

Generic Attributes

This document explains about generic attributes and its various options.

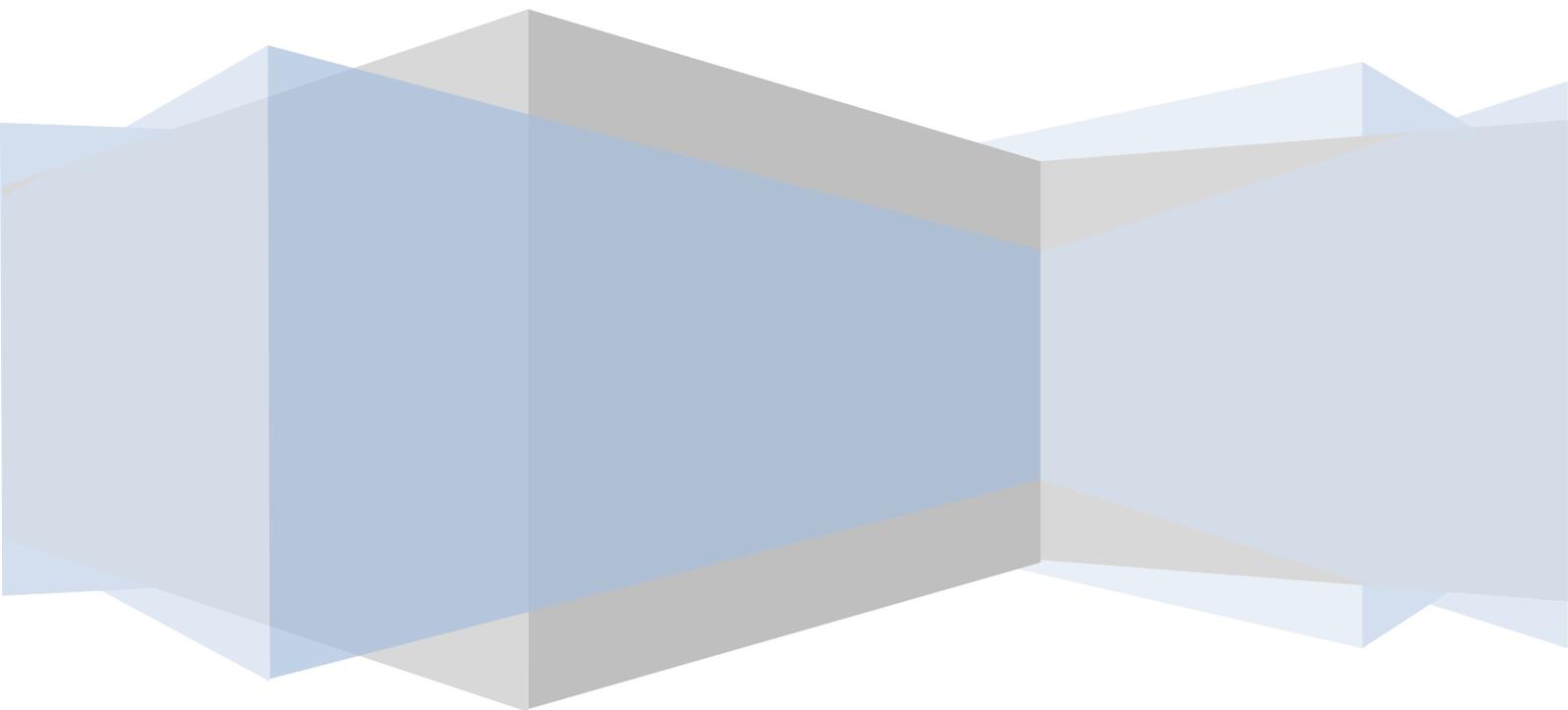


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1. Understanding Generic Attributes

These are basic attributes such as colour, locations, weights etc. which are applicable to many applications, example: colour attribute is present in many type of products: mobile, garment, shoes, clocks etc. Generic attributes can be linked to variables that take present similar kind of values e.g. *Shoes.Colour*, *Clothing.Colour* represents colours. The basic purpose of defining attributes is to use them in scanning and analysing text to find out variable-value pairs. The end-user does not have to go through Q&A's and can directly write in brief the keywords, example: the end-user may type '*I want to fly by Jet Airways on 5th at 6am to Mumbai*'. The scan and text analysis algorithm should understand what end-user is looking for. From this text it will derive values of *destination: Mumbai*, *day: 5th*, *time:0600*, *airline: Jet Airways*.

Generic attributes can have own values or they are retrieved from the values of variables they are linked to. For example, all shoes and clothing colours are values of generic attribute colour. Not all generic attributes store values they can represent numbers also example: weight, distance etc.

Figure 1: Generic Attribute Interface

1.1 Creating New Attribute ID

Generic attribute allows creating new attribute ID. The following are the steps to create an ID:

1. Enter the ID name in *New ID* field, example: destination which represents place of visit, etc. Select the data type to *Text* from dropdown list and then click *Add*, attribute is added as shown below.

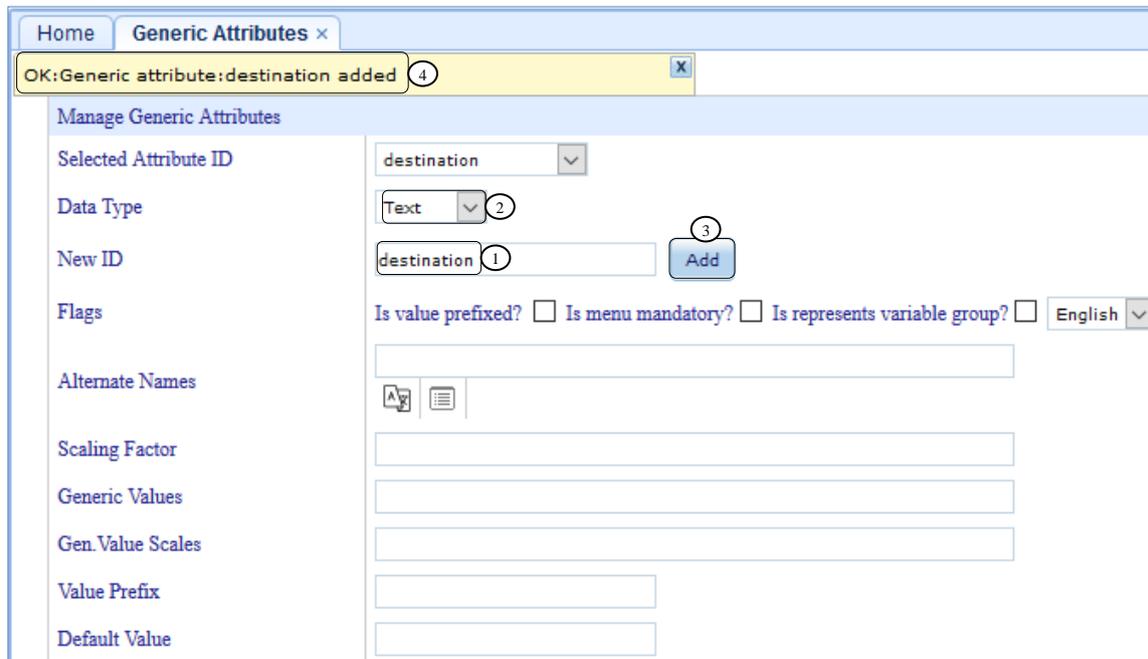


Figure 2: Adding Generic Attribute

- Alternate names to attributes can be added in *Alternate Names* field. For example, words visit, reach etc. can be alternate names for destination. Scan algorithm converts alternates to actual generic attribute. Check the option *Is value prefixed?* (This option indicates that while parsing text, value of the attribute comes before attribute name, example: blue color where blue is value and color is attribute).

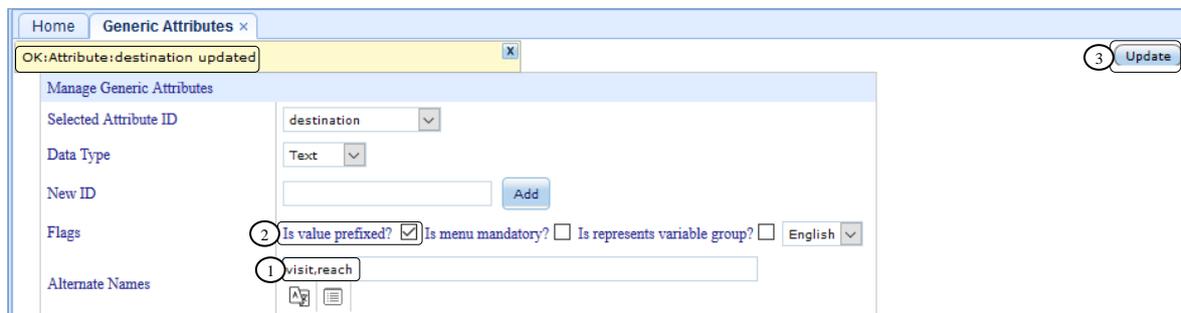


Figure 3: Giving Alternate Names

- To link attribute variable, go to *Main Menu -> Domain Vocabulary -> Global Variables*. Select the variable if existing or create a new variable, click *HTML Web Page Options 2* and select the attribute from *Generic Attribute* dropdown menu which needs to be linked with the variable and click *Update*. The following message is displayed after clicking *Update*.

