Telelogic Publishing Engine

DOORS Quick Reference Guide

Release 1.0

Before using this information, be sure to read the general information under Appendix, “Notices”on page 27.

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Telelogic Publishing Engine - DOORS Quick Reference

Data

TPE currently supports DOORS, Tau and generic XML data sources.

Queries and contexts

As mentioned in the Document Template section of the reference manual, a TPE template specifies the data to be extracted using *queries*. A *query* is a path in the data source schema.

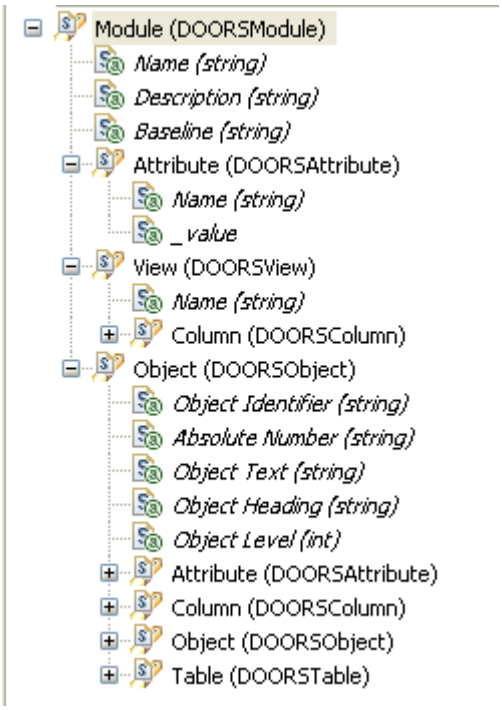


Figure 1 Sample DOORS Data Schema

NOTE For easier identification attributes are rendered in italic.

The Document Studio abstracts users from much of the complexity of manually writing queries with features such as drag and drop of schema elements. Nevertheless, it is still useful for template authors to understand the concepts of schema and queries and how they are constructed.

In the above data source schema some valid queries include:

Query	Description
module	returns a single result, the source module
module.object	Returns all the objects in the source module, as filtered/sorted by the source view
module.object.attribute	If used in a module.object context returns all the attributes for the current object.

A query can exist only in a template element. The template element and all its children can use the attributes of the entities returned by the current query and all of the queries from parent elements.

In the above example, if the query is *module.object* than any Object attribute from the schema can be used: Object Text, Object Heading etc

TPE template elements can be nested. Setting queries on elements and their children defines context. The query in the child element will be executed in the context of the parent's element query results.

Example:

Element 1: module.object

Element 1.1 (child of Element 1) : module.object.attribute

The second query will only return the list of attribute names for the current object returned by the query of element 1. In element 1 only the attributes of DOORS Objects can be used while in element 1.1 the attributes of DOORS *Object attributes* can be used (i.e the names of those Object attributes).

NOTE TPE Studio fully assists the user in building the queries and assigning the appropriate contexts. At no time you will be required to manually type a query.

Filtering data

Sometimes not all the data source is needed. In these cases you can limit the amount of processed data by setting a *filter* on the query. You can specify a filter in two ways:

- *TPE Filter* – Javascript expression using the data attributes of the entities returned by the query
- *native filter* – plain text that specific to each data source type.

When the query is performed, only the data entities matching the filter will be included in the output.

NOTE Not all data sources support native filtering.

NOTE For those data sources that support native filtering it is mandatory for the native filter to be a valid filter. TPE cannot and will not perform any validation on the native filter. Providing an invalid native filter can have results ranging from incorrect data in the output to the tool crashing.

NOTE For data sources accessed through TPE's Generic XML input driver it is not possible to define native filtering. The only exception to the rule is for the data sources where the filtering can be specified in the URL.

NOTE It is more efficient for filtering to be performed by the data source so whenever possible it is recommended to use a native filter as it should yield better document generation times than when a TPE filter is used.

Sorting data

Query results can be sorted. You can specify a filter in two ways:

- TPE Sort – the list of attributes and the sort direction (ascending/descending)
- Native sort – plain text that specific to each data source type. For DOORS this text must be in the format of the DOORS Sort

When the query will be performed, the elements will be displayed in the output document in the correct sort order.

NOTE Not all data sources support native sorting.

NOTE It is more efficient for sorting to be performed by the data source, so whenever possible it is recommended to use a native sort as it should yield better generation times than when a TPE sort is used.

DOORS Data

A **concrete** DOORS Data source is defined by a **view** from a **version** (i.e. Current version or a baseline) of a DOORS **module**. In this context the View is only used to define the filtered and sorted subset of data to use. By default the 'Standard View' is used that contains all Objects.

TPE can extract data from a DOORS database as long as a DOORS 9.1 Client is installed on the same machine. DOORS data can be extracted in two ways:

- Using a headless DOORS client run in the background
- Using an already running DOORS instance

The first method has the advantage of allowing continued use of any already running DOORS instances unhindered. The second method is slightly faster as the overhead of starting DOORS does not exist. The run mode is specified in the Document Specification using the TPE Launcher, by setting the *new_instance* property for each DOORS data source defined in the template.

NOTE TPE opens all the required modules in read-only access mode.

NOTE The data is extracted using DOORS DXL. On average the DXL execution time accounts for ~90% of the document generation time.

NOTE If the interactive run mode (using an existing DOORS instance) is set for a DOORS data source and no DOORS instance is running the data extraction will fail for that data source.

Configuring a concrete DOORS Data Source

When a DOORS data source is present in a Document template you need to define the following properties for the concrete data source:

Property	Description	Interactive DOORS Client	Headless DOORS Client
URI	The absolute path of the DOORS module in the database. **Case sensitive**	required	required
module_id	The module's unique ID. Used if the URI is not specified, ignored otherwise.	optional	optional
doors_home	The absolute file path of doors.exe	required	required
doors_param	The database to connect to and any other valid DOORS command line switch. Default: *-data 36677@localhost*	required	required
username	The DOORS account name to use for data extraction	not used	required
password	The DOORS account password (encrypted)	not used	required
baseline	The module version to use. **Case sensitive** Default: *Current*	required	required
view	The view to use for filtering/sorting. **Case sensitive** Default: *Standard View*	required	required
new_instance	If set to true a headless DOORS client is used otherwise TPE will attempt to use an existing DOORS instance. Values: *true/false* Default: *true*	-	-

NOTE Providing an incorrect value for any field marked as required (except *view* and *baseline*) will result in the output not being generated.

Providing an incorrect value *view* or *baseline* will result in the output being generated from the Standard View of the current module version.

DOORS Schema

The DOORS schema was designed to be simple to use and to match closely the DOORS module structure. TPE comes with a predefined DOORS schema that is generic and valid for all DOORS Formal Modules, but new DOORS schemas can be created using the “Schema Discovery” wizard in TPE Studio.

NOTE The predefined DOORS schema is suitable when you are not interested in extracting particular user defined attributes from DOORS but rather the whole content of a view or all of the attributes of the DOORS Objects. When particular user defined attributes are required it is recommended to use the Schema Discovery wizard to generate a schema on your specific data.

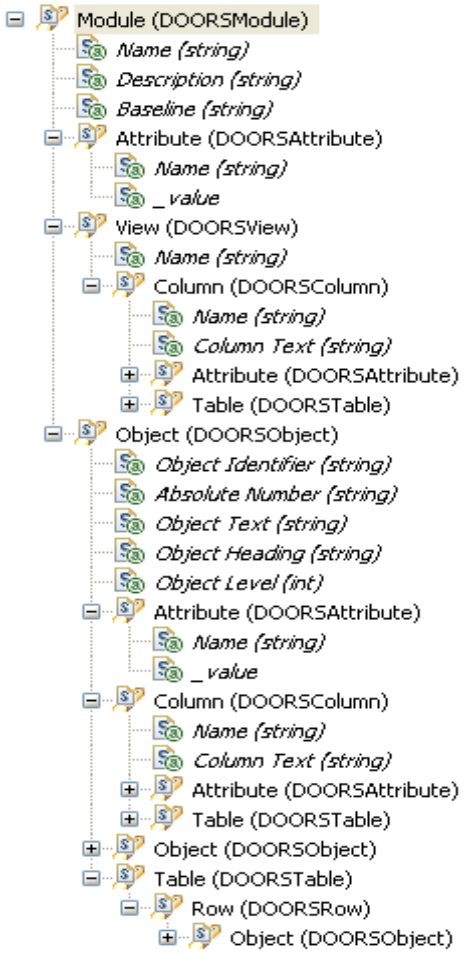


Figure 2 Predefined DOORS Schema

Queries and attributes

The following queries and attributes are from the default DOORS schema provided by TPE. User defined schemas will contain additional queried and/or attributes.

