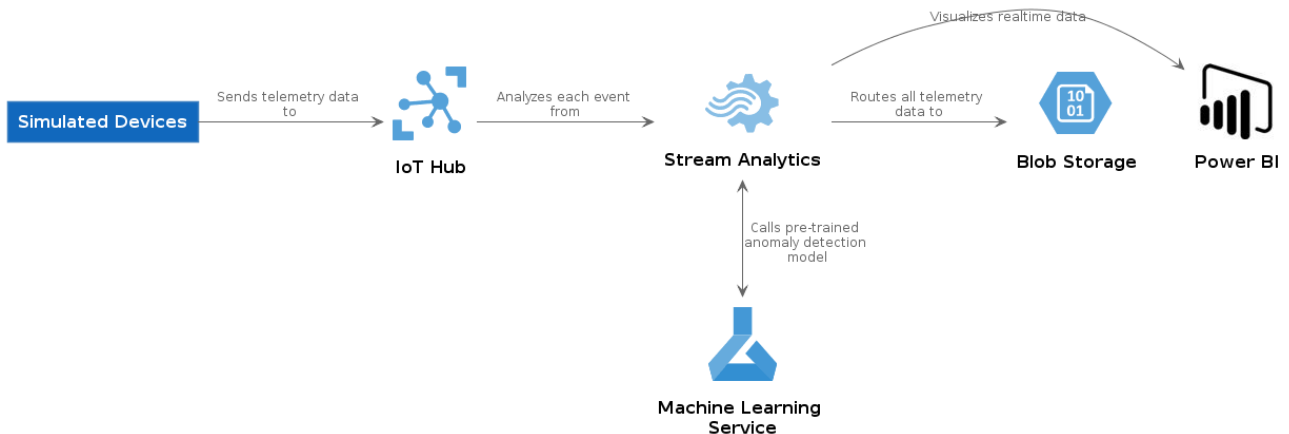


<https://gazaicdocsta.z6.web.core.windows.net>

Klassifikation von Sensordaten durch ML-Modelle in Echtzeit

Architektur



Links

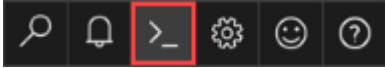
- [Home](#)
- [Cloud Shell](#)
- [Resource group](#)
- [Storage Account](#)
- [Senden von Telemetriedaten an eine IoT Hub-Instanz](#)
- [Daten in einem BLOB speichern](#)
- [Anomalieerkennung in Stream Analytics und Streamen in Power BI](#)
- [Visualisierung in Power BI](#)

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Azure Cloud Shell

Azure-Portal rechts oben im Menü auf die Schaltfläche Cloud Shell klicken:



You have no storage mounted ✕

Azure Cloud Shell requires an Azure file share to persist files. [Learn more](#)
This will create a new storage account for you and this will incur a small monthly cost. [View pricing](#)

* Subscription

Visual Studio Premium mit MSDN

Show advanced settings

Create storage

Close

You have no storage mounted ✕

* Subscription

Visual Studio Premium mit MSDN

* Cloud Shell region

West Europe

[Hide advanced settings](#)

* Resource group

☒ Create new ☐ Use existing

cloud-shell-rg-sta

* Storage account

☒ Create new ☐ Use existing

cloudshellsta004

* File share

☒ Create new ☐ Use existing

cloud-shell-fileshare-sven

Storage accounts are filtered for your selected Cloud Shell region and LRS/GRS/ZRS account types.

Create storage

Close

```
Bash  ▾ | 🔌 ? ⚙️ ↺ ↻ {} 🔍
Storage account: cloudshellsta004
File share:      cloud-shell-fileshare-sven

Initializing your account for Cloud Shell...\
Requesting a Cloud Shell.Succeeded.
Connecting terminal...

Welcome to Azure Cloud Shell

Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell

sven@Azure:~$
```

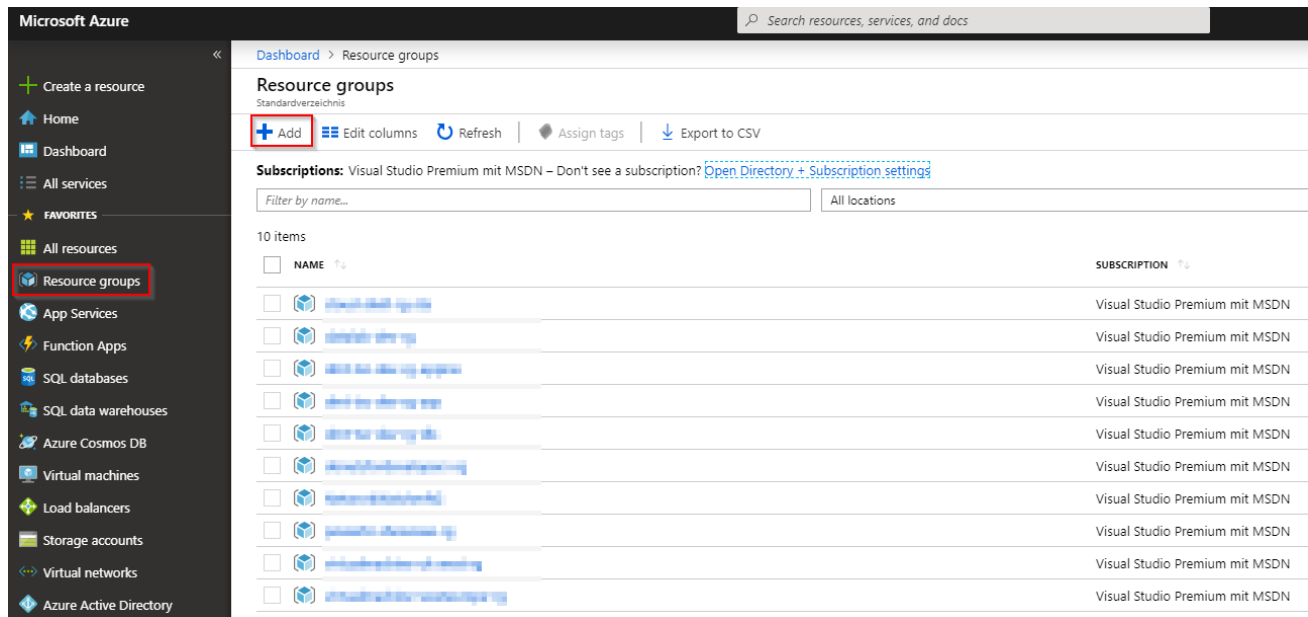
Links

- [Home](#)
- [Cloud Shell](#)
- [Resource group](#)
- [Storage Account](#)
- [Senden von Telemetriedaten an eine IoT Hub-Instanz](#)
- [Daten in einem BLOB speichern](#)
- [Anomalieerkennung in Stream Analytics und Streamen in Power BI](#)
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Resourcegroup erstellen



