



**Vendor:** Microsoft

**Exam Code:** AZ-220

**Exam Name:** Microsoft Azure IoT Developer

**Version:** DEMO

## QUESTION 1

### Case Study 1 - Contoso

#### Existing Environment. Current State of Development

Contoso produces a set of Bluetooth sensors that read the temperature and humidity. The sensors connect to IoT gateway devices that relay the data.

All the IoT gateway devices connect to an Azure IoT hub named iothub1.

What should you do to identify the cause of the connectivity issues?

- A. Send cloud-to-device messages to the IoT devices.
- B. Use the heartbeat pattern to send messages from the IoT devices to iothub1.
- C. Monitor the connection status of the device twin by using an Azure function.
- D. Enable the collection of the Connections diagnostics logs and set up alerts for the connected devices count metric.

**Answer:** D

#### Explanation:

Scenario: You discover connectivity issues between the IoT gateway devices and iothub1, which cause IoT devices to lose connectivity and messages.

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.

Step 1:

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 (see pricing).

Step 2:

Set up alerts for device disconnect at scale

To get alerts when devices disconnect, configure alerts on the Connected devices (preview) metric.

Reference:

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

## QUESTION 2

### Case Study 2 - ADatum

#### Requirements. Planned Changes

ADatum is developing an Azure IoT solution to monitor environmental conditions. The IoT solution consists of hardware devices and cloud services. All the devices will communicate directly to Azure IoT Hub.

The hardware devices will be deployed to the branch offices and will collect data about various environmental conditions such as temperature, humidity, air quality, and noise level. The devices will be wired by using Power over Ethernet (PoE) connections.

ADatum is developing the solution in the following three phases: proof of value (POV), pilot, and production.

You need to recommend the format of telemetry messages to meet the POV requirements.

What should you recommend?

- A. XML
- B. Avro
- C. JSON

**Answer: C**

**Explanation:**

Scenario: POV Requirements

Ensure that all message content during this phase is human readable to simplify debugging.

Avro uses a binary format, so it is not human readable.

The more lightweight JSON (Javascript object notation) has become a popular alternative to XML for various reasons. A couple obvious ones are:

Less verbose-XML uses more words than necessary

JSON is faster-Parsing XML software is slow and cumbersome.

Reference:

<https://blog.cloud-elements.com/json-better-xml>

### QUESTION 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:**

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

### QUESTION 4

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/>

#### QUESTION 5

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.

NOTE: Each correct selection is worth one point.

- 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}"  
}
```

Incorrect Answers:

D: Deprecated: initialize a file upload with a GET. Use the POST method instead.

Reference:

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

### QUESTION 6

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:**

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

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>

### QUESTION 7

You create an Azure IoT hub by running the following command.

```
az iot hub create --resource-group MyResourceGroup --name MyIotHub --sku B1 --location westus --partition-count 4
```

What does MyIotHub support?

- A. Device Provisioning Service
- B. cloud-to-device messaging
- C. Azure IoT Edge
- D. device twins

**Answer: A**

**Explanation:**

The Device Provisioning Service is included in the Basic Tiers (such as B1).

Incorrect Answers:

B, C, D: The Standard tier is needed for cloud-to-device messaging, Azure IoT Edge, and device twins.

Reference:

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

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