Remarks

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Release notes with changes since version 2023 LTS Patch 5

See the following resources for further information:

FNZ Studio 2024 Technical Requirements:
https://community.appway.com/screen/kb/article/system-installation-technical-requirements-
1482807410782

Upgrading from FNZ Studio 2023 LTS to 2024 LTS:
https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2023-to-2024-
2363998668114

New FNZ Studio 2024.x installations:
- System Installation 2024 LTS: https://community.appway.com/screen/kb/article/system-
installation-fnz-studio-2024-internal-2364233901070
- System Installation Using Containers 2024 LTS:
https://community.appway.com/screen/kb/article/system-installation-using-containers-fnz-studio
-2024-2368796530472

Deprecated and removed features in FNZ Studio 2024 LTS:
https://community.appway.com/screen/kb/article/feature-removal-and-deprecation-fnz-studio-2024
-2363561420609

FNZ Studio 2024 LTS Product Card:
https://community.appway.com/screen/products/name/fnz-studio-2024-lts/version/2024-5-1
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Appway Platform (Core)

Feature

Area	Importance	Description
Ad-Hoc Sub-Processes	High	Starting from FNZ Studio 2024, the Validation Badge script set on an Ad-Hoc step is evaluated when the user first visits a step. This is a change of behavior compared to FNZ Studio 2023. Moreover, if you enable the new property 'Review Mode' (available in the 'Ad-Hoc' tab of root Ad-Hoc Sub-Processes), all Validation Badges are displayed in the Ad-Hoc Navigation sidebar as soon as the user visits any of the available steps. This allows the user to see the status of all steps immediately without needing to click on each of them. See documentation for details: - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2023-to-2024-internal-2363998668114 - Ad-Hoc Sub-Process configuration: 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#24-information-framework
Business Object Editors	Medium	The following features have been implemented for Business Object Editors: - Script Functions: When selecting a Script Function using a Business Object selector (e.g., in Control Update Functions in the Data Logic Editor), the editor indicates which of the input parameters of the Script Functions are mandatory through an asterisk and logs validation warnings. - Online Help: A 'Help' link is now available in the header of Business Object editors to easily access documentation. - Versioning: The commit status of the Business Object (blue/black dot) is now displayed in the header of all Editors (to the left of the Business Object icon and name). See documentation: https://community.appway.com/screen/kb/article/business-object-versioning-1482804377928
Business Object Replacement	Medium	The following are now replaceable Business Objects: - PDF Output

		- PDF Output Table - Process - Rule See documentation: https://community.appway.com/screen/kb/article/replaceable-replacement-business-objects-2370127393709
Cluster Cahche	Medium	The following Cluster Cache Script Functions have been added: 'ClusterCache:Put' and 'ClusterCache:Get'. They replace functions 'ClusterCache:StoreEntry' and 'ClusterCache:GetEntry'. These two functions have been deprecated since they did not decouple the object in the Cache, which might lead to unexpected side effects. Moreover, the Cluster Cache Script Functions, deprecated in Appway 10, have been removed: 'ClusterCacheClear'; 'ClusterCacheLookup'; 'ClusterCacheNames'; 'ClusterCacheRemove'; 'ClusterCacheStore'. See documentation: - Deprecation and Removal: https://community.appway.com/screen/kb/article/feature-removal-and-deprecation-fnz-studio-2024-2363561420609 - Script Function reference: https://community.appway.com/screen/kb/article/script-language-function-reference-1641896132117
Data Class Editor	Low	The display of Data Class Functions with long names has been improved.
Data Logic	Low	Debugging: The UUID of Controls and Data Rules, used when debugging errors, is now also shown in the 'Compare Versions' tool for each Control and Data Rule in the Data Logic. See documentation: https://community.appway.com/screen/kb/article/data-logic-control-and-data-rule-error-logging-2341613300136
Data Logic Controls	Medium	The following features have been implemented for Data Logic Controls: - Display name: The display of Data Logic Controls with long names has been improved. - Collection Controls: The new setting 'Create/Edit Element Inline', available for Collection Controls, allows specifying whether the user should be able to create/edit a Collection element inline in the runtime form. If deselected (default option), the element creation/editing is done in a modal window instead. In this case, you can optionally specify a different Data Logic BO to be used when creating/editing elements in the modal window through the 'Modal Data Logic' setting. - Text Controls: Text Controls have two new types : 'Plain Text', for non-formatted texts and 'Success', for success texts. - String and Primitive Controls: The new setting 'Expected Length', available for String and Numeric Primitive Controls, allows specifying the expected size of the field content. The selected option is used by FNZ Studio Runtime to enhance user experience by providing appropriately sized input fields for different data types. - Section Controls: The new setting 'Never Show as Card', available for 'Section' Group Controls, allows displaying borderless sections instead of cards in FNZ Studio Runtime UI. See documentation: - Data Logic: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187#4-controls-tab - App Task: https://community.appway.com/screen/kb/article/app-tasks-generic-configuration-2218909162075#23-content-area-text-control
Data Logic Rules	High	New Data Rules are available: - 'Collection Property Expression' allows specifying the validity expression for a Data Class property of type 'Collection'. - 'Collection Size' allows defining the minimum and maximum number of elements of a Collection. - 'Collection Element Expression' allows validating the elements contained in a property of type Collection. In case the Rule is violated, the invalid Collection elements are highlighted

