ORI IMPLEMENTATION
CMPE 273
FALL-2018

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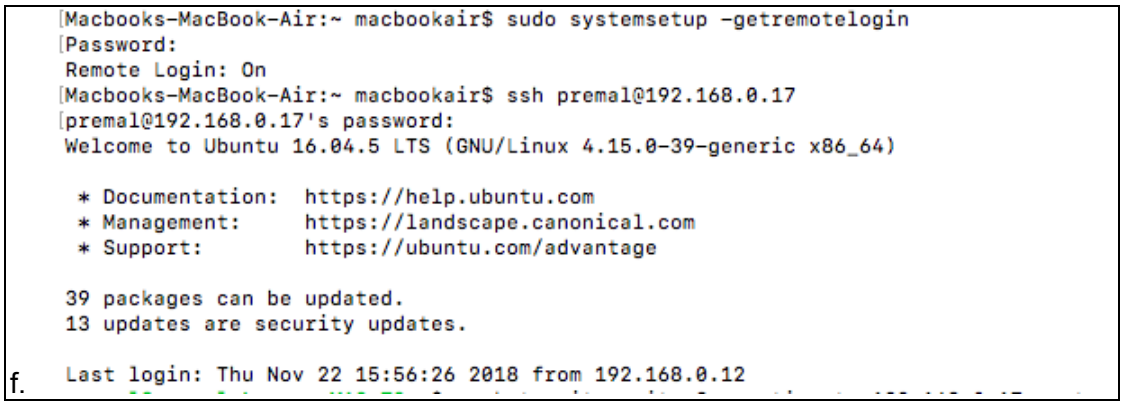
ORI is an open source distributed file system under semi active development for Linux, Mac and BSD operating system. According to bitbucket record, last commit on Ori was in year 2016.
We implemented ORI for ubuntu and mac operating system on two laptops. Repositories from ubuntu is transferred to mac through ORI and performed operations Replication, Grafting, History (logs) and Recovery through snapshots.
We also identified few bugs in existing ori implementation and we notified it to the Author of paper "Ali Mashtizadeh" by creating issue#26 https://bitbucket.org/orifs/ori/issues/26/could-not-do-data-mirroring-files-inside-a. We provided details about our communication with author at the end of this document.

Steps to Install ORI

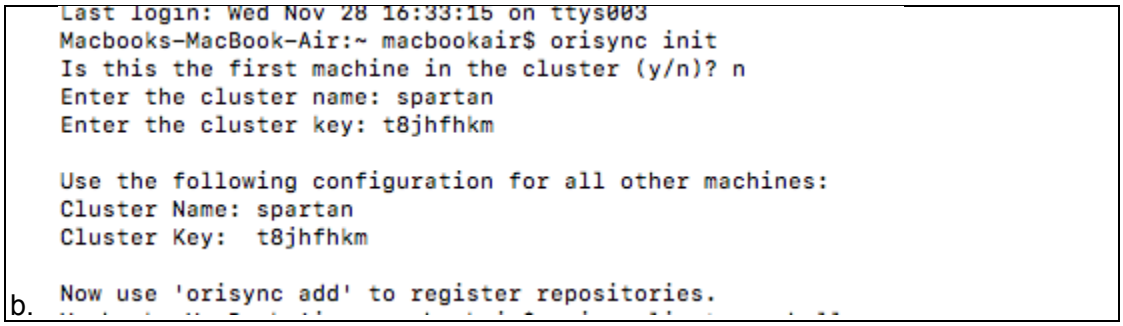
1. Download ori from the link "http://ori.scs.stanford.edu/" for your system.

First, we connected both the laptops with open ssh. Laptop with Ubuntu operating system is a server and other laptop with Mac is a client. Below are the steps that we followed.

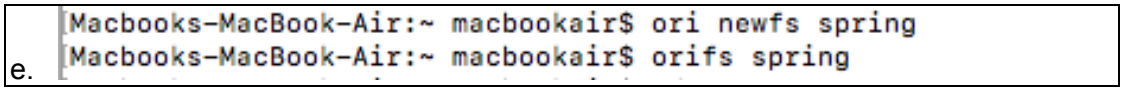
2. **Initial Setup:**
    a. Check the status of ubuntu machine whether open-ssh server running active or not with the command "sudo service ssh status".
    b. To install open-ssh server on Ubuntu run command sudo apt-get install openssh-server
    c. To start openssh do /etc/init.d/ssh start.
    d. Check if remote login is on in mac with the command "sudo systemsetup -getremotelogin"
    e. Connect to ubuntu system from mac with the command ssh username@ip

f.


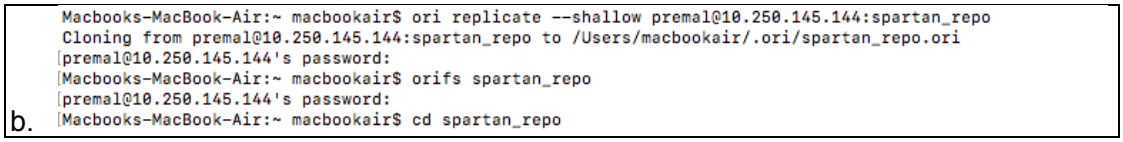
3. **Ori Initial Setup:**
    a. From the ubuntu system do ‘orisync init’

b.


    c. Run command “Ori newfs repo_name”
    d. Run command “Orifs repo_name”

e.


