Author Getting Started Manual

Thomson Reuters Contract Express

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This will automatically replace any selected text with field brackets and the Markup Editor will display the placeholder text "Enter field markup" where you can type in your field. 77

Your questionnaire is now ready to view. Update page and group names and consider adding guidance text to make questionnaire navigation easier. You can also add new groups and pages and drag and drop variables to move variables to another group. 84

The sections below explain how to create questionnaire pages and groups manually and how to customize their display... 84

1. Key concepts in Contract Express

1.1 What is Contract Express?

Contract Express® enables law firms and corporations to create standardized legal documents from templates. There are two main products:

- **Contract Express**: The flagship web-based document assembly solution that provides law firms with a single platform to allow users within the firm to create documents from automated Contract Express templates, and to enable law firms to share Contract Express templates with clients via client microsites or publicly available templates. Small corporate legal departments can also use Contract Express for self-service contract creation, approvals and e-signature.

- **HighQ Document Automation**: Powered by Contract Express, this module provides document assembly capabilities within the HighQ Collaborate platform. It enables automated documents to be created and worked on alongside flat documents and other tasks, supported by project management tools, automated workflows and data visualization. Law firms can collaborate and share templates with clients via client sites or publicly available templates. Corporate legal departments can provide self-service contract creation to their business partners and utilize the full set of HighQ capabilities for contract lifecycle management.

Common to both products is the unique and patented Contract Express document generation engine, meaning that templates created for one can be used by the other.

1.2 Contract Express Author

Contract Express Author is the tool that template owners use to create templates for these two Contract Express products. Contract Express Author is an add-in for Microsoft Word 2013 and above and provides template authors with capabilities for converting a regular Microsoft Word document into a Contract Express template through the addition of mark-up and the creation of dictionary items.

Once a template is created in Microsoft Word with Contract Express Author, it is uploaded to one of the Contract Express products above where end-users can start to create documents from that template. Contract Express has a unique and patented questionnaire generation engine which automatically creates the questionnaire forms directly from the information contained within the template. This is one of the major advantages of Contract Express over other document assembly systems.

1.3 Contract Express templates

Contract Express templates are regular Microsoft Word documents with mark-up denoting:

- **Fields**: where names, dates, amounts ("variables") and other values will appear in the generated document.

- **Spans**: optional text (characters, words, paragraphs, clauses, sections) controlled by business rules.

The field and span mark-up is regular Microsoft Word text and can be typed directly into a Contract Express template using Microsoft Word in the same way as any other text. The Contract Express Author ribbon in Microsoft Word makes it quick to:

- **Define** variables and business rules in the template's dictionary;

- **Rapidly** insert fields and spans into the template;

- **Organize** questions into groups and pages;

- **Define** questionnaire warnings and look-up tables;

- **Upload** templates to Contract Express.

1.4   Inserting values into a generated document

A **field** determines where values such as a date, a person's name, or an amount will appear in the generated document. Fields are usually denoted using curly brackets {   } and can either contain variables like dates, names or amounts, or can contain calculations, cross references and even references to text in other templates.

For example, if a template is based on an earlier contract which contains text stating "This agreement pertains to Bob Smith born September 18th, 1972" then in the template the name and date of birth are replaced by fields such as: "This document pertains to {ApplicantName} born {ApplicantDoB}."

When a user then answers the questionnaire {ApplicantlName} and {ApplicantDoB} will be replaced in the generated document by the user's answers.

Fields are often re-used many times in the template. For example, each occurrence of {ApplicantName} will be replaced throughout the generated document by the user's answer (e.g., Bob Smith).

1.5   Controlling optional text in a generated document

A **span** denotes optional text in the template which will be included in the generated document if the span's business rule is satisfied. Spans are usually denoted by square brackets around the optional text, with the business rule as regular superscripted text immediately following the opening bracket. E.g.: [Ruleoptional text].

A **business rule**:

- **Determines** whether optional text is included in the generated document,

- **May** determine how many times the span will be repeated, and

- **May** also include a statement that controls how the text within the span will be punctuated.

As an example, if you are authoring a template with a sentence that only applies in California, you would enclose that sentence in square brackets and apply a rule such as: State is "California". The optional text would look like: [^{State is "California"}Some text that only applies in California.] Similarly, for Delaware: [^{State is "Delaware"}Alternative text for Delaware.]

1.6   Contract Express dictionary

The template's **dictionary** contains definitions of the variables and business rules used in the mark-up of fields and optional spans.

For example, the dictionary may contain a variable called ApplicantAddress, which is defined in the dictionary to ask the question "Please enter the applicant's address" with the answer as a multi-line text box.

Similarly, the dictionary may contain a variable called "State" that is defined to ask the question "Which state's laws will govern this agreement?" with the answer in the form of three mutually exclusive radio buttons labelled "California", "Delaware", and "Texas".

The dictionary may also define:

- **How questions** are organized into groups and pages on the questionnaire;

- **How questionnaire warnings** are set up to alert users for specific combinations of answers;

- **Alternative** values for variables in **lookup tables.**

2.   Installing Contract Express Author

Template authors need Microsoft Word 2013, 2016, 2019, or Microsoft Office 365 (desktop version), running on **Windows 10** or **Windows 11** to install Contract Express Author.

You must also have .Net Framework 4.7.1, available from https://www.microsoft.com/en-us/download/details.aspx?id=56116, and Visual Studio 2010 Tools for Office Runtime, available from https://www.microsoft.com/en-us/download/details.aspx?id=56116.

Follow these steps to install the application.

1.   Select the Templates tab
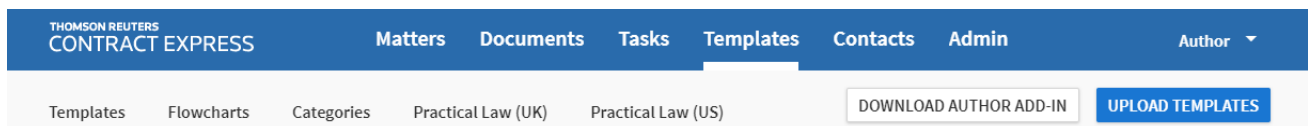
2.   Click on Download Author Add-in

This will download a file called CE.AuthorAddin.vsto. Once downloaded, click on the file to install the application or click Run if prompted. Below is a snip from Chrome which downloads to the Downloads folder.

3.   When prompted with the following screen, click on Install
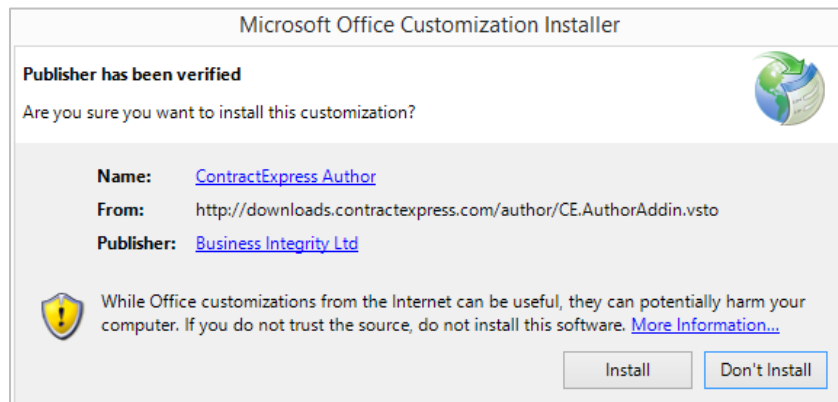
4. Click Close when the install is Complete
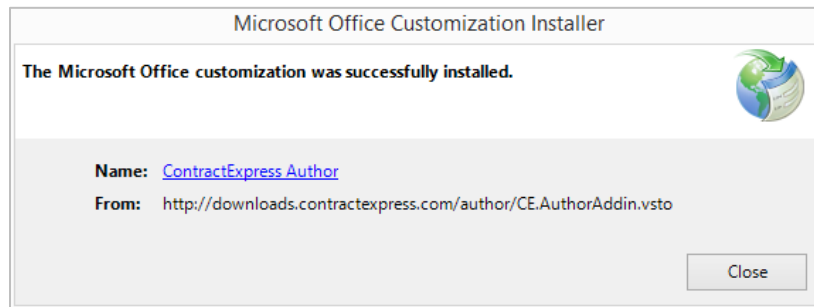
5. Open Microsoft Word. If it was already open, you must close first and then re-open. You will now see a new tab on the Microsoft Word ribbon called Contract Express. This completes the installation of Contract Express Author.

3.　The Contract Express Tab in Microsoft Word

The **Contract Express** tab in Microsoft Word provides access to all the features of **Contract Express Author**.
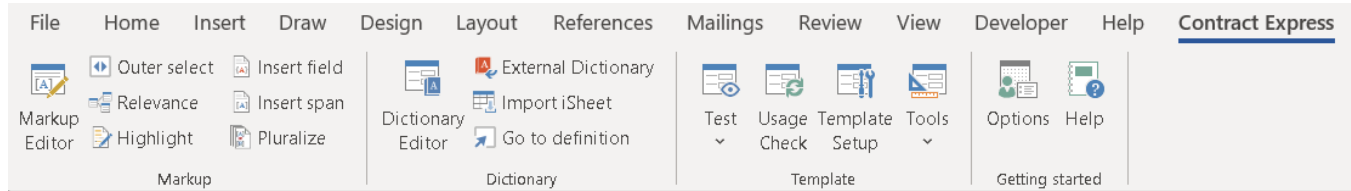
The features available on the **Contract Express** ribbon are:

Markup	
Markup Editor	See Using the Markup Editor
Outer select	See Walking up the tree structure of nested spans of text
Relevance	Use this button to see the relevance of selected text
Highlight	Use this button to add colored highlighting to the mark-up in the template. For more complex templates this can make the markup easier to troubleshoot
Insert field	See Create a new variable and insert it into a template
Insert span	See Marking and controlling optional text in the template
Pluralize	See Handling Pluralities
Dictionary Editor	See Using the Dictionary Editor
External Dictionary	Use this button to link to a common dictionary. Can be used across multiple templates to keep questions consistent. See Using a common dictionary across multiple templates
Import iSheet	Use this button to import HighQ iSheet column names, and their settings, into the template dictionary as new variables. See Using the HighQ iSheet Import tool
Go to definition	Use this button to Find a variable from the template in the Dictionary Editor

Test ⌄	Use this button to upload the latest version of your template and run the questionnaire to generate a document. By pressing on the arrow beneath it you can choose to Upload or Launch individually or do both simultaneously. There is also an option to navigate directly to the Contract Express site. See Test the questionnaire
Usage Check	Use this button to perform a Usage analysis on the template. Check for relevancy or questionnaire order issues in the troubleshooting area of the task pane
Template Setup	Use this button to change the Template properties such as the Template name and set the symbols to be used for the markup (by default curly brackets for fields: { } and square brackets for spans: [ ]). There is also an option to compare the template to previous versions. See Template versions

Tools ⌄		
	Convert template	Use this button to convert a Velocity-based HighQ template to use Contract Express mark-up language. See Convert Third-party templates to Contract Express markup
	Template Suite Viewer ❯	Inspect a template suite to see the relationships between templates and the consolidated dictionary. See Template Suite Viewer
	Report	Use this button to create a dictionary Report document
	Markup Wizard	See Using the Markup Wizard
	View template versions	Template versions
	Set template categories	If your Administrator has enabled Categories in Contract Express, you can use this button to add your template to a category.

Options	Use this button to change user options such as the location of the Questionnaire server, and to turn off auto-ordering of the questionnaire

AI Help

Chat	Contract Express Chat is an AI-powered natural language help tool in Author (Beta release)

4. Create a new variable and insert it into a template

A field in a Contract Express template is a region of the document which will contain data. The most common type of field is a field which contains the name of a variable where that variable is a date, name or number which the user will enter on the questionnaire.

4.1 Inserting a field from the Contract Express tab

The **Insert Field** button on the Contract Express tab in Microsoft Word is used to create new variables which are then inserted as a field into the Contract Express template. This is a quick and convenient way to add fields such as names, numbers, dates and Contract Express Author will add the variable name and field mark-up elements into the template.

Fields can be inserted at various places within a document:

- The body of the document.

- The page headers and footers associated with a section.

- Within footnotes and endnotes.

To insert a new text variable called BuyerName into the document, first select the point in the document where the new field will be inserted and then click the Insert Field button on the Contract Express tab in Microsoft Word:
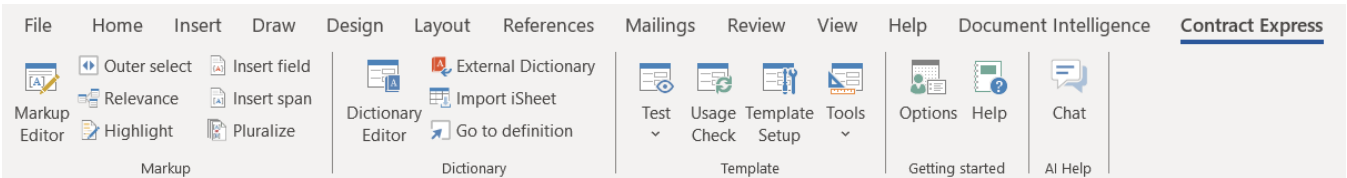
This will open the variable editor:

Enter the details of the BuyerName variable:

Click OK and the new variable will be inserted into a field in the current document:
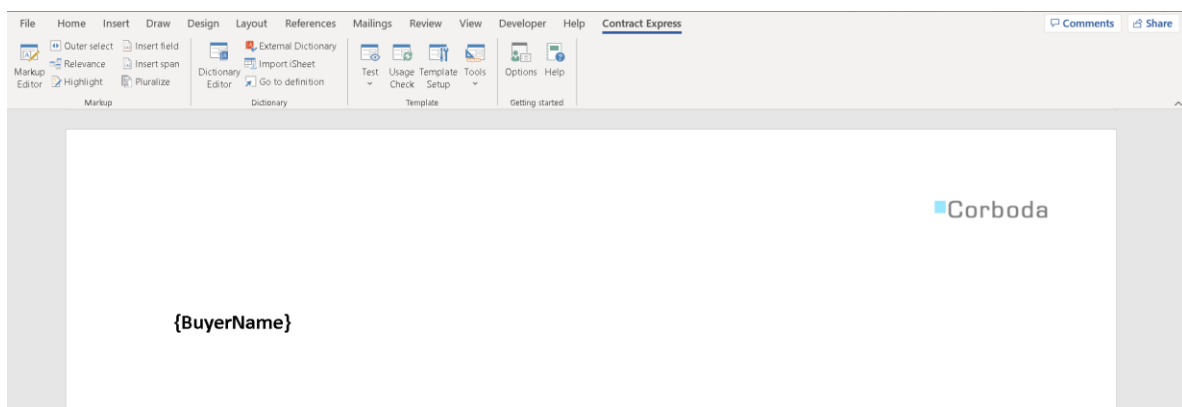
Variable names that contain certain characters will require quoting e.g.:

{'Client Name'}.

Note that if these characters are entered into the Name field, Contract Express will automatically add the single quotes when it is added into the document.

Note that variables are not case sensitive so NAMEBUYER and namebuyer refer to the same variable. For more on case sensitivity see Case sensitivity in Contract Express.

> 💡 **Style Characteristics**
>
> Fields inherit the characteristics of the opening bracket {. For example, if the opening bracket is emboldened: **{ NameBuyer }**
>
> The value in the generated document will be emboldened: **John Smith**

4.2   Replacing a string of text throughout a document with a new variable

When marking up a document in Contract Express Author, your existing manual precedent or model form may contain a specific string of text through the document such as Party name. By selecting this text and clicking Insert Variable, this text will be replaced with a field containing the new variable. Contract Express Author will also provide an option to replace all occurrences of Party name in the document with a field containing the new variable.
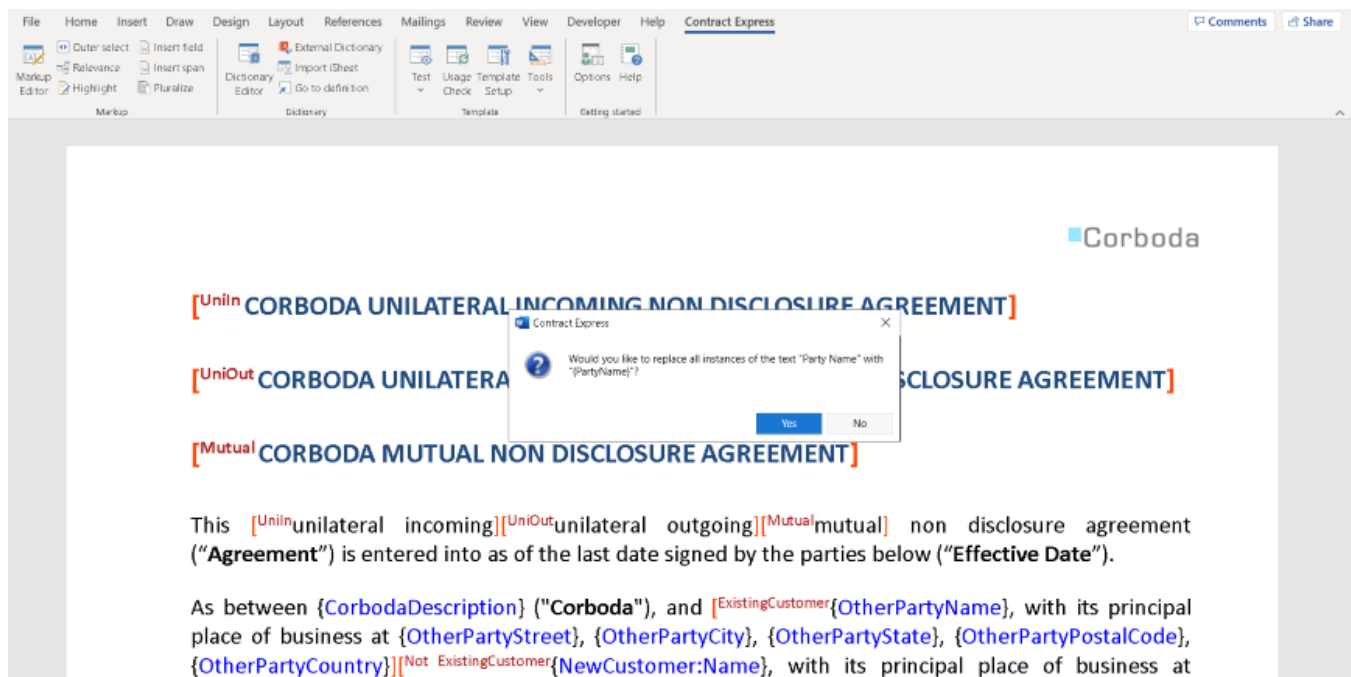
4.3   Inserting a field using the Markup Editor

To insert a field using the Markup Editor place your cursor where you wish the field to be inserted or highlight the text you want to replace with the field, then press the add icon ⊕▾ in the Markup Editor toolbar and select **Field** from the dropdown.
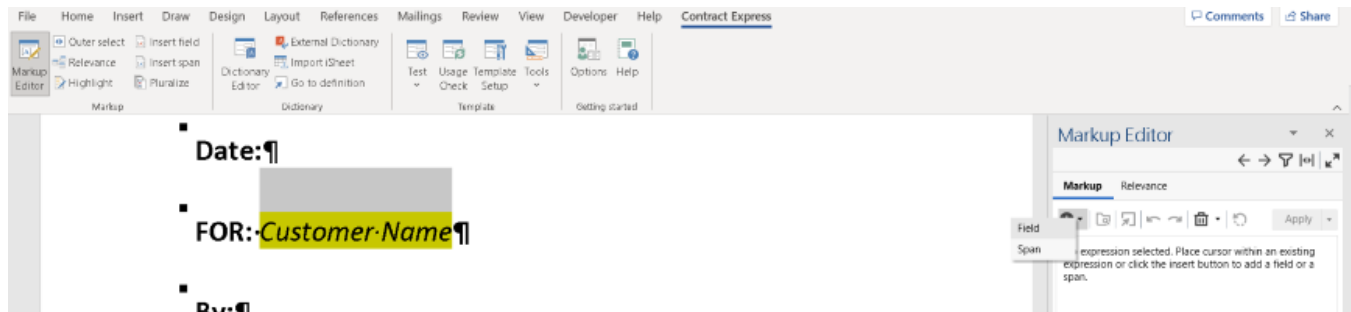
This will automatically replace any selected text with field brackets and the Markup Editor will display the placeholder text "Enter field markup" where you can type in your field.

You can either type in a new field or select an existing one from the reuse tool 🔍. The reuse tool contains all the fields currently used in the template plus all variables in the dictionary.

4.3.1   New variable detection

You can enter new variables into the document using the Markup Editor. When you apply an expression that contains a new variable name, a new variable will be automatically created in the Dictionary.

The Markup Editor will display the link to the newly created variable at the bottom of the panel, click the link to navigate to the variable in the Dictionary Editor and edit the details as needed.
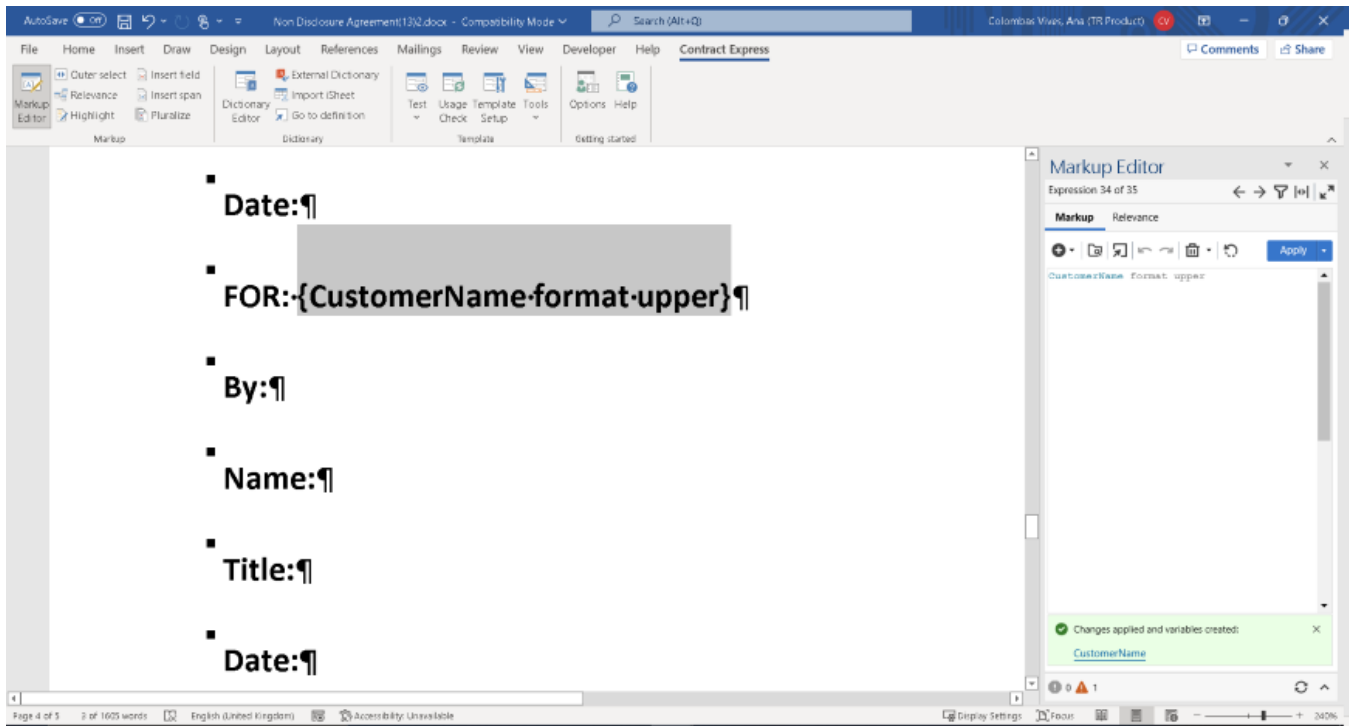
4.4   Inserting a field using the Dictionary Editor

You can also quickly insert a field containing a pre-existing variable from the **Dictionary Editor**. To do this, place the cursor in the location where you would like to insert the field then click the Dictionary Editor in the Ribbon and locate the variable you want to place in the document in either All Variables or Questionnaire. Right click the variable and select the option **Insert to Document**. This will insert a field with the pre-existing variable at the position where the cursor is placed. Alternatively, you can drag and drop the variable to the desired location within the document.

To replace text in the document with a variable, highlight the text within the document then right click the variable in the Dictionary Editor and select the option **Insert to Document**. The selected text will be replaced by a field containing your chosen variable. A dialog will be displayed asking whether you would like to replace all occurrences of the selected text in the document with the variable. Selecting **Yes** will run through the document, look for any occurrences of the text that was selected and replace it with the variable. Selecting **No** will only replace the selected text.

4.5   Inserting a field as you type

Also note that as an alternative to using the Insert Field icon, it is possible to simply type the field mark-up element directly into the template using the correct bracket mark-up for Fields.

In addition to inserting variable fields manually, it is also possible to insert fields which contain calculations, cross references or even the text from other templates.

For example, to insert an expression that represents the VAT (Value Added Tax) on the UnitPrice formatted as a currency, first select the point in the document where the new expression will be inserted and then enter the text:

{UnitPrice * 20 / 100 Format "currencydigits"}

To include a sub-template containing a boiler-plate clause, first create a blank paragraph at the point where the clause will be included (N.B. the style of the paragraph does not matter as it will disappear from the generated document), and then enter the text:

{Include Template BOILER_PLATE_CLAUSE}

Where BOILER_PLATE_CLAUSE is the template name of the sub-document.

5.   Using Entities in a template

An entity is a type of variable which allows a Business User to input a collection of related data into the questionnaire which can either be used at a later point within the questionnaire or within a different questionnaire. Where an entity has been added to the template, during the questionnaire session the following will be displayed:

When the **Set** option is selected, an entity selector will be displayed which will allow the user to choose to create a new entity or to choose from a list of existing entities:

| Search... | All Contact Types ▾ |

ⓘ Tick the row of the desired Contact. Create a new contact by ticking the "New Contact" row and selecting the appropriate Contact Type from the dropdown. Note that some questions will not allow you to change the Contact Type and it will then be pre-selected for you.

	Name ▾	Address ⬍
◯ ➕	New Contact	Please select a type ▾
⦿ 🔳	CLARKE, Darryl John	The Thomson Reuters Building 30 South Colonnade, South Colonnade, Canary Wharf, London, E14 5EP
◯ 🔳	Johnathan Philip	1C Abbey Road, Croydon, CR0 1RU
◯ 🔳	MITCHLEY, David Martin	The Thomson Reuters Building 30 South Colonnade, South Colonnade, Canary Wharf, London, E14 5EP
◯ 🔳	O'HANLON, Carla	The Thomson Reuters Building 30 South Colonnade, South Colonnade, Canary Wharf, London, E14 5EP
◯ 🔳	Susanne Perkins	6 Claywood Lane, Bean, Dartford, DA2 8BU
◯ 🔳	THOMSON REUTERS GROUP LIMITED	The Thomson Reuters Building 30 South Colonnade, South Colonnade, Canary Wharf, London, E14 5EP
◯ 🔳	THORN, Peter	The Thomson Reuters Building 30 South Colonnade, South Colonnade, Canary Wharf, London, E14 5EP

☑ Save to Contacts

| Select | Cancel |

A variable that is defined as type entity (see Defining an entity variable for details about defining entity variables) will be a parent variable which can be augmented with child variables of any variable type that will capture the data that will belong to the entity. There are several conditions that must be met in order for entities to work seamlessly:

Compulsory **Entity template**	Every entity variable must reference a template that will provide the required structure and variables needed to collect data for the entity. The entity template can be the auto provisioned Contact or Address templates in Contract Express or another template if that it meets the conditions below. The entity template used will determine the type of the entity (e.g., Contact entity).
Compulsory **Name**	Every entity must have a child variable that defines the name of the entity. This variable can be of any type and the value will be displayed in the Name column for an entity in Contract Express.
Description	This variable will populate the Description column for an entity in Contract Express.
Type	If required, entities can have subtypes (e.g., for contact entities - types Person, Company, Charity) which the user can select within the questionnaire in the entity selector. **This variable must be of type Text-Selection.**

For example, if we have a Lease Agreement template and we wanted to capture the tenant as an entity of type contact, we will:

1. Create an entity variable called **Tenant** and reference the Contact template.

2. We need the Tenant entity to collect the name, address and tenant type details, so we will create 8 child variables of the Tenant entity which will capture the Name, Type, Address (as an entity)[^], Address Line 1, Address Line 2, City, Country, Postcode:

> *__Tenant:__Name *compulsory*
> __Tenant:__Type
> __Tenant:__Address – references the Address template in Contract Express[^]
> __Tenant:__Address:Line1
> __Tenant:__Address:Line2
> __Tenant:__Address:City
> __Tenant:__Address:Country
> __Tenant:__Address:Postcode

^ Adding the address as an entity will allow the user to reuse the address for another contact (e.g., Landlord).

5.1   Defining an entity variable

To create a new entity variable, select the new icon from the toolbar. Select New Variable from the drop-down menu. This will then display the attributes for the variable. Change the Type attribute to Entity and fill out all other attributes on the General tab as required.

Click on the Constraints tab.
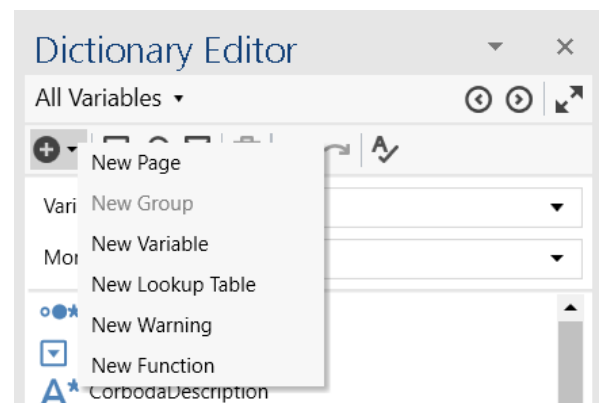
General   Guidance   **Constraints**   Document   Usage

Template

[   ] [...]

☐ Allow new

Filter

[   ]

Label

[   ]

Default

[   ]

☐ Distinct Repetitions

Entity   ✕

Select Template

[Contact   ▼]

Select Variables

▼   Contact
   ▼   ☐ Address
Expand All   ry
Collapse All
Select All
Clear All
                              Number
              ☐ PostalCode
              ☐ Region
              ☐ Town
   ▶   Company
        ☐ Description
   ▶   Flower
   ▶   LLP
        ☐ Name
   ▶   Partnership
   ▶   Person
        ☐ Type

[OK]   [Cancel]

Click on the ellipses on the Template attribute, this will display all templates that are available within the default server. Note that if this is the first time connecting to Contract Express within the current Microsoft Word session you will be required to enter valid credentials.

Select a template to use as the entity template. You will then be able to pull in the variables that have been defined as part of the entity template by selecting the checkboxes. If you wish to select multiple variables under one variable, right click the variable and click "Select Node". The variables that are selected will be imported into your template against the entity variable with the entity name as a prefix of the names of the imported variables.

6.   Marking and controlling optional text in the template

The most common type of span is the conditional span. A conditional span is a range in the template that is to be included in the generated document if some condition or business rule evaluates to true. The business rule is specified as part of the span mark-up, appearing as superscripted text immediately following the open bracket of the span. The span range itself is delineated by a matching pair of open and close brackets. Square brackets ([ ]) are most often used as the span brackets, however other characters can be specified in the Template Setup window. Span ranges can be nested within one another. A close bracket matches an open bracket if there are no other unmatched open or close brackets in the range of text between them.

Spans can be inserted at various places within a document:

- The body of the document.

- The page headers and footers associated with a section.

- Within footnotes and endnotes.

> 💡 **Superscripted styles**
>
> Only text that has been explicitly superscripted will be considered as part of the span mark-up. Text that has a character style whose definition includes superscript (e.g. the character style Footnote Reference) will not be considered as part of the mark-up.

Generally, a span condition is simply a business rule. In this example we will use the following as a possible span in a document (using the default square brackets as the delineators):

[This Agreement is subject to the laws of the State of New York]

6.1   Inserting spans

6.1.1   Inserting a span using the Markup Editor

The best way to insert a new span is using the **Markup Editor**, this can be opened by clicking the Markup Editor button in the Contract Express tab in Microsoft Word.

To insert a span using the Markup Editor, highlight the text in the template that you want to be controlled by the span, then press the add icon ⊕▾ in the Markup Editor toolbar and select **Span** from the dropdown.

This will automatically place span brackets around your selected text and the markup editor will display "Enter span markup" where you can type the span rule.

You can either type in a new rule or select an existing one from the reuse tool . The reuse tool contains all the span rules currently used in the template plus any Yes/No type variables that exist in the dictionary.

