



# FirstSpirit™

*Unlock Your Content*

## Release Notes

### FirstSpirit™ 2018-11

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e-Spirit

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## 1 Support for Berkeley DB 3 and 5 has been discontinued, server starts only after migration

FirstSpirit uses Oracle Berkeley DB as a repository for storing content data. Until now, versions 3 and 5 have been in use and running reliably and in a stable manner for many years. However, in order to benefit from performance advantages and to remain at the forefront of technical development as well as for security reasons, the internal Berkeley DB is being updated to version 7.

As announced with FirstSpirit 5.2R21 (May 2018), support for Berkeley DB 3 and 5 has been discontinued as of the current release. Berkeley DB 3 and 5 are no longer shipped as of the current release (modules `fs-berkeleydb3.fsm` and `fs-berkeleydb5.fsm`).

! If the FirstSpirit server was initially installed with a version **lower than FirstSpirit 2018-06**, the **server will no longer start when running the current release** if a migration to Berkeley DB 7 has not yet been performed.

FirstSpirit servers which were initially installed with FirstSpirit 2018-06 or higher use Berkeley DB version 7 by default.

In order to enable the server to start again,

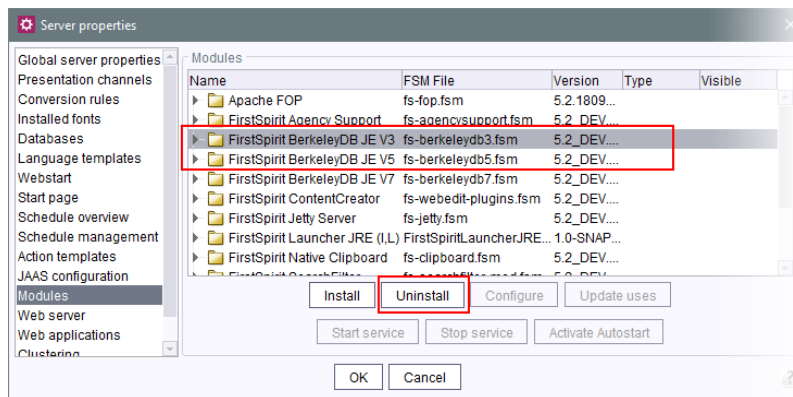
- **A:** a migration of the Berkeley DB to version 7 must be performed (recommended), or
- **B:** a downgrade of the server must be performed.

**A (recommended):** For the migration of the Berkeley DB of a FirstSpirit server to version 7 with FirstSpirit 2018-11 or higher, the command-line utility “BerkeleyUtil” must be used. In order to use this tool, the FirstSpirit server must be offline. Usage is described in *FirstSpirit Manual for Administrators*, “FirstSpirit ServerManager / Project properties / Repository”, section “Conversion to Berkeley DB 7”.

**B:** After a downgrade to an older FirstSpirit release (< 2018-11), the FirstSpirit server can also again be started and operated, even if a migration to Berkeley DB 7 has not yet been performed. In this state, a migration may be performed as described in *FirstSpirit Manual for Administrators*, “FirstSpirit ServerManager / Project properties / Repository”, section “Conversion to Berkeley DB 7”. After successful migration to Berkeley DB version 7, the FirstSpirit server can be upgraded to FirstSpirit 2018-11.



If migration to Berkeley DB 7 was performed successfully and if the server runs with FirstSpirit 2018-11 without issues, the module files which were required for BDB versions 3 and 5 should be deleted from the server (files `fs-berkeleydb3.fsm` and `fs-berkeleydb5.fsm` within `\data\modules\`) in order to avoid potential conflicts between the libraries in use. To do so, use the button “Uninstall” in FirstSpirit ServerManager, “Server properties / modules”:



### Notes about downgrade capability:

After a conversion to Berkeley DB version 7, a downgrade of FirstSpirit to versions lower than version 5.2R18 (released February 2018) will no longer be possible. A downgrade to FirstSpirit versions greater than or equal to 5.2R18, however, will be possible.

If the modules required for BDB versions 3 and 5 were uninstalled with FirstSpirit 2018-11, these will be reinstalled automatically during a downgrade to a version lower than FirstSpirit 2018-11.

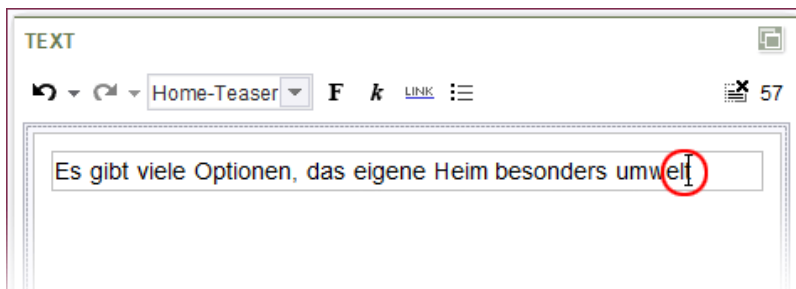
## 2 Support of Java 11

As previously described in the release notes for FirstSpirit 2018-10, Java 11 is supported by FirstSpirit, but this support will continue to have the status “EAP”.

Since the release of 2018-10, intensive internal testing was performed on the Java-based clients. These tests already identified the following limitations in FirstSpirit SiteArchitect:

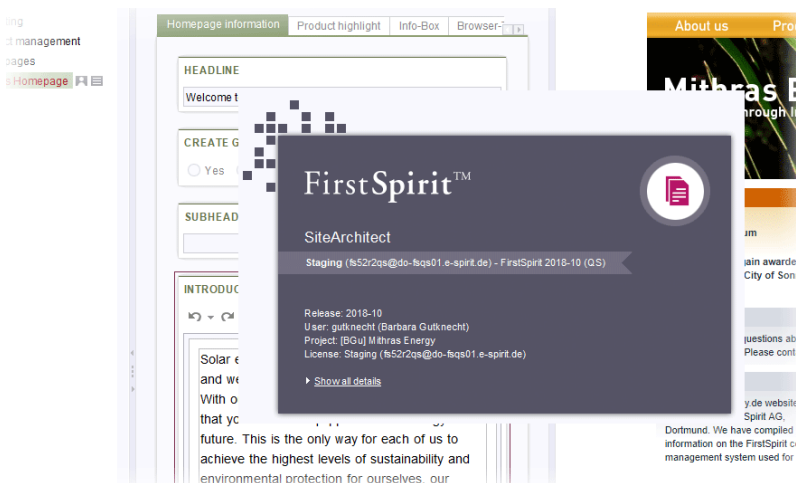
- Display issue with the caret in `CMS_INPUT_DOM` and `CMS_INPUT_DOMTABLE` in conjunction with certain fonts:





Due to a Java 11 error in size calculation, the caret will in some cases not be displayed exactly behind a character. In many cases, the issue can be resolved by defining a constant size in the format template (in the format template, tab “Properties”, field “Size”).

