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Microsoft Azure IoT Developer

CODE:	LÄNGE:	PREIS:
MCS_AZ-220T00	32 Hours (4 Tage)	€2,120.00

Description

Dieser Kurs vermittelt den Teilnehmern die Fähigkeiten und Kenntnisse, die zum erfolgreichen Erstellen und Verwalten der Cloud- und Edge-Bereiche einer Azure IoT-Lösung erforderlich sind.

Der Kurs umfasst die vollständige Abdeckung der wichtigsten Azure IoT-Dienste wie IoT Hub, Gerätebereitstellungsdienste, Azure Stream Analytics, Zeitreihenerkenntnisse und mehr.

Neben dem Schwerpunkt auf Azure PaaS-Diensten enthält der Kurs Abschnitte zu IoT Edge, Geräteverwaltung, Überwachung und Problembehandlung, Sicherheitsaspekten und Azure IoT Central.

Lernziel

Nach Abschluss dieser Ausbildung haben Sie Wissen zu diesen Themenbereichen aufgebaut:

- Create, configure, and manage an Azure IoT hub.
- Provision devices by using IoT Hub and DPS, including provisioning at scale.
- Establish secure 2-way communication between devices and IoT Hub.
- Implement message processing by using IoT Hub routing and Azure Stream Analytics.
- Configure the connection to Time Series Insights and support business integration requirements.
- Implement IoT Edge scenarios using marketplace modules and various edge gateway patterns.
- Implement IoT Edge scenarios that require developing and deploying custom modules and containers.
- Implement device management using device twins and direct methods.
- Implement solution monitoring, logging, and diagnostics testing.
- Recognize and address security concerns and implement Azure Security Center for IoT.
- Build an IoT Solution by using Azure IoT Central and recognize SaaS opportunities for IoT.

Zielgruppe

Dieses Seminar richtet sich an:

Ein Azure IoT-Entwickler ist für die Implementierung und Wartung der Cloud- und Edge-Bereiche einer Azure IoT-Lösung verantwortlich.

Neben der Konfiguration und Wartung von Geräten mithilfe von Azure IoT-Diensten und anderen Microsoft-Tools richtet der IoT-Entwickler auch die physischen Geräte ein und ist für die Wartung der Geräte während des gesamten Lebenszyklus verantwortlich.

Der IoT-Entwickler implementiert Entwürfe für IoT-Lösungen, einschließlich Gerätetopologie, Konnektivität, Debugging und Sicherheit. Für Edge-Geräteszenarien stellt der IoT-Entwickler auch Computing / Container bereit und konfiguriert das Gerätenetzwerk, das verschiedene Edge-Gateway-Implementierungen umfassen kann.

Der IoT-Entwickler implementiert Entwürfe für Lösungen zum Verwalten von Datenpipelines, einschließlich Überwachung und Datentransformation in Bezug auf IoT. Der IoT-Entwickler arbeitet mit Dateningenieuren und anderen Interessengruppen zusammen, um eine erfolgreiche Geschäftsintegration sicherzustellen.

Voraussetzungen

Für dieses Seminar werden folgende Vorkenntnisse empfohlen:

Software-Entwicklungserfahrung ist eine Voraussetzung für diesen Kurs, es ist jedoch keine spezielle Software-Sprache erforderlich, und die Erfahrung muss nicht auf professionellem Niveau sein.

allgemeines Verständnis der Datenspeicherung und Datenverarbeitung wird empfohlen, ist jedoch nicht zwingend erforderlich. grundlegende Kenntnisse zu PaaS-, SaaS- und IaaS-Implementierungen verfügen. Microsoft Azure Fundamentals (AZ-900) oder gleichwertige Kenntnisse werden empfohlen.

IoT-Entwickler sollten sich mit Azure-Diensten einschließlich Datenspeicheroptionen, Datenanalyse, Datenverarbeitung und den Optionen Azure IoT PaaS versus SaaS auskennen. IoT-Entwickler sollten über grundlegende Programmierkenntnisse in mindestens einer von Azure unterstützten Sprache verfügen, einschließlich C #, Node.js, C, Python oder Java.

Inhalt

Module 1

- Business Opportunities for IoT
- Introduction to IoT Solution Architecture
- IoT Hardware and Cloud Services
- Lab Scenarios for this Course

Lab : Getting Started with AzureLab : Setting Started with Azure IoT ServicesAfter completing this module, students will be able to:

- Explain how IoT and Azure IoT could be applied to their business
- Describe the core components of an Azure IoT Solution Architecture
- Describe the Azure IoT Services and how they relate to an IoT solution
- Create an Azure account and use the Azure portal to create an IoT Hub and DPS service

Module 2:

- IoT Hub and Devices
- IoT Developer Tools
- Device Configuration and Communication

Lab : Setup the Development EnvironmentLab : Connect IoT Device to AzureAfter completing this module, students will be able to:

