

DRAMBORA interactive

User Guide

**Martin Donnelly
Perla Innocenti
Andrew McHugh
Raivo Ruusalepp**

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INTRODUCTION

About DRAMBORA

Developed jointly by the Digital Curation Centre (DCC) and Digital Preservation Europe (DPE), the Digital Repository Audit Method Based on Risk Assessment (DRAMBORA) represents the main intellectual outcome of a period of pilot repository audits undertaken by the DCC throughout 2006 and 2007.

It presents a methodology for self-assessment, encouraging organisations to establish a comprehensive self-awareness of their objectives, activities and assets before identifying, assessing and managing the risks implicit within their organisation.

Within DRAMBORA, digital curation is characterised as a risk-management activity; the job of a digital curator is to rationalise the uncertainties and threats that inhibit efforts to maintain digital object authenticity and understandability, transforming them into manageable risks.

Six stages are implicit within the process. Initial stages require auditors to develop an organisational profile, describing and documenting the repository's mandate, objectives, activities and assets. Latterly, risks are derived from each of these, and assessed in terms of their likelihood and potential impact. Finally, auditors are encouraged to conceive of appropriate risk management responses to the identified risk.

The process enables effective resource allocation, enabling repository administrators to identify and categorise the areas where shortcomings are most evident or have the greatest potential for disruption.

The process itself is an iterative one, and therefore subsequent recursions will evaluate the effectiveness of prior risk management implementations.

DRAMBORA Interactive is an on-line tool built to facilitate the assessment process and guide the auditor through the stages of the methodology.

DRAMBORA can be used at <http://www.repositoryaudit.eu/>.

The DRAMBORA Workflow

The DRAMBORA workflow is structured in 10 steps (Figure 1)

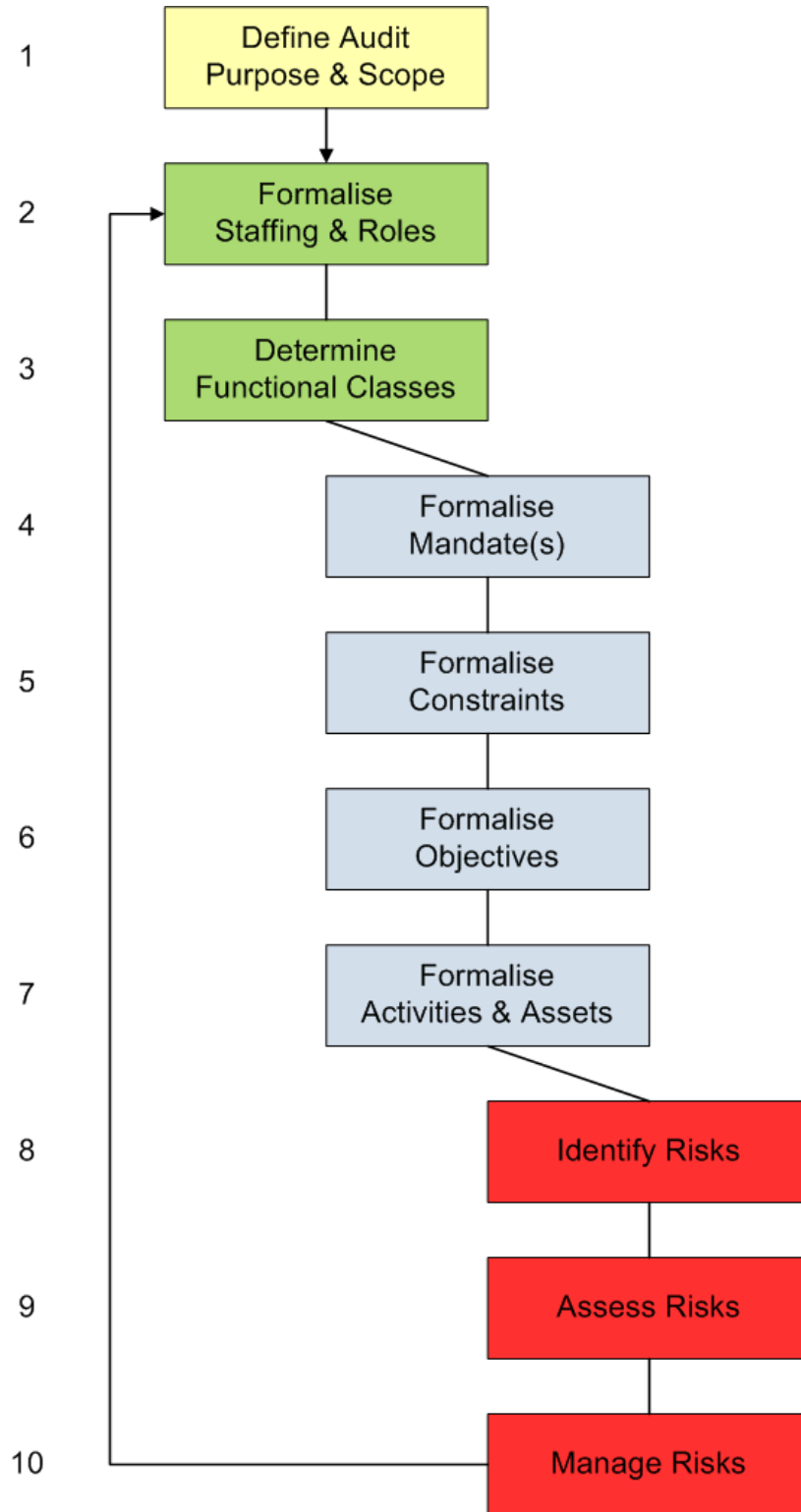


Figure 1 - DRAMBORA Workflow

Before beginning the assessment, you should conduct a preliminary analysis of the repository documentation, and arrange appointments with repository staff for onsite interviews and visits to the repository site.

After completing the assessment, you will have two distinct outputs:

1. a **risk register** of your repository, produced using the automatic DRAMBORA reporting system;
2. an **audit report** structured along the ten characteristics of digital preservation repositories as defined by the CRL/OCLC/ncstor/DCC/DPE meeting in January 2007.¹ This report is produced using the documentation and information collected and analysed for the assessment.

For more information about the DRAMBORA methodology, see Digital Repository Audit Method Based on Risk Assessment (2007) URL: <http://www.repositoryaudit.eu/>.

DRAMBORA Interactive

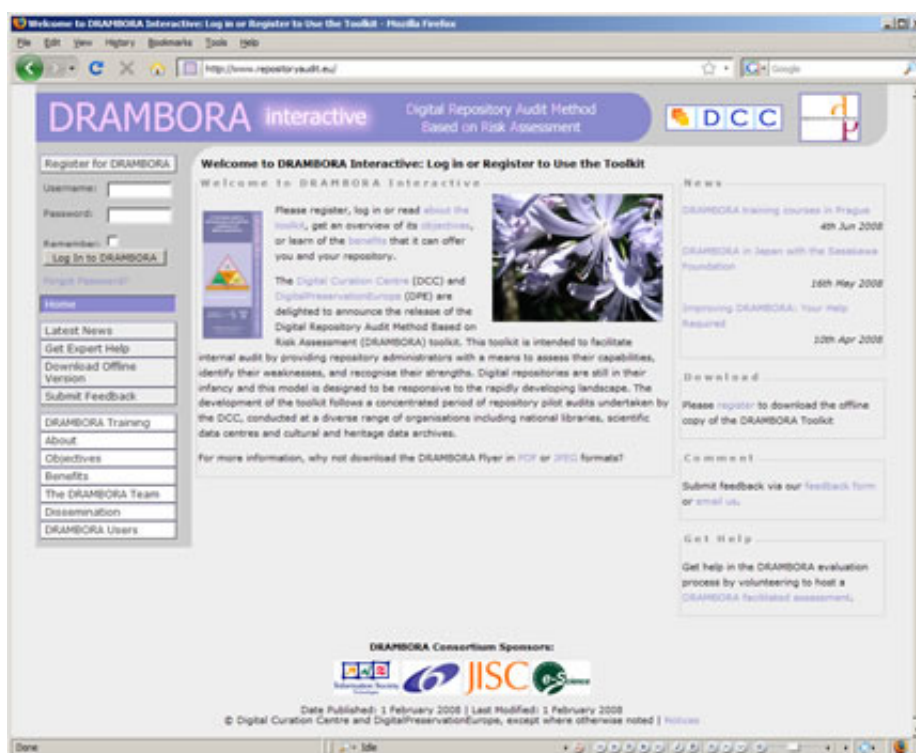


Figure 2 - DRAMBORA Interactive homepage

Combining a methodology and an online interactive application, the DRAMBORA toolkit, enables organisations to assess and monitor how well they are preserving and curating their digital assets. By following a step by step approach, this document shows how to use DRAMBORA Interactive (Figure 2).²

