

iii) Activity Definitions

A0, Preserve Electronic Records

Under the control of Archival and Institutional Requirements, and limited by the possibilities available within the State of the Art of Information Technology, preserve electronic records received in Transfer of Electronic Records. To preserve the records, the process uses Information about Electronic Records Selected for preservation. The process will also accept input of a Request for Record and/or Information about a Record and produce, in response, either the Requested Information about a Preserved Record, a Reproduced Electronic Record, or a Reproducible Electronic Record. The process will produce a Certificate of Authenticity from any Reproduced Electronic Record if requested. The process also produces Information about Preservation, including information about the process itself, the records being preserved, and how the process preserves their authenticity. Electronic records are preserved by Persons Responsible for Preservation using Information and Communications Technology and Facilities. The technology infrastructure and facilities are used in all subprocesses; therefore, they are implicit, rather than explicit, in all decomposition diagrams.

A1, Manage the Preservation Function

Operating under the control of Archival and Institutional requirements and in light of knowledge of the State of the Art of Information Technology, preservation is managed by producing a comprehensive preservation framework consisting of sets of preservation strategies and preservation action plans, each linked to a specific body of electronic records selected for preservation, along with the technological infrastructure and preservation methods needed to implement the action plans. These outputs are all used in execution of the preservation function. The “Manage” process also outputs information about the preservation function and about records being preserved and, on request, will produce a report on the authenticity of one or more records. The “Manage” process produces its output using information received from appraisal about bodies of records selected for preservation, information received from the ingest process about transferred records, and management information received as feedback from all processes involved in execution of the preservation function. Management activities are accomplished by persons responsible for preservation.

A1.1, Determine Preservation Requirements

Determine the archival requirements for preserving and reproducing an electronic record by interpreting and applying external controls on the preservation function to information received from the Select Electronic Records function about the records to be preserved, and information about transfers and accessions received as feedback from the “Bring In,” “Maintain,” and “Output” Electronic Records processes. This entails identifying the classes of objects that must be preserved, including types of records and ordered groups of records, and specifying, for each class, the attributes and methods that must be preserved, as well as the requirements for certifying that any reproduced record is authentic. Determination of archival requirements is guided by evaluation of prior experience in applying such requirements to records that have been transferred to the archives. The evaluation will not alter the external requirements, but will improve their articulation and application. The result of this process will be Synthesized Requirements for Preservation, where the specification consists in identifying what archival and institutional requirements apply to what records and how each applicable requirement is to be implemented.

A1.1.1, Determine Transfer & Storage Requirements

Limited by the State of the Art of Information Technology, use information about Electronic Records Selected for Preservation and about Transferred and Accessioned Records to determine how the records will be written in physical and logical files both for transfer and for storage to produce Requirements for Physical and Logical Files.

A1.1.2, Identify Archival Properties that Must Be Preserved

Limited by the State of the Art of Information Technology, use Information about Electronic Records Selected for Preservation—and also Information about Transferred Records when, on examination, their properties are found to be different than what had been determined in appraisal—to identify the types of archival properties that must be preserved. This activity will identify the Classes of Records that exist within a body of records selected for preservation. For each Class of Record, determine how Archival Science, the preserver's Institutional Requirements (tunnelled to this diagram), determinations made in appraisal, and/or the records management practices of the records creator, indicate specific archival properties that must be preserved, including intrinsic or extrinsic elements of form. For the body selected for preservation, specify the Type(s) of Arrangement of records established by the records creator and identify how archival bonds are expressed. For each archival property that must be preserved, determine the parameters, measures, or other evidence that will be used to identify the property and to verify that it has been preserved intact.

A1.1.3, Determine Requirements for Reconstituting and Presenting Records

Under the control of Archival and Institutional Requirements (tunnelled to this activity), use Information about a body of Electronic Records Selected for Preservation, Information about previously Transferred and Accessioned Records from that body, and about Classes of Records, to identify the digital components of each class of record, how a record is composed from its digital components, and how it should be presented in order to articulate the requirements for reconstituting a record from its digital components and presenting the record in the documentary form stipulated for that class of record. The information is reviewed in light of the State of the Art of Information Technology, which indicates if current methods of composing a record from its digital components are likely to become obsolete or if there are alternative methods that might be preferable. By revealing possible technical alternatives, the State of the Art of Information Technology also indicates the extent to which archival properties depend on specific technologies. The result of this process is a set of Record Composition Requirements for each class of records, including the parameters, measures, or other evidence that will be used to verify that a record has been reconstituted from its digital components properly.