- Display issue regarding transparent windows, e.g. dialog “Help / About FirstSpirit”:



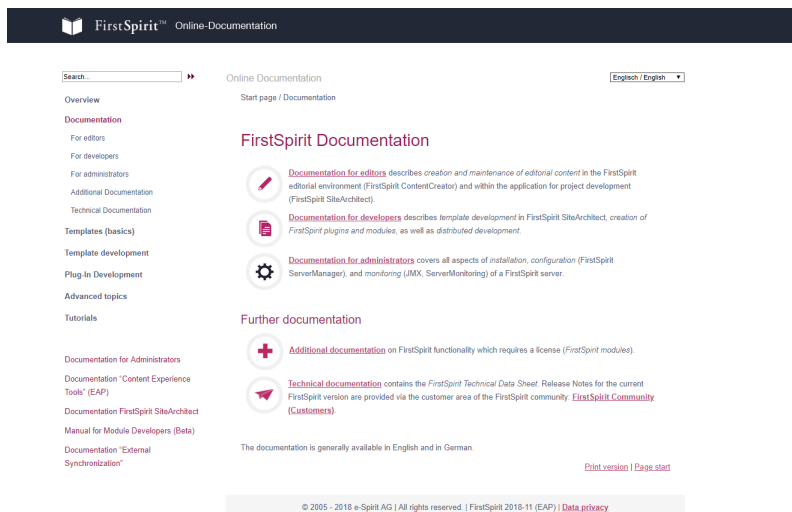
(With Java < 11, a transparent border is displayed around the dialog.)

These display issues originate in Java 11. Currently, research is being carried out to determine if and how these issues can be resolved by e-Spirit. The publication of related bugfixes is planned for one of the next FirstSpirit releases.

In order to be able to use Java 11 for FirstSpirit SiteArchitect and ServerManager, the FirstSpirit Launcher must be used. In order to simplify participation in the “EAP” program for Java 11, e-Spirit has developed a special module for the Launcher, named “FirstSpirit Launcher JRE”. Interested parties may obtain this module via Technical Support (<https://help.e-spirit.com>).



### 3 New design of the FirstSpirit documentations



#### New ODFS starting page

In the course of the rebrush, the FirstSpirit documentation is receiving a fresh look. Many frames, obsolete icons, superfluous formatting and highlighting - all of this was restructured, tidied up and in some cases removed. Of course you will still find all content in the usual places.

Our new layout is clearer, more readable and tidier: modern icons, new color scheme and improved type face.

You can get an impression of the new layout at <http://docs.e-spirit.com>.

### 4 Administration

#### 4.1 Configuration of JVM time-to-live (TTL) for DNS name look-ups

Caching of DNS entries can now optionally be configured via the parameter `networkaddress.cache.ttl` in the file `fs-server.conf`.

```
# Permanent Caching - Java Default Setting
networkaddress.cache.ttl=-1
```





```
# Caching limited to a maximum of 60 seconds
networkaddress.cache.ttl=60
```

**Background:** The Java Virtual Machine (JVM) stores DNS name look-ups in the cache for a certain amount of time, known as time-to-live (TTL). A long-term TTL is problematic if the DNS name entries change, e.g. due to fail-overs (e.g. for sending e-mails) if the IP address of the SMTP server changes or due to operation in cloud mode. If the IP address of a resource is changed, a low TTL value (e.g. 60 seconds) ensures that the FirstSpirit server can obtain and use the new IP address of that resource by way of a new DNS query.

The default TTL value depends upon the JVM that is in use. The default TTL value corresponds to the value of the parameter of the same name in the `java.security` file of the JDK or `-1` if no corresponding value was set. In the latter case (value is `-1`), the DNS entries are cached until the next restart of the Java VM.

The configured value is read from the configuration file as the server starts and is adopted accordingly via `Security.setProperty`.

If the parameter is not set, the JDK's TTL value is preserved.

## 4.2 Configuration settings for the server start depending on the Java version (fs-wrapper.conf)

The `conf` directory of the FirstSpirit server contains files that hold important configuration settings for the server start and the Java system of the FirstSpirit server. The following files may be present:

- the file `conf/fs-wrapper.conf` (general configuration of the Java VM for non-isolated installations)
- the file `conf/fs-wrapper.isolated.conf` (general configuration of the Java VM for isolated installations)
- the file `conf/fs-wrapper.slave.conf` (general configuration of the Java VM for cluster nodes)
- the file `conf/fs-wrapper-j1.include.conf` (configuration of special start parameters for Oracle Java 8)



- the file `conf/fs-wrapper-j2.include.conf` (configuration of special start parameters for Oracle Java versions  $\geq 9$ )

**New behavior:** The configuration of the wrapper has been adapted so that the Java-specific parameters can be passed in a single configuration file. Additional syntax is used to configure for which Java version the parameters are evaluated (see below). The additional include files `fs-wrapper.isolated-j#.include.conf` are no longer needed with the new configuration and can be deleted after the configuration has been adapted.

The Java-specific parameters are configured via `wrapper.java.additional.<n>.java_version.min` or `wrapper.java.additional.<n>.java_version.max` in the appropriate file.

#### Syntax:

FirstSpirit may only be started with Java versions  $\geq 8$ :

```
wrapper.java.version.min=8
```

This parameter is only used for Java version 8. As of Java version 9, this parameter is ignored:

```
wrapper.java.additional.40=-XX:+UseConcMarkSweepGC
wrapper.java.additional.40.java_version.max=8
```

This parameter is only used for Java versions  $\geq 9$ . For Java version 8 this parameter is ignored:

```
wrapper.java.additional.60=--add-exports=java.base/sun.security.util=ALL-UNNAMED
wrapper.java.additional.60.java_version.min=9
```

This parameter is only used for Java version 10. It is ignored for all other Java versions:

```
wrapper.java.additional.65=--add-modules=java.activation
wrapper.java.additional.65.java_version.min=10
wrapper.java.additional.65.java_version.max=10
```

A complete description of the parameters and further information can be found here:

<https://wrapper.tanukisoftware.com/doc/english/prop-java-additional-n.html>



**Prerequisite for using the new configuration:**

An update of the Tanuki Java Service Wrapper to version 3.5.36 is necessary.

The update can be performed:

- via the file `fs-update-<version>.tar.gz`. (when using the new Tar-Gzip update archive, see “Installing and updating the FirstSpirit server via tar.gz archives”) or
- as described in the FirstSpirit installation guide using the appropriate installer (currently still recommended for productive environments, since updating via the file `fs-update-<version>.tar.gz` is still in the EAP phase).

! Java EA versions are not supported, i.e. it is not possible to start the FirstSpirit server with a corresponding version, e.g. OpenJDK Runtime Environment 18.9 (build 11-ea+25).

**When is the change to the new configuration necessary?**

It is necessary to adapt the existing configuration to the new parameters:

- after an update of the Java Service Wrapper (see above) *and*
- when using a Java version  $\geq 9$

In this case, the FirstSpirit server will no longer start without the configuration adjustment.

For all other cases (Java version  $< 9$ , older version of the Java Service Wrapper) the configuration changes are not mandatory.

For installations in Isolated mode and when using Java versions  $\geq 9$  the environment variable `JAVA_VERSION_IDENT` must be set.

Background: When updating via `fs-update-<version>.tar.gz`, the files `bin/fs5` (under Linux) and `bin/fs5.cmd` (under Windows) are also updated. Since the new versions of the file `conf/fs-wrapper.isolated.conf` no longer use “includes”, the updated versions of the files `bin/fs5` (under Linux) and `bin/fs5.cmd` (under Windows) no longer contain a corresponding check. In order to be able to use the previous file `conf/fs-wrapper.isolated.conf` unchanged, it makes sense to set the result of the corresponding check via the environment variable `JAVA_VERSION_IDENT`:

- Value 1 when using Java 8



- Value 2 when using newer Java versions ( $\geq 9$ )

### How to change an existing configuration?

The file `conf/conf-all/fs-wrapper.conf.default.txt` contains a default configuration provided by e-Spirit using the new syntax. This default configuration can be used as foundation for the new configuration.



