

AZ-220^{Q&As}

Microsoft Azure IoT Developer

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QUESTION 1

You are developing an Azure IoT Central application.

You add a new custom device template to the application.

You need to add a fixed location value to the device template. The value must be updated by the physical IoT device, read-only to device operators, and not graphed by IoT Central.

What should you add to the device template?

- A. a Location property
- B. a Location telemetry
- C. a Cloud property

Correct Answer: A

For example, a builder can create a device template for a connected fan that has the following characteristics: Sends temperature telemetry Sends location property

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

QUESTION 2

You need to visualize Azure IoT Hub telemetry data by using Microsoft Power BI. Which service should you connect to the IoT hub?

- A. Azure Event Grid
- B. SendGrid
- C. Azure Stream Analytics
- D. Azure Notification Hubs

Correct Answer: C

You can use Microsoft Power BI to visualize real-time sensor data that your Azure IoT hub receives. To do so, you configure an Azure Stream Analytics job to consume the data from IoT Hub and route it to a dataset in Power BI.

Reference: <https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-live-data-visualization-in-power-bi>

QUESTION 3

HOTSPOT

You have an Azure IoT solution that includes an Azure IoT hub and 50 IoT devices. The device twins have the following structure.

```
{
  "tags": {
    "deploymentLocation": "Building 4, Room 100"
  },
  "properties": {
    "desired": {
      "firmwareVersion": "2.0",
    },
    "reported": {
      "firmwareVersion": "1.0",
    },
  }
}
```

You need to configure message enrichments to add the following values to messages:

1.

The device deployment location

2.

The device firmware version

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

NOTE: Each correct selection is worth one point.

Hot Area:

deploymentLocation

<code>\$properties.tags.deploymentLocation</code>
<code>\$properties.twin.deploymentLocation</code>
<code>\$twin.tags.deploymentLocation</code>

firmwareVersion

<code>\$properties.twin.reported.firmwareVersion</code>
<code>\$twin.properties.desired.firmwareVersion</code>
<code>\$twin.properties.reported.firmwareVersion</code>

Correct Answer:

deploymentLocation

<code>\$properties.tags.deploymentLocation</code>
<code>\$properties.twin.deploymentLocation</code>
<code>\$twin.tags.deploymentLocation</code>

firmwareVersion

<code>\$properties.twin.reported.firmwareVersion</code>
<code>\$twin.properties.desired.firmwareVersion</code>
<code>\$twin.properties.reported.firmwareVersion</code>

QUESTION 4

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 correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. Configure File upload for each IoT hub. Configure the device to send a file to an Azure Storage container that contains the device name and status message.

B. Add the following message enrichments: Name = iotHubName Value = \$twin.tag.location Endpoint = MessageAlerts

C. Create an IoT Hub routing rule that has a data source of Device Twin Change Events and select the endpoint for MessageAlerts.

D. Add the following message enrichments: Name = iotHubName Value = \$iothubname Endpoint = MessageAlerts

E. Create an IoT Hub routing rule that has a data source of Device Telemetry Messages and select the endpoint for MessageAlerts.

Correct Answer: BD

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>

QUESTION 5

HOTSPOT

You have an Azure solution that contains an Azure IoT Edge deployment.

You are configuring an Azure Stream Analytics Edge job as shown in the following exhibit.

How should you complete the query? To answer select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

```
WITH AnomalyDetectionStep AS
(
    SELECT
        MachineName,
        Compliance,
        System.Timestamp() AS time,
        CAST(ProbeTemperature AS float) AS temp,
        AnomalyDetection_ChangePoint(CAST(ProbeTemperature AS float), 80, 60)
        OVER(PARTITION BY MachineName, Compliance LIMIT DURATION(minute, 1)) AS ChangePointScores
    FROM PD-Data
    WHERE ProbeTemperature IS NOT NULL
)
SELECT
    MachineName,
    Compliance,
    time,
    temp,
    CAST(GetRecordPropertyValue(ChangePointScores, 'Score') AS float) AS
    ChangePointScore,
    CAST(GetRecordPropertyValue(ChangePointScores, 'IsAnomaly') AS bigint) AS
    IsChangePointAnomaly
```

INTO
PD-Data
PD-Anomalies
AnomalyDetectionStep
ProbeTemperature

FROM
PD-Data
PD-Anomalies
AnomalyDetectionStep
ProbeTemperature

Correct Answer:

```
WITH AnomalyDetectionStep AS
(
    SELECT
        MachineName,
        Compliance,
        System.Timestamp() AS time,
        CAST(ProbeTemperature AS float) AS temp,
        AnomalyDetection_ChangePoint(CAST(ProbeTemperature AS float), 80, 60)
        OVER(PARTITION BY MachineName, Compliance LIMIT DURATION(minute, 1)) AS ChangePointScores
    FROM PD-Data
    WHERE ProbeTemperature IS NOT NULL
)
```

```
SELECT
    MachineName,
    Compliance,
    time,
    temp,
    CAST(GetRecordPropertyValue(ChangePointScores, 'Score') AS float) AS
    ChangePointScore,
    CAST(GetRecordPropertyValue(ChangePointScores, 'IsAnomaly') AS bigint) AS
    IsChangePointAnomaly
```

INTO
PD-Data
PD-Anomalies
AnomalyDetectionStep
ProbeTemperature

FROM
PD-Data
PD-Anomalies
AnomalyDetectionStep
ProbeTemperature