A1.1.4, Determine Requirements for Reconstituting and Presenting Archival Aggregates

Guided by Archival Science and Institutional Requirements (tunnelled to this diagram), use Information about a body of Electronic Records Selected for Preservation—and also Information about Transferred Records when, on examination, their properties are found to be different from what had been determined in appraisal—along with information on Type(s) of Record Arrangement to determine how to identify an archival aggregate, identify the records or other aggregates that belong in it, specify the ordering of the members within the aggregate and of the aggregate within the archival fonds, and how the aggregate should be presented for use. The information is reviewed in light of the State of the Art of Information Technology, which indicates if current methods of arranging records are likely to become obsolete or if there are alternative methods that might be preferable. By revealing possible technical alternatives, the State of the Art of Information Technology also indicates the extent to which archival properties depend on specific technologies. Define criteria that will be used to determine if records and aggregates have been properly arranged when the aggregate is reconstituted. This activity will produce Requirements for Arranging Records.

A1.1.5, Determine Basis for Authenticity

Guided by Archival Requirements and Institutional Requirements (both tunnelled to this diagram), review information collected and created in appraisal about how the records creator satisfied the Benchmark Requirements for Preservation in order to determine how the appraiser's presumption of authenticity of the records will be documented when the records are transferred, and what impact that presumption will have on both preservation of the records and certification of the authenticity of copies produced by the preserver. Subsequently these conclusions will need to be verified and, if necessary, corrected on the basis of information about the records when they are brought in. Methods for documenting the presumption of authenticity include preserving the appraiser's report(s) on the subject; preserving documentation produced by the records creator which provides evidence of how the benchmark criteria were addressed; and creating archival description. The information produced in this process is output as the "Basis of Authenticity of Records," which is sent to activity A3.1 to be maintained and used to verify the established basis when records are brought in and to satisfy requests for such information.

A1.1.6, Synthesize Requirements for Preservation

Guided by Archival Science and Institutional Requirements (tunnelled to this diagram), synthesize requirements concerning physical and logical files used for transfer and storage, information about Classes of Records contained in a body of electronic records selected for preservation, Record Composition Requirements applicable to those classes, Requirements for Arranging Records, Requirements for Presenting Records, and the Basis of Authenticity of the Records as maintained by their creator, producing a comprehensive and coherent set of Synthesized Requirements for Preservation of the body of records. These requirements will guide the functions of technology selection, preservation planning, execution, and evaluation.

A1.2, Select Preservation Technologies

Take into account Information about Electronic Records Selected for Preservation and Information about Transferred and Accessioned Records in order to select Preservation Methods that will be used to preserve the electronic records. If this information indicates that existing Technological Infrastructure and one or more current Preservation Methods are applicable and adequate for preserving the records, they should be used. Otherwise, acquire Information and Communications Technology which will provide the necessary Preservation Methods and/or Technological Infrastructure. Specify the scope of applicability of each Preservation Method in terms of its application to types of digital files, target bodies of records, types of electronic records, and/or classes of digital components, along with conditions for its application to each target group, thus defining a Targeted Preservation Method. The process is controlled by Institutional Requirements, such as the institution's information technology architecture and standards, data standards, and related procedures, security requirements, access restrictions, and performance objectives and measures. It is also controlled by the Synthesized Requirements for Preservation of a body of electronic records, applicable Authenticity Requirements for Preservation, and Evaluation of the Execution of the preservation methods that have been used to date. The selection is limited by the State of the Art of Information Technology. The scope of this process includes all methods that could impact the preservation of the records from the time of transfer. These include methods for checking the integrity of the transfer process, methods related to storage of digital components in digital files and on physical media, methods to reconstitute and reproduce records, and methods to enable others to reproduce the records.

