

# Internal server error while trying to delete ADF with CMK

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## Issue

Customer-facing error Internal server error while trying to delete ADF with CMK

## Error

```
{"error":{"code":"InternalError","message":"Internal error has occurred."}}
```

=====

## Cause

Three possible causes where the ADF backend cannot access their objects anymore lead to the above error.


1. Customer revoked ADF's access to Key vault where the Customer Managed (CMK) key was stored.
2. Customer deleted Key Vault / CMK before deleting ADF.
3. User Assigned Managed Identity (UA-MI) was deleted before ADF.

If they are doing any operation related to CMK, they should do all ADF-related operations first, and then external operations (like Managed Identities or Key Vault operations). For example, if they want to delete all resources, they need to delete the factory first, and then delete the key vault, if they do it in a different order, ADF call will fail as we can't read their objects anymore and we won't be able to validate if delete is possible or not.

## Recommendation

### 1) Customer revoked ADF's access to Key vault where the Customer Managed (CMK) key was stored.


Customers can reassign access to the data factory following permissions: Get, Unwrap Key, and Wrap Key. These permissions are required to enable customer-managed keys in Data Factory.


<https://docs.microsoft.com/en-us/azure/data-factory/enable-customer-managed-key#grant-data-factory-access-to-azure-key-vault> 

Once the permission is provided, the user should be able to delete ADF.

## 2) Customer deleted Key Vault / CMK before deleting ADF.

Due to on eof the requirement of CMK in ADF is to have "Soft Delete" enabled and "Purge Protect" enabled which will have a default retention policy of 90 days. Customers can restore the deleted key


Deleted Key: - <https://docs.microsoft.com/en-us/azure/key-vault/general/key-vault-recovery?tabs=azure-portal#list-recover-or-purge-soft-deleted-secrets-keys-and-certificates> 

Deleted Key Value: - <https://docs.microsoft.com/en-us/azure/key-vault/general/key-vault-recovery?tabs=azure-portal#list-recover-or-purge-a-soft-deleted-key-vault> 

## 3) User Assigned Managed Identity (UA-MI) was deleted before ADF.

Make sure customer follows this step by step with their own factory. Instructions: We'll do this by using REST API calls, you can do this in an HTTP client of your choice in any programming language. If the customer doesn't have anything already set up for REST API calls with Azure authentication, the easiest way to do this would be by using POSTMAN/Fiddler. In the example below, steps are performed on Postman, but if they already have their own HTTP client solution, they can do that too following the same instructions and replacing the same values on their code. Using SDK will also work. Note: They'll need a Bearer token to authenticate the REST API calls, if they are using HTTP client, they can connect using their credentials or service principal. As this is Postman, the easiest way to get it is by looking at the Network traces in the browser developer tools, selecting any calls to azure, and looking at the request headers. They can copy-paste the Bearer Token from there. Remember customer needs to replace all values with their own factory, the example below uses subscription, resource group, and factory name.