- Explain the core features of the IoT Hub services
- Describe the lifecycle of an Azure IoT device
- Describe how IoT Hub manages device identities and implements other security features
- Register devices with the IoT Hub using the Azure portal, Azure CLI, and Visual Studio Code
- Implement the IoT Hub Device and Service SDKs

Module 3:

- Device Provisioning Service Terms and Concepts
- Configure and Manage the Device Provisioning Service
- Device Provisioning Tasks

Lab : Individual Enrollment of Devices in DPSLab : Automatic Enrollment of Devices in DPSAfter completing this module, students will be able to:

- Explain the process of device provisioning and the features of the Device Provisioning Service
- Explain the security considerations associated with device provisioning and how they are managed
- Implement the Device Provisioning Service SDKs
- Manage the device enrollment process, including deprovisioning and disenrollment

Module 4:

- Messages and Message Processing
- Data Storage Options
- Azure Stream Analytics

Lab : Device Message RoutingLab : Filtering and Aggregating Message DataAfter completing this module, students will be able to:

- Configure message and event routing
- Route data to the built-in and custom endpoints
- Implement message enrichment
- Implement Azure Stream Analytics Inputs, Queries, and Outputs
- Store message data in a warm storage for historical purposes and additional analysis
- Use an Azure Function within a message processing and analytics solution

Module 5:

- Business Integration for IoT Solutions
- Data Visualization with Time Series Insights
- Data Visualization with Power BI

Lab : Integrate IoT Hub with Event GridLab : Explore and Analyze Time Stamped Data with Time Series InsightsAfter completing this module, students will be able to:

- Explain the options for business integration within an IoT solution and how to achieve them
- Develop business integration support using Logic Apps and Event Grid
- Configure IoT Data for Visualization in Time Series Insights
- Configure IoT Data for Visualization in Power BI

- Introduction to Azure IoT Edge
- Edge Deployment Process
- Edge Gateway Devices

Lab : Introduction to IoT EdgeLab : Set Up an IoT Edge GatewayAfter completing this module, students will be able to:

- Describe the difference between an IoT device and an IoT Edge device
- Configure an IoT Edge device
- Implement an IoT Edge deployment using a deployment manifest

Module 6: Configure an IoT Edge device as a gateway device

Module 7:

Develop Custom Edge Modules
Offline and Local Storage

Lab : Develop, Deploy, and Debug a Custom Module on Azure IoT Edge
Lab : Run an IoT Edge Device in Restricted Network and Offline

After completing this module, students will be able to:

- Explain the requirements for building a custom edge module
- Configure Visual Studio Code for developing containerized modules
- Deploy a custom module to an IoT Edge device
- Implement local storage on an IoT Edge device in support of an offline scenario

Module 8:

Introduction to IoT Device Management
Manage IoT and IoT Edge Devices
Device Management at Scale

Lab : Remotely Monitor and Control Devices with Azure IoT Hub
Lab : Automatic Device Management
After completing this module, students will be able to:

- Describe the most common device management patterns and configuration best practices
- Describe when and how to use device twins and direct methods to implement device management
- Implement device management for various patterns using device twins and direct methods
- Implement device management at scale using automatic device management and jobs

Module 9:

Monitoring and Logging
Troubleshooting

Lab : Configure Metrics and Logs in Azure IoT Hub
Lab : Monitor and Debug Connection Failures
After completing this module, students will be able to:

- Describe the options for monitoring and logging an Azure IoT solution
- Configure Azure Monitor to support of an IoT solution
- Configure IoT Hub Metrics to support of an IoT solution
- Implement diagnostics logging
- Troubleshoot IoT device connection and communication issues

Security Fundamentals for IoT Solutions

Introduction to Azure Security Center for IoT

Enhance Protection with Azure Security Center for IoT Agents

Lab : Implementing Azure Security Center for IoT
After completing this module, students will be able to:

- Describe security concerns and best practices for an IoT solution
- Describe the Azure IoT Security Architecture and Threat Modeling
- Describe the features and support provided by Azure Security Center for IoT
- Configure Security Agents and Security Module Twins

Module 10: Aggregate Azure Security Center for IoT Events

Module 11:

Introduction to IoT Central

Create and Manage Device Templates

Manage Devices in Azure IoT Central

Lab : Get Started with Azure IoT Central
Lab : Implementing IoT Solutions with Azure IoT Central
After completing this module, students will be able to:

- Describe the difference between Azure IoT Central and the Azure IoT PaaS services
- Describe the features provided by Azure IoT Central
- Describe the purpose and components of a Device Template
- Create and publish a Device Template
- Manage devices using rules and notifications
- Manage devices at scale using jobs

Test und Zertifizierung

Dieses Seminar behandelt prüfungsrelevante Themen zum Examen:
AZ-220: Microsoft Azure IoT Developer

Kurstermine

Auf Anfrage. Bitte [kontaktieren Sie uns](#)

Zusätzliche Information

[Diese Schulung ist auch als Vor-Ort-Schulung verfügbar. Bitte kontaktieren Sie uns, um mehr zu erfahren.](#)