ARCAD-Skipper JIRA add-on Developer Documentation Version 0.11

HOW IT WORKS?

ABSTRACT

The main goal of the ARCAD-Skipper Jira add-on is to create a synchronization between JIRA issues and ARCAD Documents (Incident Report, Change Request and Maintenance Report) The JIRA system is considered as the master system and ARCAD as the slave one. This means that all the issues have to be first created into the JIRA server before being created into ARCAD.
There are to synchronization operations:

- The creation of document into ARCAD from a JIRA issue (JIRA to ARCAD Direction)
- The execution of issue transition according to the ARCAD Document status (ARCAD to JITA direction)

The main advantages of such a solution are:

- The management of the entire synchronization process uses only the JIRA add-on (no need to install others product) and the command line processor
- No need to create particular JIRA issue type or custom field
- The administrator can choose when he want to create ARCAD Document
- This choice could be different for each issue Type/Project

WORKING PRINCIPLE

The ARCAD-Skipper add-on is provided with four major elements:

- One Workflow Post Function
- One Scheduled Job
- One Listener Action
- A command line processor

The Workflow Post Function allows the user to automatically create an ARCAD document from a JIRA issue at the particular point of the related JIRA issue lifecycle

The Scheduled Job regularly retrieves information from the ARCAD system to attempt to make the related issue's workflow progress.

The command line processor is an external tool that allow to make the JIRA add-on communicate with the ARCAD Server.

The Listener Action allows the user to automatically update the status of an ARCAD document according to the change of an Issue status change.
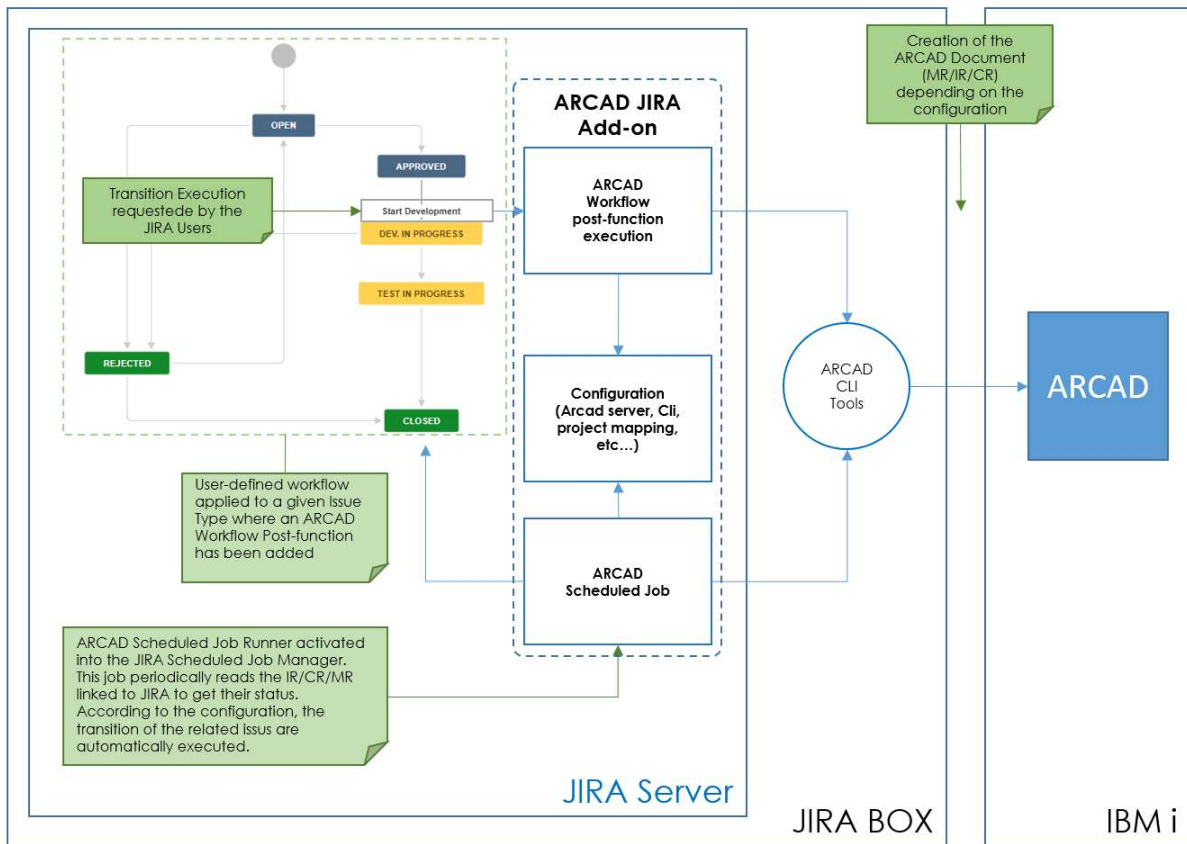
ARCAD DOCUMENT MANAGEMENT