Microsoft Azure

Dashboard > Resource groups

Resource groups

Standardverzeichnis

[+ Add](#) [Edit columns](#) [Refresh](#) [Assign tags](#) [Export to CSV](#)

Subscriptions: Visual Studio Premium mit MSDN – Don't see a subscription? [Open Directory + Subscription settings](#)

Filter by name... All locations

10 items

NAME	SUBSCRIPTION
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN
Visual Studio Premium mit MSDN	Visual Studio Premium mit MSDN

Create a resource group

[Basics](#) [Tags](#) [Review + Create](#)

Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more](#)

PROJECT DETAILS

* Subscription ⓘ

Visual Studio Premium mit MSDN

* Resource group ⓘ

gaz-aic-rg

RESOURCE DETAILS

* Region ⓘ

West Europe

[Review + Create](#)

[Next : Tags](#)

Create a resource group

[Basics](#) [Tags](#) [Review + Create](#)

SUMMARY

BASICS

Subscription	Visual Studio Premium mit MSDN
Resource group	gaz-aic-rg
Region	West Europe

Create

[Previous : Tags](#)



Resource group created

12:54 PM

Creating resource group 'gaz-aic-rg' in subscription 'Visual Studio Premium mit MSDN' succeeded.

[Go to resource group](#)

[Pin to dashboard](#)

Links

- [Home](#)
- [Cloud Shell](#)
- [Resource group](#)
- [Storage Account](#)
- [Senden von Telemetriedaten an eine IoT Hub-Instanz](#)
- [Daten in einem BLOB speichern](#)
- [Anomalieerkennung in Stream Analytics und Streamen in Power BI](#)
- [Visualisierung in Power BI](#)

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<https://gazaicdocsta.z6.web.core.windows.net>

Storage Account erstellen

Dashboard > Resource groups > gaz-aic-rg

gaz-aic-rg
Resource group

Search (Ctrl+ /)

+ Add Edit columns Delete resource group Refresh Move

Subscription (change)
Visual Studio Premium mit MSDN
Deployments
No deployments

Subscription ID
[REDACTED]

Tags (change)
Click here to add tags

Filter by name... All types All locations

0 items ☐ Show hidden types


☐ NAME ☐ TYPE

Get Started

Storage Account

Pricing: All Operating System: All

Results

NAME	PUBLISHER
 Storage account	Microsoft

Storage account

Microsoft



Storage account

Microsoft

Create

Save for later

Want to deploy programmatically? [Get started](#) →

Microsoft Azure provides scalable, durable cloud storage, backup, and recovery works with the infrastructure you already have to cost-effectively enhance your continuity strategy, and provide the storage required by your cloud applications data such as video, audio, and images.

Create storage account

[Basics](#) [Advanced](#) [Tags](#) [Review + create](#)

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. [Learn more](#)

PROJECT DETAILS

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

* Subscription

* Resource group [Create new](#)

INSTANCE DETAILS

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

* Storage account name

* Location

Performance ☒ Standard ☐ Premium

Account kind

Replication

Access tier (default) ☐ Cool ☒ Hot

Review + create

Previous

Next : Advanced >

Create storage account

✓ Validation passed

[Basics](#) [Advanced](#) [Tags](#) [Review + create](#)

BASICS

Subscription	Visual Studio Premium mit MSDN
Resource group	gaz-aic-rg
Location	West Europe
Storage account name	gazaicsta001w
Deployment model	Resource manager
Account kind	StorageV2 (general purpose v2)
Replication	Locally-redundant storage (LRS)
Performance	Standard
Access tier (default)	Hot

ADVANCED

Secure transfer required	Enabled
Allow access from	All networks
Hierarchical namespace	Disabled
Blob soft delete	Disabled

Create

Previous

Next

[Download a template for automation](#)

Microsoft.StorageAccount-20190424130016 - Overview

Deployment

Search (Ctrl+ /)

Delete Cancel Redeploy Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Go to resource



Deployment name: Microsoft.StorageAccount-20190424130016

Subscription: [Visual Studio Premium mit MSDN](#)

Resource group: [gaz-aic-rg](#)

DEPLOYMENT DETAILS [\(Download\)](#)

Start time: 4/24/2019, 1:02:41 PM

Duration: 30 seconds

Correlation ID: 9ea18880-936a-4c84-889a-93b6c9952fd7

RESOURCE	TYPE	STATUS	OPERATION DET...
✓ gazaicsta001w	Microsoft.Stora...	OK	Operation details

[Dashboard](#) > [Microsoft.StorageAccount-20190424130016 - Overview](#) > [gazaicsta001w](#)



gazaicsta001w

Storage account

Search (Ctrl+ /)

Open in Explorer Move Delete Refresh

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Events

Storage Explorer (preview)

Settings

Access keys

Geo-replication

CORS

Configuration

Encryption

Shared access signature

Resource group [\(change\)](#) [gaz-aic-rg](#) Per Sta

Status [Primary: Available](#) Req Loc

Location [West Europe](#) Acc Sto

Subscription [\(change\)](#) [Visual Studio Premium mit MSDN](#)

Subscription ID

Tags [\(change\)](#)
[Click here to add tags](#)

Services





Blobs


REST-based object storage for unstructured data

[Learn more](#)

