Cloudiway File migration

Migrating from Google Drive

Document history

Date	Editor	Change details
14/11/2016	WR	First publication.
30/03/2017	WR	Updated screen dumps for new platform launch.

Table of contents

1 File migration with Cloudiway

Migrating from Google Drive is a straightforward process, whether you're migrating to another Google Drive, or to SharePoint or OneDrive (or a mix of both). The Cloudiway file migration platform ensures that your file migration runs smoothly and quickly.

File migration is performed in four steps:

1. Create the connectors

2. Import your user list

3. Perform preprocessing (admin access and target resource creation)

4. Migrate

In addition, Cloudiway provides some configuration and monitoring tools so you can watch the progress of your migration. This guide explains all the steps required from start to finish.

2 Security

We take your privacy and security seriously at Cloudiway, and we have invested significant effort into making our platform and your data secure. Cloudiway provides a cloud-based application hosted in Windows Azure. It means that the software and data are centrally hosted and accessed by clients using a web browser and internet connection. In addition, Cloudiway's SaaS benefits from Windows Azure's certifications, ensuring security of the infrastructure, network and physical security layers of the Cloudiway cloud.

For total assurance, Cloudiway provides auditing tools, secure, authenticated data connections and a logging system. More specifically:

- Cloudiway doesn't store your mail, files or site data
- the migration takes place in memory only: the migration engine connects to the source, pulls data and pushes it in real time;
- connections to the source and the target are done using HTTPS so no data is transferred unencrypted over the internet; and,
- nothing is stored internally: no data persists in the platform.*

*For the delta pass mechanism, the unique file ID is used. This ensures that no data is duplicated, and for efficiency, only the changes are propagated. We automatically delete inactive records after 90 days, or upon request.

In addition, because the Cloudiway platform needs credentials to connect to the source and the target, you define connectors to connect to them and enter credentials that will be used for the connection. These credentials are stored encrypted using AES 256.

For complete peace of mind, we recommend that you create a temporary migration account during your migration which you can delete at the completion of your project.

3   Performance

Cloudiway's software platform has been designed and developed to support large migrations.

The on-demand migration engine is able to allocate the migration capacity that you need to migrate the volume of data of your choice in the time slot that you have allocated for your migration.

Google and Office 365 can heavily throttle users, during migration. When you perform too many calls, the number of calls that can be performed each minute might be decreased, thus reducing the migration throughput. Cloudiway constantly attempts to work at the maximum capacity allowed and is able to achieve excellent throughput.

4   File migration scope

4.1   What can be migrated

When migrating from Google Drive, all of the following items can be migrated:

- Documents
- Spreadsheets
- Slideshows
- Folders
- Permissions
- Uploaded files (eg: .pdf, .jpg)
- Google Drawings

4.2   Migration considerations

Migrating from Google Drive a straightforward process. All data can be migrated without any changes to the source structure or permissions. Any users with permissions will need to be listed in a mapping table in order for their permissions to be migrated.

4.3   Audience

This guide is aimed at experienced system administrators who are capable of connecting to remote systems and using a variety of administration tools.

Although we provide support for our own products, we do not provide support for third party products such as PowerShell or server administration of Google.

If you are concerned you might have any difficulty completing these steps, please consider a solution with our consulting team, contactable via presales@cloudiway.com. This will ensure a fast, cost-effective and stress-free implementation.

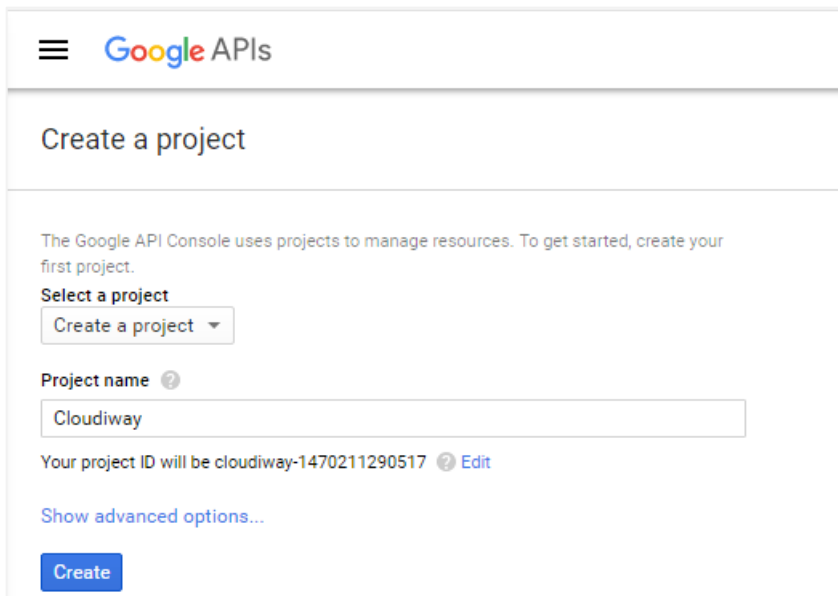## 5 Pre-migration configuration

5.1 Before you start

Before you start, you will need to ensure you have the details outlined in the following table.

Name	Description	Location
Cloudiway login	Stores details and provides communication between the systems you already use.	https://apps.cloudiway.com
Knowledge base access	Our extensive knowledge base is always accessible, with videos, troubleshooting tools, samples and more.	http://kb.cloudiway.com
G Suite API console	Required to enable APIs and to download the G Suite private key. This can be accessed via your Google Admin account.	https://console.developers.google.com
SharePoint administrator account	This doesn't have to be the primary SharePoint admin account. It does need to be a user account with permissions to the SharePoint site collection.	We recommend you create a migration account especially for migration. After all migrations are complete, simply delete this account. We provide steps below to help you set up an account if you don't already have one.

5.2   G Suite — Create and set up a service account

You can create a project in your Google service account, where you can enable APIs and create a project key. Cloudiway needs this key to open communication with G Suite.
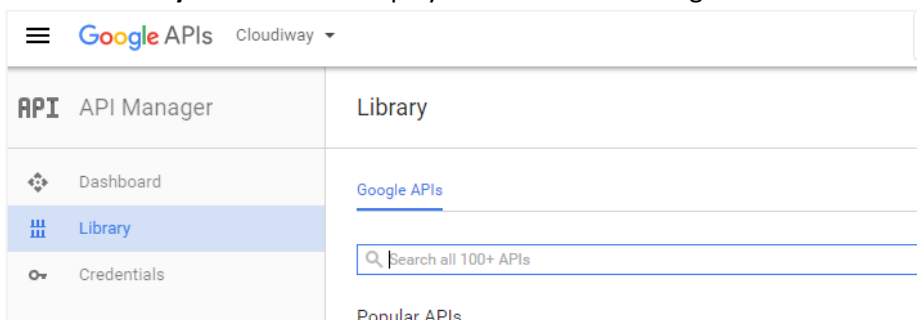
1.   In your browser, go to http://console.developers.google.com to launch the **Google API manager**

2.   Click on **Credentials** on the left. If you already have a project, you can jump to step 4. If you don't have any projects set up, you will need to create one before you continue.

3.   Click on the **Create a project** button, and add a meaningful name to **Project name** (such as 'Cloudiway') and click the **Create** button

A message might appear prompting you to create credentials. If it does, you can simply ignore it for now (we'll create them later).
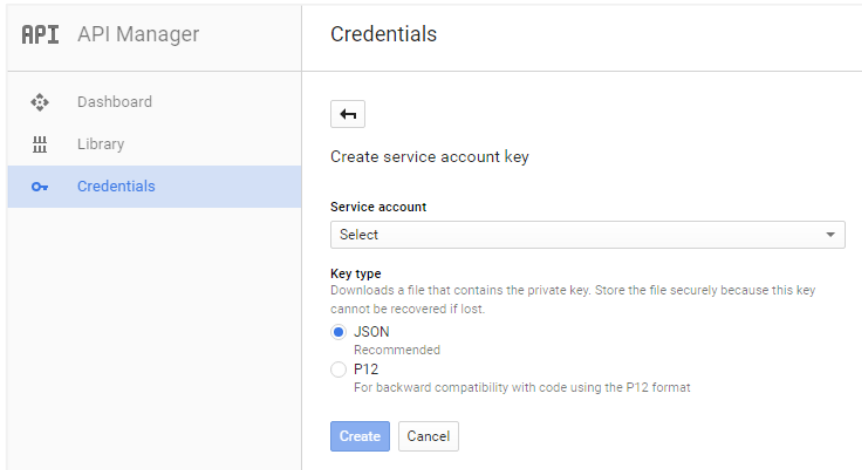
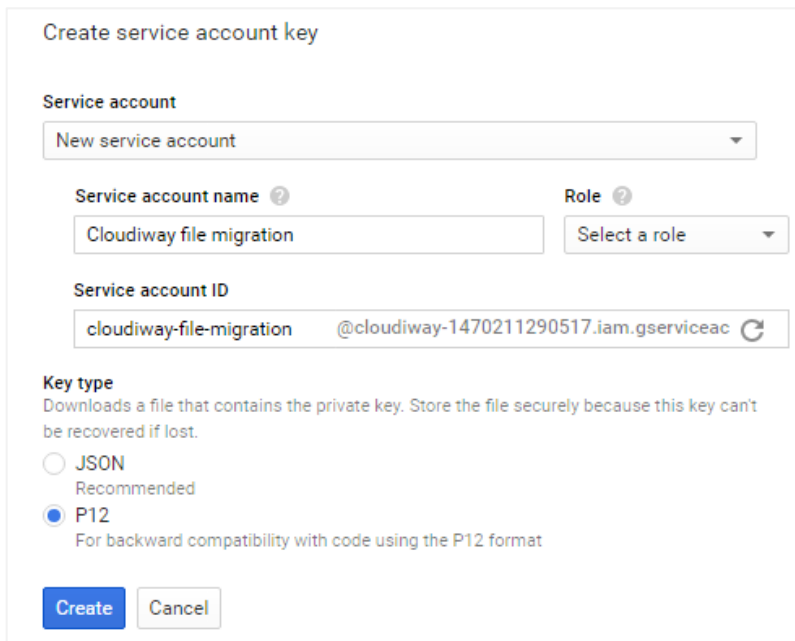4.   Click on **Library** on the left to display a search bar for Google APIs

5.   Type Drive API and search for it (information about the API will be displayed)

6. Click on the **ENABLE API** link
    Once the API has been enabled (the link will change to display **DISABLE**): some other APIs might be automatically enabled, or you might be using them for other migrations such as mail migration. You can check which APIs are activated by clicking on **Dashboard** on the left.

