

Aligned Elements Importer

V3.0.443.22517

user manual

Table of Contents

| | | |
|--------|--|----|
| 1.1 | Introduction | 3 |
| 1.2 | Installation | 3 |
| 1.3 | References | 4 |
| 1.4 | Disclaimer | 4 |
| 2 | General Overview | 5 |
| 2.1 | Basic Concepts | 5 |
| 2.2 | Conventions and constraints | 5 |
| 2.3 | Preparation of the source file | 6 |
| 2.4 | The Wizard Steps | 7 |
| 2.4.1 | Select the source file | 7 |
| 2.4.2 | Select Aligned Elements templates | 8 |
| 2.4.3 | Select the Document Object Type | 9 |
| 2.4.4 | For Excel and CSV files, define extraction settings | 9 |
| 2.4.5 | For Word files, define Word Parse mode | 16 |
| 2.4.6 | For Word files, define Word Parse settings, Table Mode | 16 |
| 2.4.7 | For Word files, define Word Parse settings, Search text Mode | 19 |
| 2.4.8 | Import Traces (Optional) | 23 |
| 2.4.9 | Testing settings / define result file name | 24 |
| 2.4.10 | Extract results | 25 |
| 2.5 | Support | 26 |
| 2.6 | Version Information | 26 |

1.1 Introduction

The Aligned Elements Importer extracts and converts data from Microsoft Word and csv (Comma Separated Value) files to Aligned Elements import .xml files.

Valid input file formats are:

- .csv files
- .xls files (Microsoft Excel 97-2003 format)
- .xlsx files (Microsoft Excel 2007 and higher)
- .doc files (Microsoft Word 97-2003 format)
- .docx files (Microsoft Word 2007 and higher)

The generated output format is an xml file that can be imported in an Aligned Elements project (see “[Ref 1.] Aligned Elements manual, section 3.20)

1.2 Installation

To install the software, unzip the downloaded file and click on setup.exe (not the .msi). This will install the prerequisite .NET 3.5 SP 1 Framework and then the Aligned Elements Importer.

1.3 References

Ref. [1] The Aligned Elements User Manual

http://aligned.ch/Support/SupportDownloads/AlignedElements_UserManual.pdf

1.4 Disclaimer

This user manual is solely intended for user guidance and does not imply any legally binding description of functionality.

2 General Overview

2.1 Basic Concepts

The Aligned Elements Importer is built as a Wizard that consists of 6 steps:

- 1) Select the source file for the import (csv, Word or Excel file).
You may also select an additional csv file for trace information. This is, however, optional.
- 2) Select the Aligned Elements templates acting as a basis for the conversion.
- 3) Select the Document Object type to which the extracted data shall be converted.
- 4) Apply the import and conversion settings.
- 5) Test the import settings OR define the result xml file name.
- 6) Perform the extraction and converting, resulting in an importable xml file

For information about Document Object Templates and Document Object Types, see Aligned Elements User Manual Section 2.1

For information on importing in Aligned Elements, see Aligned Elements User Manual Section 3.20.

2.2 Conventions and constraints

The following conventions and constraints apply to the Aligned Elements Importer.

- Only one Document object type can be extracted per session, i.e. it is not possible to extract requirements AND specifications from the source document during the same session.
- For Excel/csv files, dynamic columns are not supported i.e. each line needs to contain the same number of columns.
- For Excel/csv files, all extracted data is converted to plain text.
- For Excel/csv files, only delimiter extraction is available. Fixed length extraction is not available.
- For Excel/csv files, there is no validation made during attribute assignment to ensure that the extracted data is of a valid data type for the selected attribute. This check is later made at the import of the result .xml file.
- For Excel files, only the first sheet is processed.

- For word files, table mode (one object per row in a table), max 10 columns can be mapped to existing attributes.
- For word files, extracted data for Rich Text attributes are displayed as raw rich text when clicking **Test Settings**.
- Only attribute data and optionally traces are extracted and converted from the source file(s). Chapters, revision information etc. cannot be extracted.
- Even though IDs can be extracted from the source documents, this data will not be used during import except for establishing traceability. Each imported Document Object will obtain a new ID at import.
- The result file will have the same file name as the input file with an .xml ending. It is not possible to select the result file name.

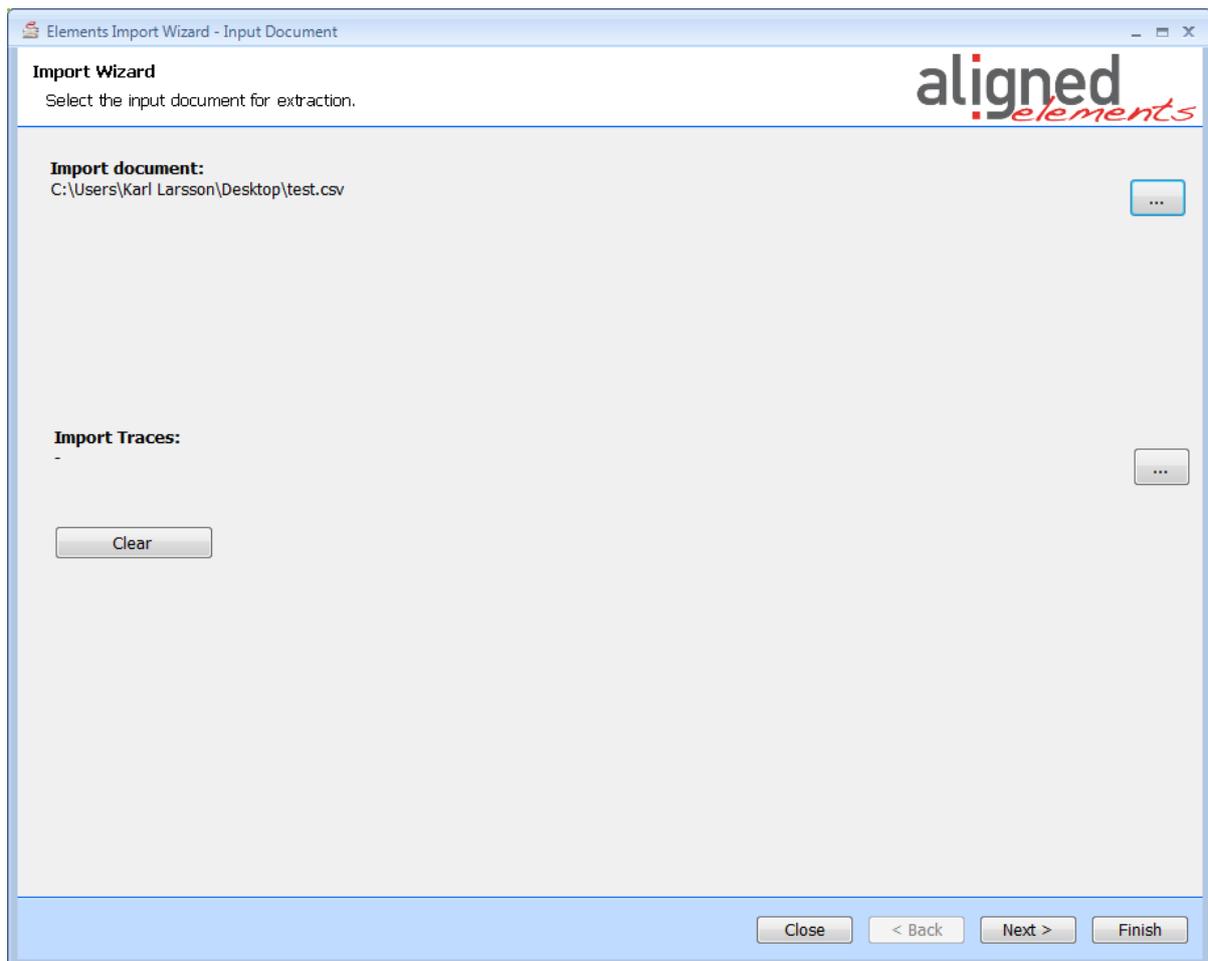
2.3 Preparation of the source file

Note that the importer is based on a specific set of rules, assuming that the source document uniformly formatted. Take some extra time and prepare your source document carefully, ensuring that it is uniformly formatted. It might even be worthwhile to make a local copy of the source document and remove and data that is not targeted for import.