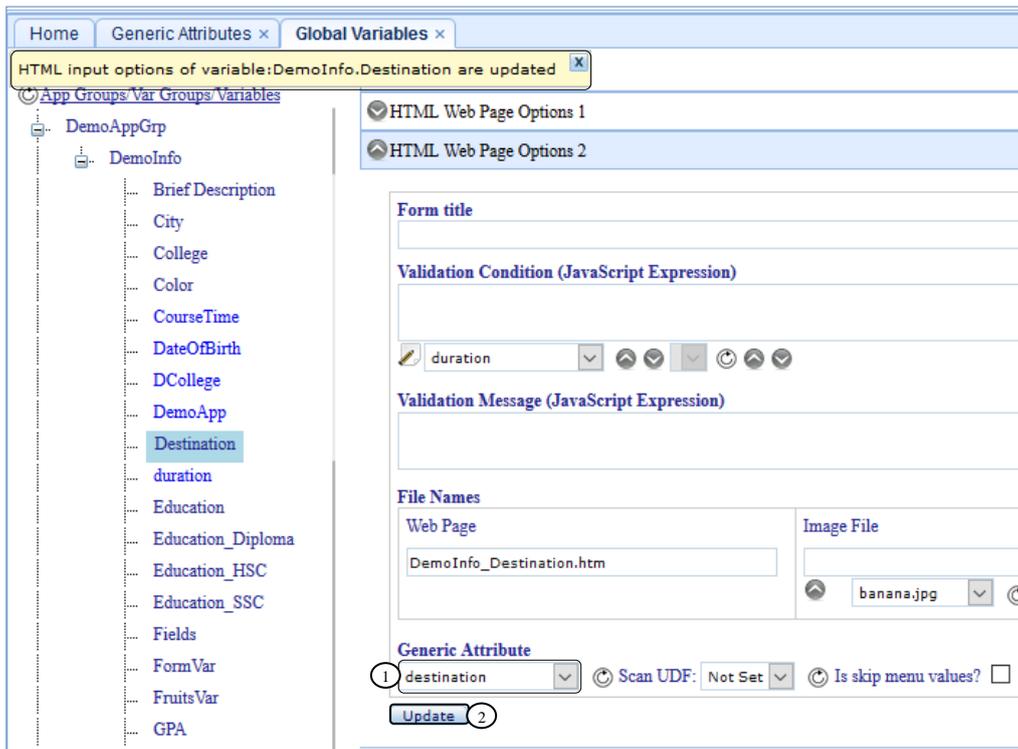


Figure 4: Linking Attribute to Variable

- To use generic attributes in the app, the functions LOAD_ES_SESSION or LOAD_SESSION and SCAN_TEXT are used. For this rule needs to be modified as shown in screen shot below. SCAN_TEXT function which scans the text, if it finds the variable-value pairs and returns them in XML format. Function LOAD_SESSION loads the XML data into session means initializes the variables with their corresponding values. Function EXECUTE_EXP which returns true value, however this function can be skipped.

SCAN_TEXT function uses soundex function inside means it can auto-correct spelling mistakes in text to certain extent, example: 'nekleskurti' will be mapped to 'neckless kurti'.

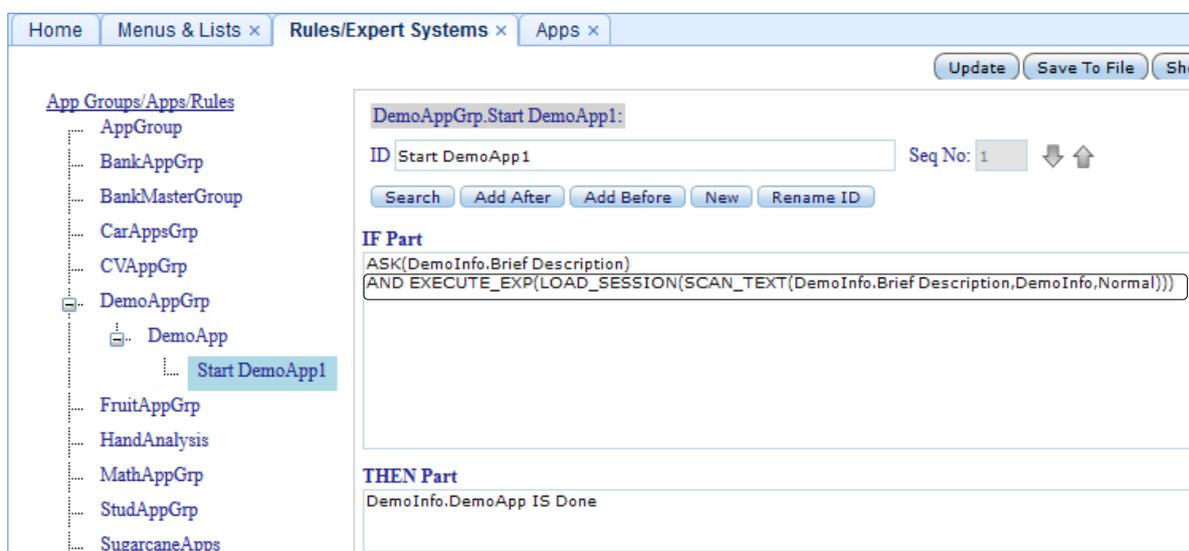
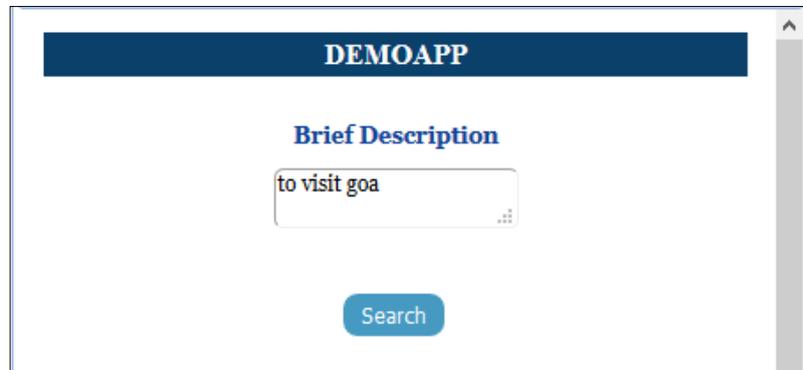


Figure 5: Modifying Rule to Scan Text

1.2 Running the Application

To view the changes, run the application. To run the application, go to *Main Menu -> Apps, APIs and Docs -> Apps*.

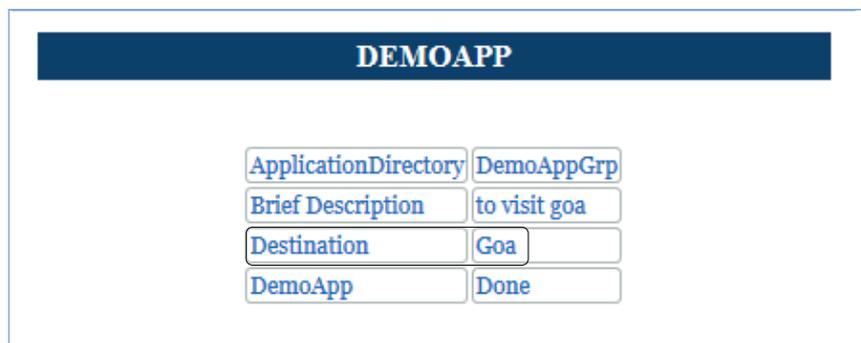
1. Click the application *DemoApp* and the following screen is displayed. Enter brief details in *Brief Description* field.



The screenshot shows a web application window titled "DEMOAPP". Below the title bar, there is a section labeled "Brief Description". Inside this section, there is a text input field containing the text "to visit goa". Below the input field is a blue button labeled "Search".

Figure 3: Entering Brief Description

2. The output shows destination Goa since it is mapped to a variable *DemoInfo.Destination*.



The screenshot shows a web application window titled "DEMOAPP". Below the title bar, there is a table displaying session data. The table has two columns and four rows of data.

ApplicationDirectory	DemoAppGrp
Brief Description	to visit goa
Destination	Goa
DemoApp	Done

Figure 4: Session Report

1.3 Attributes Representing Variable Groups

It may be possible same app may be dealing with multiple types of products, example: eCommerce app and many products may have common generic attribute such as colour (in WKA Studio each type of product is represented using a variable group e.g. Shoes, Clothing etc.). In such cases, based on certain words in the text, the variable group (type of product) can be changed dynamically.

For example, if end-user enters text 'red shoes' it should take 'shoes' product while if end-user enters 'red shirt' it should change the product to 'clothing'. Values of attribute which changes variable groups must be mapped to variable group names, example: as shown in figure 6 shows menu *PRODUCT_TYPE* has two values corresponding to two products (variable groups): Clothing and Shoes. Scan algorithm searches for variable group either prefixed with variable group of variable which changes type variable group type, example: *EComProd_Clothing* or direct variable group itself, example: Clothing.