To add a rule from the reuse window double-click the rule or select it and then click Insert. You can type in the search bar to filter through the results shown. You can also look at all fields in the template or all markup expressions together.

Finally, click **Apply** to insert the expression drafted in the Markup Editor into the document.

6.1.2   New variable detection

You can enter new variables into the document using the Markup Editor. When you apply a span that contains a new variable name, a new variable will be automatically created in the Dictionary. The Markup Editor will display the link to the newly created variable at the bottom of the panel, click the link to navigate to the variable in the Dictionary Editor and edit the details as needed.
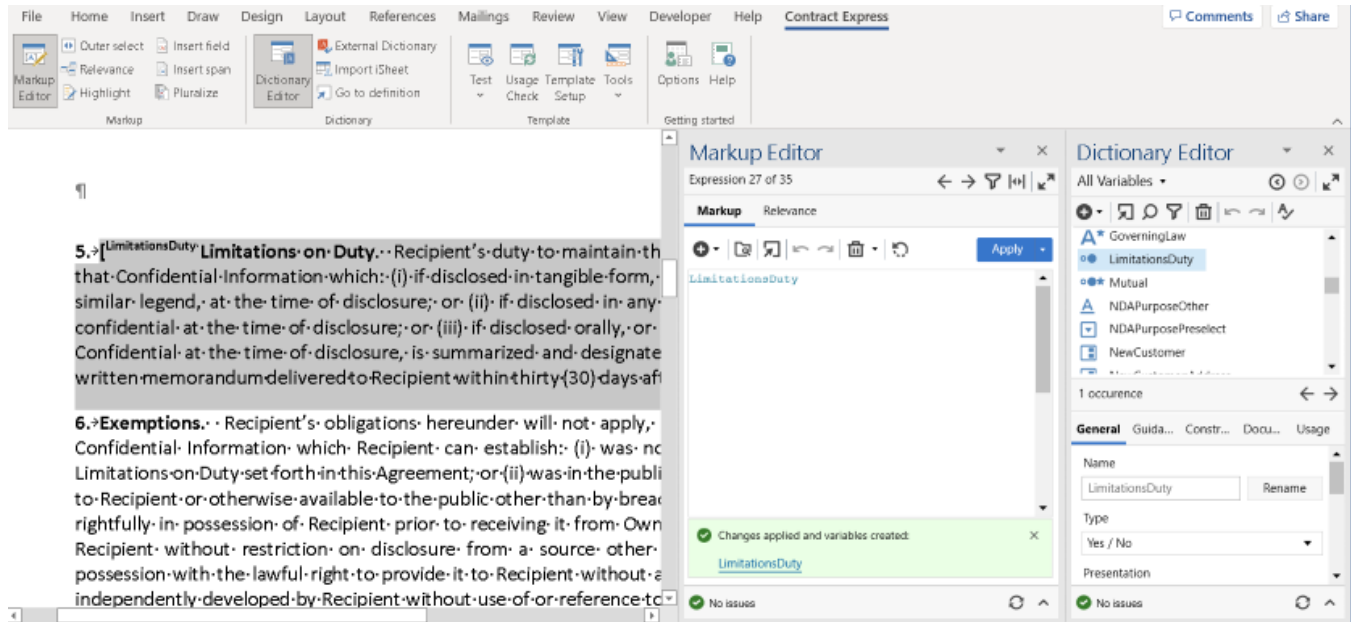
6.1.3   Inserting a span using the Contract Express ribbon

Another way to insert a new span is to position the cursor at the point in the template you want the span to appear, or highlight the existing text in the template that you want to be controlled by the span, then press the **Insert Span** button in the **Contract Express** tab in Microsoft Word.

This presents the Span Editor dialog:

Either select an appropriate business rule from the drop-down list or simply type a new one. The drop-down list contains all the business rules currently used in the template plus any Yes/No type variables that exist in the dictionary.

By clicking the 'Edit' button in the Span Editor, the Expression Editor is brought up.

It is then possible to create spans by selecting a Variable, a Logical Operator ('And', 'Or'. 'IsMoreThan'… etc.) and one of the Variable's Possible Values. Rules that have been previously created are also available here. Note that the Expression Editor uses the auto-complete feature (see Code completion of expressions).

6.2　Updating spans using the Markup Editor

It is possible to update spans by using the **Markup Editor**. To do this, click the **Markup Editor** in the Ribbon and navigate to the span that you would like to update by using the left/right arrows or by clicking into the span in the document.
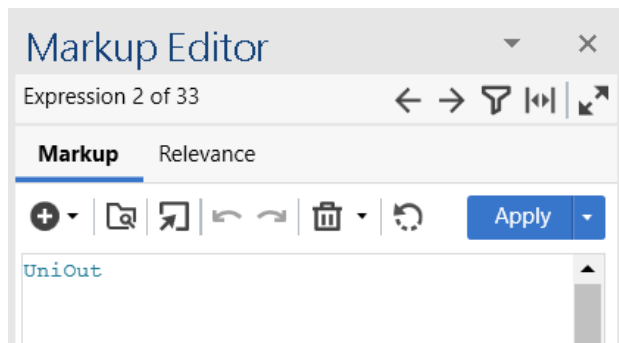
Edit the text in the **Markup Expression** field then click **Apply** at the top of the task pane. By clicking on the arrow on the Apply button, you can choose whether to only update that single occurrence of the span that is selected by clicking **Apply to selected markup**. Alternatively, you can choose to update all occurrences in the template of the selected span by clicking **Apply to all matching markup**.
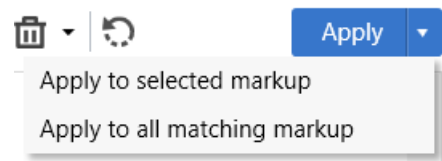
You can revert any edits that have been made to the mark-up **before** clicking update by clicking on the Reset icon .

If you have started to make changes in the Markup Editor, automatic navigation will be automatically paused to ensure you don't lose your changes. You can step through the document and not lose the edits you have made in the Markup Editor. The following message will appear at the bottom of the Markup Editor to indicate this change:

If at this point you try to navigate away from your edited expression using the previous and next occurrence buttons, the outer span button or the filter button on the Markup Editor toolbar, you will be presented with the following options to ensure you don't lose your work:

- **Go back** will take you back to the originally selected expression in the Markup Editor so you can continue to make edits.

- **Apply changes** will apply your changes to the originally selected expression in the document and will move the cursor to the new expression you were trying to navigate to.

- **Discard changes** will discard any changes you made to the originally selected expression and move to the latest one you clicked into.

Note that it is not possible to edit the definition of a variable that is in a field. This must be edited using the Dictionary Editor.

6.3   Business rules

The conditional span business rule can be any expression with value to compare against, for example:

Age IsMoreThan 21

Or even a simple Yes/No question like:

DirectorUKDomiciled

> 💡 **Quoting Variable Names**
> Remember that Variable names containing certain characters (including spaces) will need to be quoted using single quotes:
>
> 'Tax Regulations Apply'
>
> For a list of characters that do not need quoting see the Characters used in Identifier names topic in the online documentation.

6.4   Creating business rules

6.4.1   Simple business rules based on yes/no variables

The simplest form of business rule is one which is based on a yes/no type variable. In this case we may decide to create one called "AgreementInNY". By typing this into the span editor, the business rule is applied to the span and a yes/no variable is automatically created which controls the inclusion on the span (hint: to change the question phrasing - use the variable editor):

[AgreementInNY This Agreement is subject to the laws of the State of New York]

Note that if your variable name contains certain characters, it will need to be quoted:

['Agreement In NY' This Agreement is subject to the laws of the State of New York]

6.4.2   Standard business rules based on selections

The most common form of business rule compares a question variable with a literal value. The syntax is usually:

VariableName Is "Value"

For example:

Region Is "North America"

This usually comes from a text selection variable with 2 or more options (in our case the Region variable may have "Europe", "South America", "Africa" and "Australasia" as well as "North America"):

[Region Is "North America" This Agreement is subject to the laws of the state of New York]

> 💡 **Single vs Double quotes**
>
> Note that the value from text selection variables is double-quoted in the business rule. If the text selection variable also had spaces or other characters that need to be quoted in identifiers, the business rule would look like this:
>
> ['Contract Region' Is "North America" This Agreement is subject to the laws of the state of New York]

6.5   Combining business rules

Simple business rules can be combined using the operators "and", "or" and "not". The Author task pane provides direct support for this. Select one or more business rules in the Author task pane and then right-click on one. A pop-up menu offers to insert various combinations of the selected business rule(s).

[Region Is "North America" or Region Is "South America" This Agreement is subject to the laws of the state   of New York]

6.6   Business rules based on computable variables

More complex business rules obviously take up more space in the template wording, which can make the template harder to read. One way to avoid this problem is to move the complex expression into a computation variable and use the computation variable in the body of the template. For example, we could define a computable variable named *Americas* OR *Americas Area* whose definition is:

Region Is "North America" or Region Is "South America"

[^{Americas} This Agreement is subject to the laws of the United States of America]
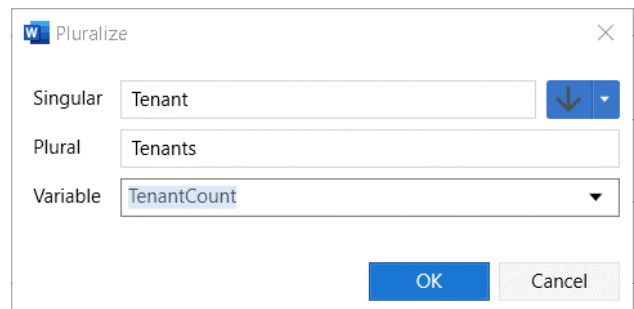
Or

[^{'Americas Area'} This Agreement is subject to the laws of the United States of America]

6.7   Handling Pluralities
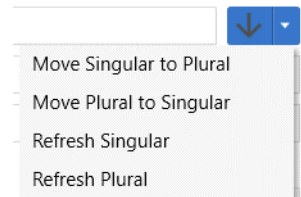
There may be cases where the wording in the document is dependent on whether a singular value or a multi value is entered/selected in the questionnaire.

For example, a document refers to a "Tenant" but depending on the value of the variable "tenantCount" we will need to use either term "Tenant" or "Tenants". In this case we will highlight the text "Tenant" and click on the **Pluralize** button on the Contract Express ribbon. The highlighted text will be auto populated in the Singular field and Contract Express Author will attempt to pluralize the highlighted text. If this is unsuitable, the plural value can be edited.

Then select the variable which will decide whether the singular or plural value should be used – this will need to be a variable of type Whole Number (see Type for more details about variable types). In our example the variable will be "tenantCount".

It is also possible to highlight a plural value and Contract Express Author will attempt to auto populate the singular value. If we highlight "Tenants" instead, click on Pluralize then click on the down arrow we can select the option to Move Plural to Singular.

Once you are happy with the values, click OK.
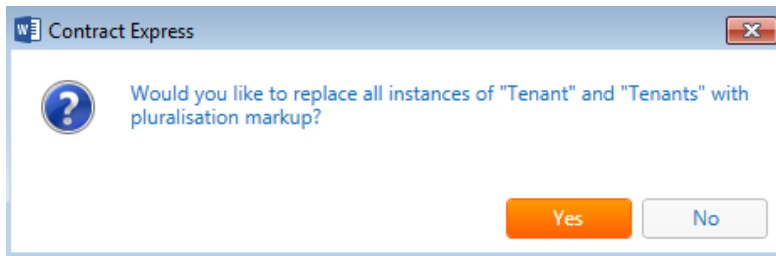
You will be asked whether you would like to apply the pluralization to all occurrences of the highlighted text. If Yes is selected, Contract Express Author will scan the template to see if there are any other occurrences and update them all. If there are no other occurrences, then no additional updates will be made to the template.

As with our example, we would click Yes to update all instances of "Tenant" in the document or click No to update only that single instance.

6.8   Code completion of expressions

When creating statements in the Contract Express Mark-up Language (CEML) within the Dictionary Editor or when inserting a Field/Span, Contract Express Author offers suggestions of possible variables, variable values, functions, existing lookup tables or operators that can be applied to a statement as you type. These smart suggestions will attempt to complete statements using existing Variables and their values within the Dictionary of the template along with operators, existing Lookup Tables and built-in/custom Functions.

Within any multiline edit field, the code completion feature is triggered once you begin typing and the list of suggestions filters down as you continue to type.

To select a suggestion simply double click on the desired item or use the keyboard down arrow to scroll through the list and hit Enter to select the item. Highlighting a Variable in the suggestion list will display the Question attribute of the Variable. Similarly, built-in functions and db parameters will display some help when highlighted.

For ease of understanding, CEML statements are color coded using the key below:
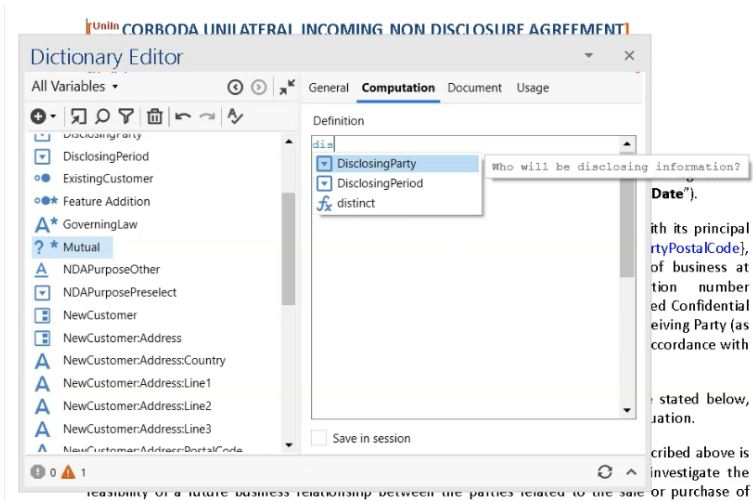
- **Identifiers (and single quoted identifiers)**: Light Blue
- **Functions**: Blue
- **Numbers and operators**: Black
- **Strings**: Red
- **Comments**: Green
- **Parameters**: Light Blue
- **Keywords**: Grey

7.   Using the Markup Wizard

The **Markup Wizard** can be used to compare two similar documents and use the differences between them as the starting point for authoring a new template. The wizard will guide you through reviewing the differences identified and prompt you to insert Contract Express mark-up language. To open the Markup Wizard, click on the Markup Wizard option under the Tools icon in the Contract Express tab.

With the Markup Wizard you can:

- Accept, Reject, or Skip each identified change

- Keep or Remove altered text

- Convert altered text to a span or field

7.1   Using the Markup Wizard

When you run the Markup Wizard you are prompted to select a document to compare your current one to. This should be a similar document.

Once you have selected your second document, a comparison will be run between the two documents and the Markup Wizard will open to the right of your document. Document differences will also be displayed within the document itself as track changes.

The Markup Wizard will guide you through each document difference in turn, identifying the type of change and allowing you to **Accept**, **Reject**, or **Skip** the change.

- When you **Accept** a change, you will also need to select one of the **Accept Options** described below.

- When you **Reject** a change, the text will be treated as if you had rejected the track change.

- When you **Skip** a change, no action is taken, and the Markup Wizard will skip to the next identified change.

7.2   Accept options

In all cases, your **Accept** options will include **Convert to span** and **Convert to field**.

- If the type of change is **Deleted text**, you will also have the option to **Remove from document** and delete the text.

- If the type of change is **Inserted text**, you will also have the option to **Keep document as is** and retain the text.

If you choose **Convert to field**, you will be prompted to enter a variable name. You can also select **Include the next Changed Text in this field** to convert adjacent pairs of deleted and inserted text into a single field.

Markup Wizard

Review changes and convert document differences into fields or spans.

Changed Text

> John Smith

Type of Change

> Deleted text

Accept Options

> Convert to field ▼

> ☒ Include the next Changed Text in this field

Field

> PartyName ▼   Edit

> Accept   Reject   Skip

If you choose **Convert to span**, you will be prompted to enter a business rule. Click on the **Edit** button to open the Expression Editor.

Markup Wizard

Review changes and convert document differences into fields or spans.

Changed Text

> No Rights or Licenses Extended. No rights or licenses whatsoever, either express or implied, are granted hereunder by one party to the other party as to any patents or patent applications, copyrights, trade marks, trade secrets, or other intellectual property now or hereafter acquired, developed, or controlled. Owner retains all rights and remedies afforded under all U.S. and

Type of Change

> Deleted text

Accept Options

> Convert to span ▼

Rule

> UniOut or Mutual ▼   Edit

> Accept   Reject   Skip

8.   Using the Dictionary Editor

The **Dictionary Editor** is a central component of Contract Express Author. It provides access to several features for managing the Contract Express Author dictionary. To open the Dictionary Editor, click on the Dictionary Editor icon from the Contract Express tab.

With the Dictionary Editor you can:

- View all variables defined in the dictionary.

- Create new variables.

- Edit existing variables.

- Add existing variables to the current template.

- Search for variables.

- Check spelling across the dictionary.

- Rename variables.

- Find and replace text across the dictionary.

- Show the relevance of a variable.

- Create and Edit Questionnaire pages.

- Determine where variables are referenced elsewhere in the dictionary.

- View relevancy information.

- Check the mark-up of the current template.

- View issues reported in the current template.

8.1   Docking and undocking the Dictionary Editor to the task pane

When the Dictionary Editor is opened for the first time, it floats over the top of the Microsoft Word Document in an "undocked" state. This mode works very well if you are using dual monitors as the Dictionary Editor can be opened on one screen with the document open on another screen. For those users who only have a single screen you may wish to "dock" the Dictionary Editor into a task pane. To do this, click on the Dock icon in the Dictionary Editor Toolbar as highlighted below:
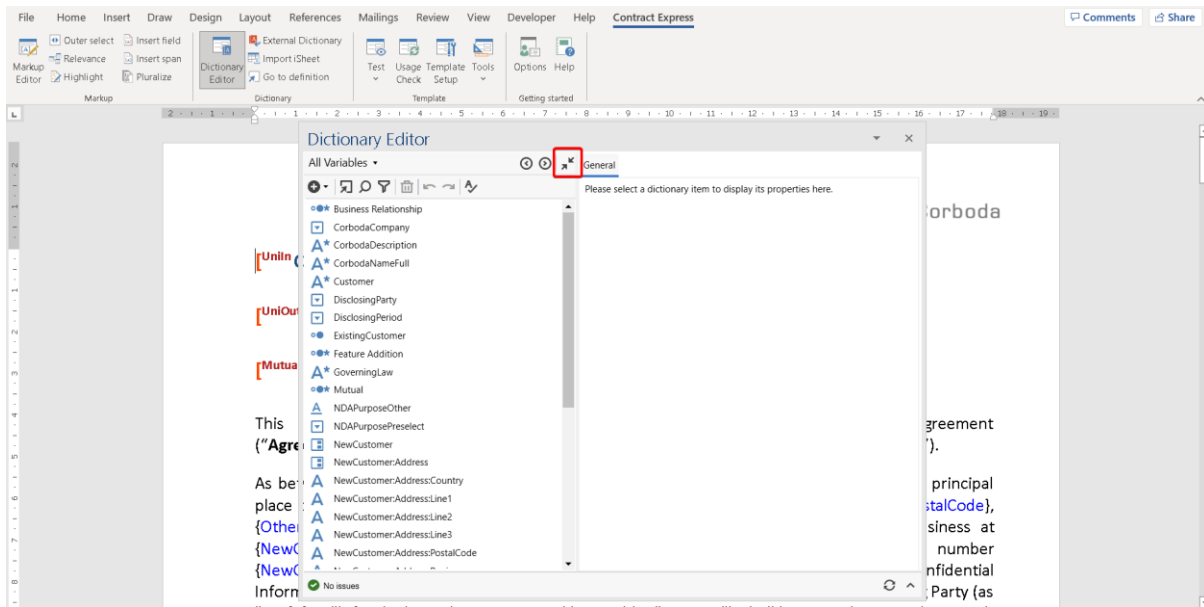
When the Dictionary Editor is docked it will appear in the task pane on the right side of Microsoft Word. You can undock again by clicking the dock button in the Dictionary Editor Toolbar.
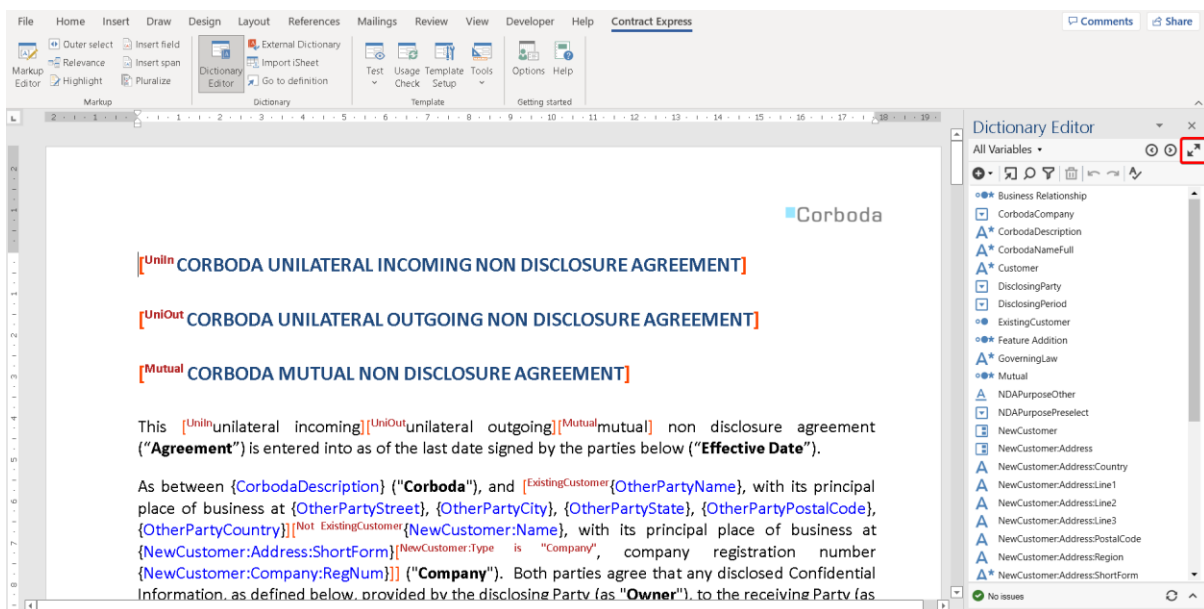
8.2   Toggling between sections of the dictionary

The examples below use the sample Non-Disclosure Agreement template which is included in every new install or new account in Contract Express.
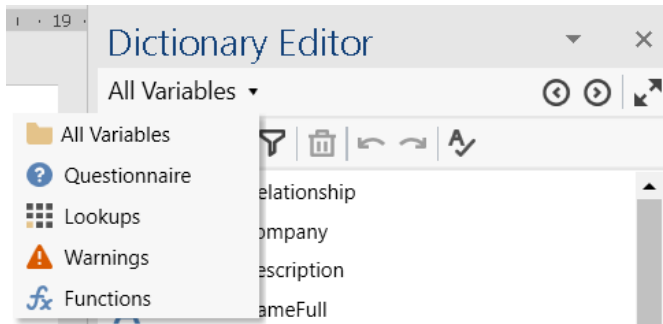
When the Dictionary Editor loads for the first time you are presented with the Home menu which displays links to All Variables, Questionnaire, Lookup tables, Warnings and Functions. You can switch between these areas of the dictionary by either going home and selecting from the home menu or selecting from the drop-down menu beneath the toolbar.

8.3   Viewing all variables in the dictionary

Select All Variables from the dictionary drop-down menu to view all variables within the dictionary. When undocked, the list of variables will appear in the content area on the left. Selecting a variable from this list will display all the attributes of that variable on the right. When docked the variable list appears at the top with the variable attributes below.
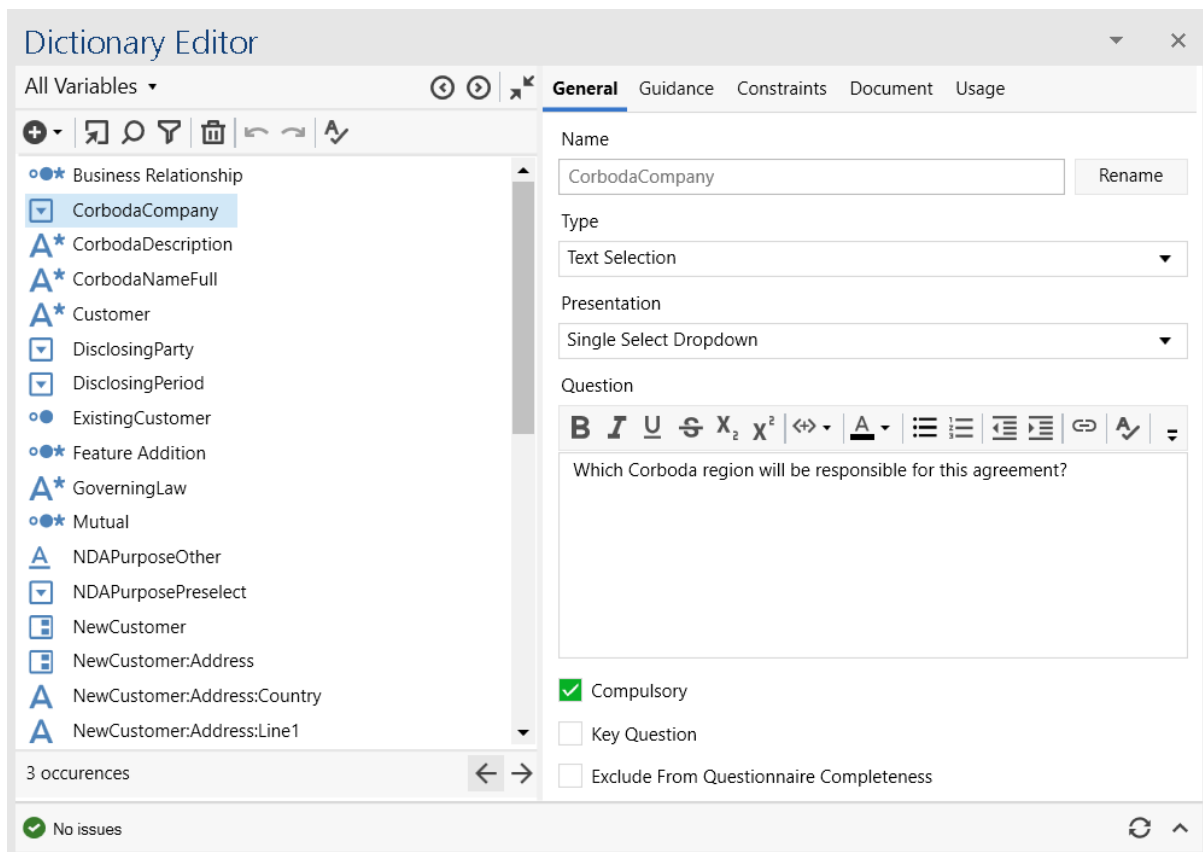
💡   **Greyed out variables**

A greyed-out variable is one that is defined in the dictionary but not used in that document.

8.4   Filtering the list of variables

To apply a filter to the All-Variables list, click on the filter icon from the toolbar.

Selecting a variable type from the **Variable Types** dropdown will filter the list to display only the selected types.

More Filters can be used to filter the entire variable list or for additional filtering on the already filtered list.

You can filter the variable list by *variable name*, *computable/not computable*, *compulsory/not compulsory*, *key question/not key question*, from an external *dictionary/not from an external dictionary*, and *used/not used*.

To enable the 'not' state, click on the checkbox twice.

The variable list can also be filtered to display only the variables used within selected text in the document. To use this filter, select the text in the document and filter by *Within selected text*.

The variable list can also be filtered to display only the variables that determine whether the selected span/text is relevant (like the Relevance button found in the Mark-up Editor). To use this filter, select the text in the document and filter by *Relevance of selected text.*
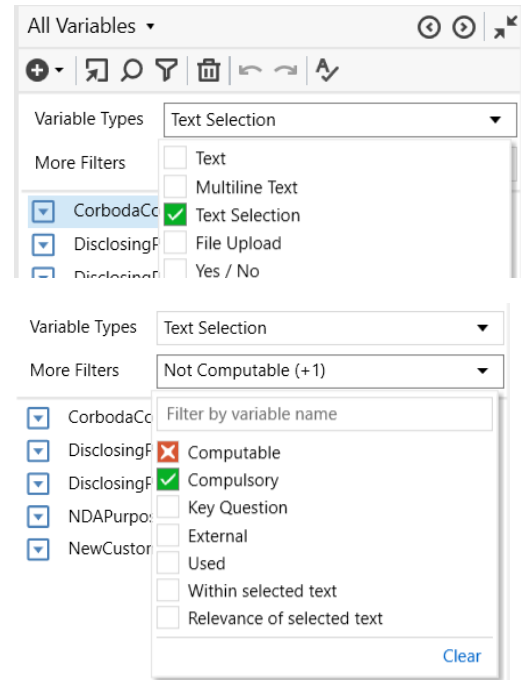
8.5   Adding a variable to the dictionary

To add a variable to the dictionary, select the new icon ⊕ ▾ from the toolbar. Select New Variable from the drop-down menu. This will then display the attributes for the variable, such as prompt, type, guidance, and selections. See Editing Variables for more details about the different attributes of a variable.
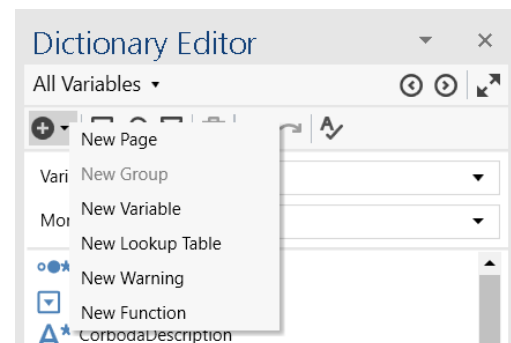
8.6   Inserting existing variables into the current document

To apply an existing variable to a new location in the template, either place the cursor in the position you would like to add the variable or select the text that you would like to replace with the variable. Then right click the variable in the Dictionary Editor and select **Insert to document**. Alternatively, you can drag and drop a variable from the Dictionary Editor into the document.

8.7   Find a variable in the dictionary

To search for a specific variable in the list click the Find icon ◯ in the Dictionary Editor Toolbar. This will open the Find pane above the list of variables. With Current List selected in the Find Where drop-down the search will be performed against the current list of variables names.
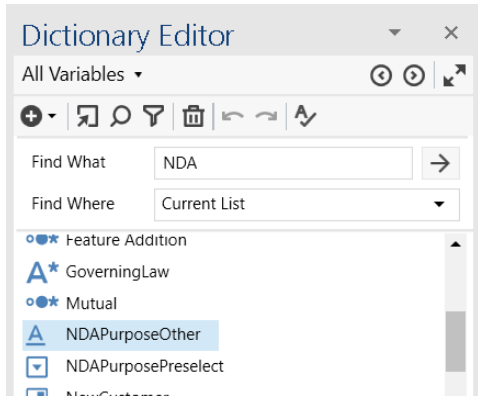
8.8   Find and replace across entire dictionary

The Find pane also enables users to search for a string of text across the entire dictionary and to replace that text with new text. Select Entire Dictionary from the Find Where drop-down. Enter what you want to find in the "Find What" text box and enter the replacement text in the Replace With text box.
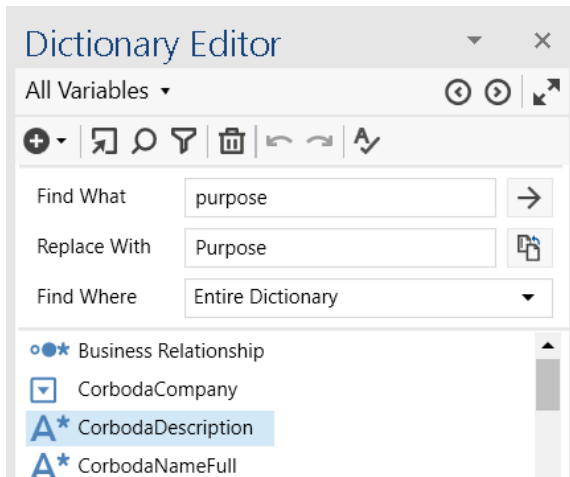
8.9   Spell check the entire dictionary

To check the spelling in your dictionary, click the spell check icon ∿ in the Dictionary Editor Toolbar. This will launch the spell check dialog. Use the Ignore / Add to Dictionary and Change buttons. Clicking on *Go To Definition* will redirect you to the item that contains the misspelled word.
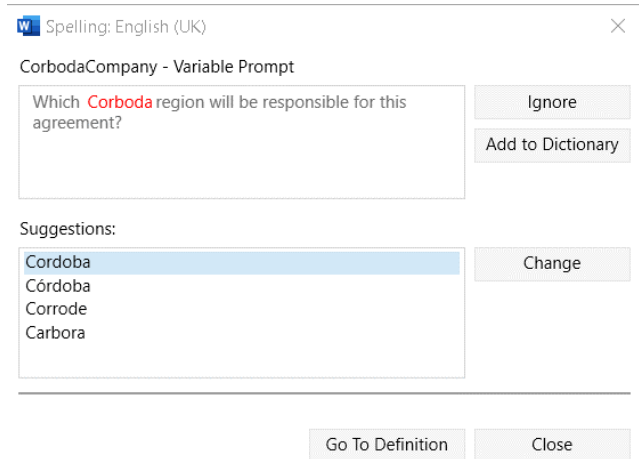
8.10   Delete a variable

To delete a variable in the dictionary, right click the variable and select Delete from the *Actions* menu.

