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JUNE 17, 2019











D365 DATA ARCHIVAL & RETENTION

Highly scalable, secured and re-usable solution for Archive, Retain and Delete the Microsoft D365 data

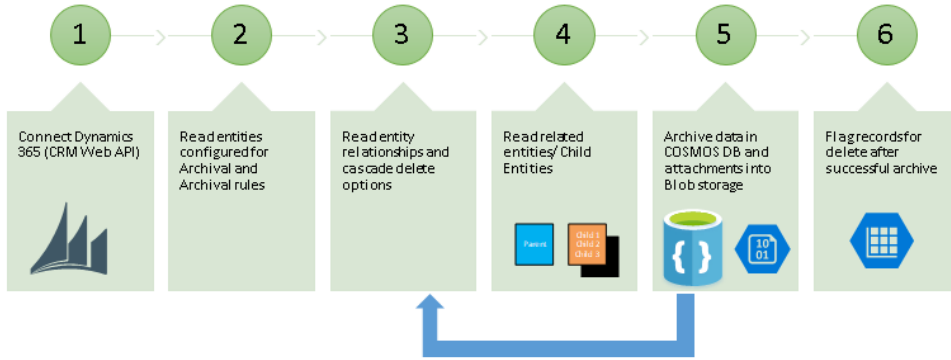
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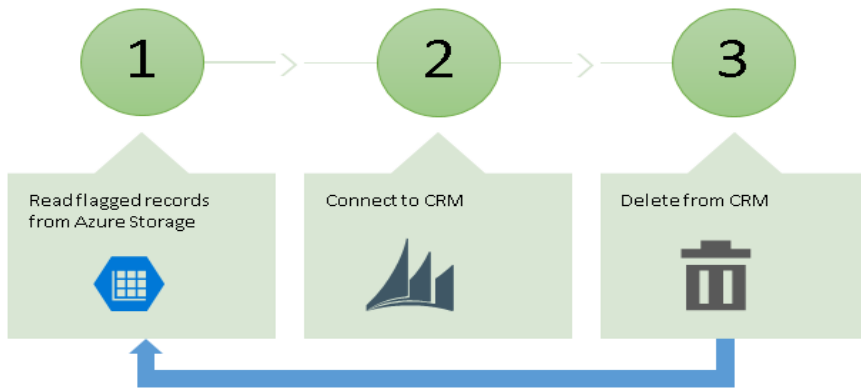
Introduction

Problem	Solution	Outcome(s)
 Excessive storage of data in Dynamics365 Customer engagement	 Provided a highly scalable, secured and re-usable solution for: 1) Archive data 2) Retain data 3) Delete post retention period	 Configurable, scalable archival and retention process by system administrator
 No data archival and retention process available as part of the product offering	 Uses Azure services for scaling as well as reliability: 1) Big Data (COSMOS DB) and Blob storage are used for archival and retention 2) Web jobs for data extraction and deletion	 Lower resource (DB) unitization providing scale and faster performance
 Compliance with GDPR and other data retention and compliance policies	 Highly available - Process runs as long as Dynamics 365 and Azure services are available.	 GDPR compliant with configurable data retention policies.
		 Easy Setup

Archiving



Deleting



Getting Started

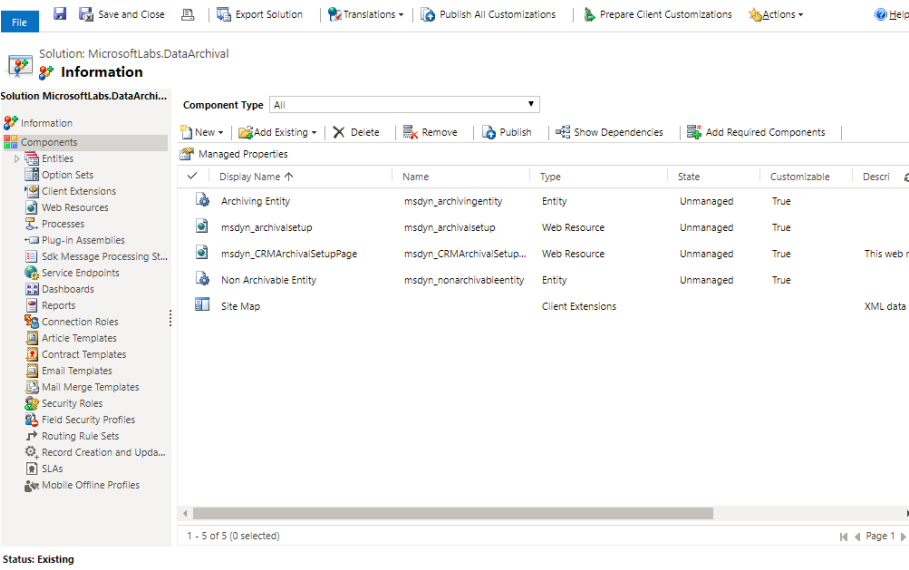
To begin, there are two separate installations that we need to complete in series.

- a. App Source (including entity configuration), and
- b. Azure Services Deployment

Install CRM Solution from App Source

Select **Get it Now** button to start the download and follow the process.

Once completed go to **Solutions**, the structure of which should look like below.



Archival Entity Configurations in CRM:

Path: CRM→Archival→CRM Archival Configuration

There are three detailed sections on this page:

- Archive Entities
- Archival Entities Information
- Non-Archiving Entity

NEW ACTIVITY + NEW RECORD IMPORT DATA

Microsoft Dynamics CRM Archival

Archiving Entity

Reset Save Deactivate Activate

Entity

Fetch XML

Validate XML

Retain in Archival for Select *Accepts only whole numbers.

Clear Old Logs From Last Select *Accepts only whole numbers.

Non Archivable Entity

Save Delete

Never Archive Entity

☐ ENTITY NAME CREATED ON

Archiving Entity Properties

- **Entity:** Type the first letter of the target entity; this will spawn a dropdown list of choices. Select the matching entity from that list.
- **Fetch XML:** Enter the Fetch xml of the select entity.
 - Click on Advanced Find in CRM
 - Using the **Look for** dropdown Listbox, select the entity
 - Add a condition matching desired criteria, for example "Created On, Older than X days, 15"
 - Click on **Download Fetch XML** button
 - Copy and paste the XML source into the Fetch XML Textbox.
 - Optionally confirm the XML by clicking on the **Validate XML** button.
- **Retain in Archival For:** This value sets the amount of Time to retain in archive. Enter the integer unit of Time (minutes, hours, days, years) for Archival retention.
- **Clear old Logs from Last:** This values set the amount of Time to clear the old logs from Azure tables. (Days)
- **Reset Button:** Resets the form.
- **Save button:** Saves the configuration details.
- **Deactivate button:** Used to deactivate the entity. Only active entities are used by jobs.
- **Activate button:** Used to activate the entity. Only de activated entities can be activated.

