AZ-220 Q&As

Microsoft Azure IoT Developer

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QUESTION 1

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 correct 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

Correct Answer: ADF

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

QUESTION 2

DRAG DROP

You have an instance of Azure Time Series Insights and an Azure IoT hub that receives streaming telemetry from IoT devices.

You need to configure Time Series Insights to receive telemetry from 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.

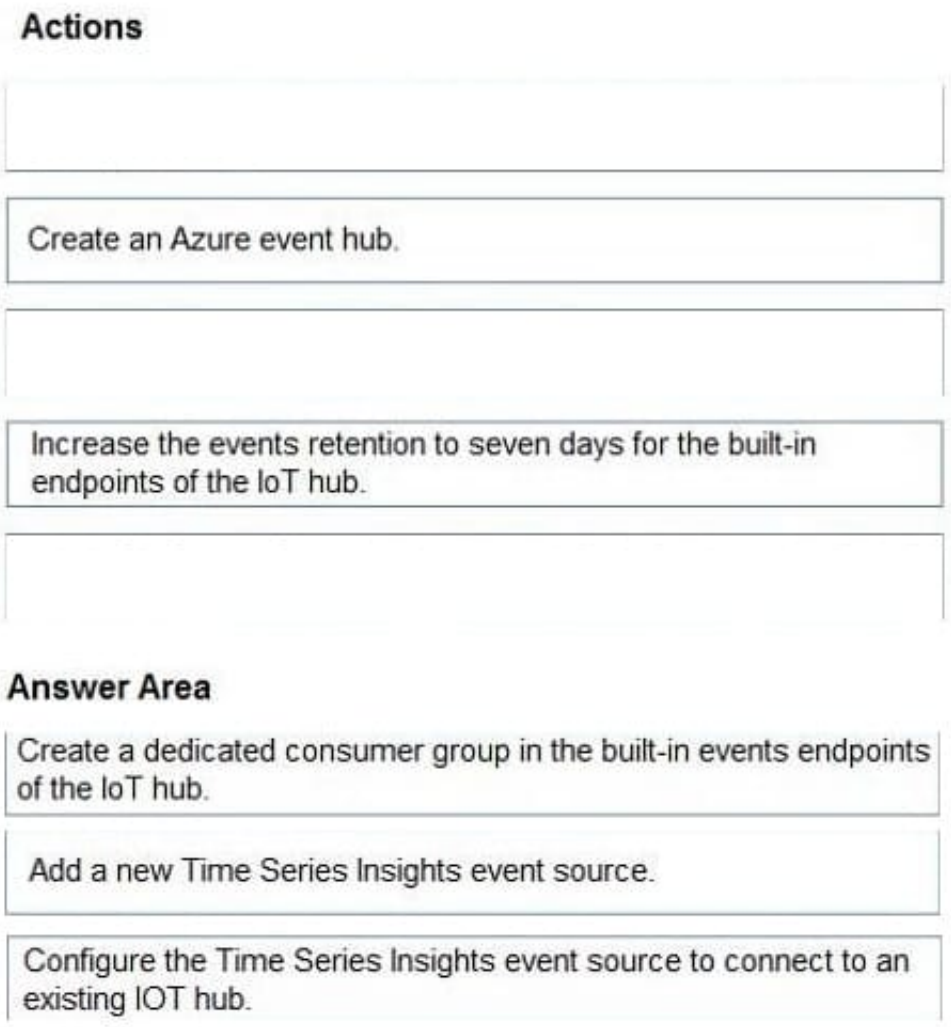
Select and Place:

Actions

- Configure the Time Series Insights event source to connect to an existing IOT hub.
- Create an Azure event hub.
- Add a new Time Series Insights event source.
- Increase the events retention to seven days for the built-in endpoints of the IoT hub.
- Create a dedicated consumer group in the built-in events endpoints of the IoT hub.

Answer Area

Correct Answer:



Step 1: Create a dedicated consumer group..

Add a consumer group to your IoT hub.

Applications use consumer groups to pull data from Azure IoT Hub. To reliably read data from your IoT hub, provide a dedicated consumer group that\\'s used only by this Time Series Insights environment.

Step 2: Add a new Time Series Insights event source.

Add a new event source

Sign in to the Azure portal.

In the left menu, select All resources. Select your Time Series Insights environment.

Under Settings, select Event Sources, and then select Add.

In the New event source pane, for Event source name, enter a name that\\'s unique to this Time Series Insights environment. For example, enter event-stream.

Step 3: Configure the Time Series event source to connect to an existing IOT hub

Step 4: For Source, select IoT Hub.

Step 5: Select a value for Import option:

If you already have an IoT hub in one of your subscriptions, select Use IoT Hub from available subscriptions. This option is the easiest approach.

Reference:

https://docs.microsoft.com/en-us/azure/time-series-insights/time-series-insights-how-to-add-an-event-source-iothub

QUESTION 3

HOTSPOT

You have an Azure IoT Central application that has a custom device template.

