

Lab 8

CST8912_011

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Submitted to :

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Lab Report Format

Title

Organizing Cloud Resources with Tags

Introduction or Purpose

Tagging cloud resources is essential for IT, especially when managing multiple departments and projects. As part of the Cloud Adoption Framework, tagging maximizes resource efficiency and cost-effectiveness. It is a key pillar of Cloud Governance, ensuring organization and lifecycle management. Tags also enable automation through Cloud Policy and Runbooks, improving compliance.

Steps covered in the lab

Task 1: Assign Tags via Azure Portal

1. Sign in to [Azure Portal](#).
2. Search for **Resource groups** and click **+ Create**.
3. Set:
 - **Subscription:** Your subscription
 - **Resource Group Name:** CST8912
 - **Location:** Canada Central
4. Click **Next: Tags**, create a tag:
 - **Name:** Cost Center
 - **Value:** 000
5. Click **Review + Create** → **Create**.

Task 2: Enforce Tagging via Azure Policy

1. In **Azure Portal**, search for **Policy**.
2. Go to **Definitions**, search for **Require a tag**.
3. Select **Require a tag and its value on resources** → Click **Assign**.
4. Set Scope:
 - **Subscription:** Your subscription
 - **Resource Group:** CST8912
5. Configure:

- **Assignment Name:** Require Cost Center tag
- **Policy Enforcement:** Enabled
- 6. Click **Next** → Set **Tag Name:** Cost Center, **Tag Value:** 000.
- 7. Click **Review + Create** → **Create**.
- 8. Verify enforcement: Create a storage account without a tag and confirm failure.

Task 3: Apply Tagging via Azure Policy

1. In **Azure Portal**, go to **Policy** → **Assignments**.
2. Delete the **Require Cost Center tag** assignment.
3. Click **Assign Policy**, set Scope:
 - **Subscription:** Your subscription
 - **Resource Group:** CST8912
4. Search for **Inherit a tag from resource group**, select it.
5. Configure:
 - **Assignment Name:** Inherit Cost Center tag
 - **Policy Enforcement:** Enabled
6. Set **Tag Name:** Cost Center.
7. Enable **Create a remediation task**.
8. Click **Review + Create** → **Create**.
9. Verify by creating a new storage account and confirming the tag is applied.

Task 4: Configure and Test Resource Locks

1. Go to your **Resource Group** → **Locks**.
2. Click **Add**, set:
 - **Lock Name:** rg-lock
 - **Lock Type:** Delete
3. Try deleting the resource group; deletion should be denied.

Task 5: Clean Up Resources

1. In **Azure Portal**, go to **Policy** → **Assignments** → Delete policy assignment.
2. Search for **Storage Accounts**, delete the created storage account.
3. Confirm deletion by entering the storage account name.

Results

Task 1 - Create and assign tags via the Azure portal

×

(Canada) Canada Central

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ALGONQUIN COLLEGE (ALGONO...

×

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

Microsoft Azure

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

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ALGONQUIN COLLEGE (ALGONQ...

[Home](#) >

Resource groups

Algonquin College (AlgonquinLivecom.onmicrosoft.com)

[+ Create](#) [Manage view](#) [Refresh](#) [Export to CSV](#) [Open query](#) [Assign tags](#)

[Subscription equals all](#) [Location equals all](#) [Add filter](#)

Showing 1 to 1 of 1 records.

No grouping

List view

<input type="checkbox"/> Name ↑↓	Subscription ↑↓	Location ↑↓	
<input type="checkbox"/> CST8912	Azure for Students	Canada Central	...

< Previous

Page

0 of 0

Next >

[Give feedback](#)

Task 2 - Enforce tagging via an Azure policy

Microsoft Azure

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Home > Policy

Policy | Definitions

Search

require a tag

Scope : 2 selected

Definition type : All definition types

Policy type : All policy types

Category : All categories

Edit columns

Name	Latest versi...	Definition location	Pol...	Type	Definition t...	Category
Require a tag on resource groups	1.0.0			Builtin	Policy	Tags
Require a tag and its value on resource groups	1.0.0			Builtin	Policy	Tags
Require a tag on resources	1.0.1			Builtin	Policy	Tags
Require a tag and its value on resources	1.0.1			Builtin	Policy	Tags

