AZ-220 Q&As

Microsoft Azure IoT Developer

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QUESTION 1

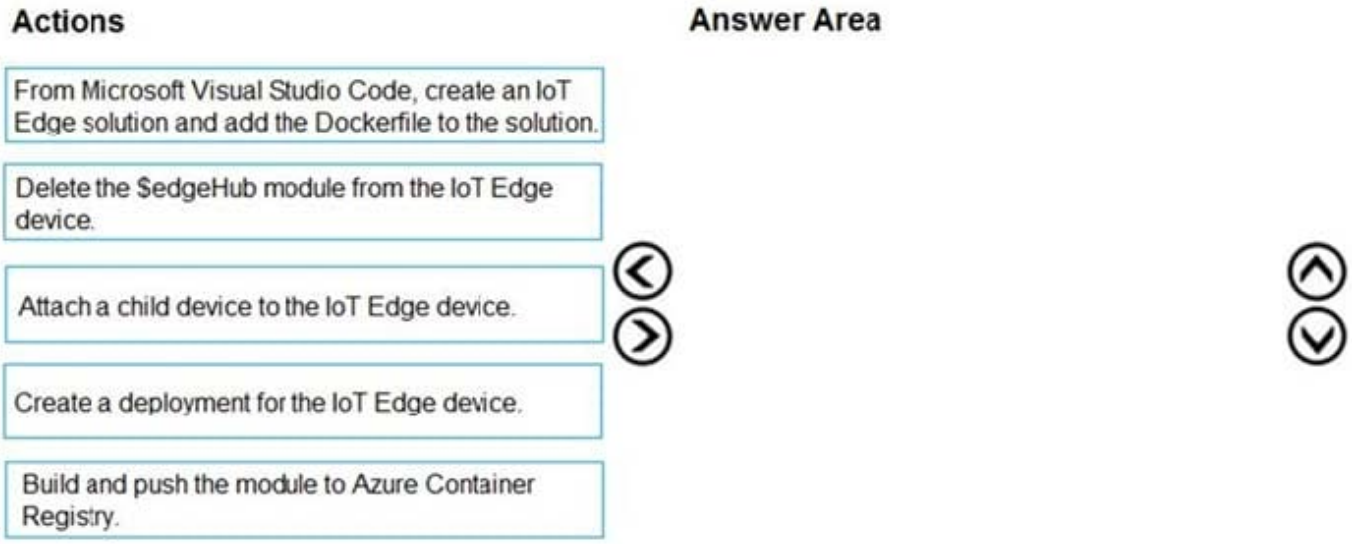
DRAG DROP

Your company develops a custom module and exports the module as a Linux Dockerfile.

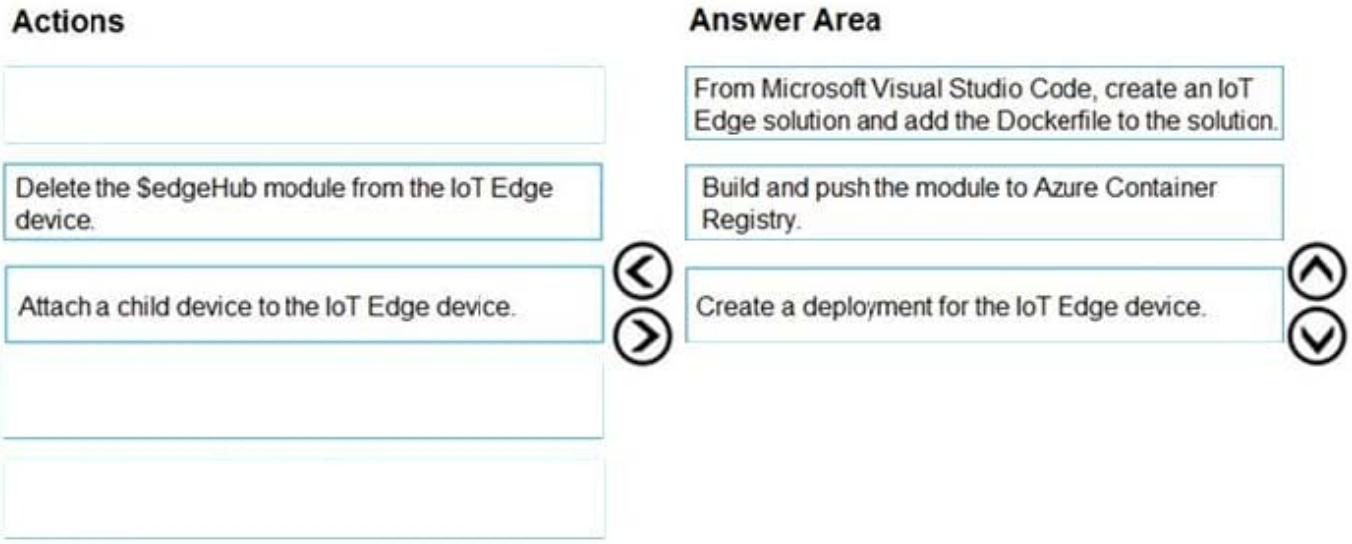
You need to deploy the module to an Azure IoT Edge device that runs Ubuntu Server 18.04.