You need to configure the device template to support the following activities:

1.

Return the reported power consumption.

2.

Configure the desired fan speed.

3.

Run the device reset routine.

4.

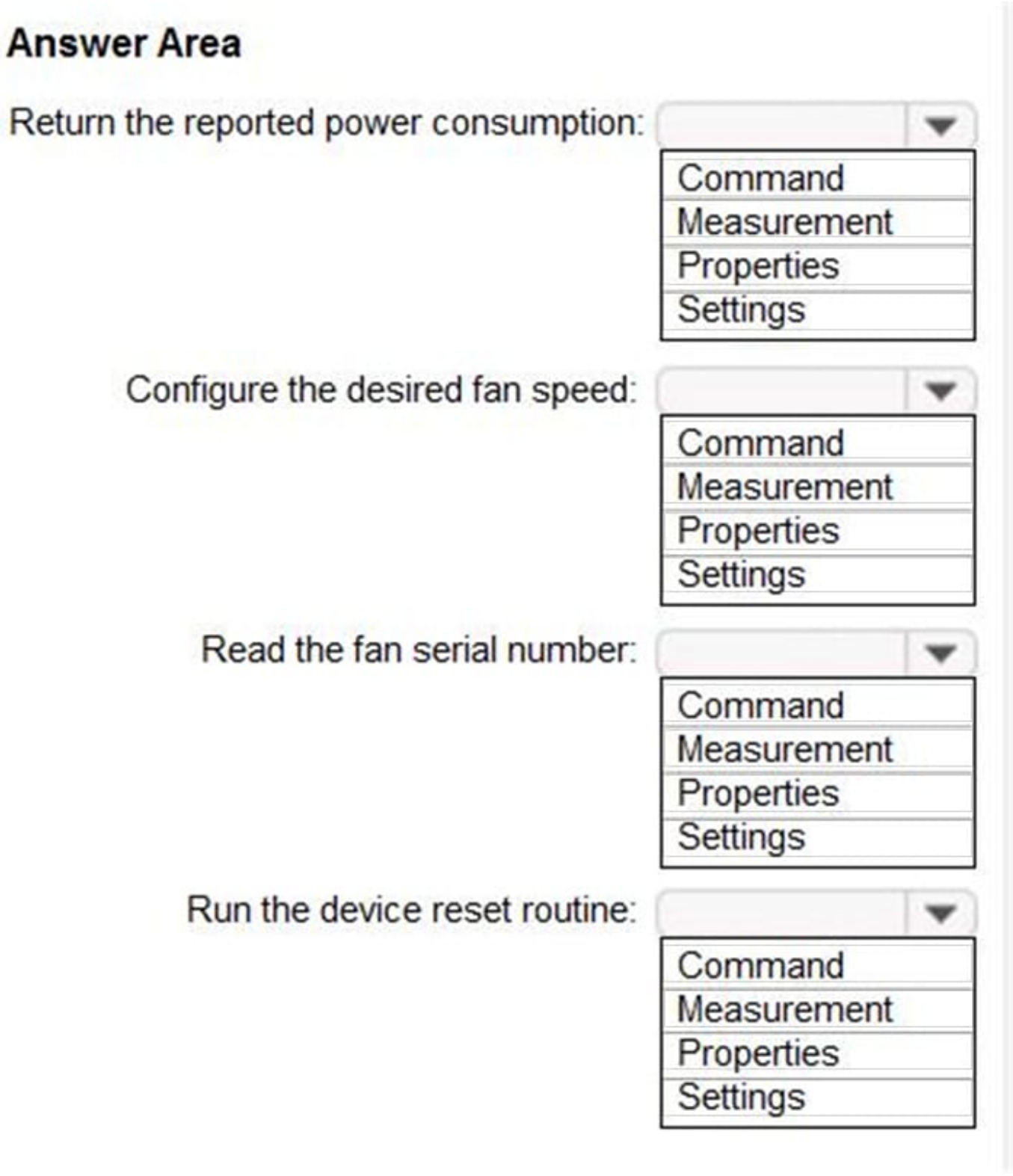
Read the fan serial number.

Which option should you use for each activity? Each correct answer presents part of the solution.