As you work your way through this guide, you will learn how to manage the necessary documentation for repository assessment, and how to build a risk profile of the assessed repository.

¹ Core Requirements for Digital Archives. Center for Research Libraries (CRL) (2007)
URL: <http://www.crl.edu/content.asp?l1=13&l2=58&l3=162&l4=92>

² DRAMBORA Interactive: <http://www.repositoryaudit.eu/>

REGISTRATION

In order to use DRAMBORA Interactive, you need to register for the DRAMBORA Interactive online tool and complete a series of audit responses to correspond with a sample repository.

Registration process

1. Visit <http://www.repositoryaudit.eu> and click **Register for DRAMBORA** in the top-left of the screen (Fig.3). Enter the name of your repository, and fill in the subsequent fields which describe it.

Figure 3 - Repository registration page

2. If you are already logged in to the system, you can simply link the new repository to your own user name. Alternatively, you can create a new DRAMBORA Interactive user. Enter your details in the corresponding fields.³ If necessary, further users can be associated with the repository later in the process. During registration it is essential that you provide an email address. Following registration you will receive an email, which you must respond to in order to validate your user, and to log in.
3. Finally you must **create corresponding staff details for this user**. You can enter the name of any position.
4. Now check your email and click on the enclosed link in order to log into the DRAMBORA system.



³ For security purposes, you can limit the IP addresses that users may log in from. This supports wildcards: for example, *.*.* permits access from any IP, while 130.209.*.* permits access only from the 130.209.x.x network. It is recommended that you restrict access to only your own IP or local network range.

Note on Navigating the System

The DRAMBORA Interactive tool has three main sections:

- A. Before the Assessment
- B. Assessment Centre
- C. Report Results

Although it is recommended that you follow a linear path through the audit process, you can save your progress as a snapshot if you choose to move between sections.

You'll notice that the boxes in the right-hand column have plus-signs  next to them. Clicking these allows the boxes to be expanded, thereby increasing the amount of information available on the screen at any time. Expanding the sections also allows you to edit inline. If you find your screen becoming cluttered with the amount of information on it, you can collapse these sections by clicking on the minus-signs .

Tip: DRAMBORA Interactive also has a **Save Snapshot** function, which enables you to compare your repository at different stages in its development. More on this feature later...

A. BEFORE THE ASSESSMENT

First click on the left hand menu link **Before the Assessment** in order to submit some details about your repository. The most important initial steps before the assessment of your repository are to:

- A1. Refine the repository characteristics
- A2. Make explicit the audit scope and purpose
- A3. Determine the structure for the audit managing the functional classes
- A4. Define staff
- A5. Allocate roles accordingly
- A6. User administration

These details can be updated at any time, but it is worth spending some effort before your assessment in order to get a reasonably full set of responses. Let's see the steps in details:

A1. Edit Repository (defining the scope of your audit)

If you have any changes to make to the repository characteristics you can click on the **Edit Repository** link to do so (Fig. 4). Otherwise, click on the link to **Define Assessment Scope**.

Figure 4 – Edit Repository page

A2. Define Assessment Scope

The assessment should firstly be defined in terms of its chronological relationship with the repository. Is the assessment taking place before the repository is active, or does it take a retrospective look at efforts already underway?

Read the text and select the type of audit you want to undertake (e.g. *validatory*) and describe the extent of the assessment planned for the repository (Fig. 5). Try to be explicit about which individual organisational units are being assessed, and which are beyond the scope of this analysis.

Tip: Click on the link at the foot of this screen to view some sample documentation types that may usefully contribute to your audit. The list is also included in this document at Appendix 3.

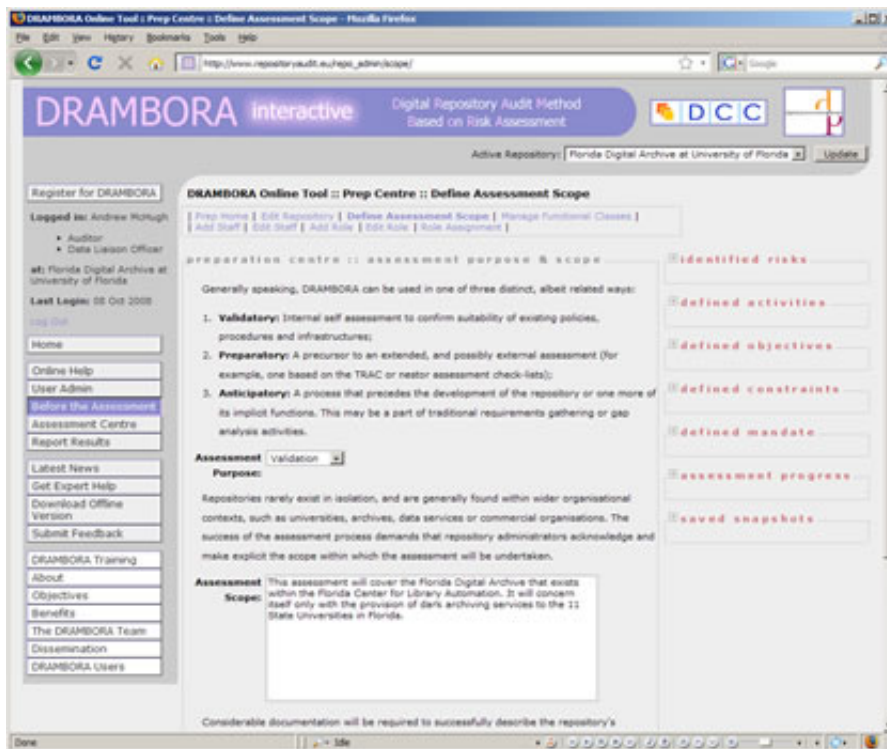


Figure 5 – Define Assessment Scope page

A3. Define Functional Classes (determining the structure for the audit)

Functional classes are a means of categorising audit information to facilitate the process and make reports more meaningful. In this section you will select how you are going to structure your audit responses and outcomes.

You must select at least one functional class at this stage, and it is recommended that you spend some time here to ensure your choice is comprehensive. If you feel that the predefined functional classes are insufficient you can define your own additional ones, although a default set of ten is provided (and recommended).

Click **Manage Functional Classes** to see the available descriptors (Fig. 6); the ten default classes correspond with the ten principles of digital repositories on which DRAMBORA is structured. Click **select all** to choose these ten, and then click the Save button.

Tip: You may wish to structure the definition process according to your own bespoke Functional Classes, or use a subset or superset of the ten default exemplars. This can all be configured via the Define Functional Classes screen. While any part of the DRAMBORA process can be returned to at a later time, as a fundamental aspect of the repository it is suggested that the set of Functional Classes should not be altered once it has been defined.