2.4 The Wizard Steps

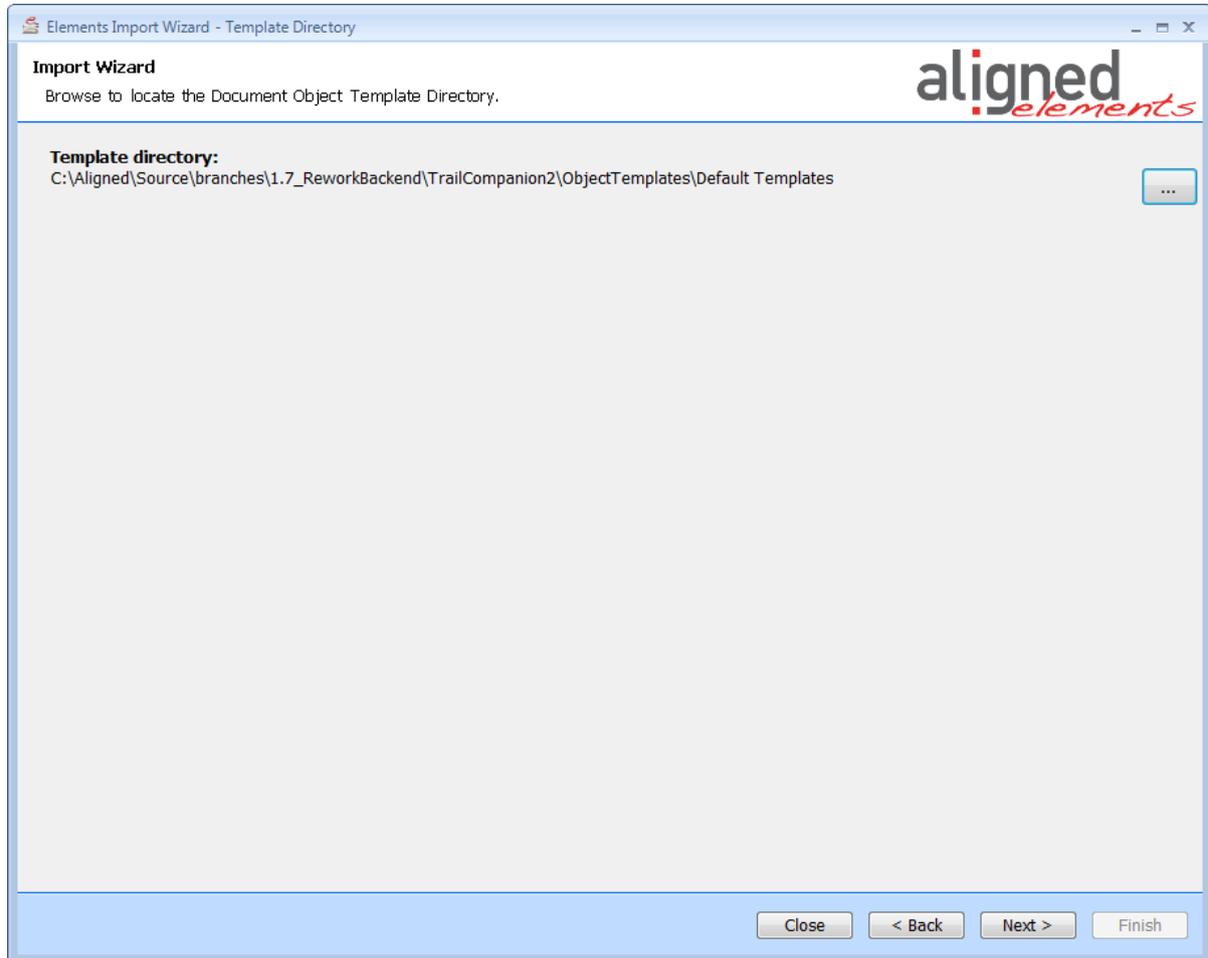
2.4.1 Select the source file

Browse to the file (csv, Excel or Word) that serves as source file for the extraction. Note that no data will be removed from the file during the extraction and conversion. You may optionally define a secondary csv file which includes trace information. See 2.4.8 for details.



2.4.2 Select Aligned Elements templates

Select the Aligned Elements templates used in the project into which you intend to import the extracted data.



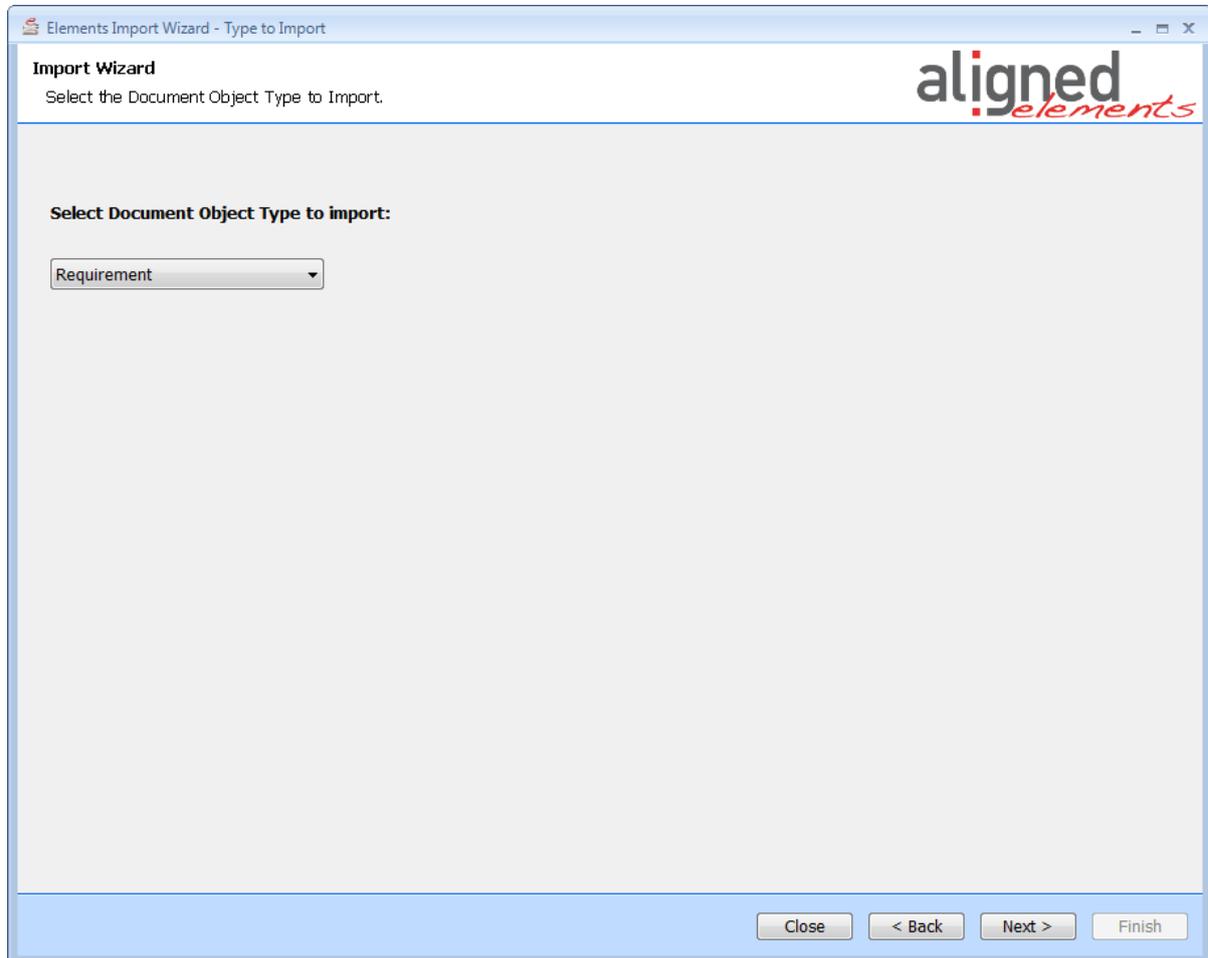
The first time a template path is selected you might get a Message box claiming:



Click Yes and continue.

