

THESIS USER MANUAL

Why Scorm?

- **Creates a “smart” Learning platform that knows what is to be delivered to the learner, records the Learner performance, and can deliver remedial content.**
- **Creates a standard for re-usability of learning material which includes search, portability, and re-purposing.**

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Introduction

Welcome to HunterStone THESIS—the tool that lets you use the entire Microsoft Office Suite to create eLearning content. No matter which THESIS edition you have chosen—Standard, Professional or Lite—this User Guide will help you quickly and easily achieve your content creation goals.

THESIS has several easy-to-set-up features that can help to create your learning objects in no time. With THESIS, you can:

- **Create online training sessions with familiar applications.** THESIS helps you create online training lessons from Microsoft Office applications without any switching or learning costs.
- **Convert with one click.** THESIS is designed to take the guesswork out of creating SCORM conformant content and ensure that each object will pass the requirements for Learning Platform conformance.
- **Launch training courses in minutes with no special training.** After a brief walkthrough of the THESIS process with the help of this User Guide, you will have all the training required by the average PC user to become an effective learning content creator.

This guide introduces you to each of these features, and many more. Using this guide can help with your lesson development needs, and to see how you can use THESIS' helpful tools.

THESIS Overview

THESIS is an eLearning application that allows eLearning content authors and subject matter experts to create and deploy standards-based, multi-media learning content to be used with any SCORM (see Appx. 1) conformant Learning Platforms. With THESIS, content development and deployment is easy and cost effective using familiar Microsoft Office and web authoring applications that, with a simple click of the mouse, become SCORM 1.2 or 1.3 conformant Learning Objects. THESIS can therefore dramatically lower the cost of production and the deployment time of eLearning material.

THESIS supports Microsoft Word™, Excel™, PowerPoint™, FrontPage and Visio. The THESIS "Learning Object Manager" also allows a user to author complete lessons for online teaching and instruction, using multiple learning objects from different sources.

Special Features

THESIS Standard, Professional, and Librarian deploy the additional Learning Object Manager & Course Builder Learning Object creation tools. This utility allows you to:

- convert almost any digital visual and audio material for the Learning Platform
- build multiple conformant learning objects into a complete lesson

The Software Assurance programme gives THESIS users automatic access to valuable help services.

Definitions and Assumptions

1. “Downloaded Content” is always assumed to be obtained respecting the IPR of the author
2. Repurposing of Learning Material within Education means the reuse with the IPR holders consent for several Learning purposes, i.e. a lesson on Right Angle Triangles used in Geometry teaching may be reused legitimately in Architectural Studies.
3. Disaggregation is the stripping down of Learning Material and reusing the component parts to create Learning Material not envisaged by the IPR holder. Permission should always be sought to do this otherwise the process is in the same category as software theft.

Lesson Structure Considerations

Purpose

THESIS was developed primarily to support the development of lessons or training modules. On the advice of education professionals, a capability to prepare Learning Objects to meet the requirement of a 45 to 60 minute lesson or homework package was kept in mind throughout development. THESIS was designed to deliver multiple objects that could be navigated freely, and ensuring minimum download “wait periods” for the user.

Best Practice

To achieve the THESIS objectives for lesson development it is recommended that:

- Individual file sizes do not exceed 10Mb but ideally should be kept well within this limit.
- Multimedia clips should be kept to the minimum consistent with the objective. Long feature clips should be delivered from Video streaming servers rather than through a VLE.
- Learning Packages consisting of many Learning Objects should be saved in the LOM as a single Multi-SCO Object.

Reference Material should be delivered through normal web services unless the Student/Trainee *HAS* to be tracked when accessing this type of material. If Reference material access is essential to a lesson the required material should only be converted selectively.

Creating Content with THESIS for Word

The following section takes you through each step of the SCORM content authoring procedures for Word.

Step 1 Launch Word

Launch Word - note the “Save with THESIS” located on the tool bar.

Step 2 Create the learning content

Create the learning content in Word and save the file, as usual, for later reference.

Step 3 Save as SCORM

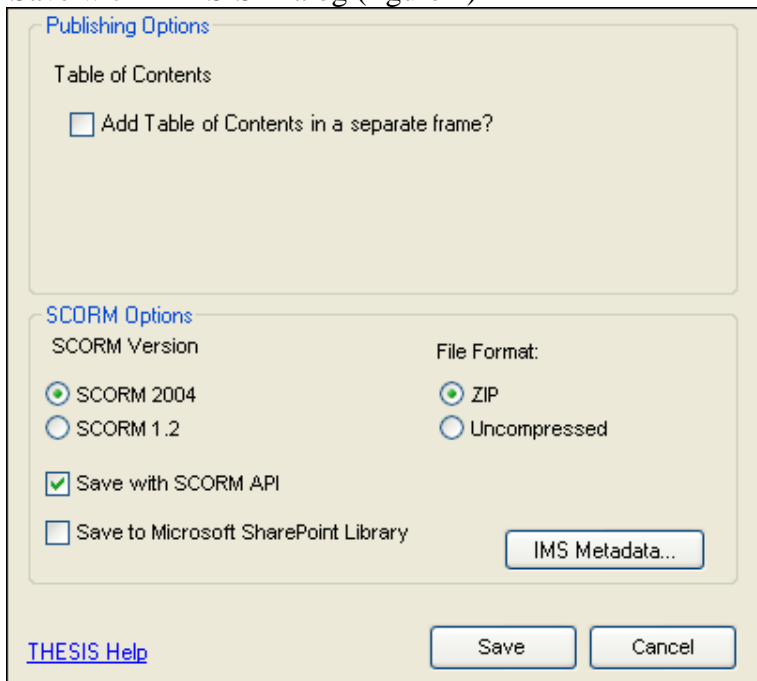
Now “Save with THESIS” using the button on the tool bar (Figure 1) or from the menu: File | SCORM Tools | Save THESIS SCORM Package

Figure 1



Step 4

Save with THESIS Dialog (figure 2)



Publishing Options

You can choose to have a table of contents built for you which can make the document easier to navigate once it has been saved as SCORM. Selecting this option will not affect the original document. See figures W1 and W2 for examples of how the SCORM document may look with and without the Table of Contents

Figure W1

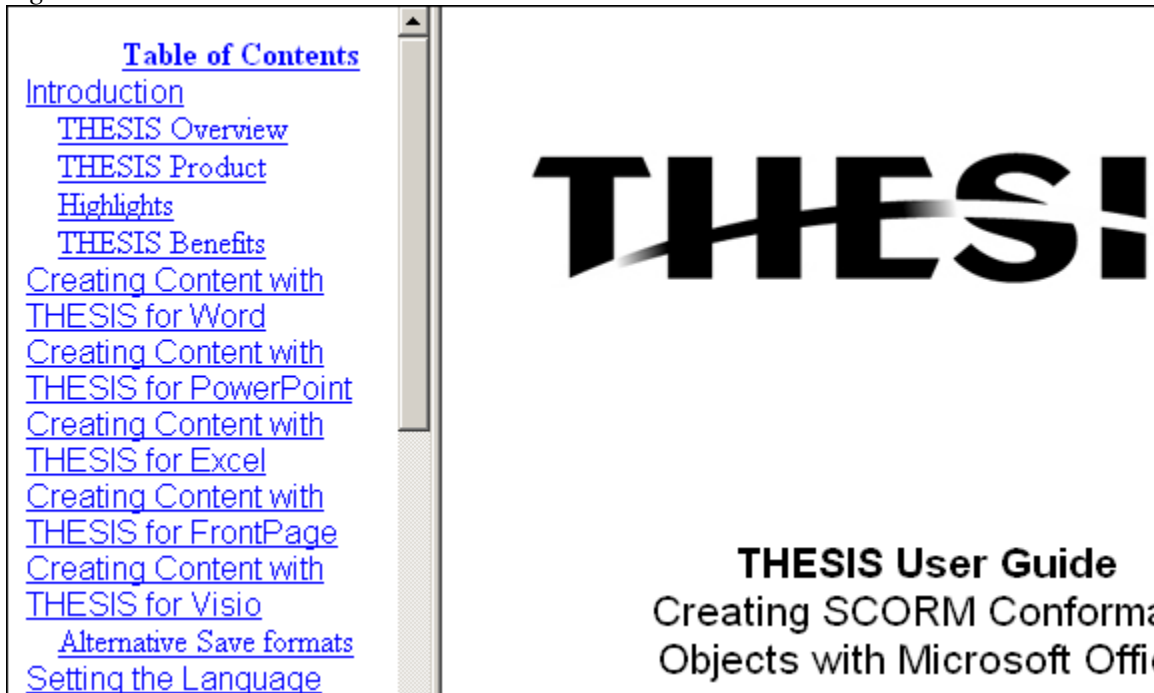
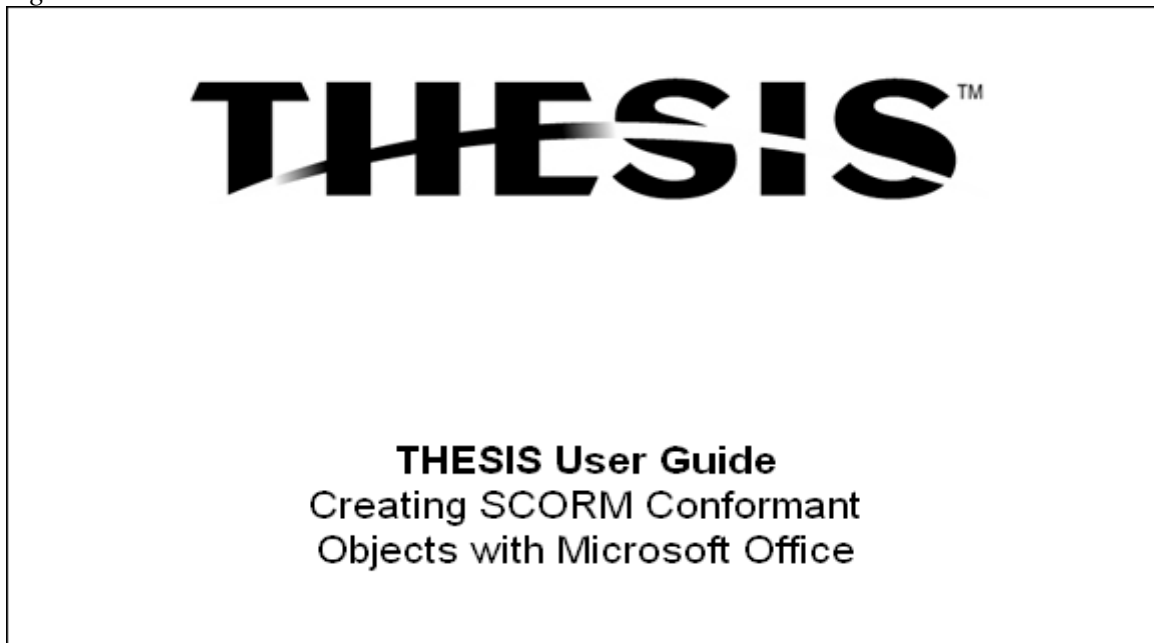


Figure W2



SCORM Options

SCORM Version – Select the target SCORM Version

“Save with SCORM API” –Automatically includes all the necessary files for conformance with SCORM standards.