The screenshot displays the 'Manage Functional Classes' interface. At the top, it identifies the user as 'Andrew McHugh' and the active repository as 'Florida Digital Archive at University of Florida'. The main heading is 'DRAMBORA Online Tool :: Prep Centre :: Manage Functional Classes'. Below this, there are navigation links: 'Prep Home', 'Edit Repository', 'Define Assessment Scope', 'Manage Functional Classes', 'Add Staff', 'Edit Staff', 'Add Role', 'Edit Role', and 'Role Assignment'. The page is titled 'preparation centre :: functional classes'. A paragraph explains that users must select functional classes to classify objectives, constraints, activities, assets, and risks, and that ten default classes are suggested. It strongly recommends using each of these. Below this, there are two dropdown menus for 'Support Functions' and 'Operational Functions'. The 'Support Functions' dropdown includes: 'Mandate & Commitment to Digital Object Maintenance', 'Organisational Fitness', 'Legal & Regulatory Legitimacy', 'Efficient & Effective Policies', and 'Adequate Technical Infrastructure'. The 'Operational Functions' dropdown includes: 'Acquisition & Ingest', 'Preservation of Digital Object Integrity, Authenticity & Usability', 'Metadata Management & Audit Trails', 'Dissemination', and 'Preservation Planning & Action'. To the right, there is a sidebar with checkboxes for 'identified risks', 'defined activities', 'defined objectives', 'defined constraints', 'defined mandate', 'assessment progress', and 'saved snapshots'. At the bottom, there are logos for 'DRAMBORA Consortium Sponsors' (Information Society, JISC, e-Science) and publication information: 'Date Published: 1 February 2008 | Last Modified: 1 February 2008 | © Digital Curation Centre and DigitalPreservationEurope, except where otherwise noted | Notices'.

Figure 6 – Define Functional Classes page

A4. Add Staff

Next, click on the link to **Add Staff** (Fig. 7). Enter details for each member of repository staff. Staff are the real people that occupy the various roles in your repository. You can choose to **create** new (or associate existing) DRAMBORA Interactive users to link with each staff member. This is not absolutely necessary, but it permits these staff members to provide hands-on contributions to the audit process. Each member of staff will need his or her own user accounts to log into the DRAMBORA tool.

Staff members can be defined as either *coordinators* or *contributors*. In common with other repository administration activities, only coordinator users can create and edit staff members.

DRAMBORA interactive Digital Repository Audit Method Based on Risk Assessment

Active Repository: Florida Digital Archive at University of Florida Update

Register for DRAMBORA

Logged in: Andrew McHugh

- Auditor
- Business Manager
- Data Liaison Officer

at: Florida Digital Archive at University of Florida

Last Login: 28 Nov 2008

Log Out

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DRAMBORA Online Tool :: Prep Centre :: Edit Staff

Prep Home | Edit Repository | Define Assessment Scope | Manage Functional Classes | Add Staff | **Edit Staff** | Add Role | Edit Role | Role Assignment |

preparation centre :: edit staff

From this part of the DRAMBORA tool you can edit existing staff members in the repository. You can also change user associations.

Each staff member identified in this section should correspond with a tangible position (occupied or otherwise) that is implicit within the perimeter of the repository defined in the previous scoping section. Staff members should be distinguished from DRAMBORA Interactive **users**. Although repository staff can be given user status within DRAMBORA this is not obligatory. Similarly, individual DRAMBORA users may have more than one staff responsibility, within a single repository, or across several.

Coordinating staff members may edit details within the pre-assessment preparation centre. Contributors are limited to the main assessment activities pages

Repository: * Florida Digital Archive at University of Florida

Staff Member: * Business Manager

Position: * Business Manager

Staff No:

Address:

Telephone:

Email:

Status: * Contributor

Associate Staff Member with an existing DRAMBORA user

Create a new corresponding DRAMBORA user

No corresponding DRAMBORA user (and delete any existing associations)

Username: * amh Get User

Username: * amh

Title: * Mr

First Name: * Andrew

Surname: * McHugh

Submit With Existing User

Delete This Staff Member

identified risks

defined activities

defined objectives

defined constraints

defined mandate

assessment progress

saved snapshots

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Figure 7 - Add Staff page

A5. Add Role, Edit Role, Role Assignment

Roles have a special meaning within DRAMBORA, and are distinct from job titles. Roles describe broad functions with associated responsibilities; many staff members can therefore occupy a single role.

In DRAMBORA, roles are characterised by their function (e.g. Ingest, Dissemination, Financial Management, Preservation Planning). Their relationship to staff members is 1 to *n*. Therefore, many staff members can perform single roles. Roles are used to associate activities, risks and risk management responsibilities with specific individuals or sets of individuals.

Click **Add Role** and enter the key roles that will exist within the repository (Figs. 8 and 9). If these are not clear-cut then you may choose to use the main functions provided within OAIS as a guide (e.g. *Ingest, Data Management, Archival Storage, Preservation Planning, Administration, and Access*). Roles allow the auditor to assign particular challenges and risks to specific individuals or groups of individuals.

Finally in this section, you can assign roles to individual staff members by following the **Role Assignment** link. Once this is done, click **Assessment Centre** in the left-hand navigation column to begin the audit.

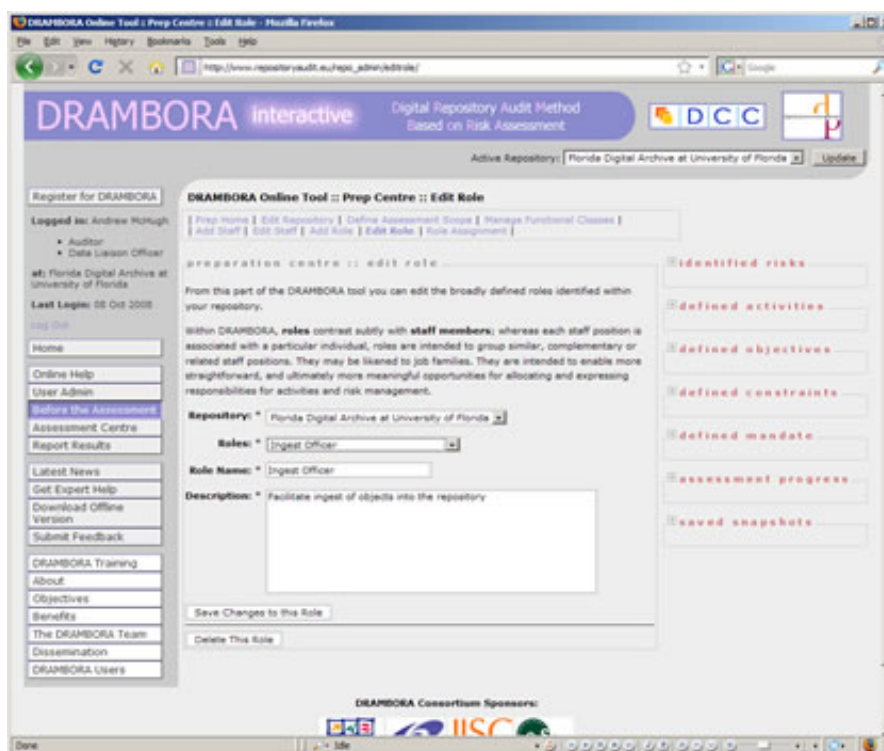


Figure 8 – Edit Role page

SECTION 4: ASSESSMENT CENTRE

DRAMBORA interactive Digital Repository Audit Method Based on Risk Assessment

Active Repository: Florida Digital Archive at University of Florida Update

Register for DRAMBORA

Logged in: Andrew McHugh

- Auditor
- Business Manager
- Data Liaison Officer

at: Florida Digital Archive at University of Florida

Last Login: 28 Nov 2008

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DRAMBORA Online Tool :: Prep Centre :: Assign Roles

Prep Home | Edit Repository | Define Assessment Scope | Manage Functional Classes | Add Staff | Edit Staff | Add Role | Edit Role | Role Assignment |

preparation centre :: assign roles

From this part of the DRAMBORA tool you can associate predefined staff members with individual roles.