7. Click on **Credentials** on the left and from the **Create credentials** button, click on **Service account key**. The following screen will appear:


8. Click on **New service account** from the dropdown menu

9. Give the service account a recognizable name in **Service account name** (such as 'Cloudiway file migration'); you can leave the **Role** field unselected as it's not used by Cloudiway

10. Click on the **P12** radio button

11. Click on the **Create** button
     The following message will appear:
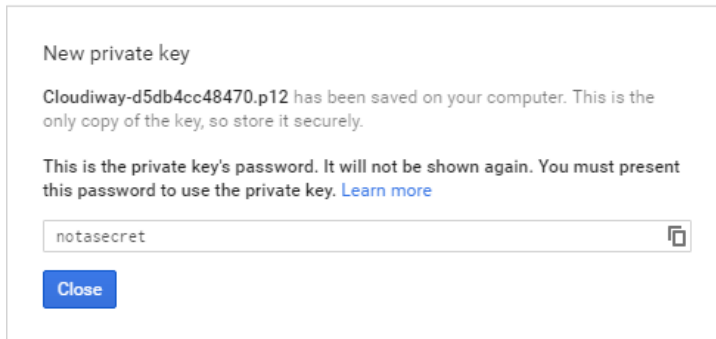
12. Once you have read and understood the message (and take note of where the downloaded key is: you will need to upload it to Cloudiway later), click on the **Close** button

13. At the far right of the screen, click on the link for **Manage service accounts**

14. A list of service accounts will appear. Find the one with the name you just created, and click on the option dots (⋮) on the far right, then select **Edit**

15. Tick the checkbox for **Enable G Suite Domain-wide Delegation** and type a product name into **Product name for the consent screen**, if prompted:
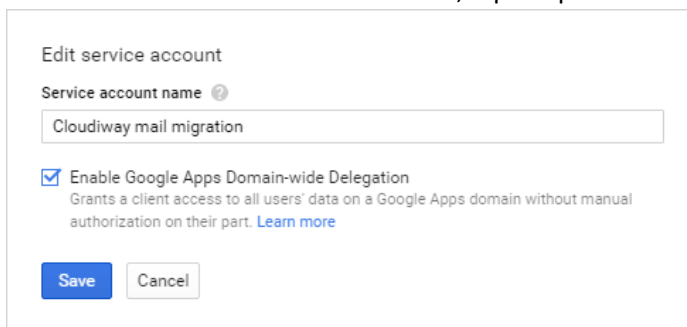

16. Click on the **Save** button

5.3   G Suite — Set permissions for the service account

After you've created a service, you can use the Google Admin console to manage the service and its API calls. These steps show how to grant access for the service account you created previously.

1. Ensure that you are still logged in to http://console.developers.google.com and from **Service Accounts** on the left, locate the Cloudiway file migration service account

2. Click on **View Client ID** on the far right, and copy the number displayed in **Client ID**

Client ID	112352550708593494580
Service account	Cloudiway mail migration
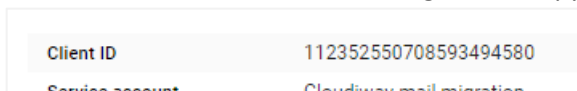
3. In a new browser tab, go to https://admin.google.com and login with your Admin console credentials

4. Click on **Security**, then **Advanced settings** (you might need to click on **Show more** to see this)

5. Click on **Manage API client access**
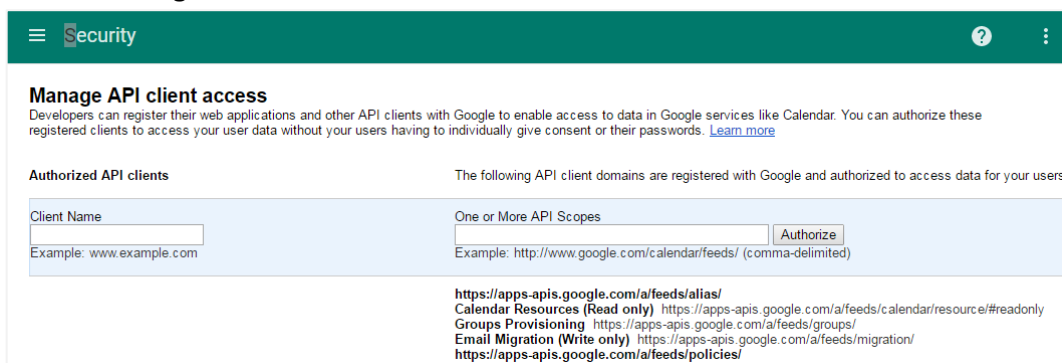
6. Paste the number you copied into **Client Name**

7. Click in the **One Or More API Scopes** field and add the following scopeS:

    ```
    https://www.googleapis.com/auth/drive
    ```

    NOTE: 1. Each scope must be separated by a comma.
    2. Some scopes require slashes (**/**) at the end and others don't: please use the above strings.
    3. If you add another scope later, existing scopes will be removed: you need to add the whole list at the same time.
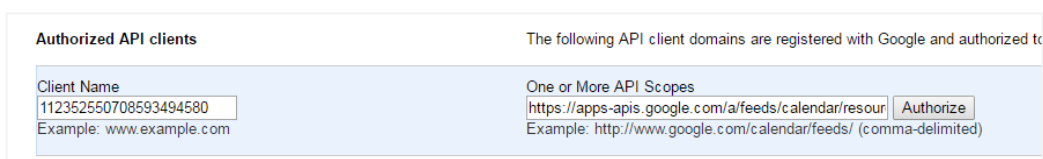
8. Click on the **Authorize** button

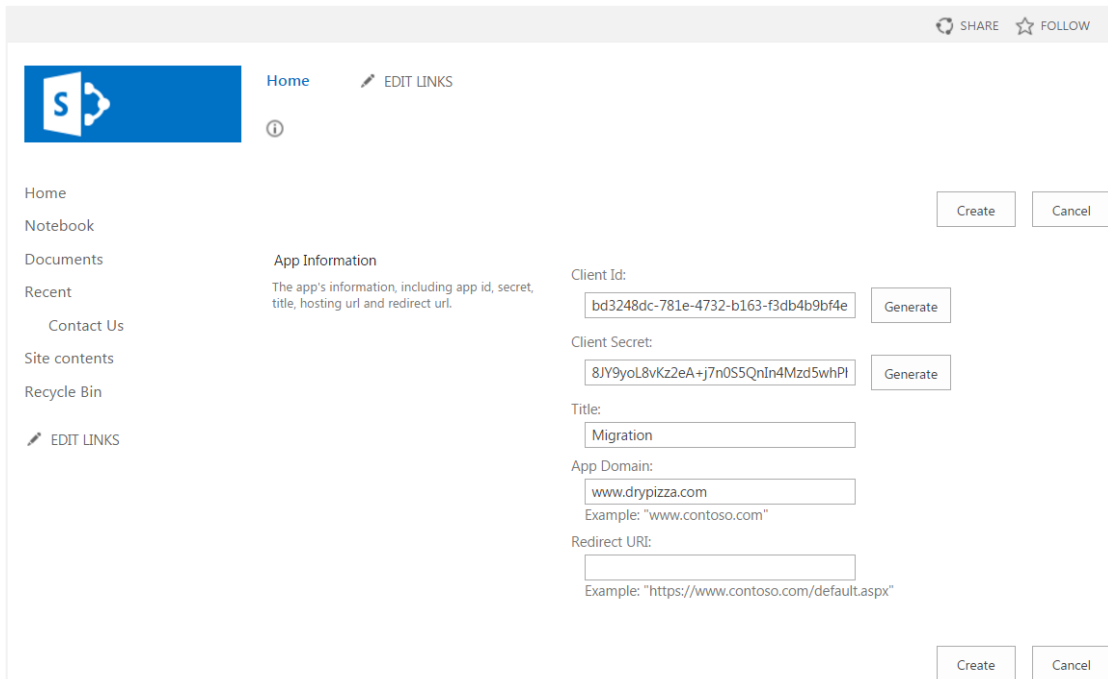9. Check that the scopes were registered by looking for them next to the client ID you pasted

5.4 Office 365 — Grant your admin account access for OneDrive migration

This section is only needed if your target migration is OneDrive or SharePoint. If you're migrating between Google Drives, you can skip this section.

