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How to filter your row data

This document briefly explains how to use the data filter syntax.

Column names

If a column name contains any of these special characters **~ ( ) # \ / = > < + - * % & | ^ ' „ [ ]**, you must enclose the column name within square brackets [ ]. If a column name contains right bracket] or backslash \, escape it with backslash (\] or \\).

```
1. "id = 10";      // no special character in column name "id"
2. "$id = 10";     // no special character in column name "$id"
3. "[#id] = 10";   // special character "#" in column name "#id"
4. "[[id\]] = 10"; // special characters in column name "[id]"
```

Literals

String values are enclosed within single quotes ' '. If the string contains single quote ', the quote must be doubled.

```
1. dataView.RowFilter = "Name = 'John'"        // string value
2. dataView.RowFilter = "Name = 'John ''A'''"  // string with single
   quotes "John 'A'"
3. dataView.RowFilter = String.Format("Name = '{0}'", "John
   'A'".Replace("'", "''"));
```

Number values are not enclosed within any characters. The values should be the same as is the result of int.ToString() or float.ToString() method for invariant or English culture.

```
1. dataView.RowFilter = "Year = 2008"          // integer value
2. dataView.RowFilter = "Price = 1199.9"       // float value
3. dataView.RowFilter =
   String.Format(CultureInfo.InvariantCulture.NumberFormat,
4.                    "Price = {0}", 1199.9f);
```

Date values are enclosed within sharp characters # #. The date format is the same as is the result of DateTime.ToString() method for invariant or English culture.

```
1. dataView.RowFilter = "Date = #12/31/2008#"          // date value (time
   is 00:00:00)
2. dataView.RowFilter = "Date = #2008-12-31#"          // also this format
   is supported
```

```
3. dataView.RowFilter = "Date = #12/31/2008 16:44:58#" // date and time
   value
4. dataView.RowFilter =
   String.Format(CultureInfo.InvariantCulture.DateTimeFormat,
5.                     "Date = #{0}#", new DateTime(2008, 12, 31, 16, 44,
   58));
```

Alternatively you can enclose all **values** within single quotes **' '**. It means you can use string values for numbers or date time values. In this case the current culture is used to convert the string to the specific value.

```
1. dataView.RowFilter = "Date = '12/31/2008 16:44:58'" // if current
   culture is English
2. dataView.RowFilter = "Date = '31.12.2008 16:44:58'" // if current
   culture is German
3. dataView.RowFilter = "Price = '1199.90'"           // if current
   culture is English
4. dataView.RowFilter = "Price = '1199,90'"           // if current
   culture is German
```

Comparison operators

Equal, not equal, less, greater operators are used to include only values that suit to a comparison expression. You can use these operators **= <> < <= > >=** .

Note: **String comparison is culture-sensitive**, it uses CultureInfo from DataTable.Locale property of related table (dataView.Table.Locale). If the property is not explicitly set, its default value is DataSet.Locale (and its default value is current system culture Thread.CurrentThread.CurrentCulture).

```
1. dataView.RowFilter = "Num = 10"            // number is equal to 10
2. dataView.RowFilter = "Date < #1/1/2008#"   // date is less than
   1/1/2008
3. dataView.RowFilter = "Name <> 'John'"      // string is not equal to
   'John'
4. dataView.RowFilter = "Name >= 'Jo'"        // string comparison
```

Operator IN is used to include only values from the list. You can use the operator for all data types, such as numbers or strings.

```
1. dataView.RowFilter = "Id IN (1, 2, 3)"                   // integer
   values
2. dataView.RowFilter = "Price IN (1.0, 9.9, 11.5)"         // float
   values
3. dataView.RowFilter = "Name IN ('John', 'Jim', 'Tom')"    // string
   values
```

```
4. dataView.RowFilter = "Date IN (#12/31/2008#, #1/1/2009#)" // date time
   values
5. dataView.RowFilter = "Id NOT IN (1, 2, 3)"  // values not from the list
```

Operator LIKE is used to include only values that match a pattern with wildcards. **Wildcard** character is * or %, it can be at the beginning of a pattern '*value', at the end 'value*', or at both '*value*'. Wildcard in the middle of a patern 'va*lue' is not allowed.

```
1. dataView.RowFilter = "Name LIKE 'j*'"       // values that start with
   'j'
2. dataView.RowFilter = "Name LIKE '%jo%'"     // values that contain 'jo'
3. dataView.RowFilter = "Name NOT LIKE 'j*'"   // values that don't start
   with 'j'
```

