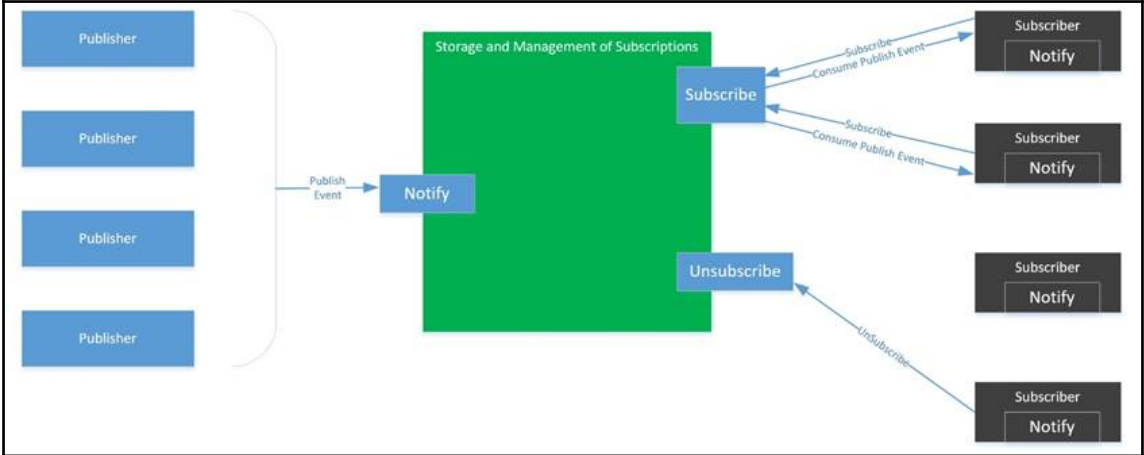
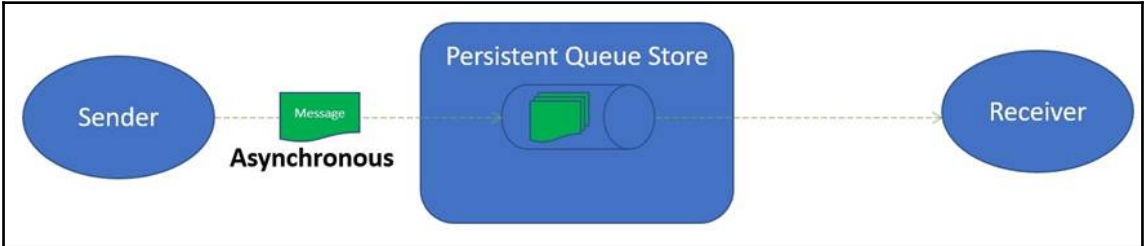
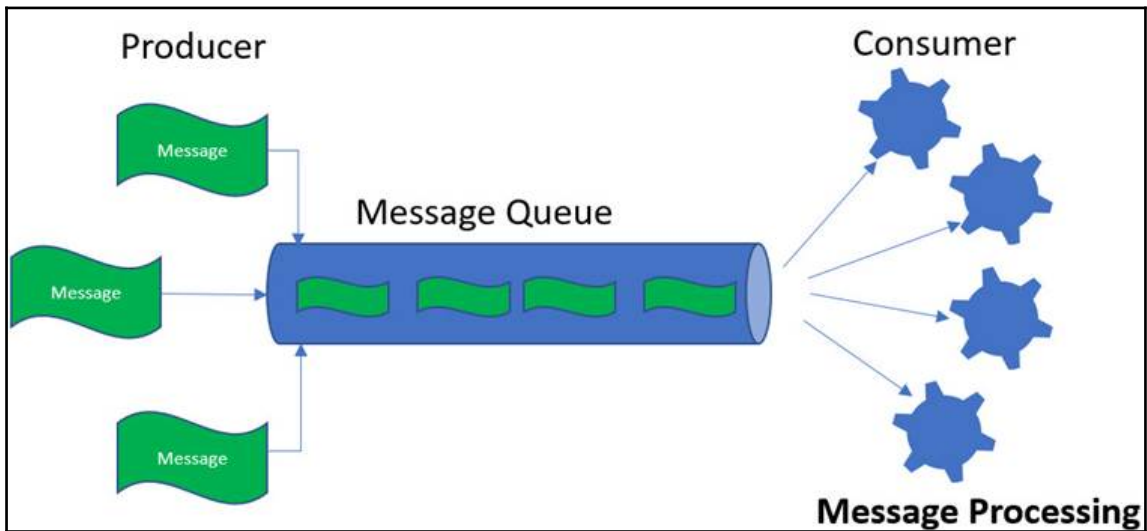
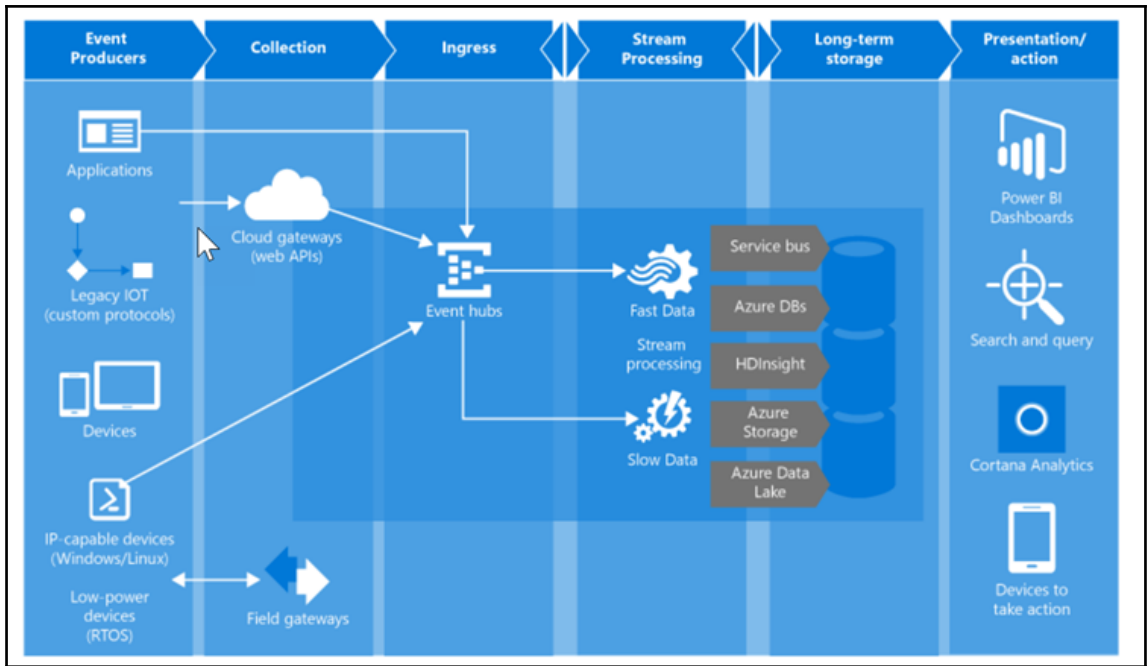
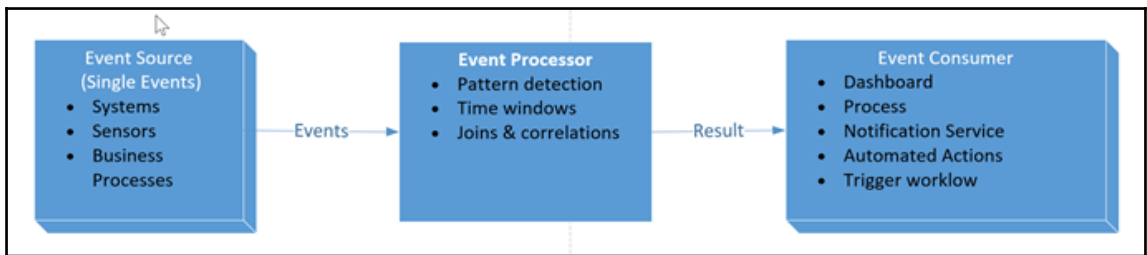
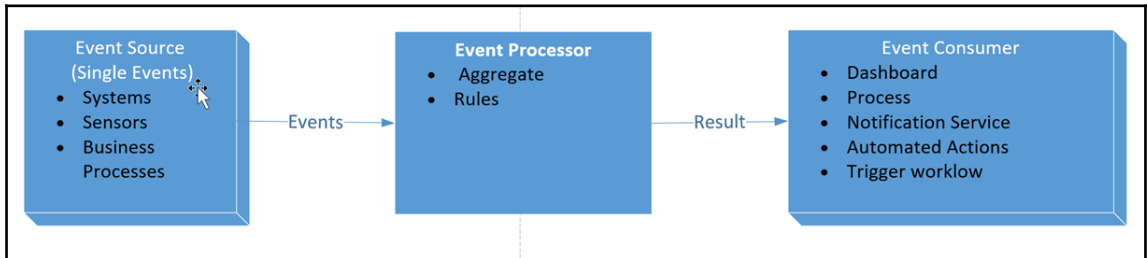
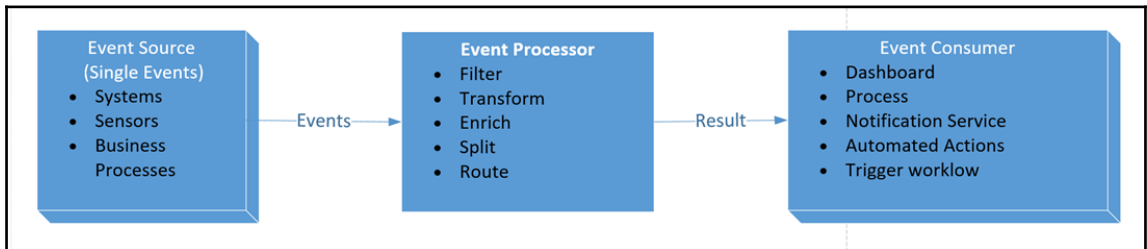
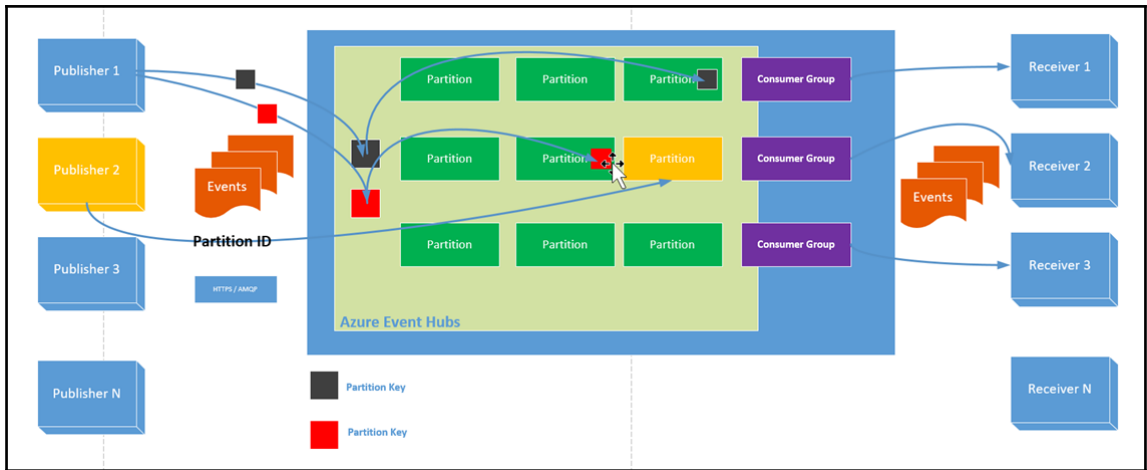


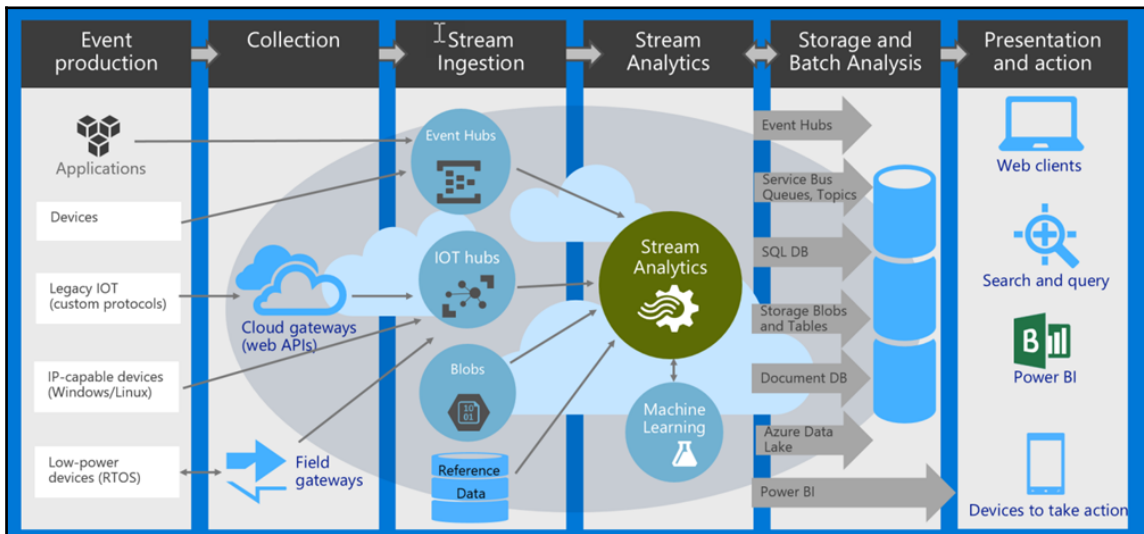
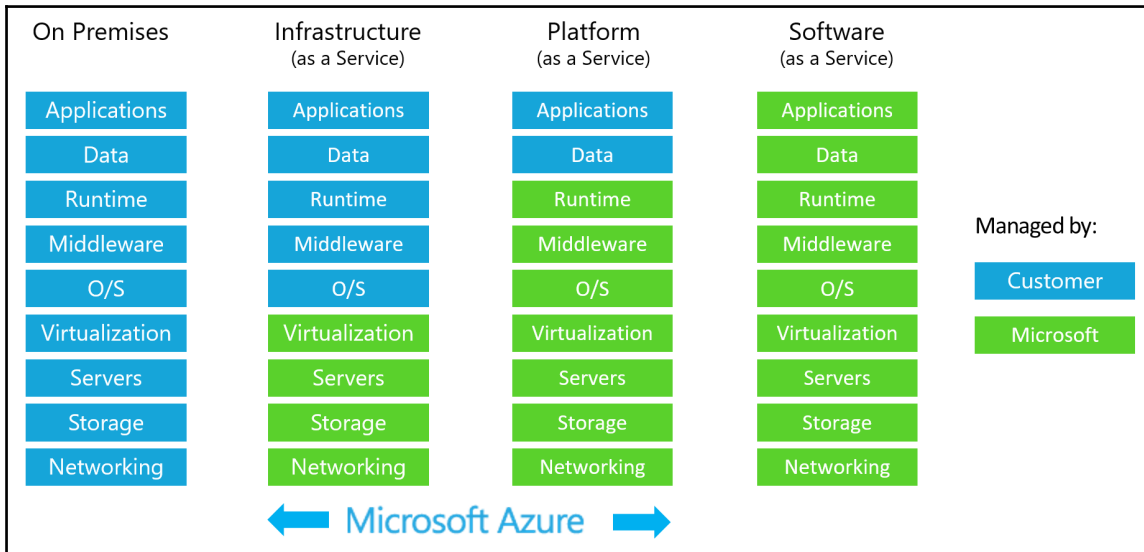
Chapter 01: Introducing Stream Processing and Real-Time Insights

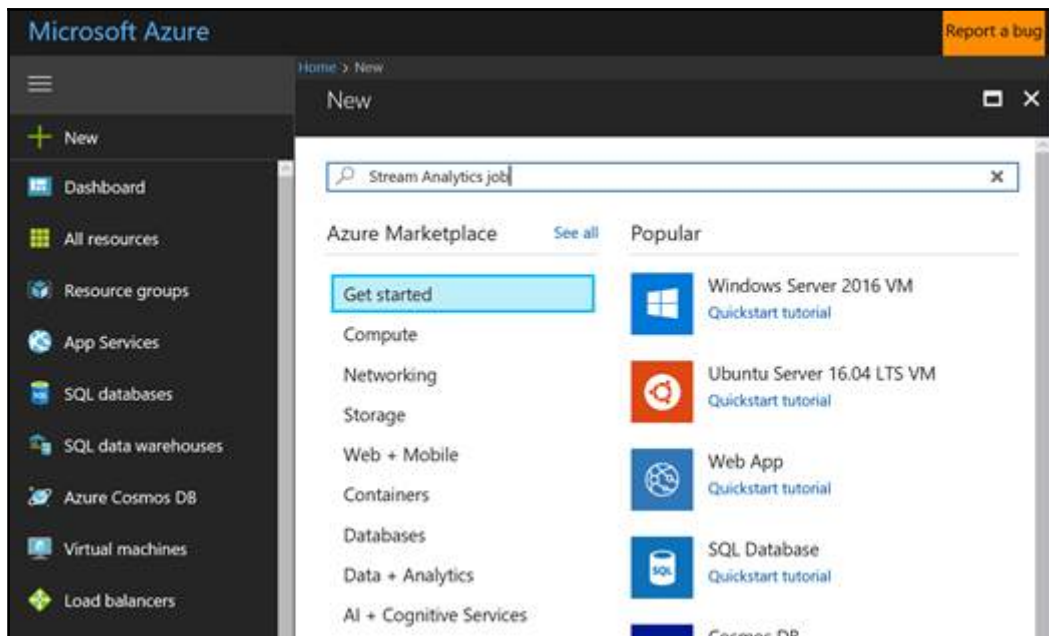
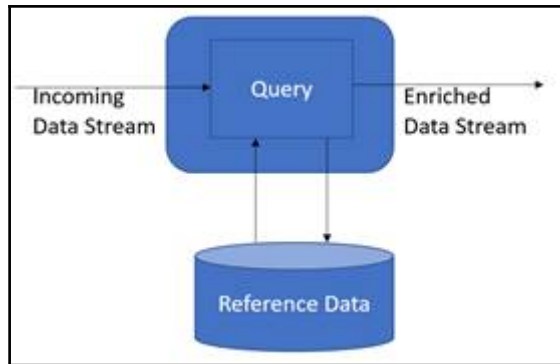






Chapter 02: Introducing Azure Stream Analytics and Key Advantages





The screenshot shows the Microsoft Azure portal interface. On the left is a dark navigation sidebar with various service icons and labels. The main content area is titled 'Stream Analytics job' and contains introductory text about the service, social media icons, and a flow diagram. The diagram illustrates data flow from an IoT Hub to Stream Analytics, which then connects to a Dashboard and Alerts. A blue 'Create' button is located at the bottom of the diagram area and is highlighted with a red rectangular box.

Microsoft Azure

Home > New > Stream Analytics job

Stream Analytics job

[Azure Stream Analytics](#) is a fully managed, cost effective real-time event processing engine that helps to unlock deep insights from data. Stream Analytics makes it easy to set up real-time analytic computations on data streaming from devices, sensors, web sites, social media, applications, infrastructure systems, and more.

With a few clicks in the Azure portal, you can author a Stream Analytics job specifying the input source of the streaming data, the output sink for the results of your job, and a data transformation expressed in a SQL-like language. You can monitor and adjust the scale/speed of your job in the Azure portal to scale from a few kilobytes to a gigabyte or more of events processed per second.

Stream Analytics leverages years of Microsoft Research work in developing highly tuned streaming engines for time-sensitive processing, as well as language integrations for intuitive specifications of such.

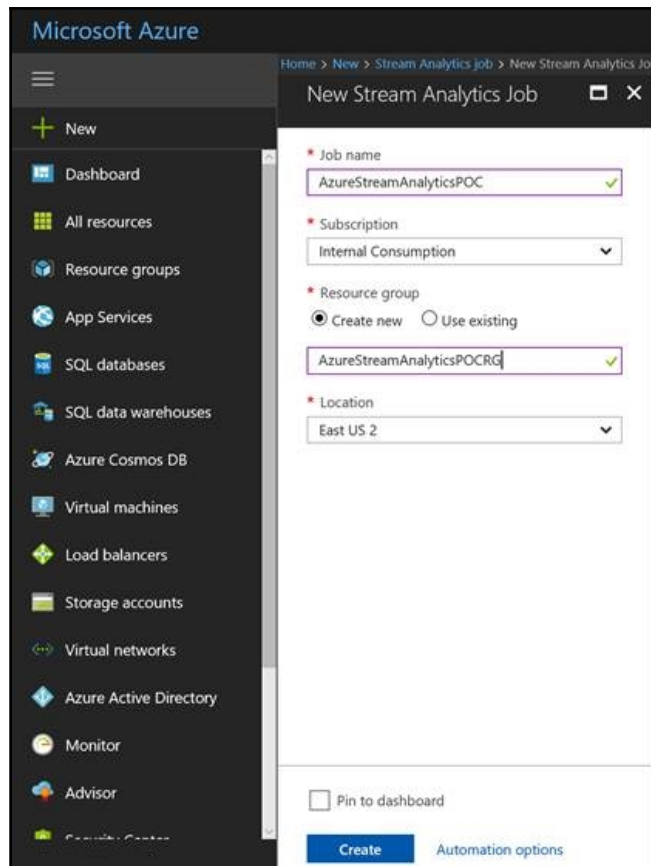
Dashboard

Alerts

IoT Hub

Stream Analytics

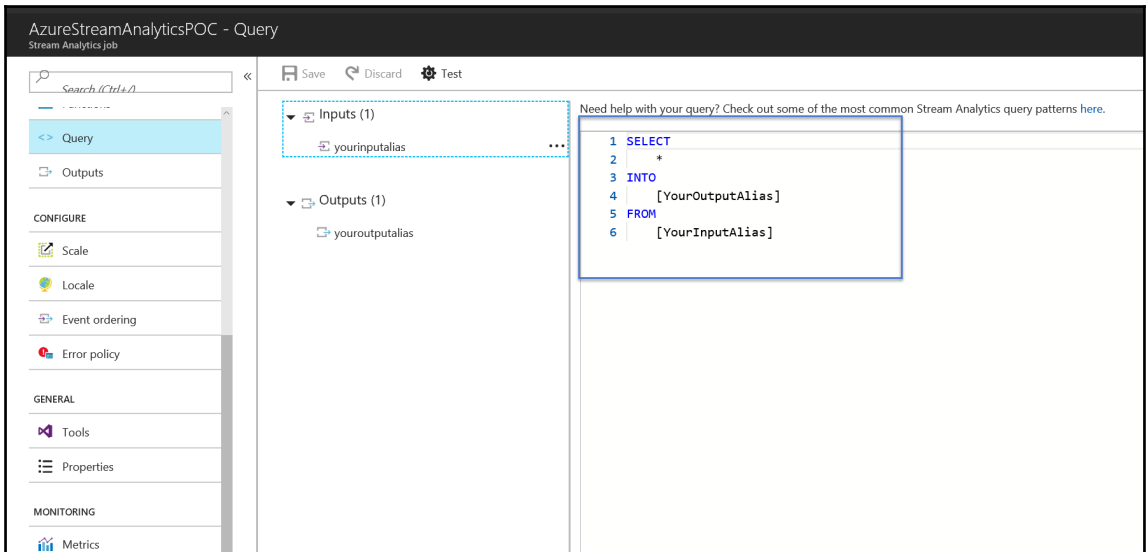
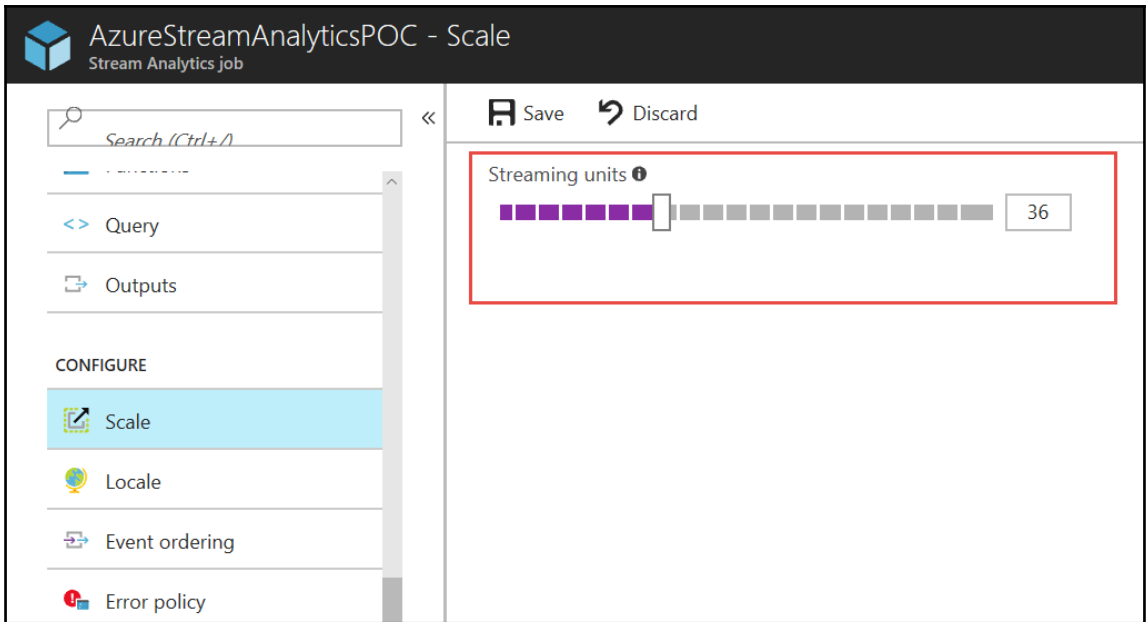
Create



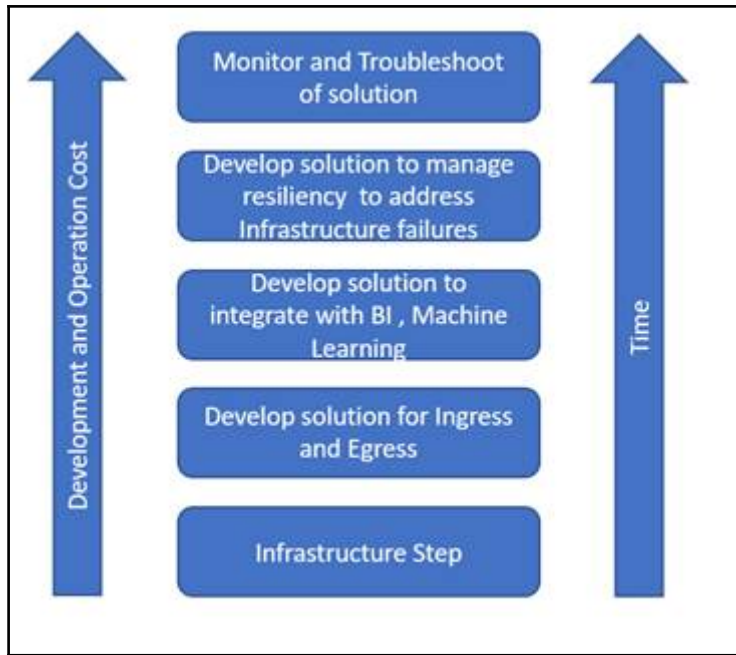
The screenshot displays the Azure portal interface for configuring a Stream Analytics job. The left-hand navigation pane includes options like Dashboard, All resources, Resource groups, App Services, SQL databases, and more. The main content area shows the job's configuration details, including its resource group (AzureStreamAnalyticsPOCRG), location (East US 2), and subscription information. A 'Job Topology' section shows three columns: Inputs (0), Query (represented by a double arrow), and Outputs (0). Below this, a 'Monitoring' section displays a line chart for 'InputEvents, OutputEvents and one more metric past hour' with a y-axis ranging from 0 to 100.

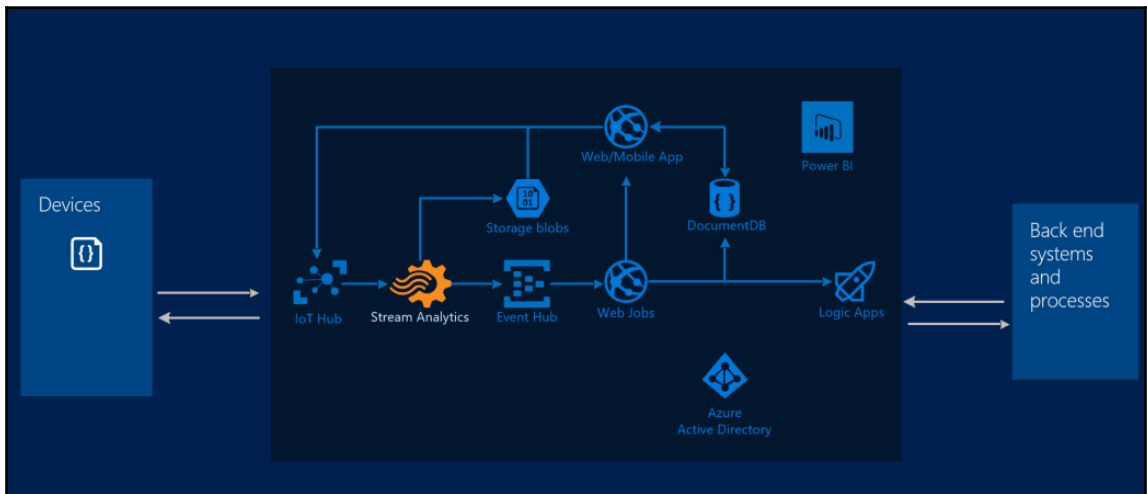
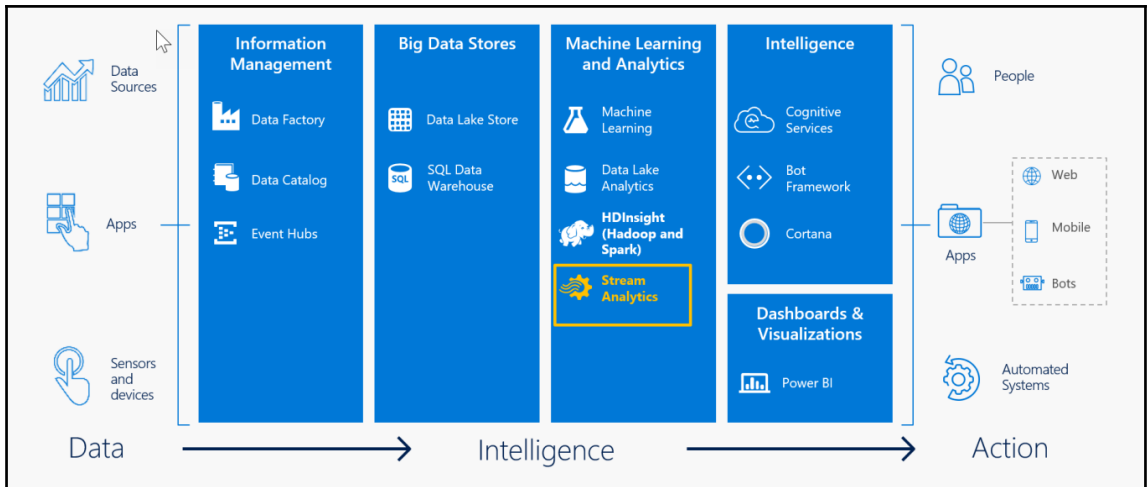
This screenshot shows the Activity log for the 'AzureStreamAnalyticsPOC' job. It features a search bar and various filters for Subscription, Resource group, Resource, and Operation. The log shows two recent operations:

OPERATION NAME	STATUS	TIME	TIME STAMP	SUBSCRIPTION	EVENT INITIATED BY
Add job 'AzureStreamAnalyticsPOC'	Completed	3 min ago	Sun Oct 22 2...	Internal Consumption	
Write StreamingJobs	Started	3 min ago	Sun Oct 22 2...	Internal Consumption	

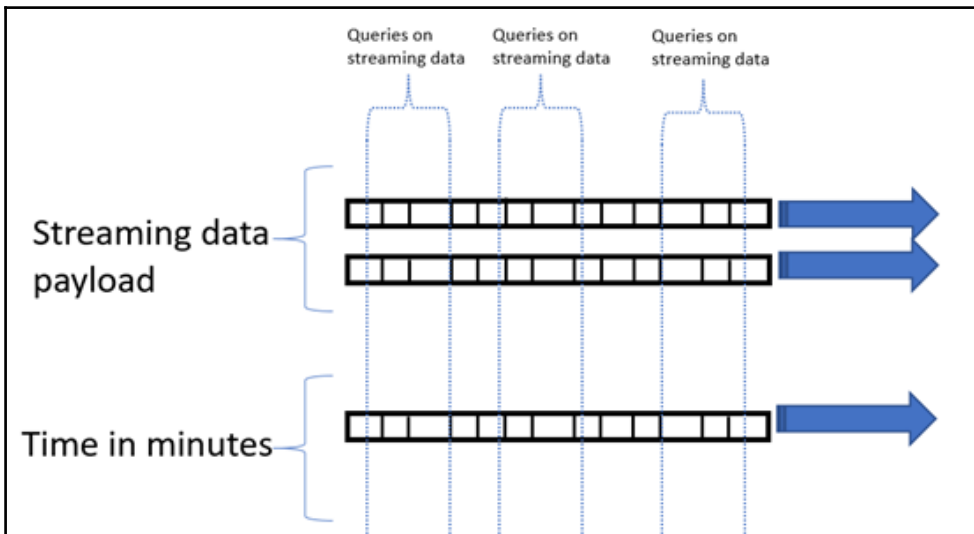
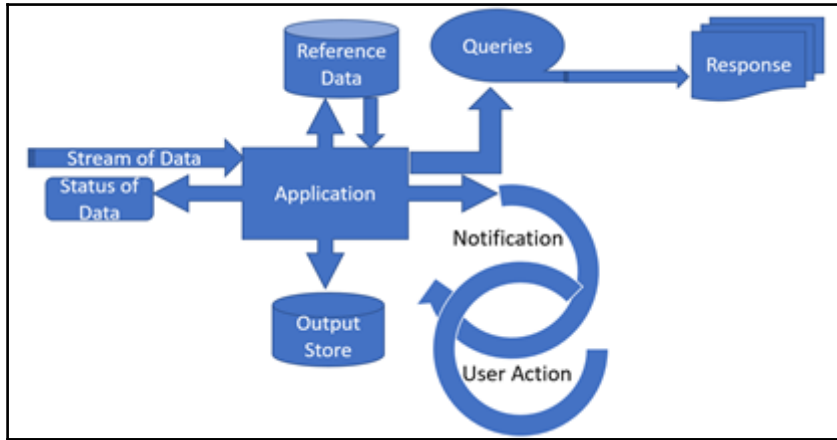


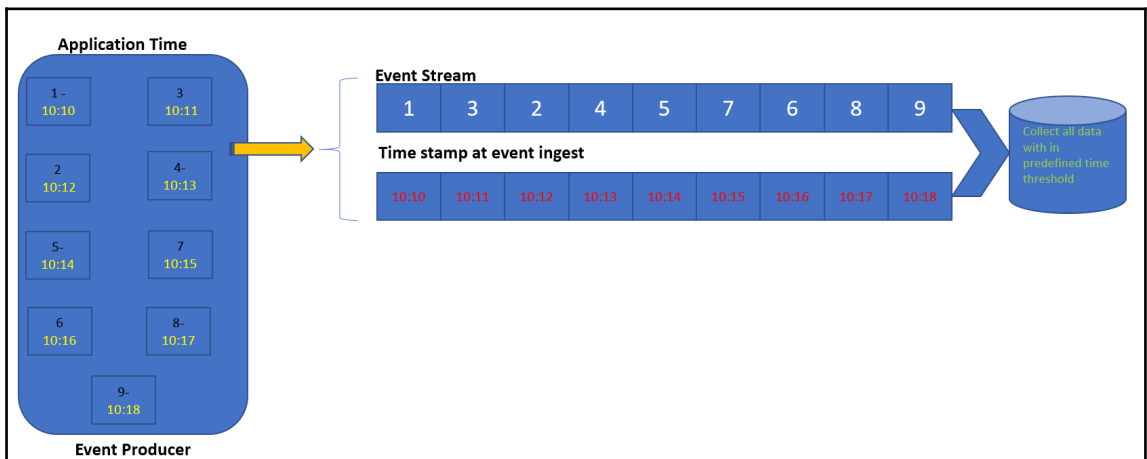
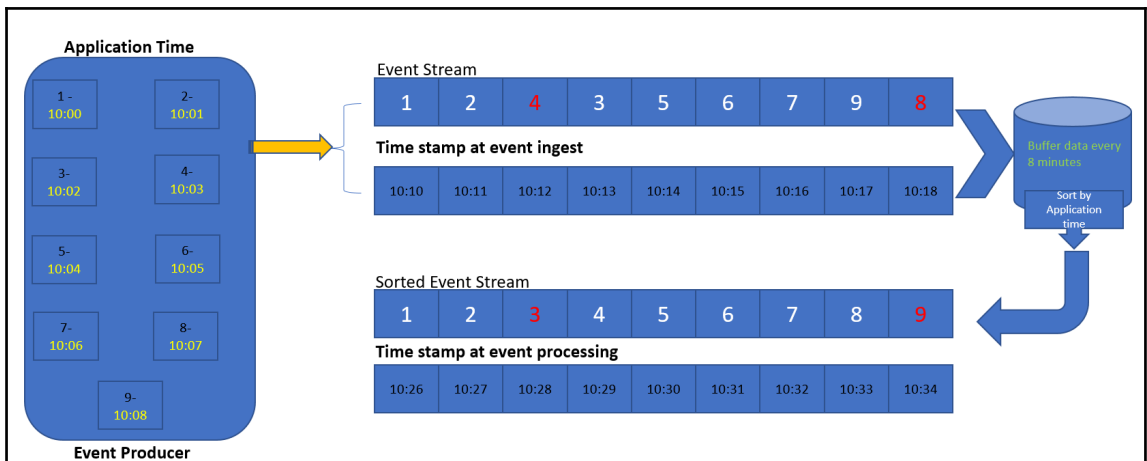
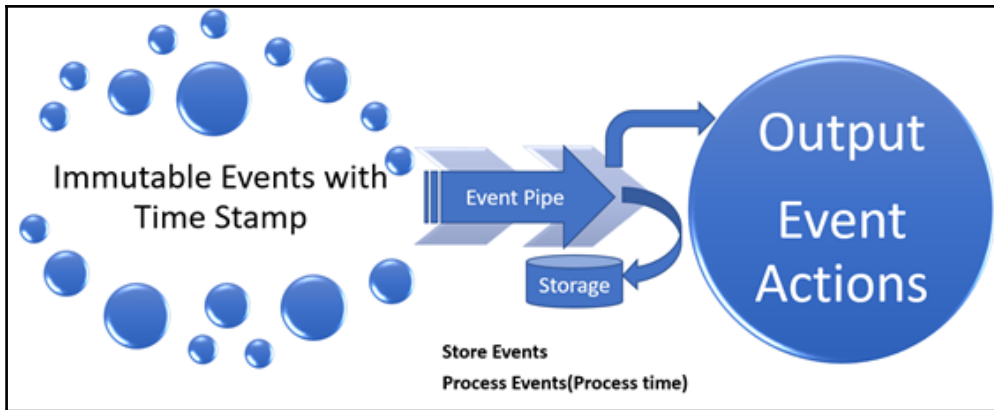
The screenshot shows the configuration interface for 'Event ordering' in the Azure Stream Analytics POC. The left sidebar contains a search bar and a list of configuration categories: Inputs, Functions, Query, Outputs, CONFIGURE (Scale, Locale, Event ordering, Error policy), and GENERAL. The 'Event ordering' option is selected and highlighted in blue. The main configuration area includes 'Save' and 'Discard' buttons, and three sections: 'Events that arrive late' (with dropdowns for Days: 00, Hours: 00, Minutes: 00, and Seconds: 05), 'Out of order events' (with dropdowns for Minutes: 00 and Seconds: 00), and 'Handling other events' (with 'Adjust' and 'Drop' buttons).