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:



Step 1: From Microsoft Visual Studio Code

The Azure IoT Tools extension provides project templates for all supported IoT Edge module languages in Visual Studio Code. These templates have all the files and code that you need to deploy a working module to test IoT Edge, or give

you a starting point to customize the template with your own business logic.

Step 2: Build and push the module to Azure Container Registry

Build and push your solution. Review the module code and the deployment. Then build the SampleModule container image and push it to your container registry.

Step 3: Create a deployment for the IoT Edge device.

Verify that the built container images are stored in your container registry, then deploy the modules to the device.

Reference:

https://docs.microsoft.com/en-us/azure/iot-edge/tutorial-develop-for-linux?view=iotedge-2020-11

QUESTION 2

You are configuring a production environment for an Azure IoT solution.

You plan to deploy 1,000 IoT devices. Each device will send one device-to-cloud message every hour. Each message will be 4 KB.

You need to deploy an Azure IoT hub that will support the IoT device deployment. The solution must meet the following requirements:

Perform bulk device operations such as creating multiple device identities.

Minimize costs

What should you deploy?

A. one unit of the B1 tier

B. one unit of the free tier

C. one unit of the S1 tier

D. one unit of the S2 tier

Correct Answer: B

Reference: https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-quotas-throttling

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QUESTION 3

You have IoT devices that connect to an Azure IoT hub.

From IoT Hub, you create an Event subscription to be notified when devices are registered to IoT Hub. You select webhook endpoint as a handler for the Event subscription.

Which two types of Event Grid messages will be received by the webhook? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Microsoft.Devices.DeviceCreated

B. Microsoft.Resources.ResourceWriteSuccess

C. Microsoft.EventGrid.SubscriptionValidationEvent

D. Microsoft.Devices.DeviceConnected

Correct Answer: AC

Microsoft.Devices.DeviceCreated: Published when a device is registered to an IoT hub.

The first thing you want to do is handle Microsoft.EventGrid.SubscriptionValidationEvent events. Every time someone subscribes to an event, Event Grid sends a validation event to the endpoint with a validationCode in the data payload.

Reference: https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-event-grid https://docs.microsoft.com/en-us/azure/event-grid/receive-events

QUESTION 4

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.

