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Student ID#:

D485 Cloud Security

## Cloud Security Implementation Plan

### *A. Executive Summary*

SWBTL LLC's Microsoft Azure cloud environment exhibits numerous securities issues and fails to meet the company's business needs. The following points details the discrepancies between the current security environment and the company's business requirements:

1. **Compliance with Applicable Regulations and Standards:** SWBTL LLC holds contracts with the U.S. government and processes card transactions daily. Therefore, it must adhere to the Federal Information Security Modernization Act (FISMA) and the Payment Card Industry Data Security (PCI DSS). Presently, SWBTL LLC's existing cloud environment does not meet these regulatory requirements.
2. **Azure Resource Groups and Azure Role-based Access Control (RBAC):** SWBTL LLC requires that departmental resources be accessible only to users within the respective department, adhering to the principle of least privilege. However, the current cloud environment does not meet this requirement.
3. **Azure Key Vaults and Encryption of Data-at-Rest and Data-in-Transit:** Currently, There are no services in place to encrypt data-at-rest or data-in-

transit. Azure key Vaults can be utilized to secure encryption keys when implementing services like Azure Disk Encryption and Azure SQL Database TDE for data-at-rest. For Data-in-transit, Azure Key Vaults enforce transport-level encryption to safeguard data transferred between Azure Key Vault and Clients.

4. **Backups:** SWBTL LLC has specific business requirements for backups, including their frequency, retention, and recovery objectives. Currently, there are no policies or configurations in place that meet these requirements.
5. **Vulnerability Scanning:** The current vulnerability scans are outdated, and it is unclear whether they include the cloud environment.

Overall, SWBTL LLC's cloud environment lacks the essential security controls needed to meet its business requirements and comply with regulations and standards. The company must implement corrective actions to secure the cloud environment properly.

### ***B. Proposed Course of Action***

The recommended course of action for SWBTL LLC involves adopting Microsoft's Azure Government Infrastructure as a Service (IaaS) solution. This will provide the company with a FEDRAMP/FedRamp+ authorized product that is also approved at DOD Impact Level (IL) 5. Additionally, this service model aligns with the company's needs by enabling the deployment and management of multiple operating systems, virtual machines, and custom applications, all supported by on-demand compute, storage, and network resources.

Applicable regulatory compliance directives include the following:

- **Federal Information Security Modernization Act (FISMA):** As a U.S government contractor, SWBTL LLC must adhere to the information security standards and guidelines mandated by FISMA, which includes those developed by the national Institute of Standards and Technology (NIST) (NIST, 2016).
- **Federal Risk and Authorization Management program (FedRAMP):** This program utilizes NIST standards to establish uniform security requirements for cloud services (FedRAMP, n.d.). Microsoft Azure Government aligns its controls with NIST Sp 800-53 Rev. 5 to achieve compliance and FedRAMP authorization (Microsoft, 2024).
- **Department of Defense (DoD) Cloud Computing Security Requirements Guide (SRG):** Developed and maintained by the DoD's Defense Information Systems Agency (DISA), this guide outlines security requirements for cloud solutions. Compliance with these SRG and DoD FedRAMP+ controls grants cloud solutions a DoD provisional authorization. The Microsoft Azure Government solution, for instance, is classified as DoD Impact Level 5 (IL 5) (Microsoft, 2023).
- **Payment Card Industry Data Security Standard (PCI DSS):** PCI DSS applies to any organization that stores, processes, or transmits cardholder data. According to the Company Overview and Requirements are relevant to SWBTL LLC handles card transactions daily. Therefore, PCI DSS requirements are relevant to SWBTL LLC, The operational aspects of their systems involved in processing transactions (PCI Security Standards Council, 2018).

Security Benefits of Microsoft Azure government IaaS:

The Microsoft Azure government IaaS solution offers numerous security advantages. The following outline the benefits essential for SWBTL LLC:

- Azure Resource manager: This solution allows for the creation and management of resource groups. It also includes a tagging feature to identify resources associated with these groups.
- Azure RBAC: This service manages access to resources by restricting permissions based on a need-to-know basis. Implementing Azure RBAC ensures that the principle of least privilege is upheld.
- Encryption in Transit: Azure Storage allows data encryption during transit using transport-level encryption, wire encryption, and client-side encryption.
- Encryption at Rest: Azure Storage enables data encryption at rest through storage service encryption, client-side encryption, Azure Disk Encryption, and Azure SQL Database Transparent Data Encryption (TDE).
- Azure Backup: This solution offers backup services that allow authorized users to back up and restore virtual machines, files, folders, SQL databases, and more. This service is crucial for securely recovering any lost data following accidental deletion (Microsoft, 2022).

#### Security Challenges of Microsoft Azure Government IaaS:

Despite the many security benefits of the Microsoft Azure Government IaaS solution, a significant challenge is the potential misconfiguration of security controls in the cloud environment. Security is a shared responsibility between the cloud service provider (CSP) and the customer. This underscores the necessity for customers to implement security controls according to industry's best practices and to thoroughly test these controls for

quality assurance. Improper implementation of security controls can have serious consequences for confidentiality, integrity, and availability of the cloud environment.

### ***C. Role-Based Access Control***

The following three recommendations can be implemented for RBAC:

1. To enforce the principle of least privilege, the Accounting Department at SWBTL LLC Accounting Department at SWBTL LLC should not access to the resources of the IT or Marketing Departments. Similarly, the IT and Marketing Departments should only have access to their own respective resources.
2. To enforce the principle of least privilege, the Microsoft Azure Government IaaS cloud solution includes built-in roles, such as “Contributor,” that can be assigned to different departments.
3. These roles, along with the departmental users assigned to them, should be reviewed and updated regularly in accordance with regulatory timeframes.

The following screenshots illustrate the complete steps for configuring RBAC for the IT Department, beginning with the Resource Groups area. These steps will then be repeated for the Accounting and Marketing Departments.

IT Department:

Resource groups - Microsoft Azure

https://portal.azure.com/#view/HubsExtension/BrowseResourceGroups

Microsoft Azure

Search resources, services, and docs (G+)

Admin-40784112@LO...  
LODS-PROD-MCA (LODSPROD...

Home >

## Resource groups

LODS-Prod-MCA (LODSPROD-MCA.onmicrosoft.com)

+ Create Manage view Refresh Export to CSV Open query Assign tags

Filter for any field... Subscription equals all Location equals all Add filter

Showing 1 to 4 of 4 records.

No grouping List view

Name	Subscription	Location
Accounting-rg	MOC Subscription--lod49177733	East US
IT-rg	MOC Subscription--lod49177733	East US
Marketing-rg	MOC Subscription--lod49177733	East US
NetworkWatcherRG	MOC Subscription--lod49177733	East US

< Previous Page 1 of 1 Next >

https://portal.azure.com/#@LODSPROD-MCA.onmicrosoft.com/resource/subscriptions/16aa4989-0c58-489c-a465-22755a43fab...

Give feedback

5:27 PM 5/17/2024

IT-rg - Microsoft Azure

https://portal.azure.com/#@LODSPROD-MCA.onmicrosoft.com/resource/subscriptions/16aa4989-0c58-489c-a465-22755a43fab/resourceGroups/IT-rg/overview

Microsoft Azure

Search resources, services, and docs (G+)

Admin-40784112@LO...  
LODS-PROD-MCA (LODSPROD...

