

# Chapter 1: Introducing Microsoft Azure Cloud and Cosmos DB

Microsoft Azure



COMPUTE	 Virtual Machines	 Websites	 Cloud Services	
DATA MANAGEMENT	 SQL Database	 Storage Blobs	 Storage Tables	Import / Export
	File Service			
NETWORKING	 Virtual Network	 Traffic Manager	 ExpressRoute	
DEVELOPER & IT SERVICES	 Visual Studio Online	 Azure SDK	 Azure Tools for Visual Studio	 Automation
	 API Management			
IDENTITY & ACCESS	 Active Directory	 Multi-Factor Authentication		
MOBILE	 Mobile Services	 Notification Hubs		
BACKUP	 Site Recovery	 Backup		
MESSAGING & INTEGRATION	 Storage Queues	 Service Bus Queues	 Service Bus Relay	 Service Bus Topics
	 BizTalk Hybrid Connections	 BizTalk Services		
COMPUTE ASSISTANCE	 Scheduler			
PERFORMANCE	 Cache	 Content Delivery Network		
BIG COMPUTE & BIG DATA	 HDInsight	 High Performance Computing (HPC)		
MEDIA	 Media Services			
COMMERCE	 Store & Marketplace			

<i>Execution Models</i>	Virtual Machines	Websites	Cloud Services	Mobile Services					
<i>Data Management</i>	SQL Database	Tables	Blobs						
<i>Networking</i>	Virtual Network	Traffic Manager							
<i>Business Analytics</i>	SQL Reporting	HDInsight							
<i>Messaging</i>	Queues	Service Bus							
<i>Caching</i>	Caching	CDN							
<i>Identity</i>	Windows Azure Active Directory								
<i>Media</i>	Media Services								
<i>Commerce</i>	Marketplace	Store							
<i>Big Compute</i>	HPC Scheduler								
<i>SDKs</i>	.NET	Java	PHP	Python	Node.js	Ruby			



# Create your free Azure account today



## Get \$200 free credit

Start free with \$200 in credit and keep going with free options.



## Try any Azure services

Explore our cloud by trying out any combination of Azure services for 30 days.



## Pay nothing at the end

We use your credit card information for identity verification, but you will never be charged unless you choose to subscribe.

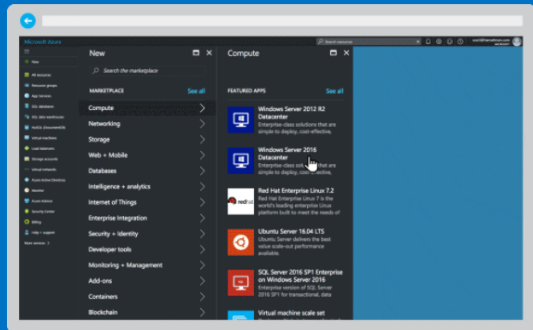
Start free >

Or buy now >

Frequently asked questions >

Message Us

Call sales 000-800-100-3928



- New
- Dashboard
- All resources
- Resource groups
- App Services
- Function Apps
- SQL databases
- Azure Cosmos DB
- Virtual machines
- Load balancers
- Storage accounts
- Virtual networks
- Azure Active Directory
- Monitor
- Advisor
- Security Center
- Billing
- Help + support
- More services >

### Dashboard

+ New dashboard | Edit dashboard | Share | Fullscreen | Clone | Delete

All resources  
ALL SUBSCRIPTIONS

No resources to display

Try changing your filters if you don't see what you're looking for.  
[Learn more](#)

[Create resources](#)























Service Health

Marketplace





















#### Quickstart tutorials

- [Windows Virtual Machines](#)  
Provision Windows Server, SQL Server, SharePoint VMs
- [Linux Virtual Machines](#)  
Provision Ubuntu, Red Hat, CentOS, SUSE, CoreOS VMs
- [App Service](#)  
Create Web Apps using .NET, Java, Node.js, Python, PHP
- [Functions](#)  
Process events with a serverless code architecture
- [SQL Database](#)  
Managed relational SQL Database as a Service

































COMPUTE

-  Virtual machines 
-  Virtual machine scale sets 
-  Container services 
-  Batch accounts 
-  Service Fabric clusters 
-  Container registries 
-  Availability sets 
-  Disks 
-  Snapshots 
-  Images 
-  Managed applications PREVIEW 













DATABASES

-  SQL databases 
-  SQL data warehouses 
-  SQL Server stretch databases 
-  Azure Cosmos DB 
-  Redis Caches 
-  Data factories 
-  Azure Database for MySQL servers PREVIEW 
-  Azure Database for PostgreSQL servers PREVIEW 
-  SQL elastic pools 
-  SQL servers 

NETWORKING

























-  Virtual networks 
-  Load balancers 
-  Application gateways 
-  Virtual network gateways 
-  Local network gateways 
-  DNS zones 
-  Route tables 
-  CDN profiles 
-  Traffic Manager profiles 
-  ExpressRoute circuits 
-  Network Watcher 
-  Network security groups 
-  Network security groups (classic) 
-  Network interfaces 
-  Public IP addresses 
-  Connections 

INTELLIGENCE + ANALYTICS































-  HDInsight clusters ★
-  Machine Learning workspaces ★
-  Stream Analytics jobs ★
-  Cognitive Services ★
-  Data factories ★
-  Power BI workspace collections ★
-  Analysis Services ★
-  Data Catalog ★
-  Customer Insights ★
-  Log Analytics ★
-  Machine Learning web service plans ★
-  Machine Learning web services ★












SECURITY + IDENTITY

-  Security Center 
-  Key vaults 
-  Azure Active Directory 
-  Azure AD B2C 
-  Users and groups 
-  Enterprise applications 
-  App registrations 
-  Azure AD Connect Health 
-  Azure AD Cloud App Discovery 
-  Azure AD Privileged Identity Management 
-  Azure AD Identity Protection 
-  Azure Information Protection 

WEB + MOBILE


-  App Services 
-  Logic apps 
-  CDN profiles 
-  Media services 
-  Search services 
-  Mobile Engagement 
-  API Management services 
-  Notification Hubs 
-  Notification Hub Namespaces 
-  On-premises Data Gateways 
-  Integration accounts 
-  App Service plans 
-  App Service Environments 
-  API Connections 
-  App Service Certificates 

INTERNET OF THINGS		
	IoT Hub	★
	Event Hubs	★
	Stream Analytics jobs	★
	Machine Learning workspaces	★
	Notification Hubs	★
	Notification Hub Namespaces	★
	Machine Learning web service plans	★
	Machine Learning web services	★




