Release 4.0.1

Gutenberg Update 1

Release 4.0.1 is a twenty ninth midPoint release. It is the first maintenance update for 4.0.x version family code-named *Gutenberg*. The 4.0.x is a long-term support (LTS) version family. The 4.0.1 release brings bugfixes and minor improvements.

Release date: 22nd October 2019
Release type: Maintenance release
End of support: 8th September 2022

Johannes Gutenberg

Johannes Gutenberg (c.1400 - 1468) was German blacksmith, goldsmith, printer and publisher who introduced printing to Europe with the printing press. Information sharing that was enabled by printing caused a cultural and scientific revolution. Modern period of human history was born. The effect of Gutenberg's inventions can hardly be overstated. However, it was not just the printing press itself that made a difference. Gutenberg created entire *printing system*: the press, adjustable molds, oil-based ink, mechanical movable type and the alloy for casting the type. Those simple elements combined together to create an efficient and economically feasible *system* for producing books.

Similarly to Gutenberg's printing system, midPoint 4.0 is a revolutionary release. It bring a couple of long-awaited features. However what really matters is a huge amount of improvements and smaller features. Those are designed to work together with existing midPoint features to create a comprehensive and consistent *system* for identity management and governance. There are also numerous internal improvements and cleanups that enable a long-term maintenance of midPoint 4.0.

Credits

Majority of the work on the *Gutenberg* release was done by the Evolveum team. However, this release would not be possible without the help of our partners, customers, contributors, friends and families. We would like to express our thanks to all the people that contributed to the midPoint project both by providing financial support, their own time or those that maintain a pleasant and creative environment for midPoint team. However, midPoint project would not exist without proper funding. Therefore we would like to express our deepest gratitude to all midPoint subscribers that made midPoint project possible.

Features

There are too many features in midPoint 4.0.1 to list them in details. The Features page lists the features of most recent midPoint release.

Changes with respect to version 4.0

New Features, Improvements and Bugfixes

- Archetype assignments are always active, regardless of the lifecycle state.
- Option to disable count on pages that list objects.
- "skip model processing" option in asynchronous updates
- Info/Env/Health/Metrics/ThreadDump/HeapDump endpoints
- Chaining of mappings provided by assignments
- Support for migration <account> -> <shadow>
- Override of "help" in object template
- assignmentPath variable in approverExpressions
- Tomcat 9 support
- PostgreSQL 11 support
- Numerous bugfixes

Deprecation, Feature Removal And Incompatible Changes

- Support for eDirectory was removed. eDirectory support was a maintenance burden. There is currently no subscriber using eDirectory connector, therefore the code of eDirectory connector was removed from the LDAP connector bundle.
- Support for BEA/Oracle WebLogic deployment was removed. Weblogic support was maintained because of a special arrangements with one of the first midPoint subscribers. Weblogic support is not needed by that subscriber and it is not used by any other subscriber. Therefore support for Weblogic deployment is no longer available. Tomcat is now the only supported web container. Support for any other containers is not planned.
- The #selfRequestAssignment GUI authorization is deprecated. It does not provide any access. The #selfRequestAssignments authorization provides access to all assignment shopping cart pages.

Changes with respect to version 3.9

New Features and Improvements

- Major features
  - Archetypes
  - Support for multiple equivalent accounts on a resource (inbound)
  - Thresholds and limits (experimental)
  - Approvals without a workflow engine
- User interface improvements
  - Object Collections and Views
  - Sections (virtual containers) in object details
  - Dashboards and status reports (experimental)
  - Shopping cart improvements
  - Reworked "projections" tab
  - Ability to set custom name for midPoint
  - Case management improvements (experimental)
  - Session management page
  - Option to disable count on pages that list objects.
  - Minor user experience improvements
- Security improvements
  - Expression Profiles (limited implementation)
  - Request identifier in the audit log
  - Numerous security fixes from the EU-FOSSA bug bounty (see Security Advisories)
  - Support for custom columns in audit table (experimental)
- Provisioning
  - Support for PolyStrings all the way to the connector (experimental)
  - Asynchronous (messaging) connector options (prototype)
  - Improved shadow consistency with `primaryIdentifierValue` property