4. **ORI Replication**
    a. Replicate the mounted file from ubuntu to mac with the command “ori replicate --shallow username@ip:repo_name

b.


    c. Run command “orifs repo_name” to mount the file system
    d. Run command “ori list” to check if the file has been replicated
5. **ORI Snapshot:**
    a. Run command “ori snapshot before_filedelete”
    b. Create a file inside the repo “vi file_name.txt”
    c. Remove the file “rm -rf file_name.txt”

d. Run command “ori snapshot after_filedelete”
e. To recover the deleted file run command “cp .snapshot/before_filedelete/file_name.txt ./
f. Navigate to folder ./
g. Run command “ls”
h. Recovered file file_name.txt

```
Macbooks-MacBook-Air:~ macbookair$ cd spartan_repo
Macbooks-MacBook-Air:spartan_repo macbookair$ vi a.txt
Macbooks-MacBook-Air:spartan_repo macbookair$ ori snapshot before_delete
Committed d0f132bd1e1a332c2de31026cba3930427584f041532c0d2b1d62064abbe49a7
Macbooks-MacBook-Air:spartan_repo macbookair$ rm -rf a.txt
Macbooks-MacBook-Air:spartan_repo macbookair$ ori snapshot after_delete
Committed 871f494c8891af10f22476ddb9ce09823b9e8f99457759dc79cb7b71fd1b704b
Macbooks-MacBook-Air:spartan_repo macbookair$ cp .snapshot/before_delete/a.txt .
Macbooks-MacBook-Air:spartan_repo macbookair$ ls
a.txt
```

i.

6. ORI Grafting:

a. Create a new repository with command “ori newfs source_repo”
b. Mount the repository “orifs source_repo”
c. Navigate to the repository “cd source_repo”
d. Create a directory “mkdir src_dir”
e. Create a new repository with command “ori newfs dest_repo”
f. Mount the repository “orifs dest_repo”
g. Navigate to the repository “cd dest_repo”
h. Create a directory “mkdir dest_dir”
i. Graft from source to destination with the command “ori graft source_repo/src_dir dest_repo/dest_dir”
j. The src_dir will be grafted to dest_dir

```
Macbooks-MacBook-Air:~ macbookair$ ori graft 273_graft/src_dir 273_destgraft/dest_dir
Warning: source or destination is not a repository.
Macbooks-MacBook-Air:~ macbookair$ cd 273_destgraft/
Macbooks-MacBook-Air:273_destgraft macbookair$ ls
dest_dir
Macbooks-MacBook-Air:273_destgraft macbookair$ cd dest_dir/
Macbooks-MacBook-Air:dest_dir macbookair$ ls
src_dir
```

k.

7. Other commands:

a. To check log run “ori log”

```
Macbooks-MacBook-Air:spartan_repo macbookair$ ori log
Commit:    871f494c8891af10f22476ddb9ce09823b9e8f99457759dc79cb7b71fd1b704b
Parents:   d0f132bd1e1a332c2de31026cba3930427584f041532c0d2b1d62064abbe49a7
Tree:      aca9e87acc0602718b46f7b4dd5edc6b6d678d8f3246a252b5017cb794e9d92f
Author:    Macbook Air
Date:      Thu Nov 29 18:56:16 2018

    Created snapshot 'after_delete'

Commit:    d0f132bd1e1a332c2de31026cba3930427584f041532c0d2b1d62064abbe49a7
Parents:
Tree:      7e958a8f68e8f33bd4fcd7a932f5c5e5859ea9b8945e14b2f16fc3720b8020be
Author:    Macbook Air
Date:      Thu Nov 29 18:55:32 2018

    Created snapshot 'before_delete'
```

b.

c. To check status run “ori status”

```
Macbooks-MacBook-Air:spartan_repo macbookair$ ori status
A   /a.txt
```

d.

e. To get history of snapshots, from root navigate to “/Users/macbookair/.ori/spartan_repo.ori”

f. Run command “vi snapshots”

