



Seamless Flow

Statement of Requirements for Preservation and Maintenance Project Digital Object Store

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1. User Requirements

This section catalogues user requirements for the Seamless Flow Preservation and Maintenance Project (Digital Object Store). They are enhancements to the existing Digital Archive system. Hence the existing functionality as described in the Digital Archive Software Requirements Document, V1.R10.M0, 29/06/2005 and Contract Change Notes 1 to 4 remain unless explicitly removed (Annex C).

The individual requirements are listed below. For ease of reference, the requirements are categorised under the following headings:

STO	Requirements related to storage and export
REP	Requirements related to reports
SYS	Requirements related to system
GEN	General Requirements
PRF	Requirements related to performance
STD	Standards
RPS	Requirements for Record Preparation Store

They are further prioritised as follows:

Mandatory	those that <i>must</i> be delivered from the start
Desirable	those that <i>should</i> be included, but possibly as part of a later phase of development
Optional	those that <i>could</i> be included given resources and time, or if they are readily incorporated into work on a mandatory or desirable requirement.

Abbreviations

AIP: Archival Information Package – a conceptual package of digital objects and associated metadata which corresponds to a particular archival manifestation of a record, stored in the DOS and the GMMS.

DA: Digital archive, the existing operational system

DIP: Dissemination Information Package – a conceptual package of digital objects and associated metadata which corresponds to a particular presentation manifestation of a record, is available for use through a presentation system.

DOS: Digital Object Store – the secure storage system for the digital object components of AIPs

GMMS: Generic Metadata Management System – the authoritative source and management system for metadata, including the metadata components of AIPs and DIPs.

PROCAT: the online Catalogue of metadata about records held by TNA

RPS: Record Preparation Store – the working area on which all record processing occurs, e.g. for ingest, migration, and redaction.

SIP: Submission Information Package – the conceptual package of records and metadata that is transferred to TNA by an OGD.

SF: Seamless Flow

TW: Technology Watch

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Requirement	SYS 01	Current Digital Archive functionality	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The system needs to maintain the functionality of the current Digital Archive system unless stated otherwise in the requirements or agreed with TNA			
Benefits			
Suggested Solutions			
Comments			
The functionality of current Digital Archive system is described in the Digital Archive Software Requirements Document and Contract Change Notes 1 to 4 in Annex C. The architecture of the existing Digital Archive can be seen in Annex D.			
Resolution			
Related Requirements			

Requirement	SYS 02	Data migration	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need a one-off data migration to the new data model and referencing system (i.e. from the DA to the new DOS).			
Benefits			
Suggested Solutions			
Comments			
Estimated size of the DA migration is 500 GB.			
Resolution			
Related Requirements			

Requirement	SYS 03	Monitor integrity	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The system must be able to monitor the integrity of the stored files.
Benefits
Suggested Solutions
By a regular scheduled automated process that checks files by comparing calculated hash values with load AIP metadata hash values.
Comments
The process should produce a log showing the range of files checked on a particular date and immediately give an alert if a mismatch is detected. This requirement should also ensure that tapes are verified and replaced at appropriate intervals.
Resolution
Related Requirements

Requirement	SYS 04	Backup and recovery	
Priority	Mandatory	Owner	Project Team

Functional Requirement
It must be possible to back-up and recover the applications and data
Benefits
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	SYS 05	Resilience	
Priority	Desirable	Owner	Project Team
Functional Requirement			
The supplier should provide a proposal to improve system resilience.			
Benefits			
Suggested Solutions			
Consider using a second system that could be used for either replication or synchronization			
Comments			
Need priced options			
Resolution			
Related Requirements			

Requirement	SYS 06	Review storage system	
Priority	Optional	Owner	Project Team
Functional Requirement			
The supplier should review and recommend an alternative storage system for storing the record files and XML metadata file.			
Benefits			
Suggested Solutions			
Consider content addressed storage			
Comments			
Resolution			
Related Requirements			

Requirement	SYS 07	Corruption correction utilities	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The supplier needs to recommend methods to automate the detection and correction of corruption type errors.			
Benefits			
Suggested Solutions			
Comments			
These should cover both file corruptions and database corruptions. The intention is to enhance utilities in current system and address issues that may arise when the storage size of the DOS increases.			
Resolution			
Related Requirements			