A Workflow Post function is a function that is executed after a particular transition of a given issue has been executed. The JIRA administrator can add this function to the transition he wants.
If our post function is added to a transition, when this transition is executed, it will be executed to create or update the related ARCAD document.
The type of the document that will be created depends on the configuration (see Document Mapping Configuration).
This execution is also conditioned by the fact that the parent project of the given issue has been mapped to an ARCAD Version (see Project Mapping configuration)

So the Workflow Post Function management rules are the following:
1. Get the parent Project
2. Find if a Project Mapping Entry exists
3. If a Project Mapping Entry exists
    a. Find if a Document Mapping Entry exists
    b. If such an entry exists,
        i. Get the type of document that has to be created or updated
        ii. Test if a related ARCAD Document exists
            1. If such a document exists, update it

2. If such a document does not exist, create it according to the document type defined by the Document Mapping Entry
   c. Else
      i. Do Nothing

4. Else
   a. Do Nothing

TRANSITION MANAGEMENT

The scheduler Job execution retrieves information about ARCAD Document linked to a JIRA issue:

For each document (IR, CR or MR)
- Get the ARCAD Status
- Find if a Transition Mapping Entry exists
- If such of entry exists
  o Get the transition ID to be executed
  o Try to execute this transition on the issue's workflow
- Else
  o Do Nothing

UPDATE STATUS MANAGEMENT

A listener is an action that is executed as soon as a field value of an issue is changed. The JIRA administrator can add this listener to the system.
If a JIRA user changes the status of an issue that is linked to an ARCAD document, our listener is informed about this change and update the status of the related ARCAD document.

So, the Listener Management Rules are the following:
5. Get the parent Project
6. Get the Issue Type
7. Get the current Issue Status
8. Find if a Status Mapping Entry exists
9. If a Status Mapping Entry exists
   a. Find if a Project Mapping Entry exists
   b. If a Project Mapping Entry exists
      i. Find if a Document Mapping Entry exists
      ii. If such an entry exists,
         1. Get the type of document that has to be created or updated
         2. Test if a related ARCAD Document exists
            a. If such a document exists
               i. update its status according to the Status Mapping Entry
            b. Else
               i. Do nothing
      iii.
      iv. Else
         1. Do nothing
   c. Else
      i. Do Nothing
10. Else
    a. Do Nothing

CONFIGURATION

To make this add-on correctly the administrator has to configure it.

ARCAD Server Configuration

This configuration is used to define the connection information used to reach the ARCAD server on which the document will created created/updated

Command Line Configuration

This configuration allows he administrator to define the required information to execute the Command Line tools

Options

This configuration allows he administrator to define the required information to execute the Command Line tools

Project Mapping Configuration

This configuration allows the administrator to link a given JIRA Project to an ARCAD Application or Version. This information will be used during the ARCAD Document Management:
To define if an issue has to be linked to an ARCAD Document
To get the application to which the IRs and CRs have to be linked during the creation stage

The Document Mapping Configuration

This configuration allows the administrator to map the Issue Type of a mapped project to an ARCAD Document Type.
This information will be used to define which type of document has to be created during the creation stage according to the project and the type of the related issue

The Transition Mapping Configuration

This configuration allows the administrator to map the status of an ARCAD document to an available transition of a given issue type
This information will be used by the Scheduled Jon to define which transition has to be executed in response of a given ARCAD document status.

The Status Mapping Configuration

This configuration allows the administrator to map the available status of a given Issue Type of a given project to the status of an ARCAD document
This information will be used by the listener to update the status of an ARCAD Document in response of the change of an issue status.

