

Digitize business processes successfully

Accelerate digital transformation with the X4 Suite low code platform

X4 Release Notes

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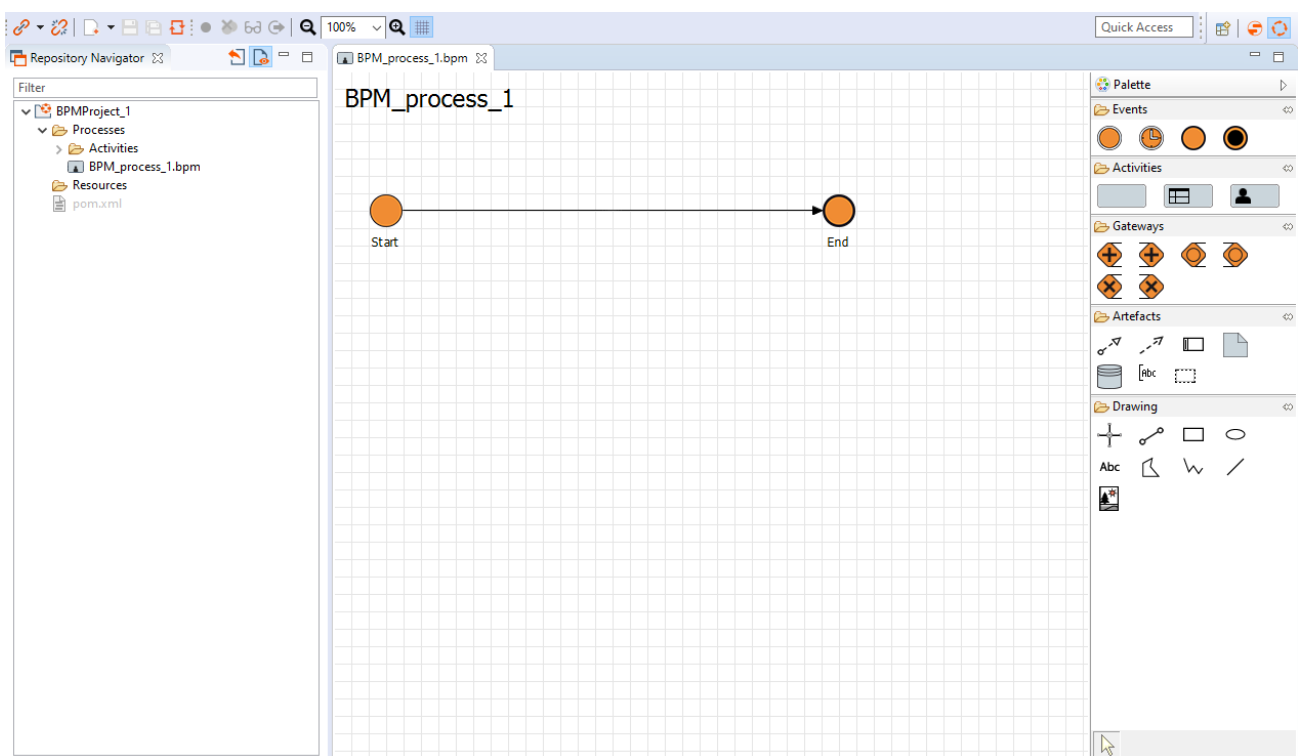
1 Release Notes 7.0.0

1.1 New functions and changes

1.1.1 X4 Designer

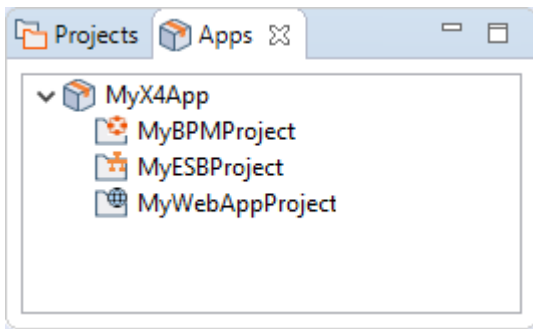
1.1.1.1 BPMN Designer perspective for modeling business processes

With the new BPMN Designer perspective, BPMN processes can be modeled without programming and X4 knowledge.



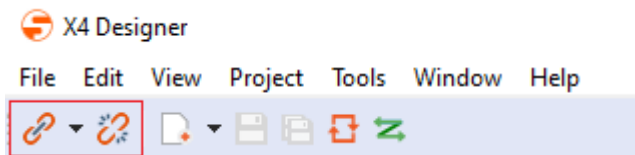
1.1.1.2 X4 Apps for structuring and bundling projects

With the new X4 Apps, all projects related to a complex business process can be structured and bundled. X4 Apps can be deployed as packages.



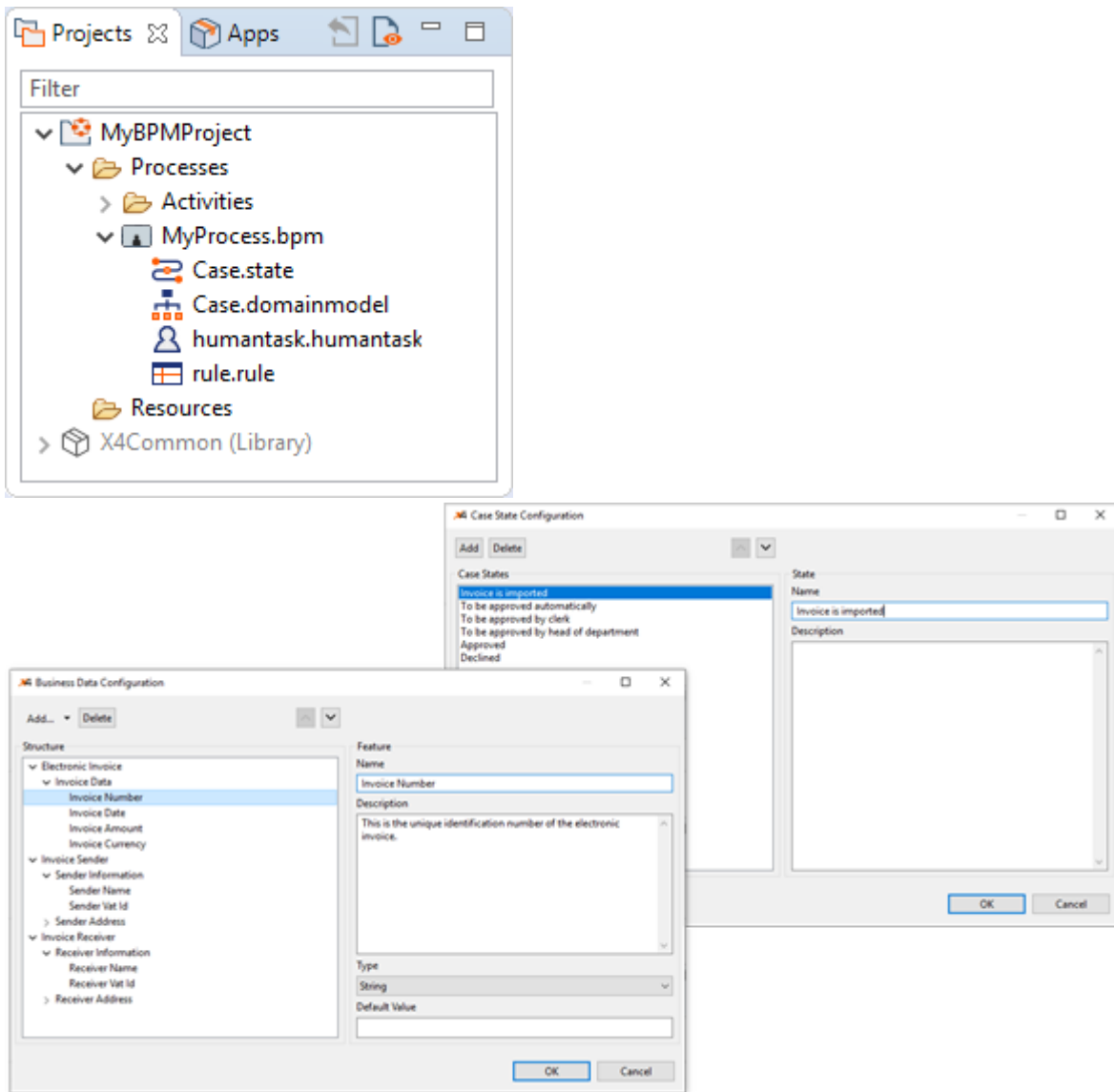
1.1.1.3 Redesigned toolbar

The toolbar in X4 Designer has been redesigned. Connecting and disconnecting from the server has been simplified and is possible with just one click.




