## **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:

Filter: Test 1	📝 Edit 🧐 💷 🗆 🕽				
	Filter Cond				
Filter Information					
Conditions		Column	Operator	Value	Options
Applications		Name	Equals	agl	
Applications	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).

💎 Filter: Computer or Application Entities 📝 Edit						Back – 🗆 X
Filter Conditions:						
Filter Information						
Conditions		Column	Operator	Value	Options	
Applications	OR	Entity type Entity type	Equais Equais	Computer 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.

Filter: Test 1	_			📀 Save 😵 Cano	el 🕱 🛛 🚛 Back 🗕 🗆 X
	Filter Conditions:				
Filter Information	Entities (Any type) Field		Comparison Op	Value	Action
Conditions	General.Created by	▼ +	Matches Filter V		+ Add
Applications			_	Computer or Application Entities	
	And Or	Use this condition as a parameter to a c	hart		
	Column Name	Operator Equals	<b>Value</b> agi	Options	

Adding the Matches Filter operator.

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

Filter: Test 1					🕝 Edit 😪 🛛 🚽 Back — 🗆 X
	Filter Con	ditions:			
Filter Information					
Conditions		Column	Operator	Value	Options
Applications		Name	Equals	agl	
	AND	-	Matches Filter	Computer or Application Entities	
	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.