

# Experiment - Creating an alert to monitor an Azure storage account

We can create an alert on multiple available metrics to monitor an Azure storage account. To create an alert, we need to define the trigger condition and the action to be performed when the alert is triggered. In this recipe, we'll create an alert to send an email if the used capacity metrics for an Azure storage account exceed 5 MB. The used capacity threshold of 5 MB is not a standard and is deliberately kept low to explain the alert functionality.

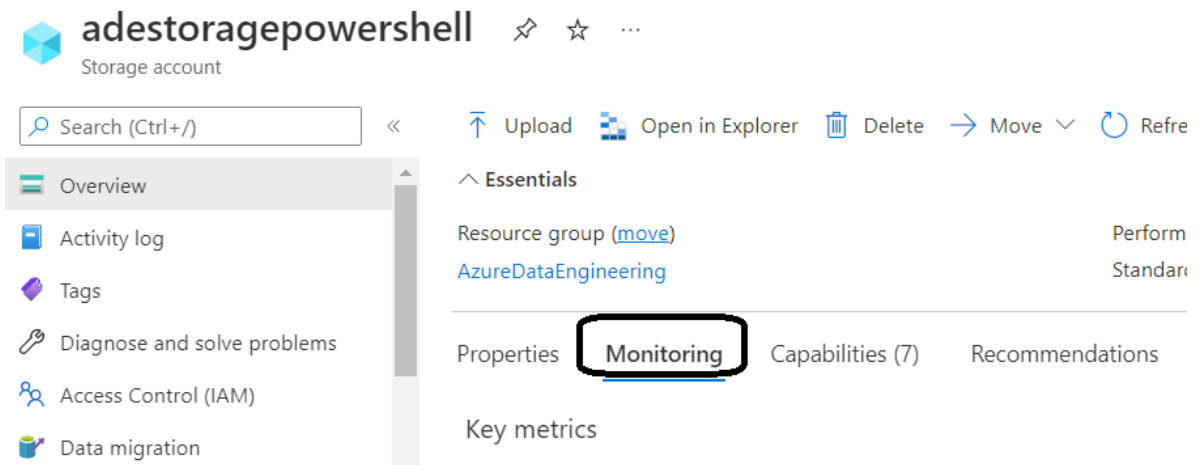
## Getting ready

- Before you start, perform the following steps:
1. Open a web browser and log in to the Azure portal at <https://portal.azure.com>
  2. Make sure you have an existing storage account from our previous experiment (**adestoragepowershell**)

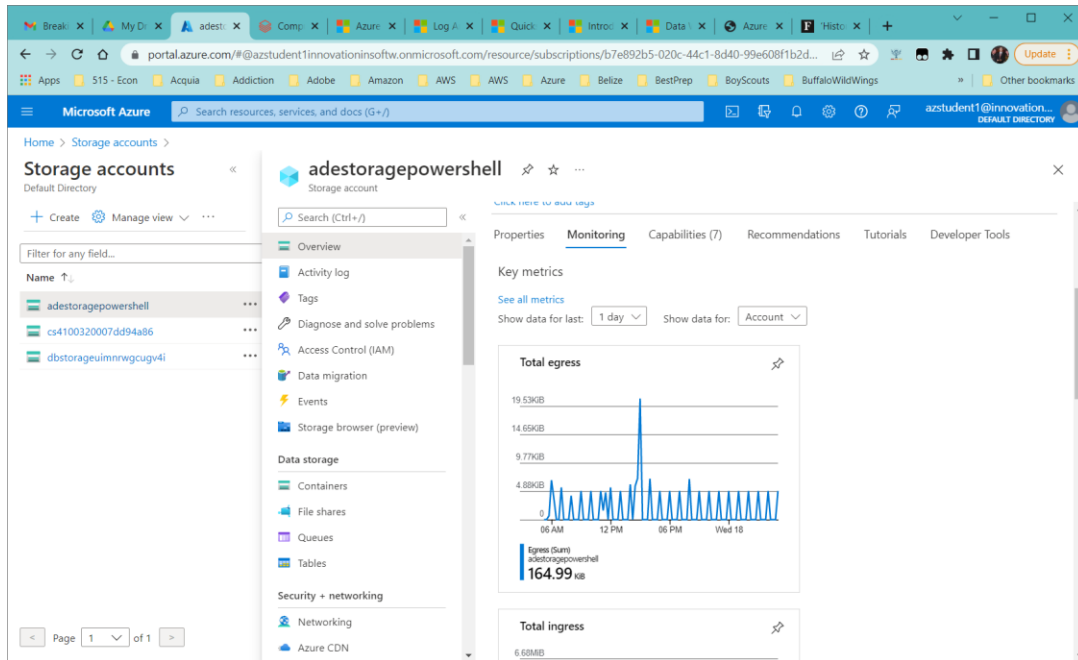
## How to do it...