- Support for search hierarchy scope
- Miscellaneous improvements
  - Mapping range pre-defined sets
  - Mapping state properties
  - Support for populate expressions in autoassignments
  - Chaining of mappings provided by assignments
  - Task management in cluster is using REST
  - Autogenerated node identifier in a cluster
  - Support for attachments in mail notifications
  - Whitelists for notifications
  - Support for expression in mapping time constraints
  - Partial support for polystring "lang" and translations (experimental)
  - Miscellaneous clustering improvements
  - Info/Env/Health/Metrics/ThreadDump/HeapDump endpoints
  - Many improvements in reconciliation and synchronization tasks
- Platform
  - Tomcat 9 support
  - PostgreSQL 11 support
- Internals
  - Improved Prism API and code structure
  - Improved GUI interfaces and code structure
  - Long-term support stabilization
  - Java 11 support
  - New internal engine for policy-based approvals (replaces Activiti BPM)
  - Cluster management is using REST instead of JMX
  - Numerous performance and scalability improvements

Deprecation, Feature Removal And Incompatible Changes

- Support for Java 8 is deprecated. Running midPoint on OpenJDK 8 is supported for midPoint 4.0 and the preliminary plan is to support for the usual lifetime of ordinary support of midPoint 4.0.x line (which means 3 years). But Java 8 support may be shortened, e.g. in case that Oracle or OpenJDK project will stop providing updates to Java 8 platform. It is strongly recommended to upgrade to Java 11 as soon as possible.
- Support for Oracle Java builds is limited (see below).
- Support for PostgreSQL 9.5 (9.5, 9.5.1) is deprecated.
- Support for Microsoft SQL Server 2014 is deprecated.
- SOAP-based IDM Model Web Service Interface is deprecated. It will no longer be maintained and it will be completely removed in future versions. Please use RESTful interface instead.
- As SOAP interface is deprecated, the example SOAP client (`model-client` component) was removed from midPoint source code. It will no longer be maintained.
- There are many schema changes, including many incompatible schema changes. Please see the upgrade section below for the details.
- Activiti BPM that was used as "workflow engine" was removed from midPoint.
- Support for eDirectory was removed. eDirectory support was a maintenance burden. There is currently no subscriber using eDirectory connector, therefore the code of eDirectory connector was removed from the LDAP connector bundle.
- Support for BEA/Oracle WebLogic deployment was removed. Weblogic support was maintained because of a special arrangements with one of the first midPoint subscribers. Weblogic support is not needed by that subscriber and it is not used by any other subscriber. Therefore support for Weblogic deployment is no longer available. Tomcat is not the only supported web container. Support for any other containers is not planned.
- The #selfRequestAssignment GUI authorization is deprecated. It does not provide any access. The #selfRequestAssignments authorization provides access to all assignment shopping cart pages.

Releases Of Other Components

- New versions of LDAP Connector and Active Directory Connector were released during the course of midPoint 4.0 development. There were major improvements and fixes in those connectors. See the connector pages for the details. MidPoint 4.0 contains most recent versions of those connectors.
- New versions of CSV Connector and DatabaseTable Connector were released during the course of midPoint 4.0 development. There were minor improvements and fixes in those connectors. See the connector pages for the details. MidPoint 4.0 contains most recent versions of those connectors.
- MidPoint plug-in for Eclipse IDE was updated and released during the course of midPoint 4.0 development. The correct version of the plugin to use with midPoint 4.0 is 0.10.8.
- Official release of Java REST client is planned shortly after midPoint 4.0 release.
- Release of overlay projects and other associated artifacts is planned after 4.0 release.

Other Major Changes And Limitations

- There was a change in MidPoint 4.0 licensing. MidPoint 4.0 is dual-licensing under Apache License and EUPL. Which means that the users of midPoint may choose any of those licenses. Therefore there is almost no change for existing midPoint users that used midPoint under the terms of Apache License. The only effect of this change is the change in code contribution process that requires signing of CLA. Some parts of midPoint such as samples and localizations that are more intense in contributions are still single-licensed under the terms of Apache License to simplify contribution process. Those parts have been separated into their own projects.
- The structure of midPoint reporting service was changed during the course of midPoint 4.0 development. Those changes were motivated mostly by security concerns. There are incompatible changes, therefore existing versions of midPoint plugin for JasperSoft studio will not work with midPoint 4.0. The future of JasperSoft studio integration with midPoint is currently being debated internally in midPoint teams. Platform subscribers that currently use or plan to use JasperSoft studio are invited to provide their feedback and opinions. The result will be either new release of the integration component or deprecation of JasperSoft studio integration.

See upgrade instructions below for more details.

> ⓘ **Major release**
>
> MidPoint 4.0 is a major release. There are changes that are **not strictly compatible with midPoint 3.x**. Those incompatible changes are mostly removal of schema elements that are deprecated for a long time or elements that were never really used. Therefore major release should not significantly affect midPoint deployments that are maintained properly. However there are also some behavioral changes and changes in internal implementation. There are also changes in support routines, limitations and other non-technical aspects that can affect midPoint deployments.
>
> It is strongly recommended to read those release notes very carefully.

