Final Takeaway

Xavier Morera

HELPING DEVELOPERS UNDERSTAND SEARCH & BIG DATA

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Final Takeaway

Why Spark with Python & Cloudera?

- History
- What we will cover in this training
- What do you need for this course?

Final Takeaway

Getting an Environment & Data

- Cloudera cluster for Spark on Yarn or Spark Standalone
- StackOverflow / StackExchange

Final Takeaway

Python Fundamentals for This Course

- History, philosophy and paradigm
  - Functional programming
- Python interactive shell: REPL
- Covered the basics
- PySpark: Spark in the REPL

Final Takeaway

Understanding Spark: An overview

- Coarse grained transformations
- Parallelism and pipelining
- Narrow and wide transformations
- Lazy execution and lineage
- Libraries

Final Takeaway

Getting Technical with Spark

- Storage and file formats
- Spark APIs
- Performance, configuration & logging
- Visualizing your Spark application
- Navigating the documentation

Final Takeaway

Learning the Core of Spark: RDDs

- SparkContext
- Resilient Distributed Datasets
- Many ways of creating RDDs
- Return data to the Driver
- Save RDDs

Final Takeaway

Going Deeper into Spark Core

- Anonymous functions
- Transformations
- Actions
- Partition operations
- Set operations and aggregations
- Caching and data persistence
- Shared variables
- What's better?

Final Takeaway

Increasing Proficiency with Spark: DataFrames & Spark SQL

- "Everyone uses SQL"
- SparkSession
- Creating DataFrames
- Schemas
- Rows, columns, expressions & operators
- UDFs

Final Takeaway

Continuing the Journey with DataFrames & Spark SQL

- DataFrame DSL
- Saving DataFrames
- Spark SQL & Temporary Views
- Peristent Tables
- Hive support & external databases
- Aggregating, grouping & joining
- Catalog API

Final Takeaway

Understanding a Typed API: Datasets

- Works with Scala, not Python
- Typed API
- DataFrames = Dataset[Row]
- Scala is strongly typed

