



Hamlet.rt

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Data Transfer Guide

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Overview

This document provides available options for transfer of image data for the Hamlet.rt study. It is intended that image data is transferred in batches rather than on a patient-by-patient basis. Several options are described to suite different local IT policies with regards to software installation and network connectivity, and local policies regarding data anonymisation. Please review the feature matrix below:

<i>Option</i>	<i>Network requirement</i>	<i>Installation requirement</i>	<i>Anonymisation requirement</i>
NHS Egress	Web access to a site hosted on HSCN (formerly N3 network)	None	End user applies anonymisation and labels the data package with study ID
Azure Storage Explorer /	Outbound public internet access via Secure HTTP	User elevation to install application on local workstation	End user pseudonymises data with study ID at export from TPS / data store
Azure Filesystem Mount	Outbound public internet access via Port 445	User elevation to run terminal script that mounts a 'network' folder	End user pseudonymises data with study ID at export from TPS / data store
Hamlet.rt trial processor (preferred)	Outbound public internet access via Secure HTTP	Python / Miniconda installation. Outbound access to install python dependencies. User elevation to create folders.	End user maintains a lookup table mapping hospital numbers to study IDs. Data processing and upload is automated

NHS EGRESS

This is the simplest option for centres that are likely to recruit only a small number of patients into the study. Egress is available to all users with an NHSmail account, and can be used either from a public internet connection or a connection within the Health and Social Care Network (i.e. a computer connected to the hospital network). **It can only be used to send data between NHSmail users.** It works via a web form. Up to 5Gb of data can be sent at a time. Full details of how to use egress are provided here:

<https://support.nhs.net/knowledge-base/egress-large-file-transfer-web-form/>

Please prepare your data one patient at a time. Anonymise and export the data using your treatment planning system software, and copy all DICOM Planning CT, RTSTRUCT, Dose cube and image guidance data to a single zip file.

Please label the zip file with the trial ID of the patient (i.e., something like 123-1001.zip).

Visit <https://lft.nhs.net/> and login with your NHSmail ID.

Send the data to rjena@nhs.net using the web form. You can drag and drop the zip files as follows:

New Mail - Large File Attachment

From: *
rjena@nhs.net

To:
ambushedbycake@nhs.net

CC:

Subject:
Hamlet.rt data upload

Sending data for Hamlet.rt patients 123-1001 and 123-1002

For information on the permitted file types that can be attached and sent via NHSmail, please see [NHSmail guidance](#)

File Upload

123-1001.zip 150 B	
123-1002.zip 150 B	

Azure Storage Explorer

This option assumes that the end-user is exporting data from the treatment planning system, using an export workflow that anonymises each dataset individually and replaces the patient’s MRN with the study ID.

This means that the data is pseudonymised ‘at export’ and can be transferred to Azure storage via a secure connection (HTTPS protocol encrypted using transport layer security). The transfer can be performed using the Azure Storage Explorer which is an application that must be downloaded and installed onto the end-users workstation. It is available for Windows, Mac and Linux systems.

Storage explorer gives the end-user direct control of the upload process, and it less error prone than an Azure filesystem mount (described in the next section).

