

Expression Quick Reference



Overview

This section is provided as a reference. It has two parts:

- Allowed Expressions on page 285
- Where to Add an Expression on page 294

For details about expressions and how they are used in the Govern OpenForms Designer, see *Adding Expressions on page 236*.

For details about how expressions are used in the *Govern Business Entity Designer*, refer to the *Govern Business Entity Designer*.

To view the list of Allowed Expressions, open the Expression Selector and hit [Ctrl] + [space]

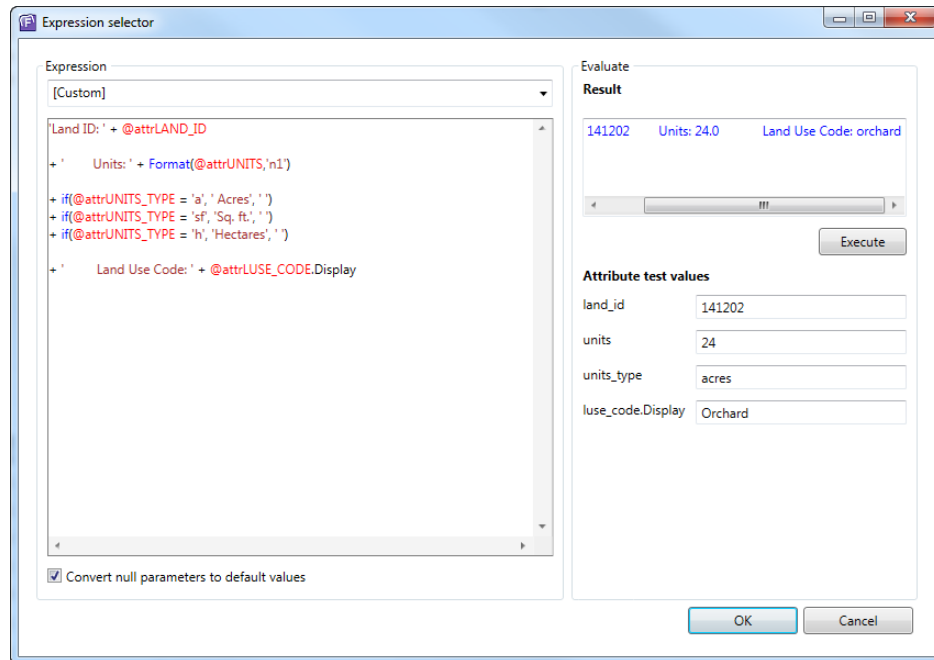
General Information

All expressions evaluate to true. For example, the default expressions, available in several controls, Is Visible and Is Enabled, are True by default, making the control visible and enabled on the form.

To combine multiple expressions together, use the plus sign (+) For example,

```
'Land ID: ' + @attrLAND_ID + '      Units: ' + Format(@attrUNITS,'n1') +  
if(@attrUNITS_TYPE = 'a', ' Acres', ' ') + if(@attrUNITS_TYPE = 'sf', 'Sq.  
ft.', ' ') + if(@attrUNITS_TYPE = 'h', 'Hectares', ' ') + 'Land Use Code: ' +  
@attrLUSE_CODE.Display
```

To test your expression, use the Evaluate feature on the Expression Selector. This is available for every expression. When you write an expression, new attribute test fields are added to the Expression Selector. Enter some test values and click Execute. This saves you the time required to open the form in Govern, enter test values, and run the expression. This feature is illustrated in the following screen shot.



Convert Null Parameters to Default Values

Select this option to convert the Null parameters in the database to default values. This option is selected by default. It is used to facilitate the computation. However, for some expressions, it is better to disable this option. You can test the expression using the Evaluate feature and view the difference between enabling and disabling this option.

Allowed Expressions

Overview

This section lists the expressions that are allowed in Govern OpenForms. The same interface is used for adding expressions throughout the Govern OpenForms Product Suite.

The list of expressions is available if you open the Expression Selector and hit [Ctrl] + the space bar. When you begin typing the first couple of letters of a syntax, a tooltip appears. The tooltip provides the same information as the following list.

