valantic

New Features in X-Gen 4.15

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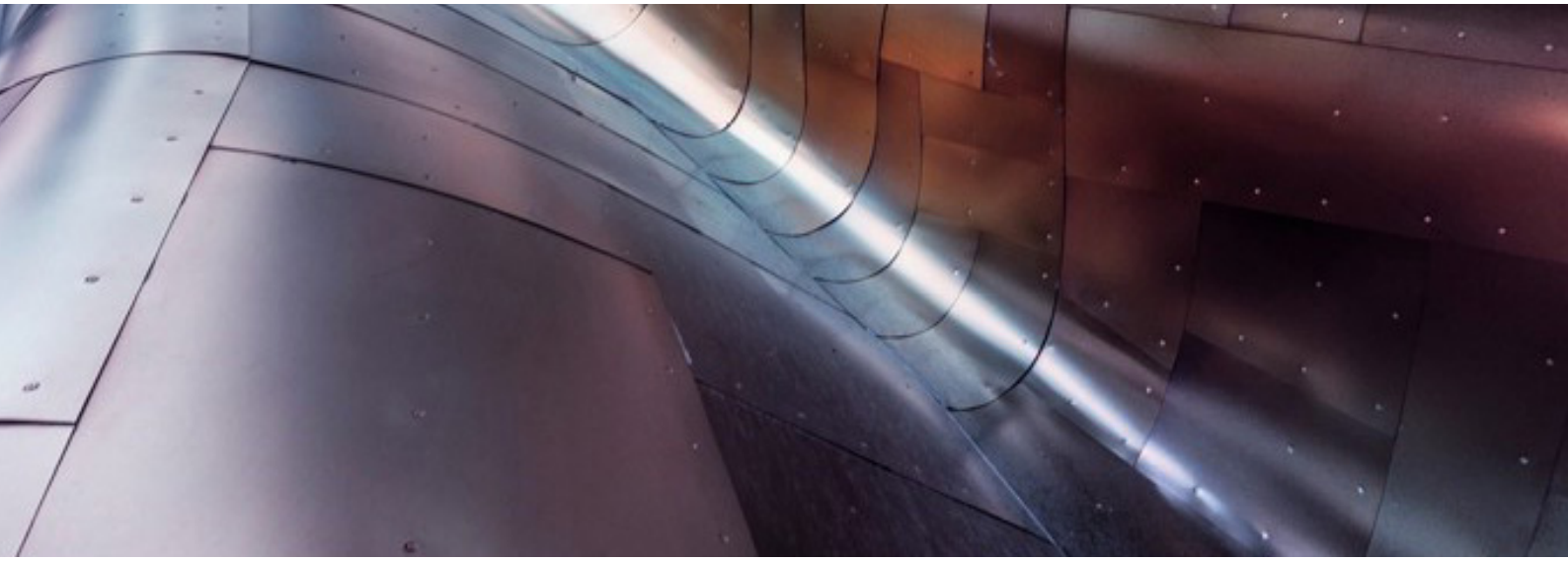


About this Document

This document describes in short most of the new features that are included in X-Gen release 4.15. For more comprehensive explanations and the list of bug fixes, please refer to the Release Notes.

General

Operating Systems

- **RedHat Enterprise Linux 7** is no longer supported, **RHEL 9** is newly supported.
- **Windows 11** is newly supported.
- **Solaris** is no longer supported.

Databases

- **DB2 10.5** is no longer supported.
- **MariaDB** can now be configured explicitly as database. So far, MariaDB connections had to be configured as mySQL.
- **Oracle 21c** is newly supported.
- **PostgreSQL 11** is no longer supported, **PostgreSQL 15** is newly supported.
- **Sybase** is no longer supported.

Vulnerability Reports

3rd party libraries used in X-Gen are regularly monitored for vulnerabilities based on CVE. valantic analyses the vulnerabilities found and provides patches for supported X-Gen versions as necessary. Vulnerability reports are created for all supported X-Gen versions; they can be provided to customers on request.

IBM MQ 9.3.x is newly supported.