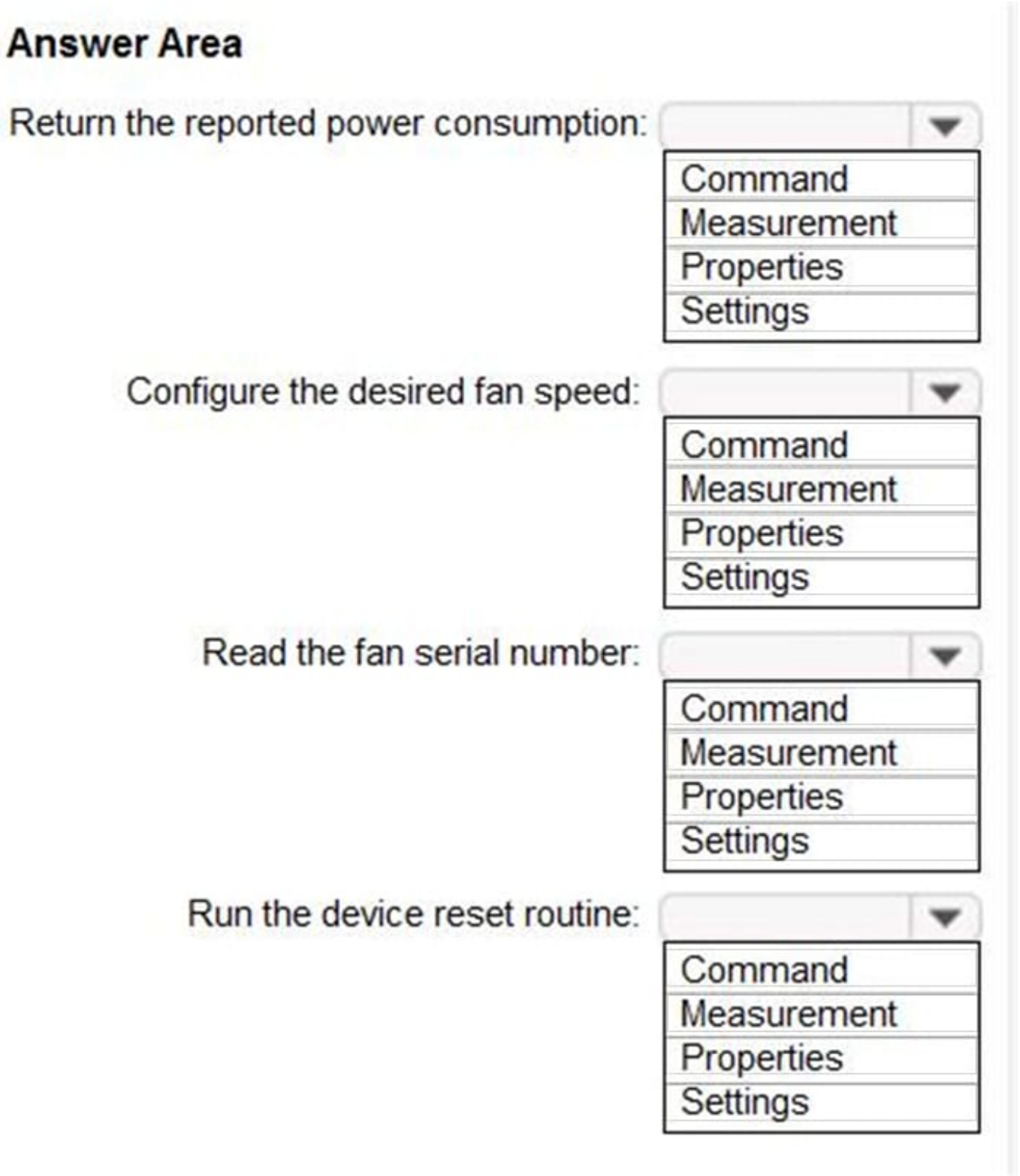
Read the fan serial number.