### 1. Make a GET call to the factory

- o Method: GET
- o Url: <https://management.azure.com/subscriptions/>   
 <Subscription>/resourcegroups/<ResourceGroup>/providers/Microsoft.DataFactory/factories/<FactoryName?api-version=2018-06-01
- o Response:

```

1  {
2    "name": "akvcmkacsilvaadf",
3    "id": "/subscriptions/d388ef1b-04df-40cc-ab58-e91df34c3932/resourceGroups/cmkreprocasebhuvan/providers/Microsoft.DataFactory/factories/akvcmkacsilvaadf",
4    "type": "Microsoft.DataFactory/factories",
5    "properties": {
6      "provisioningState": "Succeeded",
7      "createTime": "2023-03-03T09:41:40.4045557Z",
8      "version": "2018-06-01",
9      "factoryStatistics": {
10        "totalResourceCount": 0,
11        "maxAllowedResourceCount": 0,
12        "factorySizeInGBUnits": 0,
13        "maxAllowedFactorySizeInGBUnits": 0
14      },
15      "encryption": {
16        "identity": {
17          "userAssignedIdentity": "/subscriptions/d388ef1b-04df-40cc-ab58-e91df34c3932/resourceGroups/synncryptuonacsilva/providers/Microsoft.ManagedIdentity/userAssignedIdentities/synnsencryption",
18        },
19        "vaultBaseUrl": "https://acsilvavault.vault.azure.net",
20        "keyName": "cmkkey",
21        "keyVersion": "8b06e35280b64afe9f462b77b1a2335f"
22      },
23      "publicNetworkAccess": "Enabled"
24    },
25    "eTag": "\"0a00da0-0000-0d00-0000-6401ced40000\"",
26    "location": "westeurope",
27    "identity": {
28      "type": "SystemAssigned,UserAssigned",
29      "principalId": "e8ef0e8-09a6-428e-94b0-5ea0f1578c0b",
30      "tenantId": "72f98b6f-66f1-41af-91ab-2d7cd011db47",
31      "userAssignedIdentities": {
32        "/subscriptions/d388ef1b-04df-40cc-ab58-e91df34c3932/resourceGroups/synncryptuonacsilva/providers/Microsoft.ManagedIdentity/userAssignedIdentities/synnsencryption": {
33          "clientId": "e303dc18-Sce7-4007-98f5-ae2e988f4c2a",
34          "principalId": "fea23216-b879-4cd7-8ace-041b6ce9611e"
35        }
36      }
37    },
38    "tags": {}
39  }

```

2. AN user may need to create a new User-Managed Identity with a different Name (the same name may work, but just to be sure, it's safer to use a different name than the one in the GET response)
3. Modify the encryption. identity property and identity. user-assigned identities to point to the newly created managed identity. Remove the clientId and principalid from the user assigned identity object. Here's my new payload:

```
{
  "name": "akvcmkacsilvaadf",
  "id": "/subscriptions/d388ef1b-04df-40cc-ab58-e91df34c3932/resourceGroups/cmkreprocasebhuvan/providers/Microsoft.DataFactory/factories/akvcmkacsilvaadf",
  "type": "Microsoft.DataFactory/factories",
  "properties": {
    "provisioningState": "Succeeded",
    "createTime": "2023-03-03T09:41:40.4045557Z",
    "version": "2018-06-01",
    "factoryStatistics": {
      "totalResourceCount": 0,
      "maxAllowedResourceCount": 0,
      "factorySizeInGbUnits": 0,
      "maxAllowedFactorySizeInGbUnits": 0
    },
    "encryption": {
      "identity": {
        "userAssignedIdentity": "/subscriptions/d388ef1b-04df-40cc-ab58-e91df34c3932/resourceGroups/cmkreprocasebhuvan/providers/Microsoft.ManagedIdentity/userAssignedIdentities/newmiacsilva",
        "principalId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
        "tenantId": "72f988bf-86f1-41af-91ab-2d7cd011db47",
        "userAssignedIdentities": {
          "/subscriptions/d388ef1b-04df-40cc-ab58-e91df34c3932/resourceGroups/cmkreprocasebhuvan/providers/Microsoft.ManagedIdentity/userAssignedIdentities/newmiacsilva": {
            "clientId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
            "principalId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
            "tenantId": "72f988bf-86f1-41af-91ab-2d7cd011db47",
            "userAssignedIdentities": {}
          }
        }
      },
      "keyName": "cmkkey",
      "keyVersion": "8b06e35280b64afe9f462b77b1a2335f",
      "publicNetworkAccess": "Enabled"
    },
    "eTag": "\"0a00daf9-0000-0d00-0000-6401c0d40000\"",
    "location": "westeurope",
    "identity": {
      "type": "SystemAssigned,UserAssigned",
      "principalId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
      "tenantId": "72f988bf-86f1-41af-91ab-2d7cd011db47",
      "userAssignedIdentities": {
        "/subscriptions/d388ef1b-04df-40cc-ab58-e91df34c3932/resourceGroups/cmkreprocasebhuvan/providers/Microsoft.ManagedIdentity/userAssignedIdentities/newmiacsilva": {
          "clientId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
          "principalId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
          "tenantId": "72f988bf-86f1-41af-91ab-2d7cd011db47",
          "userAssignedIdentities": {}
        }
      }
    },
    "tags": {}
  }
}
```