+ Container


 Refresh


 Delete


 Change access level

New container

* Name

iothub 

Public access level 

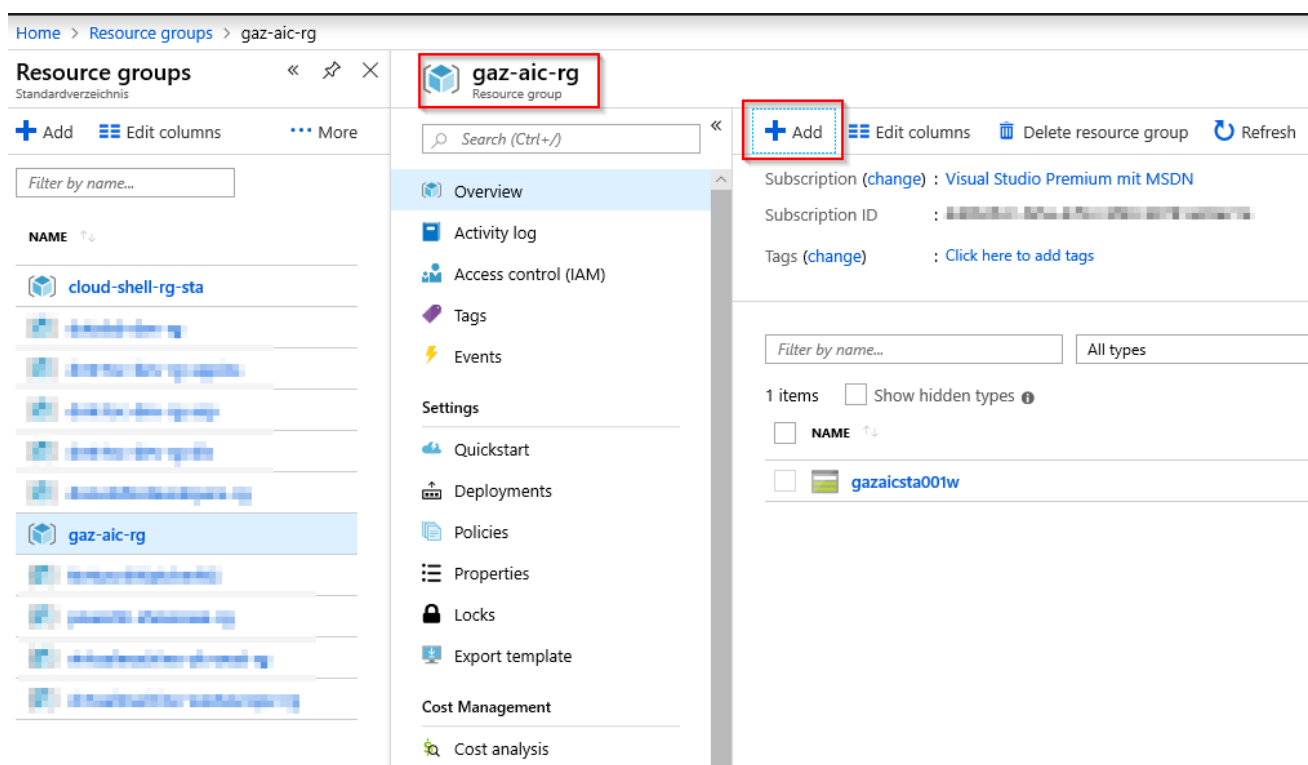
Private (no anonymous access) 

OK

Cancel

Links

- [Home](#)
- [Cloud Shell](#)
- [Resource group](#)
- [Storage Account](#)
- [Senden von Telemetriedaten an eine IoT Hub-Instanz](#)
- [Daten in einem BLOB speichern](#)
- [Anomalieerkennung in Stream Analytics und Streamen in Power BI](#)
- [Visualisierung in Power BI](#)



Get Started



IoT Hub

IoT Hub Device Provisioning Service

IoT Central Application

nio IoT Platform

IoT Hub

Microsoft



IoT Hub

Microsoft

Create

Save for later

Simultaneously support millions of connected devices—whether they run Windows, Linux, or macOS. Then monitor performance and send commands to accelerate your digital transformation.

Useful Links

[Documentation](#)

[Device management](#)

[Service overview](#)

[Pricing and scale details](#)

[Learn more about Azure IoT Hub](#)

Create an IoT Hub to help you connect, monitor, and manage billions of your IoT assets. [Learn More](#)

PROJECT DETAILS

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

* Subscription ⓘ	Visual Studio Premium mit MSDN
* Resource Group ⓘ	<div>gaz-aic-rg</div> <div>Create new</div>
* Region ⓘ	West Europe
* IoT Hub Name ⓘ	gaz-aic-iot-hub ✓

[Review + create](#)

[Next: Size and scale »](#)

[Automation options](#)

BASICS

Subscription ⓘ	Visual Studio Premium mit MSDN
Resource Group ⓘ	gaz-aic-rg
Region ⓘ	West Europe
IoT Hub Name ⓘ	gaz-aic-iot-hub

SIZE AND SCALE

Pricing and scale tier ⓘ	S1
Number of S1 IoT Hub units ⓘ	1
Messages per day ⓘ	400.000
Cost per month	21.08 EUR

[Create](#)

[« Previous: Size and scale](#)

[Automation options](#)

Registrieren eines Devices

Dazu in der Cloud Shell folgenden Befehle absetzen und zumindest die YourIoTHubName anpassen.

```
az iot hub device-identity create --hub-name YourIoTHubName --device-id MyDotnetDev  
az iot hub device-identity show-connection-string --hub-name YourIoTHubName --devic
```

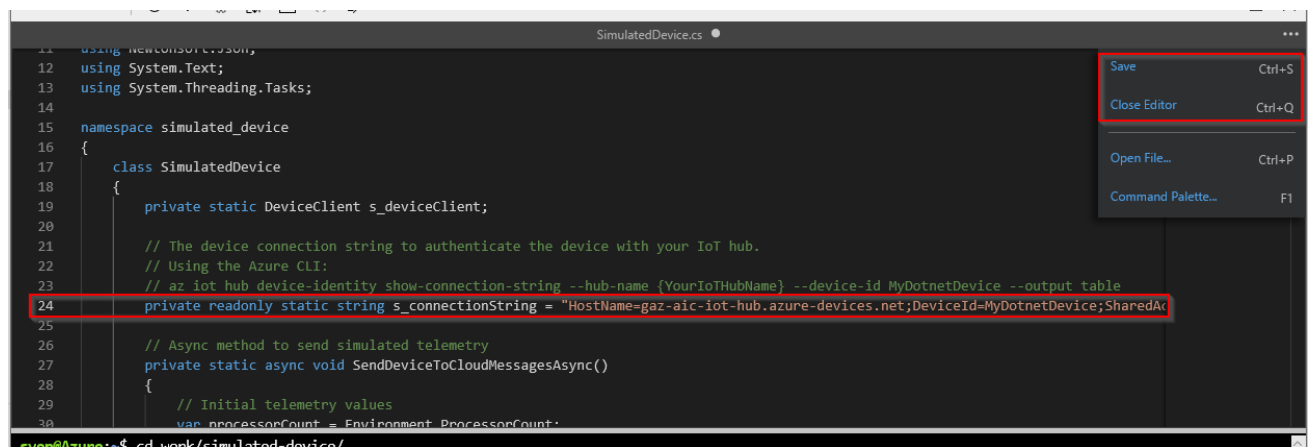
Das Ergebnis des zweiten Befehls kopieren.

```
HostName={YourIoTHubName}.azure-devices.net;DeviceId=MyNodeDevice;SharedAccessKey=
```

In der Cloud Shell in das Verzeichnis work/simulated-device/ wechseln und die Datei SimulatedDevice.cs bearbeiten.

```
cd work/simulated-device  
code SimulatedDevice.cs
```

Die Zeile 24 anpassen und anschließend die Datei speichern und den Editor schließen.

