Structure 6.0 Release Notes

ALM Works Business Continuity During the COVID-19 Outbreak

26ᵗʰ of March, 2020
Structure 6 adds Effectors, user-based permissions, and API changes.

Download the latest version of Structure and its Extensions

Try It: Structure Sandbox Server (no installation required)

Pricing Changes

We are introducing new pricing for Structure Server, effective April 1, 2020. Learn more: 2023-04-26_13-51-52_Structure for Jira New Server Pricing

1. Version Highlights

- Effectors - a new form of automation for writing Structure attributes to Jira fields
- Possibility to define permissions per user
- API changes that may affect Structure integrations
- Attribute sensitivity settings
- Improved rank sorting

2. Changes in Detail

2.1. Effectors

The Attribute to Issue Field Effector allows you to write the values from Structure attributes (formulas, structure-specific columns, Structure.Gantt attributes, etc.) to Jira issue fields.

For more information, see our Effectors documentation and check out these sample use cases:

- Calculate Story Points for Epics and Write the Values to Jira
- Update Assignees to Match Parent Issues
- Calculate the Cost to Complete Issues and Projects - and Write Those Costs to Jira

2.2. Permissions Per User

It is now possible to assign structure permissions to specific users. Previously permissions could only be set based on user groups or project teams.

Permissions   User permission level is calculated by applying rules from this list, from top to bottom. **The last matching rule takes precedence.** Structure owner and Jira administrators always have **Control** permissions.

1. By default, permission level is **None**

Add Rule | Set Permission Level ⌄ | to | View ⌄ | for | User ⌄ | ◯ Claire T. ⌄ | ➕ Add

Documentation: Structure Permissions

2.3. API Changes

Structure 6 introduces significant changes to Java API. (REST API remains backwards compatible.) The changes are called for because of a large remake of the attributes subsystem in the product.

If you have an integration or an extension of Structure, your code might break. More specifically:

- If you're creating your own attribute loaders, your code will definitely be incompatible and will need some work.
- If you're just using the attribute subsystem, such as `StructureAttributeService`, your code may well break, but fixing it will most likely be trivial.
- If you're using REST APIs or other parts of Structure API, your code is very unlikely to stop working.

For more specifics about these API changes, see Structure 6 API Changes.

2.4. Attribute Sensitivity Settings

Attribute sensitivity settings provide a new level of data security within Structure, allowing admins to specify fields that may contain sensitive information and, therefore, should not be included when calculating aggregated functions.

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STRUCTURE ADMINISTRATION

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Attribute Sensitivity Settings

Attribute sensitivity settings allow you to adjust how protective Structure is when it comes to aggregating values in a structure where the user is not allowed to see some of the items (issues). This is a question of balance between securing the Jira data vs. ensuring that all users see the same aggregated result.

For example, Alice wants to see the total cost of an initiative, based on the Cost field of involved tasks. She also shares the structure with Bob. But Bob does not have access to some of the tasks in that initiative. Should Bob see the same total number as Alice does (even though he does not see all the tasks that went into that total), or should he see his own personal total based entirely on those tasks visible to him?

This is governed by whether an attribute is considered "sensitive". If Cost is not considered sensitive, the totals for Bob and Alice will be the same.

Note that these settings matter only to aggregating functions. In the previous example, Bob never gets any direct access to the tasks he's not allowed to see.

Attribute Sensitivity Mode

Mode   [Standard ▾]   [Change Attribute Sensitivity Mode]

Standard - all attributes are sensitive *except numeric and date-based*
Strict - all attributes are sensitive
Permissive - no attribute is considered sensitive (recommended only if all your Jira users can see all issues)

Documentation: Attribute Sensitivity Settings

2.5. Improved Rank Sorting

When items are sorted by rank, sub-issues now appear beneath their parent items.

3. Supported Versions

Structure 6.0 and all extensions support Jira versions 7.13 or later. All editions of Jira (Jira Core, Jira Software, Jira Service Desk) are supported. Jira Data Center is supported.

Compatible plugins versons:

- Structure.Gantt 2.3
- Structure.Pages, 1.5
- Structure.Testy 2.4

4. Installation and Upgrade

> ⚠ **Pick a Time**
>
> We strongly recommend that you install and upgrade your apps during off-peak hours or scheduled maintenance windows. There are known issues in the Jira plugin infrastructure that may cause performance degradation and impede app installation when your Jira instance is under heavy load.

4.1. Installing Structure

If your Jira server does not have Structure yet, the installation is simple:

1. Download and install Structure app, either from the Atlassian Marketplace or our Download page.
2. When Add-on Manager reports the successful installation, click Get Started to visit a page with important guidance for the Jira administrator. You may want to also check out the user's Get Started page, available under the "Structure" top-level menu.
3. Monitor `catalina.out` or `jira-application.log` for log messages from Structure.

