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# **CESGA DTN User Guide**

***Release 1.0.1***

**May 06, 2020**



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## INTRODUCTION

The Data Transfer Node (DTN) is a server specially configured to enable fast and reliable transfers.

The DTN provides different tools to transfer files from or to CESSGA.

Depending on the size of the data that you want to transfer you have different options:

- For small amounts of data (<10GB) you can use scp directly.
- For large amounts of data it is recommended that you use **Globus**.

In all cases it is recommended that you do the transfer against our DTN server: **dtn.srv.cesga.es**, this will give you a much better network performance. In Globus Online the endpoint of this server is: **cesga#dtn**.

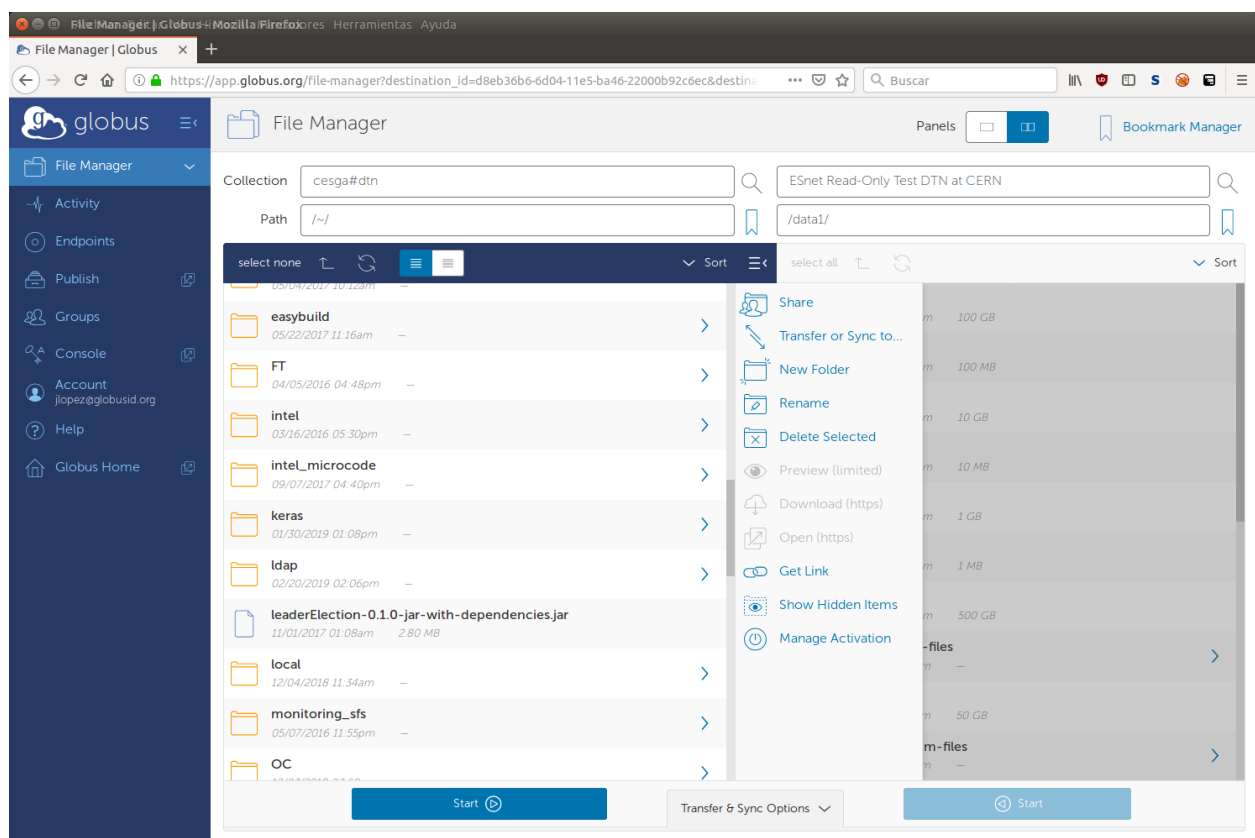


Fig. 1: Using Globus to transfer files.

If you are going to transfer files from your local computer it is important that you check your local connectivity because it will generally limit the overall speed of the transfer.



## GLOBUS

Globus is a file transfer service based on GridFTP. When using Globus, you hand-off the data transfer task to a hosted service that will take care of the entire operation, monitoring the transfer and automatically retrying in case of errors. It will even notify you by email when the transfer is ready.

Globus is composed of three parts:

- Globus Connect Server: already installed in the CESGA's DTN server
- Globus Connect Personal: needed on your local PC to transfer files from or to your local HDD
- Globus Web App: a web applications where you launch the transfers

## 2.1 Installation

To use Globus between CESGA's DTN and other existing endpoints you do not have to install any additional software.

In case you want to transfer files from or to your local PC then you need to install the Globus Connect Personal software to enable your PC as a private Globus endpoint.

### 2.1.1 Globus Connect Personal

To transfer files to or from your local HDD you need to install Globus Connect Personal in your computer.

This software will enable your PC as an endpoint that can be seen just from your account.

It supports Linux, Windows and Mac, to install it you can follow the next instructions:

- Linux: <https://docs.globus.org/how-to/globus-connect-personal-linux/>
- Windows: <https://docs.globus.org/how-to/globus-connect-personal-windows/>
- Mac: <https://docs.globus.org/how-to/globus-connect-personal-mac/>

## 2.2 Usage

Go to <https://globus.org> and press the Log In button.

You can look for your institution ("Universidade de Santiago de Compostela", "Universidade da Coruña", "Universidade de Vigo" and "CSIC" are all registered) under "Use your existing organizational login" or alternatively you can select "Sign in with Google" and use your Google credentials:

The first time you log in with a new account your are given the option to associate it with an existing account. In our case we do not want to link it to any existing account so we just press "Continue":



Fig. 1: Main Globus page.