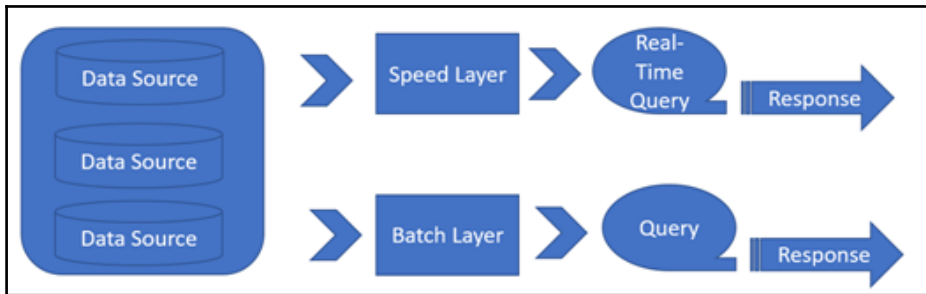
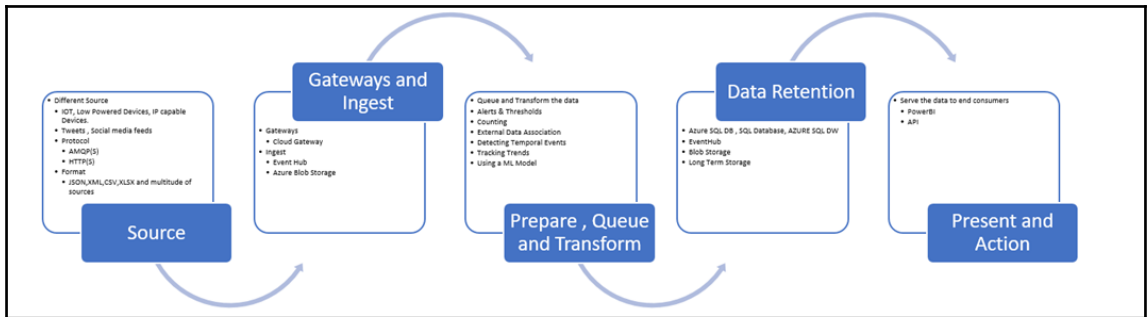
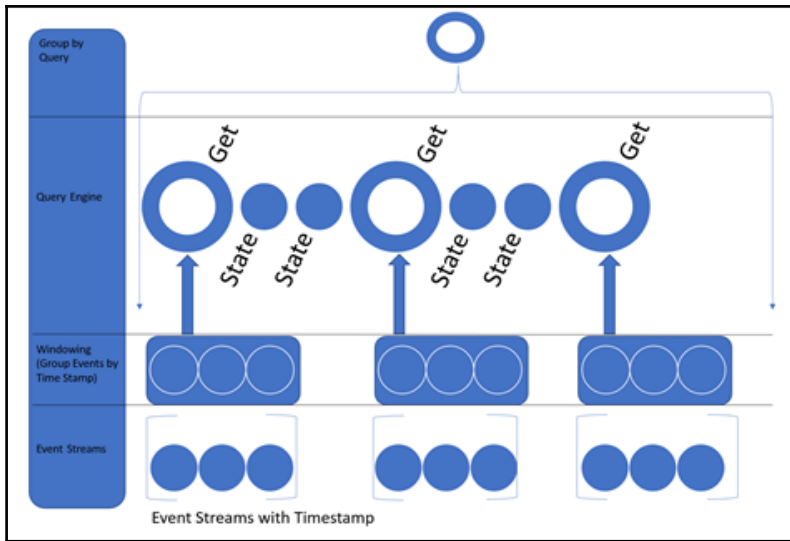


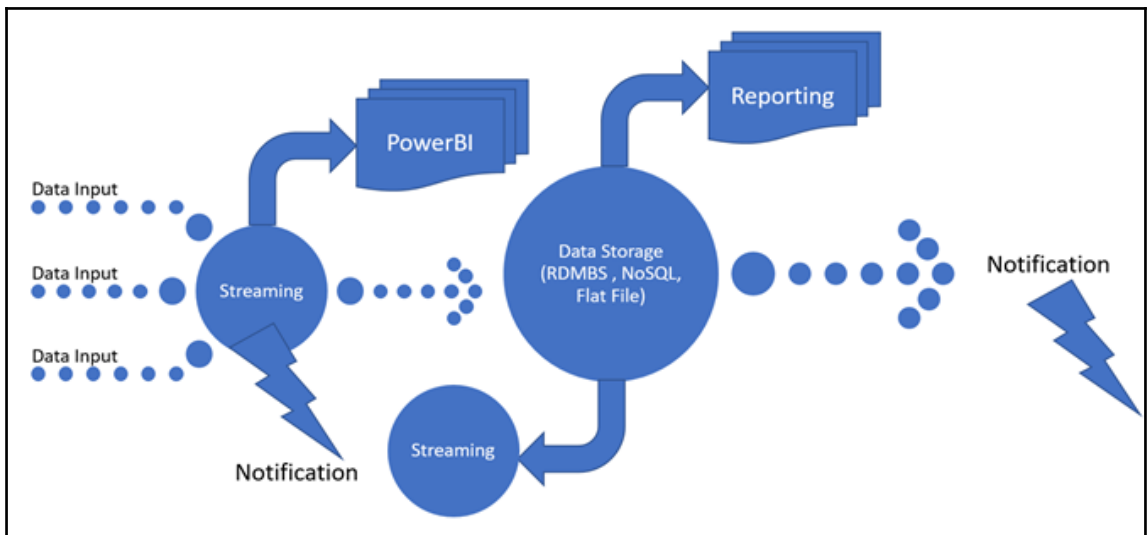
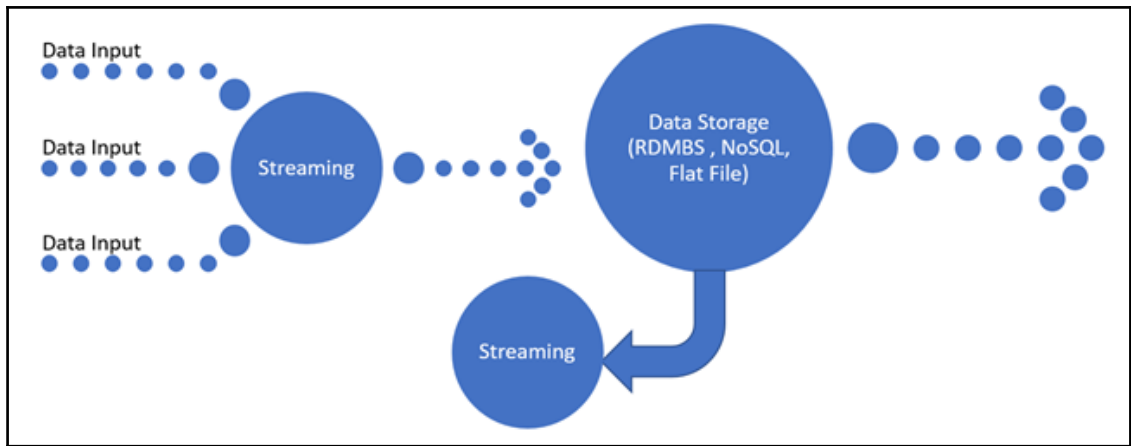
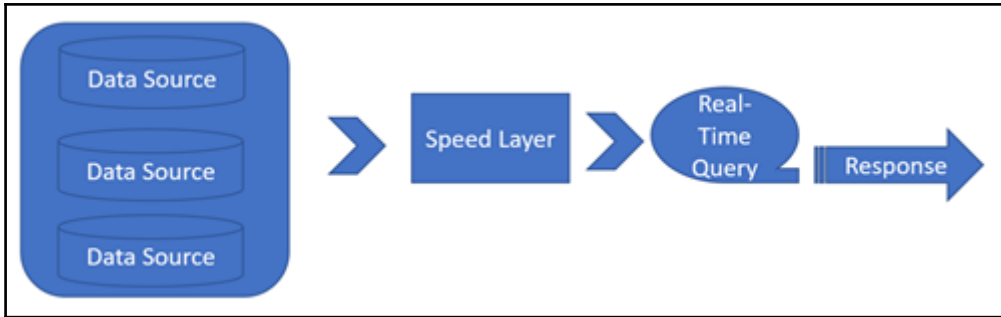


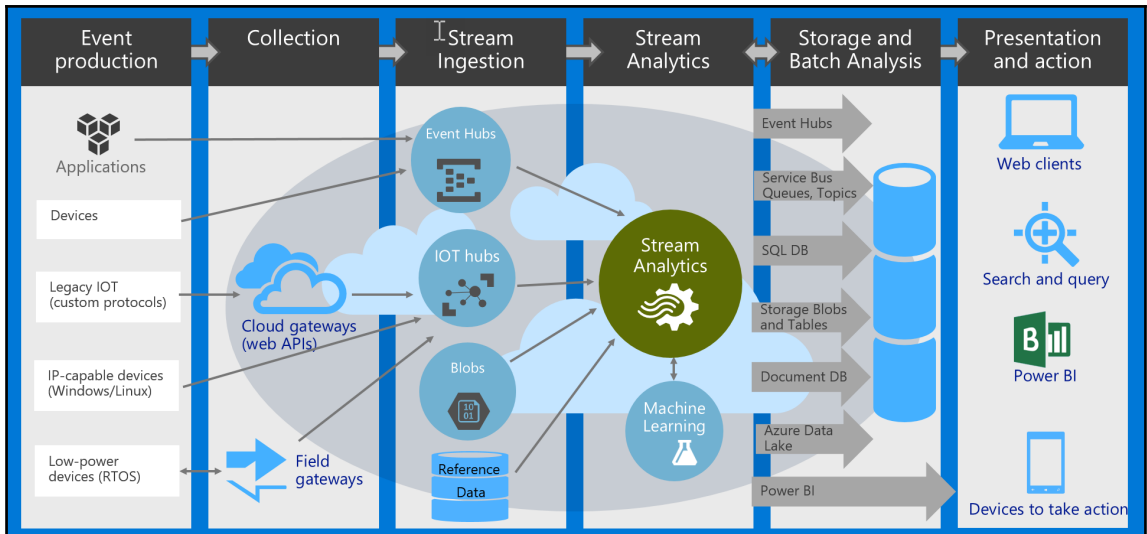
Chapter 03: Designing Real-Time Streaming Pipelines



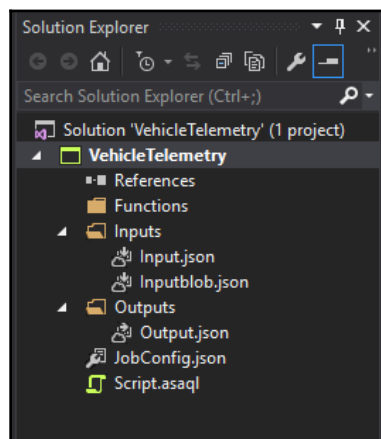
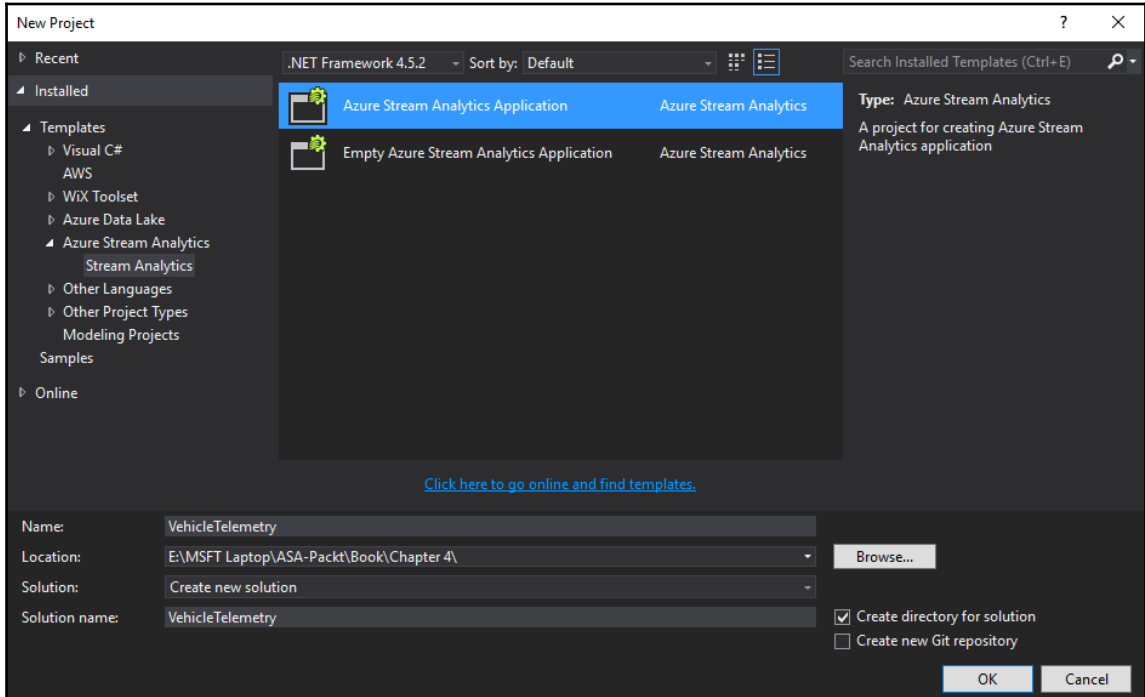








Chapter 04: Developing Real-Time Event Processing with Azure Streaming



input

Stream Analytics Input Configuration

Please configure the Input properties for your Stream Analytics job

* Input Alias

* Source Type

* Source

* Resource

* Service Bus Namespace

* Event Hub Name

* Event Hub Policy Name

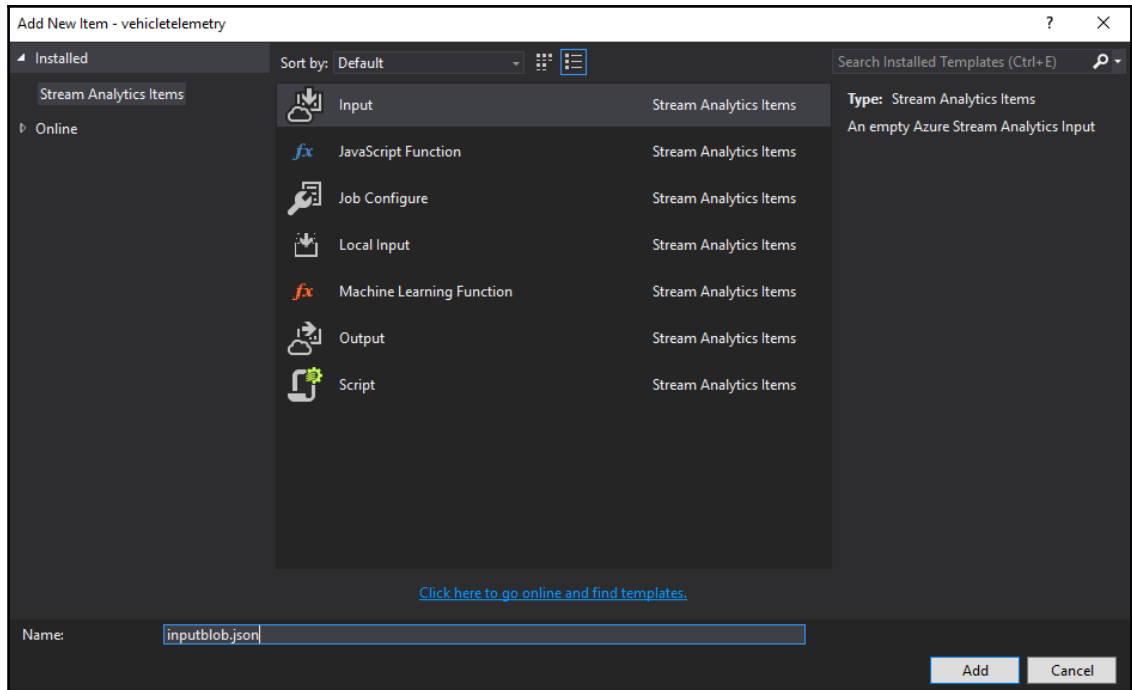
* Event Hub Policy Key

Event Hub Consumer Group

* Event Serialization Format

Encoding

Save Cancel



blobsource

Stream Analytics Input Configuration

Please configure the Input properties for your Stream Analytics job

* Input Alias: blobsource

* Source Type: Reference data

* Resource: Provide data source settings manually

* Storage Account: vehicletelemetrydata

* Storage Account Key: [Redacted]

* Container: [Redacted]

Path Pattern: VINRefData.csv

Date Format: yyyy/MM/dd

Time Format: HH


* Event Serialization Format: Csv

Delimiter: comma (,)

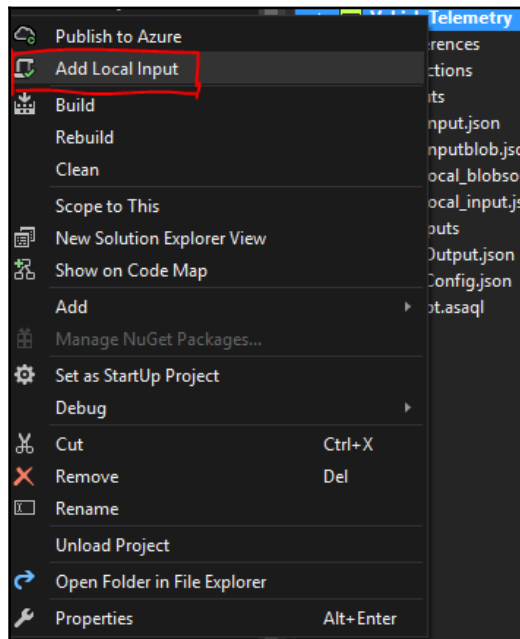
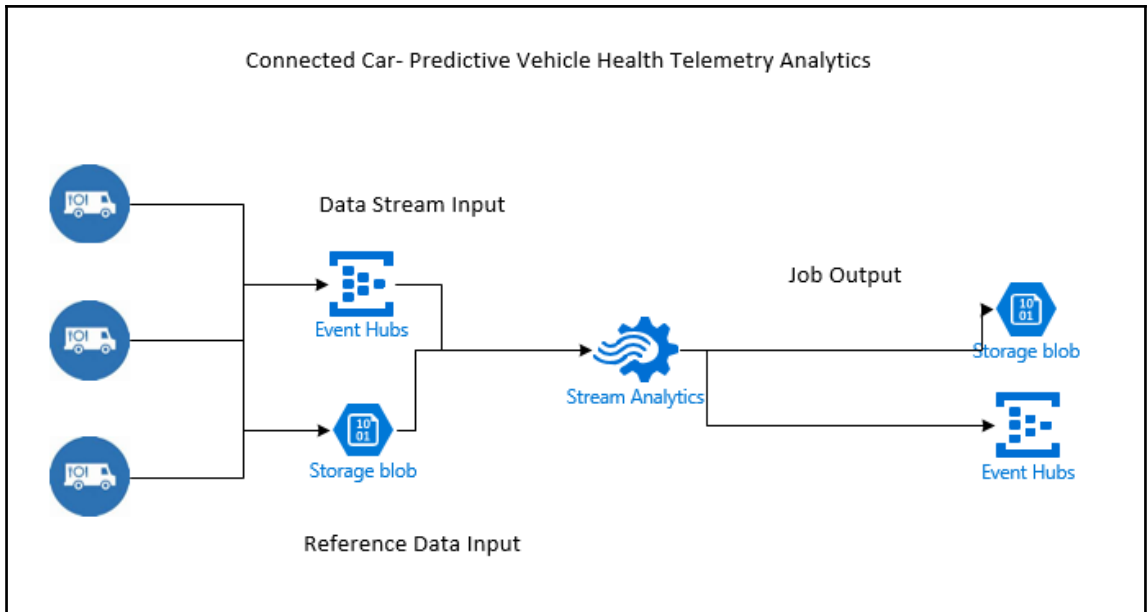
Encoding: UTF8

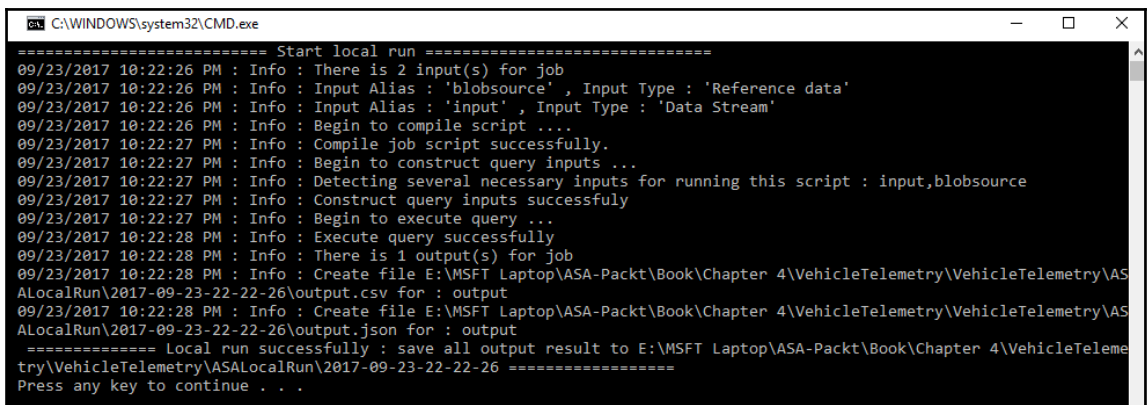
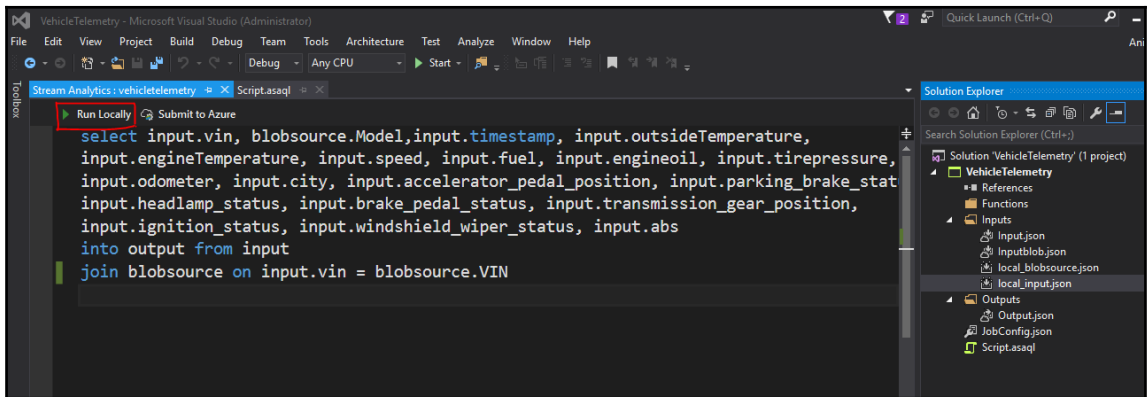
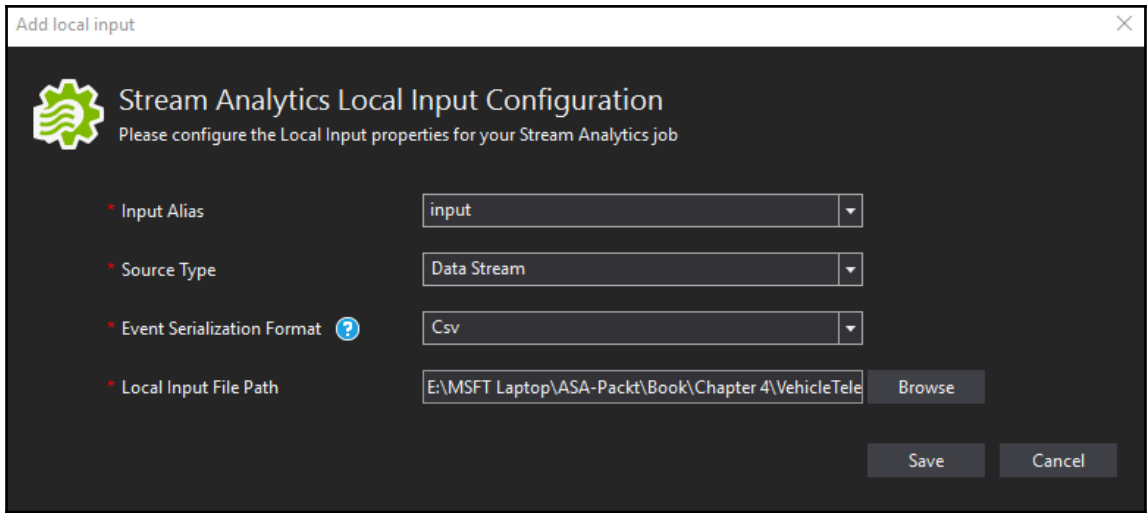
Save Cancel

output ✕



 **Stream Analytics Output Configuration**
Please configure the Output properties for your Stream Analytics job

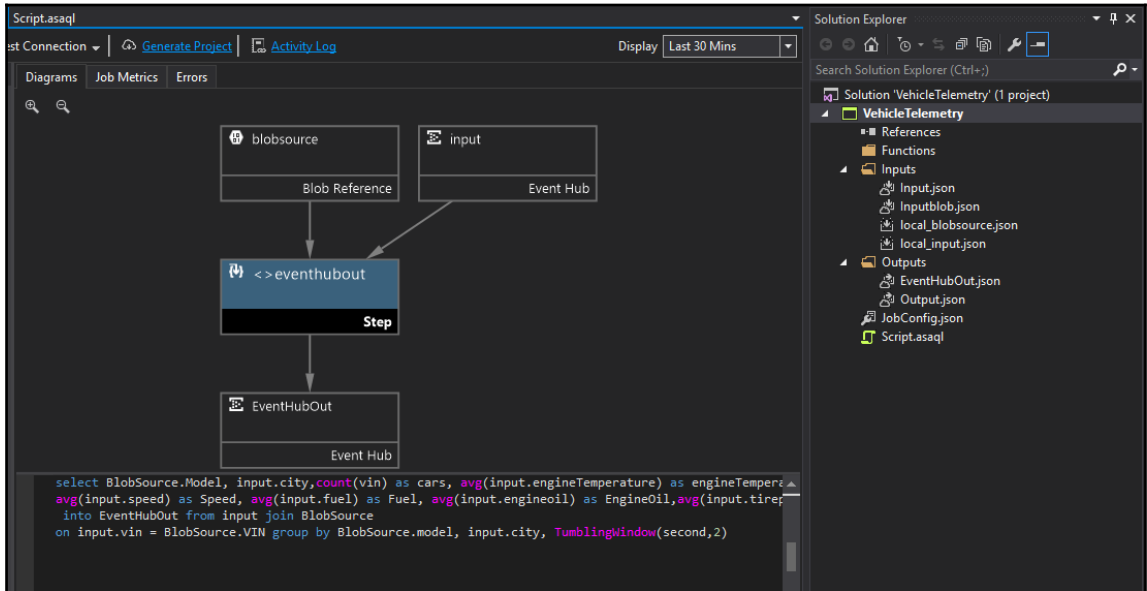
* Output Alias	<input type="text" value="output"/>
* Sink ?	<input type="text" value="Blob Storage"/>
* Resource	<input type="text" value="Provide data source settings manually"/>
* Storage Account	<input type="text" value="sparkhdidemo"/>
* Storage Account Key	<input type="password" value="....."/>
* Container	<input type="text" value=""/>
Path Pattern ?	<input type="text" value="CarTelemetry.csv"/>
Date Format	<input type="text" value="yyyy/MM/dd"/>
Time Format	<input type="text" value="HH"/>
* Event Serialization Format ?	<input type="text" value="Csv"/>
Delimiter ?	<input type="text" value="comma (,)"/>
Encoding ?	<input type="text" value="UTF8"/>





ASA-Pack > Book > Chapter 4 > VehicleTelemetry > VehicleTelemetry > ASALocalRun > 2017-09-23-22-22-26

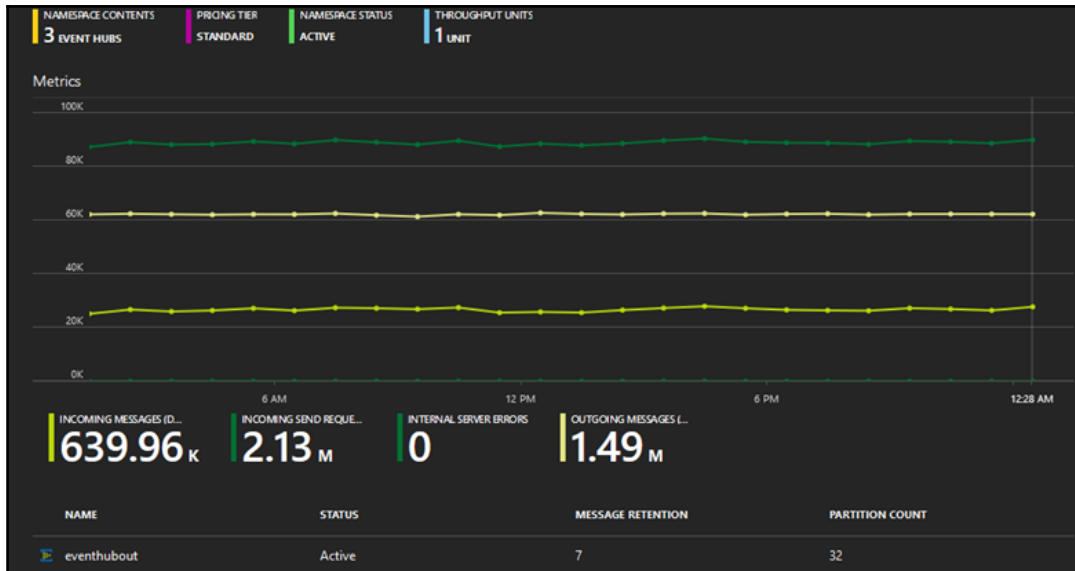
Name	Date modified	Type	Size
 output	09/23/2017 22:22	Microsoft Excel C...	1 KB
 output	09/23/2017 22:22	JSON File	1 KB



The screenshot shows the SSDT interface with a data flow diagram and a script editor. The diagram illustrates the data flow from 'blobsource' (Blob Reference) and 'input' (Event Hub) into a step named '<>eventhubout' (Event Hub), which then outputs to 'EventHubOut' (Event Hub). The script editor contains the following SQL query:

```
select BlobSource.Model, input.city, count(vin) as cars, avg(input.engineTemperature) as engineTemper:
avg(input.speed) as Speed, avg(input.fuel) as Fuel, avg(input.engineoil) as EngineOil, avg(input.tire:
into EventHubOut from input join BlobSource
on input.vin = BlobSource.VIN group by BlobSource.model, input.city, TumblingWindow(second,2)
```





The screenshot shows the Stream Analytics interface for a job named 'vehicletelemetry'. The job is currently 'Running'. The summary includes creation time (8/23/2017 1:04:00 AM), output start mode (JobStartTime), output start time (9/24/2017 12:22:35 AM), and last output time (9/24/2017 12:31:10 AM). Configuration details include Data Locale (en-US), Output Error Handling (Drop), Late Arrival Tolerance (5 Second(s)), Out of Order Tolerance (0 Second(s)), Out of Order Actions (Adjust), and Stream Analytics Units (1). The metrics for the last 30 minutes show 16.42 K total input events, 259.47 KiB input event bytes, 6.24 K total output events, and zero late input, out of order, function, or failed function requests.