Expression	Description	Example Syntax	Result
Abs	Returns the absolute value of a specified number.	Abs(-1)	1
Acos	Returns the angle whose cosine is the specified number.	Acos(1)	0
Asin	Returns the angle whose sine is the specified number.	Asin(0)	0
Atan	Returns the angle whose tangent is the specified number.	Atan(0)	0
Case	Evaluates the first parameter in the function and returns the first value that matches in the following list of options.	Case(@attrID, 1, 'One', 2, 'two', 3, 'three')	when @attrID = 2 this returns 'two'
Ceiling	Returns the smallest integer greater than or equal to the specified number.	Ceiling(1.5)	2
Cos	Returns the cosine of the specified angle.	Cos(0)	1

Expression	Description	Example Syntax	Result
Date	Returns the current date or the date part of a given date and time.	Date() Date(@attrDATE) Date(#11/26/2014 3:34:05 PM#)	Returns the current date. Returns the date part of an associated attribute. Returns 11/26/2014
DateAdd	Adds to the current date and time the given number of years, quarters, months, weeks, etc. (either positive or negative). The list of available date parts is {Day, DayOfYear, Hour, Minute, Month, Quarter, Second, Weekday, WeekOfYear, Year}. The case is insensitive.	DateAdd('year', 2) DateAdd('year', 2, @attrDATE) => DateAdd('month', -2) => Returns the current date and time - 2 months. DateAdd('year', 2, @attrDATE) => Returns the given date and time + 2 years. DateAdd('month', -2) => Returns the current date and time - 2 months.	Returns the current date and time + 2 years. Returns the date and time of the attribute + 2 years

Expression	Description	Example Syntax	Result
DateDiff	Calculates the difference between two given dates and times (either positive or negative). The list of available date parts is {Day, DayOfYear, Hour, Minute, Month, Quarter, Second, Weekday, WeekOfYear, Year}. These are case-insensitive. See http://msdn.microsoft.com/en-us/library/microsoft.visualbasic.dateinterval(v=s.110).aspx for more details about this list.	DateDiff('year', @attrDATE1, @attrDATE2) DateDiff('week', @attrDATE1, @attrDATE2) DateDiff('minute', @attrDATE1, @attrDATE2)	Returns the number of years between the dates and times of two associated attributes. Returns the number of weeks between the dates and times of two associated attributes. Returns the number of minutes between the dates and times of two associated attributes.
Day	Returns the current day or the day part of a given date.	Day() Day(@attrDATE) Day(#11/26/2014 3:34:05 PM#) Day(#11/26/2014#)	Returns the current day Returns the day part associated with an associated attribute. 26 26

Expression	Description	Example Syntax	Result
Display	Returns a string representation of the attribute value.	'Land Use Code: ' + @attrLUSE_CODE.Display	Returns the item selected from the Land Use Code drop-down list.
Double	Returns the double representation, or a copy, of the value.	Double("7")	7
Exp	Returns e raised to the specified power.	Exp(0)	1
Floor	Returns the largest integer less than or equal to the specified number.	Floor(1.5) Floor(3.5) Floor(-3.5)	1 3 -4
Format	Formats the first parameter using the style defined in the second parameter.	Format(@attrAMOUNT, 'c') Format(123.45, '0000.0')	Returns the value in the attribute AMOUNT formatted as currency. Returns 0123.5
HasValue	If the field contains a value, the expression returns True. Returns False if the parameter is Null or empty.	HasValue(@attrBLDG_VALU E)	Returns True if a value is entered in the Building Value field. If the field is empty or Null, returns False.
IEEERemai nder	Returns the remainder resulting from the division of a specified number by another specified number.	IEEERemainder(3, 2)	-1