💡 **Removing all variables**
To remove all unused variables, select all the grayed-out variables and right click and select delete. This may reveal further unused variables (i.e. variables that only occurred in the definitions of previously deleted computation variables). Repeat this process until there are no more grayed-out variables. If Contract Express Author states that the variable is used, first select the variable and use the Right and Left ← → arrows in toolbar to find where it is used in the document, or right click the variable and select Find in Dictionary.

8.11   Duplicate a variable

To make a copy of a variable, right click the variable and select Duplicate.

8.12   Show the relevance of a variable

Contract Express automatically creates questionnaire forms from your Microsoft Word templates when you click on the Test button. These questionnaire forms are dynamic decision trees such that answering one question may lead to further questions becoming enabled. Contract Express uses the location of variables within the template to work out these dependencies. The relevance of a variable is the expression or rule which must be true for that question to be enabled on the questionnaire. The Dictionary Editor allows authors to view what Contract Express determines as the relevancy of a variable.

Locate the variable in the Dictionary Editor. Select the Usage tab from the variable attributes panel as shown below. Always click **Refresh** to instruct Contract Express Author to update the relevance information.
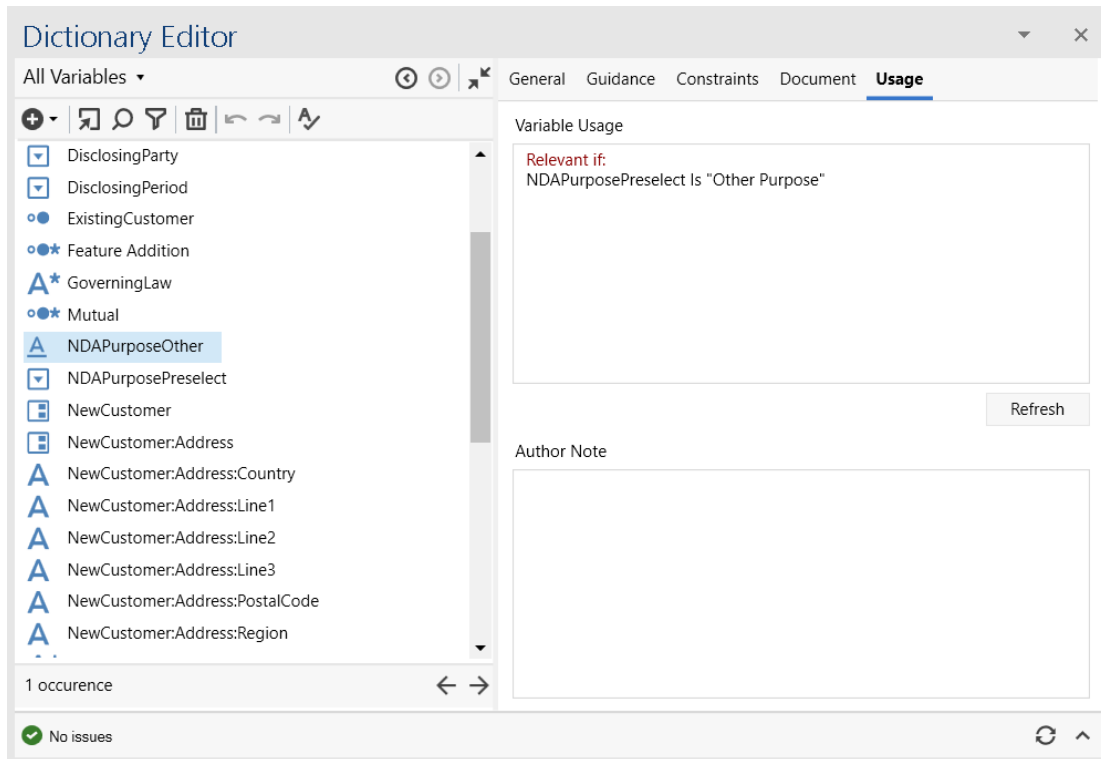
💡 **"Run Usage Check or click Refresh to see the usage information."**
You may see the message "Run Usage Check or click Refresh to see the usage information." in the Variable Usage text box. This indicates that a Usage Check or Refresh is necessary to view the updated relevancy information.

8.13   Navigate between uses of a variable

Select the variable you wish to find in the document. Click on the forward and back arrows above the Variable Editor ← → to highlight the next/previous uses of the selected variable in the document. You can also see how many occurrences of the variable there are in the document.

8.14   Determine where variables are referenced elsewhere in the dictionary

Right-click on the variable you are interested in and choose Find in Dictionary. A pop-up dialogue box will detail all the instances of that variable.

8.15   Jump to a variable referenced in a computable variable

Computable variables can contain other variables in their definition. For example, in the sample Non-Disclosure Agreement there exists a computable variable named **UniIn** which is defined as **DisclosingParty Is "Outside party only"**.

The *Go to definition* icon in the Dictionary Editor Toolbar allows the template author to jump from the current computable variable to the variable selected in the definition. In the following example, the UniIn computable variable is selected in the Dictionary Editor. The Computation tab is selected in the attributes pane and the DisclosingParty variable highlighted in the definition text box. By clicking on the Go to definition button in the toolbar selects the DisclosingParty variable in the Dictionary Editor.

Click on the Back button in the Dictionary Editor Toolbar to return to the UniIn variable.

8.16   Find a variable from the template in the Dictionary Editor

To view the definition of a variable located in the document, highlight the variable in the document (excluding the field brackets) and click the Go to definition icon in the Dictionary Editor toolbar . This will jump to the variable definition in the Dictionary Editor.
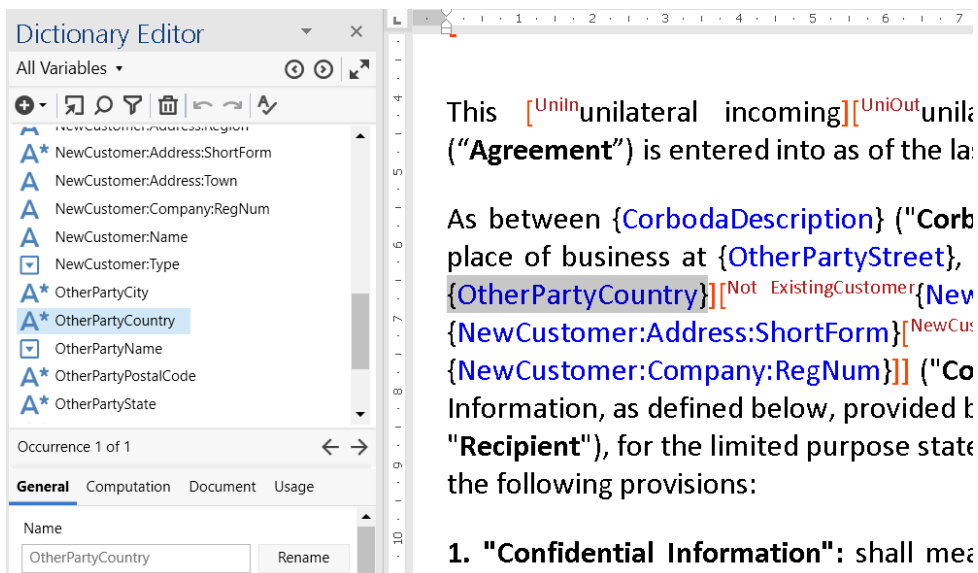
8.17   Check the mark-up of the current document

Click the Usage Check icon at the bottom of the Dictionary Editor to force Contract Express Author to scan for errors in the current document and refresh the Dictionary. If Contract Express Author finds any issues with the current document it will display the number and type of errors in the footer. The Usage Check issues are classed as serious (red stop sign), non-serious (amber triangle) and warnings (blue information icon)

Click on the status bar to open the status pane to view the issues:

The list presents the issues in order of severity with the most serious errors at the top. The errors are further categorised by a bolded type to provide quick context as you scan through the list. The areas are as follows:

- **Brackets**: misplaced or missing field or span brackets
- **Datatypes**: incorrect datatype of parameters in used in an expression
- **Definition**: issues found in properties of items in the Dictionary Editor
- **Logic**: issues in the logic of the template
- **Repeats**: issues related to repeats
- **Setup**: issues related to the setup of the template
- **Syntax**: incorrect or missing characters in an expression

If the issue is related to mark-up in the document, clicking the issue will highlight the area in the document. If the issue is related to a variable, clicking the issue will open that variable in the Dictionary Editor.

9.   Editing Variables

Variables are added and edited in the Dictionary Editor. The Dictionary Editor is opened by clicking the Dictionary Editor button on the Contract Express tab in Microsoft Word. When the Dictionary Editor is opened click on All Variables to access the list of variables in the current document. For a quick introduction to adding new variables see Create a new variable and insert it into a template. For an introduction to the features and functions of the Dictionary Editor see Using the Dictionary Editor.

This topic covers the editing of variables, specifically their attributes.
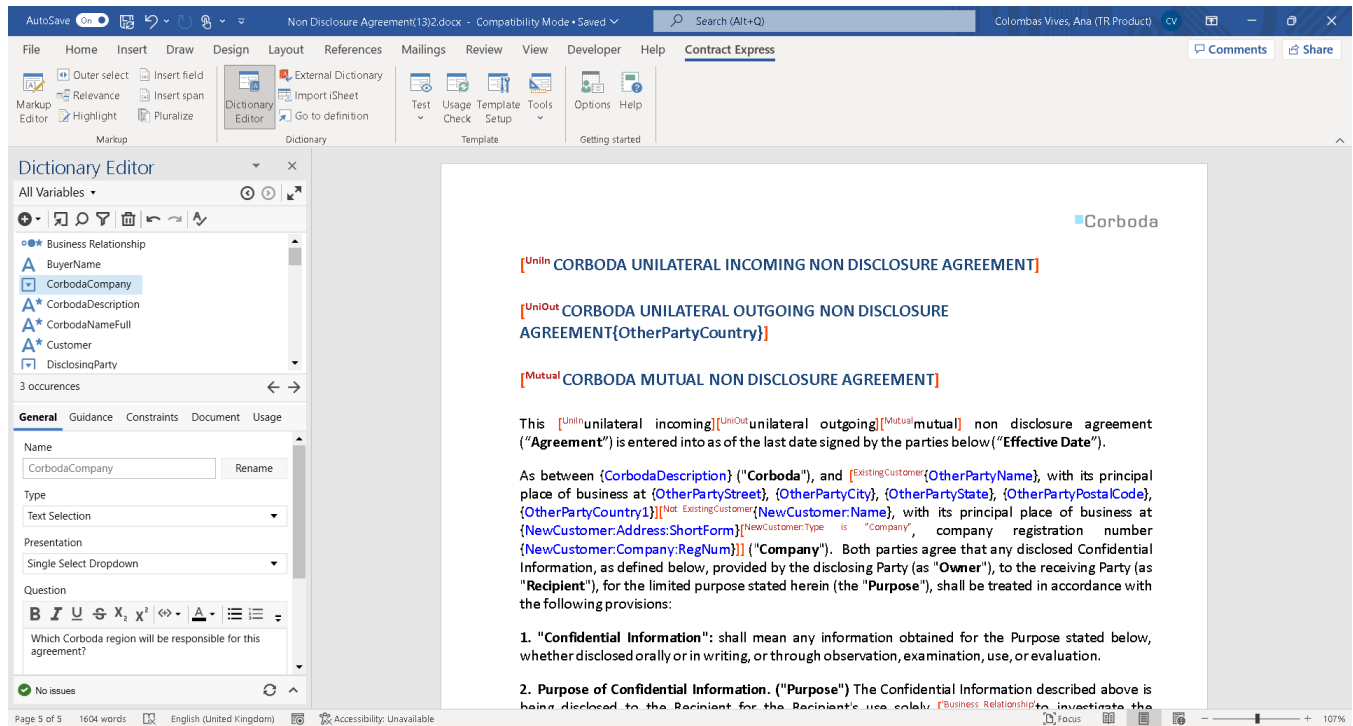
When a variable is selected in the Dictionary Editor the attributes of the variable are visible in the attributes panel. The attributes panel appears below the variable list when the Dictionary Editor is docked in the task pane, or to the right of the variable list when the Dictionary Editor is undocked.
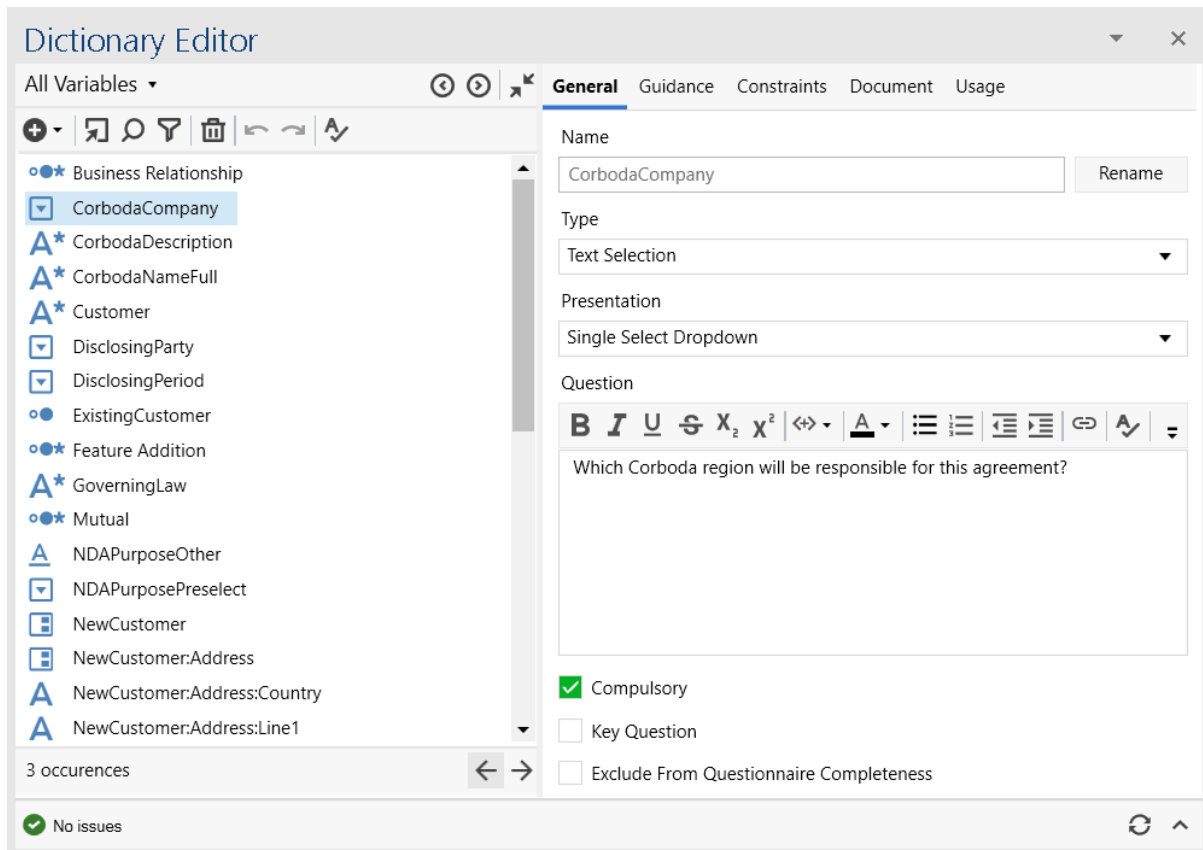
The attributes are organized into the following tabs:

- **General**: Most-used attributes such as Name, Question and Compulsory.

- **Guidance**: Contains both Guidance and Preamble.

- **Constraints**: Selections, default value, character lengths.

- **Computation**: Definition for computable variables.

- **Document**: Including the default format and case.

- **Usage**: relevancy and author notes.

Each attribute is described below.

9.1   General Tab

9.1.1   Name

Specifies the name of the variable.

Note that variable names are not case-sensitive, so **BuyerName** is the same as **buyername** and the same as **BUYERNAME**. However, the name as it appears in the Dictionary Editor is the name that appears elsewhere in the **Contract Express Author** UI, such as **the expression editor**.

If the name of your variable includes a space or any character outside of the letter characters from the Latin-1 Supplement or Latin Extended-A Unicode character set, then the Dictionary Editor will automatically add single quotes around the variable when the variable is added into a field in the template.

> **Escape character and reserved words.**
> If you include a single quote as part of the variable Name, the Variable Editor will automatically add a backslash character to escape the quote: \'
>
> Similarly, if the name includes a backslash, the variable editor will prefix this with a further backslash character \\
>
> If you add fields into the template as you type, you must remember to escape quotes and backslashes where necessary.
>
> There are a number of reserved words which variable names cannot contain such as AND and NOT. The full list is as follows:
>
> > alt, and, answered, as, attach, attribute, authornote, by, capitals, cell, cloaked, collect, collectvalues, committed, datatype, deferred, definite, doctitle, document, else, every, exists, export, expressiontext, false, foreach, format, from, hyperlink, if, ifknownelse, include, is, isatleast, isatmost, islessthan, ismorethan, isnot, known, knowntrue, label, list, lower, mark, nonmutualand, nonmutualor, nonrepeated, not, note, now, occurrence, onlyoninput, onlyonoutput, onlyother, or, other, otherselections, picture, prefix, prescribedselections, proper, punctuation, ref, reference, relevance, repeat, repeatcontext, repeatcounter, select, selectionoptions, sensitive, simplify, spanrelevance, style, sure, template, templaterelevance, textfile, then, to, today, true, unrepeated, upper, using, value, where, with, xor
>
> Additionally, you cannot use the following symbols as the variable name (but they can be included as part of the variable name if quoted):

9.1.2   Question

Specifies the question text that is displayed on the questionnaire displayed to end users. This can have rich text formatting using the rich text controls above the text box.

9.1.3   Type

The type of the variable primarily determines how its value is collected on the questionnaire, and secondly how that value appears in a generated document.

The type of a variable determines the kinds of values that can be entered in the field on the questionnaire and how that information can be used in your master document. For example, when **Contract Express** encounters a date type it will add a field and a calendar popup box on the questionnaire page. When displaying the answer to this date in the generated document you can choose whether to have it display in short form e.g., 01/01/2008, long form 1st January 2008 or a custom format.

The type of variable also determines how you can manipulate that variable in your master document. A variable whose type is set to a number can be used in numeric calculations. For example, it is possible to add two number variables together and put the resultant calculation into a field in the document.

Variables that ask the user to choose from a series of selections are well suited for controlling the inclusion of conditional text. This is because each item of conditional text is based on some pre-configured option, rather than a number or free text.

Type	Description
Text	Any single row of text
Multiline Text	Any multiline text
Text Selection	A list of **text** selections from which one or many can be chosen (see special note below)
File Upload	A path to a document to be uploaded and re-generated
Yes/No	Yes or No options
Whole Number	A whole number, including positive and negative numbers but no decimals
Decimal Number	Any number, including positive and negative whole numbers and decimal numbers
Date	Any date
Time	Any time
Entity	A collection of data values from multiple variable types
Computable	Derived from an expression. Could be a calculation containing number variables, a concatenation of text variables or a business rule based on multiple text selections with "AND" and "OR" operators

> 💡 **Text selections are text types**
> Even if your text selection contains a list of numbers, **Contract Express Author** will treat these as text options - you must refer to them with quotes in Business Rules. If you want to perform numeric calculations on text selection options then you will need to convert them to a number using the ToNumber number function.

9.1.4   Presentation
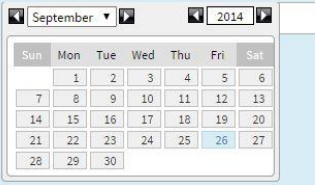
This attribute is only applicable to *Yes / No*, *Date*, *Time*, *Whole Number* and *Text Selection* variables. The presentation determines how values are presented, and thus collected, on the questionnaire.

The options available in the presentation drop-down list vary according to the type of variable.
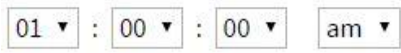
Presentation: Yes/No Variables

Radio Buttons	The user is presented with a pair of radio buttons representing Yes and No.	
Check Box	The user is presented with a single checkbox representing Yes (checked) and No (un-checked).	
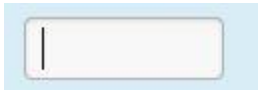
Presentation: Date Variables

Calendar	The user is presented with an edit box and a button which invokes a popup calendar.	
By Format	The user is presented with a mixture of edit boxes and drop-down selections that are determined by the year/month/day ingredients in the variable's default format.	
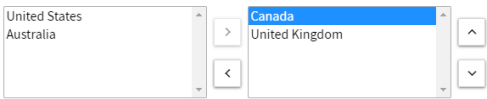
Presentation: Time Variables

Clock	The user is presented with an edit box and a button which invokes a popup clock.	
By Format	The user is presented with a mixture of edit boxes and drop-down selections that are determined by the hour/minute/second/am pm ingredients in the variable's default format.	

Presentation: Whole Number Variables
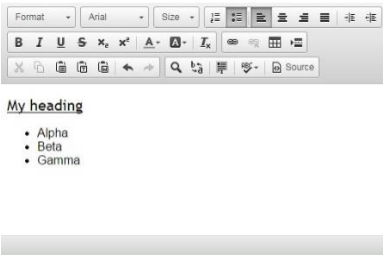
Edit Box	The user is presented with an edit box in which the whole number value can be entered.	
Calculated From Repeat	The question does not actually appear on the questionnaire but is calculated as the number of repetitions created for one or more repeated variables.	N/A

Presentation: Text Selection Variables

Single Select Drop-down	The user is presented with a drop-down list from which one and only one option can be chosen.	
Single Select Radio Buttons	The user is presented with a group of radio buttons of which one and only one radio button can be pressed.	
Multi-Select List	The user is presented with a select box containing options from which none, one, many or all can be chosen.	
Multi-Select Ordered list	the user is presented with a select box containing options from which none, one, many or all can be chosen; selected options are moved to the right	

	where up and down arrows can be used to change the order in which they should appear	
Multi-Select Checkboxes	The user is presented with a group of checkboxes of which none, one, many or all can be checked.	United Kingdom United States Canada
Searchable List	The user is presented with an edit box - as they type characters a select box appears which contains options that match what they have typed - one and only one option can be chosen. Searchable lists must always be dynamically built.	m Madrid Manchester Minneapolis Montreal Moscow

Presentation: Multiline text variables

Rich Text	The user is presented with an edit box with various formatting options. This is for populating HTML.	My heading • Alpha • Beta • Gamma

9.1.5   Compulsory

Specifies whether the question is compulsory (checked) or non-compulsory (un-checked). When compulsory is checked, the question must be answered by the user. A compulsory question is indicated on the questionnaire by the presence of a red asterisk, between the question and the value field. Contract Express will not allow any questionnaire page to be submitted if it contains a relevant compulsory question that has not been answered.
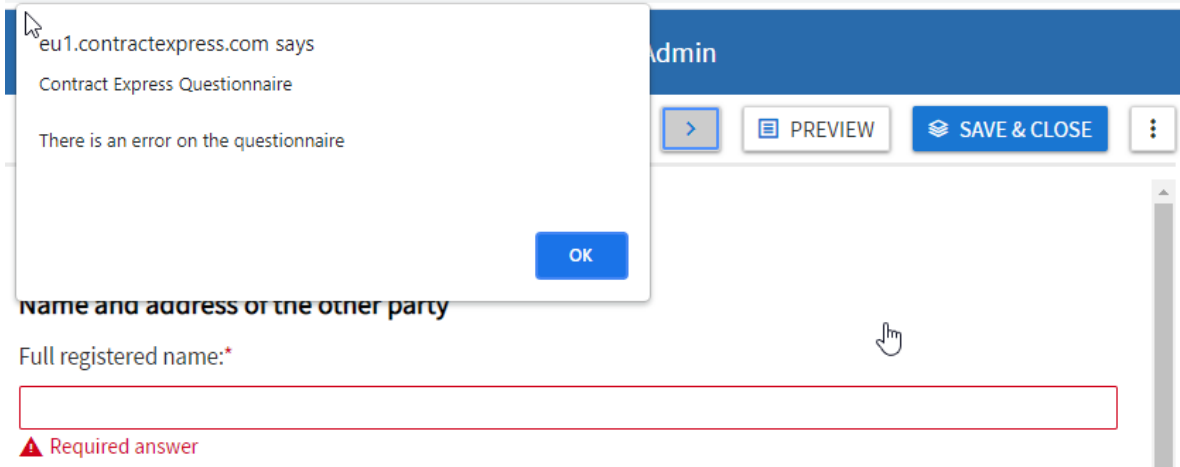
9.1.6 Key Question

Specifies whether it is a key question (checked) or not (un-checked). The questionnaire can be configured so that it only contains key questions. This can be achieved by creating a new profile in **Contract Express** and changing the setting **Display a subset of questions on the questionnaire.**

9.1.7 Exclude from Questionnaire Completeness

When a question is optional and a value is not required to generate a complete document, it can be excluded from the questionnaire completeness calculation so that the questionnaire shows as complete even if they are not answered.

Answers to such questions will not be taken into account when the page completeness and the overall progress of the questionnaire is calculated. For example, imagine a questionnaire page that contains several address fields including Address Line 2. If this variable is marked as excluded from the questionnaire completeness, the questionnaire page will display the green checkbox of completion even if Address Line 2 field is left blank.

9.1.8 Auto-trim

When the auto-trim attribute is enabled, any leading and trailing space characters will be automatically removed from the text that is entered into questionnaire. It is particularly useful when the corresponding field in the document has punctuation on either side.

This attribute is relevant to text variables and can be enabled (Yes), disabled (No), or controlled by a profile setting (Default).

- For new variables, the auto-trim attribute will default to Yes.

- All text variables created before this attribute was introduced in Contract Express 8.10 will have the value set to Default.

The default behavior is controlled by a profile setting, with the built-in profile value set to No. Auto-trim can be enabled for all text variables by changing the profile value to Yes.

Default for auto-trim of text variables
○ Yes
◉ No

9.2   Guidance Tab

9.2.1   Guidance

Specifies the guidance text that appears on the questionnaire. This is edited in the same way as the question attribute except that it will appear below, rather than above, the variable's answer box, and in smaller text. As with the question, rich text formatting can be applied to guidance.

Images can be placed within the guidance by switching the editor to source mode. Click on the icon ⟨⟩ then enter the URL for the image using a HTML image tag (e.g. *<img src="URL">*)

9.2.2   Preamble

Specifies the preamble text that appears on the questionnaire.

This is very similar to the guidance attribute except that it appears above the question on the questionnaire. As with the question and guidance boxes, rich text formatting can be applied to preamble text.

9.3   Constraints Tab

9.3.1   Selection List Items

This attribute contains sub-attributes that determine whether the user can pick only a single choice or multi-values and how they are presented on screen.

There are a group of sub-attributes that collectively determine which selection options appear on the questionnaire:

- **Dynamic**: Options are specified statically or dynamically.

- **Search Mode**: Searchable lists can use "begins with" or "contains" to match the text entered by the user.

- **Unknown**: The questionnaire user can explicitly state that the selection is unknown.

- **Other**: The questionnaire user can specify options that are not in the list.

- **All**: The questionnaire user can select all options with a single click.

The Selection List Items section determines how individual options in a text selection are specified. There are two options and the Dynamic checkbox controls which of the options is selected as follows:

1. Dynamic is unchecked: The text selection will be a static list of options

2. Dynamic is checked: The text selection will be built dynamically from an expression such as a lookup expression

Static options are entered into the edit box on separate lines.

Default values are chosen by selecting an option and then clicking the Toggle Default button which will embolden the option and pre-select that answer on the questionnaire.

Dynamic options are expressions entered into the edit box which result in a list being created. The edit box makes use of the code completion feature as detailed in Code completion of expressions.

For example, in the sample Non-Disclosure Agreement, the OtherPartyCountry variable is a text selection whose text selection options are defined as a dynamic list. The expression is **Select Country** which instructs Contract Express to look for a lookup table containing a column called Country and present the options in the questionnaire from that lookup.
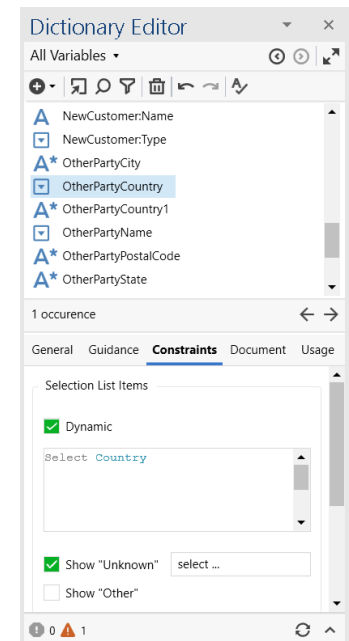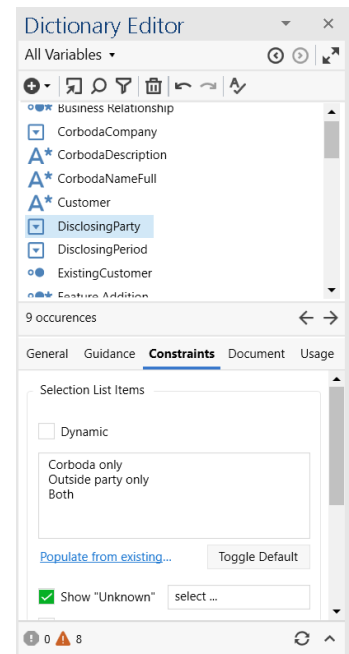
Text Selection variables can have a **Presentation Type** of **Searchable List**. This results in the questionnaire presenting the user with a text box, but as the user types into the text box a drop-down pane will appear displaying text selections which match the text entered so far. The Search Mode attribute is displayed for Text Selections of this Presentation Type and defines how Contract Express will perform the search. The options are:

- **Begins With**: Only items that start with the entered text will be displayed

- **Contains**: Any item that contains the entered text will be displayed

When **Show Unknown** sub-attribute is checked an additional option appears on the questionnaire which allows the user to explicitly state that the selection is unknown. This is useful if you do not want the text selection to be pre-filled with a default value. You can change the label for the unknown option from the default "select ..."

When **Show Other** is checked an additional option appears on the questionnaire which allows the user to enter an option or options that are not in the list of options.

This additional option is labeled Other (for english_uk and english_usa locales) which can be changed by entering the new label in the corresponding edit box to the right.

For example, consider a multi select checkboxes list of options representing communal areas in a leased property.
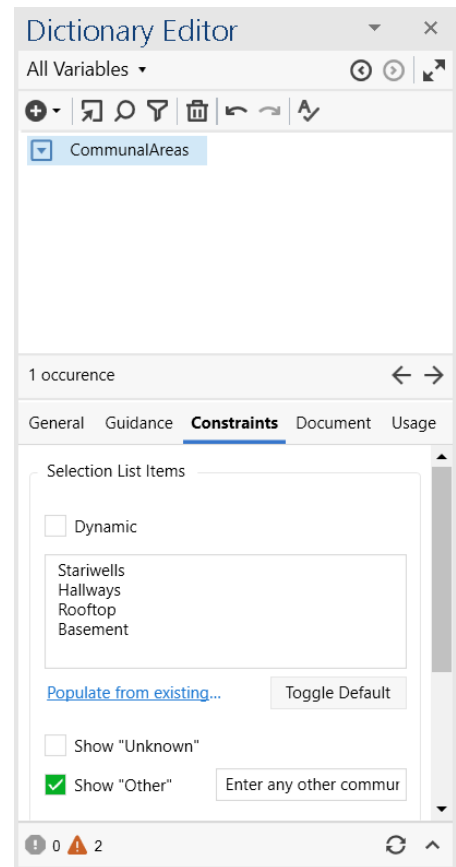
> 💡   **Business rules testing for Other**
>
> Consider the effect of the user choosing the "Other" option on your generated document. If you are only using the variable in a field, their answer will automatically be used for the value of the field. If you are using the variable as part of a Business Rule you may need to add extra provision in for when they choose Other. Business Rules based on this scenario use the Other(VariableName) function.

Dynamic selections are used anytime we do not want to use static options for our lists. They can be built from other multi-select variables, repeat values, lookup table, database tables views or SharePoint lists.

Consider a multi-select variable with product options:

We may then want to choose which Products are being sold with a support package using one text selection variable:

To do this we use the answer to the Product question as the Options for the Support question by entering it into the Dynamic Selections area for SupportPackage.

