Integrating MongoDB Atlas with Heroku Private Spaces

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Technical, Cloud

Introduction

Heroku and MongoDB Atlas are the perfect fit for modern, cloud-based app development and deployment. Since its inception in 2007, Heroku has been a PaaS (Platform-as-a-Service) favorite of developer and operations teams thanks to its tight integration to CI tools and ease of app deployment. MongoDB is also a long-time favorite of developers who value increasing their productivity and decreasing application development cycles. MongoDB's fully managed DBaaS (Database-as-a-Service), Atlas, is also popular among cloud DevOps teams, who are naturally demanding a strong integration between Heroku and MongoDB Atlas.

Today, we are happy to present a tutorial showcasing how to securely integrate Heroku with MongoDB Atlas.

Protecting your cloud data assets with MongoDB Atlas

MongoDB Atlas provides industry-grade, out-of-the-box security controls: encrypted data in-flight and at-rest, encrypted backups, authentication enabled by default, IP whitelisting and

Companies hosting their MongoDB Atlas-backed applications on Heroku typically require that their data be only accessed by their applications. This has proved to be challenging in most Heroku deployments, which typically don't offer guarantees that requests performed by their hosted applications originate from fixed IPs or a fixed range of IPs (defined as CIDR blocks).

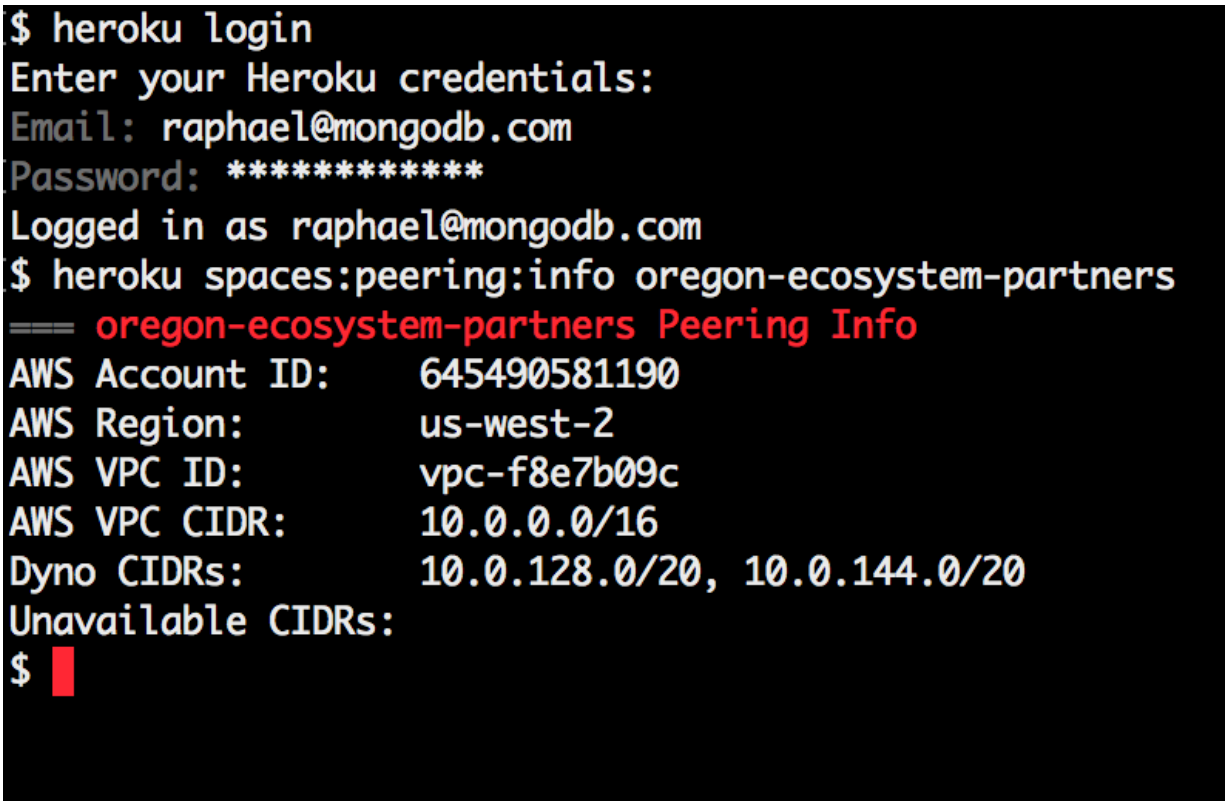
With Heroku Private Spaces however, companies can combine Heroku powerful developer experience with enterprise-grade secure network topologies. More specifically, peering a Heroku Private Space with a MongoDB Atlas cluster running in AWS is a straightforward option to secure the communication between a Heroku-deployed application and a MongoDB Atlas database, by using MongoDB Atlas VPC Peering capabilities.