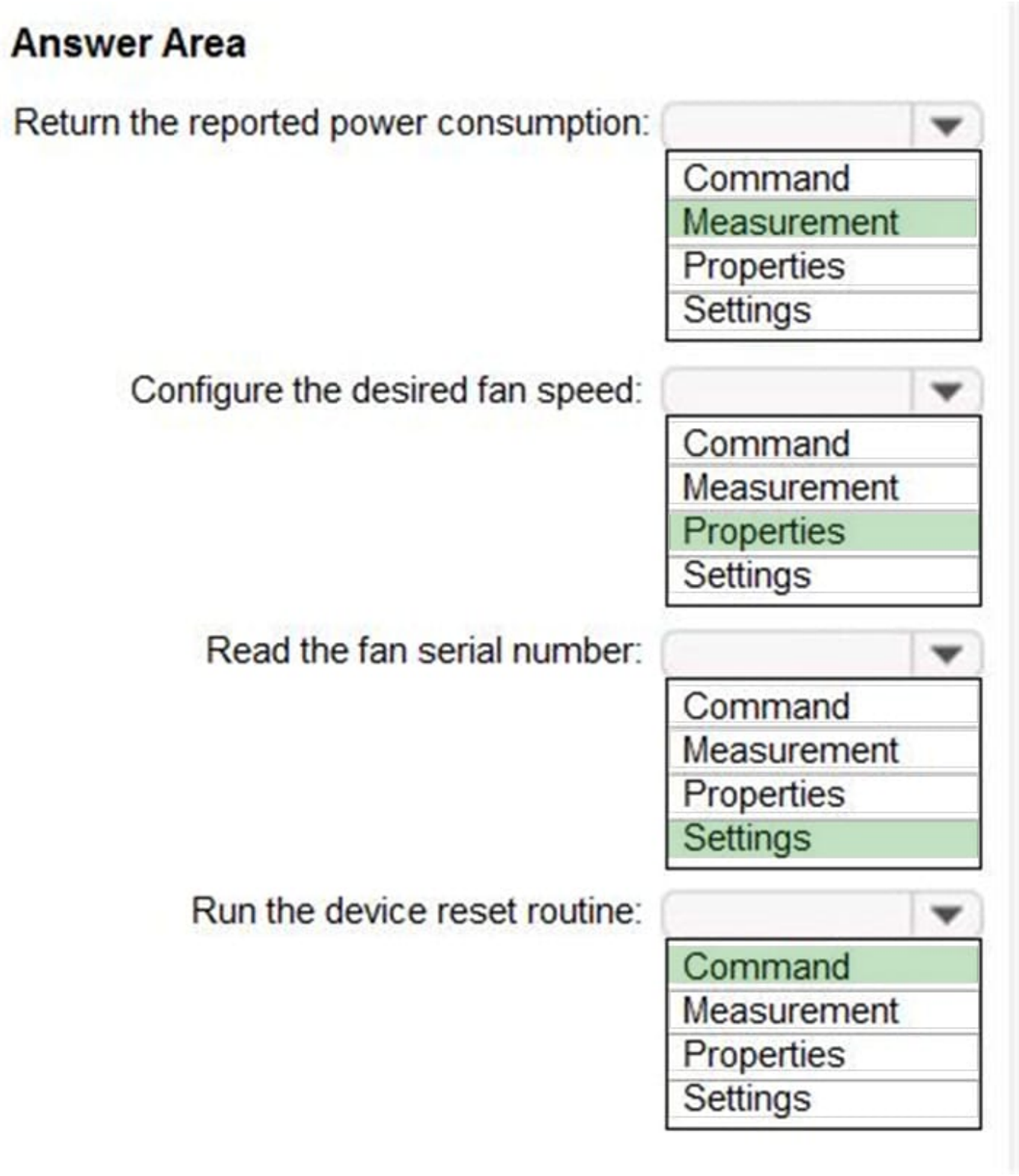
NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area



Correct Answer:



Box 1: Measurement

Telemetry/measurement is a stream of values sent from the device, typically from a sensor. For example, a sensor might report the ambient temperature.

Box 2: Property

The template can provide a writeable fan speed property

Properties represent point-in-time values. For example, a device can use a property to report the target temperature it\\'s trying to reach. You can set writeable properties from IoT Central.

Box 3: Settings

Box 4: Command

You can call device commands from IoT Central. Commands optionally pass parameters to the device and receive a response from the device. For example, you can call a command to reboot a device in 10 seconds.

Reference:

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

QUESTION 4

You have 10 IoT devices that connect to an Azure IoT hub named Hub1.

From Azure Cloud Shell, you run az iot hub monitor-events --hub-name Hub1 and receive the following error message: "az iot hub: \\'monitor-events\\' is not in the \\'az iot hub\\' command group. See \\'az iot hub --help\\'."

You need to ensure that you can run the command successfully.

What should you run first?

A. az iot hub monitor-feedback --hub-name Hub1

B. az iot hub generate-sas-token --hub-name Hub1

C. az iot hub configuration list --hub-name Hub1

D. az extension add -name azure-cli-iot-ext

Correct Answer: D

Execute az extension add --name azure-cli-iot-ext once and try again.