Give feedback

Microsoft Azure

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Home > Policy | Definitions

Require a tag on resource groups

Policy definition

Assign policy

Edit definition

Duplicate definition

Select version (preview)

Delete definition

```
3  "displayName": "Require a tag on resource groups",
4  "policyType": "BuiltIn",
5  "mode": "All",
6  "description": "Enforces existence of a tag on resource groups.",
7  "metadata": {
8    "version": "1.0.0",
9    "category": "Tags"
10 },
11 "version": "1.0.0",
12 "parameters": {
13   "tagName": {
14     "type": "String",
15     "metadata": {
16       "displayName": "Tag Name",
17       "description": "Name of the tag, such as 'environment'"
18     }
19   }
20 },
21 "policyRule": {
22   "if": {
23     "allOf": [
24       {
25         "field": "type",
26         "equals": "Microsoft.Resources/subscriptions/resourceGroups"
27       },
28       {
29         "field": "[concat('tags[' + parameters('tagName') + ']]'",
30         "exists": "false"
31       }
32     ]
33   },
34   "then": {
35     "effect": "deny"
```

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ALGONQUIN COLLEGE (ALGONQ...

Home > Policy | Definitions > Require a tag and its value on resources >

Assign policy ...

BasicsParametersRemediationNon-compliance messagesReview + create

Scope

Scope *
Azure for Students/CST8912
[Learn more about setting the scope](#)

Exclusions
Optionally select resources to exclude from the policy assignment.

Resource selectors (Expand)
Using resource selectors, you can further refine this assignment's applicability by targeting specific subsets of resources. Expand to learn more.

Basics

Policy definition *
Require a tag and its value on resources

Version (preview) *
1.0.*

Overrides (Expand)
Using overrides, you can change the effects or referenced versions of definitions for all or a subset of resources evaluated by this assignment. Expand to learn more.

Assignment name *
Require a tag and its value on resources

Description

PreviousNextReview + create

SelectCancelClear All Selections

Scope

Subscription
Azure for Students

Resource Group
CST8912

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ALGONQUIN COLLEGE (ALGONQ...

Home > Policy | Definitions > Require a tag and its value on resources >

Assign policy ...

BasicsParametersRemediationNon-compliance messagesReview + create

[Learn more about setting the scope](#)

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Basics

Policy definition *
Require a tag and its value on resources

Version (preview) *
1.0.*

Overrides (Expand)
Using overrides, you can change the effects or referenced versions of definitions for all or a subset of resources evaluated by this assignment. Expand to learn more.

Assignment name *
Require Cost Center tag with Default value

Description
Require Cost Center tag with default value for all resources in the resource group

Policy enforcement *
Enabled

PreviousNextReview + create

[Give feedback](#)

×

☒ Only show parameters that need input or review

Tag Value * ⓘ

 Give feedback

×

By default, this assignment will only take effect on newly created resources. Existing resources can be updated via a remediation task after the policy is assigned. For `deployIfNotExists` policies, the remediation task will deploy the specified template. For modify policies, the remediation task will edit tags on the existing resources.

Policies with the `deployIfNotExists` and `modify` effect types need the ability to deploy resources and edit tags on existing resources respectively. To do this, choose between an existing user assigned managed identity or creating a system assigned managed identity. [Learn more about Managed Identity.](#)

☐

① This policy does not contain any role definitions. Policies must specify role definitions in order to create the correct role assignments for the managed identity.

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Home > Policy | Definitions >

Require a tag and its value on resources

Policy definition

Assign policy Edit definition Duplicate definition Select version (preview) Delete definition

Essentials

Name	: Require a tag and its value on resources	Definition location	: --
Version (preview)	: 1.0.1	Definition ID	: /providers/Microsoft.Authorization/policyDefinitions/1e30110a-5ceb-460c-a204-...
Description	: Enforces a required tag and its value. Does not apply to resource groups.	Type	: Built-in
Available Effects	: Deny	Mode	: Indexed
Category	: Tags		

