Anomaly Detection in IoT Telemetry

Azure IoT Workshop

# Agenda

# Introduction

## Scenario we are going to materialize

Connecting an IoT device to an Azure IoT Hub

Sending telemetry to the IoT Hub

Visualizing telemetry in Azure Times Series Insights

Detecting anomalies in Azure Stream Analytics

Visualizing telemetry and anomalies in Power BI

Processing anomalies in Azure Functions

# Architecture of the IoT Solution

# Hand-on Lab

## Prerequisites

### Set-up for send-telemetry project

python --version  
cd iot-workshop-anomaly-detection\source\send-telemetry  
python -m venv env  
.\env\Scripts\activate  
# source env/bin/activate  
python -m pip install --upgrade pip  
pip3 install azure-iot-device  
pip3 install asyncio

## Create a resource group

­­Graphical user interface, text, application, email

Description automatically generated

## Create an IoT Hub

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Graphical user interface, text, application, email

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## Create a Consumer Group

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## Create an IoT Hub Provisioning Service (DPS)

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Graphical user interface, text, application

Description automatically generated

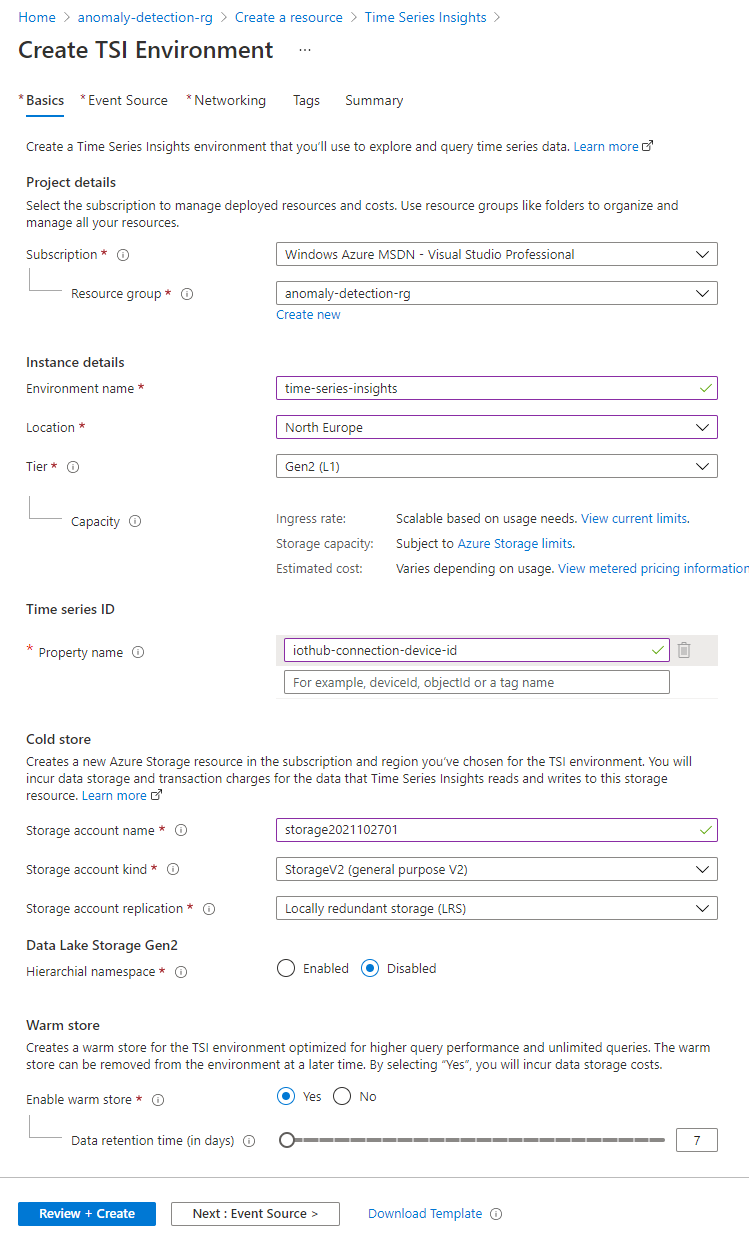
Graphical user interface, text, application, email

