

SUMMARY:

This Lab covers Athena – Using Athena to Query

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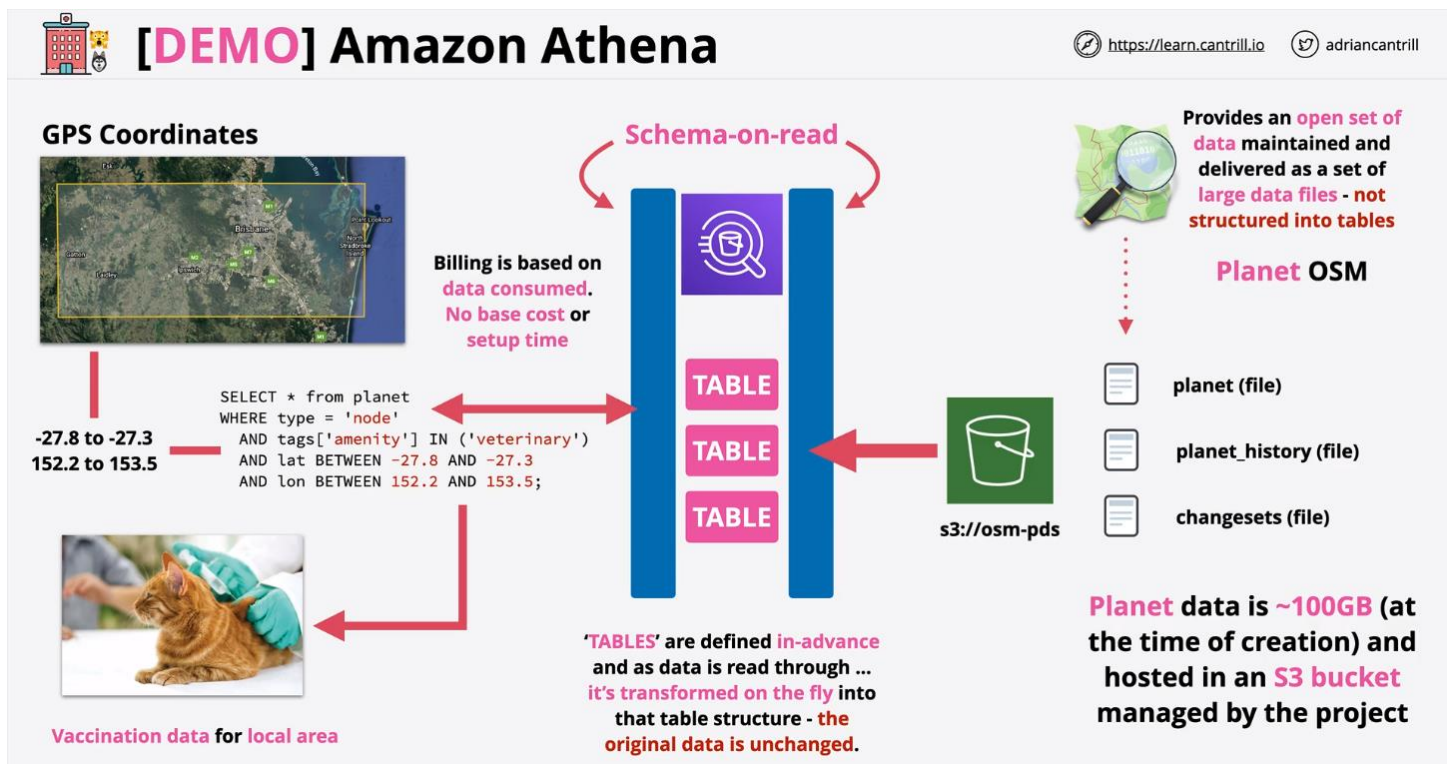
1. Athena Demo PART1

In this DEMO you will use Athena to query the open street map database to locate local animal vet facilities for the animals for life mobile teams.

Lat & Long : <https://journeynorth.org/tm/LongitudeIntro.html>

Google Earth <https://www.google.com/earth/>

Architecture for lab:



Query used (Q2):

```
# Create the Athena DB
CREATE DATABASE A4L;

# Create the Athena DB Table
CREATE EXTERNAL TABLE planet (
```

```

id BIGINT,
type STRING,
tags MAP<STRING,STRING>,
lat DECIMAL(9,7),
lon DECIMAL(10,7),
nds ARRAY<STRUCT<ref: BIGINT>>,
members ARRAY<STRUCT<type: STRING, ref: BIGINT, role: STRING>>,
changeset BIGINT,
timestamp TIMESTAMP,
uid BIGINT,
user STRING,
version BIGINT
)
STORED AS ORCFILE
LOCATION 's3://osm-pds/planet/';

# Test Query

Select * from planet LIMIT 100;

```

Create stacks, load bucket for querying:

✓ Successfully created bucket "a4l-query-results-13337"
To upload files and folders, or to configure additional bucket settings choose [View details](#).