Definition Assignments (0) Parameters (2)

```
1 {
2   "properties": {
3     "displayName": "Require a tag and its value on resources",
4     "policyType": "BuiltIn",
5     "mode": "Indexed",
6     "description": "Enforces a required tag and its value. Does not apply to resource groups.",
7     "metadata": {
8       "version": "1.0.1",
9       "category": "Tags"
10    },
11    "version": "1.0.1",
12    "parameters": {
13      "tagName": {
14        "type": "String",
15        "metadata": {
16          "displayName": "Tag Name"
```

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Home > Storage accounts >

Create a storage account

Validation failed. View error details ->

Basics Advanced Networking Data protection Encryption Tags Review + create

View automation template

Basics

Subscription	Azure for Students
Resource group	CST8912
Location	Canada Central
Storage account name	teststoragelab8
Primary service	
Performance	Standard
Replication	Read-access geo-redundant storage (RA-GRS)

Advanced

Enable hierarchical namespace	Disabled
Enable SFTP	Disabled
Enable network file system v3	Disabled
Allow cross-tenant replication	Disabled
Access tier	Hot
Enable immutability	Enabled

Previous Next Create

Errors

Summary Raw Error

ERROR DETAILS

Resource 'teststoragelab8' was disallowed by policy. (Code: RequestDisallowedByPolicy)

Policy: Require Cost Center tag with Default value

WAS THIS HELPFUL? 🗨️ 📄

Explain with Copilot

Troubleshooting Options

New Support Request 📄

Give feedback

Tell us about your experience with the ARM Errors page

Task 3 - Apply tagging via an Azure policy

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Home > Policy | Assignments >

Assign policy ...

Basics

Parameters

Remediation

Non-compliance messages

Review + create

Scope

Scope *

Exclusions

Resource selectors (Expand)

Basics

Policy definition *

Overrides (Expand)

Assignment name * ⓘ

Description

Policy enforcement ⓘ

Learn more about setting the scope

Optionally select resources to exclude from the policy assignment.

Using resource selectors, you can further refine this assignment's applicability by targeting specific subsets of resources. Expand to learn more.

Using overrides, you can change the effects or referenced versions of definitions for all or a subset of resources evaluated by this assignment. Expand to learn more.

Enabled

Previous

Next

Review + create

Scope

Subscription

Azure for Students

Resource Group

CST8912

Select

Cancel

Clear All Selections

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Home > Policy | Assignments >

Assign policy ...

Basics

Parameters

Remediation

Non-compliance messages

Review + create

Scope

Scope *

Exclusions

Resource selectors (Expand)

Basics

Policy definition

Overrides (Expand)

Assignment name * ⓘ

Description

Policy enforcement ⓘ

Azure for Students/CST8912

Learn more about setting the scope

Optionally select resources to exclude from the policy assignment.

Using resource selectors, you can further refine this assignment's applicability by targeting specific subsets of resources. Expand to learn more.

Using overrides, you can change the effects or referenced versions of definitions for all or a subset of resources evaluated by this assignment. Expand to learn more.

Enabled

Previous

Next

Review + create

Available Definitions

add a tag

Policy type : All policy types

Category : All categories

Policy name ⓘ	Latest version (p... ⓘ	Category ⓘ	Type ⓘ
Add a tag to subscriptions	1.0.0	Tags	Builtin
Add a tag to resource groups	1.0.0	Tags	Builtin
<input checked="" type="checkbox"/> Add a tag to resources	1.0.0	Tags	Builtin

1 out of 1 policies selected

Add

Cancel

Give feedback

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Home > Policy | Assignments >

Assign policy

Basics

Parameters

Remediation

Non-compliance messages

Review + create

Learn more about setting the scope

Exclusions

Optionally select resources to exclude from the policy assignment.

Resource selectors

Using resource selectors, you can further refine this assignment's applicability by targeting specific subsets of resources. Expand to learn more.

Basics

Policy definition *

Add a tag to resources

Version (preview) *

1.*

Overrides

Using overrides, you can change the effects or referenced versions of definitions for all or a subset of resources evaluated by this assignment. Expand to learn more.

Assignment name *

Inherit the Cost Center tag and its value 000 from the resource group if missing

Description

Inherit the Cost Center tag and its value 000 from the resource group if missing

Policy enforcement

Enabled

Previous

Next

Review + create

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Home > Policy | Assignments >

Assign policy

Basics

Parameters

Remediation

Non-compliance messages

Review + create

Search by parameter name

Only show parameters that need input or review

Tag Name *

Tag Name

Tag Value *

Cost Center

Previous

Next

Review + create

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ALGONQUIN COLLEGE (ALGONQ...