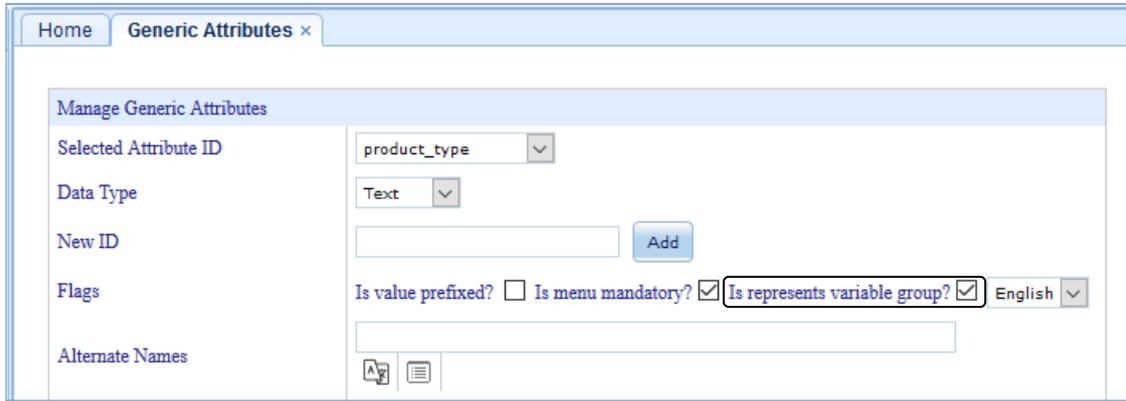


Figure 5: Generic Attribute Presenting Variable Groups

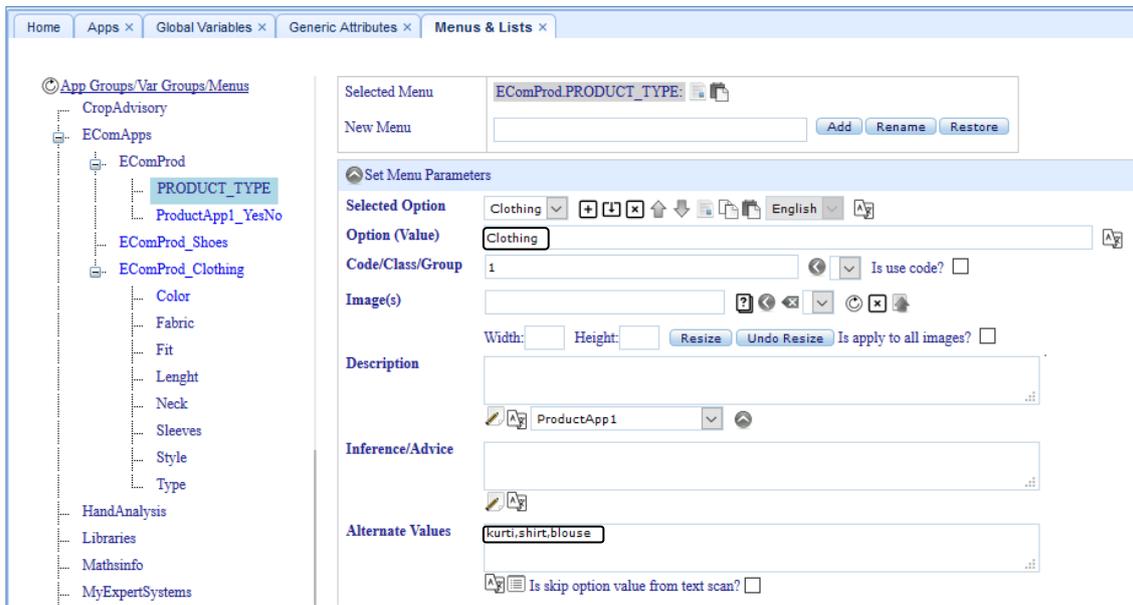


Figure 6: Setting Variable Group Names as Menu Values

Following screen shot shows, the text entered is ‘white colour kurti’, the word kurti is alternate word for clothing (see figure 6), which is value of generic attribute *product_type*. Variable *EComProd.PRODUCT_TYPE* is linked to generic attribute *product_type* hence value of this variable is Clothing. Generic attribute *product_type* represents variable group hence selected variable group is EComProd_Clothing and all other keywords is scanned for variables within that group (example: white as colour of clothing).

In this example (figure 7), end-user can skip word colour and can enter ‘white kurti’ which will also return the same result. Figure 9, 10 shows example of shoes.

1. Enter important keywords in the field and click *Next*.

ECOM PRODUCT APP1

Enter important keywords of product you are looking for?

white color kurti

Next Back

Figure 7: Entering Text (Important Keyword)

2. After clicking *Next*, session report is displayed which shows that the *product_type* is clothing depending on the input given.

ECOM PRODUCT APP1

ApplicationDirectory	NoShow
DescribeInBrief	white color kurti
PRODUCT_TYPE	Clothing
Color_Clothing	White
Type_Clothing	Kurti
ProductApp1	OK

Figure 8: Result for Clothing

3. Similarly, screen shots below shows the example of shoes.

ECOM PRODUCT APP1

Enter important keywords of product you are looking for?

brown running shoes

Next Back

Figure 9: Entering Keyword

ECOM PRODUCT APP1	
ApplicationDirectory	NoShow
DescribeInBrief	brown running shoes
Product_Type	Shoes
Color_Shoes	Brown
Type_Shoes	Running Shoes
ProductApp1	OK

Figure 10: Result for Shoes

1.4 Attribute with Values

Generic attributes allows adding attribute with values.

1. Check the option *Is menu mandatory?* when generic attribute uses set of values example: colours, shapes, etc. Ideally generic attribute values should be unique for a variable; it means there should not be two variables linked to same attribute in the same variable group. This is because scan algorithm from value determines generic attribute and from generic attribute what is variable etc. For example, if end-user types 'red', first algorithm will find out which generic attribute represents value 'red' example: say *colour*, then finds out variable to which generic attribute is linked in the variable group example: *FruitVarGrp.Colour*. There may be conflict if there is any other variable say *FruitVarGrp.SeedColour* etc. which is linked to attribute *colour*, in such scenario use another generic attribute example: *seed_colour*, etc.

The screenshot shows a web application interface for managing generic attributes. At the top, there are navigation tabs: Home, Menus & Lists, Global Variables, Generic Attributes (selected), Rules/Expert Systems, and Apps. Below the tabs is a form titled 'Manage Generic Attributes'. The form has several fields: 'Selected Attribute ID' with a dropdown menu showing 'shape'; 'Data Type' with a dropdown menu showing 'Text'; 'New ID' with an empty text input and an 'Add' button; 'Flags' with three checkboxes: 'Is value prefixed?' (checked), 'Is menu mandatory?' (checked), and 'Is represents variable group?' (unchecked); and 'Alternate Names' with an empty text input and two small icons. A language dropdown menu is set to 'English'.

Figure 11: Adding Generic Attribute with 'Is menu mandatory?' Option

2. When this generic attribute is connected to a variable, that variable must be connected to menu to have possible values. When button update is clicked (figure 13), all values of menu of selected variable is stored in linked attribute unless flag *Is skip menu values?* is checked. So whenever menu values are changed, the button  should be clicked to reflect the changed values.

