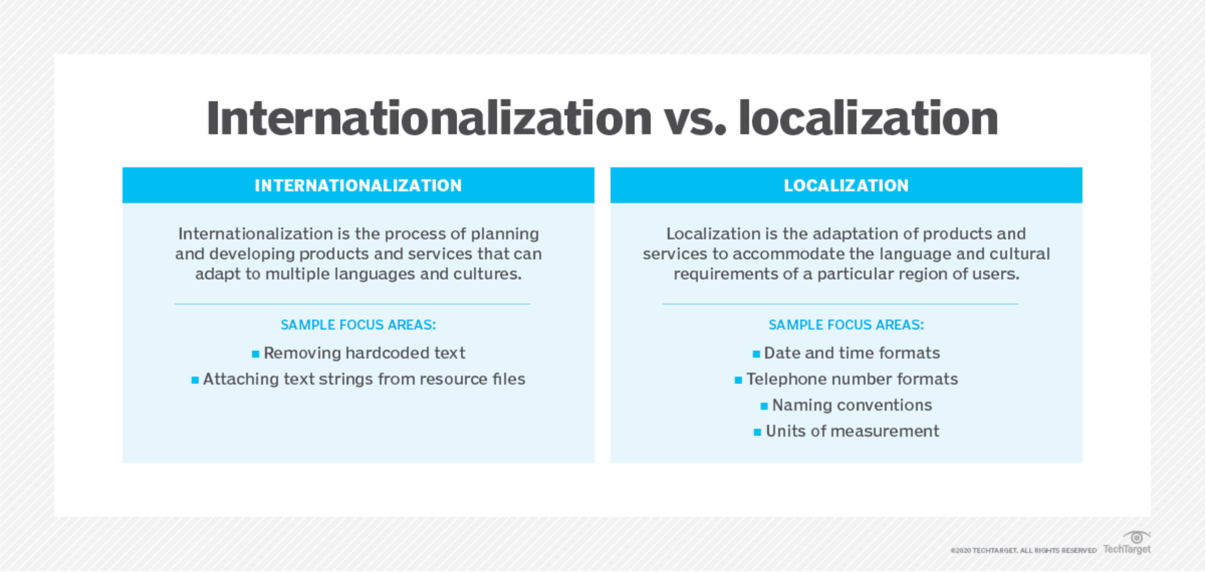
Localization and Internationalization in Apps and databases on Microsoft Azure-Angular, .Net,Java, Node.ja

Introduction

Internationalization is the process of designing software that can adapt to different languages and cultures independently and focus on product availability for a global audience. Localization is the process of adapting a software product or service to meet the needs of the end-user's language and culture. It only adapts content for a specific locale or market.
We'll take you through the journey of automating the primary marketing strategy, showcasing the power of Microsoft Azure in the process.



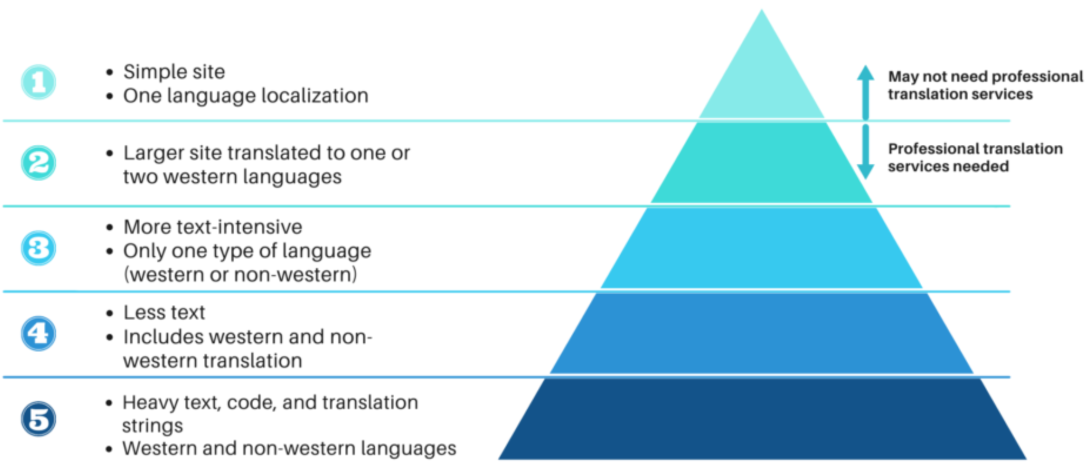
Internationalization vs. localization

INTERNATIONALIZATION	LOCALIZATION
Internationalization is the process of planning and developing products and services that can adapt to multiple languages and cultures.	Localization is the adaptation of products and services to accommodate the language and cultural requirements of a particular region of users.
SAMPLE FOCUS AREAS: ▪ Removing hardcoded text ▪ Attaching text strings from resource files	SAMPLE FOCUS AREAS: ▪ Date and time formats ▪ Telephone number formats ▪ Naming conventions ▪ Units of measurement

Problem Statement

The challenge is to enable software applications and databases, built on technologies like Angular, .NET, Java, and Node.js, to accommodate diverse languages and cultures, ensuring a seamless user experience for a global audience. How can developers effectively implement localization and internationalization strategies to overcome these linguistic and cultural barriers?

Level of Difficulty in Adapting Content


1
• Simple site
• One language localization
2
• Larger site translated to one or two western languages
3
• More text-intensive
• Only one type of language (western or non-western)
4
• Less text
• Includes western and non-western translation
5
• Heavy text, code, and translation strings
• Western and non-western languages
May not need professional translation services
Professional translation services needed

Challenges in Implementing the Solution

Implementing localization and internationalization can be challenging due to the complexity of managing multiple languages, cultures, and regions. Some common challenges include:

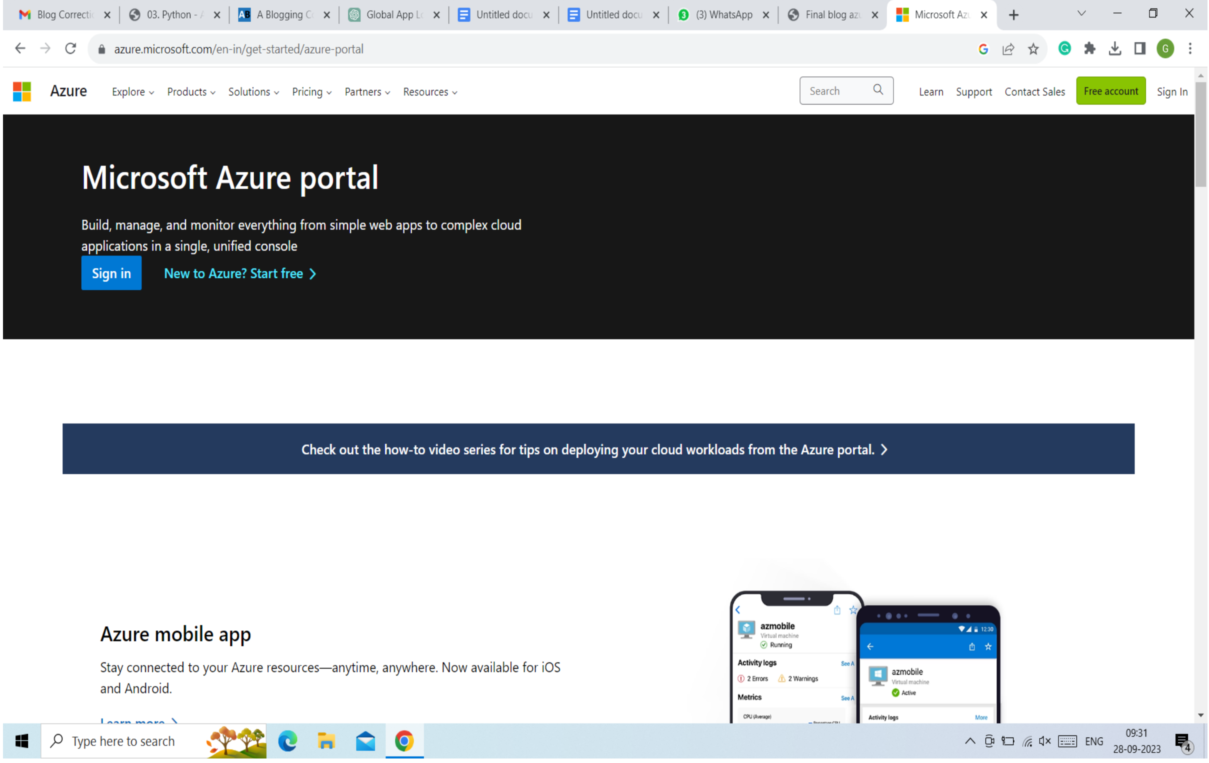
- Ensuring consistent translations across all supported languages.
- Adapting date and number formats to match the user's locale.
- Handling content changes and updates efficiently.
- Testing for seamless user experiences in different languages.