Quality

Release 4.0 (*Gutenberg*) is intended for full production use in enterprise environments. All features are stable and well tested - except the features that are explicitly marked as *experimental* or *partially implemented*. Those features are supported only with special subscription contract.

Release 4.0 is also a long-term support (LTS) release that has a prolonged support lifetime. MidPoint 4.0 and subsequent maintenance updates are recommended as a base for deployments that prefer stability over new features.

Limitations

- Functionality that is marked as EXPERIMENTAL is not supported for general use (yet). Such features are not covered by midPoint support. They are supported only for those subscribers that funded the development of this feature by the means of platform subscription or for those that explicitly negotiated such support in their support contracts.
- MidPoint comes with bundled LDAP Connector. Support for LDAP connector is included in standard midPoint support service, but there are limitations. This "bundled" support only includes operations of LDAP connector that 100% compliant with LDAP standards. Any non-standard functionality is explicitly excluded from the bundled support. We strongly recommend to explicitly negotiate support for a specific LDAP server in your midPoint support contract. Otherwise only standard LDAP functionality is covered by the support. See LDAP Connector page for more details.
- MidPoint comes with bundled Active Directory Connector (LDAP). Support for AD connector is included in standard midPoint support service, but there are limitations. Only some versions of Active Directory deployments are supported. Basic AD operations are supported, but advanced operations may not be supported at all. The connector does not claim to be feature-complete. See Active Directory Connector (LDAP) page for more details.
- MidPoint comes with bundled Active Directory Connector (LDAP), which includes support for PowerShell scripting. This scripting is supposed to be used to supplement creation of Active Directory (windows) accounts by using simple scripts. It is not supposed to be used to manage Microsoft Exchange accounts. Management of Exchange accounts can be quite a complex matter, requiring complicated PowerShell scripts. Support for the use of this connector to manage Exchange accounts has to be purchased separately.
- The PowerShell capability of Active Directory Connector (LDAP) will be migrated to a dedicated connector in midPoint 4.1 or later. Once this capability is migrated, PowerShell scripting will no longer be supported as part of bundled midPoint connectors. There will be special connector for that purpose and support for such connector will be sold separately. Therefore, if you need support for PowerShell scripting, we recommend explicitly negotiating such support in your midPoint support contract. MidPoint subscribers that purchased their full subscription before the release date of midPoint 4.0 should not be affected by this change. However we recommend to check status of your subscription coverage by contacting Evolveum.
- There is an option to modify midPoint to support LDAP and CAS authentication by using Spring Security modules. This method is used in several midPoint deployments. However, such authentication modules are not officially supported as part of usual midPoint subscriptions. Only community-level support is provided for those modules. Commercial-grade support for this authentication method is available, but it has to be explicitly negotiated in a subscription contract.
- MidPoint user interface has flexible (fluid) design and it is able to adapt to various screen sizes, including screen sizes used by some mobile devices. However, midPoint administration interface is also quite complex and it would be very difficult to correctly support all midPoint functionality on very small screens. Therefore midPoint often works well on larger mobile devices (tablets) it is very likely to be problematic on small screens (mobile phones). Even though midPoint may work well on mobile devices, the support for small screens is not included in standard midPoint subscription. Partial support for small screens (e.g. only for self-service purposes) may be provided, but it has to be explicitly negotiated in a subscription contract.
- There are several add-ons and extensions for midPoint that are not explicitly distributed with midPoint. This includes midPoint plug-in for Eclipse IDE, extension of Jasper studio, Java client library, various samples, scripts, connectors and other non-bundled items. Support for these non-bundled items is limited. Generally speaking those non-bundled items are supported only for platform subscribers and those that explicitly negotiated the support in their contract. For other cases there is only community support available. For those that are interested in official support for IDE add-ons there is a possibility to use subscription to help us develop midPoint studio (**MID-4701** - Getting issue details... STATUS).
- The integration of Jaspersoft Studio for midPoint (a.k.a. "Jasper plugin") will not work with midPoint 4.0. The reporting web service was changed and the plugin was not yet adapted to that change. This work is planned for later. The priorities will be determined by platform subscribers.
- MidPoint contains a basic case management user interface. This part of midPoint user interface is not finished. The only supported part of this user interface is the part that is used to process requests and approvals. Other parts of case management user interface are considered to be experimental, especially the parts dealing with manual provisioning cases.

