AZ-220^{Q&As}

Microsoft Azure IoT Developer

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QUESTION 1

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 correct 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

Correct Answer: CD

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

QUESTION 2

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

You are developing a custom Azure IoT Edge module.

The module needs to identify the device ID of the local device.

Solution: You configure the module to read the device ID of the device twin.

Does this meet the goal?

A. Yes

B. No

Correct Answer: A

Device twins are JSON documents that store device state information including metadata, configurations, and conditions. Azure IoT Hub maintains a device twin for each device that you connect to IoT Hub. Device identity properties. The root of the device twin JSON document contains the read-only properties from the corresponding device identity stored in the identity registry.

Reference: https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-device-twins

QUESTION 3

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

From IoT Hub, you create an Event subscription to be notified when devices are registered to IoT Hub. You select webhook endpoint as a handler for the Event subscription.

Which two types of Event Grid messages will be received by the webhook? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Microsoft.Devices.DeviceCreated

B. Microsoft.Resources.ResourceWriteSuccess

C. Microsoft.EventGrid.SubscriptionValidationEvent

D. Microsoft.Devices.DeviceConnected

Correct Answer: AC

Microsoft.Devices.DeviceCreated: Published when a device is registered to an IoT hub.

The first thing you want to do is handle Microsoft.EventGrid.SubscriptionValidationEvent events. Every time someone subscribes to an event, Event Grid sends a validation event to the endpoint with a validationCode in the data payload.

Reference: https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-event-grid https://docs.microsoft.com/en-us/azure/event-grid/receive-events

QUESTION 4

HOTSPOT

You have the following device twin for the IoT device.

```
{
  "deviceId": "device1",
  "etag": "AAAAAAAAAk=",
  "deviceEtag": "NDcwMTU4Mzk=",
  "status": "enabled",
  "statusUpdateTime": "0001-01-01T00:00:00Z",
  "connectionState": "Disconnected",
  "lastActivityTime": "2019-10-21T22:45:57.9732805Z",
  "cloudToDeviceMessageCount": 0,
  "authenticationType": "sas",
  "x509Thumbprint": {
    "primaryThumbprint": null,
    "secondaryThumbprint": null
  },
  "version": 17,
  "properties": {
    "desired": {
      "$metadata": {
        "$lastUpdated": "2019-10-24T19:40:46.4809147Z",
        "$lastUpdatedVersion": 9
      },
      "$version": 9
    },
    "reported": {
      "fanSpeed": 73,
      "$metadata": {
        "$lastUpdated": "2019-10-24T19:41:28.8839751Z",
        " fanSpeed": {
          "$lastUpdated": "2019-10-24T19:41:28.8839751Z"
        }
      },
      "$version": 8
    }
  },
  "capabilities": {
    "iotEdge": false
  }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No. NOTE: Each correct selection is worth one point.

Hot Area:

Statements	Yes	No
You can add a property that contains multiple nested values to the device twin.	○	○
The device twin will set `fanSpeed` for the physical IoT device to 73.	○	○
You can change the device identity of the physical IoT device by modifying the `deviceId` property.	○	○

Correct Answer:

Statements	Yes	No
You can add a property that contains multiple nested values to the device twin.	○	○
The device twin will set `fanSpeed` for the physical IoT device to 73.	○	○
You can change the device identity of the physical IoT device by modifying the `deviceId` property.	○	○

Box1: Yes

Box 2: Yes

Fanspeed 73 is a reported property.

Box 3: No

The deviceID property is read only.

Reference:

https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-device-twins

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QUESTION 5

You have 100 devices that connect to an Azure IoT hub named Hub1. The devices connect by using a symmetric key.

You deploy an IoT hub named Hub2.

You need to migrate 10 devices from Hub1 to Hub2. The solution must ensure that the devices retain the existing symmetric key.

What should you do?

A. Add a desired property to the device twin of Hub2. Update the endpoint of the 10 devices to use Hub2.

B. Add a desired property to the device twin of Hub1. Recreate the device identity on Hub2.

C. Recreate the device identity on Hub2. Update the endpoint of the 10 devices to use Hub2.

D. Disable the 10 devices on Hub1. Update the endpoint of the 10 devices to use Hub2.

Correct Answer: B

Desired properties. Used along with reported properties to synchronize device configuration or conditions. The solution back end can set desired properties, and the device app can read them. The device app can also receive notifications of changes in the desired properties.

Reference: https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-device-twins

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QUESTION 6

You have an Azure subscription

You need to deploy an Azure IoT hub by using an Azure Resource Manager (ARM) template.

The solution must ensure that the IoT hub rejects connections from devices that only support cipher suites that use SHA1.

What should you include in the template?

A. authenticationType\\'\\'\\'KeyBased\\'\\'\\'

B. \\'\\'\\'disableDeviceSAS\\'\\'\\' : true\\'\\'\\'

C. \\'\\'\\'disableModuleSAS\\'\\'\\': \\'\\'\\'true\\'\\'\\'

D. \\'\\'\\'minTIsversion\\'\\'\\':\\'\\'\\'1.2\\'\\'\\'

Correct Answer: A

QUESTION 7

You have an Azure IoT hub.

You plan to implement IoT Hub events by using Azure Event Grid.

You need to send an email when the following events occur:

1.

Device Created

2.

Device Deleted

3.

Device Connected

4.

Device Disconnected

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

NOTE: Each correct selection is worth one point.

A. From the IoT hub, configure an event subscription that has API management as the Endpoint Type.

B. From the IoT hub, configure an event subscription that has Web Hook as the Endpoint Type.

C. Create an Azure logic app that has a Request trigger.

D. From the IoT hub, configure an event subscription that has Service Bus Queue as the Endpoint Type.

Correct Answer: BC

For non-telemetry events like DeviceConnected, DeviceDisconnected, DeviceCreated and DeviceDeleted, the Event Grid filtering can be used when creating the subscription.

C: Azure Event Grid enables you to react to events in IoT Hub by triggering actions in your downstream business applications. A trigger, such as a Request trigger, is a specific event that starts your logic app.

Reference: https://docs.microsoft.com/en-us/azure/event-grid/publish-iot-hub-events-to-logic-apps

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QUESTION 8

HOTSPOT

You create an Azure Stream Analytics job that has the following query.

