

# **CST8912 – Cloud Solution Architecture**

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**Graded Lab Activity #5**

**Lab 5**

**CST8912\_011**

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**Submitted to : Prof. Tanishq Bansal**

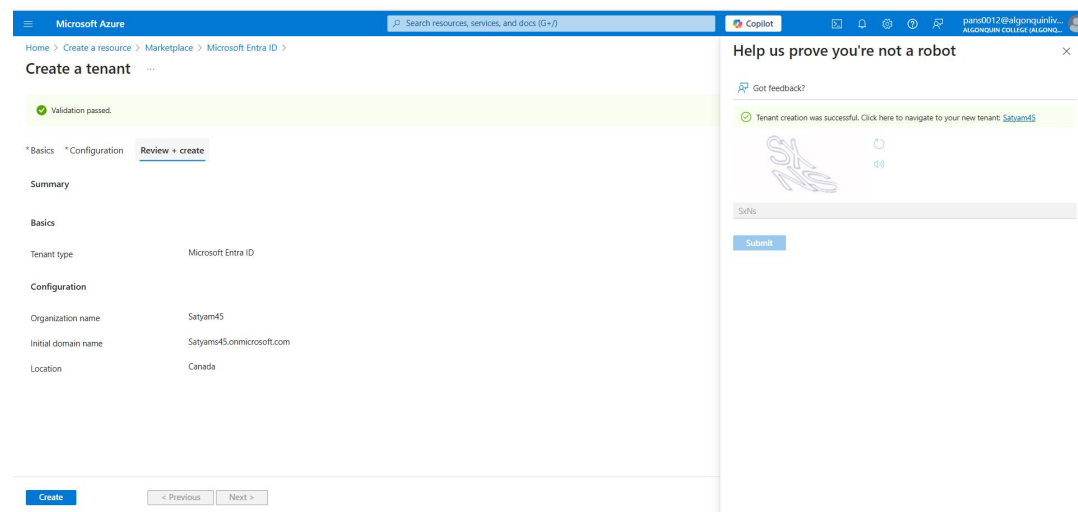
## Introduction :

Through this lab, one can comprehend how to implement Microsoft Entra ID (Azure AD) for identity and access management in the cloud. The tasks that need to be carried out consist of provisioning users, creating groups with dynamic membership, prefixing management groups, assigning roles, and applying security policies. The aim is to create a real cloud administration environment.

## Screenshots :

### Step: 1

Choose the organization name and domain name and location as “Canada”



Navigate back to the Users - All users blade, and then click + New user

- **user principal name:** 8912user1
- **display name:** 8912user1
- Auto-generate password: checked
- Account enabled: checked
- Job title (Properties tab): **IT Administrator**
- Department (Properties tab): **IT**
- **Usage location:** **Canada**

**Create new user**

Create a new internal user in your organization

Basics Properties Assignments Review + create

**Basics**

User principal name 8912user1@satyam45.onmicrosoft.com

Display name 8912user1

Mail nickname 8912user1

Password \*\*\*\*\*

Account enabled Yes

**Properties**

User type Member

Job title IT Administrator

Department IT

Usage location Canada

**Assignments**

Administrative units

Groups

Roles

Create < Previous Next >

Give feedback

In the New user drop-down select Invite an external user.

Setting	Value
Email	your email address
Display name	your name
Send invite message	check the box
Message	Welcome to Azure and our group project

**Invite external user**

Invite an external user to collaborate with your organization

Basics Properties Assignments Review + invite

Invite a new guest user to collaborate with your organization. The user will be emailed an invitation they can accept in order to begin collaborating. [Learn more](#)

**Identity**

Email pans0012@algonquinlive.com

Display name Satyam

**Invitation message**

Send invite message ☒

Message Welcome to Azure and our group project

Cc recipient

Invite redirect URL https://myapplications.microsoft.com/?tenantid=2cac362b-0f11-4...

Review + invite < Previous Next: Properties >

Give feedback

Move to the Properties tab. Complete the basic information, including these fields.