In order to read the telemetry from your hub by CLI, you have to enable IoT Extension with the following commands: Add: az extension add --name azure-cli-iot-ext

Reference: https://github.com/MicrosoftDocs/azure-docs/issues/20843

QUESTION 5

DRAG DROP

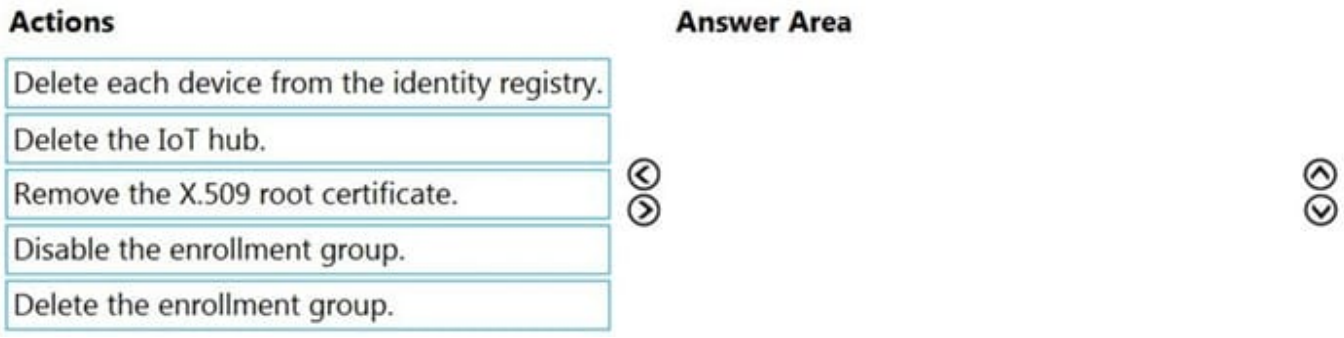
You have an Azure IoT solution that includes an Azure IoT hub, a Device Provisioning Service instance, and 1,000 connected IoT devices. The IoT devices are allocated to tour enrollment groups. Each enrollment group is configured to use

certificate attestation.

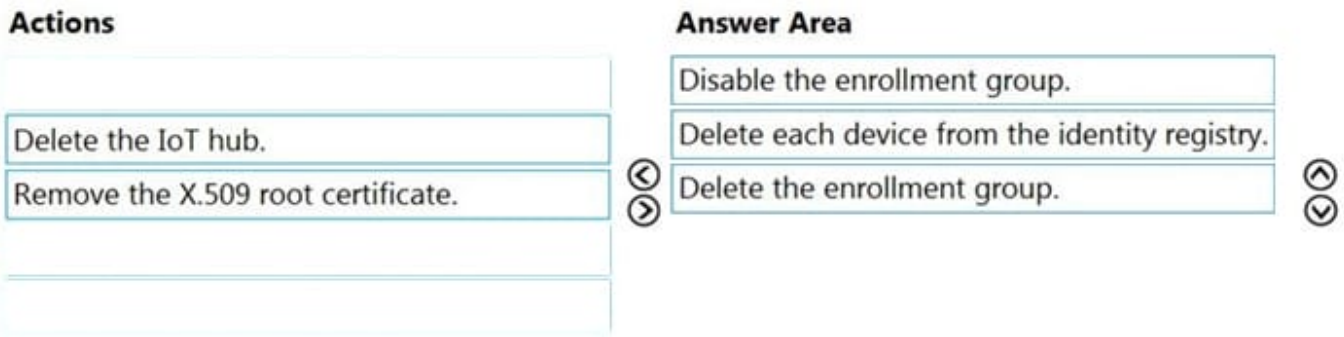
You need to decommission all the devices in a single enrollment group and the enrollment group itself.

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:



Correct Answer:



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 6

You have an Azure IoT hub that uses a Device Provision Service instance.

You plan to deploy 100 IoT devices.

You need to confirm the identity of the devices by using the Device Provision Service.

Which three device attestation mechanisms can you use? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. X.509 certificates

B. Trusted Platform Module (TPM) 2.0

C. Trusted Platform Module (TPM) 1.2

D. Symmetric key

E. Device Identity Composition Engine (DICE)

Correct Answer: ABD

The Device Provisioning Service supports the following forms of attestation:

X.509 certificates based on the standard X.509 certificate authentication flow.

Trusted Platform Module (TPM) based on a nonce challenge, using the TPM 2.0 standard for keys to present a signed Shared Access Signature (SAS) token. This does not require a physical TPM on the device, but the service expects to

attest using the endorsement key per the TPM spec.

Symmetric Key based on shared access signature (SAS) Security tokens, which include a hashed signature and an embedded expiration.

Reference:

https://docs.microsoft.com/en-us/azure/iot-dps/concepts-service#attestation-mechanism

QUESTION 7

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: You delete the enrollment group from the Device Provisioning Service.

Does the solution meet the goal?

A. Yes

B. No

Correct Answer: B

Instead, 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.

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

QUESTION 8

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 have an Azure Stream Analytics job that receives input from an Azure IoT hub and sends the outputs to Azure Blob storage. The job has compatibility level 1.1 and six streaming units.