Perhaps obviously, individual staff members can contribute to the performance of multiple roles. A software specialist for example may contribute to ingestion, preservation and dissemination of content.

Repositories: Florida Digital Archive at University of Florida

Roles: Repository Management

Staff:

- Auditor (Andrew McHugh)
- New Position (Raivo Ruusalepp)

Repository Management

- Business Manager (Andrew McHugh)
- Data Liaison Officer (Andrew McHugh)

Save Role Assignment

identified risks

- Budgetary reduction (Repository's operational budget is reduced)
- Enforced cessation of repository operations (Repository is forced to cease its business activities.)

defined activities

defined objectives

defined constraints

defined mandate

assessment progress

saved snapshots

- Quarter 3, 2008 (8th Oct 2008)

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Figure 9 – Role Assignment page

Note on User Admin

In DRAMBORA Interactive, logged-in users can update their own details at any time via the **User Admin** screen (Fig. 10).

For security purposes, it is possible to limit the IP addresses that users may log in from; this supports wild cards, for example:

..*.* permits access from any IP

130.209.*.* permits access from anywhere on the 130.209.x.x network

It is recommended that you restrict access to your own IP address, or to your local network range.

SECTION 4: ASSESSMENT CENTRE

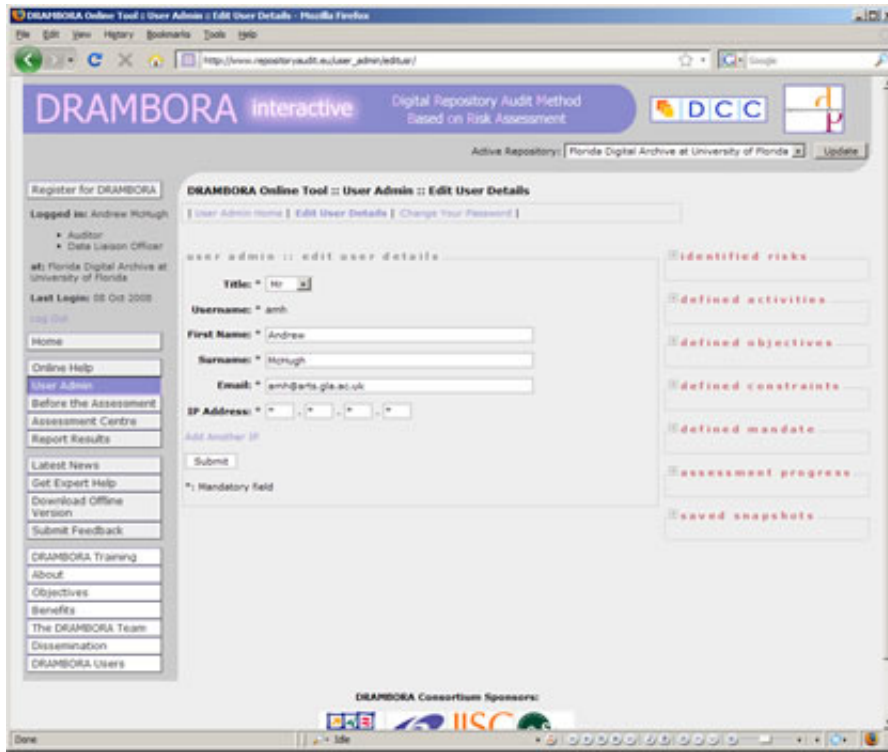


Figure 10 - User Admin page

B. ASSESSMENT CENTRE

The Assessment Centre is the pivotal stage of the audit. The constituent steps in this process are:

- B1 Add Mandate
- B2 Add Constraints
- B3 Add Objectives
- B4 Add Activities and Assets
- B5 Add Risks
- B6 Assess Risks
- B7 Manage Risks

Tip: Asterisked fields are mandatory within the Assessment Centre. Remember that DRAMBORA Interactive is a recursive process, so stages can be returned to at any time.

B1. Add Mandate

The first requirement is to define the mandate of the audited repository.

The mandate describes the repository's mission, or reason for existence. This is the general statement that legitimises the repository, and broadly describes its objectives. Because repositories are unlikely to exist in a vacuum, multiple mandates can be described, corresponding to different hierarchical levels within which the repository exists (e.g. you may have separate (but hopefully compatible) mandates associated with repository, departmental and organisational levels).

Click **Add Mandate** and enter the details, then describe the scope to which this particular mandate applies (Fig. 11). If you need to add additional mandates (e.g. to represent an organisational hierarchy) then this can be done by reselecting the **Add Mandate** link. The mandates you have entered can be viewed by expanding the **defined mandates** box at the right of the screen. You can edit or delete these sections 'inline' using this view.

The screenshot displays the 'DRAMBORA Online Tool :: Assessment Centre :: Organisational Mandate' page. The interface is divided into several sections:

- Header:** 'DRAMBORA interactive' logo, 'Digital Repository Audit Method Based on Risk Assessment', and 'Active Repository: Florida Digital Archive at University of Florida' with an 'Update' button.
- Left Navigation:** A vertical menu with links such as 'Home', 'Online Help', 'User Admin', 'Before the Assessment', 'Assessment Centre' (highlighted), 'Report Results', 'Latest News', 'Get Expert Help', 'Download Offline Version', 'Submit Feedback', 'DRAMBORA Training', 'About', 'Objectives', 'Benefits', 'The DRAMBORA Team', 'Dissemination', and 'DRAMBORA Users'.
- Main Content Area:**
 - Navigation links: 'Assessment Home | Add Mandate | Add Constraints | Add Objectives | Add Activities and Assets | Add Risks | Assess Risks | Manage Risks |'.
 - Section title: 'mandate ?'.
 - Text description: 'The mandate describes the repository's mission, or reason for existence. This is the general statement that legitimises the repository, and broadly describes its objectives. Because repositories are unlikely to exist in a vacuum, multiple mandates can be described, corresponding to different hierarchical levels within which the repository exists (e.g. you may have separate (but hopefully compatible) mandates associated with repository, departmental and organisational levels).'.
 - Form fields: 'Applies To*:' (text input) and 'Mandate*:' (large text area).
 - Button: 'Save Mandate and Continue'.
- Right Sidebar:** A list of expandable sections:
 - 'have you considered?' with a 'Go!' button and text 'Let me see some generic mandate examples.'
 - 'identified risks'
 - 'defined activities'
 - 'defined objectives'
 - 'defined constraints'
 - 'defined mandate'
 - 'assessment progress'
 - 'saved snapshots'
- Footer:** 'DRAMBORA Consortium Sponsors:' with logos for Information Society Technology, JISC, and e-Science. Below this is the publication information: 'Date Published: 1 February 2008 | Last Modified: 1 February 2008 | © Digital Curation Centre and DigitalPreservationEurope, except where otherwise noted | Notices'.

Figure 11 - Organisational mandate page

B2. Add Constraints

Repository constraints take many forms, and can be succinctly described as any factor that compels or influences the repository to operate in a particular fashion. These can originate *externally* (e.g. legislation prohibiting release of particularly materials) or *internally* (e.g. policies describing particular protocols for information ingest).

Define any constraints which your repository is subject to or influenced by clicking **Add Constraints** (Fig. 12). This should include any relevant factor that influences or informs the repository's objectives or activities (e.g. policies, laws, technical constraints, or even less tangible cultural considerations such as lack of financial confidence). Try to come up with a variety of constraints that correspond to the categories available. You can upload files or include web links that describe individual constraints in more detail. External files can be linked to offer further information.