4.2. Upgrading Structure

The upgrade procedure from versions 3.0–5.6 is simple:

1. Consider backing up Jira data. Use **Administration | System | Backup System**. (If you have a large instance and a proper backup strategy in place, you may skip this step.)

2. Back up Structure data. Use **Administration | Structure | Backup Structure** menu item. If you have a lot of structures and a large Jira, consider turning off the "**Backup History**" option to avoid a long backup process.
3. Install the new version of the plugin.
4. Monitor `catalina.out` or `jira-application.log` for warnings or errors.

4.3. Upgrading from Structure 2.9–2.11

> ✅ If you have a Structure version older than 2.9, please upgrade to Structure 2.11.2 version first.

Starting with version 6.0, Structure is no longer able to access the old Structure 2.x database, but old backup files are still supported. Therefore, you'll need to back up your Structure 2.x data *before* upgrading. The recommended upgrade procedure is as follows:

1. While still running the old version of Structure, go to **Administration | Structure | Structure Backup** and create a backup of the current Structure data.
2. Download and install Structure 6.0, either from the Atlassian Marketplace or our Download page.
3. When the Add-on Manager reports the successful installation, click Get Started to visit a page with important guidance for the Jira administrator. You may want to also check out the Structure Quick Start Guide.
4. To transfer your data, go to **Administration | Structure | Restore Structure** and use the Structure 2.x backup made earlier.
5. Monitor `catalina.out` or `jira-application.log` for log messages from Structure.

5. Enterprise Deployment Notes

Structure 6.0 is a major release with a lot of changes in the attribute system and an important new feature, effectors.

5.1. Changes to the Attribute System

In Structure 6.0 we have largely rewritten the attribute system, which is a crucial part of Structure, responsible for displaying all values that you see in columns inside the Structure grid, including issue field values, aggregates, and formulas. We have run extensive performance tests internally, and we are pretty sure that the new attribute system performs no worse than the old one, and significantly better in many cases.

However, we still advise you to perform load- and stress-testing on a staging environment before you upgrade, especially if you rely on aggregates and complex formulas, or export large structures to printable and Excel formats.

5.2. Effectors

Effectors are a completely new feature, and they shouldn't affect the performance of the rest of the product. However, effectors were a pretty popular feature request, and we expect their wide adoption. If you already have a potential use case for effectors in your organization, we advise you to try them on a staging system before upgrading.

Using effectors can put a noticeable load on the system, because running an effector, especially on a large structure, could require a lot of issues to be loaded from the database, and then updated. Because of that, we designed effectors so that they do not run automatically; instead, they have to be controlled manually by Structure users. Effectors always operate on behalf of the user who runs them, and all the necessary permissions are checked as if that particular user were trying to make the changes.

5.2.1. Access to Effectors

By default, any user who has the "Access Automation" global Structure permission will be able to add effectors to their structures, and any user with the "Bulk Change" global Jira permission will be able to run previously-installed effectors. If you prefer a gradual roll-out, you can limit users' access to effectors as described in Changing Permissions to Configure and Run Effectors.

5.2.2. Effector Execution

Running an effector is a two-step process. First, a preview is generated, listing all the changes that the effector is going to make. Then, if the user approves the preview, those changes are actually made, in a separate background process.

To calculate effector previews, Structure uses a separate thread pool (in a Data Center environment, on each node), so several previews can be calculated in parallel. By default, the effector thread pool is limited to N+1 threads, where N is the number of available processor cores. You can change the maximum size of the thread pool by setting the "structure.jobManager.effectorThreads" dark feature.

In contrast to preview calculation, effectors never update issues in parallel. If several users want to make changes using effectors, their requests are queued and processed one-by-one. In a Data Center environment, a single node is responsible for making the changes. If that node leaves the cluster, a different node picks up this responsibility, continues the current task from where it stopped, and takes the next task from the queue.

5.2.3. New Database Tables

There are three new tables in the database schema to store the data related to effectors.

The `AO_8BAD1B_EFFECTOR_INSTANCE` table stores effector parameters. A new row is created each time a user adds an effector to a structure. The data from this table is exported when you back up Structure data and can be migrated to a different instance. The table is also exported along with all Structure data during Jira backup.

The `AO_8BAD1B_EFFECTOR_PROCESS` table stores current and past effector runs. There is one row per process, regardless of how many effectors are run. When a preview is calculated, it is also stored in this table, and deleted when all changes are applied. Effector runs are not backed up by Structure, but the table is exported during Jira backup.

The `AO_8BAD1B_EFFECTOR_RECORD` records all changes made by effectors, and how to undo them. There is one row for each update attempt, successful or not. This data is not backed up by Structure, but the table is exported during Jira backup.

There is a new maintenance task that deletes old effector processes and their changes. By default, finished effector processes and their changes are kept for 30 days, and unfinished processes that didn't make any changes are kept for 24 hours. For more information on automatic maintenance please refer to the documentation.

> ⓘ Should you have any questions on Enterprise Deployment, let us know at support@almworks.com.