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

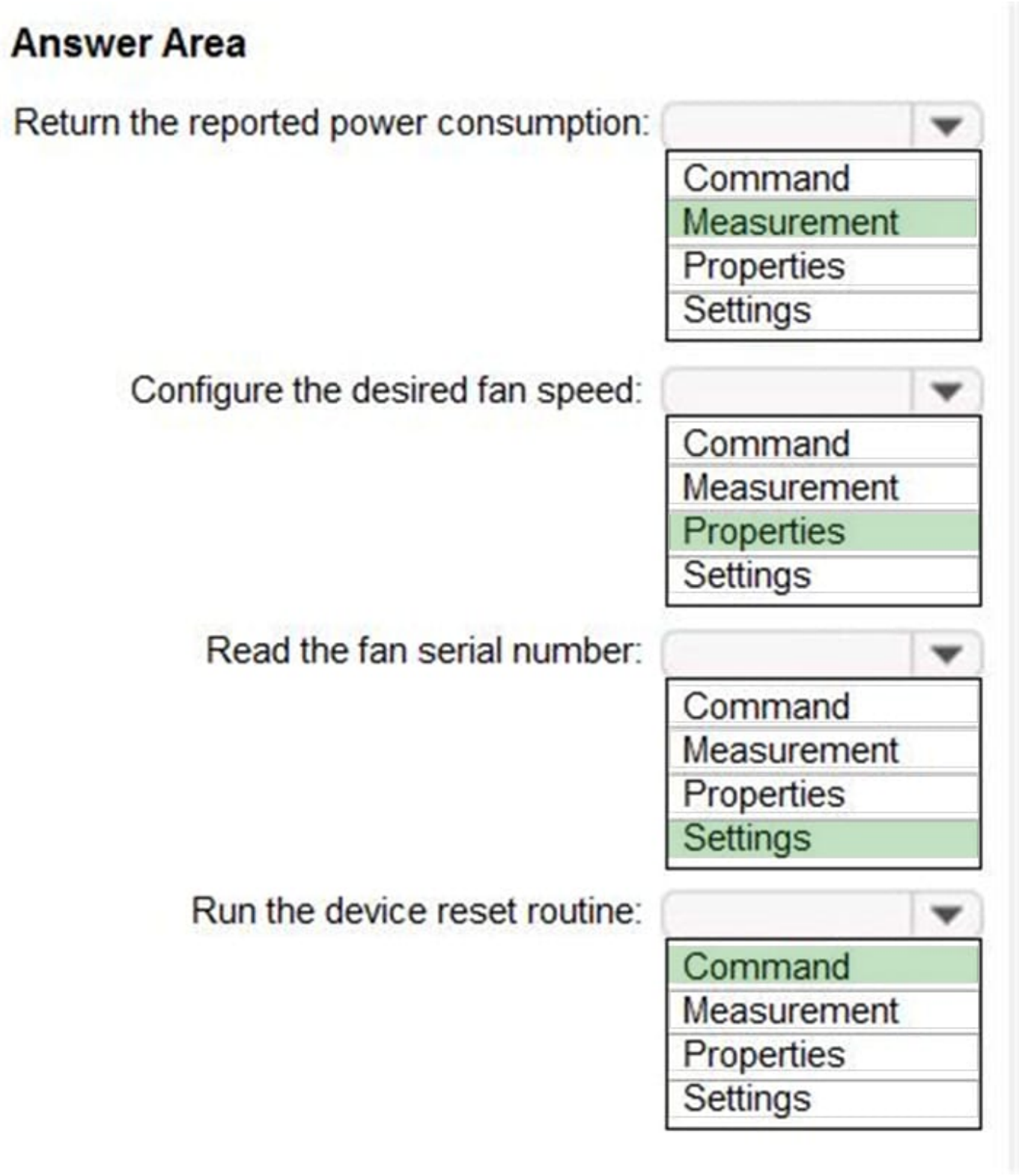
NOTE: Each correct selection is worth one point.

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 5

You use Azure Security Center in an Azure IoT solution.

You need to exclude some security events. The solution must minimize development effort.

What should you do?

A. Create an Azure function to filter security messages.

B. Add a configuration to the code of the physical IoT device.

C. Add configuration details to the device twin object.

D. Create an azureiotsecurity module twin and add configuration details to the module twin object.

Correct Answer: D

Properties related to every Azure Security Center for IoT security agent are located in the agent configuration object, within the desired properties section, of the azureiotsecurity module.

To modify the configuration, create and modify this object inside the azureiotsecurity module twin identity.

Note: Azure Security Center for IoT\\'s security agent twin configuration object is a JSON format object. The configuration object is a set of controllable properties that you can define to control the behavior of the agent.