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Click **Save** to retain the information; the Page response will display the Archival Entities Information.

Archival Entities Information					
<div><div></div><div></div><div></div></div>					
1					
	ENTITY	FETCH XML	RETAIN IN ARCHIVAL FOR	OWNER	STATUS
<div><div></div></div>	incident	<fetch distinct="false" mapping="logical" output-format="xml-platform" version="1.0"> <entity name="incident"> <attribute name="title"/> <attribute name="ticketnumber"/> <attribute name="createdon"/> <attribute name="msdyn_revenueimpactamount"/> <attribute name="msdyn_caserevenue"/> <attribute name="msdyn_isrevenueimpacting"/> <attribute name="msdyn_revenutype"/> <attribute name="msdyn_pendingemailcountid"/> <attribute name="incidentid"/> <order descending="false" attribute="title"/> <filter type="and"> <filter type="or"> <condition attribute="createdon" value="2018-01-09" operator="on"/> <condition attribute="createdon" value="2018-01-08" operator="on"/> </filter> </filter> </entity> </fetch>	10 Day(s)	SESIT D365 Admin Account #	Active

Archiving Entity Properties

- **Status:** Always either Active or InActive. Only Active entities are selected by the job.

Below are the default Non-Archiving entities included with the solution.

Non Archivable Entity

Save

Delete

Never Archive Entity

	ENTITY NAME	CREATED ON
<input type="checkbox"/>	emailhash	12/15/2017 5:25 PM
<input type="checkbox"/>	bulkdeletefailure	1/9/2018 2:44 PM

1

NonArchivable Entity Properties

- **NeverArchive Entity:** Name of non-archive entity excluded from the archiving process. For reference, a list of existing non-archiving entities is provided as indicated.
- **Save button:** Save the configuration.
- **Delete button:** Deletes the selected entity from the list.

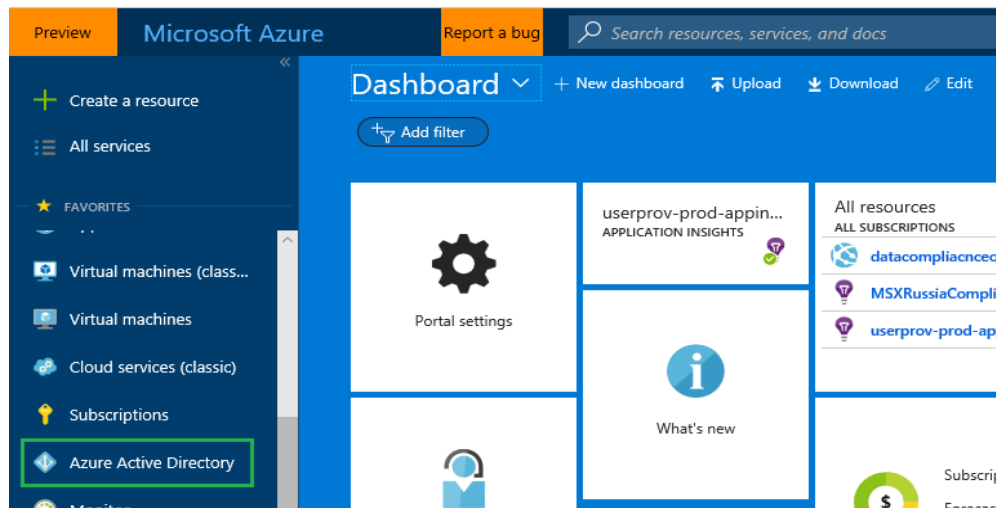
Archival Setup

Note: This instruction applies to First-Time Only setup.

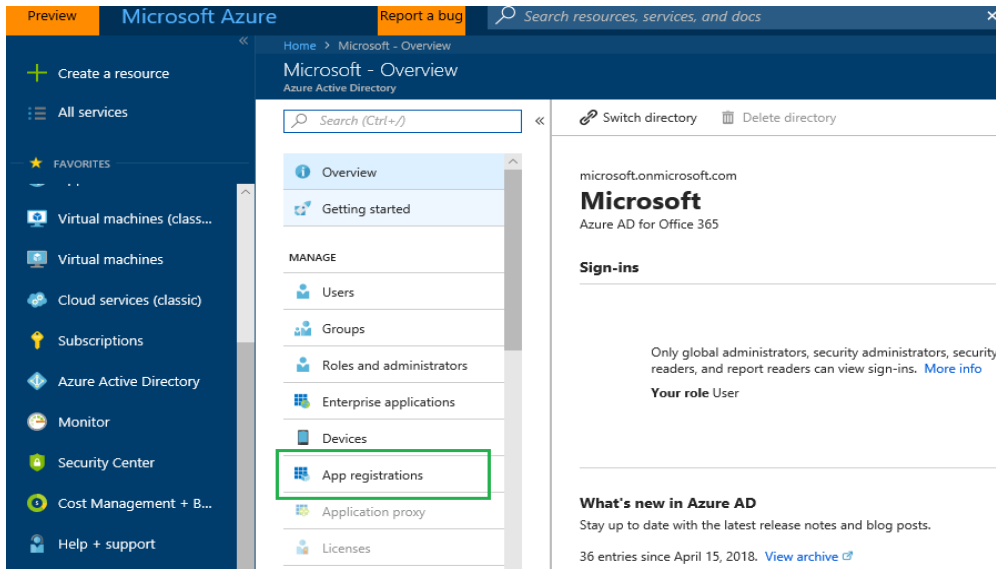
Azure Active Directory (AAD) Setup

If you have already registered the applications in Azure Directory and have its Application ID & Secret, you can skip this step.