2.4.3 Select the Document Object Type

Select the Document Object type in the designated template set which is target for the conversion (such as Requirement, Specification, Test Case etc).



Note! Extraction and conversion can only be made to a single Document Object type during an import session.

2.4.4 For Excel and CSV files, define extraction settings

For Excel and csv files, it is assumed that a single line shall be transformed to a Document Object and that the data in each column is mapped to an attribute in the Document Object.

Import Wizard
Select the extraction settings for the csv file.

aligned elements

Delimiter: ;

Comment Char: #

First Non-comment Row is Headers:

Each column in quotes: None

Lines found: 3

Encoding: UTF-7

Note! The parsed data is treated as plain text.

| Not Assigned | Not Assigned | Not Assigned | Not Assigned |
|--------------|-------------------|--|--------------|
| 1 | System Dimensions | The system must fit through a regular door. | 1 |
| 12 | System Weight | It must be possible for two people to lift the system. | 1 |
| 23 | System Color | The colors must adhere to corporate design guidelines. | 2 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Close < Back Next > Finish

For the CSV files, the following parameters can be set:

- Delimiter character (a single character or tab sign ('\t'), default value is semi-colon)
- Comment character, where commented lines are ignored at extraction, default value is hash ('#')
- First (non-comment) line is column headers, (which are ignored at extraction), default value is false.
- Each column is in quotes, default value is "None"
- Character Encoding, UTF-7 or UTF-8

For Excel files, the following parameters can be set;

- First (non-comment) line is column headers, (which are ignored at extraction), default value is false.
- Character Encoding, UTF-7 or UTF-8

When displayed, the Excel/CSV setting page has tried to parse the Excel/csv file with the default parameters. The number of found lines is displayed.

The user can apply different parameters and click the **Reload** button to reload the excel/csv file with the new parameter settings.

In the excel/csv grid, the context menu can be used for the following options:

1) Map column to known attribute, traces or chapter path

Right-click on a column and use the context menu to assign a column to a specific attribute. The column header now changes caption to the selected attribute name.

Options in this dropdown:

- Not Assigned – the values in this column are not extracted
- ID – not mandatory to use, except when other items are expected to trace to the object that maps to the row in question.
- Chapter Path – A backslash delimited string on the form

`typename\subchapter1\subchapter2`

etc., denoting the Chapter Path Note! If an item is meant to be placed on the top level (and not in a chapter), leave the chapter path cell blank.

- Incoming Traces – ID:s of incoming traces (can be delimited by semi-colon, comma, pipe, dot or new line)
- Outgoing Traces – ID:s of outgoing traces (can be delimited by semi-colon, comma, pipe, dot or new line)
- Attribute Names (or Aliases when applicable) – Note that Table Attributes, File Attributes and Array Attributes are not possible to use in this way.
- Tags – Tag names to be extracted (can be delimited by semi-colon, comma, pipe, dot or new line)

Note that no validation is made during attribute assignment to ensure that the extracted data is of a valid data type for the selected attribute. (i.e. there is nothing preventing you from assigning an integer attribute to a column filled with text cells.) This validation check is performed later during import of the result .xml file.

Special Case for Risk Analysis and Failurmodes

If the selected type to import is Failuremode-like or RiskAnalysis-like, the assignment dropdown is expanded with attributes for:

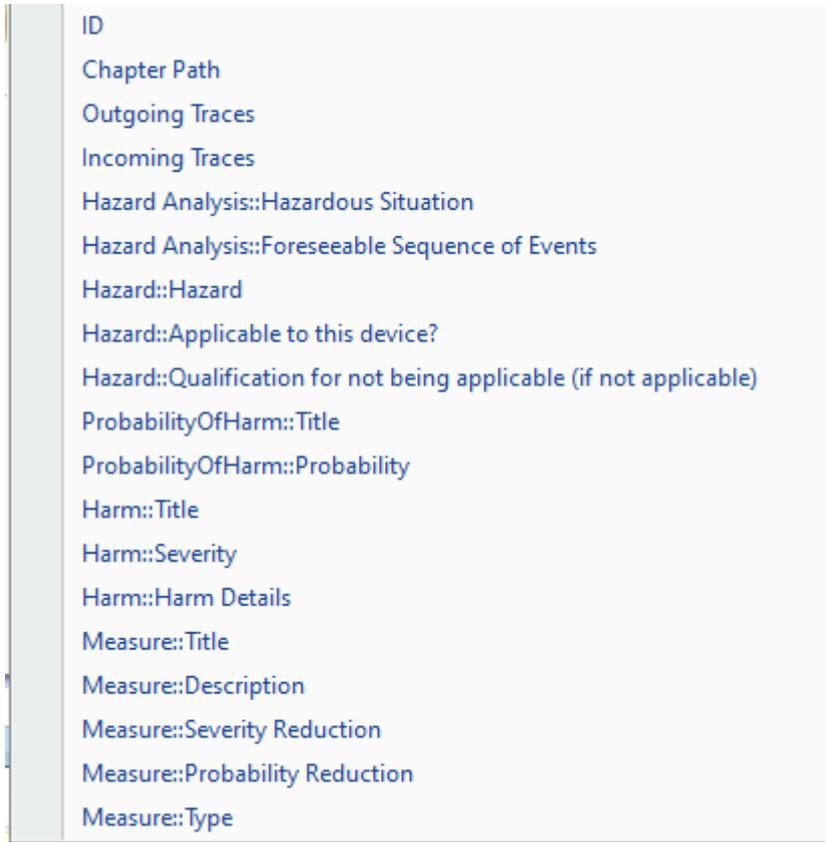
In case of Failuremodes:

- Potential Hazard
- Failuremode like
- Hazard like
- Mitigation like

In case of Risk Analysis:

- Potential Hazard Like
- Cause Like
- Risk Analysis Like
- Harm Like
- ProbabilityOfHarm
- Measure Like

I.e. each set of attributes are prefixed with the type name and two colons such as Failuremode::Title.



This allows several risk items to be extracted from the same row and to be automatically connected via traceability.