# Azure Cosmos DB


Key-Value




Column-family



Documents




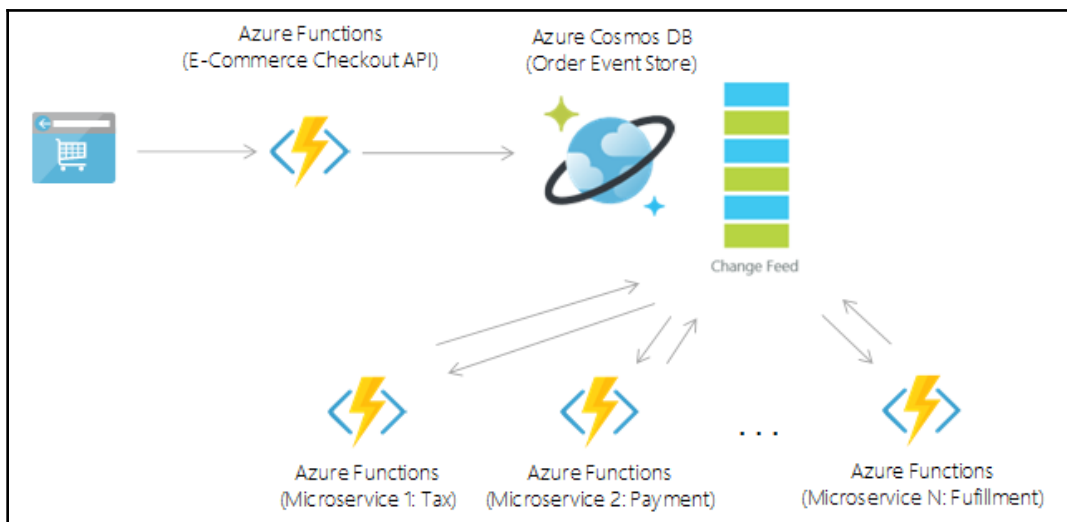
Graph



---

Global distribution
Elastic scale out
Guaranteed low latency
Five consistency models
Comprehensive SLAs





# Chapter 2: Cosmos DB Global Turnkey Distribution

Cost Management + Billing - Subscriptions  
rwtc6@hotmail (Default Directory) - PREVIEW

Search (Ctrl+/)

[+ New subscription](#) [Manage](#)

### My subscriptions

NAME	SUBSCRIPTION ID	OFFER	STATUS
Free Trial	26b6b8e6-1af9-4413-990f-1f537c412f97	Free Trial	Active

### Other subscriptions

NAME	SUBSCRIPTION ID
You don't have any subscriptions with billing read access	

**BILLING ACCOUNT**

- Overview
- Cost Management
- Diagnose and solve problems
- Subscriptions**
- Invoices
- Contact info
- Billing address
- Payment methods

**SUPPORT + TROUBLESHOOTING**

- New support request

### Azure Cosmos DB


Accion Technologies Pvt. Ltd.

+ Add Assign Tags More

No subscriptions in Accion Technologies Pvt. Ltd. directory.

0 items

NAME
------



No Azure Cosmos DB to display

Create a globally distributed database and build fast, planet scale apps in minutes using MongoDB, Gremlin (graph), Azure Table Storage, or SQL APIs. [Learn more about Cosmos DB](#)


[Create Azure Cosmos DB](#)

## Get an Azure subscription

# Develop + test cloud solutions

To create resources and track usage, you need admin access for a subscription or resource group. It's easy to get a new subscription, and you'll only be billed if you use premium features.

[Sign up for a new subscription](#)



### Azure Cosmos DB

New account

\* ID  
packt

documents.azure.com

\* API ⓘ  
MongoDB

\* Subscription  
Free Trial

\* Resource Group ⓘ  
 Create new  Use existing  
packt

\* Location  
Southeast Asia


Enable geo-redundancy ⓘ

+ Add Assign Tags Columns Refresh

Subscriptions: Free Trial

Filter by name... All resource groups

1 items

<input type="checkbox"/>	NAME ↑↓	STATUS
<input type="checkbox"/>	 packt	

### Add Collection

\* Collection id ⓘ

users ✓

---

\* STORAGE CAPACITY ⓘ

Fixed (10GB) Unlimited\*

---

INITIAL THROUGHPUT CAPACITY (RU/s) ⓘ

1000 - +

Between 400 and 10000 RU/s  
Estimated hourly spend 0.080 USD

---

\* DATABASE ⓘ

Create New  Use existing

packt ✓

New Collection New Mongo Query New Mongo Shell New Stored Procedure New UDF New Trigger Delete Collection Delete Database Feedback

#### COLLECTIONS

- packt
  - users
    - Documents
    - Scale & Settings
    - Stored Procedures
    - User Defined Functions
    - Triggers

Documents ×

New Document

No filter applied [Edit Filter](#)

\_id ↻

[Load more](#)



New Collection New Mongo Query New Mongo Shell New Stored Procedure f/m New UDF New Trigger Delete Collection Delete Database Feedback

COLLECTIONS

- packt
  - users
    - Documents
    - Scale & Settings
    - Stored Procedures
    - User Defined Functions
    - Triggers

Documents Mongo Query 1 x

Execute Query

1

Results: 1 - 3 | Request Charge: 2.92 RUs |

```
[
  {
    "_id" : ObjectId("59cb9594d7f2ac03d07e1087"),
    "id" : "10",
    "name" : "Shahid",
    "location" : "India"
  },
  {
    "_id" : ObjectId("59cba18bd7f2ac03d07e1089"),
    "id" : "10",
    "name" : "Shahid",
    "location" : "India"
  },
  {
    "_id" : ObjectId("59cba1c4d7f2ac03d07e108a"),
    "id" : "20",
    "name" : "Amrita",
    "location" : "India"
  }
]
```

Click on a location to add or remove regions from your Azure Cosmos DB account.

\* Each region is billable based on the throughput and storage for the account. [Learn more](#)



**WRITE REGION**

Southeast Asia

**READ REGIONS**

The account has no read regions.



A world map with a light gray background. Blue hexagonal markers are placed on the map to indicate specific regions. The markers are located in North America (USA and Canada), Europe, South America (Brazil), Southeast Asia (Thailand, Vietnam, Laos, Cambodia, Myanmar, Philippines, Indonesia, Malaysia, Singapore), and Australia. Two markers in Southeast Asia are filled with a darker blue color, while the others are hollow.