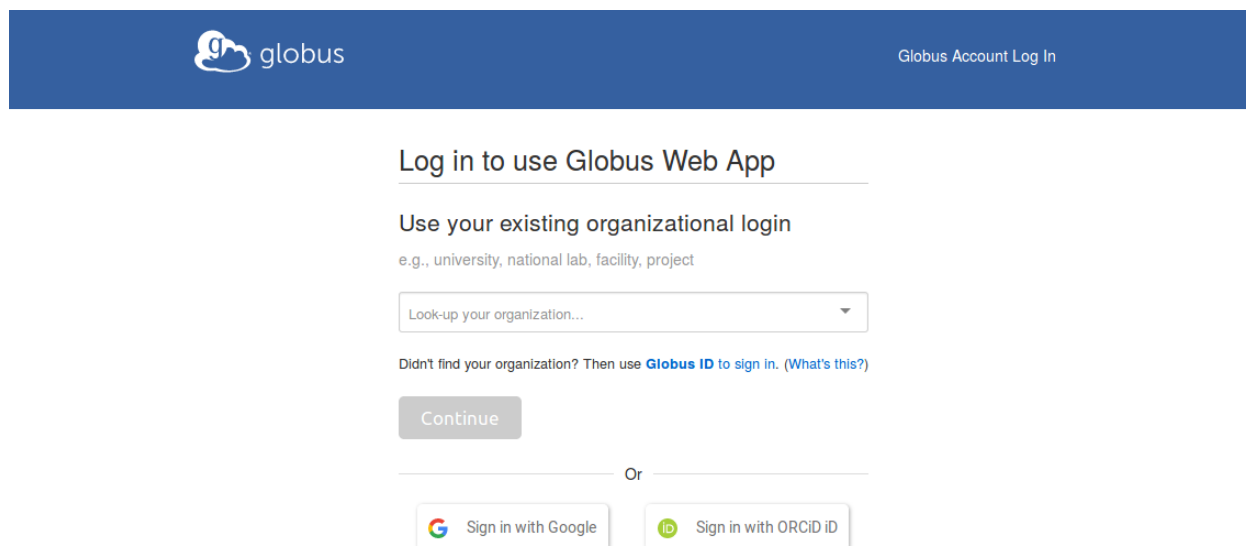


Fig. 2: Log in page.



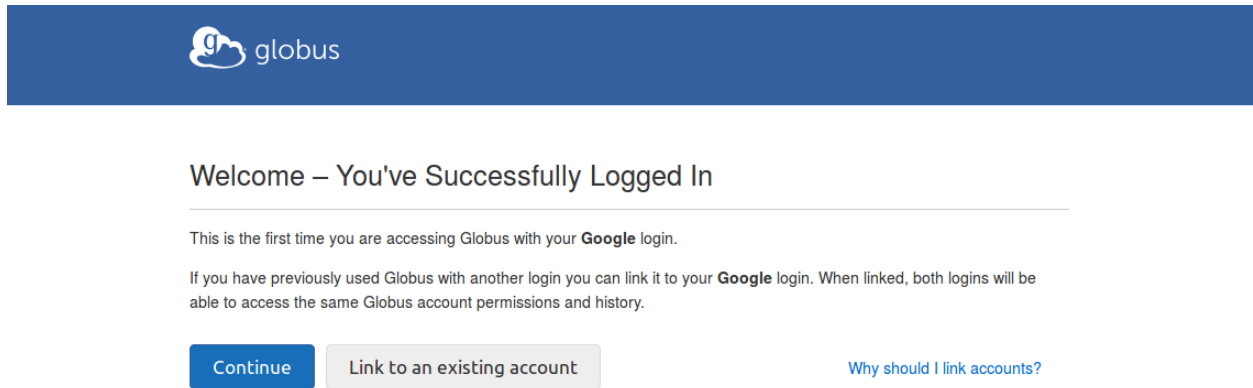


Fig. 3: First time login page.

The first time you log in with a new account you are given the option to associate it with an existing account. In our case we do not want to link it to any existing account so we just press “Continue”:

You will now be directed to the “File Manager” page.

In the File Manager page you can select the CESGA DTN typing its name in the Collection field: `cesga#dtm`

Once selected the `cesga#dtm` endpoint you will have to authenticate using your credentials at CESGA, the same ones you use for the HPC and Big Data systems:

Once you log in the `cesga#dtm` endpoint you will see the list of your files. You can create symbolic links to the most common directories to simplify the usage.

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**Note:** You can create symbolic links to the most common directories to simplify the usage.

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For example:

```
ssh dtm.srv.cesga.es
ln -s $HOME HOME_FT
ln -s $HOME_BD HOME_BD
ln -s $STORE STORE
ln -s $LUSTRE LUSTRE
```

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**Note:** If you do not create the symbolic links you can still use the full paths to access the different filesystems, typing them under the Path field.


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Finally if you start Globus Connect Personal in your PC you will be able to use also your local endpoint in a similar way.

First start the Globus Connect Personal application on your PC:

And once started, just type the name you gave to your local PC when you configured Globus Connect Personal in the “Collection” field on the right tab:

To start a transfer, first select the files you want to transfer in the appropriate endpoint and then press the “Transfer or Sync to...” option:

 globus

Complete Your Sign Up For  
[redacted]@gmail.com

Name [redacted]

Email [redacted]@gmail.com\*

Organization

Account will be used for

- ☒ non-profit research or educational purposes
- ☐ commercial purposes

☒ I have read and agree to the Globus [Terms of Service](#) and [Privacy Policy](#).