THEISIS supports the following file formats:

- Compressed – ZIP format is supported and facilitates moving the learning objects between learning management systems.
- Uncompressed – this format is used for learning management systems that do not support importing and extracting compressed files. If files are saved using the uncompressed format, they cannot be imported later using the Import THEISIS Package feature. Only files saved in compressed format can be imported.

If an LMS is not SCORM conformant the user can still index and search an object’s metadata by clearing the “Save with SCORM API” and these files will be left out of the saved object.

Metadata values can be viewed and / or modified by clicking on the IMS Metadata button (see additional features below)

Save Function

Click the “Save” button and provide a file name and save location for the learning object. The resultant SCORM conformant learning object is now ready for transfer to the Learning Object Manager to be aggregated with other learning objects into a lesson plan.

Preview

Aggregated Learning Objects can be previewed before saving them. The workflow is the same as with save. To create a preview from Word select

File | SCORM Tools | Preview THEISIS SCORM Package

Creating Content with THESIS for PowerPoint

The following section takes you through each step of the SCORM content authoring procedures for PowerPoint.

Step 1 Launch PowerPoint

Launch PowerPoint - note the “Save with THESIS” located on the tool bar.

Step 2 Create the learning content

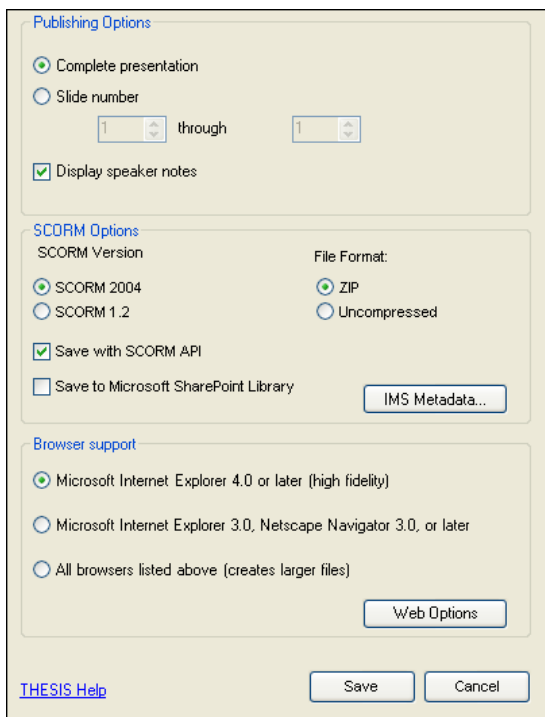
Create the learning content in PowerPoint and save the file, as usual, for later reference.

Step 3 Save as SCORM (figure 1)

Now “Save with THESIS” using the button on the tool bar (Figure 1) or from the menu: File | SCORM Tools | Save THESIS SCORM Package



Step 4 Save with THESIS Dialog (figure 2)



Publishing Options

Select either Complete Presentation or a range of Slides to include in the SCORM package.

SCORM Options

SCORM Version – Select the target SCORM Version

“Save with SCORM API” –Automatically includes all the necessary files for conformance with SCORM 1.2 standards.

THEISIS supports the following file formats:

- Compressed – ZIP format is supported and facilitates moving the learning objects between learning management systems.
- Uncompressed – this format is used for learning management systems that do not support importing and extracting compressed files. If files are saved using the uncompressed format, they cannot be imported later using the Import THEISIS Package feature. Only files saved in compressed format can be imported.

If an LMS is not SCORM conformant the user can still index and search an object’s metadata by clearing the “Save with SCORM API” and these files will be left out of the saved object.

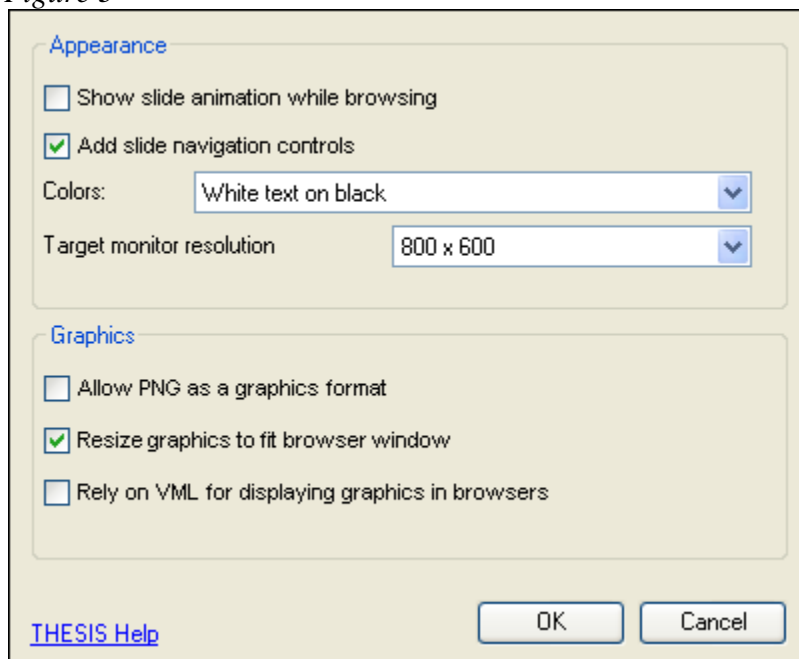
Metadata values can be viewed and / or modified by clicking on the IMS Metadata button (see additional features below)

Browser Support

Select which browsers should be supported by the final publication. Web option settings can be viewed and / or modified by clicking on the Web Options button.

Step 4a Web Options (figure 3)

Set Appearance options to change the appearance of the final publication. In the Graphics section set options for how pictures will be formatted and the target monitor screen size.

Figure 3***Save Function***

Click the “Save” button and provide a file name and save location for the learning object. The resultant SCORM conformant learning object is now ready for transfer to the Learning Object Manager to be aggregated with other learning objects into a lesson plan.

Preview

If required the learning objects can be previewed before saving them. The workflow is the same as with save. To create a preview from PowerPoint select

File | SCORM Tools | Preview THEISIS SCORM Package

Notes on Graphics Formats

Best results for Graphics in Learning Objects will usually be achieved with the JPEG or GIF formats.

The Portable Network Graphics (PNG) format was designed to replace the older and simpler GIF format and, to some extent, the much more complex TIFF format. Once fully edited it is however better to reformat these objects to JPEG (i.e. in Microsoft Picture Manager) for use as Learning Objects.

VML graphics are produced by using text-boxes, WordArt, and any other object produced using the FrontPage drawing toolbar. VML displays poorly on non-IE browsers and is best avoided unless the delivery browser is always known.

Creating Content with THESIS for Excel

The following section walks you through each step of the SCORM content authoring procedures for Excel. **Note: This process provides a static view of the Excel Workbook/Worksheet for Dynamic use see the “Special Procedures” section.**

Step 1 Launch Excel

Launch Excel - note the “Save with THESIS” located on the tool bar.

Step 2 Create the learning content

Create the learning content in Excel and save the file, as usual, for later reference.

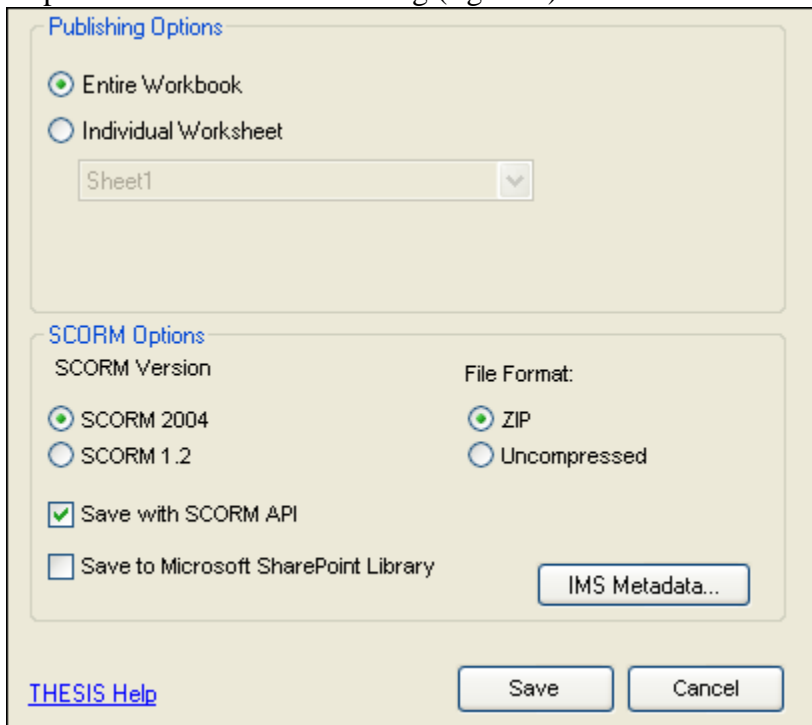
Step 3 Save as SCORM

Now “Save with THESIS” using the button on the tool bar (Figure 1) or from the menu: File | SCORM Tools | Save THESIS SCORM Package

Figure 1



Step 4 Save with THESIS Dialog (figure 2)



Publishing Options

Select either Complete Workbook or an individual sheet to include in the SCORM package.