Job Summary	
Status	Running
Created Time	8/23/2017 1:04:00 AM
Job Output Start Mode	JobStartTime
Job Output Start Time	9/24/2017 12:22:35 AM
Last Output Time	9/24/2017 12:31:10 AM
Data Locale	en-US
Output Error Handling	Drop
Late Arrival Tolerance	5 Second(s)
Out of Order Tolerance	0 Second(s)
Out of Order Actions	Adjust
Stream Analytics Units	1

Job Metrics (Last 30 Mins)	
Total Input Events	16.42 K
Input Event Bytes	259.47 KiB
Total Output Events	6.24 K
Late Input Events	0
Out of Order Events	0
Function Events	0
Function Requests	0
Failed Function Requests	0

JobConfig.json

Stream Analytics Job Configure Configuration

Please configure the Job Configure properties for your Stream Analytics job

- * Data Locale: English (United States)
- * Output Error Handling: Retry
- * Late Arrival Tolerance Window (DD:HH:MM:SS): 00:00:00:05
- * Out Of Order Tolerance Window (DD:HH:MM:SS): 00:00:00:00
- * Out of Order Actions: Adjust
- * SU Allocation: 6

Save Cancel

Microsoft Azure New

New

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- Networking
- Storage
- Web + Mobile
- Databases
- Data + Analytics
- AI + Cognitive Services
- Internet of Things

HDInsight Learn more

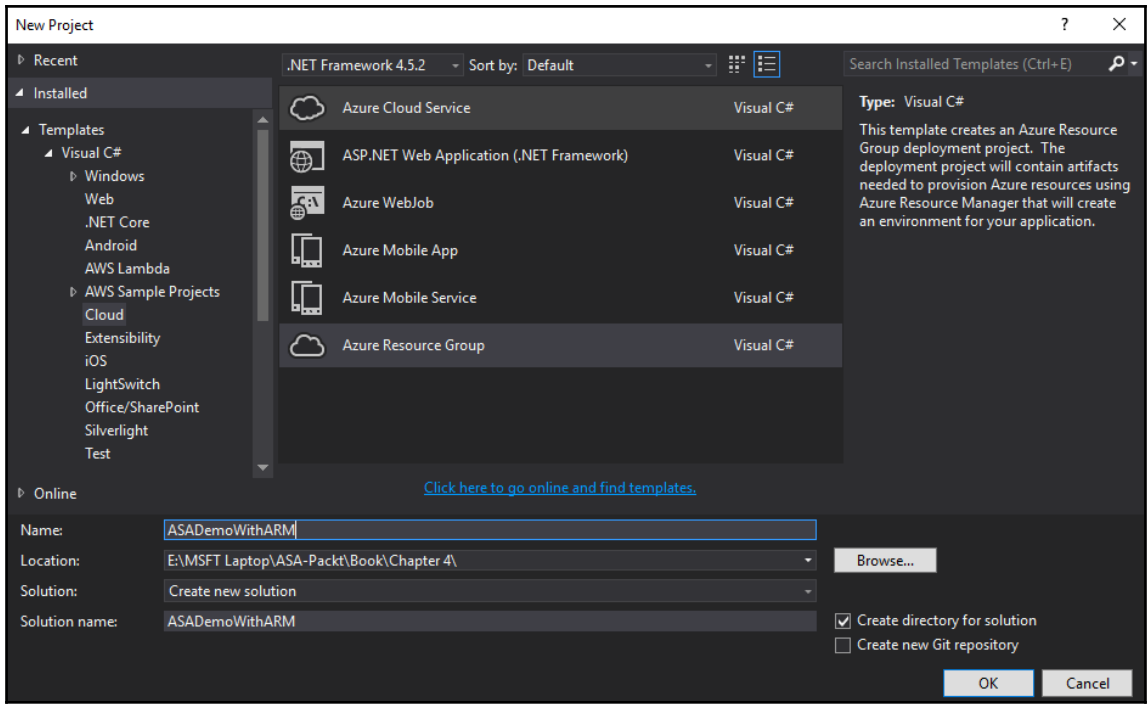
Machine Learning Experimentation (preview) Learn more

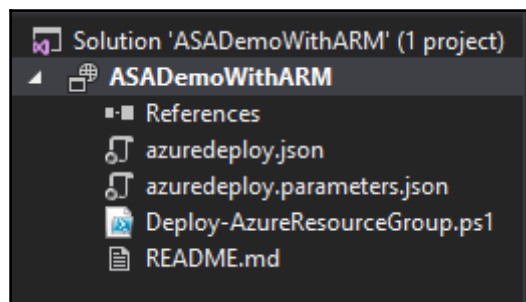
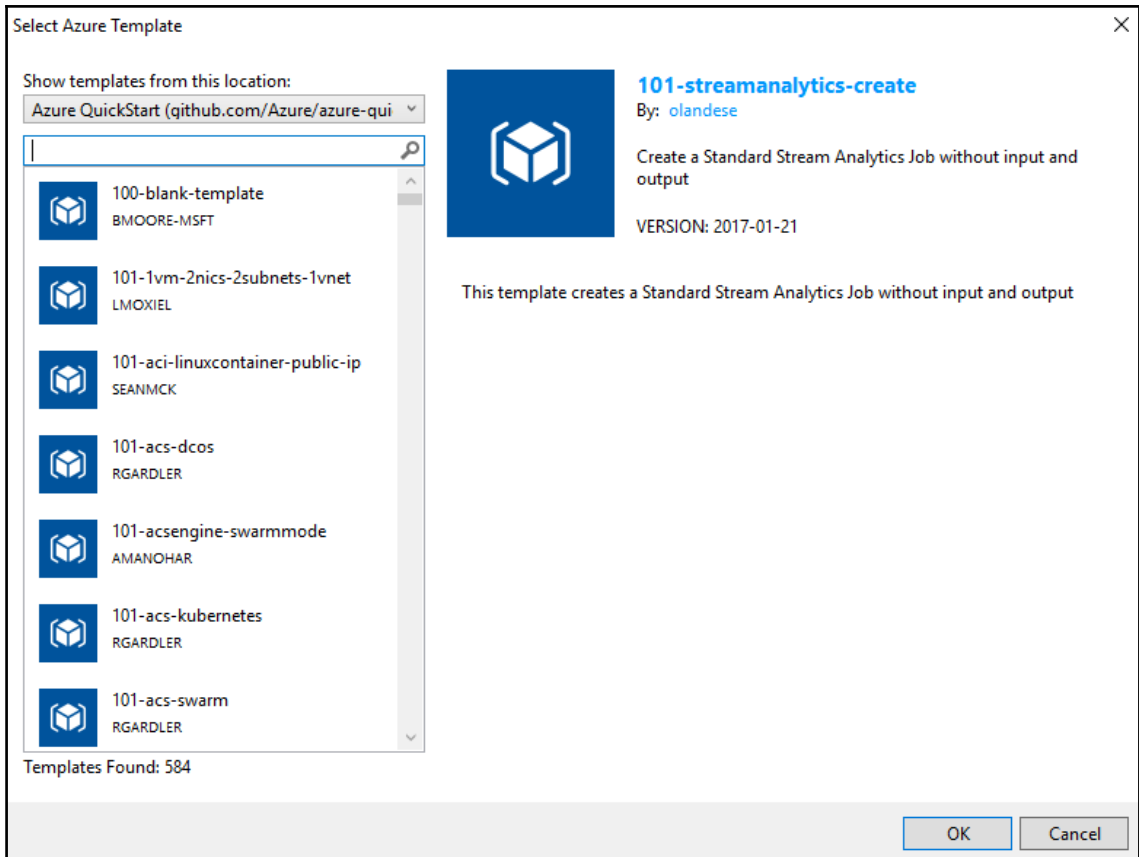
Stream Analytics job Learn more

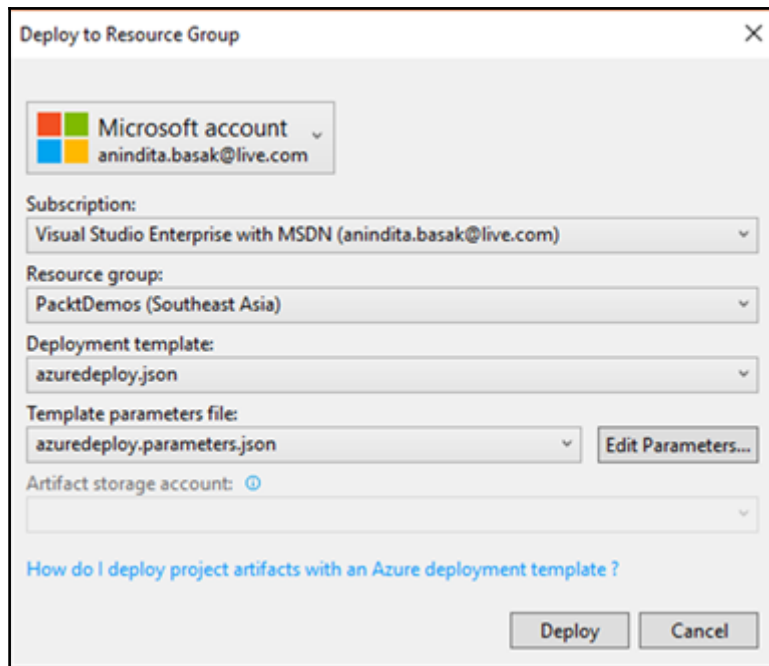
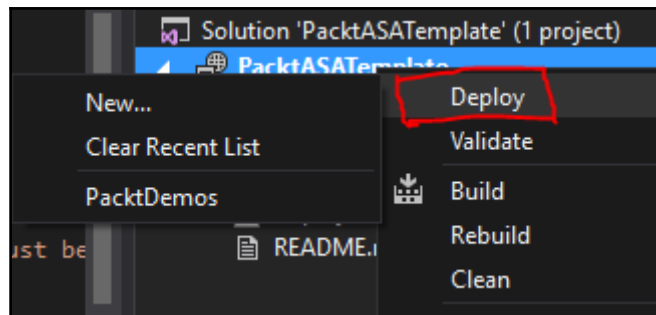
Analysis Services Learn more

The screenshot shows the Azure Stream Analytics job configuration page for 'PacktASADemo'. The left sidebar contains navigation options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, SETTINGS (Locks), and JOB TOPOLOGY (Inputs, Functions, Query, Outputs). The main area shows job controls (Start, Stop, Delete) and a 'Created' status bar. Below this, the 'Essentials' section displays job details: Resource group (PacktDemos), Status (Created), Location (Southeast Asia), Subscription name (Visual Studio Enterprise with MSDN), and Subscription ID. A 'Send feedback' link and 'UserVoice' are also visible. The 'Job Topology' section shows three columns: Inputs (0), Query (with a double-headed arrow), and Outputs (0), all indicating 'No results'.

A notification banner with a green checkmark icon, the text 'Deployments succeeded', the time '2:08 AM', and the message 'Deployment to resource group 'PacktDemos' was successful.'







```
Output
Show output from: PacktDemos
20:13:50 - ResourceGroupName      : PacktDemos
20:13:50 - ProvisioningState           : Succeeded
20:13:50 - Timestamp                  : 09/24/2017 2:43:49 PM
20:13:50 - Mode                      : Incremental
20:13:50 - TemplateLink                 :
20:13:50 - TemplateLinkString           :
20:13:50 - DeploymentDebugLogLevel       :
20:13:50 - Parameters                    : {[streamAnalyticsJobName,
20:13:50 -                               Microsoft.Azure.Commands.ResourceManager.Cmdlets.SdkModels.DeploymentVariable],
20:13:50 -                               [numberOfStreamingUnits,
20:13:50 -                               Microsoft.Azure.Commands.ResourceManager.Cmdlets.SdkModels.DeploymentVariable]}
20:13:50 - ParametersString               :
20:13:50 -                               Name      Type      Value
20:13:50 -                               -----
20:13:50 -                               streamAnalyticsJobName String    packtasajob
20:13:50 -                               numberOfStreamingUnits Int       1
20:13:50 - Outputs                        :
20:13:50 - OutputsString                   :
20:13:50 -
20:13:50 -
20:13:50 - Successfully deployed template 'azuredeploy.json' to resource group 'PacktDemos'.
```

New input

Source Type Data stream

Source Event hub

Import option Use event hub from current subscription

Service bus namespace eventhubnewdemo

Event hub name eventhubdemo

Event hub policy name ASA

Event hub consumer group

Event serialization format JSON

Encoding

Create

New output

* Output alias
ASAOOutput ✓

* Sink ⓘ
SQL database ▾

* Import option
Use SQL database from current subscription ▾

Database
ContosoDemoCms ▾

Server name
pg1x3y38d1.database.windows.net

* Username
adminuser

* Password
•••••••• ✓

* Table
contoso

Create

Chapter 05: Building Using Stream Analytics Query Language

TIMESTAMP	VIN	SPEED	OUTSIDETEMPERATURE	CITY
"2017-10-12T16:55:14.23133..."	"KW6NJBUIOY58HB85HB"	42	60	"BELLEVUE"
"2017-10-12T16:55:13.55027..."	"K91ACNEWB115DSZ6A"	77	71	"SEATTLE"
"2017-10-12T16:55:13.77561..."	"N93EHZ8F1QX4RW0DU"	55	45	"SEATTLE"
"2017-10-12T16:55:14.00094..."	"O8WNOB755ZBQMM4E0"	94	98	"REDMOND"

WINDOWENDTIMESTAMP	CITY	AVERAGE_SPEED
"2017-10-12T16:56:00.0000000Z"	"Sammamish"	33.53846153846154
"2017-10-12T16:56:00.0000000Z"	"Seattle"	52.24193548387097
"2017-10-12T16:56:00.0000000Z"	"Bellevue"	67.63380281690141
"2017-10-12T16:56:00.0000000Z"	"Redmond"	57.97959183673469
"2017-10-12T16:57:00.0000000Z"	"Sammamish"	32.69230769230769
"2017-10-12T16:57:00.0000000Z"	"Seattle"	53.98837209302326

COLLECT
[{"vin": "K91ACNEWB115DSZ6A", "outsideTemperature": 71, "engineTemperature": 459, "speed": 77, "fuel": 37, "engineoil": 36, "tirepressure": 31, "odometer": 148231, ...}
[{"vin": "C17HNL5Z8RQZBHH75", "outsideTemperature": 98, "engineTemperature": 459, "speed": 94, "fuel": 26, "engineoil": 49, "tirepressure": 49, "odometer": 127771, ...}
[{"vin": "3GLUZWIHRNDSTQD4L", "outsideTemperature": 81, "engineTemperature": 215, "speed": 71, "fuel": 17, "engineoil": 41, "tirepressure": 35, "odometer": 148005, ...}
[{"vin": "B2C4618SHH5Q08LUL", "outsideTemperature": 76, "engineTemperature": 163, "speed": 63, "fuel": 19, "engineoil": 38, "tirepressure": 31, "odometer": 160719, "ci...
[{"vin": "FDNLEQHWRHQGSS5GP", "outsideTemperature": 96, "engineTemperature": 412, "speed": 93, "fuel": 10, "engineoil": 48, "tirepressure": 47, "odometer": 166112, ...}
[{"vin": "XGNRWZGZO3D9B3KGB", "outsideTemperature": 98, "engineTemperature": 448, "speed": 96, "fuel": 2, "engineoil": 49, "tirepressure": 48, "odometer": 72869, "c...

CITY	WINDOWENDTIMESTAMP	FASTEST
"Sammamish"	"2017-10-12T16:56:00.000000Z"	{"vin":"0TRTC0ZNZP8VJY56Y","outsideTemperatur...
"Seattle"	"2017-10-12T16:56:00.000000Z"	{"vin":"0XRQ73YKQYE8W2E37","outsideTemperat...
"Bellevue"	"2017-10-12T16:56:00.000000Z"	{"vin":"05PWRS63RJZU01W1K","outsideTemperat...
"Redmond"	"2017-10-12T16:56:00.000000Z"	{"vin":"090365V7V4TLXX1C","outsideTemperatur...
"Sammamish"	"2017-10-12T16:57:00.000000Z"	{"vin":"20Q8Q0OL6VU1OZTS5","outsideTemperat...
"Seattle"	"2017-10-12T16:57:00.000000Z"	{"vin":"0AIQACAOYU097SI8S","outsideTemperatu...

CITY	TIMESTAMP	VIN	SPEED	FIRST_OVER_70
"Bellevue"	"2017-10-08T17:20:17.3349336Z"	"KYPJSRXSEEWSS5C75P"	62	0
"Seattle"	"2017-10-08T17:20:17.1005500Z"	"A938JQWGD06NE5GJB"	65	0
"Seattle"	"2017-10-08T17:20:17.5724282Z"	"SPS2HK5GEOM4G8C1E"	67	0
"Seattle"	"2017-10-08T17:20:17.7911871Z"	"V2XCUCXDBW83G0CN"	6	0
"Seattle"	"2017-10-08T17:20:18.2599469Z"	"6DP2D5TG3HMPV3OFE"	8	0
"Sammamish"	"2017-10-08T17:20:18.0255687Z"	"08SDUHPVLM4GZPXZ0"	33	0
"Sammamish"	"2017-10-08T17:20:18.5008015Z"	"HF4UKFMQ86SYX6V8D"	35	0
"Redmond"	"2017-10-08T17:20:18.7465626Z"	"KUPBVVXOPNHQFYBFF"	93	1

CITY	TIMESTAMP	VIN	SPEED	LAST_CAR_OVER_70
"Bellevue"	"2017-10-08T17:20:17.3349336Z"	"KYPJSRXSEEWSS5C75P"	62	null
"Redmond"	"2017-10-08T17:20:18.7465626Z"	"KUPBVVXOPNHQFYBFF"	93	"KUPBVVXOPNHQFYBFF"
"Redmond"	"2017-10-08T17:20:19.2140664Z"	"979MIDT0U635Z4MJ3"	95	"979MIDT0U635Z4MJ3"
"Redmond"	"2017-10-08T17:20:18.9779613Z"	"1NY9MI2JAR20A6799"	20	"979MIDT0U635Z4MJ3"
"Bellevue"	"2017-10-08T17:20:19.4387411Z"	"C3CZU059UKJTK52V3"	59	null
"Redmond"	"2017-10-08T17:20:20.1889220Z"	"60F6J6XRQMDX8YZGS"	20	"979MIDT0U635Z4MJ3"
"Bellevue"	"2017-10-08T17:20:19.9050540Z"	"HIY403UZ5QSU9D9T1"	92	"HIY403UZ5QSU9D9T1"
"Bellevue"	"2017-10-08T17:20:20.4197946Z"	"HCHAJQQQ1Z1N19VN7W"	64	"HIY403UZ5QSU9D9T1"
"Redmond"	"2017-10-08T17:20:21.3373221Z"	"N8A454W2LQAAG8WNM"	11	"979MIDT0U635Z4MJ3"

VIN	CITY	TIMESTAMP	SPEED	SPEED_CHANGE
"6DP2D5TG3HMPV3OFE"	"Seattle"	"2017-10-08T17:20:18.2599469Z"	8	null
"56H3FPUVHSKUOXFQS"	"Seattle"	"2017-10-08T17:20:47.3947682Z"	57	null
"4KSSG8Y4VNHO0M8V8"	"Seattle"	"2017-10-08T17:21:02.2275701Z"	8	null
"9DC3XI86623BSWVN0"	"Seattle"	"2017-10-08T17:21:31.6304570Z"	3	null
"6DP2D5TG3HMPV3OFE"	"Seattle"	"2017-10-08T17:21:58.3684600Z"	58	50
"9DC3XI86623BSWVN0"	"Seattle"	"2017-10-08T17:22:14.5609439Z"	60	57
"56H3FPUVHSKUOXFQS"	"Seattle"	"2017-10-08T17:23:12.6801248Z"	57	0
"4KSSG8Y4VNHO0M8V8"	"Seattle"	"2017-10-08T17:23:13.6117357Z"	72	64

FIRSTSENSOR	SECONDSSENSOR
{"sensorId":"59ffef02-8d6d-4a2d-a603-d16d06a0e903"}	{"sensorId":"4180326f-7fcb-4372-9918-d0ec5a90dc08"}

CONFERENCEROOM	COUNTOFMOTIONSENSORS
"Market Research Lab"	2

CONFERENCEROOM	SENSORINDEX	SENSORVALUE
"Market Research Lab"	0	{"sensorId":"59ffef02-8d6d-4a2d-a603-d16d06a0e903"}
"Market Research Lab"	1	{"sensorId":"4180326f-7fcb-4372-9918-d0ec5a90dc08"}

CONFERENCEROOM	TEMPERATURE
"Market Research Lab"	71

CONFERENCEROOM	TEMPERATURE	HUMIDITY	PRESSURE
"Market Research Lab"	71	52	22

allspeeding speedstersbycity

Generated the Following:

- allspeeding with 245 rows.

[Download results](#)

CITY	VIN	TIMESTAMP	SPEED
"Redmond"	"KUPBVVXOPNHQFY8FF"	"2017-10-08T17:20:18.7465626Z"	93
"Redmond"	"979MIDT0U635Z4MJ3"	"2017-10-08T17:20:19.2140664Z"	95
"Bellevue"	"HIY403UZ5QSU9D9T1"	"2017-10-08T17:20:19.9050540Z"	92

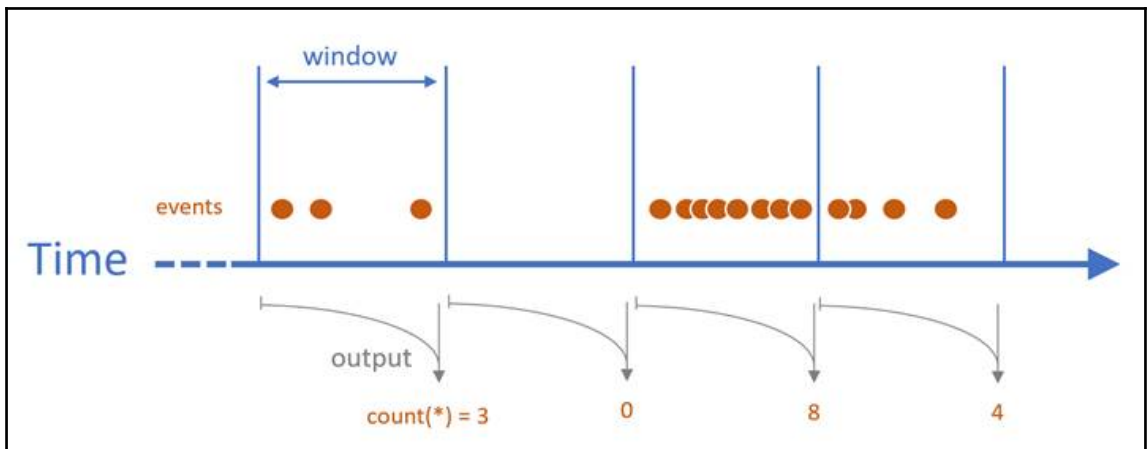
```
allspeeding speedstersbycity
```

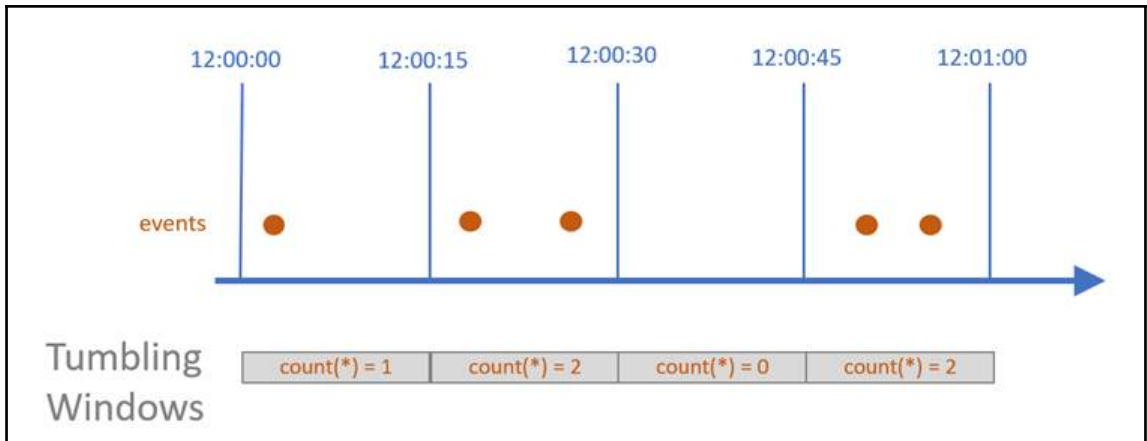
Generated the Following:

- speedstersbycity with 3 rows.

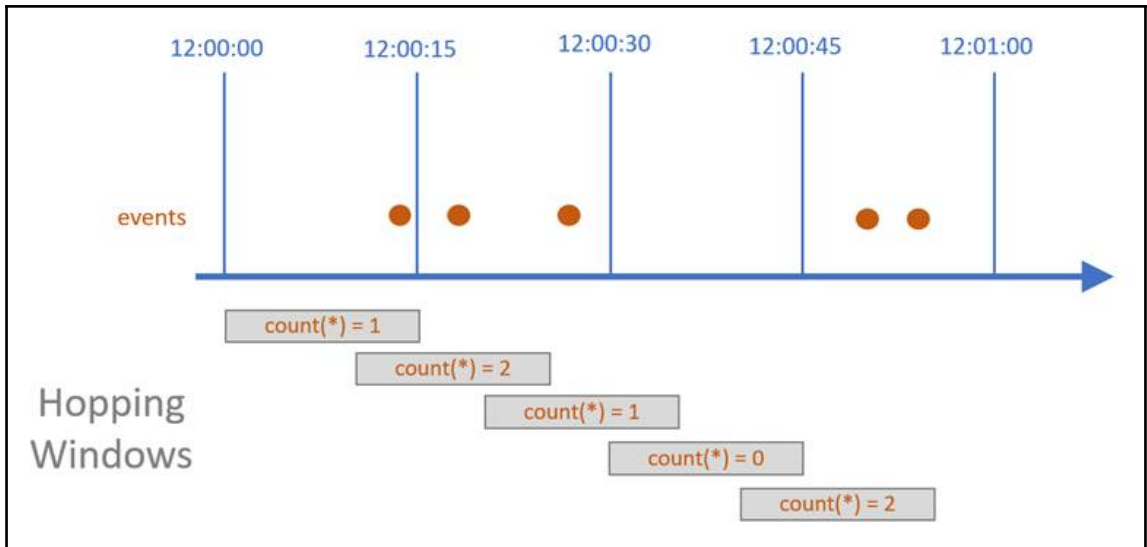
[Download results](#)

CITY	SPEEDSTERS
"Redmond"	115
"Bellevue"	84
"Seattle"	46

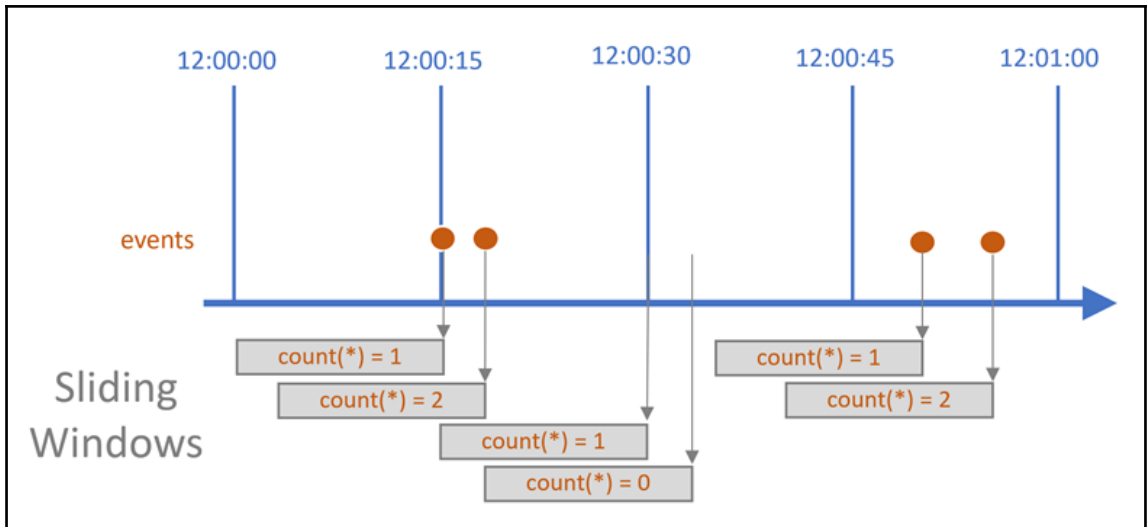




WINDOWENDTIMESTAMP	CITY	AVERAGE_SPEED	COUNT_OF_CARS
"2017-10-08T17:20:20.0000000Z"	"Sammamish"	34	2
"2017-10-08T17:20:20.0000000Z"	"Seattle"	41.8	5
"2017-10-08T17:20:20.0000000Z"	"Bellevue"	71	3
"2017-10-08T17:20:20.0000000Z"	"Redmond"	69.33333333333333	3
"2017-10-08T17:20:30.0000000Z"	"Sammamish"	36	1
"2017-10-08T17:20:30.0000000Z"	"Seattle"	55.5	12
"2017-10-08T17:20:30.0000000Z"	"Bellevue"	63.875	16
"2017-10-08T17:20:30.0000000Z"	"Redmond"	56.90909090909091	11



WINDOWENDTIMESTAMP	CITY	AVERAGE_SPEED	COUNT_OF_CARS
"2017-10-08T17:20:18.0000000Z"	"Seattle"	46	3
"2017-10-08T17:20:18.0000000Z"	"Bellevue"	62	1
"2017-10-08T17:20:20.0000000Z"	"Sammamish"	34	2
"2017-10-08T17:20:20.0000000Z"	"Seattle"	41.8	5
"2017-10-08T17:20:20.0000000Z"	"Bellevue"	71	3
"2017-10-08T17:20:20.0000000Z"	"Redmond"	69.33333333333333	3



WINDOWENDTIMESTAMP	CITY	AVERAGE_SPEED	COUNT_OF_CARS
"2017-10-08T17:20:17.1005500Z"	"Seattle"	65	1
"2017-10-08T17:20:17.3349336Z"	"Bellevue"	62	1
"2017-10-08T17:20:17.5724282Z"	"Seattle"	66	2
"2017-10-08T17:20:17.7911871Z"	"Seattle"	46	3
"2017-10-08T17:20:18.0255687Z"	"Sammamish"	33	1
"2017-10-08T17:20:18.2599469Z"	"Seattle"	36.5	4
"2017-10-08T17:20:18.5008015Z"	"Sammamish"	34	2

EVENT_TIMESTAMP	CITY	SPEED
"2017-10-08T17:20:17.1005500Z"	"Seattle"	65
"2017-10-08T17:20:17.3349336Z"	"Bellevue"	62
"2017-10-08T17:20:17.5724282Z"	"Seattle"	67
"2017-10-08T17:20:17.7911871Z"	"Seattle"	6
"2017-10-08T17:20:18.0255687Z"	"Sammamish"	33

asajob1 - Event ordering
Stream Analytics job

Search (Ctrl+/) Save Discard

Functions
Query
Outputs

CONFIGURE

Scale
Locale
Event ordering
Error policy

GENERAL

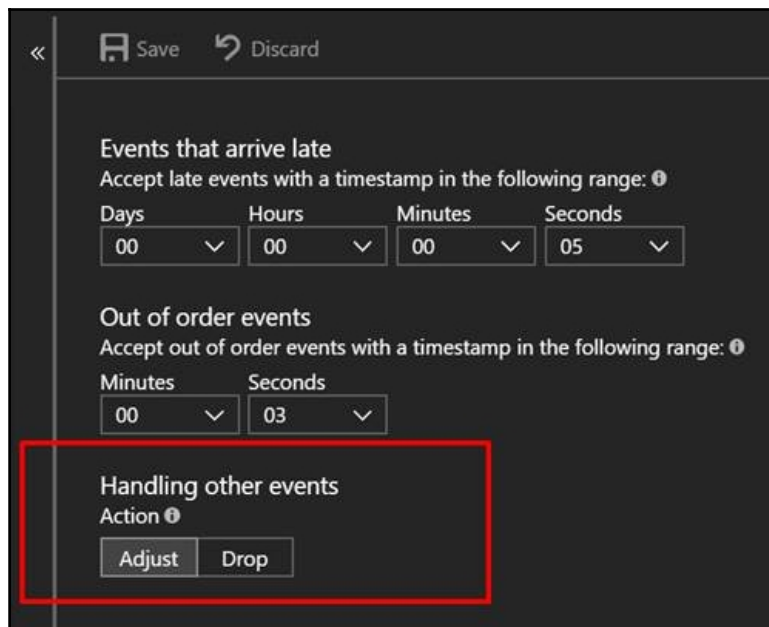
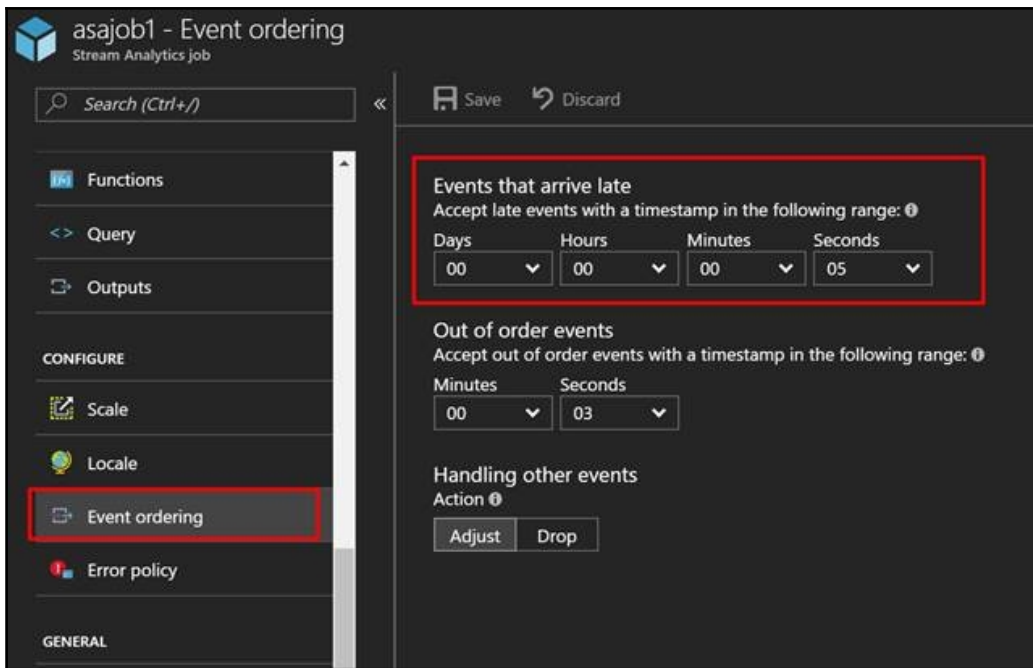
Events that arrive late
Accept late events with a timestamp in the following range: 0

Days: 00 Hours: 00 Minutes: 00 Seconds: 05

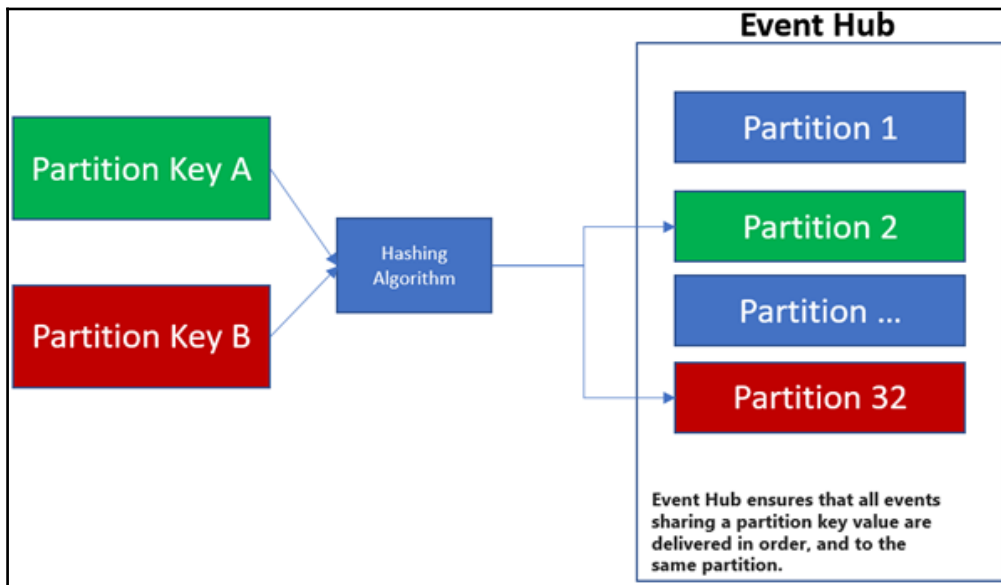
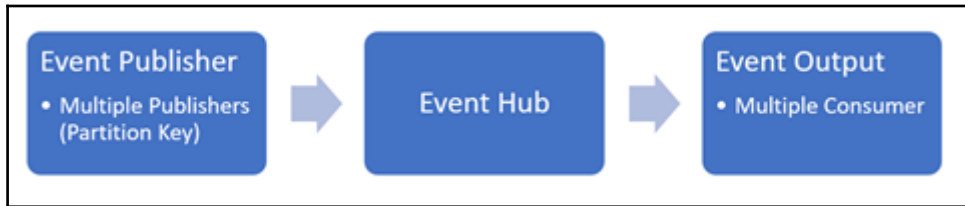
Out of order events
Accept out of order events with a timestamp in the following range: 0

Minutes: 00 Seconds: 03

Handling other events
Action 0
Adjust Drop



Chapter 06: How to achieve Seamless Scalability with Automation



Home > All resources > LearnASANamespace - Event Hubs > Create Event Hub

Create Event Hub

LearnASANamespace

* Name
TestEventhub ✓

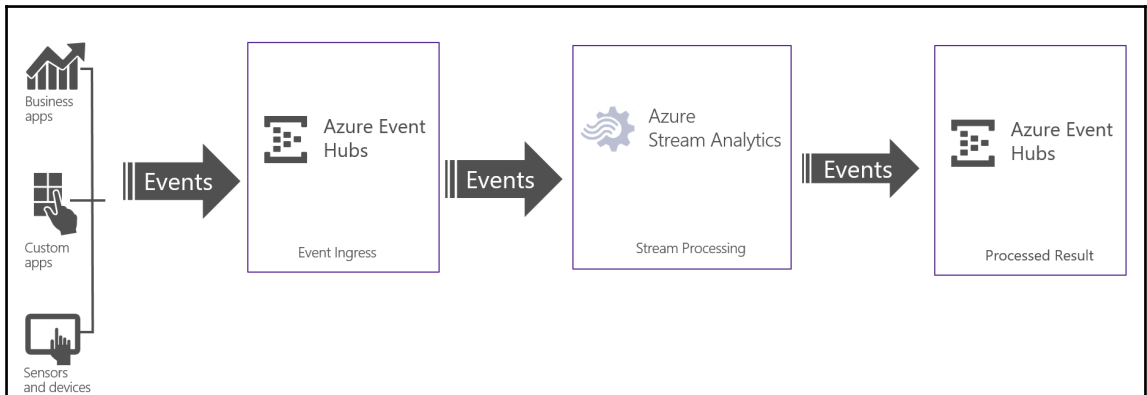
Partition Count ①
32

Message Retention ①
7

Capture
 On Off
Note: Enabling Capture will result in additional charges to this account. [Learn more about our pricing here.](#)

Time window (minutes)
15

Size window (MB)
500



The screenshot shows the GitHub interface for the repository 'Azure / azure-quickstart-templates'. At the top, it displays 'Watch 409', 'Star 2,885', and 'Fork 4,144'. Below this are navigation tabs for 'Code', 'Issues 325', 'Pull requests 24', 'Projects 0', 'Wiki', and 'Insights'. The current branch is 'master'. A red box highlights the repository path 'azure-quickstart-templates / 301-eventHub-create-authrule-namespace-and-eventHub /'. Below this, a commit by 'v-Ajnava' is shown with the message 'Readme files updated with visualize button' and a commit hash '5d2af2a' from 'Jun 28'. A table lists recent commits:

File	Commit Message	Time
README.md	Readme files updated with visualize button	4 months ago
azuredeploy.json	Updated the templates with few minor changes	4 months ago
azuredeploy.parameters.json	Servicebus and Eventhub ARM templates for RP version 2017-04-01	4 months ago
metadata.json	made apiVersion as literal and set location to [resourceGroup].locat...	4 months ago


Below the table is a preview of the 'README.md' file. The main heading reads: 'Create Event Hub namespace, an Event Hub, a consumer group and authorizationRules.' At the bottom of the preview, there are two buttons: 'Deploy to Azure' (highlighted with a red box) and 'Visualize'.