		in FNZ Studio Runtime. - 'Date' allows defining constraints on a Date property, such as minimum/maximum accepted values or specific accepted/excluded days. - 'Number' allows defining constraints on a numeric property, such as the minimum/maximum accepted values. A Data Rule has been renamed: 'Named Collection' has been renamed 'Named Collection Keys' to better describe its purpose. This change has no functional impact. Data Rule sorting has been improved: It is now possible to reorder Data Rules in the 'Data Rules' tab of the Data Logic editor. The order of Data Rules has no impact on the runtime evaluation of the Rules and is only meant to allow the developer to organize Rules in the editor. See documentation: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187#5-data-rules-tab
Data Logic Rules (Search)	Low	The Search Data Rule has new features: - It allows accessing the list of selected search results in the Load Script Function using the implicit variable '$selectedSearchResults' in assignments. Previously, only the ids (Element Identifiers) of the selected elements were accessible, while the whole objects are now available. This may be useful when additional properties of the elements are needed at load time, or when there is only one integration endpoint for both search and load and, therefore, the selected search results can be added to the target property directly. - The additional configuration property 'Post-Load Update Function' allows specifying a logic to be executed after the selected Objects are added to the target Property. This Script Function is allowed to perform changes to data contained in the Data Context. - The 'Allow Object Creation' setting of the 'Search' Data Rule can now be specified using a Script Function. See documentation: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187#518-search
Data Logic Script Functions	High	Features: - The new Script Function 'DataLogic:EvaluateControlsForPDF' allows generating read-only PDFs out of a Data Logic. The function returns the structure and data defined in a Data Logic Business Object and can be used to populate a PDF Output Table Business Object which renders the content of the Data Logic. - The new Data Class 'DataLogic:Reference' allows referencing a Data Logic Business Object when using it in a Script. - Phone Number: The new Script Functions 'DataRules:GetPhoneNumberCountry' and 'DataRules:SetPhoneNumberCountry' (Functions Extension) allow retrieving and setting the country associated with the prefix of a given phone number field (linked to a Phone Number Data Rule in a Data Logic Business Object). Change: - Script Functions 'DataLogic:EvaluateDataRules' and 'DataLogic:EvaluateFilteredDataRules' no longer return a 'DataRules:DataRuleInfo' element for Rules that are not violated, except for the Mandatory Fields Data Rule. This may require an upgrade step for your Solution. See documentation: - Data Logic SFs: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187#7-script-function-reference - Phone Number: https://community.appway.com/screen/kb/article/data-logic-business-object-1739928404187#56-phone-number - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2023-to-2024-internal-2363998668114#data-logic-script-functions