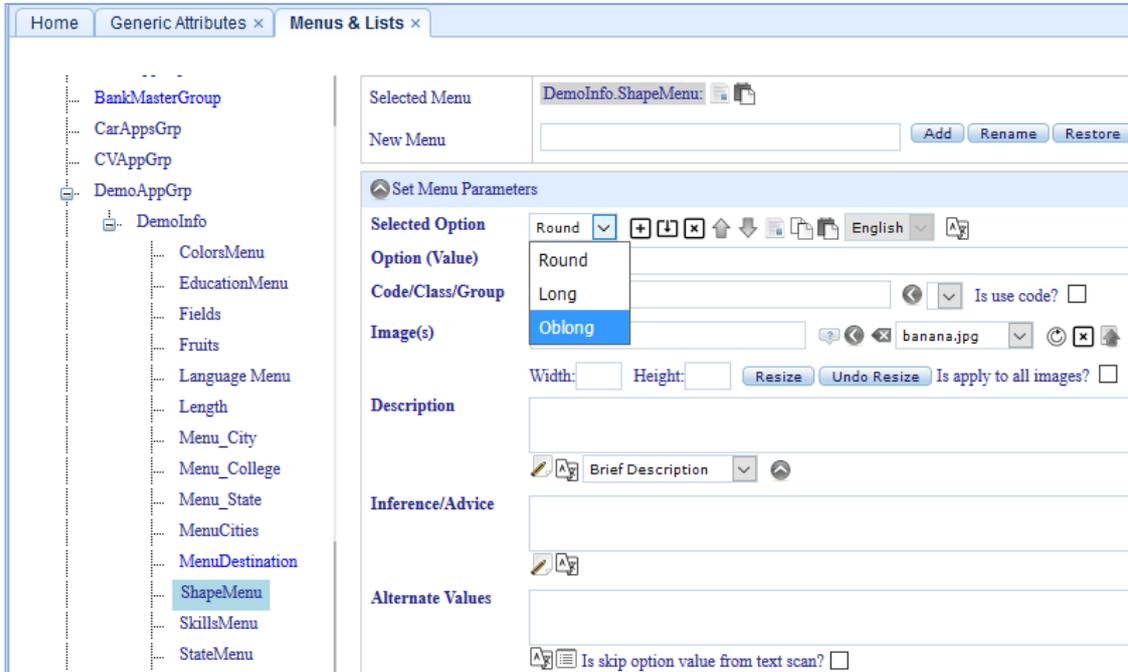


Figure 12: Menu Options

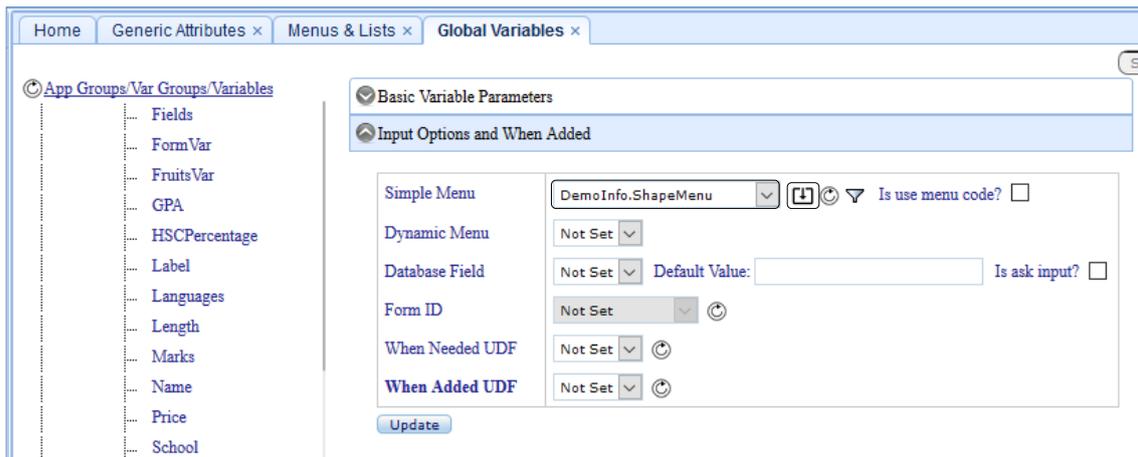


Figure 13: Linking Menu to Variable

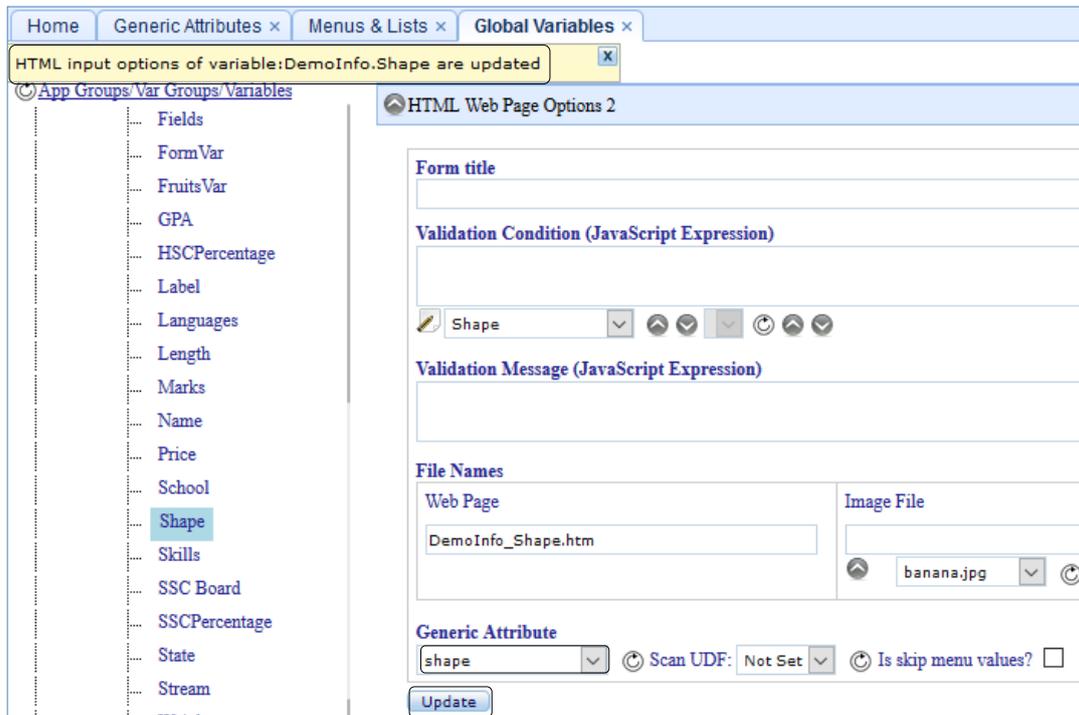


Figure 14: Linking Attribute to Variable

- After the attributes and menus are linked to variable, to view the changes, run the application. To run the application, go to *Apps* interface and click *DemoApp*. Enter the brief description (example: *shape long*) in field and the following session report is displayed with shape: long.

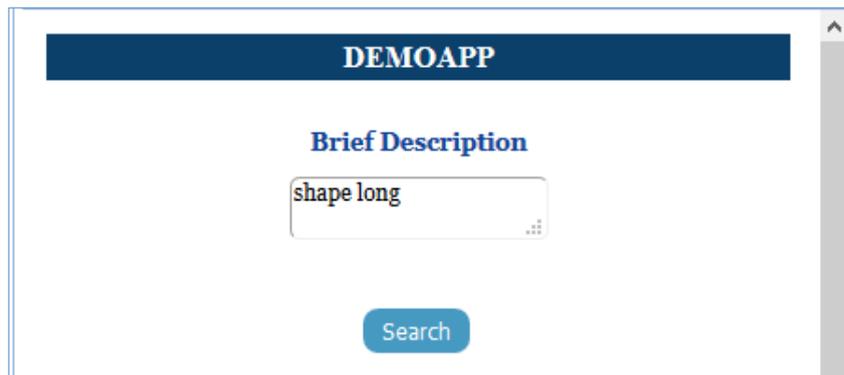


Figure 15: Entering Description

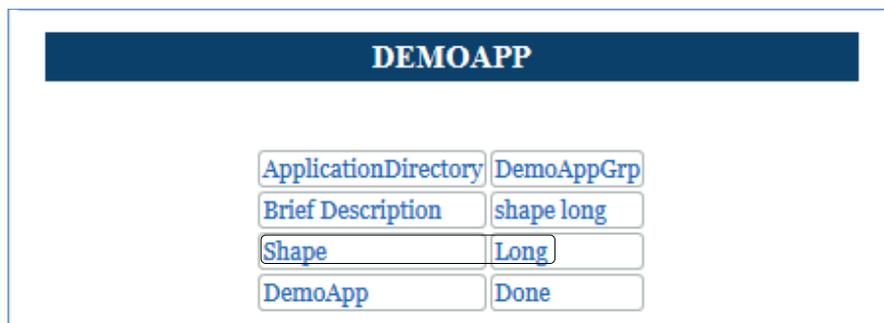
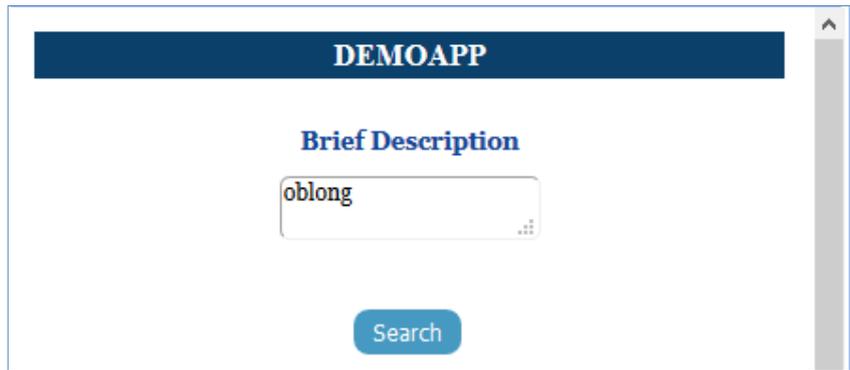


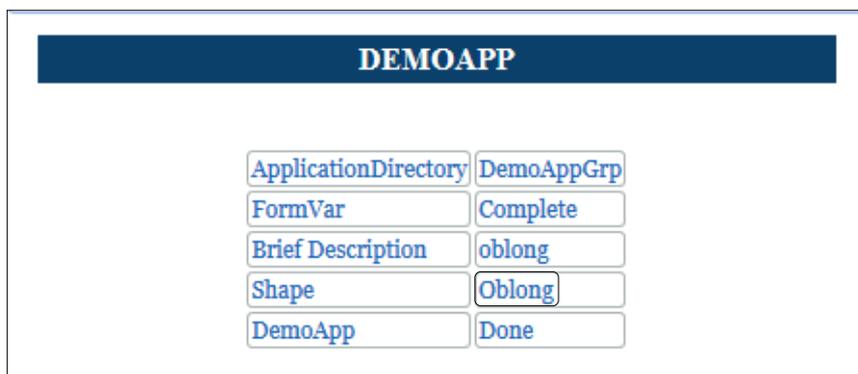
Figure 16: Session Report

4. Similarly, enter the description in field (example: *oblong*) and the following session report is displayed with shape: oblong.



The screenshot shows a web application interface with a dark blue header containing the text 'DEMOAPP'. Below the header, there is a section titled 'Brief Description'. Inside this section, there is a text input field containing the word 'oblong'. Below the input field is a blue button labeled 'Search'.