Home > Custom deployment

Custom deployment

Deploy from a custom template

TEMPLATE

 **301-eventHub-create-authrule-namespace-and-eventHub**
1 resource

[Edit template](#) [Edit parameters](#)

[Learn more](#)

BASICS

* Subscription

* Resource group Create new Use existing

* Location

SETTINGS

* Namespace Name

* Event Hub Name

Pin to dashboard

Purchase

Notifications

Dismiss: Informational Completed All

*** Deployment in progress... Running

Deployment to resource group "LearnASA101" is in progress.



Home > LearnASA101 > LearnASANamespace

LearnASANamespace

Event Hub

Search (Ctrl+/)

- Overview
- Access control (IAM)
- Tags
- Diagnose and solve problems

SETTINGS

- Shared access policies
- Scale
- Metrics (preview)
- Properties
- Locks
- Automation script

ENTITIES

- Event Hubs

MONITORING

- Diagnostics logs

SUPPORT + TROUBLESHOOTING

- Resource health
- New support request

Event Hub Delete

Essentials

Resource group (change)
[LearnASA101](#)

Status
Active

Location
Canada Central

Subscription name (change)
[Internal Consumption](#)

Subscription ID

Connection Strings
[Connection Strings](#)

Throughput Units
1

NAMESPACE CONTENTS 1 EVENT HUB

PRICING TIER STANDARD

NAMESPACE STATUS ACTIVE

THROUGHPUT UNITS 1 UNIT

NAME	STATUS	MESSAGE RETENTION
learnasaeventhub	Active	4

The screenshot shows the GitHub interface for the repository 'Azure / azure-quickstart-templates'. At the top, there are navigation options: 'Code', 'Issues 325', 'Pull requests 24', 'Projects 0', 'Wiki', and 'Insights'. The repository name is 'azure-quickstart-templates / 101-streamanalytics-create /'. Below this, a commit history table is displayed:

Commit	Message	Time
Marco Mansi	Changes after pull request review	Latest commit 39a2e63 on Feb 8
..		
README.md	Use the right link for the pull request	9 months ago
azuredeploy.json	Changes after pull request review	9 months ago
azuredeploy.parameters.json	modified parameter file	9 months ago
metadata.json	Updated metadata after CI validation	9 months ago

Below the table, the README content is shown. The main heading is 'Create a Standard Stream Analytics Job'. There are two buttons: 'Deploy to Azure' (highlighted with a red box) and 'Visualize'. Below the buttons, the text reads: 'This template creates a Standard Stream Analytics Job. For more information, see here: <https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-create-a-job>'.

Home > Custom deployment

Custom deployment

Deploy from a custom template

TEMPLATE

101-streamanalytics-create
1 resource

[Edit template](#) [Edit parameters](#) [Learn more](#)

BASICS

Subscription: Internal Consumption

Resource group: Create new Use existing
TestStreamanalytics

Location: Canada Central

SETTINGS

Stream Analytics Job Name: TestStreamanalyticsJobName

Number Of Streaming Units: 1

TERMS AND CONDITIONS

Template information | [Azure Marketplace Terms](#) | [Azure Marketplace](#)

By clicking "Purchase," I (a) agree to the applicable legal terms associated with the offering; (b) authorize Microsoft to charge or bill my current payment method for the fees associated the offering(s), including applicable taxes, with the same billing frequency as my Azure subscription, until I discontinue use of the offering(s); and (c) agree that, if the deployment involves 3rd party offerings, Microsoft may share my contact information and other details of such deployment with the publisher of that offering.

Microsoft assumes no responsibility for any actions performed by third-party templates and does not provide rights for third-

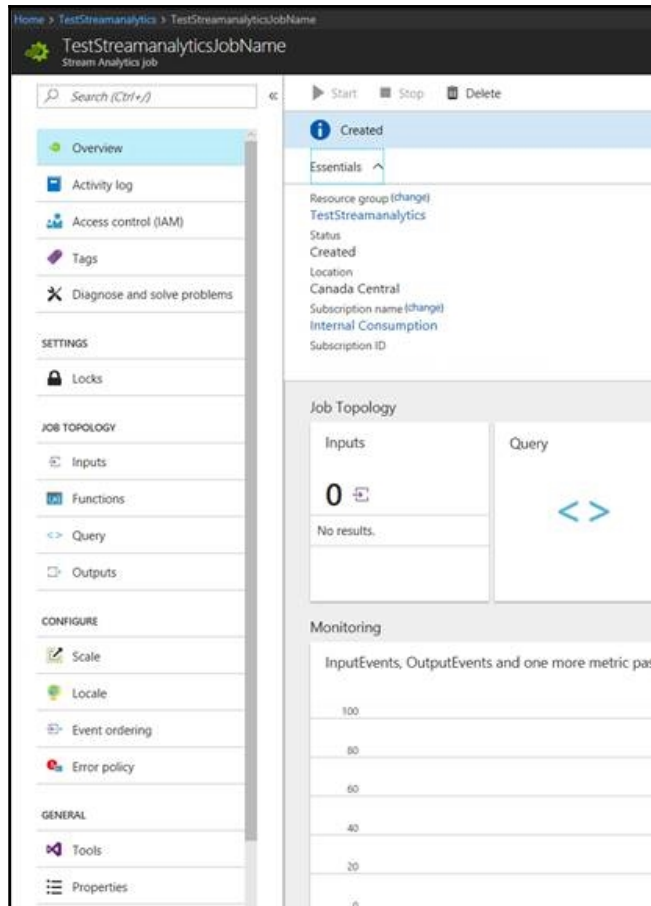
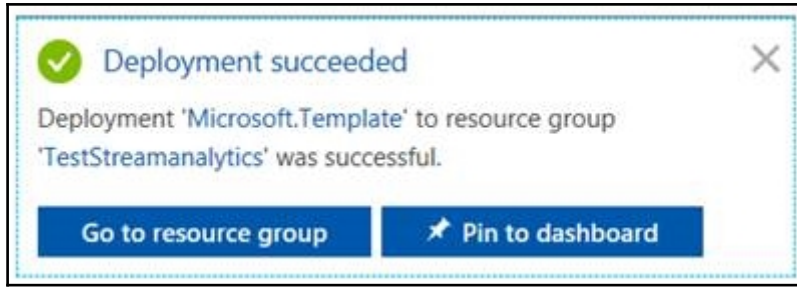
I agree to the terms and conditions stated above

Pin to dashboard

[Purchase](#)

*** Deployment in progress... 05:36 AM ✕

Deployment to resource group 'TestStreamanalytics' is in progress.

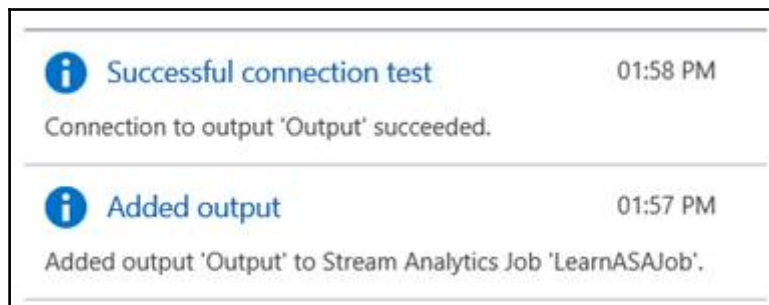
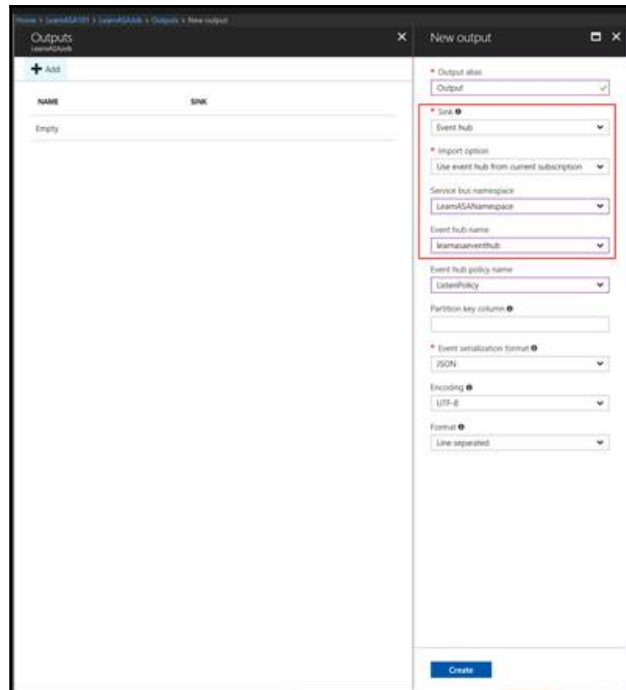


The screenshot shows the 'New input' configuration window for a Stream Analytics job named 'LearnASAJob'. On the left, there is a table with columns 'NAME', 'SOURCE TYPE', and 'SOURCE'. The table is currently empty. On the right, there are several configuration options:

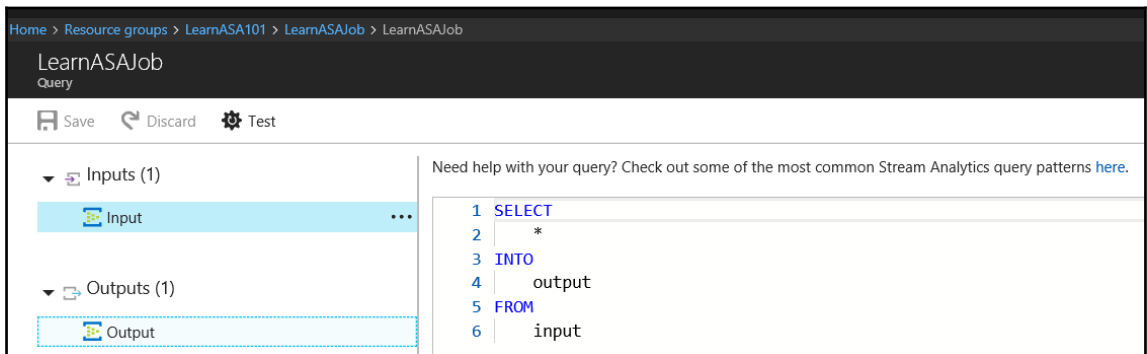
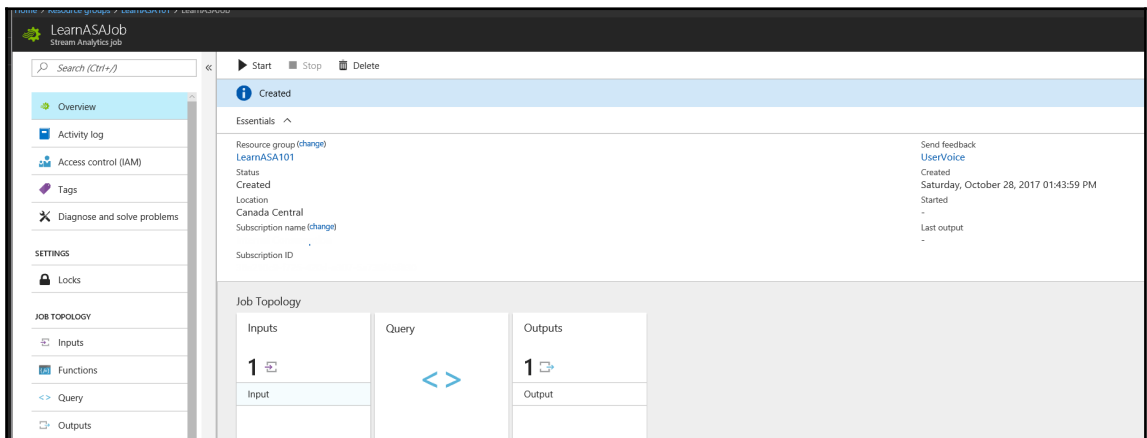
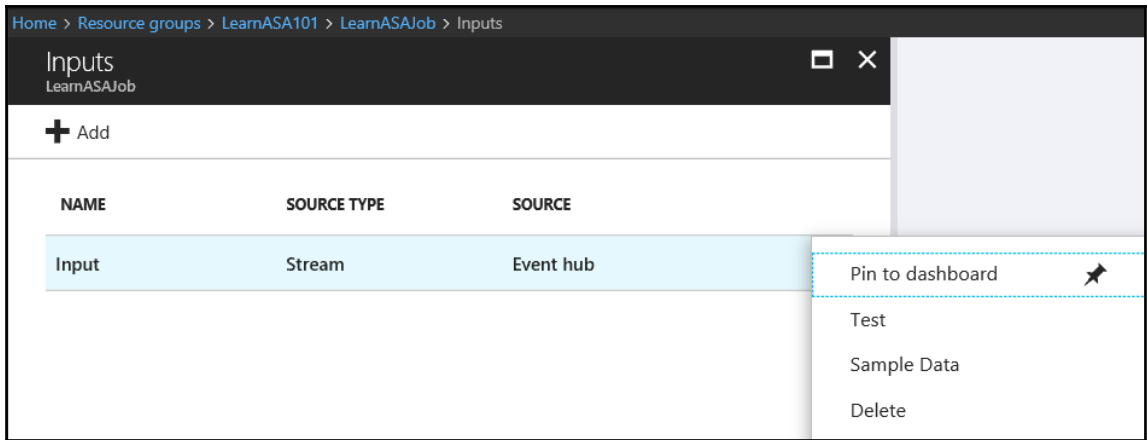
- Input alias: Input
- Source Type: Data stream
- Source: Event hub (highlighted with a red box)
- Import option: Use event hub from current subscription
- Service bus namespace: LearnASANamespace
- Event hub name: learnsaeventhub
- Event hub policy name: ListenPolicy
- Event hub consumer group: (empty)
- Event serialization format: JSON
- Encoding: UTF-8
- Event compression type: None

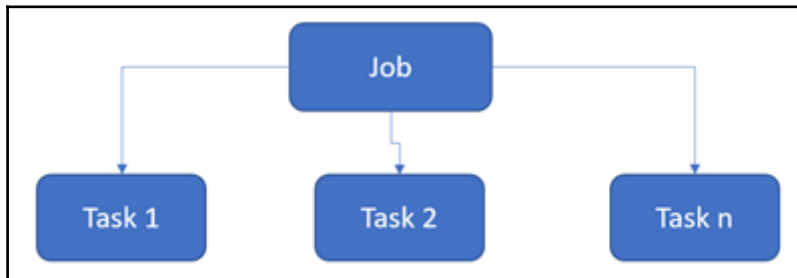
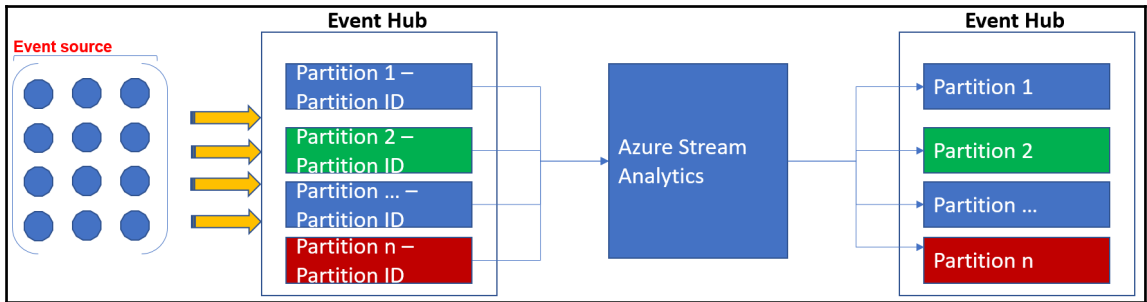
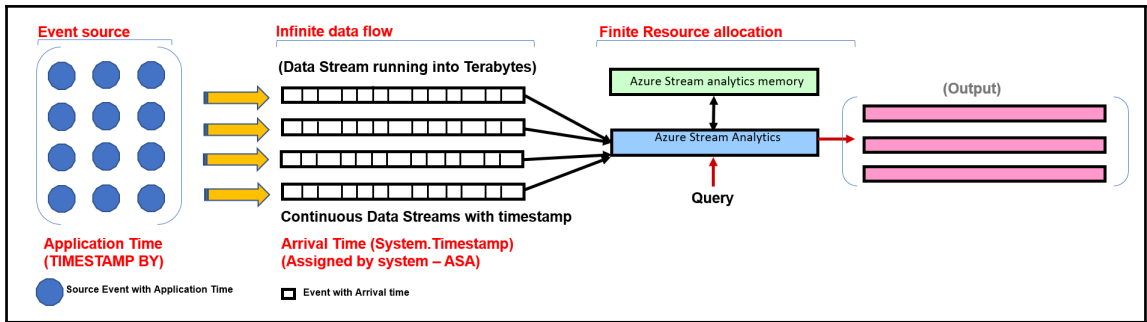
A 'Create' button is located at the bottom right of the configuration panel.

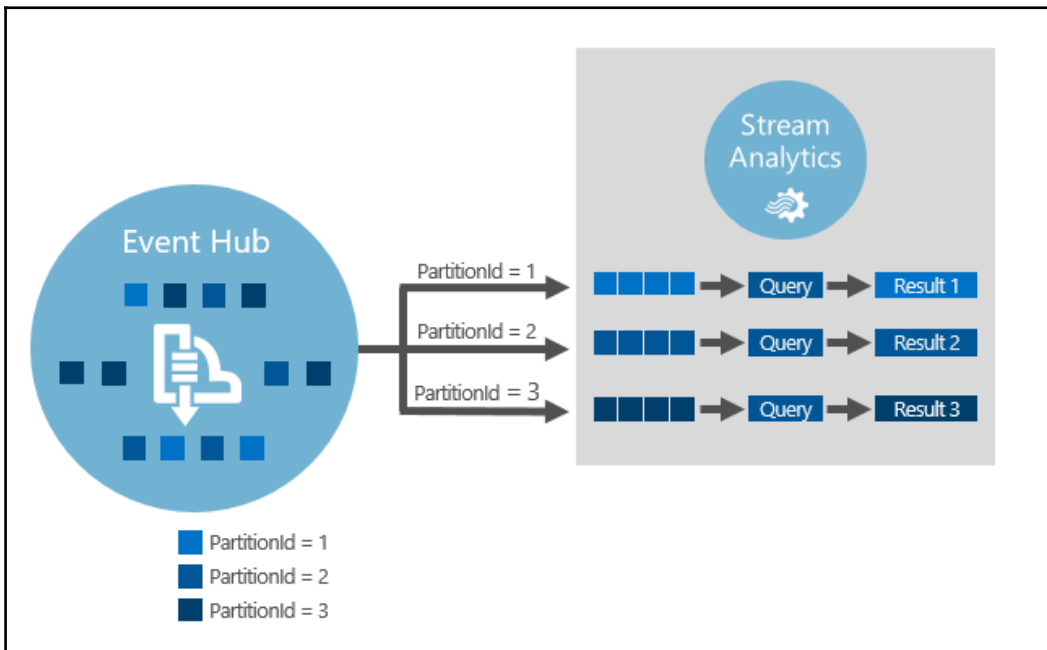
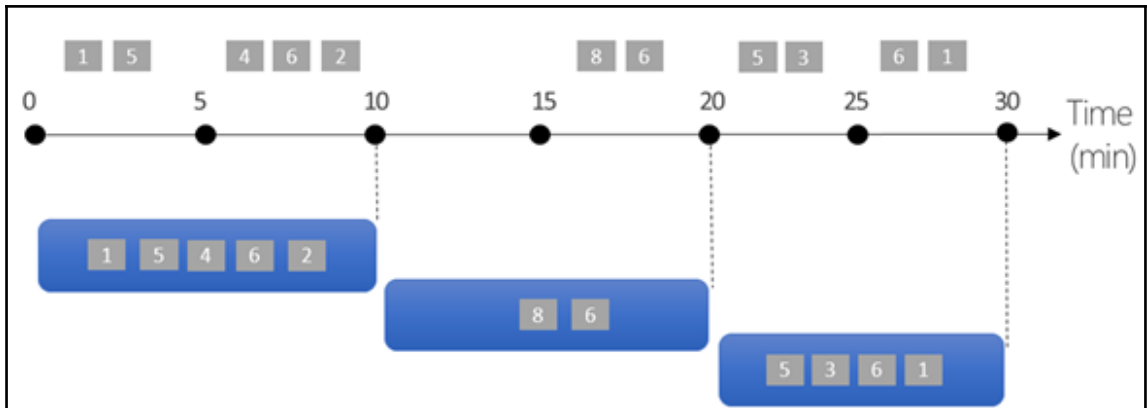
- Successful connection test** 01:53 PM
Connection to input 'Input' succeeded.
- Added input** 01:53 PM
Added input 'Input' to Stream Analytics Job 'LearnASAJob'.

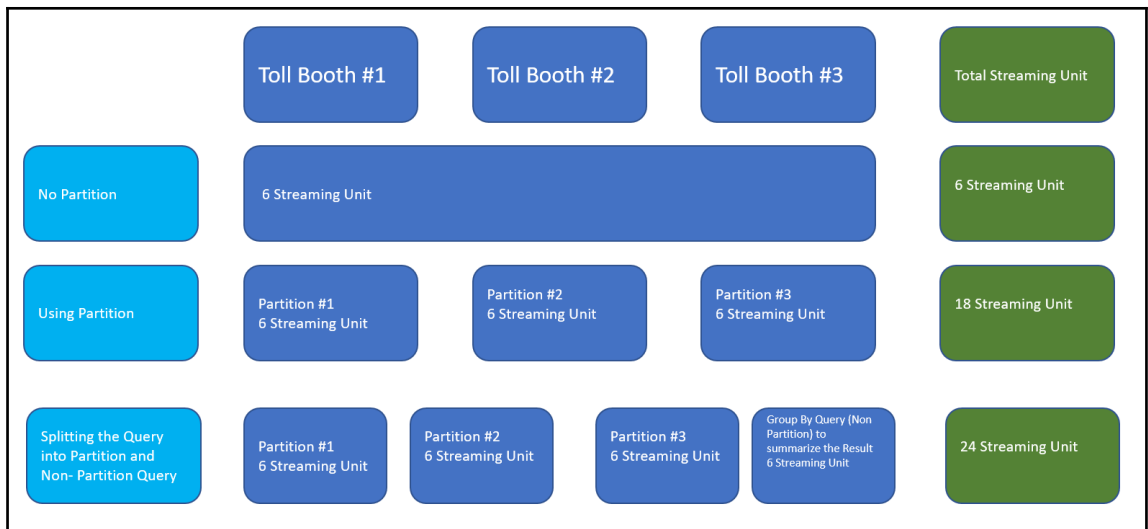
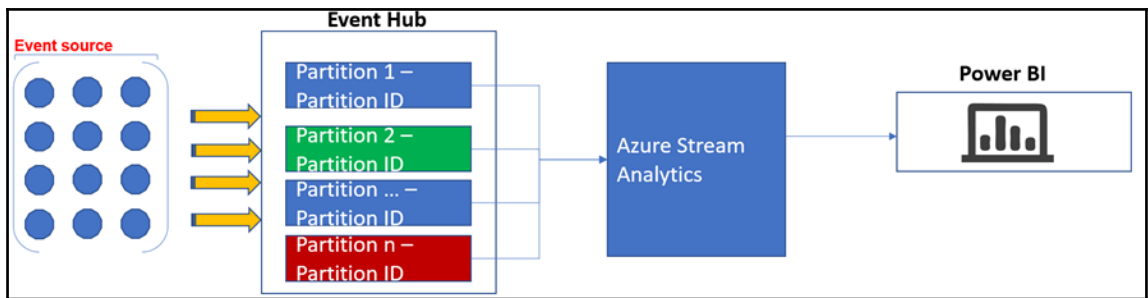
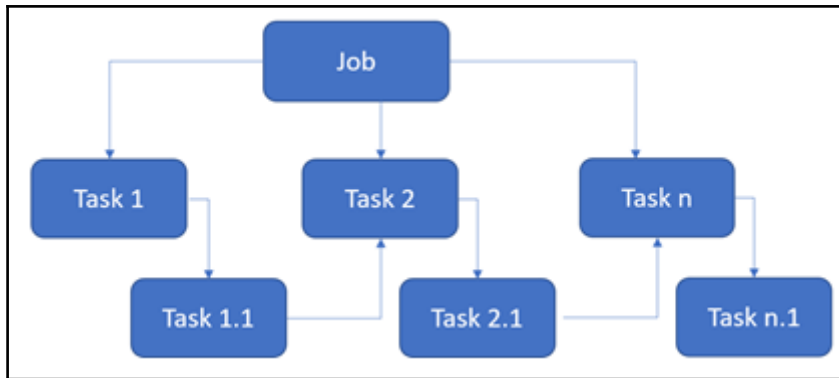


Graphics bundle

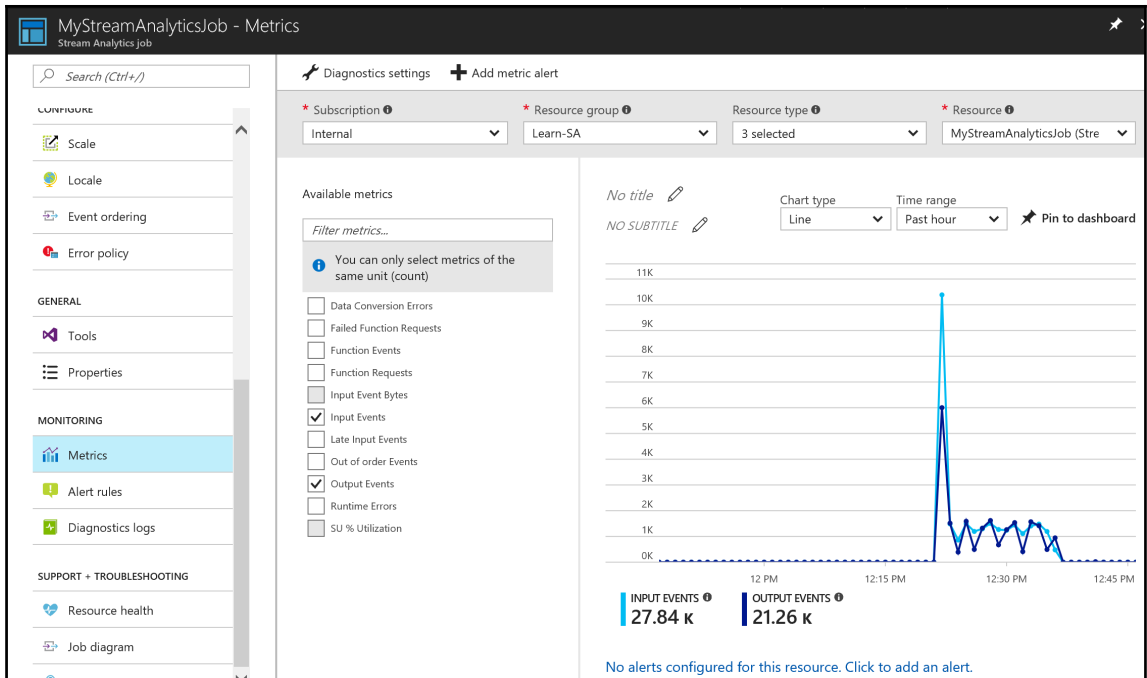
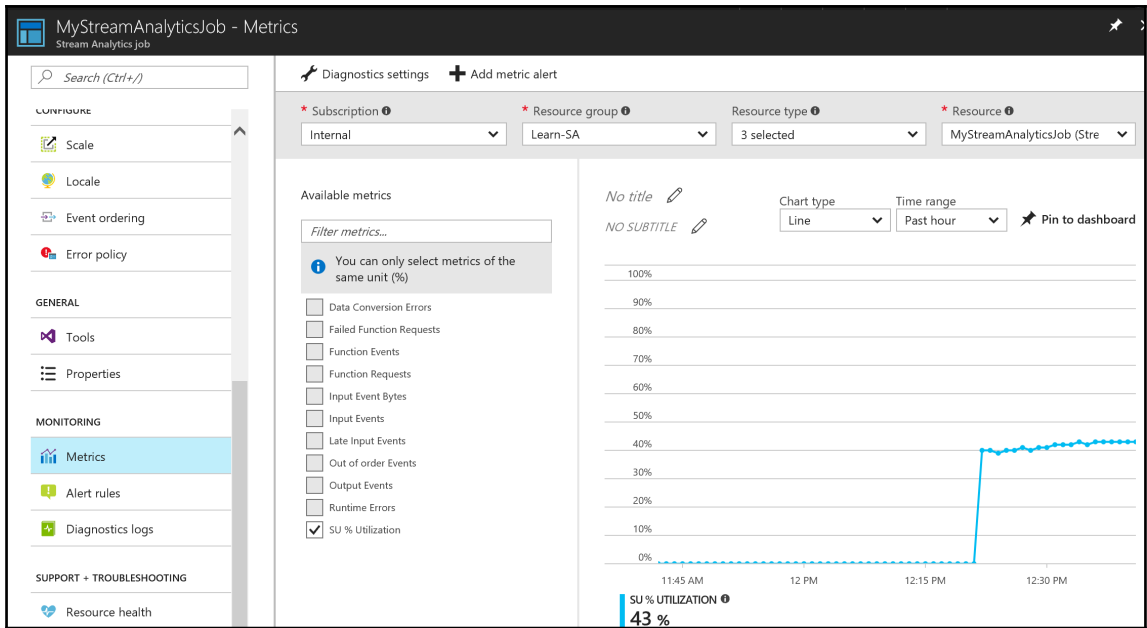


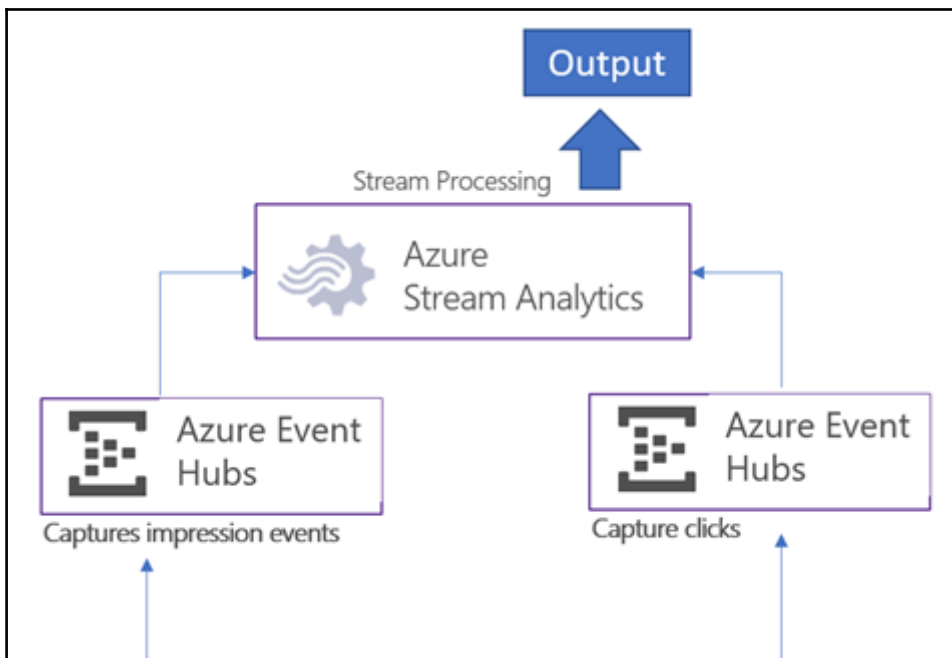
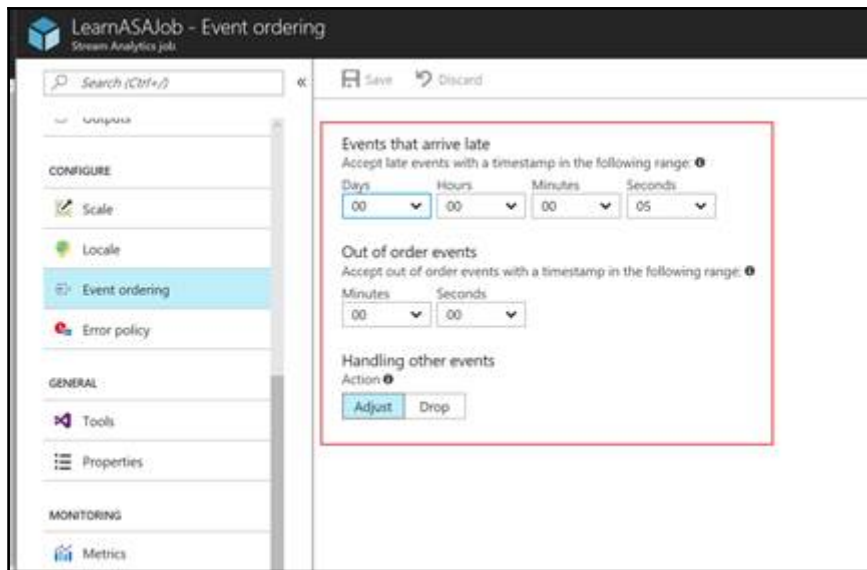




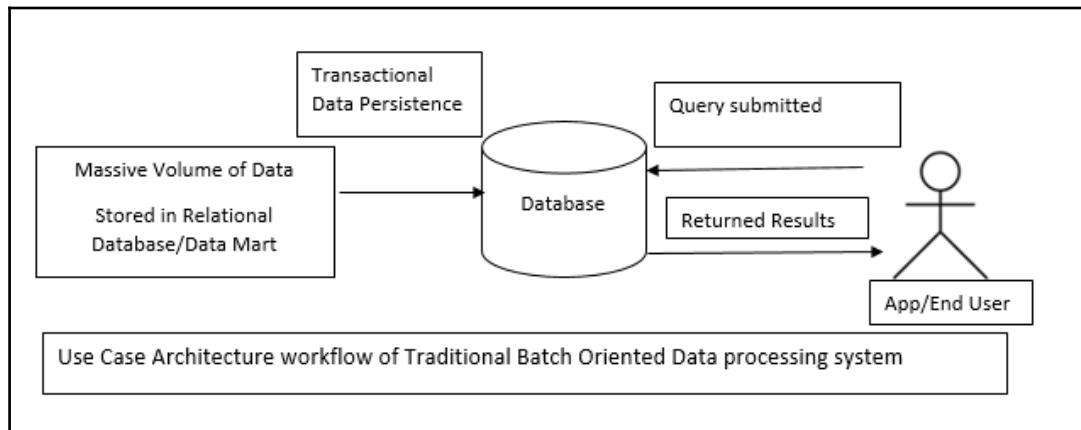


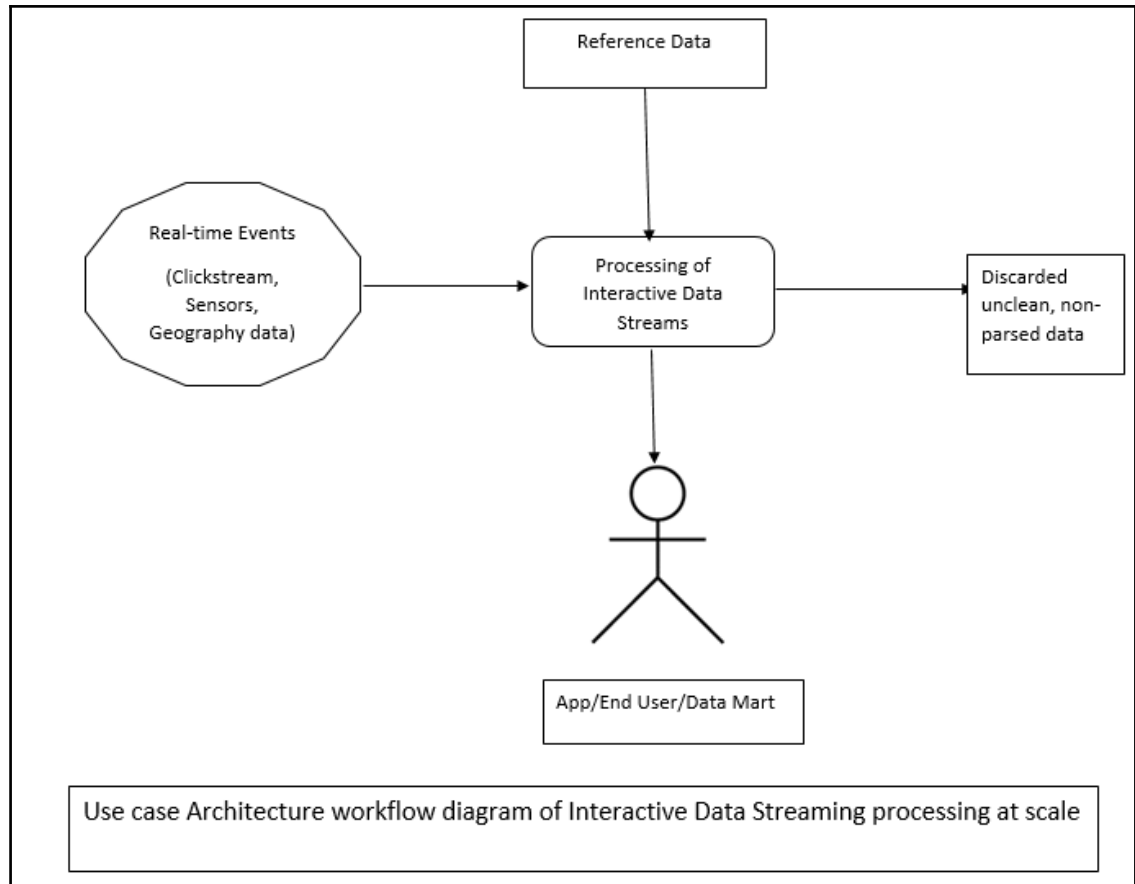
The screenshot displays the 'MyStreamAnalyticsJob - Scale' interface. The title bar at the top left shows a blue icon and the text 'MyStreamAnalyticsJob - Scale' and 'Stream Analytics job'. Below the title bar is a search bar with the placeholder text 'Search (Ctrl+/)'. To the right of the search bar are 'Save' and 'Discard' buttons. The main interface is divided into a left sidebar and a right main area. The sidebar contains several sections: 'Overview' (with a gear icon), 'Activity log' (with a document icon), 'Access control (IAM)' (with a person icon), 'Tags' (with a tag icon), and 'Diagnose and solve problems' (with a wrench icon). Below these are sections for 'SETTINGS' (with a lock icon), 'JOB TOPOLOGY' (with an input icon), and 'CONFIGURE' (with a pencil icon). The 'Scale' option under 'CONFIGURE' is highlighted in light blue. The main area shows 'Streaming units' with a value of 6, represented by a horizontal bar with 6 segments and a small input box containing the number 6.