The provided standard configuration of the Java Service Wrapper may differ from the configuration in concrete customer installations. The concrete parameters and values of the files `fs-wrapper.conf` respectively `fs-wrapper.isolated.conf` and the include files `fs-wrapper-j#.include.conf` must be incorporated in the new configuration and adapted to the new syntax (if they differ from the standard configuration).

## 4.3 Conversion tool "BerkeleyUtil": Exclusion of directories

The conversion tool "BerkeleyUtil" may be used to convert all data stored in the Berkeley DBs on existing FirstSpirit servers to the Berkeley DB 7 format, comfortably with few commands and via the command prompt.

The tool now provides the option to exclude individual directories from consideration and conversion. By default, all directories whose names begin with `.` will be excluded. If other directories should be excluded, these must be provided via the parameter `--exclude` in the form of a suitable RegEx.

For further information, see *FirstSpirit Manual for Administrators*, chapter "FirstSpirit ServerManager / Project properties / Repository".

## 4.4 End of support for older versions of FirstSpirit Launcher, migration to the new Launcher version recommended

As of FirstSpirit 2018-08, a new, optimized version of the FirstSpirit Launcher is provided. As opposed to older Launcher versions (FirstSpirit 2018-07 and lower), the new version supports macOS and is generally operational on Linux as well. This Launcher version was released with FirstSpirit 2018-10.

As of the current release, only the new Launcher version is supported. It can be downloaded and distributed via the start page of a FirstSpirit server running version 2018-08 or higher.



## Migrating to the new Launcher version

If a version of the FirstSpirit Launcher before FirstSpirit 2018-08 is already installed on the local workstation, it must be installed anew because an automatic update will not take place. After successful installation of the new Launcher version, it will be used automatically. The old Launcher will no longer be used and can be uninstalled (Windows functionality). Directories and files which were created by the old Launcher on the associated FirstSpirit server as well as on the local workstations can be deleted manually:

- **FirstSpirit server**
  - within the directory [FirstSpiritROOT]\web\fs5root\clientjar, files
    - FSLauncherSetup.exe
    - FSLauncherSetup.msi
- **Workstations**
  - directory C:\Users\{username}\.firstspirit\launcher
  - directory C:\Users\{username}\AppData\Local\FirstSpirit Launcher

## Compatibility and upgrade/downgrade capability

Until now, it was possible to use an “old” Launcher version (FirstSpirit 2018-07 or lower) with a FirstSpirit server running FirstSpirit 2018-08 or higher. Likewise, the “new” Launcher version (FirstSpirit 2018-08 and higher) could be used with a FirstSpirit server running FirstSpirit 2018-07 or lower. With the official end of support for the “old” Launcher, prolonged compatibility cannot be ensured; a timely migration to the new Launcher version is recommended.

For further information, see

- *FirstSpirit Release Notes* for FirstSpirit 2018-08
- *FirstSpirit Installation Instructions*, chapter “FirstSpirit Launcher”
- *FirstSpirit Manual for Administrators*, page “FirstSpirit start page / Areas of the start page / FirstSpirit Launcher”



## 4.5 Installing and updating the FirstSpirit server via tar.gz archives

A new installation and update option for the FirstSpirit server was developed to meet the changed requirements of modern software operation.

This new development of as flexible an installation process as possible presents a challenge, since the previous Windows Installer will be obsolete when support for Oracle Java 8 for the FirstSpirit server ends (deprecated with FirstSpirit 2018-06).

The following aspects were considered during development:

- technological neutrality, i.e as little dependency as possible on operating system dependent software
- KISS principle (Keep it simple, stupid), i.e. preferably finding a simple solution
- exactly one tool for one purpose, here:
  - for installing
  - for updating
- the same tool for all supported operating systems
- separation of the operations layer i.e. what is required for controlling the FirstSpirit server
- modular and extensible design

Operating a FirstSpirit-Servers requires “Java” and the “Java Service Wrapper”.

The “Java Service Wrapper” and related control files are provided by e-Spirit. They constitute the FirstSpirit server's operations layer. A Java version is not provided by e-Spirit.

This new development's result can be tested as part of an Early Access Programme (“EAP”) starting with FirstSpirit 2018-11. An early, constructive feedback helps us to identify problems faster and more easily, thus allowing us to add missing functionality. For feedback please consult our Technical Support (for partners) or your designated Account Manager (for customers).

### Installing via Tar-Gzip install archive



We chose to use the tar-gzip format for the installation process, since it is already being used for several purposes in FirstSpirit. The tar-gzip archive for installation can be identified by its filename: it begins with the prefix `fs-install` and the file ending is `tar.gz`, e.g.

```
fs-install-5.2.181105.tar.gz
```

Installing from a tar.gz archive consists of 5 steps:

1. Unpack the install archive. Where necessary the archive has to be decompressed first (**G(un)zip**), then extracted.
2. Copy the FirstSpirit server file (`fs-isolated-server.jar`) for the desired FirstSpirit version to the directory `~FS/server/lib-isolated`. (`~FS` = directory containing the FirstSpirit server installer files)
3. Copy the license file (`fs-license.conf`) to the directory `~FS/conf`. (the license file can be requested from your designated Account Manager or via <https://help.e-spirit.de/>)
4. Set the environment variable `FS_JAVA_HOME` to the directory with the desired Java version (e.g. `FS_JAVA_HOME=C:\Program Files\Java\jdk1.8.0_181`). (alternatively the complete Java path can also be specified in the file `fs-wrapper.isolated.conf`.)
5. Start the FirstSpirit servers for the first time:
  - under Linux with `~FS/bin/fs5 start`
  - under Windows with `~FS\bin\fs5 install` and `~FS\bin\fs5 start` (by starting the service just installed)  
or (alternatively with `~FS\bin\fs5.cmd console` (without using a Windows service)



**Attention!** For `fs5 install` under Windows you need system administrator privileges.

The following assumptions are made in this manual:



- You are installing in Isolated mode (see *Isolated mode [Beta]* (→*Manual for Module Developers*)).
- The HTTP port will be 8000 and the socket port 1088.

### Installing the Windows service

- `~FS\bin\fs5 install`  
The Windows service can be configured via the `wrapper.ntservice.*` parameters in the file `fs-wrapper.isolated.conf` (or `fs-wrapper.conf`, respectively).

### Installing with a different port

- Before step 5) you can modify `HTTP_PORT` and/or `SOCKET_PORT` in the file `~FS/conf/fs-server.conf`.

### Installing in legacy mode

- Instead of step 2) copy the file `fs-server.jar` for the desired FirstSpirit version to `~FS/server/lib`.
- Before step 5) delete the file `~FS/bin/fs5.mode` and rename `~FS/bin/fs5.mode-legacy` to `~FS/bin/fs5.mode`.

### Hints for installing FirstSpirit under Linux:

- We strongly advise against operating FirstSpirit as the root user.
- Users and groups are not created automatically, i.e. the administrator has create and configure an account before installing FirstSpirit.
- Services also have to be managed by the administrator - with `firstspirit5/bin/fs5.init` we are providing an example for SysV-Init.

### Demo project “Mithras Energy”





After the installation you can also download the demo project “Mithras Energy” with the respective modules and install both via the ServerManager. To be able to fully use the demo project the module Apache FOP (`fs-fop.fsm`) is required.

### **Updating via tar-gzip update archive**

In order to keep the operations layer of a FirstSpirit server (“Java Service Wrapper” and control files) up-to-date, we now provide a so-called "update archive". Again we chose tar-gzip as the file format. The archive's file name starts with `fs-update` and the file ending is `tar.gz`, e.g.

```
fs-update-5.2.181105.tar.gz
```

To update the operations layer unpack the archive in your FirstSpirit server directory.

