

R-Tag Report Manager

R-Tag

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Formulas

What you can do with formulas.

Contents

1	Introduction: What you can do with formulas	2
1.1	File or folder name	2
1.2	Parameter values	2
1.3	Email address	3
1.4	Mail merge	3
1.5	Embedded files.....	3
2	Available formula types	4
2.1	Relative date	4
2.1.1	Day	6
2.1.2	Week	6
2.1.3	Month	6
2.1.4	Quarter.....	7
2.1.5	Year	7
2.2	Expression	7
2.3	C# source code.....	9

1 Introduction: What you can do with formulas

Formulas are widely used in RT Report Manager. They give you the flexibility to calculate the value of the field during the processing time taking in consideration the values the other parameters and variables. Formula can be used for:

1.1 File or folder name

Create a file name based on date and time, customer name, sales person name, report type, state etc. like:

- **<Date> Sales - <Employee>** : Nov 2010 Sales - Carol; Dec 2010 Sales - Carol; Dec 2010 Sales – John
- **Loss ratio Top <Value>% customers:** Loss ratio Top 10% customers; Loss ratio Top 20% customers

1.2 Parameter values

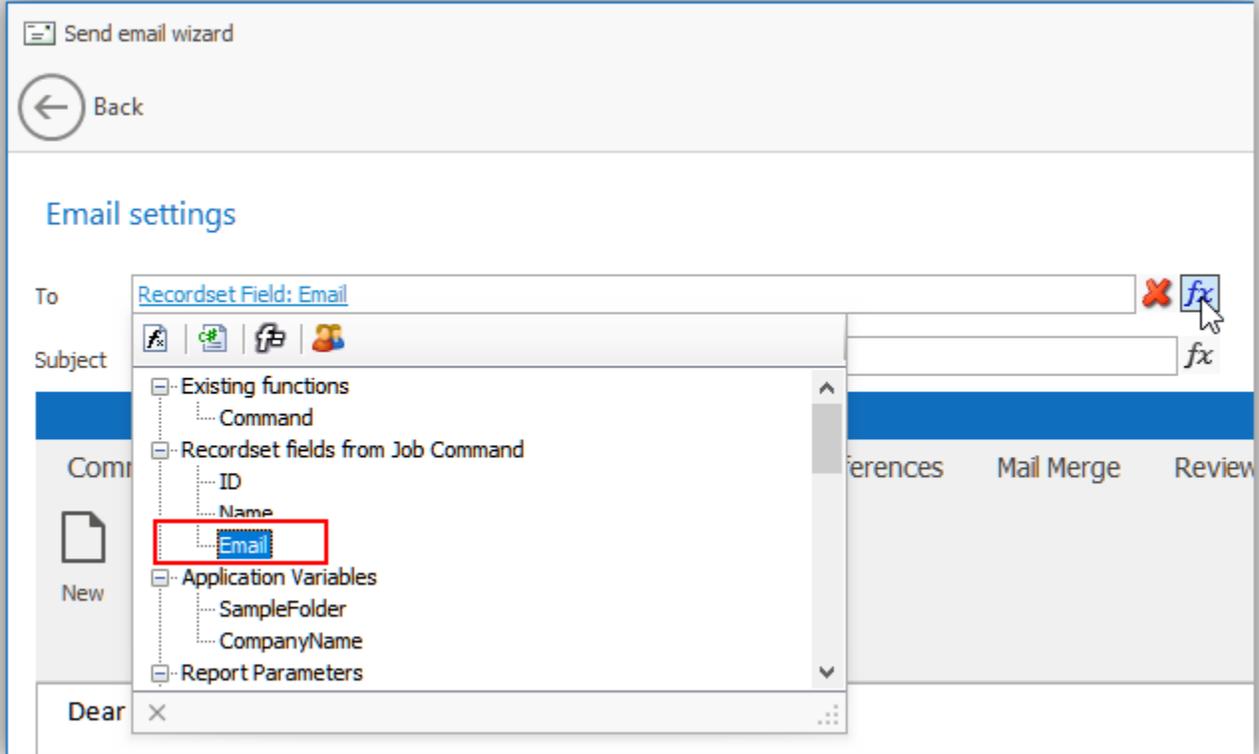
Set default value for a parameter. Most of the reports have specific requirements for parameter values.

For example:

- Sales report most likely will have “Date From” and “Date To” parameters. Depending on your reporting period soon you will find that each time you want to run the report you are selecting the beginning and the end of the previous week, month quarter etc.
- You may have a report, which accepts a parameter from a list and you want the list in specific order. For example: List of the customers ordered by the percentage of the sales drop. List of the items ordered by the number of returns.
- User who run the report

