



# 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



Excessive storage of data in Dynamics 365 Customer engagement



No data archival and retention process available as part of the product offering



Compliance with GDPR and other data retention and compliance policies

## Solution



Provided a highly scalable, secured and re-usable solution for:

- 1) Archive data
- 2) Retain data
- 3) Delete post retention period



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



Highly available - Process runs as long as Dynamics 365 and Azure services are available.

## Outcome(s)



Configurable, scalable archival and retention process by system administrator



Lower resource (DB) utilization providing scale and faster performance

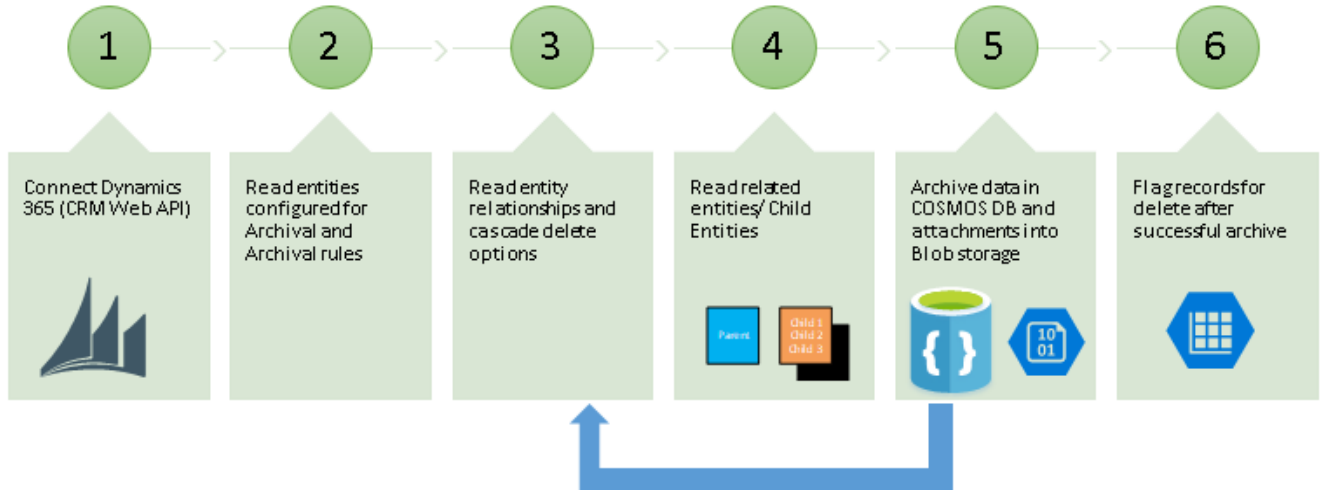


GDPR compliant with configurable data retention policies.