☐ Please e-mail me updates about Globus

[Continue](#)

\* This field is specified by the identity provider, and cannot be modified by Globus. If you change it with your identity provider, it will propagate to Globus the next time you log in.

Fig. 4: Additional information requested to complete sign up.

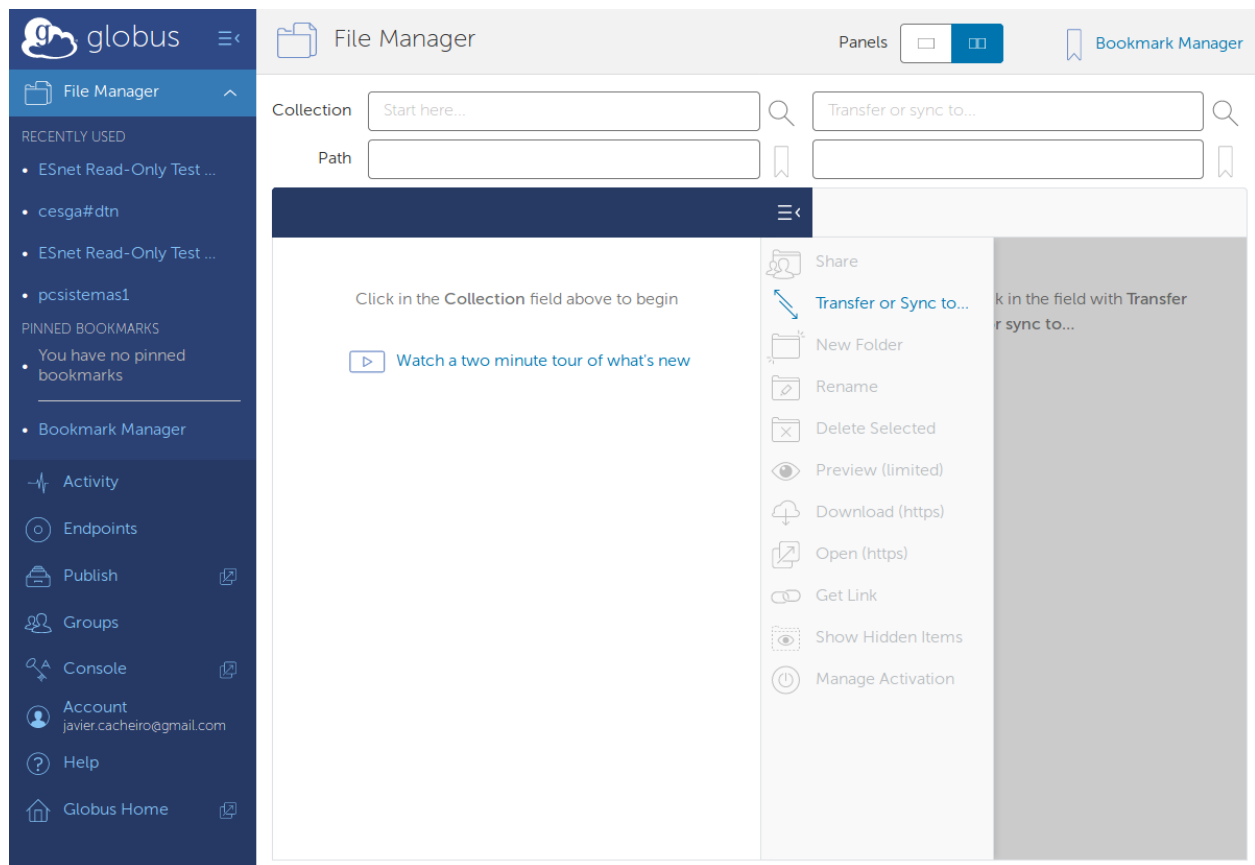


Fig. 5: The File Manager web application.