Platforms

MidPoint is known to work well in the following deployment environment. The following list is list of **tested** platforms, i.e. platforms that midPoint team or reliable partners personally tested with this release. The version numbers in parentheses are the actual version numbers used for the tests.

It is very likely that midPoint will also work in similar environments. But only the versions specified below are supported as part of midPoint subscription and support programs - unless a different version is explicitly agreed in the contract.

Support for some platforms is marked as "deprecated". Support for such deprecated versions can be removed in any midPoint release. Please migrate from deprecated platforms as soon as possible.

Java

- OpenJDK 11 (11.0.4). This is a **recommended** platform.
- OpenJDK 8 (1.8.0_221) **DEPRECATED**

OpenJDK 11 is a recommended Java platform to run midPoint.

Support for Java 8 is deprecated. Running midPoint on OpenJDK 8 is supported for midPoint 4.0 and the preliminary plan is to support for the usual lifetime of ordinary support of midPoint 4.0.x line (which means 3 years). But Java 8 support may be shortened, e.g. in case that Oracle or OpenJDK project will stop providing free updates to Java 8 platform. It is strongly recommended to upgrade to Java 11 as soon as possible.

Support for Oracle builds of JDK is provided only for the period in which Oracle provides public support (free updates) for their builds. End of free updates for Oracle JDK 11 were planned for March 2019, and the current status is not known. Which means that Oracle JDK 11 may not be supported at all for MidPoint 4.0. MidPoint is an open source project, and as such it relies on open source components. We cannot provide support for platform that do not have public updates as we would not have access to those updates and therefore we cannot reproduce and fix issues. Use of open source OpenJDK builds with public support is recommended instead of proprietary builds.

Web Containers

MidPoint is bundled with an embedded web container. **Stand-alone deployment is default and recommended deployment option**. See Stand-Alone Deployment for more details.

In addition to that, midPoint 4.0.x can be explicitly deployed into a web container. Apache Tomcat is supported as the only web container for midPoint. Support for no other web container is planned. Following Apache Tomcat versions are supported:

- Apache Tomcat 8.5 (8.5.31), 9.0 (9.0.24)

Apache Tomcat 8.0.x is no longer supported as its support life is over (EOL).

> ⓘ **Explicit deployment to web container will be deprecated**
>
> Explicit deployment to an external web container was supported since the beginning of midPoint. That was the usual practice at the time when midPoint started. But that was some time ago and the world is a different place now. MidPoint supports stand-alone deployment model for several years. It is now the default and recommended deployment model. It works very well and it simplifies a lot of things. Therefore in order to simplify midPoint maintenance and support we will be deprecating the explicit deployment model. Stand-alone deployment will be the only supported option in the future.

Databases

MidPoint supports several databases. However, performance characteristics and even some implementation details can change from database to database. Since midPoint 4.0, **PostgreSQL is the recommended database** for midPoint deployments.

- H2 (embedded). Supported only in embedded mode. Not supported for production deployments. Only the version specifically bundled with midPoint is supported.
  H2 is intended only for development, demo and similar use cases. It is **not** supported for any production use. Also, upgrade of deployments based on H2 database are not supported.
- PostgreSQL 11 and 10. This is the **recommended** option. Support for PostgreSQL 9.5 (9.5, 9.5.1) is deprecated.
- MariaDB (10.0.28)
- MySQL 5.7 (5.7)
- Oracle 12c
- Microsoft SQL Server 2016 SP1. Support for SQL Server 2014 is deprecated.

Our strategy is to officially support the latest stable version of each database (to the practically possible extent). It may be possible to support also older database versions. But as that means additional testing and support effort, we provide such service only with special support contracts. Contact Evolveum sales for the details.

Supported Browsers

- Firefox (any recent version)
- Safari (any recent version)
- Chrome (any recent version)
- Opera (any recent version)
- Microsoft Internet Explorer (version 9 or later)

Recent version of browser as mentioned above means any stable stock version of the browser released in the last two years. We formally support only stock, non-customized versions of the browsers without any extensions or other add-ons. According to the experience most extensions should work fine with midPoint. However, it is not possible to test midPoint with all of them and support all of them. Therefore, if you chose to use extensions or customize the browser in any non-standard way you are doing that on your own risk. We reserve the right not to support customized web browsers.

Microsoft Internet Explorer compatibility mode is **not** supported.