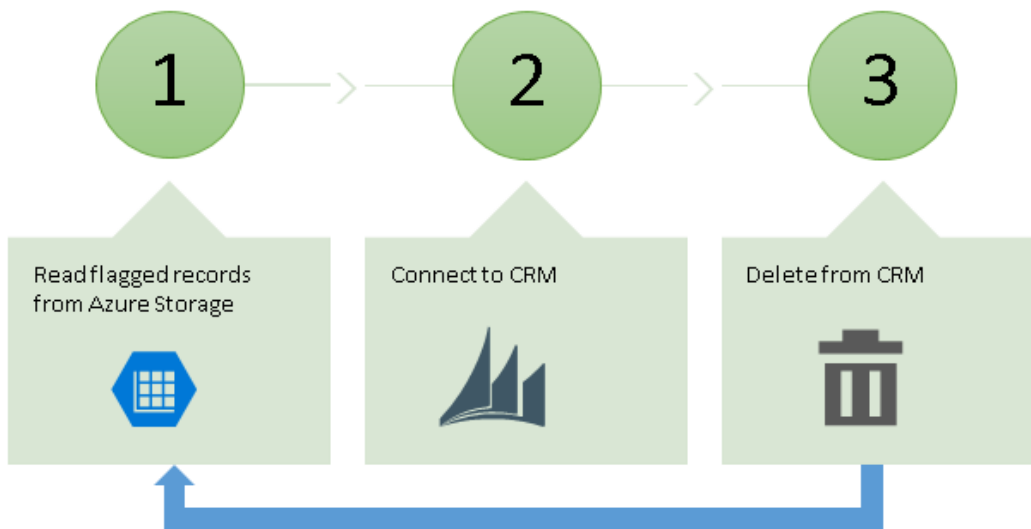


Easy Setup

## 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. Windows Store

## 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.

The screenshot shows the Microsoft Dynamics CRM Solution Explorer interface. The top ribbon includes 'File', 'Save and Close', 'Export Solution', 'Translations', 'Publish All Customizations', 'Prepare Client Customizations', 'Actions', and 'Help'. The solution name is 'Solution: MicrosoftLabs.DataArchival'. The left pane shows the 'Information' tab and a tree view of components under 'Solution MicrosoftLabs.DataArchival...'. The main pane shows 'Managed Properties' with a table of components.

Display Name	Name	Type	State	Customizable	Descri
Archiving Entity	msdyn_archivingentity	Entity	Unmanaged	True	
msdyn_archivalsetup	msdyn_archivalsetup	Web Resource	Unmanaged	True	
msdyn_CRMArchivalSetupPage	msdyn_CRMArchivalSetup...	Web Resource	Unmanaged	True	This web r
Non Archivable Entity	msdyn_nonarchivableentity	Entity	Unmanaged	True	
Site Map		Client Extensions			XML data

1 - 5 of 5 (0 selected) Page 1

Status: Existing

## 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

The screenshot shows the 'Microsoft Dynamics CRM Archival' configuration page for an 'Archiving Entity'. The page has a title bar 'Microsoft Dynamics CRM Archival' and a sub-header 'Archiving Entity'. Below the header, there are four buttons: 'Reset', 'Save', 'Deactivate', and 'Activate'. The main configuration area is divided into three sections:

- Entity:** A text box containing the value 'incident'.
- Fetch XML:** A text area containing the following XML code:

```
<fetch distinct="false" mapping="logical" output-format="xml-platform" version="1.0">
<entity name="incident">
<attribute name="title"/>
<attribute name="ticketnumber"/>
<attribute name="createdon"/>
</entity>
</fetch>
```

Below the text area is a 'Validate XML' button.
- Retain in Archival for:** A text box containing the value '10' and a dropdown menu set to 'Day(s)'. Below the text box is a red note: '\*Accepts only whole numbers.'

### 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.
- **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.

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

Archival Entities Information <span style="float: right;">🔄 🗑️ 📄</span>					
<input type="checkbox"/>	ENTITY	FETCH XML	RETAIN IN ARCHIVAL FOR	OWNER	STATUS
<input type="checkbox"/>	<a href="#">incident</a>	<pre>&lt;fetch distinct="false" mapping="logical" output-format="xml-platform" version="1.0"&gt; &lt;entity name="incident"&gt; &lt;attribute name="title"/&gt; &lt;attribute name="ticketnumber"/&gt; &lt;attribute name="createdon"/&gt; &lt;attribute name="msdyn_revenueimpactamount"/&gt; &lt;attribute name="msdyn_caserevenue"/&gt; &lt;attribute name="msdyn_isrevenueimpacting"/&gt; &lt;attribute name="msdyn_revenutype"/&gt; &lt;attribute name="msdyn_pendingemailcountid"/&gt; &lt;attribute name="incidentid"/&gt; &lt;order descending="false" attribute="title"/&gt; &lt;filter type="and"&gt; &lt;filter type="or"&gt; &lt;condition attribute="createdon" value="2018-01-09" operator="on"/&gt; &lt;condition attribute="createdon" value="2018-01-08" operator="on"/&gt; &lt;/filter&gt; &lt;/filter&gt; &lt;/entity&gt; &lt;/fetch&gt;</pre>	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

Never Archive Entity

<input type="checkbox"/>	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.

## Install from Windows Store

The following instruction is for comprehensive setup. For reference, see the Quick-Start guide.

1. Download and install the Windows Store Application CRM Archival Setup from [here](#). Once the application is installed, it will show up as a Start menu item.

