

# Evolveum

What's New in MidPoint 4.4 „Tesla“



- MidScale
- What's new in 4.4
- Deprecations
- Platforms
- Migration
- Plans for 4.5

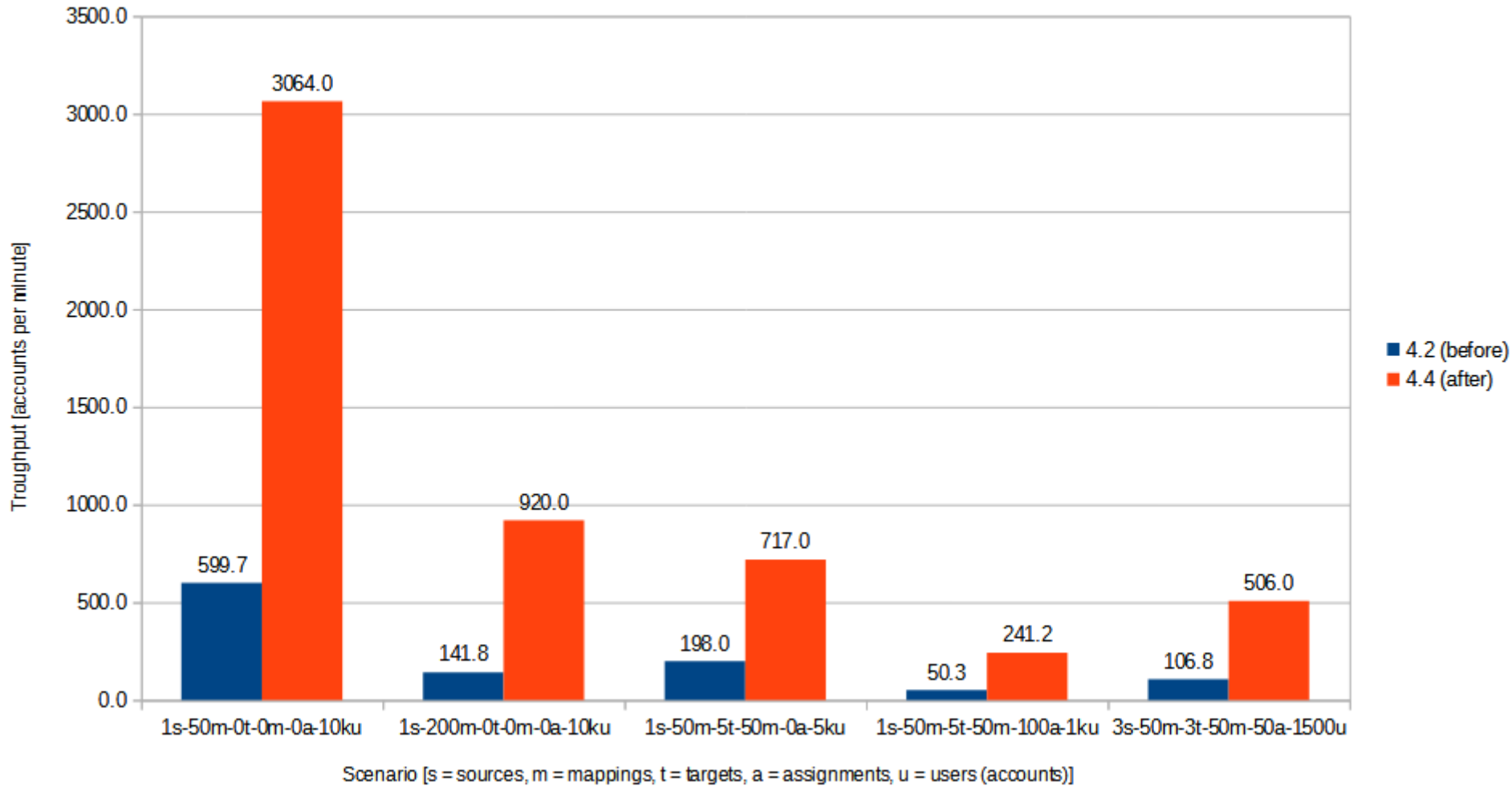
- Target:
  - Tens of millions of identities
- Key results:
  - Improved scalability of midPoint
  - Improved visibility, diagnostic and reliability of midPoint
  - Improved performance and user experience of midPoint user interface



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the NGI\_TRUST grant agreement no 825618.