A1.3, Specify Preservation Strategy

Guided by the Synthesized Requirements for Preservation, Specifications of the technologies selected for addressing those requirements, and Evaluation of the Execution of Preservation processes and methods, use Information about Records Selected for Preservation, and Information about Transferred and Accessioned Records

to develop a Preservation Strategy for preserving a body of records and producing authentic copies of the records. The goal of a Preservation Strategy is to ensure the preservation of authentic electronic records from the point at which they are transferred to the archival system, through the maintenance of their digital components over time, to the delivery of certifiably authentic reproductions of the records. The Strategy will specify action to take as records are brought in, maintained, and output, the methods to use in each action, and the criteria for measuring success of the action. The criteria are derived from the requirements and refined into measurable form in light of the Preservation Technology Specifications; i.e., the criteria enable measurement of how well a requirement has been satisfied using the applicable preservation method. The Strategy also includes the terms and conditions for transfer of records accepted by the creator, the appraiser, and the person responsible for preservation.

A1.4, Evaluate Execution of Preservation

Consistent with Institutional Requirements for management analysis, and guided by applicable Preservation Strategies and by both Synthesized Requirements for Preservation, analyze Management Information about Preservation in order to determine how well goals and objectives are being achieved. The analysis addresses whether records are being preserved successfully. If not, it identifies the causes of problems and determines how they might be resolved or avoided. Identify cases where rules or objectives conflict, are unclear, insufficient, inappropriate or misdirected, as well as possible improvements in operation. Assess whether the set of Preservation Strategies in effect are coherent and not conflicting. Determine if Preservation Methods are operating as intended and whether the Technological Infrastructure is adequate and appropriate. Produce evaluations of both performance strategies and the overall preservation framework. Review Management Information about the Output of Electronic Records to determine if requirements for authentic copies are being satisfied and to characterize customer satisfaction. Determine if advances in the State of the Art of Information Technology indicate that the selection of preservation technologies should be revisited. Produce an Evaluation of Execution appropriate to guide other management processes. Output Information about Preservation for external stakeholders. Produce a Report on Authenticity of Records to respond to any challenge to the adequacy and efficacy of the preservation process. This process may be triggered by a Request for Strategy Decision.

A2, Bring in Electronic Records

Following direction established in the preservation strategy for a given body of records selected for preservation, the “Bring In” or ingest function applies preservation method(s) targeted to that body of records to implement the preservation action plan for those records by processing each transfer of electronic records into accessioned electronic records. The ingest process also produces information about each transfer of electronic records, which is used in the “Manage” process to confirm or revise the preservation strategy and action plan(s) applicable to those records, and also management information which is used to evaluate execution of the ingest function. The process is carried out by persons responsible for preservation, using infrastructure technology.

A2.1, Register Transfer

Following the Registration Procedure defined by the Preserver’s Accessioning Policy, register the transfer of electronic records by capturing information about the transfer, such as submitter’s name, record creator’s name, and the date of receipt of the transfer in a Record of the Transfer, and establish basic control over the materials transferred by identifying what has been transferred and where it is located. The registration record forms the basis for identifying and tracking materials in the transfer and information about it in all other preservation processes. The registration process should also inspect what was received in order to ensure that the physical transfer has been accomplished correctly. This inspection provides quality assurance of the physical transfer, but does not address any questions related to the specific records reportedly contained in the transfer. Registration produces a Notification of Receipt, which is sent to the submitter. This

notification should describe any problem identified in receiving the transfer, such as network errors in transmission, missing media volumes, or obvious damage, and request the submitter to send a new transfer or otherwise correct the problem. The Registered Transfer is forwarded for verification that it is authorized.