Query	Results	Attributes
Module	a single entity, the Module specified in the data source configuration	• *Name* - the Module's name • *Description* – the Module's description • *Baseline* – the Module version (baseline) used
module.attribute	the list of Module level attributes for the current Module	• *Name* – the attribute's name • *_value* – the attribute's value
module.view	a single result, the View defined for each DOORS data source in the document specification	• Name – the name of the View
module.view.column	the list of columns for the selected View NOTE The purpose of the *module.view.column* query is to provide a list of the column names without having to iterate the Module Objects. The result does not contain column data.	• Name – the name of the column • _value – empty
module.object	the list of all Objects of the specified version of the current Module's as filtered/sorted by the selected View	• Object Identifier • Object Text • Object Heading • Absolute Number • Object Level • Any attribute elevated by the user in the schema discovery wizard
module.object.attribute	the list of attributes for the current Object if this query is in the context of a *module.object* query, or the list of all attributes for all Objects in the Module	• *Name:* the attribute's name • *_value:* the attribute's value

module.object.column	the list of columns in the selected View for the current Object	• *Name:* the column's name • *_value:* the column's value for the current Object
module.object.table	no results if the current Object is not a DOORS table a single result, (the DOORS table) if the Object is a table header Object	none
module.object.table.row	the current table's rows	none
module.object.table.row.object	a collection of Objects; the current rows' cells. Same attribute list available as for the *module.object* query	• Object Identifier • Object Text • Object Heading • Absolute Number • Object Level

Images

Images are extracted with the attribute's value. You do not have to (nor can you) specify that you want to extract the images in a DOORS module. What you can configure is the size of the extracted images. The max size is specified through the "image max width" and "image max height" properties. These properties can be specified in two places:

- *element format info*– defines the images min/max size for the images contained in that template element

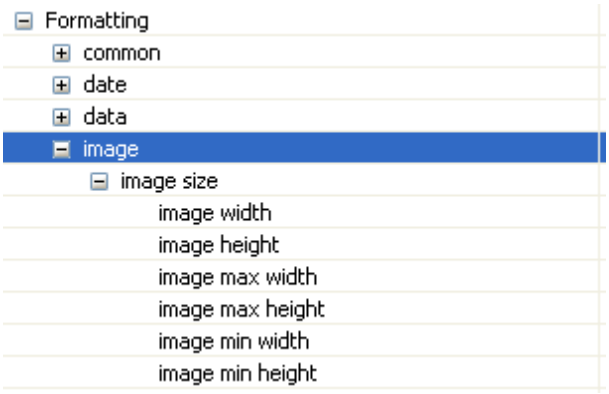


Figure 3

- *document specification metadata* - defines the image's min/max size for all the images in all the templates. The element level values override these global values.

date	Nov 5, 2008
time	4:52:18 PM
client	Launcher
machine	spurlos
build	1_0_20081104
data formatting	mixed
date pattern	yyyy.M.d
output locale	
image max width	
image max height	
OLEs as static images	true

Figure 4

OLEs

TPE can extract OLEs from a DOORS data source. How the OLEs reach the output document depends on the output type and the options selected in the document specification.

OLEs will always be rendered as images in HTML and PDF output as those formats do not support OLEs.

For Word output the OLEs will be rendered as static images or as OLEs depending on the "OLEs as static images" flag in the metadata section of the document specification.

If *"OLEs as static images"* is set to TRUE, OLEs will be included in the output document as static images.

If *"OLEs as static images"* is set to FALSE, TPE will generate a "ref" folder in the same location as the Word output document. The ref folder contains RTF files for the OLE objects in the DOORS data source. The word output will have one include field pointing to a RTF file for each OLE exported from DOORS.

NOTE TPE cannot update Microsoft Word fields. As a consequence the include fields will not be visible when you open the generated Word document. To make the fields visible you need to take one of the following actions:

Action	Result
select the entire document content and use the "Update fields" function in Word	The OLEs are displayed in the document. The document is **not** self-contained.
use the "updateFields" macro provided by TPE	The OLEs are displayed in the document. The document is **not** self-contained.
use the "insertOLEs" macro provided by TPE	The OLEs are displayed in the document. The document **is** self-contained.

NOTE Updating the fields in the document will not make the Word document self contained. This means that moving such a Word document from the machine it was generated on will prevent editing the OLEs. To make the document self contained you need to run the “insertOLEs” macro.

Tables

You need to explicitly query for DOORS tables as they are not extracted automatically from DOORS. Manually adding the queries for extracting a table requires extra effort when building the template but it has the advantage of allowing fine grained control over the formatting of the table.

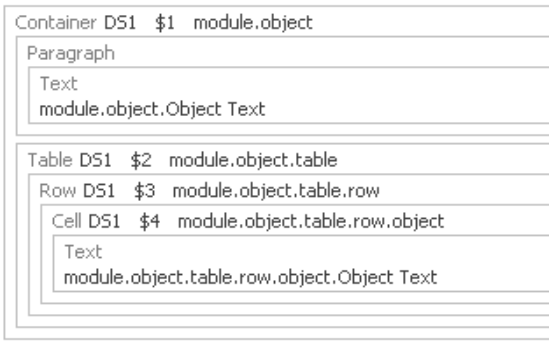


Figure 5 Extracting tables from DOORS

NOTE Due to how TPE handles elements, the table will only get created for those DOOPS objects that start a table.

NOTE The cells of a DOORS table do not have a dedicated type in the DOORS schema. The content of the cells can be retrieved through the *module.object.table.row.object* query.

NOTE In the case of objects that are DOORS Table cells their *Object Text* attribute is a combination between *Object Heading* and *Object Text*.

What cannot be extracted

TPE does not allow the user to produce documents on the DOORS database structure. Furthermore TPE does not provide the means to query the *module’s baseline list* or the *module’s list of views*.

NOTE A DOORS Data Source in TPE is defined by the <*module, baseline, view*>. If you want to extract data from more than one module or baseline or view, you can do this in three ways:

- Define more than one DOORS Data Source in the template and add the corresponding template elements

  or

- Add the same template multiple times to the document specification and configure the data sources for each template instance to the desired <module, baseline, view>

Add multiple templates to the document specification and configure the data sources for each template instance to the desired <module, baseline, view>

DOORS Schema Discovery

The wizard guides you in building a schema for a specific DOORS module. This will greatly simplify authoring document templates for modules with the same structure (same or similar attribute list)

Start the wizard

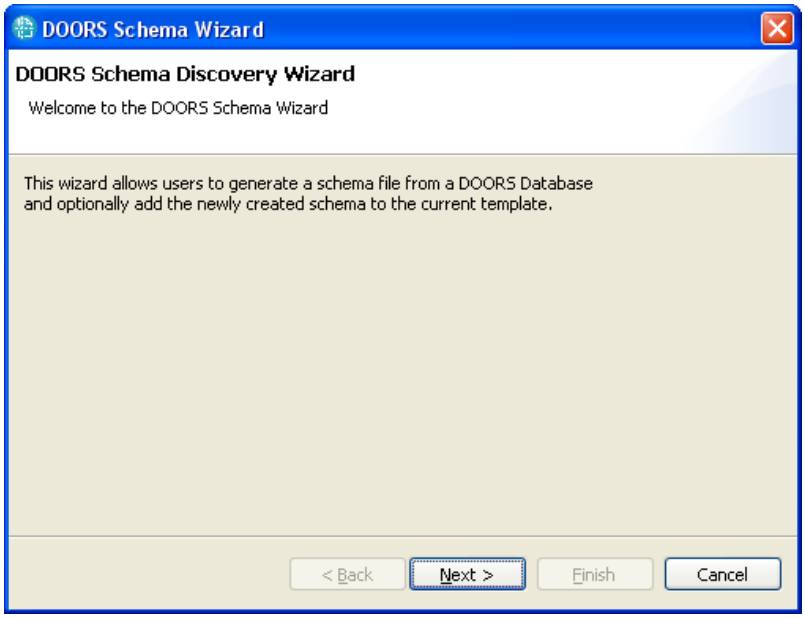


Figure 6

Configure DOORS Connection

Specify how you want TPE to connect to DOORS in order to discover the schema.