Figure 17: Entering Description



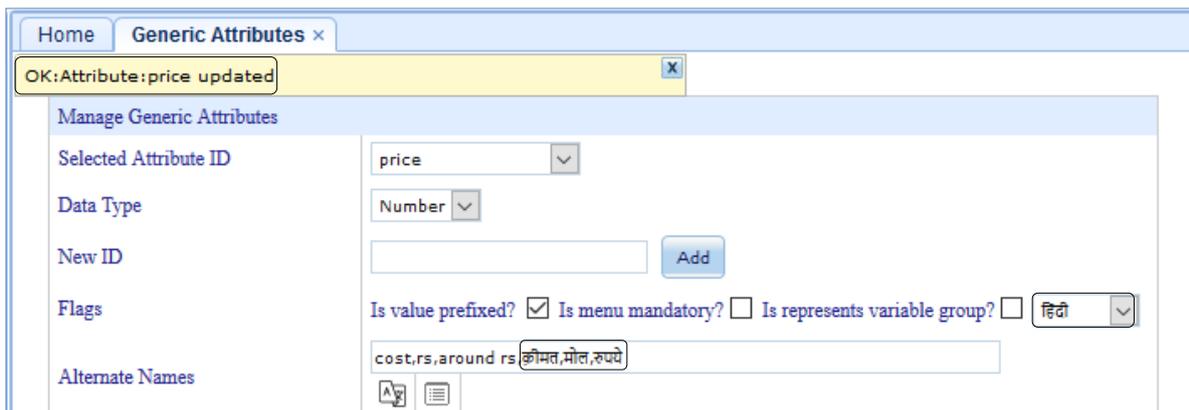
The screenshot shows a web application interface with a dark blue header containing the text 'DEMOAPP'. Below the header, there is a session report table with the following content:

ApplicationDirectory	DemoAppGrp
FormVar	Complete
Brief Description	oblong
Shape	Oblong
DemoApp	Done

Figure 18: Session Report

1.5 Selecting Language for Alternate Names

Alternate names can be given in specific language as shown in following screen shot.



The screenshot shows a web application interface with a header containing 'Home' and 'Generic Attributes x'. Below the header, there is a notification bar that says 'OK:Attribute:price updated'. The main content area is titled 'Manage Generic Attributes'. It contains the following fields and controls:

- Selected Attribute ID: price
- Data Type: Number
- New ID: [Empty field] [Add button]
- Flags: Is value prefixed? Is menu mandatory? Is represents variable group? हिंदी
- Alternate Names: cost,rs,around rs कीमत,मोल,रुपये

Figure 19: Using Multi-Language

1.6 Adding Scaling Factor to Attributes

In order to bring numeric values under common scale, scales can be specified here example: if all weight to be taken in grams then alternate names for attribute 'weight' can be kg, kgs, gm and scales will be 1000,1000,1 as shown in screen shot below.

Manage Generic Attributes	
Selected Attribute ID	weight <input type="button" value="v"/>
Data Type	Real <input type="button" value="v"/>
New ID	<input type="text"/> <input type="button" value="Add"/>
Flags	Is value prefixed? <input checked="" type="checkbox"/> Is menu mandatory? <input type="checkbox"/> Is represents variable group? <input type="checkbox"/>
Alternate Names	kg,kgs,gm,gms <input type="button" value="A"/> <input type="button" value="M"/>
Scaling Factor	1000,1000,1,1

Figure 20: Adding Scaling to Attribute

To view the changes, run the application. Enter the required description in field and the following session report is displayed with weight shown.

DEMOAPP

Brief Description

Figure 21: Entering Brief Description

DEMOAPP

ApplicationDirectory	DemoAppGrp
Brief Description	1 kg
Weight	1000
DemoApp	Done

Figure 22: Weight Converted

1.7 Adding Generic Values to Attributes

Generic values when found while parsing text, automatically map to generic attribute, example: days, week, month etc. can be mapped to duration as shown in screen shot below.

The screenshot shows a web form titled "Manage Generic Attributes". The form has several fields and checkboxes:

- Selected Attribute ID:** A dropdown menu with "duration" selected.
- Data Type:** A dropdown menu with "Real" selected.
- New ID:** An empty text input field with an "Add" button to its right.
- Flags:** Three checkboxes: "Is value prefixed?" (unchecked), "Is menu mandatory?" (unchecked), and "Is represents variable group?" (unchecked).
- Alternate Names:** An empty text input field with a small icon to its left.
- Scaling Factor:** An empty text input field.
- Generic Values:** A text input field containing "days,week,month,years".
- Gen. Value Scales:** An empty text input field.

Figure 23: Adding Generic Values to Attributes

To view the changes, run the application. Enter the required description in field and the following session report is displayed with duration shown.

The screenshot shows a web application interface with a dark blue header bar containing the text "DEMOAPP". Below the header, there is a section titled "Brief Description" with a text input field containing "3 days". A "Search" button is located below the input field.

Figure 24: Entering Description

The screenshot shows a window titled "DemoApp:4" with a "Refresh" button and standard window controls. The window displays a session report with a dark blue header bar containing "DEMOAPP". Below the header, there is a table with the following data:

ApplicationDirectory	DemoAppGrp
Brief Description	3 days
duration	3
DemoApp	Done

Figure 25: Result Displayed

1.8 Adding Scales to Generic Attribute Values

In order to bring numeric values under common scale, scales can be specified for values, example: if all length to be taken in cms then generic values for attribute 'length' can be cm, inch and scales will be 1, 2.5.

Manage Generic Attributes	
Selected Attribute ID	length
Data Type	Real
New ID	<input type="text"/> <input type="button" value="Add"/>
Flags	Is value prefixed? <input checked="" type="checkbox"/> Is menu mandatory? <input type="checkbox"/> Is represents variable group? <input type="checkbox"/>
Alternate Names	<input type="text"/>
Scaling Factor	<input type="text"/>
Generic Values	cm,inch
Gen. Value Scales	1,2.5

Figure 26: Adding Generic Value Scales

To view the changes, run the application. Enter the required description in field and the following session report is displayed with length shown.

DEMOAPP

Brief Description

150 inch

Search

Figure 27: Entering Description

DEMOAPP

ApplicationDirectory	DemoAppGrp
Brief Description	150 inch
Length	375
DemoApp	Done

Figure 28: Session Report

1.9 Setting Default Value to Attribute

If attribute value is not provided default value is taken as attribute value. For example, if the end-user types the year, that means current year, default value for year can be set to 2017. In the screen shot below, the default value provided for the cost of product is 600.

The screenshot shows a web form titled "Manage Generic Attributes". On the left is a vertical menu with the following items: Selected Attribute ID, Data Type, New ID, Flags, Alternate Names, Scaling Factor, Generic Values, Gen. Value Scales, Value Prefix, and Default Value. The main form area contains the following fields and controls:

- Selected Attribute ID:** A dropdown menu with "price" selected.
- Data Type:** A dropdown menu with "Number" selected.
- New ID:** An empty text input field followed by an "Add" button.
- Flags:** Three checkboxes: "Is value prefixed?" (checked), "Is menu mandatory?" (unchecked), and "Is represents variable group?" (unchecked).
- Alternate Names:** A text input field containing "cost,rs,around rs" and two small icons below it.
- Scaling Factor:** An empty text input field.
- Generic Values:** An empty text input field.
- Gen. Value Scales:** An empty text input field.
- Value Prefix:** An empty text input field.
- Default Value:** A text input field containing "600".

Figure 29: Setting Default Value

To view the changes, run the application. Enter the required description in field and the following session report is displayed with price shown.

The screenshot shows a web application interface. At the top is a dark blue header with the text "DEMOAPP". Below the header is a section titled "Brief Description" in bold. Underneath is a text input field containing the text "cost of product". Below the input field is a blue "Search" button.

Figure 30: Value Not Provided

The screenshot shows a window titled "DemoApp:13" with a "Refresh" button. The window content displays a table of attributes and their values:

ApplicationDirectory	DemoAppGrp
Brief Description	cost of product
Price	600
DemoApp	Done

Figure 31: Default Value Displayed in Session Report

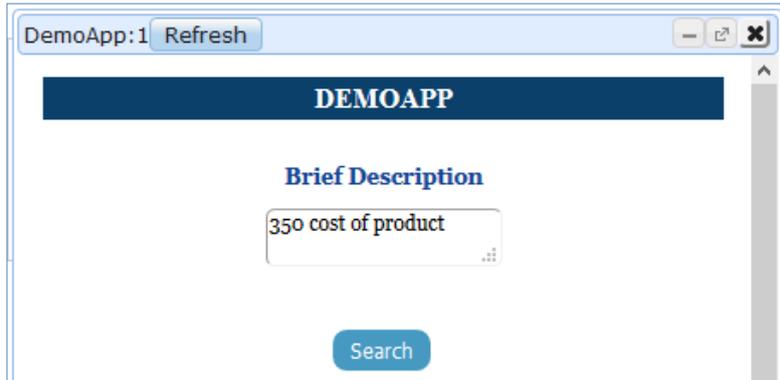


Figure 32: Value Provided

DEMOAPP	
ApplicationDirectory	DemoAppGrp
Brief Description	350 cost of product
Price	350
DemoApp	Done

Figure 33: Value Displayed in Session Report

1.10 Language Translation Popup

This popup is used to translate the entered text into selected language and uses the API to translate the text. Also, this window saves the translated text in XML file which avoids calling the API.

To translate the text:

1. Click the button  to open a language translation window. Enter the text in English Text field. Select the preferred language to be translated from the dropdown menu. Click the button  which calls the API to translate the text file. Text will be translated and is seen in the Translated Text field.