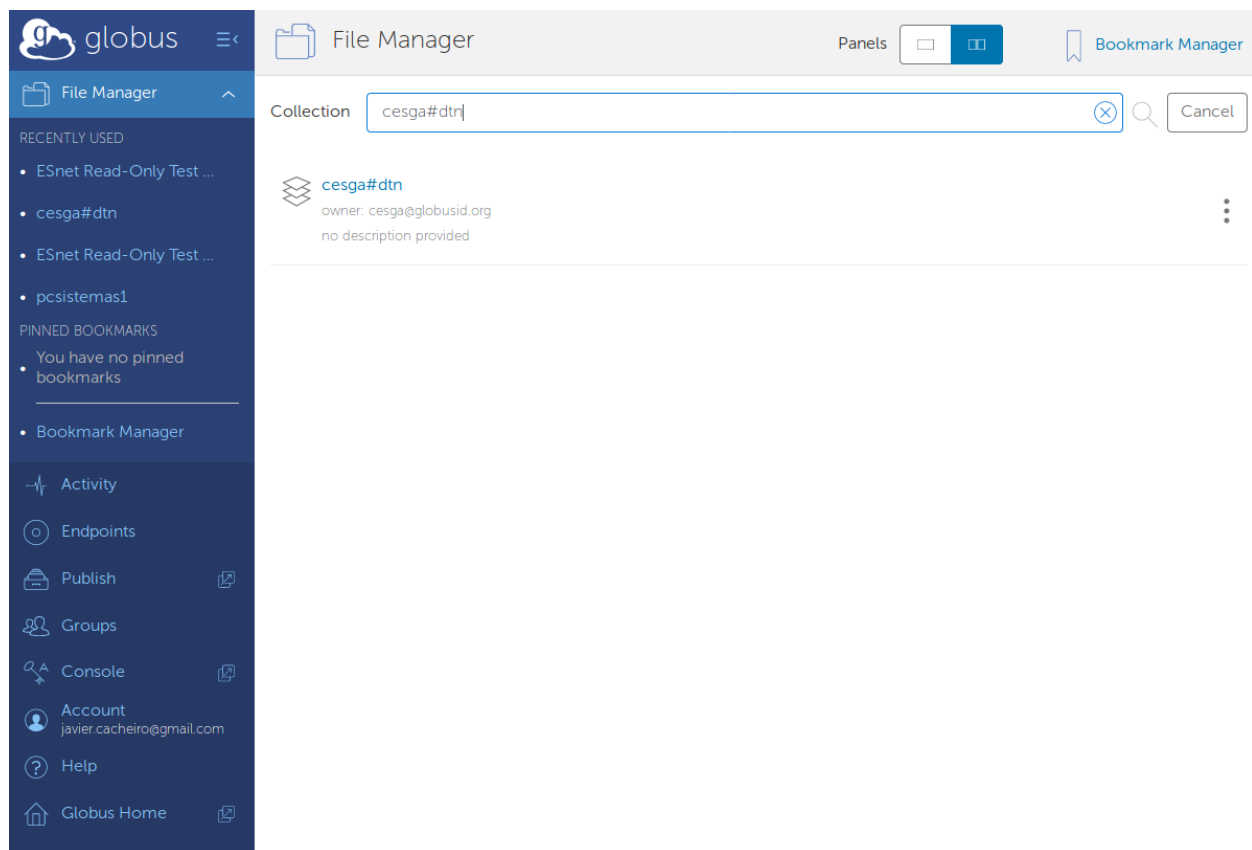


Fig. 6: Select cesga#dtn in the File Manager.

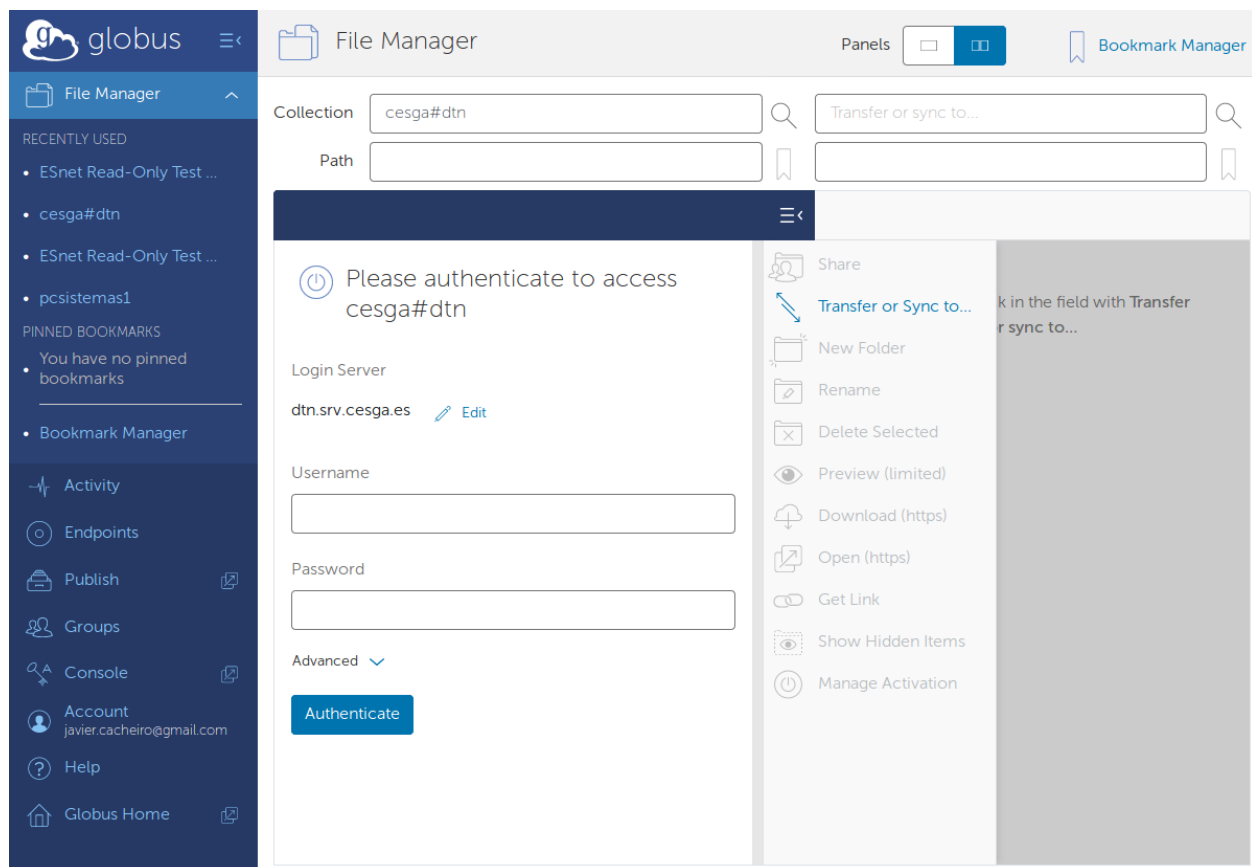


Fig. 7: After selecting the cesga#dtn you will have to authenticate using your CESGA credentials.

