Remarks

```
Release notes with changes since version 2022.2.5.

See the following resources for further information:

FNZ Studio 2023 LTS Technical Requirements:
https://community.appway.com/screen/kb/article/system-installation-technical-requirements-
1482807410782

Upgrading from FNZ Studio 2022.2.x to 2023 LTS:
https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-
2356893265397

New FNZ Studio 2023 installations:
- System Installation FNZ Studio 2023:
https://community.appway.com/screen/kb/article/system-installation-fnz-studio-2023-1-
2338606490592
- System Installation Using Containers FNZ Studio 2023 LTS:
https://community.appway.com/screen/kb/article/system-installation-using-containers-fnz-studio
-2023-2338635793395

Deprecated and removed features in FNZ Studio 2023 LTS:
https://community.appway.com/screen/kb/article/feature-removal-and-deprecation-with-fnz-studio
-2023-2338096720134

FNZ Studio 2023 LTS Product Card:
https://community.appway.com/screen/products/name/fnz-studio-2023-lts/
```

Appway Platform (Core)

Feature

Area	Importance	Description
Access Control	Medium	It is now possible to define Access Control conditions at Swimlane level (Process Editor). The new 'Sentry' property defines further Access Control conditions (in addition to the conditions defined in the already existing 'Participant' field) by denying or allowing access to the Token. The 'Sentry Evaluation' property defines when such conditions are evaluated: 'Never' or 'At every access'. If Sentries are defined for the Swimlane, the Process Editor displays a specific icon. See documentation for details: https://community.appway.com/screen/kb/article/1482806118517#swimlane
Actions	Medium	App Task/Ad-Hoc Sub-Process Actions. Actions have been refactored for better UX. Actions are listed in the left-hand panel, while the right-hand panel contains only the currently selected Action to maximize the editing area. The left-hand panel contains the capabilities to add/remove Actions, as well as new copy/paste functionalities. See documentation: - https://community.appway.com/screen/kb/article/2218909162075#5-process-editor-configuration-app-task-actions - https://community.appway.com/screen/kb/article/2317711876877#59-actions
Ad-Hoc Sub-Processes	Medium	Ad-Hoc Sub-Processes have the following new features: - Actions: For each Action defined in Ad-Hoc Sub-Processes, it is now possible to configure: Name ('Name' setting): It helps the developer identify the action during configuration. Icon ('Has Icon' / 'Icon Type' /'Icon ID/Resource' settings): It helps the user identify the action in the UI. - Container Sentry: You can now specify whether the visibility of the navigation menu entry corresponding to the Ad-Hoc Sub-Process is determined by the setting defined for its children (default value), or if such entry should always be hidden while keeping the setting defined for its children. This is defined in the 'Container Sentry' field ('Ad-Hoc' tab).

		- Order: Process Components included in Ad-Hoc Sub-Processes now display a number (1,2,3..) indicating their order of appearance in navigation. In case of multiple nesting, numbers are hierarchical (1.1.1, 1.1.2...). - Validation: The navigation sidebar can be configured to show the validation status of each step in the navigation. This provides users with an overview of any errors and allow them to take action where needed. Validation is configured through two new properties set in the 'Ad-Hoc' tab of Ad -Hoc Sub-Processes: 'Validation Badge Required' and 'Validation Badge'. To allow for Validation Badge configuration, the following changes have been made (for Script Function use cases): - Two properties have been added to the 'Process:AdHocNavigationItem' DataClass: 'hasBeenVisited' (boolean, it is true if the Navigation Item has been already visited in the current Process); 'validationBadgeState' (property of type 'Process:AdHocValidationBadgeState', it maps the validation status for the current item with the values OK, NOT_OK, or NO_BADGE). - The ScriptFunction 'Process:GetAdHocNavigationStructure' has been modified to return the new two properties for each Navigation Item in the structure. See documentation: https://community.appway.com/screen/kb/article/2317711876877
Advanced Studio Permissions	Medium	The following Advanced Studio Permissions have been added: - 'ClusterTools': It allows using Cluster Tools to inspect the Hazelcast cluster. It requires the ClusterTools Extension. - 'Garbage Collection': It manages Garbage Collection requests to check memory usage and free up memory from the 'Overview' and 'Memory Usage Statistics' submodules in FNZ Studio Composition. - 'LDAP': It allows viewing and managing LDAP configurations. It requires the LdapSyncAdapter Extension. The following Advanced Studio Permissions have been changed: - The 'Data Source' Permission now includes a 'Read-Only Access' level. This new Permission level allows users to view Data Sources. - The 'Licenses' Permission now includes a 'Read-Only Access' level. This new Permission level allows users to download Licensing Reports, view License Files, and see the 'View Licensing History', 'Assigned Licenses', and 'Licensing Assignment Statistics' FNZ Studio Composition submodules. - The 'Developer Toolbar' and 'Workspace Label' Permissions have been removed. The Developer Toolbar (and its Label manager) is now accessible only to users with a Studio Permission. - The new 'Labels' Permission ('Solution Design') has been created to replace the 'Workspace Label' Permission and allows users to view, create and translate Label Business Objects. Note that existing users with 'Workspace Label' Permission in previous Appway/FNZ Studio versions are granted the new 'Labels' Permission automatically (see System Upgrade). - Read-only access to Theme Packages in App Tasks, which was previously governed by the 'Developer Toolbar' Permission, is now granted with 'Studio' Permission. Note that existing users who accessed Theme Packages in ready-only mode through the 'Developer Toolbar' Permission in previous Appway/FNZ Studio versions need to be reassigned to the 'Studio' Permission (see System Upgrade). Full access with edit rights to Theme Packages in the Theme Editor still requires the Packages (Full-Access level) Permission. See documentation for full details: - Advanced Permissions: https://community.appway.com/screen/kb/article/1695975642783 - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397 - Theme Editor: https://community.appway.com/screen/kb/article/2218909162075#9-theming-theme-editor
Business Object Editors	Low	In the Data Class, Data Logic and Document Category Business Object Editors, a copy icon displayed when hovering the Business Object id allows copying the id itself. For other Business Object Editors, you can still copy the id through the context menu.
Cluster Storage	Medium	The following features have been added to the Cluster Storage: - Added configuration property 'nm.cluster.persistence.write.batch.size' ('System Configuration' > 'Configuration Properties') to increase the write batch size for high-load environments. Default value is unchanged at 1000.