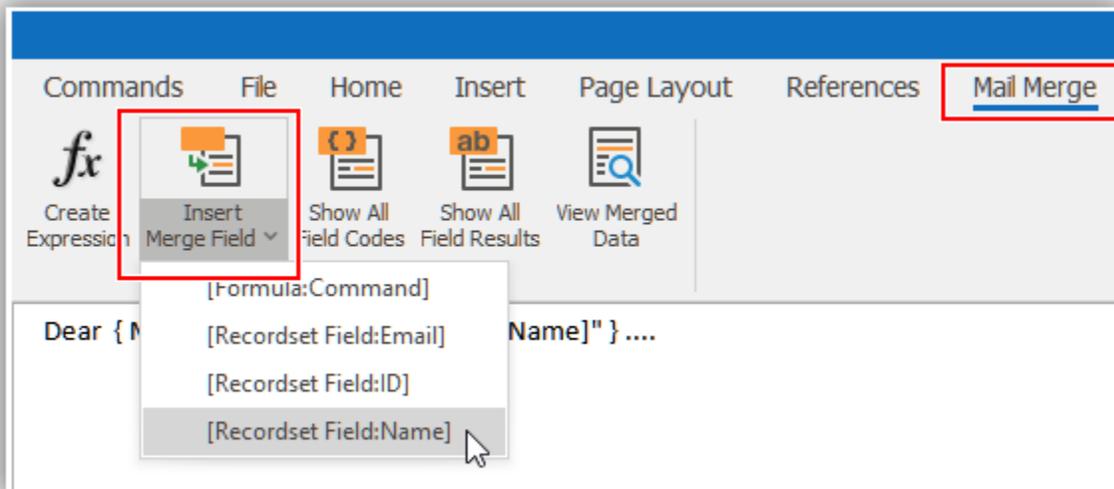
1.3 Email address

Email addresses could be assigned directly from job data. 2 job types provide internal values: Data driven job or Bursting job. In Data driven job, the values returned from data query are available and the email can be assigned directly



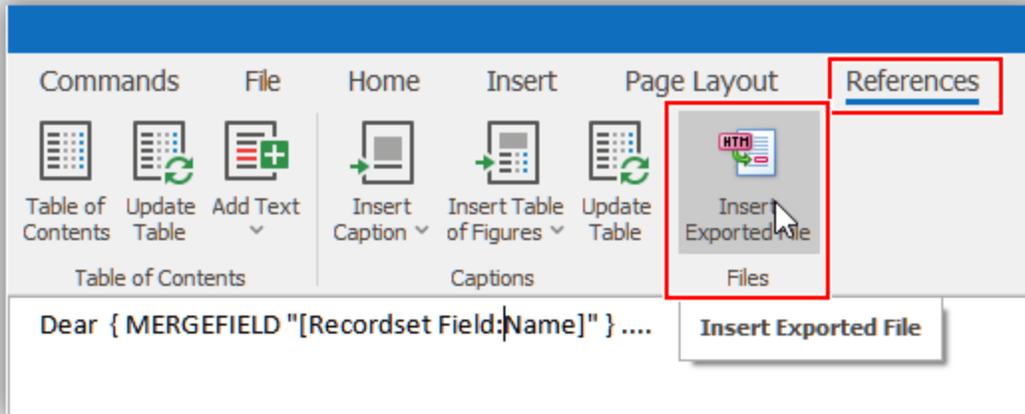
1.4 Mail merge

Job related values are available also in mail merge



1.5 Embedded files

You can create a task to export report to HTML or Image and access these file as references to embed them in Email's body



2 Available formula types

RT Report Manager supports 3 types of formulas

2.1 Relative date

If you think about the difference between 2 runs of one report you will see that everything is related to only one variable: Time (Date). If you have a report “Sales” with parameters “Customer” and “As Of Date” and you are running it for the end of each month you will insert always the same customer name (or ID) for the first parameter, but the value for the second parameter (As of Date) will be different. You can automate this report if you find a way to tell the reporting engine to use always the end of the current month as a value for the second parameter.

Relative dates are dates for which you know just the relation to the current date. For example previous month end will be different depending of the current date

Current date	Previous month end
5/5/2011	5/31/2011
5/23/2011	5/31/2011
3/5 /2011	2/28/2011 end of February
3/5 /2008	2/29/2008 end of February

No matter on which date in June 2011 you will run the “Sales” report “parameter “As of date” will be set to 5/31/2011, when you run it next month the parameter value will be 6/30/2011.

In order to make possible to use relative dates RT Report Manager is extending the regular date control. A button “Relative” is added. This button has 2 states:

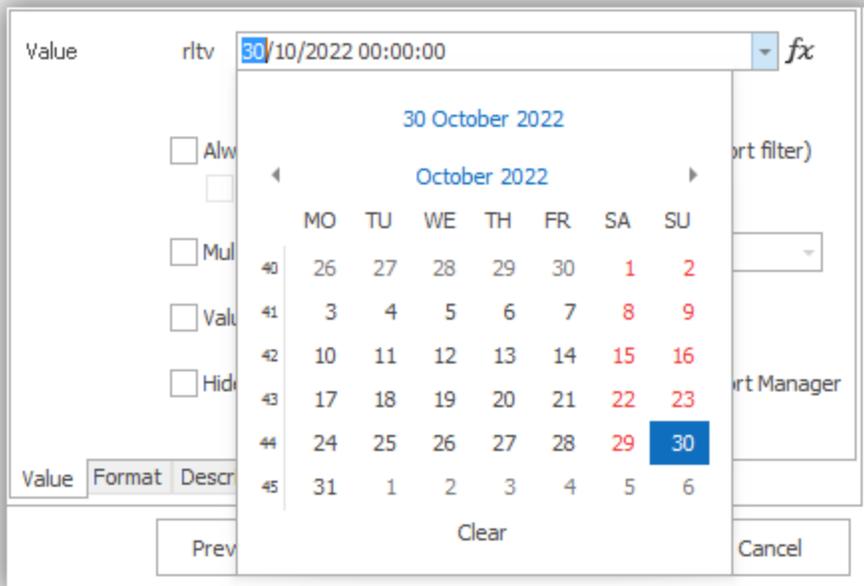


1. not pressed – normal dates



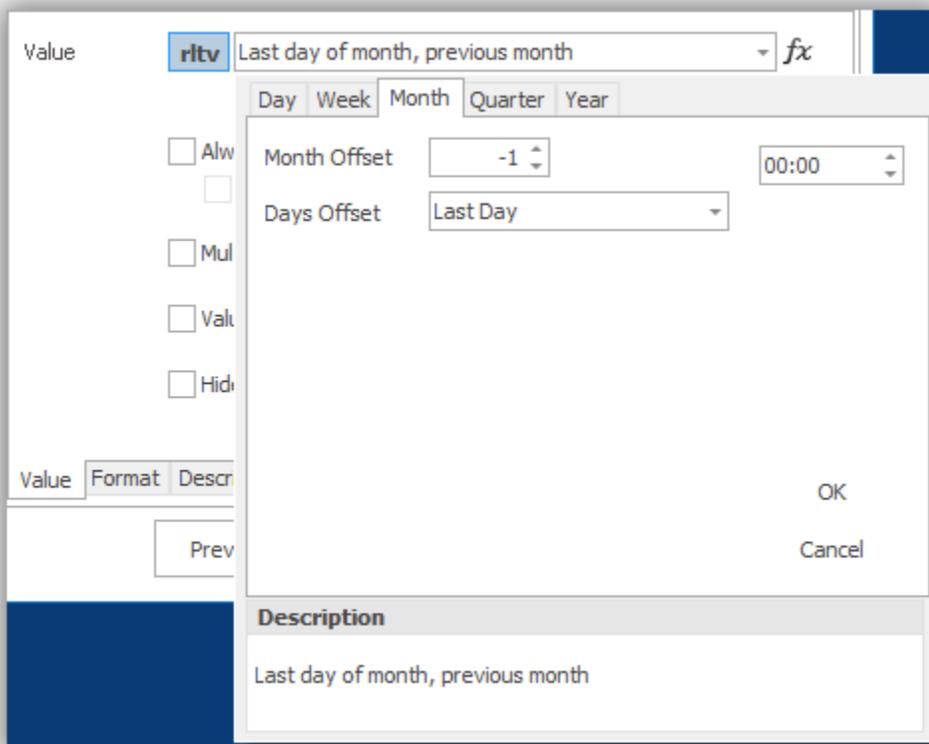
2. pressed – relative dates

Normal dates mode:



Select a date like any other date control. The value will be a fixed date as 1/1/2011 , 6/23/2011 etc.

Relative date mode:



You will be able to choose the offset from the current date instead of a fixed date.

The value will look like this: Day 5 days ago, End of previous week, End of February previous year, Beginning of the next month etc.

There are 5 types of offsets that you can set:

2.1.1 Day

Day | Week | Month | Quarter | Year

30 October 2022 00:00

	MO	TU	WE	TH	FR	SA	SU
40	26	27	28	29	30	1	2
41	3	4	5	6	7	8	9
42	10	11	12	13	14	15	16
43	17	18	19	20	21	22	23
44	24	25	26	27	28	29	30
45	31	1	2	3	4	5	6

OK Cancel

Description

the same day

You can choose the date directly from the calendar, but the program will save the difference to the current date. Let say today is 7/3/2011. By selecting 7/2/2011 you will tell the program to always use the previous day date and if you run it on 8/1/2011 the calculated relative date will be 7/31/2011 (the previous day compared to 8/1/2011). This type of offset can be useful if you have a report which shows the data for a period and you want to set the period to dates compared to current date: last 5 days, next 10 days etc.

2.1.2 Week

Day | Week | Month | Quarter | Year

Week Offset: 0 00:00

Weekday: Sunday

Monday
Tuesday
Wednesday
Thursday
Friday
Saturday

OK Cancel

Description

Sunday, this week

In case you want to set a date to previous Monday you can use week offset. Field "Week offset" will set the offset to the current week. If it is 0 current week will be used. - 1 for the previous week, +1 for the next week etc.

This type of offset can be useful if you have a report which shows the data for the previous week, next week, last 2 weeks etc.

2.1.3 Month

Day | Week | Month | Quarter | Year

Month Offset: -1 00:00

Days Offset: Last Day

First Day
Last Day
Days From the Beginning
Days Before the End

OK Cancel

Description

Last day of month, previous month

In case you want to set a date to previous month end you can use month offset. Field "Month offset" will set the offset to the current month. If it is 0 current month will be used. - 12 for the same month 1 year ago and +1 for the next month.

This type of offset can be useful if you have a report which shows the data for the previous month and especially if you need the month end date.