We can also use Repeat values as the options for a text selection variable. Since text selections are filled with Lists, we need to build a list from our repeated values. We use the Collect function to do this. Let's say we ask for one or more PartnerNames within a repeat span. Therefore, our dynamic selections definition for the text selection variable EquityPartners becomes:

> Collect(PartnerName)

Columns from lookup tables can also be used to populate the options of text selections. In the dynamic selections area, we use a select statement to refer to the column name, for example:

> Select State

We can also display one column as the options seen on the questionnaire but have the value of the text selection come from another column. This is useful if you want the user to choose the state but actually have the state code as the value for the variable:

> Select Statecode, State

In the above example, the options on the questionnaire would be populated with state names such as Alabama, Alaska, Arizona etc. but the value in the document would be AL, AK, AZ (useful for addresses).

Columns from database tables, views or SharePoint lists can also be used to populate the options on a text selection variable. These are similar to working with lookups but you must add a FROM clause to the select statement to state the table name the lookup is to be performed on:

> Select State From USStates

Or:

> Select Statecode, State From USStates

When data values actually reside in an external source, you must set up a link to that database by defining a Table in Contract Express. Once the view has been created you can use Select statements such as those referred to above. You must always use a From clause.

Distinct Repetitions attribute is only pertinent for selection list variables within repeat groups. It allows the user to ensure that each value from the selection list is used only once. If the same value is selected on another repeat, a compulsory warning will be raised. The display text of the warning can be customised using the text box below the Distinct Repetitions checkbox.
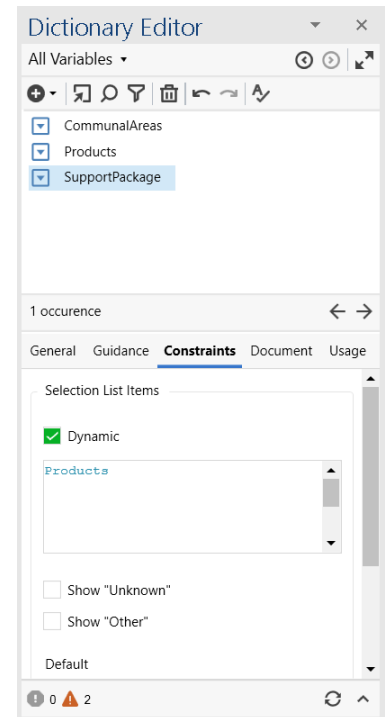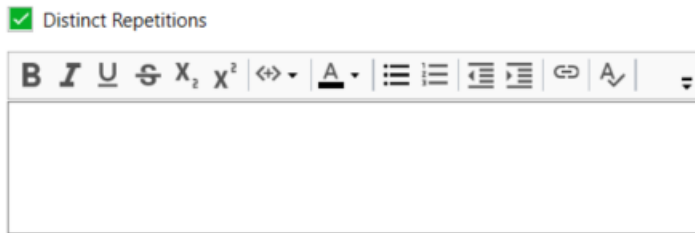
If no text is entered, the default warning text will be used.

In the questionnaire, the user will also see the links to the questionnaire answers that have been evaluated to trigger this warning.
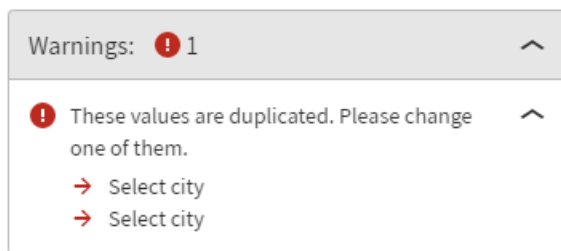
9.3.2   Template

This attribute is only pertinent for Entity variables.

9.3.3   Allow new

This attribute is only pertinent for Entity variables.

Controls whether new entities can be used when completing the questionnaire. If checked, Business Users will be able to add new entities. If un-checked, Business Users will only be able to add existing entities when completing this question.

9.3.4   Filter

This attribute is only pertinent for Entity variables.

9.3.5   Label

This attribute is only pertinent for Entity variables.

The text entered in the Label field will be displayed as a suffix for the Set/Change/Remove entity buttons in the questionnaire e.g. the Label field has the text "**Address**".

In the questionnaire this will be displayed as:

Set **Address**

Change **Address**

Remove **Address**

9.3.6   Minimum Value

This attribute is only pertinent for Whole Number, Decimal Number, Date and Time variables.

Minimum values are used to ensure the user enters a value that is at least the specified minimum, and are expressions which can be either:

- Entered manually in the edit box, or

- Clicking the corresponding Edit... button to the right of the edit box to invoke the Expression Editor.

The type of the minimum value expression must correspond to the type of the variable. So, for example, Whole Number variables must have a minimum value expression which evaluates to a whole number.

9.3.7   Maximum Value

This attribute is only pertinent for Whole Number, Decimal Number, Date and Time variables.

Maximum values are used to ensure the user enters a value that is at most the specified maximum, and are expressions which can be either:

- Entered manually in the edit box, or

- Clicking the corresponding Edit... button to the right of the edit box to invoke the Expression Editor.

The type of the maximum value expression must correspond to the type of the variable. So, for example, Whole Number variables must have a maximum value expression which evaluates to a whole number.

9.3.8   Default Value

Default values are values used to pre-fill the questionnaire on first use. Default values are expressions which can be either:

- Entered manually in the edit box, or

- Clicking the corresponding Edit... button to the right of the edit box to invoke the Expression Editor.

The type of the default value expression must correspond to the type of the variable. So, for example, *Date* variables must have a default value expression which evaluates to a date.

For a date variable you can use the Today function to default a date variable to today's date. To do this just type Today in the default box. Alternatively, use an If-Then-Else statement to define the default value. Note that you can use a question mark in this expression to leave the default value blank if the condition does not evaluate to true. For example:

If SameDateYN **Then** Date1 **Else** ?

> 💡 **Defaults are only prefill values**
>
> If the variable is un-answered, either because the user removed the default value or because the user did not visit the questionnaire page that contained the question, then the default value is <u>NOT</u> used when generating the document. This ensures that only values that have been submitted (and thus confirmed) by the user can appear in generated documents.

9.3.9   Minimum Character Length

This attribute is only pertinent for Text and Multiline Text variables.

When specified it must be a positive whole number which represents the minimum number of characters that can be entered on the questionnaire.

9.3.10   Maximum Character Length

This attribute is only pertinent for Text and Multiline Text variables.

When specified it must be a positive whole number which represents the maximum number of characters that must be entered on the questionnaire. The text box on the questionnaire will stop the user entering more characters than the value specified for this attribute.

9.3.11   Mask

This attribute is only applicable to Text and Multiline Text variables. There are two kinds of masks that can be specified:

- A pre-defined mask.

- A regular expression that restricts characters in certain positions to be of a certain form.

The pre-defined masks are:

emailaddress	The user must enter a valid email address. Any sequence of characters that contains at least one at (@) character and at least one dot (.) character.
file	Adds a "Browse..." button to the right of the edit box, which enables the user to browse to a file location.

password	The edit box contains bullet characters for every character typed by the user.
telephone	The user must enter a valid telephone number.
	Any sequence of digit (0-9) characters, minus (-) characters and space characters.
	Optional leading plus (+) character.
	Optional matching pair of open/close round brackets.
webaddress	The user must enter a valid web address.
	Any sequence of characters that contains at least one dot (.) character.
searchaddress	Enables the postcode search feature within the questionnaire. A Postcode Search button will be displayed next to the text field in the questionnaire.
	Note that this feature applies to UK postcodes only and will work when using either of the following options:
	• en-GB is the base locale applied to the template
	• If the locale code is manually added to the mask field as /en-GB in cases where the template uses a different base locale:

searchcompany	Enables the company search feature. A "Search Companies House" button will be displayed next to the text field in the questionnaire.
	Note that this feature will only work when using either of the following options:
	- en-GB as the base locale: this will only allow searching for companies registered in the UK - nl-NL as the base locale: this will only allow searching for companies registered in the Netherlands - If the locale code is manually added to the mask field as /en-GB or /nl-NL in cases where the template uses a different base locale. With this option you can use both searches in the same template.
	Mask searchcompany/en-GB ▼

Use the drop-down list to apply a pre-defined Mask. Otherwise type into the Mask edit box to customize the Mask using a regular expression.

The characters in a regular expression have the following meaning:

#	digit character in the range 0-9
a	lowercase letter character in the range a-z
A	uppercase letter character in the range A-Z
^	letter character in range a-z or A-Z
_	optional space character
?	any character
*	sequence of zero or more characters

Any other character in the mask must be matched verbatim. For example, to ensure the user enters a valid UK National Insurance number (of the form AB 12 34 56 Z), with or without space characters to separate the digits,

the mask is:

^^_##_##_##_^

Which represents:

letter, letter, optional space, digit, digit, optional space, digit, digit, optional space, digit, digit, optional space, letter.

9.3.12   Custom Repeat Labels

This attribute is only pertinent for Whole Number variables using a presentation style of Calculated from Repeat. It allows customization of the text on the 3 repeat buttons, the defaults being 'Insert After', 'Insert Before' and 'Delete'.

9.3.13   Tag for Yes

This attribute is only pertinent for Yes / No variables. It allows the user to specify a text label for the 'true' option, the default value being 'Yes'.

9.3.14   Tag for No

This attribute is only pertinent for Yes / No variables. It allows the user to specify a text label for the 'false' option, the default value being 'No'.

9.4   Document Tab

9.4.1   Default Format

The default format attribute determines how, in the absence of any local formatting, variable values appear in a generated document. The default format is interpreted according to the type of the variable. Use the dropdown to choose from popular formats or type your own formatting. Clicking on the Preview Button next to the Default Format box will take you to the Format dialog.

Use the Format dialog to test how formatting will look in the generated document. Use the dropdown at the top to choose formats or customize by typing in your own. The values on the left represent test values and the box on the right will show how those values will look if the formatting is applied. Use the Locale to see how this will affect the output.

9.4.2   Default Case

The default case attribute determines, in the absence of any local case, the casing of variable values as they appear in a generated document. The options are:

- **Capitals**: The first letter of the word will appear capitalized in the generated document.

- **Uppercase**: All letters will appear in uppercase in the generated document.

- **Lowercase**: All letters will appear in lowercase in the generated document.

- **Case-sensitive**: All letters will appear as they are entered on the questionnaire in the generated document.

9.4.3   Default Alternative Text

The default alternative text appears in a generated document if the variable's value is unknown. It will also appear in active text when the variable's value is unknown. You can override the default alternative text of a variable by including an ALT phrase in an expression field.

For example:

{NameBuyer ALT "the buyer"}

9.5   Usage Tab

9.5.1   Variable Usage

This is a read-only field which displays the relevancy of the variable in the current document.

9.5.2   Author Note

The Author Note is for information purposes only. This attribute can be used to describe the role of the variable, or what it means in relation to other variables, or even how it maps onto some external data source. It can also be used to store a temporary note about a variable to remind you of tasks on that variable yet to be completed.

The description does not appear either on the questionnaire or in a generated document.

9.6   Computation Tab

9.6.1   Definition

This attribute is used to define a Computable variable in terms of other variables. For example, to create a new variable which represents 3 months after the execution date.
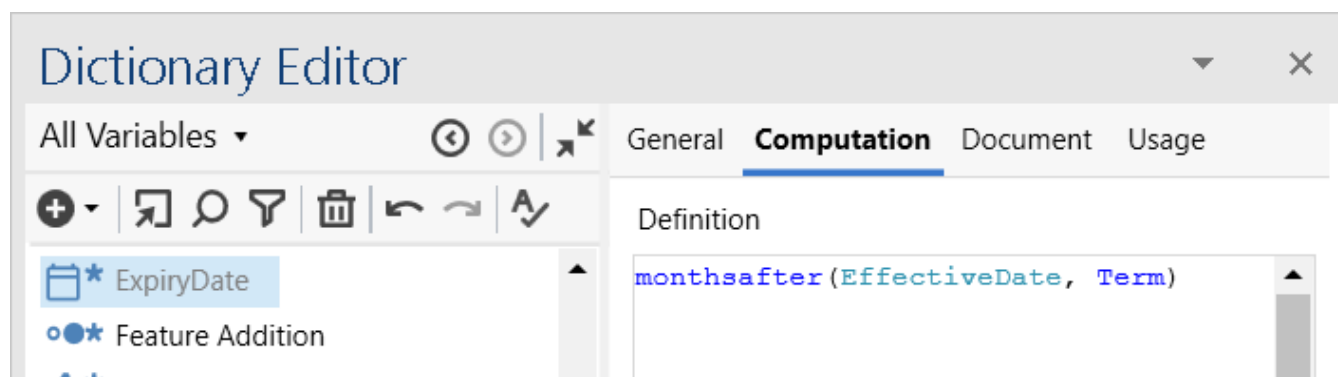
This field makes use of the auto-complete feature as detailed in Code completion of expressions.

9.6.2   Save in Session

If you tick this check box, then the value of the computed variable will be recorded in the answer set. It is only applicable to unrepeated variables. This is useful for exposing data to other systems, such as **HighQ**.

10.   Using the Markup Editor

The **Markup Editor** provides a way for you to view, edit, insert or delete fields and spans in the template. To open the **Markup Editor**, click on the **Markup Editor** icon from the **Contract Express** tab.

With the Markup Editor you can:

- View all spans and fields in the template

- Edit existing spans and fields

- Insert fields and spans into the template

- Delete spans/fields in the template: *note that deleting/editing fields that are variables **will not** edit the definition of the variable in the dictionary. Variable definitions should be edited/deleted via the Dictionary Editor*

10.1   Docking and undocking the Markup Editor to the task pane

When the Markup Editor is opened for the first time, it floats over the top of the Microsoft Word Document in an "undocked" state. This mode works very well if you are using dual monitors as the Markup Editor can be opened on one screen with the document open on another screen. For those users who only have a single screen you may wish to "dock" the Markup Editor into a task pane. To do this, click on the Dock icon in the Markup Editor Toolbar as highlighted below:
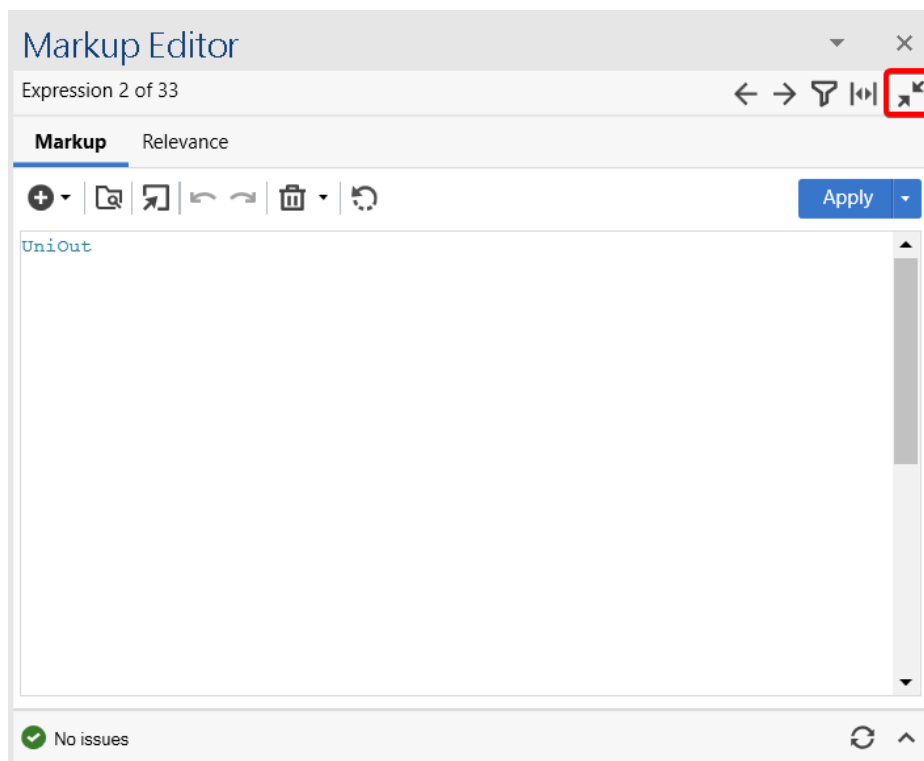
When the Markup Editor is docked it will appear in the task pane on the right side of Microsoft Word. You can undock again by clicking the dock button in the Markup Editor Toolbar.
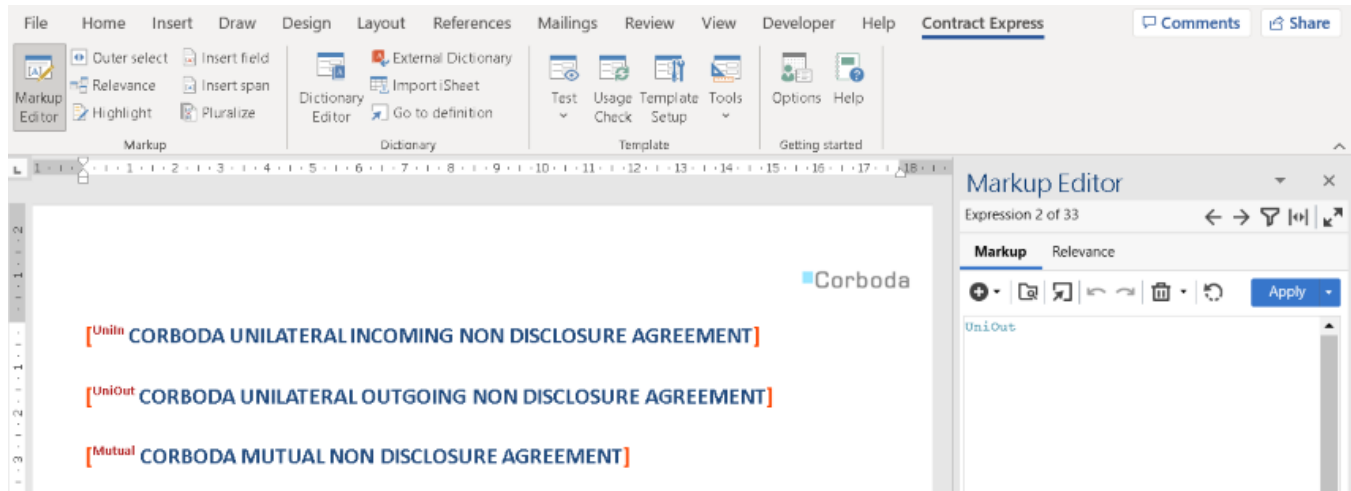
10.2   Choose what markup is displayed in the Markup Editor

Applying a filter and/or a search to the Markup Editor will determine what type of markup is selected when navigating through markup. Most of the filter parameters can be used in conjunction with each other to build a search query. To apply a filter or search click on the filter icon from the toolbar.
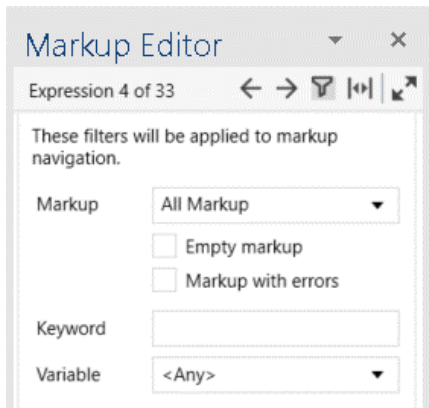
The first dropdown allows you to choose whether to navigate to only fields, only spans or all markup. This selection will be used in combination with other filter/search settings. Select the appropriate option.

The next option allows you to choose whether to display:

- Only empty markup

OR

- Only markup with errors

This option is sensitive to the selection from the Markup dropdown. For example, if "Spans only" is selected from the Markup dropdown menu and "Only markup with errors" is selected, the Markup Editor will only navigate to spans that have errors. This option cannot be used in conjunction with the Keyword and Variable parameters below.

The Keyword field allows you to perform a free text search across the markup. This option is sensitive to the selection from the Markup dropdown. For example, if "Fields only" was selected from the Markup dropdown menu and the text "NDA" is entered, the Markup Editor will only navigate to fields that contain the text "NDA".

The Variable dropdown menu allows you to search for markup that contains the selected variable. This option is sensitive to the selection from the Markup dropdown. For example, if "Fields only" was selected from the Markup dropdown menu and the variable "NDAPurposeOther" is selected, the Markup Editor will only navigate to fields that contain the variable "NDAPurposeOther". When a variable is selected, the navigation order of the markup can be set by choosing whether the navigation starts with the most constrained occurrence of a variable or least constrained occurrence of a variable by selecting the appropriate option.
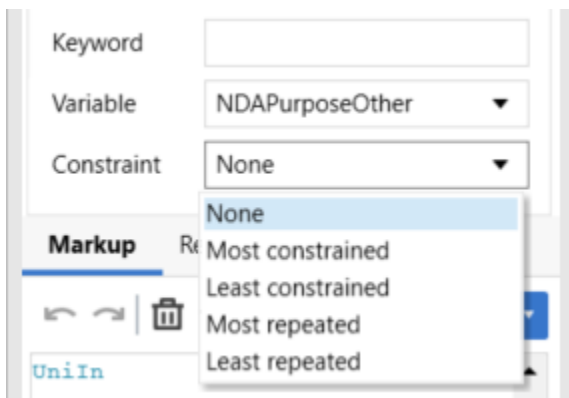
Choosing "Most constrained" will navigate to the occurrence of the variable that has the most relevance conditions. Using the right navigation button, this will navigate to the next occurrence of the variable that has the next most relevance conditions until it navigates to the last occurrence of the variable that has the least relevance conditions.

Similarly, the "Least constrained" option will navigate to the next occurrence of the variable that has the least relevance conditions.

Click on the Filter icon to remove all search and filtering.

You can navigate through the markup using either the navigation arrows or by clicking into the expression in the document. Next to the navigation arrows at the top of the Markup Editor task pane you can see the total number of expressions in the document and the numerical position of the current selected expression.

10.3   Walking up the tree structure of nested spans of text

It is possible to create deeply nested spans of optional or repeating text within a Contract Express template. When deep nesting occurs it is important to be able to walk the structure of the nested optional spans from the innermost span to the outermost span. The Outer select button on the toolbar of the Markup Editor performs this walking of the nested structure.
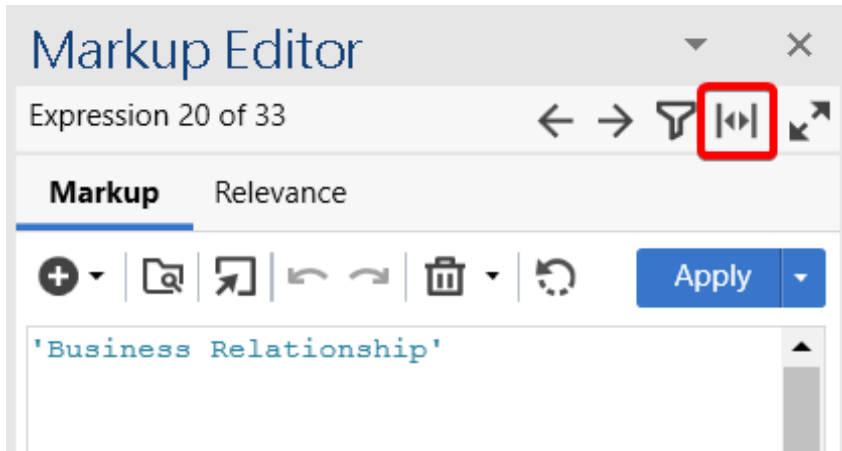
In the following simple example, the cursor is placed inside the field containing the variable VarA. The **Outer select** button is then pressed and variable is highlighted. Pressing again selects the repeat span and this continues until the outermost span is highlighted.
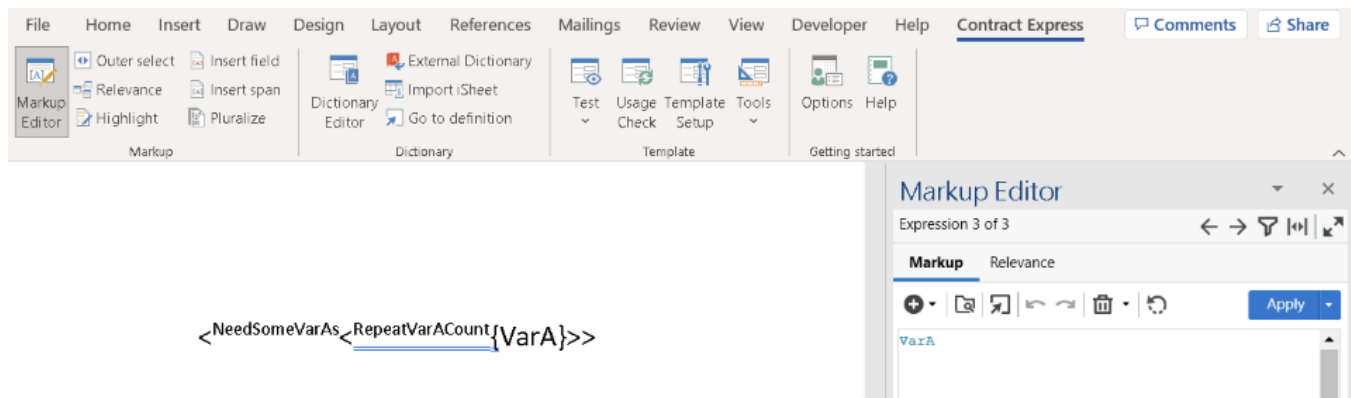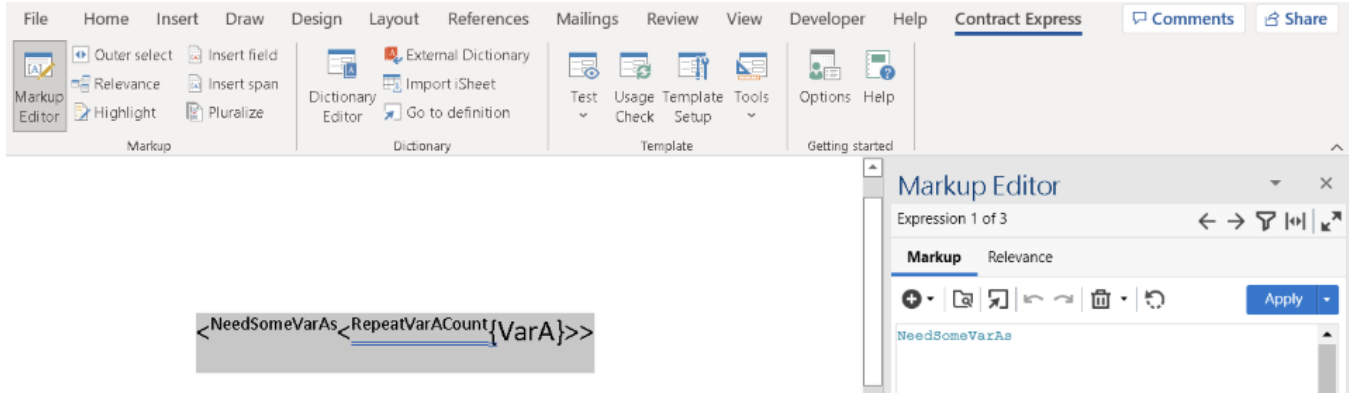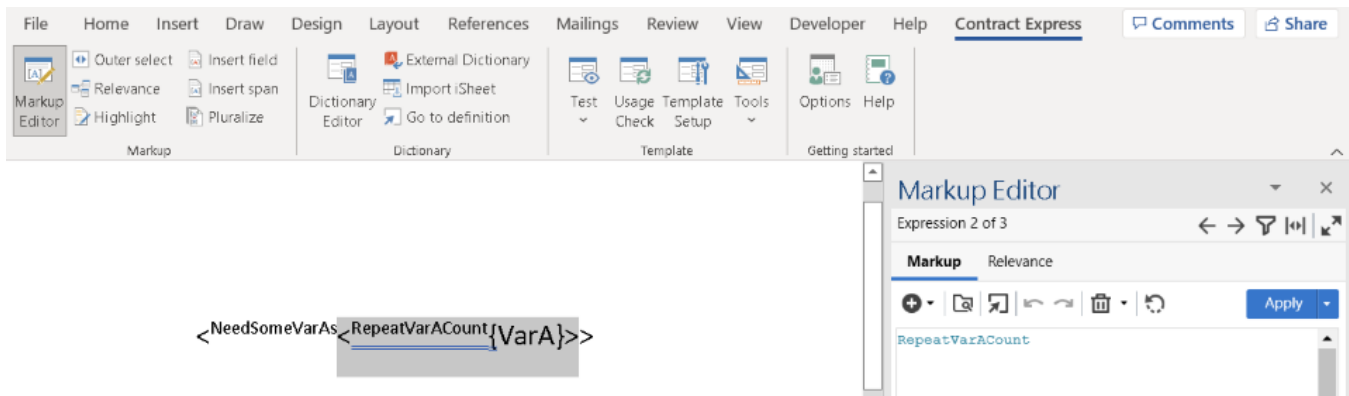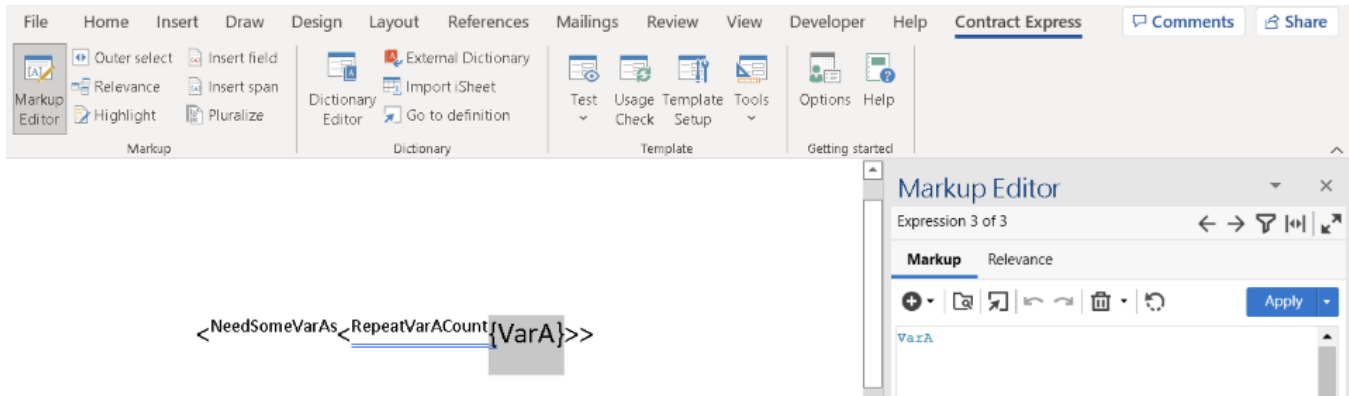
10.4   Updating markup using the Markup Editor

It is possible to update markup via the **Markup Editor**. To do this, click the Markup Editor in the Ribbon and navigate to the span that you would like to update by using the left/right arrows or by clicking into the span in the document.
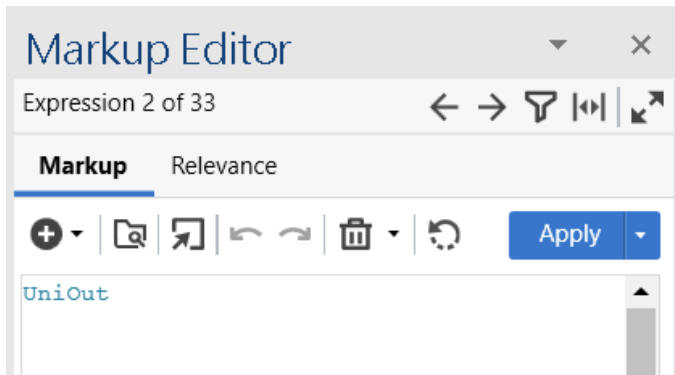
Edit the text in the Markup Expression field then click **Apply** at the top of the task pane. By clicking on the arrow on the Apply button, you can choose whether to only update that single occurrence of the span/field that is selected by clicking **Apply to selected markup**. Alternatively, you can choose to update all occurrences in the template of the selected span/field by clicking **Apply to all matching markup**.

.
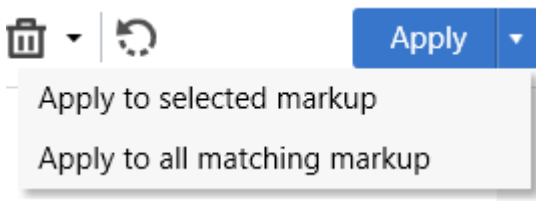
You can revert any edits that have been made to the markup before clicking Apply by clicking on the Reset icon .