Home > Policy | Assignments >

Assign policy ...

BasicsParametersRemediationNon-compliance messagesReview + create

By default, this assignment will only take effect on newly created resources. Existing resources can be updated via a remediation task after the policy is assigned. For deploymentNotExists policies, the remediation task will deploy the specified template. For modify policies, the remediation task will edit tags on the existing resources.

☒ Create a remediation task

Policy to remediateAdd a tag to resources

Managed identity
Policies with the deploymentNotExists and modify effect types need the ability to deploy resources and edit tags on existing resources respectively. To do this, choose between an existing user assigned managed identity or creating a system assigned managed identity. [Learn more about Managed Identity.](#)

Create a Managed Identity☒

Type of Managed Identity☒ System assigned managed identity
☐ User assigned managed identity

System assigned identity location(Canada) Canada Central

PreviousNextReview + create

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ALGONQUIN COLLEGE (ALGONQ...

Home > Policy

Policy | Assignments ...

SearchAssign policyAssign initiativeRefresh

OverviewGetting startedComplianceRemediationEventsAuthoringDefinitionsAssignmentsExemptions

SearchFilter by name or ID...

Scope : 2 selectedDefinition type : All definition types

Total Assignments1

Initiative Assignments0

Policy Assignments1

Assignment nameInherit the Cost Center tag and its value 000 from the resource group if missing

ScopeAzure for Students/CST8912

TypePolicy

...

Edit columns

Remediation task creation succeeded

Creating remediation task
'01b5e699cb8b461ea903e4b9' was successful.

Give feedback

Assignment name	Scope	Type	
Inherit the Cost Center tag and its value 000 from the resource group if missing	Azure for Students/CST8912	Policy	...

Microsoft Azure

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Home > Storage accounts >

Create a storage account

BasicsAdvancedNetworkingData protectionEncryptionTagsReview + create

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. [Learn more about Azure 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 *
Create new

Instance details

Storage account name *
Region *
Deploy to an Azure Extended Zone

Primary service
Select a primary service

Performance *
Standard: Recommended for most scenarios (general-purpose v2 account)

PreviousNextReview + create

Give feedback

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ALGONQUIN COLLEGE (ALGONQ...

Home > lab8storagetest_1741404996754 | Overview >

lab8storagetest
Storage account

Search

UploadOpen in ExplorerDeleteMoveRefreshOpen in mobileCLI / PSFeedback

Overview

Activity log

Tags

Diagnose and solve problems

Access Control (IAM)

Data migration

Events

Storage browser

Storage Mover

Partner solutions

Resource visualizer

Data storage

Security + networking

Data management

Settings

Monitoring

Monitoring (classic)

Automation

Help

Essentials

Resource group (move) : CST8912

Location : canadacentral

Primary/Secondary Loca... : Primary: Canada Central, Secondary: Canada East

Subscription (move) : Azure for Students

Subscription ID : cdb9bdf3-e7ee-43e9-8f6c-ba7327868df1

Disk state : Primary: Available, Secondary: Available

Tags (edit) : Tag Name : Cost Center

Performance : Standard

Replication : Read-access geo-redundant storage (RA-GRS)

Account kind : StorageV2 (general purpose v2)

Provisioning state : Succeeded

Created : 3/7/2025, 10:36:52 PM

JSON View

Properties

Monitoring

Capabilities (7)

Recommendations (0)

Tutorials

Tools + SDKs

Blob service

Hierarchical namespace : Disabled

Default access tier : Hot

Blob anonymous access : Disabled

Blob soft delete : Enabled (7 days)

Container soft delete : Enabled (7 days)

Versioning : Disabled

Change feed : Disabled

NFS v3 : Disabled

Allow cross-tenant replication : Disabled

Security

Require secure transfer for REST API operations : Enabled

Storage account key access : Enabled

Minimum TLS version : Version 1.2

Infrastructure encryption : Disabled

Networking

Allow access from : All networks

Private endpoint connections : 0

Task 4 - Configure and test resource locks

Microsoft Azure

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ALGONQUIN COLLEGE (ALGONQ...

