

## 1 Environment Setup

Requirement Knowledge Mining tool (MaRK) is developed based on .Net Framework 4.5. You are required to install .Net Framework 4.5 firstly before installing our tool.

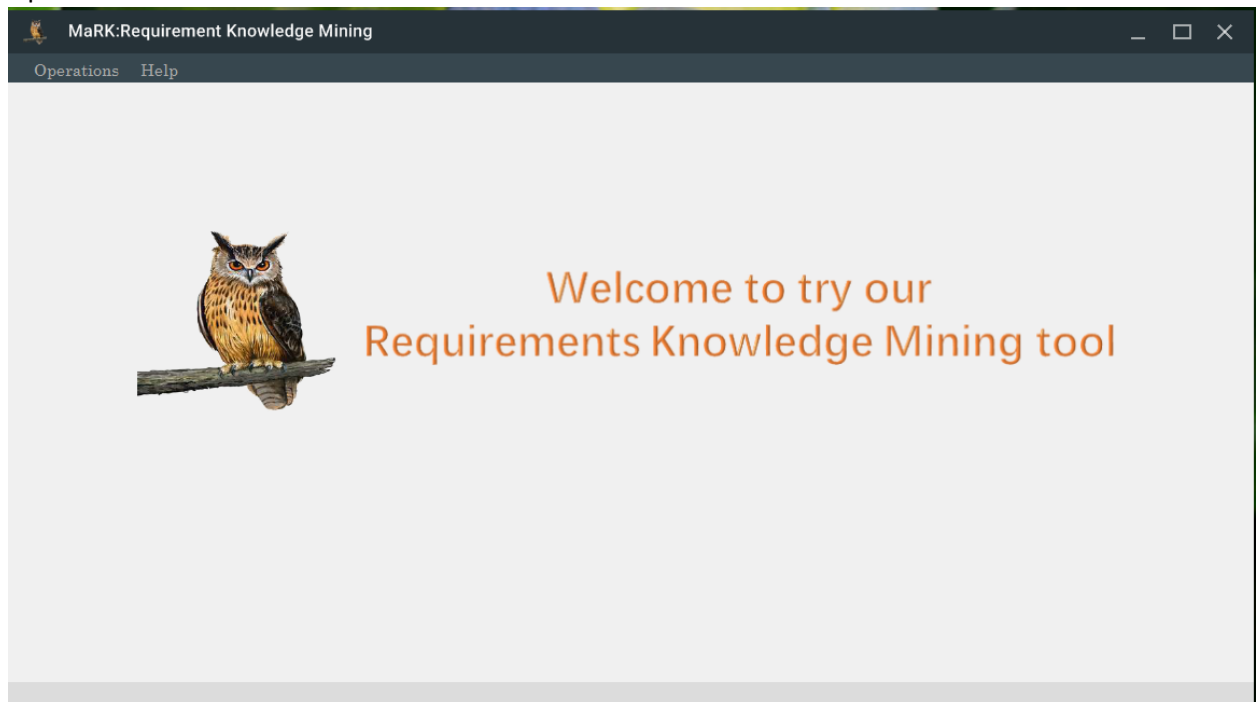
MaRK also needs Office, Adobe Reader, Java, 7-Zip and R for implementing the related functions. We add some reference downloading URLs here:

- Java: <http://www.oracle.com/technetwork/java/javase/downloads/jdk7-downloads-1880260.html> (**MaRK is using Stanford TMT for the topic modeling, which requires JDK 1.7**). **Tips:** If you fail at Running TMT step after you have setup JDK and added path to Environment Variable, you may need restart your computer and make sure your JDK can be accessed in normal command window instead of administrator command window.
- R: <https://cran.r-project.org/bin/windows/base/>
- 7Zip: <http://www.7-zip.org/>
- Adobe Reader: <https://get.adobe.com/reader/>