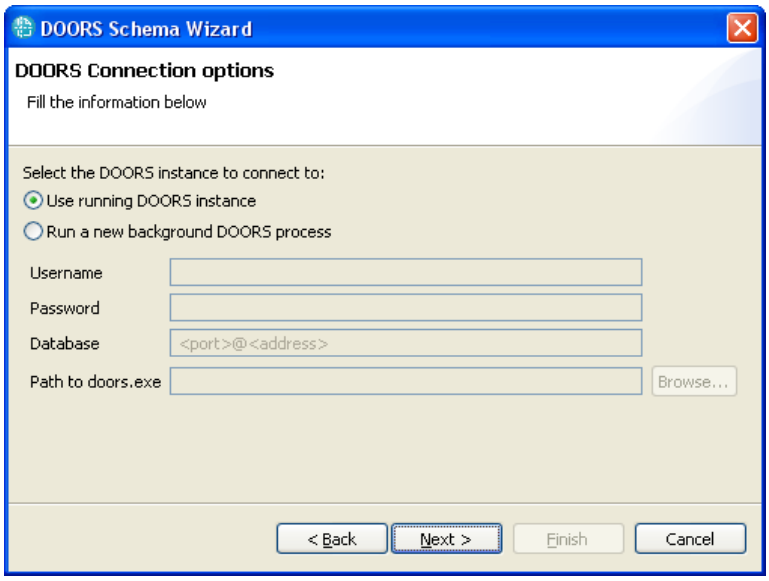


Figure 7

Select for which module you want to discover its schema

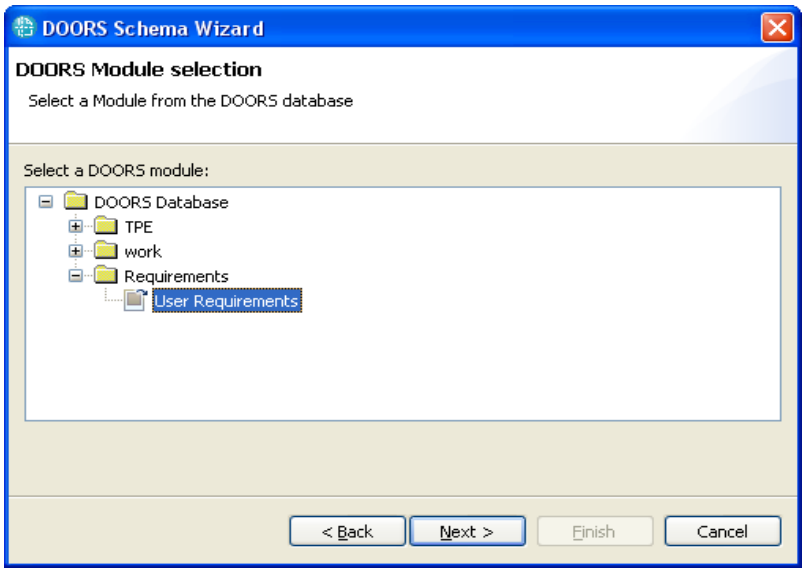


Figure 8

Select the baseline from where to read the attributes

Once you've selected the module you need to specify the module's baseline you want to use. The selected baseline will determine which attribute set to use.

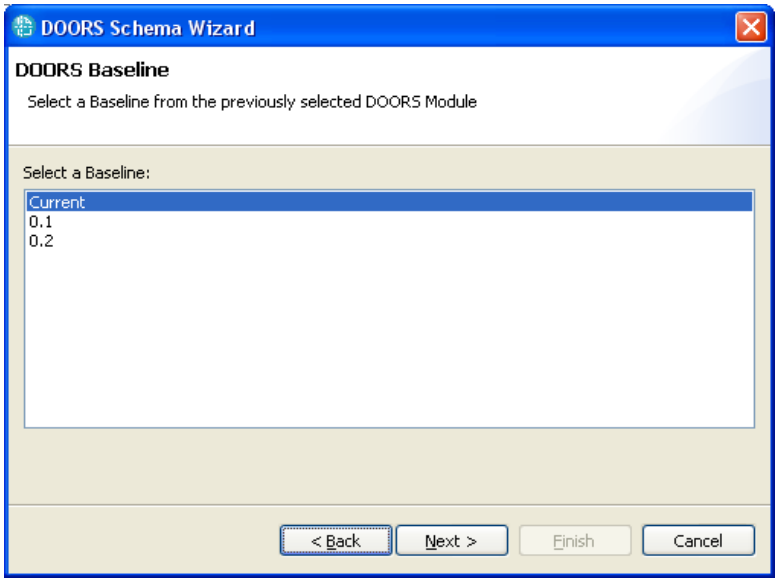


Figure 9 Selecting the baseline

Select the attributes to elevate

This screen allows you to select the attributes to use. The attribute set is taken from the baseline selected in the previous screen.

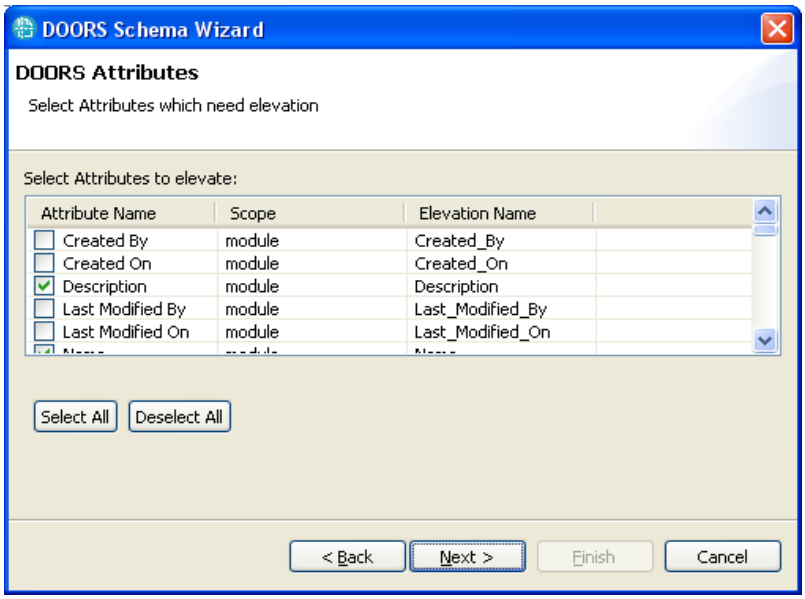


Figure 10 Selecting attributes

An elevated attribute allows direct access to that attribute's value from a *module.object* context. Non elevated attribute values are available only from a *module.object.attribute* context.

NOTE You can select the attribute set from any baseline of the module but you cannot have attributes selected from 2 different baselines.

NOTE The elevated name is the name used in script expressions. Hence it must be a valid JavaScript identifier. TPE will generate a valid name out of the DOORS attribute name and will prevent you from changing it to an invalid name.

NOTE The selected baseline is used for the sole purpose of defining the attribute shown to the user. This information (the baseline used to elevate the attributes) is not used at document generation time. If one attribute does not exist in the baseline used for document generation nothing will be rendered for it in the output.