By default, only an individual user has access to his or her OneDrive. Even administrators of the tenant do not have access to users' OneDrives. Cloudiway takes care of the complex tasks of setting up OneDrive permissions. In addition, a user's OneDrive is only provision upon their first connection to OneDrive.
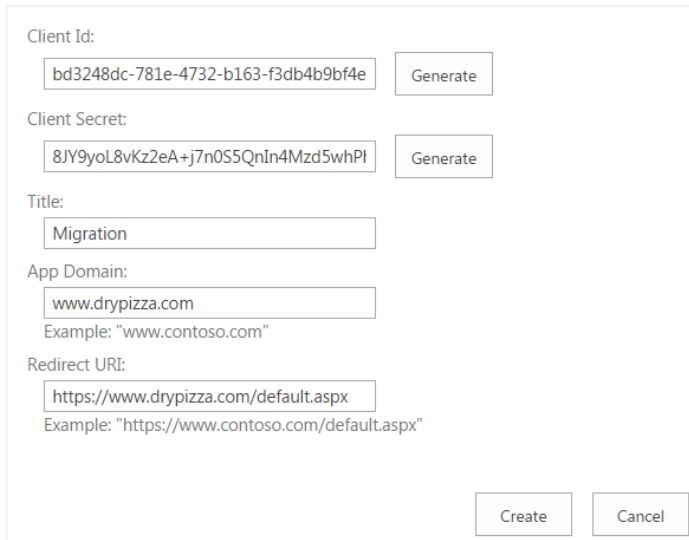
To automatically set these permissions *and* provision the OneDrive, the Cloudiway platform needs to be granted access at your target tenant. This means it needs an App ID, App Secret and App Realm. In the following steps, we'll use your migration admin account to create a new AppID and App Secret. Once created, we'll set tenant permissions followed by site collection permissions, then get the App Realm.

1. From your browser, login with admin access to
    https://`yourdomain`.sharepoint.com/_layouts/15/appregnew.aspx

2. Generate a new **Client Id** and **Client Secret** using the buttons

3. Type a title for your application in the **Title** field

4. Type your domain name (eg: drypizza.com) in the **App Domain** field

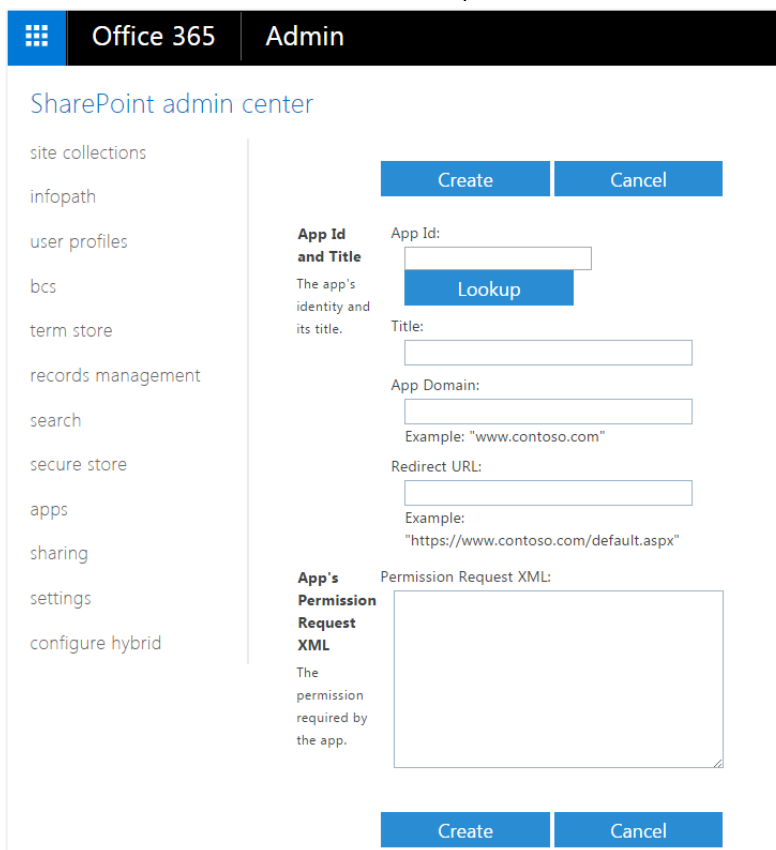5. Use a default address in the **Redirect URL** field (it's not used by Cloudiway)

6. Copy and paste your client ID and client secret details to a text editor for future use (the client secret won't be displayed after creation, so make sure you have a safe copy)

7. Click on the **Create** button to create the application and receive a confirmation message

8. Go to https://`yourdomain`-admin.sharepoint.com/_layouts/15/appinv.aspx (note the addition of **-admin** in the tenant name)

9. Paste your client ID into the **App Id** field then click on the **Lookup** field

10. Copy the following XML code into the **Permission Request XML** field:

```
<AppPermissionRequests  AllowAppOnlyPolicy="true" >
<AppPermissionRequest Scope="http://sharepoint/content/tenant"
Right="FullControl" />
</AppPermissionRequests>
```

Don't change any part of the XML code: you only need to copy it as is. In particular, the scope here must be `tenant`.

11. Click on the **Create** button
    A confirmation window will appear asking if you trust the application:
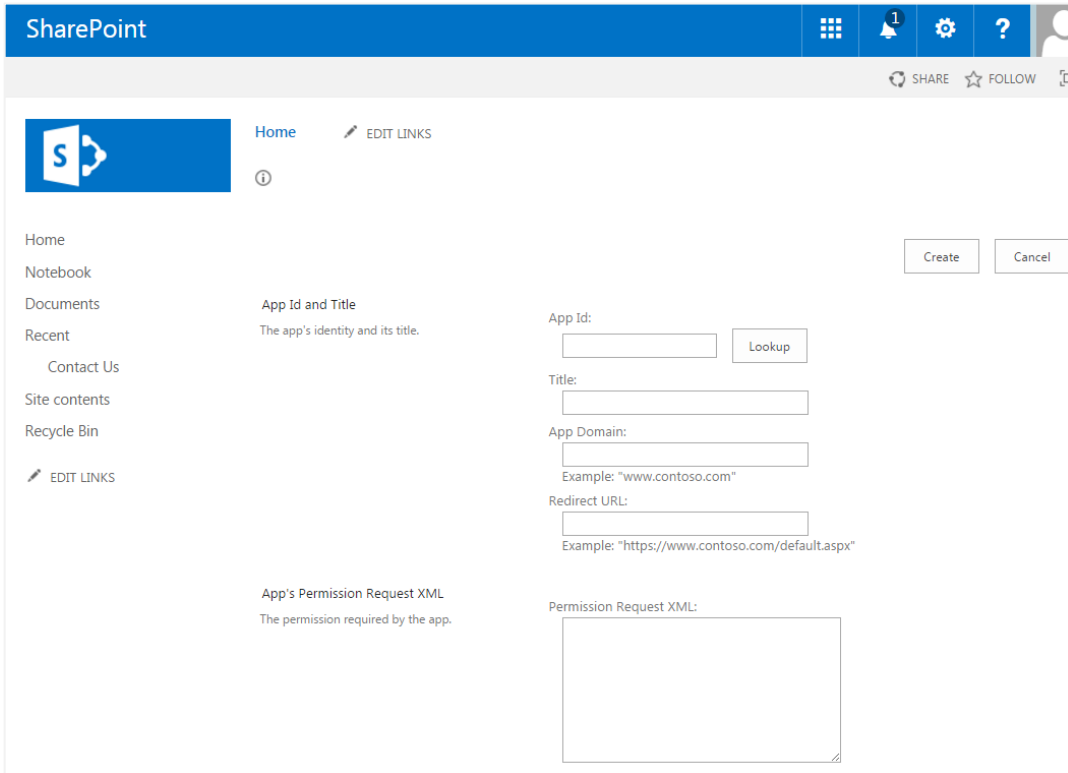
12.   Click on the **Trust It** button

13.   Go to https://yourdomain-my.sharepoint.com/_layouts/15/appinv.aspx (note the addition of **-my** in the tenant name)

14.   Paste your client ID into the **App Id** field then click on the **Lookup** field

15.   Copy the following XML code into the **Permission Request XML** field:

```
<AppPermissionRequests  AllowAppOnlyPolicy="true" >
<AppPermissionRequest
Scope="http://sharepoint/content/sitecollection"
Right="FullControl" />

</AppPermissionRequests>
```

Don't change any part of the XML code: you only need to copy it as is. In particular, the scope here must be `sitecollection`.