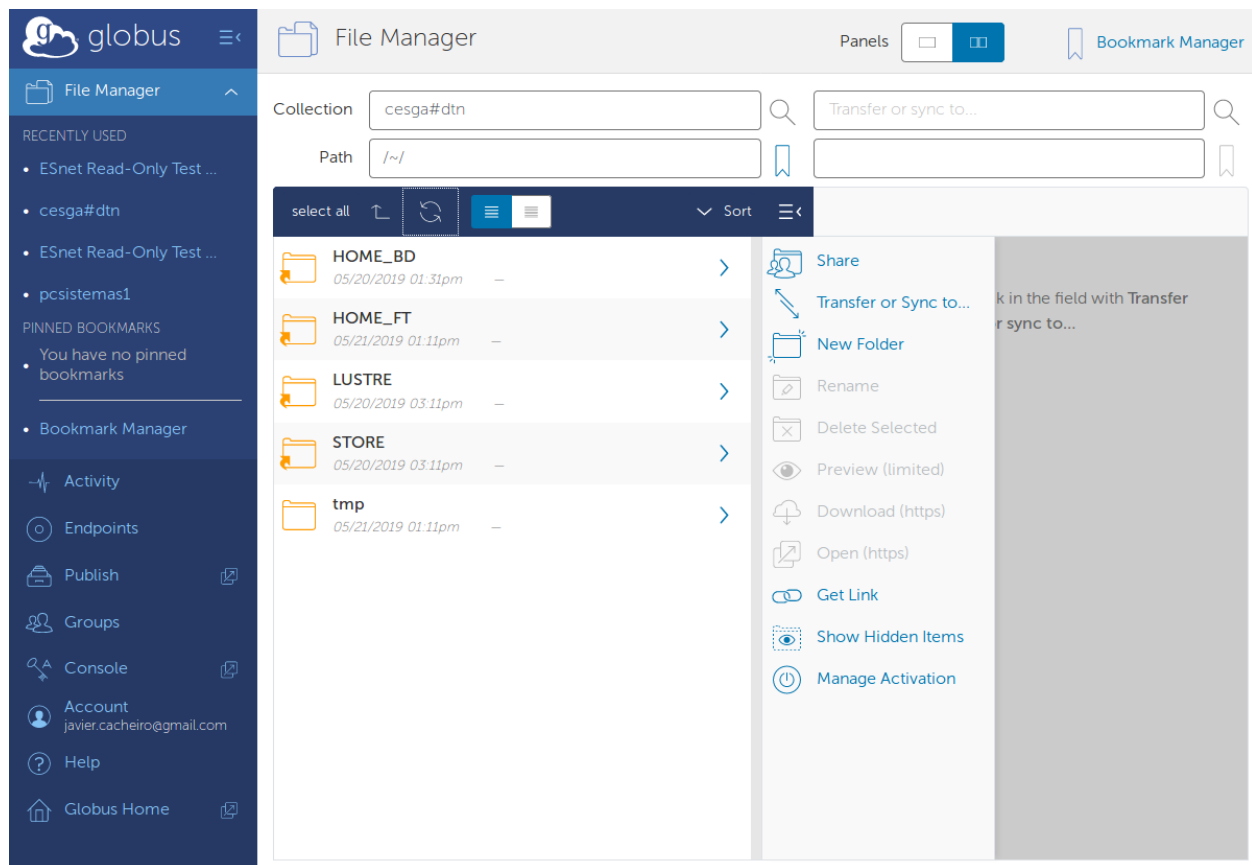


Fig. 8: In the cesga#dtn tab you will see the list of your files.

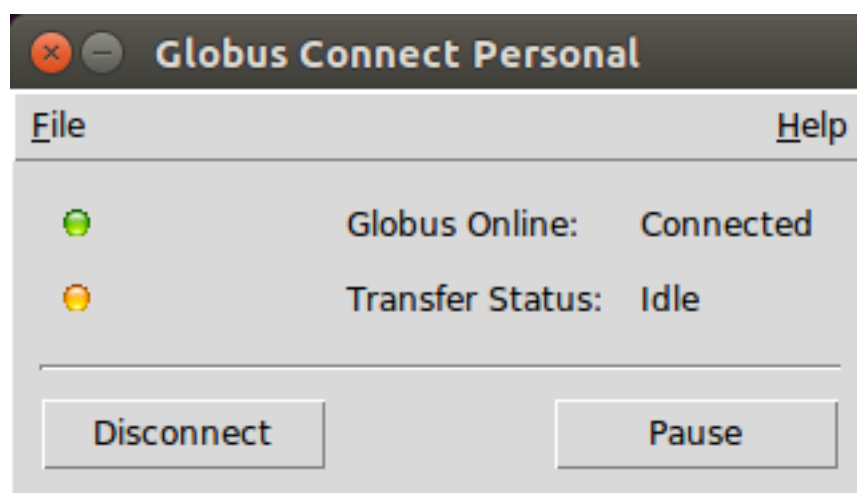


Fig. 9: Globus Connect Personal running.

