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1 About this Manual

1.1 Introduction

This document is intended to help the usage of the Musket Tool and describes the functionalities in detail.

1.2 Scope of the Manual

The document covers:

- A brief description of each function
- How to use each function
- Screen navigation details

1.3 Organization of this Manual

The document describes the three functions in the order in which they appear on the home page.

- Transform Tool
- Visualisation Tool
- Semantic Tool
2 MUSKET Tool Overview

![MUSKET Tools Diagram](image)

**Figure 1: Musket Application Tool Page**

A. Transform Tool
The transform tool converts a word/rtf/pdf document into XCRI format.

B. Visualisation Tool
The visualisation tool displays the information architecture of a given document as a UML Class diagram. Note that only the documents which have been submitted to the Transform Tool can be viewed.

C. Semantic Tool
The Semantic Tool finds the semantic similarity between two documents, e.g. two programmes or two modules.
3 Transform Tool

1. Click on “The Transform Tool” button on the Home Page.
2. Select the document to be transformed.

![Transform Tool Figure]

3. If there is a file available to be transformed, then click “Browse” button to select the document. Otherwise, click “Next Step” button.
4. If “Browse” was selected, a dialog box will appear as shown in Figure 2.
5. After selecting the file, click “Next Step” to go to the next step.
The next step is to select the keywords and the associated contents which you want to transform to XCRI. The tool facilitates three methods to achieve this as shown in Figure 3.

![Figure 3: Transform Tool Content Extraction Methods](image)

**Input Template Format**: This option is chosen when there is no document available or when the document is too unstructured to extract keywords from it.

**Manual Input**: This option allows the user to select the keywords and the contents associated with each keyword. Choose this option if this is the first time the tool is used for this organization.

**Intelligent Creation**: The process of keyword and content mapping to XCRI is automated. Choose this option if the tool has been used to transform documents from
this organization before, in other words, the system will already have XCRI mapping for the keywords present in the document.

3.1 Input Template Format selection

In this option, the user is able to input the keywords and the relevant content manually into the system using the screen given in Figure 4.

1. Enter the keyword manually in the ‘Input Keyword’ text box.
2. Input the content relevant to the keyword you input in Step 1 in the ‘Input Contents’ text box.
3. Click the arrow to save the keyword and corresponding content in the system.
4. If there are more keywords to enter, click the “Input Again” button which will clear the previous screen.
5. Repeat steps 1 to 4 until all keywords have been entered.

6. After the keyword has been entered, click the “Next” button.

   The XCRI Mapping screen shown in Figure 5 is displayed.

   ![XCRI Mapping Screen](image)

   **Figure 5**: Keyword and Contents appear in the table

7. Double click on “Catalog” in the box on the right hand side of the screen, which is the root node of the XCRI tree to expand it.

8. Click on the “+” symbol besides a node to display the XCRI elements present under “Catalog” root node.

9. Locate the XCRI element corresponding to a keyword.

10. Click on the element to select it.

11. In the “Map To Element” column, click on the cell which corresponds to the Keyword. The XCRI element selected should now be transferred to the corresponding cell.

12. Repeat steps 9 and 10 for each keyword in the grid.

13. When all the keywords have been dealt with, click on “Create XCRI file”
Figure 6: File save dialog

14. Save the XCRI file to a chosen folder location.
3.2 Manual Input Screen

The “Manual Input” option is used when the user wants to extract information from
the word document directly instead of typing in the “keywords and contents”

1. Select the extension Type of the document.

   ![Figure 7: Selection of Extension Type of document](image_url)

   Figure 7: Selection of Extension Type of document

2. If the selected document is of “doc” type, two options appear (see Figure 8):
   - Select “All Tables” if the entire document is structured as a table.
   - Select “Tables & Lines” when the document contains a mixture of tables and
     free text.
3. Click “Confirm” to move to the next screen.

4. The box on the left of the screen in Figure 9 displays the contents of the imported document in text format.
5. Highlight each keyword from the display and press the arrow to confirm. The selected keyword should appear on the right hand side as shown Figure 10.