4. Make a PUT call to the same factory URL passing the new body. It is very important that customers are passing whatever they got in the GET response and only modify the identity. Otherwise, they would override other settings unintentionally.

https://management.azure.com/subscriptions/826dd42-cf75-44c4-aed0-da8fc90b86cc/resourceGroups/ADF-CMK-TEST/providers/Microsoft.DataFactory/factories/ntadf-cmk-test3?api-version=2018-06-01

PUT https://management.azure.com/subscriptions/826dd42-cf75-44c4-aed0-da8fc90b86cc/resourceGroups/ADF-CMK-TEST/providers/Microsoft.DataFactory/factories/ntadf-cmk-test3?api-version=2018-06-01

Params Authorization Headers (9) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL Text

```
1 {
2   "name": "ntadf-cmk-test3",
3   "id": "/subscriptions/826dd42-cf75-44c4-aed0-da8fc90b86cc/resourceGroups/ADF-CMK-TEST/providers/Microsoft.DataFactory/factories/ntadf-cmk-test3",
4   "type": "Microsoft.DataFactory/factories",
5   "properties": {
6     "provisioningState": "Succeeded",
7     "createTime": "2023-07-22T17:03:01.2863232Z",
8     "version": "2018-06-01",
9     "factoryStatistics": {
10      "totalResourceCount": 0,
11      "maxAllowedResourceCount": 0,
12      "factorySizeInGbUnits": 0,
13      "maxAllowedFactorySizeInGbUnits": 0
14    },
15    "encryption": {
16      "identity": {
17        "userAssignedIdentity": "/subscriptions/826dd42-cf75-44c4-aed0-da8fc90b86cc/resourceGroups/ADF-CMK-TEST/providers/Microsoft.ManagedIdentity/userAssignedIdentities/new-aci-mi1",
18        "principalId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
19        "tenantId": "72f988bf-86f1-41af-91ab-2d7cd011db47",
20        "userAssignedIdentities": {
21          "/subscriptions/826dd42-cf75-44c4-aed0-da8fc90b86cc/resourceGroups/ADF-CMK-TEST/providers/Microsoft.ManagedIdentity/userAssignedIdentities/new-aci-mi1": {
22            "clientId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
23            "principalId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
24            "tenantId": "72f988bf-86f1-41af-91ab-2d7cd011db47",
25            "userAssignedIdentities": {}
26          }
27        }
28      },
29      "keyName": "adf-key3",
30      "keyVersion": "ba6699f2ea7647e8bd28e5ca1ca4664",
31      "publicNetworkAccess": "Enabled"
32    },
33    "eTag": "\"20004fa4-0000-0700-0000-60f9b0700000\"",
34    "location": "westus",
35    "identity": {
36      "type": "SystemAssigned,UserAssigned",
37      "principalId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
38      "tenantId": "72f988bf-86f1-41af-91ab-2d7cd011db47",
39      "userAssignedIdentities": {
40        "/subscriptions/826dd42-cf75-44c4-aed0-da8fc90b86cc/resourceGroups/ADF-CMK-TEST/providers/Microsoft.ManagedIdentity/userAssignedIdentities/new-aci-mi1": {
41          "clientId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
42          "principalId": "e8ef6e8-09a6-428e-94b0-5ea0f1578c0b",
43          "tenantId": "72f988bf-86f1-41af-91ab-2d7cd011db47",
44          "userAssignedIdentities": {}
45        }
46      }
47    },
48    "tags": {}
49  }
50 }
```

After the call succeeds, customers will be able to see their entities again and retry deleting.

**How good have you found this content?**