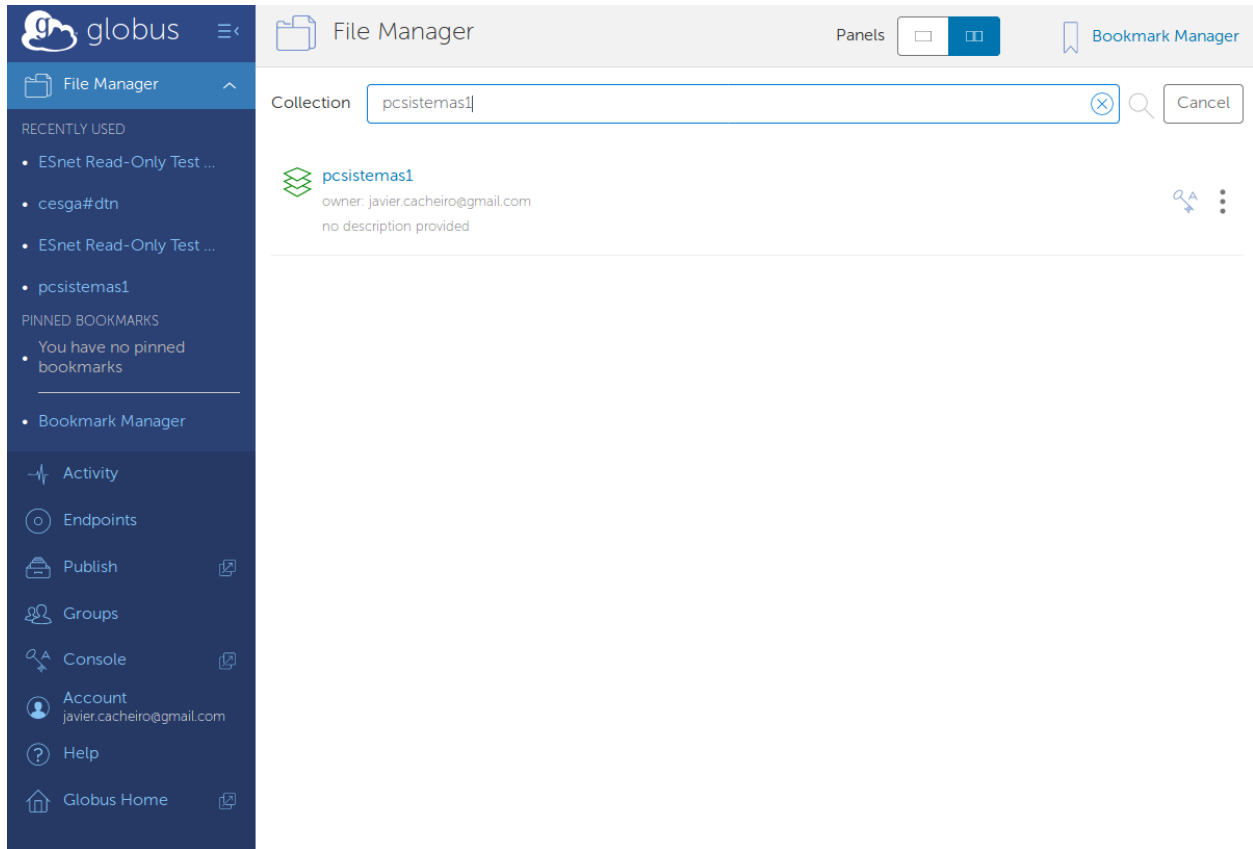


Fig. 10: Selecting the local computer.

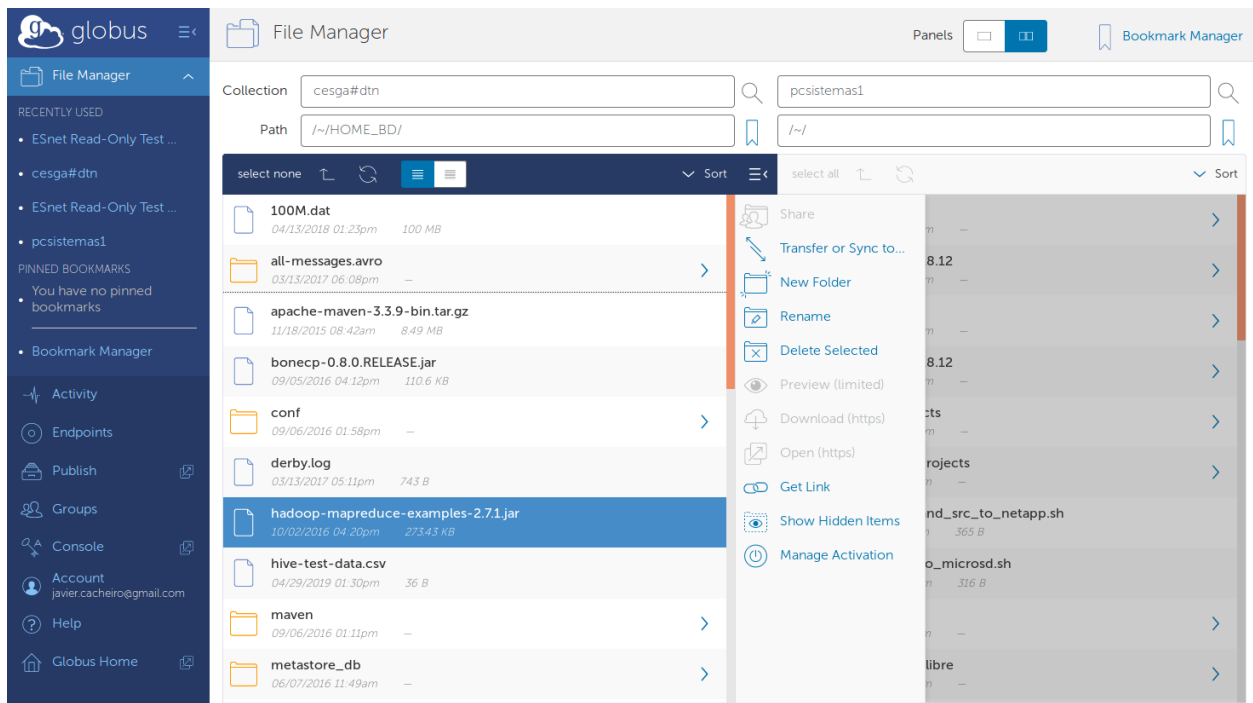


Fig. 11: Selecting files to transfer.

Once you press the “Transfer or Sync to...” option you will change automatically to the other endpoint you have selected, in this case the local PC, and you will be given the option to select the destination directory. Once selected just press the Start button.