Java: Upgrade to JRE 11

OpenSSL: Upgrade to 3.0

XRD

Git Client

Among others, there are the following improvements in relation to Git:

- Git merge of flows, mappings and workflows has been improved.
- The git repository browser was enhanced.
- The ahead/behind information are displayed on top of the Project Sidebar.
- The user is asked to which submodule new projects should go if submodules are present.
- It's possible to define which submodules are pushed, pulled or merged.
- A switch was added to decide if submodule changes are committed.
- A warning is shown in the git commit dialog if no branch is checked out.
- Unversioned profiles can be changed to versioned profiles and vice versa.

Tracing

The XRD now offers to load trace files of name pattern *.xtl, e.g. "Traces.BCK02022023.xtl". In connection with the new download options in XWA (see below), the feature simplifies tracing in container environments. In addition, these trace files can be deleted.

Enhancement of "Environments"

The existing "Environment" concept allows to set different sets of configurations for different environments in flows. So far, environments were always bound to a runtime profile. Now it is possible to define environments independent of runtime profiles, and the environment to be used can be set in a profile. This allows two or more different configurations in flow objects in the same flow independent of profiles.

Mapping Editor

A new "Shield mode" allows to temporarily switch off hierarchy validations in output fields. This is useful when several connections are changed. When the changes are done and the "Shield mode" is turned off, the hierarchies are validated again.

Easy Replacement of Elements With Successors

When there's a successor of an element available, there's now a context menu item to replace the element with its successor. This applies to operators in mappings, flow objects in flows and message definition references in message definitions. Configurations are transferred to the successor as far as possible, however, the configurations should be checked in the successor.

Message Definition Editor / Dictionary Editor

The "History" tab was removed from the Message Definition and Dictionary Editors. When opening a message definition or dictionary with a history, the user is asked to move the history to the description.

New XSD Import

The creation of message definitions based on XML Schema Definitions has been completely reworked (see also "Command Line Tools" below). In this context, the respective dialog has been slightly changed.

X-Gen Development Environment

The X-Gen Development Environment (XDE) is X-Gen's web-based successor of the XRD. XDE is a fully compatible alternative to using XRD with – for the time being – a limited number of editors available. Once all functionalities will be available in a future X-Gen release, it will replace the XRD.

The XDE was launched in X-Gen 4.14 with the Workspace Explorer, the Item Explorer and the Mapping Editor for all types of mappings. The look and feel is similar to what is known from XRD, however, there are several new usability features but also (yet) a few restrictions.

The web frontend, running in a browser, connects to a new XDE server process. The XDE server process has access to the workspace in the file system, and it provides services, such as reading and writing X-Gen documents, to the frontend. In addition, the XDE server maintains locks of open X-Gen documents from XDE and XRD to avoid opening the same document for writing in both applications. This way, XDE and XRD can be safely used simultaneously with the same workspace.

The new XDE features in X-Gen 4.15 are:

General

The new system privilege xgen:xde_development is required to log in to XDE. The initial setup of X-Gen 4.15 comes with a new role "Developer" containing that privilege, and with the user "appdev" containing that role.