## 2 Using Instructions

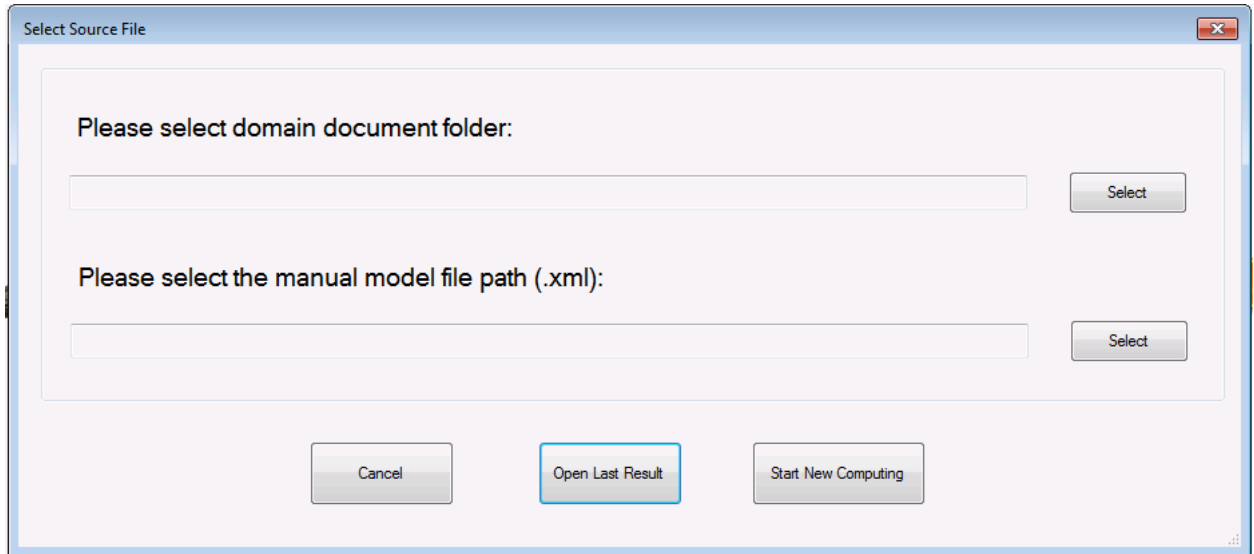
### Manual Model Based

1. Open MaRK



2. Click **Operations** menu and select “Manual Model-based” item to start to show the existing manual model. Then “Select Source File” dialog is opened.

3. In Select Source File dialog, select the directory containing the domain documents (such as file with extension: pdf, doc or docx) and the domain model which is created with tool FreeMind and stored as .xml. If you have pre-defined search terms, you can also import it.



4. You can click button **Start New Computing** to run the domain model creation process, it will delete the files on your last result if you have. Or you click the button **Open Last Result** to review your last result. The following is about the new computing to find the component relevant documents.
5. The running time depends on the file count under domain model folder you selected.
6. Once all computing finished, the domain will be shown in tree (in the left screen). To show the component-related documents and their ranking, you need click one component in the model.

File Name	File Path	Component Name
ED267_ITCSM 1.1.2.1 System Archite...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED248_S-9553D Base Communications ...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED247_S-9553C Cluster Controller. 2...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED245_S-9553A Mobile Communication...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED246_S-9553B Front End Processor...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED040_PTC implementation plan - Me...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED113_S-9202 WTU Requirements.2012...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED057_PTC implementation plan - UT...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED088_S-9001 ITC System Reference ...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED224_S-5904 Remote Control Locomo...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED031_PTC implementation plan - Ca...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED243_S-9552 Railroad Communicatio...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment
ED242_S-9153 Remote Control of Loc...	C:\Users\Xiaoli-Lian\AppData\Roam...	communication segment

**Summary - communication segment**

radios: lirr will procure system wide radios and base and mobile antennas.  
the bcp antenna system is comprised of the antenna, the antenna support structure and the rf transmission line.  
do not distribute. 17placed in the emp data integrity footer.  
wayside antennae: a contractor will install radio antenna support poles equipped with antennas, coaxial cables, lighting protection and grounding cables.  
cable and filter (if equipped) insertion loss: radio antenna port to radio antenna port isolation-unfiltered: radio antenna port to radio antenna port isolation-filtered: electro-mechanical emi- twelve locomotive operational states' load test ber (1e-4) - ten locomotive operational states 2012 meteorcomm llc.  
in this case the sink signature field in the different ism messages will be absent 0 2 3 unsecurable na error not supported nal unsecurable na emn level crc unsecurable crcused for data

**Document Highlight Result**

[I feel lucky](#) [list pages by natural order](#)

C:\Users\Xiaoli-Lian\AppData\Roaming\DomainAnalysis\Manual\HighlightFile\ED246\_S-9553B Front End Processor.2012-08-01.pdf