DEVELOPER DOCUMENTATION
INSTALLING JIRA ADD-ONS

1. Go to the UMP (JIRA Administration | add-ons)
2. Select the Manage add-ons section
3. Click on Upload add-on
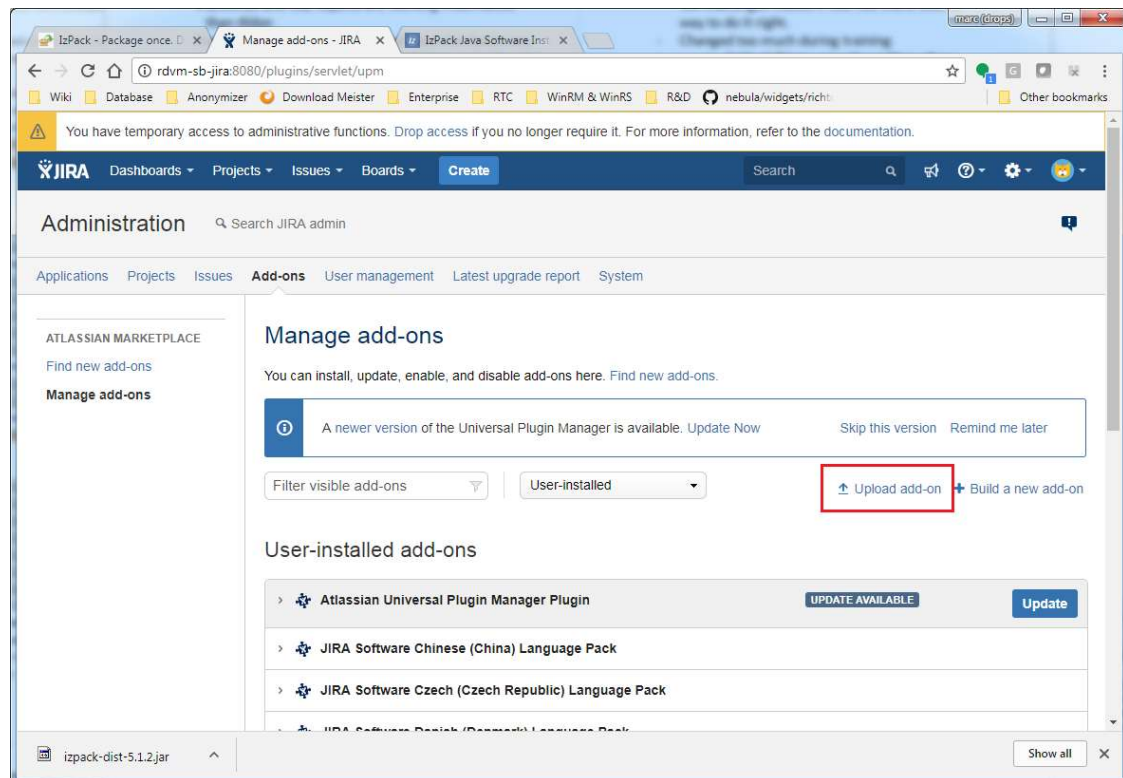
4. On the "Upload add-on" dialog, click "**Chose file**"
5. Select the "arcad.mreport-1.x.x.x.jar" file
6. Click on "**Upload**" and wait for the installation