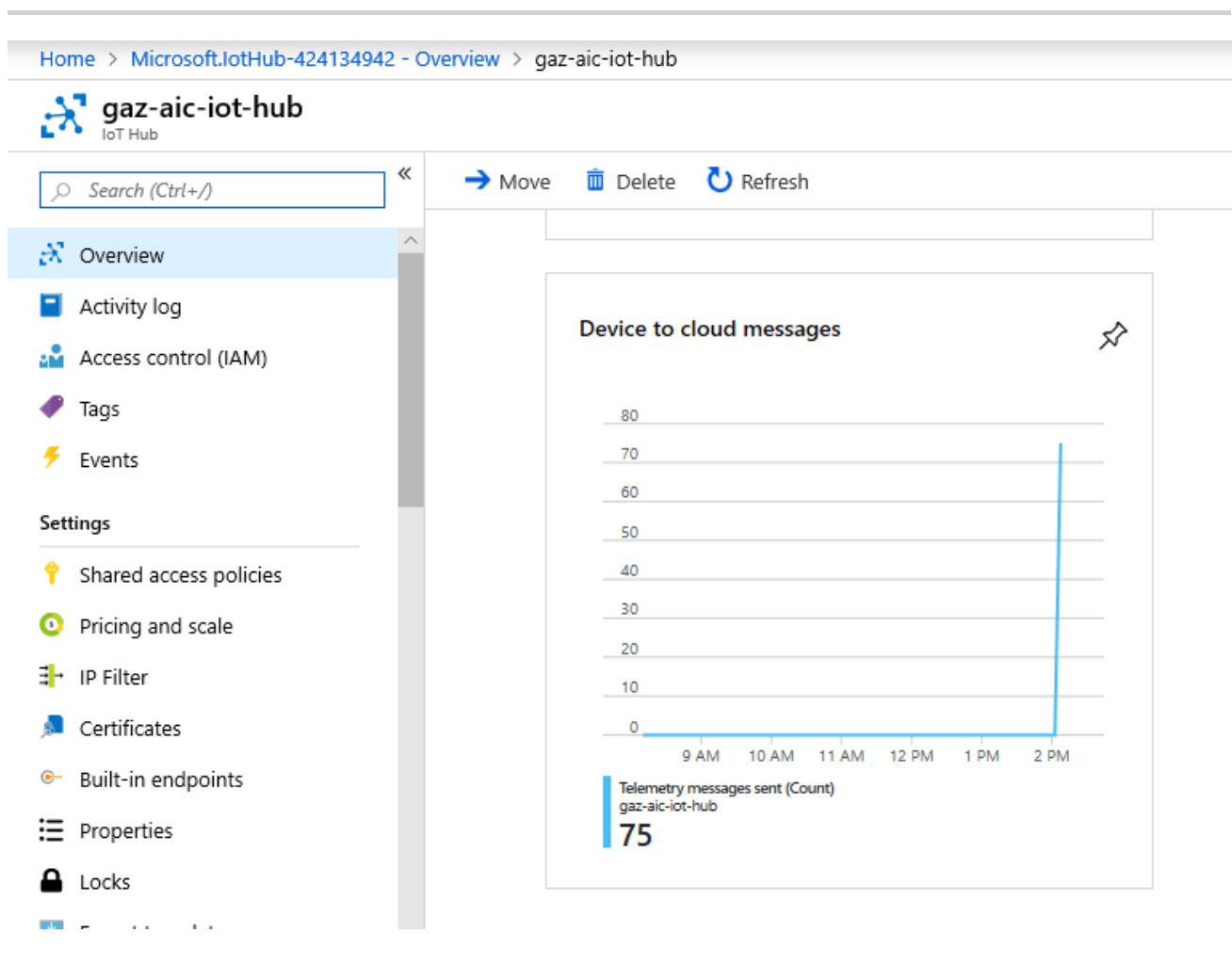


Folgende Befehle in der Cloud Shell ausführen, um die benötigten Pakete zu installieren und den Simulator zu starten.

```
dotnet restore  
dotnet run
```

```
sven@Azure:~/work/simulated-device$ dotnet run
IoT Hub Quickstarts #1 - Simulated device. Ctrl-C to exit.

4/24/19 12:07:40 PM > Sending message: {"cpuUsage":0.0,"cpu0Usage":0.0,"cpu1Usage":0.0}
4/24/19 12:07:41 PM > Sending message: {"cpuUsage":1.02,"cpu0Usage":1.02,"cpu1Usage":0.0}
4/24/19 12:07:42 PM > Sending message: {"cpuUsage":0.51,"cpu0Usage":1.0,"cpu1Usage":0.0}
4/24/19 12:07:43 PM > Sending message: {"cpuUsage":1.01,"cpu0Usage":1.02,"cpu1Usage":0.0}
4/24/19 12:07:44 PM > Sending message: {"cpuUsage":0.51,"cpu0Usage":1.0,"cpu1Usage":1.01}
4/24/19 12:07:45 PM > Sending message: {"cpuUsage":1.52,"cpu0Usage":2.0,"cpu1Usage":0.0}
4/24/19 12:07:46 PM > Sending message: {"cpuUsage":0.5,"cpu0Usage":1.0,"cpu1Usage":0.0}
4/24/19 12:07:47 PM > Sending message: {"cpuUsage":0.0,"cpu0Usage":0.0,"cpu1Usage":0.0}
4/24/19 12:07:48 PM > Sending message: {"cpuUsage":1.02,"cpu0Usage":1.01,"cpu1Usage":1.02}
4/24/19 12:07:50 PM > Sending message: {"cpuUsage":0.5,"cpu0Usage":0.0,"cpu1Usage":1.0}
```