Elasticity	Medium	Improved System Health Sensors to get fewer false positive WARN and ERROR messages.
Integration	Medium	- Added support for the OIDC provider startup file if such file is present under 'conf/oidcauth-provider.json'. - The clientId and secret for the IdP are now encoded using basic authentication. - The new Script Function 'RetrieveKeyStoreCertificate' retrieves the certificate from the KeyStore given the alias. See documentation: https://community.appway.com/screen/kb/article/script-language-function-reference-1641896132117
Integration Link	Low	Two new configuration properties allow configuring the Camel default thread pool: - nm.integrationlink.camel.threadpool.size (default value = 10) - nm.integrationlink.camel.threadpool.maxsize (default value = 20) See documentation: https://community.appway.com/screen/kb/article/integration-link-business-object-1482802425345#32-configuration
Login Page	Medium	Added support for URL parameter 'error_followup_url' in FNZ Studio login page in case of authentication errors. See documentation: https://community.appway.com/screen/kb/article/enhancing-user-experience-customizing-login-behavior-2367798422831
Packages	Medium	The following features have been implemented for Packages: - Package Compare: It is now possible to compare the general properties of a Package (e.g., ID, Description, Vendor and so on) between different versions. This option is available in FNZ Studio Composition ('Package Overview' > [Package] > 'Properties' > 'Compare Versions of Properties'). Any changes to the general properties of a Package are also highlighted in the report returned by Script Function 'Package:CompareVersionsReport', as well as in FNZ Studio Composition under: 'Compare Package Versions ('Package Overview' > [Package] > 'Maintenance') and 'Business Object Review' ('Package Overview' > 'Import Packages'). Moreover, the CSV format of the 'Compare Package Versions' report has been improved by adding the apostrophe character to escape field content. - Package Import and Compare: Package Import and Package Comparison operations now show a progress indicator (completion percentage). This is useful when the operations take longer due to large Package content. - Script Functions: The new Script Function 'Package:GetAwdeploymentInfo' returns the list of Packages and Package Configurations contained in the .AWDEPLOYMENT file provided as an input. See documentation: https://community.appway.com/screen/kb/article/packages-1496136140789
Performance	Medium	The following improvements have been made for performance: - Observability: Open Telemetry has been introduced to push HTTP Traces to an external OTLP Collector. The new configuration property 'nm.observability.traceid.generator' ('System Configuration' > 'Configuration Properties') has been added to configure the trace ID generator to support AWS X-Ray. To use AWS X-Ray, set this property to 'xray'. - Improved the OrphanedValueStoresCleanupJob to avoid loading all Process Instances on all nodes. This reduces memory usage for installations with a high number of Process Instances. - The access pattern to Value Stores has been improved, thus considerably reducing the amount spent in fetching and deserializing Value Stores in each request.

Primitive Types	Medium	Support has been added for BigDecimal and BigInteger to support precise calculations, specifically in: - FNZ Core Platform (Recommended Primitive Types) - App Tasks and Data History - Data Class Editor - Data Class behaviors (Table Row) - Data Logic Editor (Number Data Rules) - Business Data Storage (BDS) - Format Business Object - WebAPI Business Object (request and response body)
Script Language	Medium	New Script Functions are available: - Processes: 'Process:GetProcessMessageQueueNames' replaces 'CONTEXT().getWorkflowMessageService().getWorkflowMessageQueueNames()'. Note that all occurences of 'CONTEXT()' are currently deprecated to avoid Java execution code. - Users: 'User:GetUserProfileImageURL' returns the URL of the user profile image (for the given size) or null in case the user or user profile image was not found. - System: 'System:RestartExtension' allows restarting an extension programmatically. 'System:AppendConfigToScope' (appends the given configuration properties to a specified scope) and 'System:GetConfigOfScope' (Return the configuration properties of a specified scope) avoid the Java execution code 'com.nm.conf.Configuration.getInstance().reload()'. See documentation: https://community.appway.com/screen/kb/article/script-language-function-reference-1641896132117
Secrets Management	High	The Secrets Management core framework allows storing FNZ Studio passwords and key pairs both internally as well as in external secret managers. The 'Password, Keys & Certificates' option available in FNZ Studio Composition ('System Configuration' module) allows managing: Passwords, Public-Private Key Pairs, Trusted Certificates and Symmetric Keys. External secret management is provided through extensions that can be installed in FNZ Studio. These are stored in the Secrets Manager Extensions section ('System Configuration' > 'Extensions'). These extensions are started before permanent extensions and they can be started or stopped at runtime. Currently, the AWSSecretsManager Extension allows managing secrets in the AWS Secret Manager. Moreover, audit logs have been added for operations on passwords, key pairs and trusted certificates. See documentation: - Secrets Management: https://community.appway.com/screen/kb/article/secrets-management-framework-passwords-and-keys-and-trusted-certificates-2376625101678 - Extensions: https://community.appway.com/screen/kb/article/managing-extensions-1482802413870
Startup	High	The new configuration property 'nm.cluster.shutdown.jvm.stop.onStartupFailure' ('true' by default) causes JVM to shut down if startup fails.
Startup Files	Medium	The new configuration property 'nm.cluster.startup.file.sync.support.downgrade' can be set to true to support specific downgrade scenarios for extensions only. When this property is set to true, the extensions provided by the Docker image (local) will override the extensions stored in the Startup Files. Also the 'installation.properties' file will be taken from the Docker image (local). Note that, as a general rule, downgrades are still not supported for the Core Platform. See documentation: https://community.appway.com/screen/kb/article/system-installation-fnz-studio-2024-internal-2364233901070