16.   Click on the **Create** button, then the **Trust It** button

17.   Go to https://yourdomain-my.sharepoint.com/_layouts/appprincipals.aspx

The text after the @ symbol in the App Identifier is the App Realm GuID

18.   Locate the app ID you just created and copy the text to the right of the @ symbol and paste it into a text editor for later use: you can now close the window

6 Use the Cloudiway platform to migrate your files

6.1 Create your source connector

For Cloudiway to migrate your files, it needs to be able to communicate with both your source and target domains. To do this, Cloudiway uses connectors, which are configured on apps.cloudiway.com. You will need to set up a connector for each source tenant you wish to migrate and each target tenant that files should be migrated to. Follow the steps below to configure your connectors.
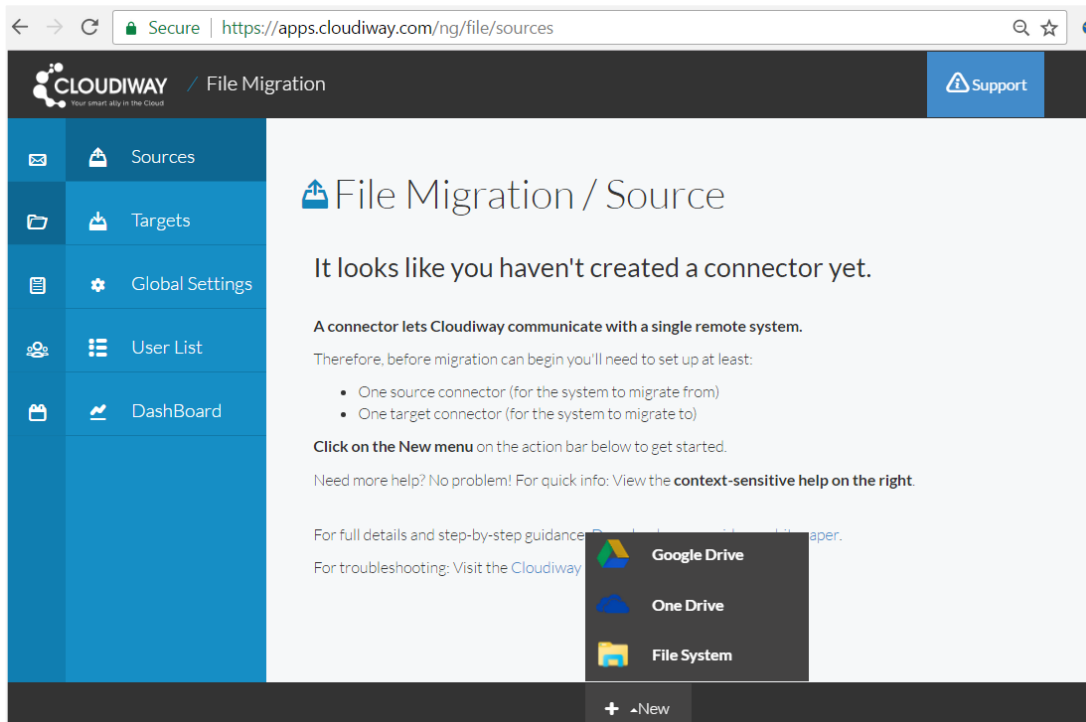
1. From your browser, go to https://apps.cloudiway.com and login
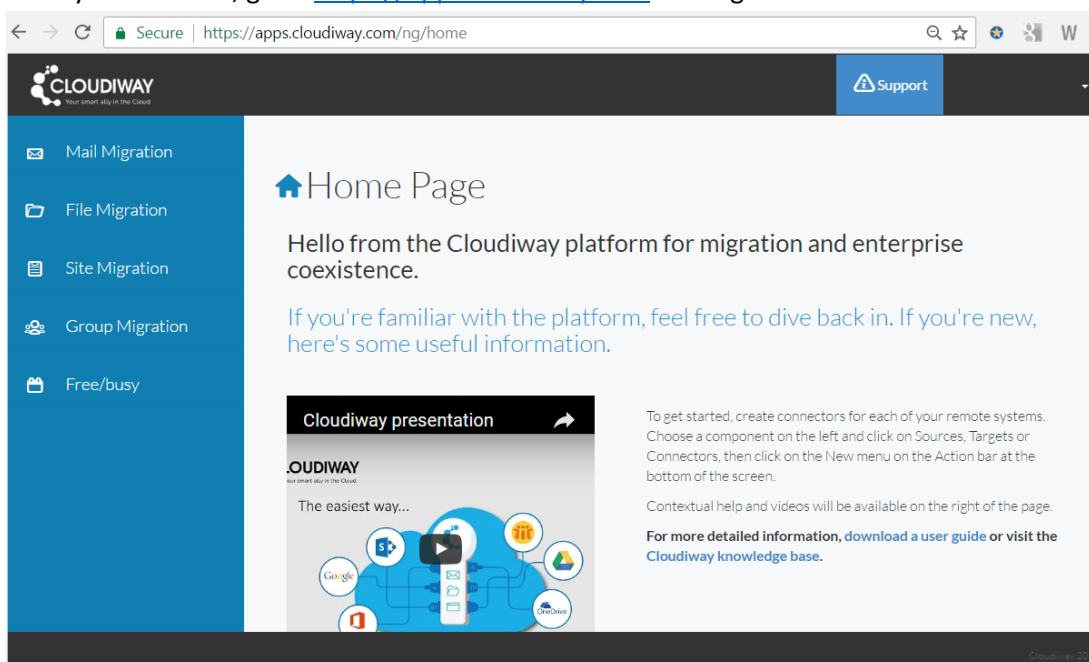
You can choose to manually set up your connectors, or you can use the simpler process of the wizard. The steps below will walk you through the manual process.

2. Click on **File Migration** on the left, then **Sources**

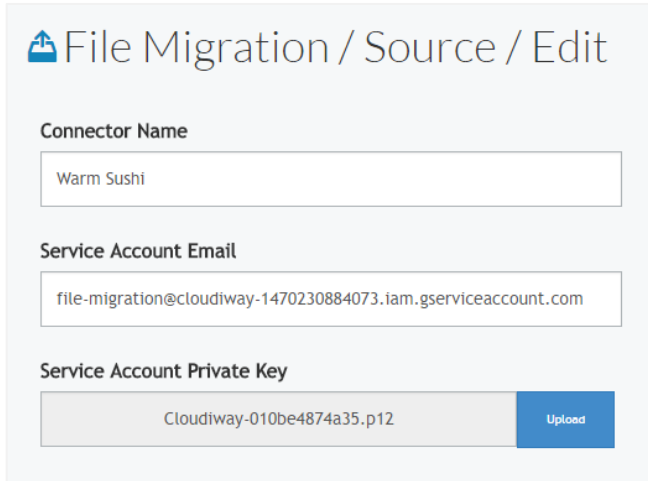3. Click on the **+ New** option on the action bar at the bottom of the screen

4. Click on **Google Drive** and type a meaningful name in **Connector name**
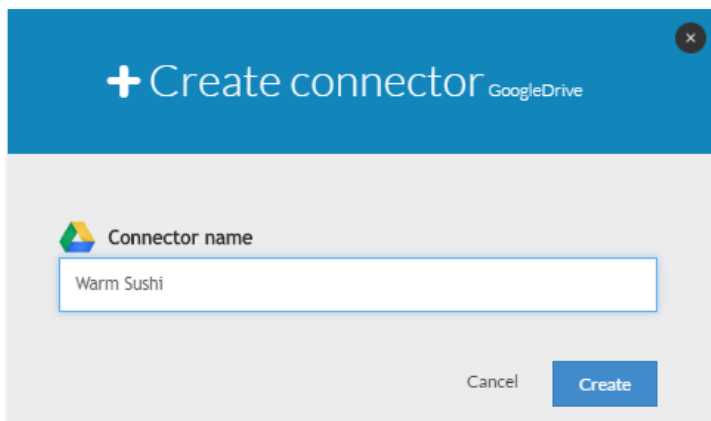
5. Click on the **Create** button

6.   Paste in your service account email and upload the service account private key that you downloaded earlier

7.   Click on the **Save** button at the bottom of the screen

6.2 Create your target connector

The Cloudiway platform needs to communicate with both your source and target destinations in order to migrate your data. You have a choice of targets, including Google Drive, OneDrive and SharePoint.

In addition, you can migrate to a mix of both OneDrive account and SharePoint sites. You must set up a target connector for each type of target you wish to migrate to.

1.   Click on **File Migration** on the left, then **Targets**

2.   Click on the **+ New** option at the bottom of the screen

3.   Choose the type of target connector you wish to use and type a meaningful name in **Connector name**

4.   Click on the **Create** button

5.   If you've chosen a Google Drive connector, paste in your service account email and upload the service account private key, just as you did for the source connect: you can now skip to the next section

6.   If you've chosen a OneDrive target, enter the name of your tenant (to create the target URL)

Name of the Tenant

drypizza

Url

https://drypizza-my.sharepoint.com

Eg: https://company-my.sharepoint.com

Migration Account

filemigration@drypizza.onmicrosoft.com

The account doesn't have to be administrator. (eg. cloud@company.com)

And add the corresponding Client ID, Client Secret and App Realm that you retrieved earlier

Client ID

bd32-48dc-781e-4732-b163-f3db4b9bf4e

Client Secret

8JY9yoL8vKz2eA+j7n055QnIn4Mzd5whPH

App Realm

5ca7da10-d963-4967-903f-d2e8cfc5b398

NOTE: Remember, it's possible to migrate to a mix of both OneDrive accounts and SharePoint sites. If you plan to migrate to both, you will need to create a connector for each target (OneDrive and SharePoint). If, for example, you have two separate SharePoint sites, create a connector for each. Repeat the steps above to create multiple connectors.

6.3   Import or create your users

In order to migrate permissions associated with every file migrated, you can upload your list of users to a mapping table. There are a number of ways to add users to the mapping table. These include:

- CSV file upload;
- Cloudiway's Import Users tool (using IAM); and,
- creation of single users.