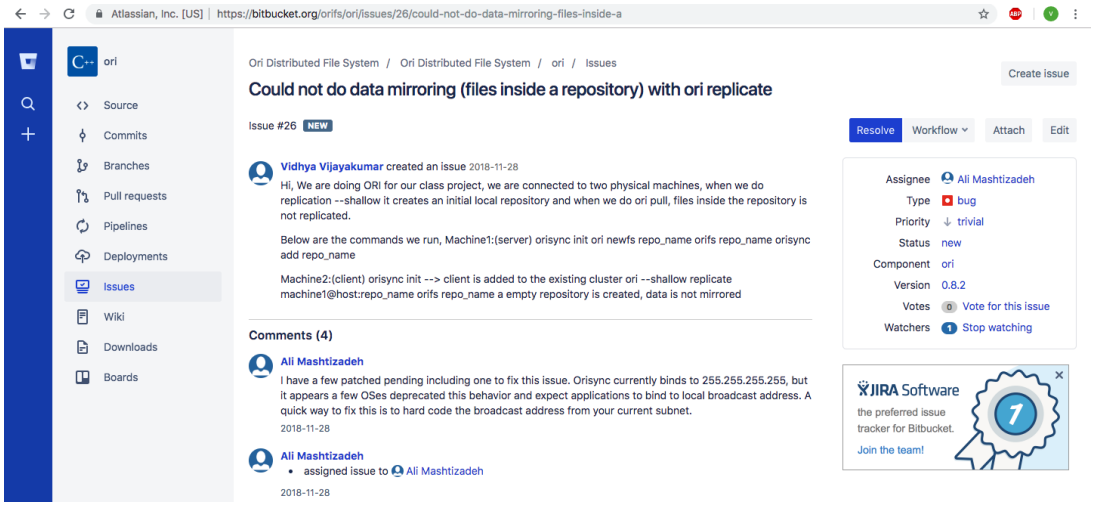
```
spartan_repo.ori — vi snapshots — 148×49
d0f132bd1e1a332c2de31026cba3930427584f041532c0d2b1d62064abbe49a7 before_delete
871f494c8891af10f22476ddb9ce09823b9e8f99457759dc79cb7b71fd1b704b after_delete
~
~
~
~
```

g.

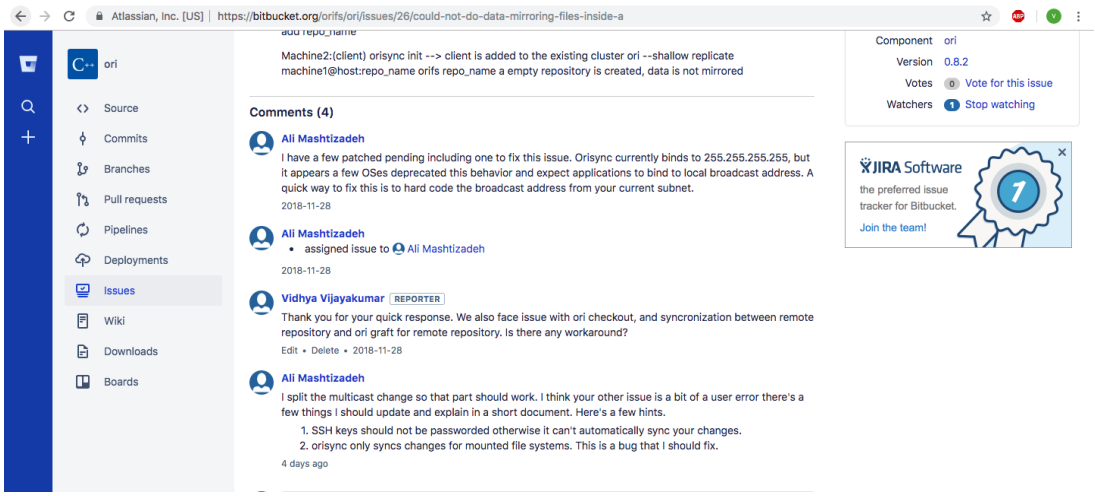
8. Issues Discovered:

a. We faced few issues while implementing this system and we raised few bugs in the bitbucket to the author. Please find the issues and Authors reply for the same.

Below is the screenshot of communication with the Author “Ali Mashtizadeh”. We created a two issues on Ori bitbucket and we received response confirming the bug.



b.


Atlassian, Inc. [US] | https://bitbucket.org/orifs/ori/issues/26/could-not-do-data-mirroring-files-inside-a
ori
Source
Commits
Branches
Pull requests
Pipelines
Deployments
Issues
Wiki
Downloads
Boards
Machine2:(client) orisync init --> client is added to the existing cluster ori --shallow replicate machine1@host:repo_name orifs repo_name a empty repository is created, data is not mirrored
Comments (4)
Ali Mashtizadeh
I have a few patched pending including one to fix this issue. Orisync currently binds to 255.255.255.255, but it appears a few OSes deprecated this behavior and expect applications to bind to local broadcast address. A quick way to fix this is to hard code the broadcast address from your current subnet.
2018-11-28
Ali Mashtizadeh
assigned issue to Ali Mashtizadeh
2018-11-28
Vidhya Vijayakumar REPORTER
Thank you for your quick response. We also face issue with ori checkout, and syncronization between remote repository and ori graft for remote repository. Is there any workaround?
Edit • Delete • 2018-11-28
Ali Mashtizadeh
I split the multicast change so that part should work. I think your other issue is a bit of a user error there's a few things I should update and explain in a short document. Here's a few hints.
1. SSH keys should not be passwordded otherwise it can't automatically sync your changes.
2. orisync only syncs changes for mounted file systems. This is a bug that I should fix.
4 days ago
Component ori
Version 0.8.2
Votes 0 Vote for this issue
Watchers 1 Stop watching
JIRA Software
the preferred issue tracker for Bitbucket.
Join the team!