# Archival Configuration

**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, you can skip this step.

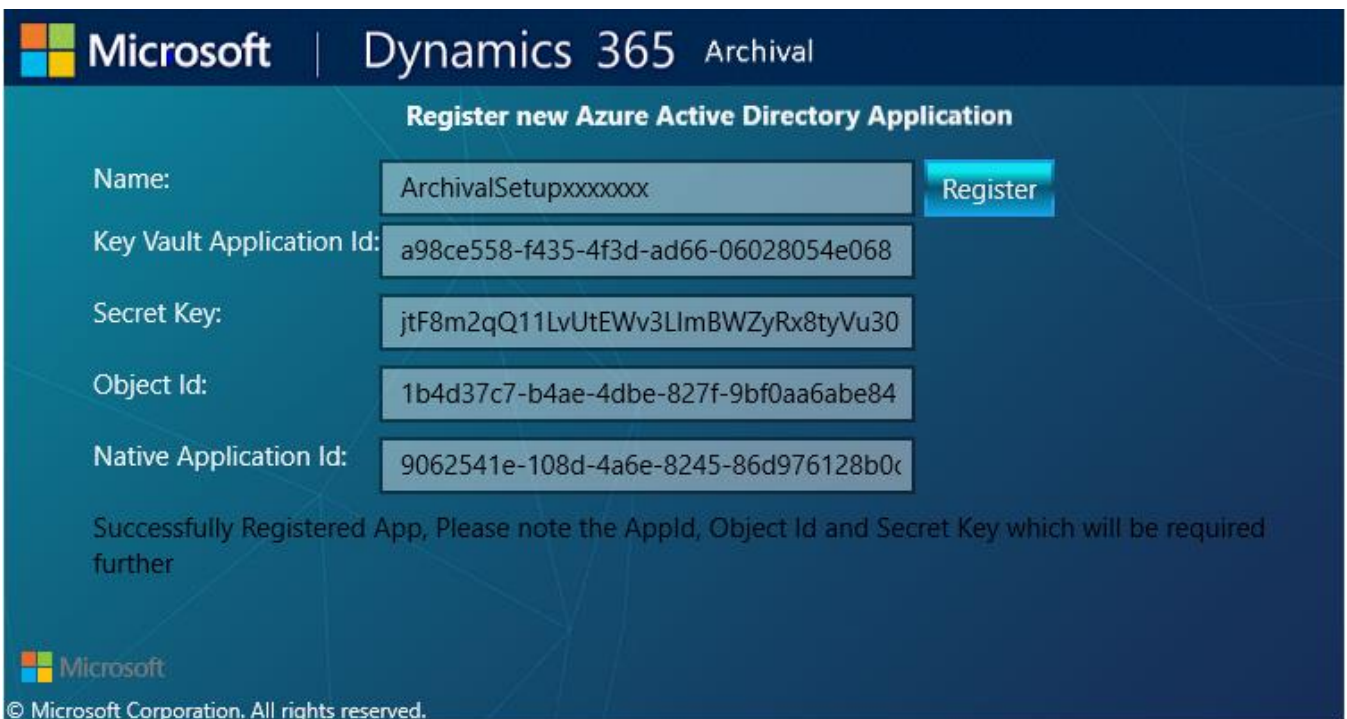
2. Launch Archival Setup app and enter the required details as shown below.

**Note:** For best practice, use upper and lower alphanumeric characters for the App name.



3. Click on the Register button to submit.  
**Note:** You will be prompted to log onto Azure. The **Sign Into Your Account** prompt will appear behind the active window. Alt+Tab to place the active window focus on the **Sign In** prompt and log in.
4. After log in success, the app will register in Azure and provide the IDs and Keys as displayed below.