2.1.4 Quarter

Day Week Month Quarter Year

Quarter Offset 0 00:00

Days Offset

- First Day
- First Day
- Last Day
- Days From the Beginning
- Days Before the End

OK Cancel

Description

First day of quarter, this quarter

In case you want to set a date to previous quarter end you can use quarter offset. Field “Quarter offset” will set the offset to the current quarter. If it is 0 current quarter will be used. – 4 for the same quarter 1 year ago and +1 for the next quarter.

This type of offset can be useful if you have a report which shows the data for the previous quarter and especially if you need the quarter end date.

2.1.5 Year

Day Week Month Quarter Year

Year Offset 0 00:00

Type Quarter

Quarter First

Days Offset First Day

OK Cancel

Description

First day of the first quarter, this year

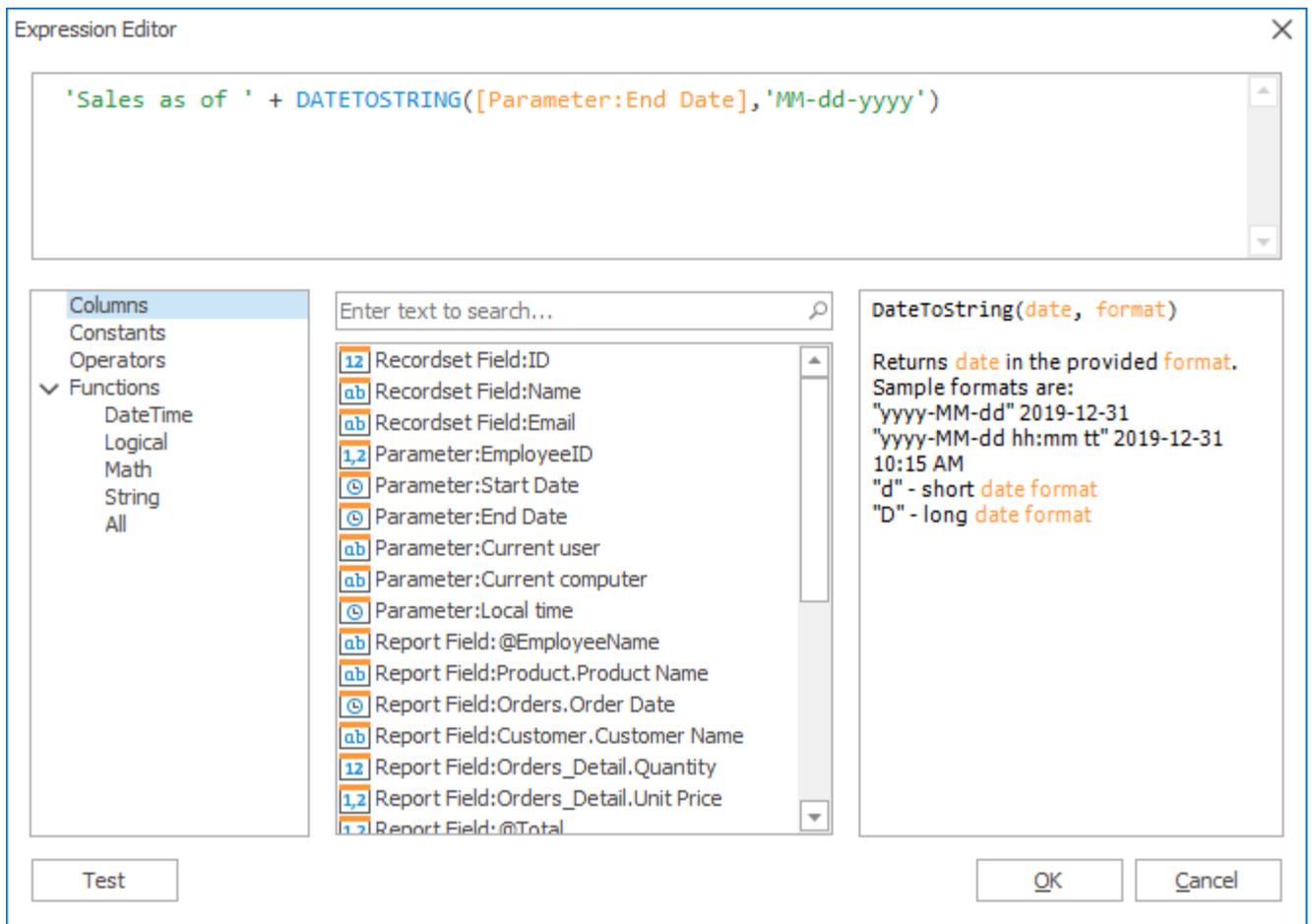
In case you want to set a date to specific date previous year you can use year offset. Field “Year offset” will set the offset to the current year. If it is 0 current year will be used. – 2 for 2 years ago and +1 for the next year.

This type of offset can be useful if you have a report which shows the data for a specific date like end of February previous year or Last of the second quarter 2 years ago.

