Filtering Data

Filter Expressions

A filter expression is a **Boolean Expression**. A **Boolean Expression** can be any of the following:

- `<Boolean Expression> AND <Boolean Expression>`
- `<Boolean Expression> OR <Boolean Expression>`
- `<Boolean Expression> XOR <Boolean Expression>`
- `NOT(<Boolean Expression>)`
- `(<Boolean Expression>)`

A **Boolean Expression** can also be the result of a comparison:

- `<Numerical Expression> == <Numerical Expression>`
- `<Numerical Expression> != <Numerical Expression>`
- `<Numerical Expression> > <Numerical Expression>`
- `<Numerical Expression> < <Numerical Expression>`
- `<Numerical Expression> >= <Numerical Expression>`
- `<Numerical Expression> <= <Numerical Expression>`

A **Numerical Expression** can be any of the following:

- `<Numerical Expression> + <Numerical Expression>`
- `<Numerical Expression> - <Numerical Expression>`
- `<Numerical Expression> * <Numerical Expression>`
- `<Numerical Expression> / <Numerical Expression>`
- `<Numerical Expression> ^ <Numerical Expression>`
- `(<Numerical Expression>)`
- `<Identifier>`
- `<Number>`

An **Identifier** should match the regular expression `([Pp]@)?:?[0-9a-zA-Z_"."]+`. That is, it should be some combination of digits, letters, `_`, and `.`, optionally preceded by `P@` / `p@` and/or `:`.

A **Number** may be in decimal or scientific notation, with a `+` or `-` for sign. Valid examples:

- `1`
- `-1.2`
- `.2`
- `0.2E-20`
- `+1.e+20`

Standard order of operations is followed:

1. Parentheses
2. Exponent
3. Multiplication and Division

4. Addition and Subtraction
5. Comparison (`==`, `!=`, `>`, `<`, `>=`, `<=`)
6. `NOT`
7. `AND`
8. `XOR`
9. `OR`

Future Enhancements

Some of these features might be supported in future updates, if there is demand:

- Boolean literals
- Alternate forms of operators (e.g. `EQ` instead of `==`)
- Scientific vs non-scientific values

Examples

```
(:oci.dau.ddc.FPGA.FpgaVersion == 134402) AND (:oci.dau.ddc.FPGA.PktsGen >= :oci.dau.ddc.FPGA.PktsSent)
OR (:oci.dau.ddc.FPGA.BlueLoAdcLat^2 == 256)
```

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