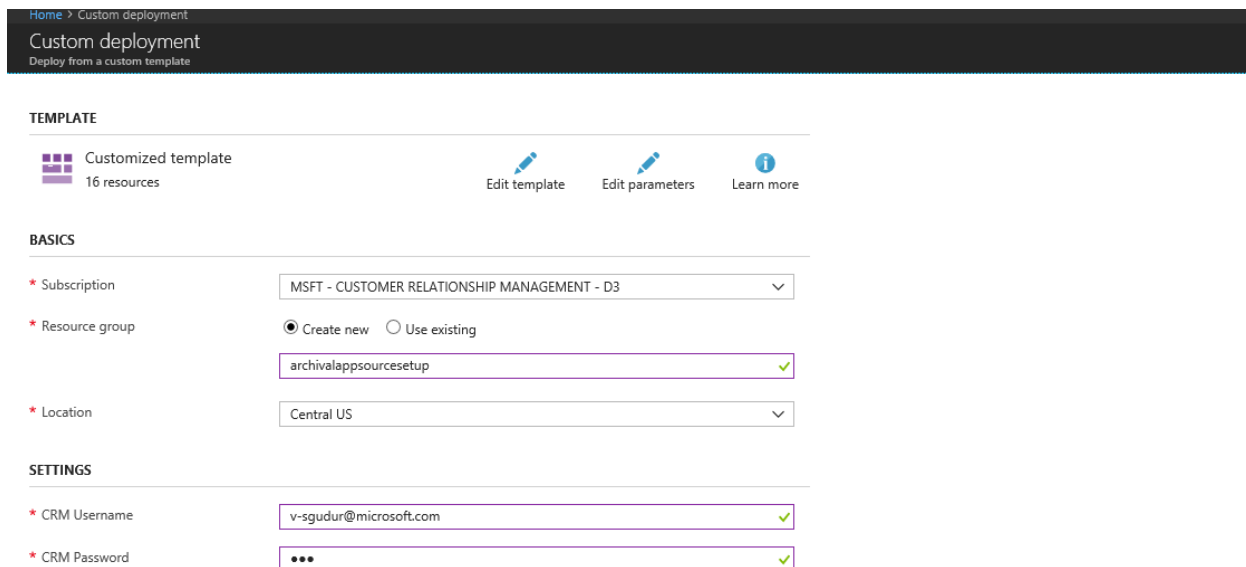


5. **Important:** Copy and save these values to a safe file location as they are required for other configurations.

## 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.



* CRM Resource Url	<input type="text" value="https://cosmiccrmuat.crm.dynamics.com"/>
Web Site Name	<input type="text" value="CRMArchivalWebApp"/>
Key Vault Name	<input type="text" value="crmarchivalkeyvault"/>
Database Account Name	<input type="text" value="crmarchivalcosmosdbacc"/>
Storage Account Name	<input type="text" value="crmarchivalstorageacc"/>
Thread Count	<input type="text" value="50"/>
* Key Vault Application Id	<input type="text" value="cce4094d-92c1-4f6c-a6c3-54c2849be6b9"/>
* Secret Key	<input type="text" value="....."/>
* Object Id	<input type="text" value="b3dcbfb5-d307-40e3-9ae4-2d7324421416"/>
* Native Application Id	<input type="text" value="6fe38563-2a9a-434e-bde2-12ad7bca168c"/>
Hosting Plan Name	<input type="text" value="crmarchivalappplan"/>
CRM Web APIVersion	<input type="text" value="8.1"/>
Skus Name	<input type="text" value="S3"/>
Skus Capacity	<input type="text" value="1"/>
Storageaccount Type	<input type="text" value="Standard_LRS"/>

**TERMS AND CONDITIONS**

By clicking "Purchase," I (a) agree to the applicable legal terms associated with the offering; (b) authorize Microsoft to charge or bill my current payment method for the fees associated the offering(s), including applicable taxes, with the same billing frequency as my Azure subscription, until I discontinue use of the offering(s); and (c) agree that, if the deployment involves 3rd party offerings, Microsoft may share my contact information and other details of such deployment with the publisher of that offering.

Microsoft assumes no responsibility for any actions performed by third-party templates and does not provide rights for third-party products or services. See the [Azure Marketplace Terms](#) for additional terms.

I agree to the terms and conditions stated above

Pin to dashboard

**Purchase**






## 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 CRM logged in user name (email address) with Admin privileges.
- **CRM Password:** Implied.
- **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.
- **Key Vault Application Id:** Paste the existing Key Vault Application Id.
- **Secret Key:** Paste the existing 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.
- **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.