Step-by-Step Guide: Implementing Localization with Azure

In the following section, we'll provide a concise step-by-step guide for implementing localization and internationalization using Microsoft Azure. Azure's robust tools and services simplify the process of adapting your applications and databases to cater to a global audience. Let's get started on configuring Azure resources and optimizing your localization solution.

Step 1: Set Up an Azure Function App

- Log in to the Azure Portal.



Microsoft Azure portal

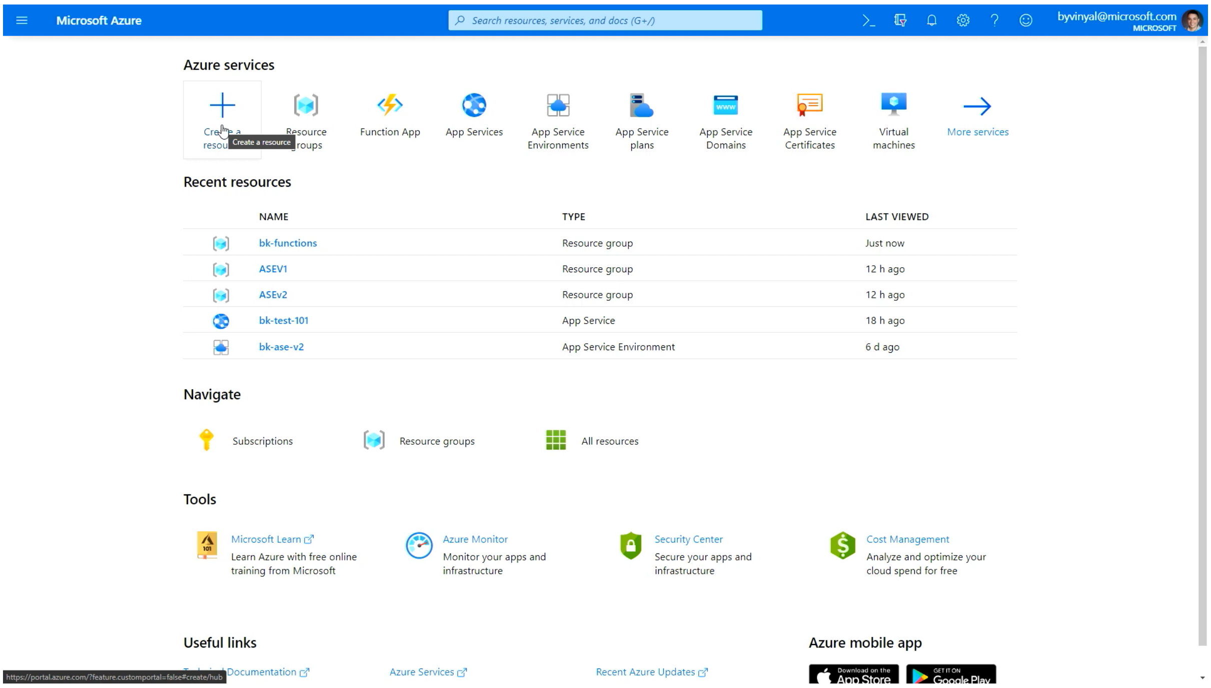
Build, manage, and monitor everything from simple web apps to complex cloud applications in a single, unified console

Check out the how-to video series for tips on deploying your cloud workloads from the Azure portal.

Azure mobile app

Stay connected to your Azure resources—anytime, anywhere. Now available for iOS and Android.

- Click on "Create a resource" and search for "Function App."



Recent resources

NAME	TYPE	LAST VIEWED
bk-functions	Resource group	Just now
ASEV1	Resource group	12 h ago
ASEv2	Resource group	12 h ago
bk-test-101	App Service	18 h ago
bk-ase-v2	App Service Environment	6 d ago

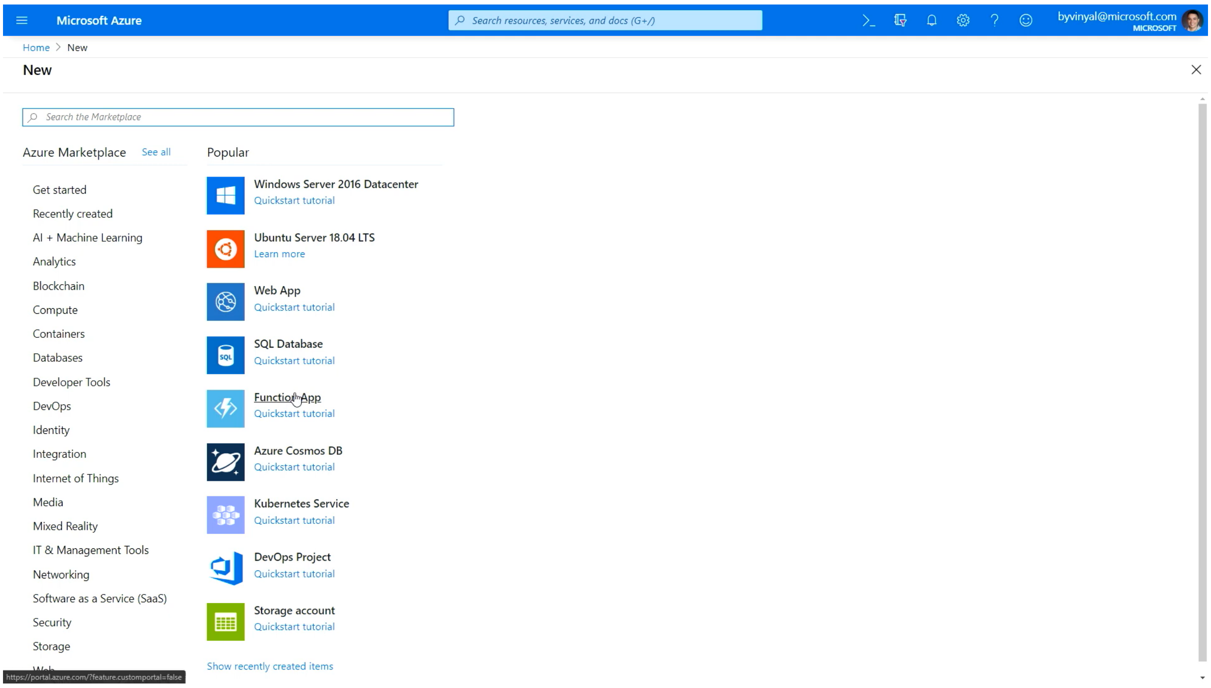
Tools

Microsoft Learn
Learn Azure with free online training from Microsoft

Azure Monitor
Monitor your apps and infrastructure

Security Center
Secure your apps and infrastructure

Cost Management
Analyze and optimize your cloud spend for free



Microsoft Azure

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Home > New

New

Search the Marketplace

Azure Marketplace See all

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- Analytics
- Blockchain
- Compute
- Containers
- Databases
- Developer Tools
- DevOps
- Identity
- Integration
- Internet of Things
- Media
- Mixed Reality
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- Security
- Storage
- Web

