

Lab 10 CST8912_011

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Submitted to:

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Lab-10

Title

- Implementing Secure Azure Logic Apps for Automated Alerts and Monitoring

Introduction

- The evaluation of cloud solution data protection and security measures takes place through Azure Logic Apps automation of security alerts and monitoring. Logic Apps stands as a Platform as a Service (PaaS) solution within Microsoft Azure that operates through connectors and triggers and actions to create smooth interconnections between cloud and on-premises systems. This lab requires you to design workflows that will both watch SQL database changes along with logging Azure Blob Storage file uploads while setting up automatic email alert systems. The practice includes learning Azure Monitor monitoring along with best practices for creating secure and reliable cloud automation.

Steps

- The lab begins with a step to establish both an Azure Logic App that operates on a consumption model and a SQL database hosted in the Canada Central region before you proceed to establish an Alerts table along with producing sample records for it. The Logic App implements two stages for record retrieval through the "Get Rows" action before it processes data via For-Each loop functions and executes email alert procedures depending on database modification events. The second task involves establishing a storage account then making a date-based folder structure for a container and enabling automatic Logic App triggers to monitor upload file deficiencies which generate notification alerts when no files exist. Azure Monitor allows administrators to monitor Logic App workflows through the third task where they track execution steps and potential failures. As the final step you will both clean up all resources and document this process through screenshots for the purpose of lab submission.

Microsoft Azure

SQL_Alert_LogicaApp

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Development Tools

Settings

Monitoring

Automation

Help

Essentials

Resource group (move)

Location (move)

Subscription (move)

Subscription ID

Workflow URL

Tags (edit)

Definition

Status

Runs last 24 hours

Integration Account

Get started

Run history

Trigger history

Metrics

Resubmit

Add filter

Specify the run identifier to open monitor view directly

Identifier	Status	Start time (Local Time)	Duration	Static Results
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Showing 0 runs

1. Logic app created

Microsoft Azure

SQL databases > Create SQL Database

Create SQL Database Server

Server details

Enter required settings for this server, including providing a name and location. This server will be created in the same subscription and resource group as your database.

Server name *

alerts-sql-server

.database.windows.net

Location *

(Canada) Canada Central

Authentication

Azure Active Directory (Azure AD) is now Microsoft Entra ID. [Learn more](#)

Select your preferred authentication methods for accessing this server. Create a server admin login and password to access your server with SQL authentication, select only Microsoft Entra authentication [Learn more](#) or using an existing Microsoft Entra user, group, or application as Microsoft Entra admin [Learn more](#) or, or select both SQL and Microsoft Entra authentication.

Authentication method

☐ Use Microsoft Entra-only authentication

☐ Use both SQL and Microsoft Entra authentication

☒ Use SQL authentication

Server admin login *

sqladmin

Password *

Confirm password *

OK

Feedback

2. creating server in database

Microsoft Azure

Home > Microsoft.SqlDatabase.newDatabaseNewServer_d0e022f59a64696b4028 | Overview

AlertsDB (alerts-sql-server/AlertsDB)

SQL database

Search

Copy Restore Export Set server firewall Delete Connect with... Feedback

Overview

Activity log

Tags

Diagnose and solve problems

Query editor (preview)

Mirror database in Fabric (preview)

Resource visualizer

Settings

Data management

Integrations

Power Platform

Security

Intelligent performance

Monitoring

Automation

Help

Mirror databases in Microsoft Fabric. Easily replicate your existing databases in Fabric, and help your team achieve streamlined ETL and operational analytics goals. [Learn more](#)

Essentials

Resource group: [LogicAppsLab](#)

Status: Online

Location: Canada Central

Subscription: [Azure for Students](#)

Subscription ID: fc12c2a4-1b36-460b-9a72-d18c23ffb97

Tags: [Add tags](#)

Server name: [alerts-sql-server.database.windows.net](#)

Elastic pool: [No elastic pool](#)

Connection strings: [Show database connection strings](#)

Pricing tier: [General Purpose: Gen5, 2 vCores](#)

Earliest restore point: [No restore point available](#)

Getting started Monitoring Properties Features Notifications (1) Integrations Tutorials

Start working with your database

Connect to your database and start working with data with a few simple steps. [Learn more](#)

Configure access
Configure network access to your SQL server. [Learn more](#)

Connect to application
Use connection strings to connect to your SQL database from your applications and favorite tools.