You have the following query for the job.

```
SELECT COUNT(*) AS Count, TollBoothID
INTO BlobOutput
FROM IotHubInput
GROUP BY TumblingWindow(minute, 3), TollBoothID
```

You plan to increase the streaming unit count to 12.

You need to optimize the job to take advantage of the additional streaming units and increase the throughput.

Solution: You change the compatibility level of the job to 1.2.

Does this meet the goal?

A. Yes

B. No

Correct Answer: B

Max number of Streaming Units with one step and with no partitions is 6.

Reference: https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-parallelization

QUESTION 9

You have an Azure IoT hub that has 1,000 registered devices.

You create an Azure logic app.

You need to send Device Connected and Device Disconnected events in real time to the logic app.

What should you do?

A. From the Message routing blade of the IoT hub, add a route, Route DeviceLifecycleEvents to an Azure Service Bus queue.

B. From the Diagnostic settings blade of the IoT hub, add a diagnostic setting. Route the connection logs to a Log Analytics workspace.

C. From the Events blade of the IoT hub, add an event subscription. Configure the Filter to Event Types setting and route the events to a webhook.

Correct Answer: C

Reference:

https://sandervandevelde.wordpress.com/2019/12/20/subscribe-your-iothub-to-eventgrid- as-event-source/

QUESTION 10

You have an Azure IoT Edge module named SampleModule that runs on a device named Device1.

You make changes to the code of SampleModule by using Microsoft Visual Studio Code.

You need to push the code to the container registry and then deploy the module to Device1.

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

NOTE: Each correct selection is worth one point.

A. Build and push the SampleModule code to the registry.

B. Create a deployment for a single device.

C. Upload to Azure Storage.

D. Build an IoT Edge solution.

E. Generate a shared access signature (SAS) token for Device1.

Correct Answer: BD

D: Once you create IoT Edge modules with your business logic, you want to deploy them to your devices to operate at the edge.

B: Configure a deployment manifest. A deployment manifest is a JSON document that describes which modules to deploy, how data flows between the modules, and desired properties of the module twins. You deploy modules to your device by applying the deployment manifest that you configured with the module information.

1.

In the Visual Studio Code explorer view, expand the Azure IoT Hub section, and then expand the Devices node.

2.

To confirm that the device you\\'ve chosen is an IoT Edge device, select it to expand the list of modules and verify the

presence of $edgeHub and $edgeAgent. Every IoT Edge device includes these two modules.

3.

Select Create Deployment for Single Device.

4.

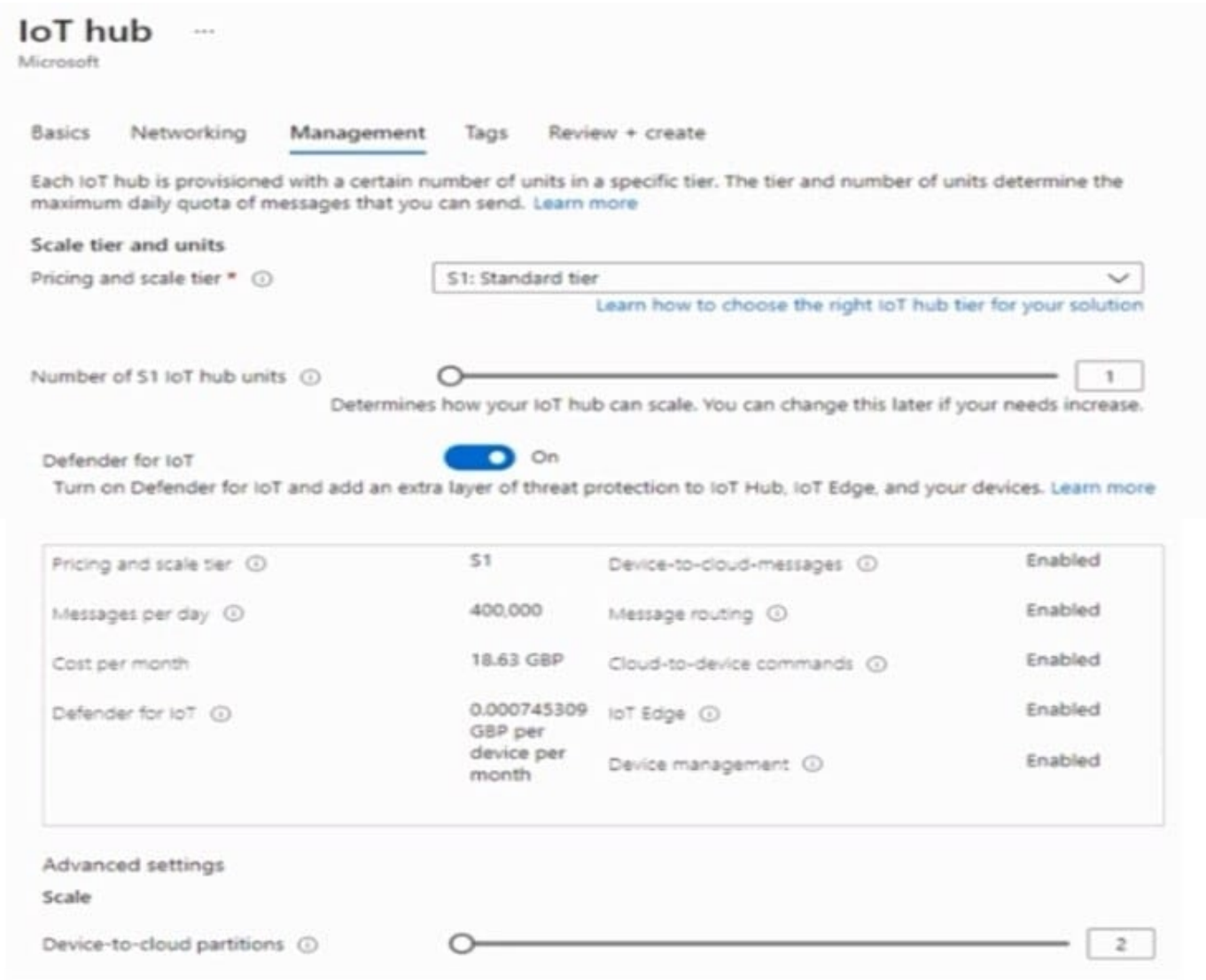
Navigate to the deployment manifest JSON file that you want to use, and click Select Edge Deployment Manifest.