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- Azure Cosmos DB — Quickstart tutorial
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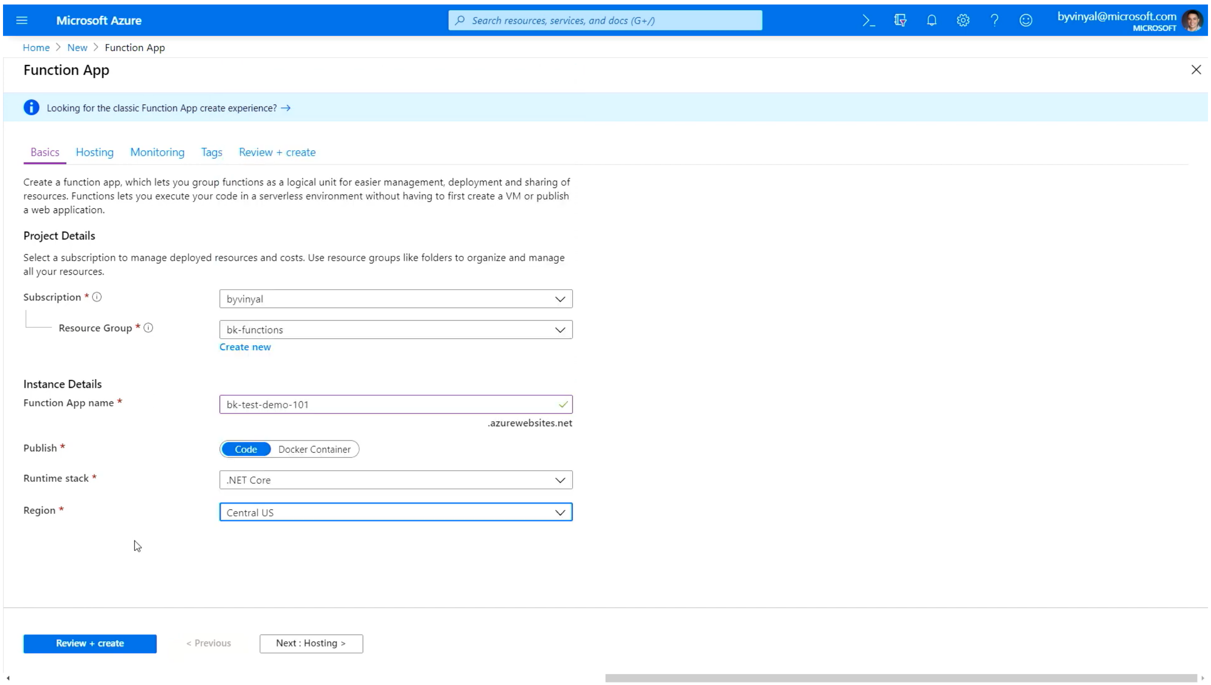
- DevOps Project — Quickstart tutorial
- Storage account — Quickstart tutorial

Show recently created items

https://portal.azure.com/?feature.customportal=false

- Fill in the necessary details, including a unique name, subscription, resource group, and runtime stack (e.g., Python).



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Home > New > Function App

Function App

Looking for the classic Function App create experience? →

Basics | Hosting | Monitoring | Tags | Review + create

Create a function app, which lets you group functions as a logical unit for easier management, deployment and sharing of resources. Functions lets you execute your code in a serverless environment without having to first create a VM or publish a web application.

Project Details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * : byvinyal

Resource Group * : bk-functions
Create new

Instance Details

Function App name * : bk-test-demo-101 .azurewebsites.net

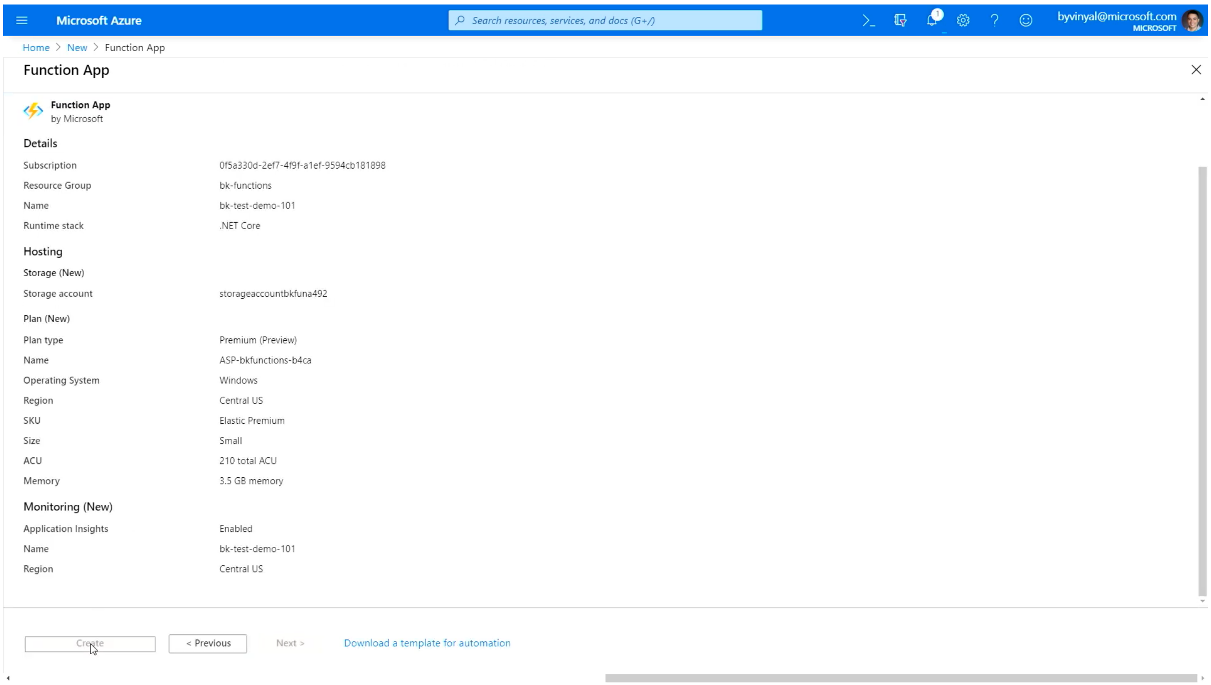
Publish * : ● Code ○ Docker Container

Runtime stack * : .NET Core

Region * : Central US

Review + create | < Previous | Next : Hosting >

- Click "Review + Create" and then "Create" to provision the Function App.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Home > New > Function App

Function App

Function App
by Microsoft

Details

Subscription	0f5a330d-2ef7-4f9f-a1ef-9594cb181898
Resource Group	bk-functions
Name	bk-test-demo-101
Runtime stack	.NET Core

Hosting

Storage (New)

Storage account	storageaccountbkfuna492

Plan (New)

Plan type	Premium (Preview)
Name	ASP-bkfunctions-b4ca
Operating System	Windows
Region	Central US
SKU	Elastic Premium
Size	Small
ACU	210 total ACU
Memory	3.5 GB memory

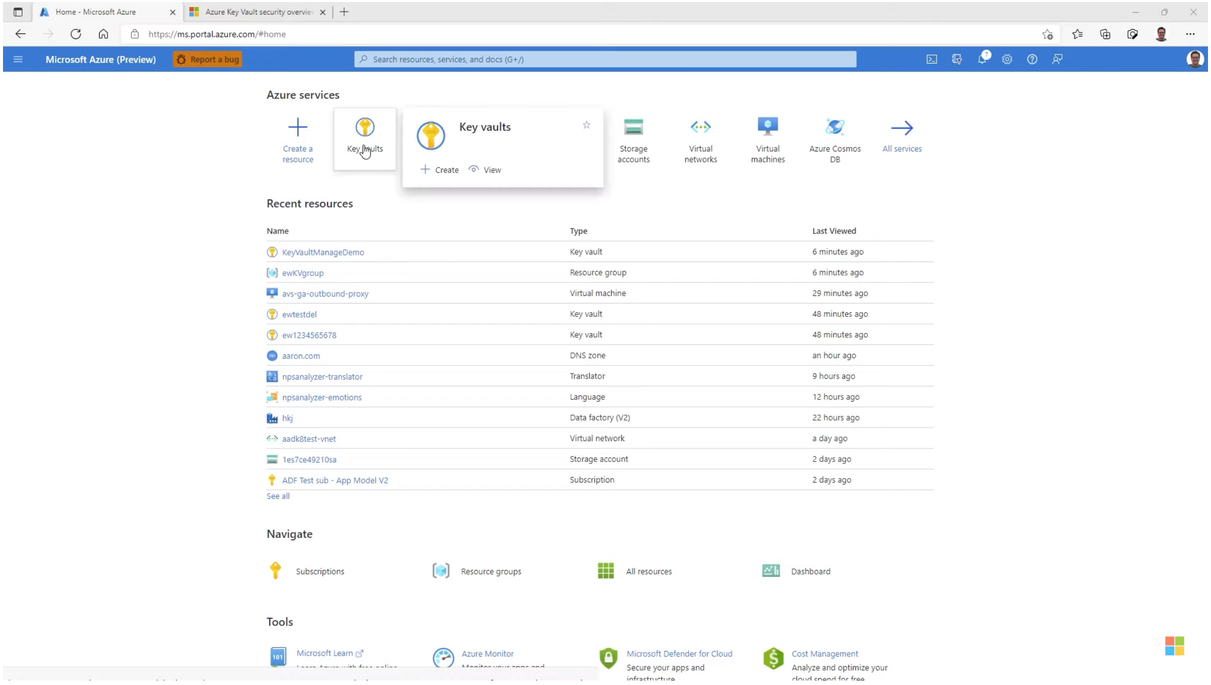
Monitoring (New)