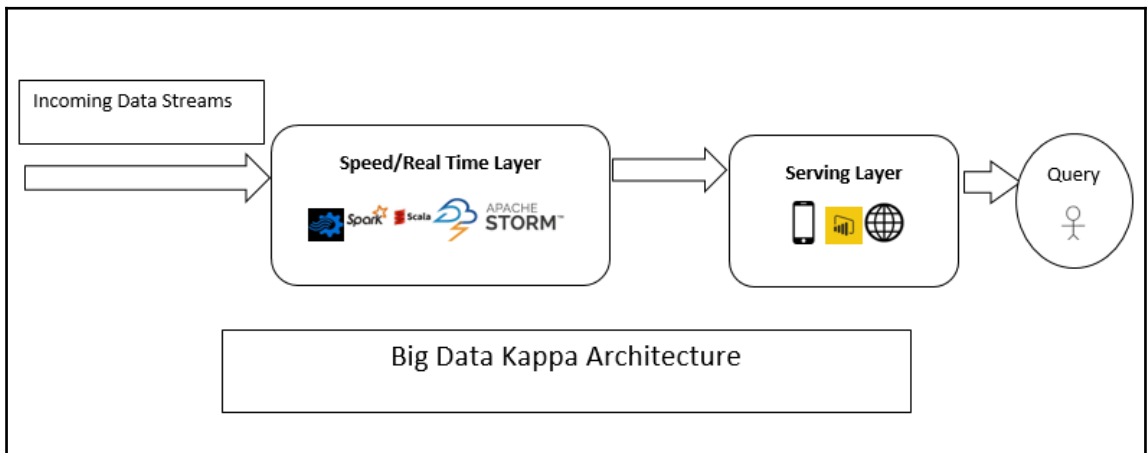
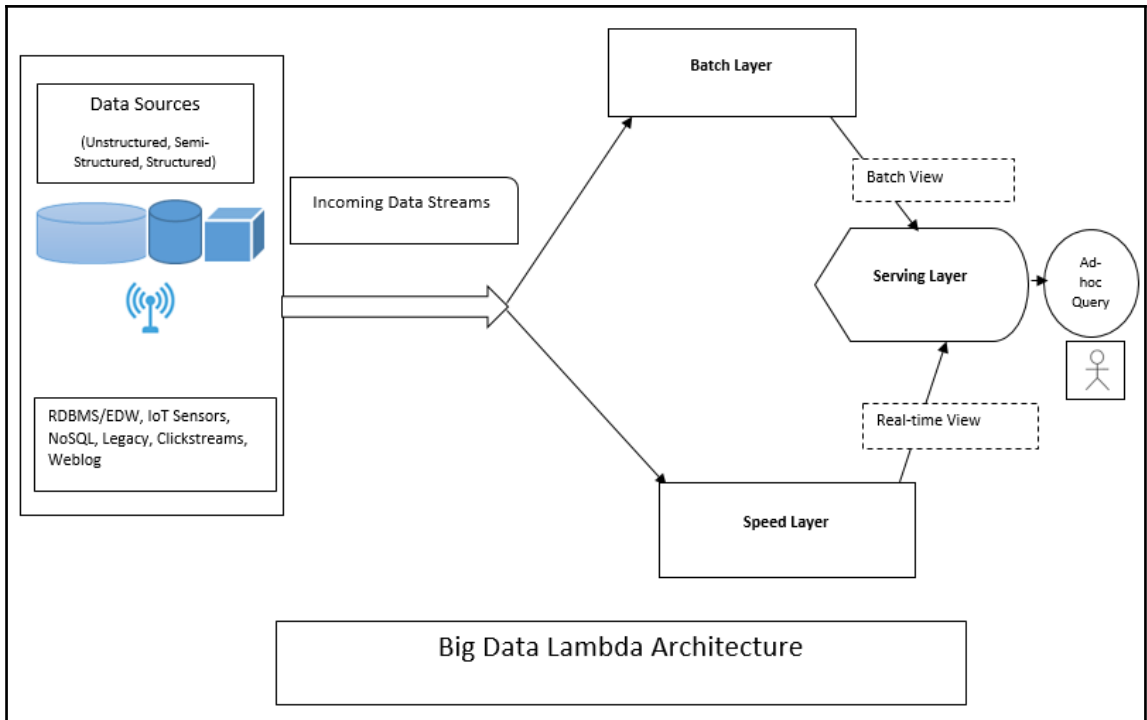


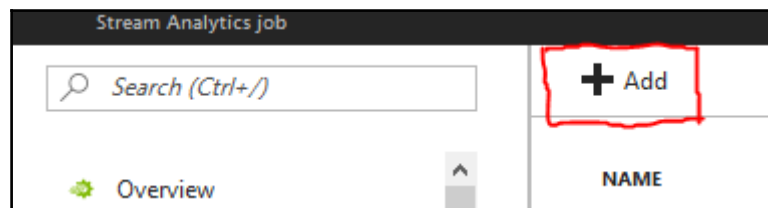
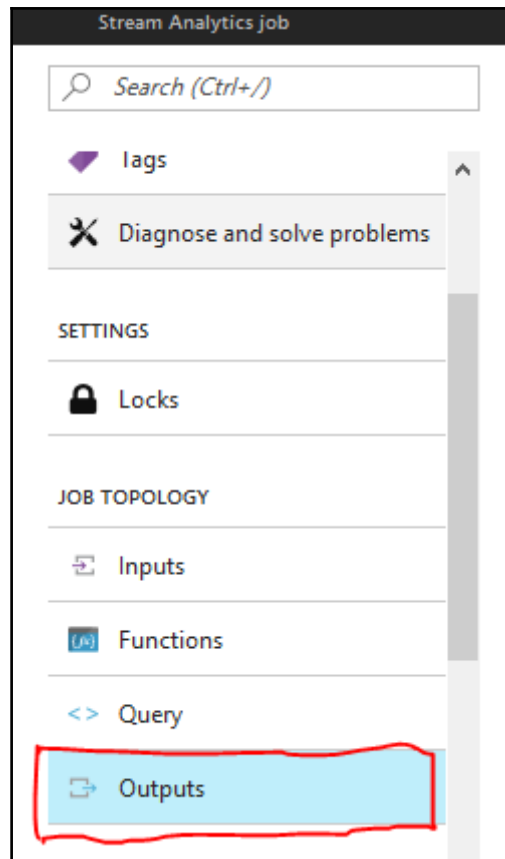


Chapter 07: Integration of Microsoft Business Intelligence and Big Data










New output □ ×

* Output alias
PacktASAOutput ✓


* Sink ●
Power BI ▼

Group Workspace
My Workspace ▼

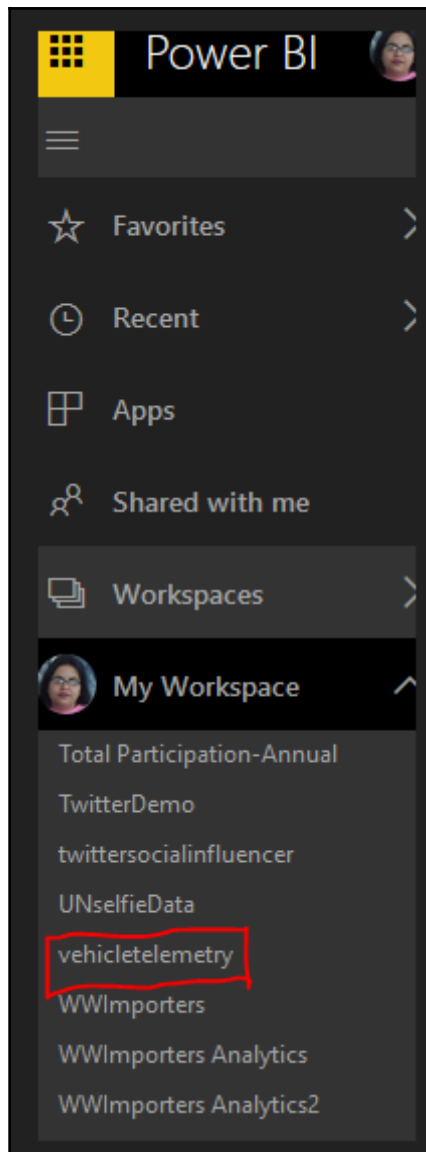
* Dataset Name
vehicletelemetry ✓

 If the dataset or table already exists in your Microsoft Power BI subscription, it will be overwritten.

* Table Name
vehicletelemetry ✓


Currently authorized as Anindita Basak


Create




Add tile

Select source



VIDEO

REAL-TIME DATA



CUSTOM
STREAMING DATA

Next



Cancel

Add a custom streaming data tile

Choose a streaming dataset > Visualization design

Visualization Type

Card



Fields

speed

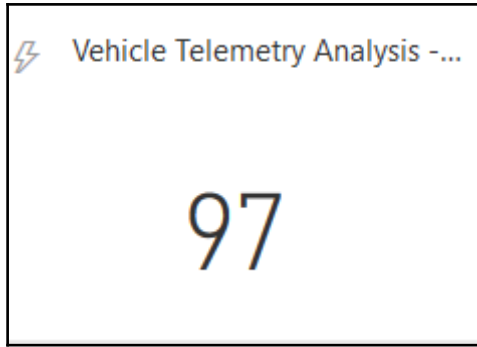
+ Add value

[Manage datasets](#)

Back

Next

Cancel



Chapter 08: Designing and Managing Stream Analytics Jobs



The screenshot shows the 'Input details' configuration window for a Stream Analytics job named 'isviotdelivery-Rules'. The window is titled 'rossoft Azure isviotdelivery-Rules - Inputs' and contains the following fields and options:

- Input details:** DeviceRulesBlob
- Actions:** Test, Sample Data, Delete
- Import option:** Provide blob storage settings manu... (dropdown)
- Storage account:** isviotdelivery
- Storage account key:** (masked with asterisks)
- Container:** devicerules
- Path pattern:** {date}/{time}/devicerules.json
- Date format:** YYYY-MM-DD (dropdown)
- Time format:** HH-mm (dropdown)
- Event serialization format:** JSON (dropdown)
- Encoding:** UTF-8 (dropdown)
- Save:** (button)

New Data Lake Store

Name: ✓
vehicleadls.azuredatalakestore.net

* Subscription: ▾

* Resource Group: Create new Use existing
 ▾

* Location: ▾

Pricing Package ⓘ
 Pay-as-You-Go Monthly Commitment

>

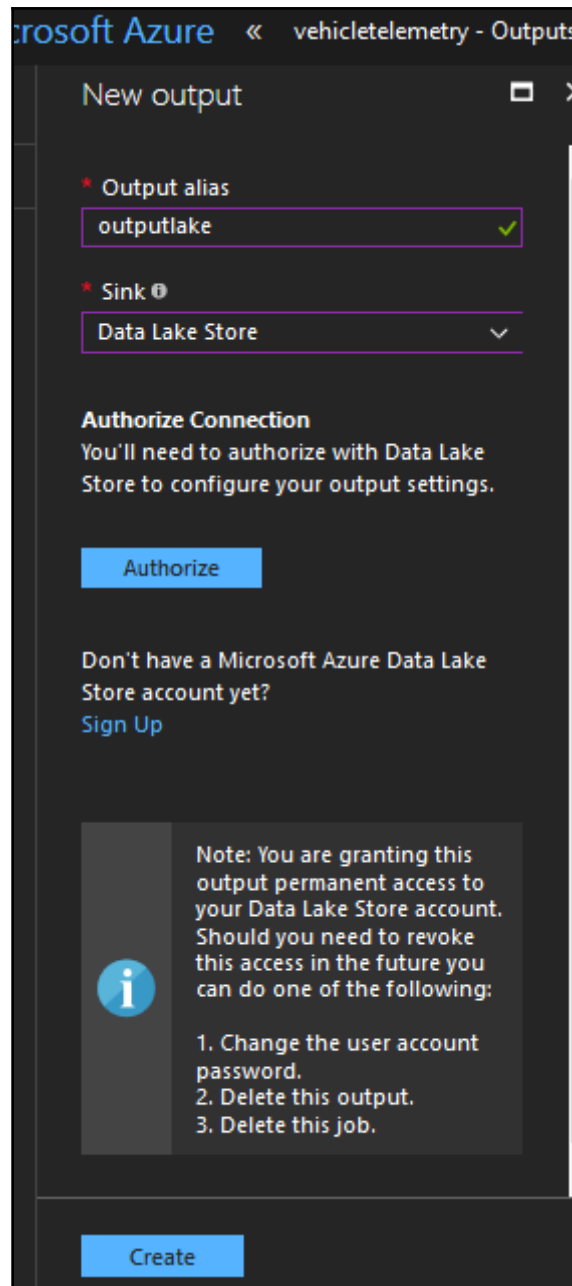
Pin to dashboard

[Automation options](#)

Encryption Settings

Encryption Type

▾



Microsoft Azure vehicletelemetry - Outputs > |

New output

* Sink ⓘ
Data Lake Store

Import option
Select Data Lake Store from your su...

Subscription
Microsoft Azure Internal Consumpti...

Account Name
adlsadfdemo

* Path prefix pattern ⓘ
VehicleTelemetry/logs/{date}/{time} ✓
Example: cluster1/logs/{date}/{time}

Date format
YYYY/MM/DD

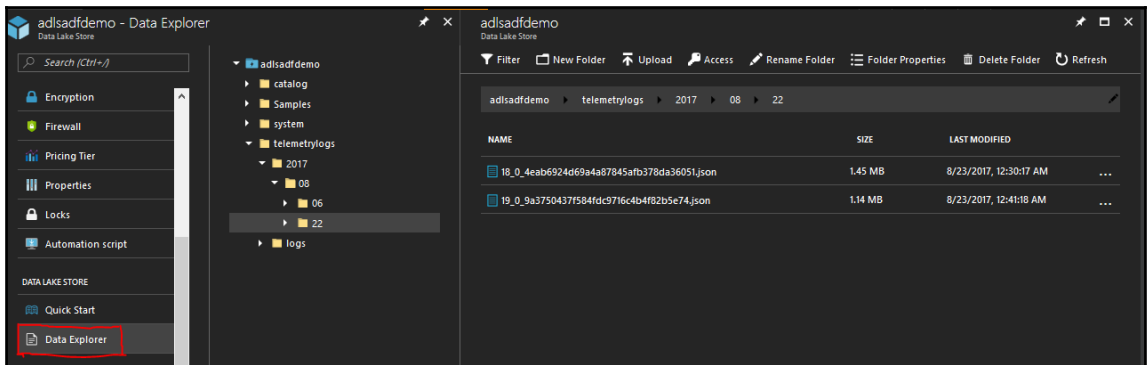
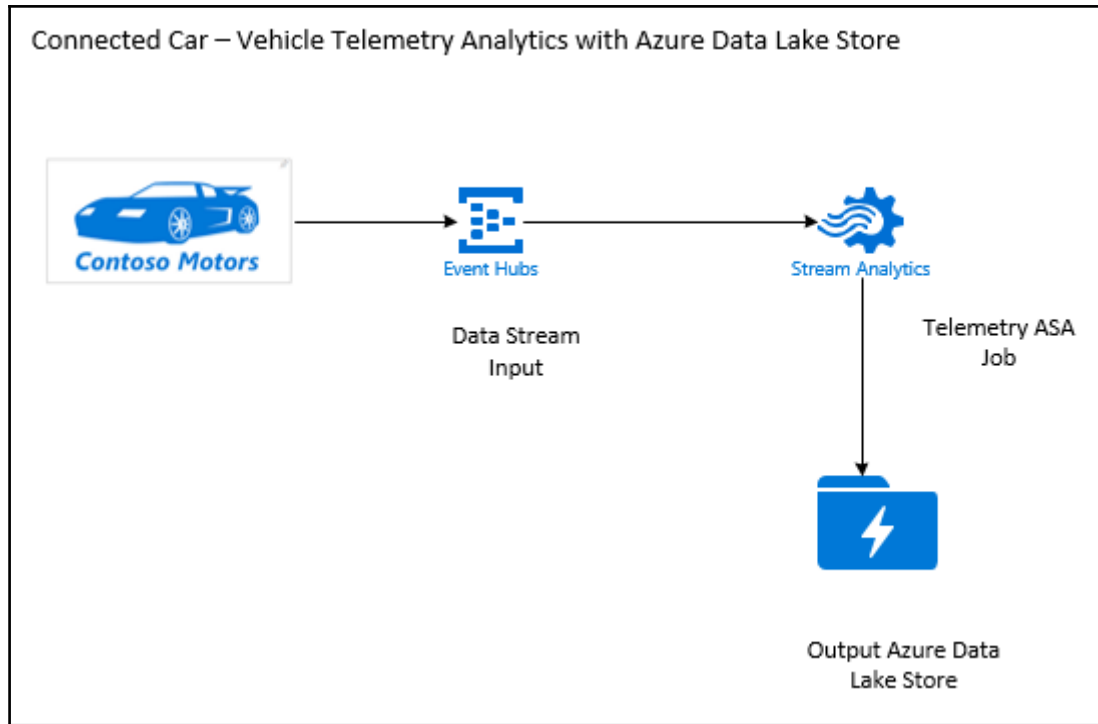
Time format
HH

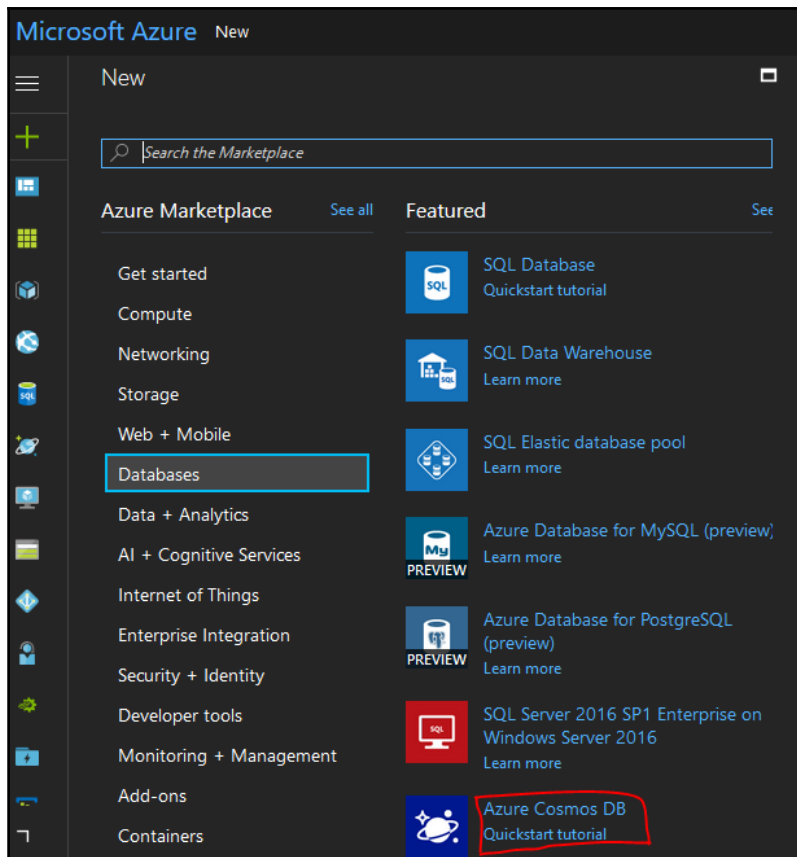
* Event serialization format ⓘ
JSON

Encoding ⓘ
UTF-8

Format ⓘ
Line separated

Create





Azure Cosmos DB

New account

* ID
weathertelemetrycosmos ✓
documents.azure.com

* API ⓘ
SQL (DocumentDB) ▾

* Subscription
Microsoft Azure Internal Consumption ▾

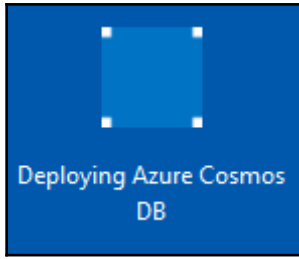
* Resource Group ⓘ
 Create new Use existing
WeatherLog ▾

* Location
Southeast Asia ▾

Enable geo-redundancy ⓘ

Pin to dashboard

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



weatherlogdb
Azure Cosmos DB account

Search (Ctrl+/)

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

SETTINGS

- Replicate data globally
- Default consistency
- Firewall
- Keys
- Add Azure Function

+ Add Collection Refresh Move Delete Account Data Explorer

Resource group (change)
WeatherLog Status
Online

Subscription (change)
Microsoft Azure Internal Consumption Subscription ID
ff41509a-d7cd-4f00-879c-ddf393428456

Read Locations
Southeast Asia URI
https://weatherlogdb.documents.azure.com:443/

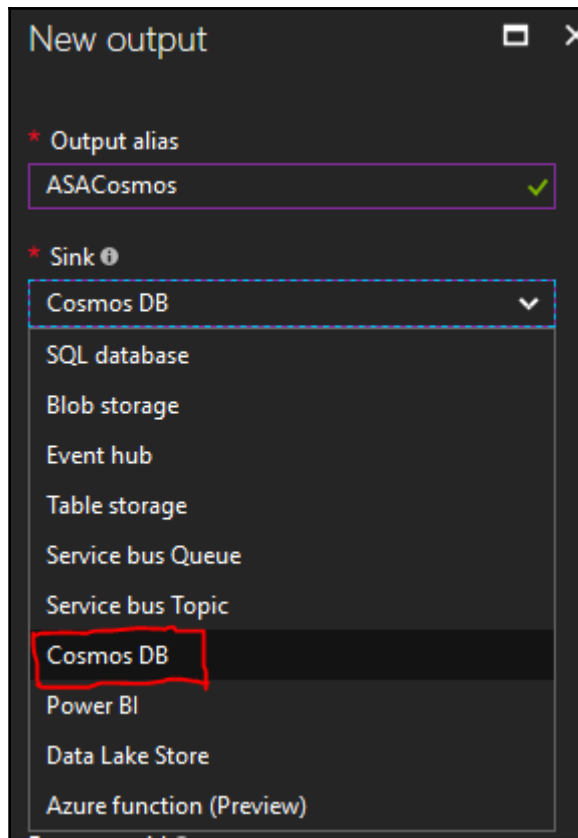
Write Location
Southeast Asia

Collections

ID	DATABASE	THROUGHPUT (RU/S)
Items	ToDoList	400
weatherdata	weatherdb	400
leases	weatherdb	400

Regions

Region Configuration
WEATHERLOGDB



* Output alias
ASACosmos ✓

* Sink ⓘ
Cosmos DB ▼

* Import option
Use Cosmos DB from current subscription ▼

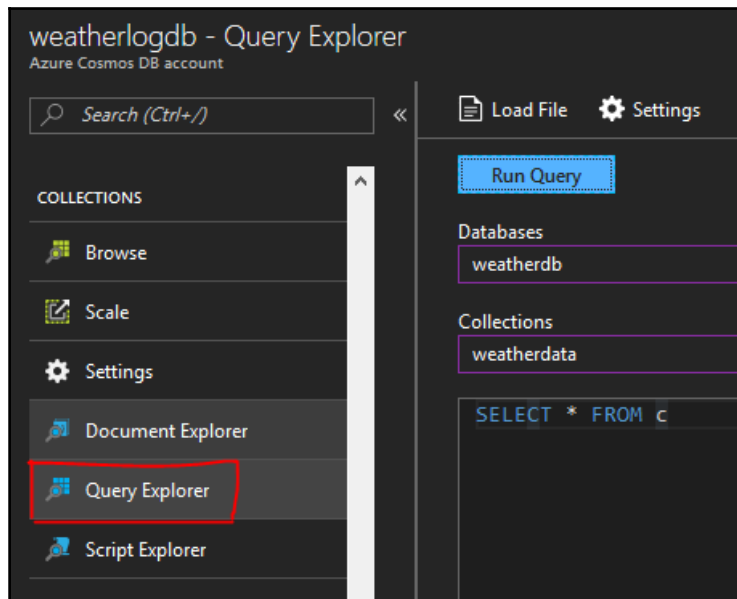
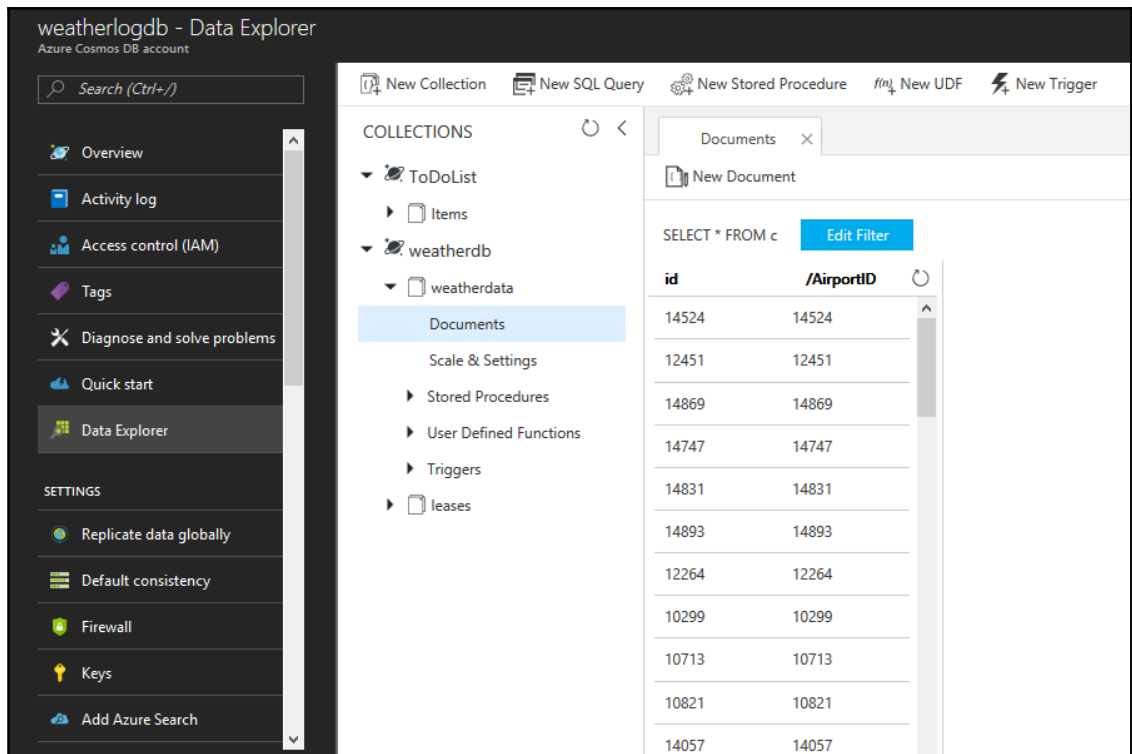
Account id ⓘ
weatherlogdb ▼

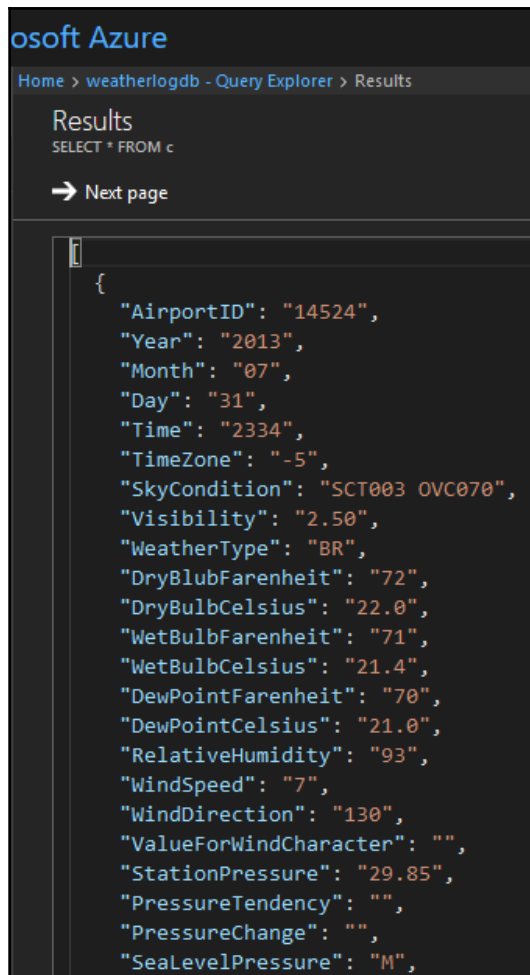
Database
weatherdb ▼

* Collection name pattern ⓘ
weatherdata

Document id ⓘ
AirportID

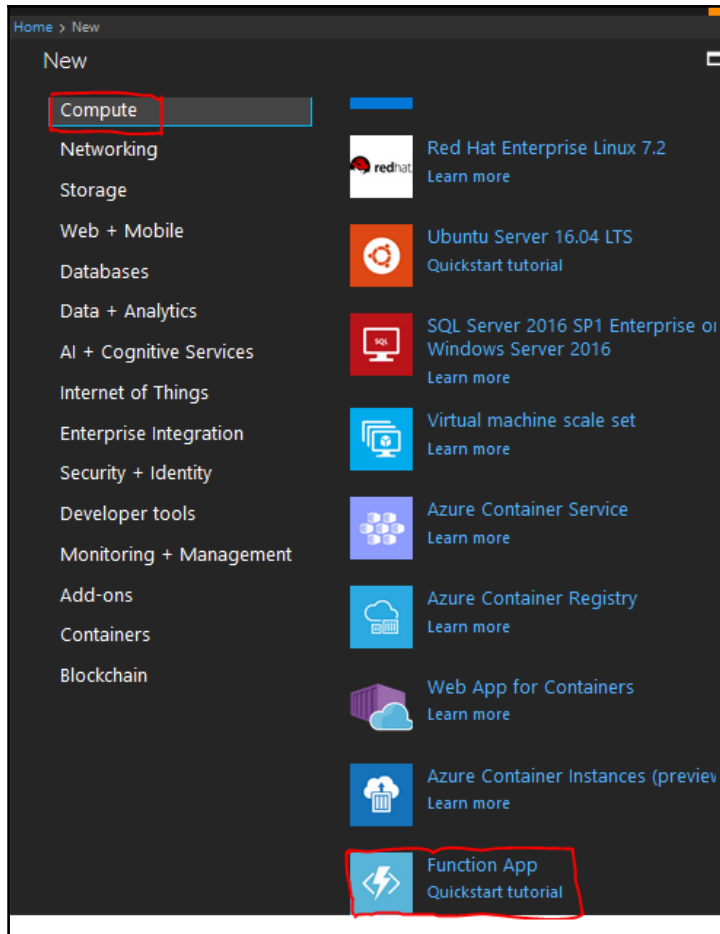
Create





The screenshot shows the Microsoft Azure Query Explorer interface. At the top, it says "Microsoft Azure". Below that, the breadcrumb navigation is "Home > weatherlogdb - Query Explorer > Results". The main heading is "Results" with a sub-heading "SELECT * FROM c". There is a "Next page" link with a right-pointing arrow. The main content area displays a JSON object representing a weather record.

```
{
  "AirportID": "14524",
  "Year": "2013",
  "Month": "07",
  "Day": "31",
  "Time": "2334",
  "TimeZone": "-5",
  "SkyCondition": "SCT003 OVC070",
  "Visibility": "2.50",
  "WeatherType": "BR",
  "DryBulbFahrenheit": "72",
  "DryBulbCelsius": "22.0",
  "WetBulbFahrenheit": "71",
  "WetBulbCelsius": "21.4",
  "DewPointFahrenheit": "70",
  "DewPointCelsius": "21.0",
  "RelativeHumidity": "93",
  "WindSpeed": "7",
  "WindDirection": "130",
  "ValueForWindCharacter": "",
  "StationPressure": "29.85",
  "PressureTendency": "",
  "PressureChange": "",
  "SeaLevelPressure": "M",
```



Function App

Create

* App name
vehicletelemetry ✓
.azurewebsites.net

* Subscription
Microsoft Azure Internal Consumption

* Resource Group ⓘ
 Create new Use existing
vehitele

* Hosting Plan ⓘ
Consumption Plan

* Location
South Central US

* Storage ⓘ
 Create New Select Existing
vehicletelemetry ✓

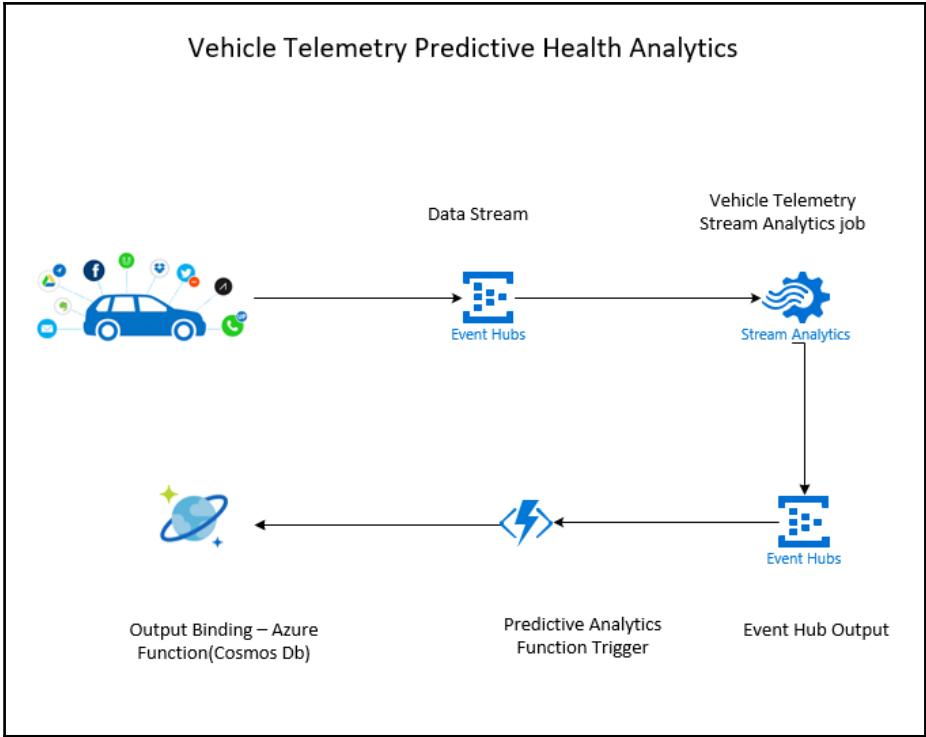
Application Insights ⓘ

Pin to dashboard

[Automation options](#)

The screenshot shows the Azure portal interface for a Function App. The left sidebar contains a search bar with 'vehicletelemetry' and a navigation menu with 'All subscriptions', 'Function Apps', and a tree view showing 'vehicletelemetry' expanded to 'Functions', 'Proxies (preview)', and 'Slots (preview)'. The main content area is titled 'vehicletelemetry' and has tabs for 'Overview' and 'Platform features'. Under 'Overview', there are action buttons: Stop, Swap, Restart, Download publish profile, Reset publish credentials, Download app content, and Delete. Below these are details for the function app: Status (Running), Subscription (Microsoft Azure Internal Consumption), Resource group (vehitele), URL (https://vehicletelemetry.azurewebsites.net), Subscription ID (redacted), Location (South Central US), and App Service plan / pricing tier (SouthCentralUSPlan (Consumption)). A 'Configured features' section lists 'Function app settings' and 'Application settings'.

