

# Azure Application Development

O'REILLY MEDIA

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## Resources

Provision virtual machines (VMs)

<https://docs.microsoft.com/en-us/azure/virtual-machines/>

<https://docs.microsoft.com/en-us/azure/azure-sql/virtual-machines/windows/create-sql-vm-portal>

<https://docs.microsoft.com/en-us/azure/azure-sql/virtual-machines/windows/create-sql-vm-powershell>

Configure, validate, and deploy ARM templates.

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/template-tutorial-create-first-template>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/quickstart-create-templates-use-the-portal>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/overview>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/bicep-overview>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/template-specs?tabs=azure-powershell>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/deployment-tutorial-local-template?tabs=azure-powershell>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/deployment-tutorial-linked-template?tabs=azure-powershell>

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/deployment-tutorial-pipeline>

Configure container images for solutions.

<https://docs.microsoft.com/en-us/learn/modules/build-and-store-container-images/>

<https://docs.microsoft.com/en-us/learn/modules/deploy-run-container-app-service/>

Publish an image to the Azure Container Registry

<https://docs.microsoft.com/en-us/azure/container-registry/>

<https://docs.microsoft.com/en-us/azure/container-registry/container-registry-intro>

<https://docs.microsoft.com/en-us/azure/container-registry/container-registry-concepts>

<https://docs.microsoft.com/en-us/azure/container-registry/container-registry-get-started-docker-cli>

<https://docs.microsoft.com/en-us/azure/container-registry/container-registry-webhook>

Run containers by using Azure Container Instance

<https://docs.microsoft.com/en-us/learn/modules/run-docker-with-azure-container-instances/>

<https://docs.microsoft.com/en-us/azure/container-instances/container-instances-overview>

<https://docs.microsoft.com/en-us/azure/container-instances/container-instances-quickstart-portal>

Azure Kubernetes Service (AKS)

<https://docs.microsoft.com/en-us/azure/aks/>

<https://docs.microsoft.com/en-us/azure/aks/intro-kubernetes>

<https://docs.microsoft.com/en-us/azure/aks/tutorial-kubernetes-prepare-app>

<https://docs.microsoft.com/en-us/azure/aks/concepts-clusters-workloads>

Create an Azure App Service Web App

<https://docs.microsoft.com/en-us/azure/app-service/>

<https://docs.microsoft.com/en-us/azure/app-service/overview>

<https://docs.microsoft.com/en-us/azure/app-service/quickstart-dotnetcore?tabs=netcore31&pivots=development-environment-vs>

Enable diagnostics logging.

<https://docs.microsoft.com/en-us/azure/app-service/troubleshoot-diagnostic-logs>

Deploy code to a web app.

<https://docs.microsoft.com/en-us/azure/app-service/deploy-run-package>

<https://docs.microsoft.com/en-us/azure/app-service/deploy-zip>

<https://docs.microsoft.com/en-us/azure/app-service/deploy-local-git?tabs=cli>

<https://docs.microsoft.com/en-us/azure/app-service/deploy-complex-application-predictably>

Configure web app settings including SSL, API settings, and connection strings.

<https://docs.microsoft.com/en-us/azure/app-service/configure-common>

<https://docs.microsoft.com/en-us/azure/app-service/configure-ssl-bindings>

Implement auto scaling rules including scheduled autoscaling and auto scaling by operational or system metrics.

<https://docs.microsoft.com/en-us/azure/app-service/manage-scale-up>

Create and deploy Azure Functions apps

<https://docs.microsoft.com/en-us/azure/azure-functions/functions-overview>

<https://docs.microsoft.com/en-us/azure/azure-functions/functions-create-your-first-function-visual-studio>

<https://docs.microsoft.com/en-us/azure/azure-functions/functions-create-first-function-resource-manager?tabs=visual-studio-code%2Cazure-cli>

Implement input and output bindings for a function.

Implement function triggers by using data operations, timers, and webhooks.