These configurations help you customize the agent for each scenario required. For example, automatically excluding some events, or keeping power consumption to a minimal level are possible by configuring these properties.

Reference:

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

QUESTION 6

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

Correct Answer: D

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 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

You have an Azure IoT hub.

You need to enable Azure Defender for IoT on the IoT hub.

What should you do?

A. From the Security settings of the IoT hub, select Secure your IoT solution.

B. From the Diagnostics settings of the IoT hub, select Add diagnostic setting.

C. From Defender, add a security policy.

D. From Defender, configure security alerts.

Correct Answer: A

Reference: https://docs.microsoft.com/en-us/azure/defender-for-iot/device-builders/quickstart-onboard-iot-hub

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QUESTION 9

You have an Azure IoT hub and 15,000 IoT devices that monitor temperature. The IoT hub has four partitions. Each IoT device sends a 1-KB message every five seconds.

You plan to use Azure Stream Analytics to process the telemetry stream and generate an alert when temperatures exceed a defined threshold.

You need to recommend the minimum number of streaming units to configure for Stream Analytics.

What should you recommend?

A. 1

B. 3

C. 6

D. 12

Correct Answer: D

Reference: https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-parallelization#calculate-the-maximum-streaming-units-of-a-job

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QUESTION 10

You have a Standard tier Azure IoT hub and a fleet of IoT devices.

The devices connect to the IoT hub by using either Message Queuing Telemetry Transport (MQTT) or Advanced Message Queuing Protocol (AMQP).

You need to send data to the IoT devices and each device must respond. Each device will require three minutes to process the data and respond.

Solution: You use cloud-to-device messages and watch the cloud-to-device feedback endpoint for successful acknowledgement.

Does this meet the goal?

A. Yes

B. No

Correct Answer: B

IoT Hub provides three options for device apps to expose functionality to a back-end app:

Twin\\'s desired properties for long-running commands intended to put the device into a certain desired state. For example, set the telemetry send interval to 30 minutes.

Direct methods for communications that require immediate confirmation of the result. Direct methods are often used for interactive control of devices such as turning on a fan.

Cloud-to-device messages for one-way notifications to the device app.

Reference:

https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-c2d-guidance

QUESTION 11

You have an Azure IoT Edge device.

You need to modify the credentials used to access the container registry.

What should you modify?

A. the $edgeHub module twin

B. the IoT Edge module

C. the $edgeAgent module twin

D. the Azure IoT Hub device twin

Correct Answer: C

The module twin for the IoT Edge agent is called $edgeAgent and coordinates the communications between the IoT Edge agent running on a device and IoT Hub. The desired properties are set when applying a deployment manifest on a specific device as part of a single-device or at-scale deployment.

These properties include: runtime.settings.registryCredentials.{registryId}.username runtime.settings.registryCredentials.registryId}.password

Reference: https://docs.microsoft.com/en-us/azure/iot-edge/module-edgeagent-edgehub

QUESTION 12

DRAG DROP

You have an Azure IoT hub named Hub1 and a root certification authority (CA) named CA1. Hub1 is configured to use X.509 certificate device authentication.