Data preparation

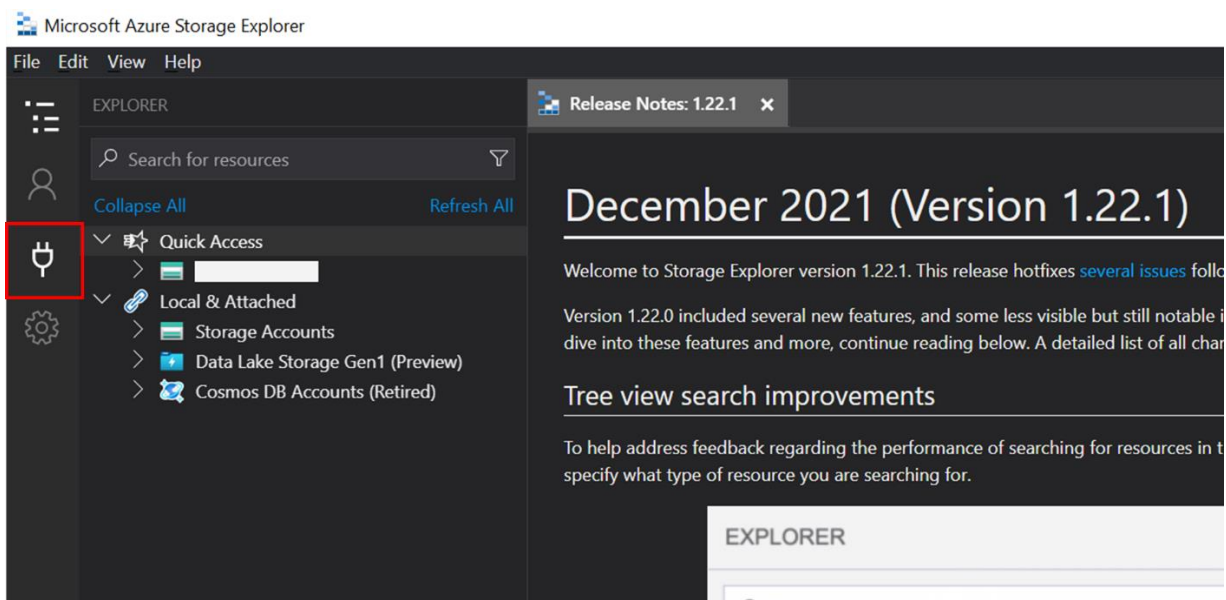
With this option, batches of data from more than one patient can be sent at a single transfer. Please compress the exported data into a zip file with a unique name.

Installing and configuring Azure Storage Explorer

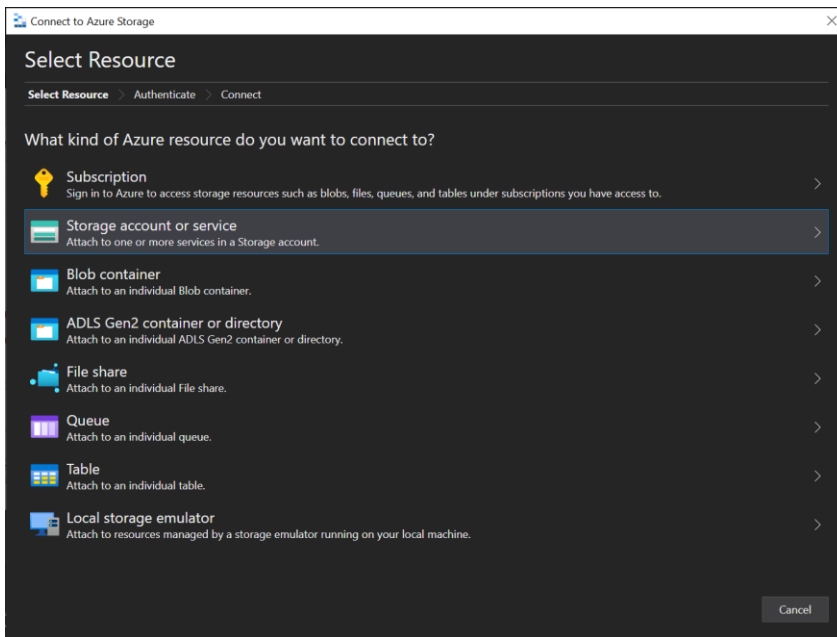
Azure Storage Explorer is a free GUI application that simplifies the process of data upload to your Azure storage. The end-user will connect to the appropriate Azure store using a secure key provided by the study team. It can be downloaded from this link:

<https://azure.microsoft.com/en-us/features/storage-explorer/>

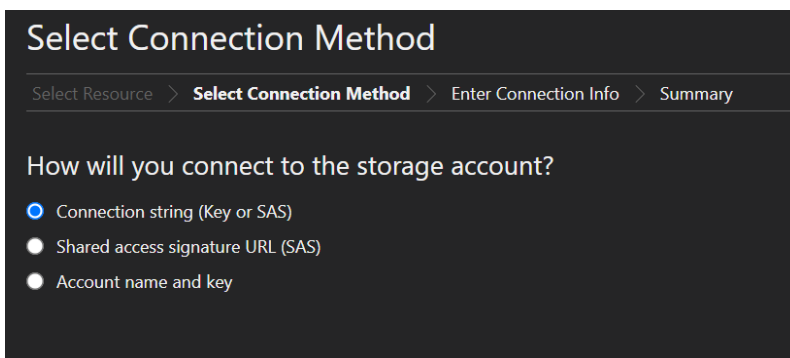
Run the application, and click on the connect to Azure storage button:



You will then see a dialog box asking what type of resource you are connecting to. Select **Storage Account**:

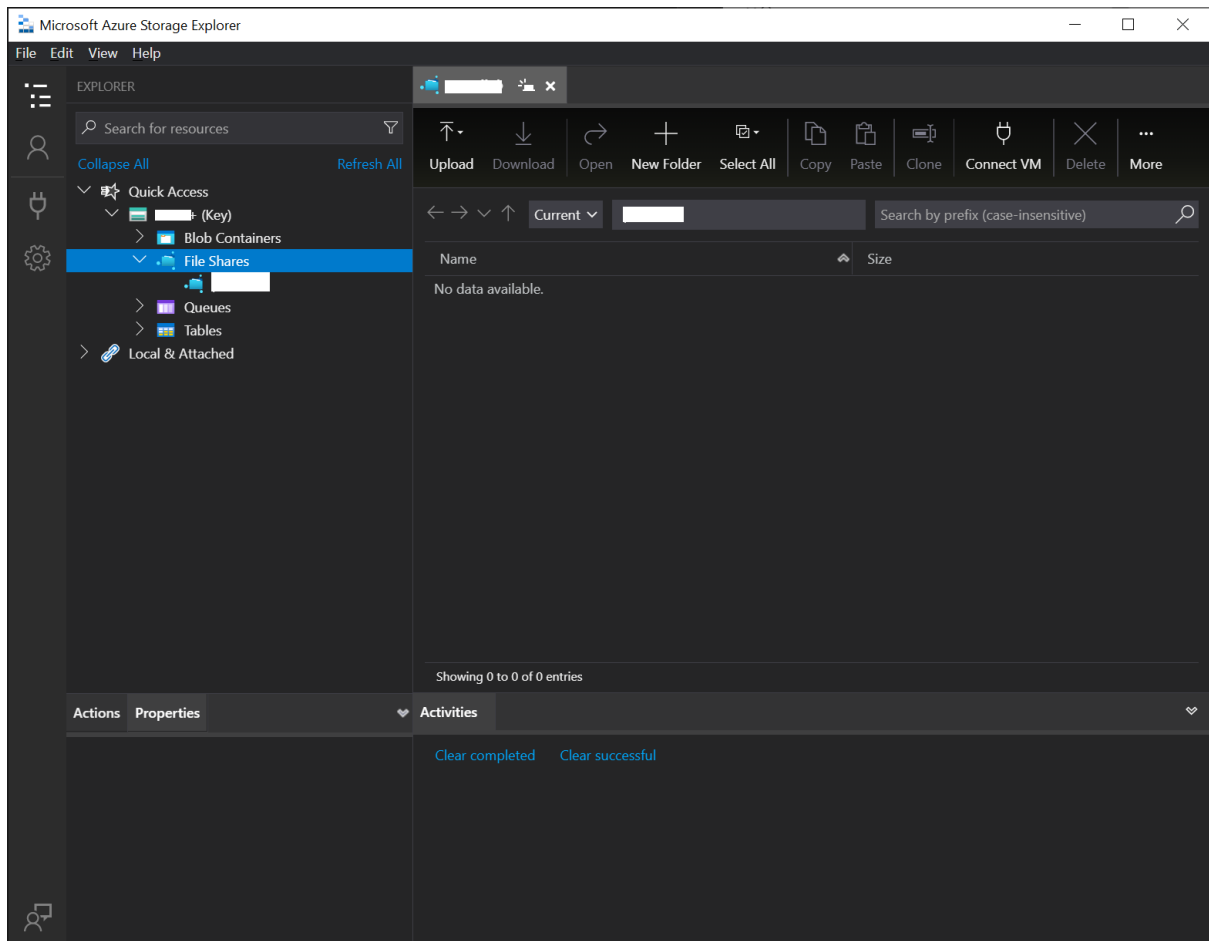


You will then need to specify how you make the secure connection to your storage account. **Select Connection String** which is the first option:



For the next step you will need your unique connection string from the study team. Choose a display name that makes it easy for you to find this storage account (e.g. Hamlet-rt) and copy and paste in the storage key.

Check the summary and connect to the storage account. You will only need to perform these steps once. Next time you start the Storage Explorer, the connection will be retained. To upload data, use the tree view to find the file share in your storage account. It will usually be called something like 'incoming':



You can use the upload button to specify the zip file containing your pseudonymised data, or you can drag and drop it into the file share window. The actions pane will provide details on upload progress.

When you have finished uploading data, you can exit the application. Note that the connection string will be retained when you open the application again.

Azure Filesystem Mount (SMB)

This option assumes that the end-user is exporting data from the treatment planning system, using an export workflow that anonymises each dataset individually and replaces the patient's MRN with the study ID.

This means that the data is pseudonymised 'at export' and can be transferred to Azure storage via a secure connection (HTTPS protocol encrypted using transport layer security). The transfer of data can be achieved very quickly by mounting the file share in the Azure storage account (just like a network file share using SMB) and copying data from the command line or the operating systems folder tools. The slight risk is that it is easier to inadvertently copy bulk data to the file share.