Home >

## IT-rg

Resource group

Search

+ Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags Move Delete Export template Open in mobile

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

Settings

Cost Management

Monitoring

Automation

Help

Essentials

Subscriptions: 3 Succeeded

Subscription (move): MOC Subscription--lod49177733

Subscription ID: 16aa4989-0c58-489c-a465-22755a43fab

Location: East US

Tags (edit): LODManaged: lod LabProfile: 139280 PoolOrgId: 363 ProfileOrgId: 3878 LabInstance: 40784112 TS: 133604641881462391 SeriesId: 28956

### Resources

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 13 of 13 records. Show hidden types

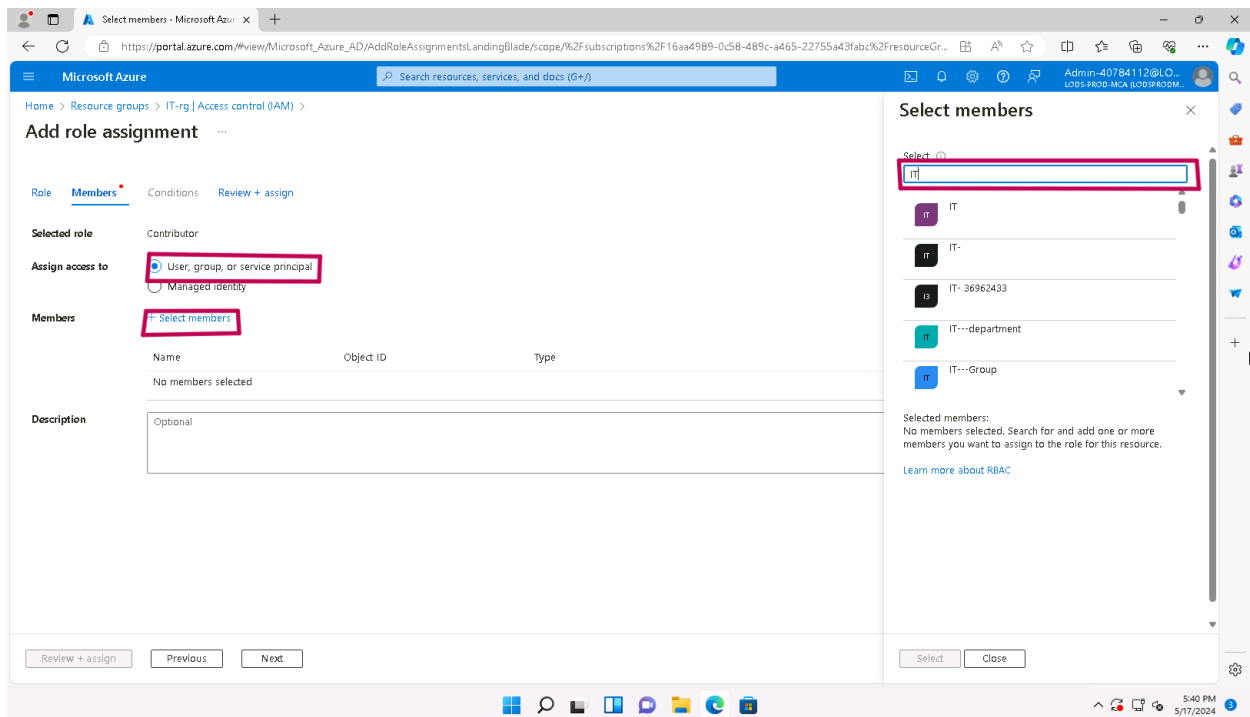
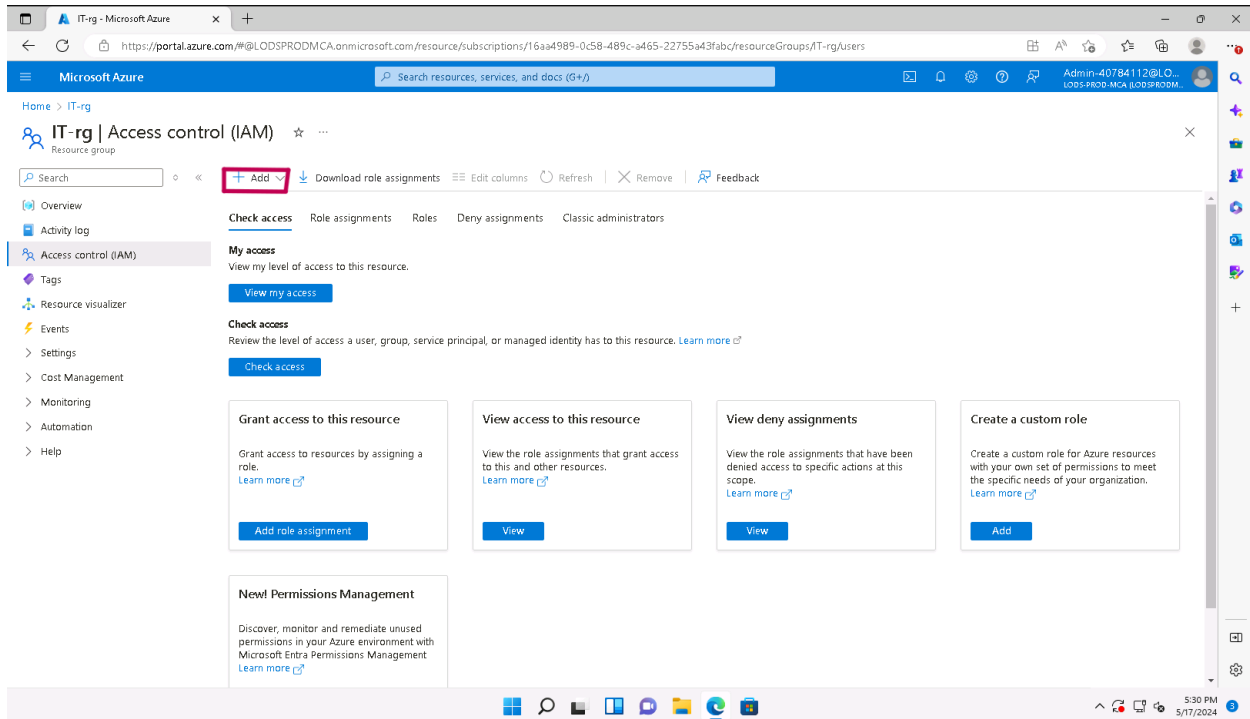
No grouping List view

Name	Type	Location
accounting-vm	Virtual machine	East US
accounting-vmNic	Network interface	East US
accounting-vnet	Virtual network	East US
Backup-Vault	Recovery Services vault	East US
Finance-KV-gkdzyihpdcly	Key vault	East US
it-vm	Virtual machine	East US
it-vmNic	Network interface	East US

< Previous Page 1 of 1 Next >

Give feedback

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The screenshot displays the 'Add role assignment' interface in the Microsoft Azure portal. The breadcrumb navigation at the top indicates the path: Home > Resource groups > Accounting-rg > Access control (IAM) >. The main heading is 'Add role assignment'. Below this, there are three tabs: 'Role', 'Members' (which is active), and 'Conditions'. A 'Review + assign' link is also present.

Under the 'Members' tab, the 'Assign access to' section has a dropdown menu with 'User, group, or service principal' selected. Below this, there are two radio buttons: 'Managed identity' (which is selected) and 'Managed identity'.

The 'Members' section shows a table with columns 'Name', 'Object ID', and 'Type'. The table is currently empty, with the text 'No members selected' displayed. Below the table, there is a 'Description' field with the text 'Optional'.