Workspace Operations

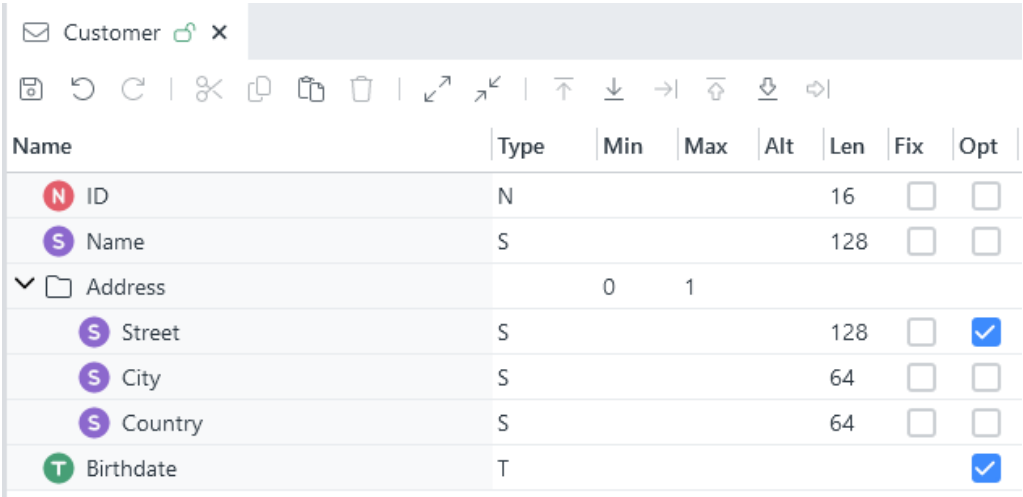
- Creating and deleting projects and folders
- Support for copying multiple documents to another folder or project, keeping the “inner dependencies” of the documents.
- Duplicating documents
- Renaming documents
- Deleting several documents in one step
- Creation of Validation Mappings and Meta Operators, the latter along with a Meta Mapping
- References of documents can be displayed (referenced documents and documents referencing the actual one) for those document types supported by XDE.

Improvements of Mapping Editor

- Replacing an output message definition of the mapping including keeping the fields of the old message definition (which may become invalid)
- Copying the FQN of fields and groups to the clipboard
- Improved handling of the output hierarchy of fields
- Displaying all information of fields, groups and operators in the Properties Sidebar, including ports of type “Any” (read-only, i.e. no default can be set)
- Expand/Collapse of properties in Properties Sidebar

Message Definition Editor

In the new Message Definition Editor, it is possible to manually add, remove and change fields and groups as well as their attributes. Undo and Redo are available, alike cut/copy/paste or drag & drop of elements. Here’s an example:



References to other message definitions or to dictionaries can be added by drag & drop from the Item Explorer.

Features beyond or different from XRD:

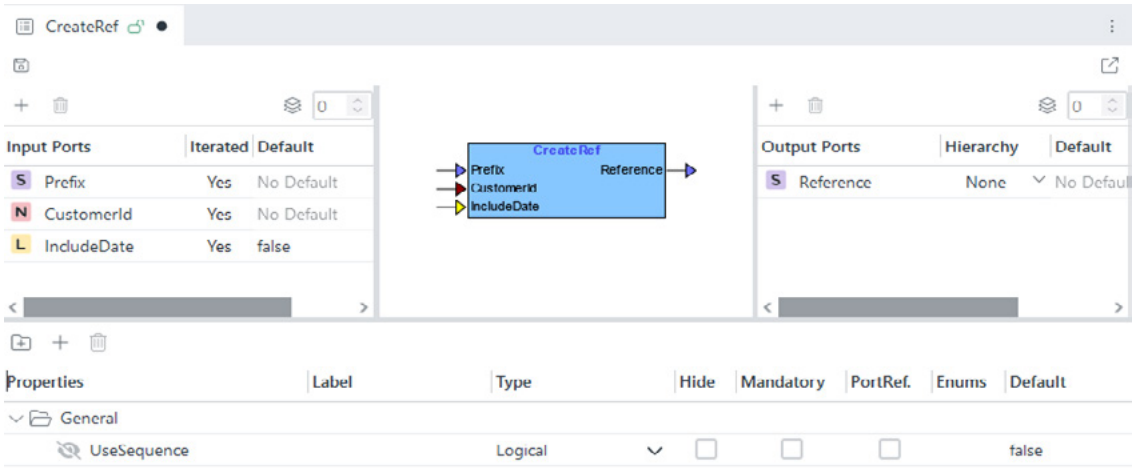
- Improved look & feel (see screenshot)
- When several fields are selected, their common properties are displayed in the Properties Sidebar and can be changed simultaneously.
- Attributes of all assigned attribute sets are visible simultaneously in the table.
- Markdown descriptions of fields and groups. The view can be toggled between markdown and simple text rendering.
- Fields can be filtered by Type.
- Basic information on message definitions (description, author etc.) is now displayed in the Properties Sidebar.