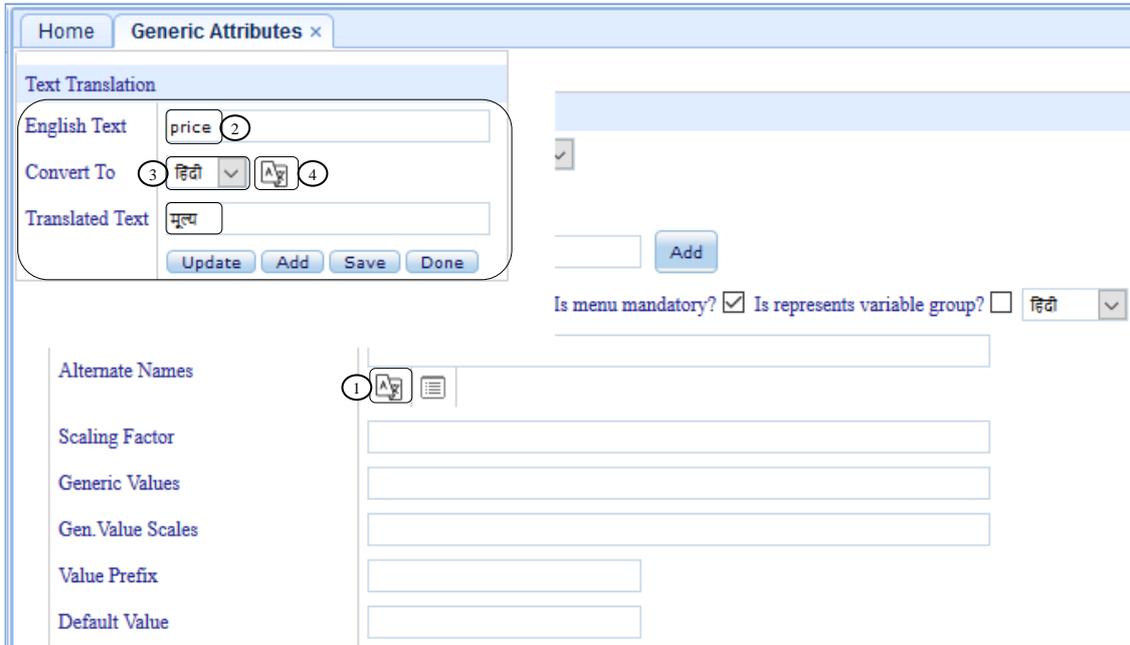


Figure 34: Text Translation

- To add the translated text for given text, click *Add*.

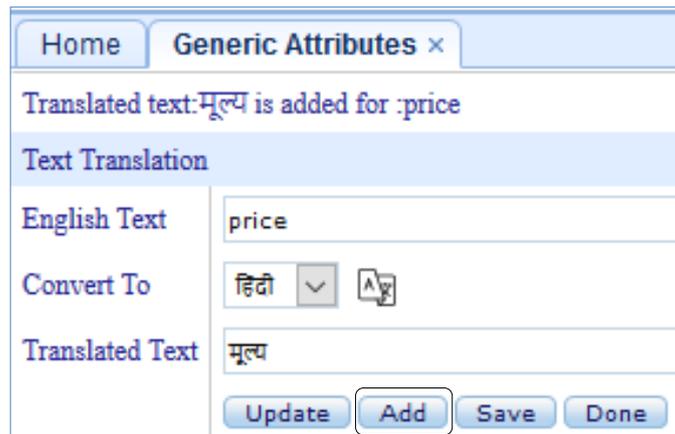


Figure 35: Adding Translated Text

- Click *Save* which saves the translated text to LangDictionary.xml file.

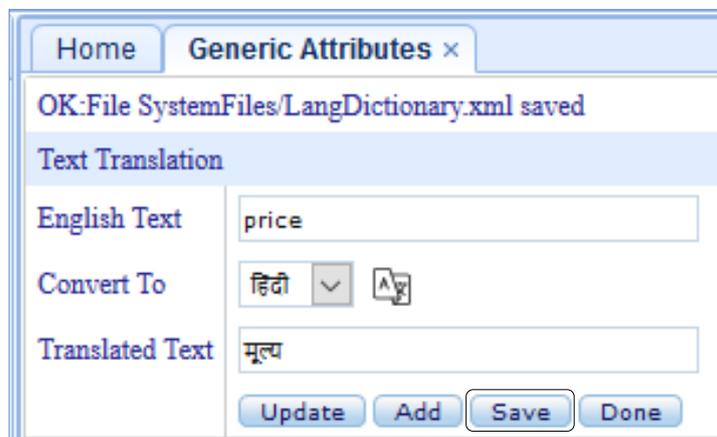
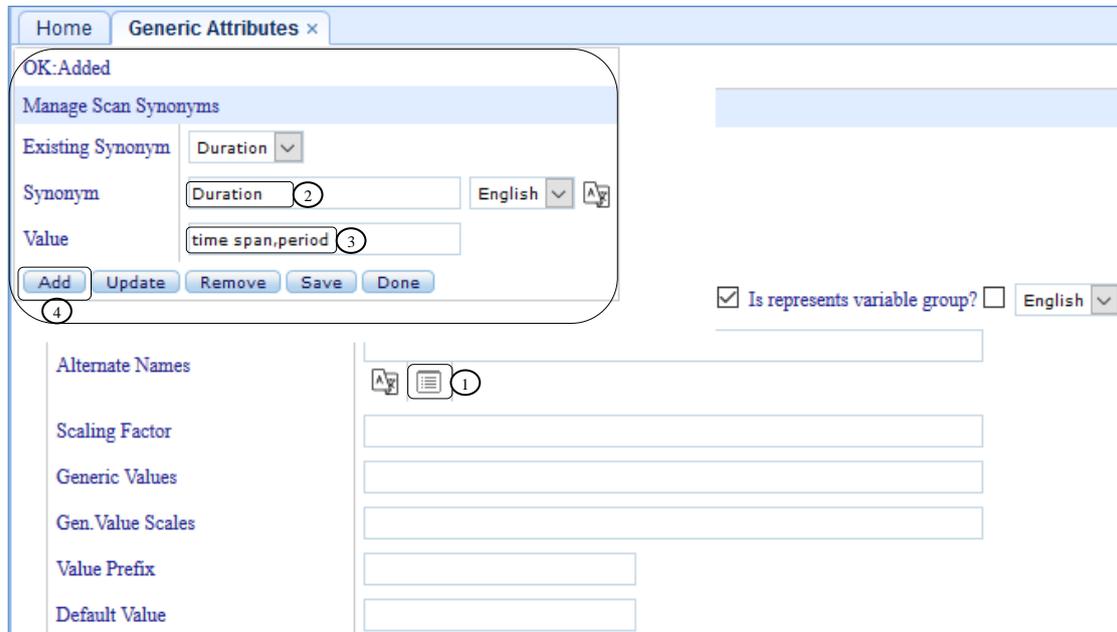


Figure 36: Saving Translated Text to the File

1.11 Manage Scan Synonyms

Manage Scan Synonyms allows adding synonyms as alternate values which are applicable across all attributes and their values (independent of specific/possible menu values). For example, alternate to 'duration' can be 'time span', 'period'.

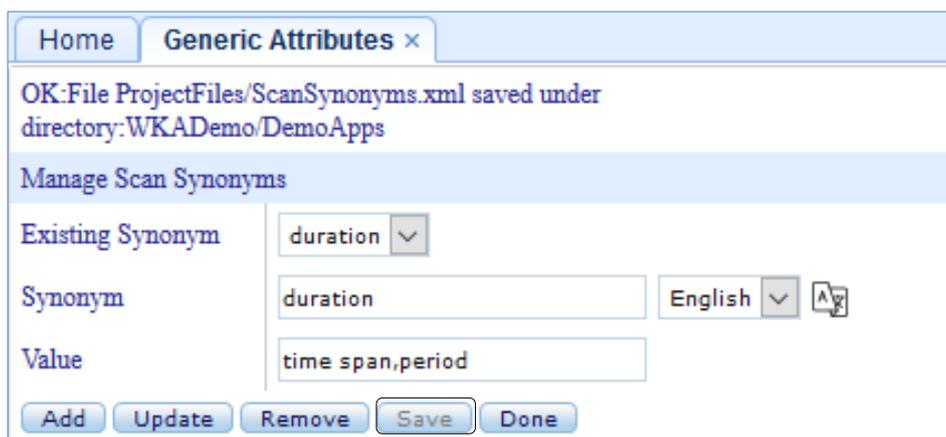
1. Click the button  to open manage scan synonyms popup. Enter the word in the synonym text field. Enter the value i.e. synonym of the word. Click *Add* to add synonym into the list.



The screenshot shows a software interface for managing scan synonyms. The main window is titled 'Generic Attributes' and contains a sub-dialog 'Manage Scan Synonyms'. The dialog has a title bar with 'Home' and 'Generic Attributes x'. Below the title bar, there is a message 'OK:Added'. The dialog contains several fields: 'Existing Synonym' with a dropdown menu showing 'Duration'; 'Synonym' with a text input field containing 'Duration' and a language dropdown set to 'English'; and 'Value' with a text input field containing 'time span,period'. At the bottom of the dialog are buttons for 'Add', 'Update', 'Remove', 'Save', and 'Done'. A checkbox labeled 'Is represents variable group?' is checked. To the right of the dialog, there is another language dropdown set to 'English'. Below the dialog, there are several sections: 'Alternate Names' with a list icon circled '1', 'Scaling Factor', 'Generic Values', 'Gen. Value Scales', 'Value Prefix', and 'Default Value', each with an associated input field.