On the right side, the 'Select members' pane is open. It shows a search bar with 'Accounting' entered. Below the search bar, there is a list of members, each with an 'AC' icon and a name: 'Accounting', 'Accounting', 'Accounting-', 'Accounting--group', and 'Accounting-00121573'. The 'Accounting' member is selected. Below the list, there is a 'Selected members:' section showing the 'Accounting' member with a 'Remove' button next to it.

At the bottom of the 'Select members' pane, there are 'Select' and 'Close' buttons. At the bottom of the main page, there are 'Review + assign', 'Previous', and 'Next' buttons.



Accounting-rg - Microsoft Azure

https://portal.azure.com/#@LODSPRODMCA.onmicrosoft.com/resource/subscriptions/12d4811f-8ea1-474f-a0cc-cdd6d435f041/resourceGroups/Accounting-rg/users

Microsoft Azure

Search resources, services, and docs (G+)

Admin-40784790@LO...  
LODS-PROD-MCA (LODSPRODM...

Home > Resource groups > Accounting-rg

Resource groups

LODS-Prod-MCA (LODSPRODMCA.onmicrosoft.com)

+ Create Manage view

Filter for any field...

Name

- Accounting-rg
- IT-rg
- Marketing-rg
- NetworkWatcherRG

Settings

- Deployments
- Security
- Deployment stacks
- Policies
- Properties
- Locks
- Cost Management
- Cost analysis
- Cost alerts (preview)
- Budgets
- Advisor recommendations
- Monitoring

Accounting-rg | Access control (IAM)

Search

+ Add Download role assignments Edit columns Refresh Remove Feedback

<input type="checkbox"/>	cloud-slice-app	App	Owner	Management group (inherited)	None
<input type="checkbox"/>	cloud-slice-app	App	Owner	Management group (inherited)	None
<input type="checkbox"/>	cloudslice-app	App	Owner	Management group (inherited)	None
<input type="checkbox"/>	Intel-Cloud-Slice	App	Owner	Management group (inherited)	None
<input type="checkbox"/>	LODS Owners	Group	Owner	Management group (inherited)	None
Contributor (2)					
<input checked="" type="checkbox"/>	Accounting	Group	Contributor	This resource	None
<input type="checkbox"/>	LODS Contributors	Group	Contributor	Management group (inherited)	None
Azure Kubernetes Service Cluster User Role (1)					
<input type="checkbox"/>	Wiz for Azure	App	Azure Kubernetes Service Cluster User Role	Management group (inherited)	None
Azure Kubernetes Service RBAC Reader (1)					
<input type="checkbox"/>	Wiz for Azure	App	Azure Kubernetes Service RBAC Reader	Management group (inherited)	None
LOD Owner (1)					
<input type="checkbox"/>	Admin-40784790 Admin-40784790...	User	LOD Owner	Subscription (Inherited)	None
Reader (3)					
<input type="checkbox"/>	LODS Readers	Group	Reader	Management group (inherited)	None
<input type="checkbox"/>	Wiz for Azure	App	Reader	Management group (inherited)	None

Page 1 of 1

7:03 PM  
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## Marketing Department:

Select members - Microsoft Azure

https://portal.azure.com/#view/Microsoft\_Azure\_AD/AddRoleAssignmentsLandingBlade/scope/%2Fsubscriptions%2F12d4811f-8ea1-474f-a0cc-cdd6d435f041%2FresourceGroups%2FMarketing-rg%2Fusers

Microsoft Azure

Search resources, services, and docs (G+)

Admin-40784790@LO...  
LODS-PROD-MCA (LODSPRODM...

Home > Resource groups > Marketing-rg | Access control (IAM)

Add role assignment

Role Members Conditions Review + assign

Assign access to

☒ User, group, or service principal

☐ Managed identity

Members

+ Select members

Name	Object ID	Type
No members selected		

Description

Optional

Review + assign Previous Next

Select members

Select

Marketing

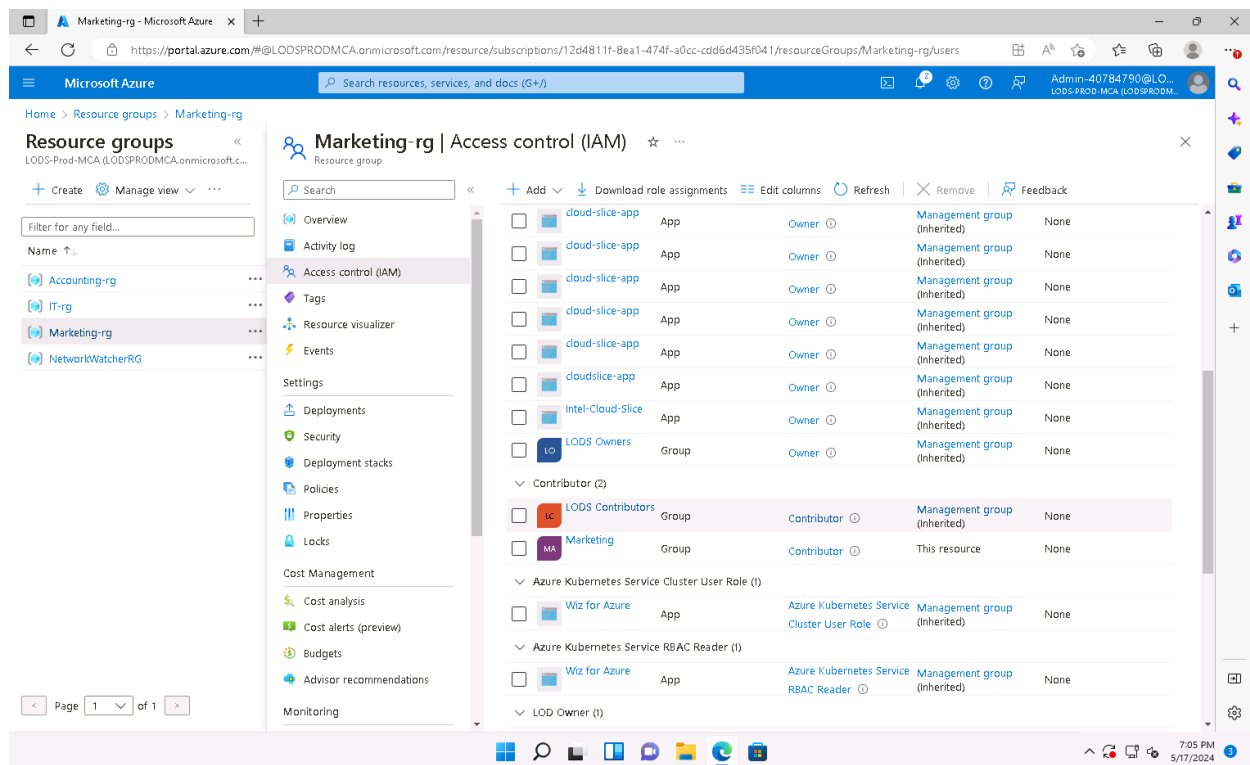
- Marketing
- marketing-
- Marketing--group
- Marketing-001
- Marketing-00121573

Selected members:  
No members selected. Search for and add one or more members you want to assign to the role for this resource.

Learn more about RBAC

Select Close

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5/17/2024



## D. Encryption

Two best practices to implement in relation to Azure key Vaults includes the following:

- Key Rotation Policy: A policy should be set up automatically generate new keys after a specified period. This ensures the company's encryption keys remain secure.
- Resource Group Isolation: Each Resource Group should have its own dedicated Key Vault, ensuring that only users with access to those Resource Groups can access their respective departmental Key Vaults.

