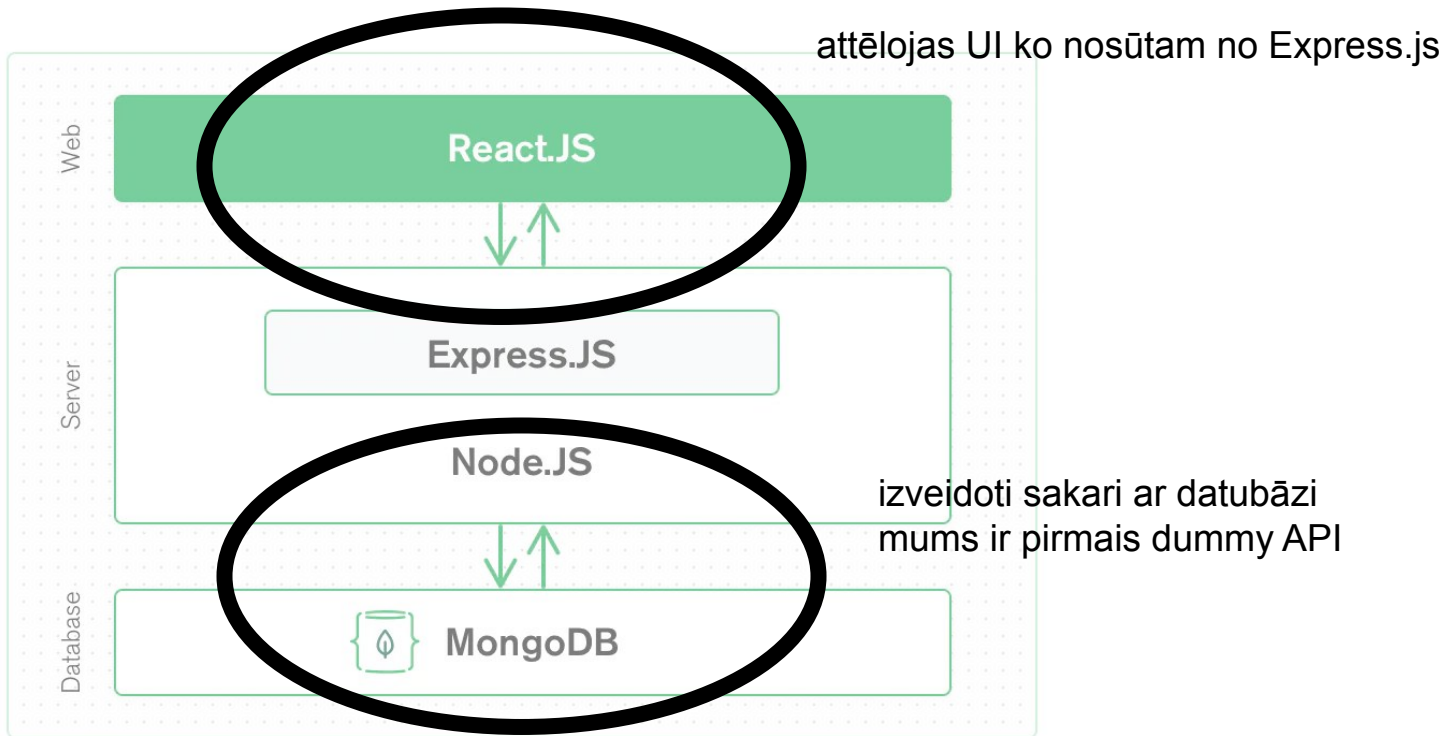
**server**  
testējam

palaižot browser URL - localhost:5000/posts

**DUMMY WORKS!**

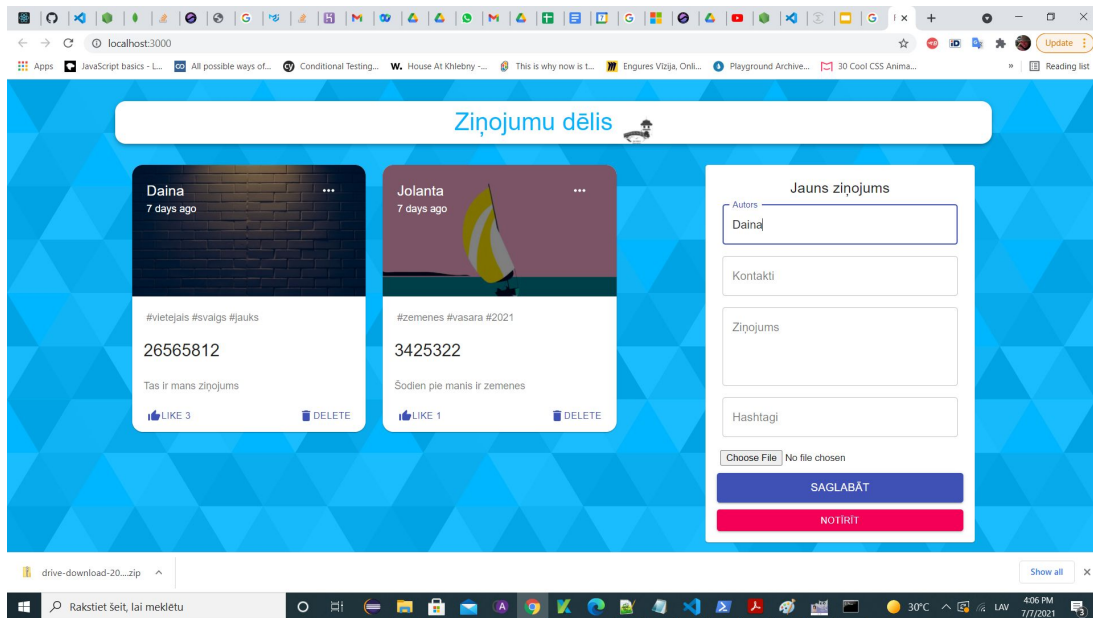


# Kas mums tagad ir?



# Kas nākamais

Varam sākt likt funkcijas, datus, dizainu ko vēlamies. Tā teikt veidot aplikācijas saturu.





**PALDIES**

Apmācības nodrošina NVO "Piekrastes Konvents". Vairāk info - [info@piekrasteskonvents.lv](mailto:info@piekrasteskonvents.lv)