Example call under Linux:

```
~/firstspirit5$ tar xvfz fs-update-5.2.181105.tar.gz
```

After unpacking take note of the unpacked files' user and group access right, and adjust them if necessary.

Since this new update process is still in the EAP phase, we do not recommend using it in production environments.

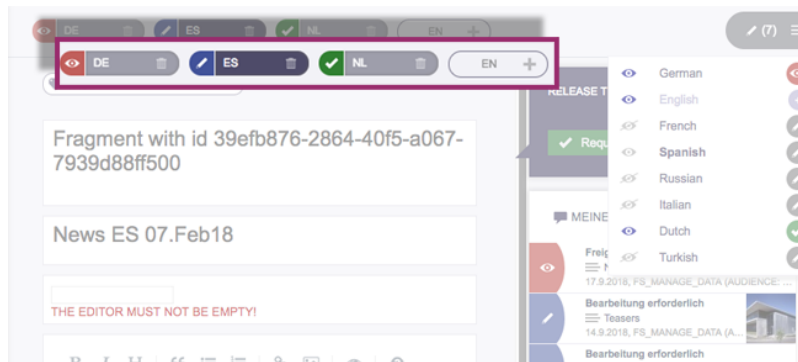
## **5 FragmentCreator**

### **5.1 Display of Variants in Favorites List**

Every editor is able to mark some variants as favorites. The so-marked variants will be displayed above the selected fragment.

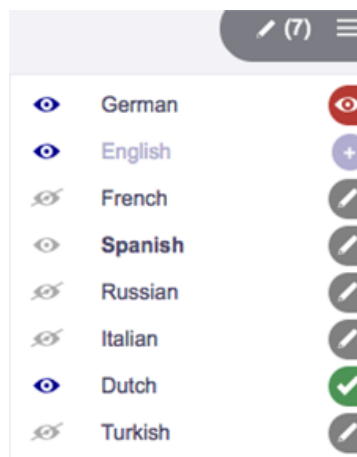
#### **Display of variant favorites**





Switching between these variants requires just one click. For each variant, its current status is also shown.

### Selection of variants



When clicking the icon for variant selection, a list of all available variants of the current fragment is displayed. For each variant, the list shows the variant's status and if it is currently marked as a favorite.

Here, the editor can

- select an existing variant for editing (clicking on the variant's name)
- add a variant to the favorites list (clicking on the grey eye icon “Not a favorite”)



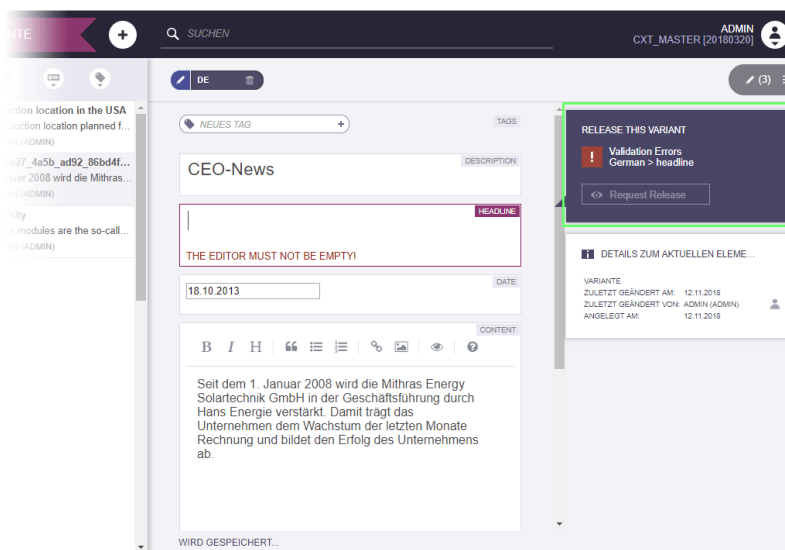
- remove a variant from the favorites list (clicking on the blue eye icon “Favorite”)
- add another variant for the selected fragment (clicking on the plus icon “Create variant”)

## 5.2 Visualization of validation problems

Depending on the project configuration, validation problems (rule violations, recommendations for filling out input components...) can be shown in FragmentCreator.

Validation problems can occur for example, if a required input component was not filled out, if more characters were entered in a text input component than allowed or if input was made that is faulty content-wise or formally.

If an input component is affected by validation problems is shown prominently in the right-hand area of FragmentCreator as of the current release – in addition to already existing borders:



The affected language/s and input components are listed in the new box.

If there are validation problems for a variant, no workflow can be started or forwarded on this variant. When clicking on a action button, a corresponding error message appears.



## 6 Module Development, Scripts, API

### 6.1 Dynamic filters - data access plugins are becoming more flexible

The data access infrastructure of FirstSpirit allows module developers to integrate external data sources (e.g. web services) and FirstSpirit-internal data sources (e.g. FirstSpirit fragments) into FirstSpirit projects. Data from these sources can be provided via data access plugins in **FirstSpirit reports** and/or in **FS\_INDEX** input components. The interface `DataStreamBuilder` in the package `de.espirit.firstspirit.client.plugin.dataaccess` (FirstSpirit Developer API) allows configuration of a set of data which is provided for use within FS\_INDEX input components or reports. Filter parameters, which can be used by editors to filter the amount of data (e.g. via a combobox), may be implemented via the aspect `Filterable`.

For further information about the data stream builder, see *FirstSpirit Online Documentation*, chapter “Plug-In Development / Universal Extensions / Data Access / Data Stream / Builder”.

**New functionality:** Data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters. The new aspect `Updating` in the package `de.espirit.firstspirit.client.plugin.dataaccess.aspects` (FirstSpirit Developer API) enables triggering updates to the filter parameters of a data access plugin (“DAP”). If a filter parameter is changed (e.g. due to selection of a value in a combobox), this API is called with the current set of values of all parameters and returns a changed set of parameter definitions. The displayed selection fields will then be updated accordingly.

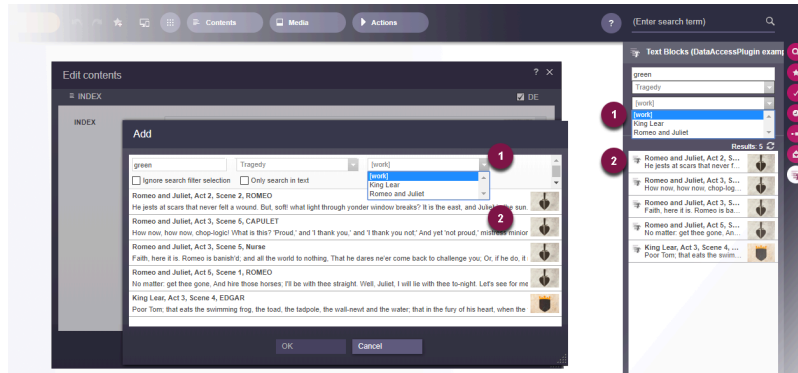
The new functionality is supported in SiteArchitect and ContentCreator.

**Example:** The TextBlocks example plugin of the “ContentCreator Examples” package was updated with FirstSpirit 2018-11 and now provides quotations from four Shakespeare works. The set of data (2) offered by the DAP can be filtered via two comboboxes (1) (see figure: form view in FS\_INDEX on the left - report view on the right):

- [genre] (contains the values “comedy” and “tragedy”) and
- [work] (contains the works' names)



If the combobox “[genre]” is set to filter for “tragedies”, the set of values in the dependent combobox “[work]” is changed. Now, the combobox “[work]” only allows selection of the available “tragedies” but not of the “comedies”.