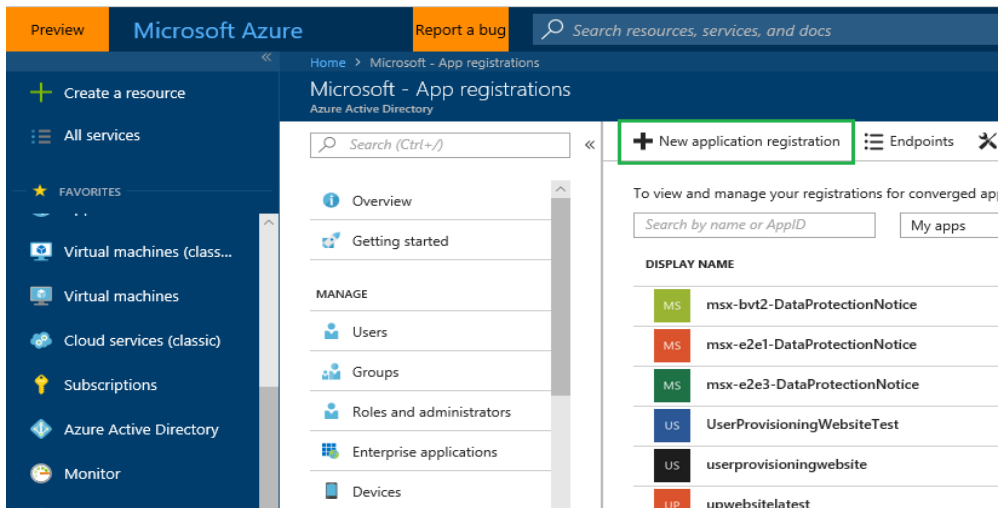
1. Login to windows azure portal (<https://ms.portal.azure.com/>)
2. Click on **Azure Active Directory**, as shown in below image.



3. Click on **App registrations**, as shown in below image.

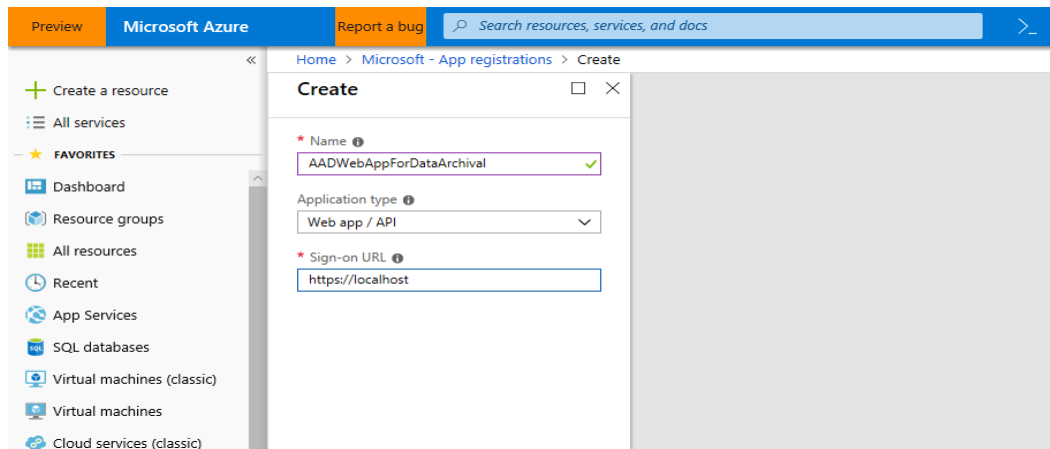


4. Click on **New application registration**, as shown in below image

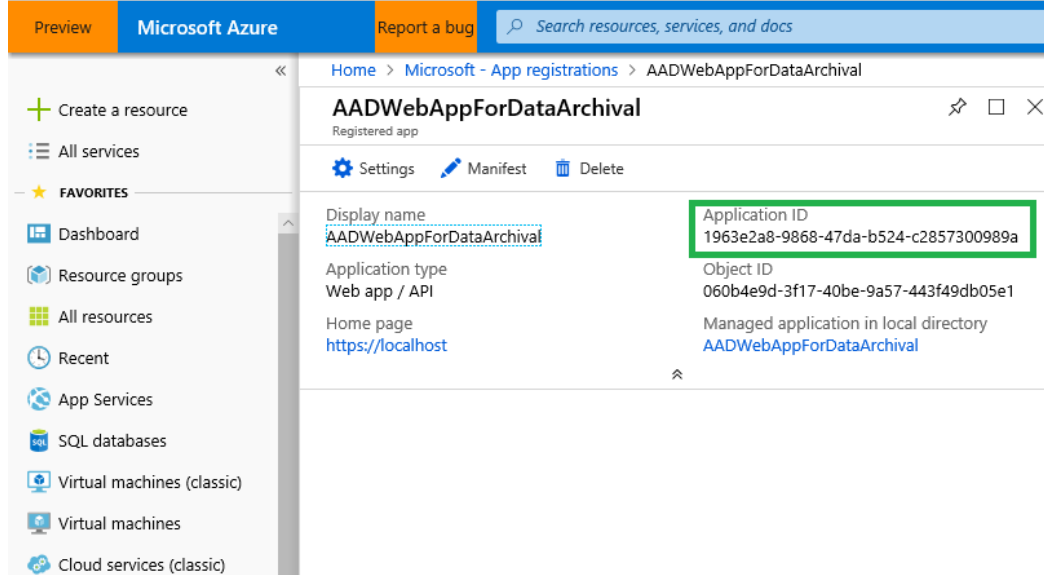


5. Provide the details as shown below and click on **Create** button
 - Name: Any valid web application name. For ex: AADWebAppForDataArchival

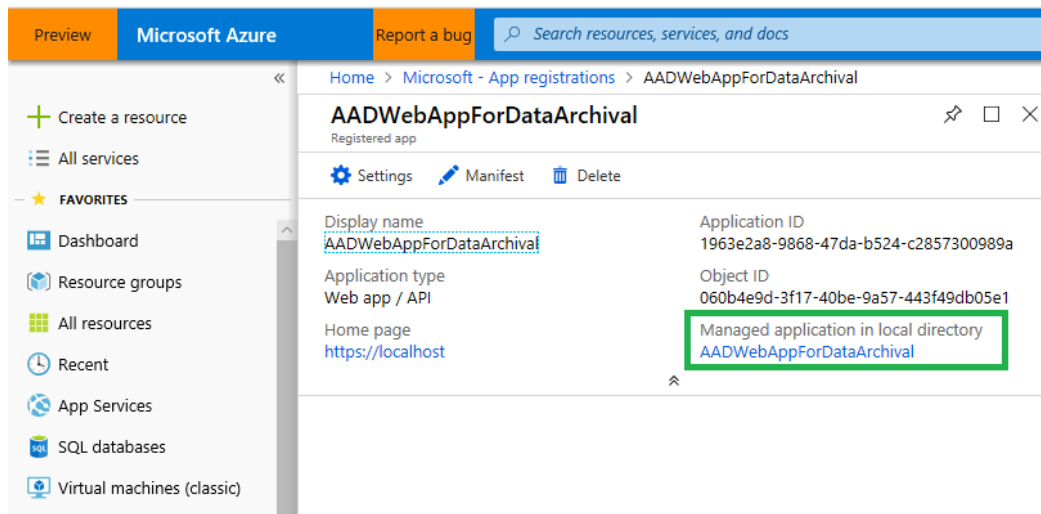
- Application Type: Web app / API (Select it from drop down if it is not already selected)
- Sign-on URL: Any valid URL. For ex: <https://localhost>



