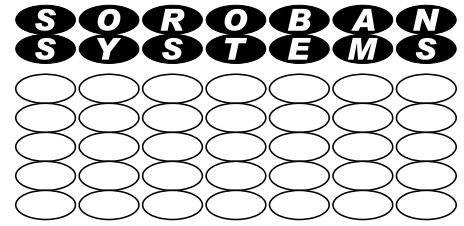# Soroban Support Guide

Sharing large files

Summary

It is a regular requirement to want to share a file or a set of files that is too large to send via email. These are often video files but most of the advice also applies to other file types.

This document explains the reasons for the size limitation and explores options for successfully sharing large datasets and describes in sime detail how to use a free web based service **WeTransfer**.

This document also discusses aspects of file sharing including the use of encryption to protect personal data while being shared especially via the Internet.

The limitations of file size and the additional processing to provide security can be provided by several tools but one in particular, **PeaZip**, provides all of the essential tools in one program. Furthermore this program is available for most platforms and so is recommended for this purpose. Details of its use are in a separate guide.

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Revisions

Version	Date	Changed by	Summary of change
2.0	21 Aug 2023	John Steele	Completely revised to include WeTransfer and remove details of other options
1.01	8 Nov 2022	John Steele	Typos corrected
1.00	3 Nov 2022	John Steele	First release
Draft	3 Nov 2022	John Steele	Initial draft

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1   OVERVIEW

1.1   Scope

This guide discusses an issue that is sometimes experienced; how to share a large file with another person or group.

This guide will explain why this can be a challenge and suggests several options depending on your actual need. The recommended tools are all free to use.

The actual method you choose will depend on how large the file is, how many files you want to share, and who you are wanting to share it with. In some cases this might be a large video file. In other cases it might be a collection of text documents or photos.

Your choices include:

1. **Sharing via a public file sharing service e.g. WeTransfer**
   a) **This is the option that will be considered in more detail in this document**
   b) **There will be limitations on file size for a transfer but this can be overcome with another free tool and some manual steps**
   c) **Security of data while in transit over the Internet is addressed by the use of Encryption**

There are other options <u>which are outside the scope of this document</u> although the methods suggested here could be adapted to work in other situations.

1. Sending as an attachment by email:
   a) This is an easy option if the file is relatively small e.g. less than typically 10 Mbytes and if privacy is not a concern
   b) **Emails and their attachments are not considered to be private unless precautions are taken which are outside the scope of this document**
2. Sharing via dedicated a cloud service e.g. Dropbox, OneDrive etc,
   a) This is an option if the party you are sharing with subscribes to the same cloud service. Such cloud services vary in the total space but are typically 2 to 5 Gbytes for ALL of your shared data
   b) **Privacy will depend on the cloud service chosen**
3. Sharing by removable media
   a) A USB pen drive or disk drive can be used. USB drives are cheap and can be posted.
   b) **Unless data on the removable media is specifically protected by encryption it is not private**:
      i   It could be lost
      ii   It could be copied in transit if not handed over in person
4. Sharing via a local network
   a) This requires the sender and recipient to be on the same local area network.
   b) It is simple to set up and has no limits on the storage size and is the fastest method if it can be used
   c) It as private as your local network but it is not considered any further in this document

1.2   Method recommended

The suggested method of file sharing over the Internet, **WeTransfer**, and described in this document, has the following features:

1. It is a free, web based, service
2. Its use is not constrained by file/folder size although above 2 Gbytes it needs some additional free tools and some limited manual cooperation between the two parties to split the data into smaller chunks and to add privacy if sensitive data is being transferred
   a) It uses free, cross platform, tools on your computer to prepare large files that need to be to be shared and to process them once received
   b) It can also be made secure using encryption with the same free tools

1.3   Privacy issues

1.3.1   The problem

Data on your own computer is protected by your local login password together with your own computer and physical security.

When data is shared via a public service however, that service is outside your control and therefore there is a greater risk to any private data being transferred falling into the wrong hands.

> If you do need to share private data with another party then it is recommended that you protect that data while it is in transit. This applies to any file sharing service such as **WeTransfer** but also to sharing via removable media. When needed this is typically achieved using **Encryption** along with a password that is shared with your partner.