Start developing
Work in your database by using tools to add, modify and query data. [Compare tools](#)

Mirror database in Fabric
Replicate existing databases in Fabric, and help your team achieve streamlined ETL and operational analytics goals. [Learn more](#)

[Configure](#) [See connection strings](#) [Open Azure Data Studio](#) [Open in Visual Studio](#) [Open in Visual Studio Code](#)

3. Overview of Database

Microsoft Azure

Home > AlertsDB (alerts-sql-server/AlertsDB) | Query editor (preview)

AlertsDB (alerts-sql-server/AlertsDB) | Query editor (preview)

SQL database

quer Login New Query Open query Feedback Getting started

Query editor (preview)

Intelligent performance

Query performance insight

Showing limited object explorer here. For full capability please click here to open Azure Data Studio.

Tables

Views

Stored Procedures

Query 1

Run Cancel query Save query Export data as Show only Editor

```

1 CREATE TABLE [dbo].[Alerts] (
2   ID INT IDENTITY(1,1) PRIMARY KEY,
3   ToAddress NVARCHAR(255),
4   MailSubject NVARCHAR(255),
5   MailBody NVARCHAR(700),
6   EmailSent BIT
7 );
8

```

Results Messages

Query succeeded: Affected rows: 0

Query succeeded 1 0s

4. Table Query

Microsoft Azure

AlertsDB (alerts-sql-server/AlertsDB) | Query editor (preview)

SQL database

quer x Login + New Query Open query Feedback Getting started

Query editor (preview) AlertsDB (sava0207@algonquinlive.com)

Showing limited object explorer here. For full capability please click here to open Azure Data Studio.

Tables Views Stored Procedures

Query 1 x Query 2 x

Run Cancel query Save query Export data as Show only Editor

```
1 INSERT INTO [dbo].[Alerts] ([ToAddress, MailSubject, MailBody, EmailSent])
2 VALUES ('youremail@example.com', 'Alert 1', 'Message Body 1', 0),
3 ('youremail@example.com', 'Alert 2', 'Message Body 2', 0),
4 ('youremail@example.com', 'Alert 3', 'Message Body 3', 0);
5
```

Results Messages

Query succeeded: Affected rows: 3

Query succeeded | 0s

5. Information Query

Microsoft Azure

AlertsDB (alerts-sql-server/AlertsDB) | Query editor (preview)

SQL database

quer x Login + New Query Open query Feedback Getting started

Query editor (preview) AlertsDB (sava0207@algonquinlive.com)

Showing limited object explorer here. For full capability please click here to open Azure Data Studio.

Tables Views Stored Procedures

Query 1 x Query 2 x Query 3 x

Run Cancel query Save query Export data as Show only Editor

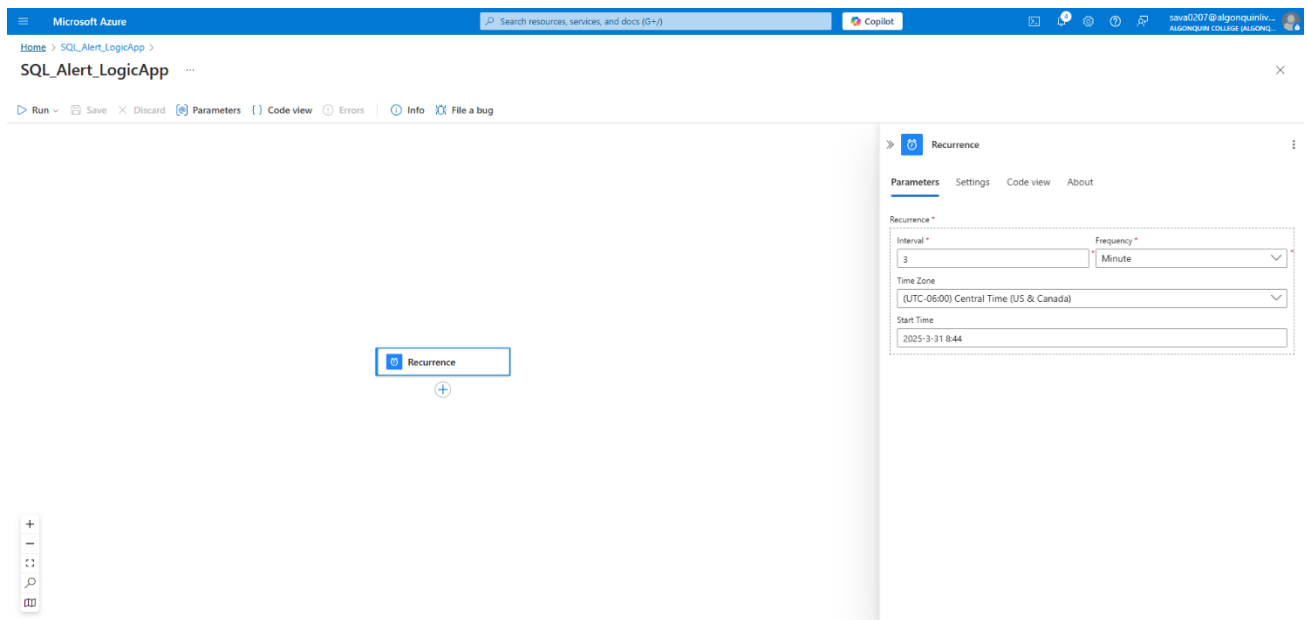
```
1 SELECT * FROM [dbo].[Alerts];
2
```