Select the columns you want to elevate

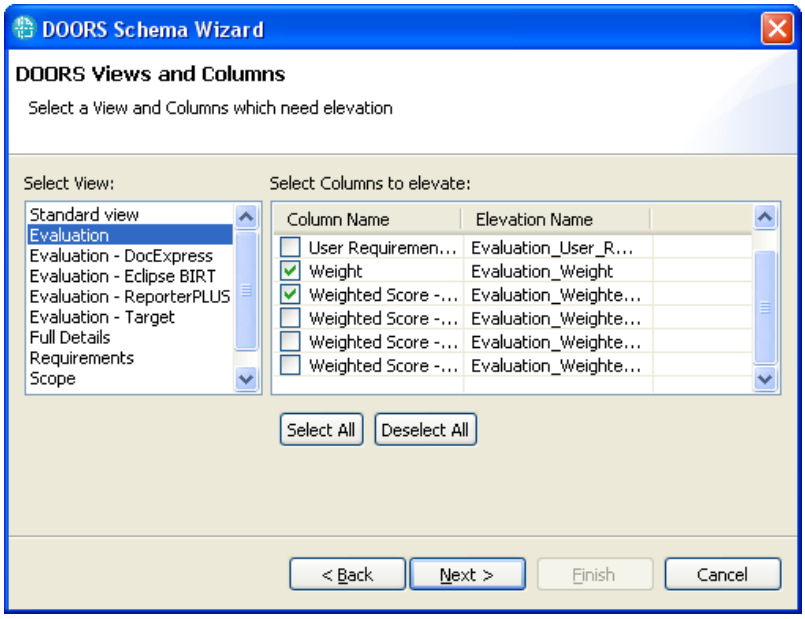


Figure 11

An elevated attribute allows direct access to that attribute's value form a *module.object* context. Non elevated attribute values are available only from a *module.object.column* context.

NOTE You can elevate columns from any number of views.

NOTE With the current TPE version you can elevate only columns that do not contain < or >.

NOTE The elevated name is the name used in script expressions. Hence it must be a valid JavaScript identifier. TPE will generate a valid name out of the DOORS column name and will prevent you from changing it to an invalid name.

Save schema and add it to the current template

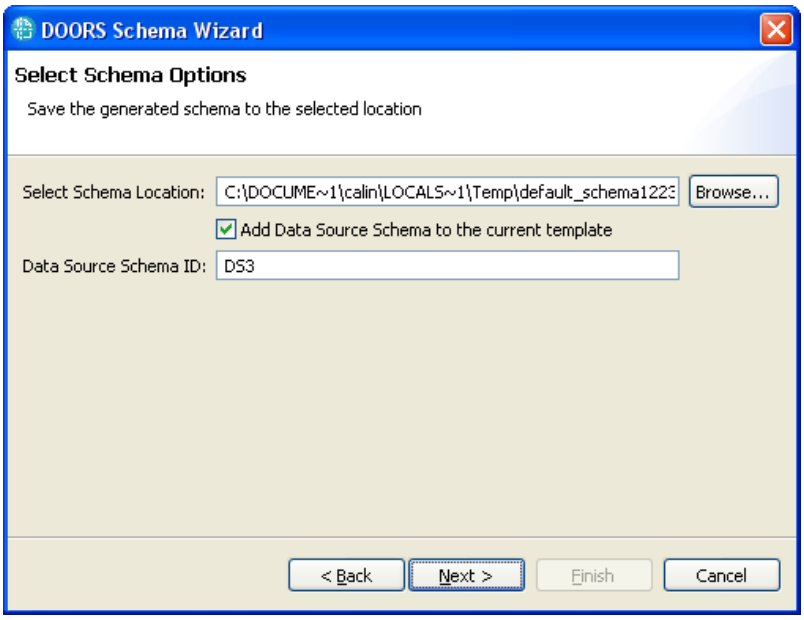


Figure 12

NOTE You should save discovered schemas so you can reuse them in other templates without having to run the schema discovery wizard again.

Review changes and finalize the wizard

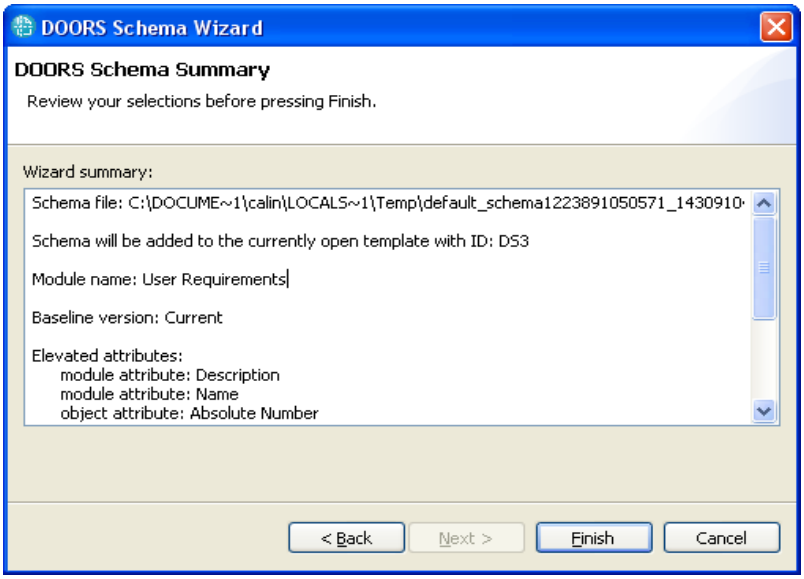


Figure 13

DOORS Addin

TPE integrates with DOORS to allow DOORS user to generate documents from within their familiar environment. TPE allows a DOORS user to generate documents based on predefined document templates or specifications.

The integration is available both within a module as well as from the database explorer

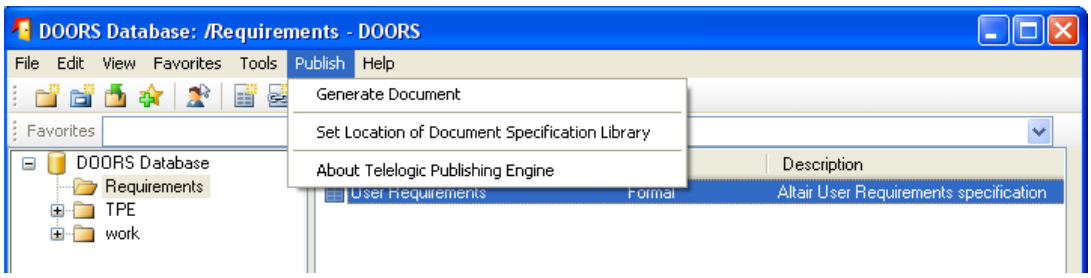


Figure 14 TPE Addin in database menu

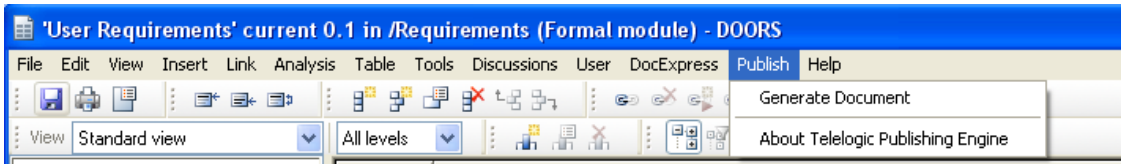


Figure 15 TPE Addin in module menu

Before using the integration a DOORS Administrator needs to set the location for the “Document Specification Library”. The Document Specification Library is a folder on the local or network file system used to host document templates and specifications to be shared by all users. The library can contain subfolders to structure the templates as needed, and standard filesystem access rights can be used to control which templates and document specifications are visible to which users.