1.3.2   Encryption – shared secret (password)

Encryption scrambles the data so it is created using a "shared secret" or password that must be exchanged between the sender and recipient. This password must be used to access the data.

> It should be obvious but the shared secret must NEVER be shared over the same path as the encrypted data.

A shared secret is typically a (probably complex) password. Around 15 – 20 characters is normally regarded as sufficient. It is stronger if the characters include some combination of Upper/Lower case, numbers and special characters such as #@! etc.

When you are sharing a large private datafile or file set this can merged into a single archive file and then be encrypted before it is uploaded to WeTransfer. The recipient can then decrypt the data using the shared password and demerge the files back to the original sturcture. This requires additional tools such as PeaZip.

Ideas for sharing the password include (but not limited to):

1. Make up a password of about 15 to 20 random characters and post this via "snail mail" to your recipient.
2. Agree a password via a telephone call
3. Send a text message with the password (less secure but better than email)

> This password should not be emailed! Email is NOT secure!

1.4 Tools required for secure data exchange

1.4.1 Transport requirements

We need a method of exchanging files with another party.

WeTransfer is a free public service that shares data over the Internet and this guide discusses how data can be exchanged safely and securely using this service.

Much of the advice however also applies if you use media such as USB memory sticks or DVDs to exchange data.

1.4.2 Privacy and data management issues

When small files, **that contain no personal data**, are exchanged there are no issues with either file size or privacy by email.

This guide describes situations when this criteria does not apply.

- ➢ In some cases you may consider the benefits of rapid exchange make the risk of including personal data acceptable as the data may only be on the public server for a short time
    - ◆ Otherwise the data must be encrypted using a password securely shared with the other party
- ➢ You want to share multiple files and/or folders
    - ◆ This is typically easier to manage if the data is combined into a single archive file which in some cases (depending on the data) can be compressed into a sometimes very much smaller size.
        - ❍ A common term for such a compressed archive file is a ZIP file
- ➢ The data you want to exchange contains several files or folders or the combined size of the data exceeds the size permitted for transfer
    - ◆ The file then needs to be split into a number of manageable "chunks".
        - ❍ These are typically 10 Mbytes for email or 2 Gbytes for WeTransfer

1.4.3 Recommended tools

Free tools are available on the Internet that can combine multiple files and folders into a single archive file that can be encrypted and then divided into "chunks" that are small enough to be send one by one over a transfer path that is too small for the full archive file.

Here are the desirable features:

- ➢ Be available to work on any common platform
    - ◆ Windows, MAC and perhaps Linux
- ➢ Be able to combine any number of files and folders into a single archive file
    - ◆ This makes sharing folders with many entries easier to manage
- ➢ Be able to optionally encrypt the archive file so the data can be transferred over insecure channels including WeTransfer
- ➢ Be able to split the, optionally encrypted, archive file into chunks that can be transferred over the chosen transfer channel
- ➢ At the recipient
    - ◆ To recombine multiple chunks back to a single file if they were separated
    - ◆ To decrypt the data if it was encrypted
    - ◆ To expand the archive file back to the original file structure

There are several programs available that perform each of these functions but the author could only find one that does all of the steps outlined above and is available on all platforms:

- ➢ **WeTransfer** – A free web based service assuming that the unit of transfer is less than 2 Gbyte
  - ◆ Paid for options exist to extend the transfer size
  - ◆ There is a workaround to the 2 Gbyte limit that uses another free tool PeaZip that also provides further options
- ➢ **PeaZip** – recommended, and its use is assumed within the rest of this guide
  - ◆ Download for all platforms – https://peazip.github.io/
    - ❍ Windows MAC and Linux are all supported
  - ◆ Note that PeaZip also provides
    - ❍ File splitting and recombining features
      - • Note that other tools exist but would require a further programs to be installed
    - ❍ Encryption and decryption options

PeaZip installation and operation is described in a separate guide as it has many uses outside the data transfer requirement described in this document