Page 1  
Page 2  
Page 3

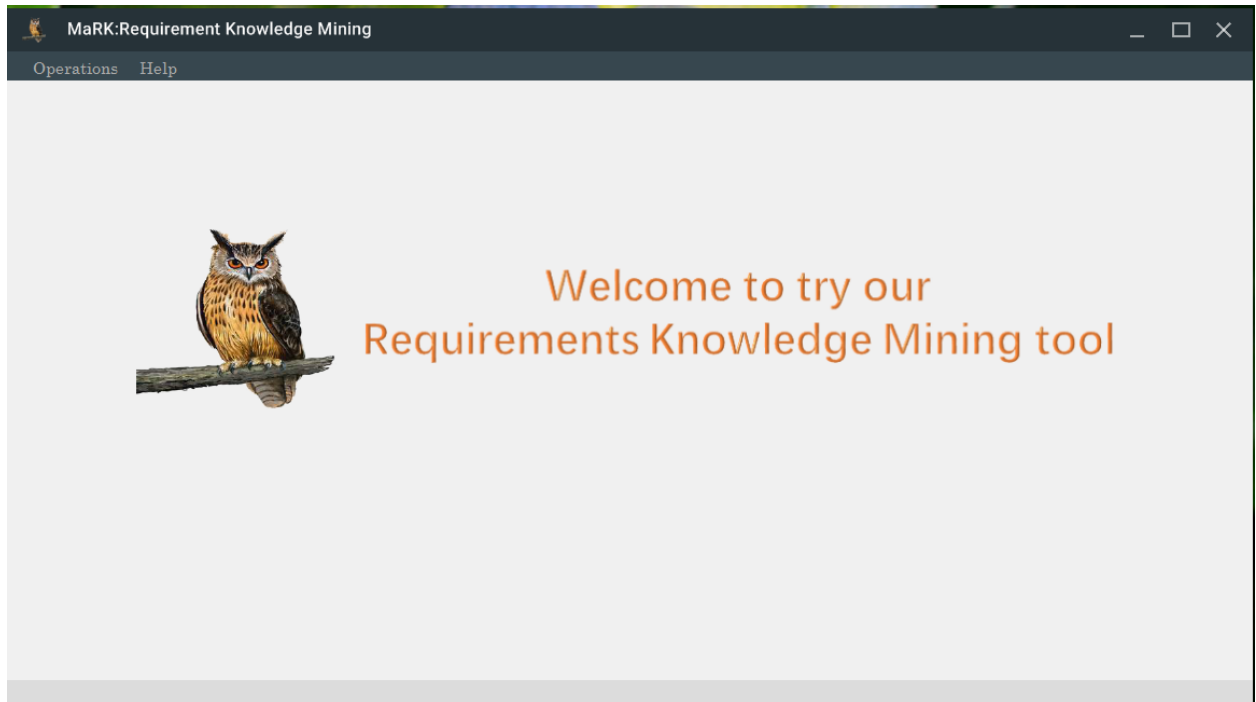
**Output**

: Parsing page: 8  
Highlight Finished!