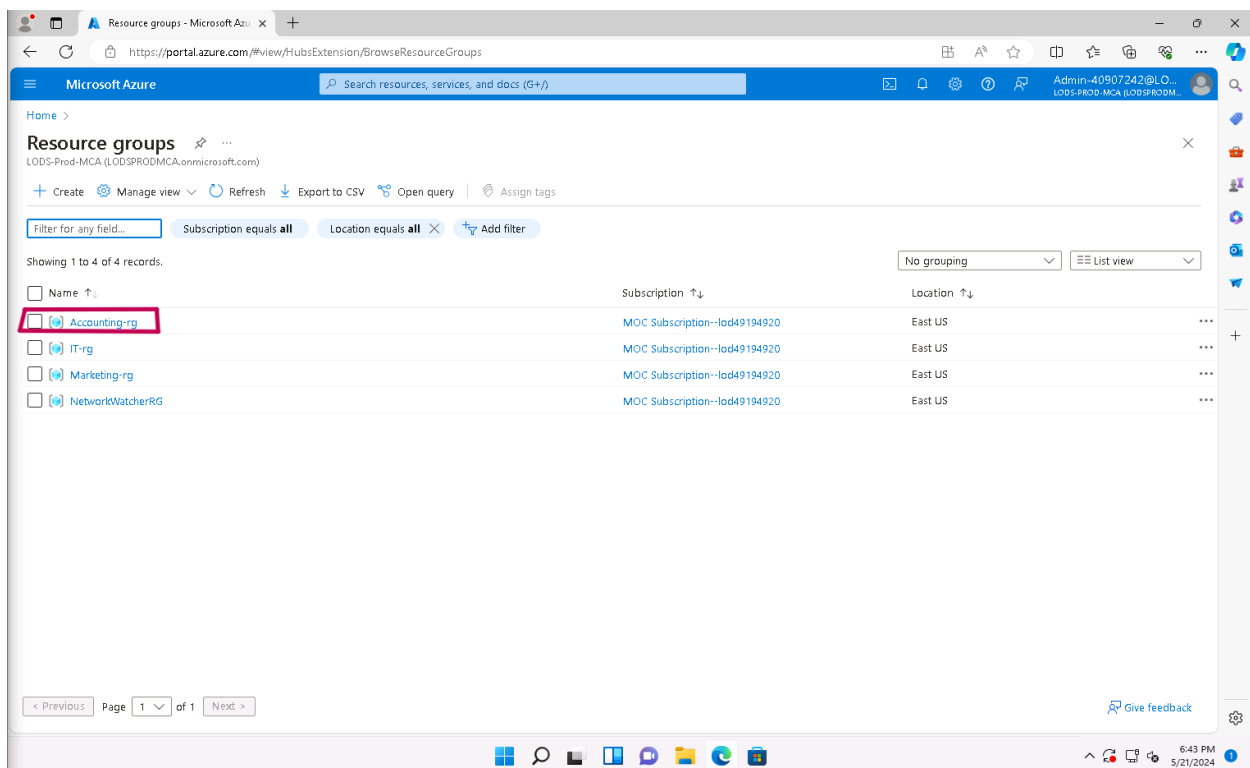
Two recommendations for using Key Vaults to encrypt both data at rest and data in transit are as follows:

- Data in transit: Azure Key Vaults apply transport-level encryption to protect data transmitted between the Key Vault and Clients.

- Data at rest: Azure Key Vaults can be utilized to safeguard encryption keys when using Azure Disk Encryption and Azure SQL Data Transparent Data Encryption services for securing data at rest.

The following screenshots demonstrate the complete steps to configure Key Vaults for the Accounting Department, beginning with the Resource Groups area. These steps will then be repeated for the IT and Marketing Departments:

Accounting Department:



Accounting-rg - Microsoft Azure

Search resources, services, and docs (G+)

Home > Accounting-rg

Resource group

Search

Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags Move Delete Export template

Overview

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Deployment stacks

Policies

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Locks

Cost Management

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Monitoring

Essentials

Subscription (move) : MOC Subscription--lod49194920

Subscriptions ID : 715dfa13-0ebf-4000-adeb-6a28c4de202b

Location : East US

Tags (edit) : LODManaged : lod LabProfile : 139280 PoolOrgId : 363 ProfileOrgId : 3878 LabInstance : 40907242 TS : 1

Deployments : 1 Succeeded

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 1 of 1 records. Show hidden types

No grouping List view

Name Type Location

Market-KV-m3vuow4ilq3de Key vault East US

Switch between a list view of your resources and a summary chart view of resource counts.

Give feedback

6:44 PM 5/21/2024

Marketplace - Microsoft Azure

Search resources, services, and docs (G+)

Home > Accounting-rg > Marketplace

Get Started

Service Providers

Management

Private Marketplace

Private Offer Management

My Marketplace

Favorites

My solutions

Recently created

Private plans

Categories

Security (43)

Databases (24)

DevOps (19)

Identity (19)

AI + Machine Learning (11)

Analytics (10)

New! Get AI-generated suggestions for your search.

Ask AI to suggest products, articles, and solutions for what you need.

View suggestions

key vault

Pricing : All Operating System : All Publisher Type : All Product Type : All

Publisher name : All

Showing 1 to 20 of 111 results for 'key vault'. Clear search

Tile view

Key Vault

Microsoft

Azure Service

Safeguard cryptographic keys and other secrets used by cloud apps and services.

Create

Azure Key Vault Managed HSM

Microsoft

Azure Service

Safeguard cryptographic keys used by cloud apps and services.

Create

EJBCA SaaS - With Key Vault Backed CA Keys

Keyfactor, Inc.

SaaS

EJBCA SaaS, PKI delivered as a service with Azure Key Vault key storage

Starts at Free

Subscribe

Azure Key Vault solution for Sentinel

Microsoft Sentinel, Microsoft Co...

Azure Application

Azure Key Vault solution for Sentinel

Price varies

Create

HashiCorp Vault Enterprise

HashiCorp

SaaS

Manage Secrets and Protect Sensitive Data

Starts at \$15.0-40.00/1 year

Subscribe

Is Marketplace helpful?

6:44 PM 5/21/2024

Create a key vault - Microsoft Azure

https://portal.azure.com/#create/Microsoft.KeyVault

Microsoft Azure

Search resources, services, and docs (G+)

Admin-40907242@L.O...  
LODS-PROD-MCA (LODSPROD...

Home > Accounting-rg > Marketplace >

Create a key vault

BasicsAccess configurationNetworkingTagsReview + 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 \*MOC Subscription--lod49194920

Resource group \*Accounting-rg  
[Create new](#)

Instance details

Key vault name \*KeyVaultForAccounting

Region \*East US

Pricing tier \*Standard

Recovery options

[Previous](#) [Next](#) [Review + create](#) [Give feedback](#)

Create a key vault - Microsoft Azure

https://portal.azure.com/#create/Microsoft.KeyVault

Microsoft Azure

Search resources, services, and docs (G+)

Admin-40907242@L.O...  
LODS-PROD-MCA (LODSPROD...