Change

Area	Importance	Description
3rd Party Library	Low	The following library changes have been made in FNZ Studio 2024 LTS: Added libraries: - org.json:json version 20231013 - Java library Commons Text version 1.12.0 Upgraded libraries: - org.jabsorb:jabsorb from version 1.3.2-2 to 1.3.2-3 - Caffeine library from version 3.0.5 to version 3.1.8 - Java library Commons Configuration from version 1.9 to 2.10.1 - Java library Bouncy Castle from version 1.76 to 1.78.1 - Java library Commons Compress from version 1.21 to 1.26.1 The following libraries have been added: Removed libraries: - Veracode Annotations See documentation: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2023-lts-to-2024-2363998668114
Cluster Log	Low	- Change: Log entries related to all nodes that have logs in the distributed map are shown in the Cluster Log Viewer ('System Maintenance' > 'Logging' in FNZ Studio Composition). - Bugfix: Compaction is performed for all nodes for which there are log entries in the distributed map and not only for active nodes.
Deprecation	High	The following features have been deprecated in FNZ Studio 2024 and will be removed in two years or later: Configuration properties: - nm.cluster.processeventdataentry.ttl - nm.cluster.log.persistent Data Logic: - Script Functions 'DataLogic:CreateAndEvaluateContext' and 'DataLogic:IsDataLogicContext' Extensions: - 'WorkitemMyDataTasksFilter' in WorkitemFinder Extension no longer filters workflow tokens (all of them are accepted). Note that the related Data Logic Collaboration features have been removed in this version. Script Functions: - GETENTITY - 'ClusterCache:StoreEntry' and 'ClusterCache:GetEntry' See documentation for details: https://community.appway.com/screen/kb/article/feature-removal-and-deprecation-fnz-studio-2024-2363561420609
Extensions	Medium	The deprecated 'PropertyDescription' constructors have been removed. We recommend that you use 'PropertyDescriptionBuilder' instead, e.g., 'PropertyDescription#newPropertyDescription(String, String, PropertyType)'. Note that this change is only relevant for custom extensions.
Hazelcast	Medium	Hazelcast has been upgraded from version 5.3.2 to 5.4.0.
Integration Troubleshooting Console	Low	In the Integration Troubleshooting Console ('Data & Integration' > 'Integration' in FNZ Studio Composition) the "Access / Web Api Request" flow has been updated to "Verification / Web Api Request".
Java	High	FNZ Studio 2024 requires Java 17. See System Installation: Technical Requirements for a list of supported Java distributions. https://community.appway.com/screen/kb/article/system-installation-technical-requirements-1482807410782
Log4j	Medium	When running on Apache Tomcat, FNZ Studio now installs an API bridge from Java Util