Important Bundled Components

Component	Version	Description
Tomcat	9.0.24	Web container
ConnId	1.5.0.10	ConnId Connector Framework
LDAP connector bundle	2.3	LDAP, Active Directory and eDirectory connector
CSV connector	2.3	Connector for CSV files
DatabaseTable connector	1.4.3.0	Connector for simple database tables

Download and Install

Release Form	Download	Install Instructions
Binary	http://evolveum.com/downloads/midpoint/4.0.1/midpoint-4.0.1-dist.zip	Installing midPoint v4.0.1
Source	From Git repository (tag "v4.0.1") https://github.com/Evolveum/midpoint	Building MidPoint From Source Code
Java API	https://www.evolveum.com/downloads/midpoint/4.0.1/midpoint-api-4.0.1-javadoc/ [JAR]	
Schema Doc	https://www.evolveum.com/downloads/midpoint/4.0.1/schema-4.0.1-schemadoc/ [ZIP]	

Upgrade

MidPoint is software that is designed for easy upgradeability. We do our best to maintain strong backward compatibility of midPoint data model, configuration and system behavior. However, midPoint is also very flexible and comprehensive software system with a very rich data model. It is not humanly possible to test all the potential upgrade paths and scenarios. Also some changes in midPoint behavior are inevitable to maintain midPoint development pace. Therefore we can assure reliable midPoint upgrades only for midPoint subscribers. This section provides overall overview of the changes and upgrade procedures. Although we try to our best it is not possible to foresee all possible uses of midPoint. Therefore the information provided in this section are for information purposes only without any guarantees of completeness. In case of any doubts about upgrade or behavior changes please use services associated with midPoint subscription or purchase professional services.

Major Release 4.0

Even though midPoint minor releases are managed with almost complete compatibility in mind, midPoint 4.0 is different. MidPoint 4.0 is a major release. This is a point in midPoint development lifecycle when we remove obsolete functionality and when we make major updates to midPoint schema, database data structures and functionality. Every experienced software engineers know that it is rarely feasible to make such changes while keeping compatibility as the same time. Therefore **midPoint 4.0.x is not backwards-compatible with midPoint 3.x**. But the situation is not as bad as it might seem. We have tried to avoid changes that were not necessary. Therefore vast majority of midPoint data schema is still compatible. It is just those little places where it is not. Those places are the cause that we cannot declare complete compatibility. And that is also the reason that there is no automatic upgrade path from midPoint 3.x that is 100% reliable.

The changes in midPoint schema and functionality is mostly limited to data items that were already deprecated for a long time, some of them going back even to midPoint 2.x. Those elements were removed or significantly changed. All such changes were marked as "planned removal in 4.0" in midPoint 3.9 schema. This plan was documented in midPoint 3.9 release notes therefore the users had sufficient time to prepare. You should be able to upgrade without any major issues if you haven't used any deprecated properties or if you have avoided the use of removed elements at the very least. But even in that case there may be some updates that need to be done manually. Please refer to the section that deals with midPoint schema for details. Please be especially careful about the `iterationSpecification` element described below.

Upgrade from midPoint 4.0

Both midPoint 4.0.1 data model (schema) and database schema are compatible with midPoint 4.0. No special migration steps are needed to migrate the data. Upgrade of software packages is enough to upgrade to midPoint 4.0 to midPoint 4.0.1.

Upgrade from midPoint 3.x

Upgrade path from MidPoint 3.x goes through midPoint 3.9. Upgrade to midPoint 3.9 first by using the documented upgrade techniques. Then upgrade from midPoint 3.9 to 4.0.

Upgrade from midPoint 3.9

MidPoint 3.9 data model is not completely backwards compatible with previous midPoint versions. However, vast majority of data items is compatible. Therefore the usual upgrade mechanism can be used. The usual SQL scripts for database schema upgrade are provided. There are some important changes to keep in mind:

- There were numerous schema changes that are described below.
- Version numbers of some bundled connectors have changed. Therefore connector references from the resource definitions that are using the bundled connectors need to be updated.

Schema changes since 3.9

MidPoint schema was significantly changed since midPoint 3.9. There are many elements that are removed. Those were marked "for removal" in midPoint 3.9. Our Ninja tool can be used to detect the use of those elements even in midPoint 3.9. The "ninja" should be used to audit your use of deprecated data items before attempting to upgrade to midPoint 4.0.