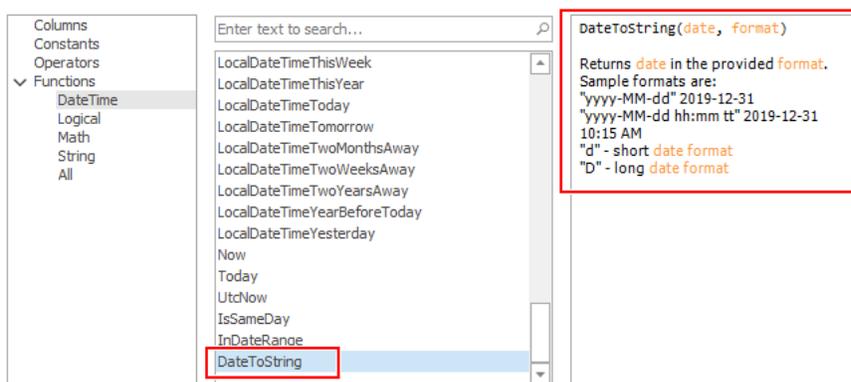
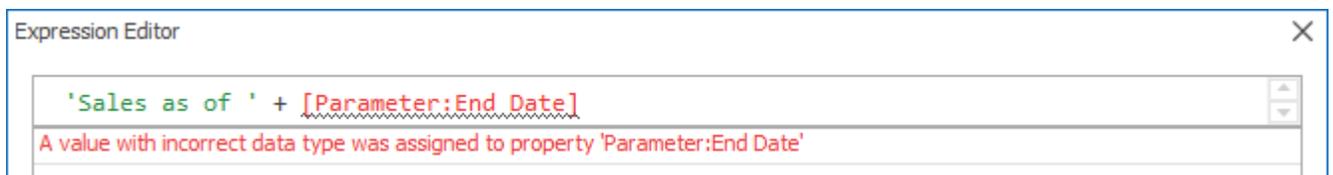
Relative dates will give you the flexibility to set values for dates related to current date. This is critical for the scheduled reports where you don’t know the date when the report will be run.

2.2 Expression

Relative dates are a powerful way to set date values without any programming experience. However there are things that require some further complexity. If you want to save the “Sales” report from the previous example to a file “Sales report as of <date of the report>.pdf” you need a way to specify the file name with some variables. This is the place where you will use expressions.

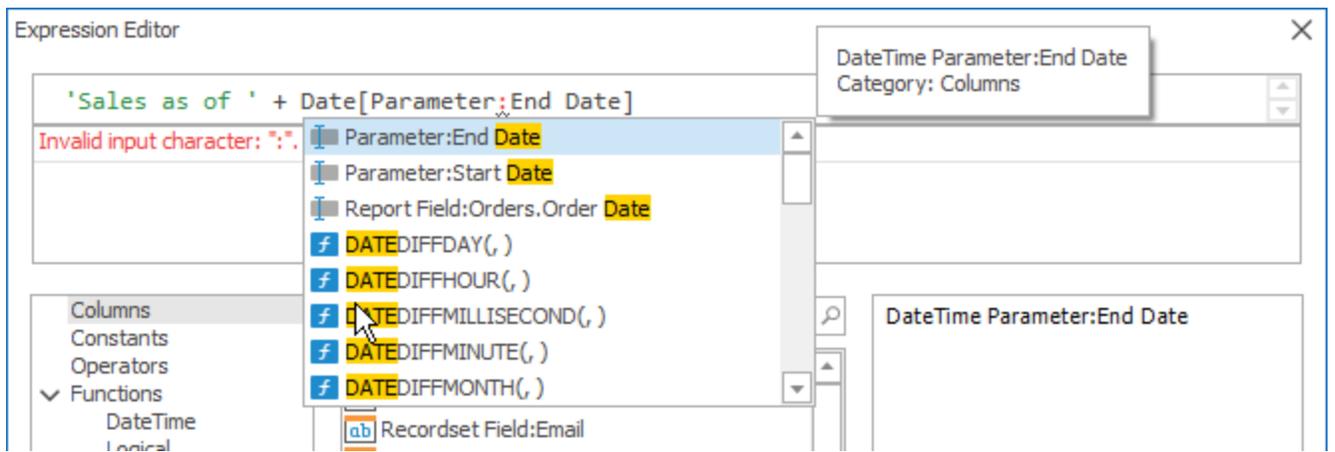


This screen has similar functionality as the Crystal report's or Excel's interface used to prepare expressions. The selection in the first list will determine the items shown in the second one. Double click on the item in the second list to add it to the expression. As screenshots above show selecting "Columns" will load report parameters and fields in the second list. The example above is using one of the built-in functions "DateToString", to convert the date value to a string in order to use it in the file name. Without this conversion there will be an error