Regardless, each user will need to be assigned a license type — Trial (limited to 100 MB), Standard, or No License (used for adding users to your mapping table so it's complete before migration starts). The Cloudiway platform queries your user list (mapping table) when migrating each file so that the correct permissions can be migrated too. It's therefore important that your user list is fully complete before starting any migration.

6.3.1 Option 1: CSV import

If you have a CSV file of all your users, you can upload the file to Cloudiway. The file must have the following fields in the header row:
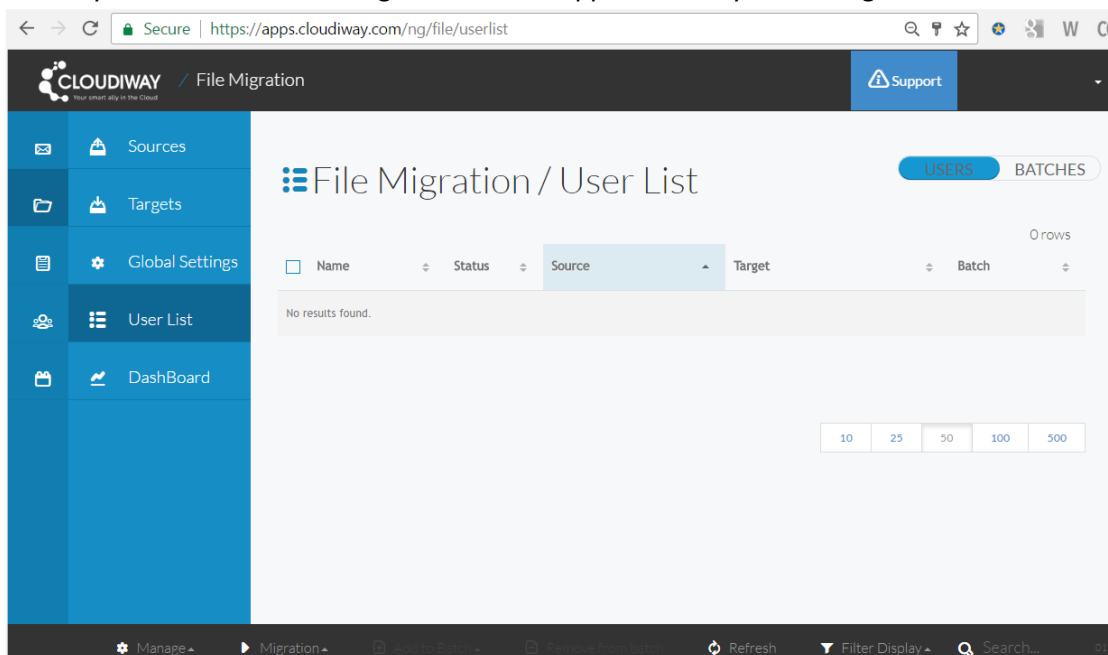
`FirstName;LastName;SourceEmail;TargetEmail;BatchName`

Note that many browsers limit CSV file uploads to 5000 lines, so files larger than that should be split up and uploaded separately. Data already uploaded will not be overwritten, so you can upload as many files as required.
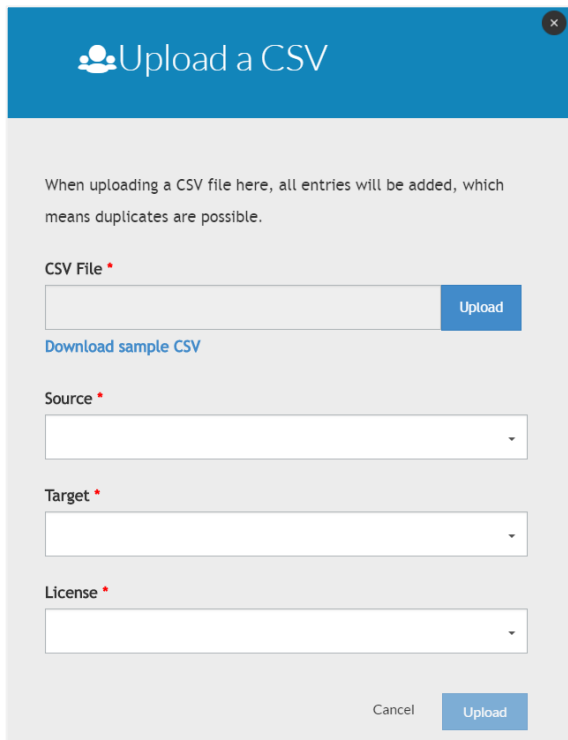
You might also wish to upload multiple CSV files depending on license type. For example, if some users don't have a OneDrive but do have files shared with them, you could upload them all within a single CSV file and apply the 'No license' option in one go, then upload all OneDrive users and assign the relevant license.

The **BatchName** field can be left blank. If required, you can use this field to name different batches so they can be run in a certain order. A sample CSV file is available for download during the steps outlined below.
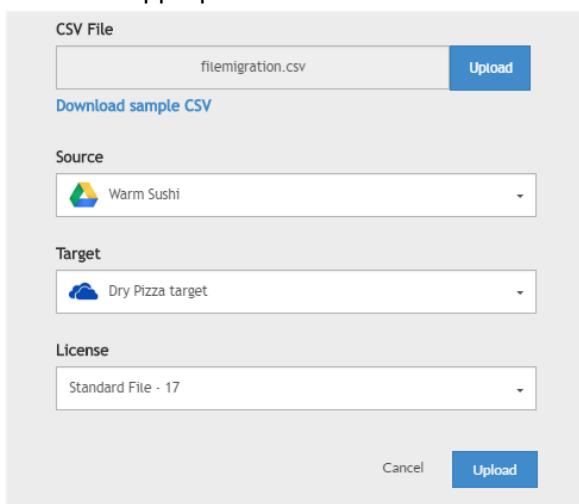
1.   Ensure you're still in the File Migration area of apps.cloudiway.com and go to **User List**

2. Click on **Manage** on the action bar at the bottom and select **Upload CSV**

3. If required, click on **Download sample CSV** and add your users to the CSV file using the sample headers (FirstName;LastName;SourceEmail;TargetEmail;BatchName)

4. When you have a complete CSV file with the correct headers, click on the **Upload** button

5. Locate your CSV file within your own file system, and double-click on it to select it

6. Select the appropriate connectors in the **Source** and **Target** fields

7. Select the license type from the **License** drop-down list

8.   Click on the **Upload** button.
          If the CSV file format is not correct, you will see an error message on your screen:
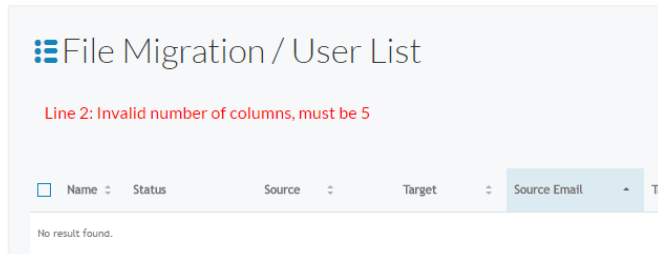
9.   If you see any error messages, check your CSV file to ensure it has five columns, each with a separator (including the last) and try uploading again

10.   Once the CSV file format is correct, you will see a confirmation message at the top of your screen:
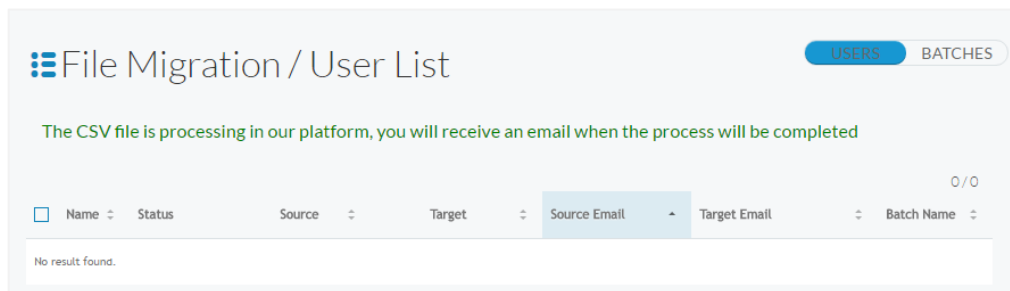
11.   Check your email. When you have received confirmation that the upload has been completed, you can refresh the Cloudiway platform to display your imported users

6.3.2   Option 2: Import Users tool

Cloudiway's Import Users tool helps you to retrieve users from your source tenant. The functionality works via Identity Access Management. The tool requires you to specify any transformation rules you wish to apply. It will then add new users in the File Migration User List view within the Cloudiway platform.