However, there were also changes that were not foreseen at the time of midPoint 3.9 release or changes that cannot be easily detected by the means of our schema language. Those changes must be done manually either before upgrade or the configuration should be fixed after the upgrade:

- **Element `iteration` in object template was renamed to `iterationSpecification`.** This change was needed due to major changes in midPoint object type hierarchy, somehow related to archetypes functionality. Object tempaltes need to be updated manually after the upgrade. The upgrade process will most likely remove the `iteration` element from object template and replace it with an integer value. Iteration specification element needs to be manually re-added as `iterationSpecification` after the upgrade. The trouble is that there is no warning about this happening. Attempt to add such warning were thwarted due to complex reasons related to schema processing and data parsing. This and the primaryIdentifierValue below are perhaps the only two really important issue to keep in mind when upgrading from midPoint 3.x to midPoint 4.0.
- **New `primaryIdentifierValue`** property in shadows. MidPoint 3.x had chronic problems with shadow duplication. In fact midPoint 3.x itself worked fine and bugs related to shadow duplication were quite rare and often limited to very exotic and parallel cases. However, it was very easy to make a configuration mistake that lead to shadow duplication. Duplicated shadows are a major issue in midPoint and they may lead to data inconsistencies that are difficult to resolve. Therefore midPoint 4.0 is introducing a mechanism that can limit shadow duplication on a database level. There is a new `primaryIdentifierValue` property that maps directly to a database column and there is an unique index on that. Therefore a whole class of possible shadow duplication problems is eliminated. The problem is that each resource object type may have different identifiers, normalization rules and so on. Therefore the computation of `primaryIdentifierValue` may be quite complex. This is beyond the possibilities of SQL migration scripts. Therefore midPoint 3.9 that was just upgraded to 4.0 will have null values for `primaryIdentifierValue`. Those values should be computed and stored by using shadow refresh task.
- **Elements `relation` and `activation` in `assignmentTargetSearch` expressions** were removed. Please use the `assignmentProperties` and `populate` mechanisms instead. This would an ordinary deprecated and removal, however in this case there is one difference. The mechanism that detects deprecated and removed items will **not** detect this change. The cause of this is the fact, that expressions are not Prism containers, therefore midPoint schema-processing code does not have visibility inside those data structures.
- **Element `account`** can no longer be used as top-level element for shadow objects. Element `shadow` should be used instead. MidPoint was using the correct `shadow` element for years and years. Therefore this should not be a significant problem during an upgrade unless there are some ancient manually-created shadows. MidPoint 4.0.1 will parse even the data with `account` element, automatically converting them to `shadow`. The data in the database should be cleared up when the shadow objects are updated (e.g. during reconciliation).
- **Element `userTemplate`** can no longer be used as top-level element for object template. Element `objectTemplate` should be used instead. This situation is almost the same as the `account` case above.
- **Attribute `ref`** is removed from resource synchronization section. Please use `handlerUri` element instead. The `ref` attribute was deprecated even in midPoint 2.x. As this is an attribute and not an element then the automatic detector of removed elements does not work correctly in this case. The use of `ref` attribute should be fixed before any attempts to upgrade to midPoint 4.0.

Other removed items are automatically detected by midPoint parsing code and such elements should be automatically removed from the data. There will be a warning in the log file in case that such an element was removed during parsing. Please note that it takes an update of the object to store the data value without the removed elements. MidPoint does **not** do it proactively.

Even though this is midPoint 4.0, the numbers in the schema namespaces are still referring to version 3, e.g. `http://midpoint.evolveum.com/xml/ns/public/common/common-3`. This might seems strange and this decision was given a significant amount of consideration. Version number was introduces to the namespaces in early days of midPoint when such a practice was quite common in the XML world. However, the current consensus of midPoint architects is that the schema versioning mechanism in the XML namespace is far from being ideal. A better versioning mechanism will be needed in the future. The preliminary design is to remove version number from the namespace entirely and use explicit schema versioning that could reflect semantic versioning principles. The preliminary plan is to address this in midPoint 5.0. Which would mean that the namespaces will need to change now and there will be another change in few years when midPoint 5.0 is released. We have decided that the current change from "common-3" to "common-4" would not bring any significant advantage. However, it would significantly complicate the upgrade from midPoint 3.x to midPoint 4.0. Therefore the decision was to keep the "common-3" namespaces. Even though it might look strange, we are doing a very pragmatic decision here that makes midPoint migration much easier for everybody.

Prism API changes

Prism API changes are described in Upgrade to 4.0 - Prism API migration notes.

Upgrade process

Flowing steps are an outline of an upgrade process:

1. Back up your configuration and data.
2. Make sure that you are not using elements that are planned for removal. If they are used then reconfigure them to their new equivalents. It is recommended to do the same with all deprecated configuration elements.
3. Stop all tasks, disable end user access to user interface.
4. Shutdown midPoint.
5. Update midPoint distribution binaries.
6. Run database migration scripts.
7. Start midPoint. Make sure that tasks are stopped and end user access is disabled.
8. Update customized initial objects as needed.
9. Re-add `iterationSpecification` element to object templates.
10. Update connector references in the resources.
11. Run shadow refresh task to populate `primaryIdentifierValue` in shadow objects.
12. Mind the warnings in log files. There may be warnings about removal of deprecated items.
13. Test new configuration.
14. Start the tasks. Do it with caution. Start the tasks one-by-one, watch for any errors.
15. Re-enable user access to user interface.