The screenshot shows the 'Get started quickly with a premade function' wizard. It features a yellow lightning bolt icon in a blue diamond. The title is 'Get started quickly with a premade function'. Step 1 is 'Choose a scenario' with three options: 'Webhook + API' (selected), 'Timer', and 'Data processing'. Step 2 is 'Choose a language' with radio buttons for 'CSharp', 'JavaScript' (selected), 'FSharp', and 'Java'. Below this is the text 'For PowerShell, Python, and Batch, create your own custom function.' and a blue 'Create this function' button. At the bottom, it says 'or' and 'Get started on your own Custom function'.



Output details ⊞ >
vehicleeventout

Test Delete

* Import option
Provide event hub settings manually ⌵

* Service bus namespace

* Event hub name
vehicletelemetryeventout

* Event hub policy name
ASA

Event hub policy key

Partition key column
vin

* Event serialization format
JSON ⌵

Encoding
UTF-8 ⌵

Format
Line separated ⌵

Choose a template below or [go to the quickstart](#)

Language: C# Scenario: Data Processing

<p>TimerTrigger - C#</p> <p>A C# function that will be run on a specified schedule</p>	<p>QueueTrigger - C#</p> <p>A C# function that will be run whenever a message is added to a specified Azure Queue Storage</p>	<p>BlobTrigger - C#</p> <p>A C# function that will be run whenever a blob is added to a specified container</p>	<p>EventHubTrigger - C#</p> <p>A C# function that will be run whenever an event hub receives a new event</p>	<p>ServiceBusQueueTrigger - C#</p> <p>A C# function that will be run whenever a message is added to a specified Service Bus queue</p>	<p>ServiceBusTopicTrigger - C#</p> <p>A C# function that will be run whenever a message is added to the specified Service Bus topic</p>
<p>AppInsights Scheduled Analytics - C#</p> <p>A C# function which derives metrics from performing deep analysis of your app telemetry with Application Insights</p>	<p>CosmosDBTrigger - C#</p> <p>A C# function that will be run whenever documents change in a document collection.</p>				

Name your function

Azure Event Hubs trigger

Event Hub connection show value

new

Event Hub name

run.csx Save Run

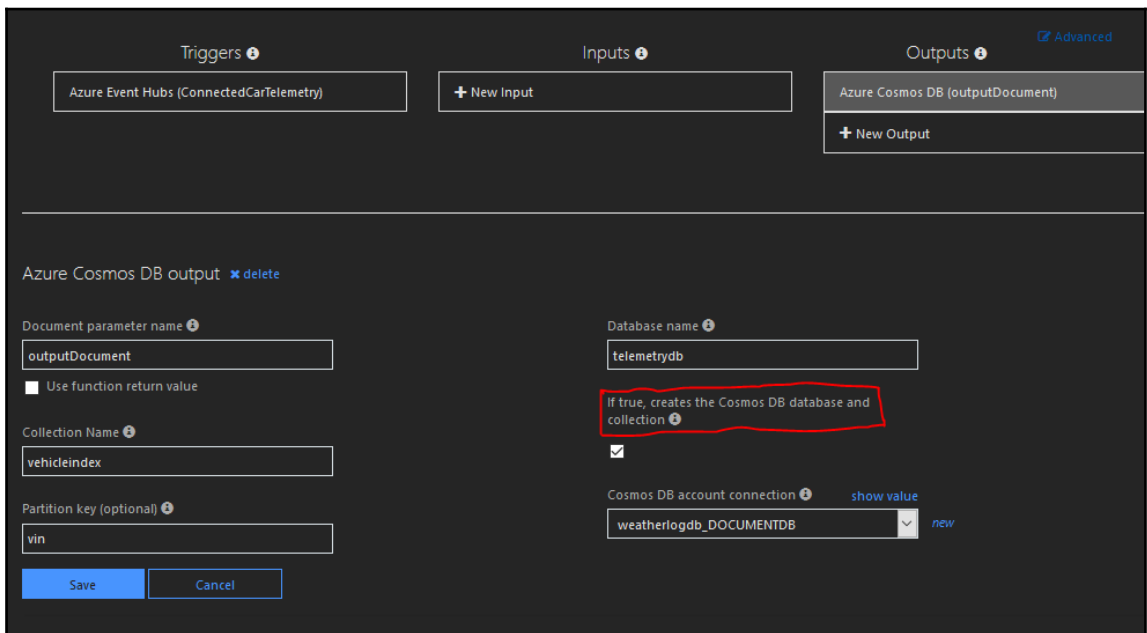
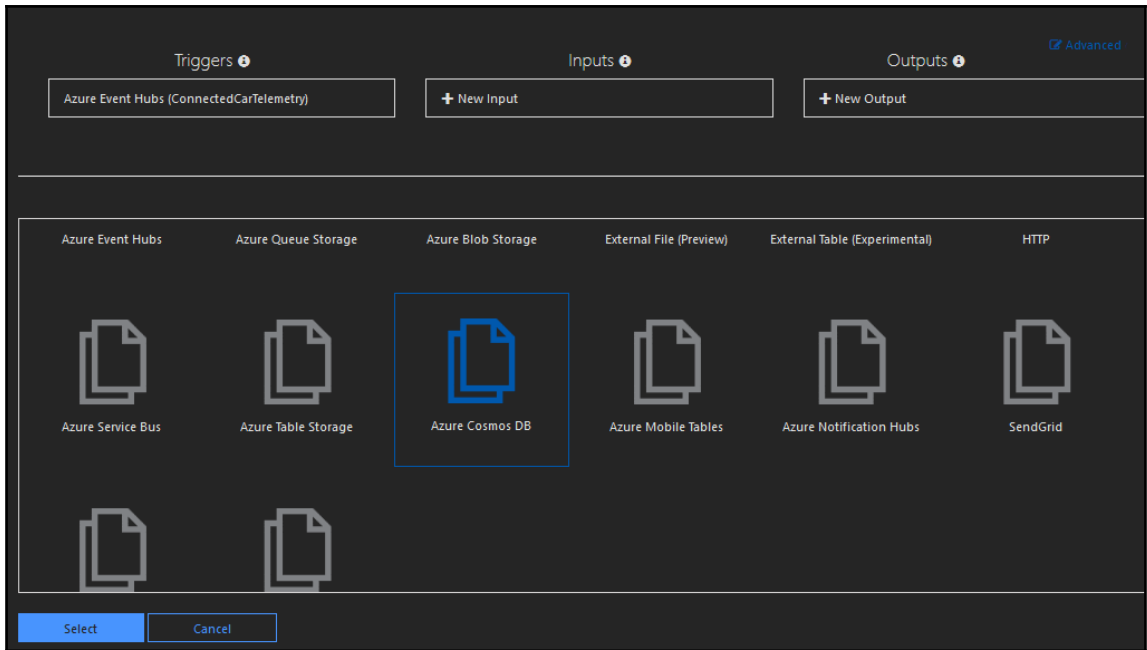
```

1 using System;
2
3 public static void Run(string ConnectedCarTelemetry, TraceWriter log)
4 {
5     log.Info($"New Telemetry Event Triggered for Connected Car: {ConnectedCarTelemetry}");
6 }
7
    
```

Logs Pause Clear Copy logs Expand

```

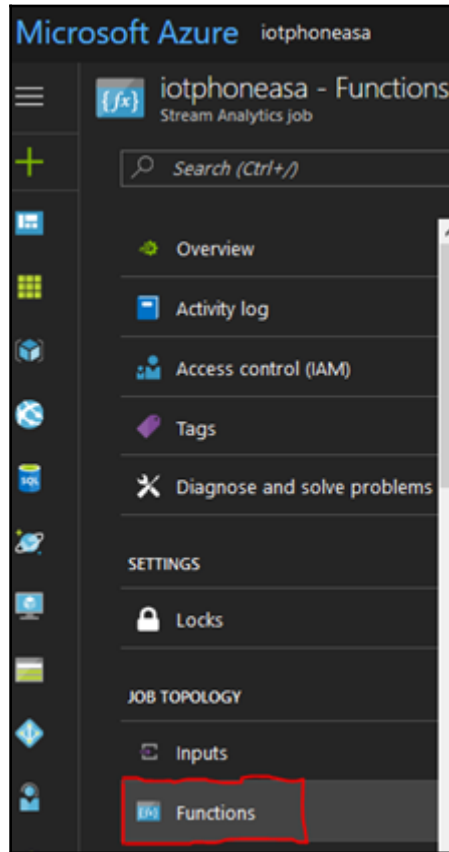
2017-10-19T15:33:53.423 New Telemetry Event Triggered for Connected Car: {"vin":"2VKCGDT7EG541DOKL","model":"Sienna","timestamp":"2017-10-19T15:33:48.5586132Z","o
2017-10-19T15:33:53.423 Function completed (Success, Id=ba96ebe5-926b-419c-99b1-980460125e9c, Duration=0ms)
2017-10-19T15:33:54.209 Function started (Id=97899c7f-071c-4296-9ddb-5f73919b88d2)
2017-10-19T15:33:54.209 New Telemetry Event Triggered for Connected Car: {"vin":"W8XLBATF96LUDDCE4","model":"Land Cruiser","timestamp":"2017-10-19T15:33:45.435474
2017-10-19T15:33:54.209 Function completed (Success, Id=97899c7f-071c-4296-9ddb-5f73919b88d2, Duration=0ms)
2017-10-19T15:33:56.633 Function started (Id=0cfba0bb-d203-4b0b-a855-d1700ac64cd3)
2017-10-19T15:33:56.633 New Telemetry Event Triggered for Connected Car: {"vin":"SA23YNMGPBVLL598B","model":"Highlander","timestamp":"2017-10-19T15:33:50.9407286Z"
2017-10-19T15:33:56.633 Function completed (Success, Id=0cfba0bb-d203-4b0b-a855-d1700ac64cd3, Duration=0ms)
    
```

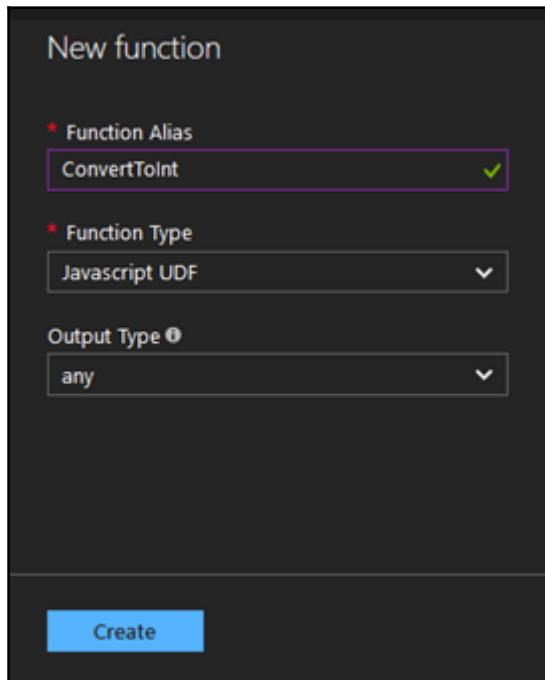
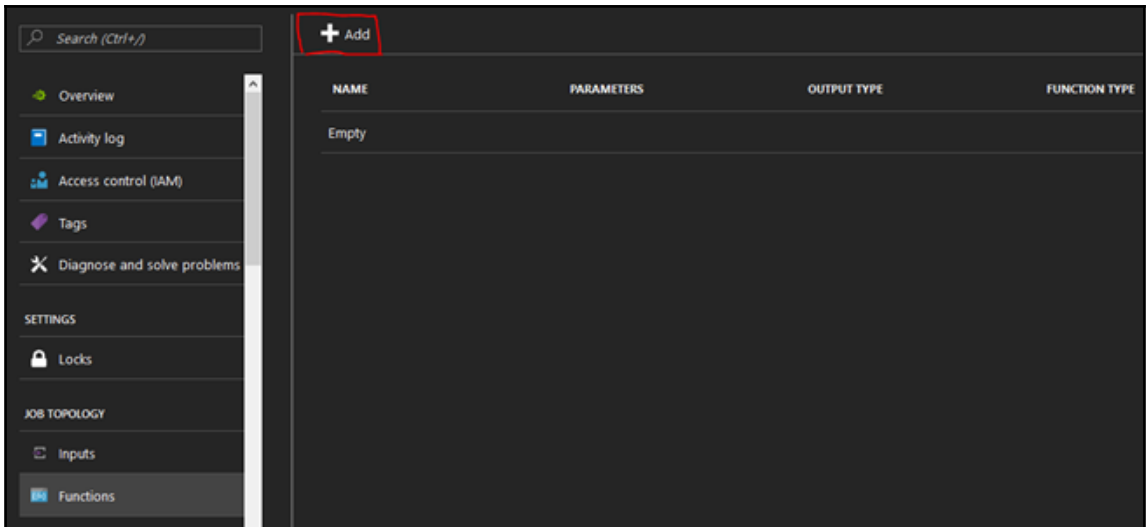



The screenshot shows a database management tool interface. On the left, a sidebar lists collections: 'ToDoList', 'Items', 'leases', 'telemetrydb' (highlighted with a red box), and 'vehicleindex'. Below 'telemetrydb' is a 'Documents' sub-section. The main area is titled 'Documents' and contains a table with columns 'id' and 'vin'. The table lists several document IDs and their corresponding VINs. To the right of the table is a code editor showing a JSON document with the following content:

```
1 {
2   "text": "Vehicle Telemetry output is getting stored into Cosmos db!{\\"vin\\":\\"0XJCS
3   \\"odometer\\":115437,\\"city\\":\\"Bellevue\\",\\"accelerator_pedal_position\\":10,\\"parking_b
4   "id": "615d7d43-c3a7-45d7-bc83-2ea9304c7fe0",
5   "_rid": "IaQXALbBEgIBAAAAAAAAA==",
6   "_self": "dbs/IaQXAA==/colls/IaQXALbBEgI=/docs/IaQXALbBEgIBAAAAAAAAA==/",
7   "_etag": "\\"00001100-0000-0000-0000-59e8cc320000\\\"",
8   "_attachments": "attachments/",
9   "_ts": 1508428850
}
```

Chapter 09: Optimizing Intelligence in Azure Streaming



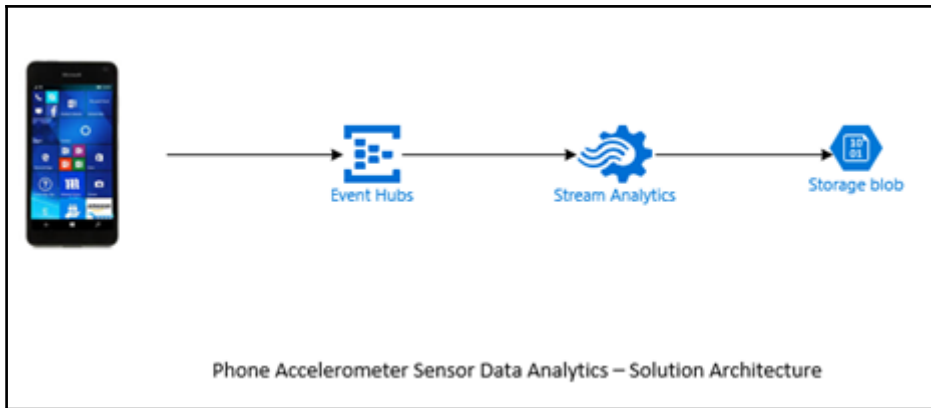


The screenshot shows the Azure Stream Analytics console for a job named 'iotphoneasa - Functions'. On the left, there is a 'SETTINGS' sidebar with a 'Locks' icon. The main area displays a table of functions:

NAME	PARAMETERS	OUTPUT TYPE	FUNCTION TYPE
ConvertToInt	1	any	Javascript UDF

The screenshot shows the 'JOB TOPOLOGY' menu with the following options: Inputs, Functions, Query (highlighted with a red box), and Outputs.

```
09/29/2017 9:58:22 PM> Sending events: {"ID":"601","Coordinate_X":"0.046875","Coordinate_Y":"0.0068359375","Coordinate_Z":"-0.999718070030212"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"602","Coordinate_X":"0.048828125","Coordinate_Y":"0.0078125","Coordinate_Z":"-0.991906642913818"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"603","Coordinate_X":"0.0439453125","Coordinate_Y":"0.0087890625","Coordinate_Z":"-0.994917154312134"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"604","Coordinate_X":"0.0498046875","Coordinate_Y":"0.005859375","Coordinate_Z":"-1.00564444065094"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"605","Coordinate_X":"0.044921875","Coordinate_Y":"0.0048828125","Coordinate_Z":"-0.993041157722473"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"606","Coordinate_X":"0.0498046875","Coordinate_Y":"0.0078125","Coordinate_Z":"-0.996046006679535"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"607","Coordinate_X":"0.048828125","Coordinate_Y":"0.005859375","Coordinate_Z":"-0.997172474861145"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"608","Coordinate_X":"0.05078125","Coordinate_Y":"0.00390625","Coordinate_Z":"-1.00593388080597"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"609","Coordinate_X":"0.048828125","Coordinate_Y":"0.0068359375","Coordinate_Z":"-0.999811589717865"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"610","Coordinate_X":"0.0478515625","Coordinate_Y":"0.005859375","Coordinate_Z":"-1.00235509872437"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"611","Coordinate_X":"0.0439453125","Coordinate_Y":"0.0087890625","Coordinate_Z":"-1.00452327728271"}
09/29/2017 9:58:22 PM> Sending events: {"ID":"612","Coordinate_X":"0.0458984375","Coordinate_Y":"0.0068359375","Coordinate_Z":"-0.999340713024139"}
```



New function

* Function Alias
 ✓

* Function Type
 ▾

* Import option
 ▾

* URL

* Key

Create

Microsoft Azure Stream Analytics jobs TwitterSentimentAnalysis - Functions Function details

Function details

sentiment (Azure ML)

Test
 Refresh Parameters
 Delete

* Import option

Import from a different subscription

* URL

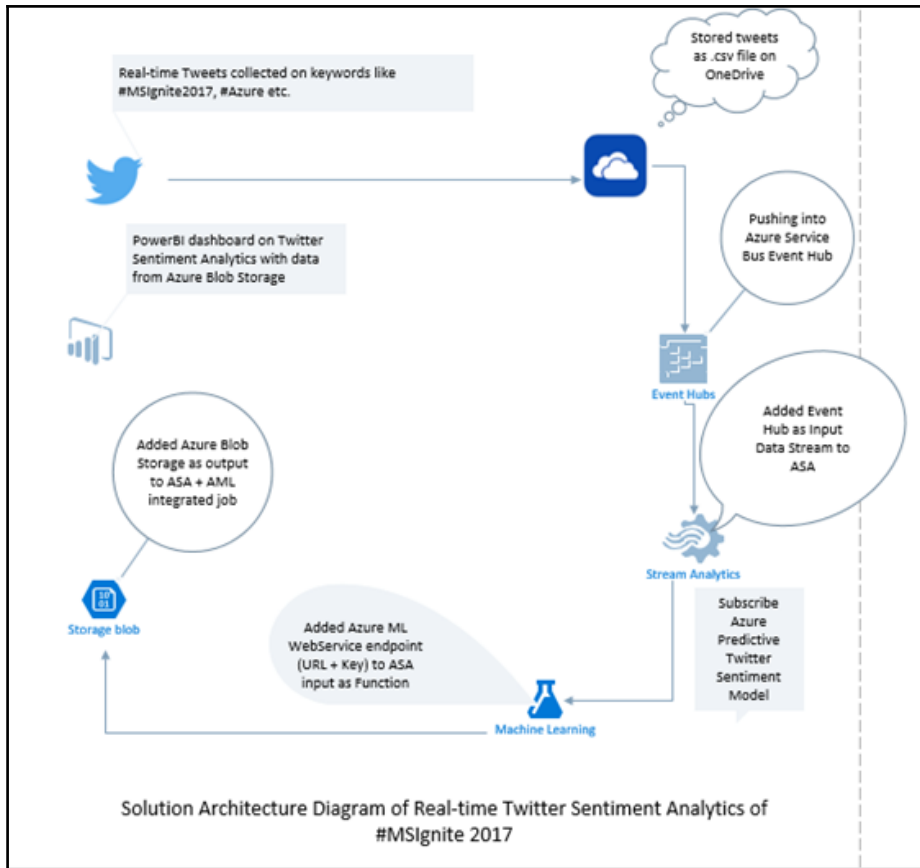
https://ussouthcentral.services.azureml.net/w ...

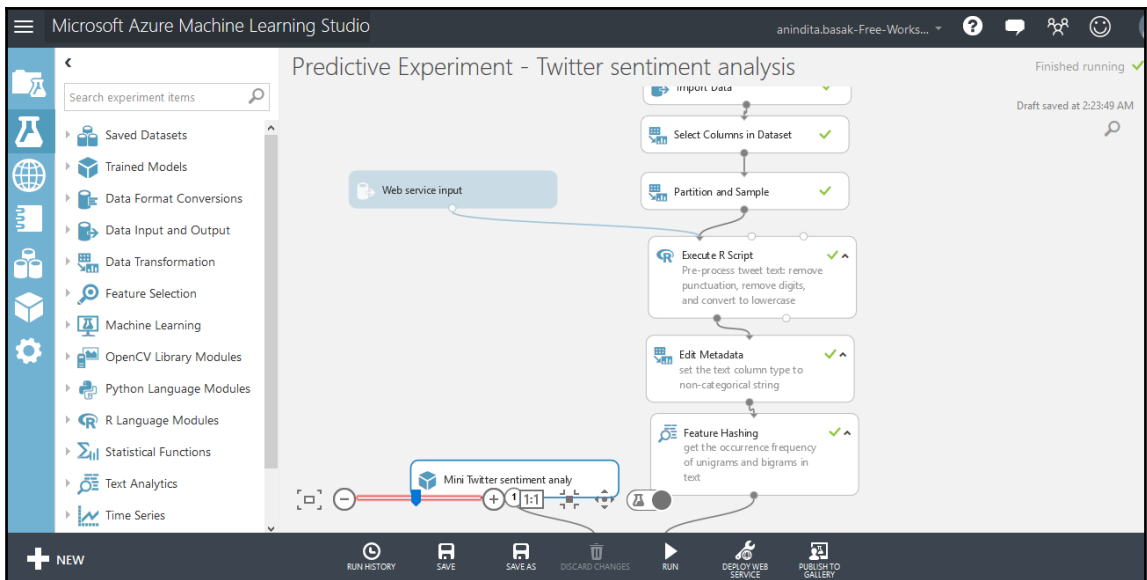
Key

FUNCTION SIGNATURE

sentiment (tweet_text NVARCHAR(MAX)) RETURNS RECORD

TweetText	scored labels																			
We are chafing the game https://t.co/P4jOWuXtDi			4																	
RT @ChrisPatten: Great resources from @_christianWade session today. Excited to get back and show the team! #AzureAnalysisServices½																				4
Add Accenture #Cloud Platform 4.0 to #Azure Stack & what do you have? A powerful new tool. #MSIgnite: https://t.co/Ov4SZstUwt																				2
Well good chance we can find you a better job or contract!																				2
.@AVOAcorn: Why are enterprises moving away from public cloud? #CIO #cloud #AWS #Azure #GCP https://t.co/8rq7Fyr1qs https://t.co/HhUTcMzRQt																				0
RT @msdev_fr: #experiences17 c'est bientô½t! 16 #startups (powered by #Azure) seront au village Startup! Inscription gratuite½																				
RT @Sophos: Sophos XG Firewall is on Microsoft #Azure!																				
#Decorator #Pattern https://t.co/2ol4CIEcks #javascript #angularjs #nodejs #csharp #dotnet #aws #azure #software #webdevelopment #teachers																				2
10 #Microsoft #Azure business benefits in one convenient list https://t.co/BxP5bYUEyK from @RedPixie																				2
RT @MSFTAppSource: Discover this app by @SeeqCorporation for #Azure on #MSFTAppSource: https://t.co/8vhlDUCcX https://t.co/hldFdn6O0																				2
Frequently asked questions about data protection in #Azure Information Protection MSFT Docs https://t.co/r90hjkZWGw																				2
RT @DataIns8tsCloud: Announcing tools for the #AI-driven #DigitalTransformation																				2
Add Accenture #Cloud Platform 4.0 to #Azure Stack & what do you have? A powerful new tool. #MSIgnite: https://t.co/Ov4SZstUwt																				2
Add Accenture #Cloud Platform 4.0 to #Azure Stack & what do you have? A powerful new tool. #MSIgnite: https://t.co/Ov4SZstUwt																				2

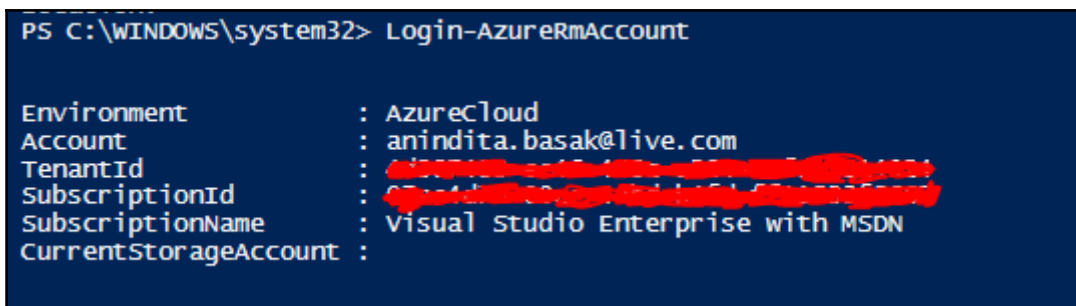
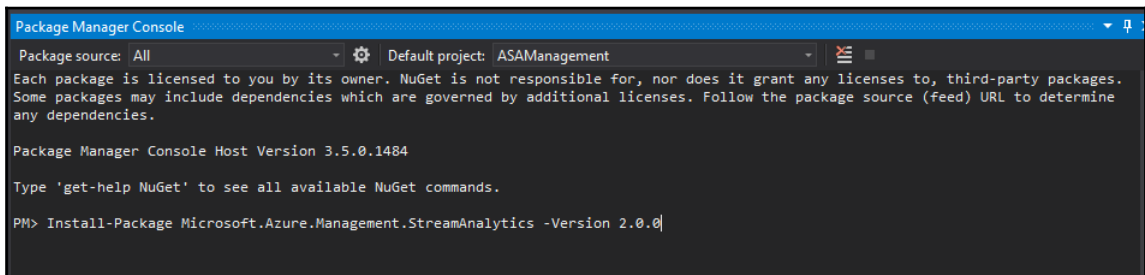
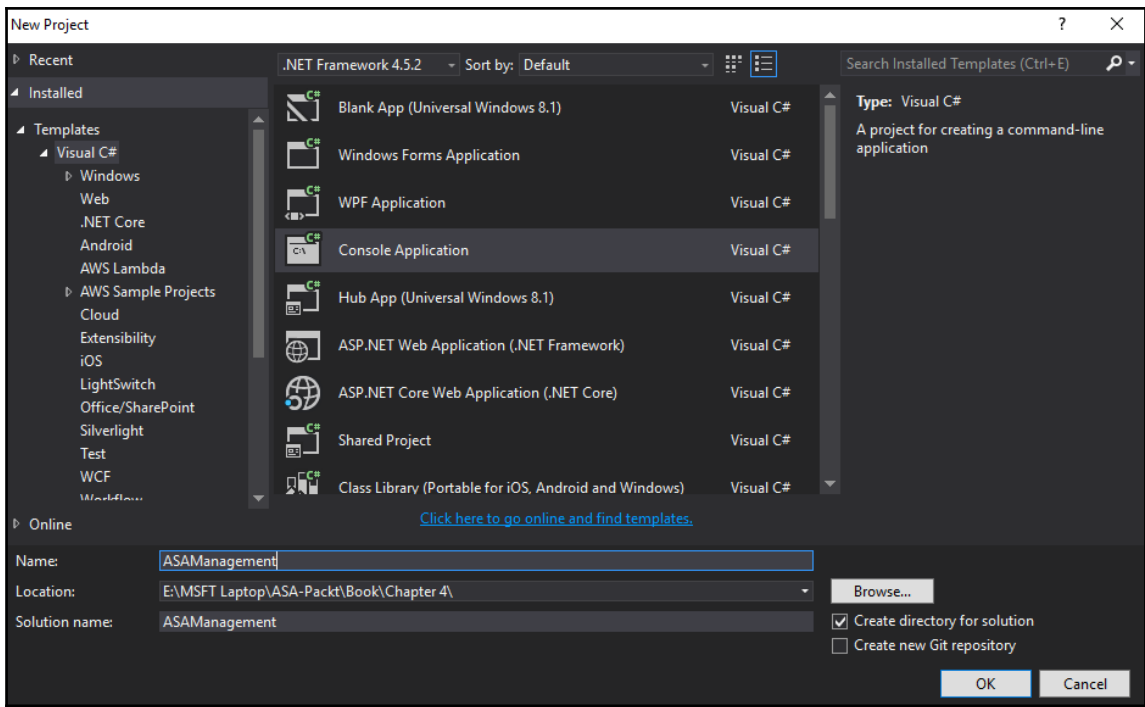




```
PS C:\WINDOWS\system32> Add-AzureAccount
Id                               Type subscriptions
--                               -
anindita.basak@live.com User [REDACTED]
```

```
PS C:\WINDOWS\system32> select-AzureRmSubscription -subscriptionId [REDACTED]
```

```
PS C:\WINDOWS\system32> Register-AzureRmProvider -Force -ProviderNamespace 'Microsoft.StreamAnalytics'
```



The screenshot displays the Packt Stream Analytics job interface. The top left corner shows the logo and the text "packtasanetdemo Stream Analytics job". Below this is a search bar with the placeholder text "Search (Ctrl+/)".

The left sidebar contains a navigation menu with the following items:

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- SETTINGS
 - Locks
- JOB TOPOLOGY
 - Inputs
 - Functions
 - Query
 - Outputs

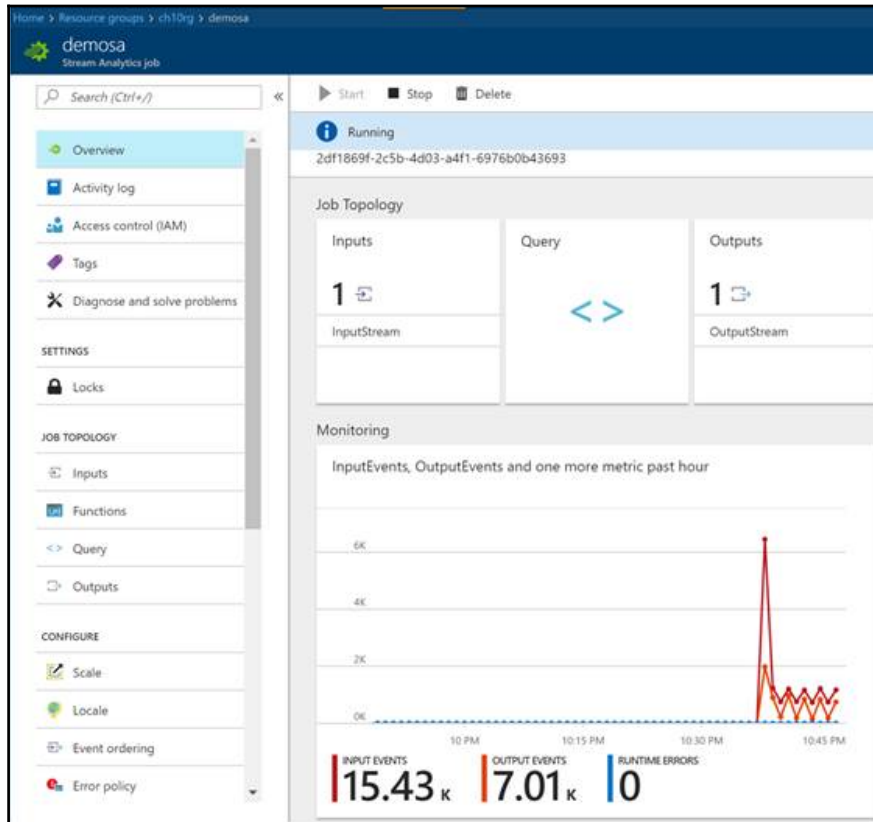
The main content area at the top has control buttons: Start (play icon), Stop (square icon), and Delete (trash icon). Below these is a status bar indicating the job is "Stopped" with an information icon.

The "Job Topology" section shows a diagram with three components: "Inputs" (containing "input"), "Query" (containing a code icon), and "Outputs" (containing "output"). Each component has a "1" and a refresh icon next to it. The components are connected by double-headed arrows.