If you have started to make changes in the Markup Editor, automatic navigation will be automatically paused to ensure you don't lose your changes. You can step through the document and not lose the edits you have made in the Markup Editor. The following message will appear at the bottom of the Markup Editor to indicate this change:

If at this point you try to navigate away from your edited expression using the previous and next occurrence buttons, the outer span button or the filter button on the Markup Editor toolbar, you will be presented with the following options to ensure you don't lose your work:

- **Go back** will take you back to the originally selected expression in the Markup Editor so you can continue to make edits.
- **Apply changes** will apply your changes to the originally selected expression in the document and will move the cursor to the new expression you were trying to navigate to.
- **Discard changes** will discard any changes you made to the originally selected expression and move to the latest one you clicked into.

Note that it is not possible to edit the definition of a variable that is in a field. This must be edited using the Dictionary Editor.

10.5   Inserting markup using the Markup Editor

It is possible to insert spans and fields into your template using the **Markup Editor**.

10.5.1   Inserting a span

To insert a span using the Markup Editor, highlight the text in the template that you want to be controlled by the span, then click the add icon ⊕ ▾ in the Markup Editor toolbar and select Span from the dropdown.

This will automatically place span brackets around your selected text and the Markup Editor will display "Enter span markup" where you can type the span rule.

You can either type in a new rule or select an existing one from the reuse tool . The reuse tool contains all the span rules currently used in the template plus any Yes/No type variables that exist in the dictionary.

To add a rule from the reuse window, double-click the rule or select it and then click **Insert**. You can type in the search bar to filter through the results shown. You can also look at all fields in the template or all markup expressions together.

Finally, click **Apply** to insert the expression drafted in the Markup Editor into the document.

10.5.2   Inserting a field

To insert a field using the Markup Editor place your cursor where you wish the field to be inserted or highlight the text you want to replace with the field, then press the add icon ⊕ ▾ in the Markup Editor toolbar and select **Field** from the dropdown.
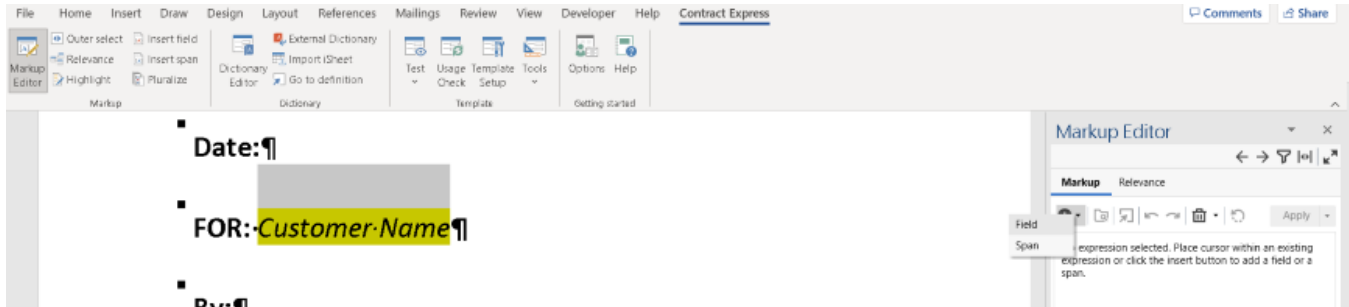
This will automatically replace any selected text with field brackets and the Markup Editor will display the placeholder text "Enter *field* markup" where you can type in your field.

You can either type in a new field or select an existing one from the reuse tool 🗗 . The reuse tool contains all the fields currently used in the template plus all variables in the dictionary.

10.5.3   New variable detection

You can enter new variables into the document using the Markup Editor. When you apply an expression that contains a new variable name, a new variable will be automatically created in the Dictionary.

The Markup Editor will display the link to the newly created variable at the bottom of the panel, click the link to navigate to the variable in the Dictionary Editor and edit the details as needed.
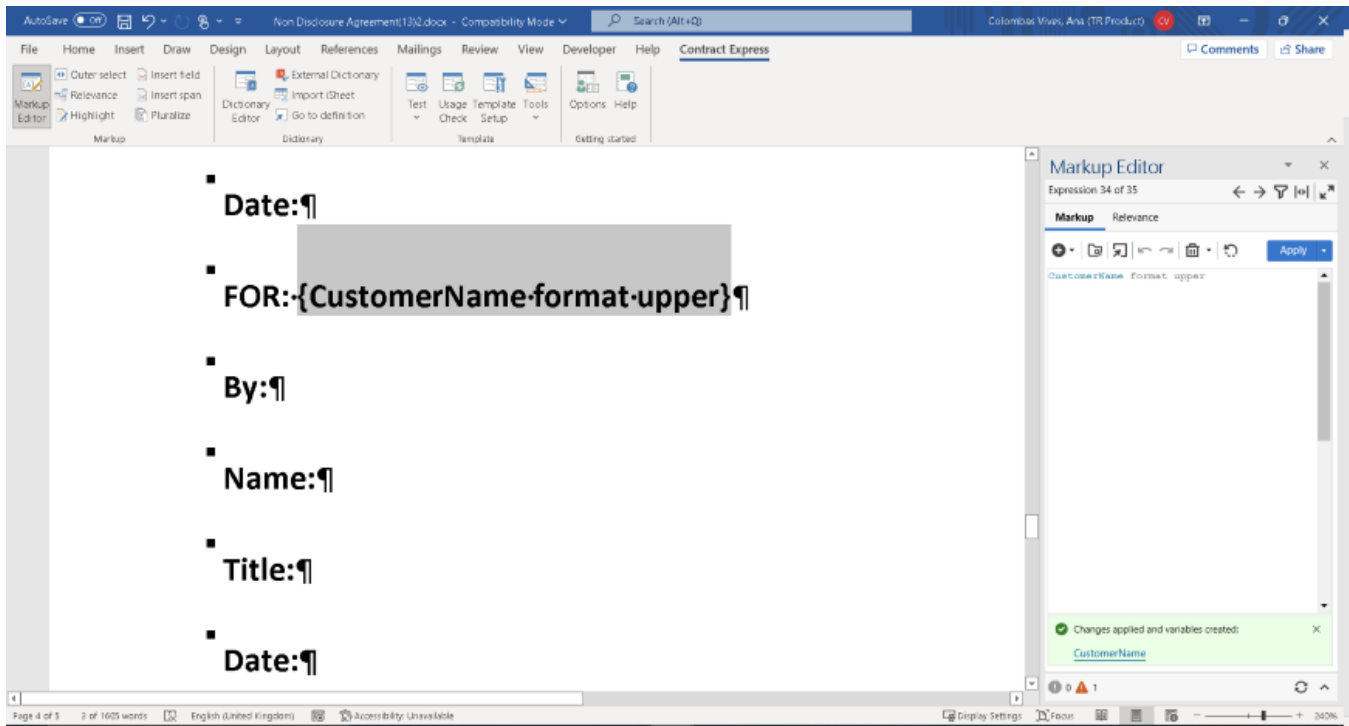
10.6   Deleting markup using the Markup Editor

To delete a field or a span, click the Markup Editor in the Ribbon and navigate to the span that you would like to update by using the left/right arrows or by clicking into the span in the document.
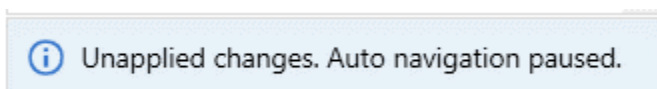
Click on the Delete icon 🗑 ▾ in the toolbar to delete that field/span. By clicking on the arrow on the Delete button, you can choose whether to:

- **Delete selected markup and content: this will delete the markup and the content within the markup for this single occurrence only**

- **Delete selected markup: for this single occurrence, the markup will be deleted but the content within the markup will remain as plain text**

- **Delete all matching markup and content: this will delete the markup and the content within the markup for all occurrences**

- **Delete matching markup: for all occurrences, the markup will be deleted but the content within the markup will remain as plain text**

Note that it is not possible to delete the definition of a variable that is in a field from the template dictionary. This must be deleted using the Dictionary Editor.
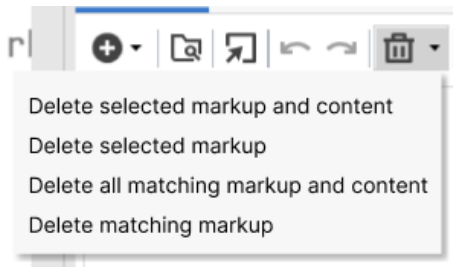
10.7   Relevancy at a point in the document

A key component of the Contract Express solution is the automatic determination of relevancy between variables. This relevancy information is necessary for Contract Express to automatically generate the decision tree within the questionnaire. See Using the Dictionary Editor to find out how to determine the overall relevancy of an individual variable within the dictionary.

In addition to the overall relevancy of an individual variable it is often useful to select individual points in a document and find out the relevancy statement at that point. For example, the questionnaire may not be behaving exactly as you expect. The reason for this might be due to the location of a single instance of a variable in the document not being within the correct spans as the others. The Usage tab in the Markup Editor can assist with troubleshooting issues like these.

To determine the relevancy at a point in the document, open the Markup Editor and use the navigation buttons to navigate to the field/span occurrence of interest using and click on the Usage tab. In the simple example below, the Usage tab is selected for the field {NDAPurposeOther}.
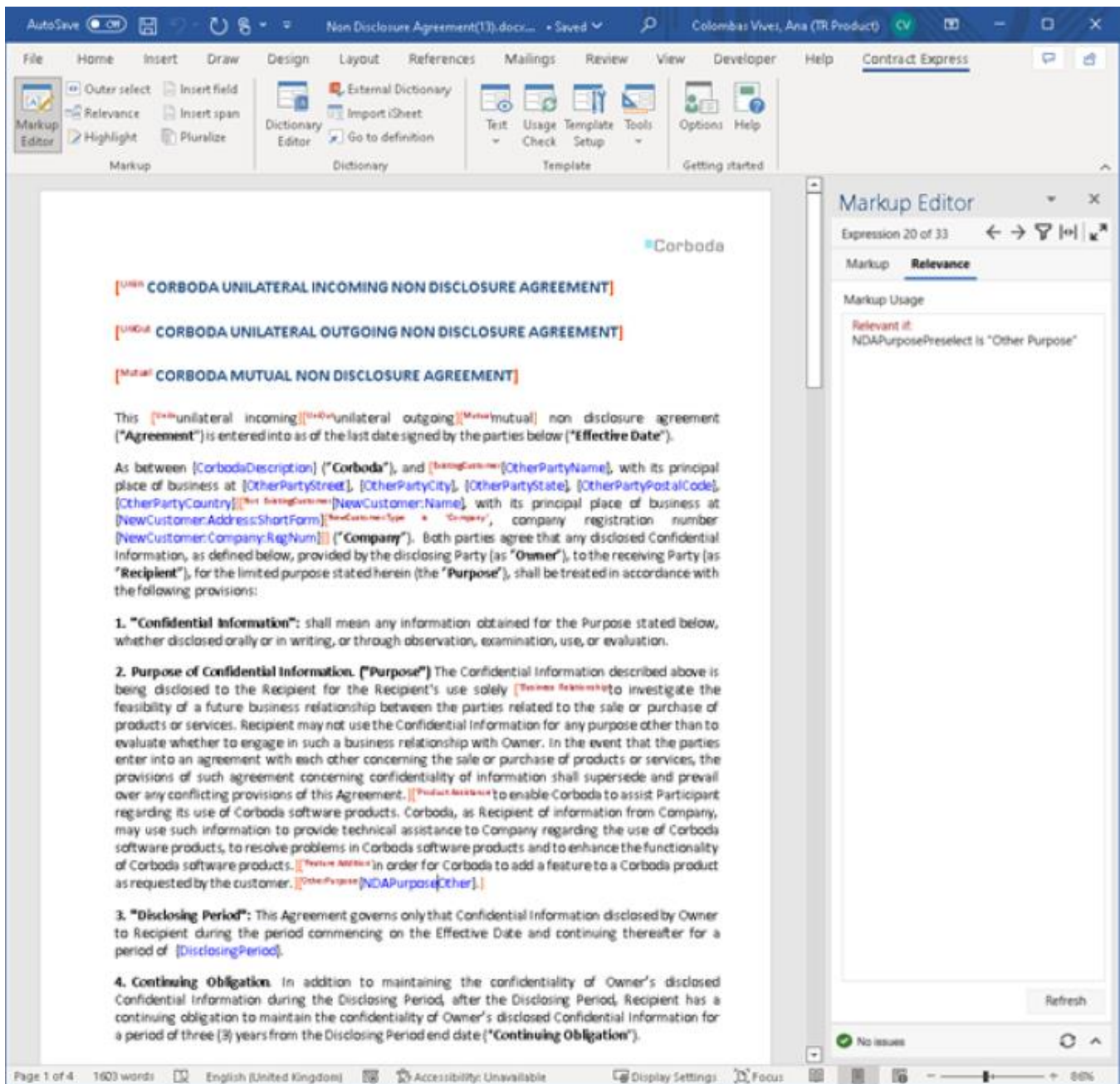
- Note that this is looking at the local relevance of this location in the document and not the overall relevancy of all instances of the NDAPurposeOther.

10.8   Navigate between uses of markup in the template

Use the forward and back arrows in the Markup Editor Taskbar ← → to highlight the next/previous instance of markup in the template. Note that if a filter has been applied this will affect the navigation (e.g. if the filtering is set to only display spans, the navigation will only ever pick-up spans and will bypass fields).

10.9   Go to definition

Place the cursor inside a variable name in the Markup Editor and click on the go to definition icon ⬚ in the Markup Editor toolbar to navigate to the variable's definition in the Dictionary Editor.

10.10 Check the markup of the current document

Click the Usage Check icon at the bottom of the Markup Editor Taskbar ↻ to force Contract Express Author to scan the mark-up in the current document and refresh the dictionary. If Contract Express Author finds any issues with the current document it will display the number and type of errors in the footer. The Usage Check issues are classed as serious (red stop sign), non-serious (amber triangle) and warnings (blue information icon)

Click on the status bar to open the status pane to view the issues:

The list presents the issues in order of severity with the most serious errors at the top. The errors are further categorised by a bolded type to provide quick context as you scan through the list. The areas are as follows:

- **Brackets**: misplaced or missing field or span brackets
- **Datatypes**: incorrect datatype of parameters in used in an expression
- **Definition**: issues found in properties of items in the Dictionary Editor
- **Logic**: issues in the logic of the template
- **Repeats**: issues related to repeats
- **Setup**: issues related to the setup of the template
- **Syntax**: incorrect or missing characters in an expression

If the issue is related to markup in the document, clicking the issue will highlight the area in the document.

11. Organize the questionnaire into groups and pages

The Dictionary Editor allows you to create pages and groups for your questionnaire and to allocate questions to them. To access the Dictionary Editor and organize the questionnaire click on the Dictionary Editor icon in the **Contract Express** tab in Microsoft Word.

Then select the Questionnaire from the dropdown menu at the top of the Dictionary Editor:
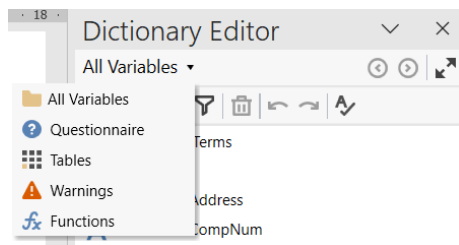
Contract Express questionnaires are organized into pages. On each page is one or more groups. In each group are the questions that the questionnaire user will be asked.

The questionnaire section of the Dictionary Editor is structured into three folders.

- Questionnaire: lists all pages, groups and allocated variables.
- Unallocated variables: lists all question variables that are not added to questionnaire groups yet.
- Computable variables: lists all computable variables which get their values calculated and therefore do not need to appear on the questionnaire.

In the example to the right we can see that the sample template does not have a questionnaire yet defined, but a selection of unallocated variables.
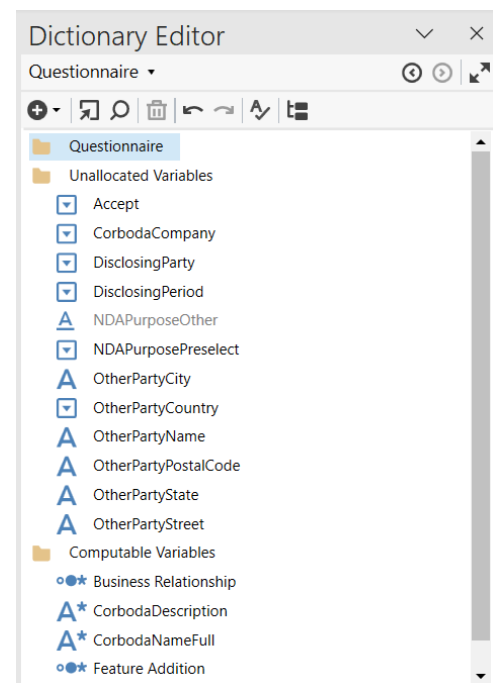
11.1 Arrange questionnaire

A quick way to jumpstart the arrangement of your questionnaire is to use the Arrange questionnaire button on the Dictionary Editor task pane.

It automatically creates questionnaire pages and groups and add unallocated variables to those groups. This feature uses an algorithm which considers the relevancy of the variables and the order the variables appear within the document. Variables which control repeated variables will appear on pages prior to the repeating variables.

When you click Arrange questionnaire button, you will see a prompt asking to perform usage analysis to ensure arrangement is done based on up-to-date relevancy information. Click on the Perform Usage Analysis link, then confirm your request by clicking the Arrange button.

Your questionnaire is now ready to view. Update page and group names and consider adding guidance text to make questionnaire navigation easier. You can also add new groups and pages and drag and drop variables to move variables to another group.
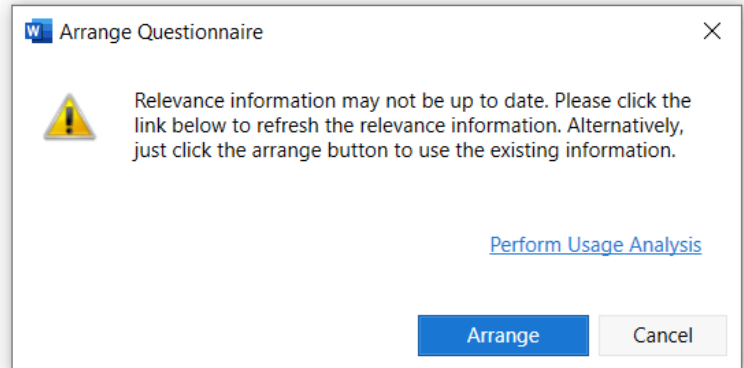
The sections below explain how to create questionnaire pages and groups manually and how to customize their display.

11.2   Adding a page

To create a new page for the questionnaire, you can either select the New Page option from the New icon in the Dictionary Editor toolbar or by right clicking Questionnaire and selecting new page.

The Page will be added beneath Questionnaire and the attributes of the page will be displayed in the attributes pane.
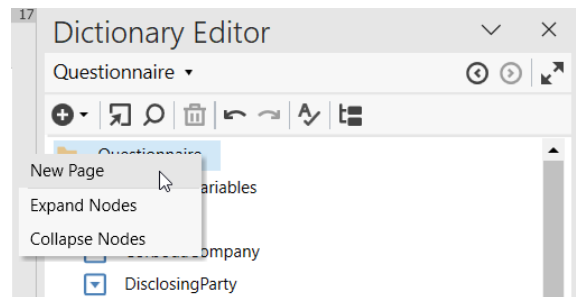
Edit the name of the page on the General tab and page guidance on the Guidance tab:
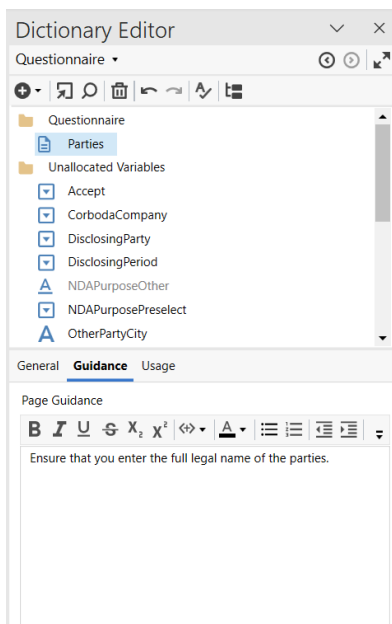
11.3   Adding a group

A questionnaire page must have a minimum of one group before you can allocate a variable onto the questionnaire. To add a group, first select the page the group is to be added to and select Add group from the New button on the Dictionary Editor task pane. Alternatively, right click the questionnaire page and select New Group from the actions menu.
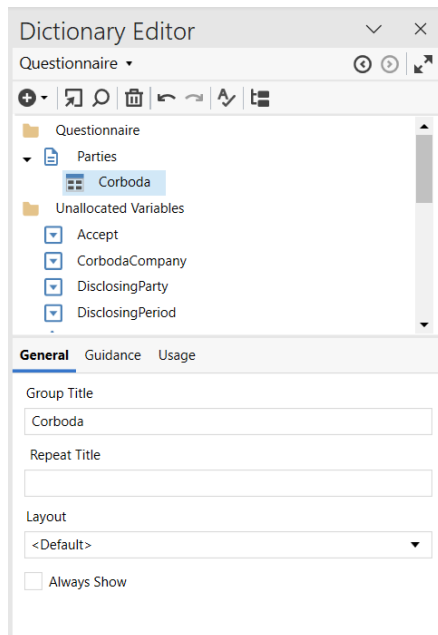
11.4   Adding a variable to a group

To add a variable to a questionnaire group, drag and drop the variable from the Unallocated Variables list into the group. Pages and groups will expand automatically when you drag the variable into place.

If your list of unallocated variables is very large or your list of questionnaire pages is very large, there is an alternative to the drag and drop. First select the group you wish to allocate the variables by left-clicking. Now hold down the Ctrl key on your keyboard and select one or more variables which you wish to allocate to the selected group. Right click one of the selections and select Allocate from the drop-down menu.
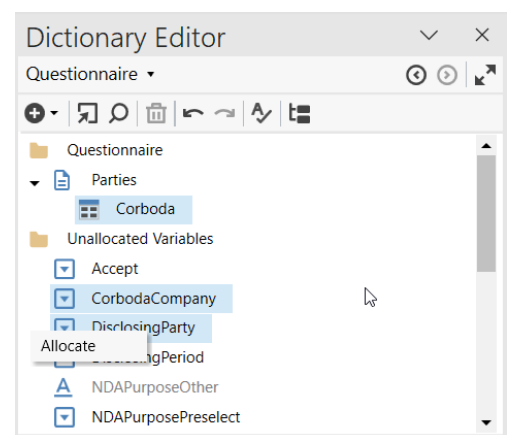
11.5   Deleting pages and groups

Pages and groups can be deleted by right clicking on them and selecting Delete. A confirmation pop-up will be shown advising that deletion of the pages and groups will move the variables from these groups into the unallocated variables list. Confirm with Yes to complete the deletion, or click No to cancel.
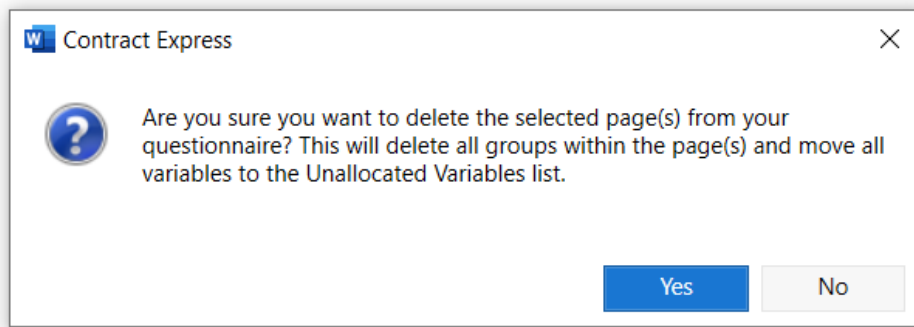
11.6   Duplicating pages, groups and variables

Another right click option on the pages and groups is duplication. This option is very useful if you need to create several pages or groups containing similar variables.

Once you have created the first page containing the relevant groups and variables, right click on the page and select Duplicate. This will clone the page along with all groups and variables within the page. The duplication of a group will clone the group and all variables in this group.

> 💡   Note that this functionality creates copies of all variables in the groups that are being duplicated. If all variables already exist and you only need new pages and groups, it is best to create these pages and groups manually.

11.7   Editing attributes of a page

When a page is selected in the questionnaire, the attributes panel in the Dictionary Editor displays three tabs: General, Guidance and Usage.

- **Page Title**: Use this to change the name of the page that will be displayed in the questionnaire (hint: your first page should be the name of the type of document the user will produce e.g., Sales Agreement, Loan Agreement, Shorthold Lease, etc. This will help to give the user context when they first see the questionnaire).

- **Layout**: Choosing Expanded will show all groups on the page. Selecting the Collapsed option will show only one group at a time with click-able links to the other groups on this page. This is most useful if you

have a lot of groups per page. The <Default> option allows the system default to be used to control the layout of the groups.

- **Always Show**: Check this box if you always want the page to show even if no variables are relevant. This is useful if you want to have an informational page as the first page or last page which contains no variables at all. (Note: checking this for a page that contains variables will not make those variables relevant).

- **Collate Groups**: An advanced setting for nested repeats. Use this on 2nd level repeats that have variables in different groups. This will show the groups within the repeat context rather than the repeated variables over the groups.

- **Guidance**: Type any amount of text in here to give more information to the questionnaire user. For a first page, this could explain more about the type of document they are about to produce, what circumstances to use this in, contact details for feedback, links to further guidance notes   ‹›   contained elsewhere on the intranet or even links to an internet page as well as images. To add   images, click on the icon then enter the URL for the image using a HTML image tag (e.g., *<img src="URL">*).

- **Usage**: The usage tab in the attributes panel will display the relevancy of the selected page.
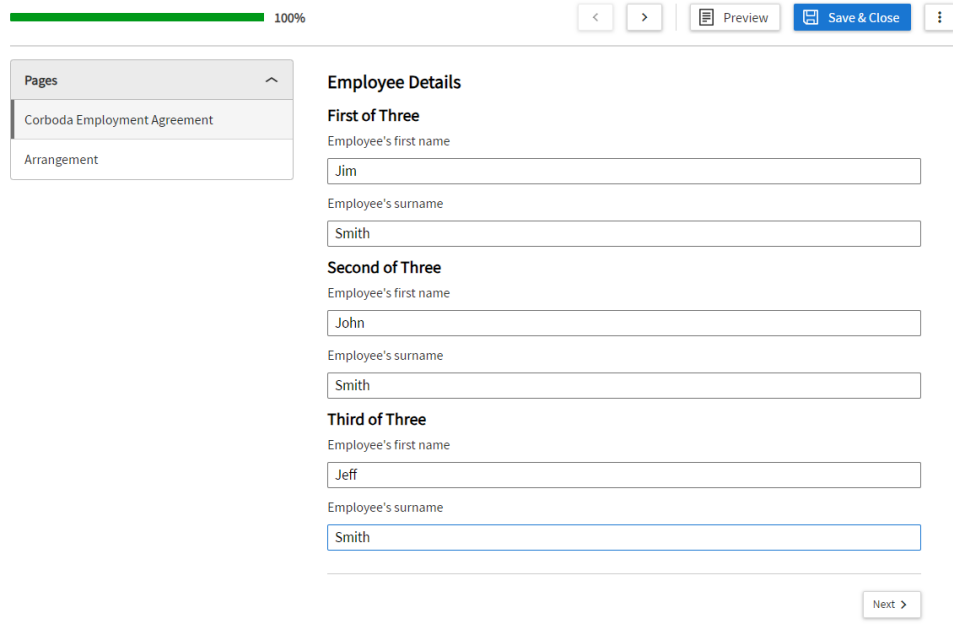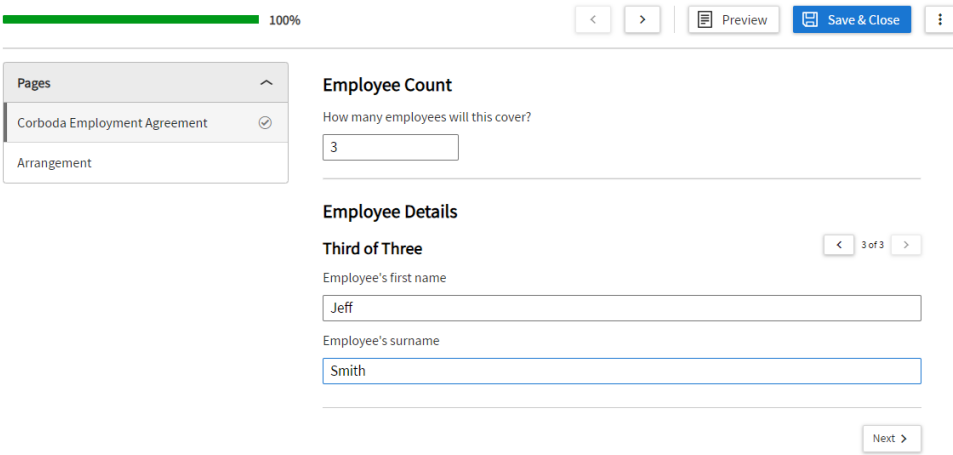
11.8   Editing attributes of a group

When a group is selected in the questionnaire, the attributes panel in the Dictionary Editor displays three tabs: General, Guidance and Usage.

- **Title**: Use this to change the name of the group (hint: think of the variables you are going to put into this group and how you would classify them).

- **Repeat Title**: This is used for groups that contain repeated variables. The Repeat Title can be dynamically generated depending on which repetition the user is in. For example, your group title may be customized and your repeat title may be {RepeatCounter Format "Nth"} which will give you a count of each repetition. For nested repeated groups, a breadcrumb link will appear in the Repeat Titles to help the user understand the variables' relationship with the parent group and easily navigate to it. The breadcrumb will follow the pattern "of [Parent Repeat title]".

- **Repeat Button Label**: Customize the label of the "+ Add" button that appears for repeated groups to help the user easily understand what is added on click, e.g. "Add tenant" or "Add company".

- **Layout**: This is for use with repeated groups only. Selecting the <Default> option allows the system default to be used to control the layout of the groups.

- **Always Show**: Check this box if you always want the group to show even if no variables are relevant. This is useful if you want to give more information or guidance to the user separate from the rest of the page.

- **Guidance**: Type any amount of text in here to give more information to the user. This could explain more about the questions contained in this group and anything the user needs to consider when answering.

This can include intranet or internet links as well as images. To add images, click on the <> icon then enter the URL for the image using a HTML image tag (e.g., *<img src="URL">*).

11.9   Group layout examples

Layout	Example
Expanded layout displays the repeated groups one after another. Expanded layout displays the repeated groups one after another.	
Collapsed layout will show only a single repeated instance of the group with clickable links to navigate between any other repetitions - like a card index.	

Side by side layout option aligns the question prompts and input fields to each other. It is particularly useful for entering multiple numbers one after another. Note that this layout does not support guidance, therefore all input instructions should be added to the question prompt.

Grid, Repeat Rows will show the repeated variables in a table format. Each question will become a column and each repeat will be added in a new row.

Grid, Repeat Columns will show the repeated variables in a table format. All questions will be listed as the row labels and each repeat will be added in a new column.

12.   Adding eSignature fields

Contract Express 8.10 introduced simplified markup to add eSignature configuration to your template. The same markup is used for both DocuSign and Adobe Sign. Contract Express will detect the relevant eSignature provider at the time document is generated and eSignature provider-specific syntax is added to the document at that time.

> 💡 For markup instructions that work with earlier versions of Contract Express, please refer to the Author add-in Help File article "Configure signatories within the template for versions 8.9 and lower".

12.1   Define signatories

eSignature recipient fields are used to define the signatories. When the document is sent for eSignature, these people will receive a DocuSign or Adobe Sign invitation to sign the document.

{ esignature recipient "email" with name as "name" }

- Email: email address is used as the unique identifier of the recipient, mandatory attribute

- Name: first name and last name of the recipient, optional attribute

Examples

{ esignature recipient "john.doe@mail.com" with name as "John Doe" }

{ esignature recipient RecipientEmail with name as RecipientName }

{ esignature recipient RecipientEmail }

Where the name attribute is not specified, the email address will be passed as the name to the eSignature provider.

If there are multiple recipients defined with the same email address, the first eSignature recipient field will be used.

> 💡 The **eSignature recipient** field does not contribute text to the generated document and is completely removed at the time document is generated. The field does drive relevance for the variables used in it.

12.2   Anchoring the signature and other fields

To specify the place in the generated document where the signatory's signature will appear, you can use a signature anchor field.

There are other fields for additional information that can be collected at the time the document is signed, such as date, initials, name, company, title, and email. Anchors can also be used to specify the location on the generated document for each of these inputs. It is important to remember that each anchor must belong to a specific signatory who is identified by the email address.

