



## **Microsoft**

### **Exam Questions AZ-220**

Microsoft Azure IoT Developer

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### NEW QUESTION 1

- (Exam Topic 1)

How should you complete the GROUP BY clause to meet the Streaming Analytics requirements?

- A. GROUP BY HoppingWindow(Second, 60, 30)
- B. GROUP BY TumblingWindow(Second, 30)
- C. GROUP BY SlidingWindow(Second, 30)
- D. GROUP BY SessionWindow(Second, 30, 60)

**Answer:** B

#### Explanation:

Scenario: You plan to use a 30-second period to calculate the average temperature reading of the sensors. Tumbling window functions are used to segment a data stream into distinct time segments and perform a function against them, such as the example below. The key differentiators of a Tumbling window are that they repeat, do not overlap, and an event cannot belong to more than one tumbling window.

InAnswers:

A: Hopping window functions hop forward in time by a fixed period. It may be easy to think of them as Tumbling windows that can overlap, so events can belong to more than one Hopping window result set.

Reference:

<https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-window-functions>

### NEW QUESTION 2

- (Exam Topic 1)

You need to use message enrichment to add additional device information to messages sent from the IoT gateway devices when the reported temperature exceeds a critical threshold.

How should you configure the enrich message values? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

**Answer:** A

#### Explanation:

Reference:

<https://docs.microsoft.com/bs-cyrl-ba/azure/iot-hub/iot-hub-message-enrichments-overview>

### NEW QUESTION 3

- (Exam Topic 1)

What should you do to identify the cause of the connectivity issues?

- A. Send cloud-to-device messages to the IoT devices.
- B. Use the heartbeat pattern to send messages from the IoT devices to iotHub1.
- C. Monitor the connection status of the device twin by using an Azure function.
- D. Enable the collection of the Connections diagnostics logs and set up alerts for the connected devices count metric.

**Answer:** D

#### Explanation:

Scenario: You discover connectivity issues between the IoT gateway devices and iotHub1, which cause IoT devices to lose connectivity and messages.

To log device connection events and errors, turn on diagnostics for IoT Hub. We recommend turning on these logs as early as possible, because if diagnostic logs aren't enabled, when device disconnects occur, you won't have any information to troubleshoot the problem with.

Step 1:

- \*1. Sign in to the Azure portal.
- \*2. Browse to your IoT hub.
- \*3. Select Diagnostics settings.
- \*4. Select Turn on diagnostics.
- \*5. Enable Connections logs to be collected.
- \*6. For easier analysis, turn on Send to Log Analytics (see pricing).

Step 2:

Set up alerts for device disconnect at scale

To get alerts when devices disconnect, configure alerts on the Connected devices (preview) metric. Reference:  
<https://docs.microsoft.com/bs-cyrl-ba/azure/iot-hub/iot-hub-troubleshoot-connectivity>

#### NEW QUESTION 4

- (Exam Topic 3)

You have an Azure IoT Central application that has a custom device template. You need to configure the device template to support the following activities:

Return the reported power consumption.

Configure the desired fan speed.

Run the device reset routine.

Read the fan serial number.

Which option should you use for each activity? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. Mastered

B. Not Mastered

**Answer:** A

#### Explanation:

Box 1: Measurement

Telemetry/measurement is a stream of values sent from the device, typically from a sensor. For example, a sensor might report the ambient temperature.

Box 2: Property

The template can provide a writeable fan speed property

Properties represent point-in-time values. For example, a device can use a property to report the target temperature it's trying to reach. You can set writeable properties from IoT Central.

Box 3: Settings

Box 4: Command

You can call device commands from IoT Central. Commands optionally pass parameters to the device and receive a response from the device. For example, you can call a command to reboot a device in 10 seconds.

Reference:

<https://docs.microsoft.com/en-us/azure/iot-central/core/howto-set-up-template>

#### NEW QUESTION 5

- (Exam Topic 3)

You need to install the Azure IoT Edge runtime on a new device that runs Windows 10 IoT Enterprise. Which four actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

Step 1: From Azure IoT Hub, create an IoT Edge Device

Step 2: Deploy-IoTEdge

The Deploy-IoTEdge command checks that your Windows machine is on a supported version, turns on the containers feature, and then downloads the moby runtime and the IoT Edge runtime. The command defaults to using Windows containers.

```
{Invoke-WebRequest -useb https://aka.ms/iotedge-win} | Invoke-Expression; ` Deploy-IoTEdge
```

Step 3: Initialize-IoTEdge

The Initialize-IoTEdge command configures the IoT Edge runtime on your machine. The command defaults to manual provisioning with Windows containers.

```
{Invoke-WebRequest -useb https://aka.ms/iotedge Step 4: Enter the IoT Edge device connection string.
```

When prompted, provide the device connection string that you retrieved in step 1. The device connection string associates the physical device with a device ID in IoT Hub.

Reference:

<https://docs.microsoft.com/en-us/azure/iot-edge/module-composition>

**NEW QUESTION 6**

- (Exam Topic 3)

You are troubleshooting an Azure IoT hub.