Setting	Value
Job title	<b>IT Administrator</b>
Department	IT
Usage location (Properties tab)	Canada

Microsoft Azure

Home > Satyam45 | Overview >

## Invite external user

Invite an external user to collaborate with your organization

Basics Properties Assignments **Review + invite**

**Basics**

Email	pans0012@algonquinlive.com
Display name	Satyam
Send invite message	Yes
Message	Welcome to Azure and our group project
Cc recipient	
Invite redirect URL	<a href="https://myapplications.microsoft.com/?tenantid=2cac362b-0f11-411b-8030-a403d406fbbf">https://myapplications.microsoft.com/?tenantid=2cac362b-0f11-411b-8030-a403d406fbbf</a>

**Properties**

User type	Guest
Job title	IT Administrator
Department	IT
Usage location	Canada

**Assignments**

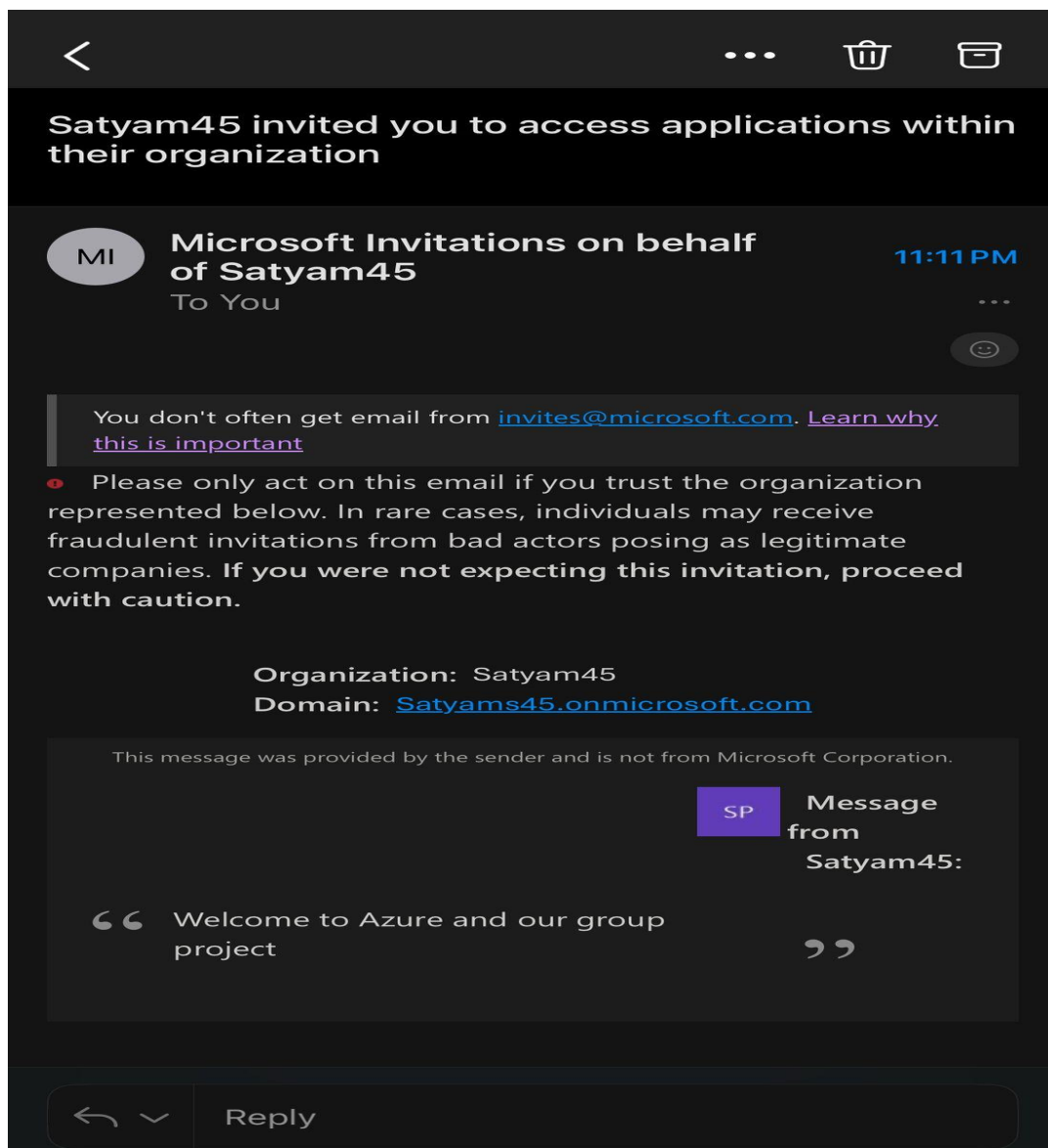
Groups

Roles

**Invite** < Previous Next >

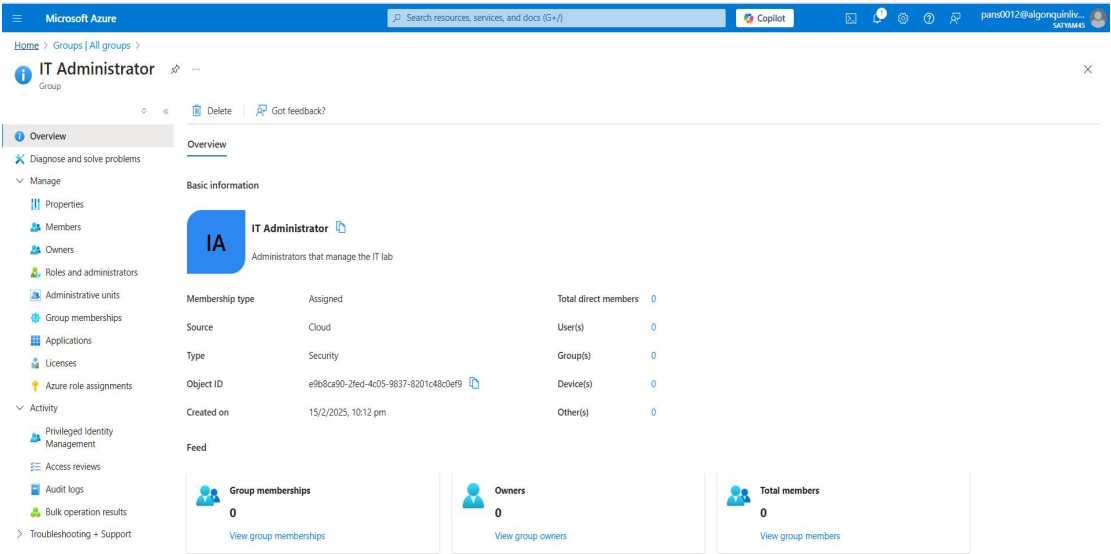
[Give feedback](#)

Refresh the page and confirm the invited user was created. You should receive the invitation email shortly.

