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MidPoint 4.3: Axiom Query

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Agenda

- Introduction
- Setup & Quick Demo
- Filters
- More practical examples

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Introduction

MidPoint 4.3 brings new language for filters – **Axiom Query**

- **Axiom Query**
  - provides simplified syntax for standard midPoint filters (XML)
  - does not introduce new types of filters, just nicer names
  - it is based on existing filters, so it shares same limitations

Example: givenName = “Anton” and familyName = “Tkáčik” and roleMembershipRef/@ matches (name = “developer”)

Setup

- We will use midPoint 4.3 with Hogwarts sample loaded
- Axiom Query is supported by default in XML
- For use in GUI – GUI Experimental Features must be enabled

Enabling Axiom Query in GUI

1) In Admin GUI navigate to Configuration → System → Admin GUI
2) Click Show Empty fields in Admin GUI Configuration section
3) Select True in Enable experimental features
4) Save configuration changes, logout and login in order to changes to be applied.

Using Axiom Query in GUI

- By default Axiom Query is not default search filter type. You can switch to Axiom Query by clicking down arrow ▼ in search button and select Axiom Query.
- Lets start with simple examples:
  - Go to Users → All Users
  - Change to Axiom Query
  - Search for all Weasleys using:
    - familyName = 'Weasley'
    - name endsWith "weasley"

Filters

- Comparison filters

  equal, less, greater

- String filters

  StartsWith, endsWith, contains, fullText

- Logical Filters

  and, not, or

- Reference Filters

  reference matches, inOrg, isRoot

- Nested Filters

  matches

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Filters

most item filters are in form of ‘property how-to-match value’

Formally it is: **itemPath filterName value**

- **ItemPath**: specifies which item is matched with filter
    - givenName, activation/administrativeStatus, assignment/targetRef/@
- **filterName**: name of actual filter
- **value**: Literal value or Item Path which should be matched according filter specification.
    - Strings need to be quoted, single and double qoutes are supported

Comparison Filters

Filter	Alias	Description
equal	=	Matches if item is equal to value
not equal	!=	Matches if item is different than value
less	<	Matches if item is smaller than value
lessOrEqual	<=	Matches if item is smaller or equal to the value
greater	>	Matches if item is greater than value
greaterOrEqual	>=	Matches if item is greater or equal to value

Comparison Filters

- Equals: All Weasley family members
  - familyName = "Weasley"
- Not Equals: Everyone except Weasleys
  - familyName != "Weasley"
- All users which will not be valid next year
  - activation/validTo < "2022-01-01"

String Filters

- **startsWith** – Matches if item starts with specified string
  - Searching for organization units starting with quiddich
    - name startsWith "quiddich"
- **contains** - Matches string property if it contains specified substring.
  - All names which contains "mc"
    - name contains "mc"
- **endsWith -** Matches string property if it ends with specified substring.
  - All users which name ends with “weasley”
    - name endsWith 'weasley'
- **fullText –** Performs full text search. Note that **path must be dot (.)**
  - . fullText "Minerva"

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Logical Filters

- **and** – matches if both filters are true
  - givenName = "Fred" and familyName = "Weasley"
- **or –** matches if any of filters is true
  - givenName = "George" or givenName = "Fred"
- **not –** negates filters, notice not prefixes filter name
  - familyName not startsWith "W"

Reference Matches Filter

matches : allows to match by reference (ObjectReference) and its 3 main properties.

- **oid** – exact match of oid
  - assignment/targetRef matches (oid = efaf89f4-77e9-460b-abc2-0fbfd60d9167) (users in Hufflepuff)
- **relation** – matches any reference with specified relation
  - roleMembershipRef matches (relation = manager)
- **targetType** – matches any reference with specified target type
  - roleMembershipRef matches (targetType = OrgType)

Reference Matches Filter

- **Reference matches** filter only support equals for **oid, relation and targetType**

- It’s possible to specify all three and same time.
  - roleMembershipRef matches (
    ```
      oid = ‘bc3f7659-e8d8-4f56-a647-2a352eead720’
      and relation = manager
      and targetType = OrgType
    )
    ```

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Organization Filters

- **inOrg -** matches if object is member of organization subtree**.** Filter is applied to object as a whole so **path must be dot (.)**
  - All Quidich players
    - . inOrg "00000000-team-0org-0000-111111111111"
    -
- isRoot – matches if role / organization unit is root
  - filter does not have value
  - Filter is applied to object as a whole so **path must be dot (.)**
  - **. isRoot**

Limitations

- Axiom Query currently does not support following features of XML filters
  - Variables
  - Scripting Expression
- This limits its use mostly to GUI, exploratory filtering and some simpler use-cases
- Support for variables, expressions may be added in later releases
- Error messages may not be helpful

Examples and advanced uses

- Reference Dereference
- Object Collections Example
- Use in XML

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Reference dereference using @

XML Filters & Axiom Query support object dereference and matching on referenced object

- supported only for repository objects
- **Example**: Search for all Weasleys, who are in quiddich team familyName = "Weasley" and roleMembershipRef/@/name startsWith "quiddich"

This is useful in GUI, if you do not remember OID of referenced objects, but filter is less effective.

Object Collections example

We will create new Users view, which will display managers only.

1) Navigate to Configuration → System → Admin GUI
2) Go to Object Collections Views and click on + next to Object collection view section
3) Scroll down to Add form
4) Fill in new view, with following values

   Identifier: managers, Type: User, Visibility: Visible, Display Label: Managers
   Collection → Filter → click on Axiom Query and enter

   ```
   . type UserType and roleMembershipRef matches (relation = manager)
   ```

5) Save changes, logout and login, click on Users → Managers
6) You have Object View which lists all organization managers

Use in XML

Axiom Query filters are usable in any place, normal XML filter would be used. Axiom Query filter is wrapped inside <text> element inside <filter>

```
<filter>
        <text>roleMembershipRef matches (relation = manager)</text>
</filter>
```

Want to learn more?

For more detailed documentation of Axiom Query please visit

docs.evolveum.com

Thank you for your time

If any questions occur, feel free to ask at **sales@evolveum.com**

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