A2.2, Verify that the Transfer Is Authorized

Acting under the Preserver's Accessioning Policy, determine if the transfer is authorized; i.e., it comprises the records that have been selected for preservation, and those records have been submitted either by the records creator or an agent acting for the creator. Verification that a transfer is authorized is based on comparing the terms and conditions for transfer, established as part of the Preservation Strategy during appraisal, with information accompanying the Registered Transfer. This information is reviewed to determine if it indicates that the transfer was sent by an authorized person; it comprises records specified for transfer; it includes necessary information about the records, their digital components, and the basis for asserting the authenticity of the records as received; and that the materials transferred are of the correct types and in the specified formats. This verification may include steps that are specific to the records reportedly contained in the transfer whenever such specific tests are set out in a Preservation Action Plan related to the records. If the terms and conditions of transfer have been satisfied, the Conforming Transfer is passed to the next step, where its contents are examined. Otherwise either the transfer is rejected outright or the submitter is asked to address any problems identified. If a transfer is determined to be authorized, a Request for Information about Authenticity of the records is sent to activity A3.1 This request is for the information about the basis for presuming the authenticity of the records as maintained by the records creator. That information was developed in determining the requirements for preservation of the body of records. The retrieved information will be factored into the final decision on whether to accession the records.

A2.3, Examine Electronic Records

Acting under the preserver's Accessioning Policy and in accordance with the Preservation Strategy established for the records reportedly included in the transfer, examine the digital files and digital components of records in the transfer, along with accompanying information to: (1.) determine if the transfer actually includes all records and aggregates of records specified in the terms and conditions of transfer and that these records and aggregates are adequately and accurately described in the accompanying information to enable their preservation, reproduction in authentic form, and interpretation; (2.) identify any actions required to preserve both the individual records transferred and the archival sets in which these records belong; (3.) initiate technical or other preservation actions that should be taken immediately and schedule preservation actions that should be taken at a later date. This examination will include any specific tests included in a Preservation Action Plan for the records. If on examination any record, digital component, or aggregate is found to have unexpected properties that would make it difficult or impossible to follow the established Preservation Strategy, or would make it questionable whether following that strategy would satisfy archival requirements, the situation should be reported to the "Manage" function for evaluation. If the evaluation results in a change in the applicable Preservation Strategy, the "Manage" function will issue a Preservation Action Plan specifying how to resolve the problem(s) identified in the examination. If the results of the examination are positive, the records in the transfer are deemed to be suitable for preservation, and the Preservable Records are forwarded to be accessioned. If the examination reveals unresolvable critical problems, the transfer is rejected and returned to the Submitter. If it might be possible for the Submitter to correct problems that the Preserver could not resolve, the Rejected Transfer includes a request for corrective action and resubmission.

A2.3.1, Map Records and Digital Components within Transferred Materials

In accordance with an institution's Accessioning Policy and the applicable Preservation Strategy, using the Technological Infrastructure in place, determine how the records, their

digital components, and the information about them included in a Conforming Transfer are identified, and where they are located in the digital files and other materials received. Identify any records or components that should be in the transfer but are not found and determine if there are any records or components in the transfer that should not have been transferred. If critical deficiencies are found, terminate processing and output the Rejected Transfers. If no critical problems are encountered, output the Mapped Records and Digital Components, along with related information.

A2.3.2, Verify that the Records in the Transfer Can Be Preserved and Reproduced

Ensure that transferred records can be preserved and reproduced in accordance with the applicable preservation strategy. Determine all the records that should be in the transfer can be reconstituted and presented; if all digital components of these have been received and are in the formats stipulated in the terms and conditions of transfer; if archival aggregates established by the records creator can be re-established; if the archival bonds among records can be expressed or instantiated, and also what basis exists for asserting the authenticity of the records as transferred. Records that can be preserved and reproduced are output as Preservable Records. In the case of a record that cannot be preserved in accordance with the preservation strategy, identify the digital component(s) that prevent or impede implementation of the strategy and forward them for actions that will enable preservation of the record. Digital components modified as a result of such actions are returned for verification of the success of the modification. If it was necessary to modify the applicable preservation strategy to enable preservation of the records, the secondary verification will be on the basis of the revised strategy. The verification process will take into account any cases where digital components were not successfully modified, along with other problems discovered with the transfer, to determine whether, under the institution's accessioning policy, the preservable records—including records deemed to have only minor problems—should be accessioned or the transfer should be rejected.