Those steps are just a rough outline. Actual steps needed to upgrade to midPoint 4.0 may be different as the upgrade procedure depends on midPoint customizations, environment and other deployment details.

Changes in initial objects since 3.9

MidPoint has a built-in set of "initial objects" that it will automatically create in the database if they are not present. This includes vital objects for the system to be configured (e.g. role `superuser` and user `administrator`). These objects may change in some midPoint releases. But to be conservative and to avoid configuration overwrite midPoint does not overwrite existing objects when they are already in the database. This may result in upgrade problems if the existing object contains configuration that is no longer supported in a new version. Therefore the following list contains a summary of changes to the initial objects in this midPoint release. The complete new set of initial objects is in the `config/initial-objects` directory in both the source and binary distributions. Although any problems caused by the change in initial objects is unlikely to occur, the implementors are advised to review the following list and assess the impact on case-by-case basis:

- 000-system-configuration.xml: Case and workitem views, expression profile, misc logging/tracing changes. Added two predefined tracing configurations.
- 010-value-policy.xml, 015-security-policy.xml: Removing deprecated elements
- 040-role-enduser.xml, 041-role-approver.xml: updates requires for new approval mechanisms. Allow End user to assign with default rel. only (MID-5592).
- 020-archetype-system-user.xml, 021-archetype-system-role.xml, 022-archetype-business-role.xml, 023-archetype-manual-provisioning-case.xml, 024-archetype-operation-request.xml, 025-archetype-approval-case.xml, 026-archetype-trace.xml: default archetype definitions
- 070-task-validity.xml: Update to current (non-deprecated) schema
- 090-report-audit.xml, 100-report-reconciliation.xml, 110-report-user-list.xml, 130-report-certification-definitions.xml, 140-report-certification-campaigns.xml, 150-report-certification-cases.xml, 160-report-certification-decisions.xml: Corrected encoding of Jasper report definition (it was base64-encoded twice), updating the definition to current schema (non-deprecated elements), updated report definition to reflect changes in Prism API
- 100-report-reconciliation.xml: Added option required for jasper report parameter (MID-5460).
- 130-report-certification-definitions.xml, 140-report-certification-campaigns.xml, 150-report-certification-cases.xml, 160-report-certification-decisions.xml: Fix for certification reports (MID-5811).
- 250-object-collection-resource-all.xml, 260-object-collection-task-all.xml, 270-object-collection-task-active.xml, 280-object-collection-resource-up.xml, 290-object-collection-audit-errors.xml, 300-object-collection-audit-modifications.xml, 330-object-collection-my-cases.xml: default object collections
- 310-dashboard-admin.xml: default system administration dashboard (experimental)

Bundled connector changes since 3.9

- All bundled connectors were upgraded to the latest available version.
- AD Connector was improved in several ways, including better support for userAccountControl attribute. It is recommended to refresh resource schema to take full advantage of those features.

Behavior changes since 3.9

- Following expression variables are deprecated: user, account, shadow
- Inbound mappings are evaluated together from all the resources, as they should. But do not rely on that (yet). Some resources may not be loaded.
- Default range for inbound mappings has changed. Default range for single value items is "all", default range for multivalue items is "none". See Inbound Mapping page for the details.
- Special authorization is needed to run reports (authorization-model-3#runReport). Access to report web service requires this authorization as well (e.g. needed for access by Jaspersoft Studio).
- Change of `subtype` is not supported in midPoint 4.0. This functionality was never fully supported in midPoint 3.x either, even though some use-cases worked. As `subtype` is now deprecated, this functionality will not longer be supported.
- The #selfRequestAssignment GUI authorization is deprecated. It does not provide any access. The #selfRequestAssignments authorization provides access to all assignment shopping cart pages.

Public interface changes since 3.9

- There were numerous changes to the IDM Model Interface (Java). Please see source code history for details. As this is a major release, there might be incompatible changes.
- Prism interface was changes in many places. There is now a separate prism-api. However, this is not yet stable public interface. Changes to this API are expected in future midPoint versions. Although we will try to keep the changes compatible at least until the next LTS release, incompatible changes may happen occasionally.
- IDM Model Web Service Interface (SOAP) is deprecated. The plan is to remove support for SOAP soon.