**WRITE REGION**

---

Southeast Asia

---

**READ REGIONS**

---

West India

# Chapter 3: Cosmos DB Multi-Model Databases

### Azure Cosmos DB

New account

\* ID  
packet-documentdb ✓  
documents.azure.com

\* API ⓘ  
SQL (DocumentDB) ▾

\* Subscription  
Free Trial ▾

\* Resource Group ⓘ  
 Create new  Use existing  
packet ▾

\* Location  
Central India ▾

Enable geo-redundancy ⓘ

Pin to dashboard

[Create](#) [Automation options](#)

✓ **Deployment succeeded** 1:22 AM ✕

Deployment 'Microsoft.DocumentDB' to resource group 'packet' was successful.

[Go to resource](#) [★ Pin to dashboard](#)

## Add Collection

\* Database id ⓘ

\* Collection Id ⓘ

\* Storage capacity ⓘ

 Fixed (10 GB) Unlimited

\* Throughput (400 - 10,000 RU/s) ⓘ

Documents Query 1 x

Execute Query

```
1 SELECT * FROM users
```

Results: 1 - 2 | Request Charge: 2.57 RUs | →

```
{
  "id": "10",
  "name": "Shahid",
  "location": "Mumbai",
  "job": "Engineer",
  "_rid": "rU8TAI3u0wABAAAAAAAAA==",
  "_self": "dbs/rU8TAA==/colls/rU8TAI3u0wA=/docs/rU8TAI3u0wABAAAAAAAAA==/",
  "_etag": "\"00003d00-0000-0000-0000-59d3ed140000\"",
  "_attachments": "attachments/",
  "_ts": 1507061012
},
{
  "id": "20",
  "name": "Amrita",
  "location": "Mumbai",
  "job": "content editor",
  "_rid": "rU8TAI3u0wACAAAAAAAAA==",
  "_self": "dbs/rU8TAA==/colls/rU8TAI3u0wA=/docs/rU8TAI3u0wACAAAAAAAAA==/",
  "_etag": "\"00003e00-0000-0000-0000-59d3ed700000\"",
  "_attachments": "attachments/",
  "_ts": 1507061104
}
```

# helloworld

Stored Procedures

Save Save & Execute Discard Delete Properties

ID  
helloworld

```
1 function storedProcedure(){
2     var context = getContext();
3     var response = context.getResponse();
4     response.setBody("Hello, World");
5 }
```


TIP: Drag the bottom edge of the stored procedure editor to adjust the height

Inputs  
Single parameter (e.g. "param1") and Multiple parameters (e.g. ["param1", {"param2": "foo"}, 3])

Results  
Hello, World

STRONG BOUNDED STALENESS **SESSION** CONSISTENT PREFIX EVENTUAL

Session consistency is most widely used consistency level both for single region as well as, globally distributed applications. [↗](#)

 It provides write latencies, availability and read throughput comparable to that of eventual consistency but also provides the consistency guarantees that suit the needs of applications written to operate in the context of a user.

[Click here, for more information on consistency levels.](#)

# Azure Cosmos DB

New account



\* ID

packt-mongodb ✓

documents.azure.com

\* API ⓘ

MongoDB ▼

\* Subscription

Free Trial ▼

\* Resource Group ⓘ

Create new  Use existing

packt ▼

\* Location

Central India ▼

Enable geo-redundancy ⓘ

Pin to dashboard

Create

Automation options



### Add Collection

\* Database id ⓘ

\* Collection Id ⓘ

\* Storage capacity ⓘ

Fixed (10 GB)  Unlimited

\* Throughput (400 - 10,000 RU/s) ⓘ

OK

New Collection New Mongo Query New Mongo Shell New Stored Procedure New UDF New Trigger Delete Collection Delete Database

COLLECTIONS

- packt
  - users
    - Documents
    - Scale & Settings
    - Stored Procedures
    - User Defined Functions
    - Triggers

Documents | Scale & Settings | Mongo Query 1 X

Execute Query

1 [ ]

Results: 1 - 1 | Request Charge: 2.28 RU | →

```
[
  {
    "_id" : ObjectId("59d4c73ac2c29108e8956d2b"),
    "id" : "10",
    "name" : "Shahid",
    "location" : "Mumbai",
    "job" : "Engineer"
  }
]
```

# Azure Cosmos DB

New account



\* ID

packt-table ✓

documents.azure.com

\* API ⓘ

Table (key-value) ▼

\* Subscription

Free Trial ▼

\* Resource Group ⓘ

Create new  Use existing

packt ▼

\* Location

Central India ▼

Enable geo-redundancy ⓘ

Pin to dashboard

**Create**

[Automation options](#)