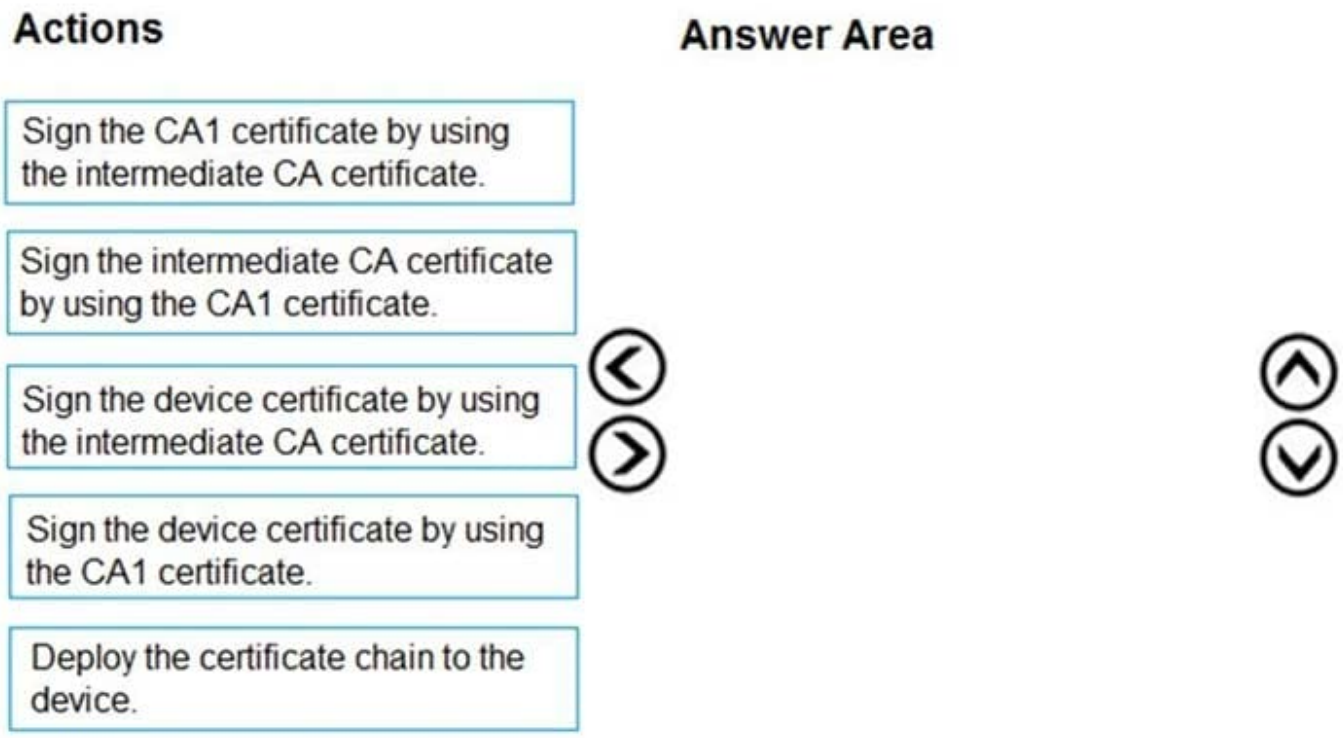
You and a custom manufacturing partner complete a proof of possession flow.

You plan to deploy IoT devices manufactured by the custom manufacturing partner. Each device will have a certificate generated by an intermediate CA. The devices will authenticate by using device certificates signed by the partner.