Application Insights	Enabled
Name	bk-test-demo-101
Region	Central US

Reference link:- How to create a function app | Azure Portal Series

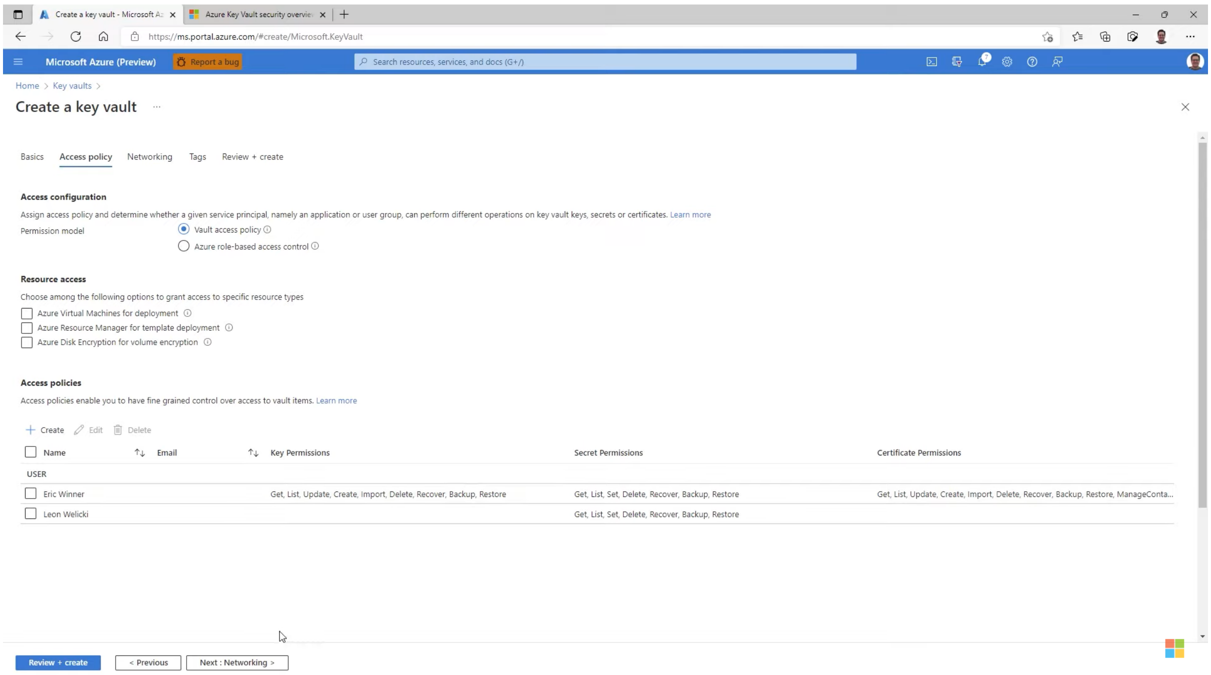
Step 2: Create an Azure Key Vault

- In the Azure Portal, search for "Key Vault" and click "Create."



Recent resources

Name	Type	Last Viewed
KeyVaultManageDemo	Key vault	6 minutes ago
ewKVgroup	Resource group	6 minutes ago
avs-ga-outbound-proxy	Virtual machine	29 minutes ago
ewtestdel	Key vault	48 minutes ago
ew1234565678	Key vault	48 minutes ago
aaron.com	DNS zone	an hour ago
npsanalyzer-translator	Translator	9 hours ago
npsanalyzer-emotions	Language	12 hours ago
hkj	Data factory (V2)	22 hours ago
aadk8test-vnet	Virtual network	a day ago
1es7ce49210sa	Storage account	2 days ago
ADF Test sub - App Model V2	Subscription	2 days ago


Create a key vault - Microsoft Az
Azure Key Vault security overvie
https://ms.portal.azure.com/#create/Microsoft.KeyVault
Microsoft Azure (Preview)
Report a bug
Search resources, services, and docs (G+/)
Home > Key vaults >

Create a key vault

Basics | Access policy | Networking | Tags | Review + create

Access configuration

Assign access policy and determine whether a given service principal, namely an application or user group, can perform different operations on key vault keys, secrets or certificates. Learn more

Permission model ● Vault access policy ○ Azure role-based access control

Resource access

Choose among the following options to grant access to specific resource types

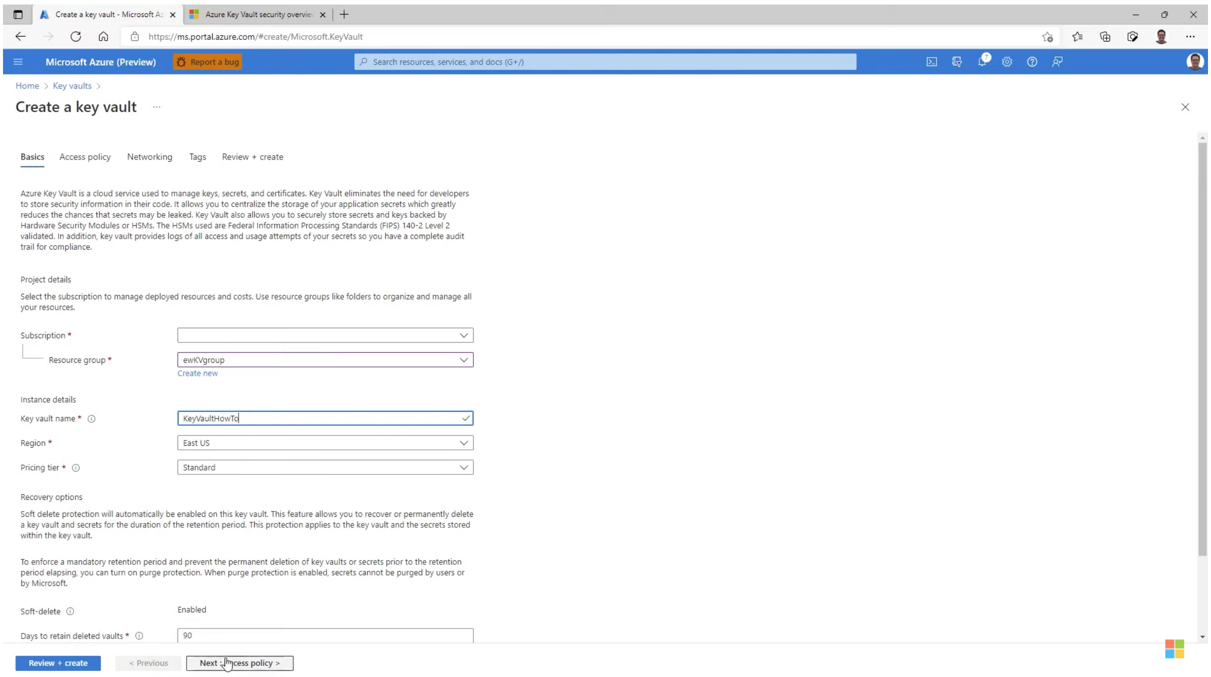
- □ Azure Virtual Machines for deployment
- □ Azure Resource Manager for template deployment
- □ Azure Disk Encryption for volume encryption

Access policies

Access policies enable you to have fine grained control over access to vault items. Learn more

Name	Email	Key Permissions	Secret Permissions	Certificate Permissions
USER				
□ Eric Winner		Get, List, Update, Create, Import, Delete, Recover, Backup, Restore	Get, List, Set, Delete, Recover, Backup, Restore	Get, List, Update, Create, Import, Delete, Recover, Backup, Restore, ManageConta...
□ Leon Welicki			Get, List, Set, Delete, Recover, Backup, Restore	

- Provide a unique name, subscription, resource group, and region.