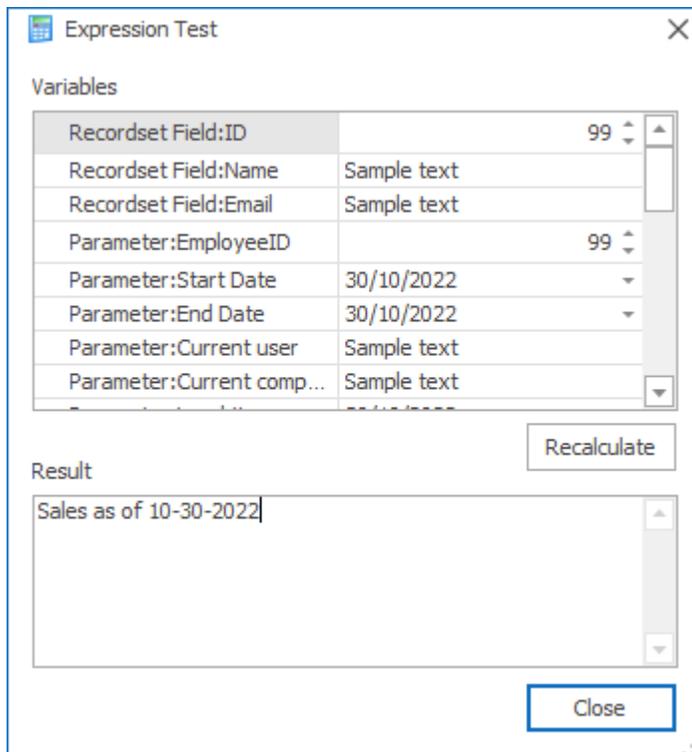


"DateToString" and other functions are available from "Functions" node. You can see some instructions how to use the selected function in the right panel.

In addition, you can choose the function from the intelisense drop down while typing



Some expressions can be pretty complex and will require some testing. Click on button “Test” to do that. Another dialog screen will be shown where you can set the variable values and check the result.

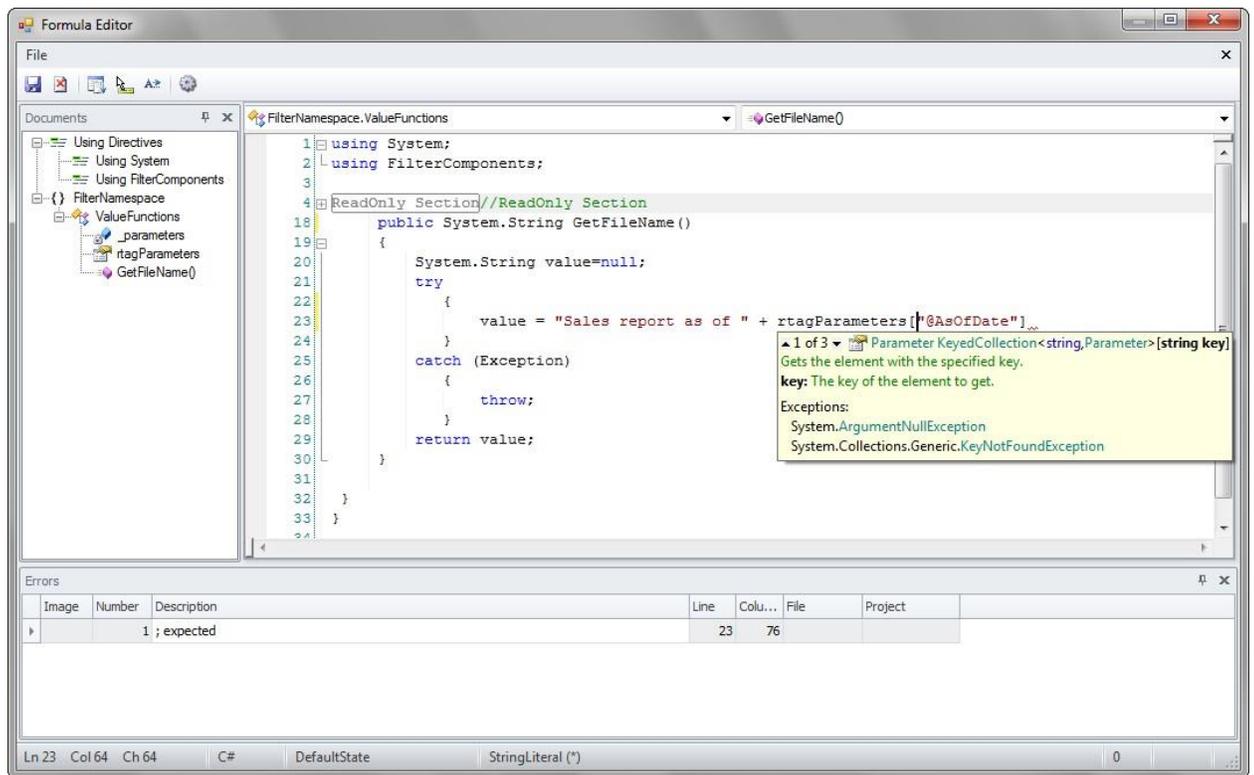


Expressions will give you additional flexibility to get the desired values. You need to have basic knowledge about the functions. If you are using functions in Excel, you will be able to use expressions editor without any problem.