Expression	Description	Example Syntax	Result
If	Returns a value based on a condition.	If(4/2 = 2, 'abc', 'def')	'abc'
In	Returns true if an element is in a set of values.	In(@attrId, 4, 5, 6)	true when @attrId is 4, 5 or 6
IsNull	If the parameter is Null, the expression returns the second parameter. Otherwise the first parameter is returned.	IsNull(@attrID, 0)	If @attrID is Null, a 0 is returned.
IsNullOrEmpty ()	If the parameter is Null or Empty, the expression returns the second parameter. Otherwise the first parameter is returned.	IfNullOrEmpty(@attrID, 0)	If @attrID is null or Empty a 0 is returned
IsNullOrWhiteSpace ()	If the parameter is null Or Empty Or White Spaces, it returns the second parameter. Otherwise the first parameter is returned.	IfNullOrWhiteSpace(@attrID, 0)	If @attrID is NULL or Empty or White Spaces, a 0 is returned
Len	Returns the length of the specified string. Note that characters in the length are counted from one, starting index one. Use the Evaluate feature of the Expression Editor to test this.	Len('Main Street')	Returns 11
Ln	Returns the natural (base e, Euler constant) logarithm of a specified number.	Ln(1) Ln(e)	Ln(1) returns 0. Ln(e) returns 1.
Log	Returns the logarithm of a specified number.	Log(1, 10)	0
Log10	Returns the base 10 logarithm of a specified number.	Log10(1)	0

Expression	Description	Example Syntax	Result
Lower	Converts all letters in the specified string to lowercase.	Lower('Main Street')	Returns main street.
Max	Returns the larger of two specified numbers.	Max(1, 2)	2
Min	Returns the smaller of two numbers.	Min(1, 2)	1
Month	Returns the current month or the month part of a given date.	Month() Month(@attrDATE) Month(#11/26/2014 3:34:05 PM#) Month(#11/26/2014#)	Returns the current month. Returns the month part of an associated attribute. 11 11
Now	Returns the current date and time.	Now()	11/26/2014 3:34:05 p.m.
Pow	Returns a specified number raised to the specified power.	Pow(3, 2)	9
Query	Executes a query and returns the first value in the first row. Note: As a best practice, write queries that return only one row and one column.	Syntax: Query('QueryName') Example 1: Query('GetParcelName')	Returns the result from GetParcelName.
		Syntax: Query('QueryName', n) Example 2: Query('GetQuantity', 2)	Returns the result from GetQuantity with a maximum cache of 2 minutes.

Expression	Description	Example Syntax	Result
		Syntax: <code>Query('QueryName', 'ColumnName')</code> Example 3: <code>Query('GET_P_ID', 'Tax_Map')</code>	Returns the tax map number from the first row of the results.
		Syntax: <code>Query('QueryName', 'ColumnName', n)</code> Example 4: <code>Query('GET_PARCEL_ID', 'Tax_Map', 2)</code>	Returns the tax map number from the first row of the results, with a maximum cache of two minutes.
Round	Rounds a value to the nearest integer or specified number of decimal places. The mid number behavior can be changed by using EvaluateOption.RoundAwayFrom Zero during construction of the Expression object.	Round(3.2222, 2)	3.22
Round 0	Use the zero (0) to rounds to 0 decimal places using banker's rounding: The value is rounded to the nearest even number.	Round(15.5,0) Round(16.5,0)	16 16
Sign	Returns a value indicating the sign of a number.	Sign(-12)	-1
Sin	Returns the sine of the specified angle.	Sin(0)	0

Expression	Description	Example Syntax	Result
Sqrt	Returns the square root of a specified number.	Sqrt(4)	2
Str	Returns the string representation of a value.	Str(5)	'5'
Substr	Returns a substring of the first parameter from the x-th character defined by the second parameter on a length defined by the third parameter. Note that characters in the substring are counted from zero, starting index zero. You can use the Evaluate feature on the Expression Editor to see how the characters are counted.	Substr('abcdef', 2, 3)	'cde'
Tan	Returns the tangent of the specified angle.	Tan(0)	0
Truncate	Calculates the integral part of a number. No rounding is applied.	Truncate(1.7)	1
Upper	Converts all letters in the specified string to uppercase.	Upper('Main Street')	Returns MAIN STREET
Variable	Creates a variable that can be added to an e-mail, for example.	{ Name = 'Govern'; Amount = Query('getAmount') + 500; Tax = Amount * .15; }	Establishes variables for e-mails, etc.