This is an advanced tool that is best used in partnership with Cloudiway consultants. If you are interested in using this option, please get in touch with your Cloudiway contact.
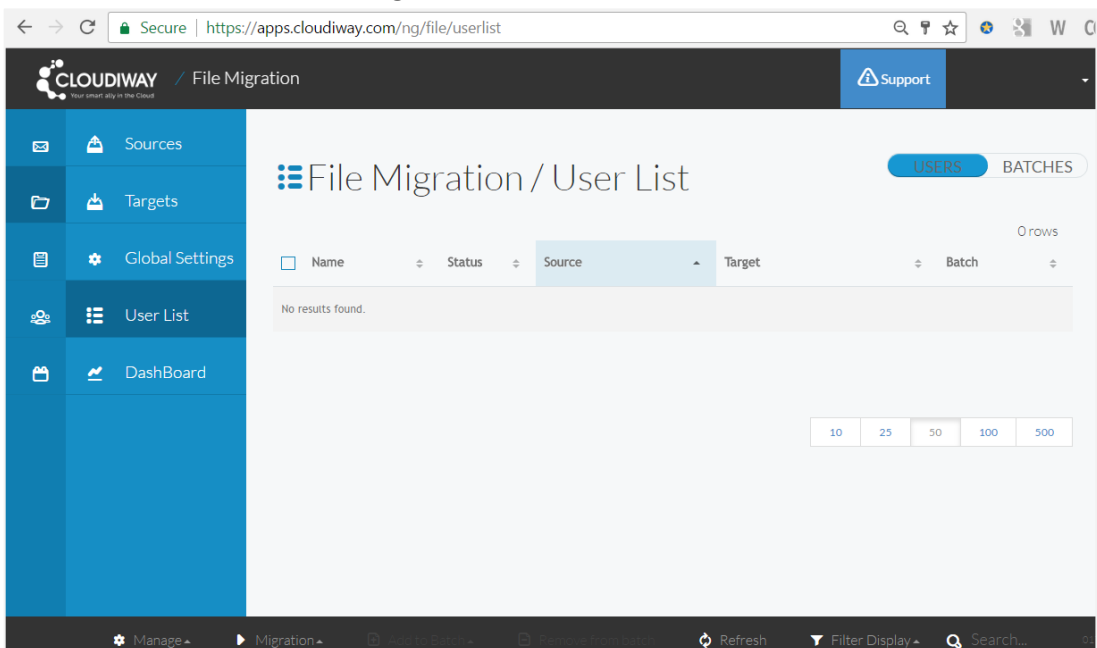
6.3.3 Option 3: Single user creation details

Many of our first-time customers create a single user for testing purposes. This provides a means of watching the migration process without affecting all users.

Single users can also be created for migrations affecting just a few users. This is especially useful if you wish to specify different migration locations for individual folders within a OneDrive account.

For example, if you wish to migrate a project folder in Bob's OneDrive to a SharePoint site and all his other files to OneDrive, you would create an additional user called Bob and specify the target connector as the SharePoint connector you created earlier. Instead of adding Bob's source and target email addresses, you would add the OneDrive folder name to be migrated after the email address in the Source Email field and the full SharePoint list URL in the Target Email field.
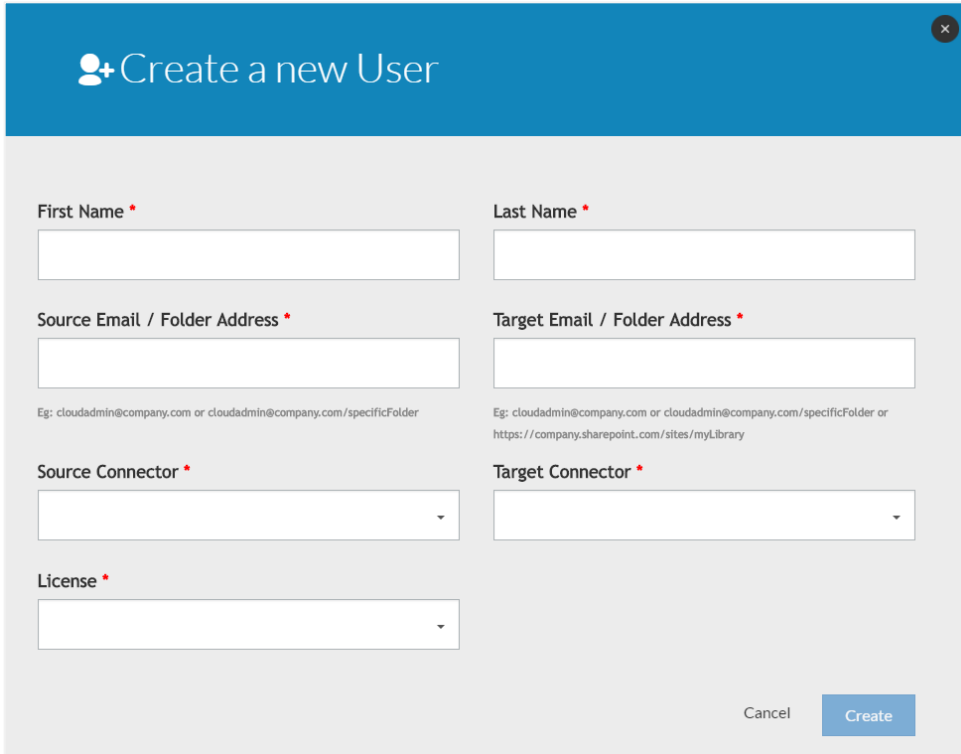
Migrating to different places requires a particular order during migration to avoid files being migrated to the wrong location. For further information, please get in touch via presales@cloudiway.com.

1.   Go to the **User List** of the **File Migration** menu

2.   Click on **Manage** on the action bar and select **Create Single** to display the following screen:

3.   Fill in all details for a new user

4. Click on the **Create** button
The new user will be added to the File Migration / User List screen:
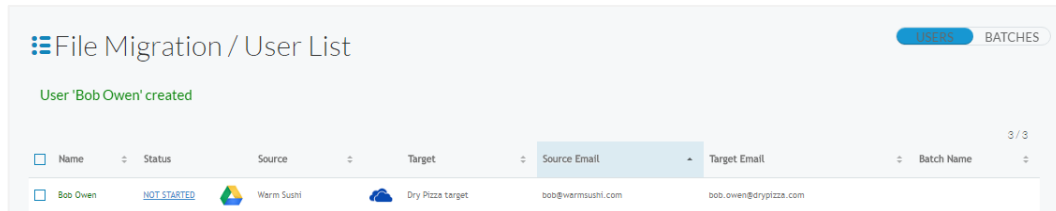
5. Repeat steps 1 to 4 for any more users you'd like to create

6.4 Perform an Audit

Cloudiway's audit tool builds a list of all Google Drive IDs and their respective owners, as well as the file location. It also detects Google Drive folders that are heavily shared and that are de facto good candidates for being migrated to SharePoint Online.

You can use the audit results to decide whether you wish to migrate any folders to SharePoint Online. and if so, you can specify the site collection and document library for each folder to be migrated. Within document libraries, folder structures are entirely recreated.

Remember, these folders with specific destinations on SharePoint Online would need to be migrated prior to the general migration because Cloudiway only migrates a file once. Therefore, any folders with alternative targets will take priority.

1. From the User List area of the Cloudiway file migration platform, select the users to audit (you can use the checkbox at the top of the list to select all, which we recommend)
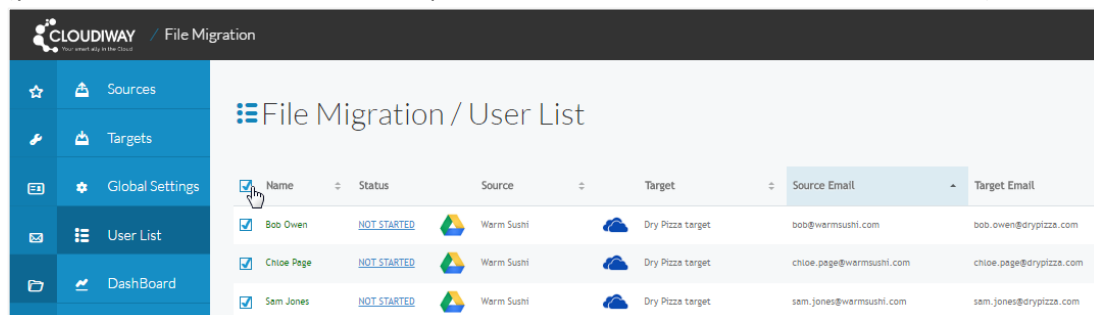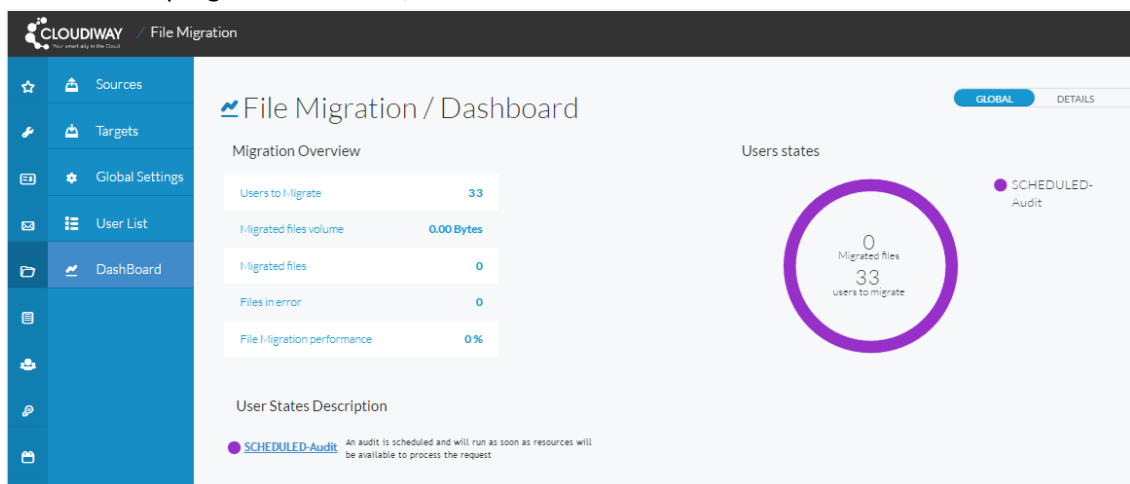