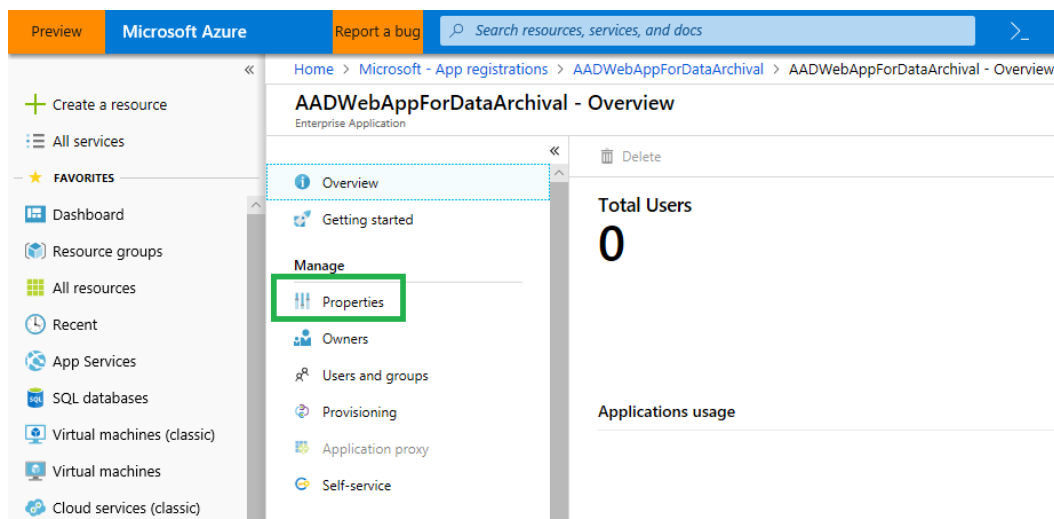
6. Save Application ID.



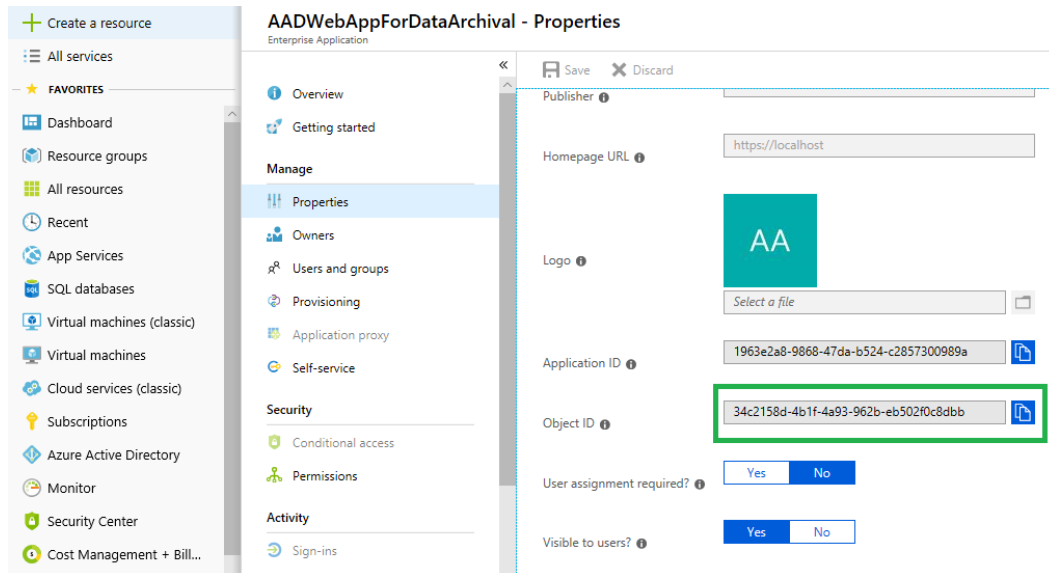
7. Click on Managed application in local directory as shown in below picture.



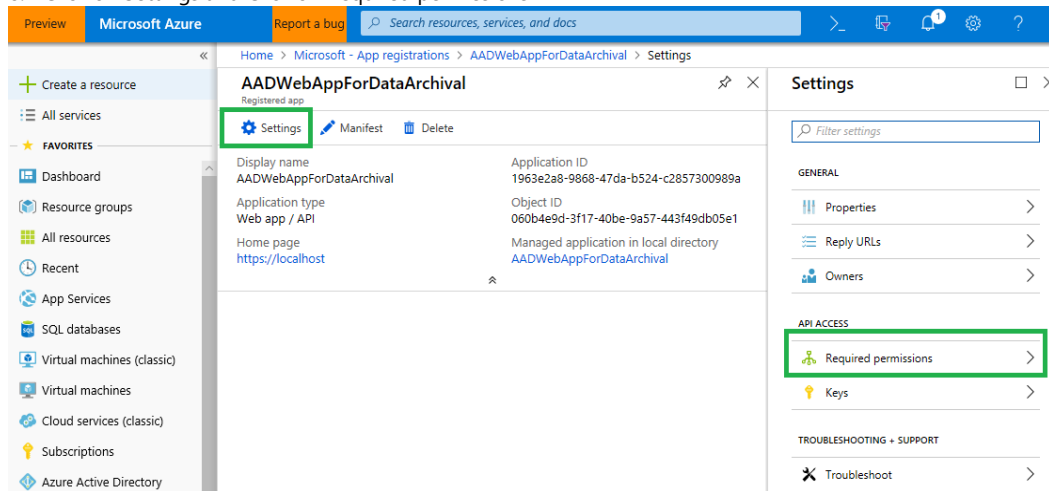
Click on Properties as shown in below image.



Save Object ID, as shown in below image.



8. Click on Settings and Click on Required permissions



click **+Add** button -> Click on Select an **API** | Click on **Windows Azure Active Directory** | Click on **Select**. In Select Permissions | Under Delegated Permissions | select only **Sing In and read user profile Permission** and click on **Select**.

Settings

GENERAL

Properties

Reply URLs

Owners

API ACCESS

Required permissions

Keys

TROUBLESHOOTING + SUPPORT

Troubleshoot

New support request

Required permissions

+ Add

Grant permissions

API	APPLICATION PERMI...	DELEGATED PERMIS...
Windows Azure Active Directory	0	1

9. Click on Keys -> Provide any value in Description (for ex: key1) and Select a value for Expires (for ex: Never expires) -> Click on Save button as shown in below image.

