Exam Questions AZ-220

Microsoft Azure IoT Developer

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NEW QUESTION 1
- (Exam Topic 1)
You need to enable telemetry message tracing through the entire IoT solution. What should you do?

A. Monitor device lifecycle events.
B. Upload IoT device logs by using the File upload feature.
C. Enable the DeviceTelemetry diagnostic log and stream the log data to an Azure event hub.
D. Implement distributed tracing.

Answer: D

Explanation:
IoT Hub is one of the first Azure services to support distributed tracing. As more Azure services support distributed tracing, you'll be able trace IoT messages throughout the Azure services involved in your solution.
Note:
Enabling distributed tracing for IoT Hub gives you the ability to:
Precisely monitor the flow of each message through IoT Hub using trace context. This trace context includes correlation IDs that allow you to correlate events from one component with events from another component. It can be applied for a subset or all IoT device messages using device twin.
Automatically log the trace context to Azure Monitor diagnostic logs.
Measure and understand message flow and latency from devices to IoT Hub and routing endpoints. Start considering how you want to implement distributed tracing for the non-Azure services in your IoT solution.
Reference:
https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-distributed-tracing

NEW QUESTION 2
- (Exam Topic 1)
You create a new IoT device named device1 on iothub1. Device1 has a primary key of Uihuih76hbHb. How should you complete the device connection string? 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: iothub1
The Azure IoT hub is named iothub1.
Box 2: azure-devices.net
The format of the device connection string looks like:
HostName={YourIoTHubName}.azure-devices.net;DeviceId=MyNodeDevice;SharedAccessKey={YourShared Box 1: device1
Device1 has a primary key of Uihuih76hbHb. Reference:
https://docs.microsoft.com/en-us/azure/iot-hub/quickstart-control-device-dotnet

NEW QUESTION 3
- (Exam Topic 3)
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

Answer: D

Explanation:
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/

NEW QUESTION 4
- (Exam Topic 3)
You have the devices shown in the following table.

Name	Type	Hardware configuration
Device1	Azure Sphere microcontroller unit (MCU)	4 MB of RAM ARM processor
Device2	Raspberry Pi single board computer (SBC)	1 GB of RAM ARM processor
Device3	Desktop computer	8 GB of RAM x64 processor
Device4	Apple iPhone	4 GB of RAM ARM processor

You are implementing a proof of concept (POC) for an Azure IoT solution. You need to deploy an Azure IoT Edge device as part of the POC.
On which two devices can you deploy IOT Edge? Each correct answer presents a complete solution.
NOTE: Each correct selection is worth one point.

A. Device1
B. Device2
C. Device3
D. Device4

Answer: BC

Explanation:
Azure IoT Edge runs great on devices as small as a Raspberry Pi3 to server grade hardware. Tier 1.
The systems listed in the following table are supported by Microsoft, either generally available or in public preview, and are tested with each new release.

Operating System	AMD64	ARM32v7	ARM64
Raspbian Stretch		✓	
Ubuntu Server 16.04	✓		Public preview
Ubuntu Server 18.04	✓		Public preview
Windows 10 IoT Core, build 17763	✓		
Windows 10 IoT Enterprise, build 17763	✓		
Windows Server 2019, build 17763	✓		
Windows Server IoT 2019, build 17763	✓		

Reference:
https://docs.microsoft.com/en-us/azure/iot-edge/support

NEW QUESTION 5
- (Exam Topic 3)
You have an Azure IoT solution that includes several Azure IoT hubs.
A new alerting feature was recently added to the IoT devices. The feature uses a new device twin reported property named alertCondition.
You need to send alerts to an Azure Service Bus queue named MessageAlerts. The alerts must include alertCondition and the name of the IoT hub.
Which two actions should you perform? Each Answer presents part of the solution. NOTE: Each correct selection is worth one point.

A. Configure File upload for each IoT hu
B. Configure the device to send a file to an Azure Storage container that contains the device name and status message.
C. Add the following message enrichments: Name = iotHubNameValue = $twin.tag.location Endpoint = MessageAlert
D. Create an IoT Hub routing rule that has a data source of Device Twin Change Events and select the endpoint for MessageAlerts.
E. Add the following message enrichments: Name = iotHubName Value = $iothubnameEndpoint = MessageAlert
F. Create an IoT Hub routing rule that has a data source of Device Telemetry Messages and select the endpoint for MessageAlerts.