```
SELECT
    Count(*) AS dailyCount,
    System.Timestamp() AS time
INTO FunctionOutput
FROM IotHubInput TIMESTAMP BY deviceTime
GROUP BY TumblingWindow(hour, 24)
```

The job is configured to have an Azure IoT Hub input and an output to an Azure function.

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Statements	Yes	No
The function will be invoked at midnight UTC.	○	○
The function will be invoked only when the IoT hub receives telemetry.	○	○
When the Stream Analytics job is restarted, the function can be invoked more than once in a 24-hour period.	○	○

Correct Answer:

Answer Area

Statements	Yes	No
The function will be invoked at midnight UTC.	●	○
The function will be invoked only when the IoT hub receives telemetry.	○	●
When the Stream Analytics job is restarted, the function can be invoked more than once in a 24-hour period.	●	○

QUESTION 9

You plan to deploy a standard tier Azure IoT hub.

You need to perform an over-the-air (OTA) update on devices that will connect to the IoT hub by using scheduled jobs.

What should you use?

A. a device-to-cloud message

B. the device twin reported properties

C. a cloud-to-device message

D. a direct method

Correct Answer: D

Releases via the REST API.

All of the operations that can be performed from the Console can also be automated using the REST API. You might do this to automate your build and release process, for example.

You can build firmware using the Particle CLI or directly using the compile source code API.

Note: Over-the-air (OTA) firmware updates are a vital component of any IoT system. Over-the-air firmware updates refers to the practice of remotely updating the code on an embedded device.

Reference:

https://docs.particle.io/tutorials/device-cloud/ota-updates/

QUESTION 10

During the POV phase, you connect a device to IoT Hub and start sending telemetry messages.

You need to verify the content of the messages received by IoT Hub during the POV phase.

What should you use?

A. the Monitoring settings of IoT Hub or a Postman call to the IoT Hub REST API

B. Azure Monitor or Azure Log Analytics

C. Microsoft Visual Studio Code that uses the IoT Hub Toolkit or Azure CLI that uses the IoT Hub extension

D. Splunk or Grafana

Correct Answer: B

Reference: https://docs.microsoft.com/en-us/azure/iot-hub/tutorial-use-metrics-and-diags

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QUESTION 11

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

You plan to deploy 10,000 IoT devices.

You need to validate the performance of the IoT solution while 10,000 concurrently connected devices stream telemetry. The solution must minimize effort.

What should you deploy?

A. an Azure IoT Device Simulation from Azure IoT Solution Accelerator

B. an Azure function, an IoT Hub device SDK, and a timer trigger

C. Azure IoT Central application and a template for the retail industry

D. an Azure IoT Edge gateway configured as a protocol translation gateway

Correct Answer: A

The IoT solution accelerators are complete, ready-to-deploy IoT solutions that implement common IoT scenarios. The scenarios include connected factory and device simulation.

Use the Device Simulation solution accelerator to run simulated devices that generate realistic telemetry. You can use this solution accelerator to test the behavior of the other solution accelerators or to test your own custom IoT solutions.

Reference:

https://docs.microsoft.com/en-us/azure/iot-accelerators/about-iot-accelerators

QUESTION 12

You have an Azure subscription that contains an Azure IoT hub and two Azure IoT Edge devices named Device1 and Device2.