		- A WARN message is now logged if the write-behind delay for Process Instances, Value Stores, or Data Entities is above 2 minutes.
Compare Package Versions	Medium	The new Script Function 'Package:CompareVersionsReport' generates a CSV report containing the comparison between two versions of the same Package (in terms of Business Objects). This feature is also available in FNZ Studio Composition (Compare Package Versions). See Script Function documentation: https://community.appway.com/screen/kb/article/script-language-function-reference-1641896132117
Data Class Editor	Medium	The new property 'Choice Type' is available for Boolean Primitive Types in the Data Class Editor and helps render Data Class content correctly. Its possible values are: 'Choice between two options', where the user can choose between two values in the UI (e.g., Yes/No), and 'Single affirmative choice', where the user can select a confirmation checkbox in the UI.
Data Logic	Low	All Boolean expressions in the Data Logic ('Enabled', 'Blocking' and 'Valid' properties of Data Rules) now accept 'null' as a result and automatically convert it to 'false'. See documentation: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187#5-data-rules-tab
Data Logic	Medium	The 'Update Function' setting available for Collections of complex type (Collections of Data Classes) has now access to implicit variables that contain the added or removed object. This simplifies any logic that must use the added/removed object. See documentation: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187#423-collection
Data Logic	Low	The logging of exceptions occurring during the evaluation of Controls and Data Rules has been improved to make it easier to identify the Control or Data Rule which caused the error. The log now contains the name of the Data Logic containing the Control or Rule, the Include path, and a unique identifier for the Control/Data Rule which can be used in the Global and Data Logic Search UIs to easily identify the error location. See documentation: https://community.appway.com/screen/kb/article/data-logic-data-rule-error-logging-2341613300136
Data Logic	Low	The new 'Link' Data Rule available in the Data Logic Editor ('Data Rules' tab) allows defining constraints on a String Data Class property that contains a link. See documentation: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187
Data Logic	High	The new 'Search' Data Rule available in the Data Logic Editor ('Data Rules' tab) allows defining the settings necessary to enable searching for existing objects in a source (typically an external system) and rendering them as a list of results. This feature is currently available for Data Gathering and Relationship Definition App Tasks only. For further information: - Data Gathering ABC: https://community.appway.com/screen/kb/article/data-gathering-application-business-component-2060569933142 - Relationship Definition ABC: https://community.appway.com/screen/kb/article/relationship-definition-application-business-component-2259339517424 - Data Logic: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187
Data Logic Editor	Medium	The following keyboard shortcuts are now supported in the Data Logic Editor: - General: Ctrl+Z (undo) and Ctrl+Y (redo). 'Undo' and 'Redo' buttons are also available in the Editor header. - 'Variables' tab: CTRL+C and CTRL+V (copy-paste). These operations are also available through the context menu. Multiple selection is possible. - 'Controls', 'Data Rules' and 'Variables' tabs: Delete and backspace keys (deletion). See documentation: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187

