**Data Delivery FAQ**

1.  **How can I obtain my data?**

    Mirxes recommends the use of AWS S3 bucket for transfer of data. If you are unable to use AWS S3, we can also offer data transfer via SFTP or external Hard Disk Drives (HDDs).

    Kindly note that SFTP and HDD options are only available for transfer of data sets that are smaller than 3 Tb and 5 Tb in sizes respectively. There will also be additional charges for these two transfer methods.

2.  **Can I set up the AWS S3 myself?**

    Setting up an AWS account is straightforward and Mirxes can also provide assistance. Kindly contact Mirxes if you require help setting up an account.

    a.  First you will need an account with AWS. Instructions on creating an AWS account: https://aws.amazon.com/premiumsupport/knowledge-center/create-and-activate-aws-account/
    b.  Second to set up the S3 (refer to tutorials in the menu on the left): https://docs.aws.amazon.com/AmazonS3/latest/userguide/GetStartedWithS3.html
    c.  Lastly you will just have to create the bucket for receiving the data: https://docs.aws.amazon.com/AmazonS3/latest/userguide/creating-bucket.html

3. **How can I receive the data after setting up my bucket?**

You will need to edit your bucket's policy to allow Mirxes access. This access is restricted to uploading data by Mirxes. Please follow the instructions below:

a. Enter the bucket and click on the Permissions tab.
b. In the Permissions tab, click on Edit Bucket Policy and attach the following bucket policy.

**BUCKET POLICY**

```
{
        "Version": "2012-10-17",
        "Statement": [
                {
                        "Effect": "Allow",
                        "Principal": {
                                "AWS": "arn:aws:iam::335954391836:root"
                        },
                        "Action": [
                                "s3:ListBucket",
                                "s3:ListBucketMultipartUploads",
                                "s3:AbortMultipartUpload",
                                "s3:DeleteObject",
                                "s3:ListMultipartUploadParts",
                                "s3:PutObject"
                        ],
                        "Resource": [
                                ""arn:aws:s3:::BUCKET-NAME",
                                "arn:aws:s3:::BUCKET-NAME/*"
                        ]
                }
        ]
}
```

Please replace the **BUCKET-NAME** in the policy with the name of the bucket you created.
**Reference**: Example 2: https://docs.aws.amazon.com/AmazonS3/latest/userguide/example-walkthroughs-managing-access-example2.html

4.  **Why does Mirxes recommend AWS S3?**

Amazon S3 was designed with DR factors considerations. It supplies a highly durable storage infrastructure, offering numerous features to support data durability and backup demand. Amazon S3 also provides the option of utilizing file versioning, which provides users easy recovery from application failures and accidental user actions by holding several versions of each object in a bucket. Versioning supports a variety of actions, such as saving, retrieving, and recovering each version of any object stored in your bucket.

Amazon S3 boasts a durability rate of 99.999999999% over a given year (1 file in 100 billion may be lost every year) and it stores your files across several data centres to support simultaneous device failures by rapidly detecting and fixing any problems that may occur.

For data transfer, Amazon S3 provides unmatched security, compliance, and audit capabilities as all objects uploaded to the bucket are encrypted. Mirxes uses a dedicated 10Gbps line to transfer your data to the S3 bucket and this line does not utilize internet usage hence all external access is prohibited. AWS S3 is also ideal for transfers of large data sets as it does not break up data sets in the process. The customers are thus guaranteed a complete data set at receipt.
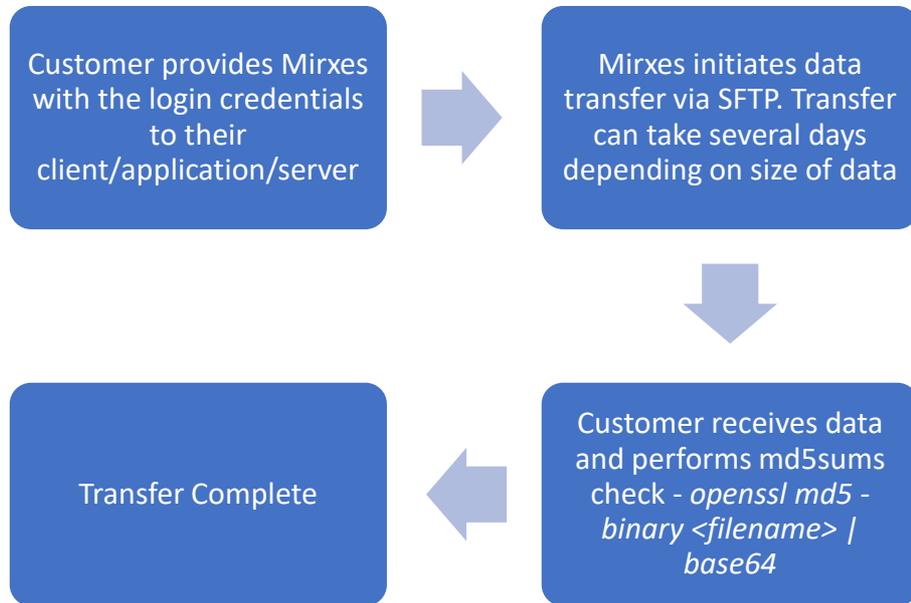
5.  **If I am unable to set up an AWS S3 account, can I use SFTP?**

Mirxes can also offer the option of SFTP for transfer of data that are smaller than 3Tb in size. SFTP is a file transfer protocol that uses SSH encryption to transfer files between systems securely. SFTP encrypts each file during data transfer and clients receiving these files must authenticate before they can decrypt and access the data. Do note that while SFTP is more secured than other standard file transfer protocols, it provides far less data protection than AWS S3.

The main disadvantage of SFTP is that it breaks data sets into smaller packets during the transfer, resulting in occasional loss of data segments especially when the data size is huge. This is the reason why a md5sum check on data integrity is always required after a session to ensure complete transfer of all data. For larger data sets, there is a high chance that multiple rounds of data transfer be required.

There will be additional charges and turn-around time for utilizing SFTP. Kindly check with your Mirxes contact person for more information.

**6. How do I use your SFTP transfer?**

```
┌─────────────────────────┐      ┌─────────────────────────┐
│ Customer provides Mirxes │      │ Mirxes initiates data   │
│ with the login credentials│ ──▶ │ transfer via SFTP. Transfer│
│ to their                 │      │ can take several days   │
│ client/application/server│      │ depending on size of data│
└─────────────────────────┘      └─────────────────────────┘
                                              │
                                              ▼
┌─────────────────────────┐      ┌─────────────────────────┐
│                         │      │ Customer receives data  │
│                         │      │ and performs md5sums    │
│  Transfer Complete      │ ◀─── │ check - openssl md5 -   │
│                         │      │ binary <filename> |     │
│                         │      │ base64                  │
└─────────────────────────┘      └─────────────────────────┘
```

**7. Can I still use external hard disk drives (HDDs)?**

Mirxes offers 1 Tb and 5 Tb HDDs depending on the size of your data. Currently our IT policy do not permit used HDDs to be plugged back into our system hence all HDDs sent out will be brand new. As there are multiple rounds of data transfer when using HDDs (Mirxes server to HDD, HDD to client), data integrity may also be impacted.

There will be additional charges and turn-around time for HDDs. Kindly check with your Mirxes contact person for more information.