WeTransfer operation is described in this document – see
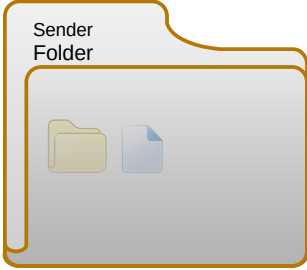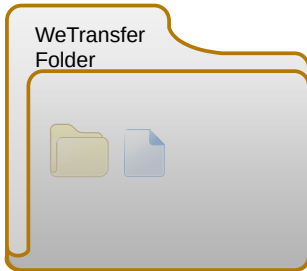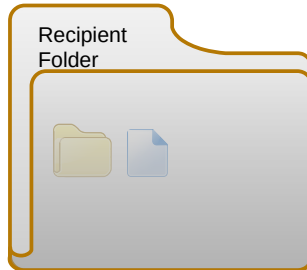   *Section 2 - WeTransfer – Outline of operation*
       Section 1.1 - Scope

2 WETRANSFER – OUTLINE OF OPERATION

2.1 Overview

The two parties are defined here as the **Sender** who is transferring the data to the **Recipient**. Each must have a valid email address.

We will be referring to WeTransfer and more details of how to use this program are included in Section 1.1 Scope.

2.2 Simple file transfer

Step	Sender actions	WeTransfer Server State	Recipient actions/State
1.	Source folder – all files and folders in this folder are to be transferred Sender initiates copy to WeTransfer Folder **Note that uploads are typically significantly slower than downloads. This step may take some time for large files.**	WeTransfer receives the files from the sender. WeTransfer creates a download link that can be copied. **The upload will fail if there is insufficient space to receive all the files. This includes all files already stored on this account.** **To send larger files then further steps are required as described later.**	
2.	When completed the Sender should send an email to the recipient which contains the download link obtained from WeTransfer	After the file transfer has completed the WeTransfer folder will contain the same folders and files that the Sender uploaded. 	Recipient receives the download link via email from the Sender and simply uses the link to retrieve the files. Result the recipient now has an identical copy to the original sender. The recipient can then notify the sender that they have successfully retrieved the files e.g. by email

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Step	Sender actions	WeTransfer Server State	Recipient actions/State
3.	Once the files have been retrieved they can be deleted from WeTransfer. This will be necessary if more files need to be transferred e.g. multiple files after splitting a large file. WeTransfer does provide a status indicating that the files have been retrieved. Procedurally it would be advisable to ask the recipient of the files to notify the sender that they have bee received safely	WeTransfer status will indicate that the files have been copied.	Once all the files have been received then, if they are a multipart set of files they can be recombined, and if necessary decrypted. The net result is the receiver has an identical file or set of files that are exactly the same as the sender.

2.3   Multiple file transfer – simple case

If there are many files to transfer it is recommended that the full file set is collected into a single archive file, often called a Zip file, which is then transferred to the recipient via WeTransfer. This avoids the risk of accidentally missing a file if there are a significant number of files.
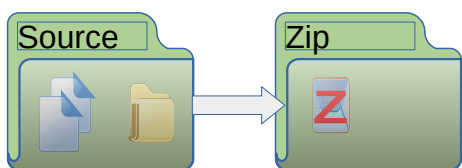

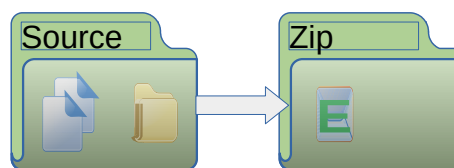*Figure 1: Create a simple Zip file*   *Figure 2: Create an encrypted file*

Figure 1: Create a simple Zip file illustrates this process. An unlimited number of files or folders can be contained in the Zip file.

If privacy is important then the Zip file can be encrypted as it is created. Figure 2: Create an encrypted file shows the same process but with the Zip file encrypted. Note that this file may be different in size to the unencrypted file but the way in which it is handled by WeTransfer is identical

If the file size is less than the WeTransfer limit, and there is already sufficient space available, then it can simply be uploaded as described in section 2.2 Simple file transfer.