A2.3.3, Take Action Needed to Preserve the Record

When it has been determined that a record in a transfer cannot be preserved in accordance with the applicable preservation strategy, take the steps indicated in the relevant preservation action plan with respect to any digital component of the record that needs to be modified to conform with the strategy. Effect such modifications by invoking process A3.3, "Update Digital Components." After the update, output the Conforming Digital Components. If the action plan cannot be implemented, or if it will not produce the desired result, refer the action to the "Manage Preservation" process as a request for a strategy decision. This request should trigger a revision in either the preservation strategy or action plan. When a revised strategy and/or plan is received, effect the necessary modification(s) as indicated above. If the result of a request for a strategy decision is not to modify either the strategy or plan, output the problem components as Non-Conforming Digital Components.

A2.4, Accession Electronic Records

Acting in accordance with the institution's Accessioning Policy, formally accept responsibility for preserving a transferred body of records that have been determined to be preservable. Create a Record of the Accession and forward the Accessioned Electronic Records to the "Maintain" process. The decision to accession records takes into consideration the basis for presuming that the records, as received from the records creator, are authentic. This information uses Retrieved Information about the Presumption of Authenticity developed in determining the preservation requirements for the body of records to which they belong. The Retrieved Information is supplemented and, if appropriate, updated by any additional information either received with the transfer of the records or developed in examining the transferred records. Other elements of Accessioning Policy that should be taken into account in the decision whether to accession the records include resource constraints, where it might be determined that the

institution cannot afford to preserve the records, or anticipated demands for retrieval or restrictions on access that the institution cannot satisfy.

A3, Maintain Electronic Records

Following direction established in the preservation strategy for a given body of records selected for preservation, apply preservation method(s) targeted to that body of records to implement the preservation action plan for those records by maintaining the digital components of accessioned electronic records, along with related information necessary to reproduce the records, certify their authenticity, and enable correct interpretation of the records. This maintenance activity enables the output, in response to a retrieval request, of the digital components of a record, along with information about that record, or, if the request is only for information, the requested information. The “Maintain” process also produces management information which is used to evaluate execution of the ingest function. The process is carried out by persons responsible for preservation, using infrastructure technology.

A3.1, Manage Information about Records

The “Manage Information about Records” process collects and maintains information necessary to carry out the Preservation Strategy for a body of electronic records being preserved, including information about their digital components, the archival aggregates they comprise, their authenticity, their interpretation, and the preservation activities performed on them. Carrying out actions specified in the Preservation Action Plan, information about Accessioned Electronic Records is collected when they are accessioned. It is combined with Storage Information identifying the files, locations, and other relevant data about the digital components of the Accessioned Electronic Records when they are placed in storage and subsequently when storage parameters are changed. When a Preservation Action Plan entails any modifications to digital components, Information about those Digital Components is provided to ensure that all affected components are updated appropriately and, after the modification, Information about the Updated Digital Components is also updated. In response to a Retrieval Request for information, Retrieved Information about a Preserved Record is provided. In response to a Retrieval Request for a record, information identifying the digital components of the record and their storage location(s) is retrieved to produce a Request for Digital Components, which is used to retrieve those components from storage; Information about those Digital Components and Retrieved Information about the Preserved Record is output to support reproduction of the record and, if needed, certification of its authenticity.

A3.1.1, Maintain Information about Records

As dictated by the Preservation Strategy, Information about Accessioned Records and information providing the basis for asserting the authenticity of the records as transferred is collected and maintained over time. This information is kept up to date, by the input of Updated Storage Information, to reflect changes in the storage of the digital components of the records, e.g., when storage media are replaced or defective files are recovered. Similarly, when changes in the applicable Preservation Strategy lead to updating of any digital components, the related information is updated through input of Information about the Updated Digital Components. This activity outputs Maintained Information about a Record and Maintained Information about Digital Components.

A3.1.2, Retrieve Information about Records

Following the applicable Preservation Strategy, receive Maintained Information about Records and respond to any Retrieval Request for information about a record by outputting Retrieved Information About a Preserved Record. When the Retrieval Request is for the digital components of a record, output Information Identifying the Digital Components of a Record. Output the same information when a Preservation Strategy requires updating of the digital components of a record. A special type of retrieval request occurs when a transfer of electronic records has been determined as authorized. That determination generates a Request for Information about Authenticity of the Records. In

response to this type of request, the activity outputs Retrieved Information about the Presumption of Authenticity of the records as maintained by their creator. This information will be taken into account in the decision whether to accession the records.