2. From the action bar at the bottom of the screen, click on **Migration**, then **Audit**

A message will appear in green to show that the audit has successfully started:
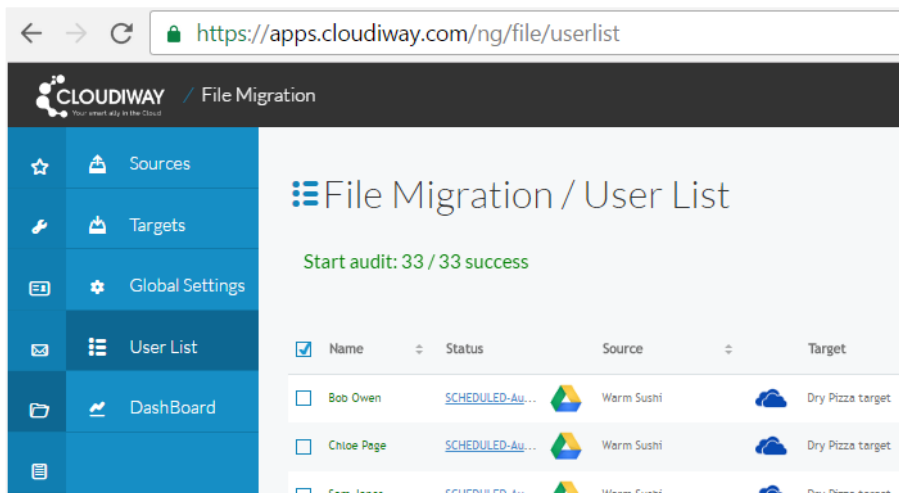
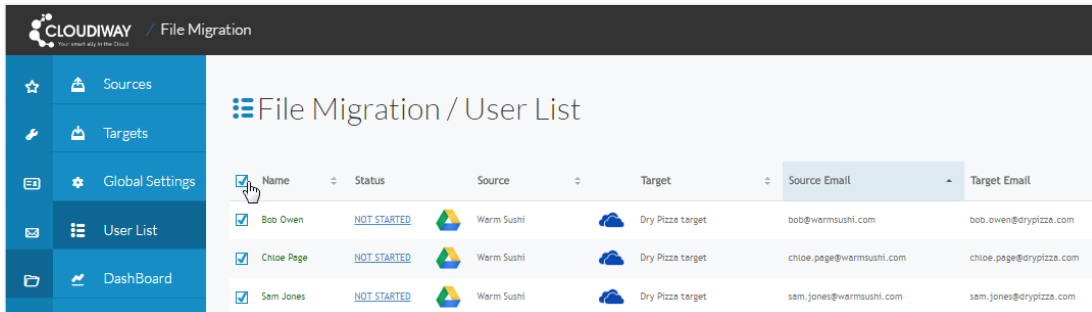3.   To watch the progress of an audit, click on **Dashboard** on the left

For updates, you can refresh the page, or see further details per user on the User List page (read on for further information on how to use the monitoring tools).

6.5   Perform Preprocessing

Now that your Cloudiway connectors are set up, you can run the preprocessing task. The task can be run more than once if required. When Google is used as the source, it verifies that the mapping list matches the accounts declared in Google. When OneDrive is both the source and target, the preprocessing task:

- checks credentials (login details, App ID,App Secret, AppRealm) in the source and target;
- provisions each OneDrive if it doesn't already exist in the target; and,
- grants permission to the admin user to access each OneDrive in the source and target.

1. From the User List area of the Cloudiway file migration platform, select the users to preprocess (you can use the checkbox at the top of the list to select all)
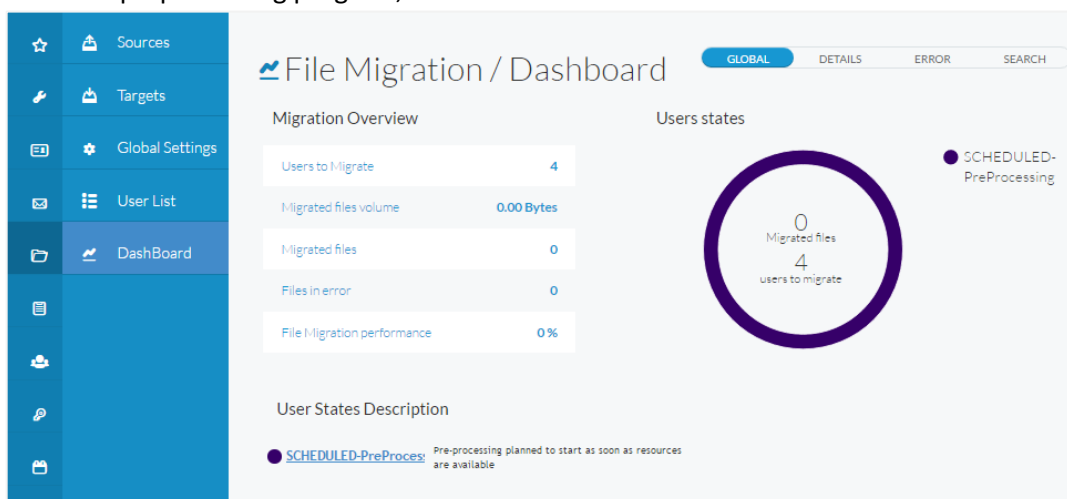

2. From the action bar at the bottom of the screen, click on **Migration**, then **PreProcessing**

A dialog box will appear to confirm the preprocessing request:
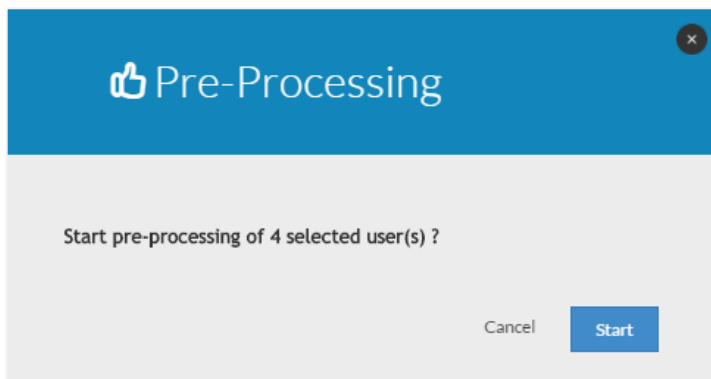
3. Click on the **Start** button to commence preprocessing

4. To watch preprocessing progress, click on **Dashboard** on the left

For updates, you can refresh the page, or see further details per user on the User List page (read on for further information on how to use the monitoring tools).

6.6   Choose migration settings

You can choose whether or not to migrate metadata during migration. The following metadata elements can be migrated:

Created By	Email of the author of the file
Created DateTime	Date & time of file creation
Modified By	Email of the last user that modified the file
Modified DateTime	Date & time of the most recent file edit

You can also choose whether a file at the target should be kept if a file at the source has an identical name. For example, if *menu.docx* exists at both the source and target OneDrive, you can choose to discard the file at the target and replace it with the file from the source. If you choose to retain the file, it will be appended with *_old*, so our example would become *menu_old.docx*.

This is useful when a user has manually migrated his files manually and started to use them in the target. Without this option, changes in the target would be overwritten by the source

Any files that exist in the target that don't match file names from the source are always retained.

1.   From the same File Migration area of https://apps.cloudiway.com, click on **Global Settings**
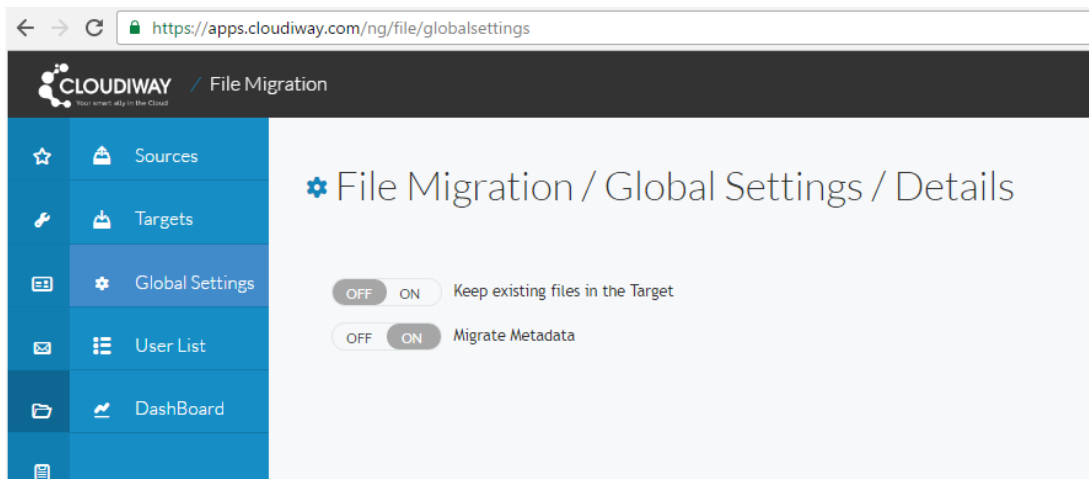
         By default, metadata migration will be set to ON and keeping existing files in the target will be set to OFF

2.   To edit these settings, click on the Edit option at the bottom of the screen and make the changes you require

3.   Click on **Save** to register your changes.

6.7   Activate and monitor your migration

Now that you have performed all the pre-migration steps within your tenants and within Cloudiway, you're ready to migrate. We recommend you run a test migration on a single user first to check that your configuration produces the outcome you expect.