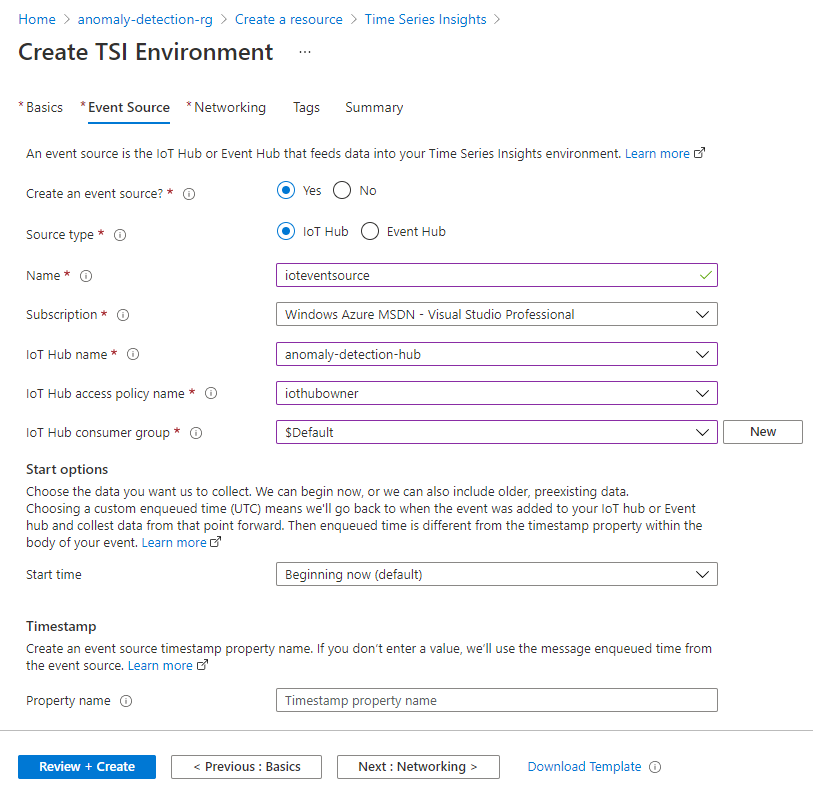
Description automatically generated

Graphical user interface, text, application

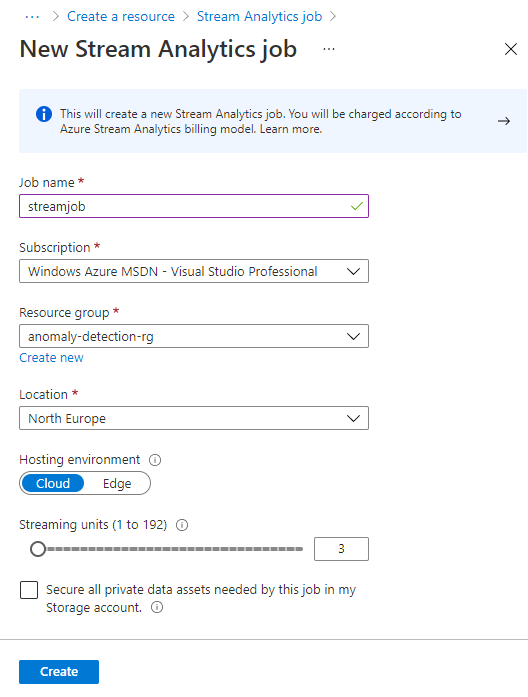
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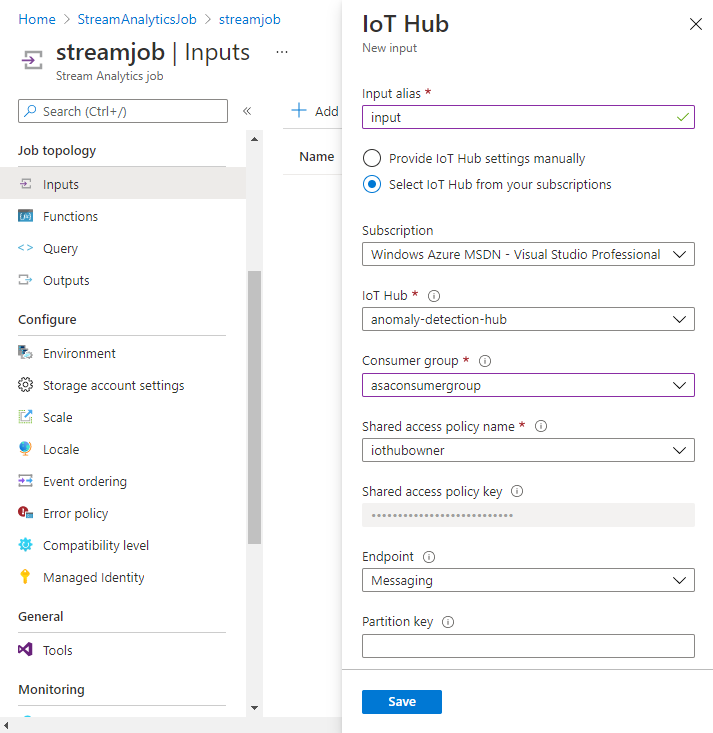
## Create Time Series Insights