Answer: BD

Explanation:
B: Message enrichments is the ability of the IoT Hub to stamp messages with additional information before the messages are sent to the designated endpoint. One reason to use message enrichments is to include data that can be used to simplify downstream processing. For example, enriching device telemetry messages with
a device twin tag can reduce load on customers to make device twin API calls for this information. D: Applying enrichments
The messages can come from any data source supported by IoT Hub message routing, including the following examples:
-->device twin change notifications -- changes in the device twin device telemetry, such as temperature or pressure
device life-cycle events, such as when the device is created or deleted Reference:
https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-message-enrichments-overview

NEW QUESTION 6
- (Exam Topic 3)
You have an Azure IoT solution that includes an Azure IoT hub and 100 Azure IoT Edge devices.
You plan to deploy the IoT Edge devices to external networks. The firewalls of the external networks only allow traffic on port 80 and port 443.
You need to ensure that the devices can connect to the IoT hub. The solution must minimize costs. What should you do?

A. Configure the devices for extended offline operations.
B. Configure the upstream protocol of the devices to use MQTT over WebSocket.
C. Connect the external networks to the IoT solution by using ExpressRoute.
D. Configure the devices to use an HTTPS proxy.

Answer: B

Explanation:
MQTT over WebSockets uses 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.

Name	Specification	Note
Transparent Field Gateway Device	High-power device with a fast processor and 4 GB of RAM	Will connect to multiple devices, each with its own credentials, by using the same TLS connection.
Low Resource Device	Low resource specifications, battery-operated, and 512 KB of RAM	Will connect directly to an IoT hub and will **NOT** connect to any other devices. Will use cloud-to-device messages.
Limited Sensor Device	Extremely low-power device with a limited microcontroller (MCU) and 256 KB of RAM	Will **NOT** support the Azure SDK. Messages must be as small as possible.

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)
From the Device Provisioning Service, you create an enrollment as shown in the exhibit. (Click the Exhibit tab.)

You need to deploy a new IoT device.
What should you use as the device identity during attestation?

A. a self-signed X.509 certificate
B. the random string of alphanumeric characters
C. the HMACSHA256 hash of the device's registration ID
D. the endorsement key of the device's Trusted Platform Module (TPM)

Answer: C

Explanation:
Each device uses its derived device key with your unique registration ID to perform symmetric key attestation with the enrollment during provisioning. To generate the device key, use the key you copied from your DPS
enrollment to compute an HMAC-SHA256 of the unique registration ID for the device and convert the result into Base64 format.
Reference:
https://docs.microsoft.com/en-us/azure/iot-edge/how-to-auto-provision-symmetric-keys

NEW QUESTION 9
- (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 add tags to the device twin. 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 10
- (Exam Topic 3)
You have an Azure IoT hub that is being taken from prototype to production.
You plan to connect IoT devices to the IoT hub. The devices have hardware security modules (HSMs). You need to use the most secure authentication method between the devices and the IoT hub. Company
policy prohibits the use of internally generated certificates. Which authentication method should you use?

A. an X.509 self-signed certificate
B. a certificate thumbprint
C. a symmetric key
D. An X.509 certificate signed by a root certification authority (CA).

Answer: D

Explanation:
Purchase X.509 certificates from a root certificate authority (CA). This method is recommended for production environments.
The hardware security module, or HSM, is used for secure, hardware-based storage of device secrets, and is the most secure form of secret storage. Both X.509 certificates and SAS tokens can be stored in the HSM
Reference:
https://docs.microsoft.com/en-us/azure/iot-dps/concepts-security

NEW QUESTION 10
- (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 11
- (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 IoT hub, you change the credentials for the shared access policy of the IoT devices. Does the solution meet the goal?

A. Yes
B. No

Answer: B

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

NEW QUESTION 13
- (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.
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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 18
- (Exam Topic 3)
You deploy an Azure IoT hub.
You need to demonstrate that the IoT hub can receive messages from a device.
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: Register a device in IoT Hub
Before you can use your IoT devices with Azure IoT Edge, you must register them with your IoT hub. Once a device is registered, you can retrieve a connection string to set up your device for IoT Edge workloads.
Step 2: Configure the device connection string on a device client.
When you're ready to set up your device, you need the connection string that links your physical device with its identity in the IoT hub.
Step 3: Trigger a new send event from a device client. Reference:
https://docs.microsoft.com/en-us/azure/iot-edge/how-to-register-device

NEW QUESTION 19
- (Exam Topic 3)
You have an Azure IoT hub that uses a Device Provisioning Service instance to automate the deployment of Azure IoT Edge devices.
The IoT Edge devices have a Trusted Platform Module (TPM) 2.0 chip.
From the Azure portal, you plan to add an individual enrollment to the Device Provisioning Service that will use the TPM of the IoT Edge devices as the attestation mechanism.
Which detail should you obtain before you can create the enrollment.

A. the scope ID and the Device Provisioning Service endpoint
B. the primary key of the Device Provisioning Service shared access policy and the global device endpoint
C. the X.509 device certificate and the certificate chain
D. the endorsement key and the registration ID

Answer: D

Explanation:
The TPM simulator's Registration ID and the Endorsement key, are used when you create an individual enrollment for your device.
Reference:
https://docs.microsoft.com/en-us/azure/iot-edge/how-to-auto-provision-simulated-device-linux

NEW QUESTION 23
- (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.
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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 add the desired properties to the device twin. Does the solution meet the goal?