Restrictions:

- It is not possible to add and remove attribute sets.
- No support for aliases
- References to other message definitions cannot be added via profile parameter.
- Privileges cannot be added to or removed from a message definition, and they cannot be set on message definition level. Setting privileges for fields and groups is possible.
- Easy search for fields and groups not yet available

Operator Definition Editor

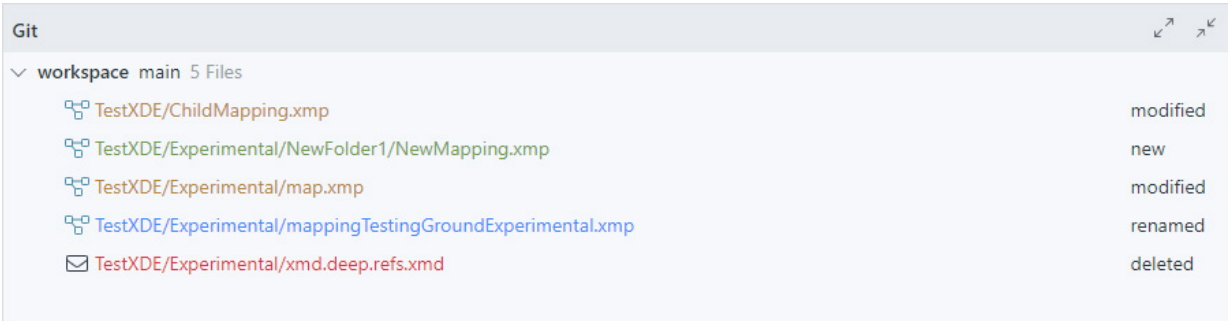
The new Operator Definition Editor allows to create both meta operators and operators based on Tcl, C++ or Java.
Compared to XRD, an operator definition is opened in a new tab as any other document. All relevant information is visible in one screen:



For Tcl operators, the Tcl code can be edited on the same screen as well.

Git Integration

In git workspaces, the git status of documents is indicated by colors in the Workspace Explorer. Moreover, there's a separate pane below the editors listing the modified documents.



Adapters

File Source Adapter

It is now possible to configure several record separators for header, data, and trailer. The adapter will use the first separator it finds for the rest of the file. This allows e.g. to configure Windows and Linux line breaks (\r\n and \n) so that both variants of files can be processed with the same configuration.

FIX Adapters

Both server and client adapters support TLS v1.3.

Repository Destination Adapter

Delete statements for both fields and meta fields are supported in replace and merge modes.

WebService Bidirectional Client Adapter

The new property „Enable XA delivery mode“ allows to send messages to the server only when the XA transaction is committed.

WebService Server Adapter

The new property „Enable XA delivery mode“ allows to send response messages to the client only when the XA transaction is committed or rolled back. In case of a rollback, a generic SOAP fault message will be sent to the client with a configurable error message.

Processing Units

General

The new time specifier “%zn” in message definitions allows to parse and build date/time expressions where the time zone is always expressed as an offset, even if it’s zero, then generating “+00:00”. The feature is generic for all parsers and builders processing date/time fields. An important use case is the building of ISO20022 messages as the “+00:00” is validated by some issuers.

CSV Parser

- In the header, related message fields can be addressed in three different ways now: by field name, by FQN (new) or by CSV.Tag.
- The new property „Error reporting mode“ allows to configure the CSV parser not to stop parsing on the first error. Instead, the output message will contain a repeating group describing all problems that have been encountered in that row. The parser still tries to parse as many fields as possible.
- Wrong values in TimeDate fields are now reported as errors. They were ignored so far.

ISO20022 Parser and Builder

Parser and Builder support a new SAA letter message definition where the /Letter/SAA group is used without revision. This simplifies the migration to newer SAA letter versions in X-Gen mappings.

ISO20022 Builder

There’s a new logic to split large camt.053 messages, now complying with SWIFT CBPR+ splitting rules.

JSON Parser

A new option allows to ignore unknown fields in JSON messages.

Repository PU

The Update mode “REPLACE” now locks the messages to be updated if the database allows row locking. The new Update mode “REPLACE SKIP LOCKED” additionally skips messages locked by another session if the database allows to skip locked messages. As a consequence, different “On hit” actions might be triggered when skipping locked messages.