		Logging (JUL) to Log4j 2. As a result, log messages of several third-party Java libraries are now also available in FNZ Studio Cluster Log and the log file 'libs.log'.
Removal	High	The following features, deprecated in Appway 2022.1 or lower, have now been removed: Configuration properties: - 'nm.businessobjects.namepattern' and 'nm.businessobjects.namepattern.useWhenIdAndNameEqual' Databases: - Support to MySQL and DB2 databases Data Logic: - Controls: 'Start Subprocess Action' and 'End Task Action' - Collaboration features, including 'Collaboration (Legacy)' tab in the Data Logic Editor, Collaboration Script Functions, Collaboration Primitive Types, and the Collaborator Solution Template (Data Logic Package). - Primitive Types: 'DataTaskWorkitem', 'DataTaskWorkitem.ItemInfo', 'DataLogicConsistency', 'DataLogicConsistency.Inconsistency', 'DataLogicCorrectness', 'DataLogicCorrectness.Incorrectness' - Process Component: Data Task - Data Logic Screens (note that this also affects ComponentExtension). Extensions: - COB Extension Features: - Discussion feature. Note that Activity logs are still available ('Activity Log' module). - Value Store Encryption feature Screen Components: Form, Actions, Inconsistencies (Interaction Channels) Script Language: - 'User' Script Functions: 'DeleteUser'; 'EncryptUserPassword'; 'GetUser'; 'GetUserGroups'; 'GetUserRO'; 'GetUserRoles'; 'GetUsers'; 'UpdateUser'; 'UserFirstname'; 'User'; 'UserGroups'; 'UserId'; 'UserIds'; 'UserInGroup'; 'UserInRole'; 'UserLastname'; 'UserRoles'; 'Users'. - Some Cluster Cache Script Functions (see separate Release Notes). - Java method 'com.nm.ruleengine.RuleExecutor.getRuleStack', and context attributes 'com.nm.ruleengine.RuleStack' and 'com.nm.ruleengine.BreakOnCycle'. See documentation for details: https://community.appway.com/screen/kb/article/feature-removal-and-deprecation-fnz-studio-2024-2363561420609
REST API	Medium	Introduced a cluster-wide generation algorithm for the password used to encrypt REST API data.
Script Language	Low	Script Functions 'Ssl:ListTrustStoreAliases', 'Ssl:FetchCertificates' and 'Ssl:DecodeCertificates' have been moved from the Functions Extension to FNZ Studio Core Platform.
System Upgrade and Installation	High	Note the main changes in System Installation and Upgrade: - Logging: The default configuration for Log4j has been updated. The log files 'error.log', 'debug.log', and 'libs.log' are now all combined into a single log file called 'application.log'. This new log file has a size-based rollover strategy at 100 MB, combined with a daily rollover strategy. Archived log files follow the name pattern 'application.log.YYYY-MM-DD.N.log' where 'N' is an index starting at 1 for the oldest log file and increasing by 1 for every newer log file. By default, a maximum of 9 archived log files is stored per day. The date format used in log files follows the ISO 8601 standard and includes a time zone offset. - Mandatory Packages: The 'DataLogic' Package, which was a mandatory Package to be installed in previous FNZ Studio versions, is now a Platform Package, meaning it is

		deployed and updated automatically. - Installation: Added support to deploy an FNZ Studio cluster where the 'conf' and 'extensions' directories in the Data Homes are shared among nodes. For on-premise installations, this avoids data duplication and allows for cheaper deployments. See documentation for full details: - System Installation: https://community.appway.com/screen/kb/article/system-installation-fnz-studio-2024-internal-2364233901070 - System Upgrade: https://community.appway.com/screen/kb/article/system-upgrade-fnz-studio-2023-to-2024-internal-2363998668114 - Configuring Log4j: https://community.appway.com/screen/kb/article/diagnosis-log4j-configuration-1482805286921) - Adding the User ID to Every Line in a Log4j Log File: https://community.appway.com/screen/kb/article/add-the-user-id-to-every-line-in-a-log4j-log-file-1482810864634