Amazon S3

Buckets (6) 🔄 📄 Copy ARN E

Buckets are containers for data stored in S3. [Learn more](#)

🔍 Find buckets by name

	Name ▲	AWS Region ▼	Access ▼
<input checked="" type="radio"/>	a4l-query-results-13337	US East (N. Virginia) us-east-1	Objects can be public
<input type="radio"/>	cf-templates-1fkk7fkqbb9ez-us-east-1	US East (N. Virginia) us-east-1	Objects can be public
<input type="radio"/>	cf-templates-1fkk7fkqbb9ez-us-east-2	US East (Ohio) us-east-2	Objects can be public
<input type="radio"/>	cf-templates-1fkk7fkqbb9ez-us-west-2	US West (Oregon) us-west-2	Objects can be public
<input type="radio"/>	elasticbeanstalk-us-east-1-945690336440	US East (N. Virginia) us-east-1	Objects can be public
<input type="radio"/>	tactar1270	US East (N. Virginia) us-east-1	Objects can be public

Configure query location to point to bucket:

Settings

Settings apply by default to all new queries. [Learn more](#)

Query result location and encryption

Workgroup: **primary**

Query result location

s3://a4l-query-results-13337/

Select

The S3 path requires a trailing slash. Example: s3://query-results-bucket/folder/

Encrypt query results ☐ [i](#)

Autocomplete ☐ [i](#)

Query engine version

Athena occasionally releases a new engine version to provide improved performance, functionality, and code fixes. [Learn more](#)

Upgrade query engines

Let Athena choose when to automatically upgrade all of your workgroups on Athena engine version 1 to Athena engine version 2.

Set all workgroups to automatically upgrade [i](#)

Cancel

Save

Config queries, Q1:

Athena **Query editor** Saved queries History Data sources Workgroup : primary Settings Tutorial Help What's new ¹⁰⁺

Data source [Connect data source](#)
 AwsDataCatalog

Database
 a4l
 Filter tables and views...

▼ **Tables (0)** [Create table](#)
 The selected database has no tables.

▼ **Views (0)** [Create view](#)
 You have not created any views. To create a view, run a query and click "Create view from query"

New query 1 [+](#)

```
1 CREATE DATABASE a4l;
2
```

Run query **Save as** **Create** (Run time: 0.61 seconds, Data scanned: 0 KB) **Format query** **Clear**

Use Ctrl + Enter to run query, Ctrl + Space to autocomplete

Athena engine version 1 [Release versions](#)

Results

Query successful.

Q2:

The screenshot shows the AWS Athena Query Editor interface. On the left, the 'Data source' is set to 'AwsDataCatalog' and the 'Database' is 'a4l'. The main query editor displays the following SQL code:

```

1 CREATE EXTERNAL TABLE planet (
2   id BIGINT,
3   type STRING,
4   tags MAP<STRING,STRING>,
5   lat DECIMAL(9,7),
6   lon DECIMAL(10,7),
7   nds ARRAY<STRUCT<ref: BIGINT>>,
8   members ARRAY<STRUCT<type: STRING, ref: BIGINT, role: STRING>>,
9   changeset BIGINT,
10  timestamp TIMESTAMP,
11  uid BIGINT,
12  user STRING,
13  version BIGINT
14 )
15 STORED AS ORCFILE
16 LOCATION 's3://osm-pds/planet/';

```

Below the query editor, there are buttons for 'Run query', 'Save as', and 'Create'. A green arrow points to the 'New query 2' tab. The bottom status bar indicates 'Athena engine version 1' and 'Release versions'.

Q3:

The screenshot shows the AWS Athena Query Editor interface. On the left, the 'Data source' is 'AwsDataCatalog' and the 'Database' is 'a4l'. The main query editor displays the following SQL code:

```

1 Select * from planet LIMIT 10;

```

Below the query editor, there are buttons for 'Run query', 'Save as', and 'Create'. A green arrow points to the 'New query 3' tab. The bottom status bar indicates 'Athena engine version 1' and 'Release versions'.