Example: Filtering/updating of the result set of a data access plugin

For further information about the TextBlocks example plugin, see *FirstSpirit Online Documentation*, chapter “Plug-In Development / Examples”.

**Previous behavior:** The value set of the filter parameters for a data access plugin was constant for the duration of the entire user session. That is, the filter parameters were initialized once during start-up of SiteArchitect or ContentCreator and kept by until the end of the session. A value set for filter parameters that is dependent upon the selection of another filter parameter (as shown in the example above) could not be realized in the past.

## 6.2 Extension of the ContentCreator-JavaScript-API / WE\_API to enable client-side actions on FS\_INDEX entries.

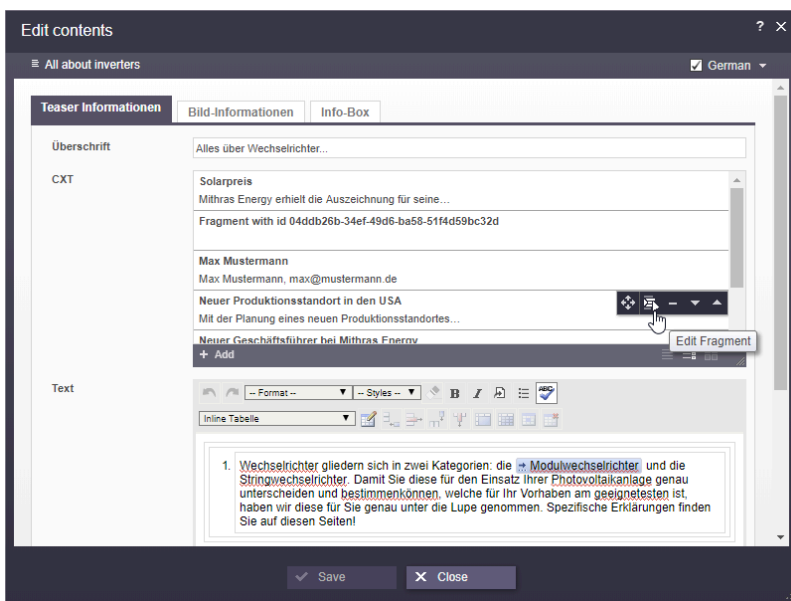
Entries in a FS\_INDEX input component can now be extended with client-side actions. Therefore the *Developer-API* (`de.espirit.firstspirit.webedit.client.api`) was extended by the following classes:

- `ClientItem`
- `ClientItemConstants`
- `ClientItemContext`



- ClientItemPerformable
- ClientItemPlugin

Additionally the Class Common has been expanded by the method addItemsPlugin.



Example based on a FS\_INDEX with fragments

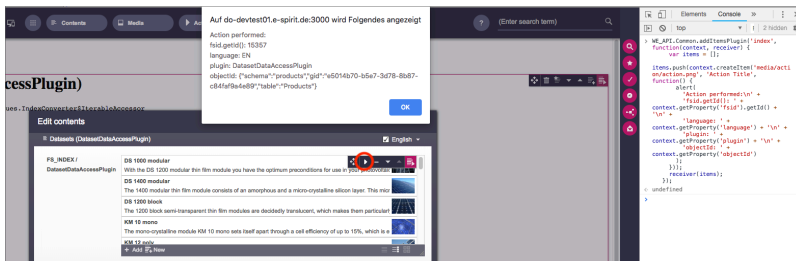
To complement previous capabilities it is now possible to add **client-side determined** actions to FS\_INDEX entries via JavaScript.

### Code example

To perform a simple test of the new API, the following code can be executed **once** in the JavaScript console after starting the ContentCreator. As a result, an additional button is displayed for FS\_INDEX entries that displays an alert message.



```
WE_API.Common.addItemPlugin('index', function(context, receiver) {
    var items = [];
    items.push(context.createItem('media/action/action.png', 'Action Title',
        function() {
            alert(
                'Action performed:\n' +
                'fsid.getId(): ' + context.getProperty('fsid').getId() + '\n' +
                'language: ' + context.getProperty('language') + '\n' +
                'plugin: ' + context.getProperty('plugin') + '\n' +
                'objectId: ' + context.getProperty('objectId')
            );
        }));
    receiver(items);
});
```



Code example alert message

For more information, see *FirstSpirit Online Documentation*, “Template development / JavaScript APIs / ContentCreator / Common Functionality”.

### 6.3 Extension of the FirstSpirit API by the "ExternalGroup" interface

The FirstSpirit Access API was extended by the interface `ExternalGroup` (package: `de.espirit.firstspirit.access.project`) to provide functionality specific to external groups (for example from an *Active Directory*). The method `getExternalName` returns the name of the external group, while the method `setExternalName` allows setting the group name.

**!** Setting the group name requires administration privileges at server or project level.



## 7 SiteArchitect / ServerManager

### 7.1 "JExplorer" browser engine withdrawn (Integrated preview for content)

The integrated preview in FirstSpirit SiteArchitect (menu entries "View / Integrated preview" and "View / Browser engine") is based upon third-party software. The discontinuation of "JExplorer" as browser engine for the use of "Internet Explorer" has been announced with FirstSpirit 2018-07 (July 2018), and, as of FirstSpirit 2018-11, this browser engine has now been removed from FirstSpirit as planned. The menu item "Internet Explorer" has been removed in both FirstSpirit SiteArchitect ("View / Browser engine" menu) and ServerManager ("Project / Properties / Client applications / Browser engine"). Where "Internet Explorer" had been set in projects or in project properties, the "Google Chrome" browser engine will now be used automatically instead.

This is because the externally developed library, which is the basis for the browser engine, will no longer be developed / updated in the near future and has been officially discontinued by the manufacturer.

As an alternative, Google Chrome can be used further on for internal previews or, of course, every other browser for external previews (for example by deactivating the option "View / Integrated preview/ use for content" or by right-clicking on the preview icon or click with pressed **Ctrl** key).

For more information, see

- *Documentation for FirstSpirit SiteArchitect*, "FirstSpirit SiteArchitect / Menu bar / View / Browser engine"
- *FirstSpirit Manual for Administrators*, "FirstSpirit ServerManager / Project properties / Client applications / Browser engine"

## 8 System

### 8.1 Integrated Software

With the current FirstSpirit version, the following, internally used software has been updated:

- **JxBrowser** (Chrome browser engine for displaying the integrated preview in FirstSpirit SiteArchitect)





Update to version 6.21

The engine now uses “Chromium” in the version 64.0.3282.24. In addition, a 64bit version of the chromium browser is now used on 64bit systems.

- **Google Guava**

Update to version 27.0-jre



After the update of Google Guava the FSDevTools have to be updated in case these are used. A new version of the FSDevTools (Release 2.2.692) will be released at the same time as FirstSpirit 2018-11. This can be downloaded from <https://github.com/e-Spirit/FSDevTools/releases>.

## 9 Deprecations

For e-Spirit, an important goal in software development is to avoid introducing incompatibilities and migration expenditures related to updating from one FirstSpirit release to the next as much as possible or to compensate for these within the software. FirstSpirit updates should generally be deployable with little effort or able to be carried out in a fully automated fashion.