7. The following dialog appears:
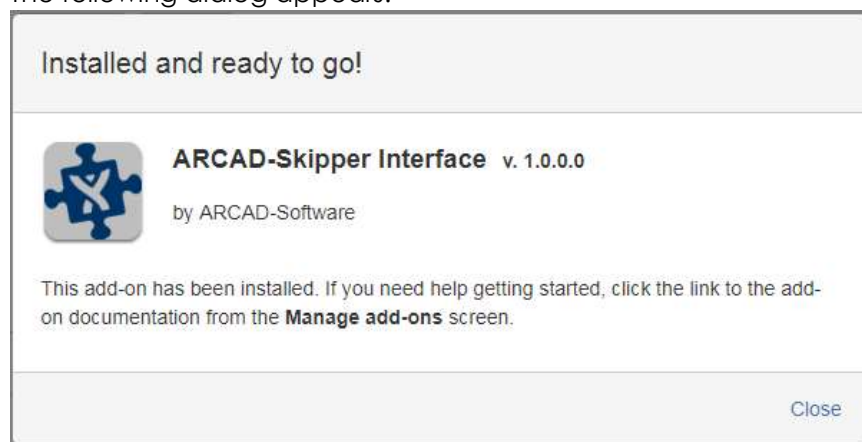
8. Click on **Close**
9. The "ARCAD-Skipper Interface" add-on now appears in the "User-installed add-ons" list (refresh the page if necessary). Note that this add-ons appears as disable:
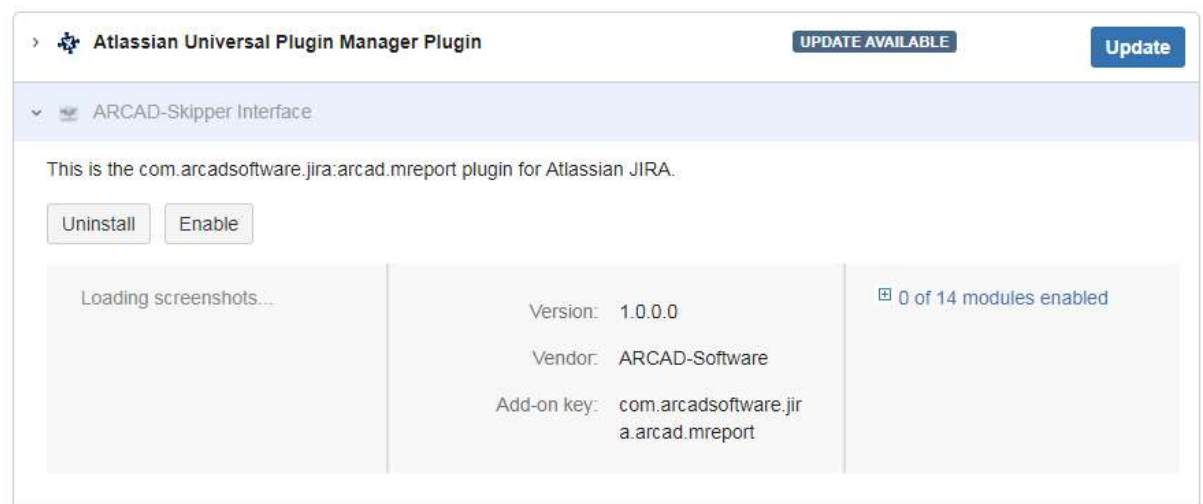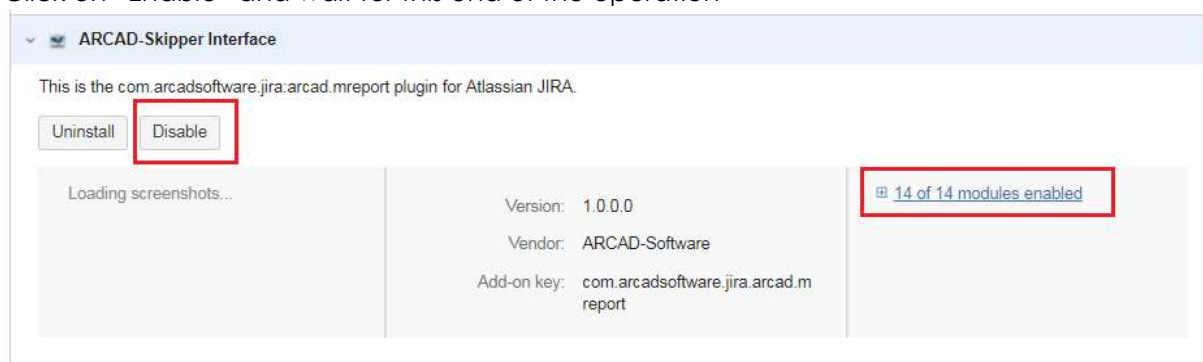
1. Expand the "ARCAD-Skipper interface" add-on