Tracing between the items on the same row is automatically generated as per:

Failuremode:

| | | |
|------------------|----------|-------------|
| Potential Hazard | trace to | Failuremode |
| Failuremode | trace to | Hazard |
| Hazard | trace to | Mitigation |

Risk Analysis:

| | | |
|-------------------|----------|-------------------|
| Potential Hazards | trace to | Risk Analysis |
| Causes | trace to | Risk Analysis |
| Risk Analysis | trace to | ProbabilityOfHarm |
| ProbabilityOfHarm | trace to | Harm |
| ProbabilityOfHarm | trace to | Measure |

Chapter Paths

If the row contains a chapter path, the chapter path will be applied to:

In case of Failuremodes:

- Potential Hazard
- Failuremode
- Mitigation like

In case of Risk Analysis:

- Potential Hazard like
- Risk Analysis Like
- Measure Like

Incoming traces

If the row contains a column designated as Incoming Traces, cells containing the values be applied to:

In case of Failuremode:

- The Failuremode

In case of Risk Analysis:

- The Risk Analysis

Outgoing traces

If the row contains a column designated as Outgoing Traces, cells containing the values be applied to:

In case of Failuremode:

- The Mitigation Like item

In case of Risk Analysis

- The Measure Like item

Reuse of identical items in the imported file

For some types, if an identical item is listed in several places, the item will be extracted only ones and referred to from the other locations using traceability. This behavior is applicable to:

In case of Failuremode:

- Potential Hazards
- Mitigations

In case of Risk Analysis

- Causes
- Harms
- Measures

| Pot. Hazard::Title | Failuremode::Failuremode | Hazard::Effect | Hazard::Sev... | Hazard::Cause | Hazard::Pro... | Mitigation::Title | Mitigation |
|--------------------|------------------------------|----------------|----------------|------------------|----------------|---------------------|------------|
| Electrical Shock | User gets a schock when t... | Injury | 4 | Nonisolated h... | 5 | Isolate the housing | 4 |
| | | | | | | Use max 9V voltage | 4 |
| | User gets shock when em... | Injury | 4 | Non isolated ... | 5 | Isolate the housing | 4 |
| | | | | | | Use max 9V voltage | 4 |
| | | | | | | | |
| | | | | | | | |

Empty Cells below Cell Value

If a cell value is empty but cells to the right has values, it is expected that the item denoted by the value in the cell the above the empty cell, is tracing to the item denoted by the item with cell values to the right.

In the image above, the Potential Hazard „Electrical Shock“ will trace to the two Failuremodes in the second column. Each Failuremode will trace to the two Mitigations in the seventh column. Since the two Mitigations reoccurr in the seventh column, they will only be extracted once and subsequently referred to by traceability.

2) Remove all Attribute Assignments

Use this to clear the current attribute assignment and set all columns as “Not Assigned”.

3) Delete column

Right-click on a column and use the context menu to select a column to delete.

4) Duplicate column

Right-click on a column and the context menu to select a column to duplicate.

5) Trim whitespaces or other characters from values in a specific column

Right-click on a column and use the context menu to trim white spaces or other characters from the beginning or end of all values in a column.

6) Split column

Right-click on a column and use the context menu to split a column, either using a delimiter or a fixed length.

7) Remove row if this column is empty

Right-click on a column and the context menu to remove all rows where the entry in the selected column is empty.

8) If previous column is empty, this is a chapter

Use this column entry as a chapter definition if the previous column to the left is empty.

This is often used, for Microsoft Excel sheet with the following structure:

| | A | B | C |
|---|-----------|--------------------|-----------------|
| 1 | <i>No</i> | <i>Requirement</i> | <i>Priority</i> |
| 2 | | Section A | |
| 3 | 1 | Requirement 1 | High |
| 4 | 2 | Requirement 2 | High |
| 5 | 3 | Requirement 3 | Low |
| 6 | | Section B | |
| 7 | 4 | Requirement 4 | High |
| 8 | 5 | Requirement 5 | Medium |

If there is no entry in column „No“, then the entry in the „Requirement“ column is considered to be a chapter for the following entries.

9) If next column is empty, this is a chapter

Just as the previous function, but applied when the next column to the right being empty signifies that “this” column contains chapter name.

10) Merge columns

Right-click on a column and use the context menu to merge two columns with an option of using a pad string between the two cell values..

11) Find and replace values in a column

Right-click on a column and use the context menu to find and replace values in a column. Note that the find operation is case sensitive.

12) Set default values in empty cells

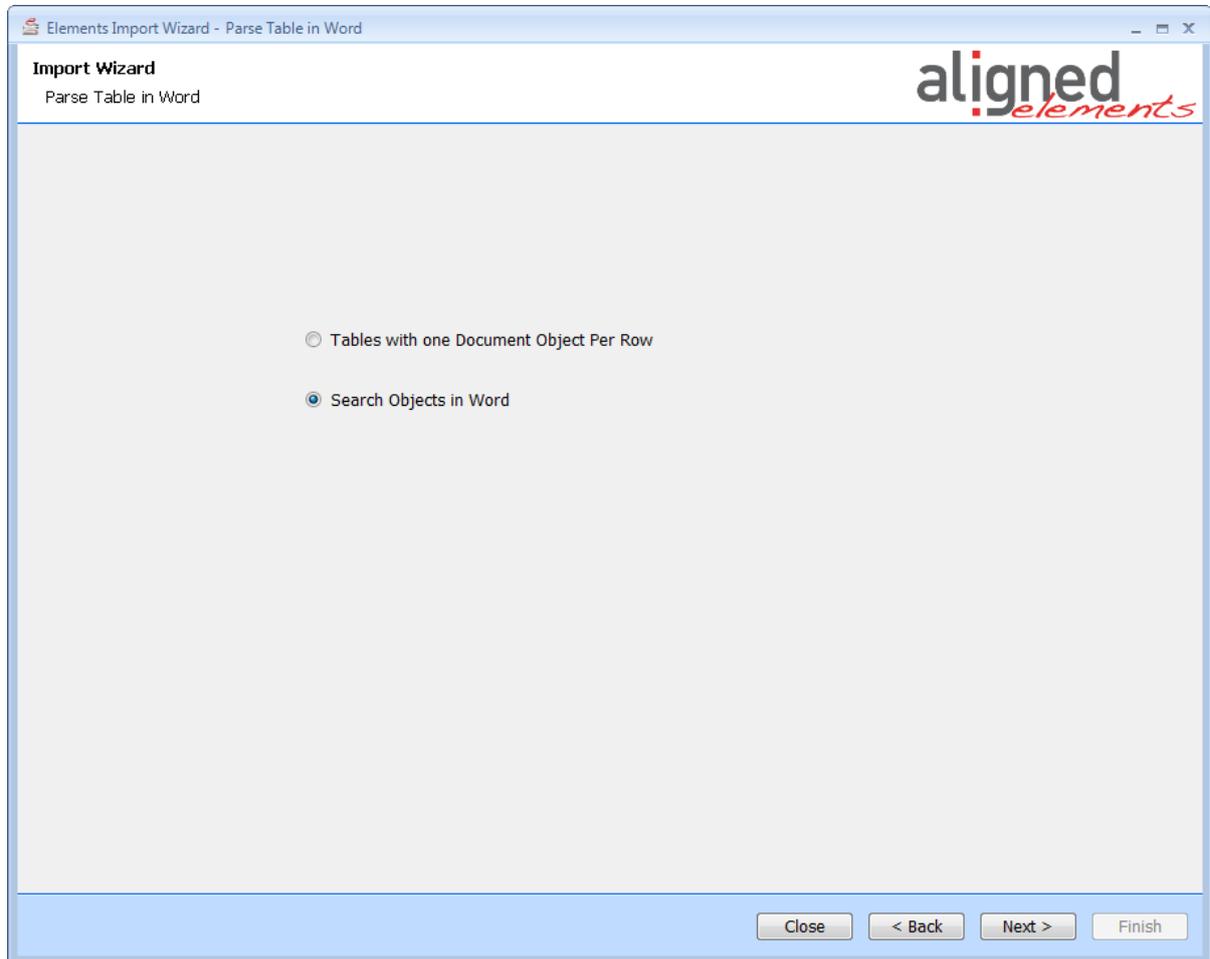
Right-click on a column and use the context menu to set a default value in all empty cells of a column.

13) Set default value in all cells of a column

Right-click on a column and use the context menu to replace all existing values in a column with a default value.

2.4.5 For Word files, define Word Parse mode

There are two main modes available for parsing Word files.



- a. Table mode, to be used for source data in tables with one attribute per column and one Document Object per row.
- b. Search text mode, to be used when the data is found in normal text sentences, paragraphs or sections.