Follow the given steps to create an alert:

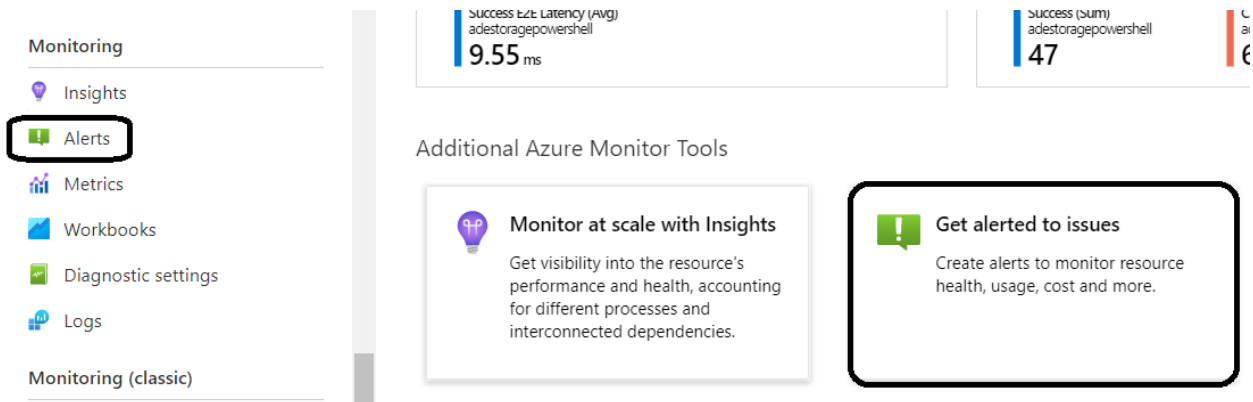
1. In the Azure portal, locate and open the storage account. In our case, the storage account is **adestoragepowershell**. On the storage account page, click the Monitoring tab along the bottom and scroll to **Alerts** under the **Monitoring** section:



2. Over time we'll see data in our Monitoring, but of course right after a resource is created this will be pretty sparse.



### 3. Select Alerts



### 4. On the **Alerts** page, click on **Create alert rule**:

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

Home > adestoragepowershell >

## Alerts

+ Create ▾ Alert rules ⚡ Action groups 📋 Alert processing rules ≡ Columns

### Set up alert rules on this resource

Get notified when important monitoring events happen on your resource.

Create alert rule

3. On the **Alerts | Create rule** page, observe that the storage account is listed by default under the **RESOURCE** section. You can add multiple storage accounts in the same alert.

Home > adestoragepowershell > Alerts >

### Create an alert rule

Scope Condition Actions Details Tags Review

Configure when the alert rule should trigger by selecting a signal a

+ Add condition

### Select a signal

Choose a signal below and configure the

Signal type ⓘ

Metrics

Displaying 1 - 7 signals out of total 7 sign

Search by signal name

Signal name

Transactions

Used capacity

4. On the **Configure signal logic** page, select **Used capacity** under **Signal name**:

Static

Dynamic

*Dynamic Thresholds is currently not available for this metric*

Operator ⓘ

Aggregation type \* ⓘ

Threshold value \* ⓘ

Unit \* ⓘ

Greater than

Average

5

MiB

Condition preview

Whenever the average used capacity is greater than 5 Mebibyte

Evaluated based on

Aggregation granularity (Period) \* ⓘ

Frequency of evaluation ⓘ

1 hour

Every 1 Minute

- On the **Configure signal logic** page, under **Alert logic**, scroll down and set **Operator** as **Greater than**, **Aggregation type** as **Average**, and configure the threshold to 5 MB. We need to provide the value in bytes:

- Click **Done** to configure the trigger. The condition is added, and we'll be taken back to the **Configure alerts rule** page:

## Create an alert rule ...

Scope Condition Actions Details Tags Review + create

Configure when the alert rule should trigger by selecting a signal and defining its logic.

+ Add condition

Condition name	Time series monitored ⓘ
✓ Whenever the average usedcapacity is greater than 5 mebibyte	1

- The next step is to add an action to perform when the alert condition is reached, select **Next: Actions >**. On the **Configure alerts rule** page, under the **ACTIONS GROUPS** section, click **Create action group**:

## Create an alert rule ...

Scope Condition Actions Details Tags Review + create

An action group is a set of actions that can be applied to an alert rule. [Learn more](#)

+ Select action groups + Create action group

- On the **Add action group** page, provide the action group name, short name, and resource group, select **Next: Notifications >**.