If the file is

➢   larger than the WeTransfer limit of 2Gbyte
➢   or merging the data into a single file exceeds the WeTransfer 2 Gbyte limit
➢   or there are already files stored on the WeTransfer server

Then additional processing/manual steps are required. See 2.4 Large transfers

2.4   Large transfers

For large files or file sets it may be necessary to split the data into "chunks" of such a size that WeTransfer can handle them. The data is still compressed into a zip file and optionally encrypted but is then split by Peazip into a number of equally sized files for transferring to the recipient.. The chunk size is configurable. Each file has a file extension of the "chunk" number starting from *.001

Suggested procedure is as follows:

➢ Consolidate all of the data you want to send into a single archive Zip file using PeaZip. Encrypt this file is privacy is important.
➢ Use PeaZip to split this file into chunks of 1 Gbyte
  ◆ The result will be a series of files with numeric file extensions .001 of equal size apart from possibly the final file
  ◆
➢ Upload the highest number chunk to WeTransfer and send the link to the receiving party
  ◆ The receiving party can immediately begin to receive the chunk
  ◆ When they have finished receiving the chunk they can then notify the sender that the data has been received
➢ Upload the previous numbered chunk to WeTransfer and again send the link to the receiving party

Each chunk is uploaded individually to WeTransfer and once all of the hunks have been received PeaZip can recombine them first into the zip file and then back to the original folder structure.
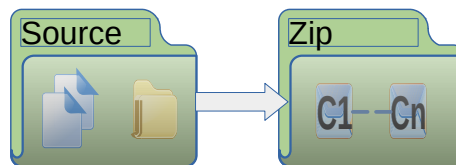

Figure 3: Splitting file into chunks

This process is illustrated in Figure 3: Splitting file into chunks.

Step	Sender actions	WeTransfer Server State	Recipient actions/State
1.	Sender creates an archive file that is split into chunks of 1 Gbyte or less using PeaZip	It is assumed that there is no data stored in WeTransfer	
2.	Sender initiates an upload to WeTransfer of the highest numbered chunk and waits for it to be completed. This chunk may be less than 1 Gbyte	WeTransfer will have received the file and will have a link to that file.	
3.	Sender sends email Recipient containing the WeTransfer link		Receiver receives email and initiates transfer of that chunk
4.	Sender initiates transfer of previous chunk in set. This chunk should be 1 Gbyte in size	There should be sufficient space for this second chunk and another link should be generated	

Step	Sender actions	WeTransfer Server State	Recipient actions/State
5.	Sender sends email to Recipient for link to this chunk.		Receiver waits until the chunk currently being processed has been completely received and could send an email to the sender
6.	Sender now waits until they receive an email from Recipient to say the first chuck has bee received or monitors the We Transfer status which will show that the chunks has been successfully received. Then they delete the relevant chunk to make space for the next chunk and then, if there are more chunks available, initiates the next chunk. See Step 4 above	First chunk to be uploaded is deleted and the transfer of the next chunk if any is initiated	

3   WETRANSFER – DETAILS OF OPERATION

3.1   What is WeTransfer

This is a "cloud-like" service that is specifically designed for file sharing.

It is entirely web based and the free version enables files up to 2 Gbyte to be uploaded. This can be a single file, multiple files or the contents of a folder which can contain sub-folders.

WeTranfer can then either:

➢ Email a time limited link direct to another party for them to download the file or files
➢ Email you a time limited link for you to forward to whoever you choose

3.2   Setup your free account

You go to the web site and create an account.