Figure 9: Keyword selection screen

Figure 10: Selected Keyword appear on right screen
6. Repeat Step 5 until all keywords have been selected.
7. Click the “Next” button to indicate completion.

After the keywords have been extracted, they will be assigned to the corresponding XCRI fields. The “keyword1” column displays the first keyword whereas “keyword2” column indicates the next keyword that was selected after “keyword 1” in screen shown in Figure 10.

![Figure 11: Selection of XCRI Elements](image)

8. Select XCRI field, corresponding to the keyword 1 in the first row of the left table on screen, as shown in Figure 11.
9. Click on that row corresponding to “keyword1”.
10. Repeat steps 7 & 8 for each row in the left table.
11. Click on “Create XCRI File” to create the corresponding XCRI file.
12. Save the XCRI file to a folder location.
13. The resulting XCRI file created is displayed on screen.

The XCRI file can also be viewed using notepad as shown in Figure 12.
Figure 12: XCRI file viewed in Notepad
3.3 Intelligent Creation

The “Intelligent Create” option is a prototype functionality which currently works for Middlesex University programme documents only. Using this function, the user can automatically create the XCRI files without having to select keywords from the document and doing the mapping to XCRI. This step is done intelligently by the system. It requires selection of a file after the “Transform tool” button is clicked on the Application Home screen.

![Image of the Intelligent Creation interface]

**Figure 13 : Intelligent Create**

1. Select “Intelligent Creation”, two options appear in the right box.
   - Select “Doc format: All Tables” if the document contains tables only.
   - Select “Tables & Lines” if the documents contain both tables and lines.
2. Click “Confirm” button.
3. Save the XCRI file to a folder location.
3.3.1 Example Demo

In the “Example Demo”, an example of the keywords and XCRI mapping performed for programmes already converted to XCRI by the user using the “Manual Input” format and for which the settings file has been saved.

1. Intelligent Creation” option requires selection of a file after the “Transform tool” button is clicked on the Application Home screen.

2. Select “Example Demo”. A list of settings file names is displayed as shown in Figure 14. The setting file contains the keywords and corresponding XCRI mappings.

3. Double click on a setting file where the keyword and corresponding XCRI mappings contained in it can be used with the document file browsed in Step 1, i.e keywords present in the setting file are present in the document file.

4. A confirmation screen appears. Click “Yes” to carry on.
5. Click “Next” and the mapping screen is displayed as shown in Figure 15.

![Figure 15: Mapping Screen](image)

6. Click “Create XCRI” button to create the XCRI file.
4 Visualisation Tool

The Visualisation Tool is used to visualise the imported UML files for a particular programme or module.

Figure 16: Home Screen

1. Click “Visualisation Tool” button to view a UML File.
2. Click “Browse uml file” button to select a UML File. The filename selected will appear in the Text Box as shown in Figure 18.

Figure 17: UML File selection screen

Figure 18: File selected displayed
3. Click “Next” button to display the visual output of the UML diagram. The visual output screen displays the relationships between the different keywords of the word document as shown in Figure 19.

![Visual Output](image.png)

Figure 19: Visual Output

4. Click the “Image” button to display the Class diagram of the chosen programme or module. The Class diagram is shown in Figure 20.
5. Click the ‘Text’ button to view the text version of the UML diagram. The text version is shown in Figure 21.
5 Semantic Tool

The semantic tool is used to compare the semantic similarity of two documents. The results are displayed in two ways:

1. The final result only
2. The detailed steps of the process followed by the final result

The non-technical user option shows the final result whereas the technical user options show the detailed steps of the process.
5.1 Technical user

There are two choices under this option as shown in Figure 23.

![Figure 23: Semantic Tool Options](image)

**Technical users:**
- Compare via XCRI files
- Compare via existing OWL files

**Non-technical users:**
- Accreditation of prior certificated learning

A. Compare via XCRI files

In this choice, the XCRI files and the relevant UML diagrams have already been created. They are used to create the OWL files before starting the comparison.