Requirement	SYS 08	Option not to run anti virus software	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The system needs to provide the option not to run the anti-virus checkers on load into DOS			
Benefits			
The current version has a mandatory check that can take a long time to process. If anti-virus software has already been run by the Transfer System on the RPS there may not be the need to run it again.			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	SYS 09	Option not to check file format ID	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need the option to turn off the file format identification as this will be done as part of Transfer System on the RPS			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	SYS 10	Option to prevent editing of metadata	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need to be able to prevent the GMMS metadata snapshot from being edited			
Benefits			
Suggested Solutions			
Comments			
The metadata will be a snapshot of that held in the GMMS when the initial AIP is completed or a new manifestation is created. We currently do not envisage a situation that would require this metadata to be edited in the DOS. However there may be a need to edit technical metadata if it is only held in the DOS.			
Resolution			
Related Requirements			

Requirement	SYS 11	Workflow	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need the ability to interface with a workflow system.			
Benefits			
Suggested Solutions			
Comments			
The workflow tool will be determined by another Seamless Flow project			
Resolution			
Related Requirements			

Requirement	SYS 12	GUI Design	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need to improve the layout and size of some of the text boxes on loader screens of the current system			
Benefits			
Suggested Solutions			
Comments			
The supplier will liase with the business users for all front end design issues.			
Resolution			
Related Requirements			

Requirement	STO 01	New referencing system	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It must be possible to handle the new Catalogue referencing scheme as described in the Seamless Flow Project paper "Referencing Electronic Records". This will replace the current Procat reference. Both documents can be seen in Annex M.			
Benefits			
The new referencing scheme provides greater granularity			
Suggested Solutions			
Comments			
The references for information in the existing DA will need to be migrated.			
Resolution			
Related Requirements			

Requirement	STO 02	Multiple current manifestations	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It must be possible to store multiple current manifestations.			
Benefits			
We may need more than one manifestation to represent different significant characteristics.			
Suggested Solutions			
Comments			
As in the existing system, all previous manifestations need to be kept.			
Resolution			
Related Requirements			

Requirement	STO 03	Validation	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It must be possible to validate the integrity of files when loading them into the Archive			
Benefits			
Suggested Solutions			
Comments			
To ensure that it is the correct file by calculating the hash value and comparing it with the hash value of the AIP in GMMS			
Resolution			
Related Requirements			

Requirement	STO 04	GMMS Metadata	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It must be possible to load and store all metadata elements for each record held in the GMMS.			
Benefits			
Suggested Solutions			
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Comments			
This will be a snapshot of the completed AIP. The management of current metadata will be done by the GMMS. The draft metadata model can be seen in annex H.			
Resolution			
Related Requirements			

Requirement	STO 05	Extensible metadata	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It must be possible to store extensible metadata without writing new code.			
Benefits			
This will provide greater flexibility. We will be able to add new schemas and handle type specific metadata for technical characteristics (e.g. image files resolution, PDF compression types, etc.).			
Suggested Solutions			
Comments			
Needs to be compatible with GMMS metadata			
Resolution			
Related Requirements			

Requirement	STO 06	Load from RPS	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It must be possible to carry out single and automated bulk loads (batches) of record files and GMMS metadata snapshots from the RPS			
Benefits			
Suggested Solutions			
Comments			
The load process occurs on accession and with each new manifestation and will be controlled by the DOS. Additional scripting options would be useful.			
Resolution			
Related Requirements			

Requirement	STO 07	Technology Watch interface	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need to have an interface to be used by Technology Watch and the RPS.			
Benefits			
Suggested Solutions			
Comments			
On request the system will locate and export files to the RPS			
Resolution			
Related Requirements			

Requirement	STO 08	Export of records and files	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need to able to select and export records and specified files automatically according to defined search criteria.			
Benefits			
Suggested Solutions			
Comments			
For example on request by the Technology Watch System			
Resolution			
Related Requirements			