Continuing the Journey with Spark, Python & Cloudera: Next Steps

Getting a Hadoop Cluster

CDH + Tools

On-prem & Cloud

Director

Cloud

Altus

Platform-as-a-Service

Cloudera Altus

Platform-as-a-Service

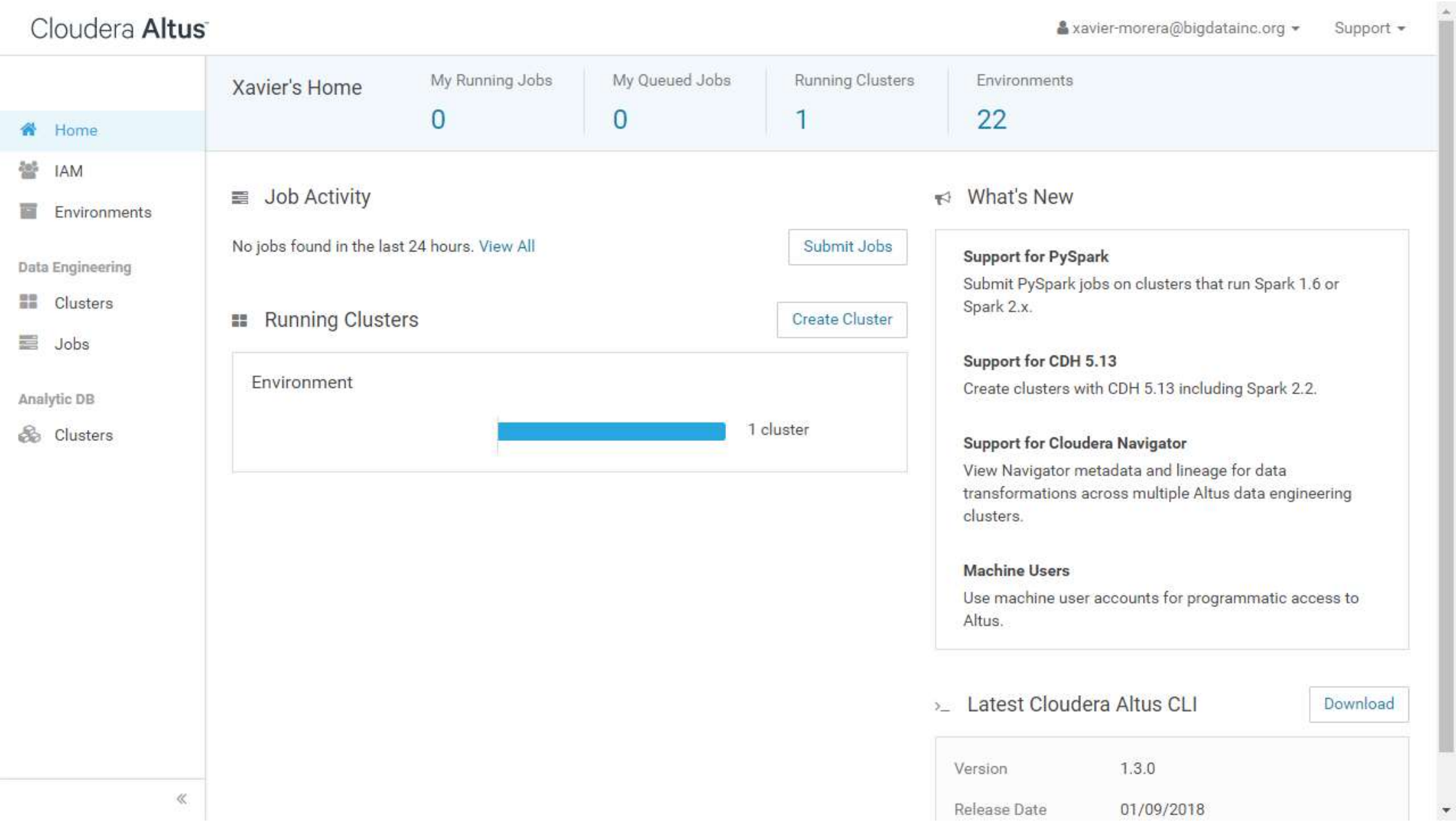
Provision clusters in the cloud

- AWS & Azure
- Managed cluster

Data Engineering & Workload Analytics

Processing engines

- MR2, Hive on MR2, Spark & Hive on Spark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Support
Xavier's Home
My Running Jobs
0
My Queued Jobs
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Running Clusters
1
Environments
22
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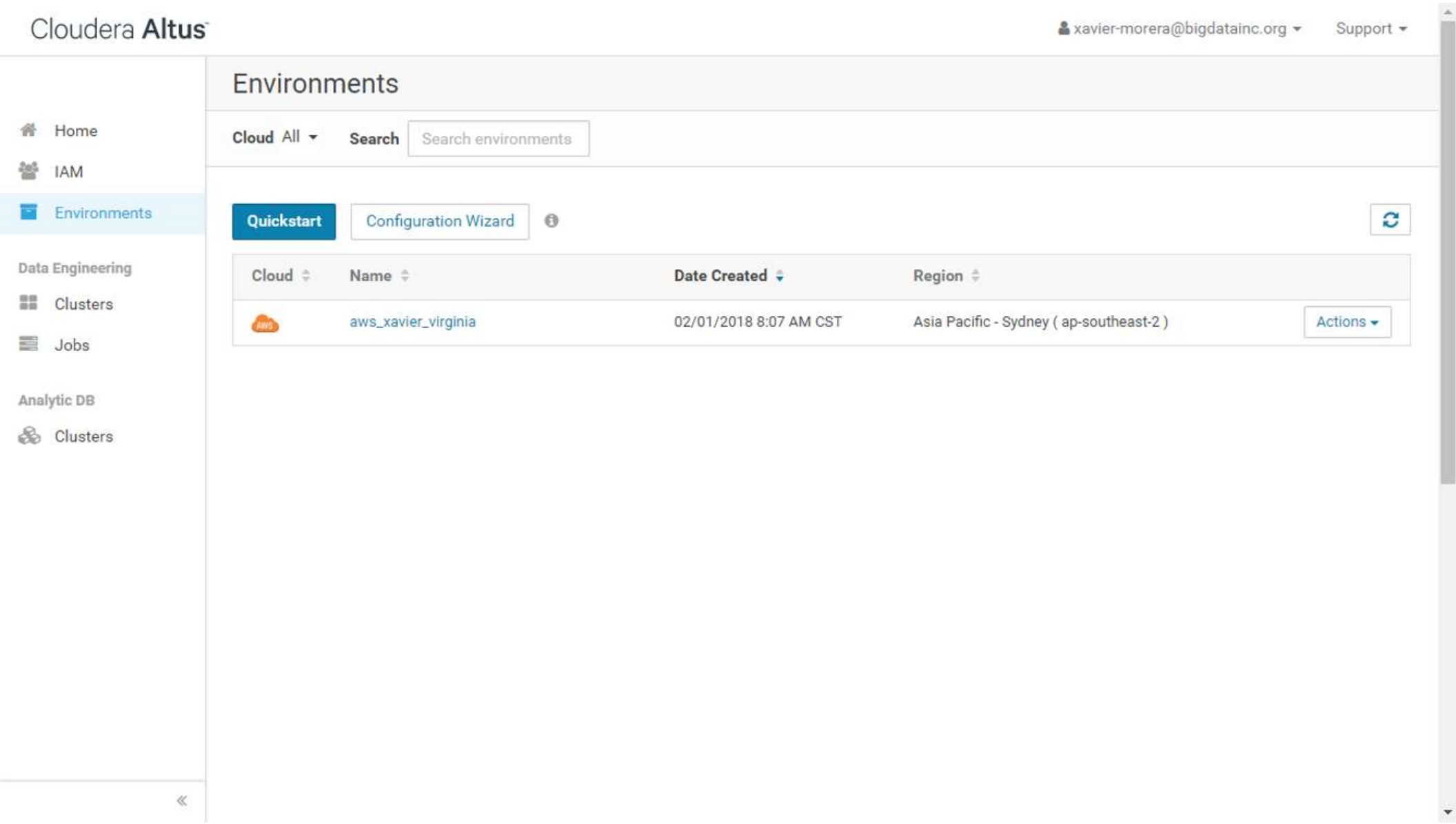