Create a key vault - Microsoft Az
Azure Key Vault security overvie
https://ms.portal.azure.com/#create/Microsoft.KeyVault
Microsoft Azure (Preview)
Report a bug
Search resources, services, and docs (G+/)
Home > Key vaults >

Create a key vault

Basics | Access policy | Networking | Tags | Review + create

Azure Key Vault is a cloud service used to manage keys, secrets, and certificates. Key Vault eliminates the need for developers to store security information in their code. It allows you to centralize the storage of your application secrets which greatly reduces the chances that secrets may be leaked. Key Vault also allows you to securely store secrets and keys backed by Hardware Security Modules or HSMs. The HSMs used are Federal Information Processing Standards (FIPS) 140-2 Level 2 validated. In addition, key vault provides logs of all access and usage attempts of your secrets so you have a complete audit trail for compliance.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Resource group * ewKVgroup

Create new

Instance details

Key vault name * KeyVaultHowTo

Region * East US

Pricing tier * Standard

Recovery options

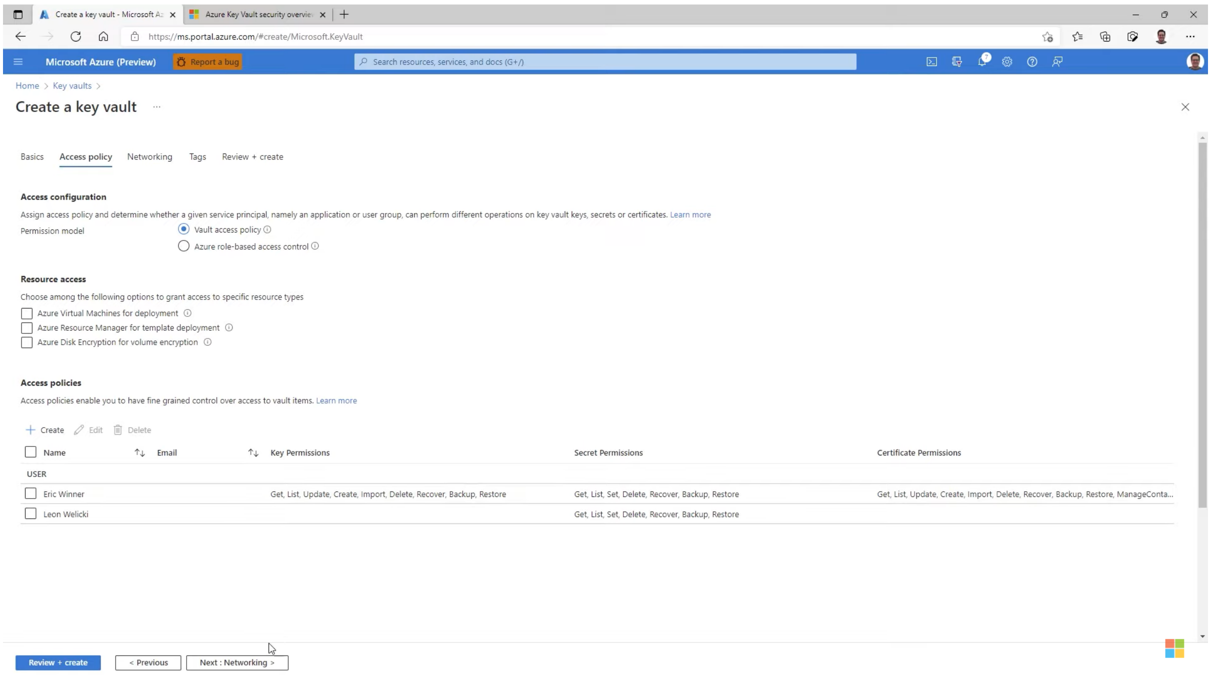
Soft delete protection will automatically be enabled on this key vault. This feature allows you to recover or permanently delete a key vault and secrets for the duration of the retention period. This protection applies to the key vault and the secrets stored within the key vault.

To enforce a mandatory retention period and prevent the permanent deletion of key vaults or secrets prior to the retention period elapsing, you can turn on purge protection. When purge protection is enabled, secrets cannot be purged by users or by Microsoft.

Soft-delete Enabled

Days to retain deleted vaults * 90

- Configure access policies to grant the Function App access to the Key Vault.



Create a key vault - Microsoft A
Azure Key Vault security overvie
https://ms.portal.azure.com/#create/Microsoft.KeyVault
Microsoft Azure (Preview)
Report a bug
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Basics
Access policy
Networking
Tags
Review + create
+ Create
Edit
Delete
Review + create
< Previous
Next : Networking >

Create a key vault

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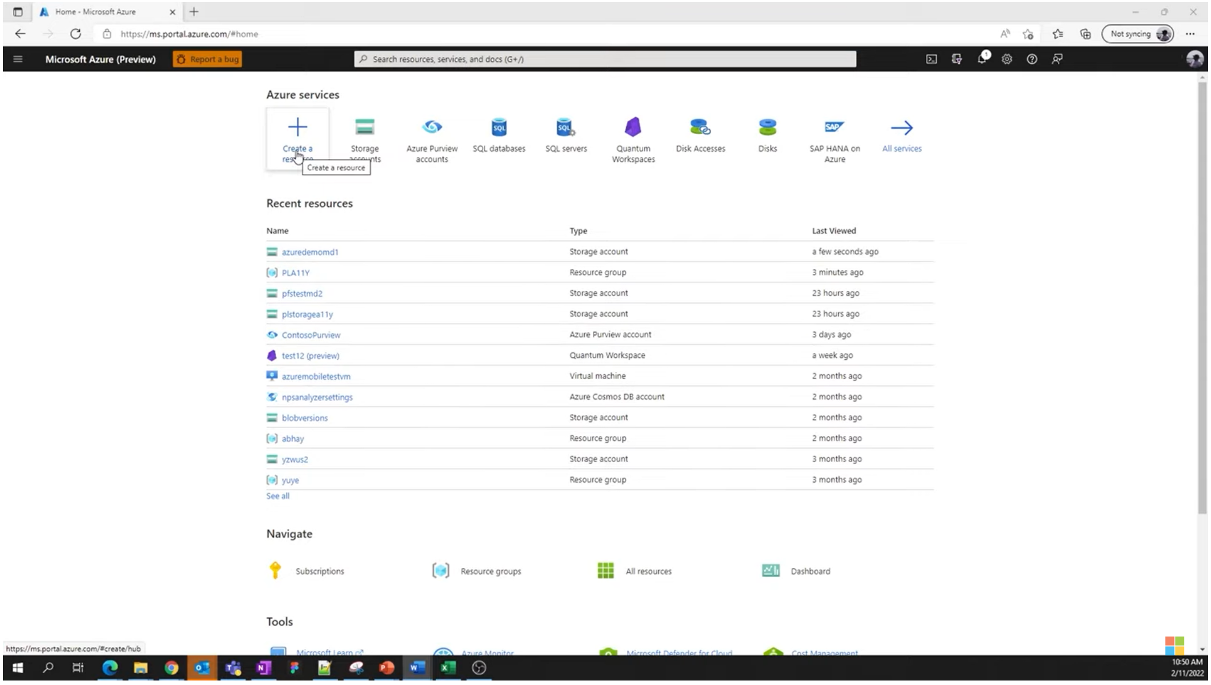
□ Leon Welicki			Get, List, Set, Delete, Recover, Backup, Restore	