B. Compare via existing OWL files

In this choice, the OWL files have already created and are selected for comparison.
5.1.1 Compare via XCRI Files

The screen is divided into two parts (see Figure 24). In each part, you need to select the document to be compared.

Figure 24 : Creation of OWL files from XCRI and addition of UML relations

1. Select XCRI File to compare
2. Click on “Create the OWL” button.
3. Select the relevant UML File for that module.
4. Click “Adding UML” button to add the UML relationship to the OWL files created
5. Repeat Steps 1 to 4 on the right hand side of the screen.
6. Click “Next” to go to the comparison screen.
The tool facilitates comparison of documents in five different ways (see Figure 25).

7. Select the type of comparison you desire.

![Comparison options](image)

**Figure 25 : Comparison options**

i. “Parameter vs Parameter”: The two documents are compared parameter by parameter.

ii. “Module vs Module”: The user is allowed to select sets of modules to be compared. For each set, the user can decide on which parameters are to be compared.

iii. “Year vs Year”: Two corresponding years from two different programs are compared.

iv. “Program vs Program (Overview)”: Comparison of a program description to another programme description.

v. “Program vs Program (Detail)”: Two programmes are compared.
5.1.1.1 Parameter vs Parameter

![Parameter comparison screen](image)

**Figure 26**: Parameter to Parameter comparison screen

1. Click “Choose File A” to choose the first module to be compared.
2. Click “Choose File B” to choose the second module to be compared.
3. Click “View Parameter Similarity” button to display parameter similarity as shown in Figure 27.
Figure 27: Parameters for selected file displayed with their similarity value
5.1.1.2 Module to Module

The tool supports the comparison of more than one module in this option.

1. Click “Select Modules A” to select the first set of modules (the set may contain one or more module).
2. Click “Select Modules B” to select the second set of modules (see Figure 28).

![Module to Module - selection of documents](image)

Figure 28 : Module to Module - selection of documents

3. Click “Next” button to go to the comparison screen shown in Figure 29.
Figure 29: File names of documents to be compared

4. Click “View Similarity” button to go to the parameter selection window (see Figure 29).

5. The two columns “Object Name” display the parameters from the two files respectively (see Figure 29).
6. To select a parameter to be used in the comparison, click the cell in the “Select” column corresponding to the row of the selected parameter. The cell in the “Select” column will change to “1” for the selected parameter.

7. Select more parameters, if relevant, to be used in the comparison.

8. In the “Weight” column, enter the weight for the parameters that you selected for comparison. The weight of a parameter indicates its importance relative to other selected parameters.

9. Click “Total” cell to display the sum of the total weight for the selected parameters. The total weight should add up to 100.
10. Click “Next” button to see the selected parameters (see Figure 31).

Figure 31: Selected Parameters
11. Click “Next” button to see the overall similarity of the module (see Figure 32).

**Figure 32**: Overall Similarity value
12. Click “Next” button to see the perceived value similarity of the module. This screen (see Figure 33) is for technical users who want to get more detailed comparison figures.

Figure 33 : Similarity results with perceived value
5.1.1.3 Year by year

In the “Year by Year” option, modules for a particular year and respective parameters are used for the comparison.

1. Select “Year by Year” comparison screen
2. Click “Next” to go to the next step.
3. Click “Open Programme A” and “Open Programme B” to select the two Programmes to be compared (see Figure 35). The white box on the left displays the contents of the programme.

Figure 34 : Options screen
4. Click on the rows in the leftmost white box to identify the modules for a particular year of the programme. The relevant modules codes will appear in the “Descriptions” box.

5. Click on the “Description” items. All module codes appear in the module codes box.

6. Click on the “module codes” box items to select the modules to compare. The selected module codes appear in “Chosen Modules” box (see Figure 36).
7. Module codes are selected from a second programme using the “Open Programme B” button in a similar way by following steps 4 to 6.
8. Click “Next” button to go to Comparison screen for the 2 modules. Once the modules from the programme have been selected, these modules are compared in pairs.