SCORM Options

SCORM Version – Select the target SCORM Version

“Save with SCORM API” –Automatically includes all the necessary files for conformance with SCORM 1.2 standards.

THESIS supports the following file formats:

- Compressed – ZIP format is supported and facilitates moving the learning objects between learning management systems.
- Uncompressed – this format is used for learning management systems that do not support importing and extracting compressed files. If files are saved using the uncompressed format, they cannot be imported later using the Import THESIS Package feature. Only files saved in compressed format can be imported.

If an LMS is not SCORM conformant the user can still index and search an object’s metadata by clearing the “Save with SCORM API” and these files will be left out of the saved object.

Metadata values can be viewed and / or modified by clicking on the IMS Metadata button (see additional features below)

Save Function

Click the “Save” button and provide a file name and save location for the learning object. The resultant SCORM conformant learning object is now ready for transfer to the Learning Object Manager to be aggregated with other learning objects into a lesson plan.

Preview

If required the learning objects can be previewed before saving them. The workflow is the same as with save. To create a preview from Excel select

File | SCORM Tools | Preview THESIS SCORM Package

Creating Content with THESIS for FrontPage

The following section walks you through each step of the SCORM content authoring procedures for FrontPage.

Step 1 Launch FrontPage

Launch FrontPage - note the “Save with THESIS” located on the tool bar.

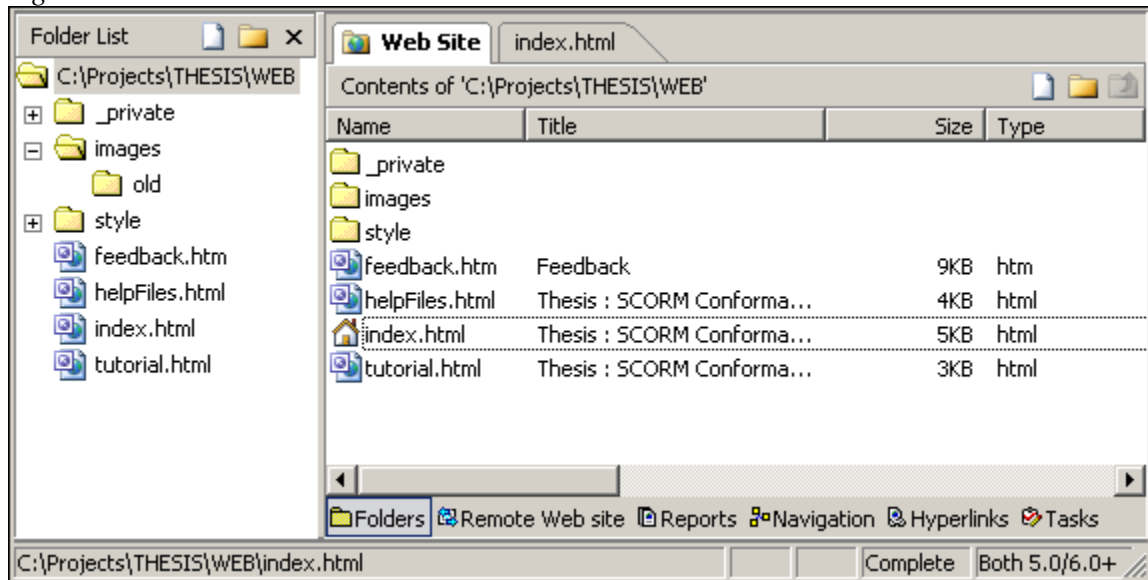
Step 2 Create the learning content

Create the learning content in FrontPage and save it as usual. Alternatively open an existing FrontPage Web. It is important that your intended content is stored in a FrontPage Web folder. To open a FrontPage Web select Open Web from the file menu, and select the FrontPage Web folder. For more information on FrontPage webs refer to the FrontPage documentation.

Step 3 Ensure Web contains only the required files

It is important that the Web Folder contains only the files required for your Learning Object. This is because everything that is in that folder and all sub folders will be included in the created Learning Object. From the Views Bar, or the Views Menu select Folders. Your screen should now look similar to figure f1.

Figure F1



As you can see in our example we have an 'old' folder in our 'images' folder, which we don't want in our web. In our case we don't want to permanently delete the files in that folder, so we use Windows Explorer to move the folder out of our FrontPage Web folder. If we did want to delete the 'old' folder and its files we could have deleted the folder in FrontPage. Using delete within FrontPage will permanently delete the folder and files, they will not get sent to the windows recycle bin, and therefore must be used with caution.

Step 4 Save as SCORM

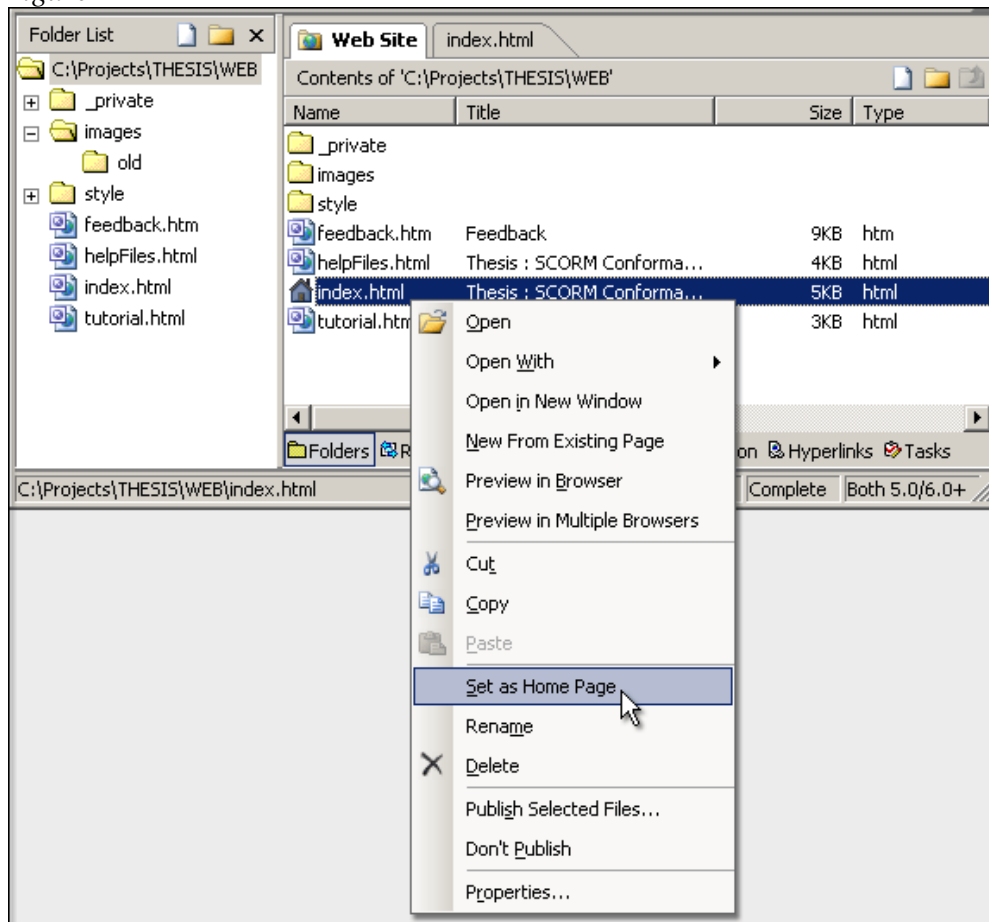
Now "Save with THESIS" using the button on the tool bar (Figure 1) or from the menu: File | SCORM Tools | Save THESIS SCORM Package

Figure 1



A prompt may appear if there is no Home Page set for this FrontPage Web. You can correct this by setting a Home Page as shown in figure f2.

Figure F2



Step 5 Save with THESIS Dialog (figure 2)

Figure 2

SCORM Options

SCORM Version – Select the target SCORM Version

“Save with SCORM API” –Automatically includes all the necessary files for conformance with SCORM standards.

THESIS supports the following file formats:

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- Uncompressed – this format is used for learning management systems that do not support importing and extracting compressed files. If files are saved using the uncompressed format, they cannot be imported later using the Import THESIS Package feature. Only files saved in compressed format can be imported.

If an LMS is not SCORM conformant the user can still index and search an object’s metadata by clearing the “Save with SCORM API” and these files will be left out of the saved object.

Metadata values can be viewed and / or modified by clicking on the IMS Metadata button (see additional features below)

Save Function

Click the “Save” button and provide a file name and save location for the learning object. The resultant SCORM conformant learning object is now ready for transfer to the Learning Object Manager to be aggregated with other learning objects into a lesson plan.

Preview

If required the learning objects can be previewed before saving them. The workflow is the same as with save. To create a preview from FrontPage select

File | SCORM Tools | Preview THESIS SCORM Package

Creating Content with THESIS for Visio

The following section walks you through each step of the SCORM content authoring procedures for Visio.

Step 1 Launch Visio

Launch Visio - note the “Save with THESIS” located on the tool bar.

Step 2 Create the learning content

Create the learning content in Visio and save the file, as usual, for later reference.