<https://docs.microsoft.com/en-us/azure/azure-functions/functions-triggers-bindings?tabs=csharp>  
<https://docs.microsoft.com/en-us/azure/azure-functions/add-bindings-existing-function?tabs=csharp>  
<https://docs.microsoft.com/en-us/azure/azure-functions/functions-bindings-return-value?tabs=csharp>  
<https://docs.microsoft.com/en-us/learn/modules/execute-azure-function-with-triggers/>

## Implement Azure Durable Functions

<https://www.youtube.com/watch?v=QvaPka0lmdU>  
<https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-overview?tabs=csharp>  
<https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-create-first-csharp?pivots=code-editor-vscode>  
<https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-sequence?tabs=csharp>  
<https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-cloud-backup?tabs=csharp>  
<https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-monitor?tabs=csharp>  
<https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-http-api#get-all-instances-status>  
<https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-external-events?tabs=csharp>

## Logic Apps

<https://docs.microsoft.com/en-us/azure/logic-apps/logic-apps-overview>  
<https://docs.microsoft.com/en-us/azure/logic-apps/quickstart-create-first-logic-app-workflow>  
<https://docs.microsoft.com/en-us/azure/connectors/apis-list>

## Select the appropriate Cosmos DB API and SDK for a solution

<https://docs.microsoft.com/en-us/learn/modules/choose-api-for-cosmos-db/>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/introduction>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/relational-nosql>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/create-sql-api-dotnet>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/create-mongodb-nodejs>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/create-cassandra-dotnet>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/create-graph-dotnet>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/create-table-dotnet>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/sql-api-sdk-dotnet>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/change-feed>

## Implement Cosmo DB partitioning schemes and partition keys.

<https://docs.microsoft.com/en-us/azure/cosmos-db/partitioning-overview>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/partitioning-overview#choose-partitionkey>

Perform operations on data and Cosmos DB containers

<https://docs.microsoft.com/en-us/azure/cosmos-db/account-databases-containers-items>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/sql-api-get-started>

Set the appropriate consistency level for operations.

<https://docs.microsoft.com/en-us/azure/cosmos-db/consistency-levels>

Manage Cosmos DB change feed notifications.

<https://docs.microsoft.com/en-us/azure/cosmos-db/change-feed>

Set and retrieve blob properties and metadata.

<https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-properties-metadata?tabs=dotnet>

Perform operations on Azure storage data by using the appropriate SDK.

<https://docs.microsoft.com/en-us/azure/storage/blobs/storage-quickstart-blobs-dotnet>  
<https://docs.microsoft.com/en-us/azure/storage/blobs/storage-quickstart-blobs-dotnet-legacy>

Implement storage policies, and data archiving and retention.

<https://docs.microsoft.com/en-us/azure/storage/blobs/storage-lifecycle-management-concepts?tabs=azure-portal>  
<https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-immutability-policies-manage?tabs=azure-portal>

Create and implement shared access signatures.

<https://docs.microsoft.com/en-us/azure/storage/common/storage-sas-overview>  
<https://docs.microsoft.com/en-us/samples/azure-samples/storage-dotnet-sas-getting-started/storage-dotnet-sas-getting-started/>

Authenticate and authorize users by using the Microsoft Identity platform

<https://docs.microsoft.com/en-us/azure/active-directory/develop/>  
<https://docs.microsoft.com/en-us/advertising/guides/authentication-oauth-identity-platform?view=bingads-13>  
<https://docs.microsoft.com/en-us/azure/active-directory/develop/v2-oauth2-auth-code-flow>  
<https://docs.microsoft.com/en-us/azure/active-directory/develop/authentication-vs-authorization>  
[https://www.youtube.com/watch?v=y\\_fgJAatVhk](https://www.youtube.com/watch?v=y_fgJAatVhk)  
[https://www.youtube.com/results?search\\_query=microsoft+identity+platform](https://www.youtube.com/results?search_query=microsoft+identity+platform)

Authenticate and authorize users and apps by using Azure Active Directory

<https://docs.microsoft.com/en-us/azure/app-service/configure-authentication-provider-aad>  
<https://devblogs.microsoft.com/premier-developer/adding-authentication-to-your-app-easily-with-azure-ad/>