Home > Accounting-rg > Marketplace >

Create a key vault

BasicsAccess configurationNetworkingTagsReview + create

Configure data plane access for this key vault

To access a key vault in data plane, all callers (users or applications) must have proper authentication and authorization. Authentication establishes the identity of the caller. Authorization determines which operations the caller can execute. [Learn more](#)

Permission model

Grant data plane access by using a [Azure RBAC](#) or [Key Vault access policy](#)

☐ Azure role-based access control (recommended)

☒ Vault access policy

Resource access

☐ Azure Virtual Machines for deployment

☐ Azure Resource Manager for template deployment

☒ Azure Disk Encryption for volume encryption

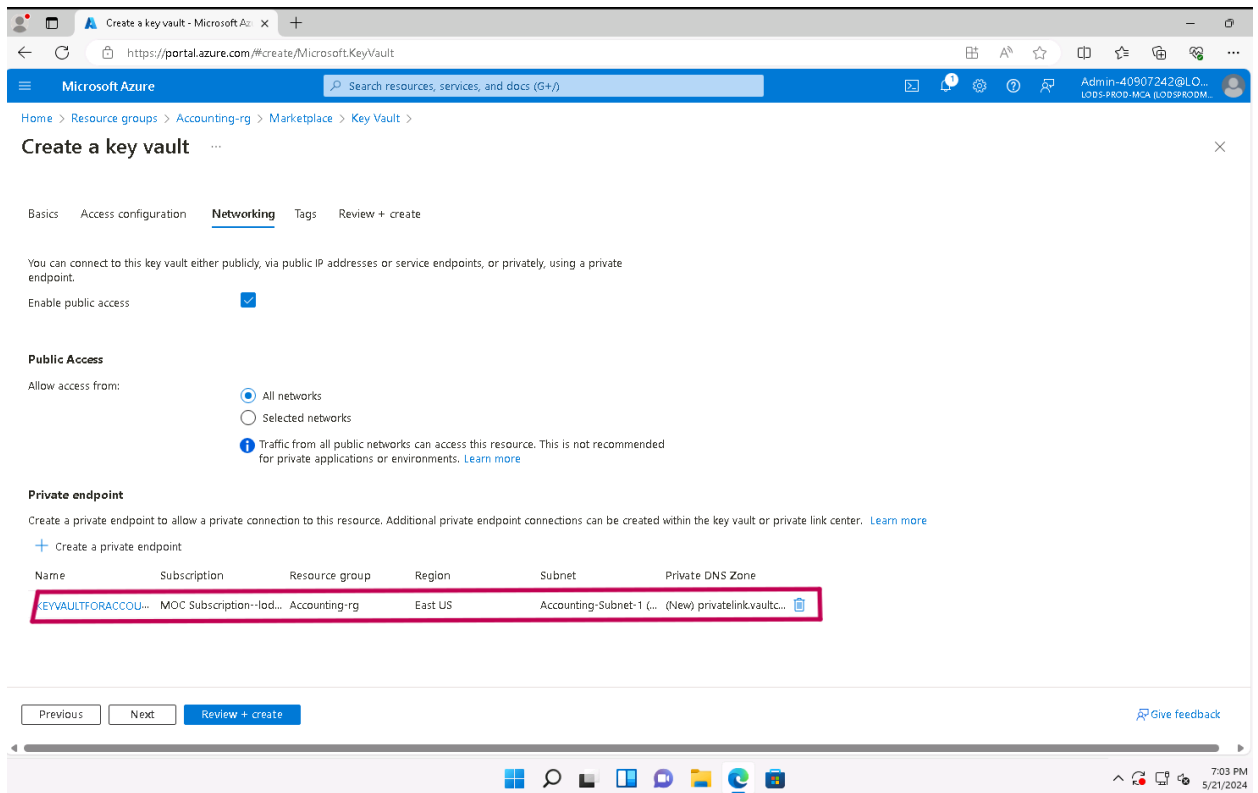
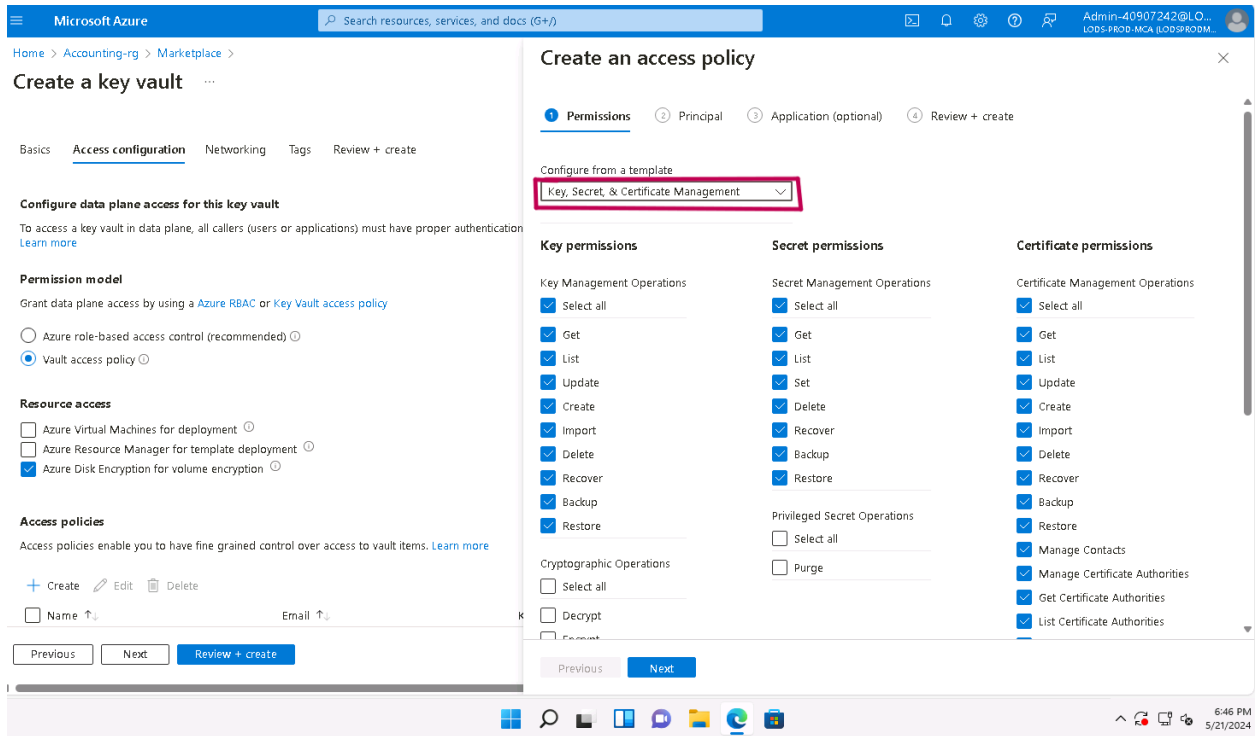
Access policies