Anchor fields are added to the template in the following format:

{ esignature anchor "email" *anchor-type* }

- Email: email address is used as the unique identifier of the recipient, mandatory attribute

- Anchor-type: signature, initials, date, name, company, title or email

Examples

{ esignature anchor "john.doe@mail.com" signature }

{ esignature anchor "john.doe@mail.com" initials }

{ esignature anchor "john.doe@mail.com" date }

{ esignature anchor "john.doe@mail.com" name }

{ esignature anchor RecipientEmail signature }

{ esignature anchor RecipientEmail company }

{ esignature anchor RecipientEmail title }

{ esignature anchor RecipientEmail email }

These anchor fields are supported by both DocuSign and Adobe Sign.

When Contract Express generates the document, these anchor fields are replaced with the eSignature provider-specific placeholder text. For DocuSign the placeholder text is added in white font colour. DocuSign does not remove this text and the signature and other fields are added on top of this text. For Adobe Sign the placeholder text is black as Adobe Sign removes this text from the document when the signature fields are added.

The anchor fields also drive relevance for the variables inside it. If there is an eSignature anchor field for an email address that is not defined with an eSignature recipient field, this recipient will be automatically defined by Contract Express and the email address will be used both as the email address and name.

> 💡 eSignature anchors are used for information that must be populated during the signing of the document and is not known at the time document is generated. For information that is certain at the time document is generated, it is best to populate using Contract Express fields.

12.3   Using DocuSign templates

DocuSign templates are used to create custom eSignature settings and workflows, such as the action for each recipient and the order in which they will receive and sign the documents.

When documents are sent to DocuSign from Contract Express, all recipients will have the default action "needs to sign" applied with a parallel signing order, unless a DocuSign template has been applied.

12.3.1   Applying a DocuSign template

DocuSign templates can be applied to generated documents by adding a field in the Contract Express template that uses the following format:

{ **esignature template** "DocuSign template name" }

{ **esignature template** "DocuSign template ID" }

Examples

{esignature template "Mutual NDA"}

{esignature template "Order Form"}

{esignature template "4fbcfb2f-21af-4e99-8b0f-770938fc058f"}

12.3.2   Mapping DocuSign template roles

You can map the eSignature recipients to the DocuSign template's roles by further defining the eSignature recipient fields using the following syntax:

{ **esignature recipient** "email" **with name as** "name", **role as** "role" }

Examples

{esignature recipient "john.doe@mail.com" with name as "John Doe", role as "Landlord"}

{esignature recipient RecipientEmail with name as RecipientName, role as "Disclosing Party"}

{esignature recipient RecipientEmail, role as "Client"}

If you map a recipient to a role that does not appear in the specified DocuSign template, a new role will be created automatically in the envelope and given default settings.

12.3.3 Repeated recipients

To ensure all repeated recipients are mapped, you can create distinct roles in the DocuSign template and assign each of these to the corresponding repeated recipients in the Contract Express template. Where the number of recipients is unknown, best practice is to create the maximum expected number of recipients with the same role to the DocuSign template.

If you have a repeated recipient with a static role that is mapped to a single DocuSign role, only the first repeated recipient will be mapped to the DocuSign template recipient. All subsequent recipients will be added to the envelope with the default settings.

Examples

[^repeat TenantCount^ {esignature recipient TenantEmail with name as TenantName, role as "Tenant"}]

[^repeat TenantCount^ {esignature recipient TenantEmail with name as TenantName, role as "Tenant"**+repeatcounter**}]

When the envelope is reviewed in DocuSign before sending it for signature, any DocuSign recipients that are not mapped to a Contract Express recipient in the document will need to be deleted manually. If the option to automatically send to DocuSign is enabled on the Contract Express template, any DocuSign recipients that are not mapped will be ignored.

You can also create copies of your DocuSign templates for each potential number of recipients, configuring their actions as needed.

Example

{esignature template "Lease for "+TenantCount+"Tenant"+if TenantCount is 1 then "" else "s"}

Where the DocuSign templates are called "Lease for 1 Tenant", "Lease for 2 Tenants", "Lease for 3 Tenants"…

12.3.4 DocuSign custom strings and fields

You can use DocuSign custom fields in your Contract Express templates. Custom fields are created in your DocuSign templates to capture information from the signatory beyond the standard fields provided.

The placement of both custom and default fields in the generated document can be set up in the location tab in the DocuSign template. The "AutoPlace" feature in the location tab allows you to specify a string that will locate the position of the field. These strings should be included in white text in your Contract Express templates to prevent them from showing up in the final generated document.

> 💡 DocuSign templates custom AutoPlace strings can work alongside ContractExpress eSignature fields. Make sure you are not using both to avoid duplication.

12.4   Compatibility of markup

The old-style markup with the computable variable CE_ESignature_Signees and eSignature provider-specific anchors in the template will continue working in Contract Express 8.10 and later.

Please note however that the same template cannot use both types of markup and the old markup will be ignored where the new eSignature fields are detected.

13.   Create a new function and add it into a Template

To create and view user-defined functions within Contract Express Author, click on the Dictionary Editor icon in the Contract Express ribbon in Microsoft Word. Then select the Functions option. Here you will see a list of existing functions that have been created.
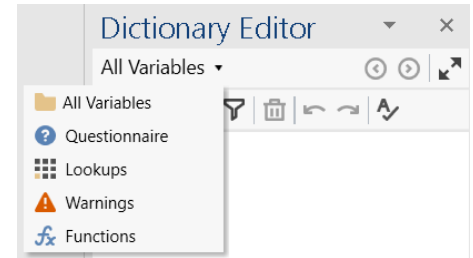
13.1   Create a new Function

To create a new function, click on the plus icon on the Dictionary Editor Toolbar and select New Function. Fill in the Name field and define the function within the Definition field. Parameters of a function are defined using a percentage sign (%) plus the number of the parameter.

For example, if we want to create a function that represents the VAT (Value Added Tax) at 20%, we will define the function as

%1 * 0.2

'**%1**' represents the parameter to use. In this case it is referring to the first parameter but if we wanted to reference a 2nd or 3rd parameter we will use '**%2**' or '**%3**'.

13.2   Adding a Function into the Template

User defined functions can be used in the same way as regular functions. If we wanted to add our example VAT function (from the previous section) into a template, we would enter the following into the template:

{ VAT(NumberVariable) }

Where **VAT** is our defined function and **NumberVariable** is the required parameter.

14.   Accessing data in the questionnaire

Tables provide a way of storing data that can be referenced directly or mapped from the answers that a user has given on a questionnaire. They can be used in multiple ways: storing all of the options for a text selection variable, retrieving one value from another, retrieving guidance for use on the questionnaire and retrieving text to be put straight into the document.
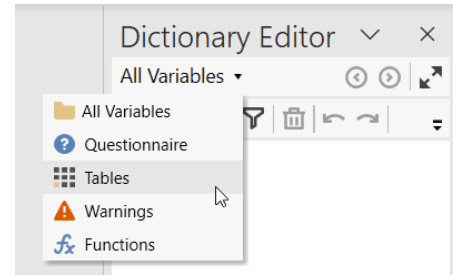
Contract Express provides two different types of tables: Lookups and External Tables. Lookups are managed locally in templates through the Author tool while external tables integrate external data sources into the templates dynamically. To view Lookup Tables and External Tables in your template click on the Dictionary Editor icon in the **Contract Express** tab in Microsoft Word then select **Tables** from the section dropdown.

14.1   Lookup Tables

Lookup tables provide a way of storing data that can be referenced directly or mapped from the answers that a user has given on a questionnaire. They can be used to store all of the options for a text selection variable, or to link one value to another. For example, if a user has selected a geographical location, that answer can be used to find other data (such as the currency or capital city) for that location. This data can be presented on the questionnaire or in the assembled document.

Lookup tables can be found in the **Tables** section of the Dictionary Editor.

14.1.1   Creating a new lookup table

To create a new lookup table, select the new icon from the toolbar then select New Lookup Table from the drop-down menu. You will then be asked to enter the number of rows and columns for the lookup table; these can be edited at a later stage.
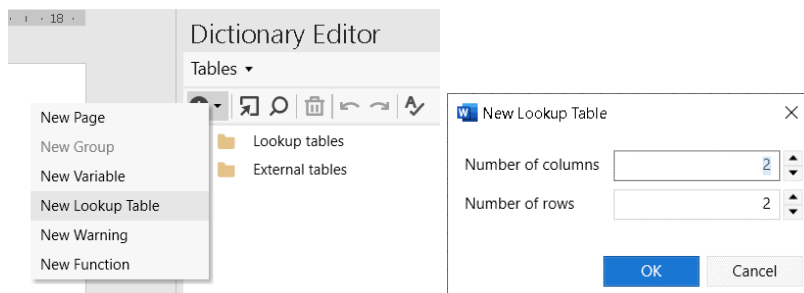
Once you click OK a new lookup table will be created and you will be able to give the lookup table a name.
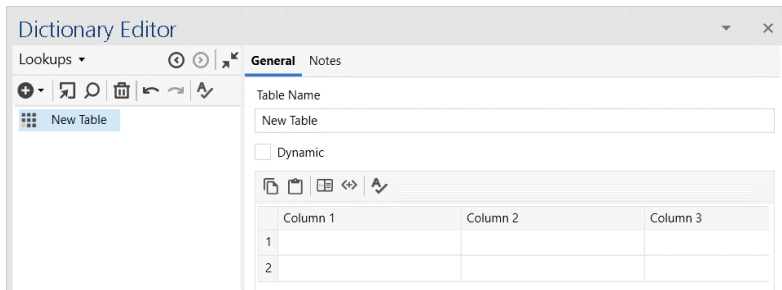
The column headers can be edited by right clicking on the column header and selecting the Rename option. Alternatively, double clicking on the column header will also give you the option to edit the column name.

To insert additional columns, right click on the column header and select either Insert Before to insert a column before the currently selected column or Insert After to insert a column after the currently selected column. Similarly, to delete a column, right click on the column header and select Delete.

Rows can be added or deleted in a similar fashion. Right click on a row and select either Insert Before or Insert After to add additional rows. Select a single row or multiple rows by clicking on a row and dragging the mouse, then select Delete to delete the row(s).
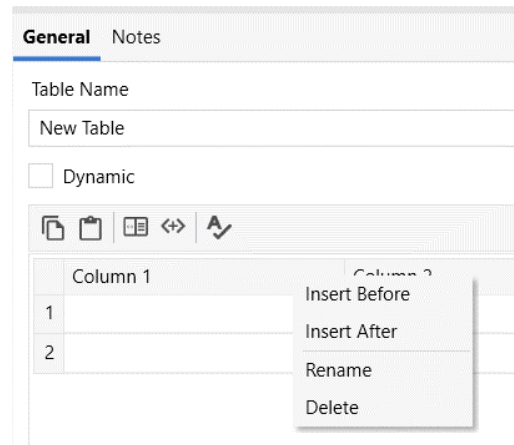
14.1.2   Adding data to a lookup table

You can begin adding data to the lookup table as soon as it has been created by selecting the cell you require and typing the content. You can also apply formatting to the data by selecting the text within a cell and using the toolbar above the lookup table. Note that the formatting applied within a lookup table will be displayed on the questionnaire when the lookup data is included in Active Text. The formatting will not be displayed on the questionnaire if the lookup data is used within the selection of a variable of type text selection.
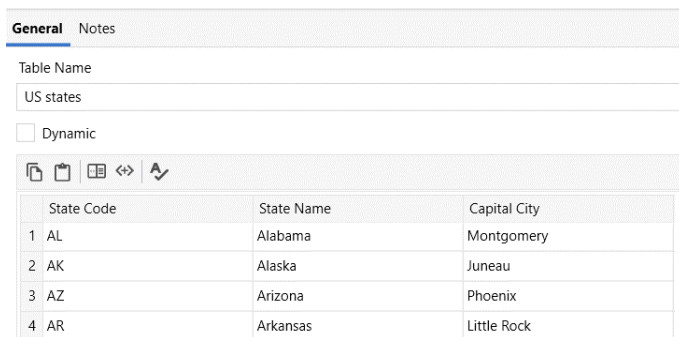
Multiple cells can be copied from an existing Microsoft Excel spreadsheet and pasted into the lookup table. To do this, select the relevant cells in Microsoft Excel and either right click and select copy or use Ctrl+C. Within the lookup table select the arrow button to the left of the first column header and select Paste Table. Formatting that has been applied within a cell in Excel will be carried through to the lookup table.
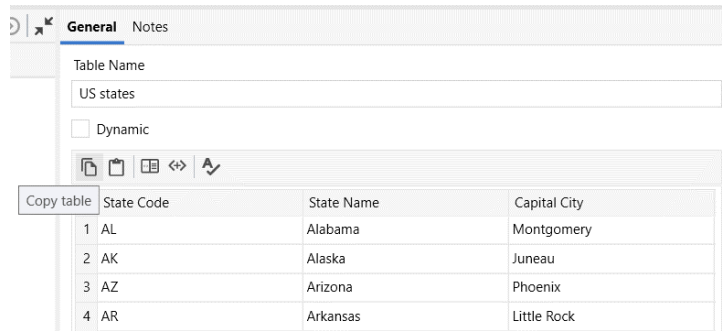
You can also copy data from a lookup table by selecting the arrow button to the left of the first column and selecting Copy table. It can then be pasted into a new lookup table or an Excel spreadsheet.

14.1.3   Dynamic data definition

To use external data within a lookup table, select the Dynamic checkbox. The table will change into a box where you can enter a select expression against an External Table that has been defined in the Contract Express web application under the Admin tab.

Dynamic lookup tables are evaluated once and the result is cached so that subsequent lookup or select expressions against the lookup table do not require the underlying database to be accessed again during that request.

For example, consider a database table named **US States** containing:

State Code	State Name	Capital City	Time Zone
AL	Alabama	Montgomery	Central
AK	Alaska	Juneau	Alaska
AZ	Arizona	Phoenix	Mountain
AR	Arkansas	Little Rock	Central

To link a lookup table to this database, use the following select expression:

   Select 'State Code', 'State Name', 'Capital City', 'Time Zone' From 'US States'

The column names of the lookup table will be the column names of the database table. Note: the single quotes are needed as there are spaces in the table name and column names.

External Tables referenced in dynamic lookup tables will appear in the External Tables section of the Dictionary Editor.
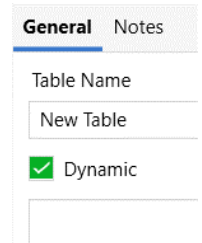
14.1.4 Find a lookup table

To search for a specific lookup table in the list click the Find icon 🔍 in the Dictionary Editor Toolbar. This will open the Find pane above the list of lookup tables. With Current List selected in the Find Where dropdown the search will be performed against the list of lookup tables as displayed on the left.
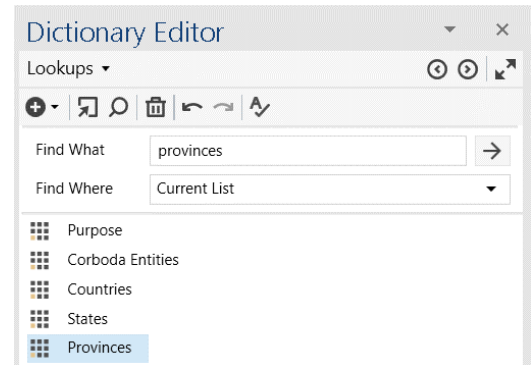
14.1.5 Find content within a lookup table

The Find pane also enables users to search for a string of text within a selected lookup table and to replace that text with new text. Select Selected Item from the Find Where dropdown. Enter what you want to find in the Find What text box and enter the replacement text in the Replace With text box. If you do not want to replace the text, simply leave the Replace With text box empty to only do a search of the lookup table.
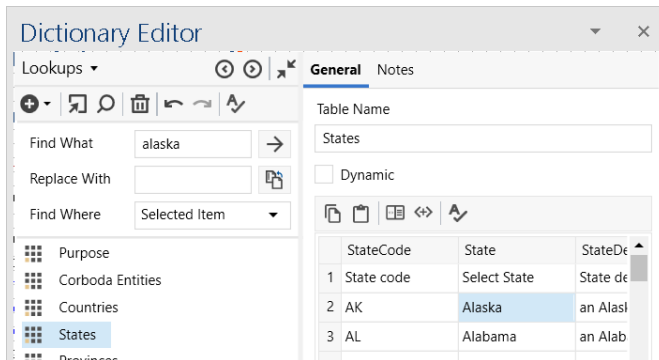
14.1.6 Add notes to a lookup table

Author notes can be added to a table via the Notes tab. These notes are applicable to the currently selected table.
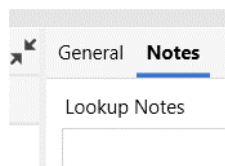
14.2   External Tables

External Tables are used to reference data that is external to the template. You can reference data from HighQ iSheets, SQL and MySQL tables, SharePoint lists, Salesforce and OData, as well as Contract Express datasheets. External Table connections are configured in the Admin tab of Contract Express under the External Table section.

External Tables referenced in a template will appear in the Tables section of the Dictionary Editor. To reference an external table, you can use a select statement in the general form: **Select** return-column **From** source_name

Where Boolean-expression. For more examples of how to reference external data in the template, see the Author Help file article "Select Operator (from External Data Source)".
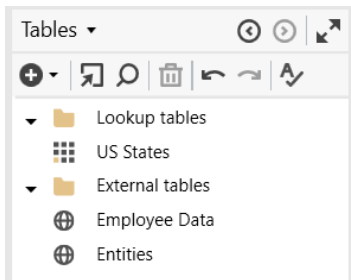
Click "Usage Check" to refresh the list of external tables and their columns.

14.2.1   Validating an External Table connection

Click "Validate" to test the connection to the External Table. This will populate the following fields:

- **Name**: The name of the table referenced in the template.
- **Data Provider**: The data provider of the table as defined in the Admin tab of the Contract Express server.
- **Defined in Admin**: Checks whether the name of the table is listed in the Admin tab of the Contract Express server.
- **Test connection**: Checks whether the connection to the table is successful.

The table that appears below these fields displays the column names referenced in the template and whether the connection to these columns was successful.

14.2.2   Previewing data from an External Table

A sample of the first 10 rows of data of the External Table is visible in the Preview tab. Click the "Preview" button to pull the first 10 rows of data for the columns referenced in the template.

General **Preview**

Preview

Click Preview to see a sample of the data in the table. Validate the table connection in the General tab.

Retrieval time: 0.93 seconds

Name	Employee Number	DOB	Role
Jane Lopez	e2659685	2000-06-07 00:...	Assistant Manager
Garth Randy	e6457899	1969-02-27 00:...	Support Executive
Emily Johnson	e13345256	1985-03-12 00:...	Marketing Manager
Sophia Willia...	e2625481	1988-06-15 00:...	Sales Manager
Daniel Brown	e15345756	1974-11-03 00:...	Financial Advisor
Olivia Davis	e2447354	1995-02-19 00:...	Graphic Designer
Ethan Wilson	e2123683	1982-07-08 00:...	Senior Developer
Ava Miller	e16565845	1993-04-22 00:...	Assistant Manager
Liam Taylor	e1239623	1987-10-10 00:...	Project Manager
Isabella Ande...	e1257765	1991-08-26 00:...	Data Scientist

15.   Using a common dictionary across multiple templates

Templates in Contract Express Author are self-contained Microsoft Word documents that contain both the mark-up and the dictionary. This means all information about the template is stored in the template (and not, say, in some shared resource such as a database or external dictionary file) and all relevant information is visible in Author (including variable properties).

However, sometimes it is useful for shared definitions to be available to multiple templates, for example if they are to interact. This is the concept we call "External Dictionaries".

One template can reference multiple external dictionaries. These references can be uploaded to templates in the Contract Express template repository or to templates that are stored locally. Contract Express copies out the variables, warnings, and lookup tables from the External Dictionary and stores a **local copy** in the dictionary of this template. The local copy is marked as external. If an external dictionary cannot be reached, then Contract Express Author carries on using the current locally cached version. All dictionary objects are visible through the Dictionary Editor, but external ones are, by default, read-only. The **local dictionary**, with the currently cached external objects, is used when the template is uploaded.

Note when using an External Dictionary from the Contract Express template repository, the Server does not keep a link between the External Dictionary and the Template. Any changes made in the local dictionary must be synced manually. When a template is opened in Word, Author will attempt to refresh both file based and server based external dictionaries. If server-based dictionaries are used and there is no saved authentication token, you will be prompted to authenticate at the beginning of your work. You can also run the refresh manually. To do this click on the External Dictionary button in the **Contract Express** ribbon in Microsoft Word and select the Refresh button for the changes in the Template to take effect.

15.1   Server based External Dictionaries

For the **Server based** external dictionary, the references point to uploaded templates in the Contract Express template repository. This is the default setting in the Options.

Contract Express copies the variables, warnings, and lookup tables from the external dictionary and stores a local copy in the dictionary of this template. The local copy is marked as external. If an external dictionary cannot be reached then Author carries on using the current locally cached version. All dictionary objects are visible through the Dictionary Editor but external ones are by default read-only. The local dictionary, with the currently cached external objects, is used when the template is uploaded.

When a template is opened, Author will attempt to **refresh server based external dictionaries** and prompt you to authenticate if there is no saved authentication token. If you update the external dictionary template and upload a new version to the server from Word, all other templates that are open in Word and use this external dictionary will **automatically** update with the new external dictionary version.

If you do not want to refresh server based dictionaries automatically, you can opt out of this by selecting 'Do not refresh server based external dictionary automatically' in Options.
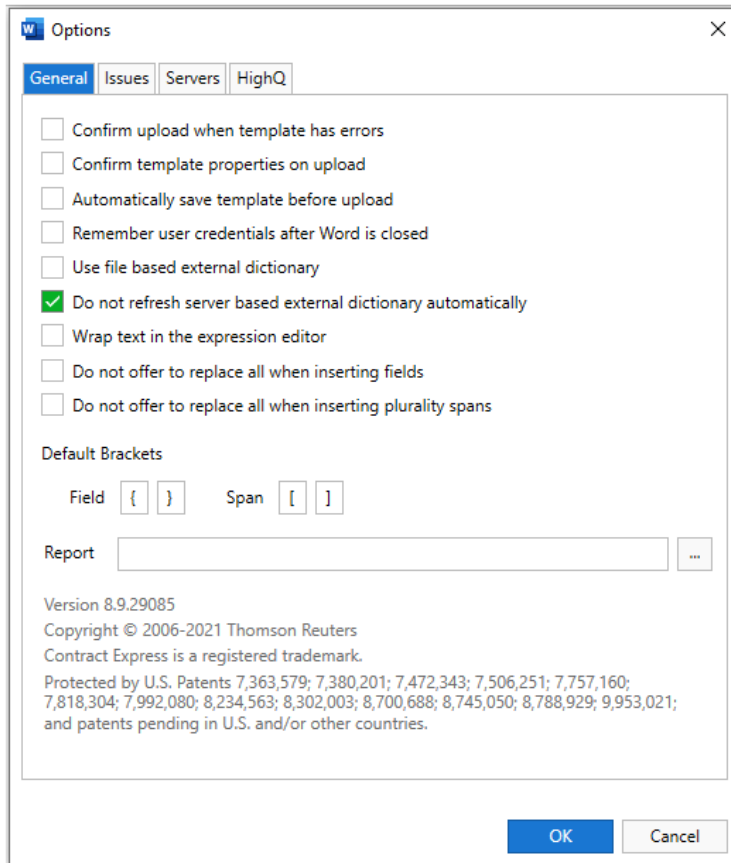
15.2   File based External Dictionaries

File based references are to file locations, either local or on a shared server, and not necessarily to uploaded templates in the Contract Express template repository. When a template is opened, Author looks for these external dictionaries at the specified locations and tries to open each in turn. It then copies out the variables, warnings, and lookup tables from the external dictionary and stores a local copy in the dictionary of this template.

The link between the external dictionary and the template is refreshed when Word document is opened, so any changes made in the dictionary while the document is open will have to be manually refreshed in the template to take effect. The attachment will be linked to the last saved version of the dictionary document. If the template and dictionary documents are being edited simultaneously, then save the dictionary document before refreshing the template document.

By default, Contract Express Author will use server based external dictionaries (templates stored within the Contract Express Template repository). To use **file based** external dictionaries (templates that have been stored locally), click on Options on the Contract Express ribbon in Microsoft Word. In the Basic tab there will be an option to "Use file based external dictionary". Select this checkbox and click OK to save your changes.
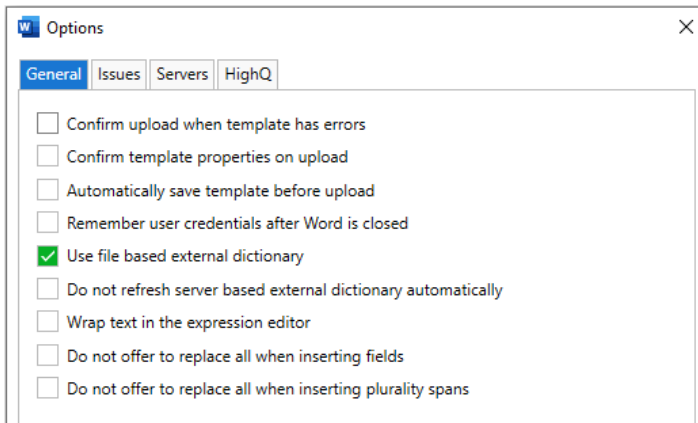
> • **Switching between file based and server based External Dictionaries**
>   Note that if you switch from using server based External Dictionaries to file based External Dictionaries you will be required to re-attach any existing External Dictionaries. If switching from file based External Dictionaries to server based External Dictionaries and the file based External Dictionaries already exist on the server, you can refresh the dictionaries.

15.3   Manage External Dictionaries

To manage the external dictionaries connected to a Template click on the External Dictionary button.
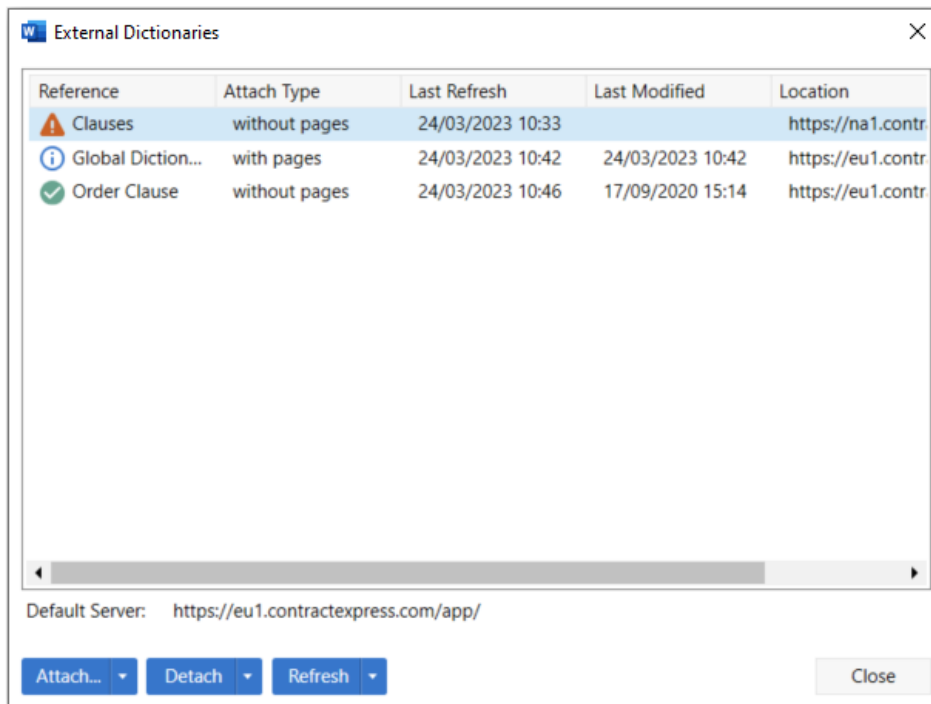
The list view shows all of the external dictionaries that are currently attached to this Template. The columns show information relating to the last upload of the template to the Server and last refresh in Contract Express Author:

- **Reference**: The Template name of the attached Dictionary preceded by a red, green, or warning icon

  o **Red**: The last attempt to refresh from this Dictionary failed.

  o **Warning**: A refresh is required. This can occur if a new version of the Template has been uploaded to the server after the last refresh.

  o **Green**: The refresh was successful.

- **Attach Type**: the type of attachment of the dictionary

  o **With pages**: the questionnaire pages and groups are attached. This includes the page and group details, their order and variable allocation as well as the variable definitions

  o **Without pages**: the questionnaire pages and groups are not attached, only the variable definitions are imported

- **Last Refresh**: The date (or time if today) of the last successful update.

- **Last Upload**: The date (or time if today) of the last successful upload of the Template to the server.

- **Location**: The URL of the Contract Express web application for server based external dictionaries and the location of the file for file based external dictionaries .

The order reflects the order in which the external dictionaries will be refreshed. If several dictionaries define a variable of the same name, then the definition used in this template is the one from the external dictionary earlier in the list.

In this view you can check the refresh status of each dictionary and refresh them manually if necessary.

15.4   States of dictionary objects

There are three states for objects that can come from external dictionaries:

- **Pure local** when they are only defined locally

- **Pure external** when they are managed externally

- **Locally overridden external** when the object came from an External Dictionary but has been locally modified

This last option is useful if you need to change a variable but cannot wait for the External Dictionary to be updated, or you may just want to use a different prompt for a variable which originated in an External Dictionary.

If you are viewing a variable that originated from an External Dictionary, then the General tab in the Dictionary Editor will contain an option called **Use external definition from [Name of Dictionary].** If this is checked then the variable is a pure external variable, and no attributes can be changed. If it is unchecked, then the object is a locally overridden external and its properties can be changed.

15.5   Attach a new External Dictionary to a template

To attach a new dictionary click the External Dictionary button on the Contract Express tab in Word; the External Dictionary dialog will launch. If using the **Server based** external dictionary; click the Attach button to select templates which are located at the default server (the currently selected server in Options -> Server). You may select multiple files. The dictionary information from the template(s) will be copied into your template, and marked as external. If it is your first time interacting with the Contract Express web application via Author within a Word session, you will be asked to enter your credentials for the default server before being able to view the available templates.

If using the **File based** external dictionary; click the Attach button and browse to a file location where the dictionary is located. You may select multiple files. These DOCX files are opened and if they contain a Contract Express template then the dictionary information from that template will be copied into your template, and marked as external.

Note that if an external variable of the same name already exists then a new variable is **not** created. Also if a pure local variable of that name already exists then it becomes a locally overridden external variable and none of its properties are updated.

Note that the Attach button is a "split" button with 2 options: **Attach without questionnaire pages and groups** (the default option) and **Attach with questionnaire pages and groups**. To access the non-default option, you must click on the drop-down arrow beside the button:
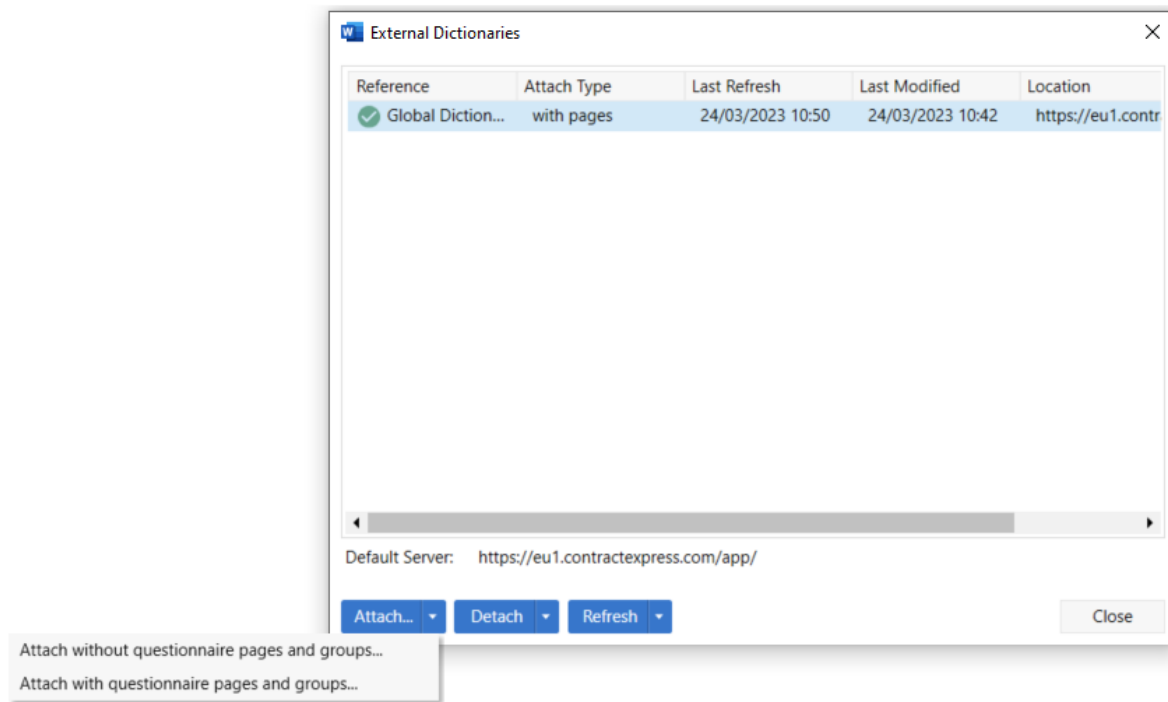
The **Attach with questionnaire pages and groups** option does the same as above but also copies the questionnaire pages from the external dictionaries as they are attached. If the Attach Type of the external dictionary is "with pages" then the questionnaire pages and groups will be updated when refreshing.