The screenshot shows the 'Add Constraints' page in the DRAMBORA Interactive Assessment Centre. The page header includes the DRAMBORA logo and the text 'Digital Repository Audit Method Based on Risk Assessment'. The active repository is identified as 'Repository at The Royal Commission on Ancient and Historical Testaments in Scotland'. The main content area is titled 'DRAMBORA Online Tool :: Assessment Centre :: Constraints' and contains a navigation menu with links like 'Assessment Home', 'Add Mandate', 'Add Constraints', 'Add Objectives', 'Add Activities and Assets', 'Add Risks', 'Assess Risks', and 'Manage Risks'. Below this, there is a section titled 'constraints' with a help icon. The text explains that repository constraints can be external (e.g., legislation) or internal (e.g., policies). The form fields include:

- Name***: A text input field.
- Description***: A large text area.
- Type**: A dropdown menu currently set to 'Legislation'.
- Functional Class(es)***: A list box containing categories such as 'Mandate & Commitment to Digital Object Maintenance', 'Organisational Fitness', 'Legal & Regulatory Legitimacy', 'Efficient & Effective Policies', 'Acquisition & Ingest', 'Preservation of Digital Object Integrity, Authenticity & Usability', 'Metadata Management & Audit Trails', 'Dissemination', 'Preservation Planning & Action', and 'Adequate Technical Infrastructure'.
- File**: A text input field with a 'Browse...' button.
- or URL**: A text input field.
- Not Public**: A checkbox.
- Add Extra File(s)**: A link.
- Save Constraint and Add More**: A button.
- Save Constraint and Proceed**: A button.

 On the right side, there is a 'have you considered?' section with a dropdown menu set to 'Mandate & Commitment' and a 'Go!' button. Below this are several expandable sections: 'identified risks', 'defined activities', 'defined objectives', 'defined constraints', 'defined mandate', 'assessment progress', and 'saved snapshots'. The footer includes logos for DRAMBORA Consortium Sponsors (Information Society, JISC, e-Science) and publication information: 'Date Published: 1 February 2008 | Last Modified: 1 February 2008 | © Digital Curation Centre and DigitalPreservationEurope, except where otherwise noted | Notices'.

Figure 12 - Add Constraints page

B3. Add Objectives

Objectives are measurable strategic aims of the repository, and can correspond with any of its business areas. These are the outcomes that the repository pursues, and can be contrasted with the specific strategies employed to facilitate their achievement (called *activities* within DRAMBORA). Adding a quantitative dimension to each objective will facilitate its measurement and the subsequent identification of risks.

Define each of your repository's *objectives* by clicking **Add Objectives** (Fig. 13). You should aim to come up with a number of objectives corresponding to a variety of functional classes. You can associate these with constraints defined in the previous stage. Ideally, your objectives will have a degree of measurability.⁴

The screenshot shows the DRAMBORA interactive web application interface. At the top, it says "DRAMBORA interactive" and "Digital Repository Audit Method Based on Risk Assessment". The active repository is "Repository at The Royal Commission on Ancient and Historical Testaments in Scotland". The page title is "DRAMBORA Online Tool :: Assessment Centre :: Organisational Objectives".

The main content area contains a form for adding objectives. The form has the following fields:

- Name*:** A text input field.
- Description*:** A large text area.
- Documented, Referenced in, or Related to:** A text area.
- Functional Class(es)*:** A dropdown menu with the following options:
 - Mandate & Commitment to Digital Object Maintenance
 - Organisational Fitness
 - Legal & Regulatory Legitimacy
 - Efficient & Effective Policies
 - Acquisition & Ingest
 - Preservation of Digital Object Integrity, Authenticity & Usability
 - Metadata Management & Audit Trails
 - Dissemination
 - Preservation Planning & Action
 - Adequate Technical Infrastructure

At the bottom of the form are two buttons: "Save Objective and Add More" and "Save Objective and Proceed".

On the right side of the page, there is a sidebar with the heading "have you considered?". It lists several options: "identified risks", "defined activities", "defined objectives", "defined constraints", "defined mandate", "assessment progress", and "saved snapshots".

The footer contains the following information:

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Figure 13 - Add Objectives page

⁴ For help with defining your organisational objectives, see the *DPE PLATTER Repository Planning Tool*, available online at http://www.digitalpreservationeurope.eu/publications/reports/Repository_Planning_Checklist_and_Guidance.pdf

B4. Add Activities and Assets

Activities are the practical and tangible things that the repository does in order to achieve its objectives. These may be associated with *assets* that are either required to enable their completion or are generated as an outcome, but this is not obligatory. Each activity must be associated with one or more *roles* to indicate where responsibility for its completion resides.

In this stage you will create a selection of corresponding specific repository *activities* that are undertaken within your organisation in order to meet individual objectives (Fig. 14). You can also add details of required or related *assets* for each activity to take place, and an *owner* (a role) that has responsibility for each activity. Please note that assets are anything that is required to facilitate the achievement of particular objectives, tangible or otherwise (i.e. the repository's reputation, specific competencies of your staff, etc.).

The screenshot shows the 'DRAMBORA interactive' web interface. The header includes the logo and the text 'Digital Repository Audit Method Based on Risk Assessment'. The active repository is set to 'Repository at The Royal Commission on Ancient and Historical Testaments in Scotland'. The page title is 'DRAMBORA Online Tool :: Assessment Centre :: Activities'. A navigation menu includes links for 'Assessment Home', 'Add Mandate', 'Add Constraints', 'Add Objectives', 'Add Activities and Assets', 'Add Risks', 'Assess Risks', and 'Manage Risks'. The main content area is titled 'activities, assets and roles' and contains a descriptive paragraph about activities. Below this are several form fields: 'Activity Name*', 'Activity Desc*', 'Activity Role(s)*', 'Related Asset(s)*', 'Related Objective(s)*', and 'Functional Class(es)*'. The 'Functional Class(es)*' dropdown is currently open, showing a list of categories such as 'Mandate & Commitment to Digital Object Maintenance', 'Organisational Fitness', 'Legal & Regulatory Legitimacy', etc. On the right side, there is a 'have you considered?' section with a 'Go!' button and a list of expandable sections: 'identified risks', 'defined activities', 'defined objectives', 'defined constraints', 'defined mandate', 'assessment progress', and 'saved snapshots'. The footer includes logos for DRAMBORA Consortium Sponsors (Information Society, JISC, e-Science) and publication information.

Figure 14 - Add Activities and Assets page

B5. Add Risks

Risks describe challenges or threats that impede the achievement of repository objectives, obstruct activities and prejudice the continued availability of essential assets. The risk identification stage is the most important in DRAMBORA Interactive.

Clicking **Add Risks** offers a choice of three ways to attach risks to your repository:

- Creating a new risk from scratch (Fig. 15)
- Modifying another risk already attached to your repository
- Adapting an off-the-shelf risk (Fig. 16)

Tip: To avoid duplicating effort unnecessarily, it is recommended that you inspect the list of pre-defined lists before creating new risks from scratch.

Each risk must be given a *name*. You can also describe:

- Vulnerabilities,
- Consequences
- Avoidance strategies
- Treatment strategies
- Causal relationships it may have with other risks
- Notes on the nature of the risk itself.