- Click "Review + Create" and then "Create" to create the Key Vault

Reference link:- How to configure access to key vault | Azure Portal Series

Step 3: Set Up Azure Blob Storage

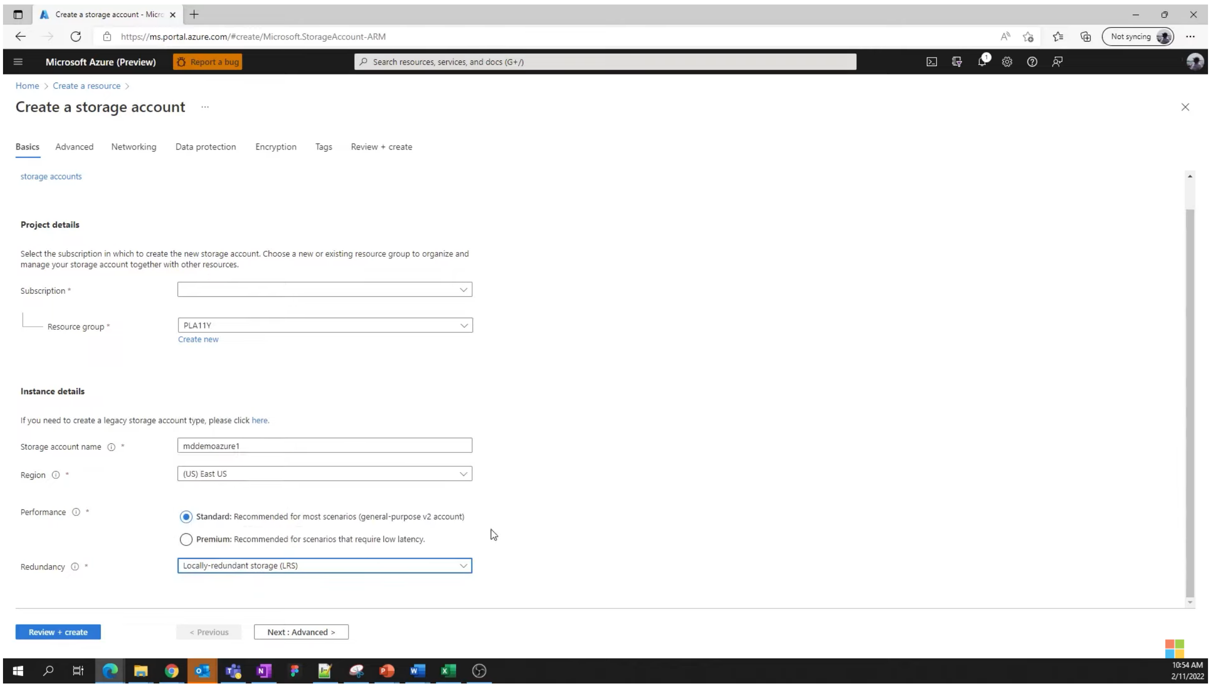
- In the Azure Portal, search for "Storage account" and click "Create."



Recent resources

Name	Type	Last Viewed
azuredemomd1	Storage account	a few seconds ago
PLA11Y	Resource group	3 minutes ago
pfstestmd2	Storage account	23 hours ago
plstoragea11y	Storage account	23 hours ago
ContosoPurview	Azure Purview account	3 days ago
test12 (preview)	Quantum Workspace	a week ago
azuremobiletestvm	Virtual machine	2 months ago
npsanalyzersettings	Azure Cosmos DB account	2 months ago
blobversions	Storage account	2 months ago
abhay	Resource group	2 months ago
yzwus2	Storage account	3 months ago
yuye	Resource group	3 months ago

- Fill in the necessary details for the storage account, such as a unique name, subscription, resource group, and region.



Home > Create a resource >

Create a storage account

Basics | Advanced | Networking | Data protection | Encryption | Tags | Review + create

storage accounts

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription *:

Resource group *: PLA11Y

Create new

Instance details

If you need to create a legacy storage account type, please click here.

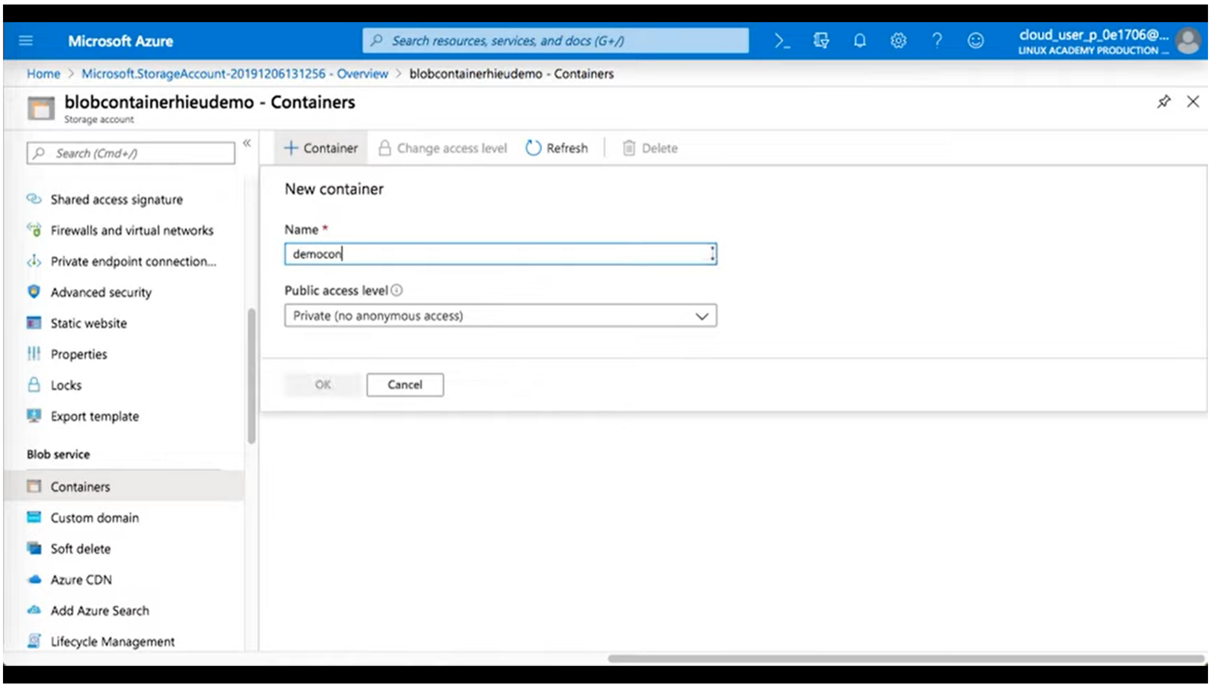
Storage account name *: mddemoazure1

Region *: (US) East US

Performance *:
● **Standard:** Recommended for most scenarios (general-purpose v2 account)
○ **Premium:** Recommended for scenarios that require low latency.

Redundancy *: Locally-redundant storage (LRS)

- Create a Blob container to store localization files.



Home > Microsoft.StorageAccount-20191206131256 - Overview > blobcontainerhieudemo - Containers

blobcontainerhieudemo - Containers

Storage account

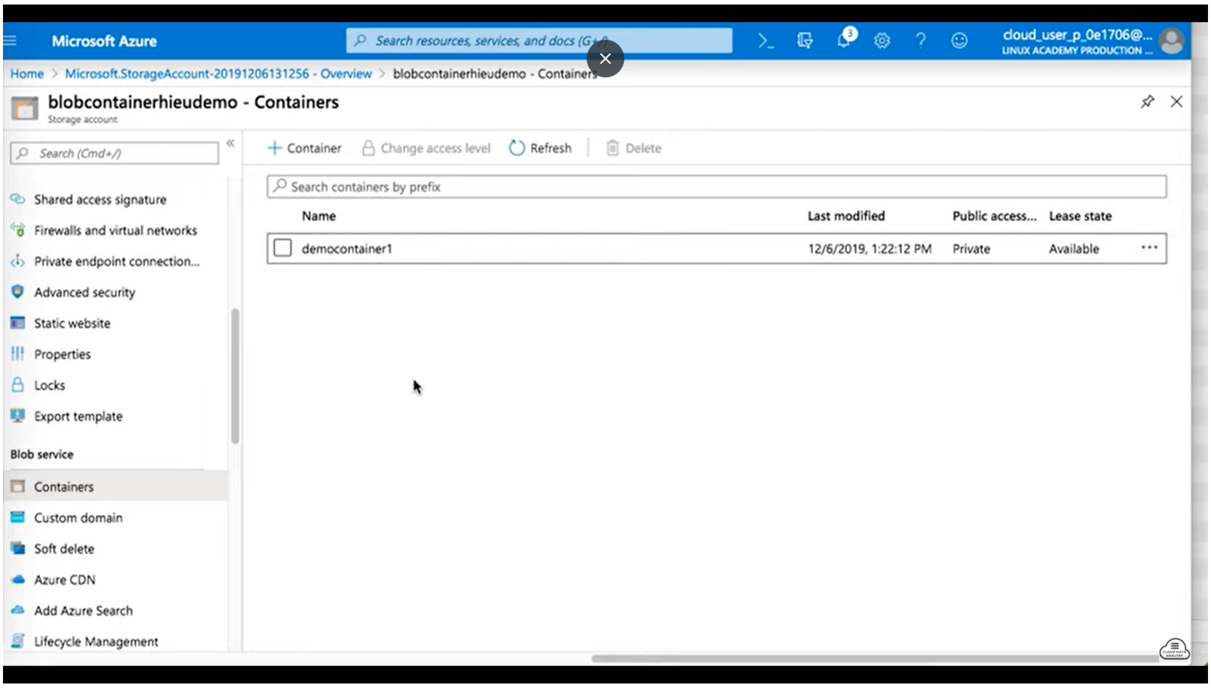
New container

Name *: democon

Public access level: Private (no anonymous access)

- Configure access permissions for the Function App to access the Blob container.
- Reference link :- How to create a storage account | Azure Portal Series

Azure Blob Storage Containers - How to create a storage acco...