1.1.1.4 Define business data structure and case states

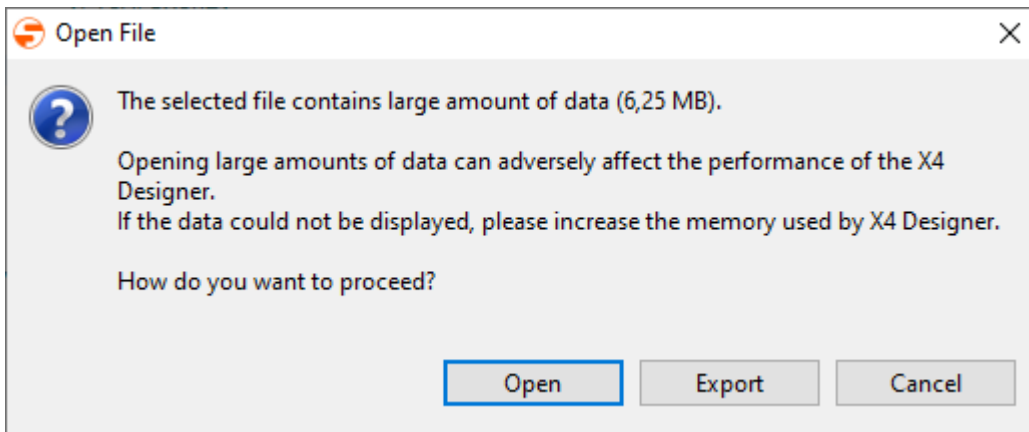
For processes that are mapped with X4 BPM, the Business Data and Case States for the business process as well as Human Tasks and rules for Rule elements are now no longer defined as process properties, but in separate files. These files can be created either for an entire project or only for a process.



1.1.1.5 Warning when opening large files

A warning is now displayed in the X4 Designer before opening files larger than 1 MB. Users now have the option to open or download the file to open the file in an external editor.

 Large amounts of data can have a negative impact on the performance of the X4 Designer.



1.1.1.6 Automatic refresh of adapter projects

Newly created processes are now automatically made available for linking to an operation. Icons are also updated automatically.

1.1.1.7 Optimized debugger

The debugger has been optimized and can now be connected to a server instance. The debugger can thus check processes with requests or data received from the server.

A new **Debug sessions** view has been introduced. In this view all running debug sessions can be selected and terminated.

To debug to a specific element within processes, you can now use the **Run to current element** function. To do this, right-click on the desired element in your process.

To make debugging even easier, the **Quick Watch** view is displayed and positioned next to the **Output** view when debugging a process. Additionally, it is now possible to copy values of **Dynamic Parameters** and Placeholders from the table in the **Quick Watch** view.

1.1.1.8 Optimized width of input fields in Webservice Configuration Editor

Input fields in the Webservice Configuration Editor are now displayed in an optimal size, so that it is obvious at first glance, e.g. which processes are linked.

SOAP Operation

Name:

Access Restriction

Realm: Inherit from parent node

Guest Allowed: Inherit from parent node

Token Return: Inherit from parent node

Login Failure Return: Inherit from parent node

App Permission: Inherit from parent node

Action Permission: Inherit from parent node

Operation Configuration

Process Path:

Input Mode:

Output Mode:

Placeholders:

1.1.1.9 Setting tasks to resubmission in the Task Management Web App

Tasks in the Task Management Web App can now also be set to resubmission so that they can be processed at a later time.

Wiedervorlage anlegen

Bitte geben Sie ein Datum zur Wiedervorlage ein:

Kommentar (optional)

1.1.1.10 Validation of user-defined placeholders

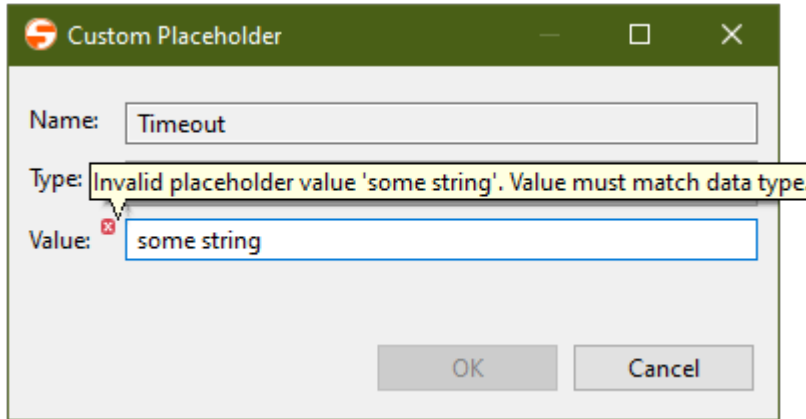
Validation is now performed when creating and modifying user-defined placeholders. Validation has been implemented in the following cases:

- *Custom Placeholder Storage Manager*: When creating or modifying custom placeholders via the adapter, an error message is issued in the server log in case of invalid values in the input XML

and the corresponding process is terminated with an error (status -1).

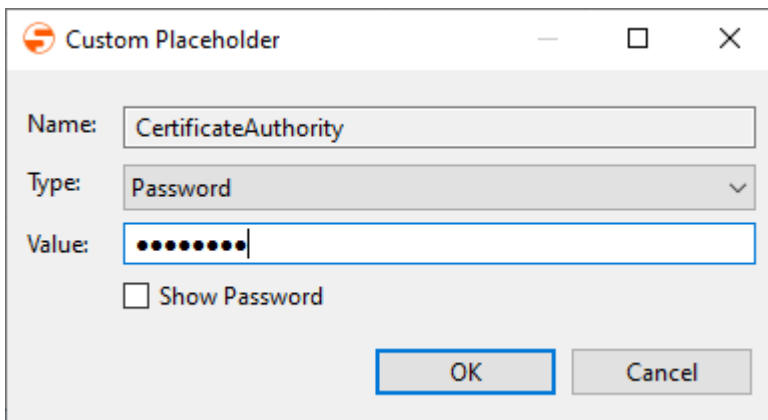
`Invalid value type for placeholder key 'Pl1'. Value must be of type 'Boolean'.`

- *Custom Placeholder Storage Editor*: If the specified placeholder does not match the defined data type, the corresponding value is marked in the **Custom Placeholder** dialog and an error message is displayed as a tooltip.