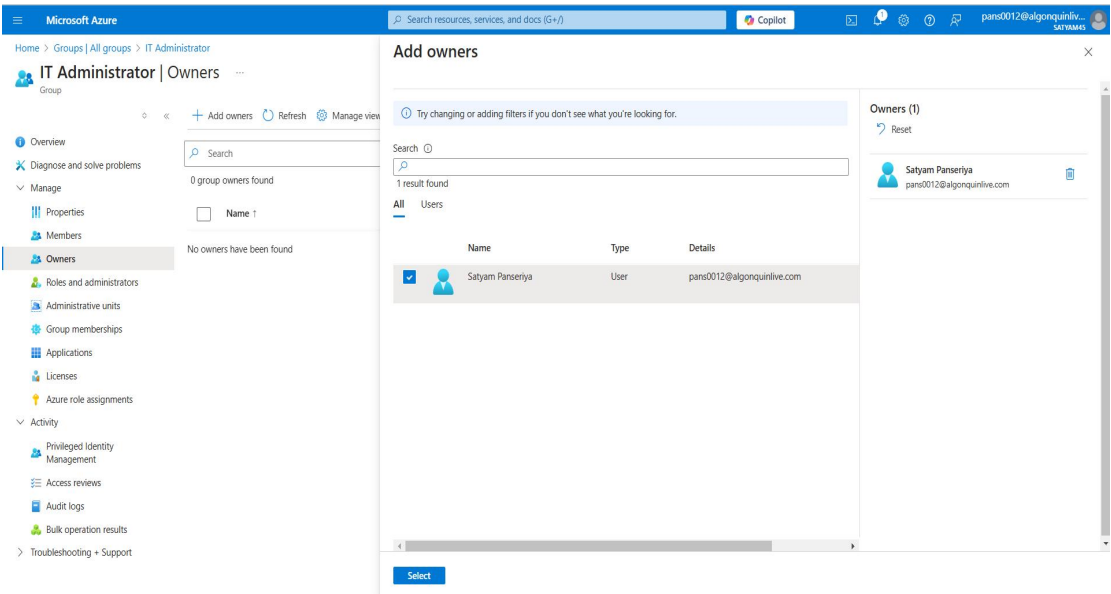


Task 2:

Screenshot of create assigned group.



In the Add owners page, search for and select yourself (shown in the top right corner) as the owner. Notice you can have more than one owner.



Refresh the page and ensure your group was created.

Microsoft Azure

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

Copilot

Home >

IT Administrator Group

Overview

Diagnose and solve problems

Manage

Properties

Members

Owners

Roles and administrators

Administrative units

Group memberships

Applications

Licenses

Azure role assignments

Activity

Privileged Identity Management

Access reviews

Audit logs

Bulk operation results

Troubleshooting + Support

Overview

Basic information

IT Administrator

Administrators that manage the IT lab

Membership type: Assigned

Source: Cloud

Type: Security

Object ID: e9b8ca90-2fed-4c05-9837-8201c48c0ef9

Created on: 15/2/2025, 10:12 pm

Total direct members: 1

User(s): 1

Group(s): 0

Device(s): 0

Other(s): 0

Feed

Group memberships: 0

Owners: 1

Total members: 1

Task 3:

Refresh the management group page to ensure your new management group displays

Setting	Value
Management group ID	8912-mg1 (must be unique in the directory)
Management group display name	8912-mg1

Microsoft Azure

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

Copilot

Home >

Management groups

Satyam45

Search

Create

Add subscription

Refresh

Expand / Collapse all

Export to CSV

Feedback

Overview

Get started

Settings

Use management groups to group subscriptions. Click on an existing group to drill in, view details and govern resources. Right-click on any subscription or management group to launch quick actions. Click the "Get Started" tab to learn more.

You are registered as a directory admin but do not have the necessary permissions to access the root management group. [Click here for more info.](#)

Search by name or ID

Showing 0 subscriptions in 2 groups

Name	Type	ID	Total subs
Tenant Root Group	Management group	2cac362b-0f11-411b-8030-a403d406tbf	0
8912-mg1	Management group	8912-mg1	0

Notifications

More events in the activity log →

Dismiss all

Creating group

Create group Succeeded

2 minutes ago

## Task 4:

On the Add role assignment blade, search for and select the Virtual Machine Contributor. The Virtual machine contributor role lets you manage virtual machines, but not access their operating system or manage the virtual network and storage account they are connected to. This is a good role for the Help Desk. Select Next.

Microsoft Azure

Home > Management groups > 8912-mg1 | Access control (IAM)

### Add role assignment

Role Members Conditions Review + assign

A role definition is a collection of permissions. You can use the built-in roles or you can create your own custom roles. [Learn more](#)

**Job function roles** Privileged administrator roles

Grant access to Azure resources based on job function, such as the ability to create virtual machines.

Virtual Machine Contributor

Type: All Category: All

Name	Description	Type	Category	Details
Classic Virtual Machine Contributor	Lets you manage classic virtual machines, but not access to them, and not the virtual network or storage account they're connected to.	BuiltInRole	Compute	<a href="#">View</a>
Desktop Virtualization Power On Contributor	Provide permission to the Azure Virtual Desktop Resource Provider to start virtual machines.	BuiltInRole	None	<a href="#">View</a>
Desktop Virtualization Power On Off Contributor	Provide permission to the Azure Virtual Desktop Resource Provider to start and stop virtual machines.	BuiltInRole	None	<a href="#">View</a>
Desktop Virtualization Virtual Machine Contributor	This role is in preview and subject to change. Provide permission to the Azure Virtual Desktop Resource Provider to create, delete, update, ...	BuiltInRole	None	<a href="#">View</a>
Service Fabric Cluster Contributor	Manage your Service Fabric Cluster resources. Includes clusters, application types, application type versions, applications, and services. You ...	BuiltInRole	None	<a href="#">View</a>
Virtual Machine Contributor	Lets you manage virtual machines, but not access to them, and not the virtual network or storage account they're connected to.	BuiltInRole	Compute	<a href="#">View</a>

Showing 1 - 6 of 6 results.