Home > Resource groups > CST8912

CST8912 | Locks

Resource group

+ Add Subscription Refresh Feedback

Overview
Activity log
Access control (IAM)
Tags
Resource visualizer
Events
Settings
Deployments
Security
Deployment stacks
Policies
Properties
Locks
Cost Management
Monitoring
Automation
Export template
Help

Add lock

Lock name * rg-lock Lock type * Delete

Notes

OK Cancel

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ALGONQUIN COLLEGE (ALGONQ...

Home > Resource groups > CST8912

CST8912

Resource group

+ Create Manage view Delete resource group Refresh Export to CSV

Overview
Activity log
Access control (IAM)
Tags
Resource visualizer
Events
Settings
Deployments
Security
Deployment stacks
Policies
Properties
Locks
Cost Management
Monitoring
Automation
Export template
Help

Resources Recommendations

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

Showing 1 to 1 of 1 records. Show hidden types

☐ Name ↑

☐ lab8storagetest

< Previous Page 1 of 1 Next >

Delete a resource group

The following resource group and all its dependent resources will be permanently deleted.

Resource group to be deleted

CST8912

Dependent resources to be deleted (1)
All dependent resources, including hidden types, are shown

Name	Resource type
lab8storagetest	Storage account

Enter resource group name to confirm deletion *

CST8912

Delete Cancel

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ALGONQUIN COLLEGE (ALGONQ...

Home > Resource groups >

CST8912
Resource group

Search

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

Overview

- Activity log
- Access control (IAM)
- Tags
- Resource visualizer
- Events
- Settings
 - Deployments
 - Security
 - Deployment stacks
 - Policies
 - Properties
 - Locks
- Cost Management
- Monitoring
- Automation
- Export template
- Help

Essentials

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
lab8storagetest	Storage account	Canada Central

< Previous Page 1 of 1 Next >

Give feedback

Delete resource group CST8912 failed

The resource group CST8912 is locked and can't be deleted. Click here to manage locks for this resource group.

[Help me troubleshoot](#)

Task 5 - Clean up the resources

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ALGONQUIN COLLEGE (ALGONQ...

Home > Policy

Policy | Assignments

Search

Assign policyAssign initiativeRefresh

Filter by name or ID...

Scope : Azure for Students/CST8912

Definition type : All definition types

Overview

Getting started

Compliance

Remediation

Events

Authoring

Definitions

Assignments

Exemptions

Total Assignments 0

Initiative Assignments 0

Policy Assignments 0

Assignment name

Scope

Type

No policies found in the given scope.

Edit columns

Successfully deleted assignment
Successfully deleted 'Inherit the Cost Center tag and its value 000 from the resource group if missing' from 'Azure for Students/CST8912'. Please note that the change takes around 30 minutes to take effect.

Give feedback

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ALGONQUIN COLLEGE (ALGONQ...

Azure services

Create a resourceStorage accountsPolicyResource groupsMonitorVirtual machinesDeploy a custom...All resourcesPrivate endpointsMore services

Resources

RecentFavorite

Name	Type	Last Viewed
lab8storagetest	Storage account	a few seconds ago
CST8912	Resource group	4 minutes ago
Azure for Students	Subscription	a month ago

See all

Navigate

SubscriptionsResource groupsAll resourcesDashboard

Tools

Microsoft Learn
Learn Azure with free online

Azure Monitor
Monitor your apps and

Microsoft Defender for Cloud
Secure your apps and

Cost Management
Analyze and optimize your

Successfully deleted storage account
Successfully deleted storage account 'lab8storagetest'.

Microsoft Azure

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

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ALGONQUIN COLLEGE (ALGONQ...

Home > Resource groups >

CST8912
Resource group

Search

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

Overview

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Essentials

Resources Recommendations

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

Showing 0 to 0 of 0 records. Show hidden types No grouping

List view

Name Type Location

No resources match your filters

Try changing or clearing your filters.

Create resources Clear filters

Learn more Give feedback

Notifications

More events in the activity log → Dismiss all

Deleted resource group CST8912

Deleted resource group CST8912

a few seconds ago

https://portal.azure.com/#blade/Microsoft_Azure_ActivityLog/ActivityLogBlade/queryIn...