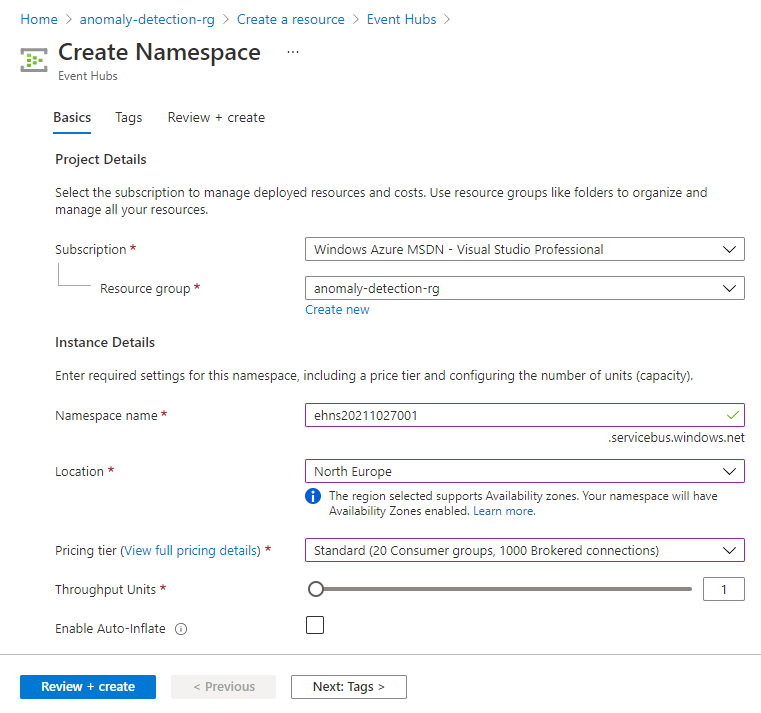


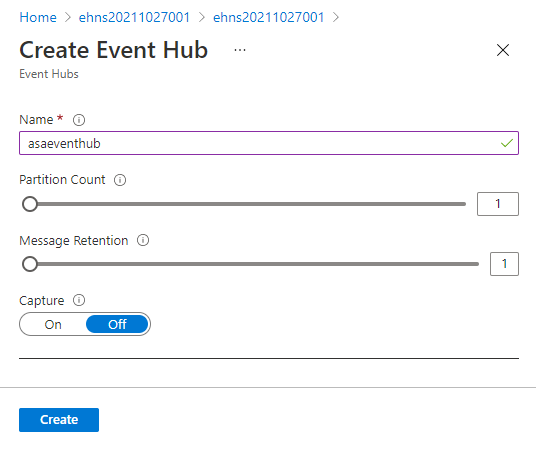


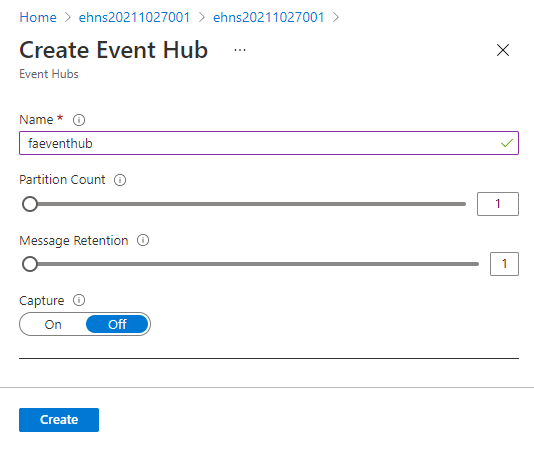
## Create Stream Analytics job

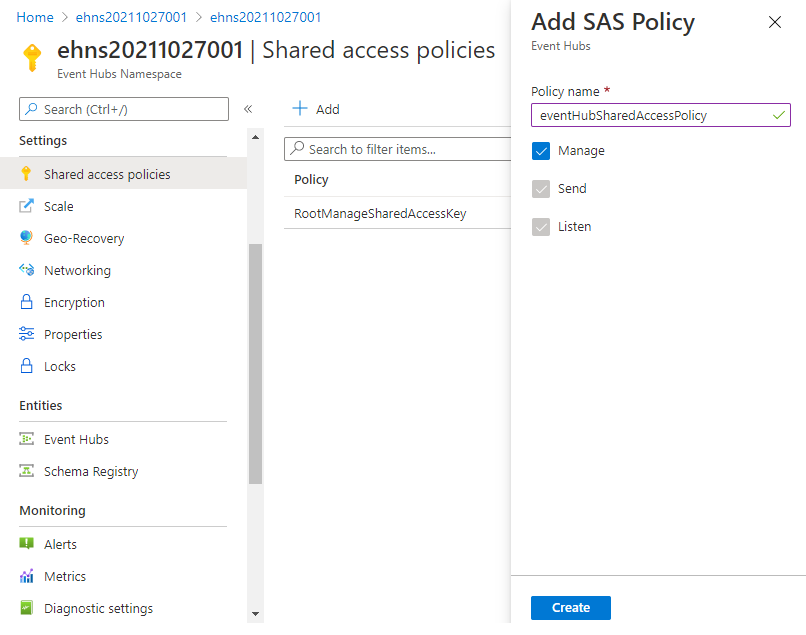












Graphical user interface, application

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# Send telemetry data

cd iot-workshop-anomaly-detection\source\send-telemetry  
.\env\Scripts\activate  
SET DPS\_ID\_SCOPE=0ne004269B3  
SET DEVICE\_ID=device001  
SET DPS\_PRIMARY\_KEY=cwB2AGMAXgBbAC8ASQA8AG8AJQBsAHwAeQBoACQAKQA3ADAAOABlADsAZQBpACsAQwBpAFAAdABfAEkAVQByAA==  
python telemetry.py