To start your migration, select the users or batch you wish to migrate and click on the **Start** button. Your batch will be scheduled and will begin as soon as resources are available.

Don't forget that Cloudiway migration platform supports delta passes and that migrations are therefore incremental; every time you restart the migration of a OneDrive, only items that haven't already been copied to the target — or that have been changed since they were copied to the target — will be migrated. The platform therefore does not duplicate items in the target.

You can monitor your migration from the dashboard. The Dashboard is available from the Cloudiway File Migration platform. The default screen contains an overview of your migration, including the status of all users, how many files have been migrated, and how many users are left to migrate.
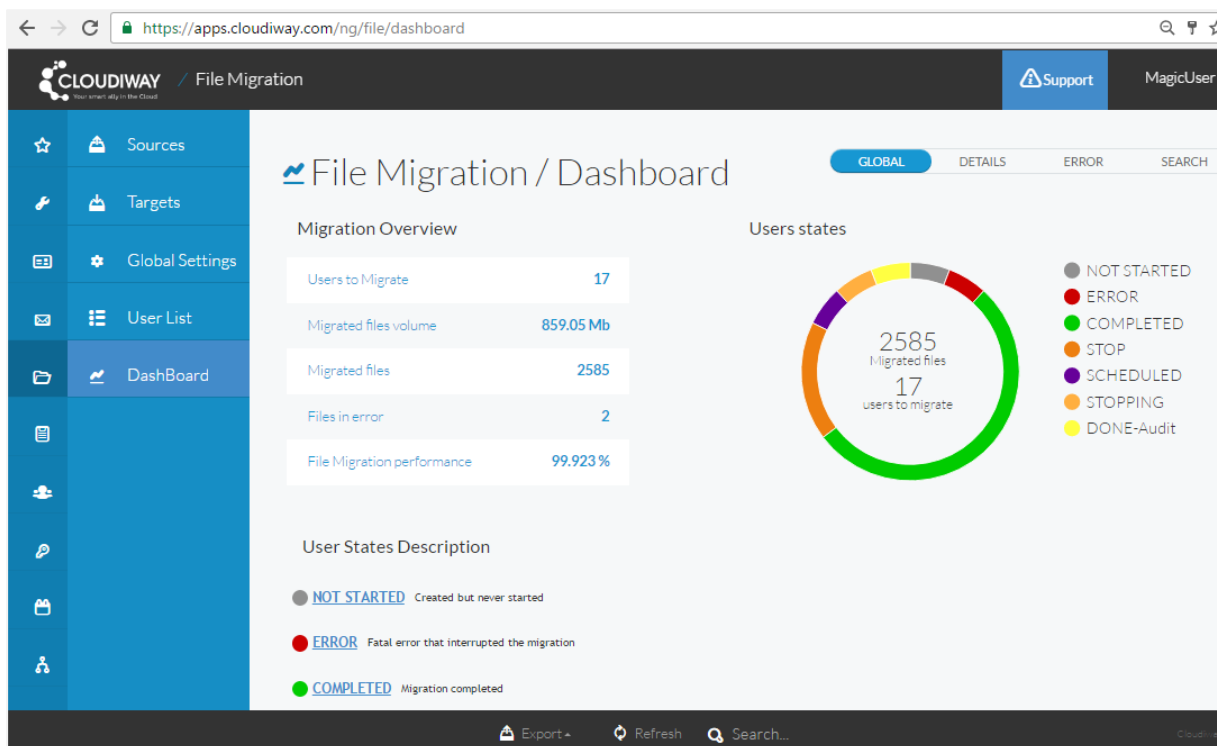
You can click on the **Details**, **Error** and **Search** tabs in the top right corner if you require more detailed information, as well as use the **Export** option at the bottom of the screen to save your data as a CSV file.

On the **Details** tab, each user is listed along with the progress of their migration. You can sort the columns to suit your needs, and the columns can be resized.

You can also click on any of the rows to see the log for each migration. Note that the log contains two tabs – **Statistics**, which is display by default, and **Error Items**.
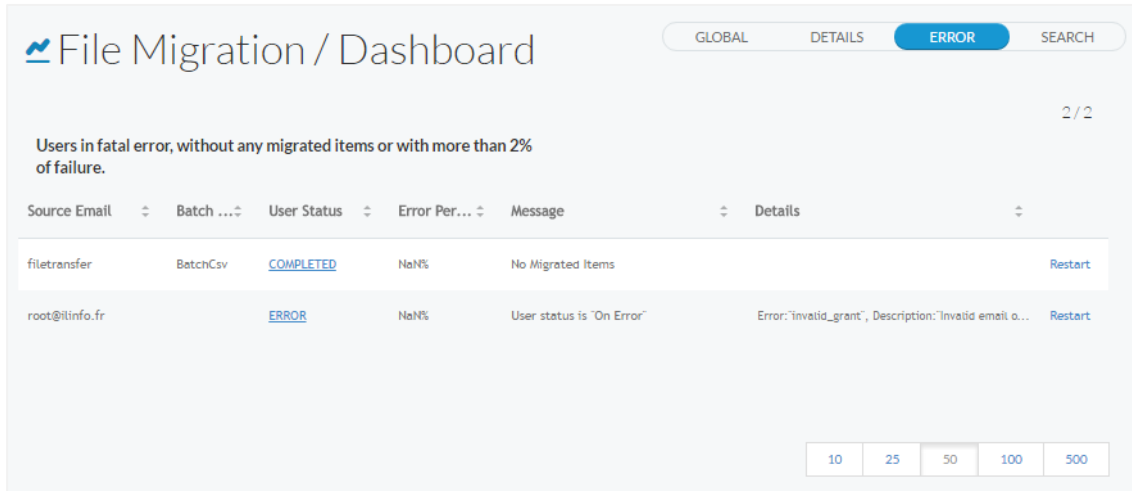
The **Error** tab in the top right corner displays user migrations which might need further attention due to fatal errors or some failures. You can check the
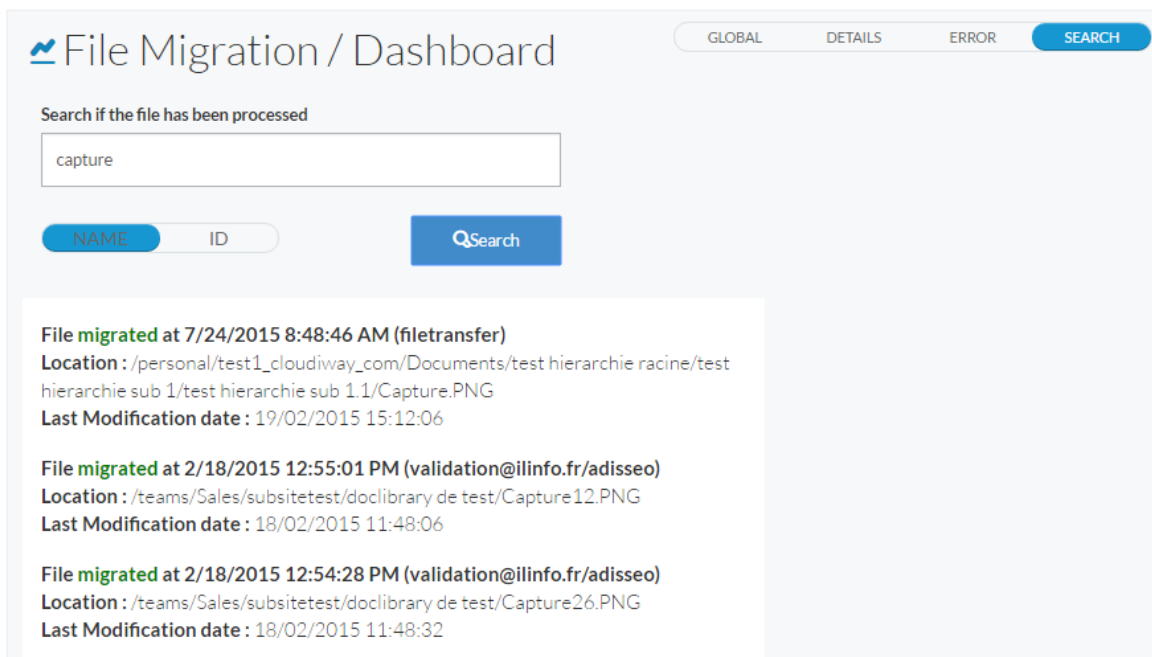
The **Search** tab provides a means for searching for a file based on its name or ID. Partial searches for both are acceptable, and the top five results will be displayed.

7 Troubleshooting

Cloudiway provides an extensive knowledge base with many resources, including common error messages, video guides and downloads.

Please visit the file migration knowledge base area here:

http://kb.cloudiway.com/category/faq-cloudiway/cloudiway-migration-products/files-migration/

Please visit the entire knowledge base here (where you can search for keywords or read through topics): http://kb.cloudiway.com/

The knowledge base also contains information on how you can ask for further support, should you require it.