Data Logic Editor	Medium	The Data Logic Editor left sidebar displays the new 'History' section, which shows the list of operations performed in the Editor itself. By clicking on any operation in the list, you can revert the Editor to its previous state, and a message is displayed containing details of the operation. See documentation: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187
Data Logic Editor	Low	The new setting 'Information Label', available for Data Controls, allows selecting a Label Business Object to provide additional information for the end user on how to fill a certain field (e.g., a tooltip). See documentation for details: https://community.appway.com/screen/kb/article/1739928404187#311-selecting-a-label-for-controls-and-data-rules
Extensions	High	A new validation mechanism prevents uploading extensions with invalid or duplicated file names. The file must be named `OfficialExtensionName.jar` (e.g., `StatisticsCollector.jar`). Any other custom characters or digits are not accepted (e.g., `StatisticsCollector-1.2.3-2023.1.jar`; `StatsCollector.jar`; `Statistics-Collector.jar`; `StatisticsCollector-dev.jar`) and an 'Upload failed' error may be triggered. Moreover, errors and/or warnings caused by issues in the extension configuration properties are now reported in the 'Extension Configuration' System Health Sensor. This change affects both the system upgrade to version 2023, as well as the upload of extensions from FNZ Studio Composition ('System Configuration' > 'Extensions'). See documentation for full details: - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397 - Managing Extensions: https://community.appway.com/screen/kb/article/1482802413870 - System Health: https://community.appway.com/screen/kb/article/1482807177758
File Upload	Medium	Media Type aliases are now supported when specifying File Constraints in the configuration of a Data Class for file upload. If a given Media Type is added to the related Catalog (e.g., application/zip), all its aliases (e.g., application/x-zip-compressed) are automatically supported. See documentation: https://community.appway.com/screen/kb/article/2218909162075#32-data-class-configuration
Process Editor	Low	The 'Properties' panel of the Process Editor now displays the name of the component which is currently selected in the modeling area for easier identification. Moreover, the 'Highlight' button at the right of the panel marks the selected component in the modeling area. See documentation: https://community.appway.com/screen/kb/article/process-business-object-1482806118517
Process Editor	Low	The new 'Expand' icon available in the Properties panel of the Process Editor allows expanding the panel to maximize the editing area. This may be useful when working on extensive property configuration (e.g., for App Task Actions). This new option is also available through the shortcut Ctrl+P. See documentation: https://community.appway.com/screen/kb/article/process-business-object-1482806118517#21-process-editor-overview
Process Instances	Low	Added a new check before committing Process Instances to ensure the Hazelcast Near Cache is up-to-date before starting the transaction. Furthermore, a new configuration property has been added to allow working around possible inconsistent Near Cache issues. The new property (under 'System Configuration' > 'Configuration Properties' in FNZ Studio Composition) is called 'nm.cluster.lockpool.processinstances.delay' and it allows specifying a number of milliseconds to sleep after acquiring a write lock on a Process Instances. If an inconsistent

		Near Cache is discovered, we recommend setting this property to approximately 50 milliseconds and then re-evaluating if the issue disappears.
Process Tokens	Medium	The FNZ Studio Composition submodule 'Workitems' ('Solution Maintenance') has been renamed 'Process Tokens'. Moreover, the following enhancements have been made: - The 'Process Tokens' table now displays the 'Sentry' column, which indicates whether a Process Token has a Swimlane Sentry defined. - The modal window to reassign Process Tokens has been updated to simplify the selection of users, groups or roles. See documentation: - Process Tokens: https://community.appway.com/screen/kb/article/workitems-process-tokens-1482803244149 - Swimlanes: https://community.appway.com/screen/kb/article/process-business-object-1482806118517#swimlane
Script Functions	Medium	The following Script Functions are now available to manage Groups: - User:CreateVirtualGroup() : Creates a Virtual Group with the specified Group Id, and based on the specified Group Definition. - User:UpdateVirtualGroupDefinition(): Updates the Group Definition of an existing Virtual Group. - User:CreatePhysicalGroup(): Creates a Physical User Group. The Group is created empty. - User:DeleteGroup(): Deletes an existing Group. - User:RemoveFromPhysicalGroup(): Removes a User from a Physical Group. - User:AddToPhysicalGroup(): Adds a User to a Physical Group. - User:ListGroupIds(): Returns the list of Groups a User belongs to. - User:IsInGroup(): Checks if a User is a member of the given Physical or Virtual Group. See documentation: https://community.appway.com/screen/kb/article/1641896132117
Script Functions	Low	The new 'Ssl:DecodeCertificates' Script Function decodes certificates from an FNZ Studio trusted store or given file. See documentation for details: https://community.appway.com/screen/kb/article/script-language-function-reference-1641896132117
Script Functions	Low	The new Script Function 'System:GetCsrfToken()' can be used to retrieve the current CSRF token.
Security	Medium	CSRF Protection: Ajax requests and REST API requests to JSON-RPC ajax helpers, JSON-RMI ajax controllers, JAX-RS REST APIs, JSP pages, and servlets can now use a simpler CSRF protection mechanism by including a custom HTTP header 'X-CSRF-Token' with an arbitrary non-empty value in the request. This means that clients no longer need to pre-fetch a session-specific access token from the server. Note: The name of this header has been added to the default value for configuration property 'nm.workspace.cors.headers'. If an existing Solution wants to use this header for cross-origin requests to a REST API in FNZ Studio, the current value of this configuration property needs to be reviewed and the header needs to be added, if missing.
Security	Medium	The following services are now available: - A malware detection service to scan uploaded files to the Blob Storage. The malware detection service uses various third-party scan engines. The first scan engine implemented is delivered in the ClamAVConnector Extension (see Extension Release Notes). - An antivirus scan service is now integrated in all file upload components.
Split-Brain	Medium	A Split-Brain protection mechanism for clusters of static size has been introduced. If a Split-Brain condition is detected, Platform activities are suspended, thus preserving the state of the distributed maps. Two protection functions are available: - 'MinSize' (related configuration property) - 'ExpectedSize' To use and configure these functions, two new configuration properties have been created: - 'nm.cluster.splitbrain.protection.function' ('false' by default)

