

Sentiment Analysis on Streaming Data using Azure Databricks

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Instructions:

Please keep your microphones on mute during the entire session

Type in your questions in chat window, it will be answered towards the end of our session

Sentiment Analysis on Streaming Data using Azure Databricks

Welcome



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Section 1

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Create Azure Databricks workspace

Create a spark cluster in Azure Databricks

Create a Twitter app to access streaming data

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Run Sentiment Analysis on tweets

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<https://azuredataplatform.com>

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Create Event Hub



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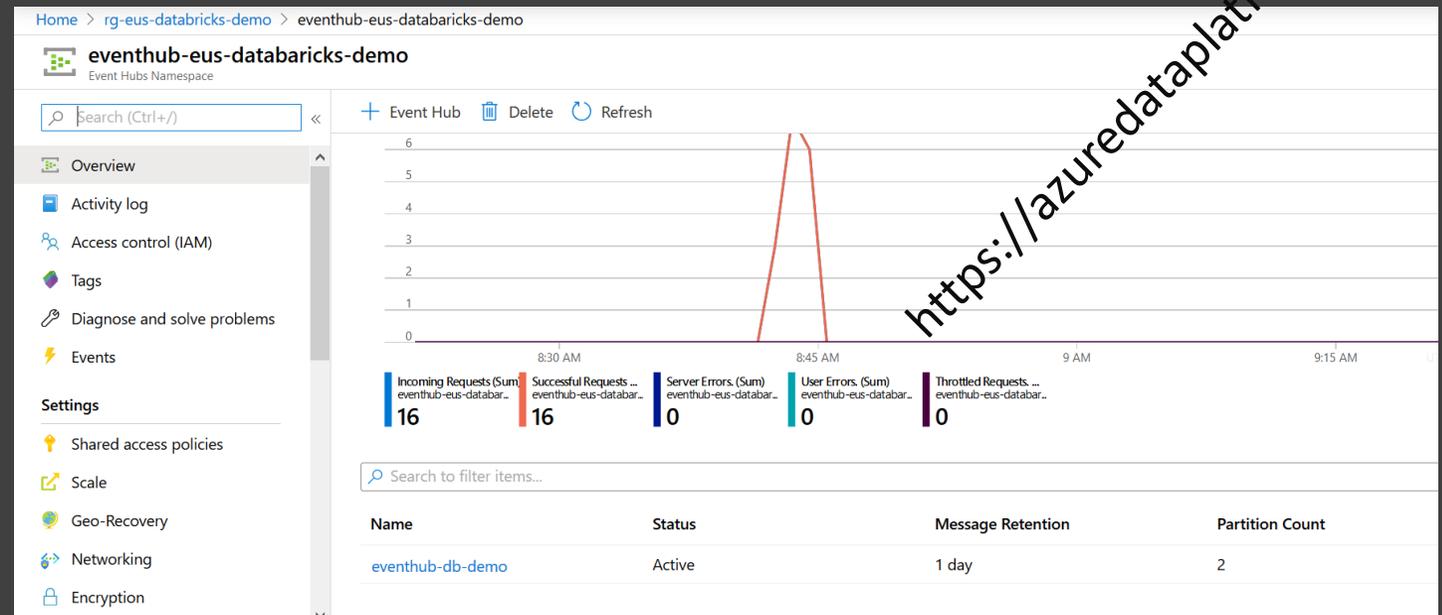
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Section 2

Azure Event Hubs is a Big Data streaming platform and event ingestion service, capable of receiving and processing millions of events per second. Event Hubs can process and store events, data, or telemetry produced by distributed software and devices.



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Create Azure Databricks workspace



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Azure Databricks is an Apache Spark-based analytics platform optimized for the Microsoft Azure cloud services platform. Designed with the founders of Apache Spark, Databricks is integrated with Azure to provide one-click setup, streamlined workflows, and an interactive workspace that enables collaboration between data scientists, data engineers, and business analysts.