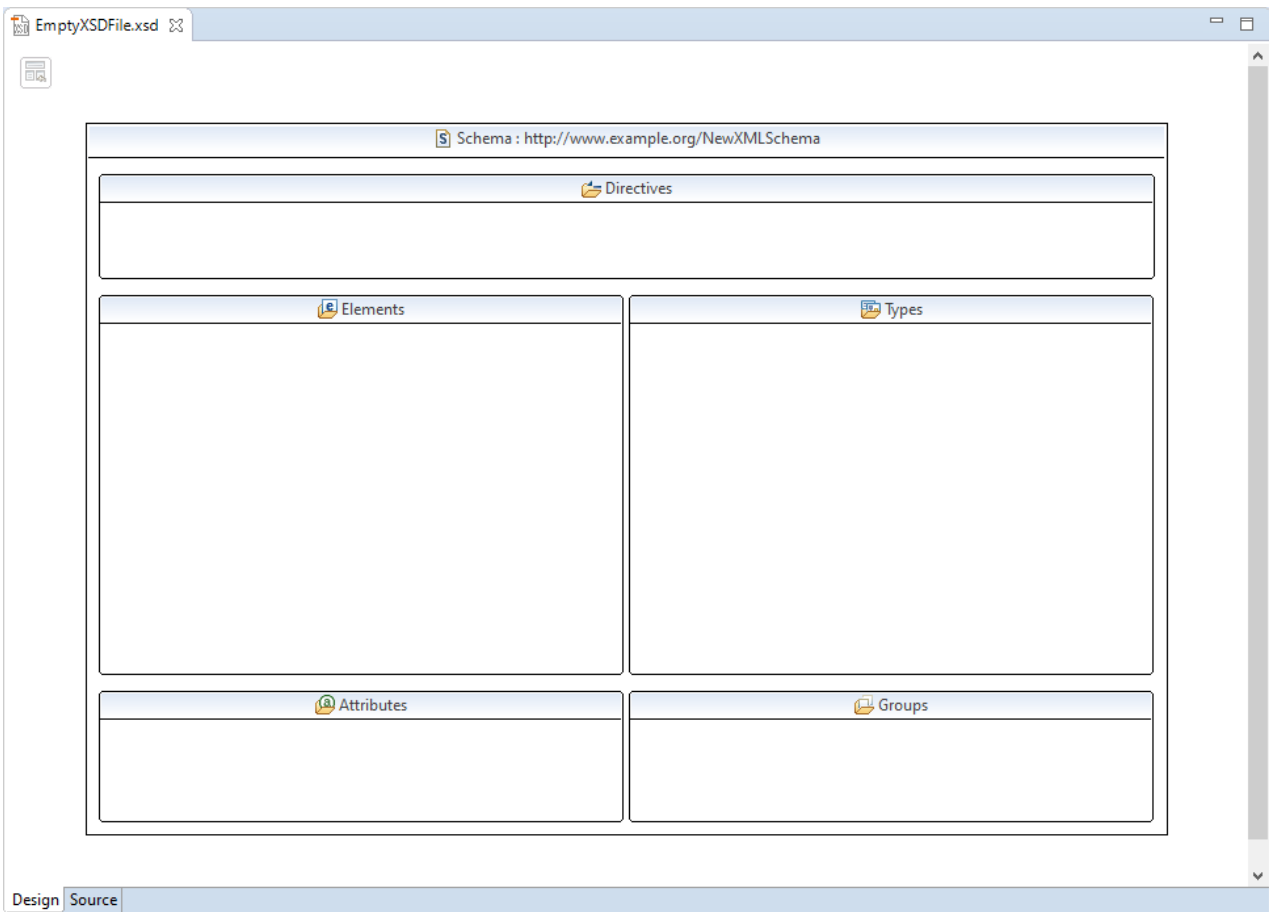
1.1.1.11 Password placeholder type

The *Custom Placeholder Storage Editor* can now also be used to create placeholders of the type Password. The **Show Password** option can also be used to display the password in plain text.



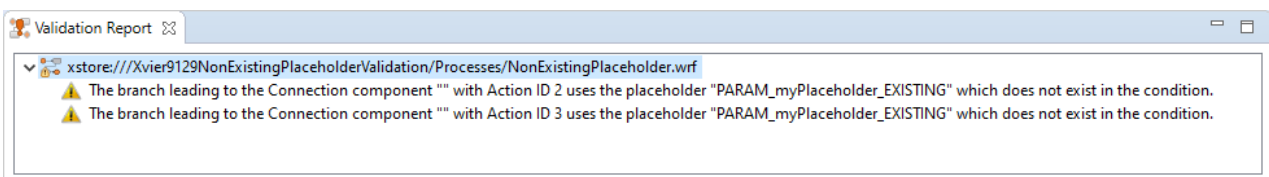
1.1.1.12 XSD editor

In X4 Designer, schema definitions (.xsd) can now be edited using Eclipse's own XSD editor.



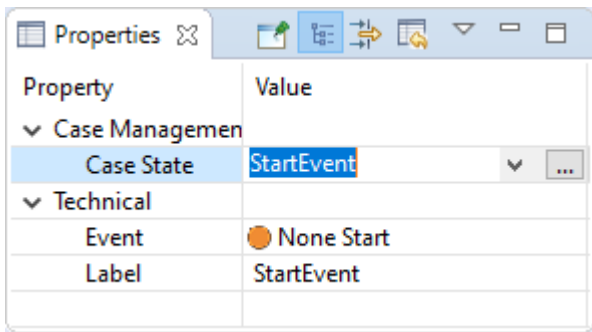
1.1.1.13 Validation of conditions based on user-defined placeholders

Conditions defined via user-defined placeholders are now also validated. In case of an error, a corresponding message is displayed in the **Validation Report** view.




1.1.1.14 Set operation status values via start and end events

A start or stop event can now be used to set the status of a case at runtime of the business process. For this purpose, all process-wide defined case status values are available for selection in the Case Management > Case State property.