2. Click on "Enable" and wait for this end of the operation

3. If no error occurred, 14 (or 12 in production version) modules will be marked as enabled and the **Enable** button will be replaced by the "**Disable**" button. The add-on is now installed and enabled.
4. Refresh the page

5. A new ARCAD CONFIGURATION section now appears on the left side

CONFIGURING THE ADD-ON

ARCAD Server configuration
1. Click on **ARCAD Server Configuration** link
2. The following form appears

3. Enter the connection values

Server	:	The DNS or IP Address or the ARCAD Server
Instance	:	The ARCVAD Instance you want to reach
User	:	A Valid ARCAD Login

Password   :   The password of the defined user
Language   :   The language used to communicate with the ARCAD Server
CCSID   :   The CCSID of the connection Job

4. Click on **Save** to save your values

5. An information box appears to inform you that the values have been correctly saved.

Command Line Configuration

1. Click on **Command Line Configuration** link
2. The following form appears:

3. Enter the command line values
    ARCAD CLI HOME :   The root directory where the Command Line Tools has been installed
    Libraries   :   The path to the directories where the necessary third party java libraries are installed.

- It could be absolute or relatives paths. If a path starts with the character "/", it will be considered as a relative path and the absolute path used instead will be : <ARCAD CLI HOME>/<the-relative-path>
- If you want to use the entire content of the defined directory, use the character "*" instead entering one by one all the jar files to use. For example "/arcad/*" indicates that the command line tools has to include all the jar files congtained inot the c:\arcad\cli\arcad directory into its execution classpath.
- If you want to define multiple libraries, just enter them separated with the character ";"
- NOTE : the /libs/* reference is automatically added

Output Directory : The directory where the output execution files will be stored

6. Click on **Save** to save your values

7. An information box appears to inform you that the values have been correctly saved.

8. Click on **Test Configuration** to test if the value are corrects
9. If the values are correct and if the Command Line Tools can be correctly executed, the following form appears :

```
ATLASSIAN MARKETPLACE          Available Service List

Find new add-ons              Service File Name: services.xml not found
                              Search Service File Name in c:\arcad\cli\services
Manage add-ons                -> Scanning services in c:\arcad\cli\services\arcad_core_services.xml
                              -> Scanning services in c:\arcad\cli\services\builder_services.xml
ARCAD CONFIGURATION           -> Scanning services in c:\arcad\cli\services\jira_services.xml
                              Service List:
ARCAD Server                  jiraListProject
Configuration                 mrUpdate
                              crUpdate
Command Line                  mrLinkedList
Configuration                 mrList
                              irCreate
Options                       crCreate
                              arcExecuteMacrocommand
Job Retriever Configuration   mrCreate
                              irList
Project Mapping Settings      irUpdate
                              docStatusList
Document Mapping Settings     appList
                              crList
Transition Mapping Settings   bldExecute

Test CLI Command

Test JOB                                                    [ Return ]
```

Note that the list of the available services could be a little bit different according to what has been installed.

10. If the values are NOT correct and if it's not possible to correctly execute the Command Line Tools, the following form appears :


```
Available Service List

An error occured during the execution of the following command:

Command:

    java -cp c:\arcad\clix\afs-client-cli.jar;c:\arcad\clix\arcad/*;c:\arcad\clix\libs/* com.arcadsoftware.cli.CLI list

Error:

    Cannot run program "java" (in directory "c:\arcad\clix"): CreateProcess error=267, Nom de répertoire non valide

Please, check that the Command Line Settings has been correctly set.

                    [ config.admin.cli.valid.return ]
```

Note the error message could be a little bit different according to the error type

11. Click on **Return** to go back to the configuration form.

Options

1. Click on **the Options** link
2. The following form appears:

3. Enter the options values:

   Issue Format : The issue Format is a character string that will be used as a prefix of the summary text for the IR and CR document. This string must contain the special substitution variable **${key}.** While the creation this variable will be replaced by the related issue key. This value will also be used to retrieve the IR/CR that has been created from JIRA

   If the value is empty or does not contain the ${key} variable, saving this value will fail.

4. Click on **Save** to save your values

5. An information box appears to inform you that the values have been correctly saved.

Project Mapping Settings

1. Click on the **Project Mapping Settings** link
2. The following form appears:

3. To add a new entry, click on **Add New Entry**, the following form appears:

4. **JIRA Project**   :   The JIRA project to which you want to add an entry. Please note that the dropdown list box contains all the project declared in JIRA.

5. **Application**   :   The related ARCAD Application
   Environment ID.   :   The Environment ID. On which the version has been opened
   Version Number   :   The Version Number
   The application value will used as the parent application of the IR/CR created form the given project
   The Application/Environment ID/Version Number will be used to automatically add a link between a newly created Maintenance Report to an ARCAD Version.