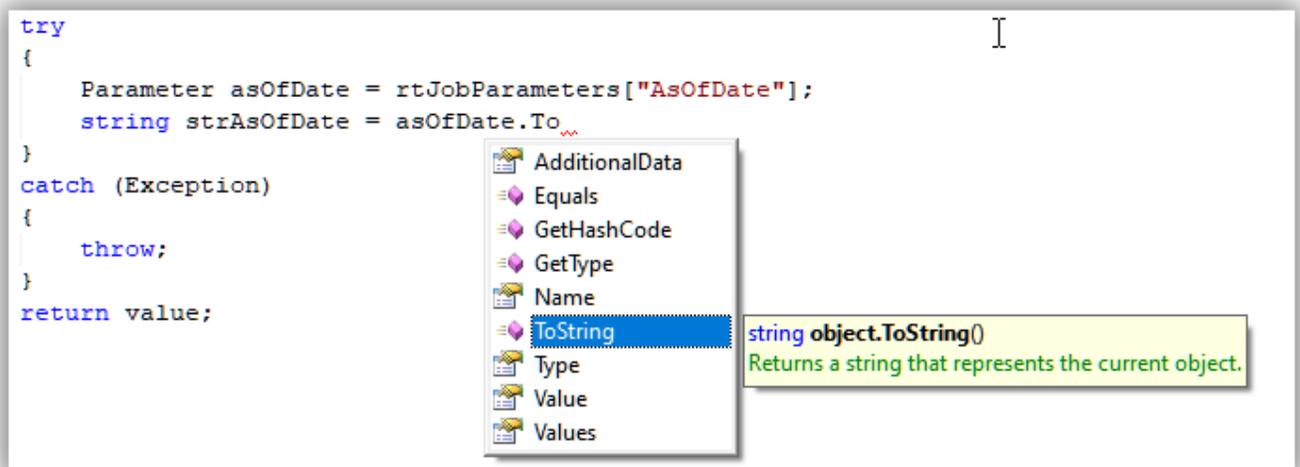
Please contact us at support@r-tag.com if you need help with expressions.

2.3 C# source code

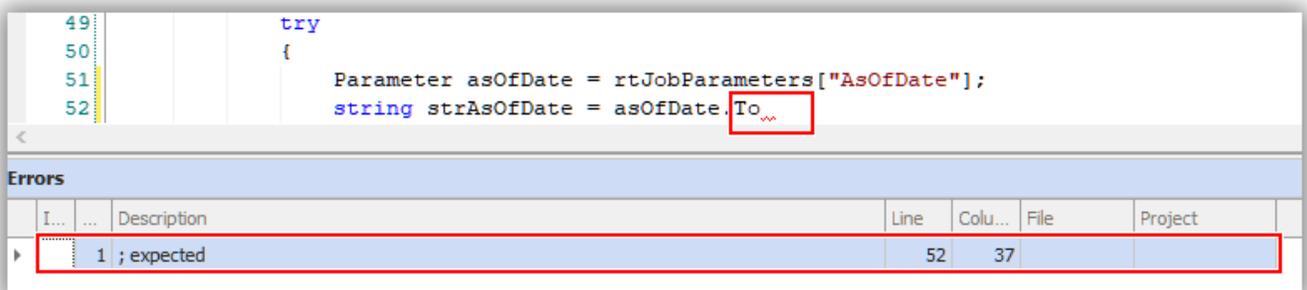
This is the most powerful way to calculate dynamic values. You will need to have at least basic programming knowledge. RT Report Manager provides fully functional C# editor with intellisense and error reporting.