Expression	Description	Example Syntax	Result
Year	Returns the year part of a date.	Year()	Returns the current year.
		Year(@attrDATE)	
		Year(#11/26/2014 3:34:05 PM#)	Returns the year part of an associated attribute.
		Year(#11/26/2014#)	2014 2014

For Further Reference

For further reference, refer to the following:

Numeric Formats

For numeric formats, see [http://msdn.microsoft.com/en-us/library/y006s0cz\(v=vs.90\).aspx](http://msdn.microsoft.com/en-us/library/y006s0cz(v=vs.90).aspx) or [http://msdn.microsoft.com/en-us/library/4fb56f4y\(v=vs.90\).aspx](http://msdn.microsoft.com/en-us/library/4fb56f4y(v=vs.90).aspx)

Date Formats

For date formats, see [http://msdn.microsoft.com/en-us/library/362btx8f\(v=vs.90\).aspx](http://msdn.microsoft.com/en-us/library/362btx8f(v=vs.90).aspx) or [http://msdn.microsoft.com/en-us/library/73ctwf33\(v=vs.90\).aspx](http://msdn.microsoft.com/en-us/library/73ctwf33(v=vs.90).aspx)

Dates and Date Parts

For dates and date parts, see [http://msdn.microsoft.com/en-us/library/microsoft.visualbasic.dateinterval\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/microsoft.visualbasic.dateinterval(v=vs.110).aspx) for more details about this list.

Where to Add an Expression

Overview

The table on the following page lists the levels (form, entity, and attribute), and the controls (label, link, action button, groupbox, tab, etc.) and shows where you can add an expression for the user forms. Detailed information and examples are provided in the *Govern OpenForms Designer* and *Business Entity Designer* guides. This section provides a brief overview:

- **Form / Business Model:** Govern user forms are based on the business models created in the Business Entity Designer (BED). Expressions cannot be added to a business model or a user form (OFD form). They can be added to a business entity – a divider within a form – and to most controls.
- **Business Entity:** Business Entities are created in the Business Entity Designer (BED). They must be added to business models. You can add an expression as a validation rule in the BED, or the Record Description or the enabling or visibility properties in the OpenForms Designer (OFD).
- **Custom Entity:** Custom Entities are created in the OpenForms Designer (OFD) in order to add specialized controls or code to the form. You cannot add an expression to a Custom Entity. However, the custom entities must be added to a form with a root entity. You can add expressions to the root entity of the form.
- **Attribute:** Attributes are the data entry fields on a user form. They are created in the BED and added to business entities. They are mapped to database columns or can be stand alone. You can add an expression to an attribute as a default value, a calculated value, or as a validation rule in the BED, or the enabling or visibility properties in the OFD.

Tip: If you want to perform a calculation that is not saved to the database, but is displayed on a form, you can create a stand-alone attribute or add a label to the form and add an expression to the label.

- **Controls:** Expressions can be added to the enabling or visibility properties of labels, links, action buttons, custom controls, groupboxes or tabs. They cannot be added to grids, rows, columns, or to custom entities.

For further information, see the *Govern OpenForms Designer* and *Business Entity Designer* guides.

Where to Add an Expression by Level

Level	Application	Type of Expression
Form	OFD	N/A
	BED	N/A
Entity	OFD	Allow Save, Allow Insert (Update), Allow Delete, Record Description
	BED	Validation Rule
Attribute	OFD	IsEnabled, IsVisible, Text Style
	BED	Validation Rule. Default Value, Calculated Value
Label	OFD	Expression (Any), IsEnabled, IsVisible,
	BED	N/A
Link	OFD	IsEnabled, IsVisible, Text Style
	BED	N/A
Action Button	OFD	IsEnabled
	BED	N/A
Custom Control	OFD	IsEnabled, IsVisible
	BED	N/A
Row or Column	OFD	N/A
	BED	N/A
Grid	OFD	N/A
	BED	N/A
Groupbox	OFD	IsEnabled, IsVisible, Text Style
	BED	N/A
Tab Control	OFD	IsEnabled, IsVisible, Text Style
	BED	N/A
Tab Item	OFD	N/A
	BED	N/A

Level	Application	Type of Expression
Custom Entity	OFD	N/A
	BED	N/A