Review + assign Previous Next

Feedback

Search for and select the helpdesk group. Click Select.

Microsoft Azure

Home > Groups | Overview

### New Group

Got feedback?

Group type \* Security

Group name \* helpdesk

Group description Support team responsible for virtual machines

Membership type Assigned

Owners

No owners selected

Members

No members selected

Create

Click Review + assign twice to create the role assignment.

Microsoft Azure

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

Copilot

Home > helpdesk

helpdesk | Members

Group

Overview

Diagnose and solve problems

Manage

Members

Owners

Roles and administrators

Administrative units

Group memberships

Applications

Licenses

Azure role assignments

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Audit logs

Bulk operation results

Troubleshooting + Support

Direct members

All members

Search

Add filter

1 group member found

<input type="checkbox"/>	Name ↑	Type	Email	User type	Object id	Device id
<input type="checkbox"/>	Satyam Panseriya	User		Member	1dd96dfc-053f-4fec-b42b-073af6052e	

Continue on the Access control (IAM) blade. On the Role assignments tab, confirm the helpdesk group has the Virtual Machine Contributor role.

Microsoft Azure

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

Copilot

Home > Management groups > 8912-mg1

8912-mg1 | Access control (IAM)

Management group

Search

Download role assignments

Edit columns

Refresh

Delete

Feedback

Check access

Role assignments

Roles

Deny assignments

Search by name or email

Type: All

Role: All

Scope: All scopes

Group by: Role

All (3)

Job function roles (2)

Privileged administrator roles (1)

<input type="checkbox"/>	Name ↑	Type ↑	Role ↑	Scope ↑	Condition ↑
Owner (1)					
<input type="checkbox"/>	Satyam Panseriya 1dd96dfc-053f-4fec-b42b-073af6...	User	Owner	This resource	Add
Virtual Machine Contributor (2)					
<input type="checkbox"/>	IT Administrator e9b8ca90-2fed-4cd5-9837-8201c48...	Group	Virtual Machine Contributor	This resource	Add
<input type="checkbox"/>	Satyam Panseriya 1dd96dfc-053f-4fec-b42b-073af6...	User	Virtual Machine Contributor	This resource	Add

Showing 1 - 3 of 3 results.



## Task 5 :

Clean up the resources created during the lab and document all the steps in the lab report

The first screenshot shows the 'IT Administrator' group overview page. The 'Delete group?' dialog box is open with 'OK' and 'Cancel' buttons. The group details include: Membership type: Assigned, Source: Cloud, Type: Security, Object ID: e9b8ca90-2fed-4d05-9837-8201c48c0ef9, Created on: 15/2/2025, 10:12 pm. Summary cards show 0 group memberships, 1 owner, and 1 total member.

The second screenshot shows the 'helpdesk' group overview page. The 'Delete group?' dialog box is open. The group details include: Membership type: Assigned, Source: Cloud, Type: Security, Object ID: 34cd85b2-b680-4b1e-bef9-fd5716d4c40, Created on: 15/2/2025, 10:42 pm. Summary cards show 0 group memberships, 0 owners, and 1 total member.

The third screenshot shows the '8912-mg1' management group overview page. A 'Deleting group' notification is present. The page displays the 'Essentials' section with details: Name: 8912-mg1, ID: 8912-mg1, Access Level: Owner, Path: Tenant Root Group / 8912-mg1. It also shows parent and child management group counts. The bottom of the page indicates it is an 'Empty Management Group' with no child management groups or subscriptions to display.

## **Conclusion :**

This tuition involved manipulative sentient practice during Microsoft Entra ID and Azure role-based access control. Made of the principles of cloud security, such as identity management, automation, dynamic access control, and role-based permissions is the one that best prepared us. This will ensure that we are accountable for the resources used for optimal cost management and security in cloud environments.