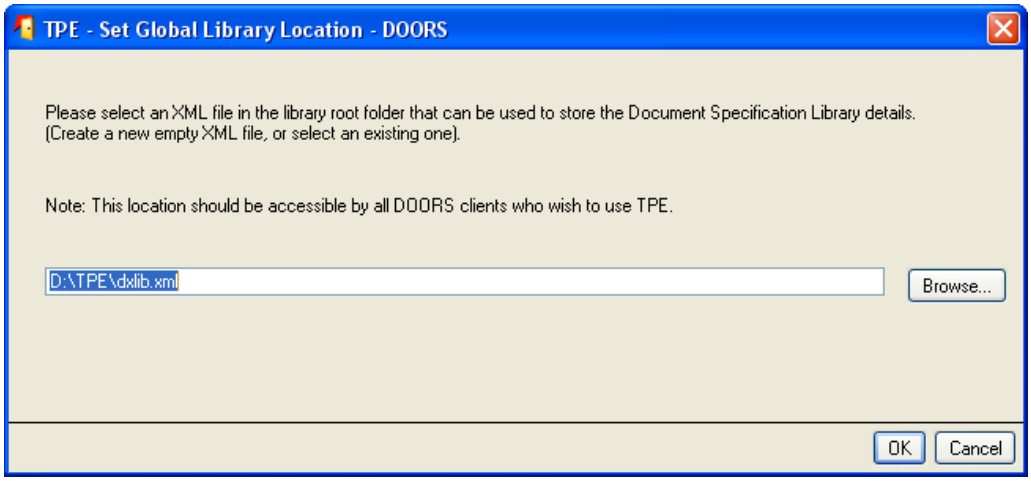
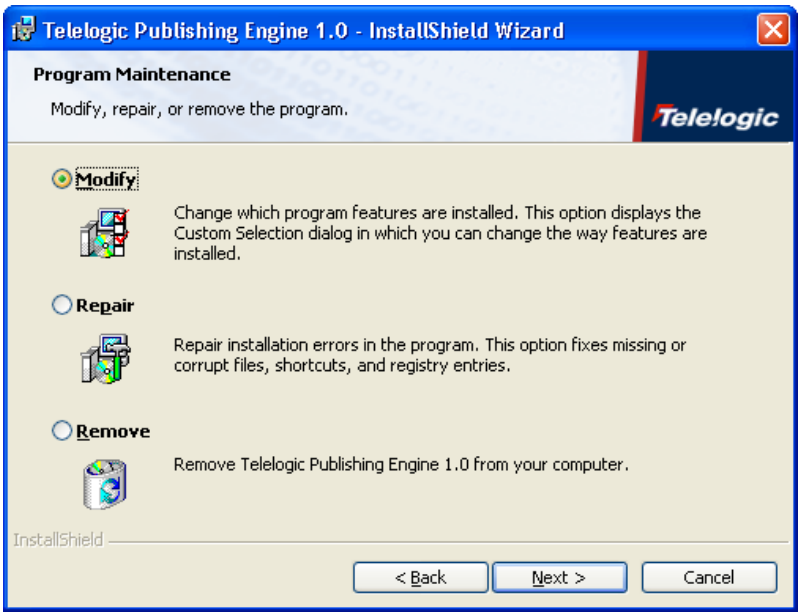


Figure 16 Setting the Document Specification Library

Installation

The TPE addin for DOORS is automatically installed by TPE if a valid DOORS installation is found. If you install DOOR after you have installed TPE you can install addin by running the TPE installer again with the option to modify the existing installation.



Usage

To publish a document from within DOORS you need to follow a set of simple steps.

Select the document template/specification.

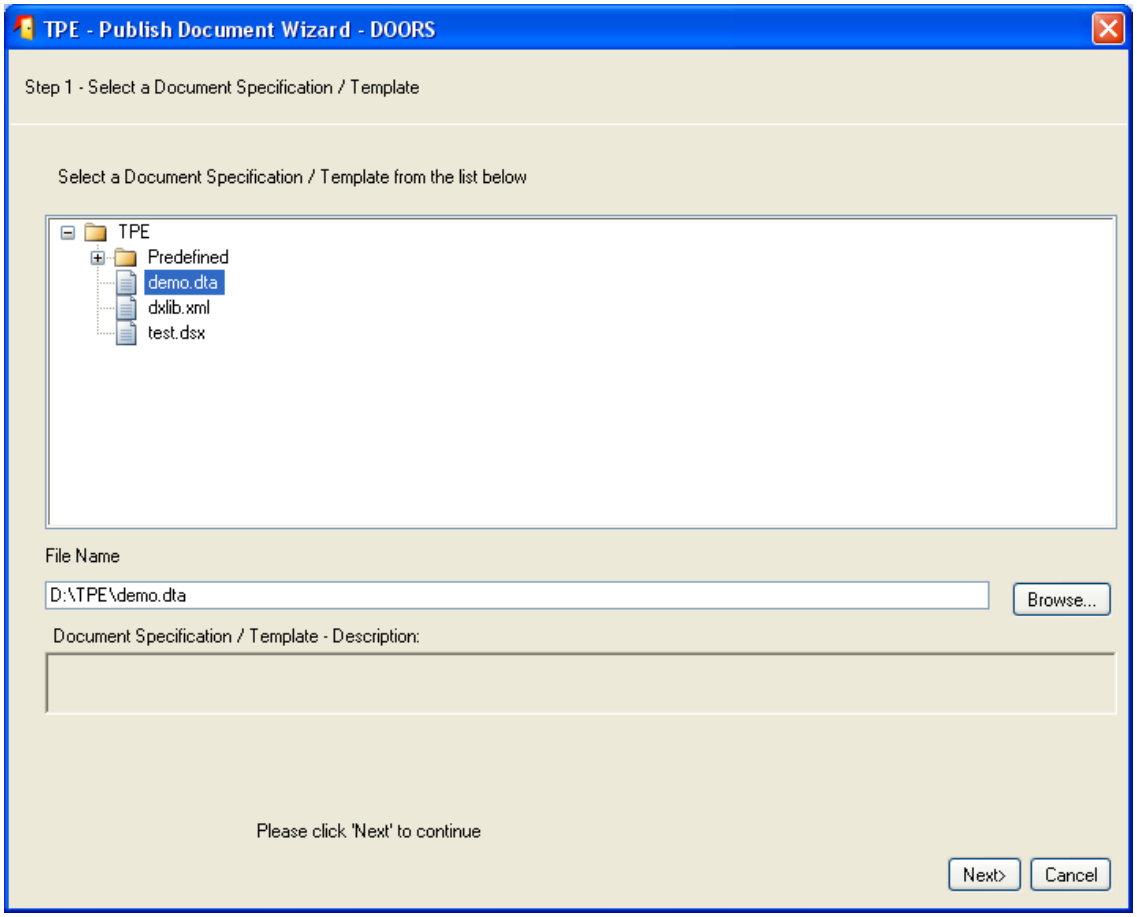


Figure 17

If the document template/specification is not in the library use the browse button to select it.

NOTE The description field is not filled in the current TPE version.

