**Search Engine.mp4**

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The breath range selector covered in the previous video is a powerful tool for analysis, but it is not enough to extend the search capabilities of the web apps. A search view is provided in both the dashboard and the playback apps. The Search view, as the name implies, enables searching for instances where a combination of events is true. This combination can be arbitrarily complex. We will explain the search view using an example in this video. As usual, let's fire up our favorite browser and navigate to the URL on your screen. Launch the Dashboard app, then navigate to the Search view. The Search view starts off very simple.

{ 0:58 }

The light blue window is where we will graphically build a search criteria. The search or match criteria defaults to what we call a primitive criterion. It is composed of three field. The three fields are parameter it's relationship to a value. To start with, all three fields are empty. Let's fill them in one by one. The parameter field is a set of predefined parameters. Clicking on this field brings up a drop down menu of choices to select from. Let's select Breath Type as our parameter of interest. Depending on the parameter selected, the range of possible values also changes. For instance, clicking on the value field, we see that we have three choices for this parameter.

{ 1:56 }

Like the values that depend upon the parameter type, so do the relationships. For this parameter we have a choice of equal to or not equal to. We choose EQ. This is the resulting mathematical equation. On your screen you can see a few more examples of building primitive criterion. There are different parameter types, different value ranges and different relationships being used in this context. The other term for a relationship is an operator. The operators are EQ equal to, NEQ not equal to, Lt. less than, LEQ less than or equal to GT greater than, GEQ greater than or equal to.

So far we have only built a primitive criterion. Compound criteria are built by connecting two or more primitive criterion using the edit button shown on your screen. You can add another criterion before or after a particular criterion. Let's do that now. Now these two criteria must be connected to form a single compound criteria. The connectors are simple logical operators. The three connectors are #1 logical AND Meaning.

{ 3:47 }

Both branches must be true #2 logical OR meaning either of the branches must be true #3 exclusive or meaning one or the other branch must be true, but not both. In simple English, the resulting criteria is search for breaths for which the delivered tidal volume is less than 300 milliliters or the peak pressure is less or equal than 20 centimeters. The mathematical equation is shown here. The connectors can connect both the primitive criterion or a compound criteria. Using this feature, we can build arbitrarily complex criteria. Let's now build a search criteria that is of practical use. Note that the indentation on either side of each connector shows the structure of the expression.

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In simple English, it says to search for spontaneous breaths in SIMV mode, for which the delivered title volume is less than 300 milliliters or the peak pressure is less than 20 centimeters. We can export this search criteria to a Jason file so that it can be used in later sessions too. To delete the search criteria, use the Clear button. To import a previously exported criteria, use the Import button. Now that we have built a search criteria, let's use it to do an actual search. The search view, just like other views, is constrained by the breath range selector. The search engine will only search within the bounds of the selected range. Currently we are in play mode on the range selector, so the search will be done after every breath that is recorded. The search results appear in this table.

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You can see the search results appearing the table as the breaths progress. The table shows the breath number and the breath start time for matching breaths. The table also shows the values at the breath time of the parameters used in the search. Now let's pause the breath range selector. You can see the entries in the search table change as we change the range. You can select A range of table entries using the checkboxes. Click to set Begin, shift Click to set end to explore further in this selected range you can click on this action button.

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The range to be set in other views is calculated depending on the breadths you select in the table O Clicking on this button will set the range in other views to 5 to 13. After auto setting the range, if you move to the Waveforms view for instance, you will see the breadths of interest centered in the wave box. We have shown that using the Breath range selector and the Breath search engine together provides a very powerful tool for visualization of data. This concludes our Breath search engine video.

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