1.1.1.15 Simplified usage of project templates

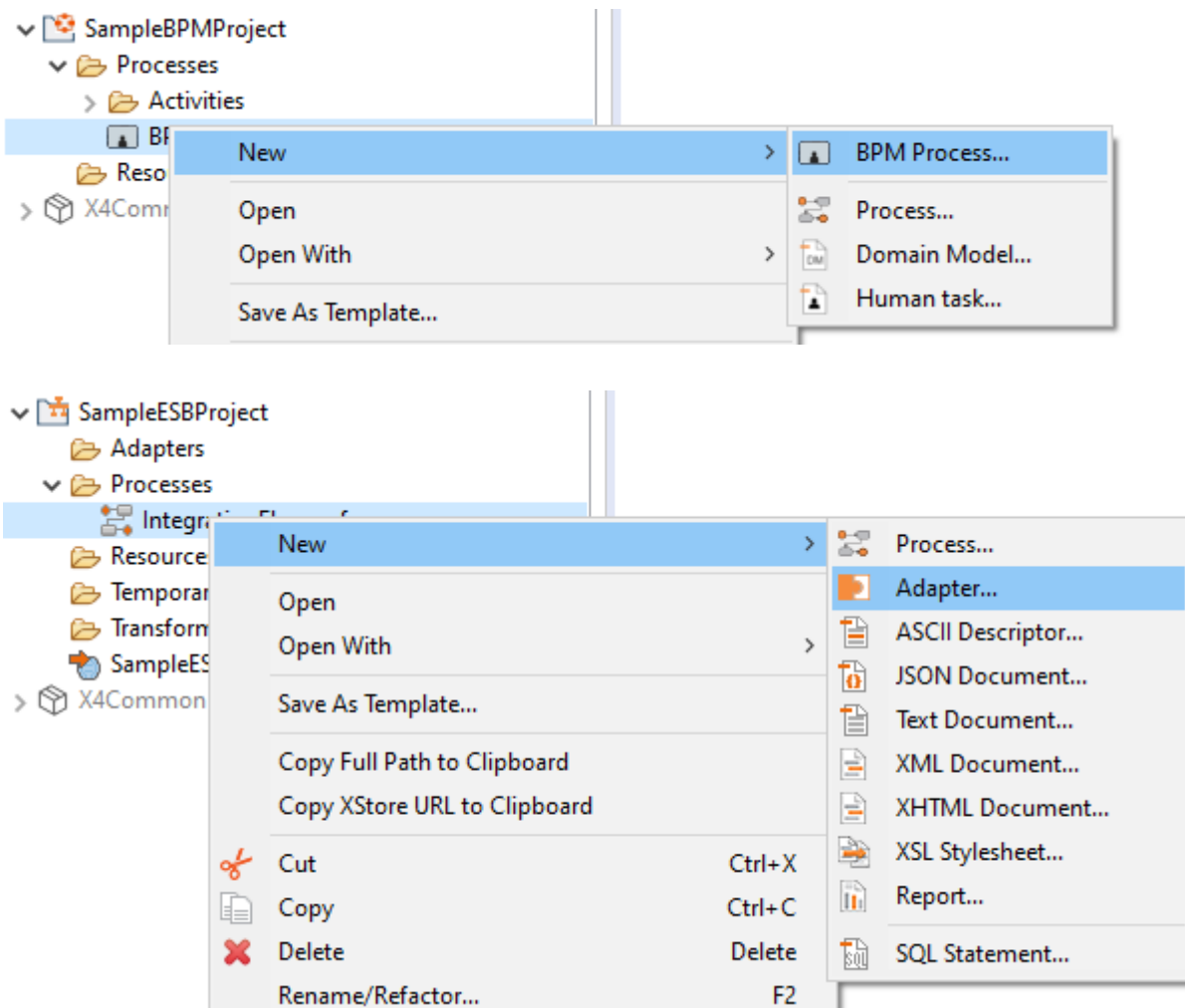
Project templates (.x4projecttemplate  SampleTemplate.x4projecttemplate) can now be used even more easily in X4 Designer. The following scenarios are distinguished:


- If X4 Designer is open and connected to the X4 server, the project template is imported when double-clicked and a new project is created based on the template.
- If the X4 Designer is open but not yet connected to the X4 server, the X4 Designer is automatically connected to the default server and a new project based on the template is created.
- When X4 Designer is closed, it opens, automatically connects to the default server and creates a new project based on the template.

1.1.1.16 Usage of private files below processes

If process resources are to be used only within a business process or an integration process, they can be created directly within a parent process. This means that they can only be used in the process context and cannot be called up from other processes.

In principle, the same resources can be created underneath a single business process or an Integration Process as within the respective process diagram - be it additional business processes (.bpm), Integration Process (.wrf), adapters or even XML files.



i The resources to be used can be created both via the context menu **New > <Resource name>** and via the toolbar  **> Add <Resource name>**. The created resources can then be parameterized as usual and incorporated into the process diagram via drag & drop from the repository.

1.1.1.17 Problems view in X4 Designer

In X4 Designer, the *Problems* view now offers the possibility to directly fix possible problems in the project, e.g. missing or unused files, incorrect adapter configurations or faulty processes.

1.1.1.18 Copy URL of a Web App to the Clipboard

The URL of a Web App can now be easily copied to the clipboard via the context menu of the Web App project (Display Web App project).

1.1.1.19 Drag and drop nodes in the Webservice Configuration

Nodes in the tree structure of the Webservice Editor can now be moved simply by dragging and dropping. A validation also takes place as to where the moved element may be placed.

1.1.1.20 Usage of private subprocesses

In BPM and ESB processes, subprocesses can now be created as private subprocesses. Private subprocesses can be reused only in their related parent element.

1.1.1.21 Differentiation between buffer and resource files

Buffer and resource files can now be distinguished in X4 Designer. The file type can be changed either in the properties of the block or via the icons above the block.

1.1.1.22 Query when deleting ESB projects with referenced Webservice Configurations.

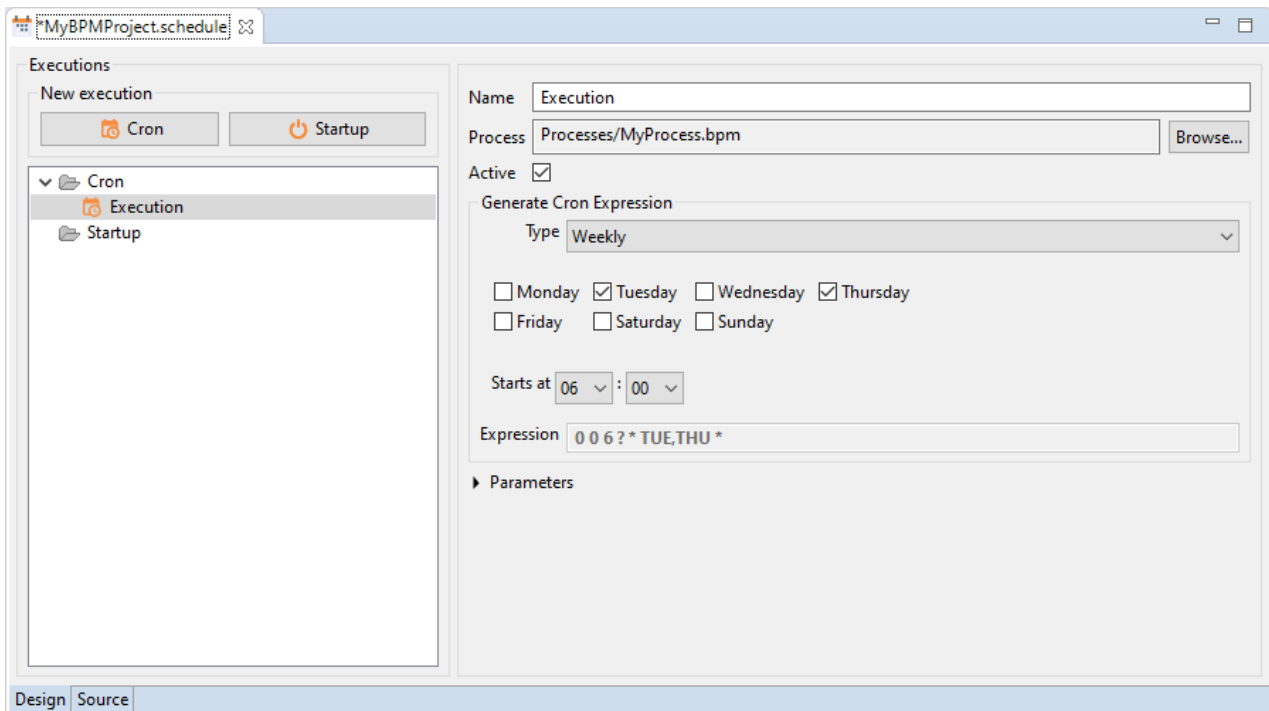
When an ESB project is deleted, it is checked whether there are other projects that access the Webservice Configuration. If that is the case, then the user can decide whether he wants to delete the whole project including references or keep the references.

1.1.1.23 Warning output

Occurring warning messages that do not block the executability of the web application are listed in the 'Problems' tab. The view can be enabled in the context menu under **View > Problems** if it is disabled.