		- 'nm.cluster.splitbrain.protection.min.cluster.size' See documentation for details: https://community.appway.com/screen/kb/article/2338606490592#28-split-brain-protection
Startup	Medium	It is now possible to execute FNZ Studio Scripts at cluster startup. This is specially useful when provisioning a new environment and new Solutions. See documentation for details: https://community.appway.com/screen/kb/article/2338606490592#292-script-execution-at-cluster-startup
Troubleshooting	Medium	The new FNZ Studio Composition module 'Troubleshooting Console' ('Data & Integration') allows capturing all the request/response details of WebAPI calls. In the future, the 'Troubleshooting Console' module will be used to collect troubleshooting details for all integrations in FNZ Studio. Note that you need the 'Integration Troubleshooting Console' Studio Permission to use this feature. See documentation: https://community.appway.com/screen/kb/article/integration-troubleshooting-console-2361928893884
Virtual Groups	High	The new Virtual Groups allow defining groups of users based on a set of conditions applied to Physical Groups (previously called Custom Groups). Virtual Groups are constantly updated whenever the members of the related Physical Groups change. As with Physical Groups, Virtual Groups can be used to implement Access Control features. Virtual Groups can be defined through a string which allows the intersection (|), union (+), or difference (-) of Physical Groups. Validation is in place to ensure Group definition is formally correct. Moreover, if a Virtual Group becomes invalid at some point, an error icon is displayed on the Groups table ('System Configuration' > 'User/Groups/Roles' > 'Groups'). Note that both Physical and Virtual Groups can be created empty. Moreover, by default, a Group is no longer deleted even if all Users are removed from the Group itself. This represents a change compared to previous FNZ Studio versions and affects the following Extensions: LDAP Extension, AWSCognitoSync Extension. See also 'User:' Script Functions Release Notes. See documentation for details: - Groups: https://community.appway.com/screen/kb/article/2342095003065 - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397

Change

Area	Importance	Description
3rd Party Library	Low	Note the following changes in third-party Libraries: Added Libraries: - Jakarta Transaction API 1.3.3 Upgraded Libraries: - Apache Commons DBCP from version 2.6.0 to 2.10.0 - Apache Commons Pool from version 2.6.2 to 2.12.0 - Bouncy Castle Crypto API from version 1.69 to 1.76 - Camel Framework from version 2.24.2 to 3.20.4 - Jackson framework libraries from version 2.12.6 to 2.14.1 - Jakarta XML Binding API from version 2.3.2 to 2.3.3 - javax.mail library from version 1.6.2 to jakarta.mail 1.6.7 - jQuery from version 2.2.4 to 3.5.1 - jQuery UI, from version 1.12.1 to 1.13.2 (no migration required) - PDFBox from version 2.0.24 to 2.0.27 - SLF4J API from version 1.7.5 to 1.7.36

		- Spring Framework from version 5.1.9 to 5.3.27 - Underscore.js to version 1.13.6 Removed Libraries: - Apache Commons JXPath - Apache Commons Net (If this library is required in a custom extension, it needs to be embedded into the extension itself) - Camel JXPath - Jakarta Annotations API - Jaxen - JDOM - JTidy - Rome API (Note that this implies the removal of RSS features - see related Release Note). See full list and important notes in our documentation: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397
Blob Storage	Low	Blob Storage API: The endpoint used to upload a new Blob file now returns status code 415 ("Unsupported Media Type") instead of 400 ("Bad Request") when a file is rejected because its media type is unknown or not found on the whitelist of allowed media types.
Business Object Editors	Low	The order of buttons available in each Editor header is now the same for all Business Objects to ensure consistency. The standard order is now: Save - Validate - Revert - Undo - Redo - Export - Edit Labels - [Other].
Business Object Library	Medium	The loading time of the Business Object Library has been improved. Moreover, when opening a Package, the Business Object Library is no longer filtered by 'Process' Business Object, thus providing an overview of all Business Objects.
Cluster Cache	Low	Cluster cache size-based eviction is no longer configurable. Therefore, the 'nm.cluster.cache.maxsize' configuration property has no longer effect and should be removed, if used. See also System Upgrade: https://community.appway.com/screen/kb/article/2356893265397#32-check-changes-in-features-and-default-functionalities
Configuration	Low	The configuration property 'nm.workspace.default.portal' can be used to control whether FNZ Studio auto-generates the default Portal Process and Screen during startup. The default value is 'true'. If set to 'false', FNZ Studio skips this startup step.
Deprecation	Medium	The following items have been deprecated in FNZ Studio 2023: Script Functions: - CONTEXT - ExportProcessMessageQueues, ImportProcessMessageQueues (migration is available) - HTTPSESSION, HTTPSESSIONSET, HTTPSESSIONGET'. HttpSession Primitive Type is also deprecated. - Pdf:Merge - UserIsInGroup, UserAddToGroup, UserIsInGroup, UserRemoveFromGroup (migration is available) Features: - Fast Track (now disabled by default) Configuration properties: - nm.errorpage.screen - nm.close.screen - nm.auth.groups.additional See documentation for details: https://community.appway.com/screen/kb/article/2023-