IAM
Environments
Data Engineering
Clusters
Jobs
Analytic DB
Clusters
Job Activity
No jobs found in the last 24 hours. View All
Submit Jobs
Running Clusters
Create Cluster
Environment
1 cluster
What's New
Support for PySpark
Submit PySpark jobs on clusters that run Spark 1.6 or Spark 2.x.
Support for CDH 5.13
Create clusters with CDH 5.13 including Spark 2.2.
Support for Cloudera Navigator
View Navigator metadata and lineage for data transformations across multiple Altus data engineering clusters.
Machine Users
Use machine user accounts for programmatic access to Altus.
Latest Cloudera Altus CLI
Download
Version
1.3.0
Release Date
01/09/2018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Search
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Quickstart
Configuration Wizard
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Region
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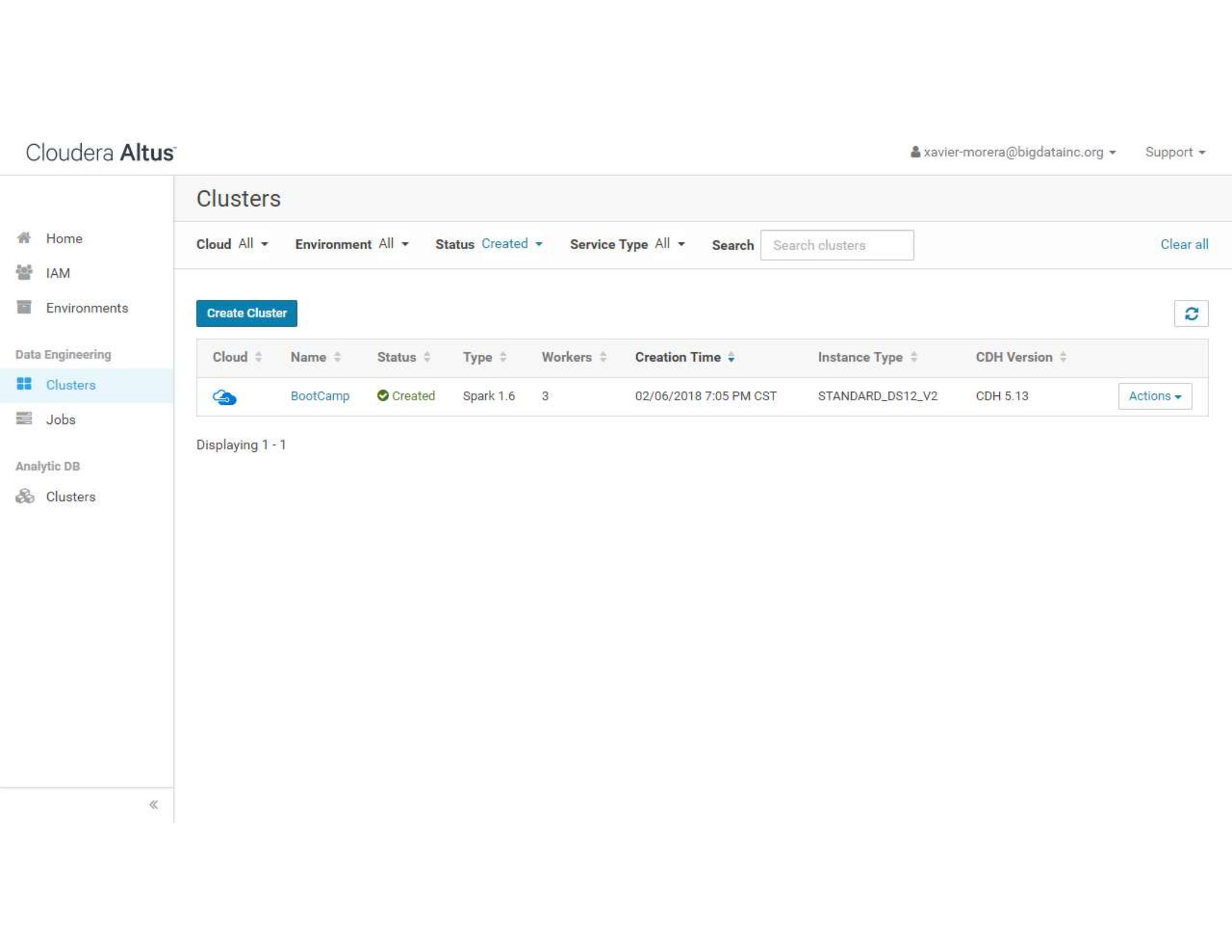
02/01/2018 8:07 AM CST
Asia Pacific - Sydney (ap-southeast-2)
Actions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Analytic DB
Clusters
Cloud All
Environment All
Status Created
Service Type All
Search
Search clusters
Clear all
Create Cluster
Cloud
Name
Status
Type
Workers
Creation Time
Instance Type
CDH Version
BootCamp
Created
Spark 1.6
3
02/06/2018 7:05 PM CST
STANDARD_DS12_V2
CDH 5.13
Actions
Displaying 1 - 1