Settings

GENERAL

Properties

Reply URLs

Owners

API ACCESS

Required permissions

Keys

TROUBLESHOOTING + SUPPORT

Troubleshoot

New support request

Keys

Save

Discard

Upload Public Key

Passwords

DESCRIPTION	EXPIRES	VALUE
key1	Never expires	Value will be displayed on save
Key description	Duration	Value will be displayed on save

Public Keys

THUMBPRINT	START DATE	EXPIRES
No results.		

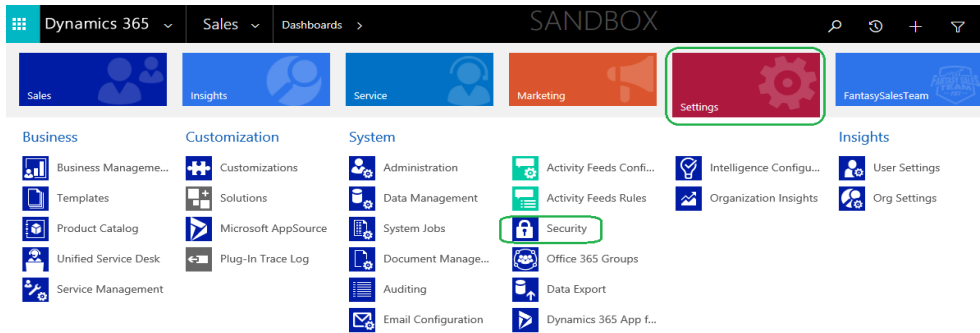
Note *****: Secret value will get generated. Save it, it is visible only once.

Create Application User in CRM Org:

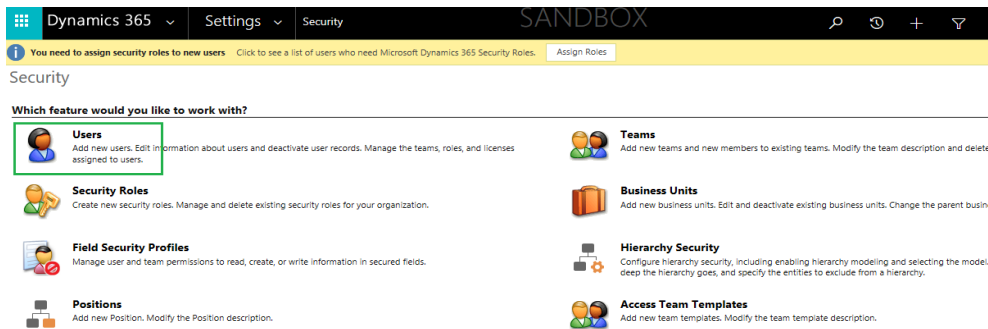
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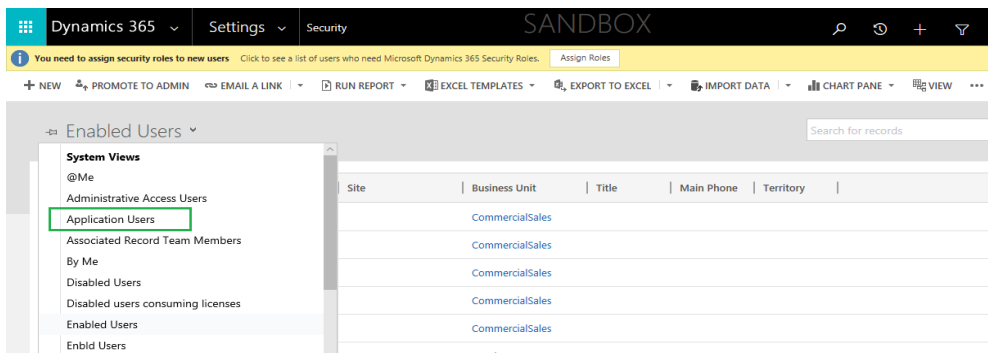
1. Login to CRM Org with a user who has **system admin role**
2. Click on **Settings** -> **Security** as shown in below image.



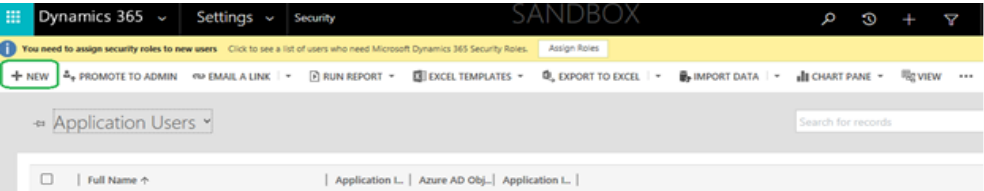
3. Click on **Users** as shown in below image



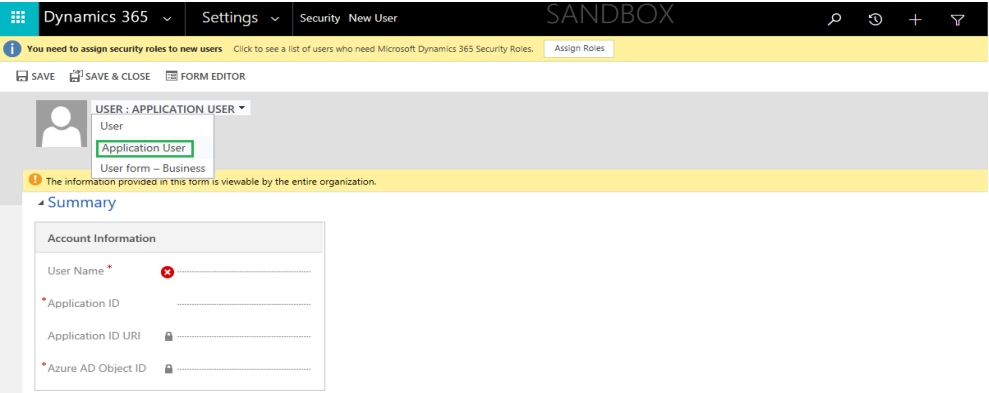
4. Select **Application Users** from the dropdown as shown in below image



5. Click on + **New** as shown in below image



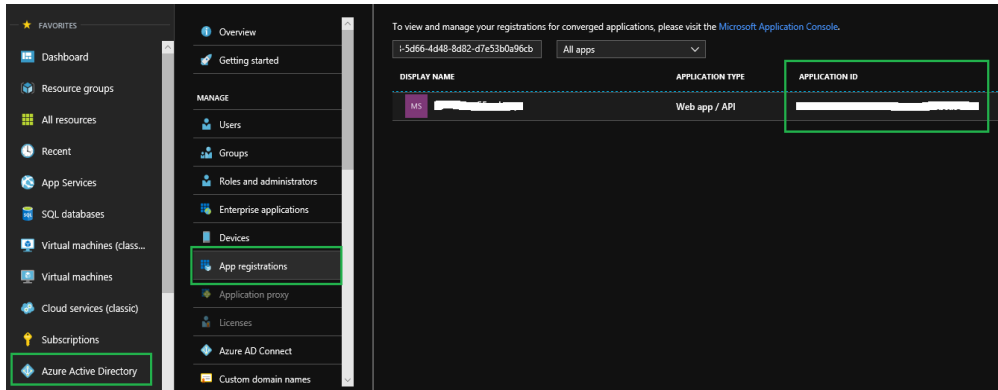
6. Select **Application User View** from the View Selector (if it is not already selected) as shown in below image.