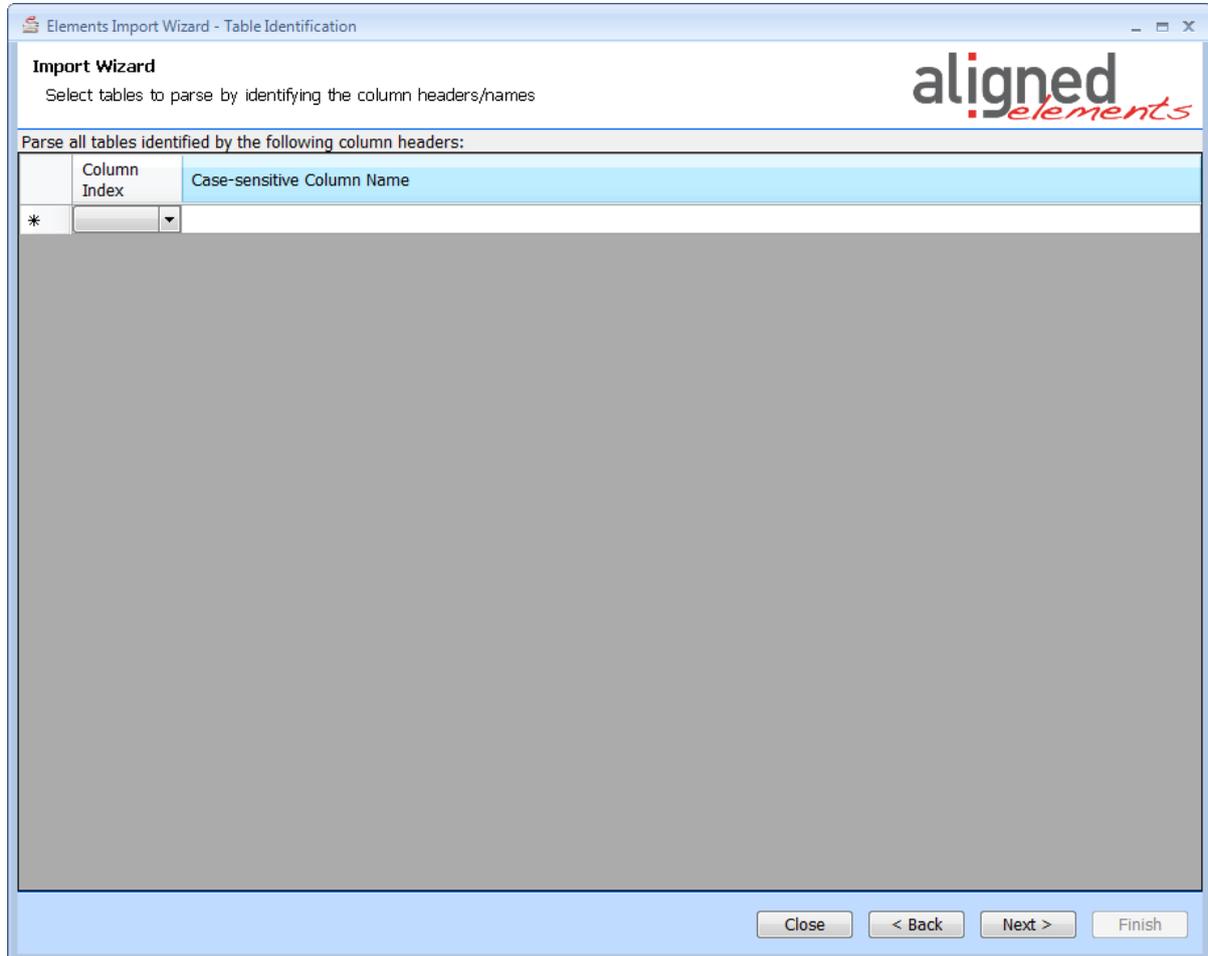
2.4.6 For Word files, define Word Parse settings, Table Mode

Table mode is intended for source data in tables with one attribute per column and one Document Object per row. Example:

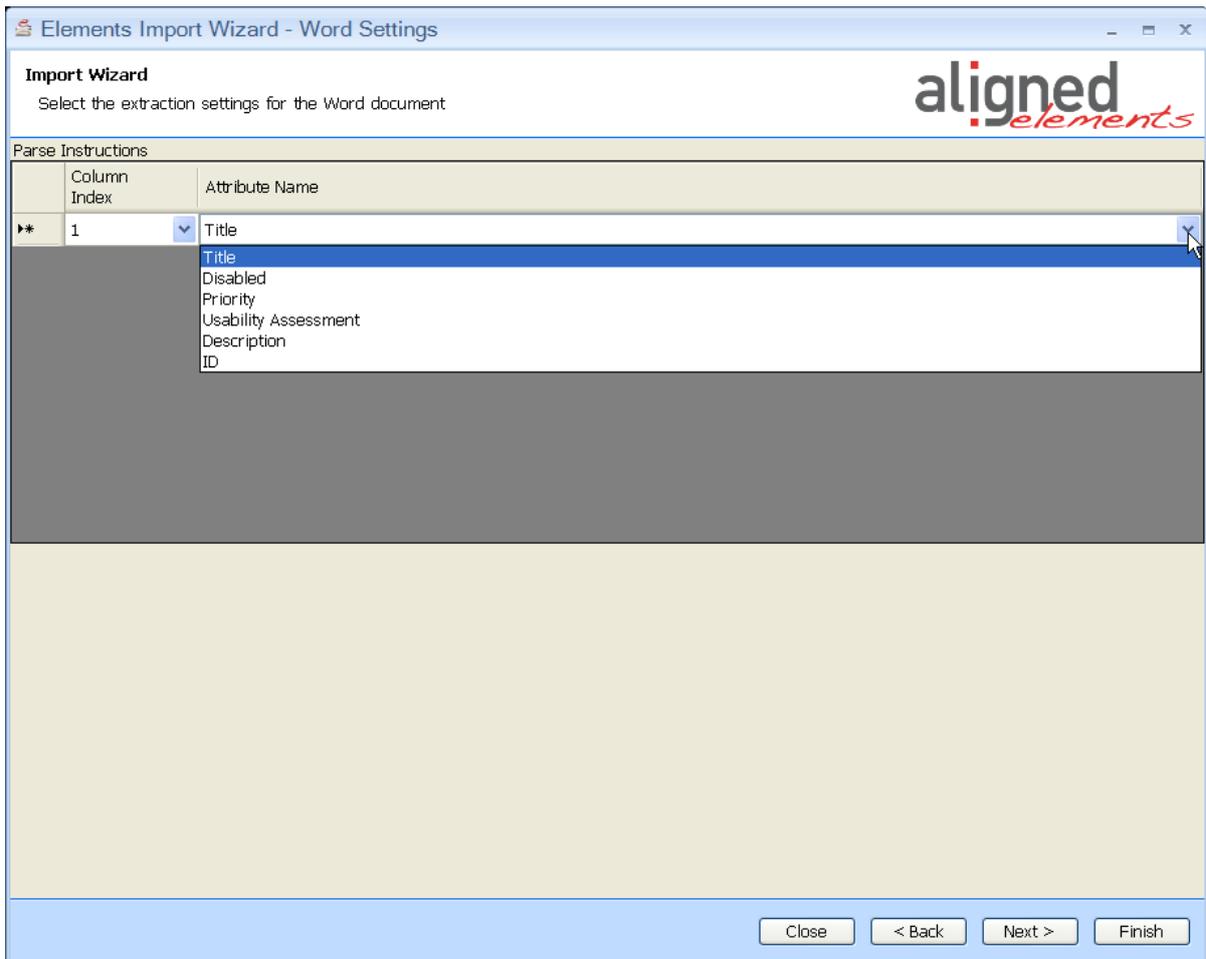
| ID | Title | Description |
|-----|-------|--|
| 1 | Size | The device must fit in a shirt pocket. |
| 1.1 | Color | The device color must apply to corporate guidelines. |

| | | |
|---|--------|--|
| 2 | Weight | The device must weigh less than 1.0 kg |
|---|--------|--|

First define the column headers for the tables that the parser shall look for.