Note that the Filesystem mount uses port 445 to make the connection to the Azure file store. This must be open in your computer / hospital firewall.

Data preparation

With this option, batches of data from more than one patient can be sent at a single transfer. Please compress the exported data into a zip file with a unique name.

Configuring Azure Filesystem Mount

This is performed via a custom script provided to you by the study team. Please contact the study team specifying whether you are using Windows, Mac or Linux operating system and the script will be provided.

For Windows computers the script must be run from Windows PowerShell.

For Mac and Linux it must be run from a Terminal window.

For reference, here is an example PowerShell script that makes the connection (connection details have been blanked out):

```
$connectTestResult = Test-NetConnection -ComputerName
hamletrtcambridge.file.core.windows.net -Port 445

if ($connectTestResult.TcpTestSucceeded) {

    # Save the password so the drive will persist on reboot

    cmd.exe /C "cmdkey /add:`"_____
/user:`"localhost\hamletrtcambridge`" /pass:`" /
_____

    # Mount the drive

    New-PSDrive -Name Z -PSProvider FileSystem -Root
"\\hamletrtcambridge.file.core.windows.net\cambridge-incoming" -Persist

} else {

    Write-Error -Message "Unable to reach the Azure storage account via
port 445. Check to make sure your organization or ISP is not blocking port
```


445, or use Azure P2S VPN, Azure S2S VPN, or Express Route to tunnel SMB traffic over a different port."

}

The connection should persist after user logout until it is manually unmounted.

Copying data

Simply copy data to the incoming folder in your file share.

Hamlet.rt Trial Processor software (HTP)

Please refer to the separate user guide for the Hamlet.rt Trial Processor software.

Questions and support

If you have any questions about any of the options listed for data transfer, please contact Dr Raj Jena via email at rjena@nhs.net