Links

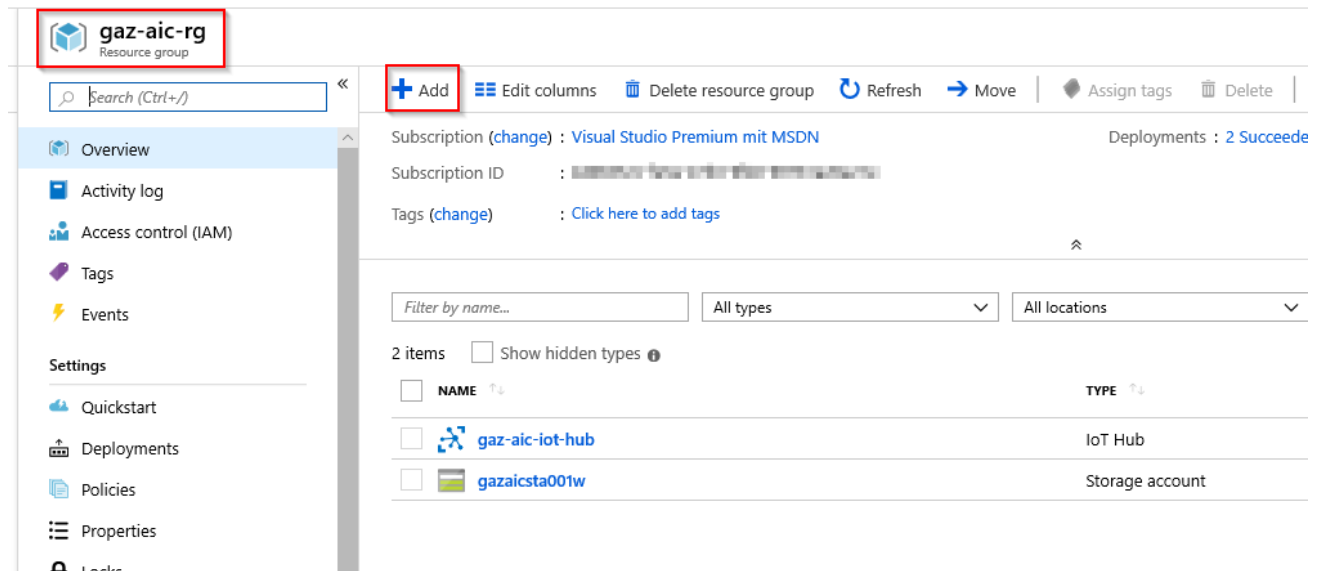
- [Home](#)
- [Cloud Shell](#)
- [Resource group](#)
- [Storage Account](#)
- [Senden von Telemetriedaten an eine IoT Hub-Instanz](#)
- [Daten in einem BLOB speichern](#)
- [Anomalieerkennung in Stream Analytics und Streamen in Power BI](#)
- [Visualisierung in Power BI](#)

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Daten in einem BLOB speichern

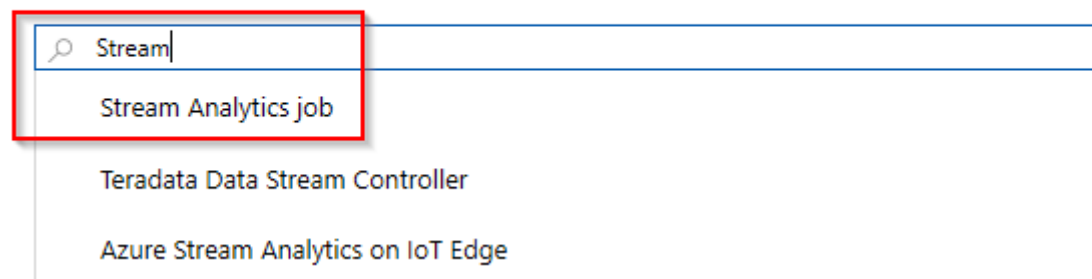
Die Daten werden mittels Stream Analytics in einem BLOB-Container gespeichert.



The screenshot shows the Azure portal interface for the resource group 'gaz-aic-rg'. The 'Add' button is highlighted with a red box. The left sidebar shows the 'Overview' tab selected. The main content area displays subscription details and a list of resources.

NAME	TYPE
gaz-aic-iot-hub	IoT Hub
gazaicsta001w	Storage account

Get Started



The screenshot shows the Azure portal search bar with the search term 'Stream'. The results list includes 'Stream Analytics job', 'Teradata Data Stream Controller', and 'Azure Stream Analytics on IoT Edge'. The search bar and the first result are highlighted with a red box.

Stream Analytics job

Microsoft



Stream Analytics job

Microsoft

Create

Save for later

[Azure Stream Analytics](#) is a fully managed, cost effective real-time event processing engine that provides insights from data. Stream Analytics makes it easy to set up real-time analytic computations 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 data, the output sink for the results of your job, and a data transformation expressed in a SQL query. You can also monitor and adjust the scale/speed of your job in the Azure portal to scale from a few kilobytes per second to millions of events processed per second.

Stream Analytics leverages years of Microsoft Research work in developing highly tuned stream processing, as well as language integrations for intuitive specifications of such.

[Home](#) > [Resource groups](#) > [gaz-aic-rg](#) > [Get started](#)

New Stream Analytics job □ ×

* Job name

gaz-aic-saj ✓

* Subscription

Visual Studio Premium mit MSDN

* Resource group

gaz-aic-rg

[Create new](#)

* Location

West Europe

Hosting environment ⓘ

Cloud

Edge


Streaming units (1 to 192) ⓘ



3

Create

[Automation options](#)

**gaz-aic-saj**
Stream Analytics Job

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Locks

Job topology

Inputs

Functions

Query

Outputs

Configure

Storage account settings

Start

Stop

Delete

Resource group [\(change\)](#)
gaz-aic-rg

Status
Created

Location
West Europe

Subscription [\(change\)](#)
Visual Studio Premium mit MSDN

Subscription ID
[REDACTED]

[Send feedback](#)
[UserVoice](#)

Created
Wednesday, April 24, 2019, 2:24:

Started
-

Output watermark
-

Hosting environment
Cloud

Inputs

0

Empty

Outputs

0

Empty


Query


```
1 SELECT
2   *
3 INTO
4   [YourOutputAlias]
5 FROM
6   [YourInputAlias]
```


Hinzufügen einer Ein- und Ausgabe


 Search (Ctrl+J)


 Start  Stop  Delete

 Overview


 Activity log

 Access control (IAM)


 Tags


 Diagnose and solve problems


Settings


 Locks

Job topology


 Inputs

 Functions

 Query

 Outputs

Configure


 Storage account settings

Resource group ([change](#))
[gaz-aic-rg](#)

Status
Created

Location
West Europe

Subscription ([change](#))
[Visual Studio Premium mit MSDN](#)

Subscription ID


Inputs

0



Empty


Outputs

0



Empty

Inputs

 Add stream input

 Add reference input

Event Hub

IoT Hub

Blob storage

SOURCE T

* Input alias

iothub



- ☐ Provide IoT Hub settings manually
- ☒ Select IoT Hub from your subscriptions

Subscription

Visual Studio Premium mit MSDN



IoT Hub 


gaz-aic-iot-hub



Endpoint 

Messaging




Shared access policy name 

iothubowner



Shared access policy key 

.....