Cloudera **Altus**

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Submit Jobs

Job Settings

Submission * (•) Single job ( ) Group of jobs

Job Type * Select job type

- Select job type
- Hive
- MapReduce2
- PySpark
- Spark

Cancel **Submit Jobs**

Cloudera **Altus**

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Submit Jobs

Submission * (•) Single job ( ) Group of jobs

Job Type * PySpark

Job Name Enter a name for this job

Main Python File * path/to/main.py

Python File Dependencies path/to/file with py, zip, or egg extension

Application Arguments Enter application arguments

Spark Arguments [ ]

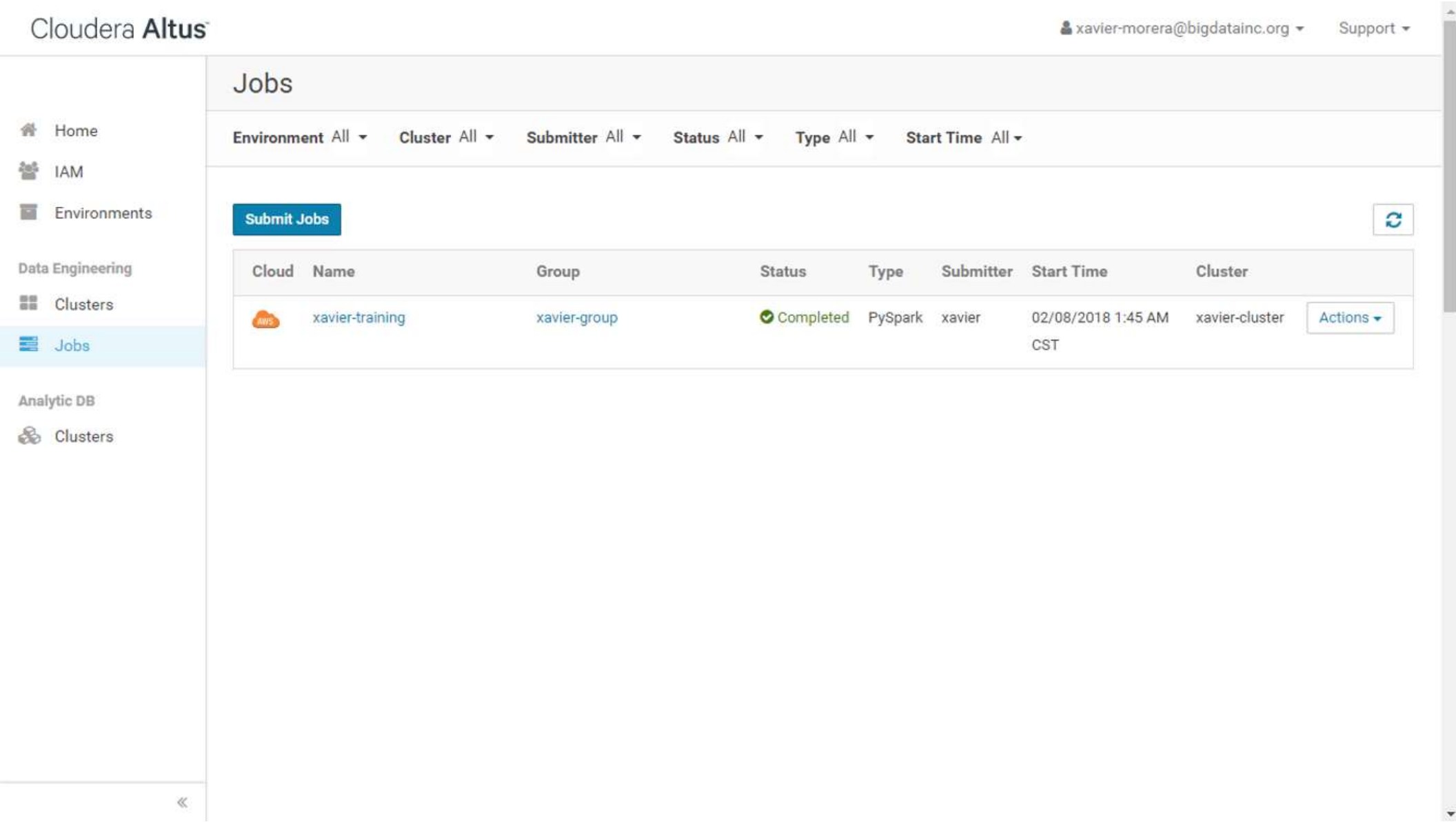
Action on Failure * None

Cluster Settings

Cluster * (•) Use existing ( ) Create new ( ) Clone existing

Select cluster

Cancel **Submit Jobs**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Jobs
Analytic DB
Clusters
Environment All
Cluster All
Submitter All
Status All
Type All
Start Time All
Submit Jobs
Cloud
Name
Group
Status
Type
Submitter
Start Time
Cluster
xavier-training
xavier-group
Completed
PySpark
xavier
02/08/2018 1:45 AM CST
xavier-cluster
Actions