Then define to which Document Object attribute of the selected type each column of the detected table(s) shall be mapped to.

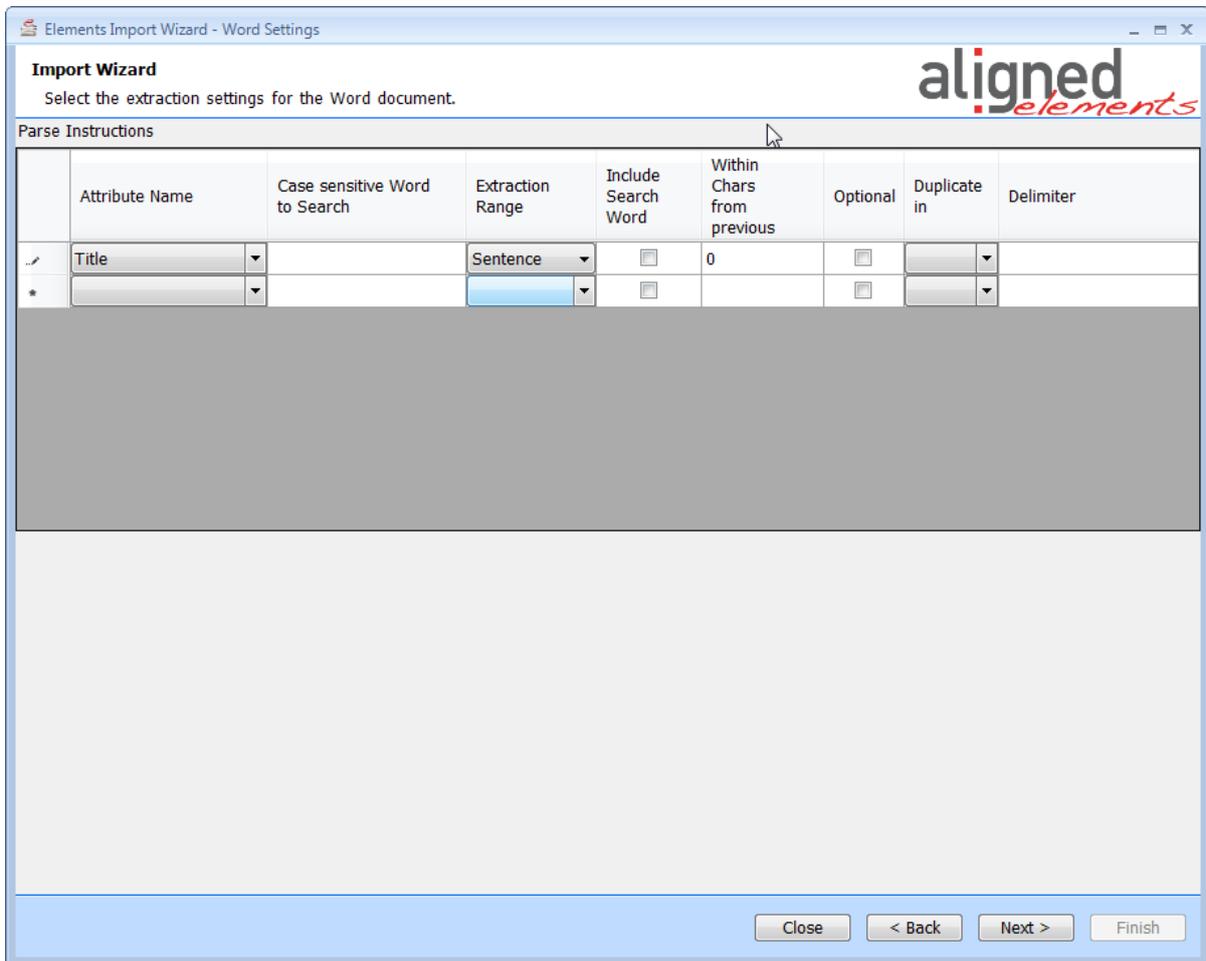


The Parse instructions are used to map a column to a known attribute in the selected Document Object type. To extract the sample table above, the following parse instructions are used.

| Parse Instructions | | |
|---|--------------|----------------|
| | Column Index | Attribute Name |
| | 1 | ID |
| | 2 | Title |
|  | 3 | Description |
| * | | |

The Importer will look for any tables that fit these Parse instructions, beginning from the start of the document.

2.4.7 For Word files, define Word Parse settings, Search text Mode



Search text mode is to be used when the data is found in normal text sentences, paragraphs or sections.

Each row in the parse instructions contains the extraction instructions for a single Document Object attribute of the selected Document Object type.

The available settings are:

Attribute Name

The Document object attribute name for which the extraction settings of the row applies. For extraction of table attributes, see detailed section further down in this document.

Case sensitive word to search

The (case sensitive) search-word the serves as bases for finding the text block to extract.

Extraction range

Defines the range (text block) to be extracted relative to the search word.

Available ranges are:

- Sentence
- SentenceAndNextSentence
- SentenceRightOfDelimiter
- Paragraph
- ParagraphAndNextParagraph
- ParagraphRightOfDelimiter
- Section
- TableRow
- Cell
- CellAndNextRightCell
- NextRightCell

Details regarding the ranges are described below.

Consider the following example text:

Text: *“The device is important to our customers. It has to be user friendly. It must also be cheap.*

Color is not so important.

But surface texture is really important.”

2.4.7.1 Sentence

The sentence in which the search word is found.

Example settings:

| Attribute name | Case sensitive word to search | Range |
|----------------|-------------------------------|----------|
| Title | has to be | Sentence |

Extraction result: *“It has to be user friendly.”*

2.4.7.2 SentenceAndNextSentence

The sentence in which the search word is found as well as the following sentence.

Example settings:

| Attribute name | Case sensitive word to search | Range |
|----------------|-------------------------------|-------------------------|
| Title | has to be | SentenceAndNextSentence |

Extraction result: *“It has to be user friendly. It must also be cheap.”*

2.4.7.3 Paragraph

The paragraph in which the search word is found.

Example settings:

| Attribute name | Case sensitive word to search | Range |
|----------------|-------------------------------|-----------|
| Title | has to be | Paragraph |

Extraction result: *“The device is important to our customers. It has to be user friendly. It must also be cheap.”*

2.4.7.4 ParagraphAndNextParagraph

The paragraph in which the search word is found as well as the following paragraph.

Example settings:

| Attribute name | Case sensitive word to search | Range |
|----------------|-------------------------------|---------------------------|
| Description | has to be | ParagraphAndNextParagraph |

Extraction result: *“The device is important to our customers. It has to be user friendly. It must also be cheap.”*

Color is not so important.”

2.4.7.5 Section

The Section in which the search word is found (analogue to paragraph).

2.4.7.6 TableRow

Only applicable for Table Attributes. When extracting data for a table attribute the TableRow range should be applied to trig the “Table Attribute column mapping” section of the Parse Instructions.

In the following example, the following test instructions shall be extracted from a word document.

| ID | 132 | Revision | 2 |
|--|------------|--|---|
| Title | Login test | | |
| User stimuli | | Expected behaviour | |
| User logs in with valid credentials. | | User credentials are accepted. User is logged in | |
| User logs in with invalid credentials. | | User is not accepted. User is notified about failed login. | |

The following parse instructions are used.

| Parse Instructions | | | | |
|---------------------------------|-------------------|-------------------------------|--------------------|------|
| | Attribute Name | Case sensitive Word to Search | Extraction Range | Ir S |
| ▶ | TestInstructions | ▼ | TableRow | ▼ |
| * | | ▼ | | ▼ |
| | | | | |
| Table Attribute column mapping: | | | | |
| | Column Name | Case sensitive Word To Search | | |
| | Stimuli | ▼ | User stimuli | |
| ✎ | ExpectedBehaviour | ▼ | Expected behaviour | |
| * | | ▼ | | |

Thus, values in the column “User Stimuli” in the Word document will be applied to the column “Stimuli” in the Document Object etc.