Requirement	STO 09	Single File Export	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It must be possible to export a single file from the DOS			
Benefits			
Suggested Solutions			
Comments			
In the current system this is only possible if a records only has one file. We need to be able to export a single file from a record that consists of many files.			
Resolution			
Related Requirements			

Requirement	STO 10	Export without Zip	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need the option to export files without using "Zip" compression to correctly named and typed files.			
Benefits			
Suggested Solutions			
Comments			
The current system exports files as a single compressed file. In order to interface with other systems it may be preferable not to zip the files.			
Resolution			
Related Requirements			

Requirement	STO 11	Efficient file storage across manifestations	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The system must not allow duplicate storage of files in different manifestations.			
Benefits			
Suggested Solutions			
Comments			
Some files may not need to be migrated with each manifestation			
Resolution			
Related Requirements			

Requirement	STO 12	Improve loader efficiency	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need to improve the efficiency of the loader by removing unnecessary actions such as resaving metadata before load.			
Benefits			
The current version resaves the XML file even if no change has been made. This can take a long time and, with large accessions, can result in the load process stopping during the night or weekend waiting for manual input to start the next stage.			
Suggested Solutions			
Comments			
A key objective of Seamless Flow is to maximise automation and efficiency. The system must be able to run with minimal manual intervention.			
Resolution			
Related Requirements			

Requirement	REP 01	Load success reports	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Need notification of successful / unsuccessful loads. The report should give details of successful and unsuccessful loads over a given date range.			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	REP 02	Actions on record	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It should be possible to produce a report detailing all the functions that have been performed on a given record (or file) in a configurable time period from the audit trail.			
Benefits			
Suggested Solutions			
Comments			
Limited to DOS activities, other actions will be recorded in GMMS.			
Resolution			
Related Requirements			

Requirement	REP 03	Split by file type	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It should be possible to produce a summary report indicating the number of files in the archive, optionally split by file type.			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	REP 04	Record export	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It should be possible to produce a report listing all records exported in any given time period			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	REP 05	Record deletions	
Priority	Mandatory	Owner	Project Team

Functional Requirement
It should be possible to produce a report listing all record and file deletions that have occurred in any given time period
Benefits
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	REP 06	Error reporting	
Priority	Desirable	Owner	Project Team

Functional Requirement
It should be possible to produce a report listing any error that occurred in any given time period (e.g., before last week) and to list this in chronological order.
Benefits
Suggested Solutions
Comments
The system should report all errors clearly and accurately
Resolution
Related Requirements

Requirement	REP 07	Audit reports	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
It must be possible to produce a report for any specified audit trail			
Benefits			
Suggested Solutions			
Reporting tools such as Oracle Reports			
Comments			
Resolution			
Related Requirements			

Requirement	GEN 01	Automated test script	
Priority	Desirable	Owner	Project Team
Non -functional Requirement			
Need an automated test script that could be used for regression testing			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	GEN 02	Security	
Priority	Mandatory	Owner	Project Team

Functional Requirement
<p>It must be possible to set security roles in accordance with TNA Access Control Policy (see Annex L).</p> <p>The system will contain restricted information and needs to operate in an accredited environment. The supplier should be aware that the system will need to be accredited and should therefore pay attention to security in the design to facilitate the accreditation process.</p> <p>Seamless Flow systems will need to operate on a secure network, probably the Government Secure Intranet (GSI), with some systems communicating through firewalls (see Annex J2). The supplier must contribute to the design and configuration of these.</p>
Benefits
Suggested Solutions
Comments
Resolution
Related Requirements

Requirement	GEN 03	Security audit logs	
Priority	Mandatory	Owner	Project Team

Functional Requirement
<p>The system needs to be able to generate security logs as specified in the Digital Records Access Control Policy.</p>
Benefits
Suggested Solutions
Comments
Resolution

Requirement	GEN 04	Removal of role for OGD access	
Priority	Mandatory	Owner	Project Team

Functional Requirement
The security role in the current system that enables access by OGD's to their own records should be removed.
Benefits
Suggested Solutions
Comments
This function will be handled by the SF Presentation project
Resolution
Related Requirements