Bugfix

Area	Importance	Description
Ad-Hoc Sub-Processes	Medium	Implemented a fallback strategy to 'First Enabled Task' when the 'Last Visited Task' option is not enabled. See documentation: https://community.appway.com/screen/kb/article/ad-hoc-sub-processes-and-navigation-2317711876877#6-token-landing-ad-hoc-task-choice
Business Object Dependencies	Medium	Fixed an issue that caused usages of Data Class Properties and methods not to be listed in the 'Used By' section of the Data Class Editor.
Business Object Refactoring	Medium	Package Configurations are now always included into refactoring procedures to make sure changes on Business Objects, such as refactoring an ID, are also reflected.
Cluster Persistence	High	Fixed an error occurring in the XML serialization of Screen Business Objects when the ComponentExtension was not running.
Cluster Storage	Medium	- A dot character in the 99th position of a Business Object ID is now supported when using a filesystem-based Cluster Storage backend. - Fixed a temporary write errors caused by hidden dependencies while persisting data.
Custom Lists	Medium	Fixed an issue where Custom Lists containing Business Objects that got moved or had a refactored ID did not get committed automatically.
Data Engine	Low	An error is now correctly reported when a Catalog used by a Data Rule contains duplicated ids. Previously, this resulted in incorrect behavior of selectors in FNZ Studio Runtime. For all Data Rules other than Phone Number, the id column of the Catalog is checked for duplicates. For the Phone Number Data Rule, instead, the pairs composed by prefix and countryCode columns, respectively, must be unique.
Data Logic Editor	Low	The Ctrl+Z shortcut executed while editing a text field (e.g., Control Name or Sentry) now correctly undoes the last typing instead of the last action in the Editor.
Integration Links	Low	Fixed an issue where integration picked up a user cached in a previous execution if the Integration Link was started from a scheduled process.
Integration Troubleshooting Console	Low	Fixed the following issues in the Integration Troubleshooting Console (ITC): - The Console did not show the correct status of Login / IdP Callback Request in case of exceptions in client communication for the OIDC Schema. - The OIDC Schema did not show the correct exception message in case of a missing username in the JWT token.

		See documentation: https://community.appway.com/screen/kb/article/integration-troubleshooting-console-2361928893884
OIDC	Low	Fixed an issue where the OIDC tool and Session Manager tool might load and print each other's version at startup.
Package Export	Medium	Fixed an issue that allowed including Package dependencies multiple times in the export wizard.
PDF Output Table	Low	Java method invocations used to generate a TOC no longer result in validation messages. See documentation: https://community.appway.com/screen/kb/article/pdf-output-table-business-object-1482805297050
Process Messages	Medium	Fixed an issue where the Receive Message Intermediate Event might miss Process Messages. This could happen (a) if the clocks in the Cluster were not fully aligned, or (b) if multiple Process Messages were added at the same time. Moreover, the new system property 'nm.processmessages.receiveMessageIntermediateEvent.lookBackTime' (default value = 20000) can be used to configure the time we go back to find delayed messages.
Process Validation	Medium	Fixed an issue where validation was not working properly for Processes containing a 'Signal' End Event, 'Receive Signal' Intermediate Event, and 'Send Signal' Intermediate Event, in case the 'Signal Name' property contained an expression.
Script Debugger	Low	The Script Debugger UI now shows null values in Indexed and Named Collections correctly.
Script Language	Low	- It is now be possible to use 'mod', 'and', 'or', 'isa', 'div' (previously reserved keywords) as property or method names. However, we recommend that you use them only when strictly necessary. - Return type declarations for 'HasKey', 'SetKey', and 'DeleteKey' Script Functions have been fixed.

Appway Extensions

Feature

Area	Importance	Description
Extension	Medium	AppTask Extension 2024.5.1: The AppTask Extension is used in Application Business Components (ABCs) version 2024. See separate Release Notes: https://community.appway.com/screen/support/news/official-release-application-business-components-abcs-2024-2370053638324
Extension	Medium	AppTaskAPI Extension 2024.5.1: The AppTaskAPI Extension is used in Application Business Components (ABCs) version 2024. See separate Release Notes: https://community.appway.com/screen/support/news/official-release-application-business-components-abcs-2024-2370053638324
Extension	Medium	ArchivingTools Extension 1.0.0: The new ArchivingTools Extension provides secure ZIP and UNZIP Script Functions.
Extension	Medium	AzureBlobStorage Extension 5.0.0: - The values entered for configuration properties 'com.nm.extensions.azureblobstorage.accountName' and 'com.nm.extensions.azureblobstorage.accountKey' are hidden as soon as they are set in order to improve security.