You discover that some telemetry messages are dropped before they reach downstream processing. You suspect that IoT Hub throttling is the root cause.

Which log in the Diagnostics settings of the IoT hub should you use to capture the throttling error events?

- A. Routes
- B. DeviceTelemetry
- C. Connections
- D. C2DCommands

**Answer:** B

**Explanation:**

The device telemetry category tracks errors that occur at the IoT hub and are related to the telemetry pipeline. This category includes errors that occur when sending telemetry events (such as throttling) and receiving telemetry events (such as unauthorized reader). This category cannot catch errors caused by code running on the device itself.

Note: The metric `d2c.telemetry.ingress.sendThrottle` is the number of throttling errors due to device throughput throttles.

Reference:

<https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-monitor-resource-health>

**NEW QUESTION 7**

- (Exam Topic 3)

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this question, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure IoT solution that includes an Azure IoT hub, a Device Provisioning Service instance, and 1,000 connected IoT devices.

All the IoT devices are provisioned automatically by using one enrollment group. You need to temporarily disable the IoT devices from the connecting to the IoT hub.

Solution: From the Device Provisioning Service, you disable the enrollment group, and you disable device entries in the identity registry of the IoT hub to which the IoT devices are provisioned.

Does the solution meet the goal?

- A. Yes
- B. No

**Answer:** A

**Explanation:**

You may find it necessary to deprovision devices that were previously auto-provisioned through the Device Provisioning Service.

In general, deprovisioning a device involves two steps:

\*1. Disenroll the device from your provisioning service, to prevent future auto-provisioning. Depending on whether you want to revoke access temporarily or permanently, you may want to either disable or delete an enrollment entry.

\*2. Deregister the device from your IoT Hub, to prevent future communications and data transfer. Again, you can temporarily disable or permanently delete the device's entry in the identity registry for the IoT Hub where it was provisioned.

Reference:

<https://docs.microsoft.com/bs-latn-ba/azure/iot-dps/how-to-unprovision-devices>

**NEW QUESTION 8**

- (Exam Topic 3)

You have 1,000 devices that connect to a standard tier Azure IoT hub.

All the devices are commissioned and send telemetry events to the built-in IoT Hub endpoint. You configure message enrichment on the events endpoint and set the enrichment value to `$twin.tags.ipV4`.

When you inspect messages on the events endpoint, you discover that all the messages are stamped with a string of `"$twin.tags.ipV4"`.

What are two possible causes of the issue? Each Answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. The ipV4 tag is a restricted twin property that is unavailable for message enrichment.
- B. A standard tier IoT hub does not support device twin properties in message enrichments.
- C. The device sending the message has no device twin.
- D. Message enrichment cannot be added to messages going to a built-in endpoint.
- E. The device twin path used for the value of the enrichment does not exist.

F. The device twin property value used for message enrichment is set to "\$twin.tags.ipV4".

**Answer:** CE

**Explanation:**

In some cases, if you are applying an enrichment with a value set to a tag or property in the device twin, the value will be stamped as a string value. For example, if an enrichment value is set to \$twin.tags.field, the messages will be stamped with the string "\$twin.tags.field" rather than the value of that field from the twin.

This happens in the following cases:

(C) Your IoT Hub is in the standard tier, but the device sending the message has no device twin.

(E) Your IoT Hub is in the standard tier, but the device twin path used for the value of the enrichment does not exist. For example, if the enrichment value is set to \$twin.tags.location, and the device twin does not have a location property under tags, the message is stamped with the string "\$twin.tags.location".

Your IoT Hub is in the basic tier. Basic tier IoT hubs do not support device twins. Reference:

<https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-message-enrichments-overview>

**NEW QUESTION 9**

- (Exam Topic 3)

You have an Azure IoT hub that uses a Device Provisioning Service instance.

You create a new individual device enrollment that uses symmetric key attestation.

Which detail from the enrollment is required to auto provision the device by using the Device Provisioning Service?

- A. the registration ID of the enrollment
- B. the primary key of the enrollment
- C. the device identity of the IoT hub
- D. the hostname of the IoT hub

**Answer:** C

**Explanation:**

An enrollment is the record of devices or groups of devices that may register through auto-provisioning. The enrollment record contains information about the device or group of devices, including:

the attestation mechanism used by the device

the optional initial desired configuration desired IoT hub the desired device ID

Note: Azure IoT auto-provisioning can be broken into three phases:

\*1. Service configuration - a one-time configuration of the Azure IoT Hub and IoT Hub Device Provisioning Service instances, establishing them and creating linkage between them.

\*2. Device enrollment - the process of making the Device Provisioning Service instance aware of the devices that will attempt to register in the future. Enrollment is accomplished by configuring device identity information in the provisioning service, as either an "individual enrollment" for a single device, or a "group enrollment" for multiple devices.

\*3. Device registration and configuration Reference:

<https://docs.microsoft.com/en-us/azure/iot-dps/concepts-service#enrollment>

**NEW QUESTION 10**

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