However - not least in order to ensure maintainability and to future-proof the software - e-Spirit cannot fully avoid replacing existing functionality with new mechanisms. In the future, functionality that will be removed from the software will be listed in this section, including the date at which time the functionality will be removed.

Functionality	Deprecated as of	Will be removed/ Was removed as of
FirstSpirit Developer API: de.espirit.firstspirit.agency.GroupsAgent	5.2R15	
FirstSpirit Access API: delete (de.espirit.firstspirit.access.AccessUtil)	5.2R18	
Oracle Berkeley DB 5 Support	5.2R21	2018-11
Oracle Berkeley DB 3 Support	5.2R21	2018-11
Windows installation program	2018-06	



Functionality	Deprecated as of	Will be removed/ Was removed as of
FirstSpirit Access API: release (de.espirit.firstspirit.access.AccessUtil)	2018-06	
FirstSpirit Developer API: getLastLoginAsDate (de.espirit.firstspirit.agency.UserStatisticsAgent)	2018-07	
FirstSpirit Developer API: remainingDurationOfCurrentStageInMillis (de.espirit.firstspirit.server.MaintenanceModelInfo)	2018-07	
FirstSpirit Developer API: getStartingTimeOfStageAsDate (de.espirit.firstspirit.server.MaintenanceModelInfo)	2018-07	
FirstSpirit Launcher (old)	2018-07	2018-11
Browser Engine "Internet Explorer"	2018-07	2018-11
FirstSpirit Access API: getSelectedWebserverConfiguration (de.espirit.firstspirit.access.serverConfiguration)	2018-10	
FirstSpirit Access API: setSelectedWebserverConfiguration (de.espirit.firstspirit.access.serverConfiguration)	2018-10	
FirstSpirit Access API: getSelectedWebServer (de.espirit.firstspirit.access.project.Project)	2018-10	
FirstSpirit Access API: setSelectedWebServer (de.espirit.firstspirit.access.project.Project)	2018-10	
FirstSpirit Developer API: getLostAndFoundStoreNodes(); (de.espirit.firstspirit.feature.FeatureInstallResult)	2018-10	
FirstSpirit Developer API: getDeletedStoreNodes(); (de.espirit.firstspirit.feature.FeatureInstallResult)	2018-10	



## 10 Overview

ID	Description	Categories
CORE-336	In rules, improved evaluation of the property <code>FOCUS</code> when using the input components <code>CMS_INPUT_TOGGLE</code> ( <code>type=radio</code> ) and <code>CMS_INPUT_RADIOBUTTON</code> .	Dynamic Forms, Input Components
CORE-630	Optimized interaction pattern when restoring a dataset which referenced other datasets.	Content Store, SiteArchitect
CORE-1895	Erroneous behavior could arise in the preview of a page reference when outputting the system object <code>#this</code> .	Developer
CORE-1925	Improved media file selection dialog.	ContentCreator
CORE-3897	Caching of DNS entries can now optionally be configured via the parameter <code>networkaddress.cache.ttl</code> in the file <code>fs-server.conf</code> .  Further information can be found in chapter "Administration: Configuration of JVM time-to-live (TTL) for DNS name look-ups".	Server Administrator
CORE-5134	Improved consideration of breakpoints in the template debugger.	Developer, SiteArchitect
CORE-6790	Optimized permissions evaluation when viewing a section reference.	SiteArchitect
CORE-7300	Improved behavior related to updating modules in web applications.	FirstSpirit Administrator, Isolated mode (BETA)
CORE-8280	The FirstSpirit Access API was extended by the interface <code>ExternalGroup</code> (package: <code>de.espirit.firstspirit.access.project</code> ). This enables getting and setting of the name of an external group.  Further information can be found in chapter "Module Development, Scripts, API: Extension of the FirstSpirit API by the "ExternalGroup" interface".	FirstSpirit API



ID	Description	Categories
CORE-8387	<p>Via the new aspect <code>Updating</code> in the package <code>de.espirit.firstspirit.client.plugin.dataaccess.aspects</code> (FirstSpirit Developer API), data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Dynamic filters - data access plugins are becoming more flexible”.</p>	ContentCreator, Data Access Plug-In, Developer, Input Components, Module development, SiteArchitect
CORE-8623	Improved workflow support related to erroneous input.	FragmentCreator
CORE-8759	In rare cases, erroneous behavior could arise during start-up of the FirstSpirit server.	Isolated mode (BETA)
CORE-8942 CORE-9055	<p>In the current FirstSpirit version, updated internally used software.</p> <p>Further information can be found in chapter “System: Integrated Software”.</p>	Integrated software, Preview, SiteArchitect
CORE-8968	Optimized consideration of aborted sessions when editing data sources with server lock.	Content Store
CORE-8986	Optimized clean-up of technical sessions.	FirstSpirit Administrator
CORE-9022	<p>Variants can be marked as favorites and displayed in a favorites list.</p> <p>Further information can be found in chapter “FragmentCreator: Display of Variants in Favorites List”.</p>	FragmentCreator
CORE-9186	Added package <code>org.jetbrains.annotations</code> to <code>fs-isolated-runtime.jar</code> .	Isolated mode (BETA)
CORE-9189	Optimized logging of FirstSpirit Jetty Server.	Server Administrator
CORE-9190	Optimized display of preset values in forms.	SiteArchitect
CORE-9195	In the input component <code>FS_CATALOG</code> , the context menu entry “Paste” will now only be active when the clipboard contains a suitable element.	SiteArchitect
CORE-9200	In client logging, optimized consideration of the configured log level.	SiteArchitect



ID	Description	Categories
CORE-9204	Canceling out of editing a form could in some cases cause the preview page to be reloaded unnecessarily.	ContentCreator
CORE-9227	Optimized consideration of rule infractions in other languages when saving a form.	ContentCreator
CORE-9248	<p>Extension of the <i>ContentCreator-JavaScript-API / WE_API</i> to enable attaching client-side actions to FS_INDEX entries within the ContentCreator.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Extension of the ContentCreator-JavaScript-API / WE_API to enable client-side actions on FS_INDEX entries.”.</p>	ContentCreator, FirstSpirit API
CORE-9300	<p>Installing and updating the FirstSpirit server via tar.gz archives</p> <p>Further information can be found in chapter “Administration: Installing and updating the FirstSpirit server via tar.gz archives”.</p>	Server Administrator
CORE-9307	Improvements related to display of the navigation menu when creating a new page.	ContentCreator
CORE-9323	<p>The configuration of the wrapper has been adapted so that the Java-specific parameters can be passed in a single configuration file. This new functionality is available after an update of the Tanuki Java Service Wrapper to version 3.5.36.</p> <p>Further information can be found in chapter “Administration: Configuration settings for the server start depending on the Java version (fs-wrapper.conf)”.</p>	FirstSpirit Administrator, Server Administrator
CORE-9332	Improved consideration of the user interface language selected on the FirstSpirit start page.	ContentCreator
CORE-9338	Improved handling of conflicting resources in web applications.	FirstSpirit Administrator, Modules
CORE-9341	Improved tool tip information when editing metadata.	ContentCreator
CORE-9384	Optimized logging of Jetty Web Server.	FirstSpirit Administrator, Web server