Consumer group 

\$Default



* Event serialization format 

JSON



Encoding 

UTF-8








Event compression type 

None




Save





 Search (Ctrl+/)

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



Settings

-  Locks

Job topology

-  Inputs
-  Functions
-  Query
-  Outputs

Configure

-  Storage account settings
-  Scale

 Start  Stop  Delete

Resource group ([change](#))
[gaz-aic-rg](#)

Status
Created

Location
West Europe

Subscription ([change](#))
[Visual Studio Premium mit MSDN](#)

Subscription ID


Inputs

1



iothub

Outputs

0



Empty



Outputs

 Add

- Event Hub
- SQL Database
- Blob storage**
- Table storage

* Output alias

bloboutput



- ☐ Provide Blob storage settings manually
- ☒ Select Blob storage from your subscriptions

Subscription

Visual Studio Premium mit MSDN



* Storage account ⓘ

gzaicsta001w



* Storage account key

.....

* Container

- ☐ Create new ☒ Use existing

iothub



Path pattern ⓘ

Date format

YYYY/MM/DD



Time format

HH



* Event serialization format ⓘ

JSON



Encoding ⓘ

UTF-8



Format ⓘ

Save

Anpassen der Query und Starten des Jobs

Home > Resource groups > gaz-aic-rg > gaz-aic-saj

gaz-aic-saj
Stream Analytics job

Search (Ctrl+F)

Start Stop Delete

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems

Settings

- Locks

Job topology

- Inputs
- Functions
- Query
- Outputs

Configure

- Storage account settings
- Scale
- Locale
- Event ordering

Resource group (change)
gaz-aic-rg

Status
Created

Location
West Europe

Subscription (change)
Visual Studio Premium mit MSDN

Subscription ID
[redacted]

Send feedback
UserVoice

Created
Wednesday, April 24, 2019, 2:24:26 PM

Started
-

Output watermark
-

Hosting environment
Cloud

Inputs

1

iothub

Outputs

1

bloboutput

Query

Edit query

```
1 SELECT
2   *
3 INTO
4   [YourOutputAlias]
5 FROM
6   [YourInputAlias]
```

Query
gaz-aic-saj

Save Discard Test

Inputs (1)

- iothub

Outputs (1)

- bloboutput

Need help with your query? Check out some of the most con

...

```
1 SELECT
2   *
3 INTO
4   [bloboutput]
5 FROM
6   [iothub]
```

Home > Resource groups > gaz-aic-rg > gaz-aic-saj

gaz-aic-saj
Stream Analytics job

Search (Ctrl+/)

Start Stop Delete

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems

Settings

- Locks

Job topology

- Inputs
- Functions
- Query
- Outputs

Configure

- Storage account settings
- Scale
- Locale
- Event ordering
- Error policy
- Compatibility level
- Managed Identity

General

Resource group (change)
gaz-aic-rg

Status
Created

Location
West Europe

Subscription (change)
Visual Studio Premium mit MSDN

Subscription ID
[redacted]

Send feedback
UserVoice

Created
Wednesday, [redacted]

Started
-

Output water
-

Hosting envi
Cloud

Inputs

1

iothub

Outputs

1

bloboutput

Query

```
1 SELECT
2 *
3 INTO
4 [bloboutput]
5 FROM
6 [iothub]
```

Monitoring

100
90
80

Resource u

100%
90%
80%

Start job
gaz-aic-saj

Job output start time ⓘ

Now Custom When last stopped

Start

Telemetriedaten aus BLOB herunterladen

gaz-aic-rg
Resource group

Search (Ctrl+/)

Overview

- Activity log
- Access control (IAM)
- Tags
- Events

Settings

- Quickstart
- Deployments
- Policies
- Properties
- Locks
- Export template

+ Add Edit columns Delete resource group Refresh Move Assign tags

Subscription (change) : **Visual Studio Premium mit MSDN** Deployments : 3 Succeeded


Subscription ID : [redacted]


Tags (change) : [Click here to add tags](#)


Filter by name... All types All locations

3 items ☐ Show hidden types ⓘ

<input type="checkbox"/>	NAME ↑↓	TYPE ↑↓
<input type="checkbox"/>	gaz-aic-iot-hub	IoT Hub
<input type="checkbox"/>	gaz-aic-saj	Stream Analytics job
<input type="checkbox"/>	gazaicsta001w	Storage account

 Overview

 Activity log

 Access control (IAM)


 Tags


 Diagnose and solve problems


 Events


 Storage Explorer (preview)


Settings


 Access keys

 Geo-replication

 CORS

 Configuration

 Encryption

 Shared access signature

 Open in Explorer  Move  Delete  Refresh

Resource group [\(change\)](#)
gaz-aic-rg

Status
Primary: Available

Location
West Europe

Subscription [\(change\)](#)
Visual Studio Premium mit MSDN

Subscription ID

Tags [\(change\)](#)
[Click here to add tags](#)

Services





Blobs


REST-based object storage for unstructured data

[Learn more](#)


[Home](#) > [Resource groups](#) > [gaz-aic-rg](#) > gazaicsta001w - Blobs


 Overview

 Activity log

 Access control (IAM)

 Tags

 Diagnose and solve problems

 Container  Refresh  Delete 

Storage account: [gazaicsta001w](#)

NAME

iothub

iothub

Container

Overview

Access Control (IAM)

Settings

Access policy

Properties

Metadata

Upload

Refresh

Change access level

Delete

Acquire lease

Break lease

View snapshots

Create snapshot

Authentication method: Access key (Switch to Azure AD User Account)

Location: iothub

☐ Show deleted blobs

NAME	MODIFIED	ACCESS TIER	BLOB TYPE	SIZE	LEASE STATE
<input checked="" type="checkbox"/> <input type="document"/> 0_f414ea023b86440bb87c06214b80a074_1.json	4/24/2019, 2:41:39 PM	Hot (Inferred)	Block bl		

View/edit blob

Download

Blob properties

Generate SAS

View snapshots

Create snapshot

Acquire lease

Break lease

Delete

Links

- [Home](#)
- [Cloud Shell](#)
- [Resource group](#)
- [Storage Account](#)
- [Senden von Telemetriedaten an eine IoT Hub-Instanz](#)
- [Daten in einem BLOB speichern](#)
- [Anomalieerkennung in Stream Analytics und Streamen in Power BI](#)
- [Visualisierung in Power BI](#)

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Anomalieerkennung in Stream Analytics und Streamen in Power BI

Power BI als Ausgabeziel hinzufügen


Als erstes den Job beenden.