		2338096720134
Error Pages	Low	The default Business Error Page available in the Base Package ('aw.errorpage.ErrorPage' Screen) has been updated to align to the new FNZ Studio branding. When upgrading to version 2023, the error page will be automatically upgraded to the re-branded version only if the 'aw.errorpage.ErrorPage' Screen has not been modified in your Solution. Moreover, Runtime Error Pages have been updated to align to FNZ Studio branding (these changes have no impacts when upgrading your Solution). See documentation for details: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-lts-2356893265397
Hazelcast	Medium	Hazelcast has been upgraded from version 5.0.2 to 5.3.2. This latest upgrade fixes a performance bottleneck when persisting several small changes.
HTTP Compression	Medium	The new configuration property 'nm.http.compression.enabled' (default value: 'true') can be used to enable or disable compression of HTTP responses. Changing this configuration property has an immediate effect and does not require restarting FNZ Studio.
Java Execution Control	High	As part of a project to remove dependencies from Solutions on Java code, direct and indirect usages of Java in the Script Language are blocked and will throw exceptions at runtime. Existing Solutions, which cannot easily be cleaned from Java usage in the Script Language, can ask for a license flag which allows to continue using Java in the Script Language. The license flag is called `nm.license.exprlang.java.allowUnlisted` and its default value is `false`. See System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397
Label Business Objects	Low	The translation of the Label Business Object 'nm.window.title' (available in the Base Package) referring to the default title of the login page, among others, has been updated from 'Appway' to 'FNZ' to align to the new FNZ Studio branding. See documentation: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397
Master Password	Medium	Manually entering a master password during startup is no longer possible. A master password can still be provided as an environment variable, a Java system property, or a web app context parameter. See documentation: https://community.appway.com/screen/kb/article/1482802752090
Package Export	High	When exporting Packages ([Package Overview] > Export in FNZ Studio Composition), the default export mode is now set to Latest (instead of Head) by default to encourage the export of versioned Packages. See System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-lts-2356893265397#32-check-changes-in-features-and-default-functionalities
Packages	Low	The icon marking Sealed Packages has been changed and is used for all types of Sealed Packages, with the exception of Platform Packages, which now display a different icon, visible in Business Object Selectors. See documentation: https://community.appway.com/screen/kb/article/1496136140789 Issues:
Password Hashing	Low	The default configuration for the Argon2id password hashing algorithm has been changed to consume only 8 MB of memory instead of 16 MB. This should reduce the time for a single password hash operation by ~ 50%, making it less likely to log warnings about long-running password hash operations. In addition, the threshold for logging a warning message has been increased from 0.5 seconds to 1 second.
Process Components	Low	The property 'Task Title' shown in the Process Editor for certain components (App Tasks, Ad-Hoc Sub-Processes) has been renamed 'Runtime Title'. The property has also been introduced for 'Phases' included in Ad-Hoc Sub-Processes.