#### Project details

Select a subscription to manage deployed resources and costs. Use resource groups like fol

Subscription *	<input type="text" value="Azure subscription 1"/>
Resource group *	<input type="text" value="AzureDataEngineering"/>
	<a href="#">Create new</a>

#### Instance details

Action group name *	<input type="text" value="Email"/>
Display name *	<input type="text" value="Email"/>
	<small>This display name is limited to 12 characters</small>

- As we set **Notification Type** as **Email/SMS/Push/Voice**, a new sub-blade opens. Enter the Name of the Notification as **Outbound Email-adestoragepowershell**. In the **Email/SMS/Push/Voice** sub-blade, check the box for Email, and specify your desired contact email and click **OK**:

[Home](#) > [adestoragepowershell](#) > [Alerts](#) > [Create an alert rule](#) >

#### Create an action group ...

Basics **Notifications** Actions Tags Review + create

##### Notifications

Choose how to get notified when the action group is triggered. This step is optional.

Notification type	Name	Selected
<input type="text" value="Email/SMS message/Push/Voice"/>	<input type="text" value="Outbound Email-adestoragepowershell"/>	<input checked="" type="checkbox"/>

Please configure the notification by clicking the edit button.

<input type="text"/>	<input type="text"/>
----------------------	----------------------

[Review + create](#) [Previous](#) [Next: Actions >](#)

#### Email/SMS message/Push/Voice

Add or edit an Email/SMS/Push/Voice action

<input checked="" type="checkbox"/> Email	<input type="text" value="george.niece@gmail.com"/>
<input type="checkbox"/> SMS (Carrier charges may apply)	
Country code	<input type="text" value="1"/>
Phone number	<input type="text"/>
<input type="checkbox"/> Azure mobile app notification	
Azure account email	<input type="text"/>
<input type="checkbox"/> Voice	
Country code	<input type="text" value="1"/>
Phone number	<input type="text"/>
Enable the common alert schema. <a href="#">Learn more</a>	
<input type="radio"/> Yes <input checked="" type="radio"/> No	

[OK](#)

- Select **Next: Actions >**
- Click the action dropdown and review the possible additional actions that can be taken. We won't select an additional action beyond the notification we've already configured. Select **Next: Tags >**
- For tags, enter **project** for Name and **azure-data-engineering** for Value. Select **Next: Review + create >**
- Select **Review + create**

14. We can select to test the alert by configuring in the review screen

Review + create

This is a summary of your action group. Please review to ensure the information is correct and

Test this action group to see how it works. Test action group (preview) ×

15. Select **Test action group**

Test Email

Run a test on this action group using a sample alert to see how it works. [Learn more](#)

Select sample type \* ⓘ

Metric alert - Static threshold

Select notifications + actions

<input checked="" type="checkbox"/> Notification type	Notification name	Details
<input checked="" type="checkbox"/> Email	Outbound Email-destoragepowershell	george.niece@gmail.com

Test

Cancel

16. Select **Metric alert – Static threshold** and select **Test Test Email**

[←](#) Back to test setup

Test completed successfully

Notification type	Notification name	Status
Email	Outbound Email-destoragepowershell	✓ Success <a href="#">View details</a>

17. Once the test completed as seen in the screenshot we should have an email from Azure for the notification in our inbox as seen below

Microsoft Azure <azure-noreply@microsoft.com>  
to me ▾



## ⚠ Your Azure Monitor alert was triggered

Azure monitor alert rule test-metricAlertRule was triggered for test-storageAccount at May 17, 2022 18:13 UTC.

Rule ID	/subscriptions/11111111-1111-1111-1111-111111111111/providers/Microsoft.AlertsManagement/alerts/bbbb-bbbb-bbbb-bbbb-bbbb-bbbb-bbbb-bbbb-bbbb-bbbb <a href="#">View Rule &gt;</a>
Resource ID	/subscriptions/11111111-1111-1111-1111-111111111111/resourcegroups/test-RG/providers/microsoft.storage/storageaccounts/test-storageAccount

18. Select **Done** on the Test Preview sub-blade and then select **Create** to finish the Alert/Notification creation activity for our Storage Account Usage Threshold. **Select Next: Details>**