9. Click the “Next Modules” button to browse to the next set of modules to compare.

Figure 37: Modules for second programme is chosen
Figure 38: Set of modules to be compared.

10. Click the “View Similarity Summary” button to view a general similarity percentage in the left box.
11. Click the “View Similarity” button in screen shown in Figure 39 to compare the modules in more detail by selecting which parameters to compare. The table with the parameters for each module appears. Numerical values ranging from 0 to 100 can be assigned to one or more parameters for comparison, in the “Weight” column.

12. Select row and weightage for the parameters to be used in the comparison (see Figure 40).
13. Click “Total” on the grid to validate the sum of the weightage is equal to 100.

14. Click “Create Similarity report” to create a word document file showing the percentage similarity between the different parameters.
5.1.1.4 Program vs Program (overview)

The overview of two programmes can be compared by selecting this option.

![Program vs Program](image)

**Figure 41: Program to Program**

1. Select “Program vs Program” and click “Next” button. Screen shown in Figure 42 is displayed.
2. Click “Open Programme A” button to open the first programme.
3. Click “Open Programme B” button to open the second programme.
4. Select the text corresponding to the Programme overview by clicking on the appropriate title in the leftmost white text box. The “overview” contents of the Programme will be displayed in the middle box as shown in Figure 43.
5. The same process is carried out to identify the contents of the second programme B by clicking “Open Programme B” and selecting the overview.

6. Click on the “Similarity” button to view the similarity between the overviews as shown in Figure 44.

Figure 44: Similarity results of Program vs Program Overviews
5.1.1.5 Program vs Program (Detail)

- When comparing Programs, the tool considers year by year of the program for comparison of their similarity. Therefore the user options are similar to the “Year vs Year” choice.

Figure 45: Program to Program detail comparison
5.1.2 Compare via OWL Files

When the OWL files are already created, the user can use them directly for comparison.

![Compare via existing OWL files](image)

**Figure 46 : Compare via existing OWL files**

1. Click “Compare via existing owl files” in Figure 46.
   
   The screen shown in Figure 47 will be displayed.
Figure 47: Comparison type selection

1. The steps for the 5 options displayed are the same the steps to follow as after the OWL files have been created in the option “Compare via XCRI files”. The steps are described in details in section 5.1.1.1 to 5.1.1.5.
5.2 Non-Technical user

In the Non-Technical user option, the user does not have to select OWL files for comparison. The programmes are displayed on screen for the user to choose for comparison.

5.2.1 Accreditation of Prior Certificated Learning

1. Click on “Accreditation of Prior Certificated Learning” button to enter the screen shown in Figure 48.

![Accreditation of prior certificated learning](image)

Figure 48: Accreditation of prior certificated learning
The different programmes available for comparison to the user are listed in the first box on the left as shown in Figure 49.

Figure 49 : APCL
2. Click on a programme name from the box below “Entity A: Programme”. The list of programmes is listed in the “Choose Module” box (see Figure 50).

3. Double-click on a specific programme in “Choose Module” box to display the years for that programme.

![Figure 50: Chosen modules](image)

4. Click on a year to display the modules codes for that year in the box “Module Name”.

5. Click on a module code in the “Module name” box to select the module codes to use for comparison. The selected module codes appear in the “Chosen modules” box.
6. Repeat Steps 2 to 5 for Entity B Programmes to select a second set of module codes to compare.

7. Click “Next” button after all module codes from Entity A and Entity B have been selected for comparison. The screen shown in Figure 51 is displayed to the user.

![Module comparison screen](image)

**Figure 51 : Module comparison screen**

The comparison then follows the same steps as described in Section 5.1.1.2 “Module to Module” and the similarity results as shown in Figure 52.

The overall similarity of the module is displayed in the last row of column “Element A”.
Figure 52: Final similarity results