		Note that the 'Runtime Title' property is now mandatory for components included in Ad-Hoc Sub-Processes. If you did not set this property in your Solution, you will notice validation errors in the Process Editor. Fix these issues by setting the missing 'Runtime Title' properties to avoid runtime errors. See documentation: - Ad-Hoc Sub-Processes: https://community.appway.com/screen/kb/article/ad-hoc-sub-processes-and-navigation-2317711876877 - App Tasks: https://community.appway.com/screen/kb/article/app-tasks-generic-configuration-2218909162075#4-process-editor-configuration-app-task-properties - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397
Process Editor	Low	The design of the 'Variables' tab in the Process Editor has been updated to be consistent with other Editors. Note that it is now possible to quickly add inherited variables by using the 'Inherit a Variable' context menu.
Process Editor	Medium	The Process Editor UI has been aligned to other Editors (e.g. Data Class and Data Logic) to ensure consistent user experience: - The 'Property' panel of the Process Editor has been revamped - It is now possible to create a Label Business Object from the Business Object selector directly. - The 'Variable Assignment' tab has been removed. Variables can now be assigned by expanding the section next to each Business Object that requires an assignment. - The 'Display' and 'Variables' tabs have been moved to the top of the edit area. - The Components Library has been improved, and the order of the components has been updated with App Tasks being displayed on top. See documentation: https://community.appway.com/screen/kb/article/process-business-object-1482806118517
Process Engine	Low	Process Instances are immediately scheduled for deletion when they get completed. This change distributes the cleanup and deletion effort which was previously taken only by the Process Engine job and limits resource consumption spikes caused by the Process Engine job itself in larger installations.
Removal	Medium	The following items have been removed in FNZ Studio 2023: - ChatChannel Extension and Chat Channel Screen Component Data Logic: - The usage of static strings or scripts in fields specifying a Label (e.g., Label, Extended Label or Message fields in the Data Logic Editor) - Correctness Rules - RSS Feeds: All features related to RSS Feeds (commits and discussion messages) previously accessible through the Discussion/Activity Log tab - Script Language: 'Context' Primitive Type See documentation for details: https://community.appway.com/screen/kb/article/2338096720134
Resource Business Objects	Low	The 'Reformat' button, previously available for certain Resource Business Objects (such as text/html, application/json and so on), has been removed, except for text/css files.
System Upgrade and Installation	High	FNZ Studio 2023 comes with a new major version of Log4j (v2). This new major version uses a new syntax for its configuration. See documentation: - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-lts-2356893265397 - Migrating log4j: https://community.appway.com/screen/kb/article/system-upgrade-migrating-log4j-configuration-2336752193529
System Upgrade and Installation	Medium	HTTP Compression: FNZ Studio no longer has built-in GZIP compression for HTTP responses. Instead, HTTP compression needs to be enabled and configured in the Java application server or in a proxy server running in front of FNZ Studio. The third-party Java library Ziplet and all configuration properties starting with nm.http.compression.* have been removed.

		See documentation: - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397 - Configure HTTP Compression: https://community.appway.com/screen/kb/article/configure-http-compression-for-fnz-studio-2356076121543
User Sessions	Low	User Session objects are no longer tied to HTTP Sessions; a User Session can be collected even if there is no HTTP Session (e.g. API calls).

Bugfix

Area	Importance	Description
Cluster Cache	Low	Fixed a Cluster Cache inconsistent result issue which had the effect of disabling the near cache on the distributed map. The near cache can be enabled using the new configuration property 'nm.cluster.cache.nearcache.enabled' (default is false) and listeners are used to guarantee the removal of expired entries.
Cluster Cache	Low	The 'Expiration Time' setting in the Cluster Cache table in FNZ Studio Composition ('System Maintenance' > 'Cluster Caches') has been fixed, as well as the value for the implicit variables 'insertTimestamp' available in some Cluster Cache Script Functions.
Configuration	Low	Fixed an issue where configuration properties from a license file were loaded even if the license file signature was not valid.
Dashboard	Low	Fixed an issue where the 'System Load Average by Core' graph ('System Maintenance' > 'System Dashboard') was not displayed.
Data Sources	Low	Fixed an issue that prevented the creation of a new Data Source when no password was set.
Data Table	Low	Fixed an issue occurring when downloading tables containing icons (e.g., warning, sentry icons..) from FNZ Studio Composition, where icons were not included in the CSV file nor replaced with any text information. Now, such tables contain text information (e.g., [warning], [sentry]..) replacing icons.
Data Tables	Low	Fixed an issue affecting timestamp columns in FNZ Studio Composition data tables where values were not sorted correctly (e.g., the "Last login" column did not always show the latest login times first).
Deployment Profiles	Medium	Fixed an issue where the Package Export wizard closed abruptly when selecting a Deployment Profile, if one of the Packages included in the chosen profile had been deleted.
Integration Links	Low	Cases in which Integration Links are not ready to consume messages are now better handled in FNZ Studio.
Interactive Script Editor	Low	Fixed an issue in the Interactive Script Editor (ISE) where the last inputted code was not retained after closing and reopening the editor. This issue is fixed only in Firefox.
Process Editor	Low	Fixed an issue that was causing the id of Process Connections to be changed when the connection was modified.
Process Editor	Medium	Fixed an issue where the list of Variable Assignments for Business Objects referenced in the Process Property Editor was not updated promptly after a new Assigned Variable was created.
Process Editor	Low	Fixed in issue where the Smart Align feature remained active even if the 'Smart Align' checkbox on the Process Editor header was deselected.
Resource Business Objects	Low	Fixed an issue in the Resource Business Object Editor which caused the 'Edit Resource' modal window (displayed when clicking on 'Edit File') to appear smaller when editing a Resource of type 'text'.
Script Function Editor	Low	Fixed and issue occurring when duplicating a Script Function Business Object, where some comments were removed from the duplicated Script Function.