Reference: https://docs.microsoft.com/en-us/azure/iot-edge/how-to-deploy-modules-vscode

QUESTION 11

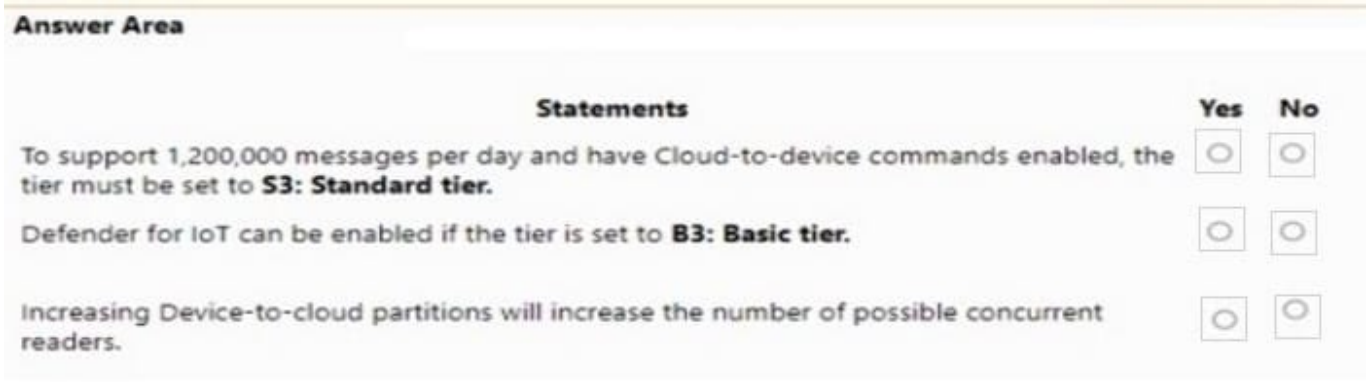
HOTSPOT

You create an Azure IoT hub as shown in the following exhibit.

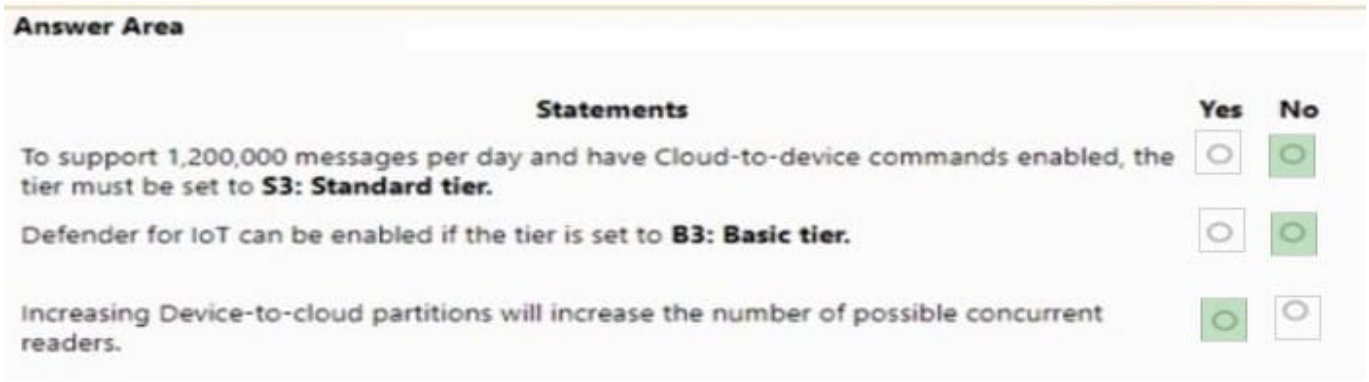


For each of the following statements select Yes if the statement is true. Otherwise, select No. NOTE: Each correct selection is worth one point.