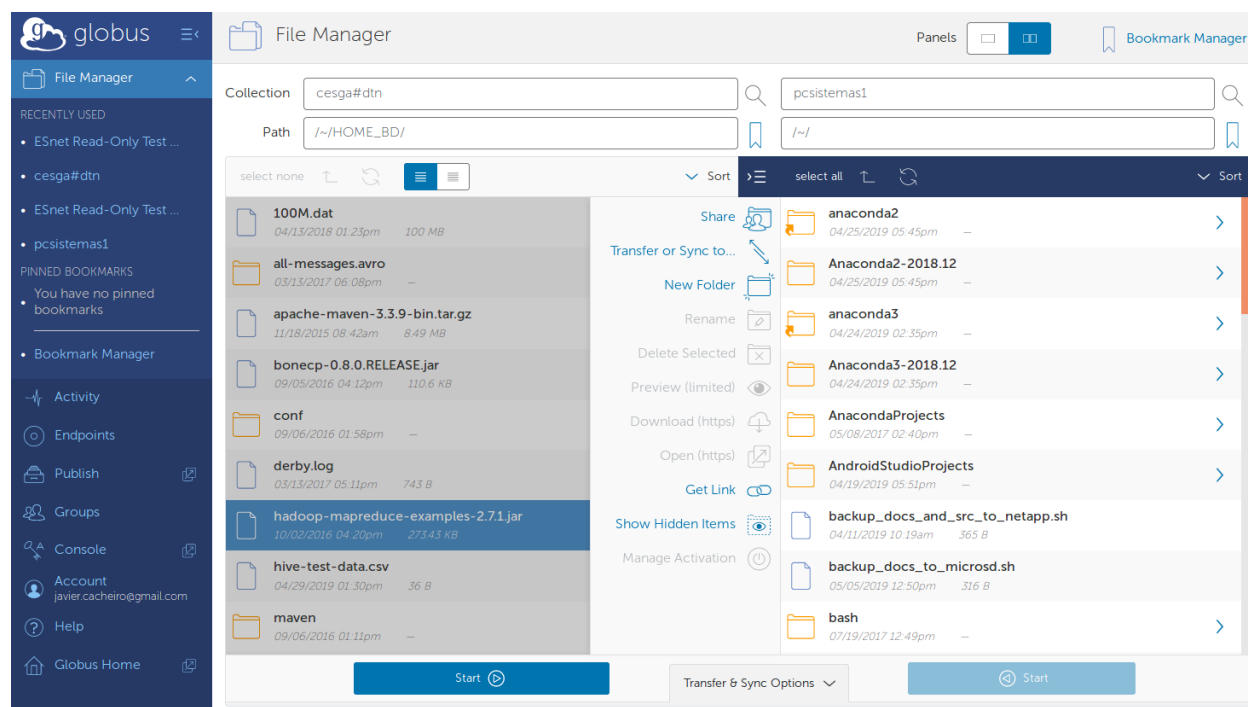


Fig. 12: Select the target directory and start the transfer.

The transfer request will be submitted and it will run in the background.

Using the provided link you can monitor its progress, as well as under the Activity option:

You can also adjust the transfer options under the “Transfer & Sync Options” including the option to encrypt the transfer or to transfer only new or changed files:

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**Note:** You will receive an email when the transfer is finished.

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## 2.2.1 Remote Transfers

You can also transfer files directly between remote sites and CESGA’s DTN without data passing through your computer. You just have to select CESGA’s DTN and the remote endpoint and launch the transfer. The transfer will be monitored by the Globus service and you will receive an email when it is finished.



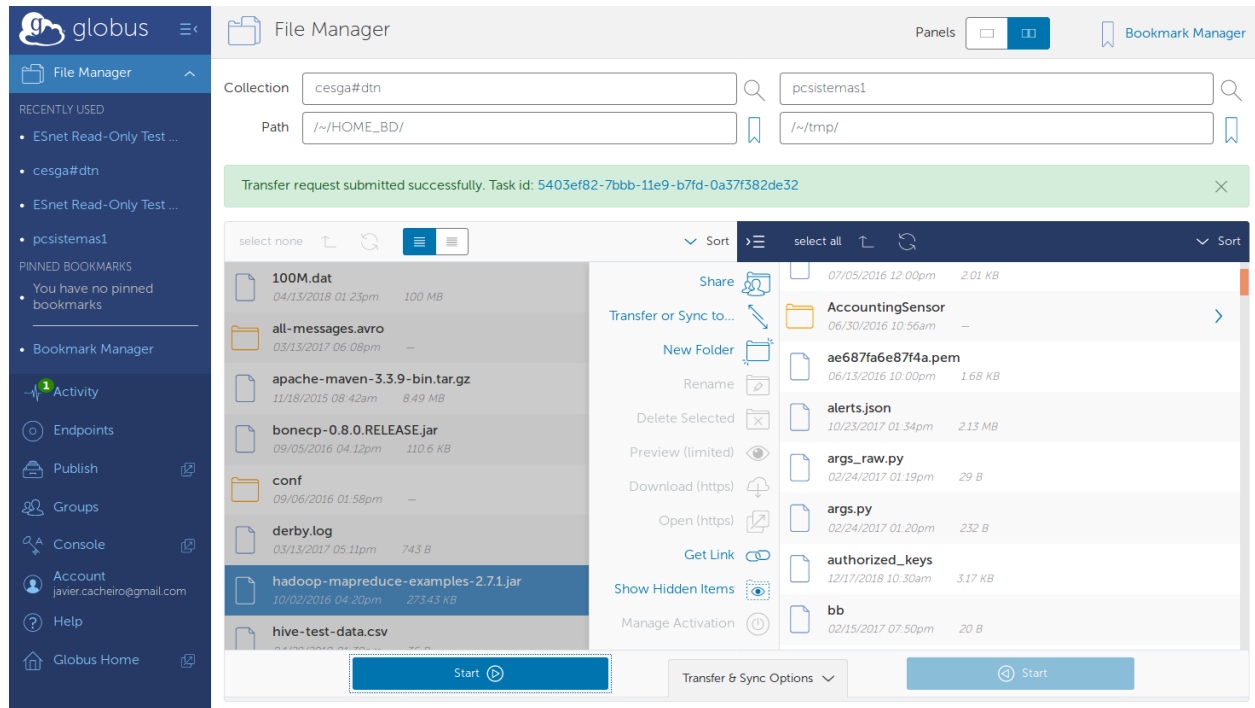


Fig. 13: Transfer requested submitted.