Filter by name...				All types	All locations	No grouping
5 items <input type="checkbox"/> Show all resources						
<input type="checkbox"/>	NAME ↑↓		TYPE ↑↓		LOCATION ↑↓	
<input type="checkbox"/>	 <a href="#">crmarchivalappplan</a>		App Service plan		Central US	...
<input type="checkbox"/>	 <a href="#">crmarchivalcosmosdbacc</a>		Azure Cosmos DB account		Central US	...
<input type="checkbox"/>	 <a href="#">crmarchivalkeyvault</a>		Key vault		Central US	...
<input type="checkbox"/>	 <a href="#">crmarchivalstorageacc</a>		Storage account		Central US	...
<input type="checkbox"/>	 <a href="#">CRMArchivalWebApp</a>		App Service		Central US	...

## Grant Access to the user in the AAD native application.

1. Login to Azure Portal with the CRM user account, then go to the native app in AAD, or click [here](#) to directly go to AAD applications page.
2. Use the Name or Application ID of this native app to search for and open it.
3. Click on **Required Permissions** shown in the right blade below.
4. Then click on **Grant Permissions** button to provision the current user.

testarchivecosnative > Settings > Required permissions

Settings × Required permissions

Filter settings

GENERAL

- Properties >
- Redirect URIs >
- Owners >

API ACCESS

- Required permissions >

TROUBLESHOOTING + SUPPORT

+ Add Grant Permissions

API	APPLICATION PERMI...	DELEGATED PERM
Windows Azure Active Directory	0	1
Dynamics CRM Online (Microsoft.CRM)	0	1

**Important:** Before granting permissions, make sure both applications under the API column are in place (as shown), and if not – then provision them using the **+Add** button.

## 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.

Setting Name	Value	Slot setting
keyvaultclientId	f44afe62-156f-486b-b4ec-327fa9304cb6	<input type="checkbox"/>
keyvaultsecretId	SZya5/OhldbaggiRFzy4kPjcz5r/HWW2AIYPV...	<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+/) << + Add Refresh Logs Delete Properties

**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
- MvSQL In App

## WebJobs

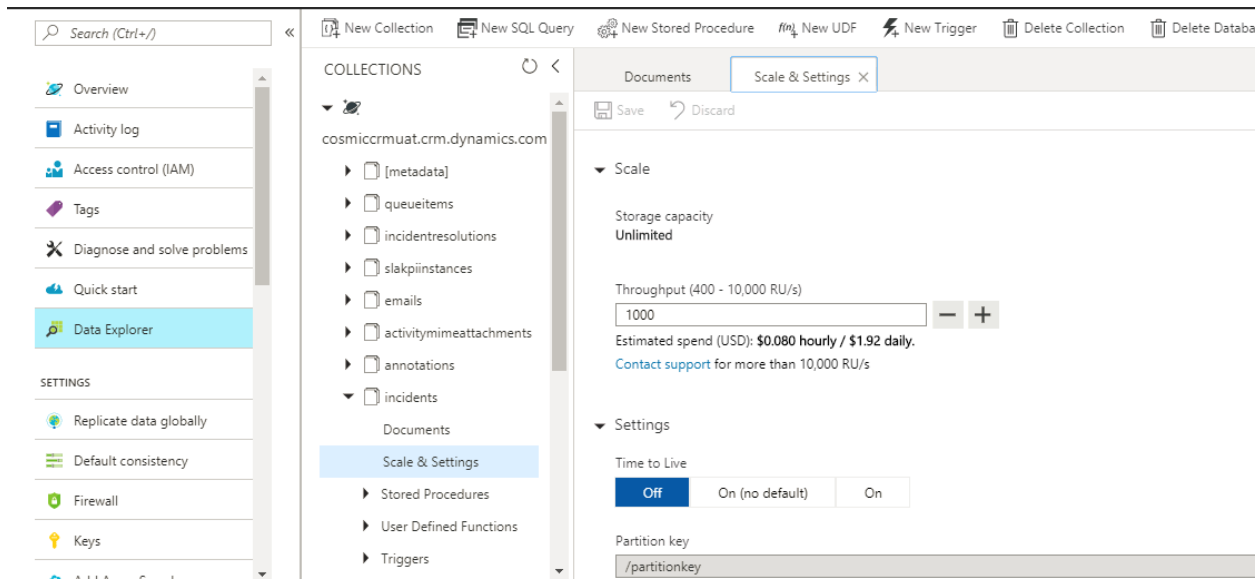
WebJobs provide an easy way to run scripts or programs as background processes in the context of your app.