The screenshot shows the Azure Stream Analytics job 'gaz-aic-saj' in the 'Overview' tab. The job is currently 'Running'. The 'Stop' button is highlighted with a red box. The job details include:

- Resource group: [gaz-aic-rg](#) (change)
- Status: Running
- Location: West Europe
- Subscription: [Visual Studio Premium mit MSDN](#) (change)
- Subscription ID: [redacted]

The job topology shows one input named 'iothub' and one output named 'bloboutput'. The query is:

```
1 SELECT
2 *
3 INTO
4 [bloboutput]
5 FROM
6 [iothub]
```

 Search (Ctrl+ /)

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
 - Locks
- Job topology
 - Inputs
 - Functions
 - Query
 - Outputs
- Configure

 Start  Stop  Delete

Resource group (change) : [gaz-aic-rg](#)

Status : Stopped

Location : West Europe

Subscription (change) : [Visual Studio Premium mit MSDN](#)

Subscription ID : 

Inputs

1



iothub

Outputs

1



bloboutput

Outputs

 Add

Event Hub

SQL Database

Blob storage

Table storage

Service Bus topic

Service Bus queue

Cosmos DB

Power BI

Data Lake Storage Gen1

* Output alias

powerbi ✓

Group workspace

Authorize connection to load workspaces ^

Authorize connection to load workspaces

* Table name

Authorize connection

You'll need to authorize with Power BI to configure your output settings.

Authorize

Don't have a Microsoft Power BI account yet?

[Sign up](#)

Power BI

New output



* Output alias

powerbi



Group workspace

My workspace



* Dataset name

iothub



* Table name

iothub



Currently authorized as [Sven Guttman](#)

Authorize connection

You'll need to authorize with Power BI to configure your output settings.

Authorize



Note: You are granting this output permanent access to your Power BI dashboard. Should you need to revoke this access in the future you can do one of the following:

1. Change the user account password.
2. Delete this output.
3. Delete this job.

Save

Query Edit query

```

1 SELECT
2     *
3 INTO
4     [bloboutput]
5 FROM
6     [iothub]

```

Query Save Discard Test

Inputs (1)

- iothub

Outputs (2)

- bloboutput
- powerbi

Need help with your query? Check out some of the most common Stream Analytics query patterns [here](#).

```

1 WITH AnomalyDetectionStep AS
2 (
3 SELECT
4     EventEnqueuedUtcTime,
5     EventProcessedUtcTime,
6     CAST(cpuUsage AS FLOAT) as cpuUsage,
7     AnomalyDetection_SpikeAndDip(CAST(cpuUsage AS FLOAT), 95, 120, 'spikesanddips') OVER(LIMIT DURATION(second, 120)) AS SpikeAndDipScoresCpu,
8     CAST(cpu0Usage AS FLOAT) as cpu0Usage,
9     AnomalyDetection_SpikeAndDip(CAST(cpuUsage AS FLOAT), 95, 120, 'spikesanddips') OVER(LIMIT DURATION(second, 120)) AS SpikeAndDipScoresCpu0,
10    CAST(cpu1Usage AS FLOAT) as cpu1Usage,
11    AnomalyDetection_SpikeAndDip(CAST(cpuUsage AS FLOAT), 95, 120, 'spikesanddips') OVER(LIMIT DURATION(second, 120)) AS SpikeAndDipScoresCpu1
12 FROM [iothub]
13 )
14 SELECT
15     EventEnqueuedUtcTime,
16     EventProcessedUtcTime,
17     CAST(cpuUsage AS FLOAT) as cpuUsage,
18     CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu, 'Score') as FLOAT) AS SpikeAndDipScoresCpu,
19     CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu, 'IsAnomaly') AS BIGINT) AS IsSpikeAndDipAnomalyCpu,
20     CAST(cpu0Usage AS FLOAT) as cpu0Usage,
21     CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu0, 'Score') as FLOAT) AS SpikeAndDipScoresCpu0,
22     CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu0, 'IsAnomaly') AS BIGINT) AS IsSpikeAndDipAnomalyCpu0,
23     CAST(cpu1Usage AS FLOAT) as cpu1Usage,
24     CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu1, 'Score') as FLOAT) AS SpikeAndDipScoresCpu1,
25     CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu1, 'IsAnomaly') AS BIGINT) AS IsSpikeAndDipAnomalyCpu1
26 INTO [powerbi]
27 FROM AnomalyDetectionStep
28

```

```

WITH AnomalyDetectionStep AS
(
SELECT
EventEnqueuedUtcTime,
EventProcessedUtcTime,
CAST(cpuUsage AS FLOAT) as cpuUsage,
AnomalyDetection_SpikeAndDip(CAST(cpuUsage AS FLOAT), 95, 120, 'spikesanddips') OVER(LIMIT DURATION(second, 120)) AS SpikeAndDipScoresCpu,
CAST(cpu0Usage AS FLOAT) as cpu0Usage,
AnomalyDetection_SpikeAndDip(CAST(cpuUsage AS FLOAT), 95, 120, 'spikesanddips') OVER(LIMIT DURATION(second, 120)) AS SpikeAndDipScoresCpu0,
CAST(cpu1Usage AS FLOAT) as cpu1Usage,
AnomalyDetection_SpikeAndDip(CAST(cpuUsage AS FLOAT), 95, 120, 'spikesanddips') OVER(LIMIT DURATION(second, 120)) AS SpikeAndDipScoresCpu1
FROM [iothub]
)
SELECT
EventEnqueuedUtcTime,
EventProcessedUtcTime,
CAST(cpuUsage AS FLOAT) as cpuUsage,
CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu, 'Score') as FLOAT) AS SpikeAndDipScoresCpu,
CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu, 'IsAnomaly') AS BIGINT) AS IsSpikeAndDipAnomalyCpu,
CAST(cpu0Usage AS FLOAT) as cpu0Usage,
CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu0, 'Score') as FLOAT) AS SpikeAndDipScoresCpu0,
CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu0, 'IsAnomaly') AS BIGINT) AS IsSpikeAndDipAnomalyCpu0,
CAST(cpu1Usage AS FLOAT) as cpu1Usage,
CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu1, 'Score') as FLOAT) AS SpikeAndDipScoresCpu1,
CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu1, 'IsAnomaly') AS BIGINT) AS IsSpikeAndDipAnomalyCpu1
INTO [powerbi]
FROM AnomalyDetectionStep