Note that the search word is ignored when the range TableRow is used.

Column is an Incoming or Outgoing Trace Column

If a Table attribute column is an Incoming or Outgoing Trace column, the extracted values in these columns will be added to the Document Object as Incoming and/or Outgoing traces. Trace values in a cell can be delimited by semi-colon, comma, pipe, dot or new line.

2.4.7.7 Cell

Extracts the text in the cell in which the search word is found.

2.4.7.8 CellAndNextRightCell

Extracts the text in the cell in which the search word is found as well as the text in the next cell to the right (if such a cell exists)

2.4.7.1 NextRightCell

Extracts the text in the cell right to where the search word is found.

If a Text is constructed with a delimiter e.g. the text is to the right of a tab.

PRQ 12 *The Device must fit in a pocket. The length must not be more than 30cm.*

PRQ 23 *The Device must be light enough to be used by an 8 year old.*

Then apply:

2.4.7.2 SentenceRightOfDelimiter

Extracts the text starting to the right of the delimiter (\t in this case), full sentence.

2.4.7.3 ParagraphRightOfDelimiter

Extracts the text starting to the right of the delimiter (\t in this case), full paragraph.

Include search word (in extraction)

If checked the search word is included in the extracted data. If not checked the search word is removed from the extracted data.

Within chars from previous

The text to extract is expected to be found in the vicinity of the previously extracted attribute. The parameter defines how far the Importer shall search for the next attribute value to extract after the previously found attribute.

Optional

If checked, the Importer will, if it finds another search word in the list, skip the optional attribute.

If not checked, the Importer will search through the word document for the next search word in the Parse Instructions list regardless if it finds search words for other attributes.

Duplicate In

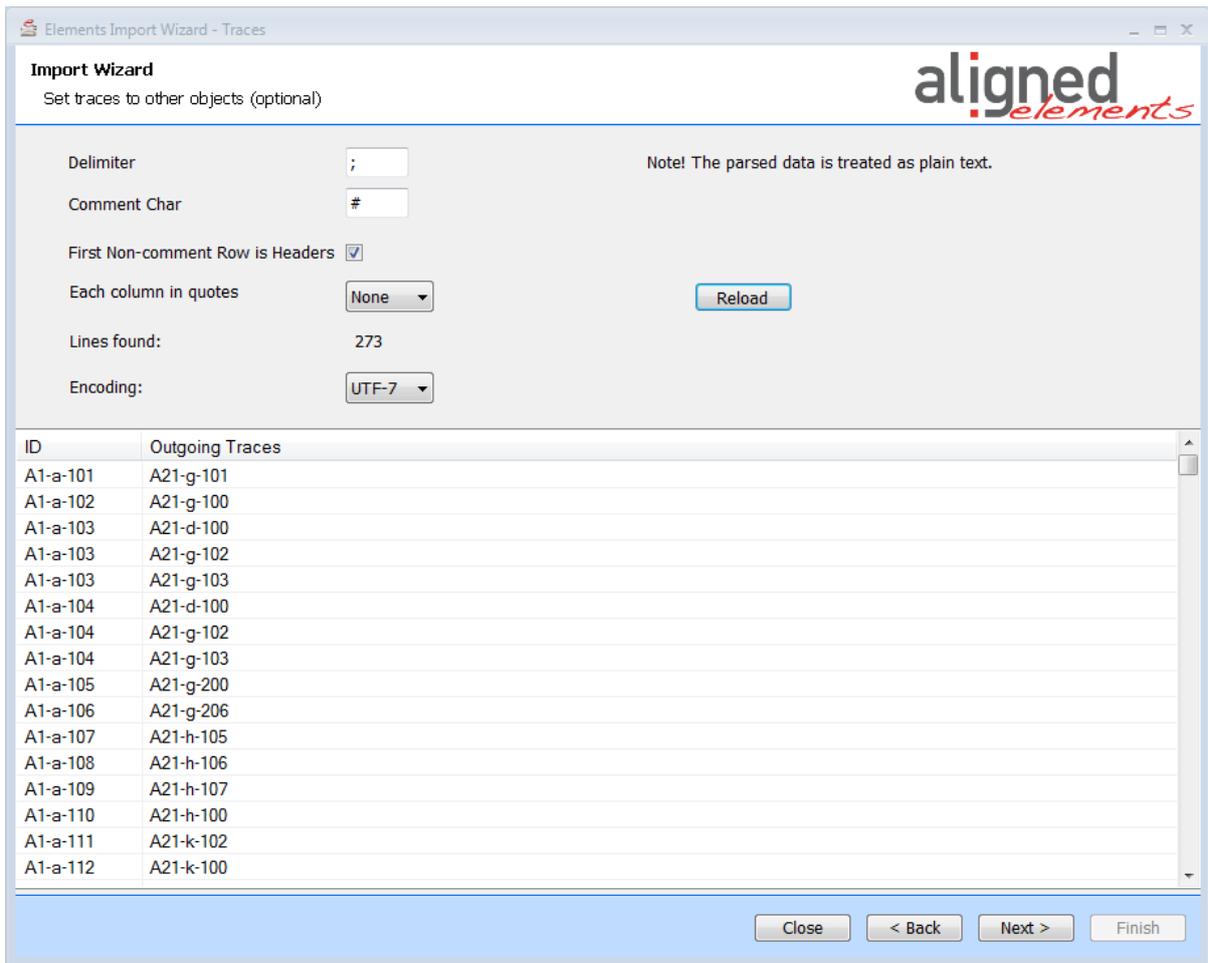
The extracted text will also be duplicated in another attribute. E.g. if you extract an ID and also wants to set the ID for the Title.

Delimiter

The delimiter used in SentenceRightOfDelimiter and ParagraphRightOfDelimiter.

2.4.8 Import Traces (Optional)

If you defined a trace source csv file in the first wizard step, you will be presented an additional CSV page for the trace csv file. Here you may define the ID column and columns for Incoming and/or outgoing traces in the table (see 2.4.4 on how to use the CSV settings page).



The trace-information will be included in the final file for all imported objects. Trace information can only be imported into Aligned Elements together with the objects themselves so if the trace csv file includes other trace relations than for the objects that you are currently extracting, this information will not be included.

If an item traces to several items than all target traces need to be on the same row (pipe delimited):

i.e.

| ID | Outgoing trace |
|------|------------------|
| AE_3 | BR_3 BR_12 BR_27 |

And not

| ID | Outgoing trace |
|------|----------------|
| AE_3 | BR_3 |
| AE_3 | BR_12 |
| AE_3 | BR_27 |