# Improved scalability of midPoint

Comparison of account import performance



Increase of throughput:

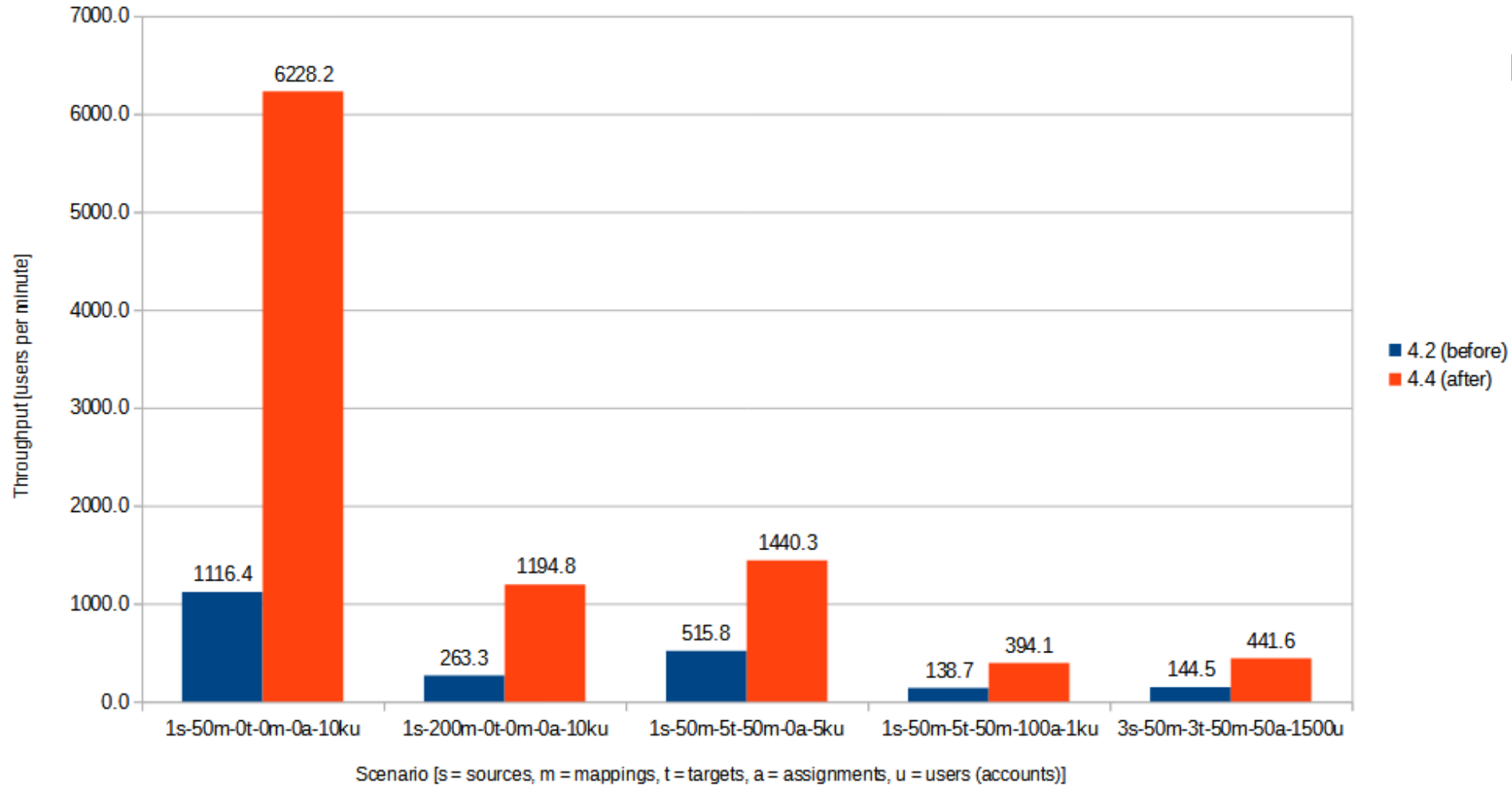
**262% - 549%**



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# Improved scalability of midPoint

Comparison of user recomputation performance



Increase of throughput:

**205% - 458%**



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# Improved UX

**midPoint** Edit user Users > All users > Edit user administrator

**SELF SERVICE**

- Home
- Profile
- Credentials
- Request a role

**ADMINISTRATION**

- Dashboards
- Users**
  - All users
  - Employees
  - Externals
  - Active Employees
  - Inactive Employees
  - Former Employees
  - New user
  - Edit user**
- Org. structure
- Roles
- Services
- Resources
- Certification
- Server tasks