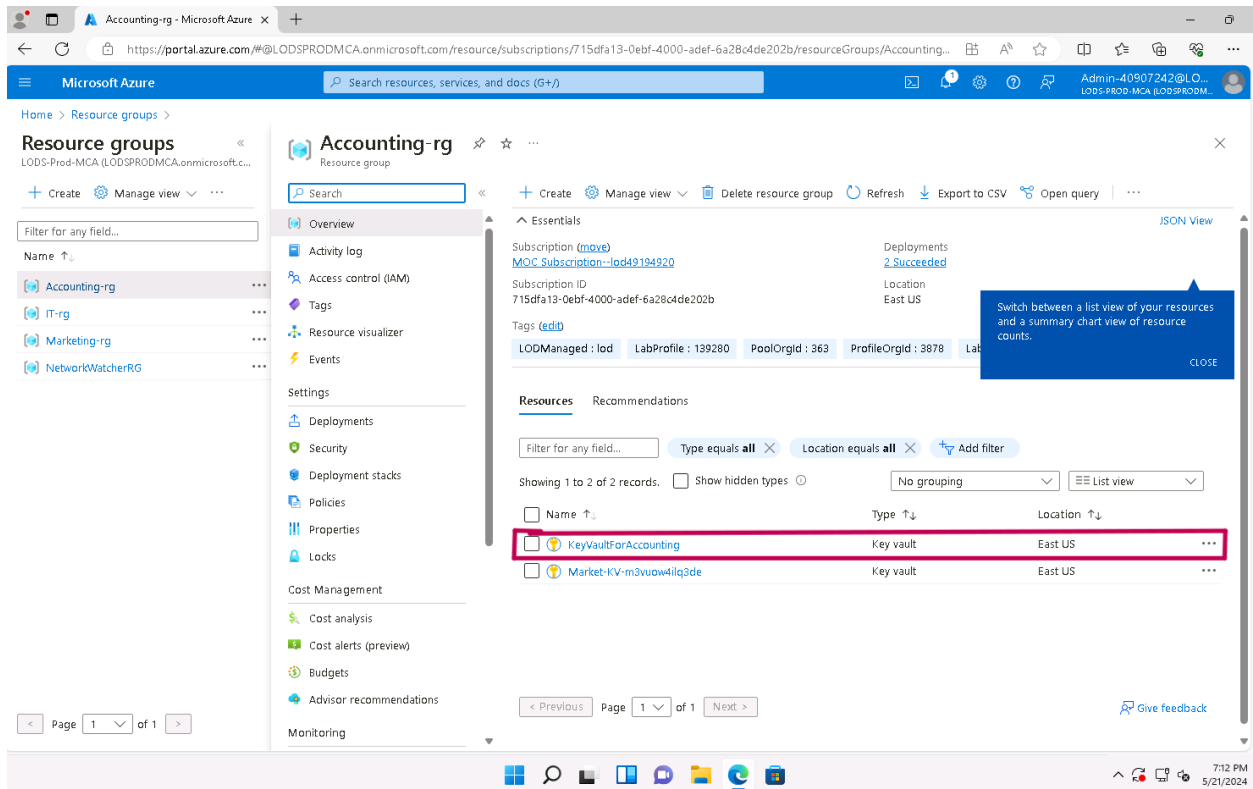
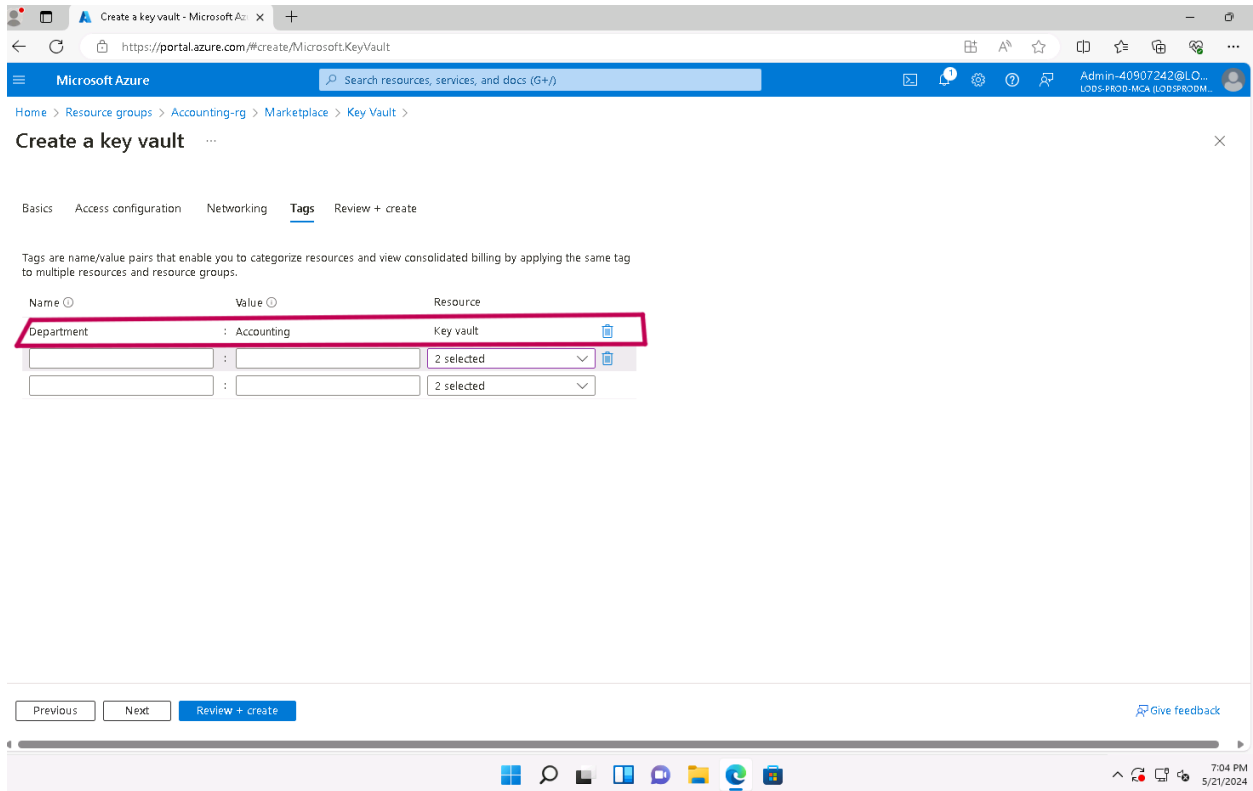
Access policies enable you to have fine grained control over access to vault items. [Learn more](#)

[+ Create](#) [Edit](#) [Delete](#)

Name	Email	Key Permissions	Secret Permissions	Certificate Permissions
------	-------	-----------------	--------------------	-------------------------

[Previous](#) [Next](#) [Review + create](#) [Give feedback](#)





IT Department:

Microsoft Azure

Home > Resource groups > IT-rg > Marketplace > Key Vault >

### Create a key vault

Basics Access configuration Networking Tags Review + create

Review + create

Basics

Subscription	MOC Subscription--lod49194920
Resource group	IT-rg
Key vault name	KeyVaultforIT
Region	East US
Pricing tier	Standard
Soft-delete	Enabled
Purge protection during retention period	Disabled
Days to retain deleted vaults	90 days

Access configuration

Azure Virtual Machines for deployment	Disabled
Azure Resource Manager for template deployment	Disabled
Azure Disk Encryption for volume encryption	Disabled
Permission model	Azure role-based access control

Networking

Previous Next Create

Give feedback

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IT-rg - Microsoft Azure

https://portal.azure.com/#@LODPROD-MCA.onmicrosoft.com/resource/subscriptions/715dfa13-0ebf-4000-adeb-6a28c4de202b/resourceGroups/IT-rg/overview

Microsoft Azure

Home > Resource groups >

### Resource groups

LOD-Prod-MCA (LODPROD-MCA.onmicrosoft.c...

+ Create Manage view ...

Filter for any field...

Name ↑

- Accounting-rg
- IT-rg
- Marketing-rg
- NetworkWatcherRG

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### IT-rg

Resource group

Search

+ Create Manage view ... Delete resource group Refresh Export to CSV Open query ...