Step 3 Save as SCORM

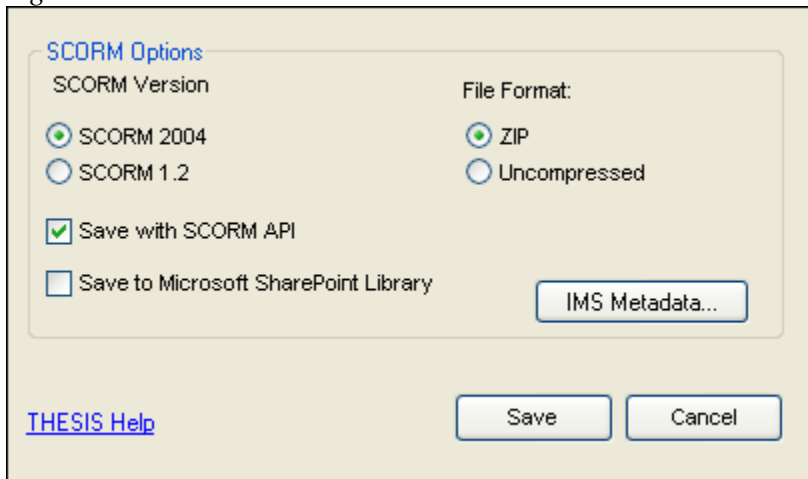
Now “Save with THESIS” using the button on the tool bar (Figure 1) or from the menu: File | SCORM Tools | Save THESIS SCORM Package

Figure 1



Step 4 Save with THESIS Dialog (figure 2)

Figure 2



SCORM Options

SCORM Version – Select the target SCORM Version

“Save with SCORM API” –Automatically includes all the necessary files for conformance with SCORM standards.

THESIS supports the following file formats:

- Compressed – ZIP format is supported and facilitates moving the learning objects between learning management systems.
- Uncompressed – this format is used for learning management systems that do not support importing and extracting compressed files. If files are saved using the uncompressed format, they cannot be imported later using the Import THESIS Package feature. Only files saved in compressed format can be imported.

If an LMS is not SCORM conformant the user can still index and search an object's metadata by clearing the "Save with SCORM API" and these files will be left out of the saved object.

Metadata values can be viewed and / or modified by clicking on the IMS Metadata button (see additional features below)

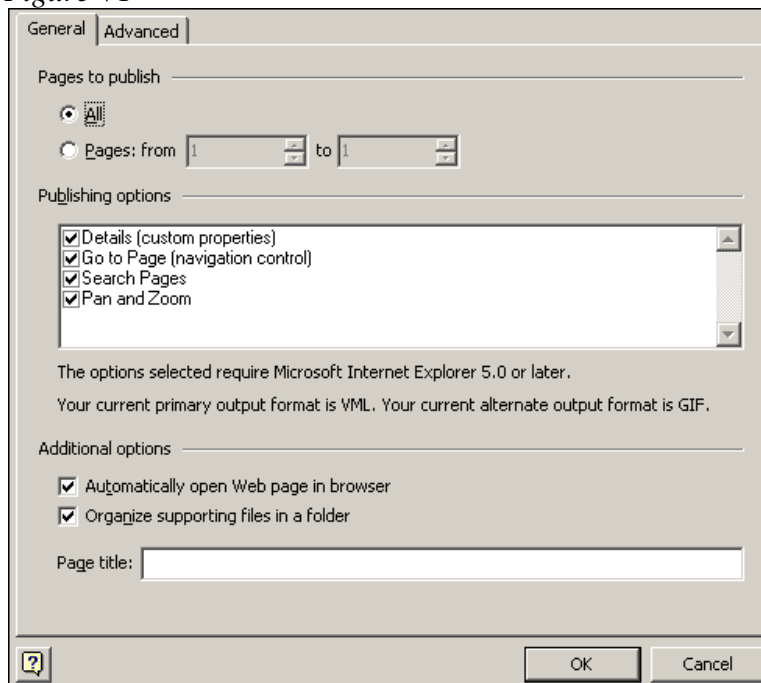
Save Function

Click the "Save" button and provide a file name and save location for the learning object.

The dialog shown in figure v1 will appear. Click OK. (A detailed description of this dialog is provided later in this section.)

The resultant SCORM conformant learning object is now ready for transfer to the Learning Object Manager to be aggregated with other learning objects into a lesson plan.

Figure V1



Preview

If required the learning objects can be previewed before saving them. The workflow is the same as with save. To create a preview from Visio select

File | SCORM Tools | Preview THESIS SCORM Package

Visio Save and Preview options

There are several things to consider when saving a Visio document as a Learning Object:

- The target audience Web Browser/s and screen resolutions.
- The depth of functionality of the Learning Content.

A trade off between the above considerations may be necessary.

Firstly, select the pages of the Visio Document to be used in the Learning Object.

Now select the other options that will define the appearance and functionality of the Published Learning Object.

- Choose Functionality (Figure v2.)

Selecting certain options prompts a warning like the one in fig v2.

- Click the Appearance Tab and select the desired screen resolution as shown in figure v3.
- Experiment with these settings until satisfied with selection. The chosen settings will be stored to be used next time, so there is no need to modify them every session.
- Click OK and the Save or Preview will be created.

If you are experimenting with the various settings you may want to repeatedly use preview from the THESIS Metadata screen to enable you to quickly 'tune' the created Learning Object.

Figure V2

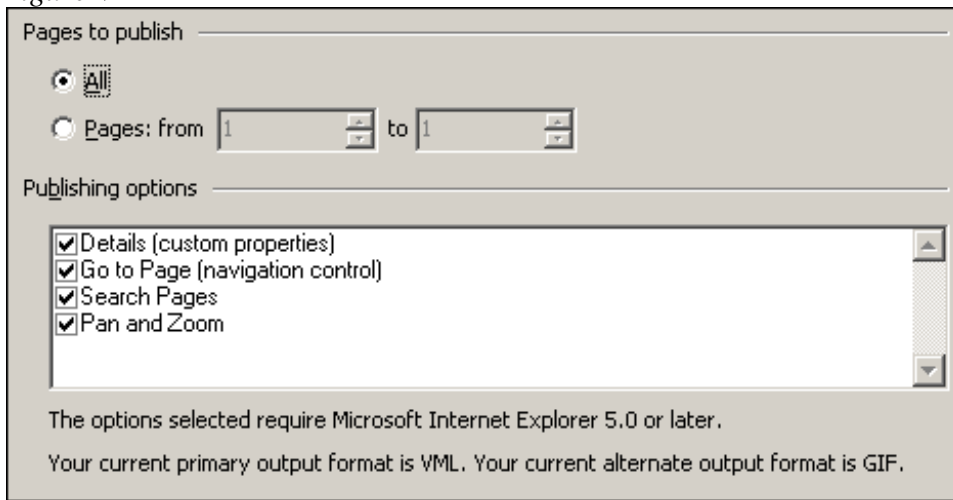
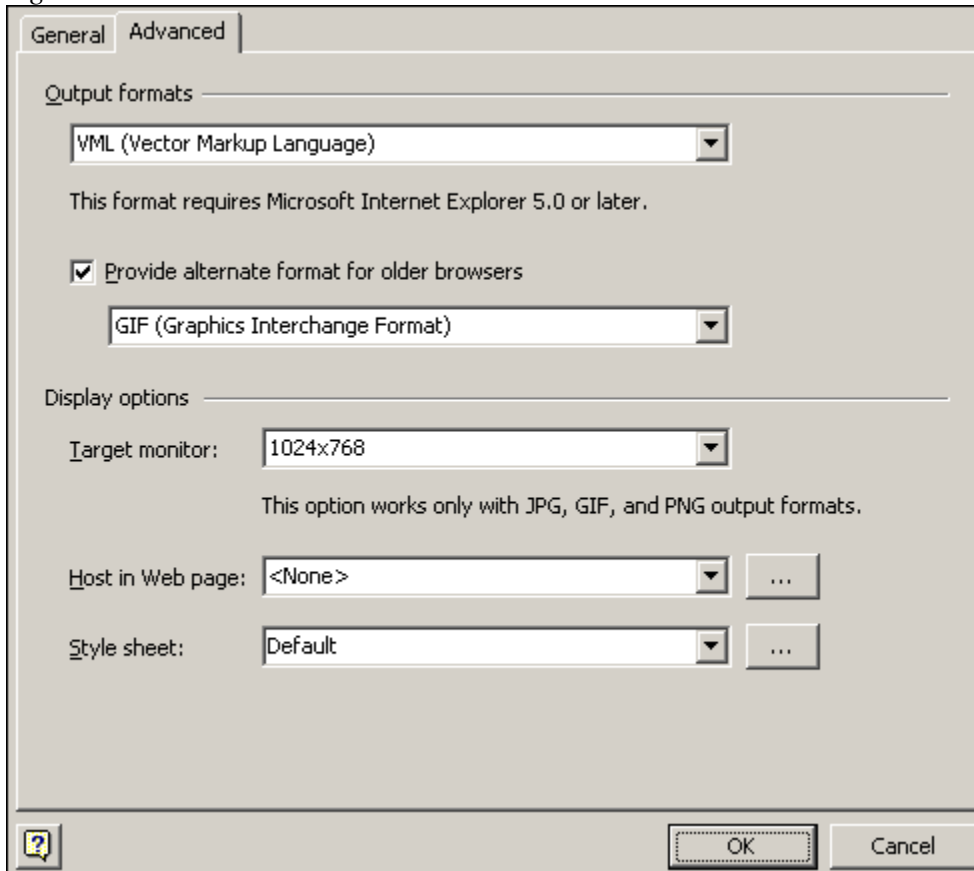


Figure V3



THESIS Additional features

LMS Metadata

The IMS Metadata screen (figure A1).

The metadata fields include the mandatory and optional fields as defined by Advanced Distributed Learning Organization (www.adlnet.org). A pop up definition for each metadata field is available by placing the mouse pointer over the appropriate field and leaving it there for a few seconds.

Figure A1

The screenshot displays the THESIS LMS Metadata configuration interface. It is organized into several sections:

- Item:** Includes fields for Item Title (set to 'Blank'), a checked 'Include Mastery Score' checkbox, and a score value of '90'.
- General:** Contains fields for Title ('Default'), Keywords (with a 'Default keyword' entry), Description ('Default'), Catalog ('Default'), Entry ('Default catalog entry'), and Language ('EN').
- Lifecycle:** Features 'Status Value' (set to 'Final') and 'Version' (set to '1.0').
- Classification:** Includes 'Purpose' (set to 'Educational Objective'), Keywords (with an 'Example Keyword' entry), and Description (with an 'Example Description' entry).
- Rights:** Contains radio buttons for 'Cost' and 'Copyright and Other Restrictions', both set to 'No'. It also has a 'Description' field with an 'Example Description' entry.
- Educational:** Includes 'Learning Resource Type' (set to 'Exercise').