Script Language	Low	Fixed the access to properties of Java Objects in the Script Language when the setter method was not available.
Serialization	High	Native serialization is now prevented in Processes for loop counter variables of all types ('For', 'For Each', 'While').
Trackpoints	High	Fixed an issue where validation on Trackpoints ('Validation' and 'Dependencies' sections in the Process Editor) did not work correctly. As a consequence of this fix, new validation errors may become visible after you upgrade to FNZ Studio 2023. Issues: Support Tickets:

Appway Extensions

Feature

Area	Importance	Description
Extension	High	AppTask Extension 2023.5.1: The AppTask Extension is used in Application Business Components (ABCs). See separate Release Notes: https://community.appway.com/screen/support/news/release-application-business-component-release-2023-2345623792226
Extension	High	AppTaskAPI Extension 2023.5.1: The AppTaskAPI Extension is used in Application Business Components (ABCs). See separate Release Notes: https://community.appway.com/screen/support/news/release-application-business-component-release-2023-2345623792226
Extension	Low	AWSHazelcastStore Extension 3.2.0: Delete operations are now slightly slowed down automatically (in average around 2 seconds) to avoid hitting the AWS S3 throughput limits.
Extension	Low	AzureServiceBusConnector Extension 2.0.1: The AzureServiceBusConnector Extension now uses KeyService to store sensitive properties.
Extension	Medium	ClamAVConnector Extension 1.0.0: The ClamAVConnector Extension provides a third-party scan engine for malware detection in files uploaded to the Blob Storage. See documentation: https://community.appway.com/screen/kb/article/clamavconnector-extension-2353096692391
Extension	Medium	ClusterTools Extension 12.0.0: The new 'ClusterTools' Advanced Studio Permissions allows using Cluster Tools to inspect the Hazelcast cluster.
Extension	Low	DefaultIcons Extension 4.4.0: Added new icons to the DeafultIcons Extension: 'circlearrowclose', 'circlearrowopen', 'fitscreen', 'pendingstatus', 'resetzoom', 'sidebar', and 'tasklist.
Extension	Medium	Functions Extension 14.0.1: Feature: New Script Functions have been introduced: - 'Process:CreateMessageQueue' and 'Process:DeleteMessageQueue' create and delete Message Queues programmatically. - 'Mail:CreateIncomingMailConfiguration', 'Mail:DeleteIncomingMailConfiguration', 'Mail:CreateOutgoingMailConfiguration', 'Mail:DeleteOutgoingMailConfiguration' create and

		remove email configurations programmatically. - 'Mail:GetIncomingMailConfiguration', 'Mail:GetOutgoingMailConfiguration', 'Mail:UpdateIncomingMailConfiguration()', 'Mail:UpdateOutgoingMailConfiguration' get and edit email configurations programmatically. - 'Ssl:FetchCertificate()' downloads public certificates from a given URL and stores them to the given file path. Feature: Security: The new function 'User:CheckPassword' can be used to check the credentials (username and password) of a local user. Feature: The new Script Function 'File:ScanForVirus()' scans files for malware. Deprecation: 'Pdf:Merge' Script Function has been deprecated. Bugfix: Ad-Hoc Script Functions in Screens: Fixed an issue where Functions `Process:ExecuteAdHocAction` and `Process:GoToAdHocNavigationItem` resulted in an error when executed in a Screen Component Script Action with the option 'Ignore Errors' selected, and when the related Screen had validation errors. See documentation: - Script Functions: https://community.appway.com/screen/kb/article/1641896132117 - Deprecation: https://community.appway.com/screen/kb/article/2023-2338096720134
Extension	Medium	KafkaConnector Extension 2.0.0: The KafkaConnector Extension provides tools to integrate with Apache Kafka. See documentation: https://community.appway.com/screen/kb/article/kafkaconnector-extension-2349663871352
Extension	Medium	LdapSyncAdapter Extension 9.0.0: The new 'LDAP' Advanced Studio Permission allows viewing and managing LDAP configurations.
Extension	Medium	LoginScript Extension 4.0.0: - HTTP requests with no HTTP Session ID are now tracked. This allows tracking API requests that are not issued by a browser and, therefore, might not have an HTTP Session ID. - 'UserLoginEvent' and 'UserLogoutEvent' Primitive Types have been replaced with Data Classes 'LoginScript:UserLoginEvent' and 'LoginScript:UserLogoutEvent'. Therefore, the implicit variable 'event', which can be used in the 'login.script' and 'logout.script' scripts, is now of type 'LoginScript:UserLoginEvent' and 'LoginScript:UserLogoutEvent', depending on the event type. This may also require an upgrade step when upgrading to FNZ Studio 2023. See documentation: - Extension: https://community.appway.com/screen/kb/article/loginscript-extension-2343080112055 - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-lts-2356893265397
Extension	Medium	MemoryAnalysis Extension 10.0.0: - HTTP requests with no HTTP Session ID are now tracked. This allows tracking API requests that are not issued by a browser and, therefore, might not have an HTTP Session ID. - For security reasons, FNZ Studio UIs and log messages no longer show complete HTTP session IDs. Instead, only the first 12 characters and the last 4 characters are shown, all other characters are replaced by three dots.
Extension	Medium	OpenApi Extension 2.0.3:

		- Feature: New Data Classes are created for Money schemas. However, the extension property 'openapi.importer.map.money2primitive' allows keeping the old behavior that maps Money schemas to the Money Primitive Type. - Feature: Created FNZ Studio wizard to import OpenAPI specification files and create the required Data Classes. - Feature: Added the 'OpenApi:GenerateDataClasses' Script Function. - Change: Removed Package name from schema name in the OpenAPI Business Object Exporter. - Bugfix: Collections of enums are now mapped correctly to to enum Primitive Types. See documentation: - OpenApi Extension: https://community.appway.com/screen/kb/article/openapi-extension-2349773630089 - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-2356893265397
Extension	Low	RabbitMQConnector Extension 1.0.3: - Feature: Added confirmation logs when produced messages are acknowledged by the RabbitMQ broker. - Bugfix: The RabbitMQ listener is no longer blocked by exceptions while processing messages. Issues:
Extension	Low	Troubleshooting Extension 1.0.1: New Script Functions have been created: - 'ProcessInstance:Export()', 'ProcessInstance:Import()', 'ValueStore:Export()', 'ValueStore:Import()' to export/import a Process Instance and a Value Store to/from a Blob. - 'ProcessInstanceGetVariableByProcessInstanceId()' and 'ProcessInstanceGetVariableByWorkitemId()' to retrieve variables from a Process Instance.
Extension	Medium	UserEventLogger Extension 2.0.0: HTTP requests with no HTTP Session ID are now tracked. This allows tracking API requests that are not issued by a browser and, therefore, might not have an HTTP Session ID.
Extension	Low	WebServices Extension 5.0.0: - Feature: Collected request and response of REST API calls made with RestClient Primitive Type and SOAP calls are logged under the Troubleshooting Console Http schema. - Change: Default mapping is no longer applied for the TranslateFrom() Script Function. See documentation: https://community.appway.com/screen/kb/article/1482807618060#3472-translatefrom
Extension	Low	WorldCheckConnector Extension 2.0.2: The new Script Function 'WorldCheckConnector:RetrieveCase' can be used to fetch full-case details.

Change

Area	Importance	Description
Extension	Low	ComponentExtension 2023.5.1: - The jQuery library has been upgraded from version 2.2.4 to 3.5.1 for Screens and Screen Components (Screen-Driven Model). - HTTP requests with no HTTP Session ID are now tracked. This allows tracking API requests that are not issued by a browser and, therefore, might not have an HTTP Session ID.

Extension	Medium	DefaultUser Extension 1.0.1: In case of multi-node installations, the default user is now created only by the first starting node (i.e. the one acquiring the init latch during cluster startup), thus preventing possible failures. See documentation: https://community.appway.com/screen/kb/article/2343822711843
Extension	High	DeploymentExtension 17.0.0: - Change: A new validation mechanism prevents uploading extensions with invalid or duplicated file names. The file must be named `OfficialExtensionName.jar` (e.g., `StatisticsCollector.jar`). Any other custom characters or digits are not accepted (e.g., `StatisticsCollector-1.2.3-2023.1.jar`; `StatsCollector.jar`; `Statistics-Collector.jar`; `StatisticsCollector-dev.jar`) and an 'Upload failed' error may be triggered. This change may affect you if you use the ImportExtension() function provided by the Deployment Extension to import extensions into the current FNZ Studio installation. - Change: The 'ExportProcessMessageQueues' and 'ImportProcessMessageQueues' Script Functions have been deprecated. Automatic migration is in place to migrate all occurrences to the new 'Process:ExportMessageQueues' and 'Process:ImportMessageQueues' functions, respectively. - Bugfix: Fixed an issue that caused the 'ImportContent()' function to fail under certain conditions. The 'ImportContent()' function now correctly copies the artifact to 'work/tmp/archives' before importing. See documentation for details: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2022-2-to-2023-lts-2356893265397
Extension	Low	ProcessMigration Extension 7.0.2: Process Engine: Do not delete the root scope of a Process Instance when the Process Instance is cancelled. The root scope will remain in the value store until the Process Instance and its value store are deleted. This gives process listeners the opportunity to access data from the root scope when process listener methods like 'workflowInstanceStatusChanged' or 'workflowInstanceRemoved' are invoked, even after a Process Instance has been cancelled.

Bugfix

Area	Importance	Description
Extension	Low	BAM Extension 7.0.0: Fixed an issue that caused a 'Null Pointer Exception' error to be reported in the 'Measure & Analyze' module UI in FNZ Studio when a missing Process Business Object was used.
Extension	Low	ProcessAuditTrail Extension 6.0.0: The following exceptions have been fixed: - 'java.lang.NullPointerException', which occurred when invoking Script Function 'ProcessAuditTrail_LoadLiveProcessDataFunction'. - 'java.lang.IllegalArgumentException: dataObject must not be null', which occurred when invoking the Script Functions provided by the extension.