The tutorial below goes through the specific steps required to link a Heroku Private Space with a MongoDB Atlas project.

Initiating the VPC Peering request

The first step is to initiate the VPC Peering request on the Atlas side. To do so, it's necessary to retrieve a few parameters from the Heroku Private Space, by using the Heroku CLI. After logging in with an account having access to a Private Space, use the spaces:peering:info command to retrieve the AWS information required by MongoDB Atlas:

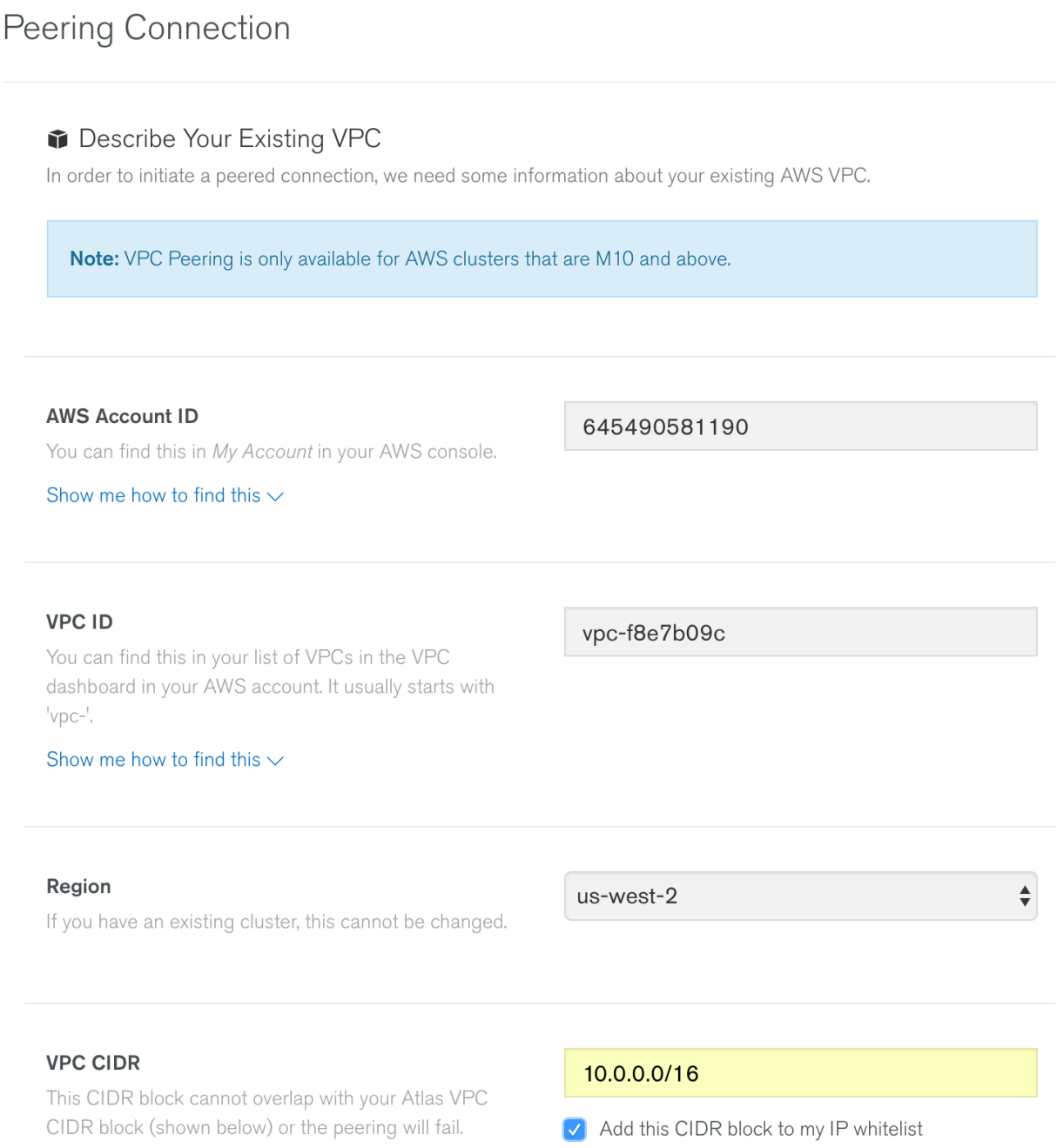
```
heroku spaces:peering:info <your_private_space_name>
```



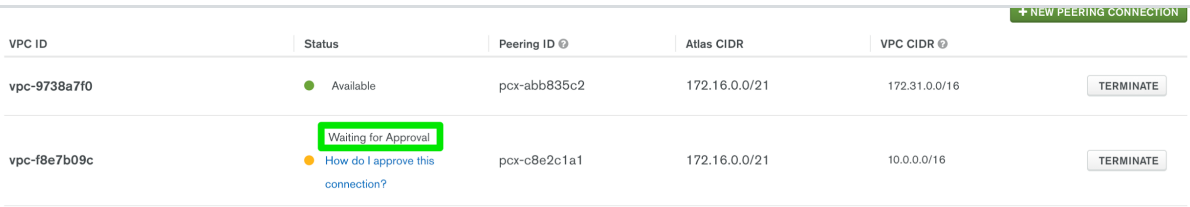
that region.