### Add Table

\* Table Id ⓘ

\* Storage capacity ⓘ

**Fixed (10 GB)**   Unlimited

\* Throughput (400 - 10,000 RU/s) ⓘ

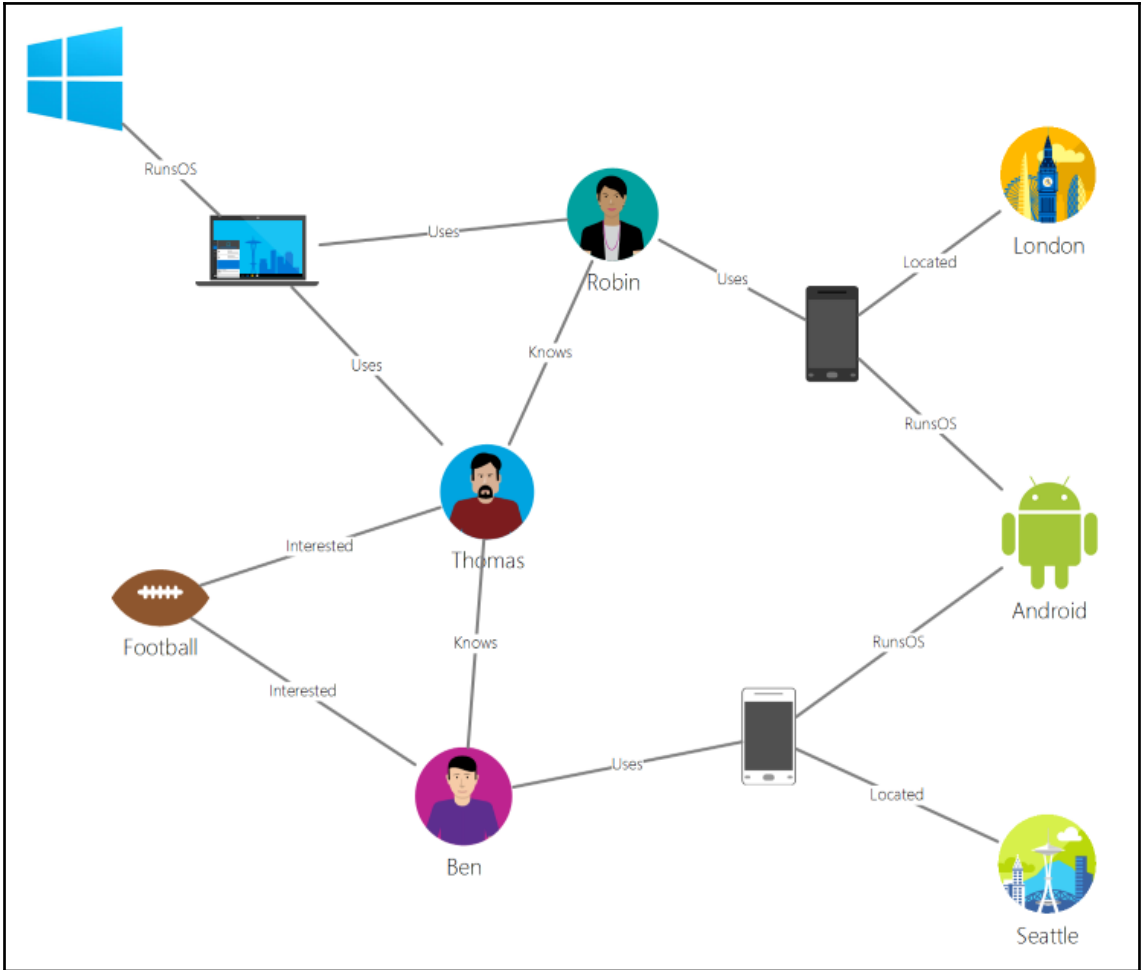
**OK**

### Add Table Entity

Property Name	Type	Value
<input type="text" value="PartitionKey"/>	<input type="text" value="String"/>	<input type="text" value="name"/>
<input type="text" value="RowKey"/>	<input type="text" value="String"/>	<input type="text" value="Shahid"/>

+ Add Property

**Add Entity**



# Azure Cosmos DB

New account

\* ID

packt-graph ✓

documents.azure.com

\* API ⓘ

Gremlin (graph) ▼

\* Subscription

Free Trial ▼

\* Resource Group ⓘ

Create new  Use existing

packt ▼

\* Location

Central India ▼

Enable geo-redundancy ⓘ

Pin to dashboard

Create

[Automation options](#)

## Add Graph

\* Database id ⓘ

\* Graph Id ⓘ

\* Storage capacity ⓘ

 Fixed (10 GB) Unlimited

\* Throughput (400 - 10,000 RU/s) ⓘ

Partition key ⓘ


Properties

id 19000121-4331-4460-8bad-1d6dd734abdf  
label Shahid

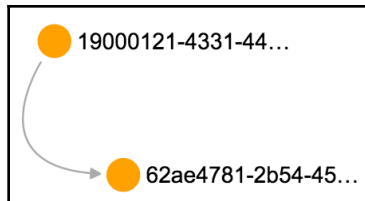
Sources

No sources found

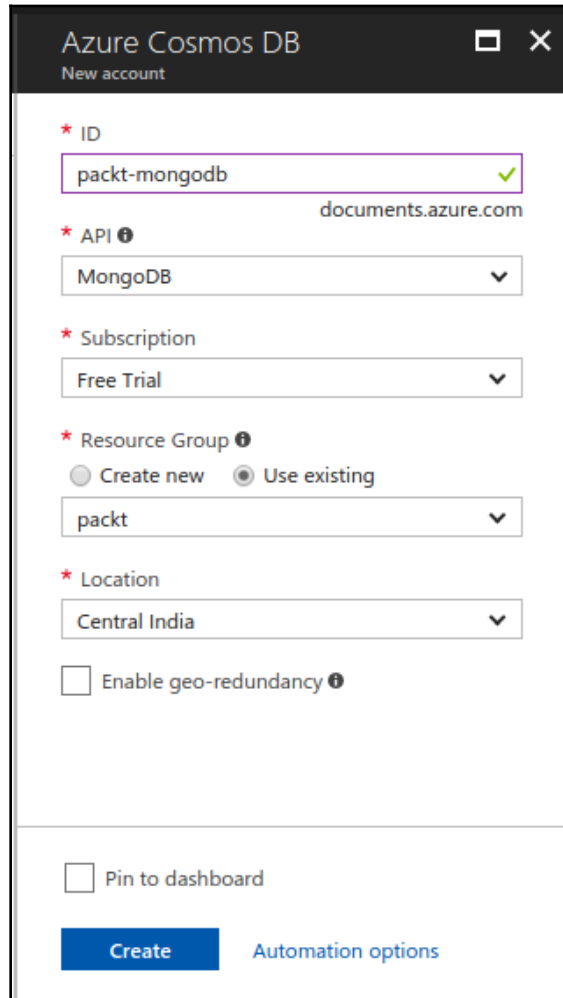
Targets ✓ ✕

Target	Edge label
<input type="text" value="62ae4781-2b54-4509-b6d7-55b783841cd2"/>	<input type="text" value="Label"/> 

+ Add Target



# Chapter 4: Querying Cosmos DB



The screenshot shows the 'New account' configuration window for Azure Cosmos DB. The window title is 'Azure Cosmos DB' with a subtitle 'New account'. The configuration fields are as follows:

- ID:** A text input field containing 'packt-mongodb' with a green checkmark on the right. Below it, the URL 'documents.azure.com' is displayed.
- API:** A dropdown menu with 'MongoDB' selected.
- Subscription:** A dropdown menu with 'Free Trial' selected.
- Resource Group:** Radio buttons for 'Create new' and 'Use existing' (selected). Below is a dropdown menu with 'packt' selected.
- Location:** A dropdown menu with 'Central India' selected.
- Enable geo-redundancy:** An unchecked checkbox.
- Pin to dashboard:** An unchecked checkbox.
- Buttons:** A blue 'Create' button and a link for 'Automation options'.



## Add Collection

\* Database id ⓘ

\* Collection Id ⓘ

\* Storage capacity ⓘ

 Fixed (10 GB) Unlimited

\* Throughput (400 - 10,000 RU/s) ⓘ

**Azure Cosmos DB** ☐ ✕  
New account

\* ID  
 ✓  
documents.azure.com

\* API ⓘ  
 ▼

\* Subscription  
 ▼

\* Resource Group ⓘ  
 Create new  Use existing  
 ▼

\* Location  
 ▼

Enable geo-redundancy ⓘ

---

Pin to dashboard

[Create](#) [Automation options](#)

## Add Graph

\* Database id ⓘ

\* Graph Id ⓘ

\* Storage capacity ⓘ

 Fixed (10 GB) Unlimited

\* Throughput (400 - 10,000 RU/s) ⓘ

Partition key ⓘ


Search (Ctrl+/)



- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Quick start
- Data Explorer (Preview)



SETTINGS


- Replicate data globally
- Default consistency
- Firewall
- Keys**


Read-write Keys    Read-only Keys

URI  
https://testgraphacct.documents.azure.com:443/ 

PRIMARY KEY  
<primary key>  

SECONDARY KEY  
<secondary key>  

PRIMARY CONNECTION STRING  
AccountEndpoint=https://testgraphacct.documents.azure.com:443;/AccountKey=Pam... 

