



# AZ-220: Microsoft Azure IoT Developer

Preparing for the Microsoft Azure IoT Developer Certification

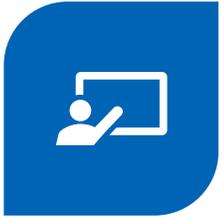
Diana Phillips

Cloud Solution Architect

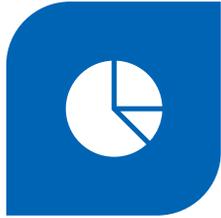
Global Partner Solutions Technical Team



# Agenda



SPEAKER  
INTRODUCTION



CERTIFICATION  
INSIGHTS



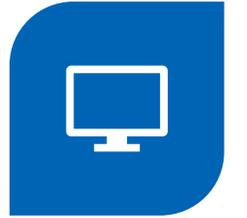
SKILLS  
MEASURED



STUDY  
GUIDE



LEARNING  
OPTIONS



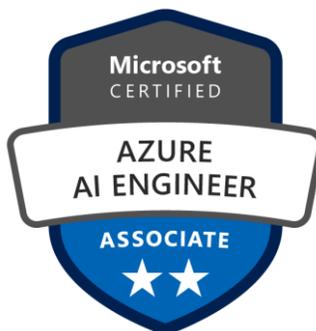
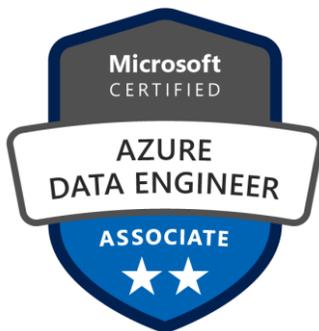
EXAM  
TIPS



# Speaker Introduction – Diana Phillips



- Senior Cloud Solution Architecture based in St. George, UT
- 5 years at Microsoft, 28 years in the industry
- Microsoft Certified Professional since 1996
- Microsoft Certified Trainer
- Conference speaker, Community call presenter, STEM volunteer
- <http://linkedin.com/in/UtahITPro>



# About this session...

## What this session is...

- A review of areas covered on the exam
- Resources to help you prepare
  - Learning Paths
  - Hands-on Labs
- Strategies for managing your time during the exam
- Where to find support to help answer your prep questions

## What it is NOT...

- A guarantee that you will pass your first time, especially if you don't have IoT experience
- Exam answers

# Why Get Certified?

**91%**

of certified IT professionals say certification gives them more professional credibility

*2018 Pearson VUE Value of Certification*

**28%**

of certified IT professionals earned a pay increase

*2018 Pearson VUE Value of Certification*

**52%**

of certified IT professionals say their expertise is more sought after within their organization

*Global Knowledge 2019 IT skills and salary report*

**93%**

of decision makers agree certified employees provide added value

*Global Knowledge 2019 IT Decision Makers Insights*



# Prerequisites

- Software Development Experience
  - No specific software language required
  - Does not need to be at a professional level
- Data Processing Experience
  - General understanding of data storage and data processing (recommended but not required)
- Cloud Solution Awareness
  - Have a basic understanding of PaaS, SaaS, and IaaS implementations
  - Microsoft Azure Fundamentals (AZ-900) or equivalent skills, is recommended

# What you need to be successful

- Microsoft Azure subscription – Visual Studio or Internal Use Rights from partner organization (Free trial may be restrictive)
- Complete the study group homework – Labs and Online Workshop Series
- Use the Microsoft Tech Community "Learn IoT" Conversation Space (<https://aka.ms/iottechcommunity/learniot>) for help
- A growth mindset!
  - Embrace the challenge
  - Put in the effort to understand key concepts and use cases
  - Learn by doing - Get hands on!
  - Find lessons and inspiration in the success of others

# About AZ-220: Microsoft Azure Developer

- Exam: <https://docs.microsoft.com/en-us/learn/certifications/exams/az-220>
- Requirement for: [Microsoft Certified: Azure IoT Developer Specialty](#)

## Certification details

Take one exam



CERTIFICATION EXAM  
**Microsoft Azure IoT Developer**

Earn the certification



ASSOCIATE CERTIFICATION  
**Microsoft Certified: Azure  
IoT Developer Specialty**

# Exam Basics



## 40-60 questions

- Some questions worth more than 1 point
- Answer all the questions
  - *No penalty for guessing*
  - *Some questions cannot be skipped!*
- Mark items for review if you're not sure of your answer



## Plan for 180 minutes

- 150 minutes to answer questions
- 30 minutes for instructions, comments, score reporting, etc.