JSON View

Essentials

Subscription (move) [MOC Subscription--lod49194920](#)

Subscriptions ID 715dfa13-0ebf-4000-adeb-6a28c4de202b

Deployments 4 Succeeded

Location East US

Tags (edit)

LODManaged : lod LabProfile : 139280 More (5)

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 14 of 14 records. Show hidden types No grouping List view

Name ↑	Type ↑	Location ↑
it-vmNic	Network Interface	East US
it-vnet	Virtual network	East US
KeyVaultforIT	Key vault	East US
marketing-vm	Virtual machine	East US
marketing-vm_OsDisk_1_4c14088eaf4148b8976ba44400bf...	Disk	East US
marketing-vmNic	Network Interface	East US

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## Marketing Department:

Marketing-rg - Microsoft Azure

https://portal.azure.com/#@LODPROD-MCA.onmicrosoft.com/resource/subscriptions/715dfa13-0ebf-4000-adeb-6a28c4de202b/resourceGroups/Marketing-rg/overview

Microsoft Azure

Home > Resource groups >

### Resource groups

LOD-Prod-MCA (LODPROD-MCA.onmicrosoft.c...

+ Create Manage view ...

Filter for any field...

Name ↑

- Accounting-rg
- IT-rg
- Marketing-rg
- NetworkWatcherRG

Overview

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Monitoring

### Marketing-rg

Resource group

Search

+ Create Manage view ... Delete resource group Refresh Export to CSV Open query ...

JSON View

Essentials

Subscription (move) [MOC Subscription--lod49194920](#)

Subscriptions ID 715dfa13-0ebf-4000-adeb-6a28c4de202b

Deployments 2 Succeeded

Location East US

Tags (edit)

LODManaged : lod LabProfile : 139280 PoolOrgId : 363 ProfileOrgId : 3878 LabInstance : 40907242 More (2)

Resources Recommendations

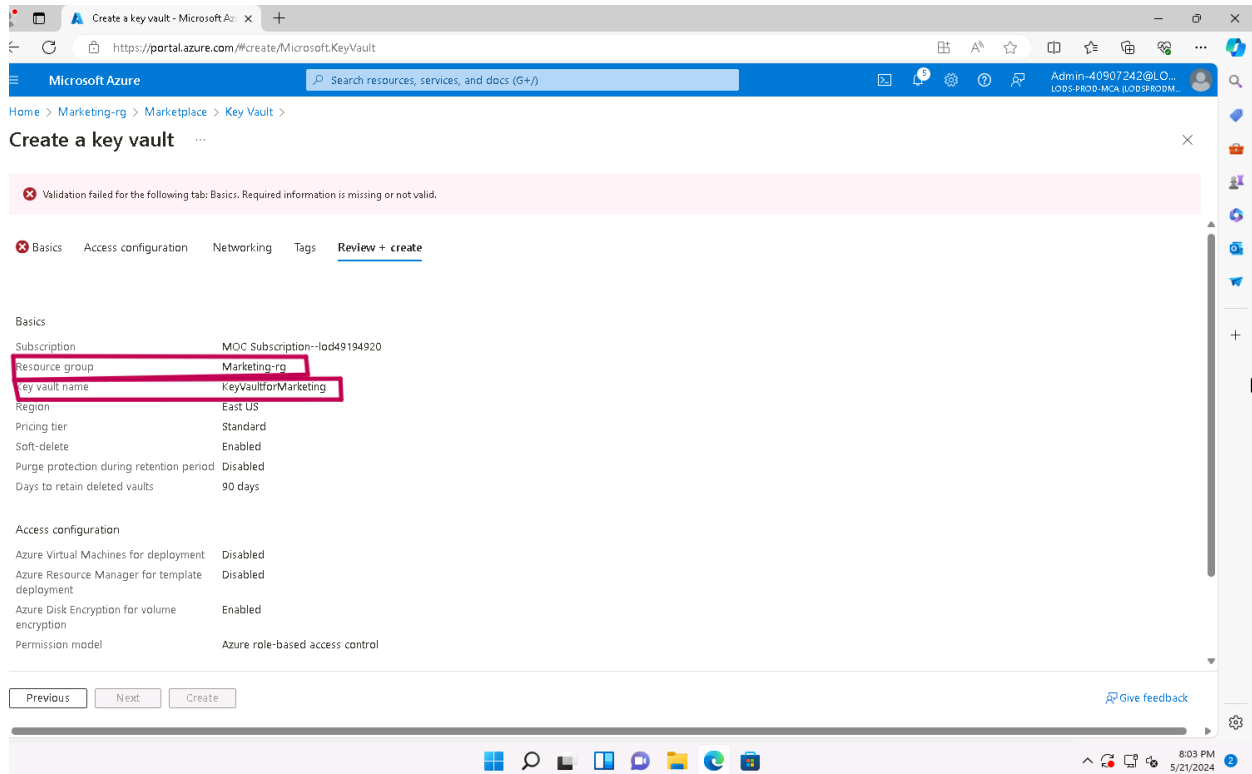
Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 2 of 2 records. Show hidden types No grouping List view

Name ↑	Type ↑	Location ↑
Account-KV-4gdcgckpgqvjs	Key vault	East US
KeyVaultforMarketing	Key vault	East US

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7:29 PM 5/21/2024



## ***E. Backups***

### **Configuration of File Backup Settings:**

- The creation of a new backup policy includes the following:
  - Policy Name: SWBTLCompany
  - Recovery Point Objective (RPO): 1 day
  - Time Conducted: 10 P.M Eastern Time (ET)
  - Retention:
    - Instant Recovery Snapshots: 4 days
    - Daily Backup Points: 60 days

IT-rg - Microsoft Azure

https://portal.azure.com/#@LODSPRODMCA.onmicrosoft.com/r...

Microsoft Azure Search resources, services, and docs (G+)

All services > Resource groups >

IT-rg Resource group

Search

Overview

- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Events

Settings

- Deployments
- Security
- Deployment stacks
- Policies
- Properties
- Locks

Cost Management

- Cost analysis
- Cost alerts (preview)
- Budgets

+ Create Manage view Delete resource group Refresh

Essentials JSON View

Resources Recommendations

Filter for any field... Add filter More (2)

Showing 1 to 13 of 13 records. Show hidden types

No grouping List view

<input type="checkbox"/>	Name ↑↓	Type ↑↓	Location ↑↓
<input type="checkbox"/>	accounting-vm	Virtual machine	East US
<input type="checkbox"/>	accounting-vmNic	Network Interface	East US
<input type="checkbox"/>	accounting-vnet	Virtual network	East US
<input type="checkbox"/>	Backup-Vault	Recovery Services vault	East US
<input type="checkbox"/>	Finance-KV-ulq7rbxssotck	Key vault	East US
<input type="checkbox"/>	it-vm	Virtual machine	East US
<input type="checkbox"/>	it-vmNic	Network Interface	East US

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Backup-Vault - Microsoft Azure

https://portal.azure.com/#@LODSPRODMCA.onmicrosoft.com/fr...

Microsoft Azure

Search resources, services, and docs (G+/)

All services > Resource groups > IT-rg >

Backup-Vault

Recovery Services vault

Search

Backup

Enable Site Recovery

Delete

Refresh

Feedback

Try our new Business Continuity Center for the at scale BCDR management of your resources protected across Azure Backup and Site Recovery.

Essentials

JSON View

Overview

Backup

Site Recovery

What's new

SAP HANA database instance snapshots on Azure VMs is now generally available. →

HANA System Replication (HSR) support for SAP HANA DB on Azure VM backup is now generally available. →

Cross Subscription Restore for SAP HANA Databases on Azure VM is now generally available. →

Cross Subscription Restore for SQL Databases on Azure VM is now generally available. →

Cross Subscription Restore for Azure Virtual Machines is now generally available. →

Site Recovery replicated items and jobs views across subscriptions, regions and vaults are now available →

Azure Backup Metrics are now in public preview →

Migration for Azure VM backups from standard policy to enhanced policy is now in public preview →

Azure Site Recovery support for Windows Azure Trusted launch VMs is in public preview →

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Identity

Networking

Properties

Locks

Getting started

Backup

Site Recovery

Protected items

Backup items

Replicated items

Manage

Backup Goal - Microsoft Azure

https://portal.azure.com/#view/Microsoft\_Azure\_DataProtection...