➢ WeTransfer URL is https://wetransfer.com/
➢ You should then see this page - we will use the Free option
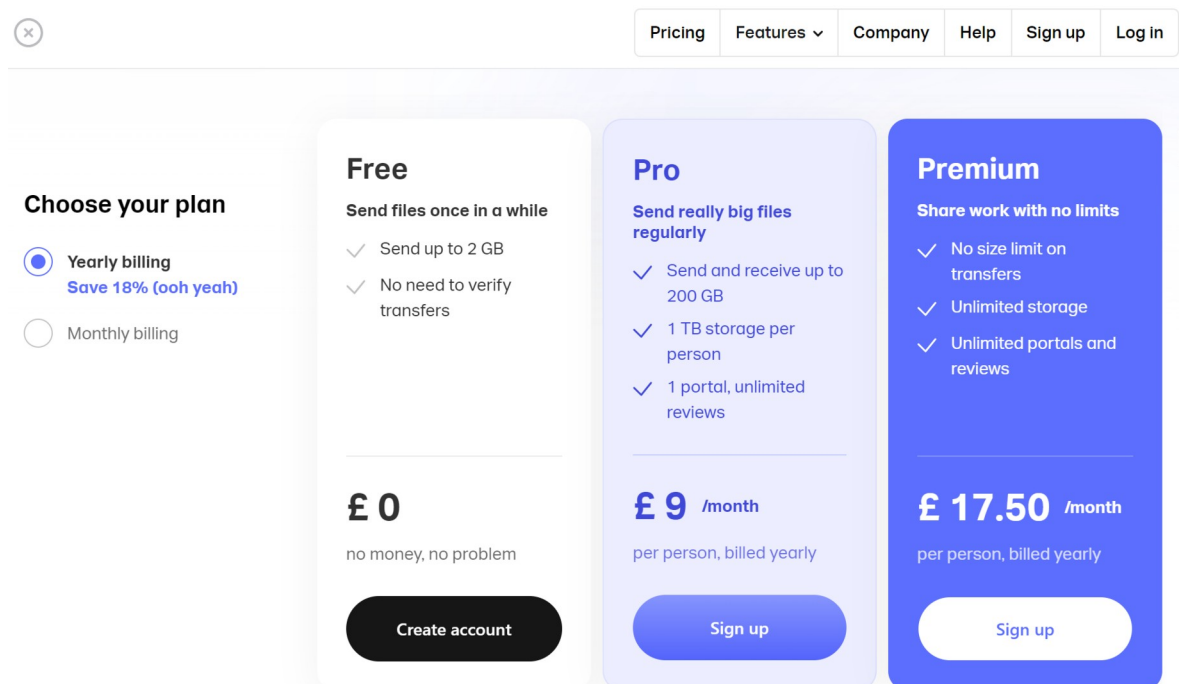
Figure 4: Sign-up page

➢ Create an account with a user name and password together with an email address so that you will receive messages from WeTransfer
  ◆ You will be sent an authentication message to verify that the email exists
  ◆ You click on the button in the email to confirm that it is a valid email
  ◆ You receive an email confirming that all is OK
  ◆ Here is the sign-up page
➢ We will pick the free option and click create account
  ◆ Feel free to choose one of the other options

- ➢ An email will (eventually, it took a while) be received where you need to click a link to confirm it is you
- ➢ Once confirmed you can login to the site
  - ◆ You can optionally increase security by adding a phone number to receive a text
    - ❍ This was was not tested!
- ➢ Once logged in you can click on Upload files
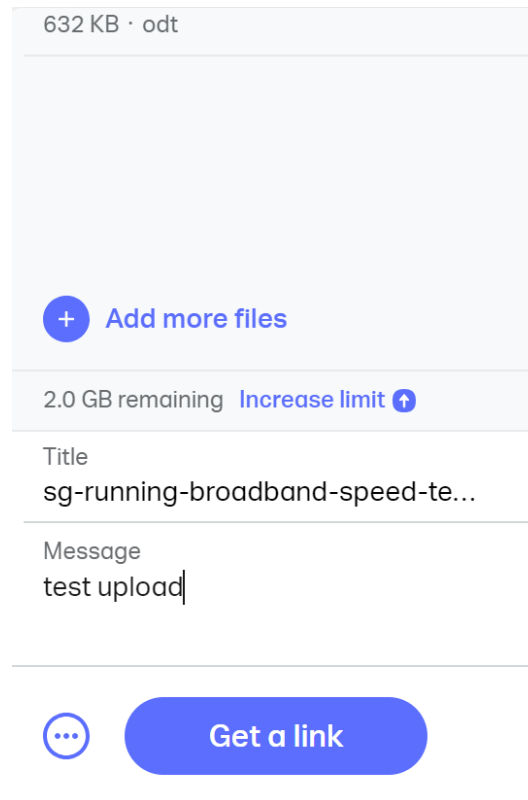
Figure 5: File upload dialog