At the bottom right, there is a large 'THESIS™' logo, a 'Save as Default' button, a 'Settings' button, and 'OK' and 'Cancel' buttons. A 'THESIS Help' link is located at the bottom left of the form area.

Setting Default Metadata

The save default metadata option eliminates repetitive typing where common information does not change from object to object. To save the default values, follow these steps:

Step 1 within your office application

Within the office application you are using , choose File, THESIS and Set Default Metadata Values from the toolbar.

Step 2 within the Learning Object Manager

Within the Learning Object Manager, choose the Options icon or “Tools menu”, and “Options”.

Step 3 Metadata entry

Change the appropriate fields in the metadata entry screen and save.

Custom Metadata

THESIS allows organizations to select their own local requirements for metadata using the Custom Metadata entry screen.

THESIS and Microsoft Sharepoint

THESIS allows SCORM packages to be saved to SharePoint document libraries in the THESIS Office add-ins and in the Learning Object Manager. To Save to SharePoint, follow these steps:

Follow the standard Save with THESIS procedure

From the Save with THESIS dialog (see figure SP1 below), check the Save to Microsoft SharePoint Library checkbox and click Save.

In the Save As dialog...

(See figure SP2 below), enter a SharePoint server location or select a previously entered SharePoint location from the list and click Go.

Use the browser...

to navigate to the desired document library on the SharePoint server.

Filename

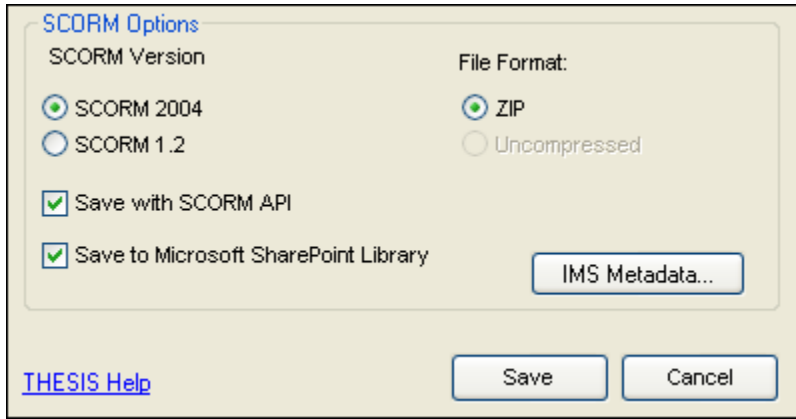
Enter a file name for the SCORM package.

Click Save

Save the SCORM package to the selected SharePoint document library.

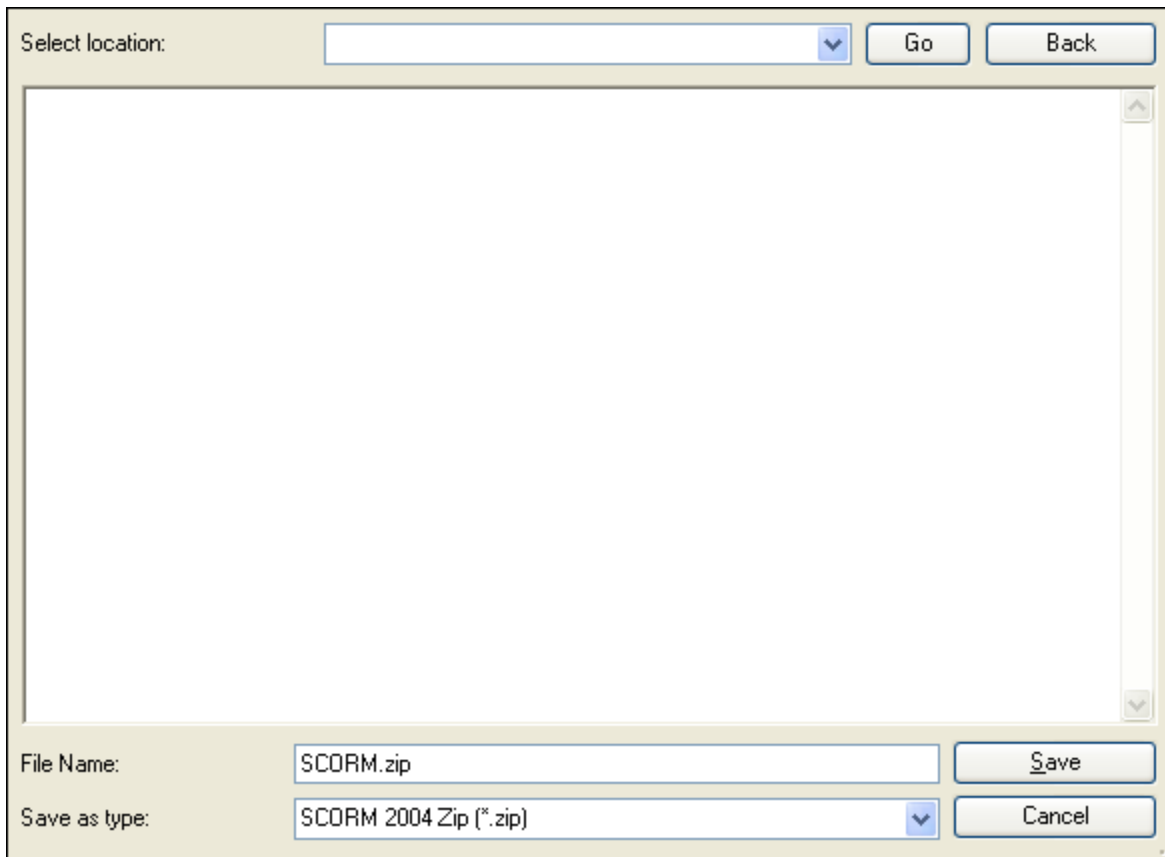
Save the SCORM package to the selected SharePoint document library.

SP1



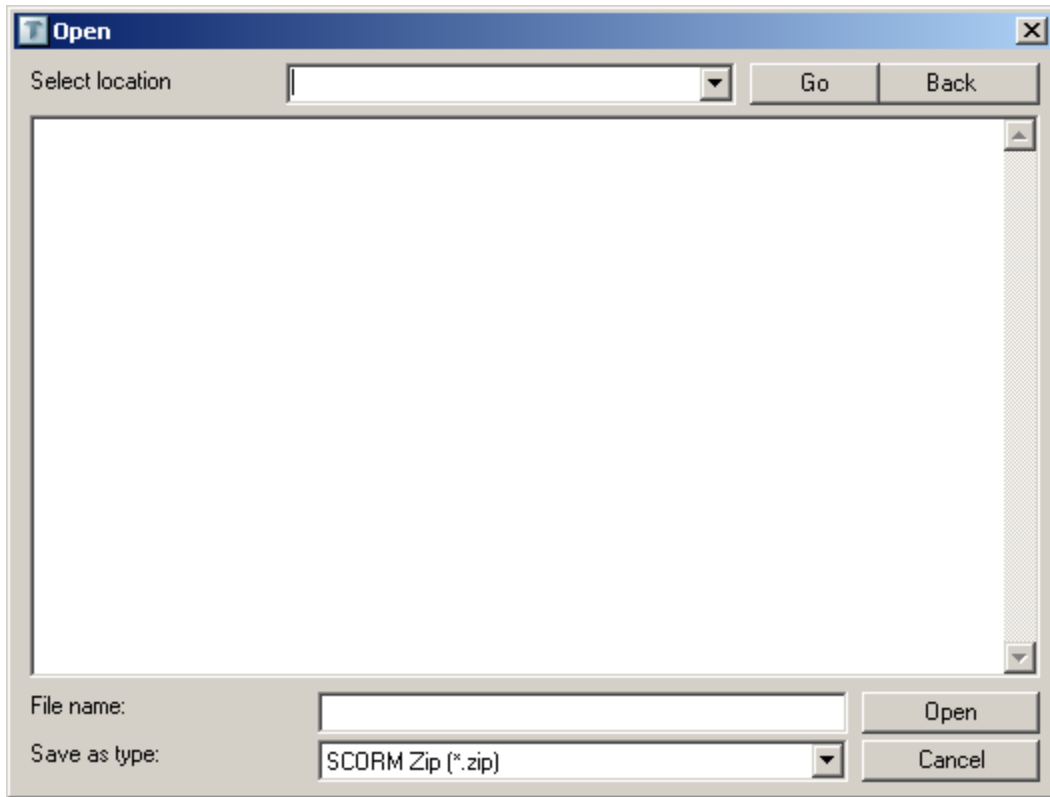
The dialog box is titled "SCORM Options". It contains two sections: "SCORM Version" and "File Format". In the "SCORM Version" section, "SCORM 2004" is selected with a radio button, and "SCORM 1.2" is unselected. In the "File Format" section, "ZIP" is selected with a radio button, and "Uncompressed" is unselected. There are two checked checkboxes: "Save with SCORM API" and "Save to Microsoft SharePoint Library". A button labeled "IMS Metadata..." is located to the right of the second checkbox. At the bottom left is a link for "THESES Help". At the bottom right are "Save" and "Cancel" buttons.

SP2



The dialog box is for saving a file. It has a "Select location:" field with a dropdown arrow, and "Go" and "Back" buttons to its right. Below this is a large empty area for selecting a location. At the bottom, the "File Name:" field contains "SCORM.zip" and the "Save as type:" field contains "SCORM 2004 Zip (*.zip)". "Save" and "Cancel" buttons are at the bottom right.

SCORM packages can also be opened from SharePoint document libraries in the Learning Object Manager.