Microsoft Azure

Search resources, services, and docs (G+)

All services > Resource groups > IT-rg > Backup-Vault >

Backup Goal

The storage replication is set to Geo-Redundant. This option cannot be changed later. Before proceeding further, click here. →

Where is your workload running?

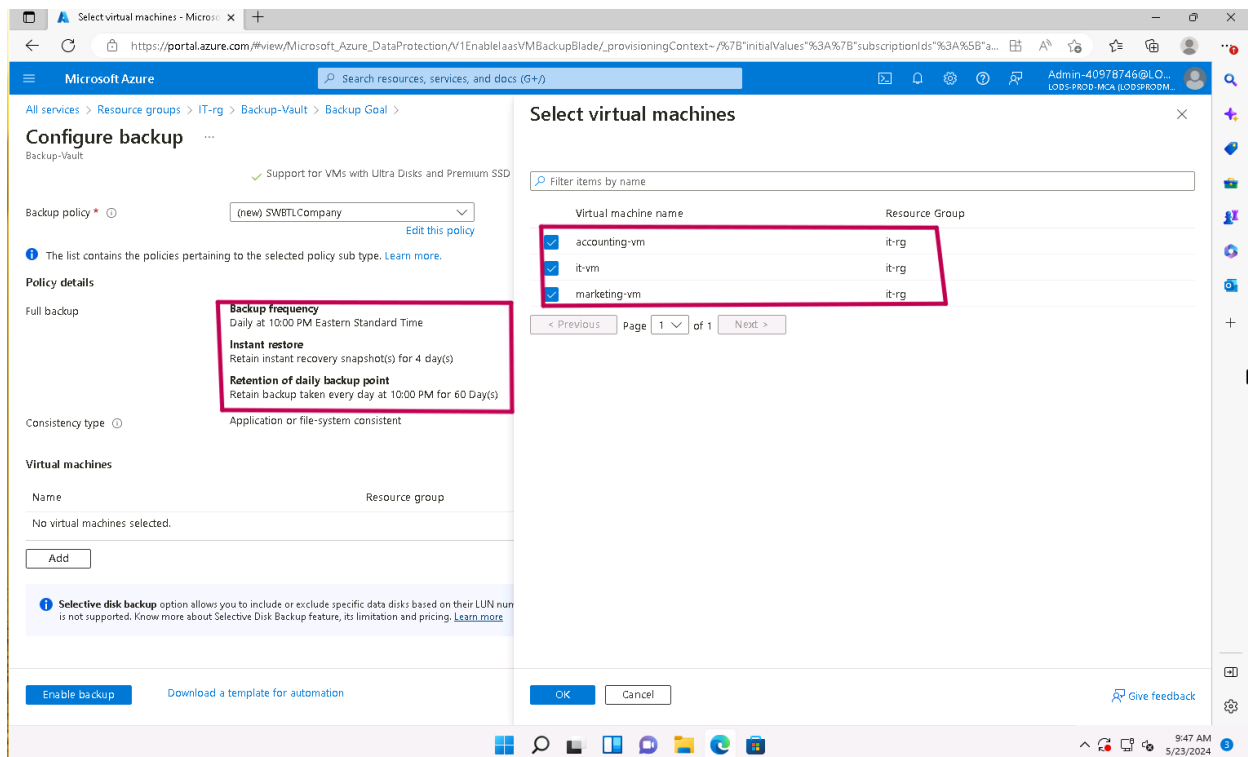
Azure

What do you want to backup?

Virtual machine

Step: Configure Backup

Backup



The configuration outlined above are consistent with the company’s business needs, as specified in the requirements documentation:

- ❖ The IT department is tasked with executing and verifying backups
- ❖ Each cloud server have a RPO of 1 day
- ❖ Backups conducted daily at 10 P.M ET
- ❖ Instant Recovery Snapshots for 4 days
- ❖ Daily backup points for 60 days
- ❖ Backup policy name is “SWBTLCompany”

## ***F. Security Responsibilities***

A significant advantage of selecting the Microsoft Azure Government IaaS cloud solution is its FedRAMP authorization. The FedRAMP document, known as the Control Implementation Summary (CIS) and Customer Responsibility Matrix (CRM), outlines the security responsibilities of Cloud Service Provider (CSP), which in this case is Azure, and the customer, SWBTL LLC. With an IaaS cloud solution, SWBTL LLC assumes greater responsibility for security controls compared to Platform as a Service (PaaS) and Software as a Service (SaaS) Solutions.

Here are three potential risks SWBTL LLC might face with an IaaS service model:

- ❖ One risk is the misconception that all security controls are fully managed by the CSP, Microsoft. This misunderstanding can result in security gaps and noncompliance issues, potentially causing significant impact on the company if it solely relies on the CSP for security.
- ❖ A second risk involves the company being unaware of its responsibilities regarding security controls. This lack of understanding can result in security gaps and noncompliance issues, which may significantly impact the company. Even minor issues can escalate into major problems over time.
- ❖ A third risk is the assumption that implementing these security controls will be straightforward and can be handled by any employee. This misconception might lead to the realization that the company lacks staff with the necessary expertise, or it may result in assigning the task to

underqualified personnel. This could lead to improperly implemented security controls. The impact of this risk can vary from low to high, depending on the approach the company takes.

Here are three suggestions to guarantee adherence to the company's cloud security standards:

- ❖ Encrypting data both at rest and during transit is crucial, particularly for cardholder information. Since SWBTL LLC handles transactions, encrypting this data is necessary to maintain PCI DSS compliance (PCI Security Standards Council, 2018).
- ❖ Security audits and compliance checks: SWBTL LLC needs to conduct internal audits and compliance reviews to identify any weaknesses in their security measures. Alternatively, the company could hire a Third-Party Assessment Organization to perform these evaluations.
- ❖ Access control policy: SWBTL LLC should adopt Role-Based Access Control (RBAC) in alignment with the principle of least privilege. This approach to access management will help ensure the company's compliance with FISMA and NIST standards.

### ***G. Threats and Countermeasures***

Here are three potential threats to the company's updated cloud solution, along with corresponding mitigation strategies:



- ❖ Unauthorized access to data: both insider and outsider threats can compromise data by violating the Need to Know (NTK) principle and the confidentiality component of the CIA triad. Such breaches can result in significant data leaks, damage the company's reputation, and incur financial penalties. To mitigate this threat, a combination of security tools and access control policies should be employed. Implementing a web application firewall (WAF) can restrict access to the cloud environment based on IP address, location, and other criteria. Additionally, configuring Role-Based Access Control (RBAC) according to the principle of the least privilege ensures users have only the necessary access to perform their job functions.
- ❖ Cloud Misconfigurations: The complexity of cloud environments means that lacking expert management can have severe consequences. Accidental misconfigurations can result in the previously mentioned threats. To mitigate this risk, conducting regular audits and compliance checks is essential to identify and rectify any security gaps.

## ***F. Sources***

FedRAMP. (n.d.). program Basics | FedRAMP.gov. [www.fedramp.gov](https://www.fedramp.gov)

<https://www.fedramp.gov/program-basics/>

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