Requirement	GEN 05	Product Testing	
Priority	Mandatory	Owner	Project Team

Requirement
The supplier should propose an appropriate high-level testing strategy, including system testing (both at supplier site and within TNA), penetration testing and user acceptance testing and supply all code and other resources required for white box testing in a debug environment.
Benefits
Suggested Solutions
Comments
A more detailed testing strategy and plan will be required to form part of the proposal for stage 2. The supplier should state what access to TNA systems would be required for the development and pilot phase.
Resolution
Related Requirements

Requirement	GEN 06	Support, training & documentation	
Priority	Mandatory	Owner	Project Team
Requirement			
Suppliers must provide details of support including support, training and documentation.			
Benefits			
Suggested Solutions			
Comments			
It is anticipated that suppliers will provide the following documentation in addition to the detailed functional and non-functional specification required in phase 1: release notes, an installation guide, a systems admin guide, system test scripts (in conjunction with TNA), user guide, training plan and training notes and a road map for development. Suppliers should also indicate the maximum term of a support contract and their proposed strategy for managing upgrades to third-party software.			
Resolution			
Related Requirements			

Requirement	GEN 07	Support services	
Priority	Mandatory	Owner	Project Team
Requirement			
Suppliers should provide details of business hours system support (08:00 – 18:00) including a response time to a business critical issue of 24 hours with a work around and 5 working days with a resolution. Lesser issues can be addressed on a longer time frame. However suppliers should clearly define business critical issues from lesser issues (preferably with examples).			
Benefits			
Suggested Solutions			
Comments			
TNA will provide a detailed description of services required and definitions of service levels at the contract negotiation stage.			
Resolution			

Requirement	GEN 08	Knowledge Transfer	
Priority	Mandatory	Owner	Project Team
Requirement			
The supplier should state their approach to knowledge transfer, in regard to the system, to TNA staff during both system development and implementation.			
Benefits			
Suggested Solutions			
Comments			
This will include staff within ICT and Digital Preservation.			
Resolution			
Related Requirements			

Requirement	PRF 01	No application architecture restrictions	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The application architecture must not impose software restrictions in terms of file size and number of files during a single load process			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	PRF 02	Load rates	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Load and export processing rates must be able to handle the workload from Transfer and Technology Watch systems.			
Benefits			
Suggested Solutions			
Comments			
Details and acceptance targets to be defined in Functional Specification.			
Resolution			
Related Requirements			

Requirement	PRF 03	Scalability	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
Performance and capacity needs to be scaleable as the digital archive grows.			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	PRF 04	Integrity-checking	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The integrity-checking algorithm must be efficient and fit for purpose.			
Benefits			
Suggested Solutions			
Comments			
It should be possible to change the algorithm used with minor code change. The impact on files stored earlier needs to be considered.			
Resolution			
Related Requirements			
See section			

Requirement	STD 01	Digital Records Access Control Policy	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The system must be compliant with the Digital Records Access Control Policy (annex L).			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	STD 02	SF programme interoperability protocol	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The supplier must contribute to the definition of the SF programme interoperability standards.			
Benefits			
Suggested Solutions			
Comments			
To be defined at Functional Specification stage			
Resolution			
Related Requirements			

Requirement	STD 03	Application Development	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
All systems must be development in accordance with TNA's application development standard (Annex K) and appropriate UK Government, ISO and BSI standards.			
Benefits			
Ensures that all applications are conformant to TNA technical, security and quality requirements.			
Suggested Solutions			
Comments			
Specifically: <ul style="list-style-type: none"> • BS 7925-1: Software testing standard • ISO 9001: Quality management standard • BS 7799 and ISO 17799: Information security standard • e-GIF 			
Resolution			
Related Requirements			

Requirement	STD 04	Technical Development	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
All systems must be compatible with the TNA IT infrastructure, as defined in Annex J and the current Digital Archive, as described in Annex D.			
Benefits			
Facilitates integration of new systems within existing TNA IT infrastructure, and future support and maintenance.			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			

Requirement	RPS 01	Record Preparation Store	
Priority	Mandatory	Owner	Project Team
Functional Requirement			
The supplier must contribute to the design and configuration of the RPS			
Benefits			
Suggested Solutions			
Comments			
Resolution			
Related Requirements			