Intellisense is available in a similar way as in Visual Studio

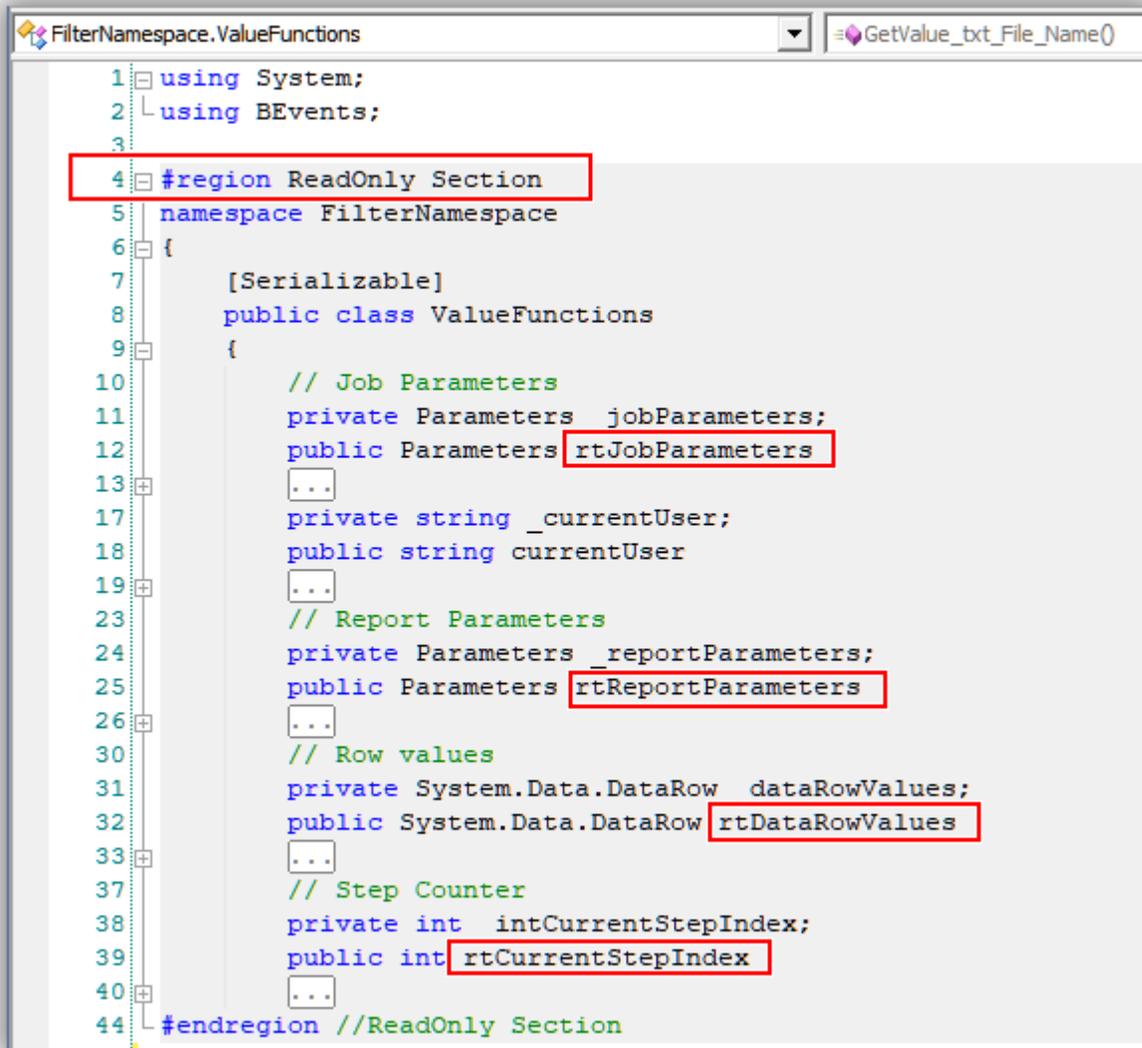


In case you try to save code with errors, you will see the error description and the exact position of the error.



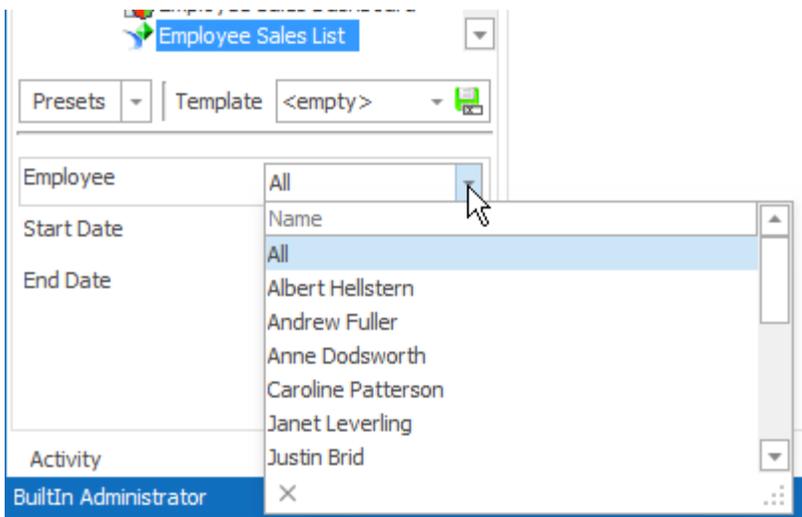
There are some shared objects between the main application and your code. For example, in reports and jobs parameters collection will be shared through the object `rtReportParameters` and `rtJobsParameters`. You can get any of the parameters including additional data assigned by RT Report Manager.

You can check the read only section on the top of the namespace to see which objects are shared.



```
1 using System;
2 using BEvents;
3
4 #region ReadOnly Section
5 namespace FilterNamespace
6 {
7     [Serializable]
8     public class ValueFunctions
9     {
10         // Job Parameters
11         private Parameters jobParameters;
12         public Parameters rtJobParameters
13         ...
17         private string _currentUser;
18         public string currentUser
19         ...
23         // Report Parameters
24         private Parameters _reportParameters;
25         public Parameters rtReportParameters
26         ...
30         // Row values
31         private System.Data.DataRow dataRowValues;
32         public System.Data.DataRow rtDataRowValues
33         ...
37         // Step Counter
38         private int intCurrentStepIndex;
39         public int rtCurrentStepIndex
40         ...
44 #endregion //ReadOnly Section
```

Sharing the internal application data can be extremely powerful since you will be able to rich not just information related to the report, but also to the interface. For example, you may have a report, which accepts parameter Employee ID from RT Report Manager interface and to add combobox, which will give the user easier way to insert the value.



If you check parameter value it will be 1, since Employee ID is 1, but you may want to export the report to a file which name will contain the actual employee's name (Anne Dodsworth). The name will be available through the Parameter Additional Data property which will return the DataRow associated with the value in the list.

```
Parameter prmEmployeeID = rtParameters["EmployeeID"];  
if (prmEmployeeID.AdditionalData != null && prmEmployeeID.AdditionalData is System.Data.DataRow) {  
    System.Data.DataRow dr = prmEmployeeID.AdditionalData as System.Data.DataRow;  
    value = dr[1].ToString();  
}
```

Please contact us at support@r-tag.com if you need help with C# functions.