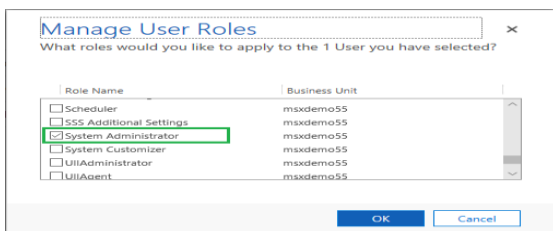
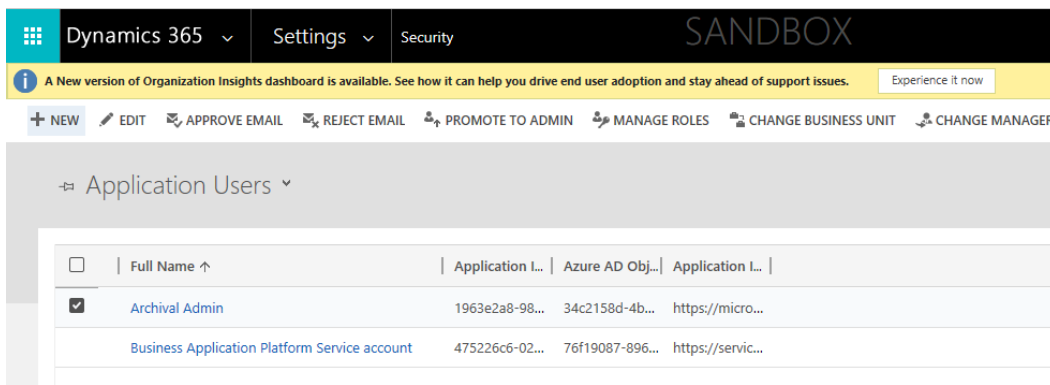
7. Provide details as mentioned below and Save the details
- **Application ID:** Azure Active Directory Web Application ID (Application ID generated for AAD Web App, refer below screen shot).
 - **Full Name:** Any valid full name. For ex: First Name: **Archival** & Last Name: **Admin**
 - **Primary Email:** Any valid email. For ex: dummy@dummy.com
- *Above email address will not be using in Archival process to send any emails.
- Note:** User Name, Application ID URI & Azure AD Object ID will get created when user is saved.

Commented [PKK1]: Add Azure screen shot representing web app ID extraction.

Commented [CG(L2R1)]: Done



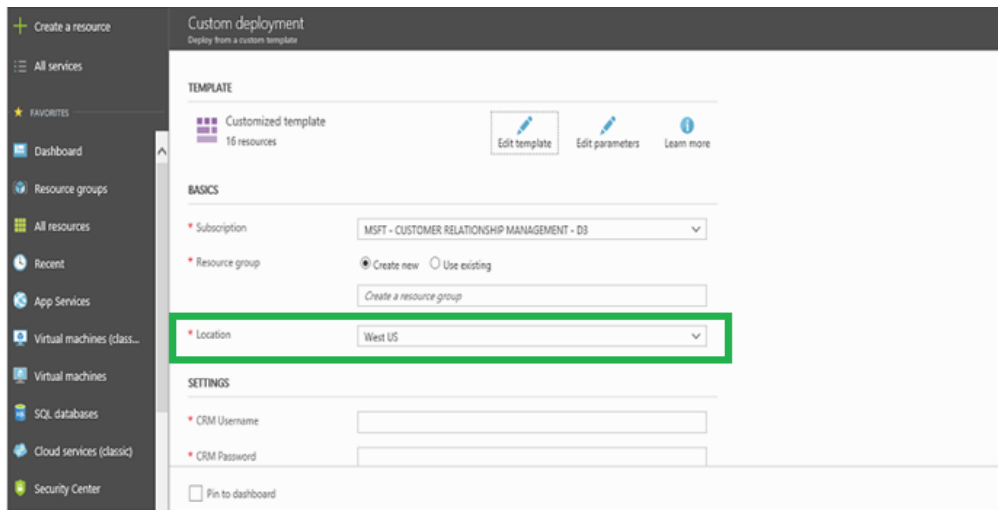
8. Select newly created Application User. Click on Manage Roles and grant System Admin role.



Create Azure Resources

Once you have successfully registered the applications in Azure Active Directory (AAD), it will open the Azure Portal using the Azure Resource Manager Template referenced in the images below.

If the browser window did not open then you can click [here](#) to launch it and fill all the details that are asked.

The image shows the 'Custom deployment' interface in the Azure portal. On the left is a sidebar with navigation links: 'Create a resource', 'All services', 'FAVORITES', 'Dashboard', 'Resource groups', 'All resources', 'Recent', 'App Services', 'Virtual machines (class...', 'Virtual machines', 'SQL databases', 'Cloud services (classic)', and 'Security Center'. The main area is titled 'Custom deployment' with the subtitle 'Deploy from a custom template'. It features a 'TEMPLATE' section showing a 'Customized template' with '16 resources' and buttons for 'Edit template', 'Edit parameters', and 'Learn more'. Below this is the 'BASICS' section with the following fields: 'Subscription' (a dropdown menu showing 'MSFT - CUSTOMER RELATIONSHIP MANAGEMENT - DB'), 'Resource group' (radio buttons for 'Create new' (selected) and 'Use existing', with a 'Create a resource group' link below), and 'Location' (a dropdown menu showing 'West US', which is highlighted with a green rectangular box). At the bottom is the 'SETTINGS' section with 'CRM Username' and 'CRM Password' text input fields, and a 'Pin to dashboard' checkbox.

Complete the form and deploy to Azure, then navigate to Azure Portal Resource Group.

Note: Make a note of all azure resource's names provided in the template.