## More than just multiple-choice questions!

- Build list, hot area, active screen, drag and drop, etc.



## Case Studies

- Detailed information on business and technical requirements; existing environment and other background you need to solve problems
- Requires you to understand and integrate information across multiple sources, determine what's important, and make the best decision

# Exam Question Structure



Technical environment or scenario  
**You are a developer...**

Problem statement / requirements  
**The app must...**

Goal statement  
**You need to...**

Question statement  
**What should you do...**

# Skills Measured

See <https://aka.ms/AZ-200-SkillsMeasured> for detail

## 1. Set up the IoT Solution Infrastructure (10-15%)

- Create and configure an Azure IoT Hub
- Build device messaging and communication
- Configure physical IoT devices

## 2. Provision and Manage Devices (15-20%)

- Set up Device Provisioning Service (DPS)
- Manage the device lifecycle
- Manage IoT devices by using IoT Hub
- Manage IoT devices by using Azure IoT Central

# Skills Measured (continued)

## 3. Implement IoT Edge (15-20%)

- Set up an IoT Edge device
- Deploy an IoT Edge device
- Develop IoT Edge modules
- Configure an IoT Edge device

## 4. Implement Business Integration (5-10%)

- Integrate with upstream and downstream systems
- Develop Azure Digital Twins (ADT) solutions

# Skills Measured (continued)

## 5. Process and Manage Data (15-20%)

- Configure message routing in Azure IoT Hub
- Configure stream processing of IoT data
- Create Azure Stream Analytics (ASA) queries
- Process real-time data by using Time Series Insights (TSI)

## 6. Monitor, Troubleshoot, and Optimize IoT Solutions (15-20%)

- Configure health monitoring
- Troubleshoot device communication
- Ensure performance and availability

# Skills Measured (continued)

## 7. Implement Security (10-15%)

- Implement security for IoT devices and services
- Implement Azure Defender for IoT

*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)*

# The journey to Microsoft Certified:

# Azure IoT Developer Specialty

Get started at  
[aka.ms/AzureCerts\\_IoTDev](https://aka.ms/AzureCerts_IoTDev)



## Start here

Decide if this is the right certification for you

Upskill with recommended training and experience

Pass required exam to earn your certification

Continue to grow

### This certification is a good fit if your responsibilities include:

- Managing the device lifecycle—set up, configuration, and maintenance—using cloud services and other tools.
- Implementing 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.
- Deploying Azure IoT Edge components and configuring device networking on the edge.

### Skills outline guide

- AZ-220



#### Self-paced online learning

Microsoft Learn



#### Instructor-led training

Course AZ-220T00-A:  
Microsoft Azure IoT Developer

### Additional resources

- Microsoft Docs
- Microsoft Hands-on Labs
- Azure Developer Guide
- Azure Architecture Center

### Exam AZ-220

Microsoft Azure IoT Developer



### Microsoft Certified:

Azure IoT Developer Specialty

Azure IoT Developers develop cloud and edge components of an Azure IoT solution.

### Explore these resources next

- Channel 9 Internet of Things Show
- AI edge engineer learning path

Brand new? First, master the basics.

### New to the cloud or Azure?

Choose Azure Fundamentals training.



# AZ-220 Study Guide

<https://aka.ms/StudyGuide-IoT>

## AZ-220: Microsoft Azure IoT Developer

Microsoft Global Partner Solution (GPS) has created this guide to help you prepare for the Microsoft Azure IoT Developer exam!

### Skills Measured

Section #	Topic
1	Setup the IoT Solution Infrastructure
2	Provision and Manage Devices (15-20%)
3	Implement IoT Edge (15-20%)
4	Implement Business Integration (5-10%)
5	Process and Manage Data (15-20%)
6	Monitor, Troubleshoot, and Optimize
7	Implement security (10-15%)

### How to use this study guide

This study guide includes resources and homework suggestions to help you meet the exam objectives. The [Microsoft Tech Community](#) "Learn" section has others also studying for this exam.