A3.1.3, Retrieve Information about Digital Components

In accordance with the applicable Preservation Strategy, upon receipt of Information Identifying the Digital Components of a Requested Record, retrieve Maintained Information about Digital Components and output the requested Information about Digital Components along with a Request for Digital Components to be retrieved from storage. Follow the same procedure when triggered by a Plan for Updating Digital Components.

A3.2, Manage Storage of Digital Components of Records

In accordance with the Preservation Strategy established for a body of records, and applying the Storage Method selected to implement that strategy, place the digital components of Accessioned Electronic Records into storage, taking the specific steps defined in the Preservation Action Plan for these records, and maintain them. In response to a Request for Digital Components, retrieve the requested components and output them. When digital components are output for updating in accordance with a Preservation Action Plan, place the Updated Digital Components in storage and, as provided by the Action Plan, either maintain or delete the older versions of these components. Provide to the "Manage Information" process Updated Storage Information about the identities, locations and other relevant parameters of stored digital components whenever components are updated or other changes, such as media refreshment, are made in storage.

A3.2.1, Place Record Components in Storage

When electronic records are accessioned, place the Digital Components of the Accessioned Electronic Records into one or more Stored Digital Files in the storage system prescribed by the preserver's Storage Method, and provide Updated Storage Information about those components. When any of the stored components are updated in response to a Preservation Action Plan, place the Updated Digital Components into storage and either replace or retain prior versions of those components, as dictated by the applicable Preservation Strategy (tunnelled to this diagram). Provide Updated Storage Information about the updated components and about any stored components that have been deleted or superseded. When a Stored Digital File is copied to new storage media, place the Refreshed File into storage, delete the older copy of the file, and provide Updated Storage Information about the current location of the digital components stored in that file. When a problem discovered in a Stored Digital File is corrected, place the resultant Recovered File in Storage, delete the problem file, and provide Updated Storage Information about the current location of the digital components stored in the file and about any data loss or other residual problems with any of those components.

A3.2.2, Refresh Storage

When triggered by a Plan for Updating Storage, use the prescribed Storage Update Method to copy a Stored Digital File to new storage media. When indicated by the plan, replace one or more components of the storage subsystem, ensuring that any Stored Digital File involved in, or affected by, such replacement is carried forward without any inappropriate alteration. Document the process as part of the preservation history of all records whose digital components are contained in these digital files. Send any Refreshed File to be placed in storage and provide Updated Storage Information about any digital components affected by the process.

A3.2.3, Monitor Storage

In accordance with the Preservation Strategy (tunnelled to this diagram) for the storage system, apply the prescribed Monitoring Method to monitor the operation of the storage system, the media on which Stored Digital Files are recorded, the files themselves, and

the facilities where the system and files are located. Provide Updated Storage Information about the problems identified and the stored digital components they affect.

A3.2.4, Correct Storage Problems

Upon notification of a Storage Problem, apply the Problem Correction Method prescribed by the Preservation Strategy (tunnelled to this diagram) to take the actions indicated by the Plan for Problem Handling to eliminate the problem. If the Storage Problem affects any Stored Digital File, take action to copy the data stored in that file to a Recovered File and generate Updated Storage Information on each digital component affected by the process, including the identity of the Recovered File where the component is written, the success of the copy process, and any data loss or residual, uncorrected problem.

A3.2.5, Retrieve Components from Storage

In response to a Request for Digital Components, apply the Retrieval Method specified in the Preservation Strategy (tunnelled to this diagram) to retrieve the Stored Digital File(s) in which the requested components are written from storage and output copies of the Retrieved Digital Components. If the Preservation Strategy applicable to a given record or archival aggregate is modified, and the modification requires updating of the digital components, the new strategy triggers retrieval of the components that need to be updated.