Important internal changes since 3.9

These changes should not influence people that use midPoint "as is". These changes should also not influence the XML/JSON/YAML-based customizations or scripting expressions that rely just on the provided library classes. These changes will influence midPoint forks and deployments that are heavily customized using the Java components.

- Report API is changed, including the remote reporting inteface.
- Variable typing and more strict checks. Which means that midPoint 4.0 is slightly less tolerant configuration errors.
- There were numerous changes in internal code structure, most notably changes in Prism and GUI. Heavy customizations of midPoint 3.x are likely to break in midPoint 4.0.

Changes since midPoint 4.0

- The #selfRequestAssignment GUI authorization is deprecated. It does not provide any access. The #selfRequestAssignments authorization provides access to all assignment shopping cart pages.

Initial object changes:

- 000-system-configuration.xml: Added two predefined tracing configurations.
- 040-role-enduser.xml: Allow End user to assign with default rel. only (MID-5592).
- 100-report-reconciliation.xml: Added option required for jasper report parameter (MID-5460).
- 130-report-certification-definitions.xml, 140-report-certification-campaigns.xml, 150-report-certification-cases.xml, 160-report-certification-decisions.xml: Fix for certification reports (MID-5811).

Known Issues and Limitations

As all real-world software midPoint 4.0.1 has some known issues. Full list of the issues is maintained in jira. As far as we know at the time of the release there was no known critical or security issue.

MidPoint 4.0 was a major release that brought many changes in midPoint code. Some of those changes may be quite disruptive. As midPoint is a very flexible product it is almost impossible to test all the possible use-case scenarios. Focus of midPoint 4.0.1 is to provide fixes of issues that are reported by midPoint users since the release of midPoint 4.0.

There is currently no plan to fix the known issues of midPoint 4.0.1 *en masse*. These issues will be fixed in future maintenance versions of midPoint only if the fix is covered by a support agreement or subscription. No other issues will be fixed - except for severe security issues that may be found in the future.

The known issues of midPoint 4.0.1 may or may not be fixed in following maintenance releases or in midPoint 4.1. This depends on the available time, issue severity and many variables that are currently difficult to predict. The only reliable way how to make sure that an issue is fixed is to purchase midPoint support. Or you can fix the bug yourself. MidPoint is always open to contributions.

This may seem a little bit harsh at a first sight. But there are very good reasons for this policy. And in fact it is no worse than what you get with most commercial software. We are just saying that with plain language instead of scrambling it into a legal mumbo-jumbo.

Some of the known issues are listed below:

- Some of the changes related to approval cases are not shown (**MID-5876** - Getting issue details... STATUS)

- There is a support to set up storage of credentials in either encrypted or hashed form. There is also unsupported and undocumented option to turn off credential storage. This option partially works, but there may be side effects and interactions. This option is not fully supported yet. Do not use it or use it only at your own risk. It is not included in any midPoint support agreement.

- Native attribute with the name of 'id' cannot be currently used in midPoint (**MID-3872** - Getting issue details... STATUS). If the attribute name in the resource cannot be changed then the workaround is to force the use of legacy schema. In that case midPoint will use the legacy ConnId attribute names (icfs:name and icfs:uid).

Disclaimer

Planned release dates are just that: they are planned. We do not promise or guarantee release dates. Software development is a creative activity that includes a lot of inherent risk. We are trying really hard to provide the best estimates. We are not able to provide precise dates for releases or deliveries. **Do not rely on midPoint release dates**. Plan your project properly to address the risk of delayed midPoint releases.

Planned scope of midPoint releases is also an estimate. MidPoint development process always includes the balancing of the iron triangle. Therefore planned release scope may change at any time. There is a method to make sure that midPoint releases will work well for your project and that method is platform subscription.

We do not make any claims that midPoint is perfect. Quite the contrary. MidPoint is a practical software, developed by living and breathing developers and deployed in a real world. There are both known and unknown issues in midPoint. Also, midPoint is not feature-complete. New features are introduced in midPoint all the time. But not all of them are completed. There are always some limitations. As the license states, midPoint is provided "AS IS". Please do not rely on midPoint functionality that you have not tested to make sure that it works. MidPoint support and subscription programs are a way how to handle those issues. But even with support service, do not rely on functionality that is not documented. If you plan to use undocumented or non-existing functionality, platform subscription is the right service for you.

See Also

- midPoint History
- Installing midPoint v4.0.1
- Building MidPoint From Source Code
- Upgrade to 4.0 - Prism API migration notes