Figure 37: Adding Synonyms

2. Click *Save* which saves the text to ScanSynonyms.xml file.

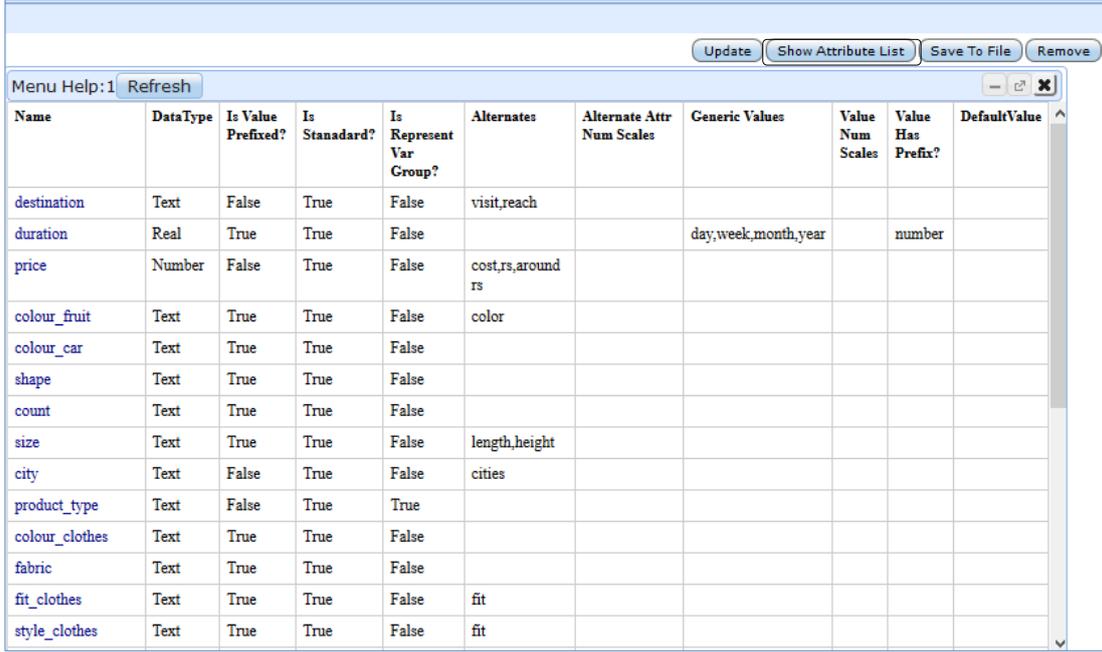


The screenshot shows the same 'Manage Scan Synonyms' dialog box as in Figure 37, but now with a message at the top: 'OK:File ProjectFiles/ScanSynonyms.xml saved under directory:WKADemo/DemoApps'. The 'Existing Synonym' dropdown is now set to 'duration', the 'Synonym' text field contains 'duration', and the 'Value' text field contains 'time span,period'. The 'Save' button is highlighted, indicating it was just clicked. The other elements of the dialog remain the same.

Figure 38: Saving Scanned Synonyms to the File

1.12 Showing Attribute List

To view all list of attributes with their values click *Show Attribute List* and the following screen is displayed.



The screenshot shows a software window titled 'Show Attribute List'. At the top right, there are buttons for 'Update', 'Show Attribute List', 'Save To File', and 'Remove'. Below the buttons is a 'Menu Help:1 Refresh' label and a window control bar with minimize, maximize, and close icons. The main area contains a table with the following columns: Name, DataType, Is Value Prefixed?, Is Stanadard?, Is Represent Var Group?, Alternates, Alternate Attr Num Scales, Generic Values, Value Num Scales, Value Has Prefix?, and DefaultValue. The table lists various attributes such as destination, duration, price, colour_fruit, colour_car, shape, count, size, city, product_type, colour_clothes, fabric, fit_clothes, and style_clothes.

Name	DataType	Is Value Prefixed?	Is Stanadard?	Is Represent Var Group?	Alternates	Alternate Attr Num Scales	Generic Values	Value Num Scales	Value Has Prefix?	DefaultValue
destination	Text	False	True	False	visit_reach					
duration	Real	True	True	False			day;week;month;year		number	
price	Number	False	True	False	cost,rs,around rs					
colour_fruit	Text	True	True	False	color					
colour_car	Text	True	True	False						
shape	Text	True	True	False						
count	Text	True	True	False						
size	Text	True	True	False	length,height					
city	Text	False	True	False	cities					
product_type	Text	False	True	True						
colour_clothes	Text	True	True	False						
fabric	Text	True	True	False						
fit_clothes	Text	True	True	False	fit					
style_clothes	Text	True	True	False	fit					

Figure 39: Showing Attribute List

1.13 Using UDF to Initialise Other Variable Values

Sometimes other variable values need to be automatically assigned based on value of variable to set the context example: if the end-user enters text 'Mumbai', the scan algorithm should automatically assign to other city related variables automatically, example: city type as Metro, city population as 20 million etc. This can be done using Scan UDF.

1. Add UDF (Refer UDF Document) which assigns values to required variables with purpose *ScanText*. Figure 40 shows UDF *RApps.SetCityDetails* assigns values to city type and population variables.

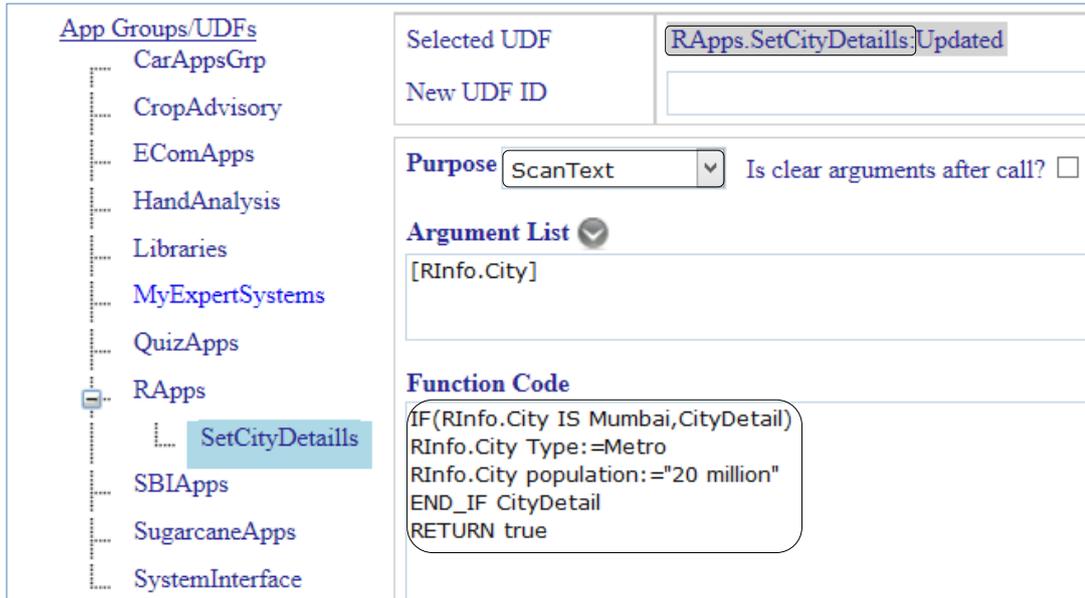


Figure 40: Scan UDF to Assign Values to Variables

2. Set the UDF (*RApps.SetCityDetails*) created to variable as scan UDF while linking generic attribute from *Generic Attribute* dropdown menu as shown in screen shot below.

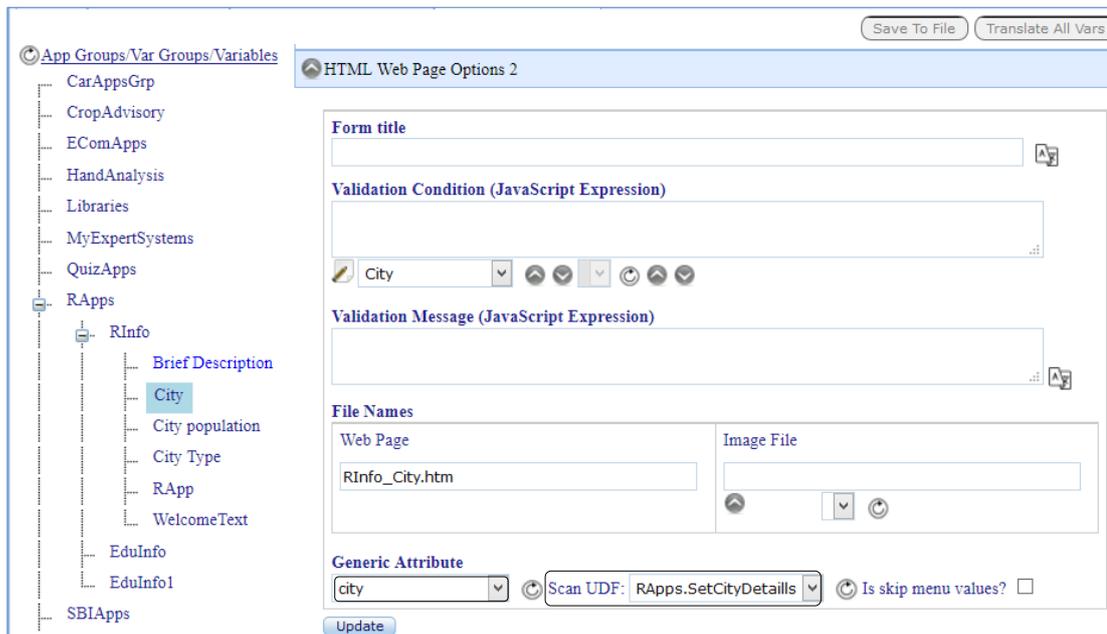


Figure 41: Setting Scan UDF for Variable

3. To view the changes, run the application. Enter the required description in field and the following session report is displayed with city type and city population shown.