Results Messages

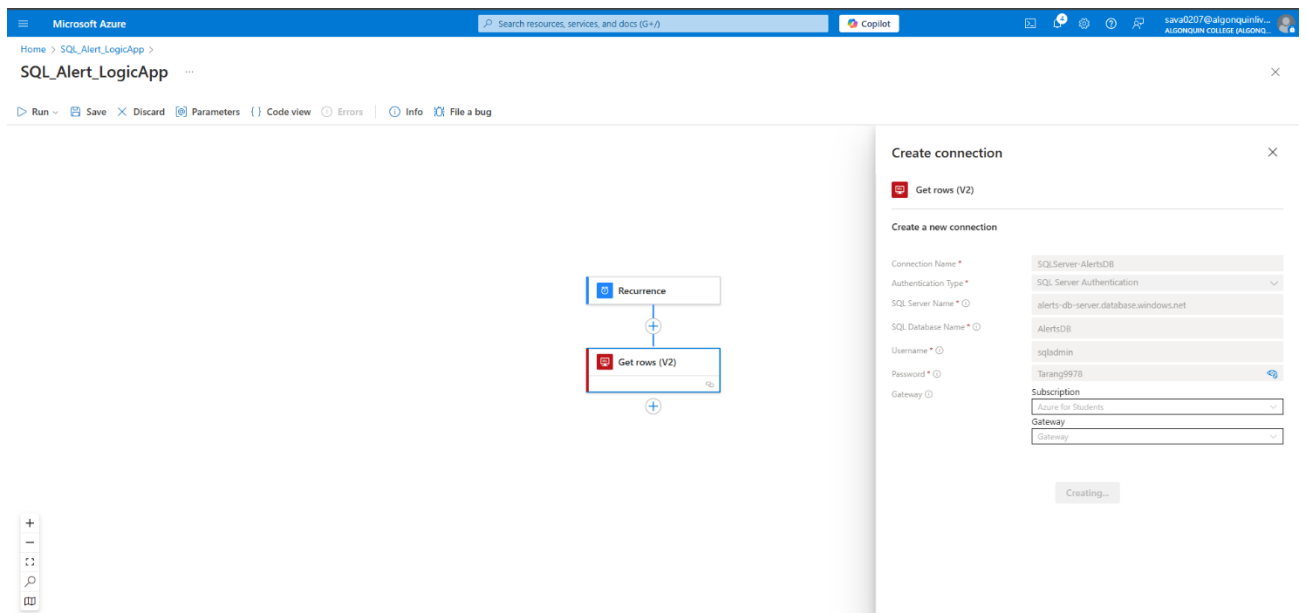
ID	ToAddress	MailSubject	MailBody	EmailSent
1	youremail@example.com	Alert 1	Message Body 1	False
2	youremail@example.com	Alert 2	Message Body 2	False
3	youremail@example.com	Alert 3	Message Body 3	False

Query succeeded | 0s

6. showing Query



7. Recurrence added



8. get rows V2 adding

Microsoft Azure

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

Copilot

Home > Storage accounts >

Create a storage account

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

[View automation template](#)

Basics

Subscription	Azure for Students
Resource group	LogicAppsLab
Location	Canada Central
Storage account name	alertstorage123
Primary service	
Performance	Standard
Replication	Locally-redundant storage (LRS)

Advanced

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

Security

Secure transfer	Enabled
Blob anonymous access	Disabled
Allow storage account key access	Enabled
Default to Microsoft Entra authorization in the Azure portal	Disabled

[Previous](#) [Next](#) [Create](#)

[Give feedback](#)

9. creating storage account

Microsoft Azure

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

Copilot

Home > alertstorage123_1743472422442 | Overview > alertstorage123

alertstorage123 | Containers

Storage account

[con](#) x < + Container [Change access level](#) [Restore containers](#) [Refresh](#) [Delete](#) [Give feedback](#)

Search containers by prefix

	Name	Last modified	Anonymous access level
<input type="checkbox"/>	slogs	31/03/2025, 21:55:04	Private

New container

Name *
datafiles

Anonymous access level
Private (no anonymous access)

The access level is set to private because anonymous access is disabled on this storage account.

