

# 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 plan to deploy Azure Time Series Insights.

What should you create on iothub1 before you deploy Time Series Insights?

- A. a new message route
- B. a new consumer group
- C. a new shared access policy
- D. an IP filter rule

**Answer:** B

#### Explanation:

Create a dedicated consumer group in the IoT hub for the Time Series Insights environment to consume from. Each Time Series Insights event source must have its own dedicated consumer group that isn't shared with any other consumer. If multiple readers consume events from the same consumer group, all readers are likely to exhibit failures.

Reference:

<https://docs.microsoft.com/en-us/azure/time-series-insights/time-series-insights-how-to-add-an-event-source- iothub>

### NEW QUESTION 3

- (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 4

- (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 5**

- (Exam Topic 3)

You have 20 devices that connect to an Azure IoT hub.

You open Azure Monitor as shown in the exhibit. (Click the Exhibit tab.)

You discover that telemetry is not being received from five IoT devices.

You need to identify the names of the devices that are not generating telemetry and visualize the data. What should you do first?

- A. Add the Number of throttling errors metric and archive the logs to an Azure storage account.
- B. Configure diagnostics for Routes and stream the logs to Azure Event Hubs.
- C. Add the Telemetry messages sent metric and archive the logs to an Azure Storage account.
- D. Configure diagnostics for Connections and send the logs to Azure Log Analytics.

**Answer:** D

**Explanation:**

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.

Sign in to the Azure portal.

Browse to your IoT hub.

Select Diagnostics settings.

Select Turn on diagnostics.

Enable Connections logs to be collected.

For easier analysis, turn on Send to Log Analytics

Reference:

<https://docs.microsoft.com/bs-cyrl-ba/azure/iot-hub/iot-hub-troubleshoot-connectivity>

**NEW QUESTION 6**

- (Exam Topic 3)

You have an existing Azure IoT hub.

You need to connect physical IoT devices to the IoT hub.

You are connecting the devices through a firewall that allows only port 443 and port 80.

Which three communication protocols can you use? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. MQTT over WebSocket
- B. AMQP
- C. AMQP over WebSocket
- D. MQTT
- E. HTTPS

**Answer:** ACE

**Explanation:**

MQTT over WebSockets, AMQP over WebSocket, and HTTPS use port 443. Reference:

<https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-protocols>

#### NEW QUESTION 7

- (Exam Topic 3)

You have an Azure IoT hub.

You plan to attach three types of IoT devices as shown in the following table.

You need to select the appropriate communication protocol for each device.

What should you select? To answer, drag the appropriate protocols to the correct devices. Each protocol may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

A. Mastered

B. Not Mastered

**Answer:** A

#### Explanation:

Box 1: AMQP

Use AMQP on field and cloud gateways to take advantage of connection multiplexing across devices. Box 2: MQTT

MQTT is used on all devices that do not require to connect multiple devices (each with its own per-device credentials) over the same TLS connection.

Box 3: HTTPS

Use HTTPS for devices that cannot support other protocols.

<https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-protocols>

#### NEW QUESTION 8

- (Exam Topic 3)

You have an Azure IoT solution that includes an Azure IoT hub.

You receive a root certification authority (CA) certificate from the security department at your company. You need to configure the IoT hub to use the root CA certificate.

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:**

Reference:

<https://docs.microsoft.com/bs-latn-ba/azure/iot-hub/iot-hub-security-x509-get-started>

**NEW QUESTION 9**

- (Exam Topic 3)

You plan to deploy an Azure IoT hub. The IoT hub must support the following:

Three Azure IoT Edge devices 2,500 IoT devices  
Each IoT device will send a 6 KB message every five seconds.  
You need to size the IoT hub to support the devices. The solution must minimize costs. What should you choose?

- A. one unit of the S1 tier
- B. one unit of the B2 tier
- C. one unit of the B1 tier
- D. one unit of the S3 tier

**Answer:** D

**Explanation:**

$2500 \times 6 \text{ KB} \times 12 = 180,000 \text{ KB/minute} = 180 \text{ MB/Minute}$ .

B3, S3 can handle up to 814 MB/minute per unit. Incorrect Answers:

A, C: B1, S1 can only handle up to 1111 KB/minute per unit B: B2, S2 can only handle up to 16 MB/minute per unit.

Reference:

<https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-scaling>

**NEW QUESTION 10**

- (Exam Topic 3)

You have 100 devices that connect to an Azure IoT hub.

You plan to use Azure functions to process all the telemetry messages from the devices before storing the messages.

You need to configure the functions binding for the IoT hub.

Which two configuration details should you use to configure the binding? Each Answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. the name of the resource group that contains the IoT hub
- B. the IoT hub's connection string shared access key that has Service connect permissions
- C. the connection string of the Azure Event Hub-compatible endpoint from the IoT Hub built-in endpoints
- D. the Azure Event-Hub compatible name

**Answer:** CD

**Explanation:**

EventHubName: Functions 2.x and higher. The name of the event hub. When the event hub name is also present in the connection string, that value overrides this property at runtime.