If the Attach Type of the external dictionary is "without pages" then the questionnaire pages and groups will not be updated when refreshed.

15.6   Detach an External Dictionary from a template

The **Detach** button removes the external dictionaries selected in the list view. This will remove the definitions for pure external objects that came from those external dictionaries, even if they are used in your Template. Any locally overridden external objects from those dictionaries will become pure local objects.

Note that the Detach button is a "split" button with 2 options: **Detach removing local definitions** (the default option) and **Detach leaving local definitions**. To access the non-default option, you must click on the drop-down arrow beside the button:
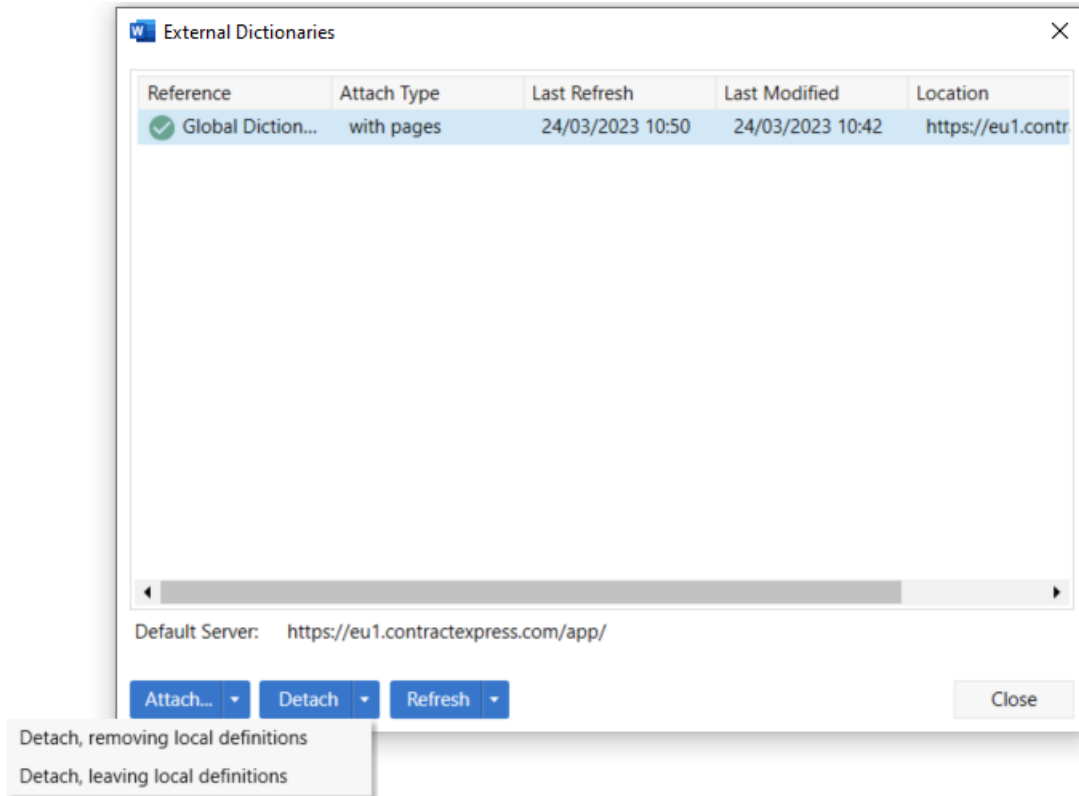
The **Detach leaving local definitions** option will remove the dictionaries but leave behind all their objects as pure local objects. This is useful if you want to create an External Dictionary from multiple similar templates (i.e. open a blank document and Attach and then Detach (choosing "leaving local definitions") each Template in turn. The result will be a blank Template containing all dictionary objects from each Template that can then be used as an External Dictionary).

15.7   wgRefreshing External Dictionaries

The **Refresh** button refreshes the local copies of the objects from the external dictionaries selected in the list view. Only pure external objects are updated; locally overridden objects are not updated.

If a new object has been introduced to the External Dictionary, then the same rules as during Attach are applied:

- If an external variable already exists, then a new variable is **not** created.

- A pure local variable existing in the External Dictionary will become a locally overridden external variable.

If an object has been deleted, then the default Detach rules are applied:

- Pure external objects are removed.

- Locally overridden objects become pure local.

The **Refresh overwriting local definitions** option converts any locally overridden objects that originally came from the External Dictionary into pure externals and updates their properties.

Note that as soon as you view the Contract Express ribbon in Microsoft Word, any existing external dictionaries of a Template will be refreshed automatically.

> **File Based:** The refresh will update from the last saved version of the dictionary document. If the template and dictionary documents are being edited simultaneously, you must save the dictionary document before refreshing the template document.
>
> **Server Based:** The refresh will update from the last uploaded version of the external dictionary to the server. If a new version of the external dictionary is uploaded to the server whilst the current template is being edited and the automatic refresh is not disabled in Options, any open templates will be updated automatically.
>
> To run refresh manually, open the External Dictionaries screen and click the Refresh button.

The **Attach and append questionnaire** option does the same as above but also copies the questionnaire pages from the external dictionaries as they are attached. Note that the questionnaire is never updated on a refresh.

15.8   Refreshing External Dictionaries via Contract Express web application

With Contract Express 8.9 or higher, it is also possible to refresh server based external dictionaries via the Contract Express web application.

The **Related templates** section on the Template Details page contains the link **View external dictionaries**. It allows you to check if the current template has any external dictionaries attached or if the current template is being used by any other templates as an external dictionary.

Related templates

View latest templates
View published templates
View external dictionaries

On the page that lists **Templates that use the current template as external dictionary**, it is possible to select one or more templates and refresh their external dictionaries with the most recent version from the current template. The dictionaries will be refreshed on the server only.

> 💡 For external dictionary data to be available for display and refresh via the Contract Express web application, the template must have been uploaded to a server running version 8.9 or higher, either using Author or using the Template upload option on the Templates tab.

15.9   Typical process when using External Dictionaries with a template hierarchy

There are two scenarios when working with external dictionaries

Scenario 1: The "Top Template" scenario

In this scenario, T1 is always the Template that is launched, it either attaches or includes T2 and T3 but they are never run standalone. Even if the answers need to be amended, they will be through the launch of the "top template":

```
        T1

      /    \

   T2      T3
```
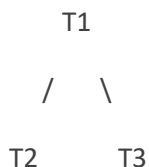
It is common for T1 to also be used as the dictionary and to have the full questionnaire order defined. T2 and T3 will attach T1 as their External Dictionary and no local variables will be defined in these sub-templates. This has the advantage of the questionnaire order needing to be defined only once (in the T1 template). Any changes to questionnaire order and variable definitions (apart from computation definitions) will only need to be made in the top-template since its dictionary and questionnaire order will take precedence over the others in the hierarchy.

When working in this way:

- Automate the top Template (i.e., T1) and add a questionnaire order and ensure that it has been saved.

- Open or create the first of the sub-templates (i.e., T2) and choose **Attach without questionnaire...** to the top Template from the External Dictionary menu item.

- If the sub-template document already has variables that are defined in the dictionary, then use the **Refresh, overwriting local definitions** button to ensure that all variable definitions originate from the dictionary document.

- If a new variable needs to be created for the sub-template that is not yet in the top template, then create this variable in the dictionary of the top Template first. To refresh the sub-template to ensure this new variable is part of the sub-template dictionary, choose **Refresh, overwriting local definitions** from the **External Dictionary** dialog if the sub-template is open. Otherwise, the dictionary amendments will automatically be copied when the sub-template document is next opened, provided the dictionary template is reachable.

> 💡 When testing sub-templates from a hierarchy that has a top template as this scenario defines, best testing results are achieved when launching from the top Template rather than each template individually (as no questionnaire is defined locally for the sub-templates).

Scenario 2: Individual templates sharing common variables

In this scenario templates are launched separately. They are individual documents that share the same variables but are not thought of as a hierarchy. They do not reference each other via include or attach statements:

    T1   }

    T2   } ED

    T3   }

In order to maintain variable definition consistency and maximize reuse, an External Dictionary is used (ED in the diagram above), but this is often a separate blank template (i.e., it has no Microsoft Word content). It may or may not house a common questionnaire order depending on how many variables are used in the templates (those with a smaller number might benefit a more compact questionnaire over less pages than those with many variables in).

When working in this way:

- Create the separate dictionary document first and ensure that it has been saved.

To create a dictionary from one or more automated Contract Express Templates with variable definitions, you may choose to open a clean document, Attach the first Template and then Detach leaving local definitions. Repeating for each Template will result in all variable definitions being added to your clean document, thus becoming your Dictionary.

- Open or create a template document (T1). If it will be using the questionnaire from the top template then use **Attach and append questionnaire...** to the external dictionary, otherwise simply **Attach without questionnaire...** to the External Dictionary.

- If the template document already has variables that are defined in the dictionary, then use the **Refresh, overwriting local definitions** button to ensure that all variable definitions originate from the External Dictionary.

- If a new variable needs to be created for the Template that is not yet in the External Dictionary, then create this variable in the dictionary first. To refresh the Template to ensure this new variable is part of the template dictionary, choose **Refresh, overwriting local definitions** from the **External Dictionary** dialog if the Template is open. Otherwise, the dictionary amendments will automatically be copied when the sub-template document is next opened, providing the external dictionary is reachable.

Once your template document has a questionnaire defined, any subsequent attaches of the External Dictionary must be done with **Attach without questionnaire...**. If you want to reset to the questionnaire that is defined in the dictionary template, you will need to:

- **Detach** the external dictionary.

- **Delete** the questionnaire from the template document.

- **Attach and append questionnaire...** the external dictionary.

- **Refresh, overwriting local definitions.**

16.   Case sensitivity in Contract Express

16.1   Identifiers

Identifiers, including variable names, function names, table and column names, etc., are not case sensitive. For example, the following all refer to the same variable:

ClientName

clientname

CLIENTNAME

Identifiers that contain characters outside the letter characters from Latin-1 Supplement plus Latin Extended-A Unicode character set will require single quotes when referenced (this includes the space character).

Even when identifiers are quoted, they remain case insensitive. For example, the following all refer to the same column in a lookup table:

'Country Code'

'country code'

'COUNTRY CODE'

16.2   Reserved words

Reserved words of the **Contract Express Mark-up Language** are not case sensitive. For example, the following expressions are equivalent:

DirectorCount Is 0

DirectorCount is 0

DirectorCount IS 0

16.3   Text literals

Text literals, however, are always case sensitive. The most common place to use text literals is when referring to the options of a select variable.

For example, the following text literals are all different:

"Public Limited Company"

"public limited company"

"PUBLIC LIMITED COMPANY"

For example, if the options for a select variable ClientType are entered into the variable editor as:

Public Limited Company

Limited Liability Partnership

Private Individual

Then the Boolean expression:

ClientType Is "PUBLIC LIMITED COMPANY"

Will always evaluate to false.

17.   Test the questionnaire

17.1   Upload and launch

The Test button in the Contract Express ribbon will upload the current document to the Contract Express solution, where the Template can be tested and made available to other users. The button has four options available in the dropdown:
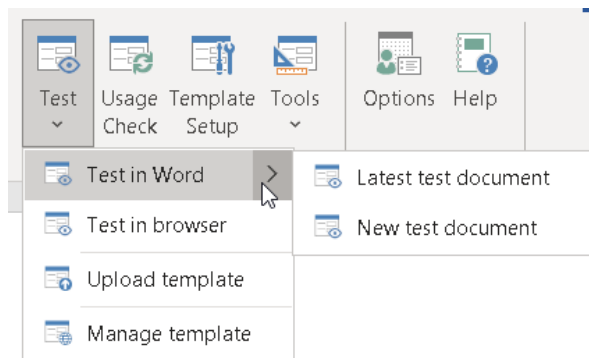
- **Test in Word:** Uploads the Template to Contract Express and opens the questionnaire in Word.

   o   **Latest test document (default):** This option will launch the latest test document available on the server, allowing you to continue testing with previously inserted answers.

   o   **New test document:** This option will launch a new test document.

- **Test in browser**: Uploads the Template to Contract Express and opens a new questionnaire in the browser.

- **Upload template**: Uploads the Template to Contract Express.

- **Manage template**: Opens the Template Details Page in Contract Express if the template has already been uploaded to the site or the Templates tab if the template has not yet been uploaded (site set in Options → Server)
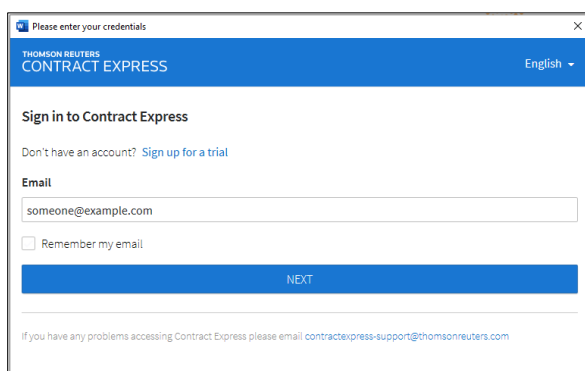
Simply clicking the main Test button will perform a Test in Word with the latest test document. If there is no test document available, it will create a new test document.

Clicking the Test button to upload a new Template will first prompt you to enter a Template name if this has not already been specified. The Template name is a unique reference which will identify that Template. Upon entering a Template name, Contract Express Author will perform a full Usage Check of the current template to check for any serious issues in the Template. If there are serious issues, such as mismatched brackets, Contract Express Author will prevent the Template from being published and the issues will be displayed in the Dictionary Editor.

17.1.1   Connecting to the Contract Express application

If this is the first time Contract Express Author is connecting to the Contract Express application in the current Microsoft Word session, you will be prompted for authentication against the default server selected in Options. When connecting to Contract Express, the behavior will differ depending on how Contract Express has been setup for authentication:

- **Windows Authentication only:** You will be authenticated silently, and no action is required.

- **Forms Based Authentication only:** Simply enter your credentials into the modal and log in to continue.

- **Both Forms Based and Windows Authentication**: You can choose whether to enter your email address and password or use your Windows credentials by selecting the Windows button.

Note that once you have been authenticated in Contract Express Author, if you have selected an option that will open a browser, you may have to enter your credentials again once the browser is launched.

- **Add Contract Express as a local intranet for Windows Authenticated instances**
  Adding Contract Express as a local intranet will allow Contract Express to authenticate silently without requesting for Windows credentials.

  To do this go to **Internet Explorer -> Security tab -> Local Intranet -> Sites -> Advanced**. Enter the Contract Express URL and click Add.

17.2   Uploading to a specific server

Contract Express will upload the active Template to the Contract Express instance selected on the Server tab in the Options Dialog. If the Template is to be uploaded to an alternative instance, click on Options, select the Server tab and add in a new URL to the instance that you wish to upload to.

## 17.3   Remembering your credentials

By default, when you close Word you will also be signed out of Contract Express.

To stay signed in for multiple Word sessions:

1.   Click **Options** in the Contract Express ribbon

2.   On the **General** tab, select "Remember user credentials after Word is closed" and click OK.

You can check the identity of the signed-in user or sign out from the Servers tab.
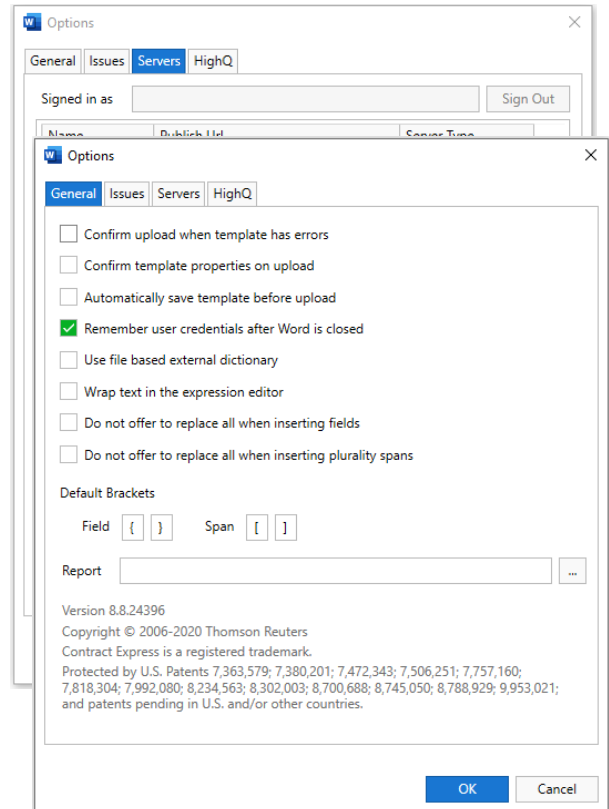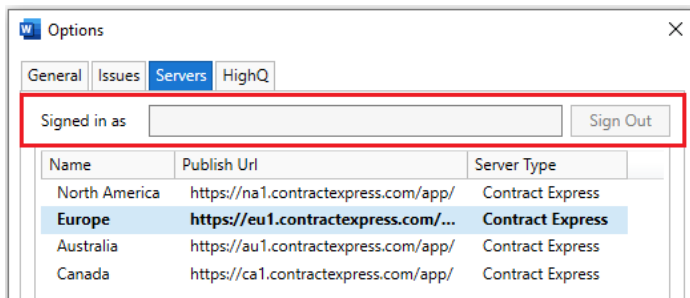
18.   Convert Third-party templates to Contract Express markup

The **Convert Template** tool can be used to update templates created for other document automation solutions to use Contract Express markup language. For information on the types of third-party syntax this converter recognizes please contact contractexpress-support@thomsonreuters.com.

The tool will convert the markup found in the template to Contract Express fields and spans, and will add the relevant variables to the Dictionary.

18.1   Launching the template converter

When using this tool, you will be prompted to select a template to convert. Please ensure the file is closed before running the tool; the conversion process will fail if it is already open.

To launch the tool, click on **Convert Template** in the Contract Express ribbon.

This tool can be used on most file types that can be opened with MS Word. Browse to the template and click **Open**. The converter will analyze the syntax and apply the correct conversion logic.

18.2   Converting HighQ (Velocity) templates

This tool can be used to convert Velocity-based HighQ templates. Both manually coded Velocity markup and markup inserted using the HighQ Word add-in can be converted using this tool.

If the template is recognised as a HighQ template, when the conversion is complete a converted version of the template will open, with a prompt to run iSheet Import.
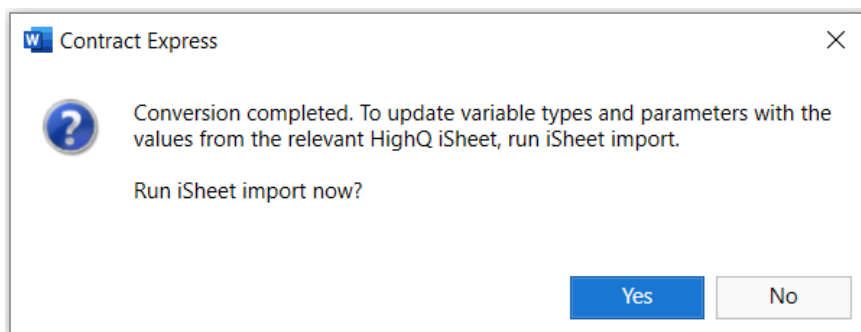
Select "Yes" to retrieve iSheet column settings, such as variable type and any guidance or constraints, from HighQ and update the variables in the Contract Express dictionary accordingly.

If you select "No", all variables will default to text variables in the dictionary, with only the variable name and question text (iSheet column name) populated.

Note that you can run iSheet Import at any time to update variables with the latest column settings. See Using the HighQ iSheet import tool.

18.3   Converting other third-party templates

Where the converter expects an associated dictionary file to be available for the conversion, it will attempt to locate it in the same folder as the template file. If the file cannot be located, you will see a prompt asking if you want to locate this file manually.
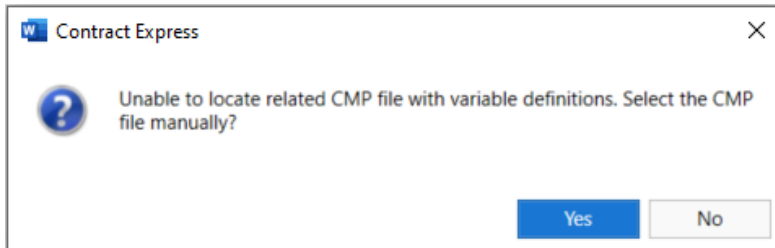
Browse to the relevant file to complete the conversion with the import of the variable definitions and questionnaire information.

Note that any syntax using IF/ELSE logic will be converted into separate spans for each result, based on the following principle:

Original markup	Converted markup
IF A "text1" ELSE "text2"	<^{A} "text1"> <$^{NOT\ A\ AND\ B}$ "text2"><$^{NOT\ A\ AND\ NOT\ B}$ "text3">
IF A "text1" ELSE IF B "text2" ELSE "text3"	<^{A} "text1"> <$^{NOT\ A\ AND\ B}$ "text2"><$^{NOT\ A\ AND\ NOT\ B}$ "text3">

To make it easier to spot these spans in the converted document and identify them as originating from a single IF/ELSE statement, the span rules that negate the previous condition will be highlighted in yellow.

Original markup	Converted markup
IF A "text1" ELSE "text2"	<^{A} "text1"> <$^{NOT\ A}$ "text1">
IF A "text1" ELSE IF B "text2" ELSE "text3"	<^{A} "text1"> <$^{NOT\ A}$ $^{AND\ B}$ "text2"> <$^{NOT\ A\ AND\ NOT\ B}$ "text3">

18.4   Unconverted markup

Comments will be inserted into the document to indicate where the Velocity syntax could not be translated into equivalent Contract Express markup.

> 💡 Always test the template after conversion to validate that the automation is working as expected. The conversion tool can handle most common code, but there may not be equivalents for more complex expressions. Some parts of the template may require manual updates to ensure they work correctly with Contract Express. Where the questionnaire pages and groups are imported, their order and completeness should be checked as well.

19.   Using the HighQ iSheet import tool

The **iSheet Import** tool can be used to import HighQ iSheet column names, and their settings, into the template dictionary to be re-used as Contract Express variables.

To use iSheet Import, you must be connected to a HighQ instance. To check if you have a connection already established:

1. Click on **Option** in the Contract Express ribbon.

2. Navigate to the **HighQ** tab to see if the URL and sign-on details are populated.

If a HighQ connection has not been established, you will be prompted to authenticate when you first run the iSheet Import tool.
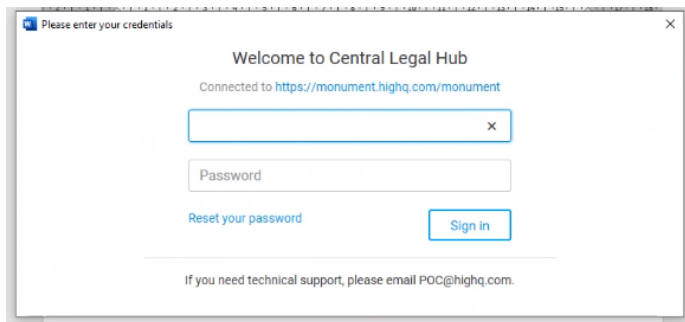
19.1   Authentication into HighQ
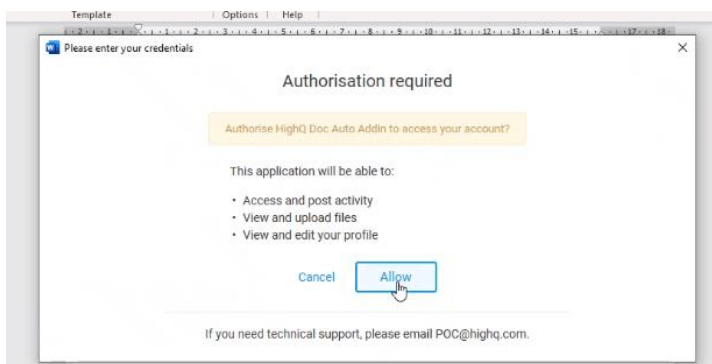
To authenticate into HighQ:

1. Click on **iSheet Import** in the Contract Express ribbon.

2. Enter the HighQ Instance URL at the prompt and select **OK**.

Note: the *Signed in as* field will remain blank until a connection has been made.

3. Enter your HighQ credentials when prompted.

4. When prompted to authorize access, select **Allow** to complete the HighQ authentication process.

19.2   Choosing iSheet columns to import

After successful authentication, you can choose which iSheet columns to import into the Contract Express dictionary.

1. Select the HighQ Site, iSheet and View to load a list of available columns.
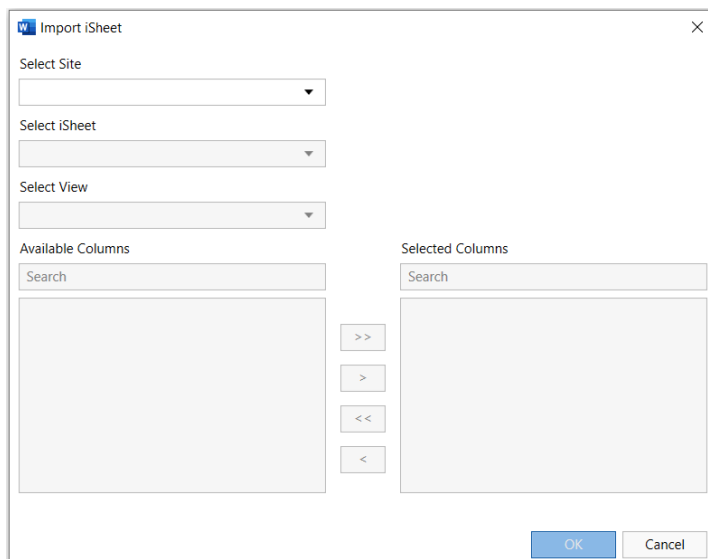
2. Choose the columns to be imported and click on the arrow pointing right to add them to the Selected Columns.

- To add all columns to Selected Columns, use the double arrow.

- To remove columns from Selected Columns, click on the arrow(s) pointing left.

3. When you have selected all columns to be imported, click on **OK**.

The imported iSheet columns will appear in the Contract Express dictionary as variables:

- iSheet column names will be used as both the variable name and question text; and

- the variable will reflect the type and any other parameters that can be matched between HighQ and Contract Express, such as guidance and constraints.

Note that most variable types and parameters will be mapped between HighQ and Contract Express but there may be some that do not have corresponding matches and therefore will not pull through.

> iSheet Import overwrites any existing Contract Express variables that have the exact same name as the iSheet column names that are being imported.
>
> You can run iSheet Import multiple times to refresh the definitions and parameters of any iSheet columns that have been imported previously or to update the variable types and parameters after running Convert Template. See Convert Third-party templates to Contract Express markup.
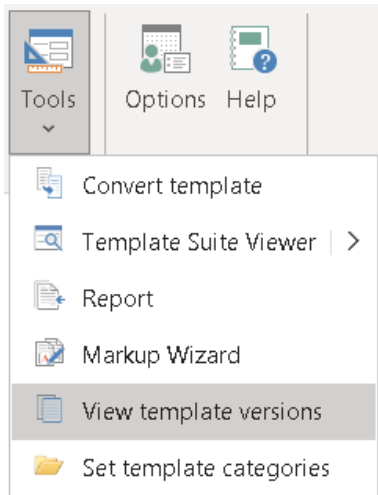
20. Template versions

From the Contract Express Author ribbon, it is possible to view and compare previous versions of a template, including changes to the dictionary.
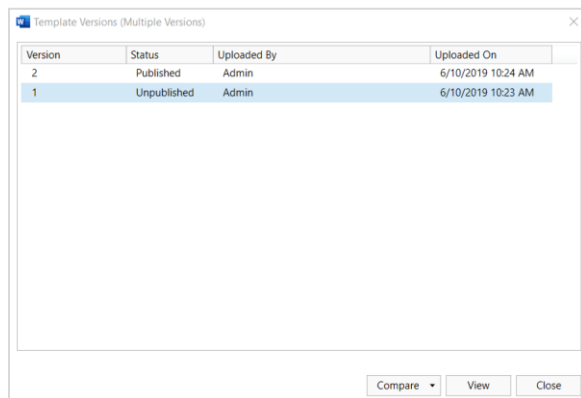
20.1 View a previous template version

To view a previous version of the template you have open:

1. Click on the **Tools** dropdown.

2. Select **View template versions**. This will open a list of all the versions of the template previously uploaded to Contract Express. You may be prompted to sign into Contract Express first if you have not already done so.

3. Select the version you want to view followed by the **View** button.

The selected template version will open in a new Word window as a temporary file.

20.2   Compare template versions

20.2.1   Compare the template's wording to a previous version

To compare the open template's wording to the wording of a previous version of the template:

1. Click on the **Tools** dropdown.

2. Select **View template versions** from the dropdown.

3. Select the version you'd like to compare and select the **Compare** button.

A comparison of the two template versions will open in a new Word window, with the differences shown as tracked changes. This comparison is a temporary file only.

<div align="center">

20.2.2   Compare the template's dictionary to a previous version
</div>

To compare the open template's dictionary to a previous version of the template:

1. Click on the **Tools** dropdown.

2. Select **View template versions** from the dropdown.

3. Select the version to compare and select the Compare dropdown.

4. Select Compare Dictionary.
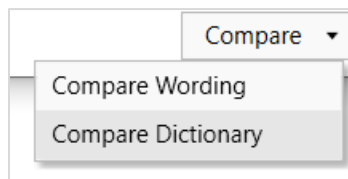
A comparison of the dictionaries in the two template versions will open in a new Word window, with the differences shown as tracked changes.

The comparison will highlight the differences between questionnaire pages, groups (and their variables), variables and their definitions, user defined functions, and warnings.

## 21.   Template Suite Viewer

Template Suite Viewer is a tool that allows you to inspect a template suite, as captured in a snapshot. It shows the relationships between templates, displays the consolidated dictionary, and allows discovery of templates that use a particular variable.

In Contract Express, templates can be linked to each other so that one questionnaire generates multiple documents or the same clause is re-used in multiple templates but maintained as a single template. Such linked templates are called Template suites.

21.1   Launching Template Suite Viewer

Click on the **Tools** dropdown in the Contract Express ribbon and select **Template Suite Viewer**. The two options you can chose from are:

- View for current template

- View from snapshot
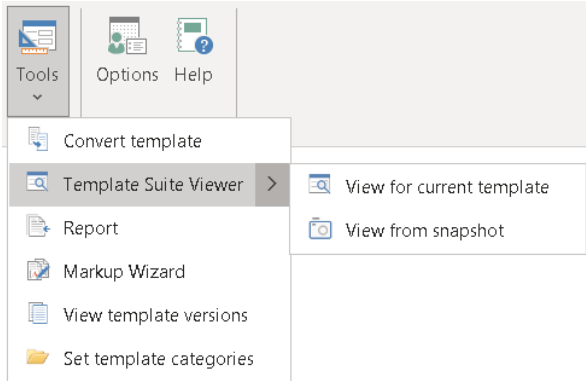
If you have the parent template open in Word, you can choose the first option. Contract Express will look up this template on the server, generate a snapshot from it and display the template suite data. In this scenario the current template will be treated as the top template (template that is used to start the questionnaire) and the template suite will show all sub-templates referenced in this template or its sub-templates. The relevance expressions will not contain any answers.

For the second option, you can browse to a snapshot that has been downloaded from the document details page or from the questionnaire. In this case, the top template will be the one that was used to start the questionnaire and any answers saved in the session will appear in the relevance expressions displayed in the Template Suite Viewer.