SECONDARY CONNECTION STRING  
AccountEndpoint=https://testgraphacct.documents.azure.com:443;/AccountKey=zCY... 

Azure Cosmos DB  
New account

\* ID  
packt-table ✓  
documents.azure.com

\* API ⓘ  
Table (key-value) ▼

\* Subscription  
Free Trial ▼

\* Resource Group ⓘ  
 Create new  Use existing  
packt ▼

\* Location  
Central India ▼

Enable geo-redundancy ⓘ

---

Pin to dashboard

[Create](#) [Automation options](#)

## Add Table

\* Table Id ⓘ

\* Storage capacity ⓘ


 Fixed (10 GB) Unlimited

\* Throughput (400 - 10,000 RU/s) ⓘ


### Azure Cosmos DB

New account

\* ID  
  
documents.azure.com

\* API 





\* Subscription



\* Resource Group   
 Create new  Use existing


\* Location


Pin to dashboard

[Create](#) [Automation options](#)

 New Table  Delete Table  Delete Keyspace  Feedback

CASSANDRA TABLES  

▼  uprofile

▶  user

# Chapter 5: Integrating Cosmos DB with Node.js

```
unixroot@ALIPL5032: ~  
unixroot@ALIPL5032:~$ node -v  
v8.1.2  
unixroot@ALIPL5032:~$ npm -v  
5.5.1  
unixroot@ALIPL5032:~$
```

Azure Cosmos DB  
New account

\* ID  
packt-mongodb-2 ✓  
documents.azure.com

\* API ⓘ  
MongoDB (document) ▼

\* Subscription  
Free Trial ▼

\* Resource Group ⓘ  
 Create new  Use existing  
packt ✓

\* Location  
Central India ▼

Enable geo-redundancy ⓘ

```
unixroot@ALIPL5032:~/Desktop/mean  
unixroot@ALIPL5032:~/Desktop/mean$ npm install  
npm WARN deprecated bower@1.8.2: ..psst! Your project can stop working at any moment because its dependencies can change. Prevent this by migrating to Y  
arn: https://bower.io/blog/2017/how-to-migrate-away-from-bower/  
npm WARN deprecated crypto@0.0.3: This package is no longer supported. It's now a built-in Node module. If you've depended on crypto, you should switch t  
o the one that's built-in.  
npm WARN deprecated ignore@2.2.19: several bugs fixed in v3.2.1  
[ ] ..... \ fetchMetadata: sill pacote range manifest for passport-oauth2@1.x.x fetched in 466ms
```





Get started faster with driver specific connection information with our quick start.

Read-write Keys **Read-only Keys**

HOST

packt-mongodb-2.documents.azure.com



PORT

10255



USERNAME

packt-mongodb-2



PASSWORD

ITsYGMpczByW0VB7kxCoAPZdSAKdDsJ4GVqWlVWuVBDIX9XrPAXBwaHOLQWk9HWM5VtRDKOubqE6WN2U3b2ww==



CONNECTION STRING

mongodb://packt-mongodb-2.ITsYGMpczByW0VB7kxCoAPZdSAKdDsJ4GVqWlVWuVBDIX9XrPAXBwaHOLQWk9HWM5VtRDKOubqE6WN2U3b2ww==@packt-mongodb-2.d...



SSL

true




Azure Cosmos DB has strict security requirements and standards. Azure Cosmos DB accounts require authentication and secure communication via SSL.

```
unixroot@AL IPL5032: ~/Desktop/mean
unixroot@AL IPL5032:~/Desktop/mean$ npm start

> meanjs@0.5.0 start /home/unixroot/Desktop/mean
> gulp

[16:29:37] Using gulpfile ~/Desktop/mean/gulpfile.js
[16:29:37] Starting 'default'...
[16:29:37] Starting 'env:dev'...
[16:29:37] Finished 'env:dev' after 158 µs
[16:29:37] Starting 'copyLocalEnvConfig'...
[16:29:37] Starting 'makeUploadsDir'...
[16:29:37] Finished 'makeUploadsDir' after 229 µs
[16:29:37] Finished 'copyLocalEnvConfig' after 27 ms
[16:29:37] Starting 'lint'...
[16:29:37] Starting 'less'...
[16:29:39] Finished 'less' after 1.99 s
[16:29:39] Starting 'sass'...
[16:29:40] Finished 'sass' after 601 ms
[16:29:40] Starting 'csslint'...
[16:29:40] Starting 'eslint'...
[16:29:43] Finished 'csslint' after 3.18 s
```

MEAN.JS Articles Sign Up Sign In



# MEAN.JS

Open-Source Full-Stack Solution For MEAN Applications

[Learn more](#)

## Congrats! You've configured and run the sample application.

MEAN.JS is a web application boilerplate, which means you should start changing everything :-)

This sample application tracks users and articles.

- Click [Sign Up](#) to get started.
- Configure your app to work with your social accounts, by editing the `/config/env/*.js` files.
- Edit your users module.
- Add new CRUD modules.
- Have fun...

### MongoDB

MongoDB is a NoSQL database. MongoDB's [great manual](#) is the place to get started with NoSQL and MongoDB.

### Express

Express is a NodeJS server-side application web framework. Check out [The ExpressJS API reference](#) for more information or [StackOverflow](#) for more info.

### AngularJS

AngularJS is client-side web application framework. [The Thinkster Popular Guide](#) and [Egghead Videos](#) are great resources.

### Node.js

Node.js is a JavaScript run-time, popular for being a web server platform. Node's website and this [stackOverflow thread](#) offer excellent starting points to get to grips with node.