A. Yes
B. No

Answer: A

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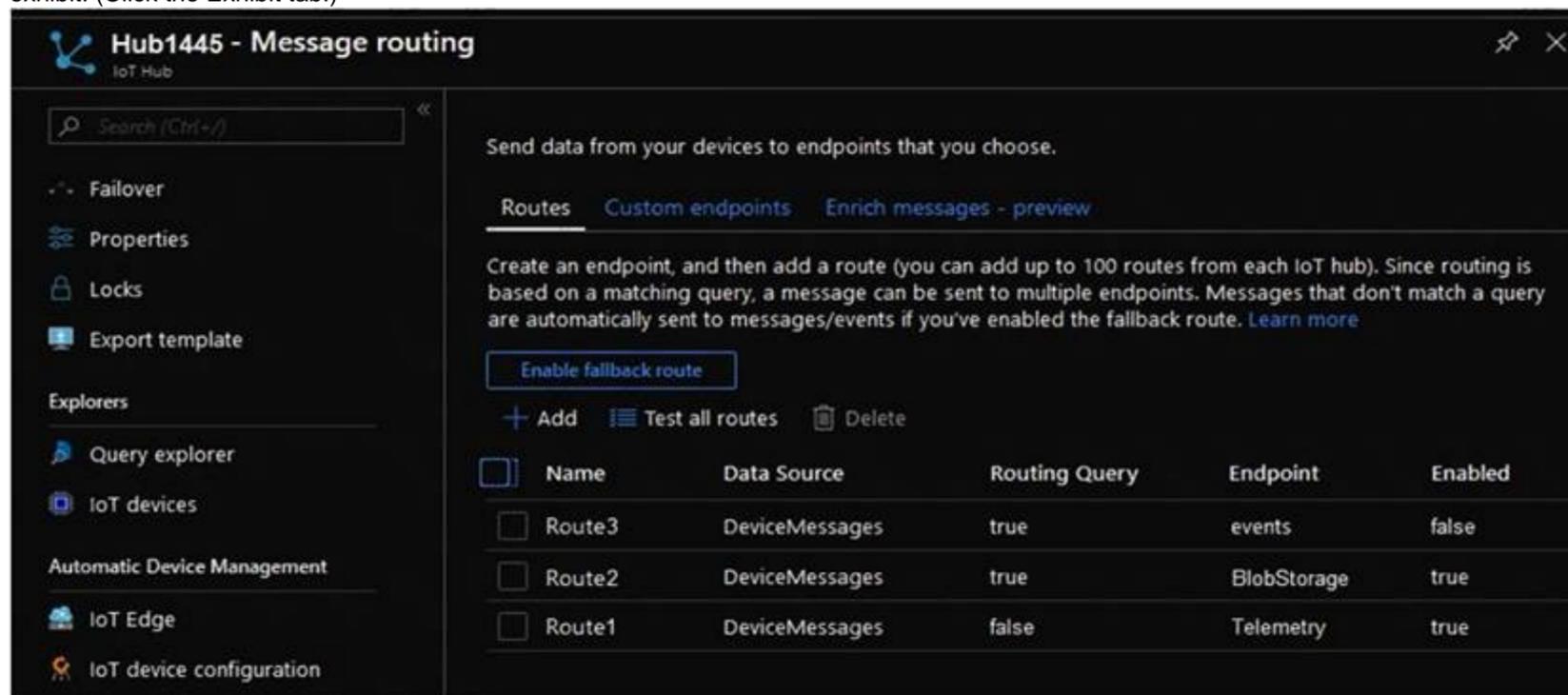Reference:
https://azure.microsoft.com/sv-se/blog/deep-dive-into-azure-iot-hub-notifications-and-device-twin/

NEW QUESTION 24
- (Exam Topic 3)
You have an Azure Stream Analytics job that connects to an Azure IoT hub named Hub1445 as a streaming data source. Hub1445 is configured as shown in the exhibit. (Click the Exhibit tab.)

The Stream Analytics job fails to receive any messages from the IoT hub. What should you do to resolve the issue?

A. Change the Route1 route query to true.
B. Enable the Route3 route.
C. Disable the Route2 route.
D. Enable the fallback route.

Answer: A

Explanation:
The device telemetry is usually passed as JSON from the device through the IoT Hub - this is handled nicely by Azure Streaming Analytics queries.
The IoT Hub message routing should be configured as follows: Data source: Device Telemetry Messages Routing query: true (as the routing query is an expression that evaluates to true or false for each received message, the simplest way to send all messages to the endpoint is to just supply true as the query).
Reference:
https://darenmay.com/blog/azure-iot-streaming-analytics-data-lake-analytics-and-json/

NEW QUESTION 26
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