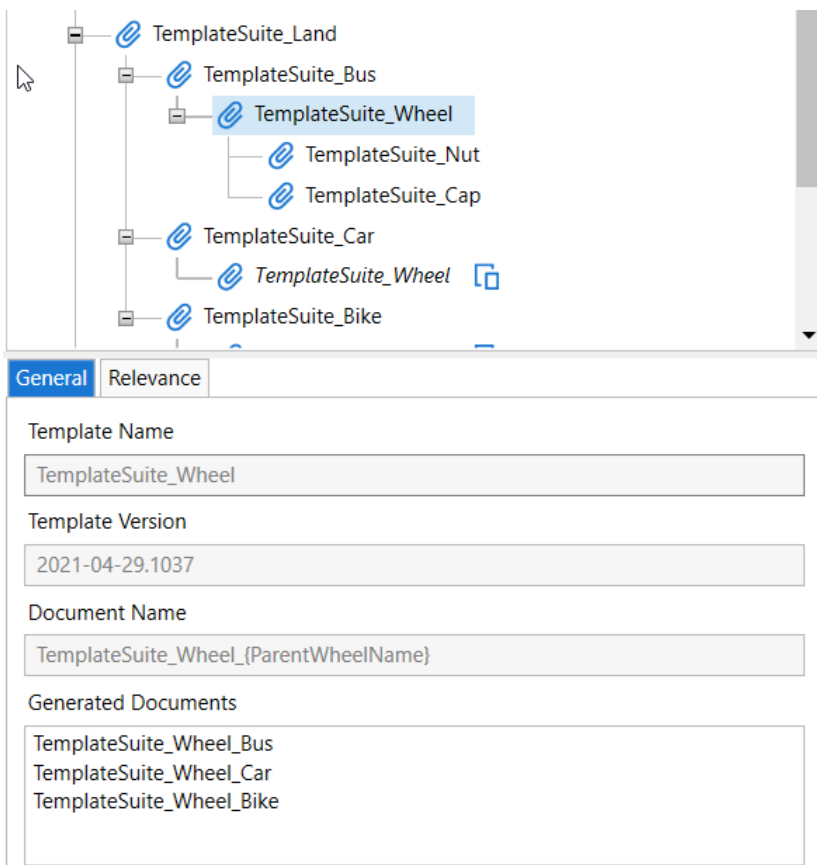## 21.2   Tree view of the Template Suite

When the Template Suite Viewer window opens, on the right-hand side you will see the template hierarchy starting from the top template. Different icons will indicate how the sub-template has been referenced in the parent template:

- Include template

- Attach template

- Using template

- Multiple references of various types

You can hover over the icons to check the meaning of the icons.
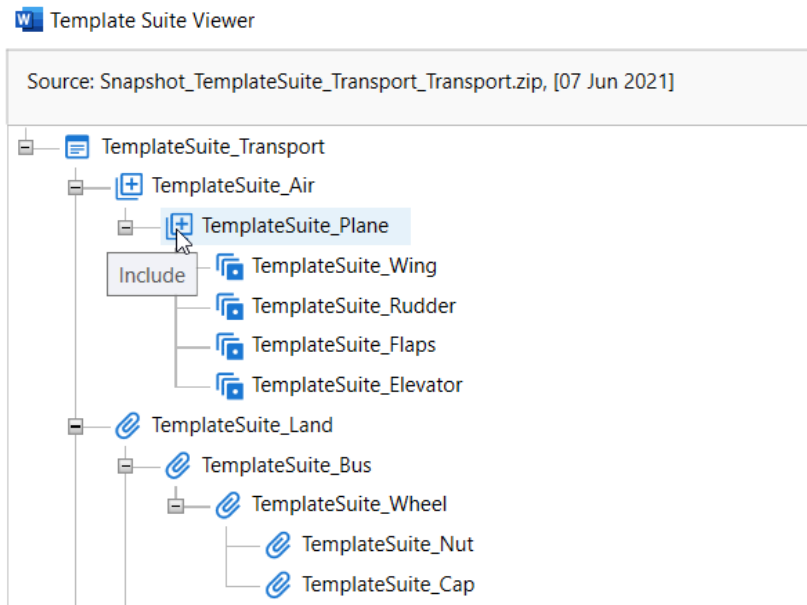
Select a template to open the details panel at the bottom of the window with information about the template version, document name and generated documents, if the snapshot contains them. Hover over the document name to see information on the document's completeness, and right-click to open the document.


In the same way, you can also open any of the templates in the tree view list by using right click menu.

The **Relevance** tab contains the relevance expression. Where the snapshot contains answers, templates that are not relevant based on the answers provided in the answer set will be greyed out in the tree view list.
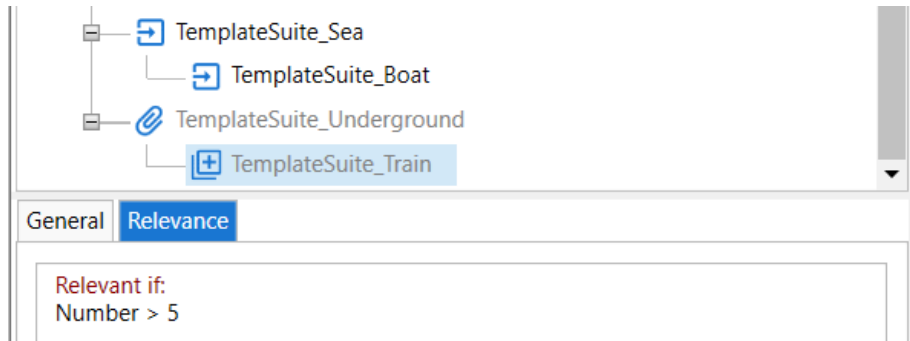

Templates that are referenced in the template suite multiple times will have the sub-templates listed only on the first occurrence and all other occurrences will be marked with a special icon. Use the right-click menu to highlight all occurrences or to go to the first template.
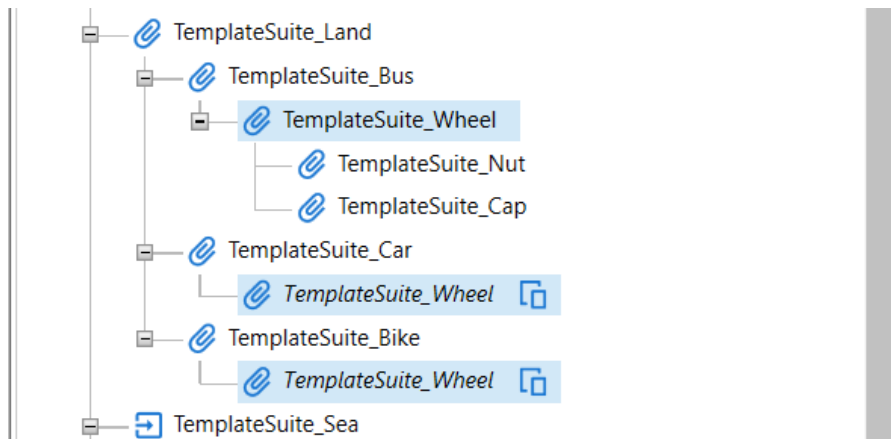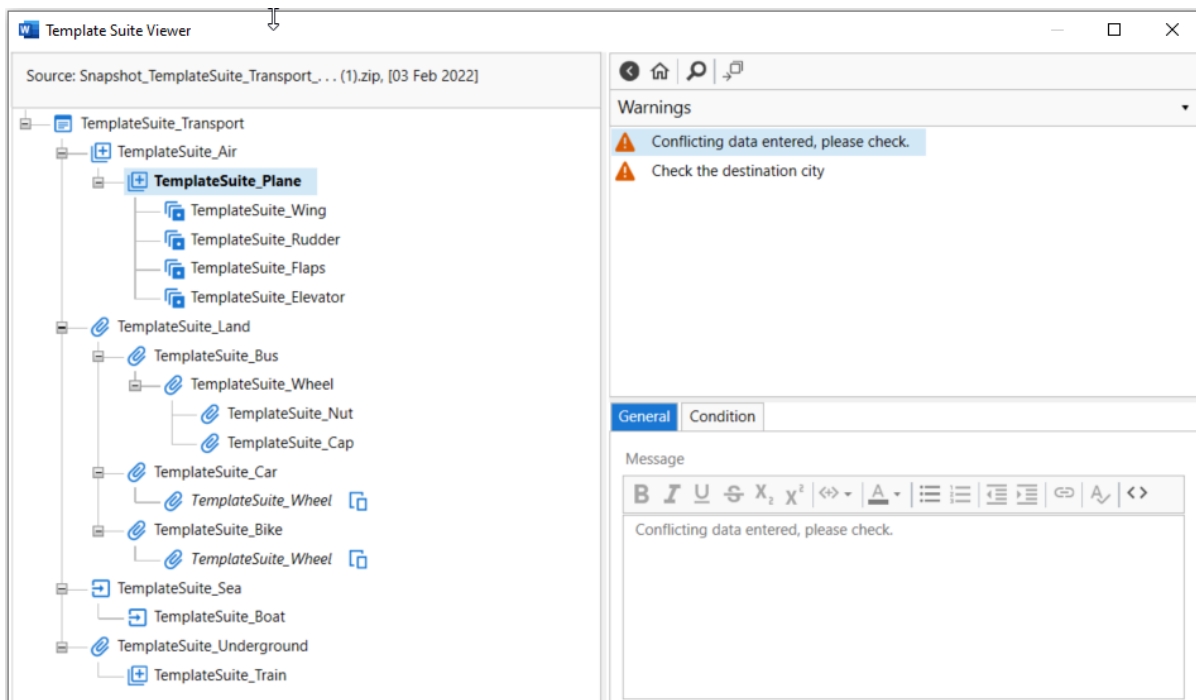

21.3   Consolidated Dictionary

On the right-hand side of the Template Suite Viewer window is the consolidated dictionary displaying all information in read-only format. You can review the questionnaire, the variable list, and check the variable usage details.

Click on a variable to highlight the templates which use this variable. The template in bold font contains the definition of the variable that is used across the template suite.
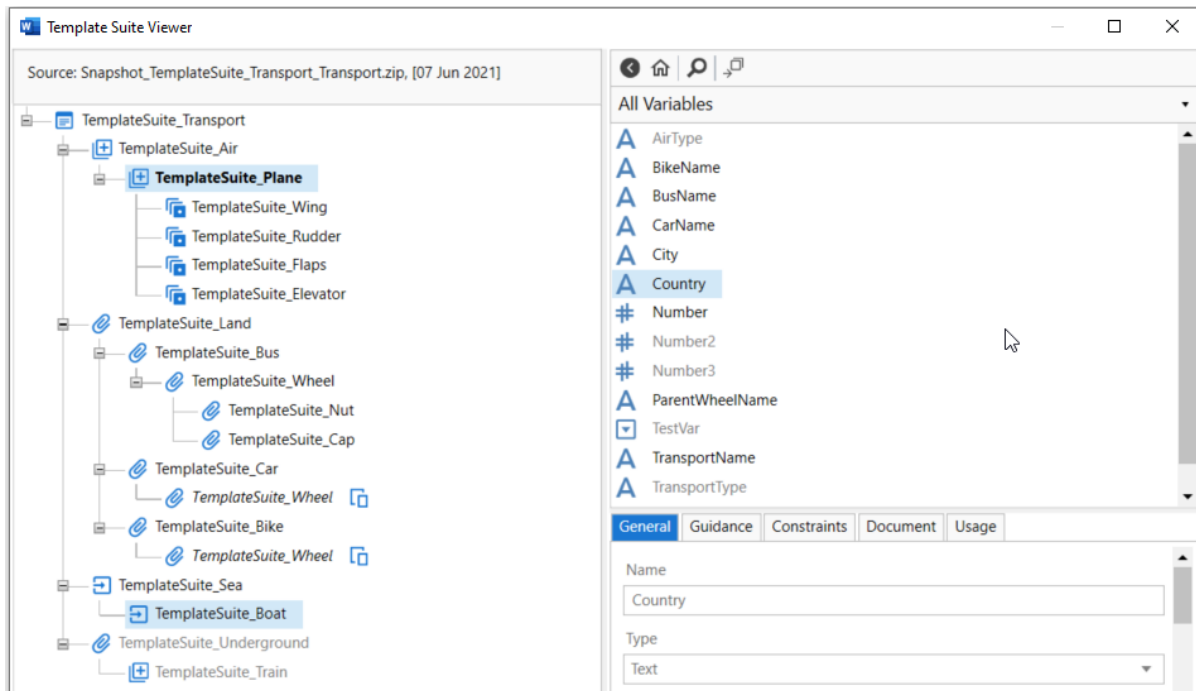
In a similar manner, clicking on a Warning in the Warnings list will highlight the template where this warning has been added.

The bottom section of the consolidated dictionary contains the **Issues list** which are the issues that have been found during the template suite consolidation. Some of these errors may have been caused by the interaction of the template logic within the template suite, therefore it is a good idea to review this list to address any consolidation issues.
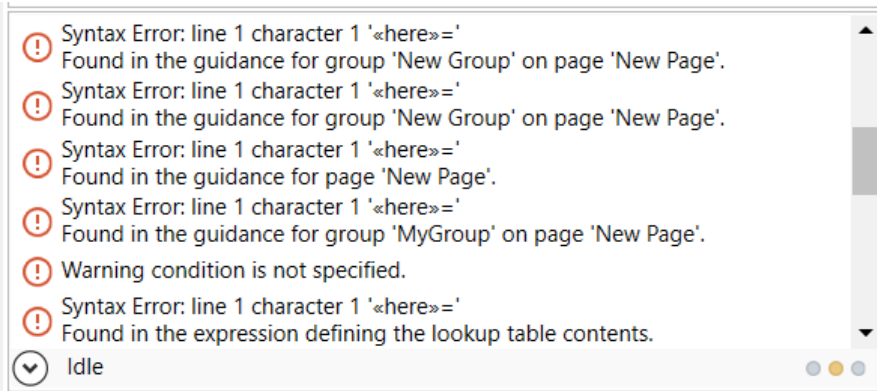
21.4   Additional Information

Snapshots have been enhanced in Contract Express 8.9 to contain additional information that is used by the Template Suite Viewer.

Template Suite Viewer can still be used to review template suites running on earlier versions of Contract Express but there are some limitations:

- Where templates running on earlier versions do not contain the necessary usage analysis information, Template Suite Viewer will run this analysis. There may be a delay before the Template Suite Viewer window opens.

- In cases where the additional usage analysis is necessary, it is derived using the current version of the Contract Express engine. In most cases the logic used will not differ significantly from the version in which the template is running but there is a chance that, in some cases, the logic of the earlier versions of Contract Express engines will not be reflected with 100% accuracy.

- Document names and associations with specific templates are not available for templates running on Contract Express 8.8 and earlier. In these cases, all generated documents will be listed under the top template.
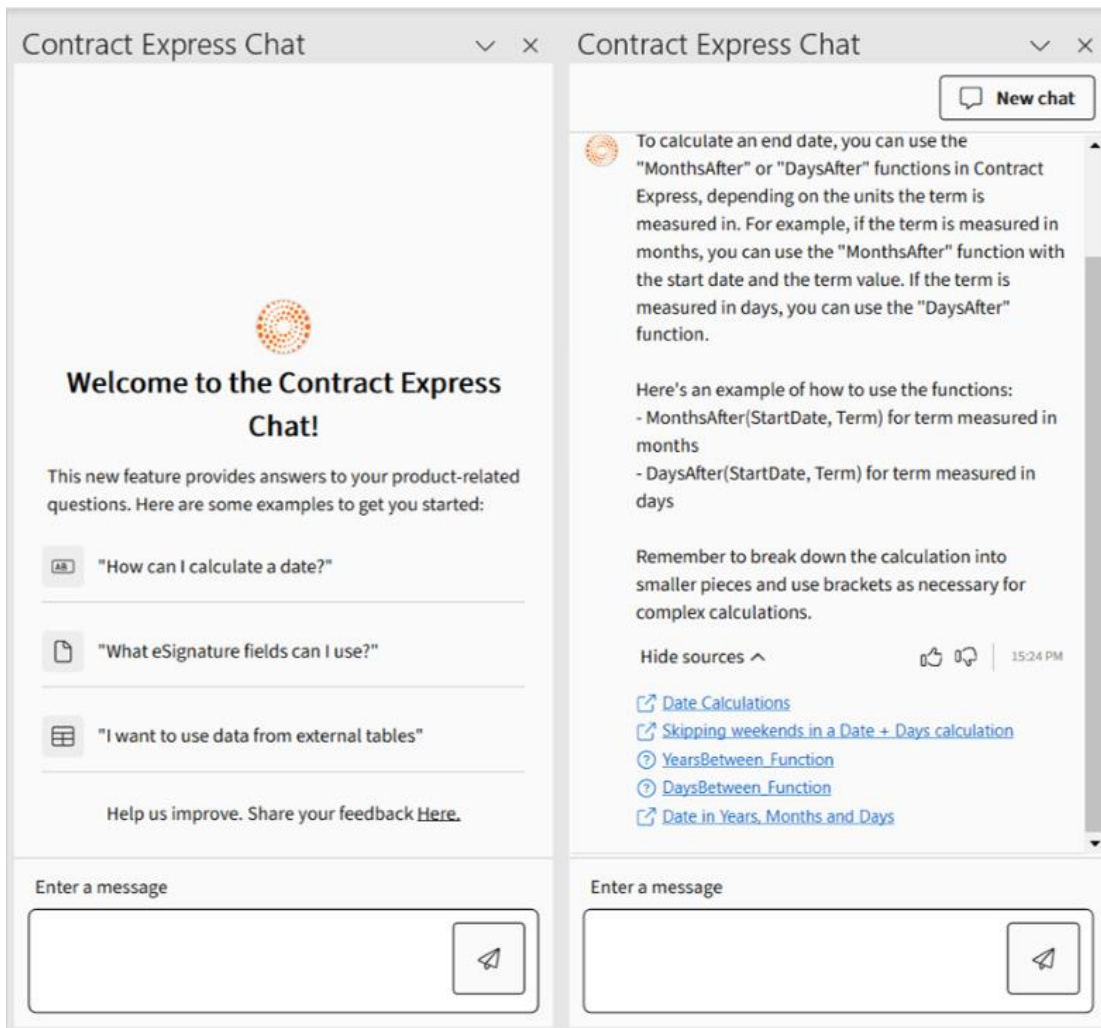
22.   Contract Express Chat

22.1   What is the Contract Express Chat?

The Contract Express Chat (beta) is an AI powered tool designed to assist with any Contract Express related query. The Chat is tailored specifically to Contract Express Authors and Admins, offering comprehensive guidance and resolution for your natural language queries. All Contract Express-related content and information is consolidated in the Chat, it can be used to get help with markup, troubleshooting, setting a particular document automation flow, or exploring specific features. To launch the AI Chat, click the following icon from the Author toolbar:
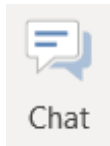
The sources section allows access to the articles used to formulate each response so you can get further details if needed. The links will automatically open the relevant Author Help article, Knowledge Base article or Community forum thread.

22.2   Frequently Asked Questions

How does Contract Express Chat work?

Contract Express Chat uses OpenAI's GPT-3.5 technology paired with a RAG (Retrieval Augmented Generation) mechanism to access data from our own Contract Express documentation. When you pose a question to the chat, it will retrieve the most relevant data from the database and generate a personalized response using GPT-3.5, ensuring that the information is relevant and tailored to your query.

The database includes information from the Contract Express Author Help manual, the Knowledge Base, the Author and Admin manuals as well as some quick guides.

How can I get access to Contract Express Chat?

Contract Express Chat will be available to all Contract Express cloud customers on v9.15 and above. Make sure you have the latest version of the Author tool installed, and that you are pointing to your production server on the latest version.

I am hosted on-premises, can I get access to Contract Express Chat?

Contract Express is not available through on-premise production environments. Customers who want to experiment with Contract Express Chat can create a trial account on one of our sandbox environments. Please contact support for details at contractexpress-support@thomsonreuters.com.

What Azure OpenAI services are used by Contract Express Chat?

Where possible, each Contract Express instance is routed to an Azure Open AI service in the region where it is hosted. If the necessary Azure OpenAI service is not available in the same region, it is routed to the nearest available Azure OpenAI service (e.g., AI requests from instances hosted in the Germany region are routed for processing to France region). This process does not involve data storage.

How can I get the most out of Contract Express Chat?

See below for some quick tips to help you maximise your experience with Contract Express Chat:
- Ensure that you are clear and concise in your queries, providing relevant detail and context where possible.
- Questions do not need to be written in technical language, but if you know certain terminology, that will help narrow down the search for relevant material.
- Previous questions posed in the same chat are included as additional context to help guide a response.
- If you wish to explore a new topic, start a new chat to reduce the context of your previous queries and maximise accuracy in the responses.
- Make use of the feedback options to help us refine our service. Click thumbs up or down on each response to help us improve and enhance the Chat's capabilities.

How do I know the answers are correct?

The chat will provide answers that reflect the database linked to the server that you are connected to in the Author tool (see Options > Servers). That means that if you are connected to a server on v9.15, the information will be up to date with information up to v9.15.

Validity is important to us, which is why we included the sources that were used for each answer provided. While we believe the chat is extremely useful, we can't guarantee it's not missing anything. It will still be important for you to test your templates to ensure you are building the experience you want. If you do notice something that is wrong or missing, please let us know by contacting support at contractexpress-support@thomsonreuters.com.

Will OpenAI be able to use my data?

No, Thomson Reuters' use of Generative AI is via dedicated API access through trusted partners such as Microsoft Azure and Amazon Web Services. Thomson Reuters expressly prohibits any vendor from retaining or using customer data to train their Generative AI models.

Will my questions be reviewed for product improvement?

Yes, the Contract Express product team will have access to the question prompts, responses and feedback. This information will be stored in the same database corresponding to the Contract Express instance you are connected to. We will review the questions, responses and feedback to improve the Chat's capabilities.

23.   AI-Powered Field Detection-Beta

The Detect fields tool is engineered to help you reach a first draft of an automated template faster than ever before. This feature was released as Beta with v10.0. We will be collecting your feedback to further refine and enhance the tool to make the process of automation more efficient and streamlined.

Here's how it works: The tool analyses the contents of your document, identifying points of variable information that are likely to require a field. It then creates a corresponding variable for each identified data point and replaces it with a field in the document. The variable name, question prompt and data type will be automatically added for you to review in the dictionary.

Most importantly you, as the Author, are in complete control so you can decide whether the AI's suggestions are accurate. The AI Markup Review panel allows you to navigate to the field in the document, go to the definition of the variable in the Dictionary Editor and accept or reject each detected field. Our goal is to make novice users confident with automation and give expert Authors back time to focus on what matters most.

To give you a better understanding of how this works, here's a step-by-step explanation:

1. Open the document you want to create a template from. We have built this tool to work on both model and executed documents. To maximize the accuracy of the tool, make sure your document doesn't contain any existing Contract Express markup and that it has fewer than 15,000 words.

2. In the Contract Express ribbon, click the new "Detect fields" icon.

This will open the AI Markup Review panel. Click the "Detect fields" button in the panel.

3. This will begin to analyze your document. It will take a couple of minutes to do so, you can continue to work in other Word documents in the meantime. Once complete, the fields will be inserted to your document with track changes enabled and the detected fields will display in the Review panel.

4. Click View to navigate to the field in the document:
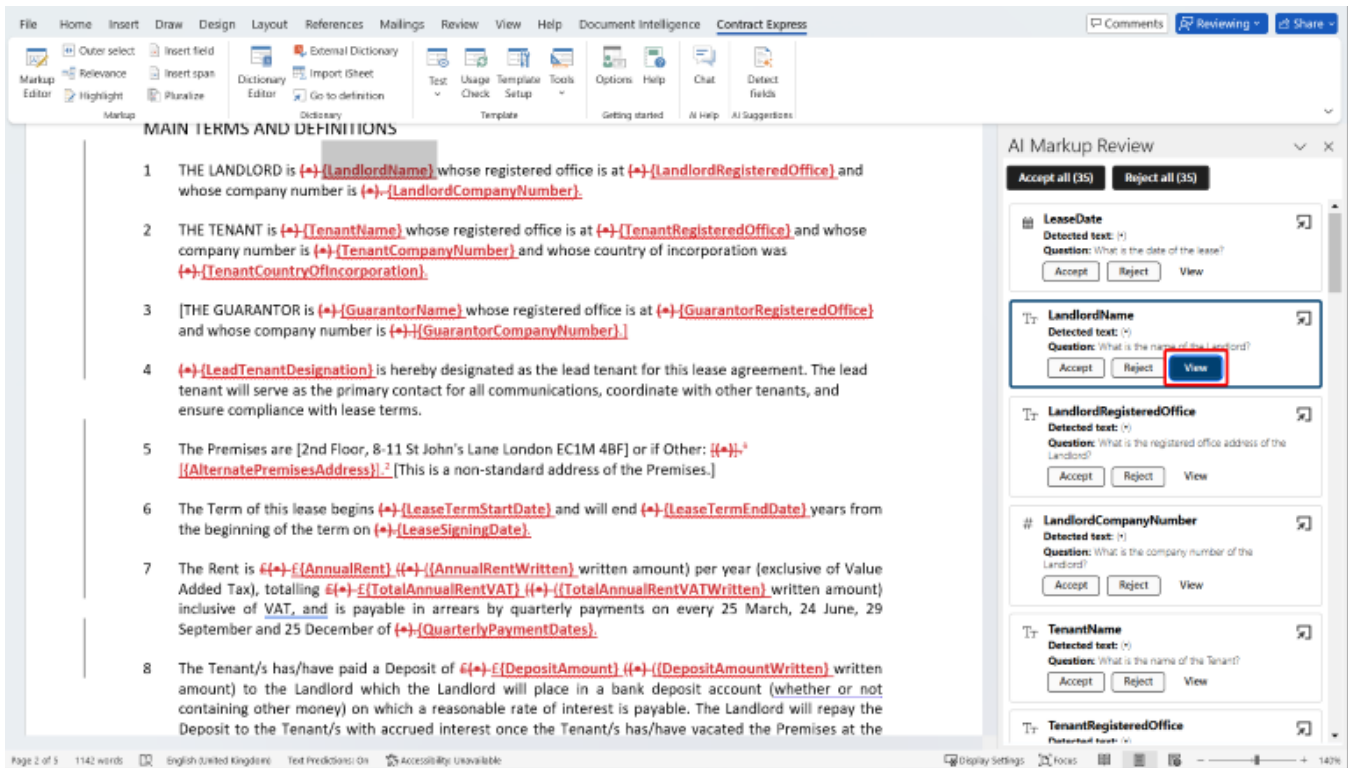
5. Click the Go to definition icon to open the definition of the variable in the Dictionary editor and make any necessary changes:
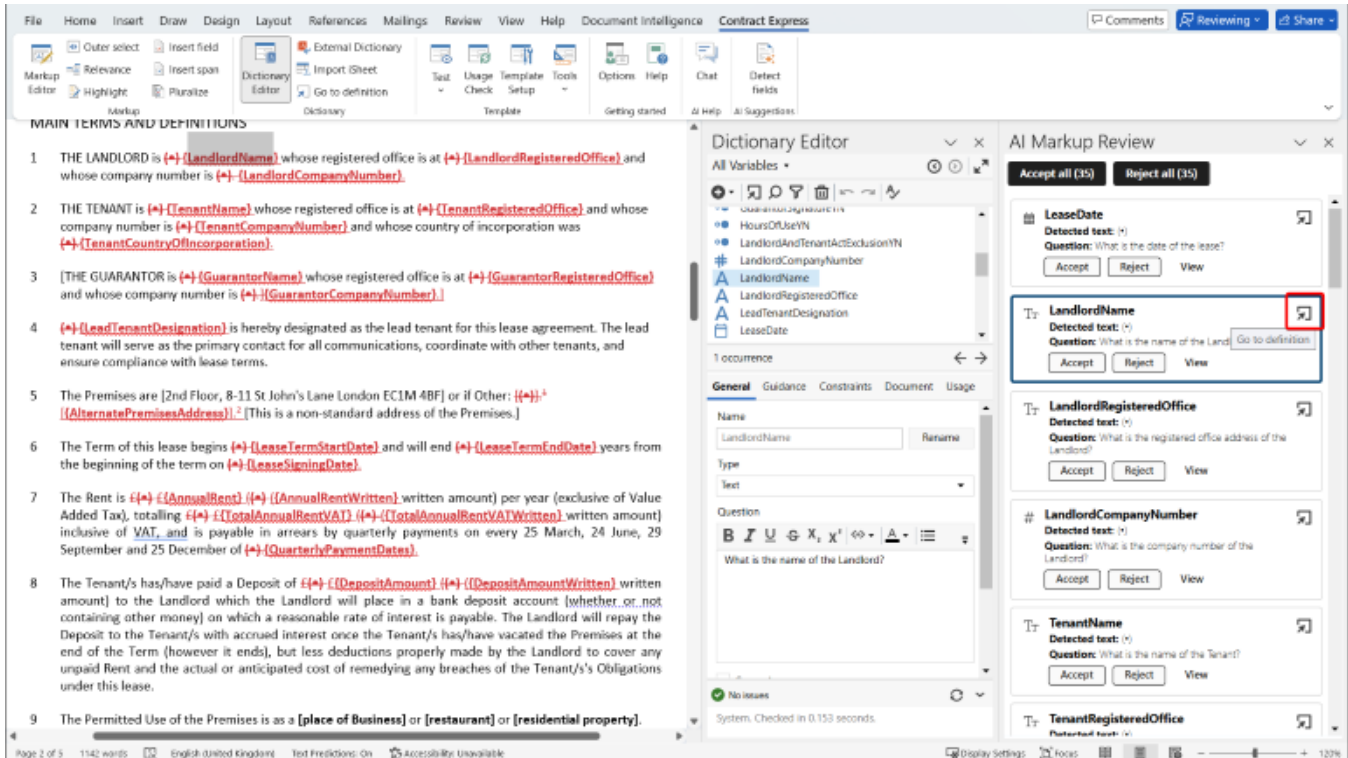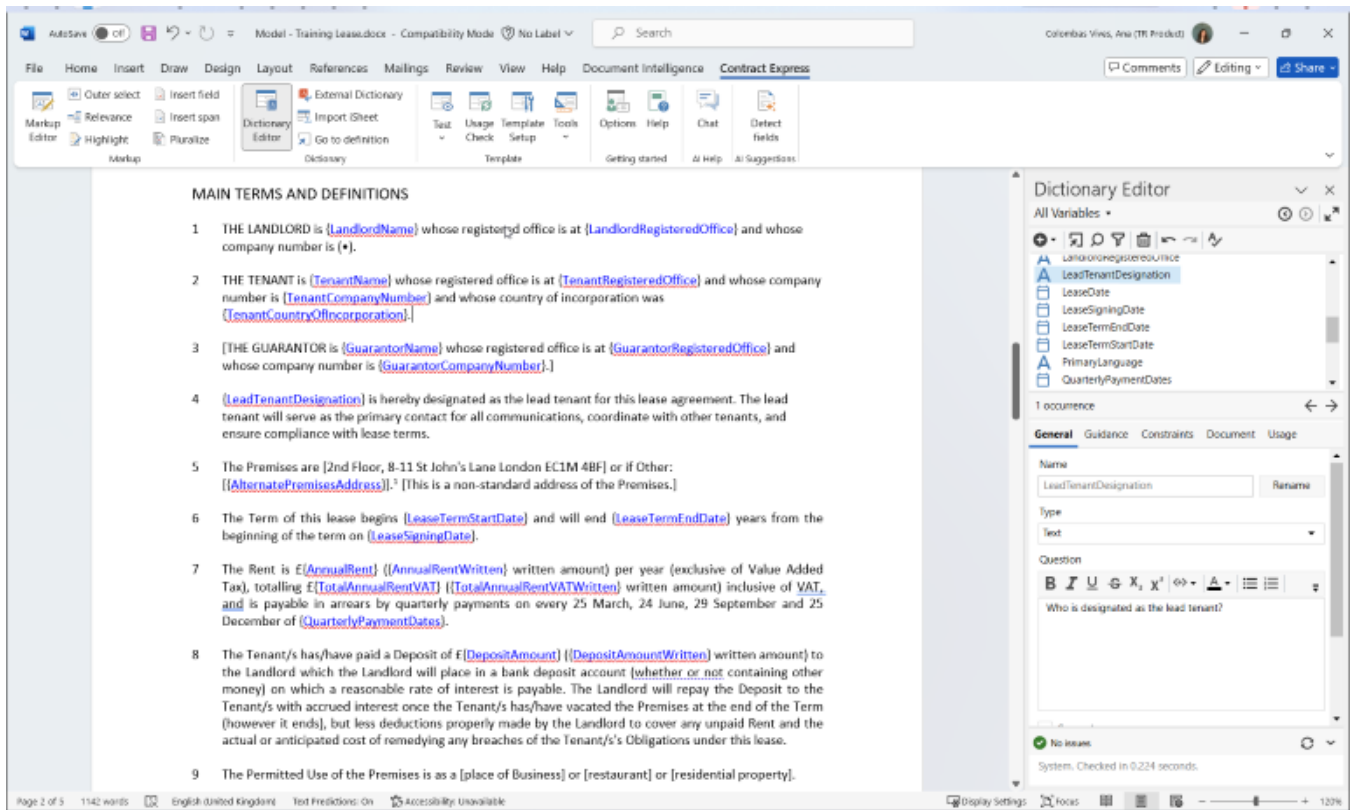
6. Click Accept to accept the insertion of the field in the document and Reject to reject the insertion and return the original text. Fields that are accepted or rejected will appear in a summary list in the panel:

7. Once you have reviewed all the fields, you can carry on with the automation of the template as usual:

We encourage you to try out this new feature and share your thoughts with us by filling out this quick survey. Your insights will be invaluable in helping us refine and enhance the tool. Together, we can create the future of document automation.

Find out more about Advanced AI Features here.