**John Smith (X001212)**  
Human Resources Specialist  
Human Resources

Operations: Back Save Preview changes Change archetype Delete object Edit raw

Options & Tracing: Options

**Basic**

- Projections 4
- Assignments 4
  - All
  - Role
  - Organization
  - Service
  - Resource
  - All direct/indirect assignments
- Activation
- Password
- History
- Cases 0
- Personas 0
- Delegations 0
- Delegated to me 0
- Triggers 0

**Properties**

Name	X001212	
Organizational Path	0300	
Is Manager	True	
Employee Status	Active Employee	
Cost Center	0300	
Email	john.smith@example.com	
Full name	John Smith	
Given name	John	
Family name	Smith	
Title	Human Resources Specialist	
Employee Number	001212	
Organizational Unit	Human Resources	

Show empty fields



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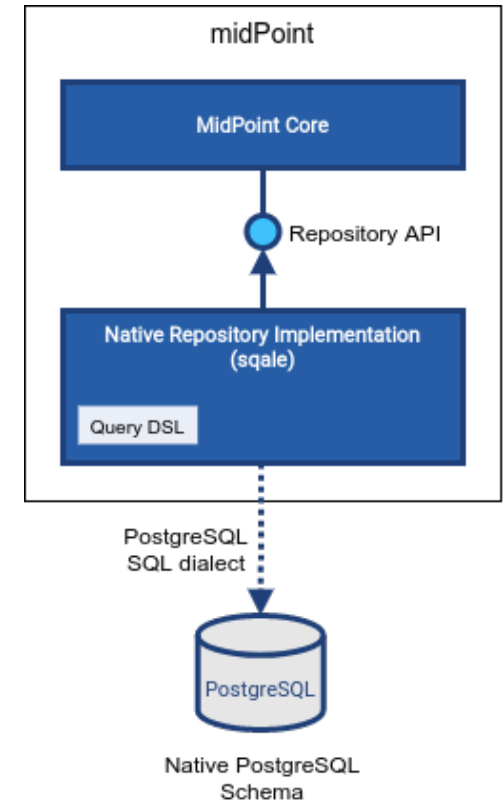
# | MidPoint 4.4 „Tesla“ at a Glance

- LTS release (3 years support)
- Major features
  - Native repository implementation
  - Task management
  - UX improvements
- A lot of small features and improvements
  - Native reporting, Dashboards, Archetypes, ...
- Internal changes
  - Prism, Schrodinger as separated projects