Operators

Misc/Error

The “ErrorText” input port is now iterated. This allows to write several (different) error messages to the XPR log file with a single operator.

XWA

Download of Log Files, Traces, and Transaction Logs

New context menus in Drill Down and Monitoring as well as a separate dialog allow to download X-Gen log files (including backup logs), trace files and transaction log files from the server in a zip file. The scope can be a process, a project, or a list of projects. The downloaded traces can be visualized in the XRD. New privileges xgen:trace_request and xgen:tranlog_request are required to download traces and transaction logs. The existing privilege xgen:log_file_requests controls the log file download. The feature is particularly useful in container environments where logs, traces and transaction logs might not be accessible.

Role Exclusion

For any role, a list of “Forbidden Roles” can be configured. If a user has that role, he/she may not also have any of the forbidden roles, otherwise the login of that user is denied.
The initial setup of X-Gen now defines roles “UserAdmin”, “RoleAdmin”, and “ProjectAdmin”. The “UserAdmin” role has “RoleAdmin” as forbidden role, i.e. user administrators cannot maintain roles and role administrators cannot maintain users. The initial “admin” user has the roles “ProjectAdmin” (in particular to start and stop projects, processes and flows) and “UserAdmin”. A new user “roleadmin” has only the role “RoleAdmin”.
The initial setup clearly separates user administrators for role administrators. However, the concept is generic and can also be used in business applications, e.g. when a user is allowed to use functionality A, he/she may not use functionality B.

User Settings

A new main menu item “Application Settings” allows to manage the settings stored for X-Gen frontend applications that use the new settings API in the Web SDK (see below). Settings can be viewed, deleted, as well as exported and imported, enabling to transfer and share settings. The privilege XGen-Admin:settings_management is required to see the menu item. Additionally, when deleting a user in the “Users” menu item, all settings stored for that user are deleted as well.

Alerts

The action type “SNMP” for alerts is no longer supported. SNMP alerts should be replaced by script based alerts.

XPR

Channel Manager Enhancements

The Channel Manager was improved in terms of stability and transaction recovery.

- Whenever the Channel Manager is not available or gets restarted, the connected Flow Adapter will now wait and reconnect to the Channel Manager automatically as soon as it becomes available again.
- When a Channel Manager is about to stop regularly, it will first wait for any ongoing transactions to finish in order to avoid open transactions.
- It is possible to use multiple Channel Managers for transaction recovery. In case a Channel Manager unexpectedly stops, the connected Flow Adapter will switch to the next active Channel Manager and attempt to recover any open transactions.

Enhanced Container Support

- **Peer Recovery**: If an XPR ends with a prepared but not completed distributed transaction (XA transaction), a recovery of this transaction is required, otherwise resources like records in database tables or messages in a queue are locked and prevent other processes from accessing them.
  In container-based runtime environments like Kubernetes or Red Hat OpenShift, the starting and stopping of XPR processes is under control of the container management. If a downscale of a POD that runs an XPR ends with an open transaction, this transaction could not be recovered so far until the XPR instance is started again (upscale). With the peer recovery feature, another XPR process monitors transactions of stopped XPR's and recovers them if necessary.

- Support of **environment variables** defined in profiles in self-acting XPR's.

Command Line Tools

msgdefimp

- The tool additionally supports – besides JSON and OpenAPI – the creation of message definitions based on XML Schema Definitions (XSD's). The command line options have been harmonized (with the ones of msgreptool as guideline).
- The JSON Schema import now supports the keyword "allOf" to apply sub-schemas with Boolean logic.
- The creation of message definitions based on XSD's has been reworked and enhanced.

X-Gen Client Services

Check of MIME Type When Uploading Files

A new profile parameter configures the allowed MIME types for files supposed to be uploaded. The MIME type of a file is determined by analyzing the file content.

XCI DownloadLogFilesRequest

This new request is used in the XWA feature to download log files, trace files and transaction log files.

Sample Projects

In most of the sample projects, the port numbers have been changed to avoid port conflicts when running several sample projects simultaneously.