If a pattern in a LIKE clause contains any of these special characters * % [ ], those characters must be escaped in brackets [ ] like this [*], [%],] or [.

```
1. dataView.RowFilter = "Name LIKE '[*]*'"     // values that starts with
   '*'
2. dataView.RowFilter = "Name LIKE '[[]*'"     // values that starts with
   '['
```

The following method escapes a text value for usage in a LIKE clause.

```
1. public static string EscapeLikeValue(string valueWithoutWildcards)
2. {
3.   StringBuilder sb = new StringBuilder();
4.   for (int i = 0; i < valueWithoutWildcards.Length; i++)
5.   {
6.     char c = valueWithoutWildcards[i];
7.     if (c == '*' || c == '%' || c == '[' || c == ']')
8.       sb.Append("[").Append(c).Append("]");
9.     else if (c == '\'')
10.      sb.Append("''");
11.    else
12.      sb.Append(c);
13.  }
14.  return sb.ToString();
15. }
```

```
1. // select all that starts with the value string (in this case with "*")
2. string value = "*";
3. // the dataView.RowFilter will be: "Name LIKE '[*]*'"
4. dataView.RowFilter = String.Format("Name LIKE '{0}*'",
   EscapeLikeValue(value));
```

Boolean operators

Boolean operators AND, OR and NOT are used to concatenate expressions. Operator NOT has precedence over AND operator and it has precedence over OR operator.

```
1. // operator AND has precedence over OR operator, parenthesis are needed
2. dataView.RowFilter = "City = 'Tokyo' AND (Age < 20 OR Age > 60)";
3. // following examples do the same
4. dataView.RowFilter = "City <> 'Tokyo' AND City <> 'Paris'";
5. dataView.RowFilter = "NOT City = 'Tokyo' AND NOT City = 'Paris'";
6. dataView.RowFilter = "NOT (City = 'Tokyo' OR City = 'Paris')";
7. dataView.RowFilter = "City NOT IN ('Tokyo', 'Paris')";
```

Arithmetic and string operators

Arithmetic operators are addition +, subtraction -, multiplication *, division / and modulus %.

```
1. dataView.RowFilter = "MotherAge - Age < 20";   // people with young
   mother
2. dataView.RowFilter = "Age % 10 = 0";           // people with decennial
   birthday
```

There is also one **string** operator concatenation **+**.

Parent-Child Relation Referencing

A **parent table** can be referenced in an expression using parent column name with *Parent*. prefix. A column in a **child table** can be referenced using child column name with *Child*. prefix.

The reference to the child column must be in an **aggregate function** because child relationships may return multiple rows. For example expression *SUM(Child.Price)* returns sum of all prices in child table related to the row in parent table.

If a table has more than one child relation, the prefix must contain relation name. For example expression *Child(OrdersToItemsRelation).Price* references to column Price in child table using relation named OrdersToItemsRelation.

Aggregate Functions

There are supported following aggregate functions SUM, COUNT, MIN, MAX, AVG (average), STDEV (statistical standard deviation) and VAR (statistical variance). This example shows aggregate function performed on a single table.

```
// select people with above-average salary
dataView.RowFilter = "Salary > AVG(Salary)";
```

Following example shows aggregate functions performed on two tables which have parent-child relation. Suppose there are tables Orders and Items with the parent-child relation.

```
// select orders which have more than 5 items
dataView.RowFilter = "COUNT(Child.IdOrder) > 5";
// select orders which total price (sum of items prices) is greater or
   equal $500
dataView.RowFilter = "SUM(Child.Price) >= 500";
```

Functions

There are also supported following functions. Detailed description can be found here DataColumn.Expression.

- *CONVERT **– converts particular expression to a specified .NET Framework type** LEN **– gets the length of a string** ISNULL **– checks an expression and either returns the checked expression or a replacement value** IIF **– gets one of two values depending on the result of a logical expression** TRIM **– removes all leading and trailing blank characters like \r, \n, \t, , ‘** SUBSTRING** – gets a sub-string of a specified length, starting at a specified point in the string

```

```

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Last update: **2022/12/05 11:24**