Secure app configuration data by using App Configuration Azure Key Vault

<https://docs.microsoft.com/en-us/azure/app-service/app-service-key-vault-references>

Develop code that uses keys, secrets, and certificates stored in Azure Key Vault

<https://docs.microsoft.com/en-us/dotnet/api/overview/azure/security.keyvault.keys-readme>

<https://docs.microsoft.com/en-us/dotnet/api/overview/azure/security.keyvault.secrets-readme>

<https://docs.microsoft.com/en-us/dotnet/api/overview/azure/security.keyvault.certificates-readme>

Configure cache and expiration policies for Azure Redis Cache

<https://docs.microsoft.com/en-us/azure/azure-cache-for-redis/cache-configure>

<https://docs.microsoft.com/en-us/azure/azure-cache-for-redis/cache-configure#memory-policies>

Configure an app or service to use Application Insights

<https://docs.microsoft.com/en-us/azure/azure-monitor/app/cloudservices>

<https://docs.microsoft.com/en-us/azure/azure-monitor/app/monitor-functions>

<https://docs.microsoft.com/en-us/azure/azure-functions/functions-monitoring>

<https://docs.microsoft.com/en-us/azure/azure-monitor/app/ilogger>

<https://docs.microsoft.com/en-us/azure/azure-monitor/app/worker-service>

Analyze and troubleshoot solutions by using Azure Monitor

<https://docs.microsoft.com/en-us/azure/azure-monitor/insights/solutions?tabs=portal>

Implement Application Insights web tests and alerts

<https://docs.microsoft.com/en-us/azure/azure-monitor/app/monitor-web-app-availability>

<https://docs.microsoft.com/en-us/azure/azure-monitor/app/availability-alerts>

<https://docs.microsoft.com/en-us/azure/azure-monitor/app/tutorial-alert>

Implement solutions that use Azure Event Grid

<https://docs.microsoft.com/en-us/azure/event-grid/overview>

<https://docs.microsoft.com/en-us/azure/architecture/solution-ideas/articles/application-integration-using-event-grid>

Implement solutions that use Azure Event Hub

<https://docs.microsoft.com/en-us/azure/event-hubs/>

<https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-about>

<https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-create>

<https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-samples>

<https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-features>

Implement solutions that use Azure Service Bus

<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-messaging-overview>

<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-queues-topics-subscriptions>

<https://docs.microsoft.com/en-us/azure/event-grid/compare-messaging-services>

<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-quickstart-portal>  
<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-quickstart-topics-subscriptions-portal>  
<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-samples>

Implement solutions that use Azure Queue Storage queues

<https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-azure-and-service-bus-queues-compared-contrasted>  
<https://docs.microsoft.com/en-us/azure/storage/queues/storage-dotnet-how-to-use-queues?tabs=dotnet>

Exam az-204: Developing Solutions for Microsoft Azure

<https://docs.microsoft.com/en-us/learn/certifications/exams/az-204>  
<https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE4oZ7B>

<https://azure.microsoft.com/en-us/services/devops/>  
<https://docs.microsoft.com/en-us/azure/storage/common/storage-disaster-recovery-guidance>  
[https://azure.microsoft.com/en-us/support/legal/sla/cosmos-db/v1\\_3/](https://azure.microsoft.com/en-us/support/legal/sla/cosmos-db/v1_3/)  
<https://docs.microsoft.com/en-us/azure/cosmos-db/sql/performance-testing>  
<https://azure.microsoft.com/en-ca/services/cache/>  
<https://docs.microsoft.com/en-us/azure/event-grid/delivery-and-retry>  
<https://docs.microsoft.com/en-us/azure/azure-functions/security-concepts>  
<https://docs.microsoft.com/en-us/azure/azure-functions/functions-triggers-bindings?tabs=csharp>  
<https://docs.microsoft.com/en-us/azure/azure-functions/durable/durable-functions-overview?tabs=csharp>  
<https://docs.microsoft.com/en-us/azure/cosmos-db/consistency-levels>

## Course Repository

<https://github.com/zaalion/oreilly-application-dev-azure>

*Thank you!*  
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