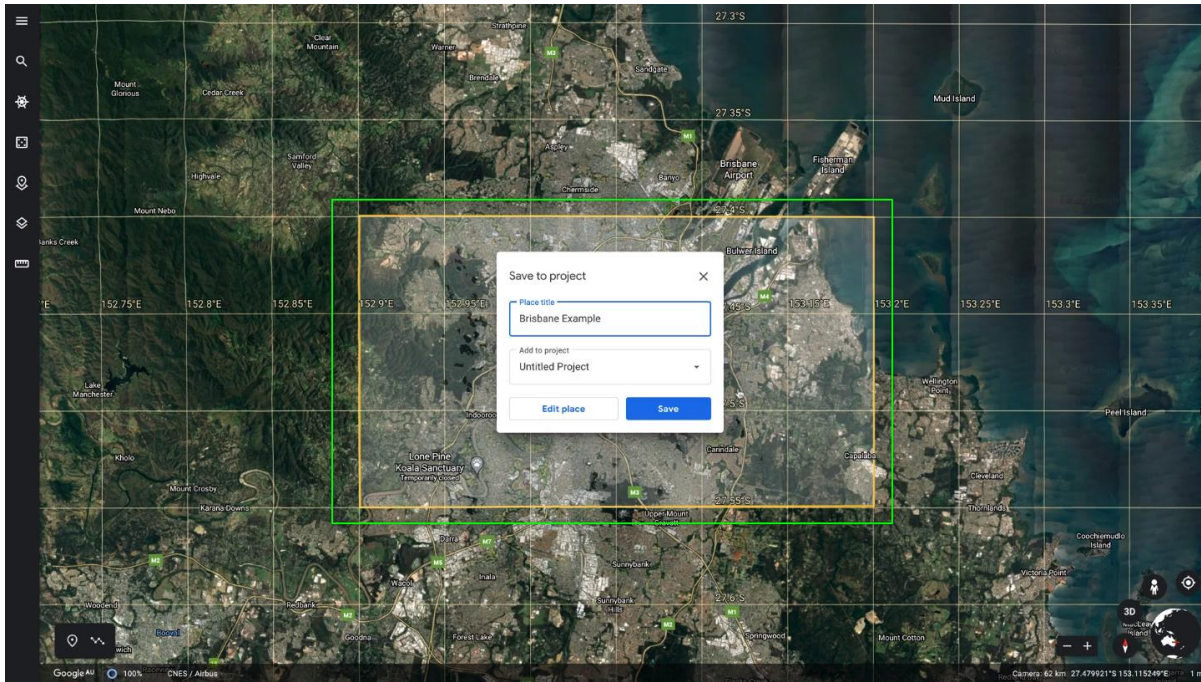
Below the query editor, the 'Results' section is visible, showing a table with 8 rows of data. The table has columns: id, type, and tags. The data is as follows:

id	type	tags
340660087	node	{addr:municipality=Herlev, addr:housenumber=24, osak:identifier=0a3f507c-79e7-32b8-e044-0003ba298018, addr:country=DK, addr:street=Gåseholm}
340660088	node	{addr:municipality=Herlev, addr:housenumber=26, osak:identifier=0a3f507c-79e8-32b8-e044-0003ba298018, addr:country=DK, addr:street=Gåseholm}
340660089	node	{addr:municipality=Herlev, addr:housenumber=59, osak:identifier=0a3f507c-79e9-32b8-e044-0003ba298018, addr:country=DK, addr:street=Gåseholm}
340660090	node	{addr:municipality=Herlev, addr:housenumber=61, osak:identifier=0a3f507c-79ea-32b8-e044-0003ba298018, addr:country=DK, addr:street=Gåseholm}
340660091	node	{addr:municipality=Herlev, addr:housenumber=63, osak:identifier=0a3f507c-79eb-32b8-e044-0003ba298018, addr:country=DK, addr:street=Gåseholm}
340660092	node	{addr:municipality=Herlev, addr:housenumber=65, osak:identifier=0a3f507c-79ec-32b8-e044-0003ba298018, addr:country=DK, addr:street=Gåseholm}
340660093	node	{addr:municipality=Herlev, addr:housenumber=67, osak:identifier=0a3f507c-79ed-32b8-e044-0003ba298018, addr:country=DK, addr:street=Gåseholm}
340660094	node	{addr:municipality=Herlev, addr:housenumber=69, osak:identifier=0a3f507c-79ee-32b8-e044-0003ba298018, addr:country=DK, addr:street=Gåseholm}

2. Athena Demo - PART2

In this DEMO you will use Athena to query the open street map database to locate local animal vet facilities for the animals for life mobile teams.

Using Brisbane for cords:



Setup new Query (Q4), use location query:

```
SELECT * from planet
WHERE type = 'node'
AND tags['amenity'] IN ('veterinary')
AND lat BETWEEN -27.8 AND -27.3
AND lon BETWEEN 152.2 AND 153.5;
```

Queries produce results of places that contain cat vaccinations:

Athena Query editor interface showing the query execution results.

Data source: AwsDataCatalog
Database: a4l

Tables (1): planet

Views (0):

Query 4:

```
1 SELECT * from planet
2 WHERE type = 'node'
3 AND tags['amenity'] IN ('veterinary')
4 AND lat BETWEEN -27.8 AND -27.3
5 AND lon BETWEEN 152.2 AND 153.5;
```

Run query (Run time: 10.82 seconds, Data scanned: 48.64 GB)

Results:

Id	type	tags
1 5629700801	node	{amenity=veterinary, name=Bellbowrie Vet}
2 5166878542	node	{amenity=veterinary}
3 333663680	node	{amenity=veterinary, name=Albion Veterinary Surgery}
4 4968240597	node	{addr:housenumber=2095, amenity=veterinary, name=Talored Paws, addr:street=Moggill Road, addr:postcode=4069}
5 5270998556	node	{amenity=veterinary}
6 6282193926	node	{amenity=veterinary}
7 705724591	node	{amenity=veterinary, name=Red Hill Veterinary Clinic, source=survey}
8 1053424752	node	{amenity=veterinary, name=Marsden Veterinary Surgery}