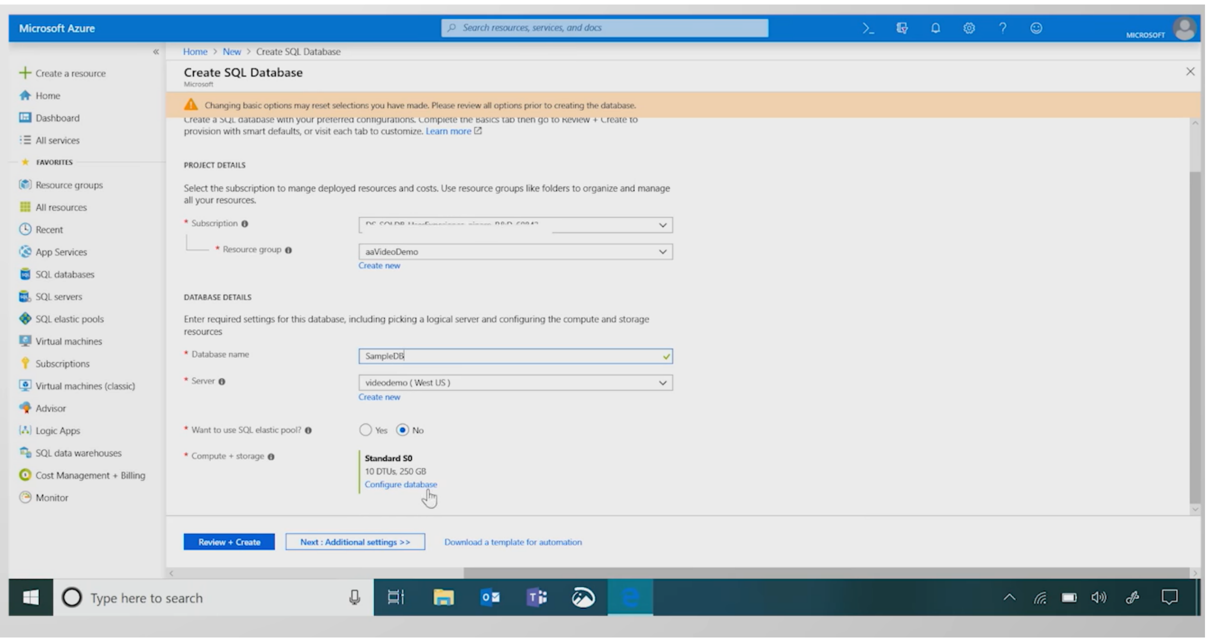


blobcontainerhieudemo - Containers

	Name	Last modified	Public access...	Lease state
□	democontainer1	12/6/2019, 1:22:12 PM	Private	Available

Step 4: Create an Azure SQL Database

- Search for "Azure SQL Database" in the Azure Portal and click "Create."
- Provide a unique name, subscription, resource group, and region.



Create SQL Database

Changing basic options may reset selections you have made. Please review all options prior to creating the database.

Create a SQL database with your preferred configurations. Complete the Basics tab then go to Review + Create to provision with smart defaults, or visit each tab to customize. Learn more

PROJECT DETAILS

Select the subscription to mange deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

* Subscription: [illegible]

* Resource group: aaVideoDemo

Create new

DATABASE DETAILS

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

* Database name: SampleDB

* Server: videodemo (West US)

Create new

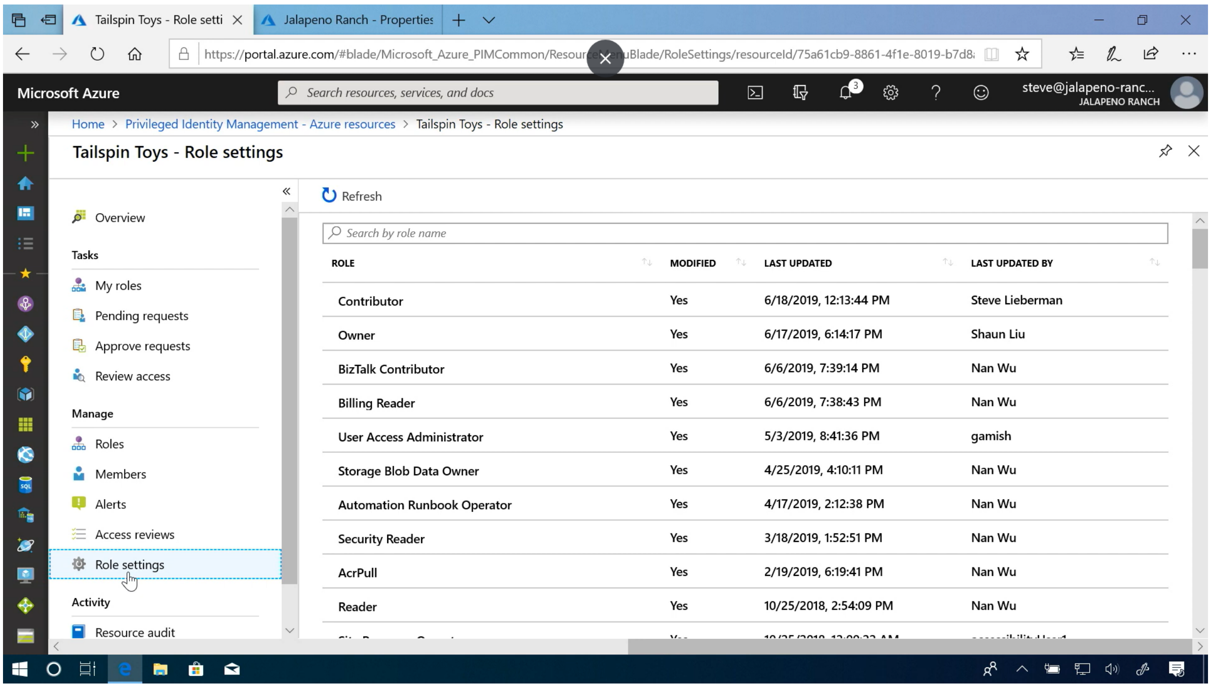
* Want to use SQL elastic pool? ○ Yes ● No

* Compute + storage: Standard S0
10 DTUs, 250 GB
Configure database

- Choose the appropriate pricing tier and configuration.
- Configure the database firewall rules and access policies.
- Create a database table to store localization data.
- Reference link :-
  How to create an Azure SQL database | Azure Portal Series

Step 5: Configure Identity and Access Management (IAM)

- In the Azure Portal, navigate to the Function App.
- Under "Settings," go to "Identity" and enable the system-assigned managed identity.


Tailspin Toys - Role setti
Jalapeno Ranch - Properties
https://portal.azure.com/#blade/Microsoft_Azure_PIMCommon/Resour…uBlade/RoleSettings/resourceId/75a61cb9-8861-4f1e-8019-b7d8
Microsoft Azure
Search resources, services, and docs
steve@jalapeno-ranc...
JALAPENO RANCH
Home > Privileged Identity Management - Azure resources > Tailspin Toys - Role settings
Overview
Tasks
My roles
Pending requests
Approve requests
Review access
Manage
Roles
Members
Alerts
Access reviews
Role settings
Activity
Resource audit
Refresh
Search by role name