6. Click on **Save** to save the new entry, the new entry now appears into the list

7. To Edit an entry, click on the image [edit] in the Action column:

Project Mapping Configuration

JIRA Project	ARCAD Interface
Application	BUILDER
Environment ID.	D
Version Number	06.00.00

Save

8. The JIRA project can no longer be modified but you can change the others values (To change the project, delete the entry and recreate it)
9. Click on **Save** to save your modifications
10. To Delete an entry, click on the image [delete] in the Action column:
11. The entry is removed from the list

Document Mapping Settings

1. Click on the **Document Mapping Settings** link
2. The following form appears:

Add a new Entry

JIRA Project	Issue Type Id.	ARCAD Document	Actions

3. To add a new entry, click on **Add New Entry**, the following form appears:

4. **JIRA Project** : The JIRA project to which you want to add an entry. Please note that the JIRA Project dropdown list bow contains only JIRA projects that have been linked to an ARCAD application in the **Project Mapping Configuration** part

5. **Issue Type Id.** : The Issue Types that are used by the selected JIRA Project. Note that you must first select a JIRA project to get this dropdown list box populated.
ARCAD Document : This dropdown list box contains the list of the available ARCAD document

6. Click on **Save** to save the new entry, the new entry now appears into the list

7. To Edit an entry, click on the image [edit] in the Action column:

Project Mapping Configuration

JIRA Project	ARCAD Interface ▾
Issue Type Id.	Epic ▾
ARCAD Document	Maintenance Report ▾

Save

8. The JIRA project and the Issue Type are no longer modifiable but you can change the others values (To change the Jira Project or the Issue Type Id. , delete the entry and recreate it)
9. Click on **Save** to save your modifications
10. To Delete an entry, click on the image [delete] in the Action column:
11. The entry is removed from the list

Transition Mapping Settings

1. Click on the **Transition Mapping Settings** link
2. The following form appears:

Add a new Entry

JIRA Project	Issue Type Id.	Document Status	Transition	Actions

3. To add a new entry, click on **Add New Entry**, the following form appears:

4. **JIRA Project** : The JIRA project to which you want to add an entry. Please note that the JIRA Project dropdown list bow contains only JIRA projects that have been linked to an ARCAD application in the **Project Mapping Configuration** part

   Issue Type Id. : The Issue Types that are used by the selected JIRA Project **AND that has been mapped to an ARCAD Document**. Note that you must first select a JIRA project to get this dropdown list box populated.

   Document Status : This dropdown list box contains the list of the available ARCAD document status. Those status depend on the Type of ARCAD documents. This document Type is retrieved from the Document Mapping using Jira Project and Issue Type as a key.

   Transition : This dropdown list box contains the list of the available transitions for the selected Issue Type for the selected JIRA project.

5. Click on **Save** to save the new entry, the new entry now appears into the list

6. To Edit an entry, click on the image 🖊 in the Action column:

Project Mapping Configuration

JIRA Project	ARCAD Interface ▼
Issue Type Id.	Epic ▼
ARCAD Document	Maintenance Report ▼

Save

ATLASSIAN MARKETPLACE

Find new add-ons

Manage add-ons

ARCAD CONFIGURATION

ARCAD Server Configuration

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Document Mapping Settings

Transition Mapping Settings

Job Retriever Configuration

7. The JIRA project, the Issue Type and the Document Status are no longer modifiable but you can change the others values (To change the Jira Project or the Issue Type Id. Or Document Status, delete the entry and recreate it)
8. Click on **Save** to save your modifications
9. To Delete an entry, click on the image ✖ in the Action column:
10. The entry is removed from the list

Status Mapping Settings

11. Click on the **Status Mapping Settings** link
12. The following form appears:

Add a new Entry

JIRA Project	Issue Type Id.	JIRA Status	Document Status	Actions

ATLASSIAN MARKETPLACE

Find new add-ons

Manage add-ons

ARCAD CONFIGURATION

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Document Mapping Settings

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Status Mapping Settings

Job Retriever Configuration

13. To add a new entry, click on **Add New Entry**, the following form appears:

14. **JIRA Project** : The JIRA project to which you want to add an entry. Please note that the JIRA Project dropdown list bow contains only JIRA projects that have been linked to an ARCAD application in the **Project Mapping Configuration** part

    Issue Type Id. : The Issue Types that are used by the selected JIRA Project **AND that has been mapped to an ARCAD Document**. Note that you must first select a JIRA project to get this dropdown list box populated.
    JIRA Status : This dropdown list box contains the list of the available transitions for the selected Issue Type for the selected JIRA project.