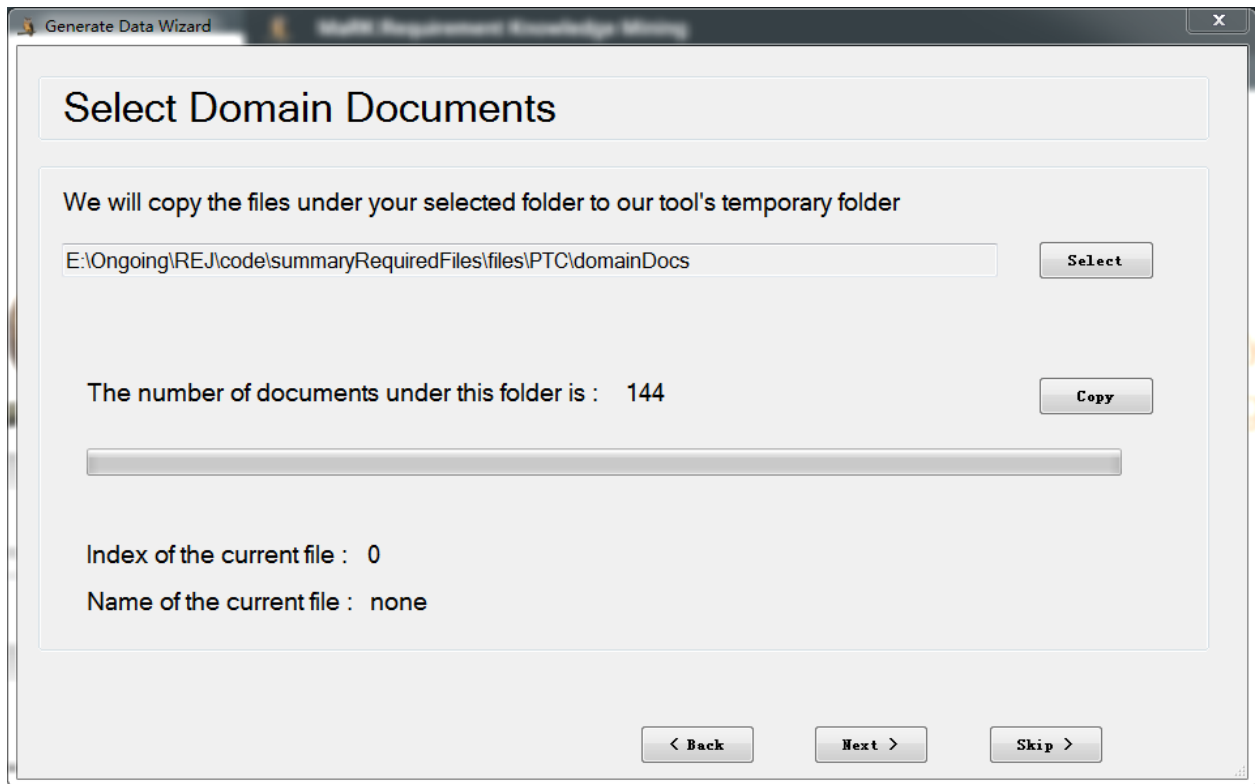
7. Double click the component, MaRK will generate the summary from all of the related components.
8. Double click one related document, MaRK will give the page index of all relevant part in the bottom. If you click one page, you can look at the specific page. Or you can also click *I feel lucky*, MaRK will identify the most relevant page and open that page for you.

### Automated Model-based

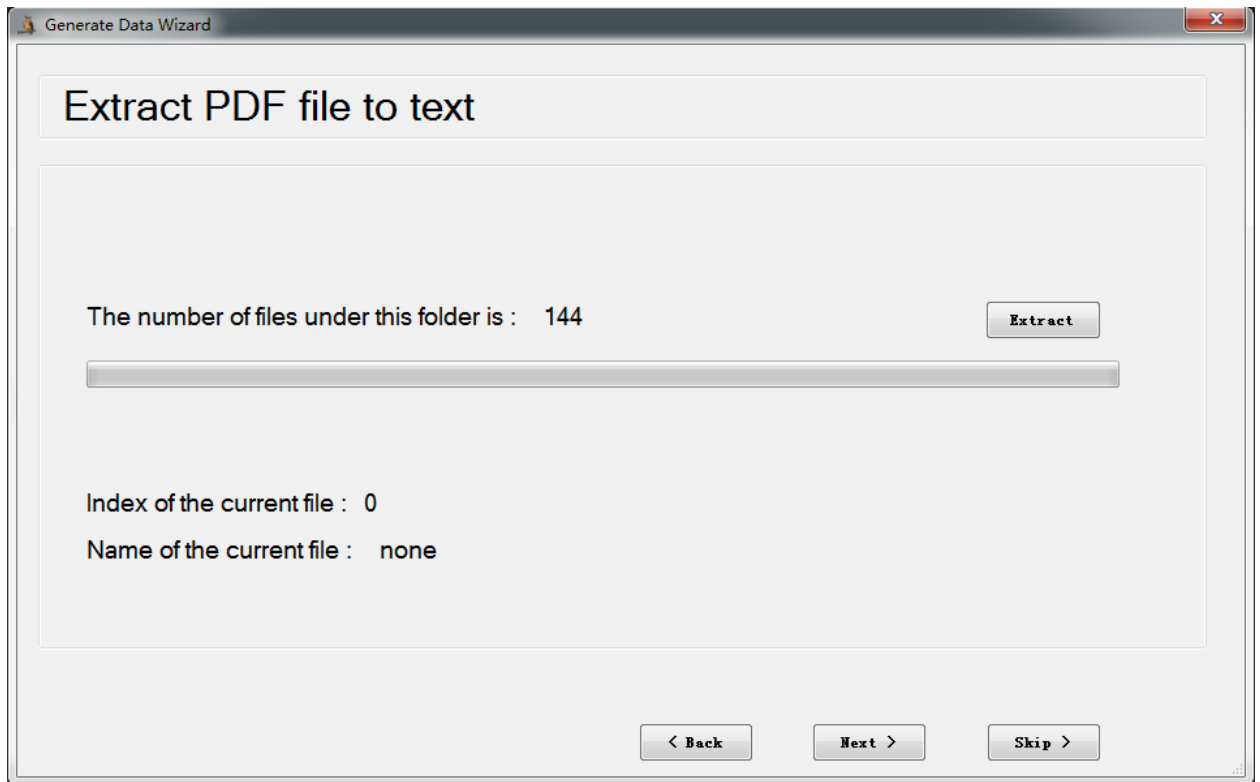
1. Startup MaRK.