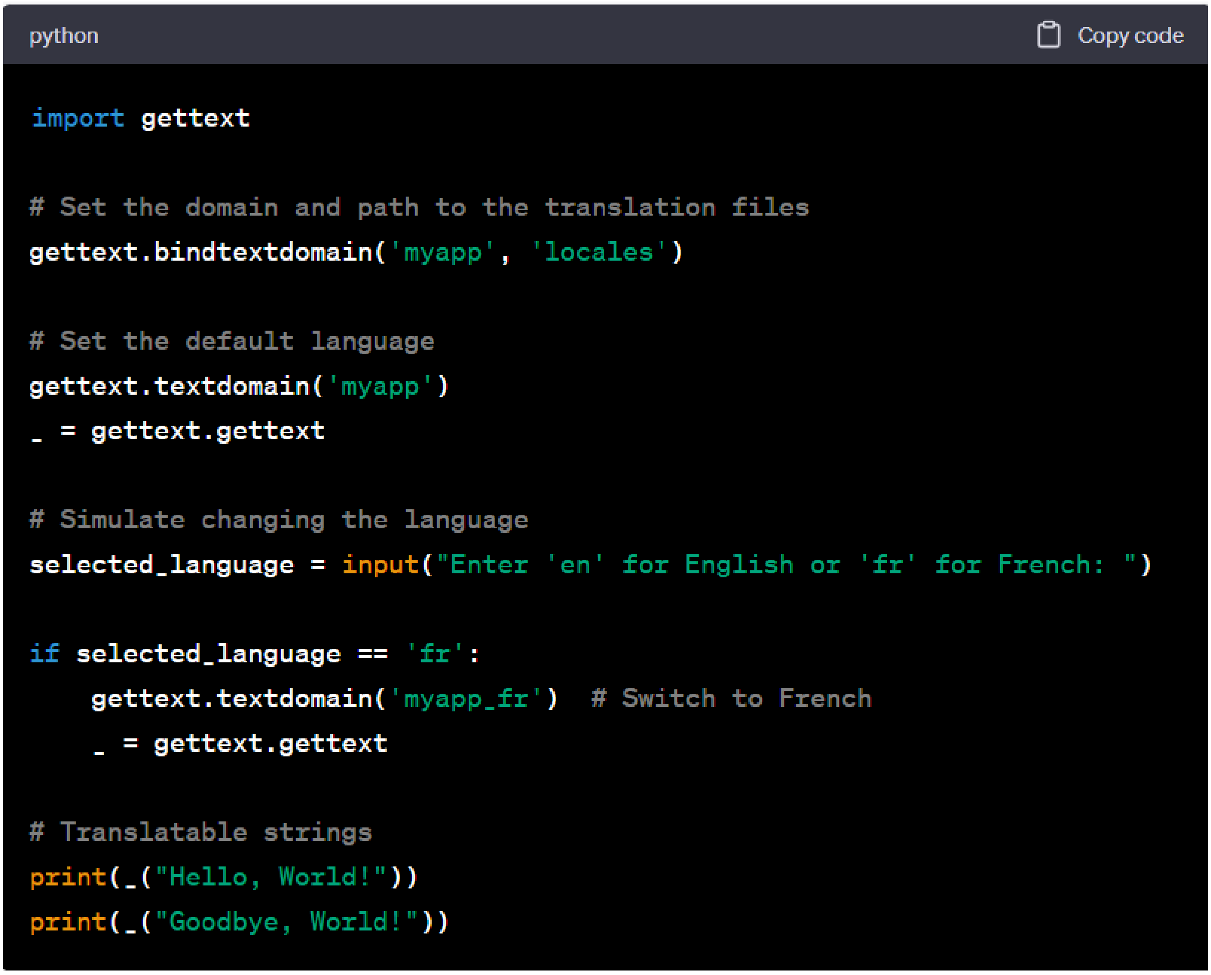
Tailspin Toys - Role settings

ROLE	MODIFIED	LAST UPDATED	LAST UPDATED BY
Contributor	Yes	6/18/2019, 12:13:44 PM	Steve Lieberman
Owner	Yes	6/17/2019, 6:14:17 PM	Shaun Liu
BizTalk Contributor	Yes	6/6/2019, 7:39:14 PM	Nan Wu
Billing Reader	Yes	6/6/2019, 7:38:43 PM	Nan Wu
User Access Administrator	Yes	5/3/2019, 8:41:36 PM	gamish
Storage Blob Data Owner	Yes	4/25/2019, 4:10:11 PM	Nan Wu
Automation Runbook Operator	Yes	4/17/2019, 2:12:38 PM	Nan Wu
Security Reader	Yes	3/18/2019, 1:52:51 PM	Nan Wu
AcrPull	Yes	2/19/2019, 6:19:41 PM	Nan Wu
Reader	Yes	10/25/2018, 2:54:09 PM	Nan Wu

- Assign necessary permissions to the managed identity for accessing Azure resources, including Key Vault, Blob Storage, and SQL Database.
- Reference link:-
  ▶ How to configure Azure Active Directory Privileged Identity Management

Step 6: Deploy Your Localization Solution

- Develop the localization and internationalization code using Python or your preferred language.



```python
import gettext

# Set the domain and path to the translation files
gettext.bindtextdomain('myapp', 'locales')

# Set the default language
gettext.textdomain('myapp')
_ = gettext.gettext

# Simulate changing the language
selected_language = input("Enter 'en' for English or 'fr' for French: ")

if selected_language == 'fr':
    gettext.textdomain('myapp_fr')  # Switch to French
    _ = gettext.gettext

# Translatable strings
print(_("Hello, World!"))
print(_("Goodbye, World!"))
```

- Utilize Azure SDKs and libraries to interact with Azure services.
- Deploy your code to the Azure Function App.

Step 7: Configure Azure Resources

- Update your code to use Azure Key Vault for securely storing sensitive data like API keys.
- Ensure that your code can connect to Azure Blob Storage and Azure SQL Database using the managed identity.

Step 8: Testing and Optimization

- Test your localization solution thoroughly to ensure that it works as expected.
- Monitor and optimize your Azure resources for performance and cost-efficiency

Getting started with localization in apps and databases

Localization is used to translate the app to a specific language. Localization is a growing market trend. People all around the world prefer content in their preferred language. In which most of the brands fail to provide it. English is the most used language for such content. Many countries lack in providing content even in English, they don't use English as their first language. China and India are winning the internet in this term.

Global audiences with smartphone users use online shopping which has become the current trend and they prefer the content in their preferred language. This tells us that a trend like this proves that customers' language is important for the success of marketing.

For example: Imagine you are sharing content with a Korean customer about a sale. If you show your content, in the same way, you show it to Indian customers then those Korean customers won't like it. those customers will notice. But can make a huge difference if you show the content in the Korean language to those customers. It makes it easier to interact with them and proves your care about them. It also increases trust and gives higher customer satisfaction

Prevent communication errors
Avoid using culturally inappropriate language
Build brand trust and loyalty
Enhance competitive advantage
Appear user-friendly to local customers
Demonstrate commitment to a certain market

So it is important to advertise your content in different languages for global customers and create strong bond with the customer.

The same goes for apps and databases. Apps with different options for language have more users than the ones that don't. In which databases or applications like Angular, .Net, Java, and Node.js are the most popular web development frameworks. We use these frameworks to serve the content in different languages. We use the i18n tool which supports apps with different languages for a global audience.

How Microsoft Azure Drives Localization and Internationalization

Microsoft Azure offers a robust suite of tools and services that empower organizations to excel in localization and internationalization efforts:

- Language Services: Azure provides language understanding capabilities, enabling applications to comprehend and respond to user input in multiple languages.
- Global Reach: With a vast network of data centers, Azure ensures low-latency access for users worldwide, enhancing the user experience.
- Scalability: Azure's scalable infrastructure accommodates varying levels of global traffic, ensuring consistent performance.
- Content Delivery: Azure CDN accelerates content delivery globally, reducing load times and improving user satisfaction.

Business Benefits

Implementing localization and internationalization on Microsoft Azure offers significant advantages. It leads to enhanced customer satisfaction, greater global market reach, and an improved brand reputation.

1. **Enhanced Customer Satisfaction**: Tailoring your software to users' language and cultural preferences leads to increased engagement, user retention, and positive feedback.
2. **Global Market Expansion**: Adapting your apps and databases for diverse audiences opens doors to new markets, offering a competitive advantage and revenue growth opportunities.
3. **Improved Brand Reputation**: Localization efforts demonstrate your commitment to customer-centricity, building trust, credibility, and positive associations with your brand, especially as you expand globally.

Conclusion

Localization and internationalization are not just best practices; they're essential strategies for reaching a global audience effectively. By understanding these concepts and implementing them using technologies like Angular, .NET, Java, and Node.js, you can create applications that transcend linguistic and cultural boundaries. Embrace the opportunities that come with a global audience, and unlock the full potential of your app in the global marketplace.

Reference link for implementing apps and database:-

Implementing localization in Angular:-

https://www.freecodecamp.org/news/how-to-implement-localization-in-angular-using-i18n-tools-a88898b1a0d0/

Implementing Localization in .NET:-
https://learn.microsoft.com/en-us/dotnet/core/extensions/localization

Implementing_Localization_in_Node.js:-
https://learn.microsoft.com/en-us/samples/officedev/microsoft-teams-samples/officedev-microsoft-teams-samples-app-localization-nodejs/