    Document Status : This dropdown list box contains the list of the available ARCAD document status. Those status depend on the Type of ARCAD documents. This document Type is retrieved from the Document Mapping using Jira Project and Issue Type as a key.
15. Click on **Save** to save the new entry, the new entry now appears into the list

16. To Edit an entry, click on the image ✏ in the Action column:

Jira Status/ARCAD Status Mapping

JIRA Project	TEST ▼
Issue Type Id.	Tâche ▼
JIRA Status	In TEST ▼
Document Status	TST(To be tested (not documented ▼

Save

ATLASSIAN MARKETPLACE

Find new add-ons

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ARCAD CONFIGURATION

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Status Mapping Settings

Job Retriever Configuration

17. The JIRA project, the Issue Type and the JIra Status are no longer modifiable but you can change the others values (To change the Jira Project or the Issue Type Id. Or JIRA Status, delete the entry and recreate it)
18. Click on **Save** to save your modifications
19. To Delete an entry, click on the image ✖ in the Action column:
20. The entry is removed from the list

Job Retriever Configuration

1. Click on the **Job Retriever Configuration** link
2. The following form appears:

3. Enter the options values:

   Delay : This value defines, in milliseconds, the time between two consecutive executions of the job.

4. Click on **Save** to save your values

5. An information box appears to inform you that the values have been correctly saved.
6. On the edition form, click on **Start Job** to register the job into the JIRA Scheduler (Note that this button is enabled only if the job is not already started).
7. Because the retriever job makes actions on the workflows, it's necessary to define the user that will complete those actions. So, when starting the job, the add-on ask you to specify a user :

8. Enter the login and the password of an user that have enough rights to execute transition on all the workflows
9. Click on Start to start the job. If the job has been successfully started, the following form appears:

10. Click on **Return** to go back to the Job Retriever Configuration form. The **Start** button is now disabled and the **Stop Job** button is now enabled.
11. Click on **Stop Job** to stop the job

Note: when the job is started, you can follow its execution into the **Scheduler Details** section of the **System** configuration part

Administration

Search JIRA admin

Applications   Projects   Issues   Add-ons   User management   Latest upgrade report   **System**

General configuration
Find more admin tools

SYSTEM SUPPORT

System info
Instrumentation
Database monitoring
Integrity checker

Scheduler Administration

This page shows you the properties of the JIRA internal scheduler, as well as the scheduled jobs and their triggers.

Status	Group / Name	Jobs	Schedule	Actions
✓	ArcadJobRunner.key	1 job	interval	Show more
✓	CompatibilityPluginScheduler.JobRunnerKey.Service Pr…	1 job	interval	Show more
✓	CompatibilityPluginScheduler.JobRunnerKey.com.atlassi…	1 job	interval	Show more

HOW TO CONFIGURE JIRA?
CONNECTING A WORKFLOW TRANSITION TO THE CREATION OF AN ARCAD DOCUMENT

This must be done from the Workflow Configuration of the Jira project that need to interact with ARCAD Skipper. To do so, you have to Open the Jira Administration/Projects
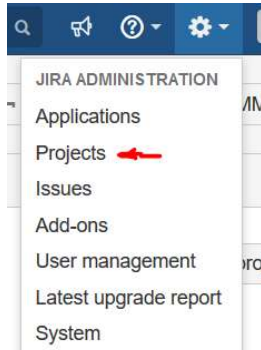
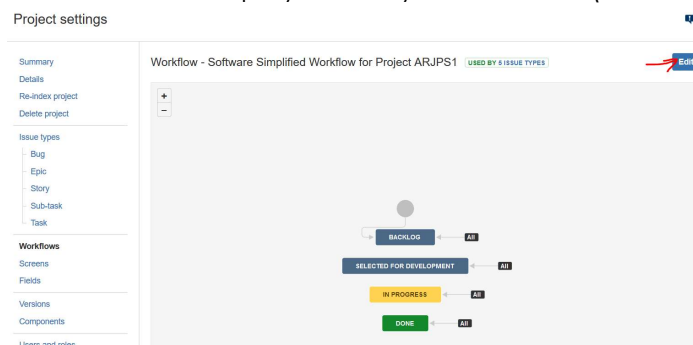It will show the list of Projects. Enter the one you want to configure by a click on it name