### Labs by Exam Area (Skills Measured breakdown)

Hands-on labs can be found here: [AZ-220 IoT Labs](#)

Module	Lab	Exam Area
Module 1: Introduction to IoT and Azure IoT Services	Lab 01: Getting Started with Azure	1 - Implement the IoT solution infrastructure
Module 1: Introduction to IoT and Azure IoT Services	Lab 02: Getting Started with Azure IoT Services	1 - Implement the IoT solution infrastructure
Module 2: Devices and Device Communication	Lab 03: Setup the Development Environment	1 - Implement the IoT solution infrastructure
Module 2: Devices and Device Communication	Lab 04: Connect an IoT Device to Azure	1 - Implement the IoT solution infrastructure
Module 3: Device Provisioning at Scale	Lab 05: Individual Enrollment of a Device in DPS	2 - Provision and manage devices
Module 3: Device Provisioning at Scale	Lab 06: Automatically provision IoT devices securely and at scale with DPS	2 - Provision and manage devices



LEARNING PATH

## Introduction to Azure IoT

8 Modules

Beginner

Developer

Azure



LEARNING PATH

## Build the intelligent edge with Azure IoT Edge

3 Modules

Beginner

Developer

Azure



LEARNING PATH

## Securely connect IoT devices to the cloud

6 Modules

Beginner

Developer

Azure



LEARNING PATH

## Develop IoT solutions with Azure IoT Central

5 Modules

Beginner

Developer

Azure



LEARNING PATH

## Develop with Azure Digital Twins

4 Modules

Intermediate

Developer

Azure

# Practice Exam



PRACTICE TEST

## Microsoft Official Practice Test AZ-220: Microsoft IoT Developer

DESCRIPTION

The MeasureUp AZ-220: Microsoft Azure IoT Developer practice test is designed to help candidates prepare for and pass the Microsoft AZ-220 exam.

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. Azure IoT Developers work with data engineers and other stakeholders to ensure successful business integration.

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.

Certification: This exam counts as credit toward the following certifications:

Microsoft Certified: Azure IoT Developer Specialty

<https://www.measureup.com/az-220-microsoft-iot-developer.html>



123 Questions



English



Try free demo

# Assessment



## ASSESSMENT

### Assessment AZ-220: Microsoft IoT Developer



## DESCRIPTION

The MeasureUp AZ-220 Microsoft IoT Developer assessment is designed to help candidates prepare for and pass the Microsoft AZ-220 exam. This exam measures your ability to implement the Azure services that form an IoT solution, including data storage options, data analysis, data processing, and platform-as-a-service options.

This assessment contains 30 questions from the MeasureUp associated practice test. It does not include explanations or references as this is an assessment only product.

<https://www.measureup.com/assessment-az-220-microsoft-iot-developer.html>



30 Questions



English



100 Minutes



# Student Discounts

<https://docs.microsoft.com/en-us/learn/certifications/student-discounts>

# My Exam Prep Tips

- Take simple notes or screenshots as you study and go through labs
- Organize your notes by the “Skills Measured” areas
  - Key terms
  - Basic procedures for implementing key capabilities in the “Skills Measured”
  - IoT services & features
    - When to use
    - Key capabilities
    - Trade offs, pros, cons
- Create a final exam prep page that you can read through in about 2 hours for key information you may need to memorize, such as protocol ports, throughput by IoT Hub tiers, key patterns or options, etc.

## My OneNote pages

### AZ-220 IoT Dev Exam Prep

Implement the IoT solution infrastructure (10-15%)

Provision and manage devices (15-20%)

Implement Edge (15-20%)

Implement Business Integration (5-10%)

Process and manage data (15-20%)

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

Implement security (10-15%)

2-hr Final Exam Prep

# During Your Exam

Everyone takes tests differently. Here's what works for me...

- Be mindful of time – Keep track of how many questions are left and remaining time.
- Read questions and case studies carefully.
- Pace yourself and don't get stuck on a question you aren't sure of. Make your best guess, mark it for review (when possible), and move on.
- Reserve an area on your note page for those topics you aren't sure of.
  - Make a short topic note that you can review at the end to remember what you might still need to study if you don't pass the exam this time
- Answer all questions, even when you're not sure
- After all questions have been answered and you finish your exam, you'll find out if you've passed. If not, review the short list topics you weren't sure of. Read through your list a few times to try to commit the list to memory.
- As soon as you leave the testing center, write down the topics for your own use for future study. After the initial list, expand the details with what you remember, so you can look them up before you forget

# AZ-220: Microsoft Azure IoT Developer

*Questions?*