The "Monitoring" section displays a table with the following data:

InputEvents, OutputEvents and one more metric past hour	
100	
80	
60	
40	

Chapter 10: Understanding Stream Analytics Job Monitoring





Edit Chart ✕

Time Range

Chart type ⓘ

Data Conversion Errors

Failed Function Requests

Function Events

Function Requests

Input Event Bytes

Input Events

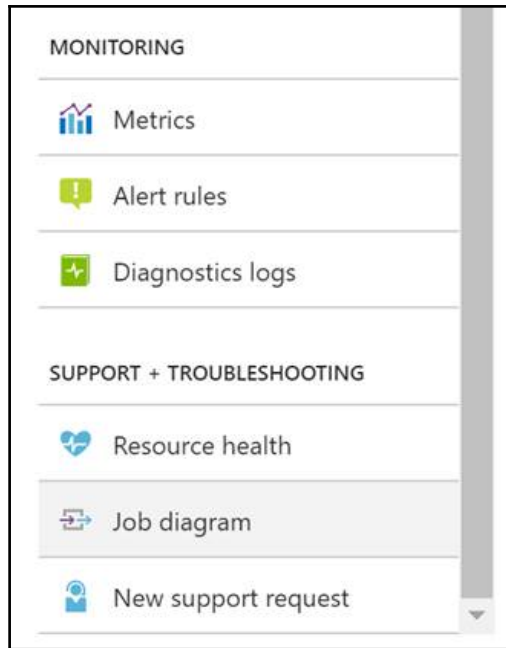
Late Input Events

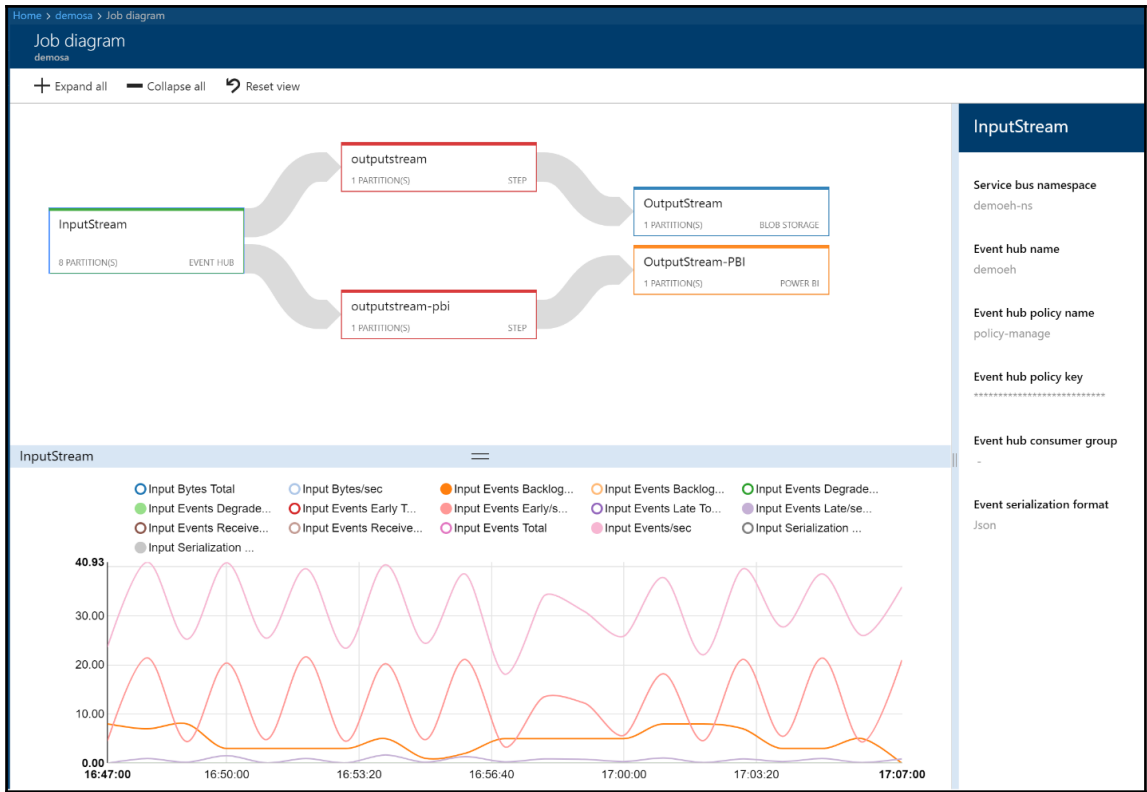
Out of order Events

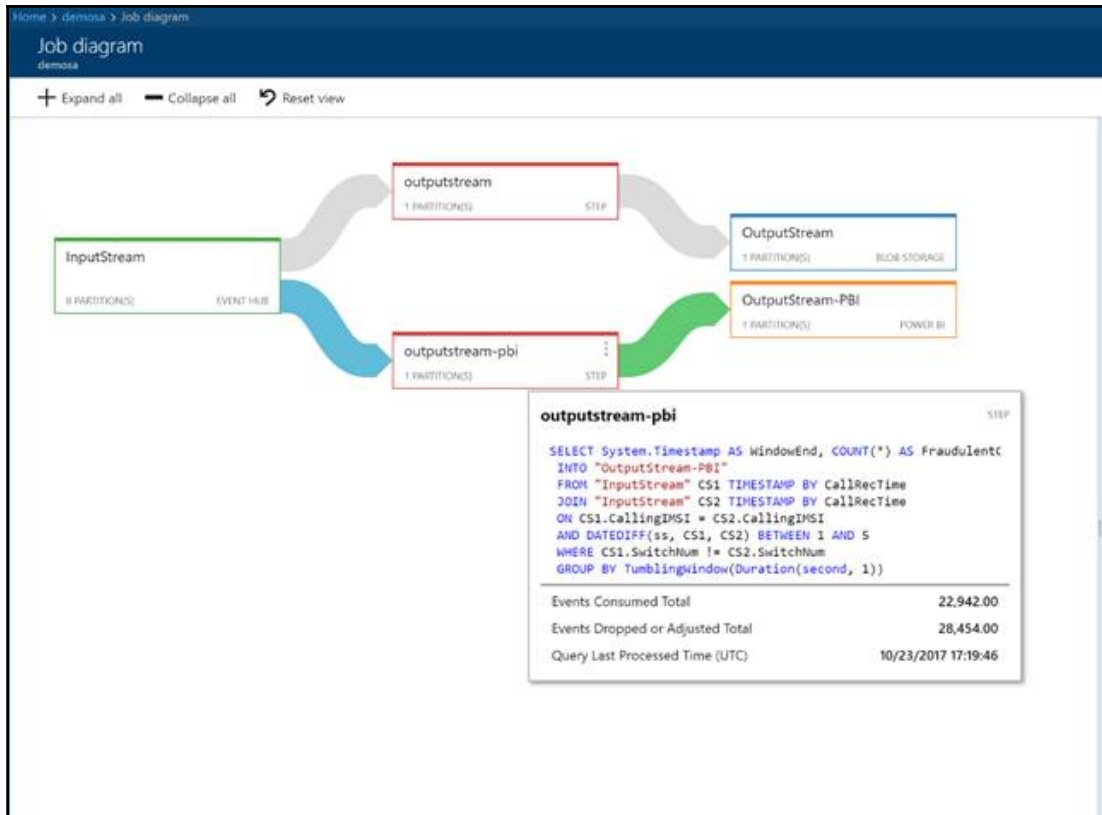
Output Events

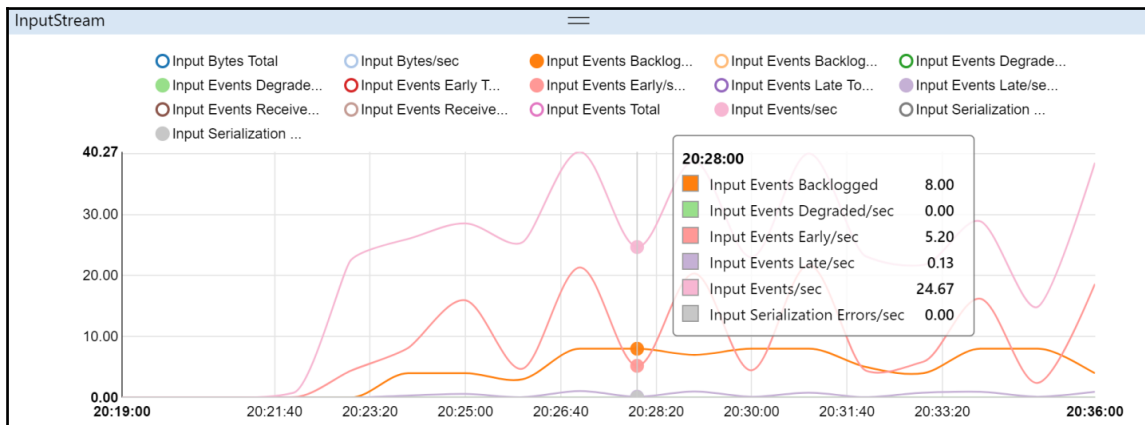
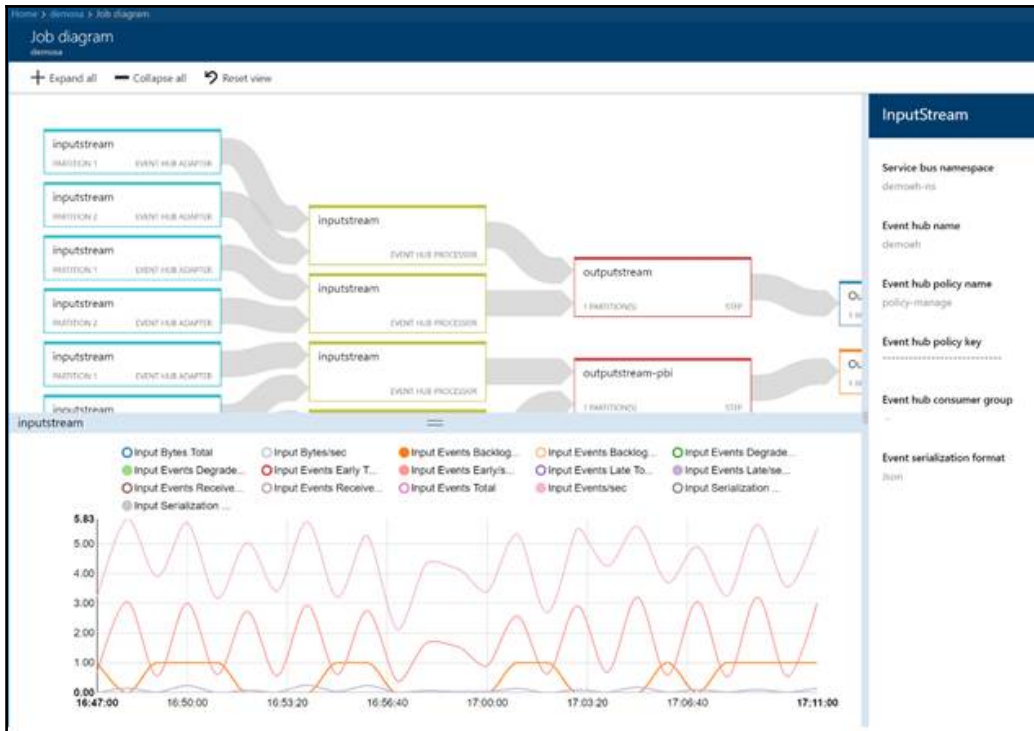
Runtime Errors

SU % Utilization

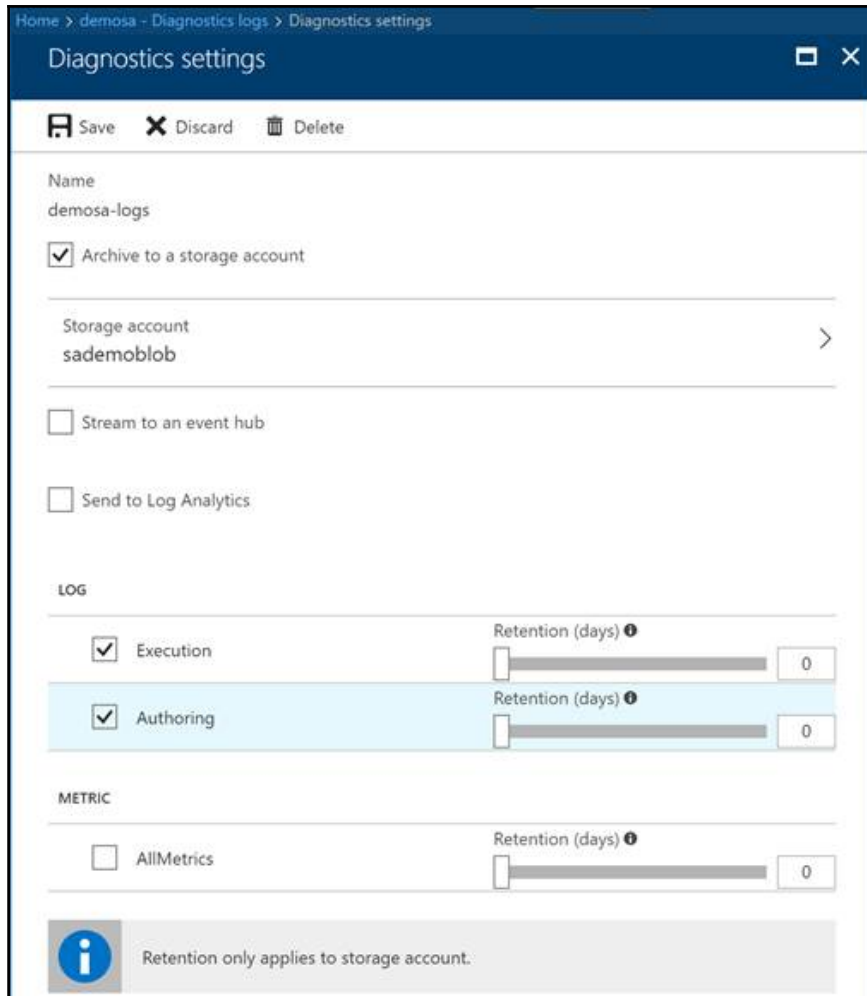


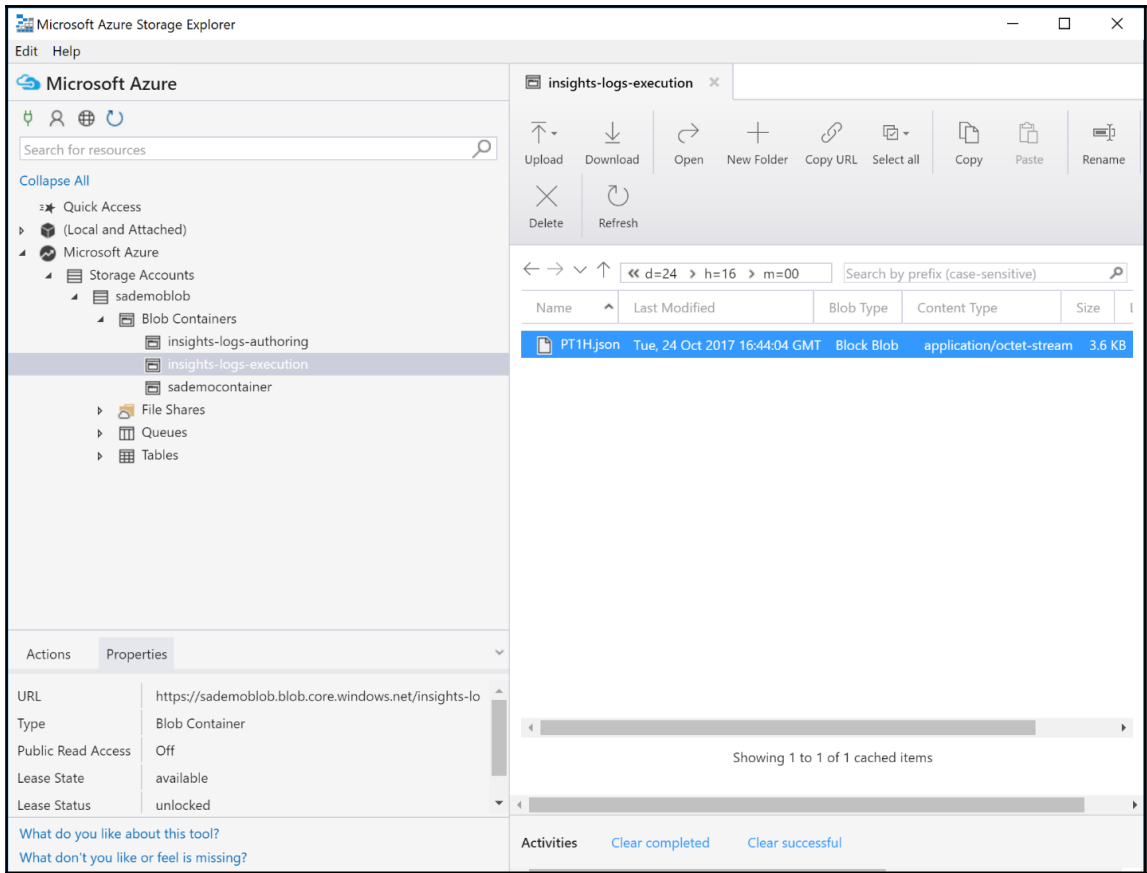




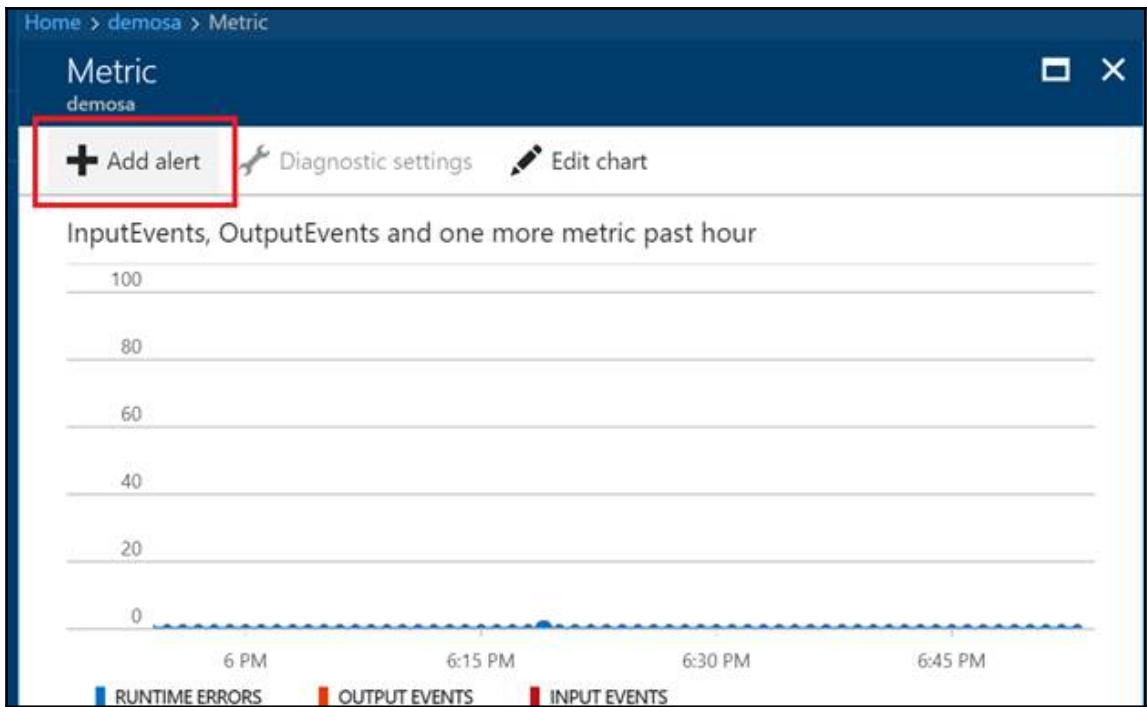


The screenshot shows the Azure portal interface for configuring diagnostics logs on a Stream Analytics job. The breadcrumb navigation at the top reads: Home > demosa - Diagnostics logs. The main title is 'demosa - Diagnostics logs' with a sub-label 'Stream Analytics job'. On the left, a navigation pane lists various settings: Query, Outputs, CONFIGURE (Scale, Locale, Event ordering, Error policy), GENERAL (Tools, Properties), MONITORING (Metrics, Alert rules, Diagnostics logs), and SUPPORT + TROUBLESHOOTING (Resource health, Job diagram, New support request). The 'Diagnostics logs' option is highlighted. The main content area features a 'Refresh' button and a filter bar with dropdowns for Subscription (Microsoft Azure Internal Consumption), Resource group (ch10rg), Resource type (Stream Analytics jobs), and Resource (demosa). Below the filter bar, a breadcrumb path shows 'Microsoft Azure Internal Consumption > ch10rg > demosa'. The primary instruction is 'Turn on diagnostics to collect the following data.', followed by a bulleted list: Execution, Authoring, and AllMetrics.





```
PT1H.json [X]
Schema: <No Schema Selected>
1  {
2    "records":
3    [
4      {
5        "Environment": "Prod",
6        "Region": "East US",
7        "time": "2017-10-24T16:40:29.9685480Z",
8        "resourceId": "/SUBSCRIPTIONS/2DF1869F-2C5B-4D03-A4F1-697608B43693/RESOURCEGROUPS/CH10RG/PROVIDERS/MICROSOFT.STREAMANALYTICS/STREAMIN
9        "operationName": "Stop job 'demosa'",
10       "category": "Execution",
11       "status": "Stopping",
12       "level": "Informational",
13       "properties": "{\"JobId\": \"8cbb801f-4635-4657-98d0-d815566d2daa\", \"JobRunId\": \"5a0bfe06-b986-4ff9-81bf-2196abc88e71\", \"JobRunCree
14     }
15   },
16   {
17     "Environment": "Prod",
18     "Region": "East US",
19     "time": "2017-10-24T16:41:31.0518549Z",
20     "resourceId": "/SUBSCRIPTIONS/2DF1869F-2C5B-4D03-A4F1-697608B43693/RESOURCEGROUPS/CH10RG/PROVIDERS/MICROSOFT.STREAMANALYTICS/STREAMIN
21     "operationName": "Stop job 'demosa'",
22     "category": "Execution",
23     "status": "Stopped",
24     "level": "Informational",
25     "properties": "{\"JobId\": \"8cbb801f-4635-4657-98d0-d815566d2daa\", \"JobRunId\": \"5a0bfe06-b986-4ff9-81bf-2196abc88e71\", \"JobRunCree
26   }
27 },
28 {
29   "Environment": "Prod",
30   "Region": "East US",
31   "time": "2017-10-24T16:42:37.1402432Z",
32   "resourceId": "/SUBSCRIPTIONS/2DF1869F-2C5B-4D03-A4F1-697608B43693/RESOURCEGROUPS/CH10RG/PROVIDERS/MICROSOFT.STREAMANALYTICS/STREAMIN
33   "operationName": "Start job 'demosa'",
34   "category": "Execution",
35   "status": "Validated",
36   "level": "Informational",
37   "properties": "{\"JobId\": \"8cbb801f-4635-4657-98d0-d815566d2daa\", \"JobRunId\": \"17c0ec13-29dc-4426-a841-3d662c02a423\", \"JobRunCree
38 }
39 }
```



Home > demosa > Metric > Add an alert rule

Metric
demosa

+ Add alert Diagnostic settings Edit chart

InputEvents, OutputEvents and one more metric past hour

5:47 PM 6 PM 6:15 PM 6:30 PM 6:45 PM

RUNTIME ERRORS: 0 OUTPUT EVENTS: 0 INPUT EVENTS: 0

METRIC	AVERAGE	MINIMUM	MAXIMUM	TOTAL
Input Events	0	0	0	0
Output Events	0	0	0	0
Runtime Errors	0	0	0	0

Alerts

NAME	CONDITION	LAST ACTIVE
You haven't created any alert rules.		

Add an alert rule

* Resource

* Name

Description

* Metric

80%
60%
40%
20%
0%

Oct 28 6 AM 12 PM

* Condition

* Threshold %

* Period

Email owners, contributors, and readers

Additional administrator email(s)

Webhook

[Learn more about configuring webhooks](#)

OK

The screenshot shows the 'Resource health' page for a Stream Analytics job named 'demosa'. The page is divided into a left-hand navigation pane and a main content area. The navigation pane includes sections for 'CONFIGURE' (Scale, Locale, Event ordering, Error policy), 'GENERAL' (Tools, Properties), 'MONITORING' (Metrics, Alert rules, Diagnostics logs), and 'SUPPORT + TROUBLESHOOTING' (Resource health, Job diagram, New support request). The main content area features a 'Refresh' button, a search bar, and a status indicator showing 'Available' with a green checkmark. It also includes a 'Learn more' link, a timestamp 'Last updated: 10/28/2017, 10:11:02 PM', and a message stating 'There aren't any known Azure platform problems affecting this job'. Below this, there is a section titled 'What actions can you take?' with two numbered steps: 1. 'If you are not getting expected output from the job, you can follow the steps on the Diagnose and solve problems blade to help troubleshoot the issue' and 2. 'If you are experiencing problems you believe are caused by Azure, contact support'.

Home > demosa - Resource health > History

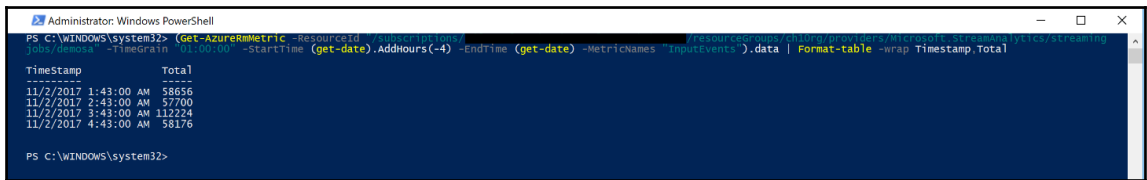
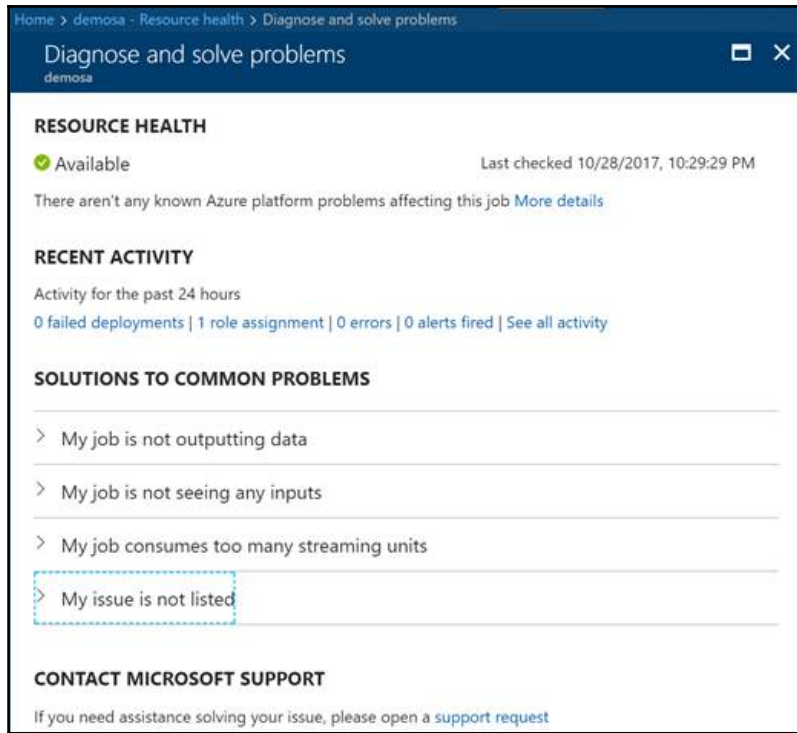
History

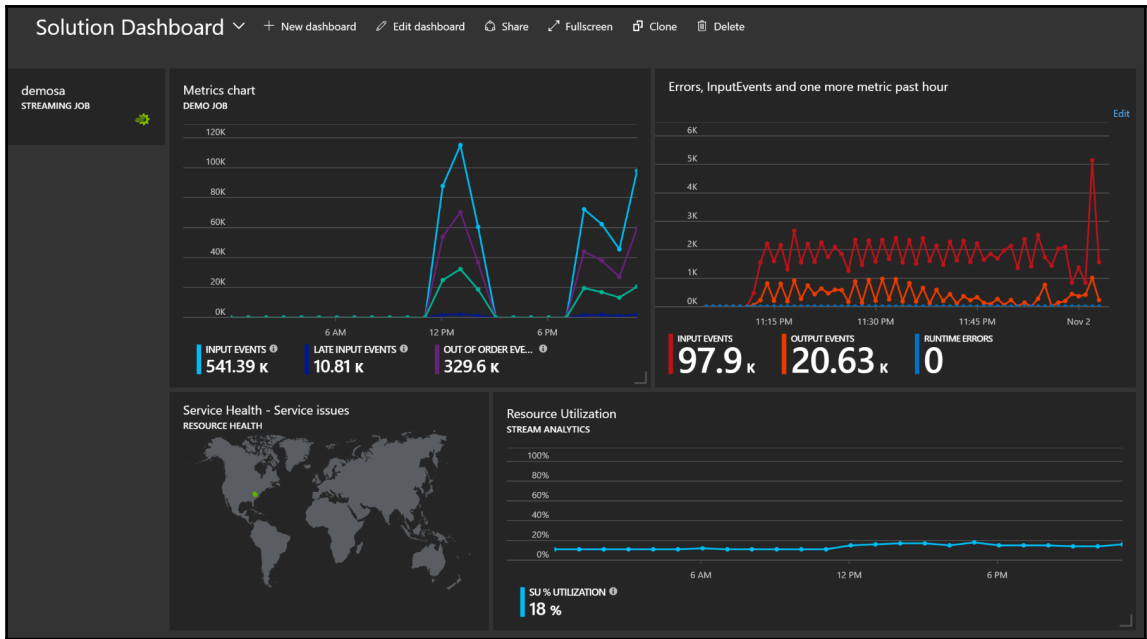
Resource health

demosa health Azure service health

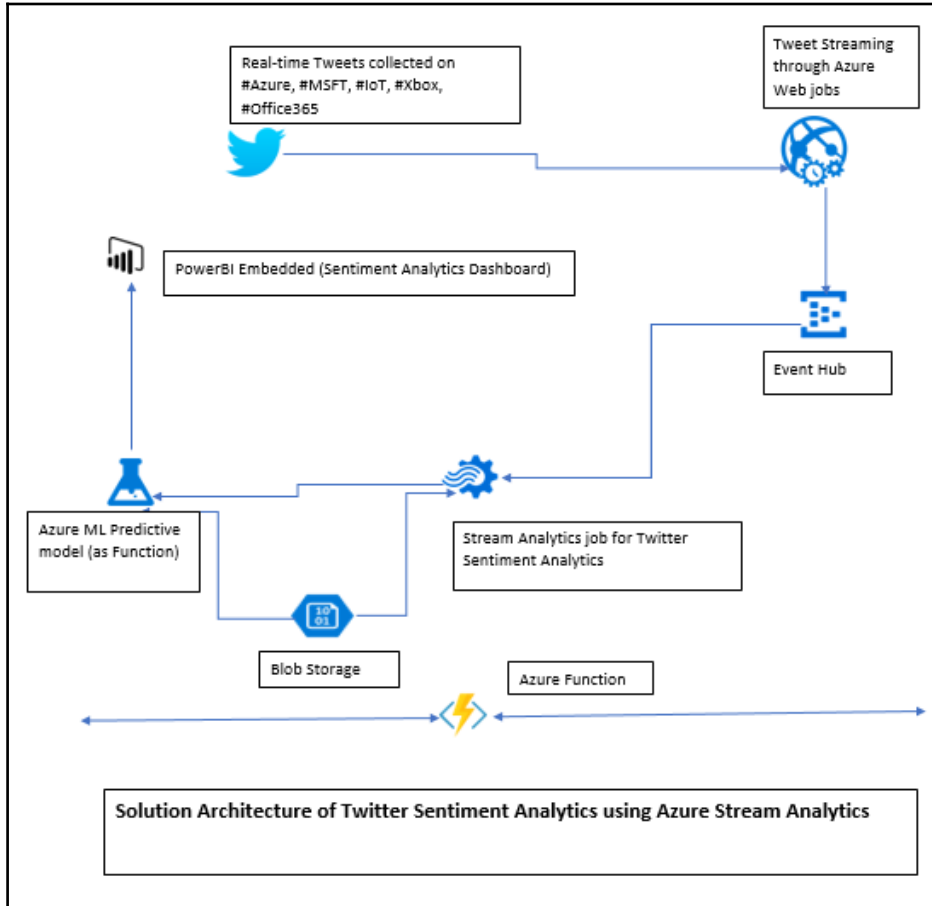
Resource health events over the last 2 weeks

START TIME	END TIME	STATUS	DESCRIPTION
10/27, 9:38 PM	Ongoing	Available	There aren't any known Azure platform problems affecting this job
10/27, 9:34 PM	10/27, 9:38 PM	Unavailable	Output from your job may be delayed
10/26, 5:43 PM	10/27, 9:34 PM	Available	There aren't any known Azure platform problems affecting this job
10/23, 6:58 PM	10/26, 5:43 PM	Unknown	We are currently unable to determine the health of this job
10/23, 3:41 PM	10/23, 6:58 PM	Available	There aren't any known Azure platform problems affecting this job
10/23, 3:23 PM	10/23, 3:41 PM	Unavailable	Your job was stopped because a problem caused it to be unable to process any more input. It will not automatically restart
10/22, 10:07 PM	10/23, 3:23 PM	Available	There aren't any known Azure platform problems affecting this job
> 14 days ago	10/22, 10:07 PM	Unknown	We are currently unable to determine the health of this job



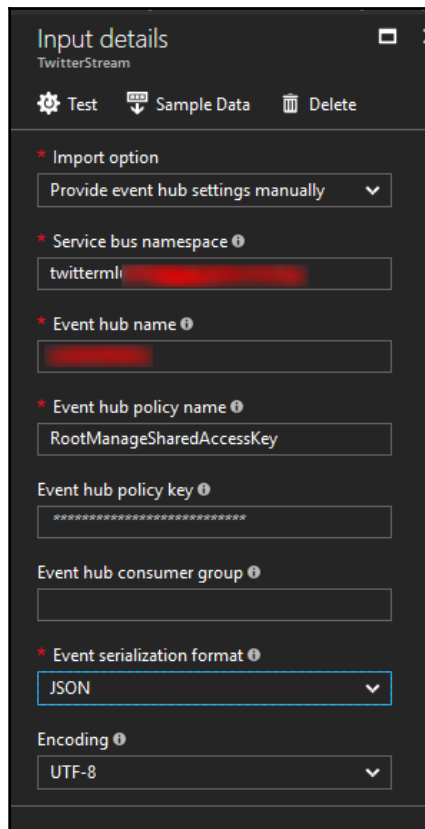
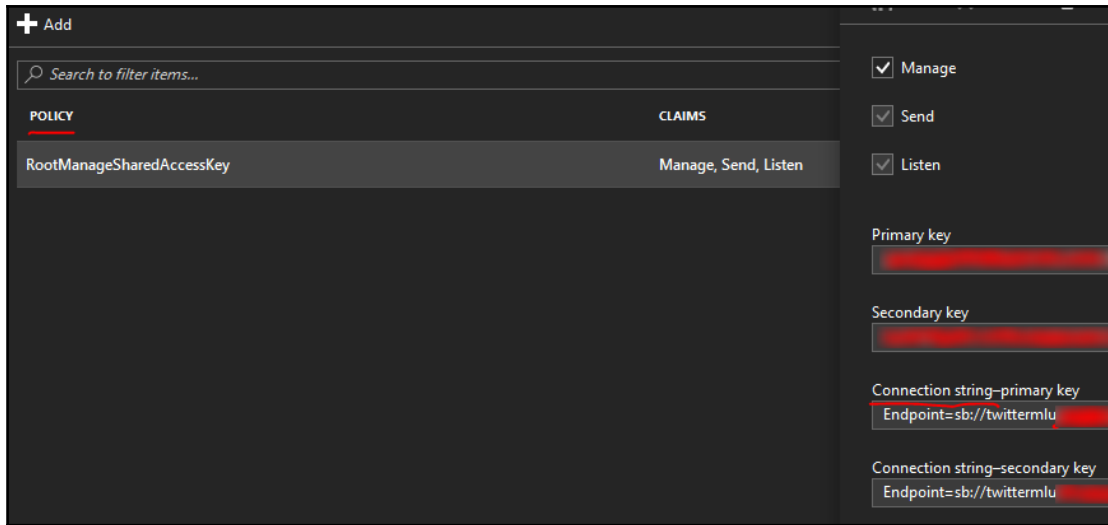


Chapter 11: Use Cases for Real-World Data Streaming Architectures



The screenshot shows the 'RealPyTweet' application page in the Twitter Application Management interface. The page has a blue header with the Twitter logo and the text 'Application Management'. Below the header, the application name 'RealPyTweet' is displayed in large black font, with a 'Test OAuth' button to its right. There are four tabs: 'Details', 'Settings', 'Keys and Access Tokens', and 'Permissions', with 'Settings' currently selected. The 'Application Settings' section contains the following information: 'Consumer Key (API Key)' and 'Consumer Secret (API Secret)' are both redacted with black bars; 'Access Level' is set to 'Read, write, and direct messages (modify app permissions)'; the 'Owner' is 'imcuteani'; and the 'Owner ID' is also redacted. Below this, the 'Application Actions' section contains two buttons: 'Regenerate Consumer Key and Secret' and 'Change App Permissions'. The 'Your Access Token' section shows a redacted 'Access Token' value. A warning note states: 'This access token can be used to make API requests on your own account's behalf. Do not share your access token secret with anyone.'

```
Administrator: Command Prompt
C:\Python27\Scripts>pip install tweetpy
Collecting tweetpy
  Downloading tweetpy-0.1.tar.gz
Collecting requests_oauthlib (from tweetpy)
  Downloading requests_oauthlib-0.8.0-py2.py3-none-any.whl
Collecting requests>=2.0.0 (from requests_oauthlib->tweetpy)
  Downloading requests-2.18.4-py2.py3-none-any.whl (88kB)
  100% |#####| 92kB 62kB/s
Collecting oauthlib>=0.6.2 (from requests_oauthlib->tweetpy)
  Downloading oauthlib-2.0.6.tar.gz (127kB)
  100% |#####| 133kB 128kB/s
Collecting urllib3<1.23,>=1.21.1 (from requests>=2.0.0->requests_oauthlib->tweetpy)
  Downloading urllib3-1.22-py2.py3-none-any.whl (132kB)
  100% |#####| 133kB 80kB/s
Collecting idna<2.7,>=2.5 (from requests>=2.0.0->requests_oauthlib->tweetpy)
  Downloading idna-2.6-py2.py3-none-any.whl (56kB)
  100% |#####| 61kB 92kB/s
Collecting chardet<3.1.0,>=3.0.2 (from requests>=2.0.0->requests_oauthlib->tweetpy)
  Downloading chardet-3.0.4-py2.py3-none-any.whl (133kB)
  100% |#####| 143kB 47kB/s
Collecting certifi>=2017.4.17 (from requests>=2.0.0->requests_oauthlib->tweetpy)
  Downloading certifi-2017.7.27.1-py2.py3-none-any.whl (349kB)
  100% |#####| 358kB 35kB/s
Installing collected packages: urllib3, idna, chardet, certifi, requests, oauthlib, requests-oauthlib, tweetpy
Running setup.py install for oauthlib ... done
Running setup.py install for tweetpy ... done
Successfully installed certifi-2017.7.27.1 chardet-3.0.4 idna-2.6 oauthlib-2.0.6 requests-2.18.4 requests-oauthlib-0.8.0
tweetpy-0.1 urllib3-1.22
C:\Python27\Scripts>
```



Microsoft Azure Machine Learning Studio twittermlmlwk ?

Predictive Experiment - Mini Twitter sentiment analysis Finished running ✓

Left sidebar: Datasets, Modules, Trained Models, and Transforms

Bottom toolbar: NEW, RUN HISTORY, SAVE, SAVE AS, DISCARD CHANGES, RUN, DEPLOY WEB SERVICE, PUBLISH TO GALLERY

Microsoft Azure Machine Learning Studio anindita.basak-Free-Works... ?

predictive experiment - twitter sentiment analysis - copy

DASHBOARD CONFIGURATION

General [New Web Services Experience preview](#)

Published experiment
[View snapshot](#) [View latest](#)

Description
 No description provided for this web service.

