



STANDARD OPERATING PROCEDURE

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1. Purpose

This document provides instructions for the TRE service team to assist during the migration of a project from the TRE to an alternative resource. It also provides guidance to personnel who are responsible for receiving the project, including the project team itself.

This SOP is supplemented by FORM-011 which must be completed by a project representative (preferably the PI) to provide their acceptance of a successfully completed migration.

2. Scope

This document describes all the steps necessary to migrate a project from the Trustworthy Research Environment into an alternative resource. However, not all these steps are the responsibility of the TRE service team, and therefore even though they are referenced here, they are out of scope* of this SOP. *Table 1* defines these responsibilities.

In the context of migration, the term 'project' is used here to describe the data and its associated integrity record, and all administrative paperwork related to the project's contracts, governance, and ethics and data sharing agreements. These are the only assets belonging to a project that can be migrated as they will be compatible with the receiving system and are required for validating the migration. Examples of assets that are not transferrable are user accounts, software applications/licenses owned by the TRE service, project administrative data, dataset metadata, service change control records and system configuration data.

*Out of scope of this procedure:

- Defining the criteria for selecting the receiving service
- Defining the criteria for selecting the data transfer method
- Providing guidance for revising the Information Sharing documentation
- Providing guidance for preparing the data prior to export

Explanation for out-of-scope items: Although this document lists the data transfer options, recommendations for transfer method are out of scope because they must be determined by the data sharing agreement (or its equivalent) where the review of such documents shall be the responsibility of the receiving service and the project owner. It therefore follows that guidance for importing the TRE project into the receiving service is out of the scope of this SOP as this information should be provided to the project owner by the receiving service team.

3. Procedure

3.1. Introduction

As explained in the previous section, this SOP focusses on the data transfer as this is the most critical aspect of TRE project migration from a security perspective. Although this SOP uses the term 'data export' it differs from operational TRE data exports conducted during the project lifetime which are described within SOP-07-02 TRE Data Export and Output Checking. The difference is that for migration, the TRE service team export the data placed in the 'final-export' directory, and do not conduct any

output checking or assessment of the data contents (the exception is generating checksums for integrity checking). Therefore it is entirely the responsibility of the project owner to ensure the transfer of their data to their chosen destination meets the information governance requirements of their project.

The migration procedure comprises a sequence of activities, some of which are already described within existing TRE SOPs; TRE Access Control, TRE Dataset Destruction, TRE Change Control, Secure File Transfer, and TRE Project Record Management. Where possible, these SOPs will be references, and therefore the content of this SOP will be kept to a minimum.

3.2. Summary of migration steps

Table 1

Activity	Responsibility
Destination service requirements gathered	Project Owner
Destination service selected	Project Owner
*Method of data transfer selected	Project Owner and Receiving Service team
Modification of Data Sharing Agreement and other IG records	Project Owner and their appointed IG representative
*Preparing data for export	Project Owner
Selection of data transfer method	Project Owner and their appointed IG representative
Transfer of data to Receiving Service	TRE Service team and/or Receiving Service team & Project Owner
Import of data into Receiving Service	Receiving Service team
Validation of imported data	Project Owner and Receiving Service team
*Revocation of TRE user access	TRE Service team
*Destruction of TRE Data	TRE Service team
*TRE Dataset catalogue records archived	TRE Service team

* Described within this SOP

3.3. Options for transferring data

The TRE service supports 3 options for the transfer of exported data:

1. SFTP: TRE end-point uploads data to Destination end-point
2. Portable encrypted storage device
3. SFTP: Destination end-point downloads data from TRE end-point

Option 1 requires the destination system to accept SSH connections and must be running an SFTP service that allows the authenticated user to access their home area and place their data there. Authentication by SSH key-pairs should be used where possible. If the destination requires connection from a proprietary file transfer client, this will be to be compatible with the TRE (packaged for RedHat Linux) and provided to the TRE service team to be installed on the TRE project virtual machine.

Option 2 requires the destination system to be compatible with a USB storage device encrypted with either BitLocker or VeraCrypt software.

Option 3 should follow SOP-09-14 Secure File Transfer Client Setup to establish an SFTP connect from the Receiving system to the TRE.

3.4. Preparing data for export

Unless the TRE project's users will be transferring their data themselves (via either Option 1 or 3 from the previous section), the TRE service team will prepare the export of the entire contents of the /home/final-export directory. In this scenario, the TRE service team will compress both the /home/final-export directory into a single zip file, or multiple zip files to ensure no file is larger than about 25GB (where feasible). The TRE service team will generate a SHA256 checksum value for each zip file and provide it to the TRE user so that it can be used at the destination to validate the data transfer.

3.5. Portable Storage Device encryption

If the data is to be moved from the TRE onto the destination via a portable storage device, this must be encrypted using the AES256 algorithm using either BitLocker or VeraCrypt software. Additionally, an authentication key-file must be used to further protect the contents. With VeraCrypt, the key-file can be any type of file of any content. With BitLocker, a key-file is generated with the BitLocker software when key-file authentication is selected. This key-file is then presented as a text file.

In either case, the encrypted storage device must always be stored in TRE SAFE-001 when not in use, and the associated key-file also stored in this safe on a USB memory stick (orange Lanyard).

3.6. Project Migration Acceptance

To minimise security risk, after the TRE project's data has been transferred into the receiving system, the project owner will have 1 week to validate their data, and provide their written acceptance within document FORM-011. The TRE service team reserves the right to permanently delete all project data within 1 month of completing the migration.

3.7. TRE Project Closure and Data Destruction

Following successful TRE project migration, the following activities will be completed by the TRE service team in accordance with the corresponding TRE SOP:

- Revocation of TRE user access: *SOP-09-13 TRE Access Control*
- Deletion of project's data: *SOP-05-15 Secure Deletion of TRE Datasets*
- Archival of TRE Project Record: *SOP-03-06 Managing TRE Project Records*
- Change Management Records Update: *SOP-03-08 TRE Change Control*

4. Cross-referenced ISMS Documents

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FORM-011	ISMS\Forms	TRE Project Migration Acceptance
SOP-03-06	ISMS\SOP\TRE Operations - SOP	Managing TRE Project Records
SOP-03-08	ISMS\SOP\TRE Operations - SOP	TRE Change Control
SOP-05-15	ISMS\SOP\Asset and Supplier Management - SOP	Secure Deletion of TRE Data
SOP-09-13	ISMS\SOP\TRE System Administration - SOP	TRE Access Control
SOP-09-14	ISMS\SOP\TRE System Administration - SOP	Secure File Transfer client setup

5. Appendices

None