GIT SCM practices

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The following is a document that notes how the Erlang backend group will use git when developing the Erlang NetInf Backend.

Contents

Chapter 1

GIT Repository structure and policies

There will be 3 persistent branches.

- MASTER
- RELEASE
- DEVELOP

The following naming convention for temporary branches is adopted:

- SprintX.shortStoryName.issueNumber

NOTE: ALL story tasks are done in the pair programming paradigm. The temporary branches will be deleted after each successful merge to the DEVELOP branch.

1.0.1 Policies

- MASTER

  The MASTER branch will only contain Demo code. This is the code from the backend group which contains ONLY the fully tested and integrated stories.
  Tags will be made here under the following convention:
  SprintX.shortStoryName.issueNumber

This is a JENKINS build tool controlled area - No human user should be operating in this branch.
JENKINS is responsible for merging from MASTER to DEVELOP at the end of a sprint- in order to keep the branches syncronized and provide a fresh clean start for each sprint from working demo code.

- RELEASE

  The RELEASE branch will only contain individual stories which are completed and fully tested. Here we can pick and choose which stories to include in a specific demo. This branch is also a JENKINS build tool area.
  JENKINS is responsible for merging between RELEASE and MASTER

- DEVELOP

  The DEVELOP branch will contain all the dirty code and is where the human users will start their personal story branches. Also a JENKINS build tool area, The code here will be considered in a "Story done but not yet tested" state.
  JENKINS is responsible for testing and merging between DEVELOP and RELEASE

- SprintX.shortStoryName.issueNumber

  The branch's name will contain the local working code for the specific sprint story followed by a short story name-typically the name written on the post it note for example: MSG_Handler. The issue number is also taken from the post it note, this is the same number that is in the Redmine issue tracker. A merge to the DEVLEOP branch will mean the story is considered done for the sprint but requires testing by integration tools and JENKINS. This branch will be deleted after the tests are passed and the a successful merge is complete. History will be kept in the DEVELOP branch should we need to revert for any reason.

Chapter 2

Naming conventions

Where ever possible, the JENKINS build tool will be configured to create the branches and tags accordingly.

2.0.2 Branches

With the exception of the RELEASE and the MASTER, each branch will be labelled as follows: SprintX.StoryY -where X is the sprint number and Y is the Story number

2.0.3 Tags

There will be at least 2 places in the GIT repository where we will use tags.

1. MASTER
2. RELEASE

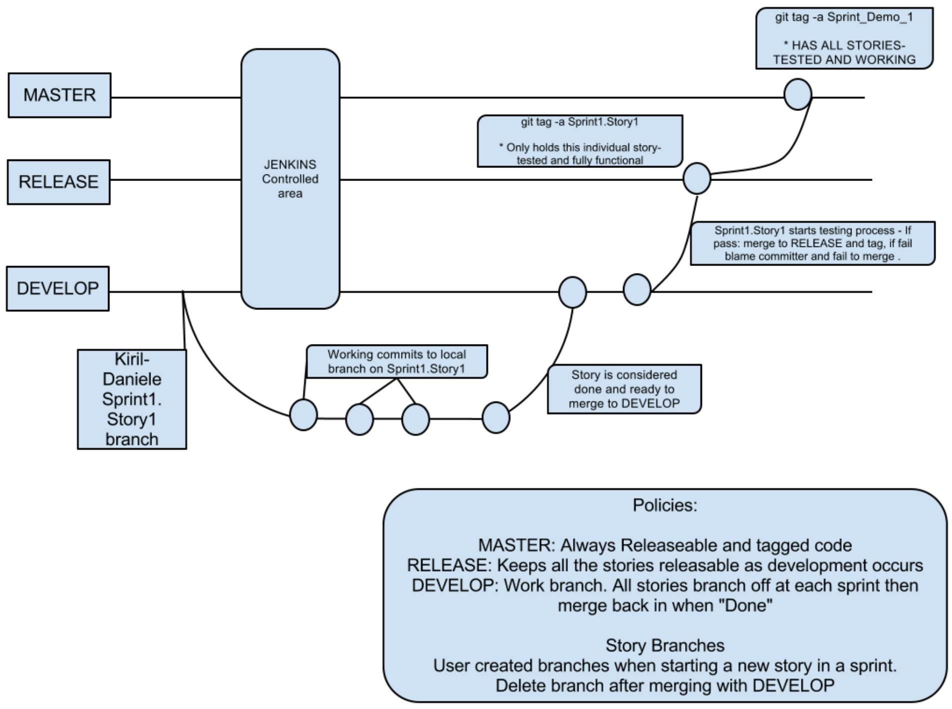
Each tag will be labelled as follows SprintX.shortStoryName.issueNumber-RELEASE or SprintX-DemoZ depending on the sprint and which branch is being pushed to.