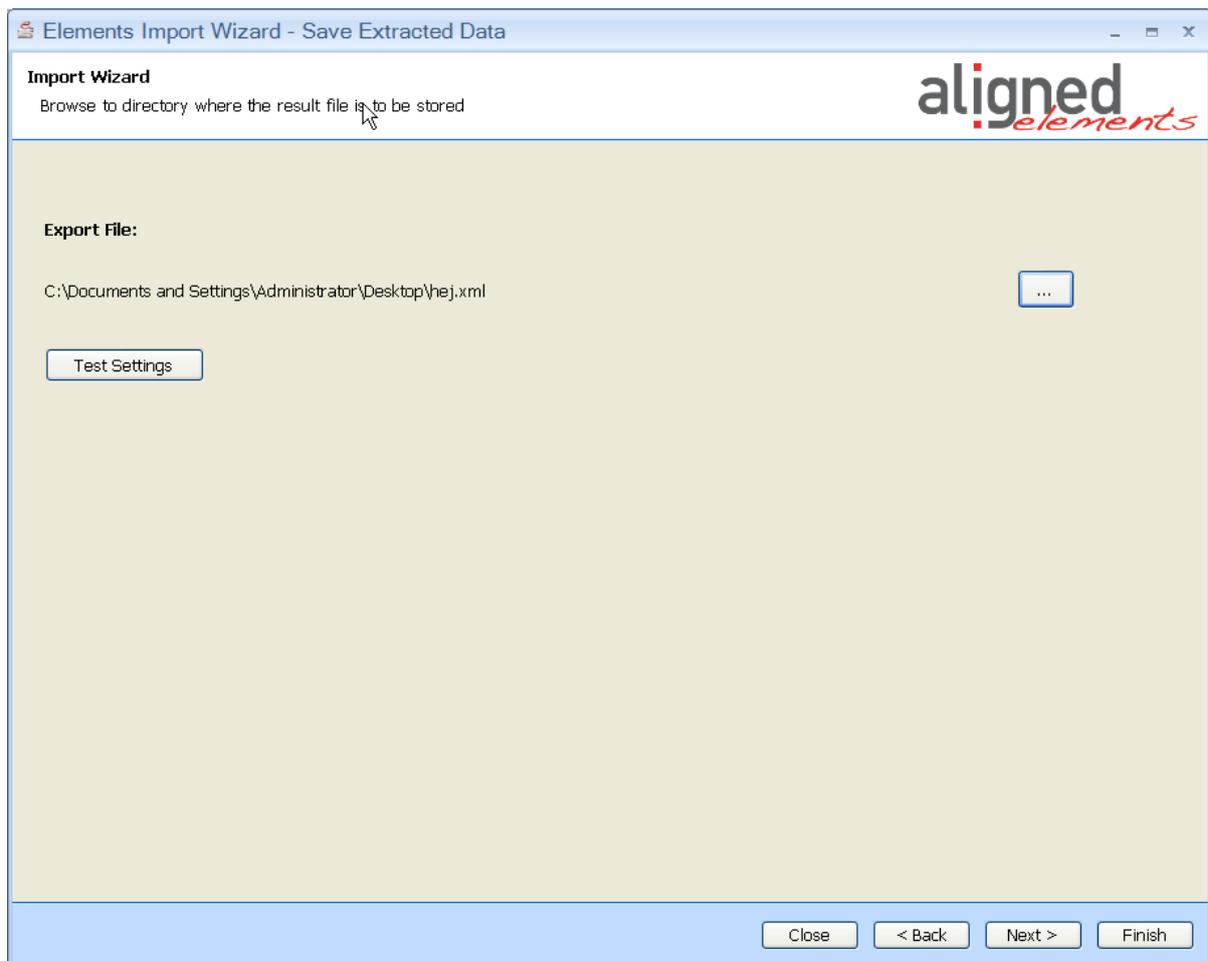
2.4.9 Testing settings / define result file name

Click the **Test Settings** button to test the parse instructions. A html document will be displayed in a browser containing an overview of the extracted data based on applying the extraction settings on the source documents.

Note that extracted data for Rich Text attributes are displayed as raw rich text.

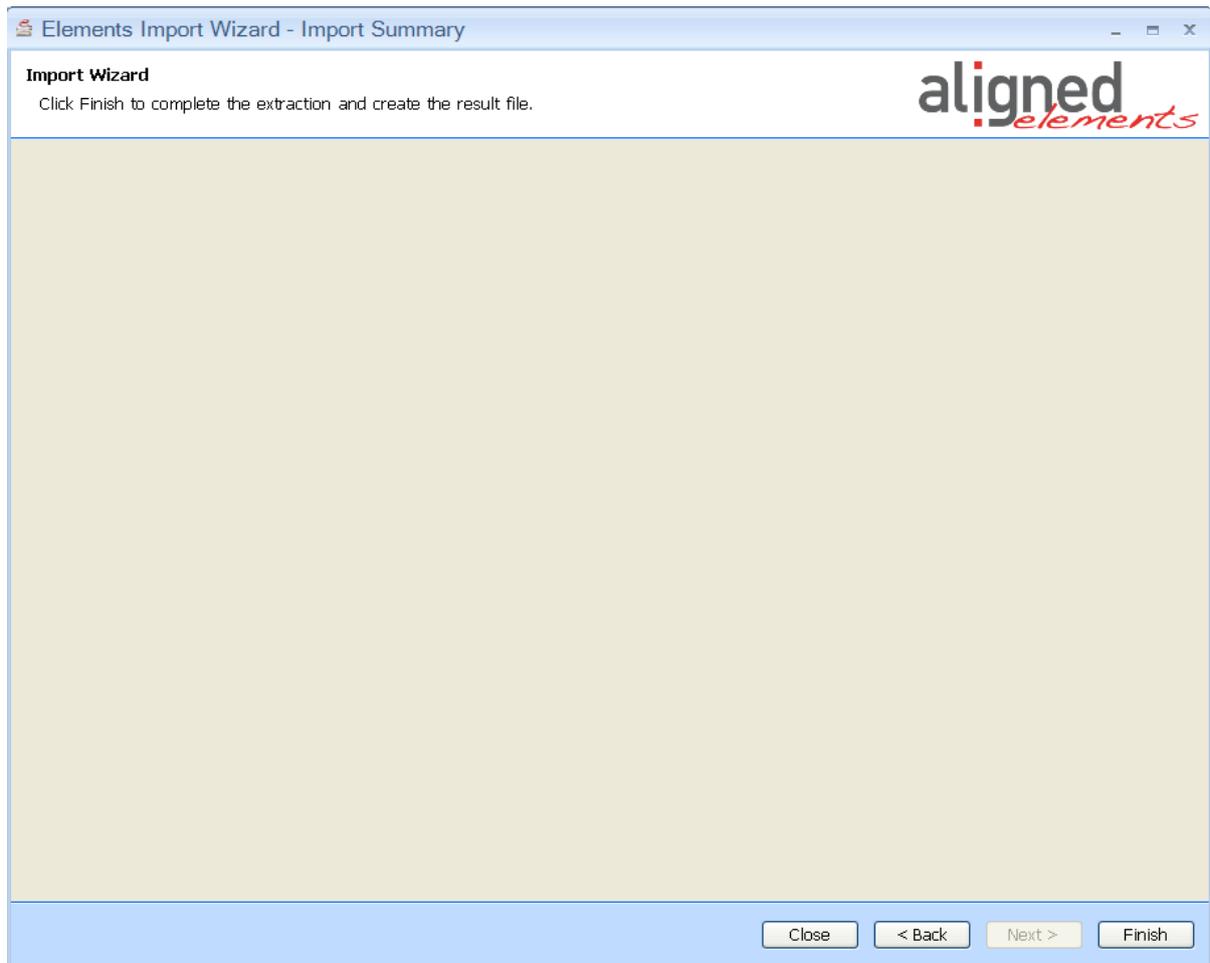
If the result is not as expected, go back and modify the settings.

If the results are as expected, browse to the target directory of the result file.



2.4.10 Extract results

Click on the Finish button to generate the result file.



Once the extraction is completed, the user is notified and asked whether the output should be displayed in an HTML form.

Subsequently the user is asked if the same extraction parameters shall be applied on any other document to import. If the user responds “Yes”, the user will be asked to select a file and the file will be processed.

2.5 Support

If you have problems with your extraction, contact us on support@aligned.ch. Please also attach:

- i. The input file
- ii. A screen shot of your settings
- iii. An explanation on what you expect from the extraction vis à vis the actual results.

2.6 Version Information

Version information about the Aligned Elements Importer is found by right clicking anywhere in the application and select **About**.