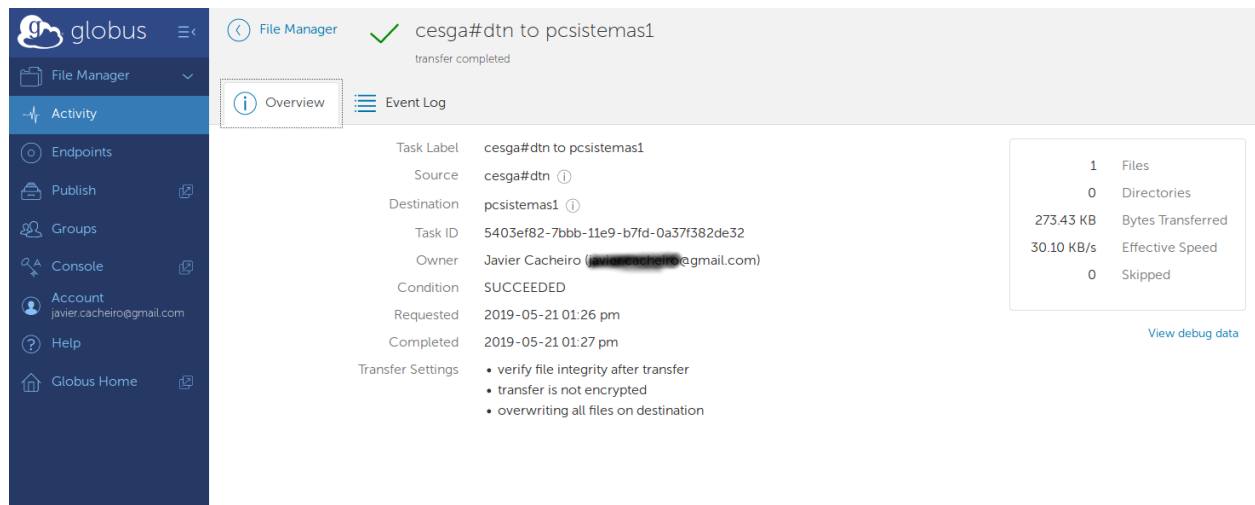


Fig. 14: Transfer summary.

The screenshot shows the 'Transfer & Sync Options' dialog box in Globus. At the top, there are three buttons: a blue 'Start' button with a play icon, a 'Transfer & Sync Options' button with an upward arrow, and a light blue 'Start' button with a play icon. Below these buttons, the dialog is divided into two sections. The first section, 'Label This Transfer', contains a text input field. The second section, 'Transfer Settings', contains a list of five options, each with a checkbox and an information icon (i). The options are: 'sync - only transfer new or changed files', 'delete files on destination that do not exist on source', 'preserve source file modification times', 'verify file integrity after transfer' (which is checked with a red checkbox), and 'encrypt transfer'.

Start ▶

Transfer & Sync Options ^

Start ▶

Label This Transfer

Transfer Settings

- ☐ sync - only transfer new or changed files ⓘ
- ☐ delete files on destination that do not exist on source ⓘ
- ☐ preserve source file modification times ⓘ
- ☒ verify file integrity after transfer ⓘ
- ☐ encrypt transfer ⓘ

Fig. 15: Transfer options.

## SCP/SFTP

Using SCP or SFTP is a useful alternative for small transfers (less than 10GB of data).

Just keep in mind that you will get poorer performance than with Globus and if the connection is not stable you can find issues.

### 3.1 Installation

You just need a local SCP/SFTP client, this is usually already available in Linux and Mac. In case of Windows you can install for example [WinSCP](#).

### 3.2 Usage

Just point your SCP/SFTP client to `dtm.srv.cesga.es` and then start the transfer.

There is no need to start the VPN to connect to CESGA DTN, but there is also no need to stop it. The transfer speed to the DTN will not be affected by the VPN.

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**Note:** The DTN service is configured so it will not be routed through CESGA VPN even if you have it running.

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## ASPERA

Aspera is a proprietary software specialized in sending and sharing large files. It uses a patented transport technology specially suited for WAN transfers.

The Aspera service is provided by RedIris and you need to contact us in order to use the service.

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**Note:** In most cases Globus is our preferred solution.

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### 4.1 Installation

The DTN has the Aspera CLI already installed.

### 4.2 Usage

Once you connect using SSH to `dtn.srv.cesga.es` you can use the Aspera CLI.

These are some of the most common commands:

- List the contents of a user's inbox, sent or archived messages:

```
aspera faspex list -H faspex.rediris.es -u <user> -p <password>
```

- Send a package to a user or group:

```
aspera faspex send --file ./my_large_file.img -H faspex.rediris.es --title  
↪ "Large file" --note "I am sending you a large file" --recipient <email> -u  
↪ <user> -p <password>
```

- Get (download) a package:

```
aspera faspex get -u <user> -p <password> --url "faspe://..."
```

For more information you can check the [Aspera CLI Documentation](#).



## KNOWN ISSUES

### 5.1 tcllib error when using Anaconda

There is a bug in the tcl version distributed with some Anaconda versions that leads to an error when trying to start the Globus Connect Personal GUI.

The easiest solution is to change the PATH so it does not include the Anaconda directory.





## WANT TO KNOW MORE

For more information you can look at the official documentation of each tool.

- [Globus Howtos](#)
- [Globus Documentation](#)
- [Aspera CLI Documentation](#).