1.1.1.24 File type for scheduling process execution

To be able to deploy a project together with all relevant information more easily, there is a new file type (.schedule). The *.schedule file is stored in the root directory of a project. Matching to this there is an editor which allows to declare scheduled processes graphically or with XML (startup, interval, cron). Scheduling is only allowed for ESB and BPM projects. Furthermore, an option is available to ensure that a process is already started at server startup.



1.1.1.25 Opening Web Apps on (mobile) devices

Using the context menu item **Open Web App on mobile** in a Web App project, a Web App can be opened on a (mobile) device using a QR code.

1.1.1.26 Hint icon for mappings

If critical parameters such as **Activate Empty Input**, **Skip Dynamic Params** or **Remove X4 Processing Instructions** have been activated for mappings, this is indicated directly on the mapping by an icon.

1.1.1.27 Usability optimizations

To navigate between tabs in X4 Designer, the keyboard shortcuts **CTRL+TAB** and **CTRL+SHIFT+TAB** can now be used.

1.1.2 X4 Adapter

1.1.2.1 X4 API

Process Profiler

The *Process Profiler* lists all process steps and execution times of a process and outputs detailed information about a specific process.

Process Runtime Management

The Process Runtime Management stops, terminates and lists running processes.

Schedule Management

With the newly added Schedule Management adapter, the configuration of the scheduler can be changed during runtime.

Web App Configuration

The newly added Web App Configuration adapter updates or lists Web App Configuration files that are in the X4 repository or in a project.

Web App Theme Configuration

The newly added Web App Theme Configuration Adapter updates or lists Web App Theme files located in the X4 repository or in a project.

1.1.2.2 Security

TOTP One-Time Password Generator

TOTP One-Time Password Generator be used to generate TOTP one-time passwords that are compatible with Google Authenticator and other tools.

JSON WebToken Calculator

The .JSON WebToken Calculator now supports various encryption algorithms.

XML Signature

The adapter now also accepts URLs to a keystore

1.1.2.3 Databases

JDBC Connector

The JDBC Connector now also supports H2 databases.

1.1.2.4 Communication

Telnet Connector

Telnet Connector can be used to connect to Telnet servers using the Teletype Network Protocol.

File System Adapter

The File System Adapter has been refined so that operations in the file system can be performed quickly and easily. Furthermore, a new `addNewLine` parameter can be used in the 'Append File' operator, which ensures that a line break occurs before appending file contents.

FTP Connector / File System Adapter

The FTP Connector and File System Adapter has a new parameter `nameFilter`, which can be used to pre-filter the returned result and the filtering does not have to be performed in an additional transformation. For the FTP Connector, the third-party library on which it is based has been updated. Older transfer adapters are no longer included in the default installation.

AS/400 PCML

The AS/400 PCML adapter has been adapted so that it can be used without manual editing of the Java classpath. Furthermore, the use of an earlier `jt400` library has ensured that compatibility with the AS/400 PCML is maintained.

1.1.2.5 X4 Tools

User Identity Adapter

In User Identity Adapter the adapter parameter `debug` was removed. The adapter now automatically detects if it is running in debug mode.

XML Validation

A new `xsdVersion` parameter has been added to the XML Validation adapter. This can be used to define the XSD version to be used for validating the XML documents. The XSD versions `1.0` and `1.1` are available.

Case Management / Task Management

The Case Management and Task Management adapters now use a simplified data format. The new adapter parameter `dataformatVersion` can be used to define whether the former or the new input format should be used.

Custom Placeholder Storage Manager

The Custom Placeholder Storage Manager can now also be used to create placeholders of the Password type. The corresponding password is displayed as plain text in the adapter output.

Project Access

The Project Access adapter has received a new `nameFilter` parameter, which can be used to pre-filter the returned result and avoid having to perform the filtering in an additional transformation. Older transfer adapters are no longer included in the default installation.

Web App Access Rights

The newly added Web App Access Rights adapter checks the access rights of a user in the context of a Web App.

1.1.2.6 Message Oriented Middleware

Apache Kafka

The Apache Kafka Publisher and Apache Kafka Subscriber adapters have been refined so that they now also support keys within messages. For this purpose, the `keyDataType` parameter has been added to both adapters.

For both adapters, headers and SSL configurations can now be defined via adapter parameters (see Apache Kafka)

Apache Kafka Publisher/Subscriber

For Apache Kafka Publisher and Apache Kafka Subscriber, headers and SSL configurations can now be defined via adapter parameters (see Apache Kafka)

1.1.2.7 Internet of Things

MQTT Publisher / MQTT Subscriber

When specifying the keystore path within the `mqttconfig.xml` configuration file, both absolute and relative paths to the `X4DB/0` directory can now be used:

```
<!--Relative Pfadangabe --!> <RootElement> <KeyStore password="p4ssw0rd">keystore.
jks</KeyStore> </RootElement> <!--Absolute Pfadangabe --!> <RootElement> <KeyStore p
assword="p4ssw0rd">C:\Path\To\Keystore\keystore.jks</KeyStore> </RootElement>
```

1.1.2.8 File Processing

CSV Converter / CSV Converter from URL

The CSV Converter and CSV Converter from URL have a new `normalizeHeaderNames` parameter that defines how to handle characters within the input that are not XML compliant.

1.1.2.9 PDF Processing

PDF Image Adder

The EPS and WMF image formats are no longer supported with adapter version 2.0.0 and higher

PDF Metadata

The 'AddMetadata' operation has been removed from the PDF Metadata adapter, since its functionality is already covered by the 'SetMetadata' operation.

Changing the PDF library for PDF Adapter

The PDF library of subsequent PDF adapters has been changed from iText to Apache PDFBox:

PDF Barcode Adder, PDF Form, PDF Image Adder, PDF Merger, PDF Metadata, PDF Multipage TIFF Adapter, PDF Page Counter, PDF Recombiner, PDF Splitter Iterator, PDF to Image Converter, PDF to Text Converter, TIFF to PDF Converter

1.1.2.10 Insurance

DV90 Converter

Adaptation of the adapter allows parsing additional DV90 files.

1.1.2.11 XML Tools

XML Text Extractor

The newly added XML Text Extractor adapter uses an XPath expression to extract the content of a node within an XML document as text.

1.1.2.12 Tools

WebSMS adapter


The newly added WebSMS adapter connects to websms and sends SMS. To connect to websms and send SMS, a websms user account is required.

1.1.2.13 Additional information in the server log in case of incorrect adapter definitions

In the case of incorrect adapter definitions, additional information such as the affected adapter and the cause of the error is now displayed.

1.1.2.14 Removed adapter

After updating the X4 Suite, it is possible that some adapters are no longer provided in the newer version of the X4 Suite. However, you have the option to continue using the removed adapters. To continue using the removed adapters, the .jar file containing the adapters must be deployed via WildFly.

 We will send you the .jar file on request. Please contact our [Support](#).

The following X4 adapters have been removed from X4 Suite:

- Business Data Logger
- ElasticSearch Connector
- ElasticSearch Time Series Connector
- File System Bulk (Alternative: File System Adapter)
- FTP Transfer (Alternative: FTP Connector Adapter or FTP Connector (Advanced) Adapter)
- HTTP(S) Communication (Alternative: HTTP(S) Connector Adapter)
- HTTP(S) Output Parameter
- Nagios Listener
- PEP Adapter (Alternative: User Identity Adapter)
- Process Tester
- SFTP Communication (Alternative: FTP Connector Adapter or FTP Connector (Advanced) Adapter)
- SMS (Alternative: WebSMS Adapter)
- TAPI Listener
- TCP Process Interface
- UDP Listener
- Webservice Starter
- X4 BAM Logging

1.1.3 X4 Server

1.1.3.1 Authentication with Keycloak

The ReST API uses Keycloak for authentication, the realm configuration no longer uses JAAS as default.