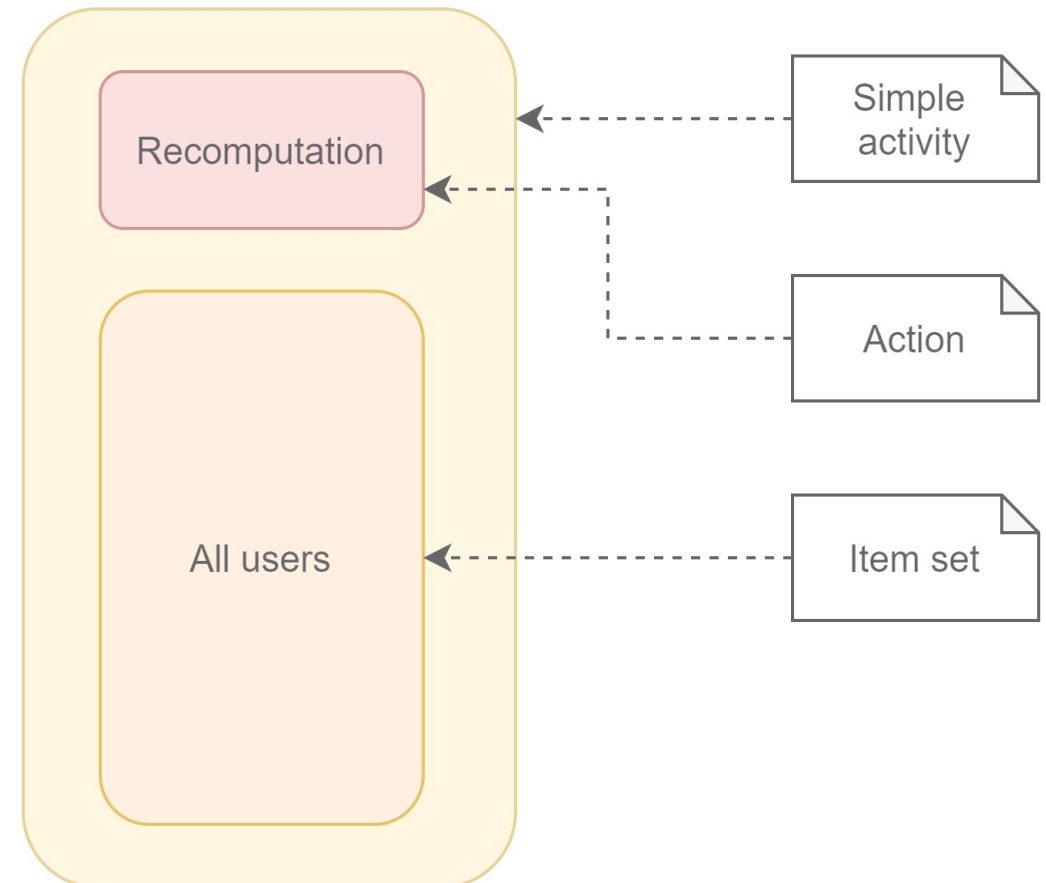
# | Native Repository Implementation

- PostgreSQL version 13+
- Native schema, focused on scalability
- Oid must be in UUID format
- Changed default format for fullObject to JSON
- Partition-ready audit table
- Deprecation for generic repository implementation



# | Task Management

- Task schema cleanup
- Introducing „activities“
  - What should be done, on which objects
  - How to treat errors
  - Distribution to threads and worker tasks
  - How to report errors
  - ...
- Migration for non-simple tasks is needed
  - Partitioned tasks (e.g. reconciliation, validity scanner, ...)
  - Multi-node tasks
  - MidPoint Studio plugin for task migration

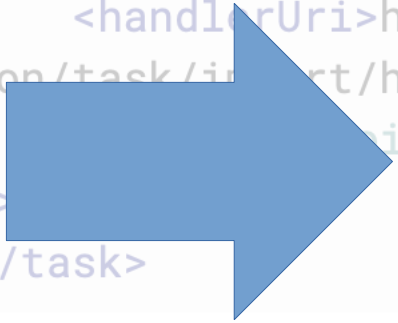


```
<task>
  <name>Import from services-inbound-pwd-copy (legacy style)</name>
  <extension>
    <ext:kind>account</ext:kind>
    <ext:intent>default</ext:intent>
    <ext:objectclass>ri:AccountObjectClass</ext:objectclass>
  </extension>
  <handlerUri>http://midpoint.evolveum.com/xml/ns/public/model/synchronizat
ion/task/import/handler-3</handlerUri>
  <objectRef oid="81c080f2-dce5-43b9-b748-a2a5fdb48c51" type="ResourceType"
/>
</task>
```


# | Task Management - Activities

```
<task>
  <name>Import from services-inbound-pwd-copy (legacy style)</name>
  <extension>
    <ext:kind>
    <ext:intent>
    <ext:objectclass>
  </extension>
  <handlerUri>h
ion/task/import/h
/>
</task>
```

```
<task>
  <name>Import from services-inbound-pwd-copy (new style)</name>
  <activity>
    <work>
      <import>
        <resourceObjects>
          <resourceRef oid="81c080f2-dce5-43b9-b748-a2a5fdb48c51" />
          <kind>account</kind>
          <intent>default</intent>
          <objectclass>ri:AccountObjectClass</objectclass>
        </resourceObjects>
      </import>
    </work>
  </activity>
</task>
```



# Task Management - Activities

**Import from services-inbound-pwd-copy (new style)**  
0 (suspended)

Suspended  
Unknown  
Import task

**Operations**  
Back Save Save & Run Delete object Edit raw

**Task operations**  
Resume Task icon 1 Task icon 2

**Refresh**  
Refresh Play (no refreshing)

- Basic
- Activity
  - Work
  - Control flow
  - Distribution
  - Tailoring
  - Reporting
- Schedule
- Operation statistics
- Errors
- Performance
- Subtasks
- Result
- Advanced options
- Operational attributes

**Import** ⓘ ⌵ ⌵

**Resource objects** ⓘ ⌵ ⌵

Resource ⓘ	<span>Edit</span> HR: ResourceType	⊖
Kind ⓘ	Account	⊖
Intent ⓘ	default	⊖
Object class ⓘ	AccountObjectClass	⊖

