Teams Jira Integration Automation

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I have done the Integration between Jira and MS Teams manually using the steps listed in the document,

Jira and Microsoft Teams Integration

Below are the approaches that I have followed to automate it but there are few drawbacks.

Step 1 - On Jira-

1. **Create webhook- Automated**

This piece of task can be automated using APIs.

POST http://novartis.devops.altimetrik.io:8080/rest/webhooks/1.0/webhook

JSON –

```
[
 {
     "name": "Test WebHook Listener",
     "url": "http://novartis.devops.altimetrik.io:8084",
     "excludeBody": true,
     "filters": {
         "issue-related-events-section": ""
     },
     "events": [
         "worklog_created",
         "project_created",
         "option_watching_changed",
         "issuelink_created",
         "option_unassigned_issues_changed",
         "comment_updated",
         "board_created",
```

```
            "comment_deleted",
            "option_issuelinks_changed",
            "sprint_created",
            "jira:issue_updated",
            "option_voting_changed",
            "sprint_updated",
            "comment_created",
            "option_timetracking_changed",
            "option_attachments_changed",
            "jira:issue_created",
            "issuelink_deleted",
            "worklog_deleted",
            "jira:issue_deleted",
            "jira:worklog_updated",
            "option_subtasks_changed",
            "worklog_updated",
            "board_updated"
        ],
    }
```

```
]
```

2. Create application link – partially automated

In the configuration of the app - MS Teams for Jira application, there are steps to create application links and authenticate it by Consumer key, Consumer Name and Public key provided.

I am able to figure out the URI for the creation of application links and can create the application link by below request.

POST http://novartis.devops.altimetrik.io:8080/rest/applinks/1.0/applicationlinkForm/createAppLink

Json –

```
{
"applicationLink": {
"typeId": "generic",
"name": "myapp",
"displayUrl": "https://jira-server.msteams-atlassian.com",
"rpcUrl": "https://jira-server.msteams-atlassian.com",
"isPrimary": false,
"isSystem": true
},
"username": "admin",
"password": "admin",
"customRpcURL": false,
"rpcUrl": "",
"createTwoWayLink": false,
"configFormValues": {
"trustEachOther": false,
"shareUserbase": false
}
}
```

The application link is created but not totally configured as we need to have Consumer key, Consumer Name and Public key. I tried the below json, but it is throwing an error as consumerKey not found error.

Approach 1:

```
{
"applicationLink": {
"typeId": "generic",
"name": "Microsoft Teams",
"displayUrl": "https://jira-server.msteams-atlassian.com",
"rpcUrl": "https://jira-server.msteams-atlassian.com",
"isPrimary": false,
"isSystem": true
},
"consumerKey": "OauthKey",
"consumerName": "MicrosoftTeamsIntegration",
"publicKey": "xyz",
"customRpcURL": false,
"rpcUrl": "",
"createTwoWayLink": false,
"configFormValues": {
"trustEachOther": false,
"shareUserbase": false
}
}
```

Approach 2:

```
{

"applicationLink":

                {

                "typeId": "generic",

                "name": "Microsoft Teams",

                "displayUrl":
"https://jira-server.msteams-atlassian.com",

                "rpcUrl": "https://jira-server.msteams-atlassian.com",

                "isPrimary": false,

                "isSystem": true,

                "actions":

                                {

                                "consumerKey": "OauthKey",

                                "consumerName":
"MicrosoftTeamsIntegration",

                                "publicKey": "XYZ",

                                "customRpcURL": false

                                }

                }

}
```

Approach 3:

```
{
"applicationLink": {
"typeId": "generic",
"name": "myapp",
"displayUrl": "https://jira-server.msteams-atlassian.com",
"rpcUrl": "https://jira-server.msteams-atlassian.com",
"isPrimary": false,
"isSystem": true
},
"customRpcURL": false,
"rpcUrl": "",
"createTwoWayLink": false,
"configFormValues": {
"trustEachOther": false,
"shareUserbase": false,
"IncomingLink": true
},
}
```

So, the application link is created but we have to make some update to it.

Approach 4:

I have posted the issue to the atlassian community for the work around,

https://community.atlassian.com/t5/Jira-questions/How-to-programatically-create-Application-link-and-configure-it/qaq-p/1258769#M398483

3. **Install application -“MS Teams for Jira application” – manually**

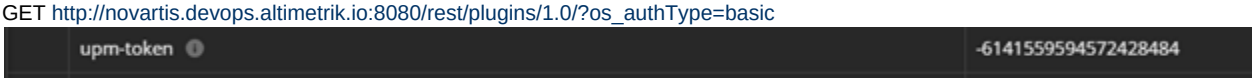
There are few restrictions which are not allowing it to be automated using APIs.

Issue- using UPM api we can register and install user-defined apps. No steps mentioned for installing apps from market place.

Approach1: Using the UPM api.

UPM token could be found using the below,

GET http://novartis.devops.altimetrik.io:8080/rest/plugins/1.0/?os_authType=basic



But further while trying to to install the app using the below POST method, an error is generated.

Now install your app by issuing a `POST` request to the following resource:

```
http://HOST_NAME:PORT/CONTEXT/rest/plugins/1.0/?token=${upm-token}
```

Copy

In your request:

1. Again use the actual host name and port and path for your target Atlassian application.
2. The token value should be the value of the `upm-token` header you just received.
3. In the request, set the Accept header to: "`application/json`"
4. Set the `Content-Type` for the data to: "`application/vnd.atl.plugins.install.uri+json`"
5. In the body of the `POST`, include the following JSON data:

```
{
  "pluginUri": "${plugin-xml-url}",
  "pluginName": "the app name"
}
```

Replace `plugin-xml-url` with the hosted location of your descriptor file, and the app name with the name by which you want the app to be registered in the application.

This registers the app declared by the `atlassian-plugin.xml` file at the URL.

The pluginUri suggests that the descriptor file location of the app which is possible in case of user created app. So this path for marketplace applications cannot be provided here. Hence cannot install the application from the marketplace using APIs.

https://developer.atlassian.com/platform/marketplace/registering-apps/

Approach 2: Tried to figure out the file atlassian-plugin.xml file on the backend server but could not find any.

Approach 3: Tried to figure out other ways of doing the task but could not find an automated ways to do that.

4. **Configure the application - MS Teams for Jira application – manually**

Listing applications installed on Jira programmatically is possible using the below,

GET http://novartis.devops.altimetrik.io:8080/rest/applinks/1.0/applicationlink

But there are no ways documented anywhere to configure an installed application programmatically.

I also tried to find out the endpoint for accessing through APIs but did not find anything relevant.

I tried with UPM API but it cannot be used for configuring the applications installed.

https://ecosystem.atlassian.net/wiki/spaces/UPM/pages/6094960/UPM+REST+API

Step2- On MS Teams – Incoming webhook creation - Manual

The step to create webhook creation on MS Teams cannot be automated due to lack of documentation provided on the internet.The webhook which is actually a reverse API cannot be created programmatically. But when created can be accessed programmatically by creating the webhook listeners.

https://docs.microsoft.com/en-us/microsoftteams/platform/webhooks-and-connectors/how-to/connectors-using

So I have created the webhook manually and copied in my clipboard.

Conclusion

I have done the Integration manually but there are restrictions using APIs so the complete end to end automation could not be done with this approach.

I can see SDKs are available for Jira and Teams. So,we need to have an application developed for the complete automation. So, the development team has to be engaged into this as it is hard core development and I do not have relevant expertise into it.

In the meantime I am also trying some open source tools to record and play. i will update on it after my analysis.