Advanced

[Create](#) [Give feedback](#)

10. Creating Containers

Microsoft Azure

Home > SQL_Alert_LogiApp >

SQL_Alert_LogiApp

Run Save Discard Parameters Code view Errors Info File a bug

Recurrence

Recurrence *

Interval * 1 Frequency * Day

Time Zone (UTC-06:00) Central Time (US & Canada)

Start Time 6:00

At These Hours 18

At These Minutes 0

Preview
Runs at 18:00 every day

11.Creating Recurrence

Microsoft Azure

Home > SQL_Alert_LogiApp >

SQL_Alert_LogiApp

Run Save Discard Parameters Code view Errors Info File a bug

Recurrence

Lists blobs (V2)

Storage Account Name Or Blob Endpoint * alertstorage123

Folder * /datafiles

Advanced parameters
Showing 2 of 2 Show all Clear all

Paging Marker
A marker that identifies the portion of the list to be returned with the list opera... X

Flat Listing
No X

Connected to AlertStorage. Change connection

12. Added list blob

Microsoft Azure

Home > SQL_Alert_LogiApp >

SQL_Alert_LogiApp

Run Save Discard Parameters Code view Errors Info File a bug

The flowchart shows a Recurrence trigger connected to a Lists blobs (V2) action. This is followed by a For each loop. Inside the loop is a Condition action. The Condition action has two paths: a True path and a False path.

Condition

Parameters Settings Code view About

Condition Expression *

Provide the values to compare and select the operator to use.

AND

bodyempty() does not contain empty

+ New item

13. Add condition

Microsoft Azure

Home > SQL_Alert_LogiApp >

SQL_Alert_LogiApp

Run Save Discard Parameters Code view Errors Info File a bug

The flowchart shows a For each loop. Inside the loop is a Condition action. The Condition action has two paths: a True path and a False path. The True path now contains a Send an email (V2) action.

Send an email (V2)

Parameters Settings Code view Testing About

To *

Name

Subject *

DisplayName

Body *

Normal Arial 15px B I U A

Specify the body of the mail

Advanced parameters

Showing 1 of 6 Show all Clear all

Importance

Normal

Connected to Outlook.com Change connection

!4. Add get email

Identifier	Status	Start time (Local Time)	Duration	Static Results
08584581318963772908442774124CU27	Succeeded	31/03/2025, 10:36:29 pm	631 Milliseconds	
08584581319108103426316301418CU27	Succeeded	31/03/2025, 10:36:14 pm	421 Milliseconds	
0858458134145066461027899763CU11	Succeeded	31/03/2025, 9:59:00 pm	718 Milliseconds	
08584581343248912647755098295CU07	Succeeded	31/03/2025, 9:56:00 pm	107 Milliseconds	
08584581345052049462763543180CU25	Succeeded	31/03/2025, 9:53:00 pm	156 Milliseconds	
08584581346849633132184988520CU03	Succeeded	31/03/2025, 9:50:00 pm	109 Milliseconds	
08584581348654313562397879575CU01	Succeeded	31/03/2025, 9:47:00 pm	108 Milliseconds	
08584581350450350387111952994CU23	Succeeded	31/03/2025, 9:44:00 pm	82 Milliseconds	
08584581352253774699305721368CU26	Succeeded	31/03/2025, 9:41:00 pm	127 Milliseconds	

15. Monitor the logic app

Name	Type	Location
alert-sql-server	SQL server	Canada Central
AlertDB (alert-sql-server/AlertDB)	SQL database	Canada Central
alertstorage123	Storage account	Canada Central
azureblob	API Connection	Canada Central
office365	API Connection	Canada Central
outlook	API Connection	Canada Central
SQL_Alert_LogicaApp	Logic app	Canada Central

16. deleting Resource group

References

- References for this task are taken from the provided lab file.