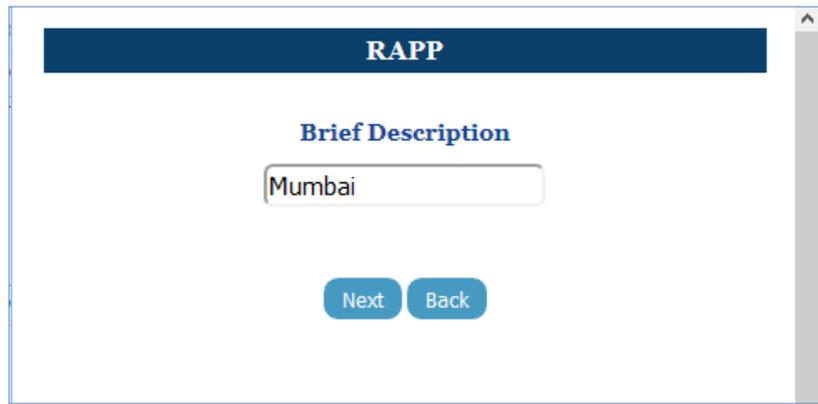


Figure 42: Running the Application

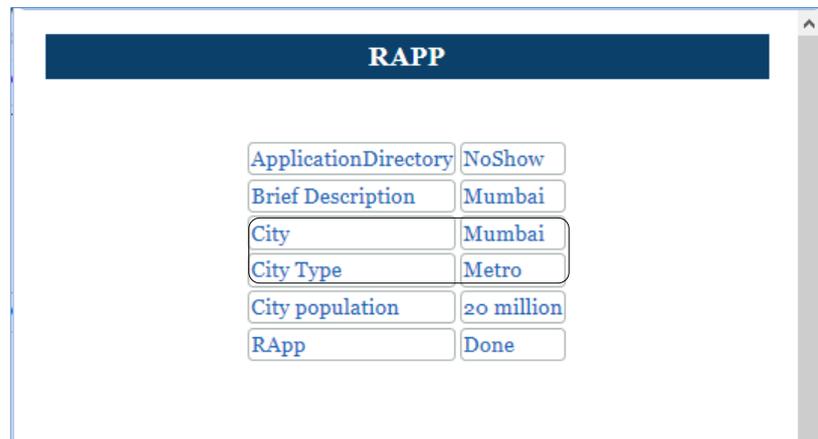


Figure 43: Variable Values are assigned by SCAN_TEXT Function

1.14 Removing Attribute ID

To remove the attribute:

1. Select the attribute from *Select Attribute ID* dropdown menu and click *Remove*.

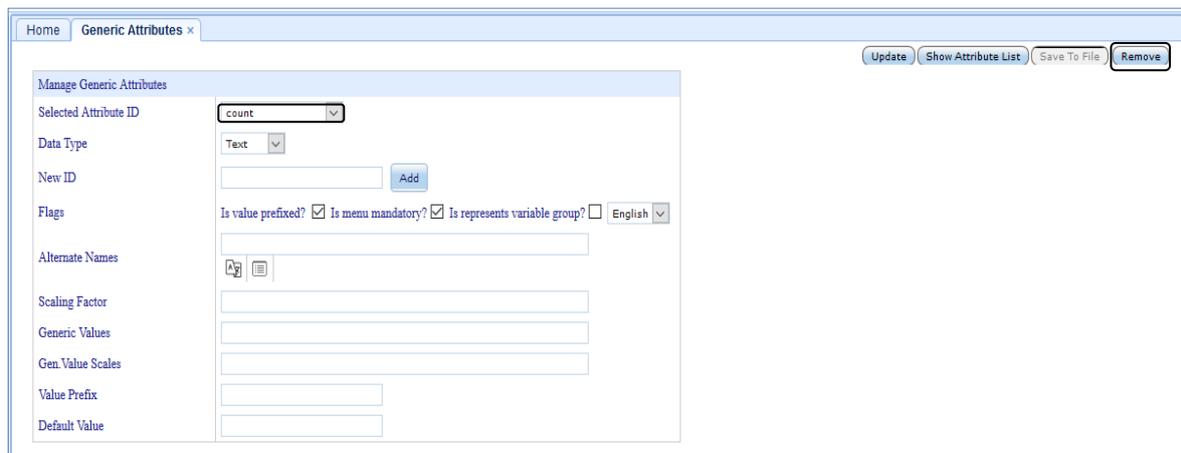


Figure 44: Removing Attribute

2. After clicking *Remove*, an alert is displayed. Click *OK* to remove the attribute.

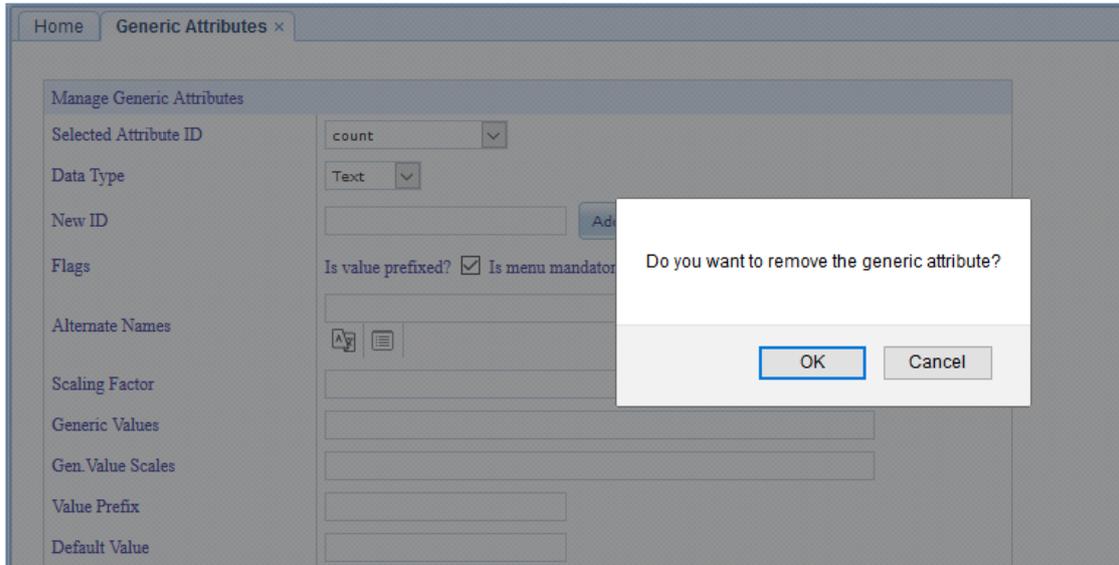


Figure 45: Showing an Alert

3. After clicking *OK*, the attribute is removed from dropdown menu and the following message is displayed.

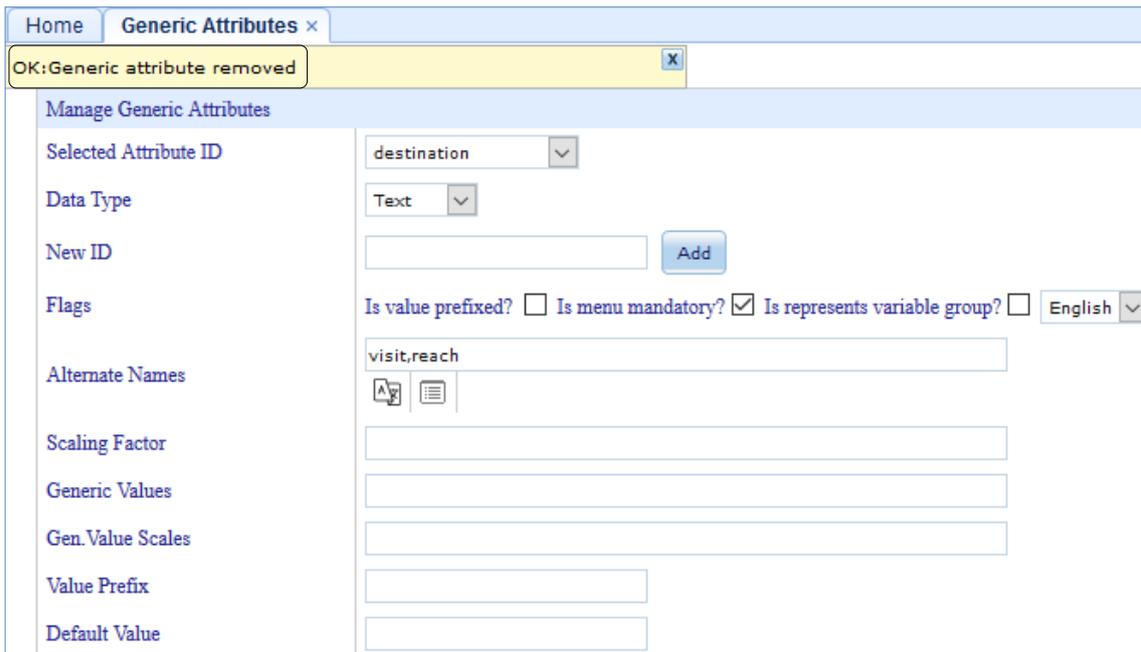


Figure 46: Attribute Removed