Azure Resource Manager Template Properties






- **Subscription:** Select the correct subscription from the dropdown list.
- **Resource Group:** Please note the following option choices...
 - **First Time setup:** Be sure to select **Create new** option and add a unique resource group name. **Important:** Save the resource group name for future references.
 - **For any upgrades:** Select the **Use existing** option to use the existing resource group name.
- **Location:** Select the correct location from the dropdown list.
- **CRM Username:** Use the AAD Web App Client Id (*Future versions this field will be deleted from the template as it is identified as duplicate*).
- **CRM Password:** Paste the Secret Key (*Future versions this field will be deleted from the template as it is identified as duplicate*)
- **CRM Resource URL:** CRM instance URL.
- **Web Site Name:** Any unique website name with contiguous characters.
- **Key Vault Name:** Any unique KV name. **Important:** Please use contiguous lowercase letters only.
- **Database Account Name:** Alphanumeric Cosmos account name.

- **Storage Account Name:** Alphanumeric storage account name.
- **Thread Count:** Suggest using the Default value of 50.
- **AAD Web App Client Id:** Paste the Application Id.
- **Secret Key:** Paste the Secret Key.
- **Object Id:** Paste the existing Object Id.
- **Native Application Id:** Paste the existing Native Application Id.
- **Hosting Plan Name:** Use only unique contiguous lowercase characters.
- **Tenant Id :** Directory Id from AAD →Properties
- **CRM Web APIVersion:** Select the correct value from the dropdown list.
- **Sku Name:** Select the correct value from the dropdown list.
- **Sku Capacity:** Suggest using the Default value of 1.
- **Storage account Type:** Select the correct value from the dropdown list.

Agree the **Terms and Conditions** and click on the **Purchase** button.

After deployment, the components under the resource group will appear as shown below.

5 items
☐ Show all resources

<input type="checkbox"/>	NAME ↑↓	TYPE ↑↓	LOCATION ↑↓	
<input type="checkbox"/>	 crmarchivalappplan	App Service plan	Central US	...
<input type="checkbox"/>	 crmarchivalcosmosdbacc	Azure Cosmos DB account	Central US	...
<input type="checkbox"/>	 crmarchivalkeyvault	Key vault	Central US	...
<input type="checkbox"/>	 crmarchivalstorageacc	Storage account	Central US	...
<input type="checkbox"/>	 CRMArchivalWebApp	App Service	Central US	...

Configuring Schedule for Archival, Removal & Retention

Path: Resource Group→Search by app name→CRMArchivalWebApp→Application settings

Optionally users are able to set up Archival, Retention and Removal schedules in Web App.

Name	Value	Slot setting
keyvaultclientid	f44afe62-156f-486b-b4ec-327fa9304cb6	<input type="checkbox"/>
keyvaultclientsecretid	SZya5/OhldbaggiRFzy4kPjcz5r/HWV2AIVPV...	<input type="checkbox"/>
keyvaulturl	https://archivalprocesskeyvault.vault.azure.net/	<input type="checkbox"/>
ArchivalSchedule	0 20 */1 * * *	<input type="checkbox"/>
RetentionSchedule	0 20 */1 * * *	<input type="checkbox"/>
RemovalSchedule	0 20 */1 * * *	<input type="checkbox"/>
DisableRetention	true	<input type="checkbox"/>
DisableArchival	true	<input type="checkbox"/>
DisableRemoval	true	<input type="checkbox"/>
WEBJOBS_IDLE_TIMEOUT	601	<input type="checkbox"/>
WEBJOBS_RESTART_TIME	15	<input type="checkbox"/>
DisableConsole	true	<input type="checkbox"/>
CollectionOfferThroughput	1000	<input type="checkbox"/>
MobileAppsManagement_EXTENSION_VERSI...	latest	<input type="checkbox"/>

3 Schedules: Users can set schedules in the form of Seconds, Minutes, Hours, Days, Months, and Years (as a Cron expression). Archival, Retention and Removal jobs are scheduled at 8 PM every day, and then they are disabled by default. If users want to change the schedules, modify before enabling the jobs.

Note: Click **Save** to retain changes.

Click [here](#) to build a Cron expression.

Web Job Status

Path: Resource Group→Search by app name→CRMArchivalWebApp→WebJobs

After jobs are enabled, make sure that the WebJob Status is Running.

Search (Ctrl+J)

SETTINGS

Application settings

Authentication / Authorization

Managed service identity

Backups

Custom domains

SSL certificates

Networking

Scale up (App Service plan)

Scale out (App Service plan)

WebJobs

Push

MySQL In App

+ Add Refresh Logs Delete Properties

WebJobs

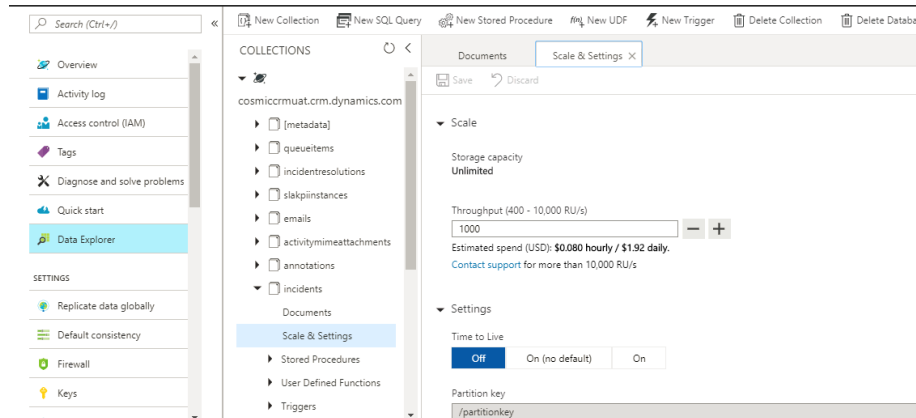
WebJobs provide an easy way to run scripts or programs as background processes in the context of your app.

NAME	TYPE	STATUS	SCHEDULE
MicrosoftDARTJob	Continuous	Running	n/a

Configuring storage & throughput for Entity collection

Path: Azure Cosmos DB account from Resource group → Entity Collection → Scale & Settings

The solution Throughput is set to 1000 RU's with Unlimited Storage capacity by default.



Calculate the storage and RU as per their usage through the links provided below:

<https://docs.microsoft.com/en-us/azure/cosmos-db/request-units>.

<https://azure.microsoft.com/en-us/pricing/calculator/?service=cosmos-db>

Verifying Archival Setup

The archival setup needs to be reviewed in multiple places to ensure that it's working. This occurs in three places:

- Tables
- Cosmos Database
- Logs
- Email Attachments & Notes

Tables

Path: Resource Group→Search by app name→Storage User Account→Tables

Check for the existence of Table name “removals”. If it is not present, then the then Archival process has not started: Check with the Support Team.