		- Azure SDK libraries have been upgraded to their latest version. This also removes the need to add additional libraries to the application server. See documentation: https://community.appway.com/screen/kb/article/blob-storage-1956522328698
Extension	Medium	AzureHazelcastStore Extension 4.1.0: Two new configuration properties are available: - 'com.nm.extensions.azurehazelcaststore.containerName' allows specifying the container where the cluster storage is to be created. If left blank, one container per distributed map is used. - 'com.nm.extensions.awshazelcaststore.serviceUrl' allows using a custom S3 compliant server. This enables the adoption of other S3 technologies such as MinIO. See documentation: https://community.appway.com/screen/kb/article/awshazelcaststore-extension-cluster-storage-2170154538964
Extension	Medium	BusinessDataStorage Extension 1.14.0: Added support for BigDecimal and BigInteger Primitive Types. See documentation: https://community.appway.com/screen/kb/article/business-data-storage-database-model-synchronization-1745455665652
Extension	Low	ClusterTools Extension 14.0.0: It is now possible to download data tables for Hazelcast Members, Hazelcast Events, Hazelcast Map States, Hazelcast Map Operations, Hazelcast Map Configurations, Hazelcast CP Locks, and Hazelcast Map Locks. This option is available through the Download link under 'System Maintenance' > 'Cluster Tools' in FNZ Studio Composition.
Extension	Medium	Functions Extension 19.0.0: Features New 'User' Script Functions: - 'User:GetSessions()' retrieves all the available User Sessions in the system. - 'User:GetAllGroups()' provides an additional parameter that allows filtering Virtual and Physical Groups. New 'IntegrationLink' Script Functions: - 'IntegrationLink:GetState' returns the state of the provided Integration Link. Valid state values are: 'Inactive', 'Starting', 'Started, 'Stopping, 'Stopped, 'Suspending, 'Suspended'. New 'Package' Script Functions: - 'Package:List' returns the list of Package Business Objects available in the system. Note that it requires 'Packages' Permission (Read-Only Access). - 'Package:CreateVersion' creates a version of a Packages programmatically. - 'Package:Import' imports Packages from an .AWDEPLOYMENT file into FNZ Studio. Note that it requires 'Packages' Permission (Full Access). New 'Resource' Script Functions: - 'Resource:WriteToFile' writes a given file as a binary to a Resource. If the Resource does not exist, it is created. Note that it requires 'Packages' Permission (Full Access). - 'Resource:ReadFromFile' reads a Resource to a given file as a binary. Note that it requires 'Packages' Permission (Read-only Access'). New 'System:ShutdownCluster' Script Functions: - 'System:ShutdownCluster' shuts down all cluster nodes. Other Script Functions: - 'Json:Prettify($json)' returns a formatted version of a JSON String --- Changes

		- ValueStoreSplitting. The key of dataEntitiesDistributedMap has been changed from <type><id> to <vsId><type><id>. A new configuration property 'nm.cluster.persistence.valuestores.splitting.supportOldKeyFormat' (true by default) has been added to delete the old key <type><id> from dataEntitiesDistributedMap when data entities are removed. - The 'GETENTITY' Script Function has been deprecated in favor of 'ValueStore:GetEntity'. Auto-migration is available. --- Bugfixes - Loading existing Workflow Messages no longer requires UidGeneratorBrick. See documentation: - Script Function reference: https://community.appway.com/screen/kb/article/script-language-function-reference-1641896132117 - Value Store Splitting: https://community.appway.com/screen/kb/article/value-store-splitting-1496325331261
Extension	Low	JsonWebKeys Extension 4.0.0: The JWKS endpoint can now be accessed in FNZ Studio from 'System Configuration' > 'Extensions' > [JsonWebKeys Extension] > 'Open JWKS endpoint'. See documentation: https://community.appway.com/screen/kb/article/jsonwebkeys-extension-2363460135635
Extension	Low	KafkaConnector Extension 5.0.0: The Process Instance ID is used as a correlationID where available instead of the default random correlationID. See documentation: https://community.appway.com/screen/kb/article/integration-troubleshooting-console-2361928893884
Extension	Medium	OpenAPI Extension 3.0.4: Features The following improvements have been made to the OpenAPI import functionality: - The OpenAPI Importer wizard (in FNZ Studio Composition) now enables the import of Data Classes into multiple Packages based on regex rules. Moreover, option 'Delete Missing Data Classes' (default is false) allows removing any unrelated Data Classes from imported Packages. - Improved the Business Review Table in the 'Confirm' step of the OpenAPI Importer wizard to effectively showcase changes in Business Objects. - Added a preview button in the 'Edit' step of the OpenAPI Importer wizard which displays the path and schema matched by the import regex. - Added a filter for the target Package dropdown list in the 'Edit' step, which allows selecting only Packages with full access. - Information regarding the import process and the OpenAPI specification file is now embedded as a resource business object within each Package. - Introduced the 'OpenApi:ListSchemasWithProperties($location, $regex)' Script Function to list all schemas along with their properties. - Introduced the 'OpenApi:ListPaths(String resourceLocation)' Script Function to retrieve all paths from an Open API specification. - Introduced the 'OpenApi:ListSchemas($location, $regex)' Script Function to list all schemas from an OpenAPI specification. - A Package version is added to Packages that are created automatically when a schema is imported. This avoids Package validation issues. --- Changes - The 'GenerateDataClasses' Script Function now accepts the 'options' parameter to encapsulate all the required configurations.