ID	Description	Categories
CORE-9398	<p>With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned.</p> <p>Further information can be found in chapter “SiteArchitect / ServerManager: "JExplorer" browser engine withdrawn (Integrated preview for content)”.</p>	Editor, FirstSpirit Administrator, Integrated software, Java, Preview, ServerManager, SiteArchitect
CORE-9399	<p>As of FirstSpirit 2018-08, a new, optimized version of the FirstSpirit Launcher is provided. As opposed to older Launcher versions, the new version supports macOS and is generally operational on Linux as well. This Launcher version was released with FirstSpirit 2018-10. As of the current release, only the new Launcher version is supported.</p> <p>Further information can be found in chapter “Administration: End of support for older versions of FirstSpirit Launcher, migration to the new Launcher version recommended”.</p>	Editor, FirstSpirit Administrator, Launcher, Webstart
CORE-9430	Optimized consideration of the translated status of the page when using the interface <code>OpenElementDataFormOperation</code> (package <code>de.espirit.firstspirit.ui.operations</code> , FirstSpirit Developer API).	ContentCreator, FirstSpirit API
CORE-9451	If the FirstSpirit Jetty Service was in use, erroneous behavior could arise when searching in the FirstSpirit Online Documentation (“ODFS”).	Search, Web server
CORE-9484	<p>“BerkeleyUtil” now provides the option to exclude individual directories from consideration and conversion. By default, all directories whose names begin with <code>.</code> will be excluded. If other directories should be excluded, these must be provided via the parameter <code>--exclude</code> in the form of a suitable RegEx.</p> <p>Further information can be found in chapter “Administration: Conversion tool "BerkeleyUtil": Exclusion of directories”.</p>	FirstSpirit Administrator, Repository
CORE-9499	Optimized classloading when using Jetty Web Server.	Web server
CORE-9507	Optimized configuration and control of several system services.	FirstSpirit Administrator



ID	Description	Categories
CORE-9518	Visualization of validation problems  Further information can be found in chapter “FragmentCreator: Visualization of validation problems”.	FragmentCreator
CORE-9551	In the comparison view (page status, “Display all changes”), long text could cause a display issue.	ContentCreator

## 11 Categories

### 11.1 Content Store

ID	Description
CORE-630	Optimized interaction pattern when restoring a dataset which referenced other datasets.
CORE-8968	Optimized consideration of aborted sessions when editing data sources with server lock.

### 11.2 ContentCreator

ID	Description
CORE-1925	Improved media file selection dialog.
CORE-8387	Via the new aspect <code>Updating</code> in the package <code>de.espirit.firstspirit.client.plugin.dataaccess.aspects</code> (FirstSpirit Developer API), data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters.  Further information can be found in chapter “Module Development, Scripts, API: Dynamic filters - data access plugins are becoming more flexible”.
CORE-9204	Canceling out of editing a form could in some cases cause the preview page to be reloaded unnecessarily.
CORE-9227	Optimized consideration of rule infractions in other languages when saving a form.
CORE-9248	Extension of the <i>ContentCreator-JavaScript-API / WE_API</i> to enable attaching client-side actions to <code>FS_INDEX</code> entries within the ContentCreator.



ID	Description
	Further information can be found in chapter “Module Development, Scripts, API: Extension of the ContentCreator-JavaScript-API / WE_API to enable client-side actions on FS_INDEX entries.”.
CORE-9307	Improvements related to display of the navigation menu when creating a new page.
CORE-9332	Improved consideration of the user interface language selected on the FirstSpirit start page.
CORE-9341	Improved tool tip information when editing metadata.
CORE-9430	Optimized consideration of the translated status of the page when using the interface <code>OpenElementDataFormOperation</code> (package <code>de.espirit.firstspirit.ui.operations</code> , FirstSpirit Developer API).
CORE-9551	In the comparison view (page status, “Display all changes”), long text could cause a display issue.

### 11.3 Data Access Plug-In

ID	Description
CORE-8387	<p>Via the new aspect <code>Updating</code> in the package <code>de.espirit.firstspirit.client.plugin.dataaccess.aspects</code> (FirstSpirit Developer API), data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Dynamic filters - data access plugins are becoming more flexible”.</p>

### 11.4 Developer

ID	Description
CORE-1895	Erroneous behavior could arise in the preview of a page reference when outputting the system object <code>#this</code> .
CORE-5134	Improved consideration of breakpoints in the template debugger.
CORE-8387	Via the new aspect <code>Updating</code> in the package <code>de.espirit.firstspirit.client.plugin.dataaccess.aspects</code> (FirstSpirit Developer API), data access plugins can now react to





ID	Description
	<p>changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Dynamic filters - data access plugins are becoming more flexible”.</p>

## 11.5 Dynamic Forms

ID	Description
CORE-336	<p>In rules, improved evaluation of the property FOCUS when using the input components CMS_INPUT_TOGGLE (<i>type=radio</i>) and CMS_INPUT_RADIOBUTTON.</p>

## 11.6 Editor

ID	Description
CORE-9398	<p>With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned.</p> <p>Further information can be found in chapter “SiteArchitect / ServerManager: “JExplorer” browser engine withdrawn (Integrated preview for content)”.</p>
CORE-9399	<p>As of FirstSpirit 2018-08, a new, optimized version of the FirstSpirit Launcher is provided. As opposed to older Launcher versions, the new version supports macOS and is generally operational on Linux as well. This Launcher version was released with FirstSpirit 2018-10. As of the current release, only the new Launcher version is supported.</p> <p>Further information can be found in chapter “Administration: End of support for older versions of FirstSpirit Launcher, migration to the new Launcher version recommended”.</p>



## 11.7 FirstSpirit API

ID	Description
CORE-8280	<p>The FirstSpirit Access API was extended by the interface <code>ExternalGroup</code> (package: <code>de.espirit.firstspirit.access.project</code>). This enables getting and setting of the name of an external group.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Extension of the FirstSpirit API by the "ExternalGroup" interface”.</p>
CORE-9248	<p>Extension of the <i>ContentCreator-JavaScript-API / WE_API</i> to enable attaching client-side actions to FS_INDEX entries within the ContentCreator.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Extension of the ContentCreator-JavaScript-API / WE_API to enable client-side actions on FS_INDEX entries.”.</p>
CORE-9430	<p>Optimized consideration of the translated status of the page when using the interface <code>OpenElementDataFormOperation</code> (package <code>de.espirit.firstspirit.ui.operations</code>, FirstSpirit Developer API).</p>

## 11.8 FirstSpirit Administrator

ID	Description
CORE-7300	Improved behavior related to updating modules in web applications.
CORE-8986	Optimized clean-up of technical sessions.
CORE-9323	<p>The configuration of the wrapper has been adapted so that the Java-specific parameters can be passed in a single configuration file. This new functionality is available after an update of the Tanuki Java Service Wrapper to version 3.5.36.</p> <p>Further information can be found in chapter “Administration: Configuration settings for the server start depending on the Java version (fs-wrapper.conf)”.</p>
CORE-9338	Improved handling of conflicting resources in web applications.
CORE-9384	Optimized logging of Jetty Web Server.
CORE-9398	With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned.



ID	Description
	Further information can be found in chapter “SiteArchitect / ServerManager: "JExplorer" browser engine withdrawn (Integrated preview for content)”.
CORE-9399	<p>As of FirstSpirit 2018-08, a new, optimized version of the FirstSpirit Launcher is provided. As opposed to older Launcher versions, the new version supports macOS and is generally operational on Linux as well. This Launcher version was released with FirstSpirit 2018-10. As of the current release, only the new Launcher version is supported.</p> <p>Further information can be found in chapter “Administration: End of support for older versions of FirstSpirit Launcher, migration to the new Launcher version recommended”.</p>
CORE-9484	<p>“BerkeleyUtil” now provides the option to exclude individual directories from consideration and conversion. By default, all directories whose names begin with . will be excluded. If other directories should be excluded, these must be provided via the parameter <code>--exclude</code> in the form of a suitable RegEx.</p> <p>Further information can be found in chapter “Administration: Conversion tool "BerkeleyUtil": Exclusion of directories”.</p>
CORE-9507	Optimized configuration and control of several system services.

