Use service accounts

Some data sources support data transfer authentication by using a <u>service account</u> (/iam/docs/service-account-overview) through the Google Cloud console, API, or the `bq` command line. A service account is a Google Account associated with your Google Cloud project. A service account can run jobs, such as scheduled queries or batch processing pipelines by authenticating with the service account credentials rather than a user's credentials.

You can update an existing data transfer with the credentials of a service account. For more information, see <u>Update data transfer credentials</u> (#update_data_transfer_credentials).

The following situations require updating credentials:

- Your transfer failed to authorize the user's access to the data source:

  ```
  Error code 401 : Request is missing required authentication credential.
  UNAUTHENTICATED
  ```

- You receive an **INVALID_USER** error when you attempt to run the transfer:

  ```
  Error code 5 : Authentication failure: User Id not found. Error code:
  INVALID_USERID
  ```

To learn more about authenticating with service accounts, see <u>Introduction to authentication</u> (/bigquery/docs/authentication#service_accounts).

Data sources with service account support

BigQuery Data Transfer Service can use service account credentials for transfers with the following:

- <u>Cloud Storage</u> (/bigquery/docs/cloud-storage-transfer)

- <u>Amazon Redshift</u> (/bigquery/docs/migration/redshift-overview)

- <u>Amazon S3</u> (/bigquery/docs/s3-transfer-intro)

- <u>Campaign Manager</u> (/bigquery/docs/doubleclick-campaign-transfer)

- <u>Dataset Copy</u> (/bigquery/docs/copying-datasets)

- [Display & Video 360](/bigquery/docs/display-video-transfer) (/bigquery/docs/display-video-transfer)

- [Google Ad Manager](/bigquery/docs/doubleclick-publisher-transfer) (/bigquery/docs/doubleclick-publisher-transfer)

- [Google Ads](/bigquery/docs/google-ads-transfer) (/bigquery/docs/google-ads-transfer)

- [Google Merchant Center](/bigquery/docs/merchant-center-transfer) (/bigquery/docs/merchant-center-transfer)

- [Google Play](/bigquery/docs/play-transfer) (/bigquery/docs/play-transfer)

- [Scheduled Queries](/bigquery/docs/scheduling-queries#using_a_service_account) (/bigquery/docs/scheduling-queries#using_a_service_account)

- [Search Ads 360](/bigquery/docs/search-ads-transfer) (/bigquery/docs/search-ads-transfer)

- [Teradata](/bigquery/docs/migration/teradata-overview) (/bigquery/docs/migration/teradata-overview)

- [YouTube Content Owner](/bigquery/docs/youtube-content-owner-transfer) (/bigquery/docs/youtube-content-owner-transfer)

Before you begin

- Verify that you have completed all actions required in [Enabling BigQuery Data Transfer Service](/bigquery/docs/enable-transfer-service) (/bigquery/docs/enable-transfer-service).

- Grant Identity and Access Management (IAM) roles that give users the necessary permissions to perform each task in this document.

Required permissions

To update a data transfer to use a service account, you must have the following permissions:

- The `bigquery.transfers.update` permission to modify the transfer.

  The predefined `roles/bigquery.admin` IAM role includes this permission.

- Access to the service account. For more information about granting users the service account role, see [Service Account User role](/iam/docs/service-account-permissions#user-role) (/iam/docs/service-account-permissions#user-role).

Ensure that the service account you choose to run the transfer has the following permissions:

- The `bigquery.datasets.get` and `bigquery.datasets.update` permissions on the target dataset. If the table uses [column-level access control](#)

(/bigquery/docs/column-level-security-intro), the service account must also have the `bigquery.tables.setCategory` permission.

The `bigquery.admin` predefined IAM role includes all of these permissions. For more information about IAM roles in BigQuery Data Transfer Service, see Introduction to IAM (/bigquery/docs/access-control).

- Access to the configured transfer data source. For more information about the required permissions for different data sources, see Data sources with service account support (#data_sources_with_service_account_support).

- For Google Ads transfers, the service account must be granted domain-wide authority. For more information, see Google Ads API Service Account guide (https://developers.google.com/google-ads/api/docs/oauth/service-accounts#service_account_access_setup) .

Update data transfer credentials

Console (#console)bq (#bq)Java (#java)Python (#python)

Before trying this sample, follow the Python setup instructions in the BigQuery quickstart using client libraries (/bigquery/docs/quickstarts/quickstart-client-libraries). For more information, see the BigQuery Python API reference documentation (/python/docs/reference/bigquery/latest).

To authenticate to BigQuery, set up Application Default Credentials. For more information, see Set up authentication for client libraries (/bigquery/docs/authentication#client-libs).

```python
from google.cloud import bigquery_datatransfer
from google.protobuf import field_mask_pb2

transfer_client = bigquery_datatransfer.DataTransferServiceClient()

service_account_name = "abcdef-test-sa@abcdef-test.iam.gserviceaccount.com"
transfer_config_name = "projects/1234/locations/us/transferConfigs/abcd"
```

```
transfer_config = bigquery_datatransfer.TransferConfig(name=transfer_confi

transfer_config = transfer_client.update_transfer_config(
    {
        "transfer_config": transfer_config,
        "update_mask": field_mask_pb2.FieldMask(paths=["service_account_nar
        "service_account_name": service_account_name,
    }
)

print("Updated config: '{}'".format(transfer_config.name))
```