Show empty fields

▶ Search options

▶ Failed object selector

- Cluster auto-scaling capability
- Cluster-wide thresholds
- Progress and statistics improvements
- Flexible activity reports
  - Buckets processed
  - Items processed
  - ConnId operations executed
  - Internal operation executed



**Student Anthony** (a.goldstein)

access:Ravenclaw

✓ Enabled

End user

Member

Student

## Operations

← Back

Save

Preview changes

Change archetype

Delete object

Edit raw

## Options & Tracing

Options

Tracing

Basic

Projections 2

Assignments 2 <

Activation

Password

History

Cases 0

Personas 0

Delegations 0

Delegated to me 0

Triggers 0

## Properties

Name

a.goldstein

Email

a.goldstein@hogwarts.com

Show empty fields

## Personal info

Full name

Anthony Goldstein

Given name

Anthony

Family name

Goldstein

Show empty fields

# GUI Customizations

**Student Anthony** (a.goldstein)  
access:Ravenclaw

Operations: Back, Save, Preview changes, Change archetype, Delete object, Edit raw

Options & Tracing: Options, Tracing

Basic

Projections 2

Assignments 2

Activation

Password

History

Cases 0

Personas 0

Delegations 0

Delegated to me 0

Triggers 0

**Properties**

Name: a.goldstein

Email: a.goldstein@hogwarts.com

Show empty fields

**Personal info**

Full name: Anthony Goldstein

Given name: Anthony

Family name: Goldstein

Show empty fields

customizable



# GUI Customizations

**Student Anthony** (a.goldstein)  
access:Ravenclaw

Operations | Options & Tracing

customizable

- ✓ Enabled
- End user
- Member
- Student

**Carlos Johnson** (cjohnson@evolveum.test.hr.com)

Operations | Options

Operations: Back, Save, Preview changes, Change archetype, Delete object, Edit raw, Options

Options: Enabled, No organizations, Alum

Basic

- Projections 2
- Assignments 1
- All
- Role
- Licences
- Activation
- Password
- History

▼ Properties

Name	cjohnson@evolveum.test.hr.com
Full name	Carlos Johnson
Given name	Carlos
Family name	Johnson
Nickname	cjohnson
Academic Role	Alumni
Email	cjohnson@evolveumsandbox.onmicrosoft.com

Show empty fields





# GUI Customizations

**midPoint**

SELF SERVICE

- Home
- Profile
- Credentials
- Request a role

**midPoint**

SELF SERVICE

- Home
- Profile
- Credentials
- Request a role

**Student Anthony** (a.goldstein)  
access:Ravenclaw

Enabled

End user

Member

Student

**midPoint** Data processing dashboard

0 % failed  
Data validation errors

0 created  
Created Students in 24 hours

0 created  
Created Faculty members in 24 hours

0 created  
Created Staff members in 24 hours

0 created  
Created Alumni in 24 hours

0 created  
Created Affiliates in 24 hours

Operations: Back, Save, Preview

Basic

Projections

Assignments

Activation

Password

History

Administration

- Dashboards
  - Info dashboard
  - Admin dashboard
  - Licence dashboard
  - Data processing
- Users
- Org. structure
- Roles
- Services
- Resources
- Cases
- Certification
- Server tasks
- Nodes
- Reports
- Configuration

Server tasks

Nodes

# GUI Customizations

midPoint

midPoint

Evolveum

SELF SERVICE

SELF SERVICE

Home

Home



main-security (main-security)

Enabled

Azure Security Groups

Operations



Save

Preview changes

Change archetype

Delete object

Edit raw

Options

Options

Basic

Projections

1

Assignments

0

All

Role

Service

Policy rule

Focus mappings

Activation

History

Members

Governance

Triggers

0

Properties

Name

main-security

Description

Mail Enabled

False

Allow External Senders

Undefined

Security Enabled

True

Mail Nickname

main-security

Group Type

Email

Requestable

Undefined

Hide empty fields

History

Triggers

Nodes


Reports

Configuration

Server tasks

Nodes

- Summary panel configuration in archetypes
- Virtual containers (sections)
  - Configurable for different panels
  - Possibility to set expanded/collapsed by default
  - Used to override default behavior – merge by path
- Configurable default panel
- Configurable columns for (almost) all tables