You need to ensure that the IoT hub only accepts connections from Device1 and Device2.

What should you configure?

A. a private endpoint connection

B. Azure API Management

C. Azure Active Directory (Azure AD) Identity Protection

D. a gateway device

Correct Answer: A

Ingress connectivity to IoT Hub using Azure Private Link. A private endpoint is a private IP address allocated inside a customer-owned VNet via which an Azure resource is reachable. Through Azure Private Link, you can set up a private endpoint for your IoT hub to allow services inside your VNet to reach IoT Hub without requiring traffic to be sent to IoT Hub\'s public endpoint. Similarly, your on-premises devices can use Virtual Private Network (VPN) or ExpressRoute peering to gain connectivity to your VNet and your IoT Hub (via its private endpoint). As a result, you can restrict or completely block off connectivity to your IoT hub\'s public endpoints by using IoT Hub IP filter or the public network access toggle. This approach keeps connectivity to your Hub using the private endpoint for devices.

Reference: https://docs.microsoft.com/en-us/azure/iot-hub/virtual-network-support

QUESTION 13

DRAG DROP

You have an Azure IoT solution that includes an Azure IoT hub, a Device Provisioning Service instance, and 1,000 connected IoT devices. The IoT devices are allocated to tour enrollment groups. Each enrollment group is configured to use

certificate attestation.

You need to decommission all the devices in a single enrollment group and the enrollment group itself.

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.

Select and Place:

Actions	Answer Area
Delete each device from the identity registry.	
Delete the IoT hub.	
Remove the X.509 root certificate.	
Disable the enrollment group.	
Delete the enrollment group.	

Correct Answer:

Actions	Answer Area
	Disable the enrollment group.
Delete the IoT hub.	Delete each device from the identity registry.
Remove the X.509 root certificate.	Delete the enrollment group.

To deprovision all of the devices that have been provisioned through an enrollment group:

Disable the enrollment group to disallow its signing certificate.

Use the list of provisioned devices for that enrollment group to disable or delete each device from the identity registry of its respective IoT hub.

After disabling or deleting all devices from their respective IoT hubs, you can optionally delete the enrollment group. Be aware, though, that, if you delete the enrollment group and there is an enabled enrollment group for a signing certificate

higher up in the certificate chain of one or more of the devices, those devices can re-enroll.

Reference:

https://docs.microsoft.com/en-us/azure/iot-dps/how-to-unprovision-devices

QUESTION 14

You have 20 devices that connect to an Azure IoT hub. You open Azure Monitor as shown in the exhibit.
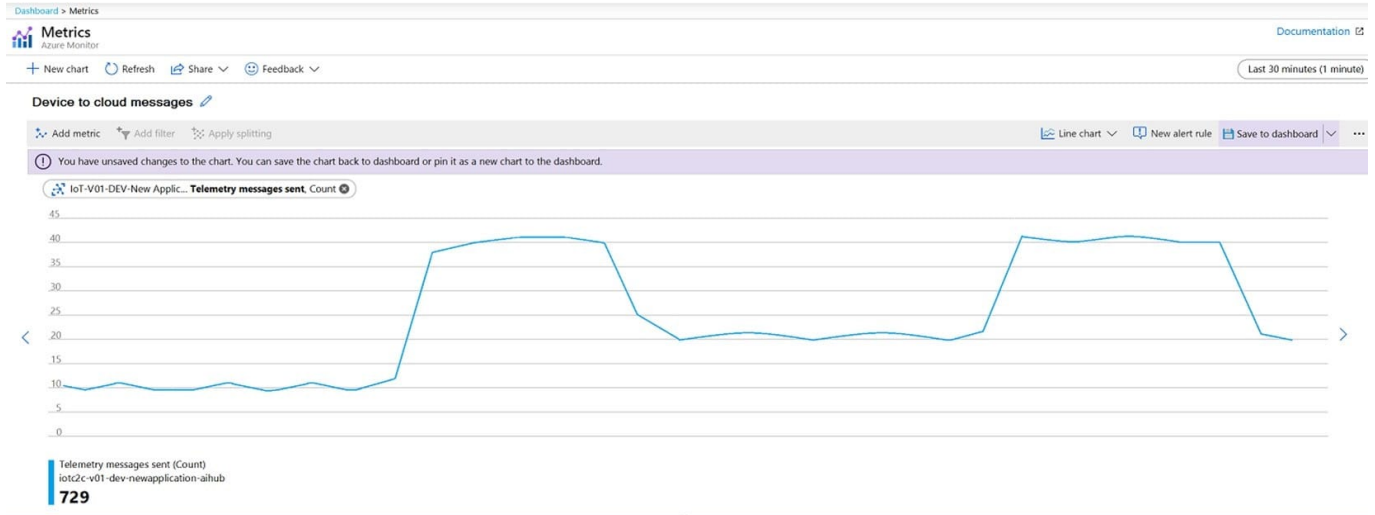
You discover that telemetry is not being received from five IoT devices.

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.

Correct Answer: D

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.

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

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

QUESTION 15

You have an Azure IoT solution.

You plan to register an Azure IoT Edge device by using X.509 self-signed certificates.

You need to provide the thumbprint for the primary and secondary certificates.

Solution: You generate a 96-hex character SHA384 hash for the certificates.

Does this meet the goal?

A. Yes

B. No

Correct Answer: B