A3.3, Update Digital Components

As indicated by the Preservation Strategy established for a given body of electronic records (tunnelled to this diagram), take the steps indicated in the applicable Preservation Action Plan, applying the Method(s) for Updating Components prescribed by the strategy to update Digital Components of a Record that Cannot Be Preserved because of technological obsolescence, changes in Preservation Strategy, or similar factors. Examples of processes for update include migration, standardization, and transformation to persistent form. Return the Updated Digital Components to Storage, providing Information about the Updated Digital Components to the "Manage Information" process. If the Updated Digital Components belong to a record that is the subject of a Retrieval Request, also send the components, along with related information, to the Output Electronic Record process. However, if the updating was done only to satisfy conditions of a Retrieval Request and was not required to conform to Preservation Strategy, the Updated Digital Components are sent, along with related information, to the Output Electronic Record process, but they are not sent to Storage. This process may be invoked directly when records in a transfer are being examined and it is determined that there is a need to take action to preserve a record, before the components are sent to storage.

A4, Output Electronic Record

Following direction established in the preservation strategy for a given body of records selected for preservation, apply preservation method (s) targeted to that body of records to implement the Preservation Action Plan for producing an authentic copy of a records in response to a request for it. If specified in the request for a copy of the record, produce a certificate attesting to the authenticity of the copy. Alternatively, if requested, produce a reproducible electronic record; i.e., the digital component(s) of the record along with instructions for producing an authentic copy of the record and information necessary to interpret the record. In the case of a request only for Information about a record, deliver the response. To produce all of these outputs, translates an external request for a record or for information about a record into a Retrieval Request to the "Maintain" function. Also produce management information which is used to evaluate execution of the "Output" function. The process is carried out by persons responsible for preservation, using infrastructure technology. The Output Electronic Record process may also be invoked when records in a transfer are being examined in order to verify that the records in the Transfer can be preserved and reproduced.

A4.1, Manage the Request

Following provisions in the applicable Preservation Strategy, register an incoming Request for a Record and/or Information about a Record. Translate the request into terms that can be executed in the preservation system, and send the Retrieval Request to the Maintain Records process. Define Request Controls to ensure that the request is fulfilled and accounted for. These controls govern the process of responding to a request. If any problem is encountered in fulfilling the request, a Report of Problem with Retrieval Response is sent as feedback to this process. If the request cannot be satisfied, produce an Accounting for Unsatisfied Request and send it to the requester.

A4.2, Review Retrieved Components and Information

Under the control of the applicable Preservation Strategy and Request Control, receive Retrieved Digital Components and/or Retrieved Information about a Preserved Record and determine whether all components and information necessary to satisfy the request for records have been received and can be processed for output. If the request entails producing a copy of a record, send the Requested Digital Components forward to Reconstitute and Present the Record. If a request for a record does not require reproduction of the record within the preservation system, send the Requested Digital Components forward to be packaged with related Information and delivered to the requester. If the request is only for information, output the Requested Information about a Preserved Record. If the request cannot be satisfied in accordance with the Request Control, produce a Report of Problem with Retrieval Response.

A4.3, Reconstitute Record

Under the control of the applicable Preservation Strategy and Request Control, apply the appropriate Targeted Preservation Method to Retrieved Digital Components to link or assemble the components as necessary to reproduce the record and output the Requested Reconstituted Record. If the record cannot be reconstituted, produce a Report of Problem with Retrieval Response.

A4.4, Present Record

Under the control of the applicable Preservation Strategy and Request Control, apply the appropriate Targeted Preservation Method to Retrieved Digital Components to the Requested Reconstituted Record to present the record with the appropriate extrinsic form. If requested, produce a Certificate of Authenticity for the Reproduced Electronic Record. If the process of reproducing the record is unsuccessful, produce a Report of Problem with Retrieval Response.

A4.5, Package Output

Under the control of the applicable Preservation Strategy and Request Control, apply the appropriate Targeted Preservation Method to Retrieved Digital Components to combine Requested Digital Components with Information, including instructions on how to reproduce the record, into a package suitable for reproducing the record on an external system designated by the Requester. If the Request for a Record entailed reconstituting the record within the preservation system, package the Requested Reconstituted Record suitably for presenting the record on an external system designated by the requester. If the process is unsuccessful, produce a Report of Problem with Retrieval Response.