Chapter 3

Sample work flow

The following section will detail a sample work flow for a sprint with at least two story items.

The follow image can quickly show you how the indvidual story may look on a timeline.


MASTER
RELEASE
DEVELOP
JENKINS Controlled area
Kiril-Daniele Sprint1. Story1 branch
Working commits to local branch on Sprint1.Story1
Story is considered done and ready to merge to DEVELOP
Sprint1.Story1 starts testing process - If pass: merge to RELEASE and tag, if fail blame committer and fail to merge .
git tag -a Sprint1.Story1
* Only holds this individual story- tested and fully functional
git tag -a Sprint_Demo_1
* HAS ALL STORIES- TESTED AND WORKING

Policies:

MASTER: Always Releaseable and tagged code
RELEASE: Keeps all the stories releasable as development occurs
DEVELOP: Work branch. All stories branch off at each sprint then merge back in when "Done"

Story Branches
User created branches when starting a new story in a sprint.
Delete branch after merging with DEVELOP

Figure 3.1: Sample workflow for one story item

3.0.4 Starting a sprint

At the start of each sprint the development team will perform a git checkout -b SprintX.shortStoryName.issueNumber DEVELOP

for a running example we will take the HTTP Handler from the first sprint.

```
git checkout -b SprintX.shortStoryName.issueNumber DEVELOP
git push -u origin SprintX.shortStoryName.issueNumber
```

This will pull all the previous items into your temporary working branch from develop

3.0.5 Working during a sprint

As you and your partner work together to complete the tasks outlined in the story, commit as usual to your local branch.

```
git pull origin DEVELOP
git add [files that have been added or created/modified]
git commit -m description - where description is the commit message you would like as
```

3.0.6 Deploying a Done story

After all the tasks are completed and you feel ready to move the task to the DONE state, merge it to the development branch using the following command:

```
git checkout DEVELOP
git merge --no-ff SprintX.shortStoryName.issueNumber
git push origin DEVELOP
git push origin :SprintX.shortStoryName.issueNumber
git branch -d SprintX.shortStoryName.issueNumber
```

This will perform a merge and fast-forward on the remote DEVELOP branch while keeping historical information. This will also create empty commits in the development branch as a way to quickly spot revisions which you may wish to go back to, for example if you need to remove a story that was not working properly.

**NOTE: AS A HUMAN USER THIS IS TYPICALLY WHERE YOU STOP WORKING IN THE WORKFLOW.
THE FOLLOWING STEPS ARE TO BE IMPLEMENTED BY JENKINS AND AUTOMATED BUILD TOOLS. YOU ARE ONLY CONCERNED WITH WORKING ON THE DEVELOP BRANCH AND YOUR OWN STORY BRANCHES FOR EACH SPRINT. YOU SHOULD NEVER TOUCH MASTER OR RELEASE UNLESS ABSOLUTELY NECESSARY**

3.0.7 Testing a sprint story

The following steps assume that a testing suite was created and works well with JENKINS build tool.

3.0.8 Merging in to RELEASE

As a story branch has been merged to DEVELOP, the code goes through a set of unit tests and when it successfully passes all of them, it is ready to be merged to RELEASE:

```
git checkout RELEASE
git merge --no-ff DEVELOP
git tag -a SprintX.shortStoryName.issueNumber-RELEASE
git push origin RELEASE
```

3.0.9 Merging in to MASTER

Supposing that all the sprint stories code have reached the stage of release, before proceding with the final merging , we check that all the desired features have been implemented and tested properly. The final merging is performed upon the MASTER branch containing always the stable version of all the code written so far.

```
git checkout MASTER
git merge --no-ff RELEASE
git tag -a Sprint1.Demo1
git push origin MASTER
```

3.0.10 Post-sprint practice

After each sprint we should synchronize the MASTER and the DEVELOP branch. This ensures a clean start for each sprint as the DEVELOP branch will inherently be considered the ”dirty” branch.

```
git checkout DEVELOP
git merge --no-ff MASTER
```

Chapter 4

References

The following was an inspiration for the git model:

http://nvie.com/posts/a-successful-git-branching-model/