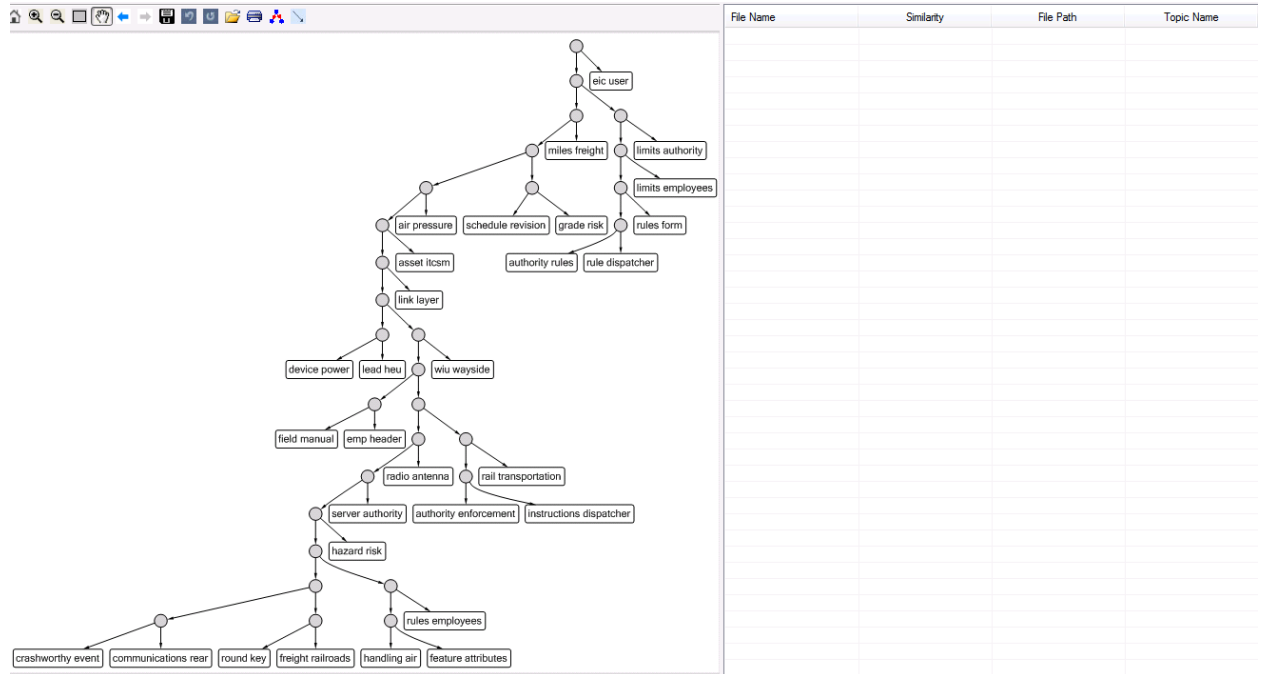
2. Click **Operations** menu and select "**Automated Model-based**" item to start the requirements knowledge mining based on the automated model creation. Due to the complexity of this process, we create one wizard for this process.
3. Firstly, you need to select the directory of your domain documents. And then MaRK will copy the documents to the temporary folder of this application.



4. Then MaRK will extract PDF file to text.



5. The running time depends on the file count under domain model folder you selected.
6. Once the model creation and document ranking finished, the domain will be shown in hierarchy.



7. Once the model has been created, the process for generating the highlighting and summary is same to that with manual model.