```

```

CAST(cpu1Usage AS FLOAT) as cpu1Usage,
CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu1, 'Score') as FLOAT) AS SpikeAndD:
CAST(GetRecordPropertyValue(SpikeAndDipScoresCpu1, 'IsAnomaly') AS BIGINT) AS IsSp:
INTO [powerbi]
FROM AnomalyDetectionStep

SELECT
    *
INTO
    [bloboutput]
FROM
    [iothub]

```

The screenshot shows the Azure Stream Analytics job 'gaz-aic-saj' in a 'Stopped' state. The 'Start' button is highlighted with a red box. The job is located in the 'West Europe' region and is associated with the 'Visual Studio Premium mit MSDN' subscription. The job topology shows a single input named 'iothub' and a single output named 'bloboutput'. The query is a SQL statement that processes data from the 'iothub' input and writes it to the 'bloboutput' output.

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- [Cloud Shell](#)
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- [Storage Account](#)
- [Senden von Telemetriedaten an eine IoT Hub-Instanz](#)
- [Daten in einem BLOB speichern](#)
- [Anomalieerkennung in Stream Analytics und Streamen in Power BI](#)
- [Visualisierung in Power BI](#)

Global Azure Bootcamp 2019 - Hands-On Session

<https://gazaicdocsta.z6.web.core.windows.net>

Visualisierung in Power BI

Anmelden bei Power BI [PowerBIService](#)

Power BI Mein Arbeitsbereich

Inhalte suchen...

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★ Azure Cloud Business Case	🔗 📄 ⚙️ 🗑️
★ Azure Enterprise	🔗 📄 ⚙️ 🗑️
★ FPA Revolution	🔗 📄 ⚙️ 🗑️
★ MSBI Cloud Business Case	🔗 📄 ⚙️ 🗑️
★ Phosphor/Infra System	🔗 📄 ⚙️ 🗑️

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Sven Guttman

Sven Guttman

Sven Guttman

Sven Guttman

Sven Guttman

Sven Guttman

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☐ Verknüpfung mit einem Dashboard oder Bericht im aktuellen Arbeitsbereich

URL *

Benutzerdefinierten Link auf derselben Registerkarte öffnen?

☐ Ja

☒ Nein

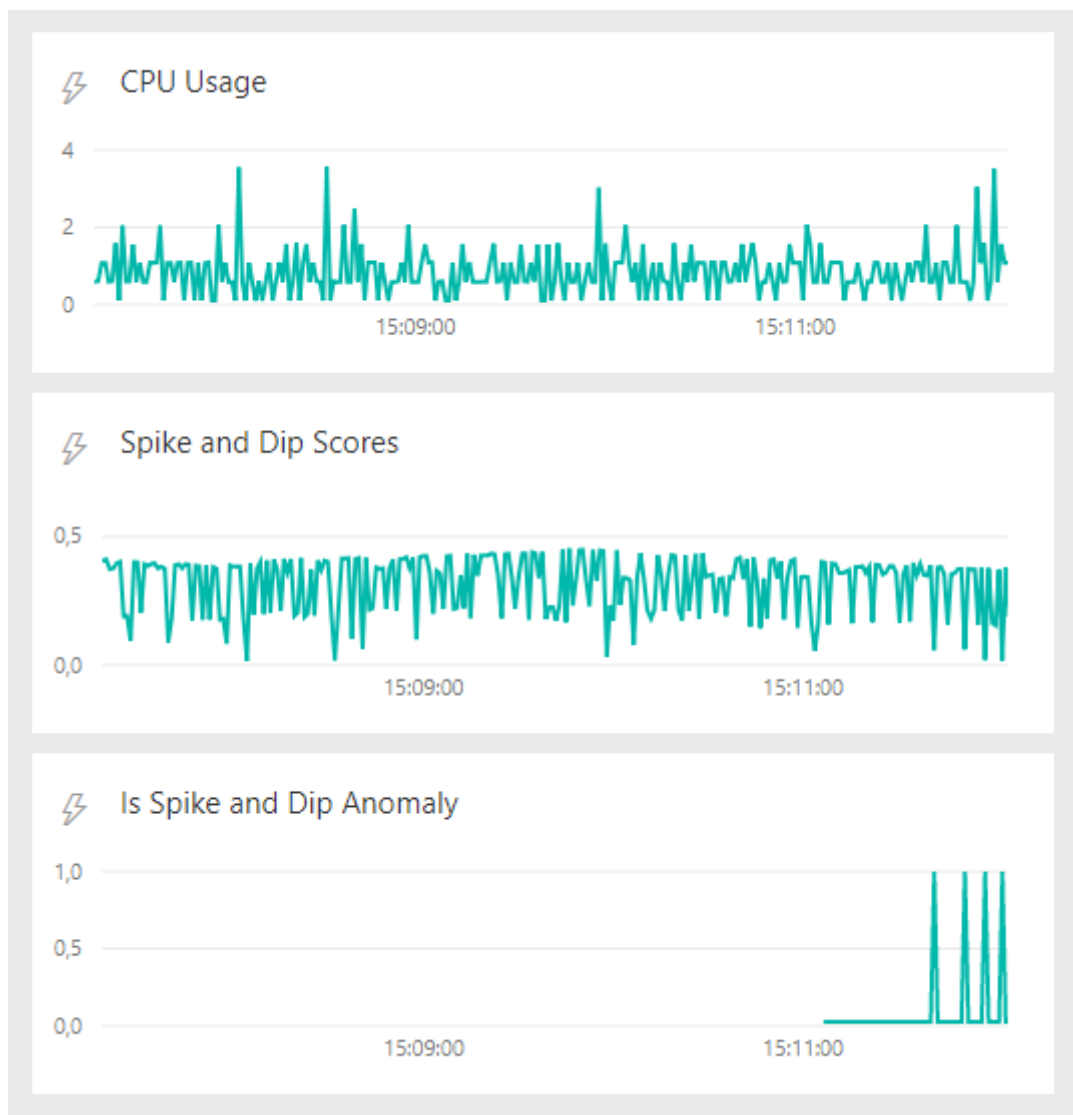
[Standard wiederherstellen](#)

[Technische Details](#)

Zurück

Übernehmen

Abbrechen



Optional - Last erzeugen

Zweite Cloud Shell öffnen und folgenden Befehl absetzen.

```
while [ 1 -eq 1 ]; do find / >/dev/null 2>&1; done
```

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