## MEAN.JS Documentation

Once you're familiar with the foundation technology, check out the MEAN.JS Documentation:

- [MEAN.JS Documentation](#)
- [Modules](#)

MEAN.JS - Settings x Articles Chat Shahid Shaikh


# Settings

[Edit Profile](#)

[Change Profile Picture](#)

[Change Password](#)

[Manage Social Accounts](#)



[Select Picture](#)

## Collections

ID	DATABASE	THROUGHPUT (RU/S)
sessions	admin	1000
system.indexes	admin	400
users	admin	1000

The screenshot shows the MongoDB Compass interface. On the left, the 'COLLECTIONS' sidebar is expanded to show the 'users' collection. The main area displays a document with the following fields:

```
1 {
2   "_id" : ObjectId("5a0974b4f17767519a920824"),
3   "salt" : "M6IPcIDJf8mB+q7TBYX26g==",
4   "displayName" : "Shahid Shaikh",
5   "provider" : "local",
6   "username" : "shahid",
7   "created" : {
8     "$date" : 1510569140837
9   },
10  "roles" : [
11    "user"
12  ],
13  "profileImageURL" : "./modules/users/client/img/profile/uploads/
14  "password" : "gbtB0jVvIKPFx+RvifySy/5Rx0SjhqLh8g95IcFfkyN3dBS51p
15  "email" : "rwtc66@gmail.com",
16  "lastName" : "Shaikh",
17  "firstName" : "Shahid",
18  "__v" : 0
19 }
```

# Chapter 6: Building a High-Performance Link Shortening and Tracking System Using Cosmos DB

 Get started faster with driver specific connection information with our quick start.

Read-write Keys **Read-only Keys**

HOST  
packt-mongodb-2.documents.azure.com

PORT  
10255

USERNAME  
packt-mongodb-2

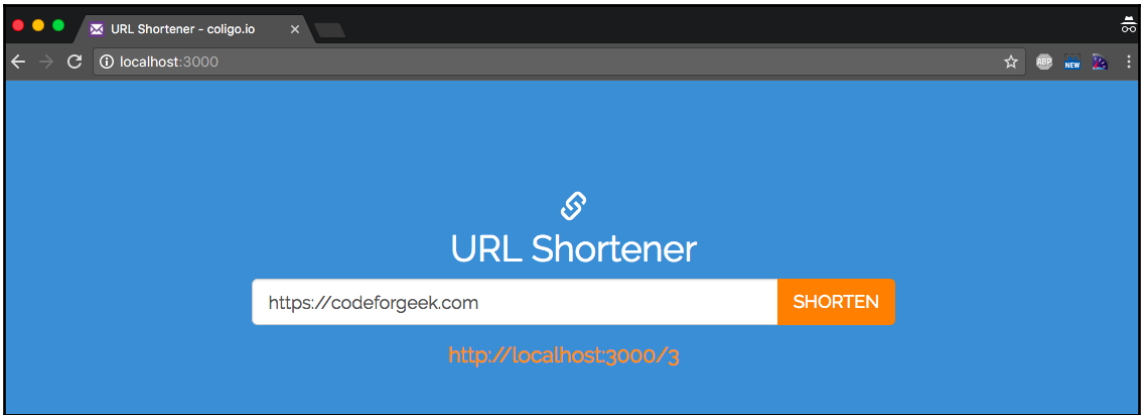
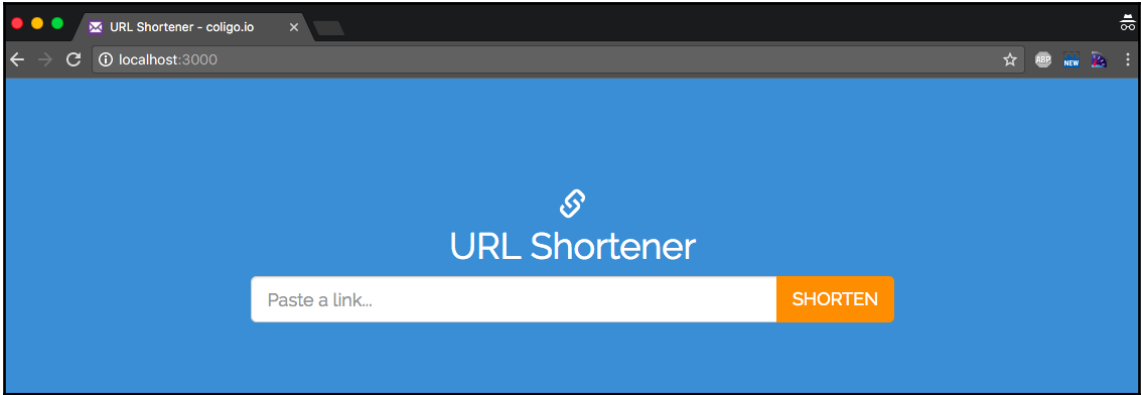
PASSWORD  
ITsYGMpczByW0VB7kxCoAPZdSAKdDsJ4GVqWlVLUvBDIX9XrPAXBwaHOLQWk9HWM5VtRDKOubqE6WN2U3b2ww==

CONNECTION STRING  
mongodb://packt-mongodb-2:ITsYGMpczByW0VB7kxCoAPZdSAKdDsJ4GVqWlVLUvBDIX9XrPAXBwaHOLQWk9HWM5VtRDKOubqE6WN2U3b2ww==@packt-mongodb-2.d...

SSL  
true

Azure Cosmos DB has strict security requirements and standards. Azure Cosmos DB accounts require authentication and secure communication via SSL.

```
url-shortener-node-mongo-express — node app.js — 87x27
~/Desktop/Code/Book/cosmosdb/url-shortener-node-mongo-express — node app.js
[Shahids-MacBook-Air: url-shortener-node-mongo-express UnixRoot$ node app.js
Server listening on port 3000
Connected....
```



Microsoft Azure packt-mongodb-2 - Data Explorer

Search (Ctrl+/)