## 11.9 FragmentCreator

ID	Description
CORE-8623	Improved workflow support related to erroneous input.
CORE-9022	<p>Variants can be marked as favorites and displayed in a favorites list.</p> <p>Further information can be found in chapter “FragmentCreator: Display of Variants in Favorites List”.</p>
CORE-9518	<p>Visualization of validation problems</p> <p>Further information can be found in chapter “FragmentCreator: Visualization of validation problems”.</p>



## 11.10 Input Components

ID	Description
CORE-336	In rules, improved evaluation of the property <code>FOCUS</code> when using the input components <code>CMS_INPUT_TOGGLE (type=radio)</code> and <code>CMS_INPUT_RADIOBUTTON</code> .
CORE-8387	<p>Via the new aspect <code>Updating</code> in the package <code>de.espirit.firstspirit.client.plugin.dataaccess.aspects</code> (FirstSpirit Developer API), data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Dynamic filters - data access plugins are becoming more flexible”.</p>

## 11.11 Integrated software

ID	Description
CORE-8942	In the current FirstSpirit version, updated internally used software.
CORE-9055	Further information can be found in chapter “System: Integrated Software”.
CORE-9398	<p>With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned.</p> <p>Further information can be found in chapter “SiteArchitect / ServerManager: “JExplorer” browser engine withdrawn (Integrated preview for content)”.</p>

## 11.12 Isolated mode (BETA)

ID	Description
CORE-7300	Improved behavior related to updating modules in web applications.
CORE-8759	In rare cases, erroneous behavior could arise during start-up of the FirstSpirit server.
CORE-9186	Added package <code>org.jetbrains.annotations</code> to <code>fs-isolated-runtime.jar</code> .



## 11.13 Java

ID	Description
CORE-9398	<p>With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned.</p> <p>Further information can be found in chapter “SiteArchitect / ServerManager: "JExplorer" browser engine withdrawn (Integrated preview for content)”.</p>

## 11.14 Launcher

ID	Description
CORE-9399	<p>As of FirstSpirit 2018-08, a new, optimized version of the FirstSpirit Launcher is provided. As opposed to older Launcher versions, the new version supports macOS and is generally operational on Linux as well. This Launcher version was released with FirstSpirit 2018-10. As of the current release, only the new Launcher version is supported.</p> <p>Further information can be found in chapter “Administration: End of support for older versions of FirstSpirit Launcher, migration to the new Launcher version recommended”.</p>

## 11.15 Module development

ID	Description
CORE-8387	<p>Via the new aspect <code>Updating</code> in the package <code>de.espirit.firstspirit.client.plugin.dataaccess.aspects</code> (FirstSpirit Developer API), data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Dynamic filters - data access plugins are becoming more flexible”.</p>



## 11.16 Modules

ID	Description
CORE-9338	Improved handling of conflicting resources in web applications.

## 11.17 Preview

ID	Description
CORE-8942	In the current FirstSpirit version, updated internally used software.
CORE-9055	Further information can be found in chapter "System: Integrated Software".
CORE-9398	With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned.  Further information can be found in chapter "SiteArchitect / ServerManager: "JExplorer" browser engine withdrawn (Integrated preview for content)".

## 11.18 Repository

ID	Description
CORE-9484	"BerkeleyUtil" now provides the option to exclude individual directories from consideration and conversion. By default, all directories whose names begin with . will be excluded. If other directories should be excluded, these must be provided via the parameter <code>--exclude</code> in the form of a suitable RegEx.  Further information can be found in chapter "Administration: Conversion tool "BerkeleyUtil": Exclusion of directories".



## 11.19 Search

ID	Description
CORE-9451	If the FirstSpirit Jetty Service was in use, erroneous behavior could arise when searching in the FirstSpirit Online Documentation (“ODFS”).

## 11.20 Server Administrator

ID	Description
CORE-3897	<p>Caching of DNS entries can now optionally be configured via the parameter <code>networkaddress.cache.ttl</code> in the file <code>fs-server.conf</code>.</p> <p>Further information can be found in chapter “Administration: Configuration of JVM time-to-live (TTL) for DNS name look-ups”.</p>
CORE-9189	Optimized logging of FirstSpirit Jetty Server.
CORE-9300	<p>Installing and updating the FirstSpirit server via tar.gz archives</p> <p>Further information can be found in chapter “Administration: Installing and updating the FirstSpirit server via tar.gz archives”.</p>
CORE-9323	<p>The configuration of the wrapper has been adapted so that the Java-specific parameters can be passed in a single configuration file. This new functionality is available after an update of the Tanuki Java Service Wrapper to version 3.5.36.</p> <p>Further information can be found in chapter “Administration: Configuration settings for the server start depending on the Java version (<code>fs-wrapper.conf</code>)”.</p>

## 11.21 ServerManager

ID	Description
CORE-9398	With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned.



ID	Description
	Further information can be found in chapter “SiteArchitect / ServerManager: "JExplorer" browser engine withdrawn (Integrated preview for content)”.

## 11.22 SiteArchitect

ID	Description
CORE-630	Optimized interaction pattern when restoring a dataset which referenced other datasets.
CORE-5134	Improved consideration of breakpoints in the template debugger.
CORE-6790	Optimized permissions evaluation when viewing a section reference.
CORE-8387	<p>Via the new aspect <code>Updating</code> in the package <code>de.espirit.firstspirit.client.plugin.dataaccess.aspects</code> (FirstSpirit Developer API), data access plugins can now react to changes to or selection of a filter parameter within a user session and influence the value sets of further (dependent) filter parameters.</p> <p>Further information can be found in chapter “Module Development, Scripts, API: Dynamic filters - data access plugins are becoming more flexible”.</p>
CORE-8942	In the current FirstSpirit version, updated internally used software.
CORE-9055	Further information can be found in chapter “System: Integrated Software”.
CORE-9190	Optimized display of preset values in forms.
CORE-9195	In the input component <code>FS_CATALOG</code> , the context menu entry “Paste” will now only be active when the clipboard contains a suitable element.
CORE-9200	In client logging, optimized consideration of the configured log level.
CORE-9398	<p>With the latest FirstSpirit release, JExplorer has been withdrawn as the browser engine for the integrated preview as planned.</p> <p>Further information can be found in chapter “SiteArchitect / ServerManager: "JExplorer" browser engine withdrawn (Integrated preview for content)”.</p>





## 11.23 Web server

ID	Description
CORE-9384	Optimized logging of Jetty Web Server.
CORE-9451	If the FirstSpirit Jetty Service was in use, erroneous behavior could arise when searching in the FirstSpirit Online Documentation (“ODFS”).
CORE-9499	Optimized classloading when using Jetty Web Server.

## 11.24 Webstart

ID	Description
CORE-9399	<p>As of FirstSpirit 2018-08, a new, optimized version of the FirstSpirit Launcher is provided. As opposed to older Launcher versions, the new version supports macOS and is generally operational on Linux as well. This Launcher version was released with FirstSpirit 2018-10. As of the current release, only the new Launcher version is supported.</p> <p>Further information can be found in chapter “Administration: End of support for older versions of FirstSpirit Launcher, migration to the new Launcher version recommended”.</p>