Different configuration section of this project are displayed. Select the Workflows Part and then click on the Workflow you want to configure

The Workflow is displayed and you can Edit it (use Edit button upper right)

Mainly, what you have to do is to select the **Transition** that correspond to you need. Here for example I can decide that the ARCAD Maintenance Report (MR) must be created when the Task is created. In This case anytime you will create a task into this project, a corresponding MR will be create on the IBMi.

Connect the creation of a Task to a Creation of an MR

Into the Edition screen of the Workflow, select the transition "Create" and enter the "Post functions" menu.

Select "Add Post function" to add the ARCAD required function

Select the ARCAD-Skipper post function and click Add to Add it

Administration   🔍 Search JIRA admin

Applications   Projects   Issues   Add-ons   User management   Latest upgrade report   System

Add Post Function To Transition

	Name	Description
●	ARCAD-Skipper Document Creation Post Function	This post function allows to create an ARCAD SKipper Document on transition
○	Assign to Current User	Assigns the issue to the current user if the current user has the 'Assignable User
○	Assign to Lead Developer	Assigns the issue to the project/component lead developer
○	Assign to Reporter	Assigns the issue to the reporter
○	Create Comment	Adds a comment to an issue if one is entered during a transition.
○	Create Perforce Job Function	Creates a Perforce Job (if required) after completing the workflow transition.
○	Fire Event	Fires an event that can be processed by listeners.
○	Notify HipChat	Send a notification to one or more HipChat rooms.
○	Store Issue	Stores updates to an issue (no change history is created).
○	Trigger a Webhook	If this post-function is executed, JIRA will post the issue content in JSON format
○	Update Issue Field	Updates a simple issue field to a given value.
○	Update Issue Status	Sets issue status to the linked status of the destination workflow step.

Add   Cancel

I then advice to push this function to the last position of Post functions list by using the position arrow

Validators 1   Post Functions 4

The following will be processed after the transition occurs   Add post function

1. Creates the issue originally.
2. Re-index an issue to keep indexes in sync with the database.
3. Create or Update the related ARCAD Document
4. **Type:** class
   Class: com.atlassian.jira.workflow.function.event.FireIssueEventFunction
   Arguments:
   eventTypeId = 1

WorkflowFunctionDown.jspa?atl_token=B0LI-UECW-DD94-DH87|94a89423debf9e31d9aa5fd3c...draft&workflowName=Software+Simplified+Workflow+for+Project+ARJPS1&descriptorTab=postfunctions&workflowTransition=1&down=2

And finally, do not forget to "publish" the new workflow definition. (use the publish Button at the top)

DECLARING THE UPDATE STATUS LISTENER

1. Go to the System administration form:

Search   🔍   📣   ⑦▾   ⚙▾   👤▾

JIRA ADMINISTRATION

Applications   TEST
Projects
Issues
Add-ons
User management
System

2. In the Advanced Section click on Listeners

3. On the Add Listener section, enter the following value

4. Click on Add

5. The new Listener has been added.

1. Install and enable the JIRA add-on
2. Install the ARCAD Cli Tools
3. Configure the ARCAD target Server
4. Configure the CLI access according to the CLI Installation
5. Configure the Options
6. Define the JIRA project you want to link to ARCAD
7. For each selected project
   a. Add a Project Mapping Entry
   b. Define which Issue Type of this project will generate an ARCAD Document
   c. For each selected Issue Type
      i. Define which kind of ARCAD document will be generated
      ii. Define which transition the related ARCAD document Status has to be linked
      iii. Add a Document Mapping Entry
      iv. Add a Transition Mapping Entry
8. Configure the Job Retriever Options
9. Start the Retriever Job
10. Define which workflows have to be updated
11. For each selected workflow
    a. Define which transition will trigger the ARCAD Document Generation
    b. Add the ARCAD Workflow Post-Function to this transition