API key

Default Endpoint

API HELP PAGE	TEST	APPS	LAST UPDATED
REQUEST/RESPONSE	Test Test preview	Excel 2013 or later Excel 2010 or earlier workbook 	11/3/2017 1:38:47 AM
BATCH EXECUTION	Test Test preview	Excel 2013 or later workbook	11/3/2017 1:38:47 AM

Function details
sentiment (Azure ML)

⚙️ Test 🔄 Refresh Parameters 🗑️ Delete

* Import option
Import from a different subscription ▼

* URL
https://asia-southeast.services.azureml.net/w ...

Key

FUNCTION SIGNATURE
sentiment (tweet_text NVARCHAR(MAX)) RETURNS RECORD

Output details 🗑️ ✕
twitteroutputbi

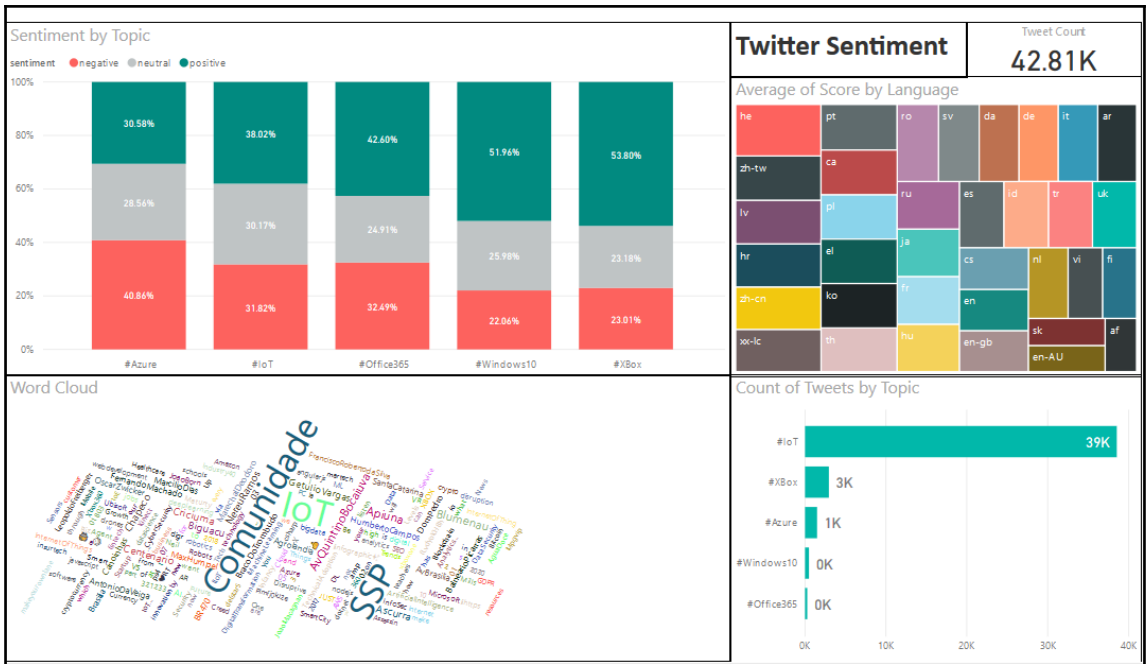
⚙️ Test 🗑️ Delete

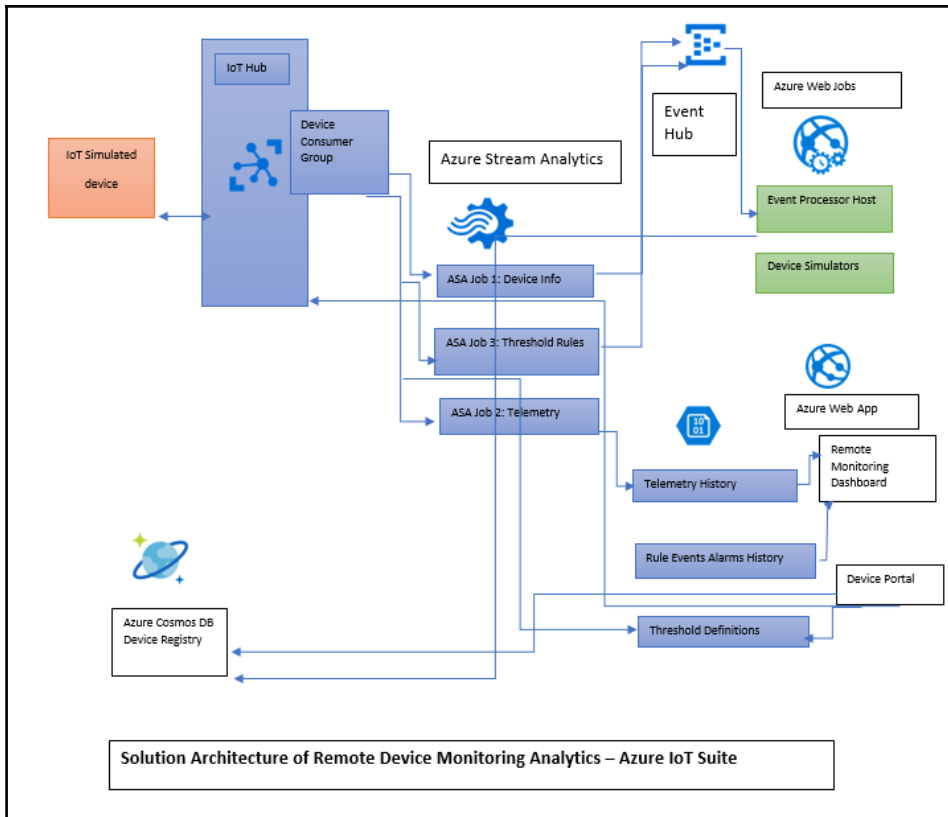
Group Workspace
My Workspace ▼

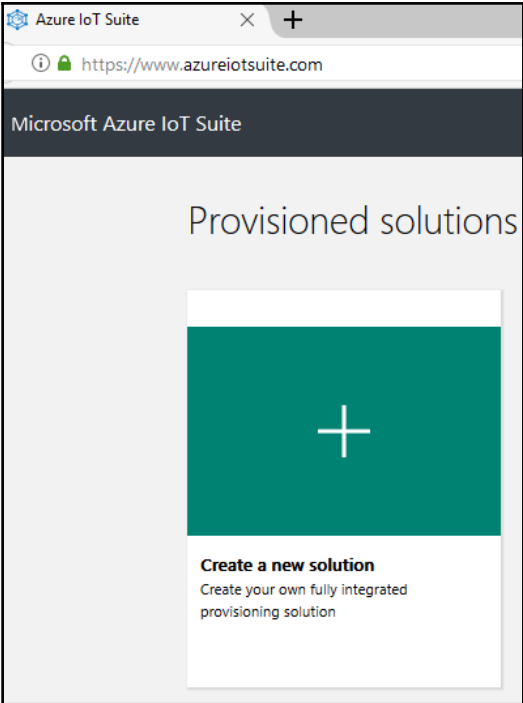
* Dataset Name
twitteroutputbi

⚠️ If the dataset or table already exists in your Microsoft Power BI subscription, it will be overwritten.

* Table Name
twitteroutputbi







Azure IoT Suite | IoT Device Portal - Dashboard | +

https://www.azureiotsuite.com/#solutions/types | 80% | Search | ☆ | 📁 | ↓

Microsoft Azure IoT Suite

Solution types

Remote monitoring
Connect and monitor your devices to analyze untapped data and improve business outcomes by automating processes.

Select

Remote monitoring
Connect and monitor your devices to analyze untapped data and improve business outcomes by automating processes.

Preview highlights include:

- Redesigned user interface
- Microservices-based architecture
- Availability in both .NET and Java
- View an [interactive demo](#)

Select

Connected factory
Accelerate your journey to Industrie 4.0 – connect, monitor and control industrial devices for insights using OPC UA to drive operational productivity and profitability.

Select

Predictive maintenance
Anticipate maintenance needs and avoid unscheduled downtime by connecting and monitoring your devices for predictive maintenance.

Select

Microsoft Azure IoT Suite

Solution details

Creating a solution will result in the following Azure services being provisioned in your Azure subscription at cost:

- 1 Azure Active Directory application
- 1 IoT Hub (S2 - Standard tier)
- 1 DocumentDB Account (S1)
- 2 Event Hubs (Basic throughput unit)
- 1 Storage account (Standard-GRS)
- 3 Stream Analytics jobs (1 streaming unit per job)
- 1 Azure App Service Web App for Website (P1 - Premium: 2 small)
- 1 Azure App Service Web App for Web jobs (S1 - Standard: 2 small) running 25 simulated devices by default

Approximate Cost:
The cost of the solution is an aggregate of the cost of the underlying Azure services. Pricing information for these services can be found [here](#). Usage amounts and billing details for your subscription can be found in the [Azure Portal](#).

In addition to the above Azure services, creating a solution will result in your being signed up for a subscription to the following Azure Marketplace offering(s), which are subject to the following terms:
[Bing Maps API for Enterprise \(Internal Website Transactions Level 1\): terms of use and privacy statement.](#)

Solution name ✓

Subscription ✓

To continue creation, click Accept below. Your solution will have a static map. To add an interactive map, follow guidance in our [FAQ](#).

I Accept.

Region ✓


Microsoft Azure IoT Suite

Anindita Basak
DEFAULT DIRECTORY

Provisioned solutions

Create a new solution
Create your own fully integrated provisioning solution

Provisioning...



isvremotetelemetry
Monitor events and conditions from your devices in the field.

Details

isvremotetelemetry

Provisioning

Provisioning your **Remote monitoring** solution, in **Southeast Asia** region.

Provisioning states

- lotPortal
microsoft.resources/deployments
- isvremotetelemetry
Microsoft.EventHub/namespaces
- isvremotetelemetry99bca
Microsoft.DocumentDb/databaseAccounts
- isvremotetelemetry
Microsoft.Storage/storageAccounts
- isvremotetelemetry
microsoft.activedirectory/applications

Provisioning log

11/09/2017 01:07 am
Starting resource deployment...

11/09/2017 01:07 am
Completed Azure active directory application provisioning.

11/09/2017 01:07 am
Creating role assignments...

11/09/2017 01:07 am
Creating service principal...

11/09/2017 01:07 am


Microsoft Azure IoT Suite

Anindita Basak
DEFAULT DIRECTORY

Provisioned solutions

Create a new solution
Create your own fully integrated provisioning solution

Ready



isvremotetelemetry
Monitor events and conditions from your devices in the field.

Launch

isvremotetelemetry

Ready

See your pre-configured solution running here:
[Solution dashboard](#)

Region

Southeast Asia

Subscription ID

07ee4d7d-00ae-4ebd-b4fd-ff11533f5667

Modify your solution

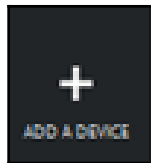
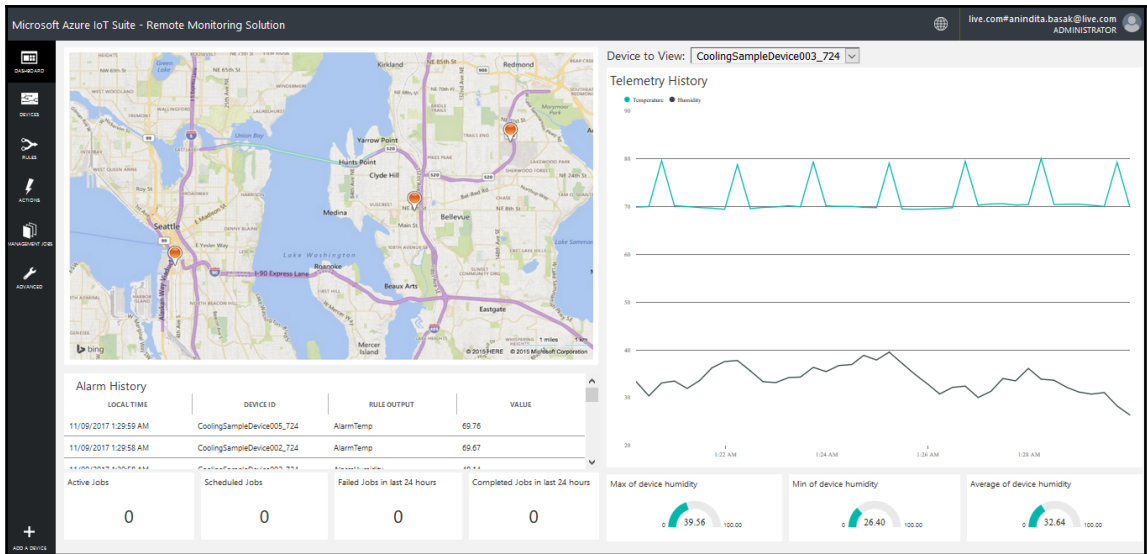
See the provisioned Azure resources that make-up your pre-configured solution in the [Azure Management Portal](#).
View the Source Code for this Pre-Configured Solution on [GitHub](#).

Resources

[Developer documentation](#)

Actions

Delete Solution



Microsoft Azure IoT Suite - Remote Monitoring Solution

← ADD A SIMULATED DEVICE
STEP 2 of 3

How would you like to define the Device ID?
(DeviceID is case-sensitive)

Generate a Device ID for me

Let me define my own Device ID

Attach a SIM ICCID to the device

Microsoft Azure IoT Suite - Remote Monitoring Solution live.com#ranindta.bscak@live.com
ADMINISTRATOR

All Devices (26) COLUMN EDITOR JOB SCHEDULER

ICON	STATUS	DEVICE ID	MANUFACTURER	FIRMWARE	BUILDING	TEMPERATURE	FWSTATUS
	Running	CoolingSampleDevice020_724	Cotoso Inc.	2.0	Building 40	34.5	
	Running	CoolingSampleDevice021_724	Cotoso Inc.	2.0	Building 40	34.5	
	Running	CoolingSampleDevice022_724	Cotoso Inc.	2.0	Building 43	34.5	
	Running	CoolingSampleDevice023_724	Cotoso Inc.	2.0	Building 43	34.5	
	Running	CoolingSampleDevice024_724	Cotoso Inc.	2.0	Building 43	34.5	
	Running	CoolingSampleDevice025_724	Cotoso Inc.	2.0	Building 40	34.5	

Navigation: < Previous 1 2 Next

DEVICE DETAILS

[Disable Device](#)
[Add Rule...](#)
[Commands](#)
[Methods](#)

Device Twin (1) [Download](#)

Tags [Edit](#)

Building
Building 40
Floor
1F

Desired Properties [Edit](#)

No Desired Properties

Reported Properties

Config:TelemetryInterval
15 11 Minutes ago

Config:TemperatureMeanValue
34.5 11 Minutes ago

Graphics bundle

Microsoft Azure IoT Suite - Remote Monitoring Solution

live.com#anindita.basak@live.co ADMINISTRATOR

Actions (2)

RULE OUTPUT	ACTION ID	NO. OF DEVICES
AlarmHumidity	Raise Alarm	26
AlarmTemp	Send Message	24

Properties

Action ID Properties

Available Actions

Send Message

Update

isviotdelivery Resource group

Search (Ctrl+/)

+ Add Columns Delete resource group Refresh Move Assign Tags

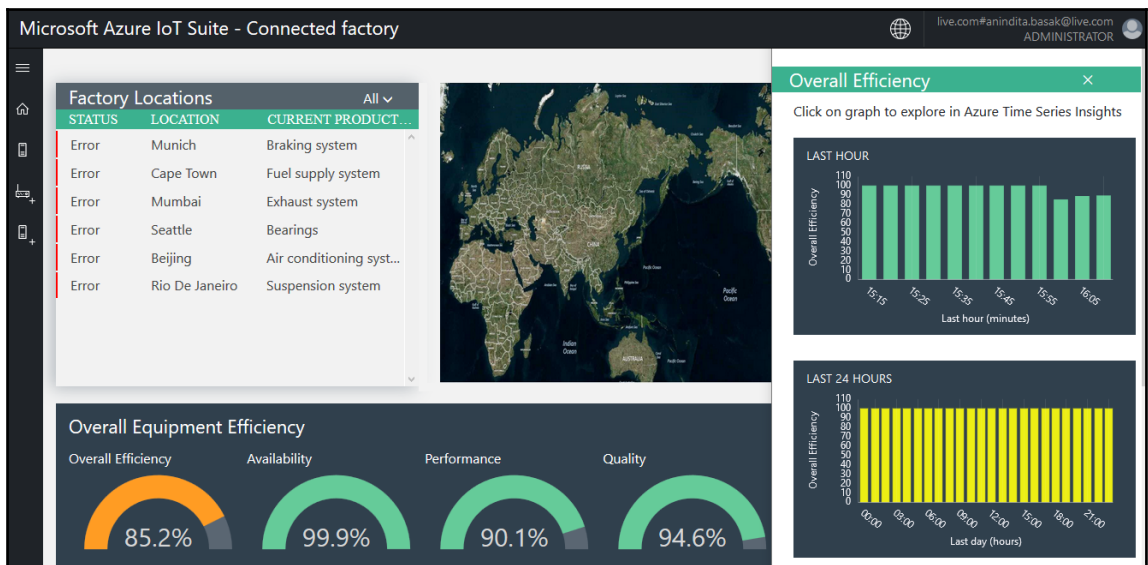
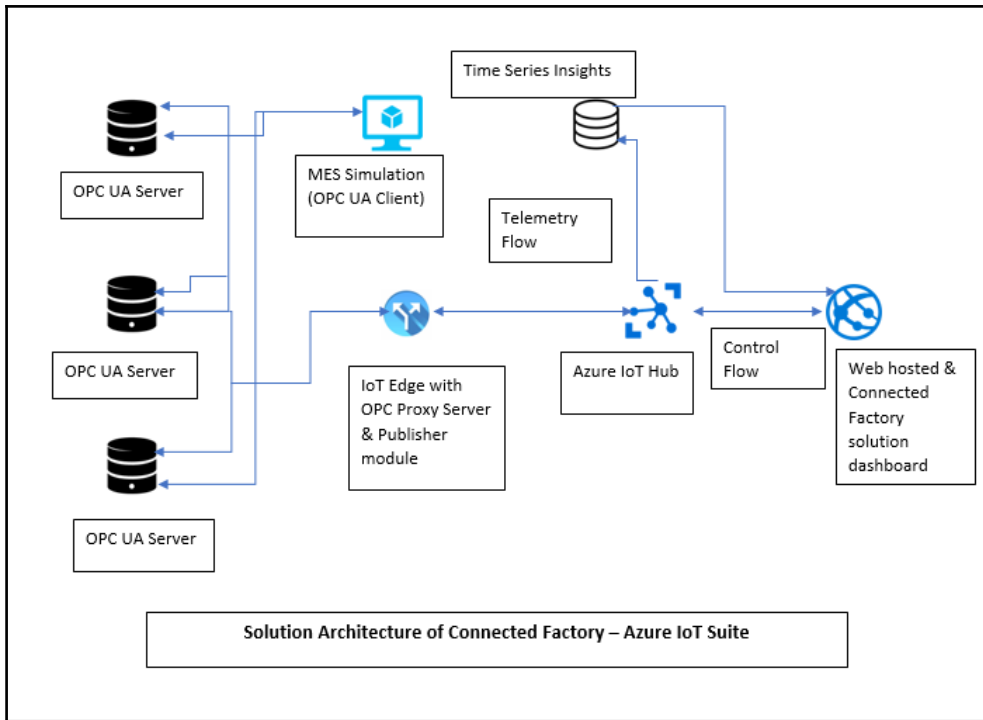
Subscription (change) Microsoft Azure Internal Consumption Deployments 2 Succeeded

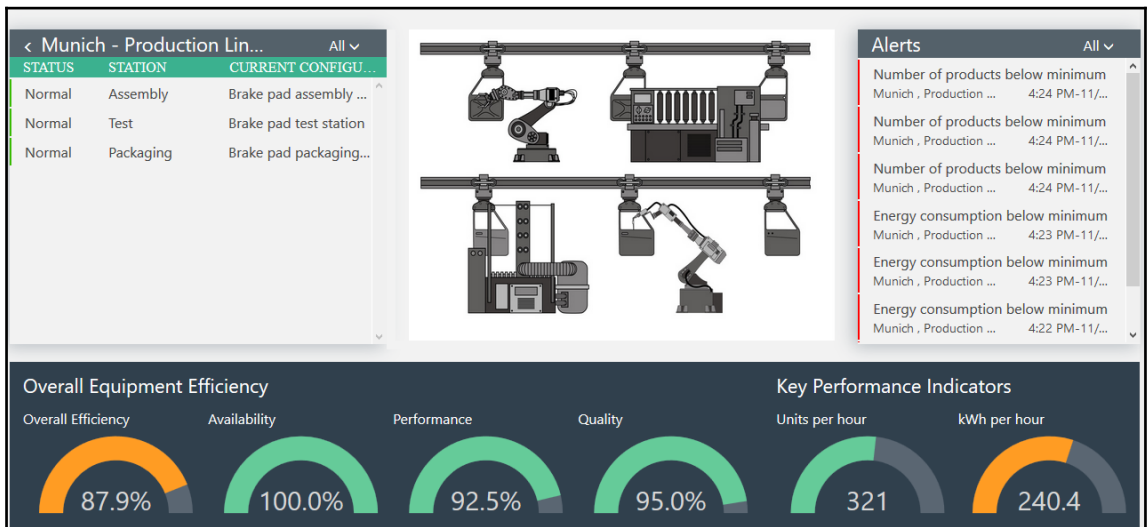
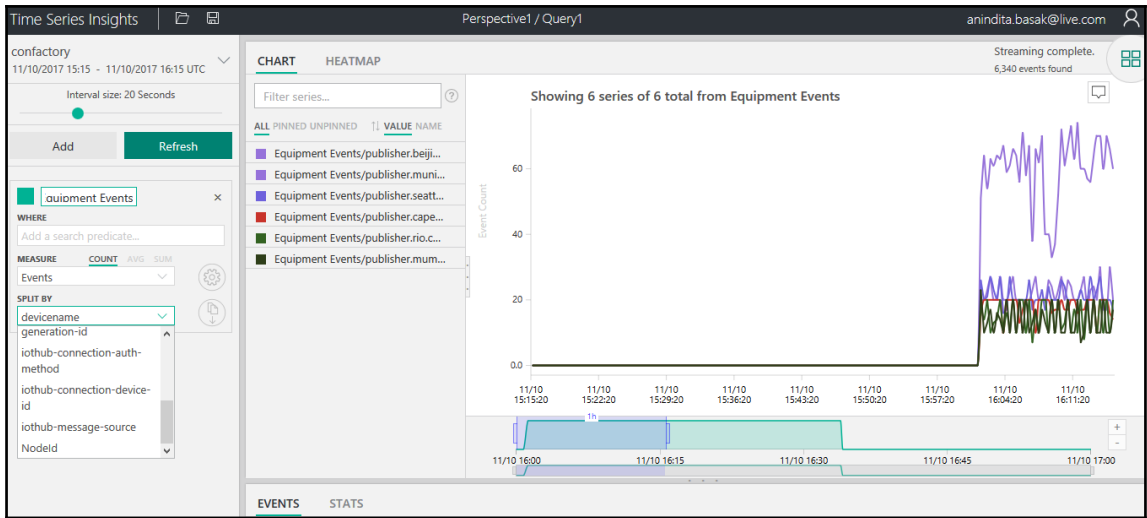
Subscription ID

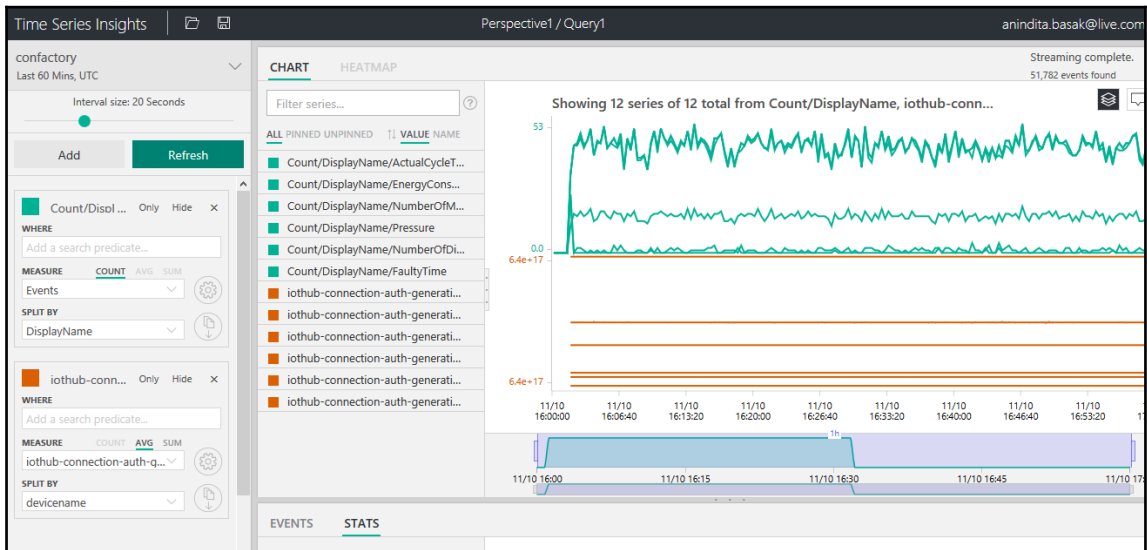
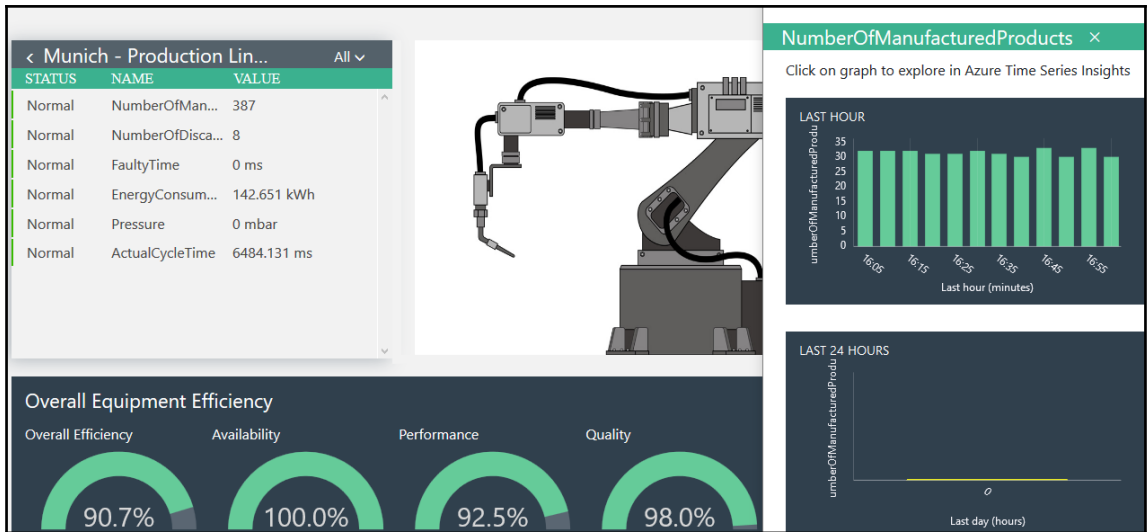
Filter by name... All types All locations

11 Items

NAME	TYPE	LOCATION
isviotdelivery	IoT Hub	East Asia
isviotdelivery	Azure Cosmos DB account	East Asia
isviotdelivery	Event Hub	East Asia
isviotdelivery	Storage account	East Asia
isviotdelivery	App Service	East Asia
isviotdelivery-DeviceInfo	Stream Analytics job	East Asia
isviotdelivery-jobhost	App Service	East Asia
isviotdelivery-jobspplan	App Service plan	East Asia
isviotdelivery-plan	App Service plan	East Asia
isviotdelivery-Rules	Stream Analytics job	East Asia
isviotdelivery-Telemetry	Stream Analytics job	East Asia







connectFactory
Resource group

Search (Ctrl+) <<

+ Add Columns Delete resource group Refresh Move Assign Tags

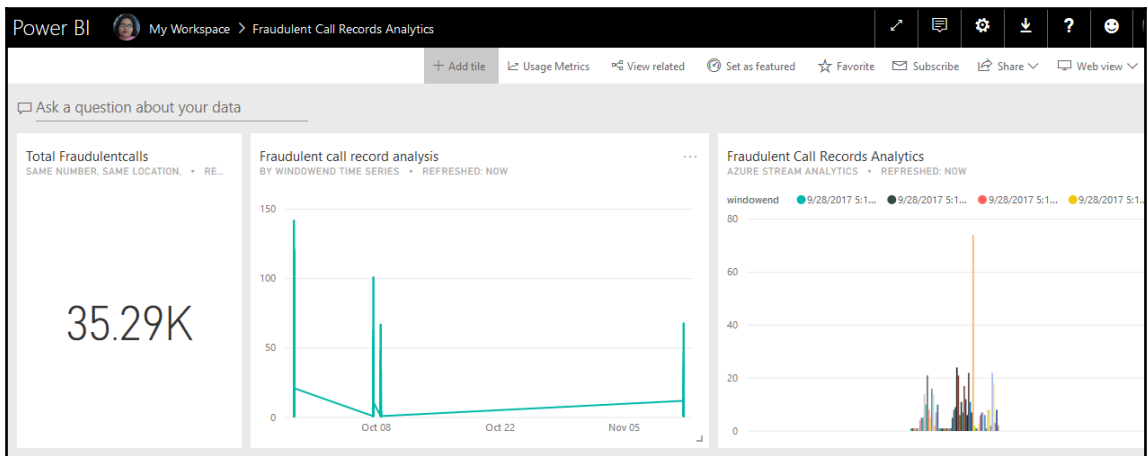
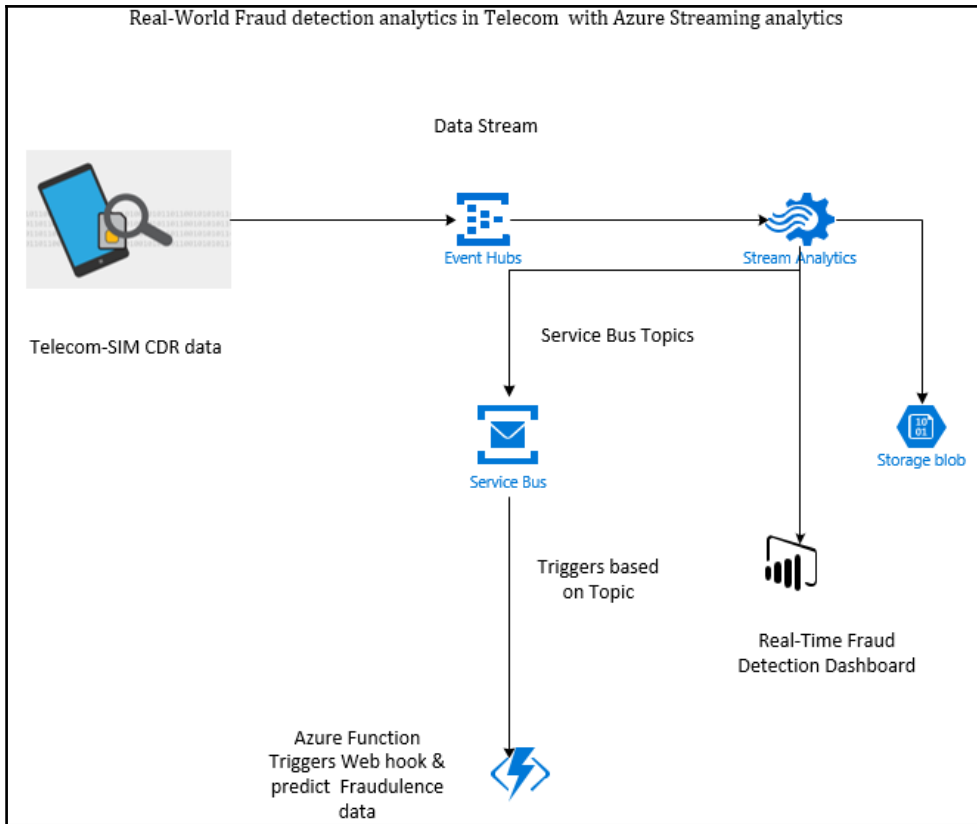
Subscription (change)
Microsoft Azure Internal Consumption
Subscription ID
[REDACTED]

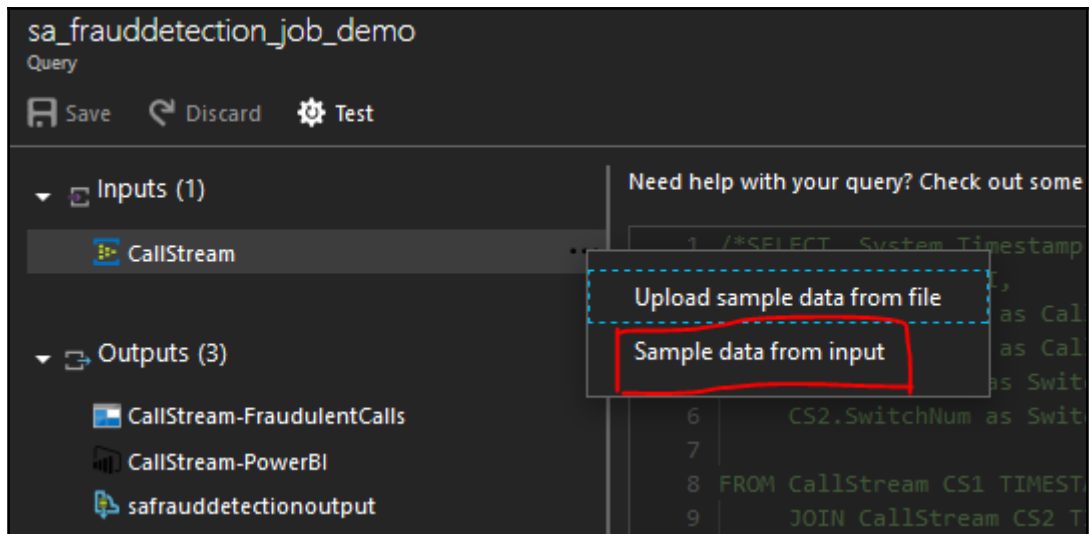
Deployments
4 Succeeded

Filter by name... All types All locations No grouping


12 items

NAME	TYPE	LOCATION	
connectFactory	bing maps API for enterprise	west US	...
connectFactory	Virtual machine	West US	...
connectFactory	Key vault	West US	...
connectFactory	Network interface	West US	...
connectFactory	Network security group	West US	...
connectFactory	Virtual network	West US	...
connectFactory	Storage account	West US	...
connectFactory	App Service	West US	...
connectFactoryff027	IoT Hub	West US	...
connectFactory-plan	App Service plan	West US	...
connectFactoryrdx	Time Series Insights environm...	West US	...
connectFactoryrdx	Time Series Insights event so...	West US	...





* Start time ⓘ

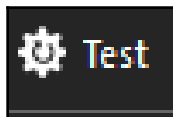
2017-11-12  8:50:54 PM

Local Time (UTC+5:5:30)

* Duration ⓘ

Days	Hours	Minutes	Seconds
0	0	3	0

OK



The screenshot shows a Stream Analytics query editor interface. At the top, the query name is "sa_frauddetection_job_demo". Below the name are buttons for "Save", "Discard", and "Test". The interface is divided into three main sections: Inputs, Outputs, and a central query editor.

Inputs (1): A tree view showing a single input named "CallStream".

Outputs (3): A tree view showing three outputs: "CallStream-FraudulentCalls", "CallStream-PowerBI", and "safrauddetectionoutput".

Query Editor: Contains a SQL query with line numbers 20 through 30. The query is as follows:

```
20 JOIN CallStream AS CS2 TIMESTAMP BY CallRecTime
21
22 /* Where the caller is the same, as indicated by IMSI (International Mobile Subscriber Identity) */
23 ON CS1.CallingIMSI = CS2.CallingIMSI
24
25 /* ...and date between CS1 and CS2 is between one and five seconds */
26 AND DATEDIFF(ss, CS1, CS2) BETWEEN 1 AND 5
27
28 /* Where the switch location is different */
29 WHERE CS1.SwitchNum != CS2.SwitchNum
30 GROUP BY TumblingWindow(Duration(second, 1))
```

Below the query, there is a warning: "Your query could be put in logs that are in a potentially different geography. Missing some language constructs? [Let us know!](#) (Powered by UserVoice - [Privacy Policy](#))".

Generated the Following:

- callstream-powerbi with 6 rows.

Download results

WINDOWEND	FRAUDULENTCALLS
"2017-11-11T16:23:53.0000000Z"	2
"2017-11-11T16:23:56.0000000Z"	1
"2017-11-11T16:23:58.0000000Z"	2
"2017-11-11T16:23:59.0000000Z"	1