Import Learning Objects Back to Office Applications

The THESIS Office components offer the ability to import the data from a Learning Object created with THESIS. For example, if a Word Document was previously Saved as a Learning Object with THESIS, then it can be imported back in to Word.

Figure A2



Import is achieved with the following steps:

- Either Click the “Import THESIS Package” button on the toolbar (see figA1) or File | SCORM Tools | Import THESIS SCORM Package
- Select the Zip file that contains the Learning Object to be imported, and click Open.
- THESIS will open the Learning Object, and present you with the Metadata for that item.
- Click the OK button at the bottom of the dialog. Chose a destination folder and name for the file.
- The Learning Object will then be imported and will be displayed in the Open Application.

The THESIS Learning Object Manager

THESIS Learning Object Manager (LOM) also provides a function to convert Producer 2003 and web content into SCORM conformant learning objects.

Converting Producer 2003 Content

Step 1 Create content

Create content with Microsoft Producer 2003 and use the Publish function located on the MS Producer toolbar to start the conversion process. This starts the packaging and produces the IMSManifest file necessary for SCORM applications.

Step 2 Using the LOM

Using the LOM, select the Convert icon on the toolbar and select “Create package from Producer content (IMSManifest file)”, or use the “Convert Producer” option on the Convert drop down list on the file menu. Click “Next”. The following dialogue appears (Figure 1).

Figure 1



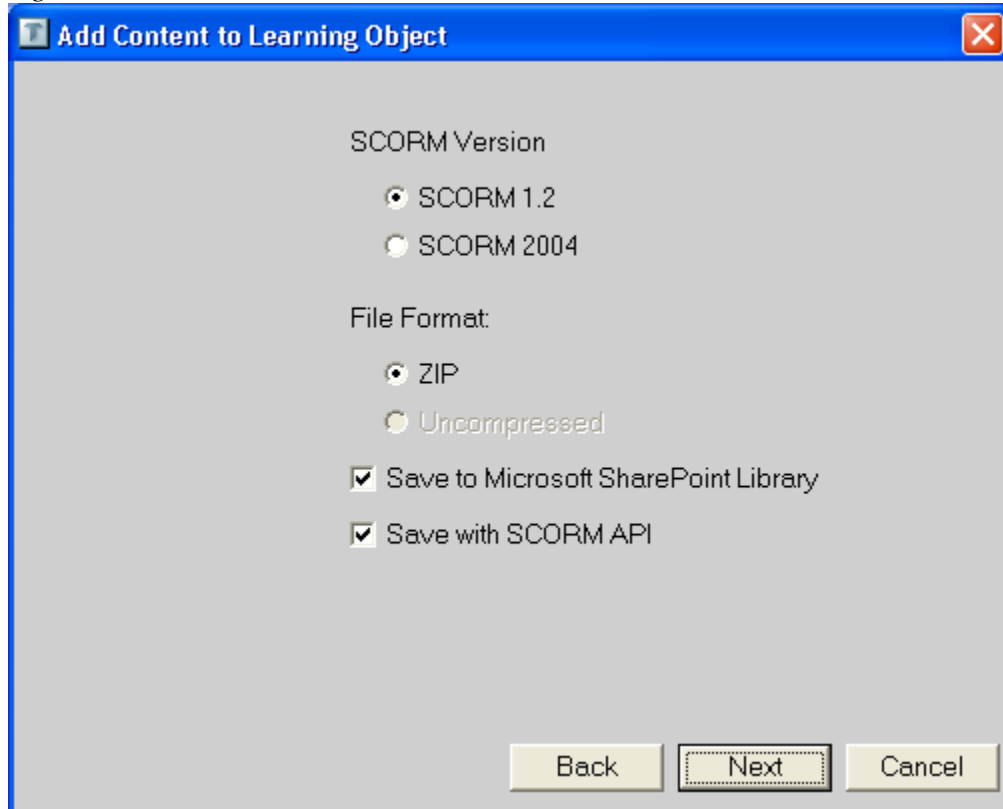
Step 3 Locate the IMSManifest

Use the Browse button to locate and select the IMSManifest file created in the root folder of the Producer project. Once found click Next.

Step 4 Metadata

Enter the metadata and save the file using the default settings (Figure 2).

Figure 2



Click the “Save” button and provide a file name and save location for the learning object.

Step 5 SCORM conformant

The resulting learning object can be included in a Multi-SCO package if required and is now ready to be used in any SCORM conformant learning management system.

Converting HTML Content

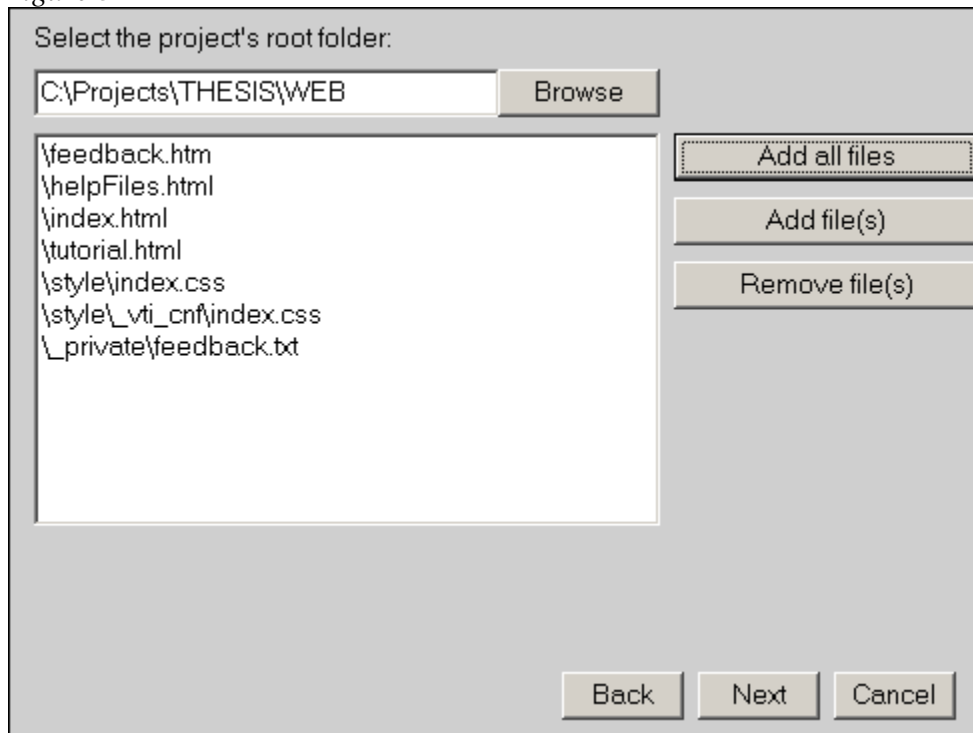
Step 1 Create content

Create a new folder to make the conversion process simple and create content as Web Pages (either by using an appropriate web authoring tool or by saving an HTML document). Save content to the new folder.

Step 2 LOM

Open the LOM and select the “Convert” icon on the tool bar. Choose “Create Package from web content”. Browse to the new folder and click “add all files”. Delete unwanted files such as teacher’s guides and license documents.

Figure 3

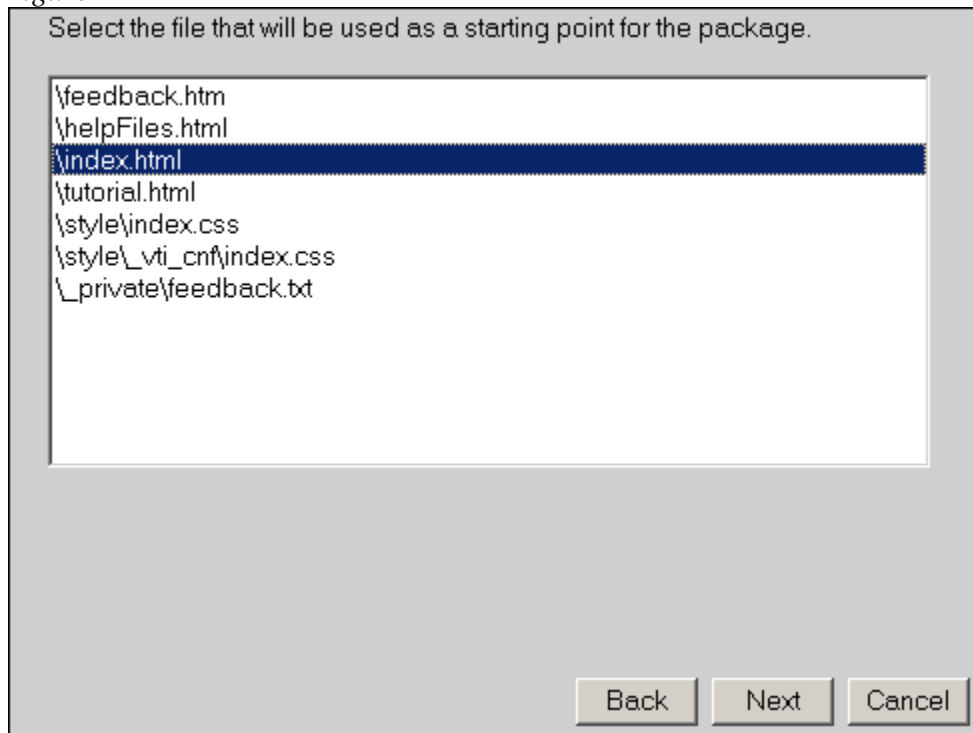


Step 3 Select the Lead Web File

Once the files are selected, the lead file must be defined (Figure 4). Select the lead file from the imported file list and then click “Next”. NOTE: usually this file will be named “index.html” but this is not an invariable rule and the file might carry the subject name i.e “angles.html”. If the first try does not work try another possible candidate until you find

the author's method of naming. Authors are usually consistent so if you are converting a number of packages from one source you will easily recognize the pattern.

Figure 4



Step 4 Enter Metadata

Enter metadata. Once complete, save the file using the defaults. Conversion takes a few moments.