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Quick start

Data Explorer

SETTINGS

Connection String

Preview Features

Replicate data globally

Default consistency

Firewall

Locks

Automation script

COLLECTIONS

admin

urls

Documents

Scale & Settings

Stored Procedures

User Defined Functions

Triggers

counters

Documents

No filter applied

Edit Filter

New Document

Update

Discard

Delete

\_id

6

Load more

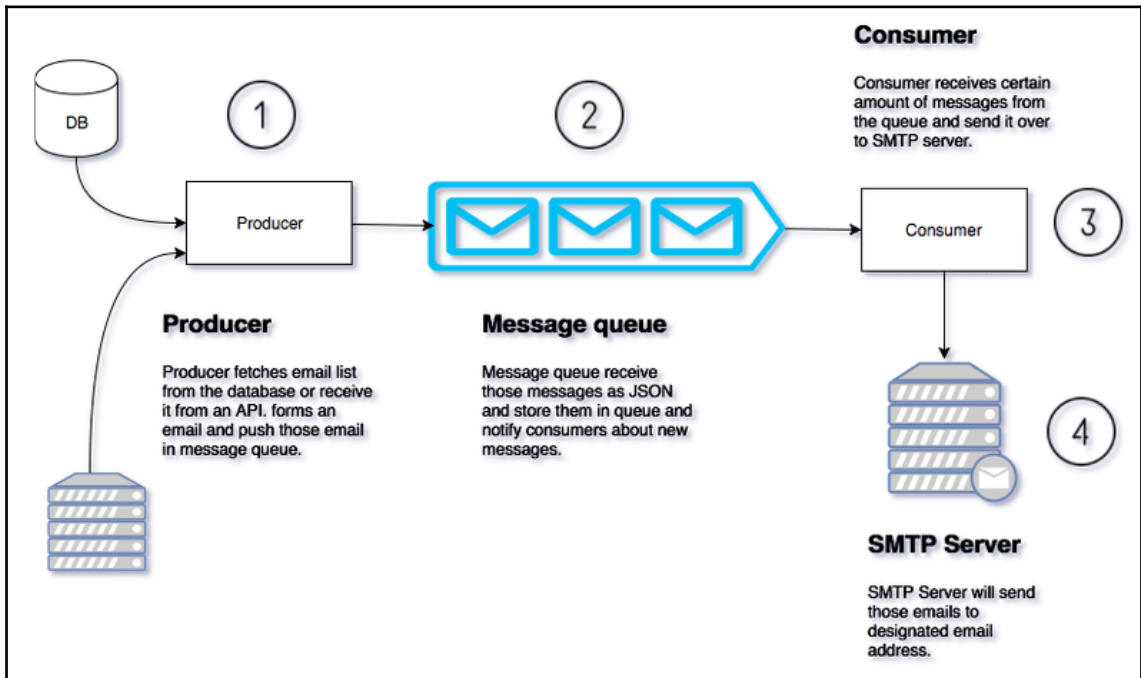
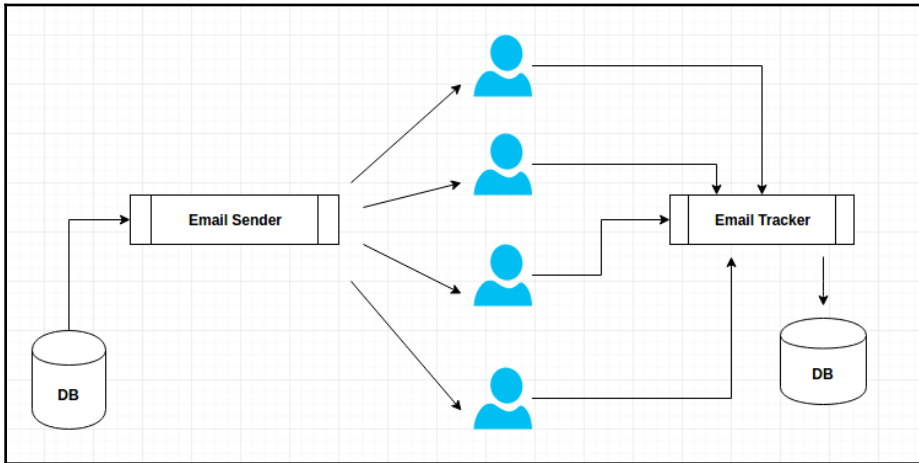
```
1 {
2   "_id" : 6,
3   "created_at" : {
4     "sdate" : 1511120196886
5   },
6   "long_url" : "https://codeforgeek.com",
7   "v" : 0
8 }
```

0 0 10

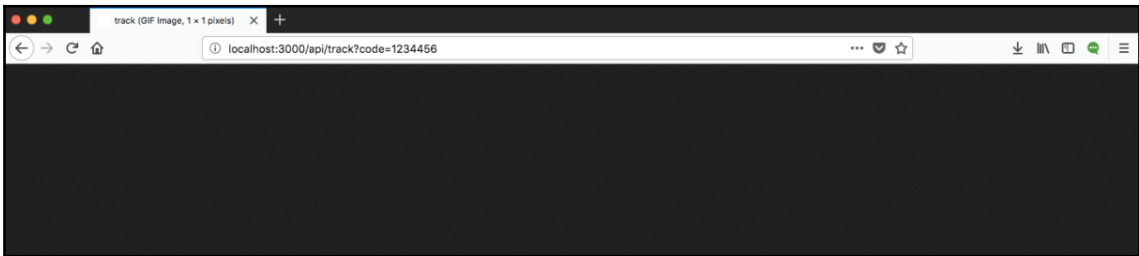
All Clear Notifications

- 1:06 AM Fetched 1 documents
- 1:06 AM Successfully deleted document 5
- 1:06 AM Successfully deleted document 4
- 1:06 AM Successfully deleted document 3

# Chapter 7: Building a Highly Available, Real-Time Email Tracking System using Cosmos



```
Shahids-MacBook-Air:track UnixRoot$ node app.js
Started at 3000
tracking code{"code":"1234456"}
{ trackingCode: '{"code":"1234456"}',
  ip: '::1',
  deviceType: 'desktop',
  deviceName: 'Other',
  device:
    { parser:
      { DeviceParser: {
          options: [Object],
          make_sure_parser_was_executed: [Function],
          get_model: [Function],
          get_type: [Function],
          useragent: [Object] },
        type: 'desktop',
        name: 'Other' },
      agent:
        { Agent: {
            family: 'Firefox',
            major: '57',
            minor: '0',
            patch: '0',
            source: 'Mozilla/5.0 (Macintosh; Intel Mac OS X 10.13; rv:57.0) Gecko/20100101 Firefox/57.0' },
          location: null }
    }
}
```







Get started faster with driver specific connection information with our quick start.

Read-write Keys

Read-only Keys

HOST

packt-mongodb-2.documents.azure.com



PORT

10255



USERNAME

packt-mongodb-2



PASSWORD

ITsYGMpczByW0VB7kxCoAPZdSAKdDsJ4GVqWlVlWuVBDIX9XrPAXBwaHOLQWk9HWM5VtRDKOubqE6WN2U3b2ww==



CONNECTION STRING

mongodb://packt-mongodb-2:ITsYGMpczByW0VB7kxCoAPZdSAKdDsJ4GVqWlVlWuVBDIX9XrPAXBwaHOLQWk9HWM5VtRDKOubqE6WN2U3b2ww==@packt-mongodb-2.d...



SSL

true



Azure Cosmos DB has strict security requirements and standards. Azure Cosmos DB accounts require authentication and secure communication via SSL.

# Chapter 8: Cosmos DB Deployment and Management

Click on a location to add or remove regions from your Azure Cosmos DB account.