Select the data sources to be used

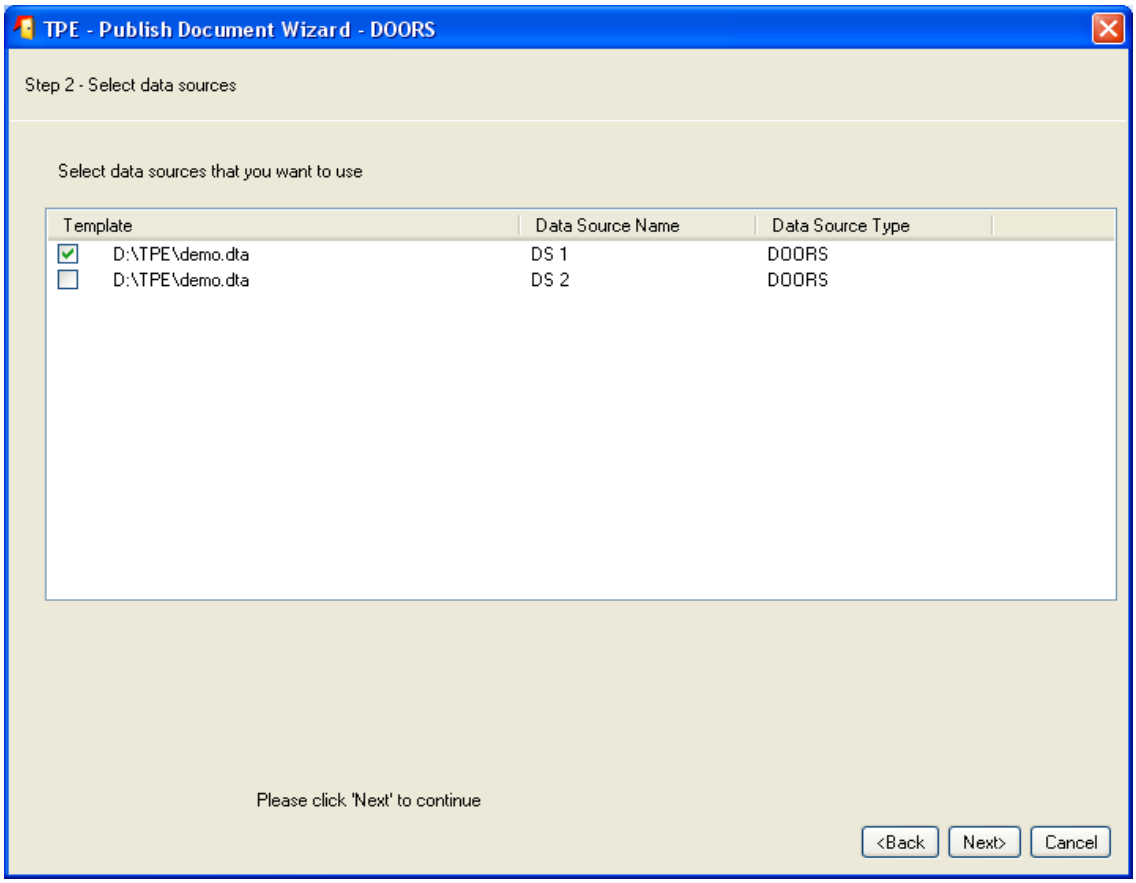


Figure 18

NOTE A data source that is not selected in this screen will be ignored during the document generation process.

NOTE If no DOORS data source is selected, the wizard will not continue.

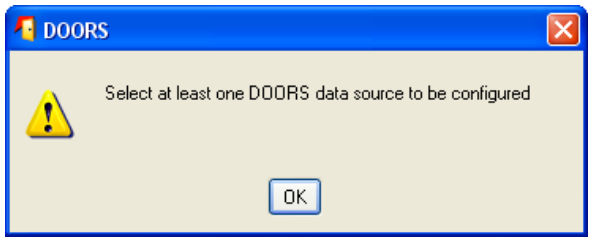


Figure 19 Warning message

Configure the data sources

Applicable when running from the Publish menu in the DOORS database explorer

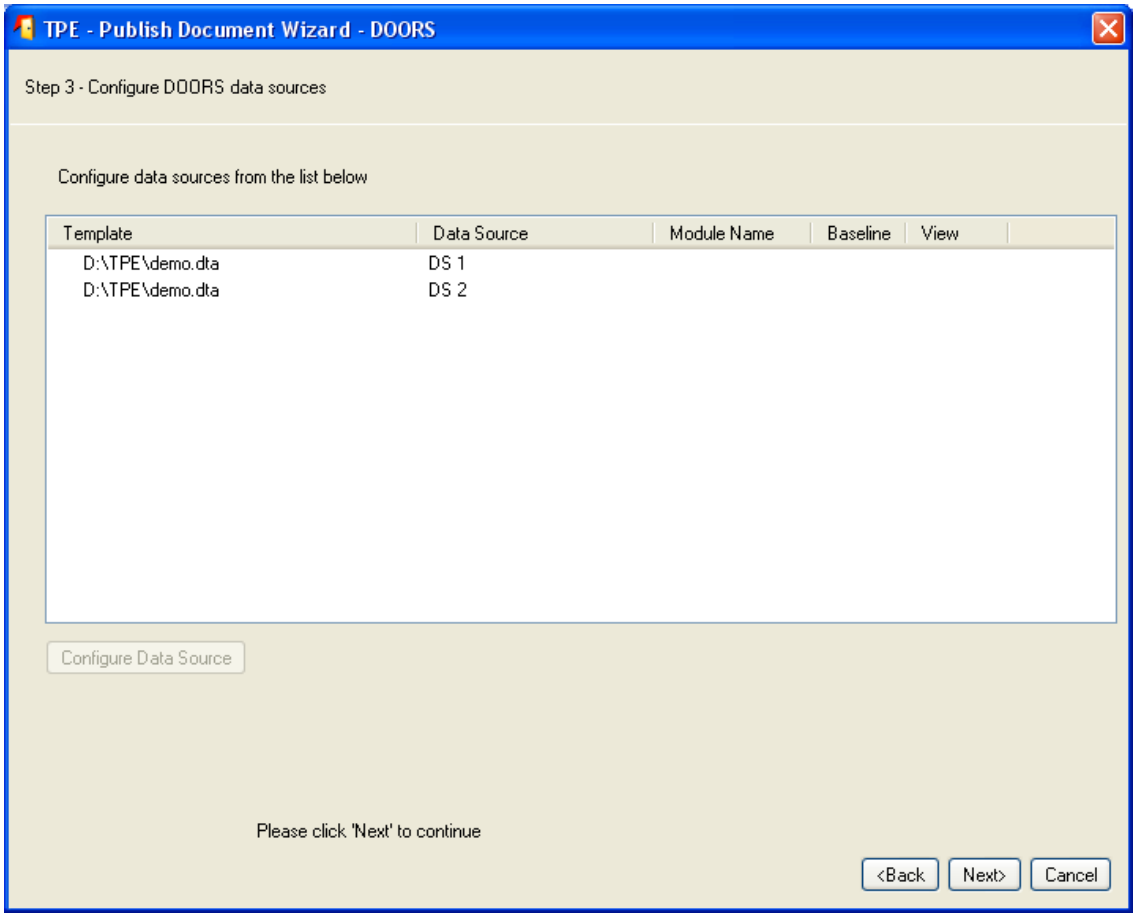


Figure 20 Configure data sources screen

NOTE If you are publishing a document template the DOORS data sources are left empty.

If you are publishing a document specification, the DOORS data sources are initialized with the configuration set in the document specification.

NOTE You can only configure DOORS data sources. If you are using a document specification, any existing configuration for non-DOORS data sources will be preserved.

Configure the data sources

Applicable when running from the Publish menu in a DOORS Module.