Hot Area:



Correct Answer:



QUESTION 12

DRAG DROP

You have an Azure IoT Edge solution.

You plan to deploy an Azure Security Center for IoT security agent. You need to configure the security agent to meet the following requirements:

1.

Connection events must be reported as high priority.

2.

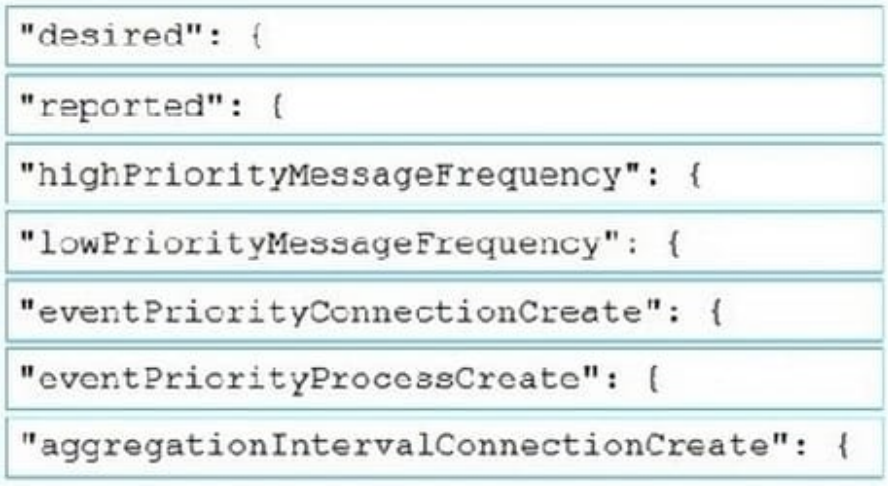
High priority events must be collected every seven minutes.

How should you configure the azureiotsecurity module twin? To answer, drag the appropriate values to the correct locations. Each value may be used once, more than once, or not at all. You may need to drag the split bar between panes or

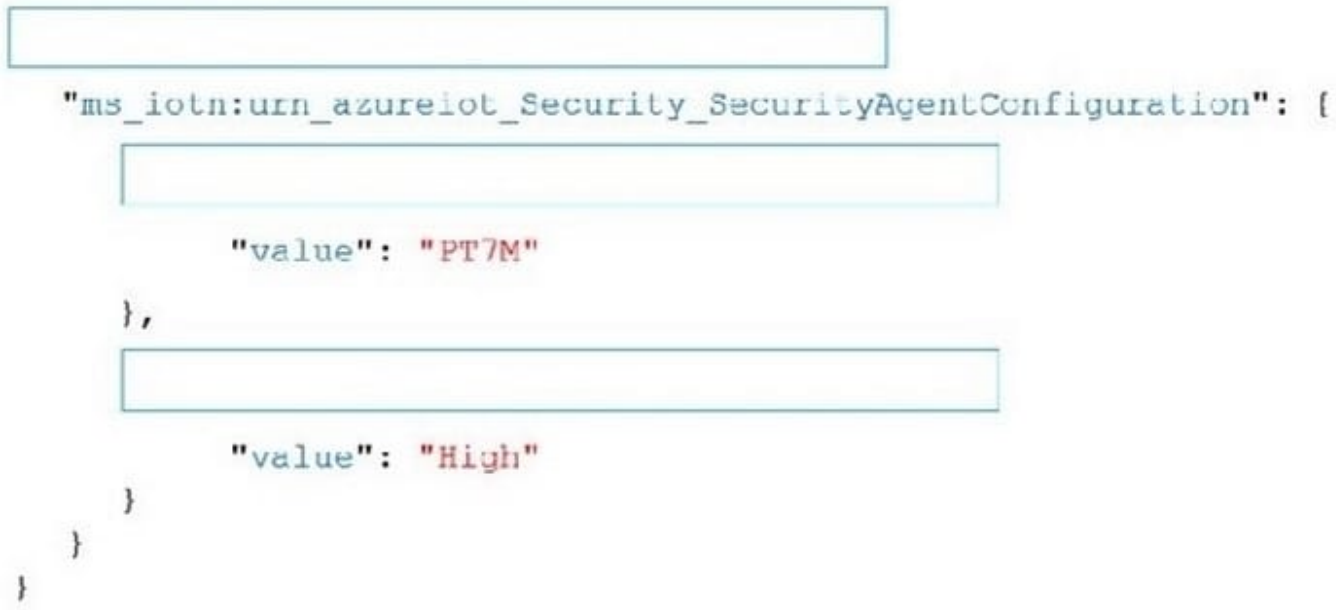
scroll to view content.