Step 5 SCORM Conformant

The resulting learning object is now ready for any SCORM conformant learning management system or management and preview in the LOM.

Re engineering an IMS Manifest

You may occasionally encounter difficulty with non-THESIS SCORM packages on your Learning Platform and replacing the IMS Manifest might solve the problem. The method is very similar to the HTML object conversion.

- Right click on the .zip package and select explore > Copy the contents
- Create and name a new folder and paste the copied contents
- Delete the IMS Manifest >
- restart at Step 2 above

Creating Testing and Assessment Items with the LOM

Step 1 Add a new Test or Assessment

In the left pane, right click on a package to add a Test or Assessment. Add Test can also be selected from the Toolbar.

Step 2 Select Test or Assessment and Title

The Add Test dialog appears with the Test or Assessment selection as well as a place to enter the title of the Test or Assessment (Figure 5).

Figure 5

Add Test

Enter Title:

Include Passing Score:

Passing Score:

Randomize Questions:

Include Navigation:

Include Reporting:

Include Feedback for Test Questions:

Default Feedback:

Correct Answer Feedback:

Incorrect Answer Feedback:

OK Cancel

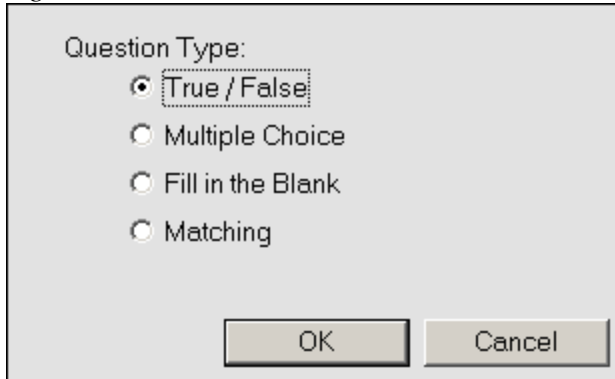
Step 3 Add a Question

In the left pane, right click on a Test or Assessment and select Add Question.

Step 4 Select a Question Type

The Add Question dialog appears with an option to select the appropriate question type. Click OK to add the question to the currently selected Test or Assessment (Figure 6).

Figure 6



Question Type:

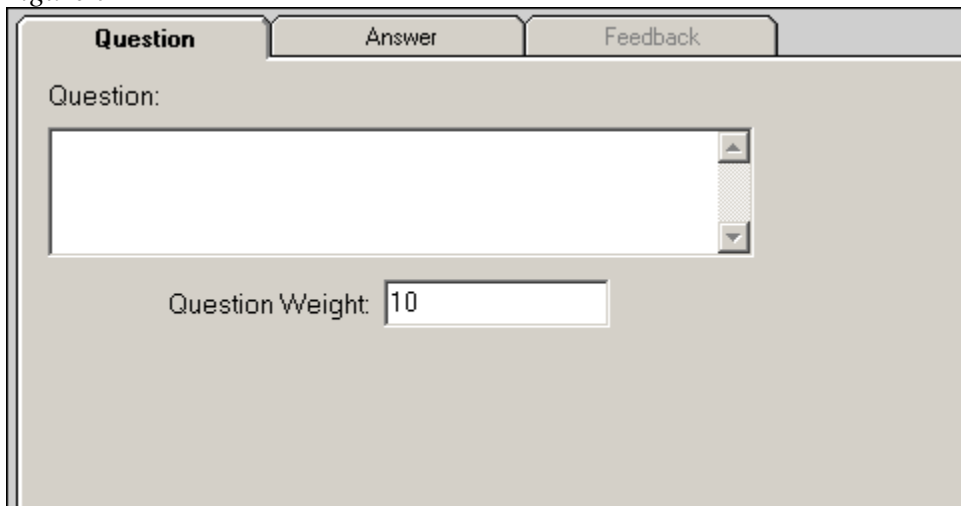
- True / False
- Multiple Choice
- Fill in the Blank
- Matching

OK Cancel

Step 5 Add Question Details

On the Question tab enter the text of the question, and the appropriate weight of the question (Figure 7). On the Answer tab enter the answer(s) for the question. On an Assessment, use the Feedback tab to enter the appropriate response for a correct or incorrect answer.

Figure 7



Question Answer Feedback

Question:

Question Weight: 10

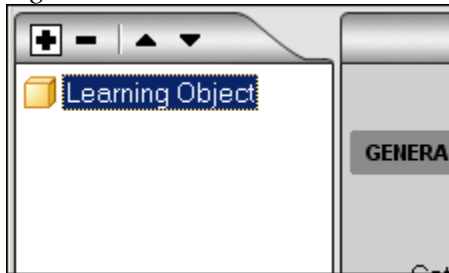
Creating Multi-SCO Items with the LOM

Step 1 Add multiple packages

Add Multiple packages to the LOM:

- In the left pane in the LOM, use the + icon (Figure 8) to add multiple packages to create the multi-SCO item. Selected items can be cut using the - key.

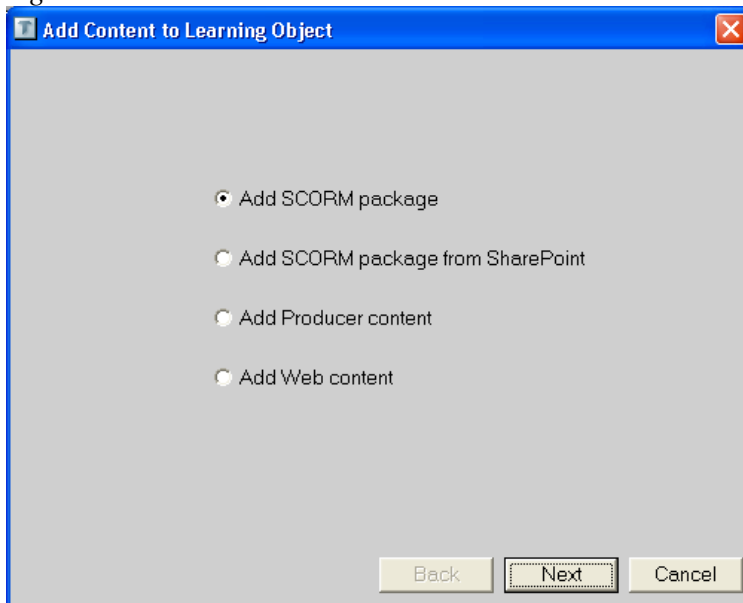
Figure 8



Step 2 Add Content to Learning Object screen

The Add Content to Learning Object screen pops up requesting the appropriate application files to aggregate (Figure 9). The “Add SCORM package” aggregates existing learning objects from their storage location. The “Add Producer content” and “Add Web content” options perform SCORM conversion routines described in the previous sections and add the content to the file tree automatically.

Figure 9



Step 3 Sequencing

Once the learning objects are added to the tree, drag and drop them to present the correct sequencing or use the up and down arrows to move the files into the appropriate learning course sequence.

Step 4 Alternative Option

An alternative option for creating a multi-SCO object is to open the LOM, then open a Microsoft Explorer window. Next select SCORM files in the Explorer window and drag them over to the left pane in the LOM. Once the files are in the LOM they may be sequenced as described above in Step 3.

Step 5 Enter Metadata

Metadata can be changed for any package added to the Learning Object (Figure 10). Click on the Learning Object, change the appropriate metadata field and click the Update Metadata button. Metadata can also be set on the root of the Learning Object. Click on Learning Object at the top of the left pane, changed the appropriate metadata field and click the Update Metadata button. The root level metadata can also be set to the value of one of the currently added packages by clicking on the package in the left pane of the LOM and then clicking on the Save as Package Metadata button in the right pane.

Figure 10

Item Title <input type="text" value="Blank"/>		Include Mastery Score <input checked="" type="checkbox"/> <input type="text" value="90"/>
GENERAL		
Title <input type="text" value="Blank"/>	Language <input type="text" value="en"/>	
Catalog <input type="text" value="Default"/>	Entry <input type="text" value="Default catalog entry"/>	
Description <input type="text" value="Default"/>	Keywords <input type="text" value="Default keyword"/>	
RIGHTS		LIFECYCLE
Cost <input type="radio"/> Yes <input checked="" type="radio"/> No	Status Value <input type="text" value="Final"/>	
Copyright and Other Restrictions <input type="radio"/> Yes <input checked="" type="radio"/> No	Version <input type="text" value="1.1"/>	
Description <input type="text" value="Example Description"/>	Keywords <input type="text" value="Example Keyword"/>	
CLASSIFICATION		
Purpose <input type="text" value="Educational Objective"/>		
Description <input type="text" value="Example Description"/>	Keywords <input type="text" value="Example Keyword"/>	
EDUCATIONAL		
Learning Resource Type <input type="text" value="Exercise"/>	Save As Package Metadata	

Step 6 Preview

If required the learning objects can be previewed before Learning Management System (LMS) transfer:

- Within the Learning Object Manager highlight the required file and click the “Preview” icon on the toolbar or use the “Tools” menu, and “Preview”.
 - Accept default and click “Next” and follow the instructions given in the preview guide.
- Within Word or PowerPoint, choose “File menu”, “THESIS” and “Show Preview” from the toolbar.
 - Automatically Save changes to the document.
- Include SCORM API.
- Follow the instructions given in the preview guide.