The following changes were made:

- Global ReST configuration was removed
- WADL Feature was removed
- The stream function has been simplified, only one URL parameter of the URL to stream the content is allowed as response
- Includes were removed
- HTTP(S) Output Parameter Adapter was removed
- PEP Adapter was removed (Alternative: User Identity Adapter)
- Token outputs only NONE and CUSTOM_HEADER
- HTTP Log was removed
- The realm settings have been reset
- tblAccess.xml was removed

1.1.3.2 New user, group and role management

The users, groups and roles are managed in the open source solution Keycloak (supported version 14.0.0). You can connect already existing identity providers with Keycloak and centrally manage your users, groups and roles.

1.1.3.3 URM completely removed

The URM and the URM API for creating and managing users and groups have been completely removed due to the implementation of the open source solution Keycloak. Keycloak and the Keycloak API can be used instead.

1.1.3.4 Relative paths in Web Service Includes

Included processes in Webservice Includes no longer contain relative path information and x4db URLs that contained information about the user and the project name. Links to other projects are referenced with xstore URLs.

1.1.3.5 Adapted dom4j module

In the current version, an adapted dom4j module has been integrated, which can be used instead of the standard dom4j module from Wildfly. The adapted dom4j module leads to an increase in performance with high parallel calls of processes (over 100 processes).

1.1.4 X4 Web Apps

1.1.4.1 Box Layout

The Box layout is a simple layout with only one content element. Height, width, border, margin and padding can only be defined for the box layout.

1.1.4.2 Responsive Layout

The Responsive Layout is ideal for web applications that are designed to be displayed on different devices. The Responsive Layout is divided into 12 virtual columns. The available space for a column depends on the resolution of the device.

1.1.4.3 Simplified Flow Layout

The following attributes have been removed from the flow layout:

- useColumns
- columns
- columnsMobile
- columnsTablet

1.1.4.4 Grid component

A Grid component is ideal for representing data in a tabular display. In the grid settings, the behavior and functions of the grid component can be defined by setting individual elements. For example, a filter can be displayed or the column width and arrangement can be adapted by the user to his individual needs. More information about the configuration options can be found in the help.



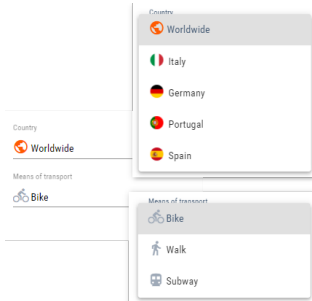
Hallo, SP Admin

GridComponent	
Nr.	Unternehmen
1	Energy Station
2	Patrol Work
3	Brein Innovation
4	Solar It
5	OffGrid Promotion

Navigation: 1 2 5 items per page 1 - 5 of 10 items

1.1.4.5 Icons in ComboBox controls

ComboBox controls can now be displayed with an icon.



The icons can be defined either dynamically directly within the ComboBox element or statically via the `Option` element. The following new attributes have been added for this purpose:

New attributes for `ComboBox`:

- `iconColorProperty`: Name of the property that contains the color information of the icon. This attribute is only used for Material Icons. The color definition can be a hexadecimal color value or a color code from the Web App's color scheme.
- `iconProperty`: Name of the property that contains the URL of the icon resource. The icon can either be a resource from the `Resources` folder, a Material Icon or an icon included via an external URL. If the icon is included via an external link, an additional `type="external"` attribute must be defined in the property.

i For relative bindings, a hashtag # must be used as a prefix for the property.

New attributes for `Option`:

- `iconColor`: Color of the icon. This attribute is only used for Material Icons. The color can be a hexadecimal color value or a color code from the Web App's color scheme.
- `iconUrl`: Path to the icon used. The icon can be either a resource from the `Resources` folder, a Material Icon or an icon included via an external URL.

1.1.4.6 TextBlock control

With the new `TextBlock` control, the display of text elements within web applications is now significantly improved. Various elements such as free text, paragraphs (`<Paragraph>`), line breaks (`<Break>`), formatting (``), data bindings (`<Binding>`) or translation keys (`<Translation>`) can be stored within the `<TextBlock>` element.

In addition, the texts can also be selected and copied, for example, to be edited in other applications.

1.1.4.7 HtmlDocument control

The new `HtmlDocument` control can be used to display static HTML in Web Apps. For example, this can be used to display emails in a Web App.

1.1.4.8 PasswordBox control

The new `PasswordBox` control can be used to create password fields. Depending on the control definition, the appearance changes.

1.1.4.9 Video control

With the new `Video` control, videos can be embedded in Web Apps. For this case, there is now also the new Property type *Video*.

1.1.4.10 Button control

With the new `Buttoncontrol`, buttons can be created and placed freely in Web Apps.

1.1.4.11 Link control

With the new `Link` control, hyperlinks can be created and placed freely in Web Apps.

1.1.4.12 Cancel action

The newly added **Cancel** action can be used to close opened Overlays without reloading the data. The action is created via the `<CancelAction/>` element within `<Actions>`.

1.1.4.13 Web App Configuration file

The behavior of the web applications created with Web Apps is defined in the `.wac` configuration. General settings of the web app, such as the logo, header, footer, and login behavior are defined in the `.wac` file. In addition, the linking of an external imprint or privacy policy is defined in the new Web App Configuration.

1.1.4.14 Individual login page

The login page of X4 Web Apps can now be fully customized. You have almost unlimited possibilities to design the login page according to your needs.

To customize the login screen on the login page, a `.login` file must be created in the Web App project. The `.login` file contains the `<Login>` element. The attributes of the element can be used to configure the login mask.

To create an individual login mask, a detail component must be declared within the `<Login>` element. All layouts and controls of the X4 Web Apps can be used in the detail component.

The `<Login>` element is removed from the `.wad` file and migrated to the `.login` file.

1.1.4.15 Dynamically adjustable column width in List components

The `ListComponent` component has been extended so that the width of the columns can now be defined. The following new attributes have been added for this purpose:

- `layout`: Defines the layout mode of the list.
- `textOverflow`: Defines what should happen if overflowing texts cannot be displayed.

In addition, the column definition within the `<ListComponent>` has been extended so that it is now possible to define the width of the columns within the control. The following new attributes have been added for this purpose:

- `width`: Defines the column width.
- `widthUnits`: Defines the unit in which the column width is defined.
- `textOverflow`: Defines what should happen if overflowing texts cannot be displayed.

1.1.4.16 Dynamically customizable option lists

The `ComboBox` control has been extended so the width of option lists can now be defined. The following new attributes have been added for this purpose:

- `optionsAutoWidth`: Enable automatic width for the option list: If true, the width of the option list automatically adjusts to the width of the option values, otherwise the width of the option list is based on the width of the `ComboBox`.
- `optionsMaxWidth`: Maximum width of the options list in percent or pixels, where percent refers to the screen width.
- `optionsUnits`: unit for the attribute `optionsMaxWidth`

1.1.4.17 Usability improvements in the creation of web apps

Processes, Resources and Components can only be dragged and dropped into the Web Apps definition (`.wad`).

If the corresponding resource is in the same project, the relative path of the resource is inserted. Resources from other projects are defined with their full x4db path.

1.1.4.18 Usability improvements in Web Apps theming

Quickly design visually appealing Web Apps with the included color scheme.