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Create a spark cluster in Azure Databricks



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Apache Spark in Azure Databricks

Azure Databricks builds on the capabilities of Spark by providing a zero-management cloud platform that includes:

- Fully managed Spark clusters
- An interactive workspace for exploration and visualization
- A platform for powering your favorite Spark-based applications

Microsoft Azure

Create Cluster

New Cluster 3 Workers: 42.0 GB Memory, 12 Cores, 2.25 DBU
1 Driver: 14.0 GB Memory, 4 Cores, 0.75 DBU Cost: \$55 per DBU

Cluster Name: mysparkcluster

Cluster Mode: Standard

Pool: None

Databricks Runtime Version: Runtime: 5.2 (Scala 2.11, Spark 2.4.0)

Python Version: 3

Autopilot Options

Enable autoscaling

Terminate after 120 minutes of inactivity

Worker Type: Standard_DS3_v2 14.0 GB Memory, 4 Cores, 0.75 DBU Workers: 3

Driver Type: Same as worker 14.0 GB Memory, 4 Cores, 0.75 DBU

Advanced Options

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Create a Twitter app to access streaming data



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The screenshot shows the Twitter Developer portal. At the top, it says "Account Application Approved" (1). Below that, a message states "Your Twitter developer account application has been approved!" (2). The user is prompted to sign in to their developer account. The "Apps" section shows "No apps here." (3). The "Create an app" button is highlighted. The "Create an app" form is shown with fields for App name, Application description, Website URL, Callback URLs, Terms of Service URL, Privacy policy URL, Organization name, and Organization website URL. The "Create" button is highlighted. The "Keys and tokens" section is shown with fields for Consumer API keys and Access token & access token secret. The "Create" button is highlighted (4).

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Attach libraries for Event hubs and twitter API



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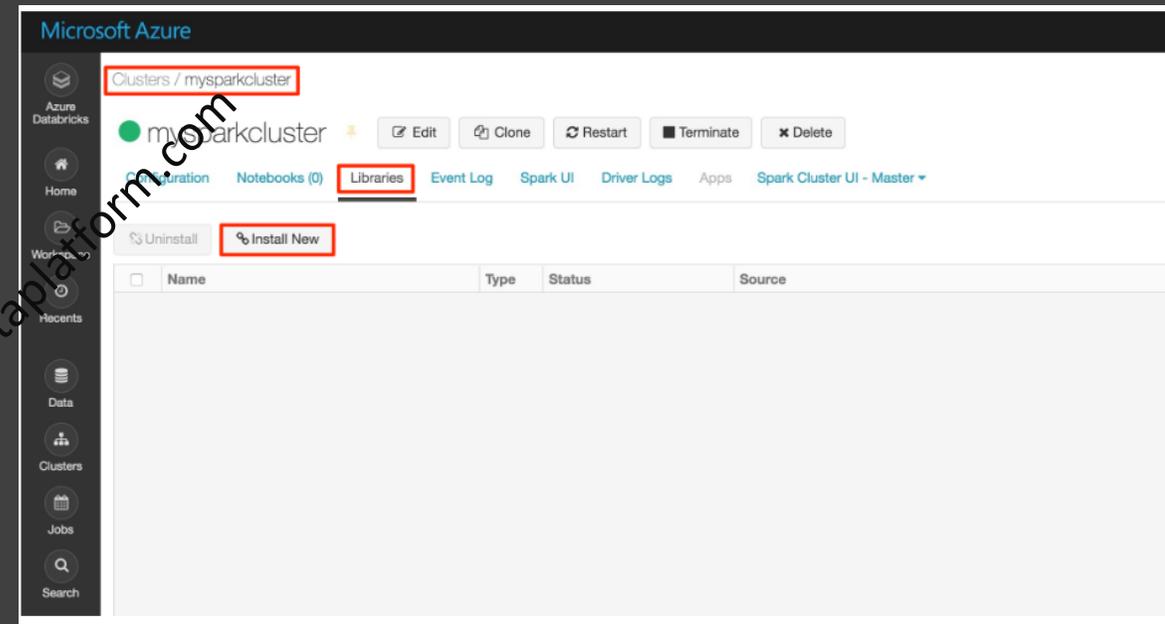
Demo

Section 2

In the New Library page, for Source select Maven. For Coordinate, click Search Packages for the package you want to add. Here is the Maven coordinates for the libraries used in this tutorial:

Spark Event Hubs connector - `com.microsoft.azure:azure-eventhubs-spark_2.11:2.3.10`

Twitter API - `org.twitter4j:twitter4j-core:4.0.7`



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Azure Cognitive Services are APIs, SDKs, and services available to help developers build intelligent applications without having direct AI or data science skills or knowledge. Azure Cognitive Services enable developers to easily add cognitive features into their applications. The goal of Azure Cognitive Services is to help developers create applications that can see, hear, speak, understand, and even begin to reason. The catalog of services within Azure Cognitive Services can be categorized into five main pillars - Vision, Speech, Language, Web Search, and Decision.