### Alert rule details

Severity * ⓘ	1 - Error
Alert rule name * ⓘ	Storage Account adestoragepowershell 5MB
Alert rule description ⓘ	Usage threshold notification/alert

[Review + create](#)

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[Next: Tags >](#)

19. Enter the detail for the Severity, Name and Description for our Alert rule details, select **Next: Tags>**

20. Enter **project** for Tag Name and **azure-data-engineering** for the Tag Value, select **Next: Review + create>**

### Scope

Resource Azure subscription 1 > AzureDataEngineering > adestoragepowershell

### Condition

Signal name	UsedCapacity
Operator	Greater than
Aggregation type	Average
Threshold value	5242880
Aggregation granularity	1 hour
Frequency of evaluation	Every 1 Minute

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21. Click the **Create** button to create the alert.
22. The next step is to trigger the alert. To do that, upload any large 5MB+ file to the Azure storage account following the steps noted in the previous experiment, with Logfiles.

1. Execute the following commands if you've closed the original window that you did the previous experiments in:

```
$storageaccountname="adestoragepowershellxx"
$containername="logfiles"
$resourcegroup="AzureDataEngineeringxx"
#Get the Azure Storage account context
$storagecontext = (Get-AzStorageAccount -ResourceGroupName
$resourcegroup -Name $storageaccountname).Context;
```

**Note:** Substitute for the student number for xx, (student1 would be adestoragepowershell01, student12 would be adestoragepowershell12). Similarly as we did earlier for the AzureDataEngineeringxx ResourceGroupName (student1 would be AzureDataEngineering01, student12 would be AzureDataEngineering12).

The file noted below, **BoatFileAlertTest.pdf**, is in the labs subfolder for the GitHub course repo or you can use any file that is larger than 5MB to cause the notification to fire.

**Set-AzStorageBlobContent -File "BoatFileAlertTest.pdf" -Context \$storagecontext -Blob BoatFileAlertTest.pdf -Container \$containername**

23. We can verify the uploaded files that we've placed in our Storage Container

PS C:\Users\kubernetes\Downloads> **Get-AzStorageBlob -Container \$containername -Context \$storagecontext**

24. The triggered alerts are listed on the **Alerts** page, as shown in the following screenshot:

The screenshot shows the Azure portal interface for the storage account 'adestoragepowershell'. The 'Alerts' section is active, displaying a summary of alert counts and a table of triggered alerts.

adestoragepowershell   Alerts					
Storage account					
Search (Ctrl+/)					
+ Create   Alert rules   Action groups   Alert processing rules					
Search   Add filter					
Total alerts	Critical	Error	Warning	Informational	Verbose
122	0	122	0	0	0
Name ↑↓   Severity ↑↓   Alert condition ↑↓   User re					
<input type="checkbox"/>	Storage Account adest...	1 - Error	Fired	New	
<input type="checkbox"/>	Storage Account adest...	1 - Error	Fired	New	
<input type="checkbox"/>	Storage Account adest...	1 - Error	Fired	New	

**Note:** Alerts are aggregated and for storage container usage capacity don't trigger for 6 hours. So we'll have that alert later today or by tomorrow after the uploads (ensuring from our Get-AzStorageBlob output that we have over 5MB)



An email is sent to the email ID specified in the email action group. The email appears as shown in the following snapshot:



## ⚠ Your Azure Monitor alert was triggered

Azure monitor alert rule Storage Account adestoragepowershell 5MB was triggered for adestoragepowershell at May 18, 2022 8:18 UTC.

Alert rule description	Usage threshold notification/alert
Rule ID	/subscriptions/b7e892b5-020c-44c1-8d40-99e608f1b2d6/resourceGroups/AzureDataEngineering/providers/microsoft.insights/metricAlerts/Storage Account adestoragepowershell 5MB <a href="#">View Rule &gt;</a>

## How it works...

Setting up an alert is easy. At first, we need to define the alert condition (trigger or signal). An alert condition defines the metrics and the threshold that, when breached, the alert is to be triggered. We can define more than one condition on multiple metrics for one alert.

We then need to define the action to be performed when the alert condition is reached. We can define more than one action for an alert. In our example, in addition to sending an email when the used capacity is more than 5 MB, we can configure Azure Automation to delete the old blobs/files so as to maintain the Azure storage capacity within 5 MB.

There are other signals such as transactions, Ingress, Egress, Availability, Success Server Latency, and Success E2E Latency on which alerts can be defined. Detailed information on monitoring Azure storage is available at <https://docs.microsoft.com/en-us/azure/storage/common/storage-monitoring-diagnosingtroubleshooting>.

## How it works...

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