SECTION 4: ASSESSMENT CENTRE

DRAMBORA

interactive

Digital Repository Audit Method
Based on Risk Assessment

Active Repository: Repository at The Royal Commission on Ancient and Historical Testaments in Scotland Update

Register for DRAMBORA

Logged in: Andrew McHugh

- Test Position

at: Repository at The Royal Commission on Ancient and Historical Testaments in Scotland

Last Login: 26 Nov 2008

[Log Out](#)

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DRAMBORA Online Tool :: Assessment Centre :: Identify Risks

| [Assessment Home](#) | [Add Mandate](#) | [Add Constraints](#) | [Add Objectives](#) | [Add Activities and Assets](#) | **[Add Risks](#)** | [Assess Risks](#) | [Manage Risks](#) |

identify risks ?

You can choose to define a new risk, or alternatively base your risk definition on an existing generic DRAMBORA risk, or one that you have already defined. Risks describe challenges or threats that impede the achievement of repository objectives, obstruct activities and prejudice the continued availability of essential assets.

Build upon existing risk

Define new risk from scratch

Risk Name*:

Risk Description*:

[Add a Risk Vulnerability](#)

[Add a Risk Consequence](#)

[Add a Risk Relationship](#)

Nature of Risk:

Physical Environment:	<input type="checkbox"/>
Personnel, Management & Admin Procedures:	<input type="checkbox"/>
Operations & Service Delivery:	<input type="checkbox"/>
Hardware, Software or Communications Equipmt & Facilities:	<input type="checkbox"/>

Risk Owner(s)*:

Functional Class(es)*:

Mandate & Commitment to Digital Object Maintenance
 Organisational Fitness
 Legal & Regulatory Legitimacy
 Efficient & Effective Policies
 Acquisition & Ingest
 Preservation of Digital Object Integrity, Authenticity & Usability
 Metadata Management & Audit Trails
 Dissemination
 Preservation Planning & Action
 Adequate Technical Infrastructure

Link Risk to: Don't Link Risk

Save Risk and Add More

Save Risk and Proceed

identified risks

defined activities

defined objectives

defined constraints

defined mandate

assessment progress

saved snapshots

DRAMBORA Consortium Sponsors:

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Figure 15 - Add Risk page: creating a new risk from scratch

SECTION 4: ASSESSMENT CENTRE

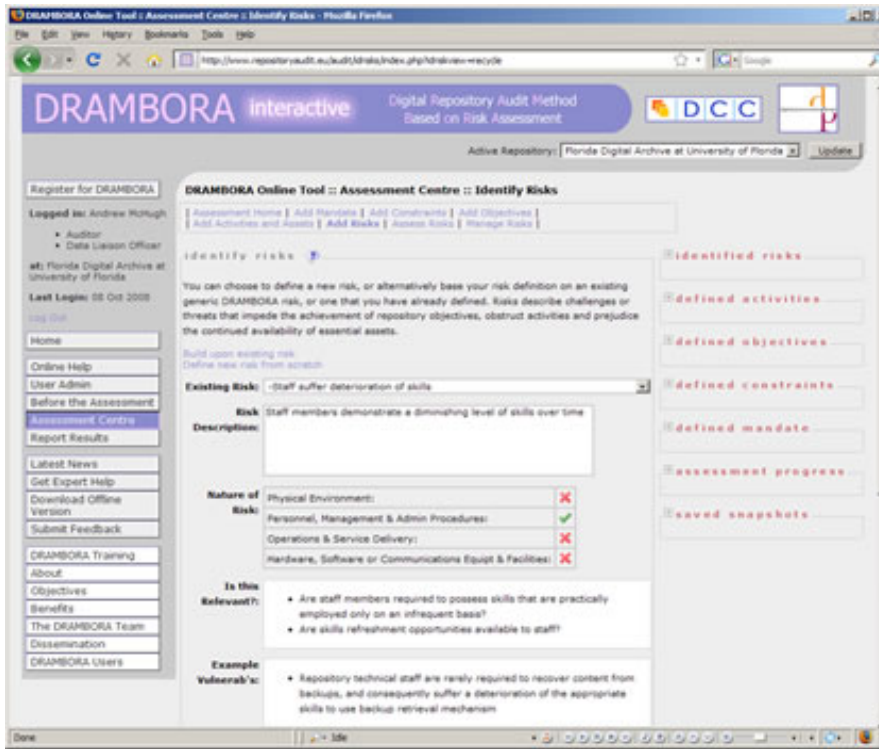


Figure 16 - Add Risk page: selecting an off-the-shelf risk

Tip: When modifying a pre-defined risk, select the “Store Original Management Measures” tick-box to carry the *vulnerabilities* and *risk consequences* across from the template. These can then be edited as you require.

B.6 Assess Risks

Once you have identified all of your repository's risks, the next step is to undertake a risk assessment in order to determine their severity. Risk assessment can be done on a selection of risks at a time, either by functional class, or a custom grouping defined by the user.

This measurement represents a combination of the risk's **frequency** and its **potential impact**. Weightings should be applied to each to describe their proportionate scale. Impact can be manifested in numerous ways, so in order to ensure the comparability of results, you should select a **risk impact expression** descriptor from the drop-down list, and weight your responses accordingly.

The screenshot shows the DRAMBORA Interactive Assessment Centre interface. The header includes the DRAMBORA logo, the text "Digital Repository Audit Method Based on Risk Assessment", and logos for DCC and Digital Preservation Centre. The active repository is set to "Florida Digital Archive at University of Florida".

The main content area is titled "DRAMBORA Online Tool :: Assessment Centre :: Assess Risks". It contains a navigation menu with links: Assessment Home, Add Mandate, Add Constraints, Add Objectives, Add Activities and Assets, Add Risks, Assess Risks, and Manage Risks.

The "assess risks" section explains that risks should be assessed to determine their severity, based on frequency and potential impact. It provides a list of functional classes for selection:

- Mandate & Commitment to Digital Object Maintenance...
- Organisational Fitness...
- Legal & Regulatory Legitimacy...
- Efficient & Effective Policies...
- Acquisition & Ingest...
- Preservation of Digital Object Integrity, Authenticity & ...

Two risk assessment examples are shown:

- Risk Name:** Budgetary reduction
Description: Repository's operational budget is reduced
Probability: -High
Expression: -Organisational Viability
Impact: -Medium
- Risk Name:** Enforced cessation of repository operations
Description: Repository is forced to cease its business activities.
Probability: -Low
Expression: -Organisational Viability
Impact: -Very High

A "Save Risk Assessments" button is located at the bottom of the assessment area.

The right sidebar contains a list of expandable sections: identified risks, defined activities, defined objectives, defined constraints, defined mandate, assessment progress, and saved snapshots.

The footer includes DRAMBORA Consortium Sponsors (Information Society, JISC, e-Science), a date of publication (1 February 2008), and a last modified date (1 February 2008).

Figure 17 - Assess Risk page

B.7 Manage Risks

The final stage of the audit is to define an appropriate set of risk management measures, and to set targets that might limit the likelihood and the impact of their occurrence.

Click **Manage Risk** (Fig. 18), and for each risk you should record details of treatment or avoidance measures, anticipated outcomes, and set a date at which the risk should be reassessed.

The screenshot displays the DRAMBORA Online Tool interface. At the top, it says "DRAMBORA interactive" and "Digital Repository Audit Method Based on Risk Assessment". The active repository is "Florida Digital Archive at University of Florida".

Left Sidebar:

- Register for DRAMBORA
- Logged in: Andrew McHugh
 - Auditor
 - Business Manager
 - Data Liaison Officer
- at: Florida Digital Archive at University of Florida
- Last Login: 28 Nov 2008
- Log Out
- Home
- Online Help
- User Admin
- Before the Assessment
- Assessment Centre
- Report Results
- Latest News
- Get Expert Help
- Download Offline Version
- Submit Feedback
- DRAMBORA Training
- About
- Objectives
- Benefits
- The DRAMBORA Team
- Dissemination
- DRAMBORA Users

Main Content Area:

DRAMBORA Online Tool :: Assessment Centre :: Manage Risks

manage risks ?