- ➢ You then select the file/folder to upload from on your computer and wait for the upload to complete
  - ◆ You can add further files and/or folders
  - ◆ It shows the progress with an estimate of time to complete
    - ❍ Note that for a large file this can take many minutes depending on your Internet upload speed
  - ◆ Note that the free limit is a total of 2 Gbytes of data stored on a free account
    - ❍ You may already have files stored there!
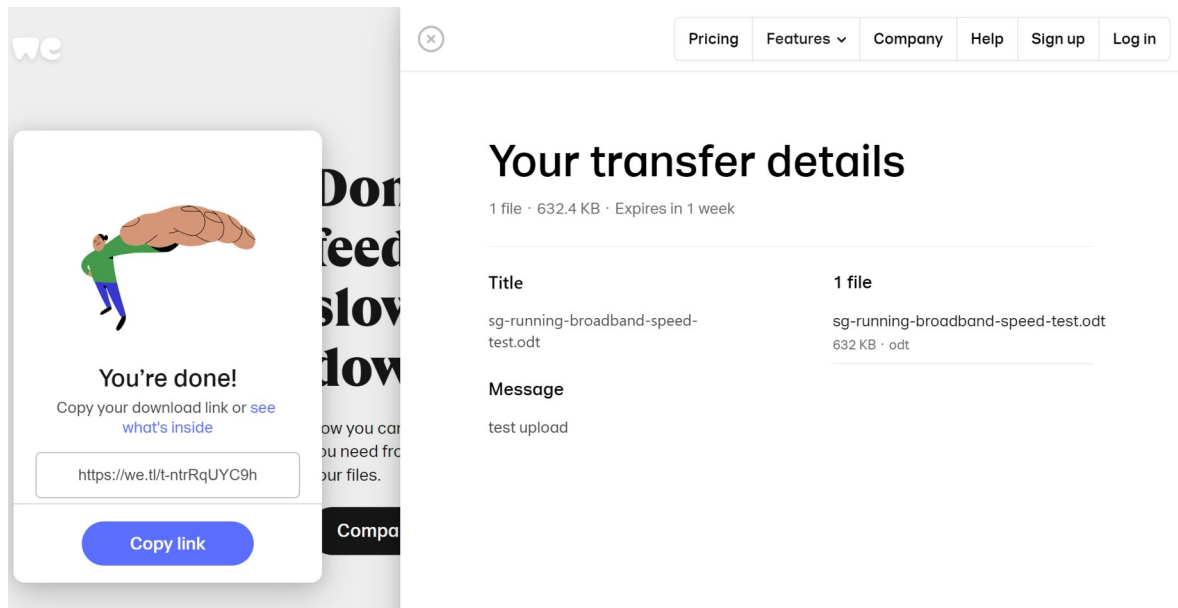- ➢ Then click Get a Link.

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Figure 6: Upload completed message

➢ The link showing in the dialog `You're done` should be copied to the clipboard by clicking the `Copy Link` button and pasted into an email
➢ The recipient should then click on the link received to copy the file or folder to their local computer.
➢ One you have confirmed that the file has been successfully received it can be deleted from their server

When you subsequently login you will see a page as shown in Figure 7 - Subsequent login (ignore the advertising!)
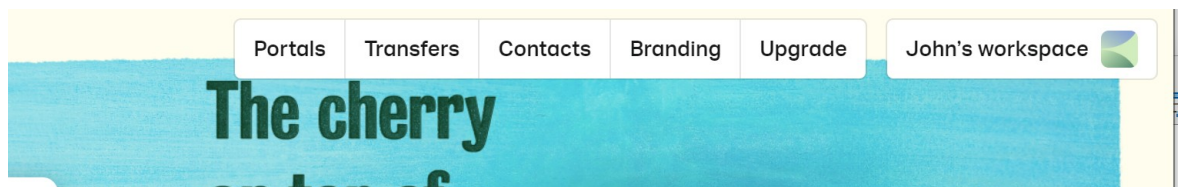
Figure 7: Subsequent login

➢ Click on the right hand button to open the Workspace `John's workspace`
➢ Click on `Account`
➢ Click on `Transfers` and you will see a display like Figure 8 - Managing the stored files - overview
  ◆ In this illustration there are two files shown
    ❍ One has been downloaded
    ❍ The other has not
  ◆ You can access the download link from here to send to another person or delete files as required by selecting the > menu
    ❍ This produces the new dialog as shown n Figure 9, Managing stored files – one selected
    ❍ This shows what files are stored and the number of times it has been downloaded

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Figure 8: Managing the stored files - overview

Figure 9: Managing stored files – one selected

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