Connection: The name of an app setting that contains the connection string to the event hub's namespace. Copy this connection string by clicking the Connection Information button for the namespace, not the event hub itself. This connection string must have send permissions to send the message to the event stream.

Reference:

<https://docs.microsoft.com/en-us/azure/azure-functions/functions-bindings-event-iot-output>

### NEW QUESTION 10

- (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 devices that connect to an Azure IoT hub. Each device has a fixed GPS location that includes latitude and longitude.

You discover that a device entry in the identity registry of the IoT hub is missing the GPS location.

You need to configure the GPS location for the device entry. The solution must prevent the changes from being propagated to the physical device.

Solution: You use an Azure policy to apply tags to a resource group. Does the solution meet the goal?

A. Yes

B. No

**Answer: B**

#### Explanation:

Instead add the desired properties to the device twin.

Note: Device Twins are used to synchronize state between an IoT solution's cloud service and its devices. Each device's twin exposes a set of desired properties and reported properties. The cloud service populates the desired properties with values it wishes to send to the device. When a device connects it requests and/or subscribes for its desired properties and acts on them.

Reference:

<https://azure.microsoft.com/sv-se/blog/deep-dive-into-azure-iot-hub-notifications-and-device-twin/>

### NEW QUESTION 13

- (Exam Topic 3)

You have an Azure IoT hub.

You plan to deploy 1,000 IoT devices by using automatic device management. The device twin is shown below.

You need to configure automatic device management for the deployment.

Which target Condition and Device Twin Path should you use? 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:

Box 1: tags.engine.warpDriveType='VM105a'

Use tags to target twins. Before you create a configuration, you must specify which devices or modules you want to affect. Azure IoT Hub identifies devices and using tags in the device twin, and identifies modules using tags in the module twin.

Box 2: properties.desired.warpOperating

The twin path, which is the path to the JSON section within the twin desired properties that will be set. For example, you could set the twin path to properties.desired.chiller-water and then provide the following

JSON content:

```
{
  "temperature": 66,
  "pressure": 28
}
```

Reference:

<https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-automatic-device-management>

### NEW QUESTION 16

- (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 17

- (Exam Topic 3)

You have an IoT device that gathers data in a CSV file named Sensors.csv.

You deploy an Azure IoT hub that is accessible at ContosoHub.azure-devices.net. You need to ensure that Sensors.csv is uploaded to the IoT hub.

Which two actions should you perform? Each correct answer presents part of the solution.

- A. Upload Sensors.csv by using the IoT Hub REST API.
- B. From the Azure subscription, select the IoT hub, select Message routing, and then configure a route to storage.
- C. From the Azure subscription, select the IoT hub, select File upload, and then configure a storage container.
- D. Configure the device to use a GET request to ContosoHub.azure-devices.net/devices/ContosoDevice1/ files/notifications.

**Answer:** AC

#### Explanation:

C: To use the file upload functionality in IoT Hub, you must first associate an Azure Storage account with your hub. Select File upload to display a list of file upload properties for the IoT hub that is being modified.

For Storage container: Use the Azure portal to select a blob container in an Azure Storage account in your current Azure subscription to associate with your IoT Hub. If necessary, you can create an Azure Storage account on the Storage accounts blade and blob container on the Containers

A: IoT Hub has an endpoint specifically for devices to request a SAS URI for storage to upload a file. To start the file upload process, the device sends a POST request to {iot hub}.azure-devices.net/devices/{deviceId}/ files with the following JSON body:

```
{
  "blobName": "{name of the file for which a SAS URI will be generated}"
}
```

Reference:

<https://github.com/MicrosoftDocs/azure-docs/blob/master/articles/iot-hub/iot-hub-configure-file-upload.md>

#### NEW QUESTION 18

- (Exam Topic 3)

You have an instance of Azure Time Series Insights and an Azure IoT hub that receives streaming telemetry from IoT devices.

You need to configure Time Series Insights to receive telemetry from the devices.

Which three 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: Create a dedicated consumer group.. Add a consumer group to your IoT hub.

Applications use consumer groups to pull data from Azure IoT Hub. To reliably read data from your IoT hub, provide a dedicated consumer group that's used only by this Time Series Insights environment.

Step 2: Add a new Time Series Insights event source. Add a new event source

Sign in to the Azure portal.

In the left menu, select All resources. Select your Time Series Insights environment.

Under Settings, select Event Sources, and then select Add.

In the New event source pane, for Event source name, enter a name that's unique to this Time Series Insights environment. For example, enter event-stream.

Step 3: Configure the Time Series event source to connect to an existing IOT hub Step 4: For Source, select IoT Hub.

Step 5: Select a value for Import option:

If you already have an IoT hub in one of your subscriptions, select Use IoT Hub from available subscriptions. This option is the easiest approach.

Reference:

<https://docs.microsoft.com/en-us/azure/time-series-insights/time-series-insights-how-to-add-an-event-source-iot>

#### NEW QUESTION 22

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