**LiveSync HR**  
0 (suspended)  
11/22/21, 2:01:46 PM - 11/22/21, 2:01:46 PM (00:00:00.086)

Suspended  
Success  
1637586106673  
Live synchronization task

**Operations**  
Back Save Save & Run Delete object Edit raw

**Task operations**  
Resume Sync token Chart Table

**Refresh**  
Refresh Play (no refreshing)

- Basic
- Activity
  - Work
  - Control flow
  - Distribution
  - Tailoring
  - Reporting
- Schedule
- Operation statistics
- Errors
- Performance
- Subtasks
- Result
- Advanced options
- Operational attributes

**Live synchronization** ⓘ ⌵ ⌵

Show empty fields

**Resource objects** ⓘ ⌵ ⌵

Resource ⓘ	<span>Edit</span> HR: ResourceType	⊖
Kind ⓘ	Account	⊖
Intent ⓘ	default	⊖

Show empty fields


▶ Search options

▶ Failed object selector

- Introduced „panel“ configuration influencing
  - Details navigation menu
  - Type of the panel shown



# GUI Improvements

**Albus Dumbledore** (a.dumbledore)  
Auxiliary

Enabled  
 End user  
 Manager  
 Teacher

Operations

Options & Tracing

- Basic
- 👤 Projections 1
- ♂ Assignments 6 <
- ♻️ Activation
- 🔍 Password
- 🕒 History
- ↶ Cases 0
- 👥 Personas 0
- 👤 Delegations 0
- 👤 Delegated to me 0
- 📅 Triggers 0

▼ Properties ↓ 2

Name ⓘ	<input type="text" value="a.dumbledore"/>		⊖
Subtype ⓘ ⚠️	<input type="text" value="employee"/>		⊖
Full name ⓘ	<input type="text" value="Albus Dumbledore"/>		⊖
Given name ⓘ	<input type="text" value="Albus"/>		⊖
Family name ⓘ	<input type="text" value="Dumbledore"/>		⊖

[Show empty fields](#)

- Introduced „panel“ configuration influencing
  - Details navigation menu
  - Type of the panel shown
- Incompatible changes
  - `identifier` attribute is mandatory
  - `container` definition moved from `objectDetailsPanel/container` to `objectDetailsPanel/panel/container`
  - `objectForms` configuration option was deprecated and won't work with new design
  - Default behavior for details panel visibility changed
    - Before 4.4 – if anything configured, default is not used
    - Since 4.4 – if anything configured, it is additional to the default

# | Misc Improvements

- Support for archetyped personas
- Support for multiple (auxiliary) archetypes
- Native reporting improvements, Jasper reports removed
- Enable/Disable for individual mappings
- Connector auto-loading
- Prism and Schrodinger factored out to separated projects
- Overall performance and scalability improvements

# | Deprecations, Removals, Incompatible changes

- Deprecations
  - Generic repository implementation deprecated
- Removals
  - HQL query language for dashboards and audit reports no longer supported
  - Support for objectType, employeeType, roleType, serviceType and orgType removed
  - Jasper reports removed
  - Schema items marked for removal in 4.4 were removed
- Incompatible changes
  - Changed dependency for SAML authentication module
  - GUI authorization for 'My work item' changed

- Linux
- OpenJDK 11 & OpenJDK 17 (recommended)
- Stand-Alone deployment recommended
  - Explicit war deployment deprecated and will be removed soon
- Native PostgreSQL (14 and 13) repository implementation recommended
  - Generic implementation (Oracle, MSSQL, PostgreSQL) deprecated

# | Migration to Native PostgreSQL Repository

- Upgrade to 4.4 using original repository
  - Upgrade possible from 4.0.4 or 4.3.2
- Export existing data using Ninja
- Initialize native repository
- Change midPoint configuration for native repository
- Import previously exported data back to midPoint using Ninja
- Start midPoint with new configuration
- Audit migration with midPoint already up and running

# | Plans for MidPoint 4.5

- Identity matching
- Notification improvements
- LDAP Connector failover/multimaster support
- OpenID Connect authentication module
- GUI Improvement – Search, AdminLTE upgrade
- Axiom Query Language – full support

- Native Repository, January 20, 2022 by Richard Richter
- Upgrade Guide, January 27, 2022 by Anton Tkáčik
- Tasks, February 3, 2022 by Pavol Mederly
- Customizing GUI, February 10, 2022 by Katarína Bolemant
- Native Reports, February 16, 2022 by Lukáš Škublík



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