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.



The screenshot shows the Azure Cosmos DB portal interface. On the left is a navigation pane with 'Data Explorer' selected. The main area displays the 'Scale & Settings' configuration for a collection named 'Documents' within the account 'cosmiccrmuat.crm.dynamics.com'. The 'Scale' section shows 'Storage capacity' set to 'Unlimited' and 'Throughput (400 - 10,000 RU/s)' set to '1000'. Below the throughput input, it states 'Estimated spend (USD): \$0.080 hourly / \$1.92 daily' and includes a link for 'Contact support for more than 10,000 RU/s'. The 'Settings' section shows 'Time to Live' set to 'Off' and 'Partition key' set to '/partitionkey'.

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.

The screenshot shows the Azure Portal interface for the 'Table service' of 'storageuseraccount'. The page includes a navigation bar with 'Home > storageuseraccount > Table service' and a sub-header 'Table service storageuseraccount'. Below the navigation are buttons for 'Refresh', '+ Table', and 'Delete tables'. A blue banner prompts to 'Check out premium Table experience with Azure Cosmos DB'. The main content area displays the 'Storage account' details, including the 'Table service endpoint' (https://storageuseraccount.table.core.windows.net/), 'Status' (Primary: Available), 'Location' (West US), 'Subscription' (MSFT - CUSTOMER RELATIONSHIP MANAGEMENT - D3), and 'Subscription ID' (66d1bf86-261e-4624-af80-9c37a77b5f4a). Below this is a search bar 'Search tables by prefix' and a table listing existing tables:

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

The screenshot shows the Azure Portal interface for the 'Cosmos Database' of 'storageuseraccount'. The page includes a navigation bar with 'Search (Ctrl+)', '+ Add Collection', 'Refresh', 'Move', 'Delete Account', and 'Data Explorer'. The left sidebar contains navigation options like 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Quick start', 'Data Explorer', and 'SETTINGS'. The main content area displays the 'Cosmos Database' details, including 'Status' (Online), 'Resource group' (Archive), 'Subscription' (MSFT - CUSTOMER RELATIONSHIP MANAGEMENT - D3), and 'Subscription ID' (66d1bf86-261e-4624-af80-9c37a77b5f4a). Below this is a 'Collections' table:

ID	DATABASE	THROUGHPUT (RU/S)
[metadata]	cosmiccrmuat.crm.dynamics.com	1000
queueitems	cosmiccrmuat.crm.dynamics.com	1000
incidentresolutions	cosmiccrmuat.crm.dynamics.com	1000
slakpiinstances	cosmiccrmuat.crm.dynamics.com	1000
emails	cosmiccrmuat.crm.dynamics.com	1000
activymimeattachments	cosmiccrmuat.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 → archivlogs

**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.

The screenshot shows the Azure portal interface for a storage container named 'archivlogs'. The left sidebar shows a list of containers, with 'archivlogs' selected. The main area displays a table of blobs within this container. The table has columns for Name, Modified, Blob Type, Size, and Lease State. The blobs are named with a timestamp and a unique ID, and all are of type 'Block blob' with a size of approximately 3.5 MiB and a state of 'Available'.

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).

The screenshot shows the Azure portal interface for a Blob service container named 'annotations'. The left sidebar lists various containers, with 'annotations' highlighted. The main area displays a table of blobs with the following columns: NAME, MODIFIED, BLOB TYPE, SIZE, and LEASE STATE. The selected blob is '00fa4eb2-32de-e611-80ef-fc15b4284d68'.

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.