\* Each region is billable based on the throughput and storage for the account. [Learn more](#)



**WRITE REGION**

Southeast Asia

**READ REGIONS**

The account has no read regions.



No Virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

[Learn more about Windows virtual machines](#)

[Learn more about Linux virtual machines](#)

[Create Virtual machines](#)

# cloudera

## Cloudera Director

Cloudera

Cloudera Director is the fastest, easiest way to manage the lifecycle of enterprise Apache Hadoop clusters on Azure. The Director VM includes a template for deploying CDH and Cloudera Manager, enabling you to run high-value big data workloads on Azure.

[Create](#)

Recommended

[More](#)



Windows Server

Microsoft



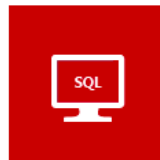
Red Hat  
Enterprise Linux

RedHat



Ubuntu Server

Canonical



SQL Server 2016  
SP1 Enterprise on

Microsoft



Virtual machine  
scale set

Microsoft



SharePoint Server  
2016 Trial

Microsoft

# Ubuntu Server

## Ubuntu Server 16.04 LTS

Canonical

- Ubuntu Server 14.04 LTS  
Canonical
- Ubuntu Server 16.04 LTS**  
Canonical
- Ubuntu Server 17.04  
Canonical

Ubuntu Server 16.04 LTS amd64 20171116 Public Azure, 20171116 Azure China, 20171116 Azure Germany, 20170619.1 Azure Gov. Ubuntu Server is the world's most popular Linux for cloud environments. Updates and patches for Ubuntu 16.04 will be available until April 2021. Ubuntu Server is the perfect virtual machine (VM) platform for all workloads from web applications to NoSQL databases and Hadoop. For more information see [Ubuntu on Azure](#) and [using Juju to deploy your workloads](#).

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Select a deployment model ⓘ

Resource Manager ▼

**Create**

### Create virtual machine

- 1** Basics  
Configure basic settings
- 2 Size  
Choose virtual machine size
- 3 Settings  
Configure optional features
- 4 Summary  
Ubuntu Server 16.04 LTS

### Basics

\* Name  
Demo ✓

VM disk type ⓘ  
SSD

\* User name  
shahid ✓

\* Authentication type  
SSH public key Password

\* Password  
..... !

\* Confirm password  
..... !

Subscription  
Free Trial  
**The selected subscription is disabled.**

\* Resource group ⓘ  
 Create new  Use existing  
packt

\* Location  
Central India

OK

Monitor  
Microsoft

Search (Ctrl+J)

Overview

SHARED SERVICES

- Alerts (preview)
- Alerts
- Metrics (preview)
- Metrics
- Log Analytics
- Activity log
- Service Health

SOLUTIONS

- Application Insights
- Network watcher
- Management solutions

Refresh

Subscription: Free Trial | Time range: Last 6 hours

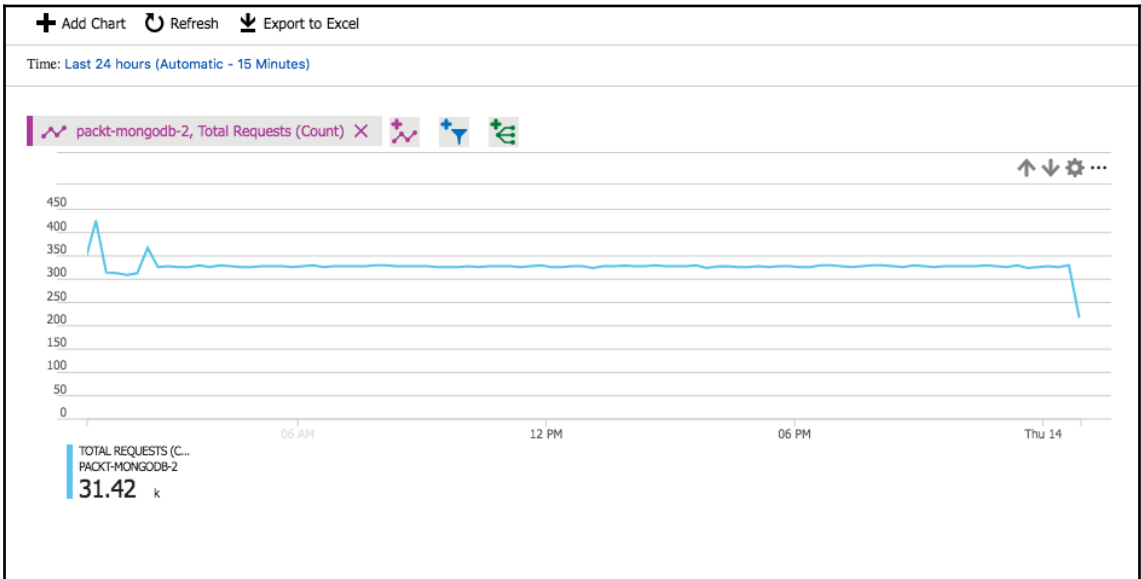
Alerts fired: 0 | Activity log errors: 0 | Service Health: [Status]

Learn more: [About Azure Monitor](#), [Azure Monitor Videos](#), [Explore all solutions](#)

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Alerts provide notifications for key metrics on your Azure resources. [Learn more](#)  
[Configure](#)

**Application Insights**  
Get actionable insights for your applications. [Learn more](#)  
[Add](#)

**Log Analytics**  
Bring your information together into a single view with Log Analytics. [Learn more](#)  
[Add](#)



Select query ...



Insights (Last 24 hours): 0 failed deployments | 0 role assignments | 0 errors | 0 alerts fired  
0 outage notifications

\* Subscription  Resource group  Resource  Resource type  Operation

Timespan  Event category  \* Event severity  Event initiated by  Search

**Apply** **Reset**

Query returned 24 items. [Click here to download all the items as csv.](#)

OPERATION NAME	STATUS	TIME	TIME STAMP	SUBSCRIPTION	EVENT INITIATED BY
ListKeys	Succeeded	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListKeys	Succeeded	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListKeys	Started	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListDocumentCollections	Succeeded	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListDatabases	Succeeded	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListKeys	Succeeded	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListDocumentCollections	Started	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListDatabases	Succeeded	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListKeys	Succeeded	5 d ago	Fri Dec 08 20...	Free Trial	rahilsk47@outlook.com
ListKeys	Succeeded	3 wk ago	Mon Nov 20 ...	Free Trial	rahilsk47@outlook.com
ListKeys	Succeeded	3 wk ago	Mon Nov 20 ...	Free Trial	rahilsk47@outlook.com