

Exam AZ-220: Microsoft Azure IoT Developer – Skills Measured

This exam was updated on May 28, 2020. Following the current exam guide, we have included a version of the exam guide with Track Changes set to “On,” showing the changes that were made to the exam on that date.

Audience Profile

Candidates for this exam should have subject matter expertise developing cloud and edge components of an Azure IoT solution.

Responsibilities for an Azure IoT Developer include managing the device lifecycle—set up, configuration, and maintenance—using cloud services and other tools. You implement designs for Azure IoT solutions including device topology, connectivity, debugging, and security, as well as solutions to manage, monitor, and transform IoT-related data pipelines. You also deploy Azure IoT Edge components and configure device networking on the edge.

An Azure IoT Developer works with data engineers and other stakeholders to ensure successful business integration.

A candidate for this exam should have experience implementing the Azure services that form an IoT solution, including data storage options, data analysis, data processing, and platform-as-a-service options. This role should also be able to recognize Azure IoT service configuration settings within the code portion of an IoT solution and perform specific IoT coding tasks in at least one Azure-supported language, including C#, Node, C, or Python.

Skills Measured

NOTE: The bullets that appear below each of the skills measured are intended to illustrate how we are assessing that skill. This list is not definitive or exhaustive.

NOTE: In most cases, exams do NOT cover preview features, and some features will only be added to an exam when they are GA (General Availability).

Implement the IoT Solution Infrastructure (15-20%)

Create and configure an IoT Hub

- create an IoT Hub
- register a device
- configure a device twin
- configure IoT Hub tier and scaling

Build device messaging and communication

- build messaging solutions by using SDKs (device and service)
- implement device-to-cloud communication
- implement cloud-to-device communication
- configure file upload for devices

Configure physical IoT devices

- recommend an appropriate protocol based on device specifications
- configure device networking, topology, and connectivity

Provision and manage devices (20-25%)

Implement the Device Provisioning Service (DPS)

- create a Device Provisioning Service
- create a new enrollment in DPS
- manage allocation policies by using Azure Functions
- link an IoT Hub to the DPS

Manage the device lifecycle

- provision a device by using DPS
- deprovision an autoenrollment
- decommission (disenroll) a device

Manage IoT devices by using IoT Hub

- manage devices list in the IoT Hub device registry
- modify device twin tags and properties
- trigger an action on a set of devices by using IoT Hub Jobs and Direct Methods
- set up Automatic Device Management of IoT devices at scale

Build a solution by using IoT Central

- define a device type in Azure IoT Central
- configure rules and actions in Azure IoT Central
- define the operator view
- add and manage devices from IoT Central
- monitor devices
- custom and industry-focused application templates

Implement Edge (15-20%)

Set up and deploy an IoT Edge device

- create a device identity in IoT Hub
- deploy a single IoT device to IoT Edge
- create a deployment for IoT Edge devices
- install container runtime on IoT devices
- define and implement deployment manifest
- update security daemon and runtime
- provision IoT Edge devices with DPS

Develop modules

- create and configure an Edge module
- deploy a module to an Edge device
- publish an IoT Edge module to an Azure Container Registry

Configure an IoT Edge device

- select and deploy an appropriate gateway pattern
- implement module-to-module communication
- implement and configure offline support

Process and manage data (15-20%)

Configure routing in Azure IoT Hub

- implement message enrichment in IoT Hub
- configure routing of IoT Device messages to endpoints
- define and test routing queries
- integrate with Event Grid

Configure stream processing

- create ASA for data and stream processing of IoT data
- process and filter IoT data by using Azure Functions
- configure Stream Analytics outputs

Configure an IoT solution for Time Series Insights (TSI)

- implement solutions to handle telemetry and time-stamped data
- create an Azure Time Series Insights (TSI) environment
- connect the IoT Hub and the Time Series Insights (TSI)

Monitor, troubleshoot, and optimize IoT solutions (15-20%)

Configure health monitoring

- configure metrics in IoT Hub
- set up diagnostics logs for Azure IoT Hub
- query and visualize tracing by using Azure Monitor

Troubleshoot device communication

- establish maintenance communication
- verify device telemetry is received by IoT Hub
- validate device twin properties, tags and direct methods
- troubleshoot device disconnects and connects

Perform end-to-end solution testing and diagnostics

- estimate the capacity required for each service in the solution
- conduct performance and stress testing

Implement security (15-20%)

Implement device authentication in the IoT Hub

- choose an appropriate form of authentication
- manage the X.509 certificates for a device
- manage the symmetric keys for a device

Implement device security by using DPS

- configure different attestation mechanisms with DPS
- generate and manage x.509 certificates for IoT Devices
- configure enrollment with x.509 certificates
- generate a TPM endorsements key for a device
- configure enrollment with symmetric keys

Implement Azure Security Center (ASC) for IoT

- enable ASC for IoT in Azure IoT Hub
- create security modules
- configure custom alerts

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- ~~set up device D2C message tracing by using Azure Distributed Tracing~~

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