1.1.4.19 Usability improvements when loading Web Apps

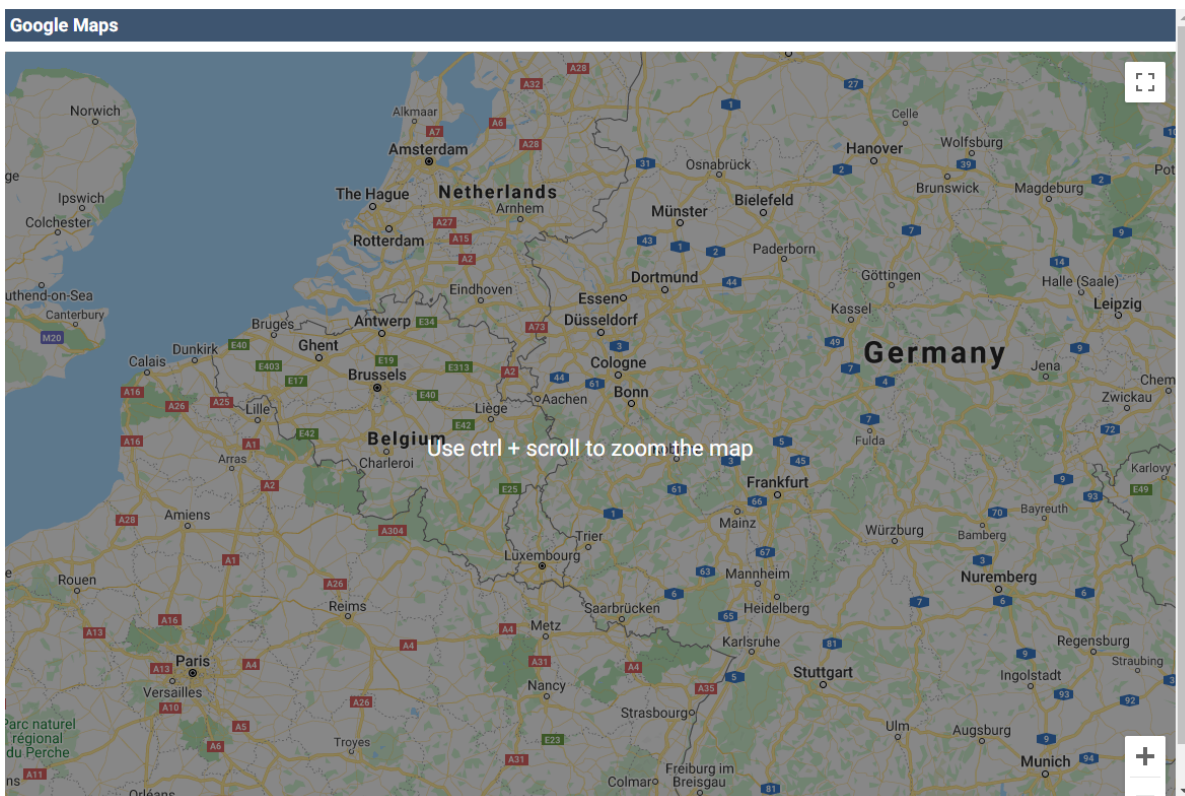
When loading data or Components in Web Apps, a loading indicator appears after one second.

1.1.4.20 Select action in TextBox controls

The Action "Select" can now be used to execute an action as soon as a TextBox control is deselected.

1.1.4.21 Alternative scrolling behavior in Map controls

The new `restrictScrolling` attribute can now be used to influence the scrolling behavior in maps. With the value `true`, a message for alternative scrolling is displayed when scrolling with the mouse or finger on mobile devices.



1.1.4.22 Specifying the API key in the Maps control.

The `apiKey` attribute in the Map control overrides the `MapAPIKey` element in the Web App configuration `.wac`.

1.1.4.23 Define size of Overlays

For `Overlay` structure elements, a size can now be defined via the new `width`, `height` and `units` attributes. The sizes can be defined either in pixels or in percent (default).

If the `width` and `height` attributes are filled with invalid values when percentages are defined, a validation error is displayed.

1.1.4.24 Display of the background of Overlays

The new attribute `enableOverlayBlurredBackground` within the web app definition (`.wad`) can now be used to define whether or not the part of the web app that is still visible in the background should be blurred for overlays.

1.1.4.25 Selection of a location by clicking on the map

The `<SelectedLocationMarker>` element allows the user of a web app to set a marker by clicking on a specific location in the map. The location marked by the user can be further processed by a process.

1.1.4.26 Fallback mechanism for time definitions

If no time zone is specified for a time entry, then the time zone of the server is used. On the server side, this time zone is then added.

1.1.4.27 Register button for web apps

Web apps can now provide a button for registration. This button is displayed on the log-in screen.

1.1.4.28 Log-in via HTTP header

The log-in for a Web App can now also be performed via HTTP header. The log-in screen is then skipped.

1.1.4.29 Embedding external websites

External web pages or web applications can be embedded in a Web App using the new `ExternalWebComponent` component.

1.1.4.30 Visibility of components controllable

Data Binding can be used to control the visibility of components within the Master/Detail component.

1.1.4.31 Define access rights for alternative login

The access rights for a Web App can be defined from the output of the custom login module process. The access rights are stored in the JSON Web Token.

1.1.4.32 Horizontal scrolling in lists of the List component

More than 10 columns can now be displayed in a List component.

1.1.5 X4 Control Center

The previous X4 Control Center will be replaced by the following functions until the new X4 Control Center is released:

X4 BPMS

- User and role management

X4 Designer

- Scheduler


Adapter

- Process Profiler
- Process Runtime Management
- Schedule Management
- Web App Configuration
- Web App Theme Configuration


BAM logging has been removed.

With the included new functions and adapters in combination with X4 Web Apps, individual Web Apps can be created that fit the user's needs.

In the following versions of the X4 BPMS, we will gradually provide you with interfaces for administration and monitoring.

 The ReST interface documentation can be retrieved under <http://localhost:8080/X4/services/rest/openapi.yaml> or <http://localhost:8080/X4/services/rest/openapi.json> in OpenAPI 3.0 format.
To use the ReST interface the Swagger Editor can be used for instance.

1.1.6 X4 ReST API

 Documentation of the ReST interface can be found under <http://localhost:8080/X4/services/rest/openapi.json> in OpenAPI 3.0 format.
To use the ReST interface, for example, the Swagger Editor can be used.

1.1.7 X4 Activities Classic

X4 Activities Classic and all related features have been removed from X4 BPMS. Use the X4 BPMS component X4 Web Apps instead.

With the X4 BPMS component X4 Web Apps, a web application can be created without programming. Processes can be directly integrated into these web applications and data can be processed in the background. The web applications are optimized for display and use on smartphones, tablets and classic desktop PCs and can be displayed in multiple languages using language files.

To create a web application, the desired page structure is described in XML. This structure is automatically implemented by X4 Suite as a web application.

1.2 Security and platform updates

1.2.1 Java and Wildfly update

To ensure the highest possible security, version 7.0 of X4 Server is delivered with WildFly 21.0.1 and Azul Zulu 11.0.11.

Previous versions were delivered with the following WildFly and Java versions.

X4 server version	Supported Wildfly version	Supported Java version
X4 Server 5.5	WildFly 10.1.0	Oracle JRE / JDK 1.8
X4 Server 6.0	WildFly 14.0.1	OpenJDK 11 / JDK 11 LTS
X4 Server 6.1	WildFly 16.0.0	OpenJDK 12 / JDK 11 LTS
X4 Server 6.2	WildFly 18.0.0	OpenJDK 13 / JDK 11 LTS
X4 Server 6.3	WildFly 18.0.0	AdoptOpenJDK 11 / JDK 11 LTS
X4 Server 7.0	WildFly 21.0.1	Azul Zulu 11.0.11

1.2.2 XSLT Processor Update

XSLT 3.0 can be used, but auto-completion is not supported.