The screenshot displays the Azure portal interface for a Cognitive Services resource group. The breadcrumb path is 'Home > rg-eus-databricks-demo > cg-eus-databricks-demo'. The resource group name is 'cg-eus-databricks-demo'. The left sidebar shows navigation options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, and RESOURCE MANAGEMENT (Quick start, Keys and Endpoint, Pricing tier). The main content area shows the following details:

Resource group (change)	: rg-eus-databricks-demo	API type	: All Cognitive Services
Status	: Active	Pricing tier	: Standard
Location	: East US 2	Endpoint	: https://eastus2.api.cognitive.microsoft.com/
Subscription (change)	: PayAsYouGo_AzureDataPlatform	Key1	: 88f762f272fa4280973daef3d85fe72c
Subscription ID	: 6c0f4ac7-0dd8-4482-a2a9-f78457a2d01d	Manage keys	: Click here to manage keys
Tags (change)	: Click here to add tags		

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Architecture



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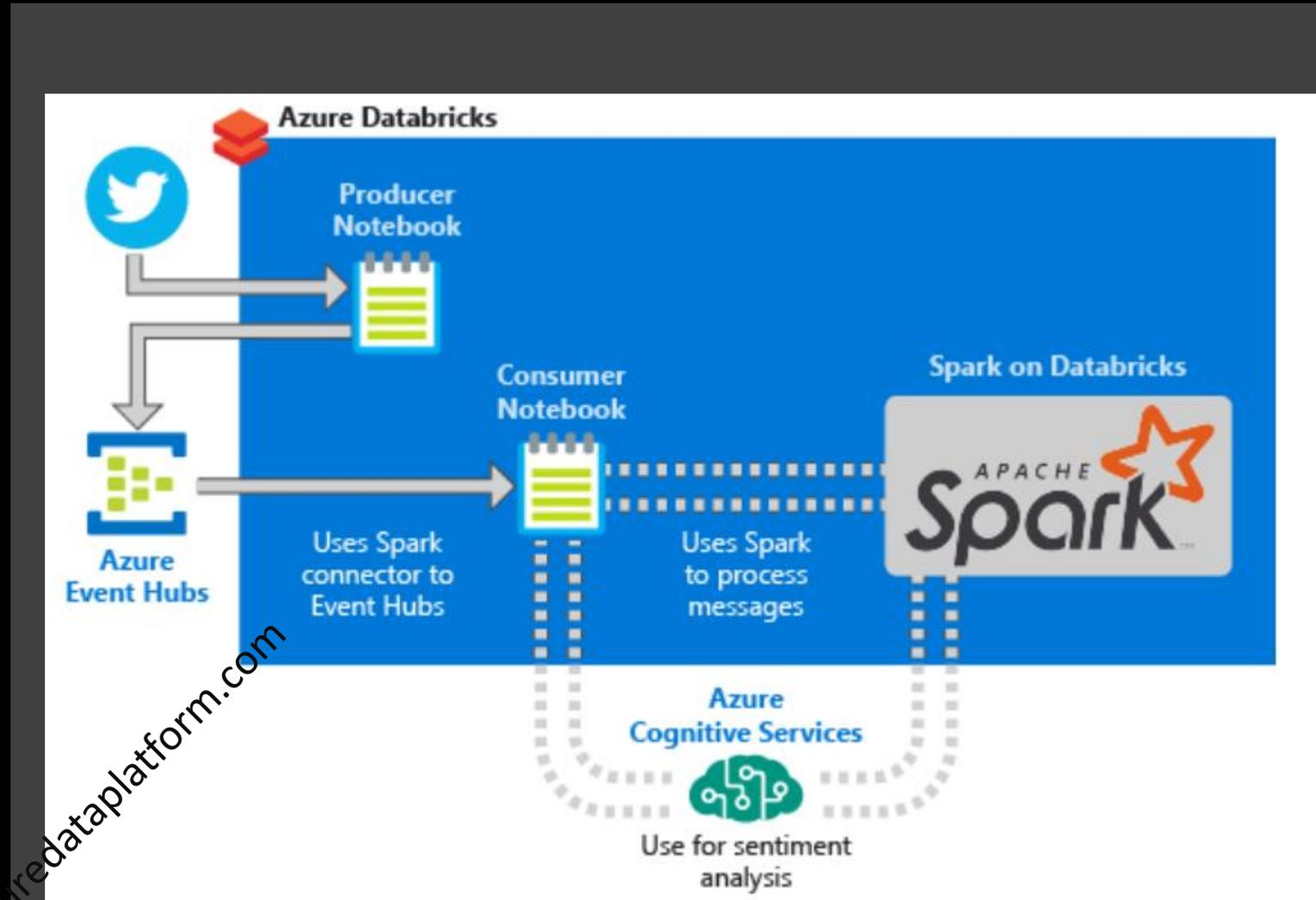
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