NOTE: Each correct selection is worth one point.

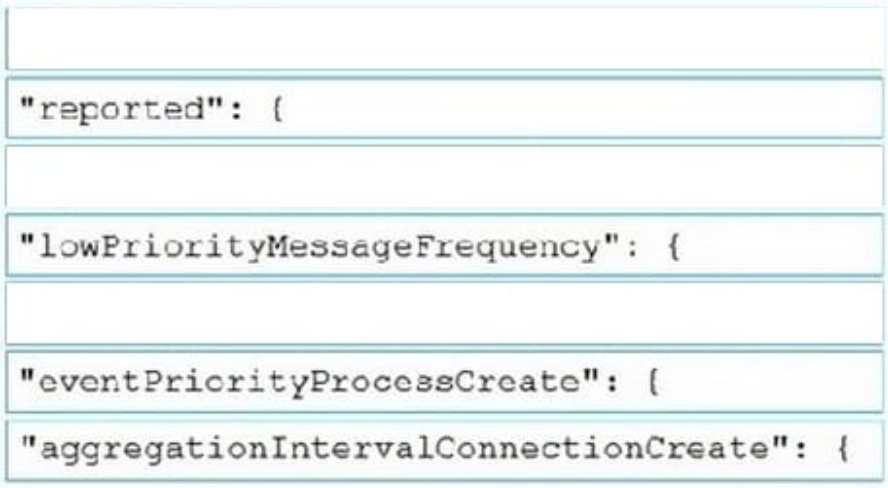
Select and Place:



Answer Area



Correct Answer:



Answer Area

Box 1: "desired": {

To configure connection events as high priority and collect high priority events every 7 minutes, use the following configuration.

"desired": { "ms_iotn:urn_azureiot_Security_SecurityAgentConfiguration": { "highPriorityMessageFrequency": {

"value": "PT7M"

},

"eventPriorityConnectionCreate": {

"value": "High"

}

Box 2: "highPriorityMessageFrequency ": { Box 3: "eventPriorityConnectionCreate": { Reference:

https://docs.microsoft.com/en-us/azure/defender-for-iot/how-to-agent-configuration

QUESTION 13

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 have 20 IoT devices deployed across two floors of a building. The devices on the first floor must be set to 60 degrees. The devices on the second floor must be set to 80 degrees.

The device twins are configured to use a tag that identifies the floor on which the twins are located.

You create the following automatic configuration for the devices on the first floor.

```
{
    "id": "first_floor_devices",
    "schemaVersion": null,
    "labels": {
     "Version": "1"
    },
    "content": {
     "deviceContent": {
         "properties.desired.ac": {
          "temperature": 60
         }
       }
    },
    "targetCondition": "tags.floor-'first'",
    "createdTimeUtc": "2020-12-08T04:06:56.651Z",
    "lastUpdatedTimeUtc":  "2020-12-08T04:06:56.651Z",
    "priority": 1,
...
}
```

You create the following automatic configuration for the devices on the second floor.

```
{
    "id": "second_floor_devices",
    "schemaVersion": null,
    "labels": {
     "Version": "1"
    },
    "content": {
     "deviceContent": {
         "properties.desired.ac": {
          "temperature": 80
         }
      }
    },
    "targetCondition": "*",
    "createdTimeUtc": "2020-12-08T04:11:08.561Z",
    "lastUpdatedTimeUtc":  "2020-12-09T18:50:55.070Z",
    "priority": 10,
...
}
```

The IoT devices on the first floor report that the temperature is set to 80 degrees.

You need to ensure that the first-floor devices are set to the correct temperature.

Solution: In the automatic configuration for the second-floor devices, you set targetCondition to "tags.floor=\\'second\\'".

Does this meet the goal?

A. Yes

B. No

Correct Answer: A

Reference: https://docs.microsoft.com/en-us/azure/iot-edge/module-deployment-monitoring?view=iotedge-2020-11
https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-automatic-device-management-cli

QUESTION 14

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

Correct Answer: BDE

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

QUESTION 15

You have an Azure loT solution that includes an Azure loT hub and a Device Provisioning Service instance.

Several enrolled devices are stolen.

You need to prevent the stolen devices from connecting to the loT solution. The solution must prevent the devices from re-enrollment and must be implemented as soon as possible.

What should you do?

A. Delete the devices from the 10T hub.

B. Disable the device enrollments in the Device Provisioning Service and delete the devices from the IoT hub.

C. Disable the devices in the loT hub and delete the devices from the loT hob.

D. Delete the device enrollments from the Device Provisioning Service.

Correct Answer: D