Copy the **AWS Account ID**, **AWS Region**, **AWS VPC ID** and **AWS VPC CIDR** values from the Heroku console above.

Now, head over the MongoDB Atlas website and navigate to the **Security** tab of your cluster (M10 or above and in the same region as your Heroku Private Space). Select the **+New Peering Connection** button and fill out the form with the values you previously copied:



Press the **Initiate Peering** button, and verify that the VPC Peering request appears in Atlas' VPC Peering list (with a "Waiting for Approval" status):



Approving the VPC Peering request

Now that the VPC Peering request has been initiated on the MongoDB Atlas side, let's approve it on the Heroku side. In the Heroku console, the following command should display the request we just created in MongoDB Atlas:

```
heroku spaces:peerings <your_private_space_name>
```

```
$ heroku spaces:peerings oregon-ecosystem-partners
=== oregon-ecosystem-partners Peerings
PCX ID        Type     CIDR Block     Status              VPC ID       AWS Account ID  Expires
pcx-c8e2c1a1  unknown  172.16.0.0/21  pending-acceptance  vpc-dd0171ba  625844033181    2018-01-15T22:45:12Z
```

Take note of the PCX ID value of your VPC Peering ID and pass it to Heroku space:peerings:accept command:

```
heroku spaces:peerings:accept <your_PCX_ID> --space <your_private_space_name>
```

```
$ heroku spaces:peerings:accept pcx-c8e2c1a1 --space oregon-ecosystem-partners
Accepting and configuring peering connection pcx-c8e2c1a1
```

Verifying that VPC Peering works

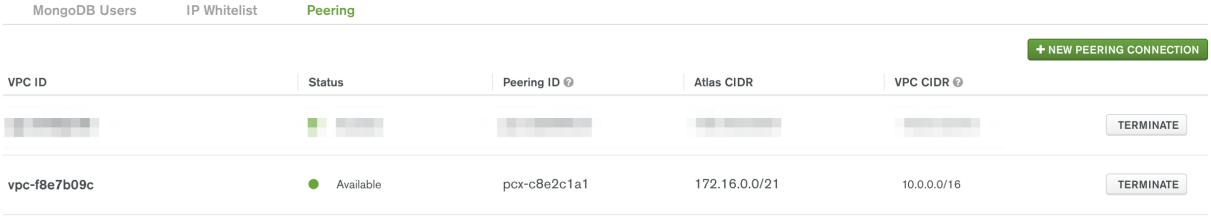
The first step to verify that VPC Peering has been properly set up between your Heroku Private Space and MongoDB Atlas is by running the following Heroku command again:

```
heroku spaces:peerings <your_private_space_name>
```

```
$ heroku spaces:peerings oregon-ecosystem-partners
=== oregon-ecosystem-partners Peerings
PCX ID        Type              CIDR Block     Status  VPC ID       AWS Account ID  Expires
pcx-c8e2c1a1  customer-managed  172.16.0.0/21  active  vpc-dd0171ba  625844033181
$
```

The peering connection should now appear as active.

In MongoDB Atlas, the peering connection should now also appear as available:



The next verification step would be to run an Heroku-deployed app connected to your MongoDB Atlas cluster and verify that you can read from or write to it.

For instance, you could clone this GitHub repository, customize its config.js file with your MongoDB Atlas connection string, and deploy its atlas-test branch to your Heroku Private Space using Heroku GitHub Deploys. Since Heroku automatically runs npm start for each Node-detected app, it will keep calling the produce.js script. As a result, documents should be created in the devices collection of a demo database in your Atlas cluster (if it doesn't, I recommend that you first verify that the CIDR block of your Heroku Private Space is present in the IP Whitelist of your MongoDB Atlas cluster).

Next steps

I hope that you found this Heroku-MongoDB Atlas integration tutorial useful. As next steps, I recommend the following:

Sign up for MongoDB Atlas if you don't already use it.

- Watch a VPC Peering video tutorial with MongoDB Atlas.
- Get more familiar with MongoDB Atlas documentation
- Contact Heroku if you don't already have access to a Private Space.
- Explore the Heroku Private Spaces documentation.

*About the Author - **Raphael Londner***

Raphael Londner is a Principal Developer Advocate at MongoDB, focused on cloud technologies such as Amazon Web Services, Microsoft Azure and Google Cloud Engine. Previously he was a developer advocate at Okta as well as a startup entrepreneur in the identity management space. You can follow him on Twitter at ***@rlondner***

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