Cloudera Data Science Workbench

Web application for working with Big Data

- Data Science
- From exploration to production

Work with R, Python & Scala

Self-Service Data Science for the Enterprise

Installing and Upgrading Cloudera Data Science Workbench 1.3.x Using Cloudera Manager

This topic describes how to install and upgrade Cloudera Data Science Workbench using Cloudera Manager.

Installing Cloudera Data Science Workbench 1.3.x Using Cloudera Manager

Use the following steps to install Cloudera Data Science Workbench using Cloudera Manager.

Prerequisites

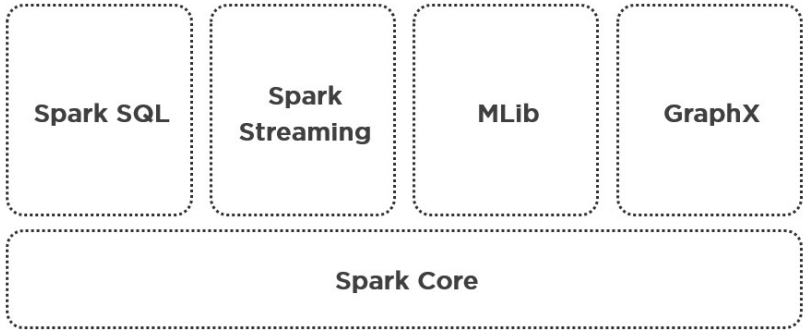
Before you begin installing Cloudera Data Science Workbench, make sure you have completed the steps to

http://tiny.bigdatainc.org/getcdsw

Streaming

Process live data streams in a scalable, high-throughput and fault tolerant way using

Spark Streaming



Process live data streams in a scalable, high-throughput and fault tolerant way using Apache Spark

Spark Streaming

Process live data streams in a scalable, high-throughput and fault tolerant way using Apache Spark

Structured Streaming

Process live data streams in a scalable, high-throughput and fault tolerant way using Apache Spark

TensorFlow

Open-source library

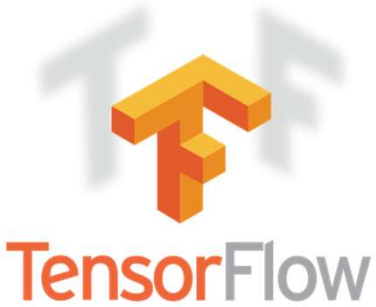
- Created by Google

Machine learning applications

- Deep learning

Use with Spark?

TensorFrames



TensorFlow on Spark DataFrames

Manipulate DataFrames

- TensorFlow programs

Machine Learning

tensorframes (homepage)

Tensorflow wrapper for DataFrames on Apache Spark

@databricks / ★★★★★ (3)

TensorFrames (TensorFlow on Spark Dataframes) lets you manipulate Spark's DataFrames with TensorFlow programs.
This package provides Python bindings, a Scala DSL and a small runtime to express and run TensorFlow computation graphs.

Tags

2 tensorflow

How to [+]

Include this package in your Spark Applications using:

spark-shell, pyspark, or spark-submit

```
> $SPARK_HOME/bin/spark-shell --packages databricks:tensorframes:0.2.9-s_2.11
```

Releases

Version: 0.2.9-s_2.11 (4be3b2 | zip | jar) / Date: 2017-09-05 / License: Apache-2.0

Version: 0.2.9-s_2.10 (4be3b2 | zip | jar) / Date: 2017-09-05 / License: Apache-2.0

Version: 0.2.9-rc3-s_2.11 (99e6d8 | zip | jar) / Date: 2017-08-31 / License: Apache-2.0

Version: 0.2.9-rc3-s_2.10 (99e6d8 | zip | jar) / Date: 2017-08-31 / License: Apache-2.0

Thank You!

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