

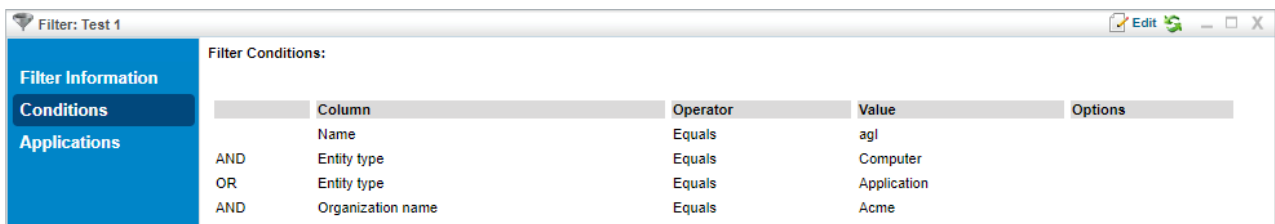
# Understanding Complex Filters

A filter can be as simple as **Setting Equals 1**, but more complex filters can be used in reports or for access control.

The built-in filter editor can be used to add conditions one at a time to a filter. These filter conditions are added using the **AND** or **OR** logical operators. By default, the **AND** operator has higher precedence than the **OR** operator. The filter editor does not allow the user to override the precedence (typically done by adding parenthesis).

## Example

You have the following filter set up:



	Column	Operator	Value	Options
	Name	Equals	agl	
AND	Entity type	Equals	Computer	
OR	Entity type	Equals	Application	
AND	Organization name	Equals	Acme	

*The Conditions tab of a filter.*

The filter in this example translates to:

```
Entity Name starts with agl AND Entity Type = Computer OR Entity Type = Application AND Organization name = Acme
```

Since the **AND** operator has higher precedence than the **OR** operator, the above filter means:

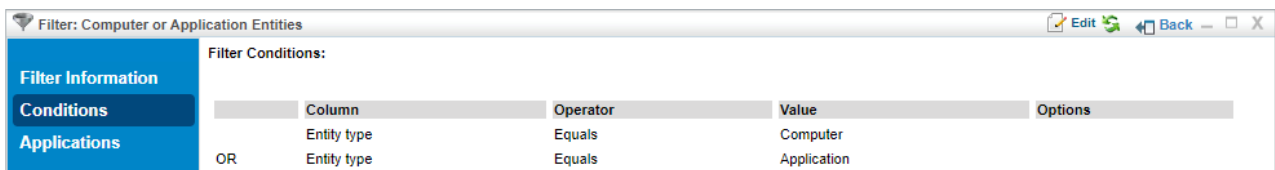
```
(Entity Name starts with agl AND Entity Type = Computer) OR (Entity Type = Application AND Organization name = Acme)
```

That is, the **AND** operations are performed first.

If you want this filter to evaluate as:

```
(Entity Name starts with agl) AND (Entity Type = Computer OR Entity Type = Application) AND (Organization name = Acme)
```

There is no way to do this directly by using the filter editor. You must do this using the **Matches Filter** operator. To implement the above filter, you must build a Computer or Application Entities filter for the condition (Entity Type = Computer OR Entity Type = Application).



	Column	Operator	Value	Options
	Entity type	Equals	Computer	
OR	Entity type	Equals	Application	

*A Computer or Application Entities filter.*

The original filter will use the Computer or Application Entities filter using the **Matches Filter** operator.

First, add the **Name Equals agl** condition. Use the **Matches Filter** operator to add the Computer or Application Entities filter. Note that a dummy entry must be selected in the first dropdown of the filter editor. In this case, **Created By** is selected, which is ignored by the server.

The screenshot shows the 'Filter: Test 1' window. On the left, there is a sidebar with 'Filter Information', 'Conditions', and 'Applications'. The main area is titled 'Filter Conditions:'. It features a table with columns: 'Entities (Any type) Field', 'Comparison Op', 'Value', and 'Action'. The first row shows 'General.Created by' in the field, 'Matches Filter' in the comparison operator, and 'Computer or Application Entities' in the value. There are '+' and '-' buttons next to the value, and an 'Add' button. Below the table, there are radio buttons for 'And' (selected) and 'Or', and a checkbox for 'Use this condition as a parameter to a chart'. At the bottom, there is a summary table:

Column	Operator	Value	Options
Name	Equals	agl	↑ ↓

*Adding the Matches Filter operator.*

Add **Organization name Equals Acme**. The filter will now look like this:

The screenshot shows the 'Filter: Test 1' window with the final filter configuration. The 'Filter Conditions:' section now contains two rows in the table:

	Column	Operator	Value	Options
AND	Name	Equals	agl	
AND	Organization name	Equals	Acme	

*The filter with the Matches Filter operator added.*

Internally, the server surrounds the filter condition of the **Matches Filter** operator with parenthesis. So, this will translate to:

```
(Entity Name starts with agl)AND(Computer or Application Entities) AND (Organization name = Acme)
```

Which is effectively similar to the filter that you set out to construct:

```
(Entity Name starts with agl) AND (Entity Type = Computer OR Entity Type = Application) AND (Organization name = Acme)
```

This can be taken further by using **Matches Filter** operator within the filters used by another **Matches Filter** operator.