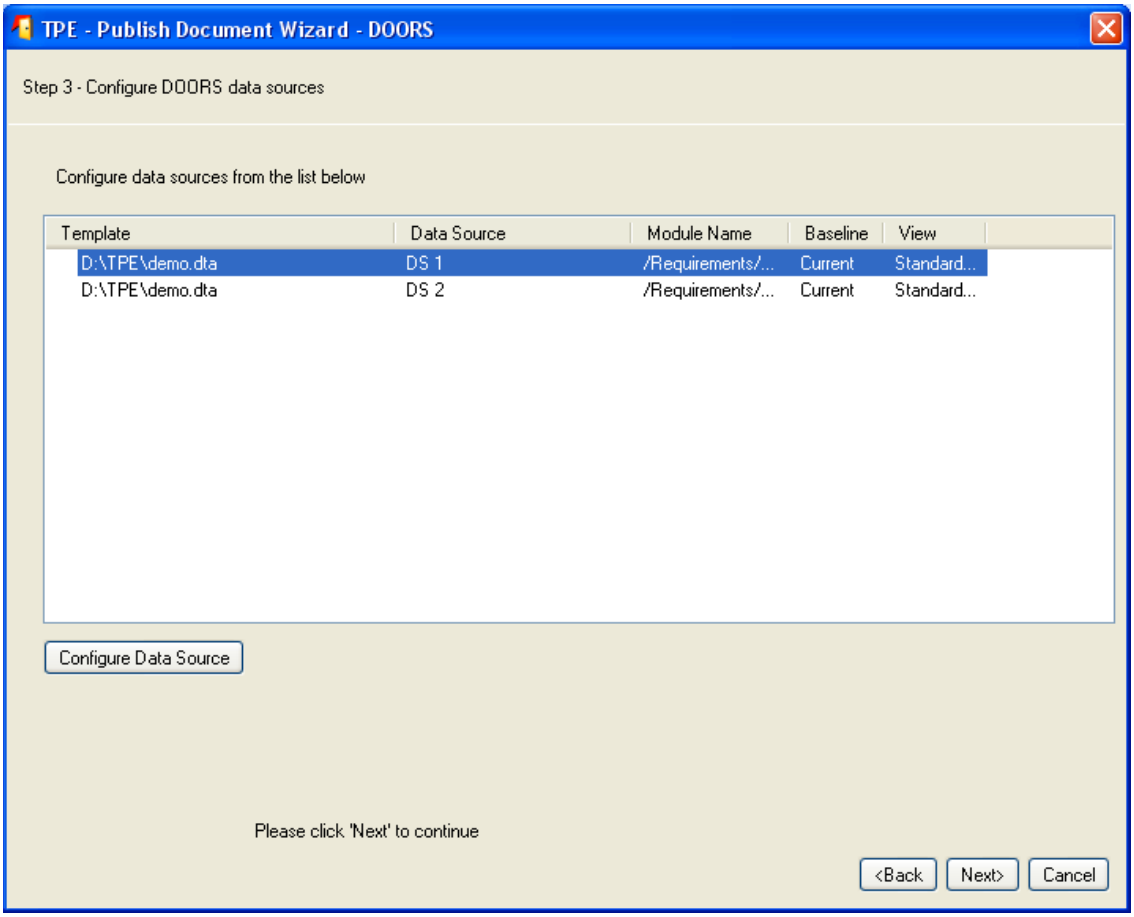


Figure 21

NOTE The DOORS Data sources are initialized with the current module, view and baseline. If you are publishing a Document Specification any existing DOORS Data Source configuration is automatically overridden (though you can still manually change each)

NOTE You can only configure DOORS data sources. If you are using a document specification, any existent configuration for non-DOORS data sources will be preserved.

NOTE If not all selected DOORS sources are configured TPE will issue a warning but will allow you to continue.

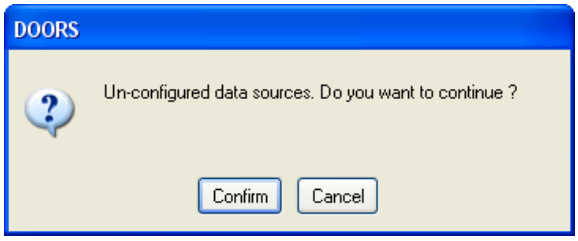


Figure 22

Configuring a data source

If you want to change module/baseline/view assigned to a data source you need to select the data source in the list and click the “Configure Data Source” button. The structure of the database will be displayed in a new window allowing you to select the desired module/baseline/view.

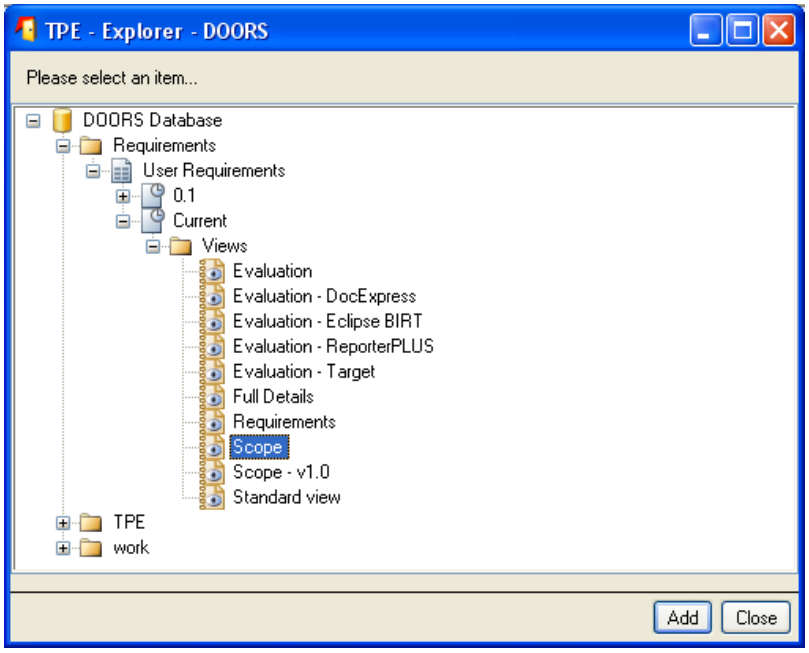


Figure 23

Configure the output

Once all data sources are configured you can define the document outputs that you want to use.

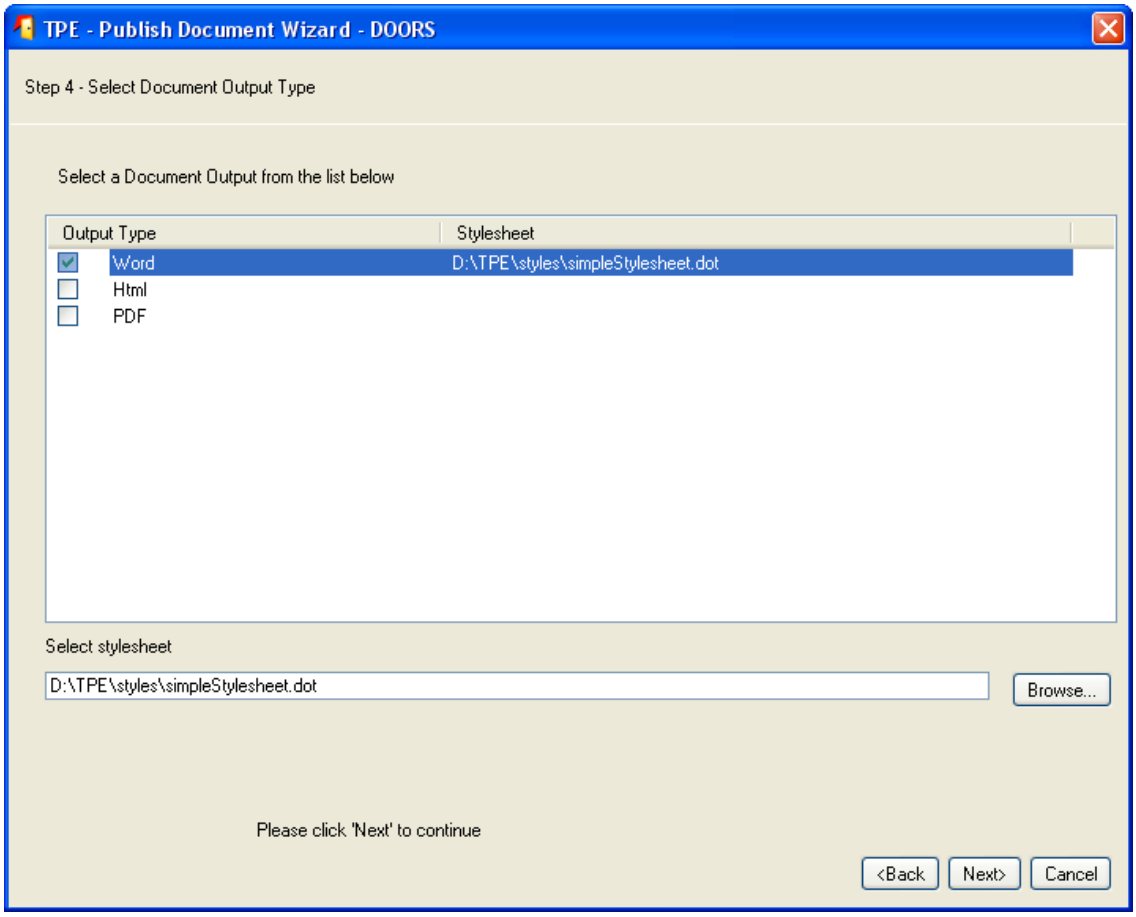


Figure 24

For each document output you can specify the stylesheet to be used (where applicable). To assign a stylesheet to an output format you need to do the following:

- select the output format in the list
- browse for the desired stylesheet

Document generation options

Once the data sources and output formats are configured you are prompted with options for running the document generation. You can:

- publish the document immediately

- create a document specification based on the options made in the wizard
- both

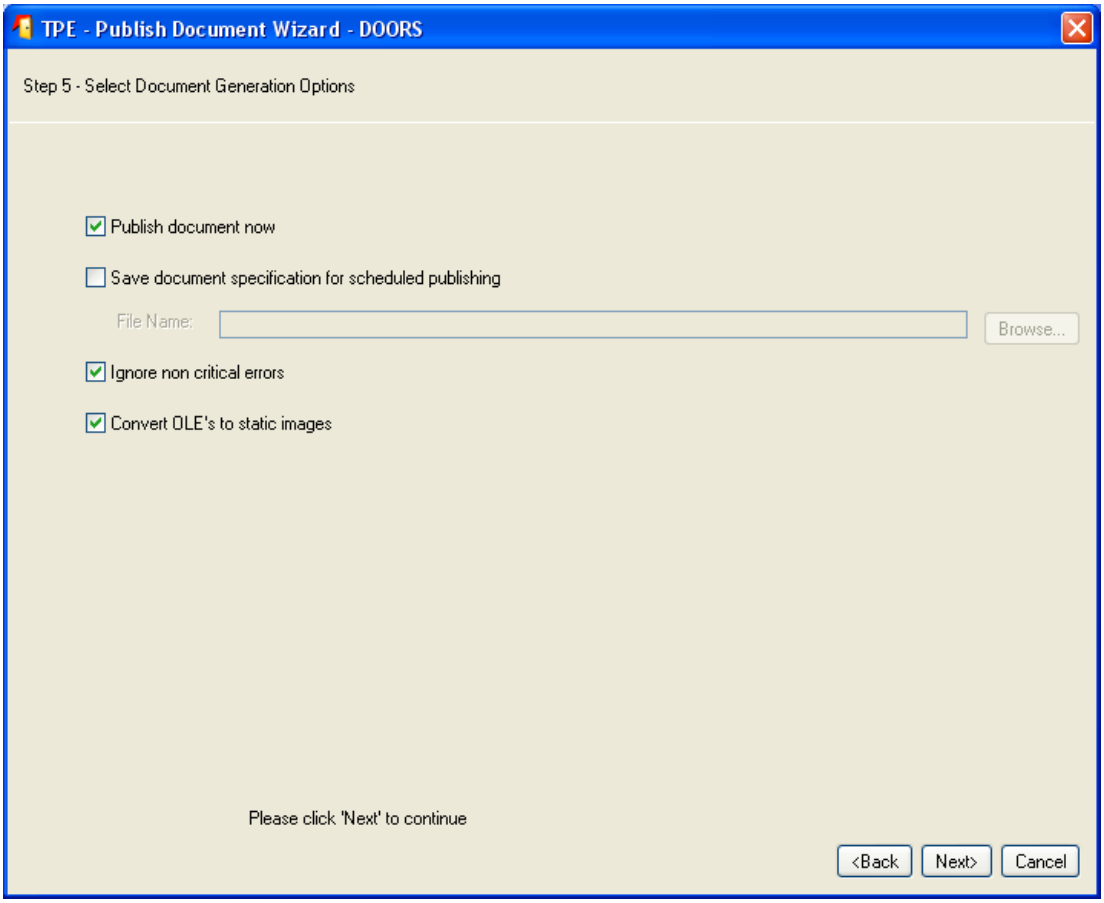


Figure 25

NOTE If “Convert OLE’s to static images” is checked, the Word output document, if selected, will contain images instead of OLEs.

NOTE If “Convert OLE’s to static images” is unchecked, you need to run the “insertOLEs” macro to get the OLEs embedded in the Word output.

Summary page

Before closing the TPE Publish wizard will display a summary page with all the choices made.

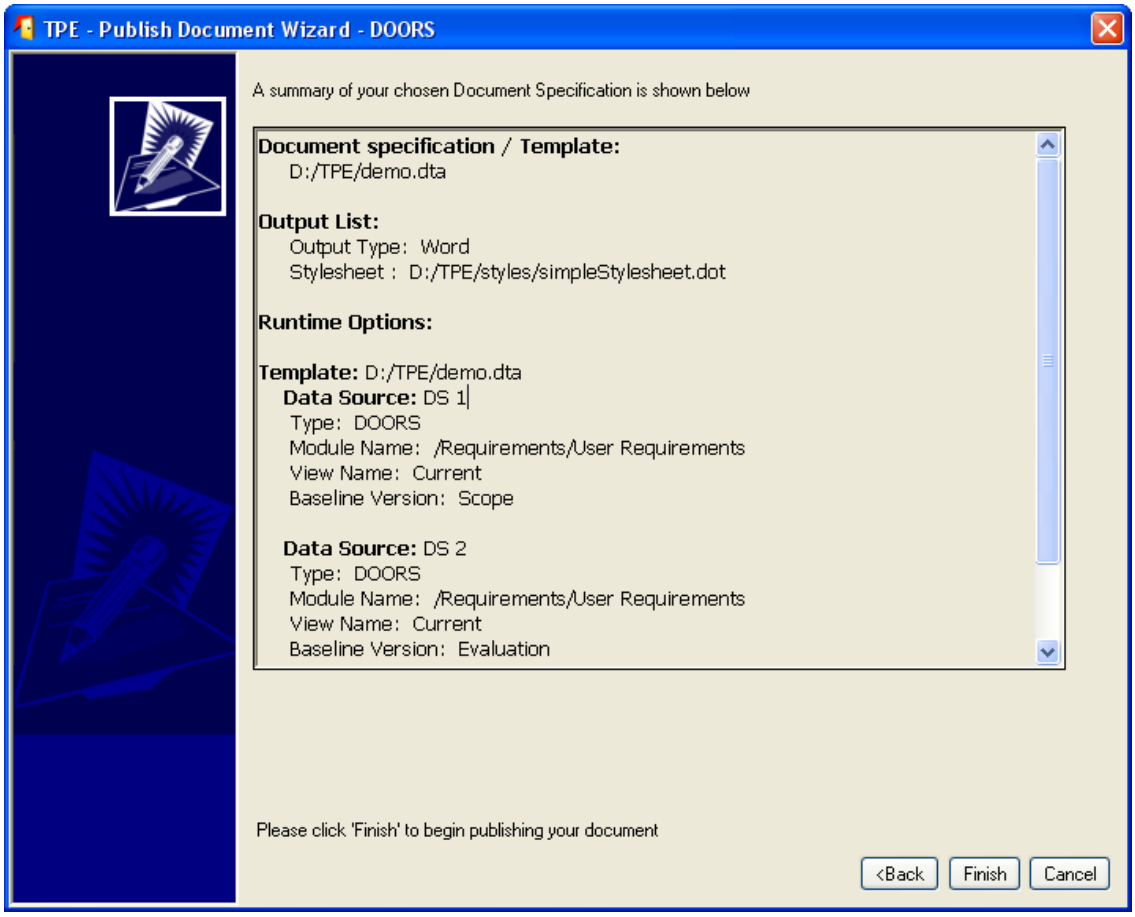


Figure 26

Press Finish to complete the wizard and start the document generation (if option selected).

NOTE The document generation is started as a separate process from DOORS but TPE will use the existing DOORS instance to extract data.

Appendix: Notices

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