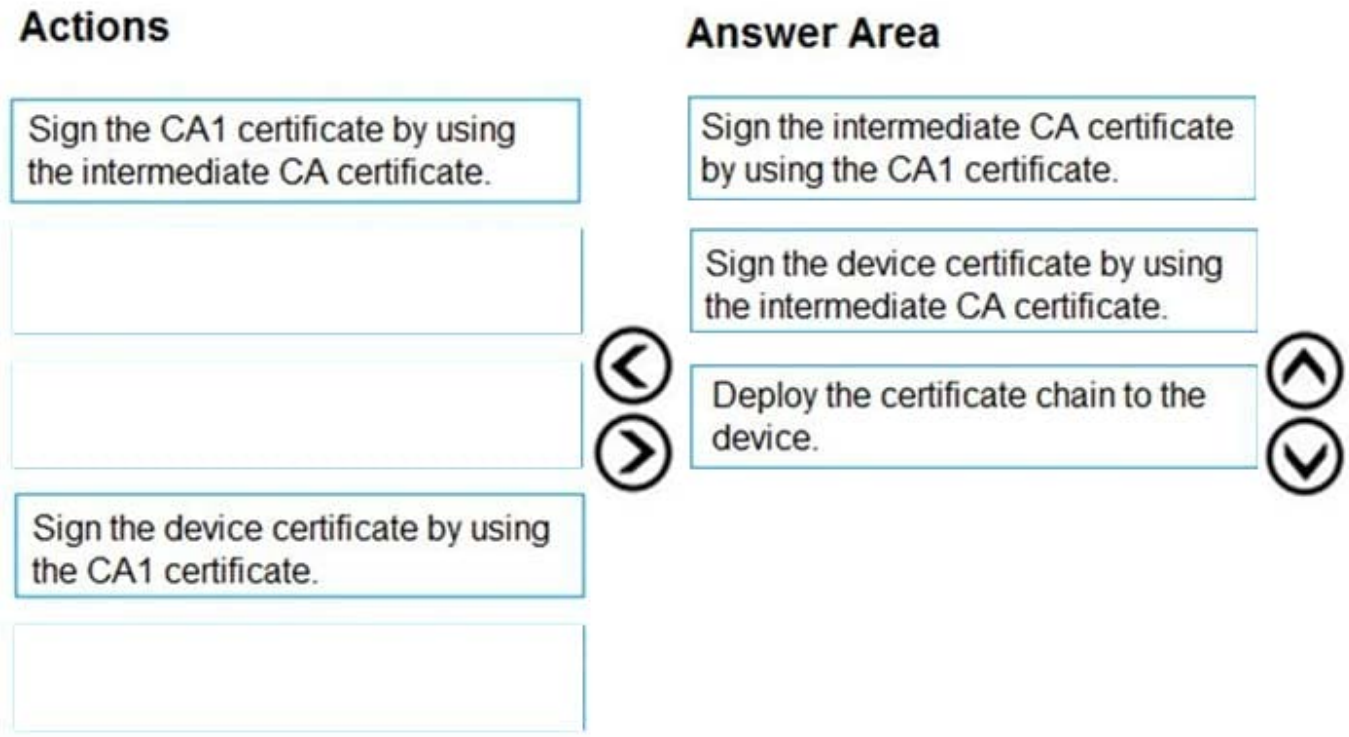
You need to ensure that the custom devices can connect successfully to Hub1.

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:



Box 1: Sign the intermediate CA certificate by using the CA1 certificate.

X.509 certificates are typically arranged in a certificate chain of trust in which each certificate in the chain is signed by the private key of the next higher certificate, and so on, terminating in a self-signed root certificate. This arrangement establishes a delegated chain of trust from the root certificate generated by a trusted root certificate authority (CA) down through each intermediate CA to the end-entity "leaf" certificate installed on a device.

Box 2: Sign the device certificate by using the intermediate CA

An intermediate certificate is an X.509 certificate, which has been signed by the root certificate (or by another intermediate certificate with the root certificate in its chain). The last intermediate certificate in a chain is used to sign the leaf

certificate. An intermediate certificate can also be referred to as an intermediate CA certificate.

Box 3: Deploy the certificate chain to the device.

The leaf certificate, or end-entity certificate, identifies the certificate holder. It has the root certificate in its certificate chain as well as zero or more intermediate certificates. The leaf certificate is not used to sign any other certificates. It uniquely

identifies the device to the provisioning service and is sometimes referred to as the device certificate. During authentication, the device uses the private key associated with this certificate to respond to a proof of possession challenge from the

service.

Reference: https://docs.microsoft.com/en-us/azure/iot-dps/concepts-x509-attestation

QUESTION 13

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 MylotHub support?

A. Device Provisioning Service

B. cloud-to-device messaging

C. Azure IoT Edge

D. device twins

Correct Answer: A

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

QUESTION 14

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

QUESTION 15

You have an existing Azure IoT hub.

You need to connect physical IoT devices to the IoT hub.

You are connecting the devices through a firewall that allows only port 443 and port 80.

Which three communication protocols can you use? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. MQTT over WebSocket

B. AMQP

C. AMQP over WebSocket

D. MQTT

E. HTTPS

Correct Answer: ACE

MQTT over WebSockets, AMQP over WebSocket, and HTTPS use port 443.

Reference: https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-protocols