The risk management measures defined in this stage describe the responses that will be implemented following the assessment process. Responsibility for each management measure should be allocated to one or more roles, and details of timescales and projected outcomes defined.

Risk: -Budgetary reduction...
-Enforced cessation of repository operations...

Risk Name: Budgetary reduction

Description: Repository's operational budget is reduced

Risk Owner: Repository Management

Probability: High

Impact: Medium (Organisational Viability)

Severity: 12 (out of 25)

Strategy Type: Avoidance

Strategy Owner: -Ingest Officer...
-Repository Management...

Strategy: [Empty text box]

Target: [Empty text box]

Reassessment Date: [Empty text box] (YYYY-MM-DD)

[Add a Risk Mitigation Strategy]

[Save Risk Management]

Right Panel (Expandable Sections):

- identified risks
- defined activities
- defined objectives
- defined constraints
- defined mandate
- assessment progress
- saved snapshots

Footer:

DRAMBORA Consortium Sponsors: Information Society, JISC, e-Science

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Figure 18 - Manage Risk page

This concludes the Risk Assessment element of DRAMBORA Interactive. The next (and final) stage is to produce the Risk Register report.

C. REPORT RESULTS

Your risk register should now be complete, and you will probably wish to see the results of your work!

There are a number of ways to format and export your report. Click **Report Results** on the left hand side of the screen (Fig. 18), and select one of the following options:

- Export as PDF
- View Assessment Data in Browser
- Advanced Report Builder

Choosing **Export as PDF** offers a further three options:

- Generate Risk Register PDF (all current risks, page per risk)
- Generate Risk Register PDF (all current risks, landscape tabular)
- Advanced Risk Register Builder

Choosing **View Assessment Data in Browser** offers two options:

- Generate Risk Register (all current risks, new window)
- Advanced Risk Register Builder

The **Advanced Report Builder** option allows you to customise your report in several ways. You can choose to display only those risks that are linked to a subset of the functional classes, or selecting individual risks to display. There are also options to order risks alphabetically by name, by owner, by severity, or by date of identification.

Finally, the Advanced Report Builder allows you to output your Risk Report as a Web page.

SECTION 5: REPORT RESULTS

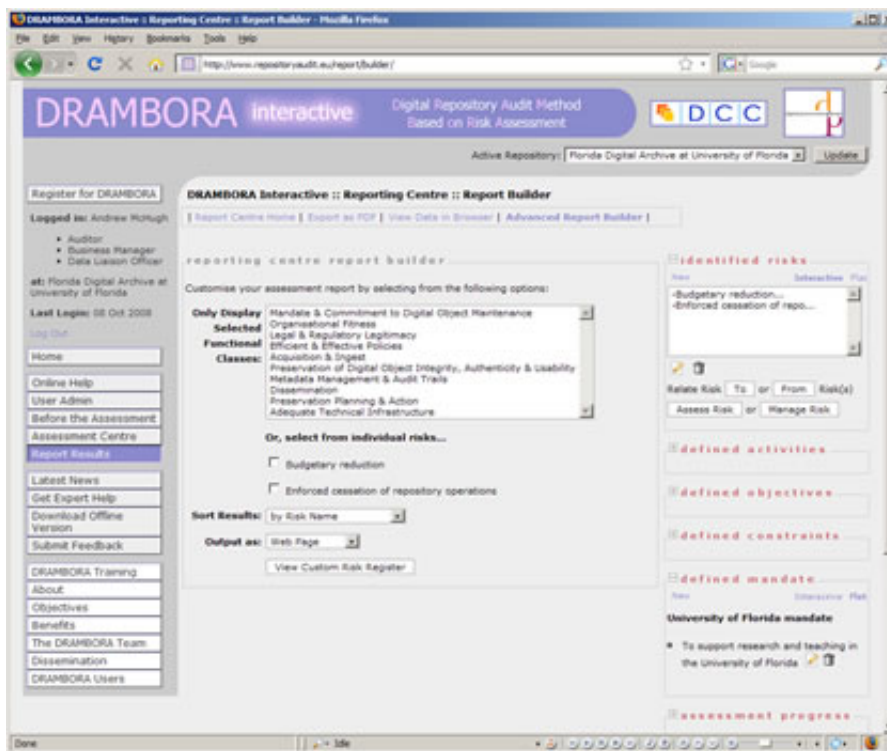


Figure 19 - Report Builder page

ADDITIONAL FEATURES

The **Save Snapshot** feature lets you record the state of the repository at a particular time. This enables comparison at a later date, and can be used to track improvements (or deterioration) over time. A read-only view of the saved responses facilitates analysis of inter-relationships between repository information, which can be a useful reporting tool in itself.

You can save a snapshot of the assessment status at any time. To do so, use the **Saved Snapshot** panel and click on **New Snapshot** at the foot of the right hand side of the screen (Fig 20). You can then view and navigate the responses corresponding to this particular time, and analyse the interrelationships between the accumulated information.

The screenshot displays the DRAMBORA interactive web application interface. At the top, it indicates the user is viewing a READ-ONLY selection of assessment responses saved as "Quarter 3, 2008" on Wednesday, 8th October, 2008. The main header features the DRAMBORA logo and the text "Digital Repository Audit Method Based on Risk Assessment". The active repository is identified as "Florida Digital Archive at University of Florida".

The central content area is titled "DRAMBORA Online Tool :: Assessment Centre :: View Risk". It provides navigation links for "Audit Home", "Mandate View", "Constraints View", "Objectives View", "Activities View", "Risks, Risk Assessment and Risk Management View". Below this, a message states: "Use this page to navigate between the various related characteristics of this single risk. You can select alternative risks using the selection panel on the right hand side of the screen."

The risk details are as follows:

- Risk Name:** Budgetary reduction
- Identified*:** 8th October 2008
- Potential Impact*:** Medium (to Organisational Viability)
- Probability:** High
- Severity:** 48%
- Risk Description:** Repository's operational budget is reduced
- Risk Vulnerability:** Local recession provokes budgetary reduction of government financed repository
- Risk Relationships:** Budgetary reduction to Enforced cessation of repository operations (Contagious)
- Nature of Risk:**
 - Physical Environment: ✗
 - Personnel, Management & Admin Procedures: ✓
 - Operations & Service Delivery: ✗
 - Hardware, Software or Communications Equipmt & Facilities: ✗
- Risk Owner(s):** Repository Management
- Functional Class(es):** Supporting Functional Classes
 - Mandate & Commitment to Digital Object Maintenance, Organisational Fitness
- Linked to:** [Empty field]
- Management Strategy(ies):** [Empty field]

On the right side, there is a sidebar with several expandable sections:

- Identified risks:**
 - Budgetary reduction (Repository's operational budget is reduced)
 - Enforced cessation of repository operations (Repository is forced to cease its business activities.)
- defined activities**
- defined objectives**
- defined constraints**
- defined mandate**
- assessment progress**
- saved snapshots:**
 - Quarter 3, 2008 (8th Oct 2008)

At the bottom, the DRAMBORA Consortium Sponsors are listed: Information Society Technology, JISC, and e-Science. The footer contains the date published (1 February 2008) and last modified (1 February 2008) information, along with a notice about digital curation and preservation.

Figure 20 - Example of Saved Snapshot

APPENDICES

APPENDIX 1: GLOSSARY

Asset

Anything that has value to the organisation (ISO/IEC 13335-1:2004).