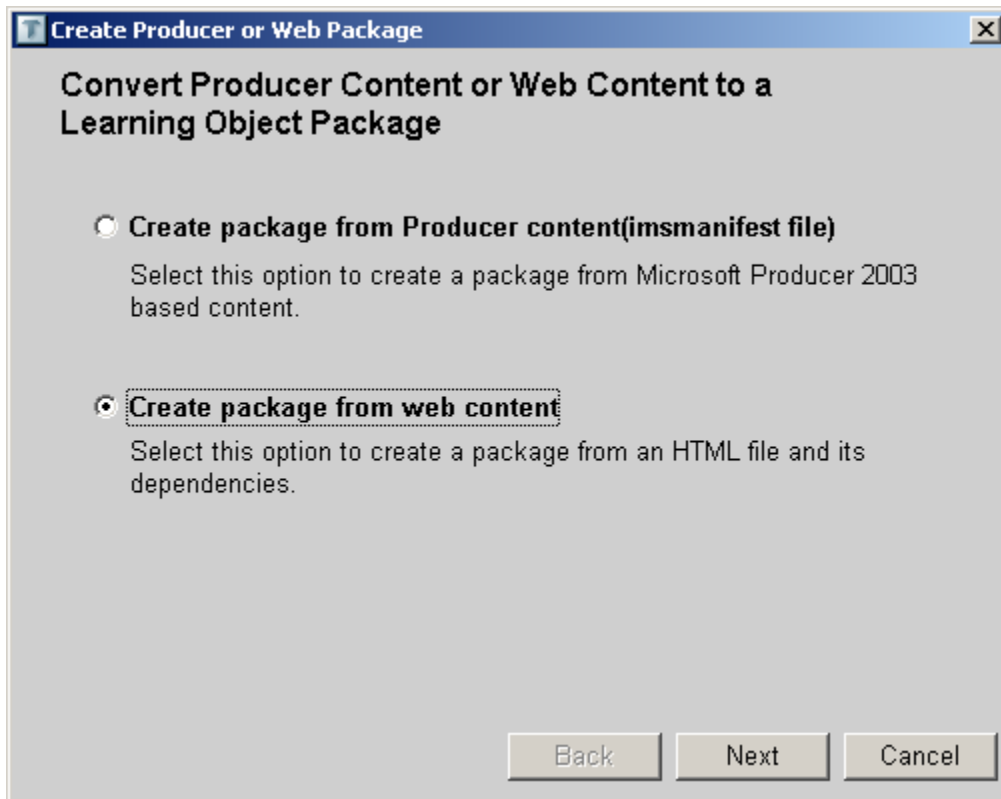
Step 7 Transfer to any SCORM Conformant Learning Management System (LMS)

The resultant SCORM conformant learning object, or multi-SCO package, in the LOM is now ready for transfer to any SCORM conformant Learning Management System (LMS). This can be done with any file transfer method.

Special Conversion Processes

Files considered in this Group are “Single Files” and are their own “lead file” as you will see in the conversion process. They are always converted through the

LOM >“Convert” > “Create Package from Web Content”.



Browser Configuration

Thesis Learning Objects are presented to the Student in a browser user interface. By their nature the Adobe Flash, PDF, and Shockwave objects are browser friendly as they are designed for Internet use; they do however require specific browser extensions. Most browsers will already have those appropriate to Flash, however if not then these are available for download from the Adobe web site www.adobe.com. It is recommended that the PDF, Shockwave, and Flash extensions, are downloaded and installed during the same visit to the Adobe site.

Flash (swf), Flash Video (flv), and Shockwave

Whether developed locally, or downloaded, a Flash object should be tested by opening it using the browser. Open the folder where the object is stored and right click the icon and selecting “open with”; select your browser (I.E., Firefox, etc.). If successfully opened, you will have validated the object as useable, and your browser as having the correct extension.

The next step is to open the Learning Object Manager and:

- Click “Convert” in the toolbar and then >
- Check “Create Package from web content” >
- Click “Browse” and find the folder with the Flash object where you saved it >
- Click “Add Files” and add the Flash file >
- Click “Next” and highlight the Flash file >
- Click “next” and complete the Metadata. >
- Select “OK”. Name the file and “Save” as usual.

If you check “Add this Item to the Active Learning Object” you will have it available for immediate preview, aggregation, and save options.

PDF & XPS (Including Open Office)

Portable Data Files and the Microsoft XPS files are structured to be resilient to change and corruption

Open Office. Note that all Open Office Files can be “Exported” or saved in PDF format

Open the Learning Object Manager:

Click “Convert” in the toolbar >
Select “Create Package from web content” >
Click “Browse” and find the folder with the PDF or XPS object where you saved it >
Click “Add Files” and add the file >
Click “Next” and highlight the file. >
Click “next” and complete the Metadata. >
Click “OK”. Name the file and “Save” as usual.

If you check “Add this Item to the Active Learning Object” you will have it available for immediate preview, aggregation, and save options.

Graphics Files

Graphics files are generally saved as JPEGs and GIFs but may also be found in PNG, TIFF and Bitmap format. These latter file formats are best changed to JPEG for Learning Platform use. GIFs are often animated graphics and care is needed if you want to resize them as the animation can be lost as size is increased.

Open the Learning Object Manager:

Click “Convert” in the toolbar >
check “Create Package from web content” >
Click “Browse” and find the folder with the JPEG or GIF object where you saved it >
Click “Add Files” and add the file >
Click “Next” and highlight the file >
Click “next” and complete the Metadata >
Click “OK” > Name the file and “Save” as usual.

If you check “Add this Item to the Active Learning Object” you will have it available for immediate preview, aggregation, and save options.

Video

Film and Videos have such high impact as an audio/visual medium that there is always great enthusiasm to include video in lessons and courses to exploit this added learning value. A word of caution however, Learning Platforms generally are happy to deliver multimedia learning material to individuals and classes in chunks up to 10Mb without “running out of steam”. Video files of any length will be many, many times larger than this with a consequent impact on off-campus download times and therefore the flow of the learning process. So a few desirable rules apply to video in the learning environment:

- If you want to show a Film of any length over 1 minute – show it from a suitable video streaming site direct to the Classroom – not through your VLE
- For Learning Platform video clips adjust the file size (sampling) to the needs of the delivery system. Full Screen requires much higher sampling than a video “box”.
- Keep the length to a minimum necessary to achieve the objective.
- Use Flash Video as standalone wherever possible but never in PowerPoint
- In PowerPoint use MPEG format and add through the “Insert Movie” utility.

Use of Widows Media Files will always open the Windows Media Player application as there is no Browser extension available from Microsoft. Your student/trainee might not have WMP on their “home” PC or PDA.

SCORM Tunneling

Museums and Internal web servers contain very high quality Learning Material that can be identified and “captured” by the THESIS conversion process. This is best shown by an example.

- Browse to:- http://www.sciencemuseum.org.uk/online/energyhall/theme_See%20the%20engines%20at%20work.asp
- File > Save as MHT file > Close IE
- Open LOM >
- Click “Convert” >
- Check Create from web content >
- Browse to folder with saved file >
- Add file Science Museum .mht >
- Click Next and highlight file >
- Click Next and complete Metadata >
- Click Next and check Add item to active.... >
- Click Next and Name and save >
- Click LOM Preview

These objects can be used like any other Learning Objects and become elements of multi SCO lessons and have other material added such as Objectives, guidance, and tests and assessments. Used in this way the access to the material is fully trackable as with any other object.

A word of caution – Web sites change and the sites chosen for use in this way must be either for a “one-off” lesson or be particularly stable such as the Museum site used in this example.

Appendix 1

Video Convertors

There are many Video Format Conversion tools available. I have found the following particularly useful:

- VideoZilla – about £20 – comprehensive format management – excellent Performance
- Swf2AVI – free – Flash to AVI video only – somewhat limited
- AVS Video Converter – about £25 for flv to any format – excellent performance

Appendix 2

A Brief Overview of SCORM by Phillip Dodds

Most web content consists of simple hyperlinks from one page to another. In the SCORM world, the LMS is "smart" and knows what is to be delivered to learner, when he/she has mastered a skill or competency, and can branch to the right content when needed (e.g., for remediation). Regular web content and servers don't know how to do this.

Important Thing #1: SCORM is needed to standardize how to launch and track directed learning experiences, and to define the intended behavior and logic of complex learning experiences so content can be reused, moved, searched for, and recontextualized.

Simple hyper-linked web sites (like this one) don't need SCORM because the user (you) aren't being tracked and assessed for skill/competency mastery.

Important Thing #2: SCORM enables complex directed learning experiences that go far beyond what can be done with simple hyperlinked web content.

What's In SCORM ?

Important Thing #3: SCORM has three parts:

1. Overview - about the model, vision and future
 2. Content Aggregation Model - how to put learning content together so it can be moved and reused.
- **Metadata**
 - Metadata describes what the content is, who owns it, what costs (if any), technical requirements, educational purpose, etc. Metadata tags provide information about content to help search for and discover content over the Internet or within content repositories. Metadata is often described as "data about data".
 - **Machine and Human readable files – XML**
 - **Content Packaging**
 - Packaging consists of "zipping" all relevant files together with an XML "manifest" that defines all of the contents and their relationship to one another. Content packages can then be imported and exported to Learning Management Systems or development tools.

Important Thing #4: Packaging defines how learning content of all types can be exchanged between systems in a standardized way.

Important Thing #5: The "organization" part of packaging is the blueprint for the design of a particular learning experience. It tells an LMS what the designer intended when the learning experience was authored.

3. Run Time Environment: How content is launched and the learner's progress is tracked and reported back.

- During the evolution of the SCORM suite of specifications, a standardized way was needed for content to send information back and forth between the learner (content) and the LMS.
- ADL worked with AICC to develop a web-friendly approach using JavaScript. An Application Program Interface (API) was defined that provides a standard way of communicating with an LMS, regardless of what tools are used to develop the content. The API provides a simple means to “get” and “set” information from a user’s browser to the server-side LMS. The API is like a telephone line; the data model (below) is the conversation over the phone line.

Important Thing #6: The data model standardizes how LMS systems track learners.

Why SCORM?

Phillip Dodds’ excellent overview gives an insight into the “what” of SCORM, but does not clarify the “why”. SCORM adds 2 important characteristics to the Learning Platform. It:

- Creates a “smart” Learning platform that knows what is to be delivered to the learner, records the Learner performance, and can deliver remedial content.
- Creates a standard for re-usability of learning material which includes search, portability, and re-purposing.
- A well designed Learning Platform environment can free teacher time from preparation to focus on teaching.

Appendix 3

A Typical Thesis Architecture

1/29/2008

Draft Version 2

Appendix 4

The Thesis Road Map