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)
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 3
- (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 4
- (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 archieve 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 5
- (Exam Topic 3)
You have an Azure IoT solution that includes an Azure IoT hub, 100 Azure IoT Edge devices, and 500 leaf devices.
You need to perform a key rotation across the devices.
Which three types of entities should you update? Each Answer presents part of the solution. NOTE: Each correct selection is worth one point.

A. the $edgeHub module identity
B. the $edgeAgent module identity
C. the leaf module identities
D. the IoT Edge device identities
E. the iothubowner policy credentials
F. the leaf device identities

Answer: ADF

Explanation:
To get authorization to connect to IoT Hub, devices and services must send security tokens signed with either a shared access or symmetric key. These keys are stored with a device identity in the identity registry.
An IoT Hub identity registry can be accessed like a dictionary, by using the deviceId or moduleId as the key. Reference:
https://docs.microsoft.com/bs-latn-ba/azure/iot-dps/how-to-control-access https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-identity-registry

NEW QUESTION 6
- (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 7
- (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 8
- (Exam Topic 3)
You have an Azure IoT Central application.
You need to connect an IoT device to the application.
Which two settings do you require in IoT Central to configure the device? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Group SAS Primary Key
B. the IoT hub name
C. Scope ID
D. Application Name
E. Device ID

Answer: CE

Explanation:
In your Azure IoT Central application, add a real device to the device template
*1. On the Devices page, select the Environmental sensor device template.
*2. Select + New.
*3. Make sure that Simulated is Off. Then select Create.
Click on the device name, and then select Connect. Make a note of the device connection information on the Device Connection page - ID scope, Device ID, and Primary key. You need these values when you create your device code:

Reference:
https://docs.microsoft.com/bs-cyrl-ba/azure/iot-central/core/tutorial-connect-device-python

NEW QUESTION 9
- (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 10
- (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 10
- (Exam Topic 3)
You have 100 devices that connect to an Azure IoT hub.
You need to be notified about failed local logins to a subnet of 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: Enable Azure Security Center for IoT
Security alerts, such as failed local IoT hub logins, are stored in AzureSecurityOfThings.SecurityAlert table in the Log Analytics workspace configured for the Azure Security Center for IoT solution.
Step 2: Select a device security group Update a device security group..
Step 3: Create a custom alert rule by creating a custom alert rule Reference:
https://docs.microsoft.com/bs-latn-ba/azure/asc-for-iot/how-to-security-data-access https://docs.microsoft.com/en-us/rest/api/securitycenter/devicesecuritygroups/createorupdate

NEW QUESTION 11
- (Exam Topic 3)
You develop a custom Azure IoT Edge module named temperature-module.
You publish temperature-module to a private container registry named mycr.azurecr.io
You need to build a deployment manifest for the IoT Edge device that will run temperature-module. Which three container images should you define in the manifest? Each correct answer presents part of the
solution.
NOTE: Each correct selection is worth one point.

A. mcr.microsoft.com/azureiotedge-simulated-temperature-sensor:1.0
B. mcr.microsoft.com/azureiotedge-agent:1.0
C. mcr.microsoft.com/iotedgedev:2.0
D. mycr.azurecr.io/temperature-module:latest
E. mcr.microsoft.com/azureiotedge-hub:1.0

Answer: BDE

Explanation:
Each IoT Edge device runs at least two modules: $edgeAgent and $edgeHub, which are part of the IoT Edge runtime. IoT Edge device can run multiple additional modules for any number of processes. Use a deployment manifest to tell your device which modules to install and how to configure them to work together.
Reference:
https://docs.microsoft.com/en-us/azure/iot-edge/module-composition

NEW QUESTION 14
- (Exam Topic 3)
You have 10,000 IoT devices that connect to an Azure IoT hub. The devices do not support over-the-air (OTA) updates.
You need to decommission 1,000 devices. The solution must prevent connections and autoenrollment for the decommissioned devices.
Which two actions should you perform? Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point.

A. Update the connectionState device twin property on all the devices.
B. Blacklist the X.509 root certification authority (CA) certificate for the enrollment group.
C. Delete the enrollment entry for the devices.
D. Remove the identity certificate from the hardware security module (HSM) of the devices.
E. Delete the device identity from the device registry of the IoT hub.

Answer: BC

Explanation:
B: X.509 certificates are typically arranged in a certificate chain of trust. If a certificate at any stage in a chain becomes compromised, trust is broken. The certificate must be blacklisted to prevent Device Provisioning Service from provisioning devices downstream in any chain that contains that certificate.
C: Individual enrollments apply to a single device and can use either X.509 certificates or SAS tokens (in a real or virtual TPM) as the attestation mechanism.
(Devices that use SAS tokens as their attestation mechanism can be provisioned only through an individual enrollment.) To blacklist a device that has an individual enrollment, you can either disable or delete its enrollment entry.
To blacklist a device that has an individual enrollment, you can either disable or delete its enrollment entry. Reference:
https://docs.microsoft.com/en-us/azure/iot-dps/how-to-revoke-device-access-portal

NEW QUESTION 19
- (Exam Topic 3)
You have an Azure IoT solution that includes an Azure IoT Hub named Hub1 and an Azure IoT Edge device named Edge1. Edge1 connects to Hub1.
You need to deploy a temperature module to Edge1. What should you do?

A. From the Azure portal, navigate to Hub1 and select IoT Edg
B. Select Edge1, and then select Manage Child Device
C. From a Bash prompt, run the following command:az iot edge set-modules -device-id Edge1 -hub-name Hub1 -content C:\deploymentMan1.json
D. Create an IoT Edge deployment manifest that specifies the temperature module and the route to$upstrea
E. From a Bush prompt, run the following command: az iot hub monitor-events-device-id Edge1 -hub-name Hub1
F. From the Azure portal, navigate to Hub1 and select IoT Edg
G. Select Edge1, select Device Twin, and then set the deployment manifest as a desired propert
H. From a Bash prompt, run the following commandaz iot hub monitor-events-device-id Edge1 -hub-name Hub1
I. Create an IoT Edge deployment manifest that specifies the temperature module and the route to$upstrea
J. From a Bush prompt, run the following command:az iot edge set-modules -device-id Edge1 -hub-name Hub1 -content C:\deploymentMan1.json

Answer: D

Explanation:
You deploy modules to your device by applying the deployment manifest that you configured with the module information.

Change directories into the folder where your deployment manifest is saved. If you used one of the VS Code IoT Edge templates, use the deployment.json file in the config folder of your solution directory and not the deployment.template.json file.

Use the following command to apply the configuration to an IoT Edge device:

az iot edge set-modules --device-id [device id] --hub-name [hub name] --content [file path] Reference: https://docs.microsoft.com/en-us/azure/iot-edge/how-to-deploy-modules-cli

NEW QUESTION 21
- (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 22
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