Digital repository

An organisation (or organisational unit) that has responsibility for the long-term maintenance of authentic and understandable digital resources. A digital repository is expected to adhere to the following ten criteria:⁵

- i) Commits to continuing maintenance of digital objects for its identified community (or communities).
- ii) Demonstrates organisational fitness (including financial, staffing, structure, processes) to fulfil its commitment.
- iii) Acquires and maintains requisite contractual and legal rights and fulfils responsibilities.
- iv) Has effective and efficient policy framework.
- v) Acquires and ingests digital objects based upon stated criteria that correspond to its commitments and capabilities.
- vi) Maintains/ensures the integrity, authenticity and usability of digital objects it holds over time.
- vii) Creates and maintains requisite metadata about actions taken on digital objects during preservation as well as about the relevant production, access support, and usage process contexts before preservation.
- viii) Fulfils requisite dissemination requirements.
- ix) Has strategic programme for preservation planning and action.
- x) Has technical infrastructure adequate for continuing maintenance and security of digital objects.

DRAMBORA Interactive does not pre-suppose any specific type of digital resources or the repository having any particular type of organisational structure: the risk-based self-assessment will be undertaken within the confines of the mandate of the repository, whether it be an archive, digital library, data archive, or e-Science collection.

Likelihood

Used as a general description of probability or frequency. (AS/NZS 4360:2004)

Mandate

Legal basis or a formally expressed intention issued by an organisation or its parent to achieve a particular goal (or goals).

Objectives

General and continuing, and specific, time bound statements of intended future results. Organisation's objectives often identify broad functional areas and descriptions of major programmes and their budgets. Objectives are usually revised every three to five years.

⁵ Core Requirements for Digital Archives. Center for Research Libraries (CRL) (2007). Source: <http://www.crl.edu/content.asp?l1=13&l2=58&l3=162&l4=92>

Owner

An individual or entity that has approved management responsibility for controlling the production, development, maintenance, use and security of the repository's assets. (ISO 27001:2005)

Risk

Risk refers to uncertainty that surrounds future events and outcomes. It is the expression of the likelihood and impact of an event with the potential to influence the achievement of an organisation's objectives.

Risk assessment

Systematic process of estimating the magnitude of risks as a combination of likelihood and impact scores.

Risk avoidance

A decision not to become involved in, or to withdraw from, a risk situation. (ISO/IEC Guide 73:2002)

Risk communication

Exchange or sharing of information about risk between the decision-maker and other stakeholders. (ISO/IEC Guide 73:2002)

Risk identification

Process of identifying risks considering business objectives, activities and assets, and their threats and vulnerabilities as the basis for further analysis.

Risk management

Coordinated activities to direct and control an organisation with regard to risk. (ISO/IEC Guide 73:2002)

Vulnerability

Weakness of an asset or group of assets that can be exploited by one or more threats. (ISO/IEC 13335-1)

APPENDIX 2: QUICKSTART GUIDE

1. When logged in a box in the top right of the screen displays the name of your registered 'active' repository. Your currently active repository will always be displayed in this section of the screen. You may register as a staff member at as many repositories as you wish, but if doing so you should ensure that the correct repository is currently active.
2. The first thing you should do after registering a new repository is to visit the Assessment Preparation centre, in order to add some important details about your repository. From this part of DRAMBORA interactive you should complete the following simple stages:
 - a. Make any further edits you wish to your repository profile
 - b. Add/edit details of all of the staff members that you have within your repository
 - c. Add/edit details the roles that exist within your repository (N.B. **this is vital**, since DRAMBORA Interactive relies on role information to associate risks and responsibilities with particular owners.)
 - d. Associate staff members with specific roles
3. After finalising some details about your repository you are ready to begin the assessment. To do so, you should visit the Assessment Centre index page. This is the starting point for the assessment.
 - a. Functional Classes: The first item to decide upon is the set of functional classes, or information categories, that you will use to structure your responses and reporting capabilities within the assessment process. This choice is particularly important, because it will determine the flexibility that you will subsequently have within the assessment
 - b. Mandate: The mandate section allows you to express the reason for the repository's existence, its formal expression of legitimacy and purpose. Multiple mandates can correspond to a single repository, relating to the missions and mandates of different levels of the organisational hierarchy within which the repository finds itself
 - c. Constraints: Constraints are limits that restrict or influence the objectives and activities of the repository. These can relate to strategic plans, legislation or regulations, technical requirements or policy. These must be documented to relate to objectives and ultimately to risks
 - d. Objectives: Objectives are the strategic aims of the repository, structured according to the functional classes decided upon earlier. These should be expressed in suitably specific terms, ideally with an associated quantitative target to facilitate understanding of their achievement
 - e. Activities and Assets: These are the practical actions and resources that the repository has in place to meet the objectives stated above.
 - f. Identify Risks: At this stage assessors should detail each of the risks that relates to the organisation. Assessors can 'recycle' pre-existing risks, making necessary changes to suit their own specific context
 - g. Assess Risks: Assessors should determine the probability and potential impact of each identified risk, in order to determine the most severe risks in need of the most urgent attention

SECTION 7: APPENDICES

- h. Manage Risks: At this stage, the final point of the self assessment process, you should devise appropriate risk management techniques in order to alleviate the vulnerabilities that your repository is exposed to.
4. Once the assessment stages are finalised you may view the various reporting options. Through the Report Centre you may export the results of the assessment to the web or to a PDF document. You may export all the identified risks or a structured and ordered subset.

APPENDIX 3: SAMPLE DOCUMENTATION

Numerous different kinds of documentation may come in useful during the audit process. The following list provides some idea of potentially relevant documentation that organisations undertaking self assessment with DRAMBORA may aggregate to support the process. Needless to say, this list is neither exhaustive nor in its entirety compulsory. Some documents may be more or less relevant depending on the organisation. The technological characteristics of the repository are just one of various considerations that also include its organisational, procedural and contextual attributes.

- Examples of strategic planning documents (e.g., business plans, departmental development plans);
- Annual reports;
- Examples of documents and/or legislation that define the repository's mandate;
- Relevant legislation
- Examples of deposit agreements/contracts that you might have available;
- Example job descriptions;
- A recent organisational chart, including details of training commitments;
- Example staff profiles or résumés;
- Copies of financial reports or business plans;
- A copy of the repository's risk register, disaster plan or exit strategy;
- Documents detailing policy in key areas such as designated community definition and associated service levels; preservation strategies; guidelines for selection and ingest; access; and disaster recovery;
- System documentation/procedural manuals and system work flows;
- Documents describing the technical architecture in place;
- Results of any other relevant audits, organisational assessments or self-assessments;
- Documentation describing the institutional spacing within which the repository fits, including details of its mandate, funding cycle and the commitment of or dependency upon its parent organisation.

A specific list of policies that ought to be documented within a trustworthy digital repository is provided in Appendix 3 of the Trustworthy Repositories Audit and Certification Criteria and Checklist Document (TRAC). The number adjacent to each indicates the corresponding metric within this check-list. Each of these, where available, would be of considerable interest during the assessment. It's been our experience that one of the useful things about this process is identifying where gaps exist in documentation, and it's therefore worthwhile to note down not only the documents that you do have available.

- A1.2 Contingency plans, succession plans, escrow arrangements (as appropriate);
- A3.1 Definition of designated community(ies), and policy relating to service levels;
- A3.3 Policies relating to legal permissions;
- A3.5 Policies and procedures relating to feedback;
- A4.3 Financial procedures;
- A5.5 Policies/procedures relating to challenges to rights (only if likely to be needed);
- B1 Procedures related to ingest;
- B2.10 Process for testing understandability;
- B4.1 Preservation strategies;
- B4.2 Storage/migration strategies;

SECTION 7: APPENDICES

- B6.2 Policy for recording access actions;
- B6.4 Policy for access;
- C1.7 Processes for media change;
- C1.8 Change management process;
- C1.9 Critical change test process;
- C1.10 Security update process;
- C2.1 Process to monitor required changes to hardware;
- C2.2 Process to monitor required changes to software;
- C3.4 Disaster plans.