Home > storageuseraccount > Table service

Table service
storageuseraccount

Refresh + Table Delete tables

Check out premium Table experience with Azure Cosmos DB →

Storage account
storageuseraccount

Table service endpoint
https://storageuseraccount.table.core.windows.net/

Status
Primary: Available

Location
West US

Subscription (change)
MSFT - CUSTOMER RELATIONSHIP MANAGEMENT - D3

Subscription ID
66d1bf86-261e-4624-af80-9c37a77b5f4a

Search tables by prefix

TABLE	URL
removals	https://storageuseraccount.table.core.windows.net/removals
servicestatus	https://storageuseraccount.table.core.windows.net/servicestatus

Cosmos Database

Path: Resource Group→Search by app name→Azure Cosmos DB Account

Search (Ctrl+/)

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Quick start

Data Explorer

SETTINGS

Replicate data globally

Default consistency

Firewall

Keys

Add Azure Search

+ Add Collection Refresh Move Delete Account Data Explorer

Status
Online

Read Locations
West US

Resource group (change)
Archive

Write Location
West US

Subscription (change)
MSFT - CUSTOMER RELATIONSHIP MANAGEMENT - D3

Document Endpoint
https://archivalcosmicuser.documents.azure.com:443/

Subscription ID
66d1bf86-261e-4624-af80-9c37a77b5f4a

Collections

Search to filter collections...

ID	DATABASE	THROUGHPUT (RU/S)
[metadata]	cosmicrmut.crm.dynamics.com	1000
queueitems	cosmicrmut.crm.dynamics.com	1000
incidentresolutions	cosmicrmut.crm.dynamics.com	1000
slakpiinstances	cosmicrmut.crm.dynamics.com	1000
emails	cosmicrmut.crm.dynamics.com	1000
activitimimeattachments	cosmicrmut.crm.dynamics.com	1000

Verify that the database name is the same as the CRM Orgname, and that the Throughput is the same as previously configured. Collections should be present as shown above.

Logs

Path: Resource Group→Search by app name→Storage User Account→Blobs→archivelogs

Note: As a rule, logs are generated every 15 minutes as long as the job is running, therefore wait for 15 minutes to generate the first log.

Home > Resource groups > Archive > storageuseraccount > Blob service > archivelogs

Blob service

storageuseraccount

<< >> ✖

+ Container

Refresh

Essentials

Search containers by prefix

NAME

activitymimeattachments ...

annotations ...

☐ archivelogs ...

azure-jobs-host-archive ...

azure-jobs-host-output ...

azure-webjobs-dashboard ...

azure-webjobs-hosts ...

Upload

Refresh

Delete container

Container properties

Access policy

Location: archivelogs

Search blobs by prefix (case-sensitive)

NAME	MODIFIED	BLOB TYPE	SIZE	LEASE STATE
archivallog-20180106021000-201801060225...	1/5/2018, 6:25:00 PM	Block blob	3.51 MiB	Available
archivallog-20180106022500-201801060240...	1/5/2018, 6:40:00 PM	Block blob	3.97 MiB	Available
archivallog-20180106024000-201801060255...	1/5/2018, 6:55:01 PM	Block blob	3.67 MiB	Available
archivallog-20180106025501-201801060310...	1/5/2018, 7:10:01 PM	Block blob	3.95 MiB	Available
archivallog-20180106031001-201801060325...	1/5/2018, 7:25:01 PM	Block blob	3.95 MiB	Available
archivallog-20180106032501-201801060340...	1/5/2018, 7:40:02 PM	Block blob	3.23 MiB	Available
archivallog-20180106034002-201801060355...	1/5/2018, 7:55:02 PM	Block blob	3.48 MiB	Available
archivallog-20180106035502-201801060410...	1/5/2018, 8:10:02 PM	Block blob	3.63 MiB	Available
archivallog-20180106041002-201801060425...	1/5/2018, 8:25:03 PM	Block blob	3.43 MiB	Available
archivallog-20180106042503-201801060440...	1/5/2018, 8:40:03 PM	Block blob	3.68 MiB	Available
archivallog-20180106044003-201801060455...	1/5/2018, 8:55:03 PM	Block blob	3.44 MiB	Available

Email Attachments & Notes

Path: Resource Group→Search by app name→Storage User Account→Blobs→annotations

Users can validate that notes and email attachments are actively being stored here (see example below).

Home > Resource groups > Archive > storageuseraccount > Blob service > annotations

Blob service

storageuseraccount

Container

Refresh

Essentials

Search containers by prefix

NAME

activitymimeattachments

annotations

archivelogs

azure-jobs-host-archive

azure-jobs-host-output

azure-webjobs-dashboard

azure-webjobs-hosts

annotations

Container

Upload

Refresh

Delete container

Container properties

Access policy

Location: annotations

Search blobs by prefix (case-sensitive)

NAME	MODIFIED	BLOB TYPE	SIZE	LEASE STATE
00018af7-9de2-e611-80f0-fc15b4284d68	1/6/2018, 4:33:08 PM	Block blob	142.27 KiB	Available
000b24c8-8eec-e611-80f0-fc15b428de24	1/10/2018, 8:32:16 AM	Block blob	67.29 KiB	Available
001dc73e-53ed-e611-80f5-fc15b4289b54	1/10/2018, 4:29:52 AM	Block blob	38.61 KiB	Available
00251553-52df-e611-80ef-fc15b4284d68	1/9/2018, 1:52:00 PM	Block blob	256.64 KiB	Available
002a02a8-34ee-e611-80f0-fc15b4284d68	1/9/2018, 1:44:19 AM	Block blob	1.03 MiB	Available
00a4b3c4-60df-e611-80ef-fc15b4284d68	1/9/2018, 3:57:12 PM	Block blob	340.98 KiB	Available
00a66223-30e3-e611-80f1-fc15b4289b54	1/8/2018, 9:58:19 AM	Block blob	166.17 KiB	Available
00a893a6-7fe1-e611-80ef-fc15b4284d68	1/9/2018, 1:40:26 PM	Block blob	66.52 KiB	Available
00b37ff4-72de-e611-80ef-fc15b4284d68	1/6/2018, 6:30:19 AM	Block blob	26.37 KiB	Available
00fa4eb2-32de-e611-80ef-fc15b4284d68	1/9/2018, 4:03:53 PM	Block blob	1.17 MiB	Available
01090e5c-17ee-e611-80f5-fc15b4289b54	1/10/2018, 7:25:37 AM	Block blob	8.83 KiB	Available

This completes this process.