1.2.3 XSL-FO libraries update

The XSL-FO libraries responsible for generating PDF documents have been updated to the following versions:

- fop 2.5
- fop-hyph 2.0
- batik 1.13
- xmlgraphics-commons 2.4

1.2.4 Third-party libraries and third-party components update

The third-party libraries and components of X4 Web Apps have been updated to the following versions:

- Angular 11.0.5
- FullCalendar 5.5.0
- ECharts 4.9.0

1.3 Bug fixes

1.3.1 X4 Designer

- If an adapter without adapter category is used, no error is displayed anymore.
- No more error occurs when trying to open a non-existent repository resource.
- Elements with namespaces from the source document area can now be mapped to an attribute in the stylesheet area without crashing X4 Designer.
- If process modules are not linked to a resource, a negative validation result is now provided when validating processes.
- The output of the *CSV Converter* is now also displayed formatted in the Output View again. Also the *Format output* button works again.
- In the Native Adapter Editor, boolean values can be stored again as default values without losing the input when closing.
- The icon of the X4 Suite is now the SoftProject logo instead of the obsolete X4 logo.
- The drop-down menu for conditions in processes is now always filled with values again.
- *When creating a new project, the cursor is now automatically placed in the Project name text field.*
- Because connection elements provide better readability, they no longer reduce the PQI.

1.3.2 X4 Adapter

- Starting a native adapter operation no longer causes the server.log to display a different PID.
- The JSON Converter Adapter no longer ignores reserved names and processes all input.

- The *MIME Multipart* Adapter can now correctly handle case-sensitive input.
- When starting the X4 server, a connection to an MQTT broker can be established again if the mode *ALWAYS_ONLINE_ON_STARTUP* is defined.
- When creating custom adapters with X4 Suite, adapter definition files (.nad) can no longer be saved with parameters without parameter names. This also fixes a display error in the Adapter Editor when the adapter is opened.
- An error when using the *Create Spreadsheet* operation was fixed in the *Excel Writer*.
- The *JDBC Connector* no longer tries to connect to an incorrect JDBC URL after the URL has been corrected. The *JDBC Connector* can now handle XML files again that have line breaks in the <Record> element.
- A problem with the execution of *List MBean* and *Find MBean* operations in the *JMX MBean* adapter has been fixed. Also, migration of processes created with version 6.0.5 or earlier and containing the *JMX MBean* Adapter is now possible without errors.
- The *DV90 Converter* is now no longer displayed as licensed if it is not licensed.
- The *SMTP Adapter* now no longer inserts line breaks in the file name for e-mail attachments with long file names. The attachments are now displayed correctly in the e-mail again.

1.3.3 X4 Server

- In case of authentication errors during log-in, a error message is now displayed that reflects the actual error.
- An error in the merge module that occurred in connection with an empty input has been fixed.
- Renaming projects during import via the *Resource Import Wizard* no longer caused all project resources that had the same name as the renamed project to be renamed as well.
- The start of the X4 server now works even if there are faulty, sealed libraries.
- An error related to the indication of license violations has been fixed.
- Fixed a bug in the Docker installation package to the X4 server.
- If a Human Task is closed in an invalid state, then the Case is no longer in an undefined state.
- With the updates of the third-party libraries, SVG files can now be included directly in reports again without error messages.
- The ReST interface of the HumanTask API is again accessible at the defined URLs.
- The migration tool can now be started again from the *Tools* folder without occurring a *DocumentException*.
- The import of a BPMN 2.0 project works again without occurring errors.
- The installation of the MSI Server Installer is completed again without error messages

1.3.4 X4 Web Apps

- The action *SelectAction* is displayed correctly again if the attribute `enabled="false"` is set.
- The *File Upload* control is displayed correctly again if the attribute `enabled="false"` is set.
- Fixed a display issue in Safari that occurred in conjunction with *ListView* controls.
- Fixed an error when saving changes in a tab group.
- Fixed a display issue in Internet Explorer 11 related to grid layout and empty action bars.
- Diagram data that is bound to an empty property via data binding no longer causes an error.
- Data binding for the attribute name in bar charts works again.
- In the *Theme Editor*, changes can now be made in several views at the same time (*Colors*, *Fonts* or *Source*), without only the changes in the last opened view being adopted and the other changes being lost.
- Fixed several issues with the display of markers in the map control.
- Icons within a card control are now aligned exactly horizontally.
- In the nag screen texts are now wrapped correctly, breaks within a word are avoided.
- iPads with an iPadOS operating system (iPadOS 13 and newer) are now automatically recognized as being a mobile device and the Web App is no longer displayed in a desktop view.
- The background color of titles set via the `titleBackground` attribute is no longer applied to the entire component, but only to the title itself.
- Fixed an error when migrating Web Apps created with a version 6.2.0 or older.
- If in the Web App definition (.wad) the `showHeader` attribute is set to the value `false`, the specified logo is displayed again in the log-in macro.
- An error in the processing of translations has been fixed.
- When displaying a *ListView* where *externalLinks* are stored, the individual links are now stored for all objects, not only the link of the first list object.
- Tooltips on the pie chart and bar chart labels are no longer cut off by menu items or other elements.
- The *SimpleCRM*, *AdvancedCRM* and *Energy Suppliers* templates for Web Apps work again.
- The validation of number fields works again.
- After a server restart, the *Select* actions work as intended again.
- The *Reload* action (`<ReloadAction />`) can be used again without crashing the Web App.
- In stacked bar charts, the labels of very small elements are again easier to read.
- Charts placed in a *List* component are displayed correctly again.
- Properties are updated when a sub-component changes the properties.
- The *Image* control can be used to include external images via a URL. For this purpose, the attribute `type="external"` must be set in the input of the process.
- Contents of the list component are displayed in full in the desktop view again if the attribute `fontSize="xx-large"` is set.

1.3.5 X4 Control Center

- **Security issue with the service's log-in**

cookie looks different when called via HTTP and HTTPS, causing X4 Suite to parse the cookie itself. This allows the cookie string to be manipulated and a different username to be specified. If this username actually exists, the password policy can be changed with foreign user data.

- When navigating to the monitoring in the Control X4 Control Center, the view is loaded correctly again.
- If a user's password is changed, then the time stamps of the last password changes of other users are no longer incorrectly changed. Unexpected messages that a new password must be assigned, although the valid period has not yet expired, no longer occur.


1.3.6 X4 Activities Classic

- When activating the *SameSite* parameter, there are now no problems after logging in.
- Problems caused by incomplete cache control and missing HTTP header X-Content-Type-Options were fixed.
- When filtering columns with type *ENUM_TEXT* and *ENUM_IMAGE*, the window with possible filter values is displayed correctly and does not become larger than the screen. Also the order of the entries is now preserved.
- The Navigator is now no longer updated when the X4 token is invalid.
- Headers with one or more cookie information can now be processed, thus avoiding problems with multilingual interfaces.

- **Migration of WebDesigner 5.x projects**

If projects are to be migrated from WebDesigner 5.x, manual post-migration must be performed. Automatic migration only works for projects that are entered in the `projects.xml` file with the path `<projectName>/WebResources`. The automatic migration includes the following:

- A portal project file is created with correct attributes for `baseUrL` and `WebResources`.
- The `X4WebIDE_Instance/Config/dbTypes.xml` file is copied to `<projectName>/WebResources/dbConfig.xml`.

 Everything else must be migrated manually!

- The URLs in an Activities Classic project are updated correctly again when the project is copied or renamed in X4 Designer.