		- Enum static function names now adhere to the SNAKE_UPPER_CASE standard. - Import metadata is displayed in the Resource Business Object 'OpenApiImportInfo'. --- Bugfixes - Fixed an issue where map-related configuration options for the OpenAPI Extension were not updated correctly. See documentation: https://community.appway.com/screen/kb/article/openapi-extension-2349773630089
Extension	Medium	POI Extension 3.2.0: Added new functions to operate on templates without extension configurations. See documentation: https://community.appway.com/screen/kb/article/poi-extension-1482805892729
Extension	Medium	WebServices Extension 7.0.2: - The RestClient has been enhanced by introducing the 'httpPostOctetStream' method, which enables the upload of binary data. - Added support for BigInteger and BigDecimal Primitive Types in the 'TranslateFrom' and 'TranslateTo' functions for the JSON output. - The SOAPCall function now accepts optional parameters for additional configurations. Specifically, the new optional parameter 'allowNullResponse' allows SOAPCall to accept null responses, thus enabling a "fire-and-forget" scenario. See documentation: https://community.appway.com/screen/kb/article/webservices-extension-1482807618060
Extension	High	WorkitemFinder Extension 9.1.2: - The 'Process:FindWorkitems' Script Function now applies the given filter in a distributed way and, therefore, avoids loading all Process Instances on a single node. Previously, for some complex filters, all Process Instances were loaded on a single node. The new behavior uses less memory on each node. - WorkitemOrFilter, WorkitemAndFilter and WorkitemNotFilter Java methods now accept Primitive Type WorkitemBaseFilter. This will generate more precise validation at design time.

Change

Area	Importance	Description
Extension	Medium	LdapSyncAdapter Extension 10.0.1: LdapSyncAdapter now manages update, disable, and delete actions on remote users coming from LDAP Directory. This means that users coming from other providers such as AWSCognito, OIDC and so on are ignored by the LdapSyncAdapter Extension.
Extension	Low	PackageSealing Extension 4.0.0: The third-party Java library Commons Configuration has been upgraded from version 1.9 to 2.10.1, and the Java library Commons Text version 1.12.0 has been added.
Extension	Low	StatisticsCollector Extension 10.0.0: Statistic values that are not calculated are saved as zero values in .CSV files and shown as empty strings (i.e. empty cells) in statistics tables in FNZ Studio Composition ('System Maintenance' > 'System Statistics').

		See documentation: https://community.appway.com/screen/kb/article/statisticscollector-extension-1696907405798

Bugfix

Area	Importance	Description
Extension	Low	BAM Extension 7.5.1: Fixed a memory leak caused by a BAM SQL instruction cache.
Extension	Low	BusinessDataStorage Extension 1.14.1: Fixed an issue that caused the incorrect handling of stored Data Classes which had a property with name 'persistence_id'.
Extension	Low	ComponentExtension 2024.5.1: Label translations for Screen Components are now properly processed when a Label is committed.
Extension	Low	DeploymentExtension 18.0.2: Fixed an issue which caused the deployment Script Functions 'ImportContent', 'ImportExtensionConfig' and 'ImportExtension' to override the current user in the Script scope, potentially causing unexpected behavior in following Script Function invocations.
Extension	Low	MailExtension 12.0.0: Fixed an issue that prevented the SaveMail function from working correctly.