X-Gen Web SDK

Support for ExtJS 7

All Ext JS components have been upgraded to version 7.

User Settings

The new “xgen.settings” API enables storing of application-specific settings in a standard X-Gen repository available to all applications. The API supports various use cases but typically, settings are a list of key/value pairs that are stored for each user of an application. What the settings represent and what effect their values have depends on the application. After login, the settings of the user, as well as global or team defaults, are loaded and applied to the application components. Such settings may include the width and order of columns in each table, the state of toolbar checkboxes, whether collapsible panels are expanded by default, and more. Users may share settings, or team leaders may provide default settings which the users can customize. Additionally, applications can define custom settings a user can modify in a dialog, and for complex applications, settings may be grouped so they can be managed for each module separately.

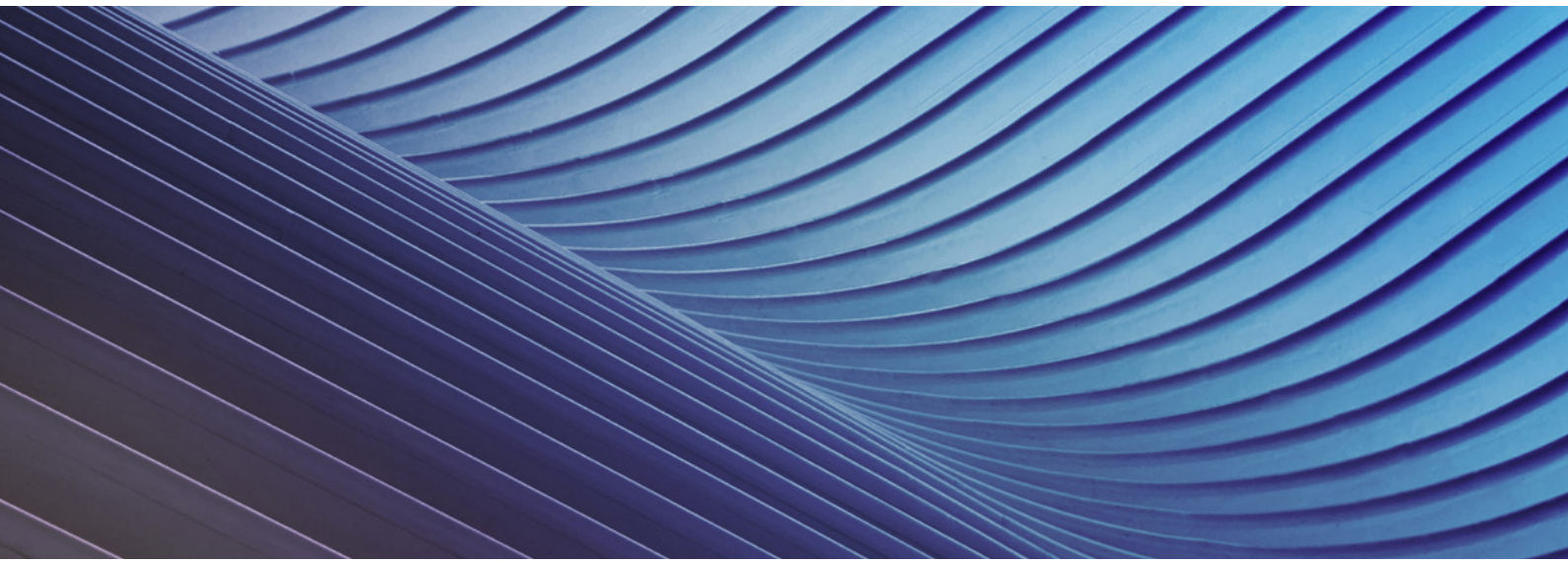
Documentation

Mapping Concept

There's a new chapter on mappings in the Concepts book. It describes the different mapping types and how an output message is created based on an input message.

Frontend Development

The former guide for frontend development (aka "Cookbook") has been updated and replaces the previous overview of the XCI Application Development book.



Do You Have Any Questions?

If you have any questions about the new fetaures of the X-Gen release 4.15?
Please contact us.

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