Installation and Running GoFFish-2.6.1 on Cluster

Prerequisites:

Total number of nodes = 3

Number of head nodes = 1

Number of worker nodes = 3 (head node is also worker node)

There can be any number of worker nodes.

Configurations:

Head node: (Worker node 1)

Server1 = server number 58

IP: 10.10.1.58

Configuration: 1 TB Hard Disk, 16 GB RAM

Software installed: Java 1.7+ , Maven 3.0+ , Cmake 2.7+ , metis , python 2.7+

Worker node 2:

Server2 = server number 59

IP: 10.10.1.59

Configuration: 1 TB Hard Disk, 16 GB RAM

Software installed: Java 1.7+

Worker node 3:

Server3 = server number 60

IP: 10.10.1.60

Configuration: 1 TB Hard Disk, 16 GB RAM

Software installed: Java 1.7+

Step 1: Enable password less SSH between the 3 nodes

A. Making password less connection from server1 to server2 and server3:

[user1@server1 ~]$ ssh-keygen -t rsa

[user1@server1 ~]$ ssh-copy-id user1@server2

[user1@server2's password: [Give password for user1]

[user1@server1 ~]$ ssh-copy-id user1@server3

[user1@server3's password: [Give password for user1]

Similarly, follow the steps in worker node 2 and worker node 3.

Step 2: Software installation

A. Install the following software on the head node:

- Java 1.7+ - [http://www.oracle.com/technetwork/java/javase/downloads/jdk7-downloads-1880260.html]
- Maven 3.0+ - [http://maven.apache.org/download.cgi]
- Cmake 2.7+ - [http://www.cmake.org/download/]
- metis - [http://glaros.dtc.umn.edu/gkhome/views/metis]
- python 2.7+ - [https://www.python.org/download/releases/2.7/]

B. Install the following software on the worker nodes:

- Java 1.7+ - [http://www.oracle.com/technetwork/java/javase/downloads/jdk7-downloads-1880260.html]

Step 3: Edit the goffish-conf.json file in goffish-2.6.1/install

```
{
	"machines" :{
		"headnode": {
				"id" : "node1",
				"address" : 10.10.1.58
			},
		"nodes" : [
			{
				"id" : "node1",
				"address" : 10.10.1.58
			},
		"nodes" : [
			{
				"id" : "node1",
				"address" : 10.10.1.59
			},
		"nodes" : [
			{
				"id" : "node1",
				"address" : 10.10.1.60
			}
		]
	},
	"username" : {
		"default" : "hduser"
	},
	"paths" : {
		"default" : {
			"source" : "/home/hduser/goffish/goffish-deploy/source",
			"bin" : "/home/hduser/goffish/goffish-deploy/bin",
			"data" : "/home/hduser/goffish/goffish-deploy/data",
			"client" : "/home/hduser/goffish/goffish-deploy/client",
			"config" : "/home/hduser/goffish/goffish-deploy/config",
			"sample" : "/home/hduser/goffish/goffish-deploy/sample"
		}
	},
	"common-home" : "true",
	"source" :{
		"type" : "file",
		"url" : "~/goffish/goffish-2.6.1/"
	}
}
```

Step 4: Deployment

For deploying GoFFish folder run the following command in your prompt:

$python goffish_install.py DEPLOY

Once GoFFish is deployed, a new folder called goffish will be created in the home directory. Inside this folder is another folder called goffish-deploy which contains various other folders among which client folder contains the scripts to run the sample graph.

Running Sample GoFFish job:

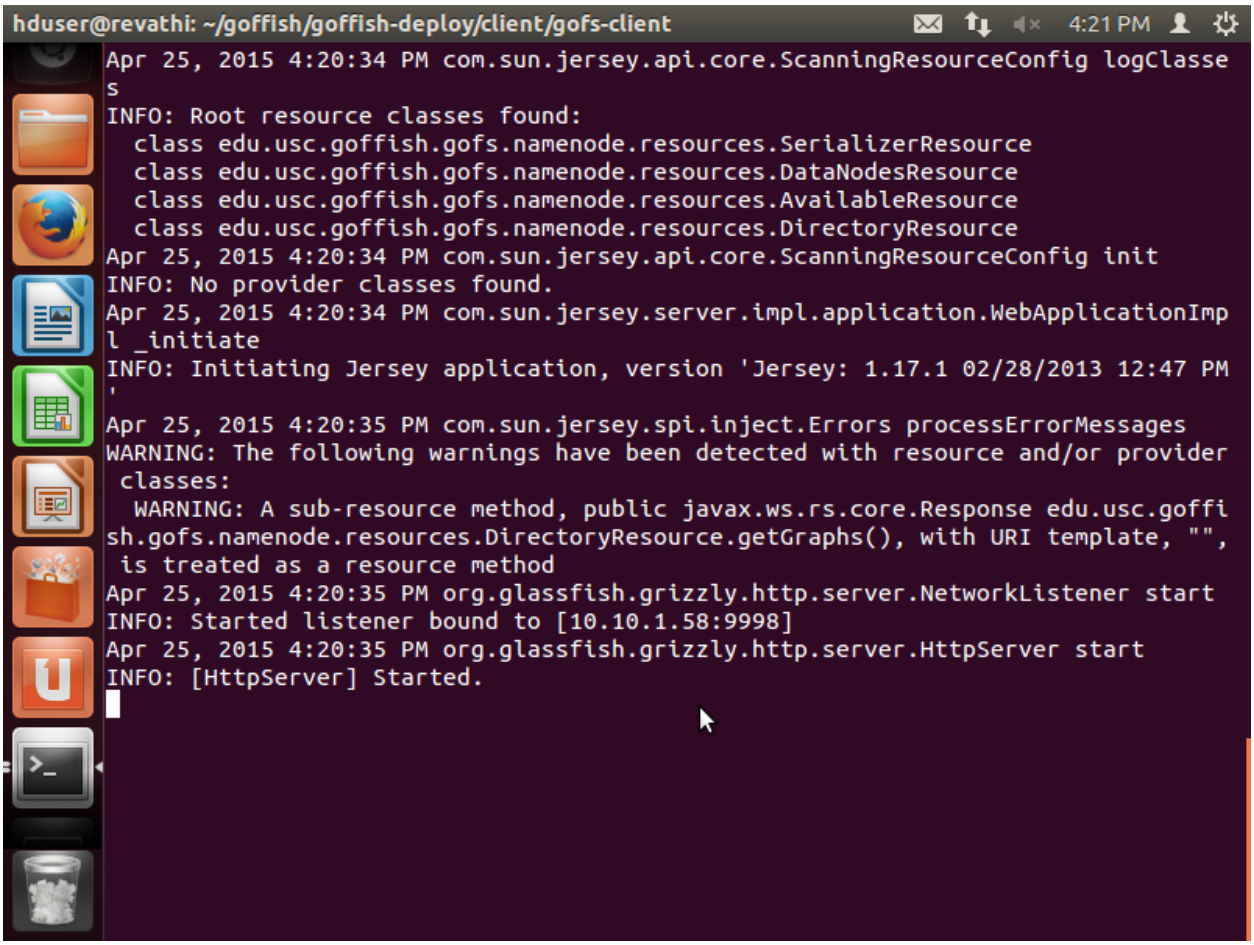
Here we describe step by step instruction for running the sample program (vertex count) on the sample graph (facebook graph)

To run a goffish job from scratch we need to do the following steps:

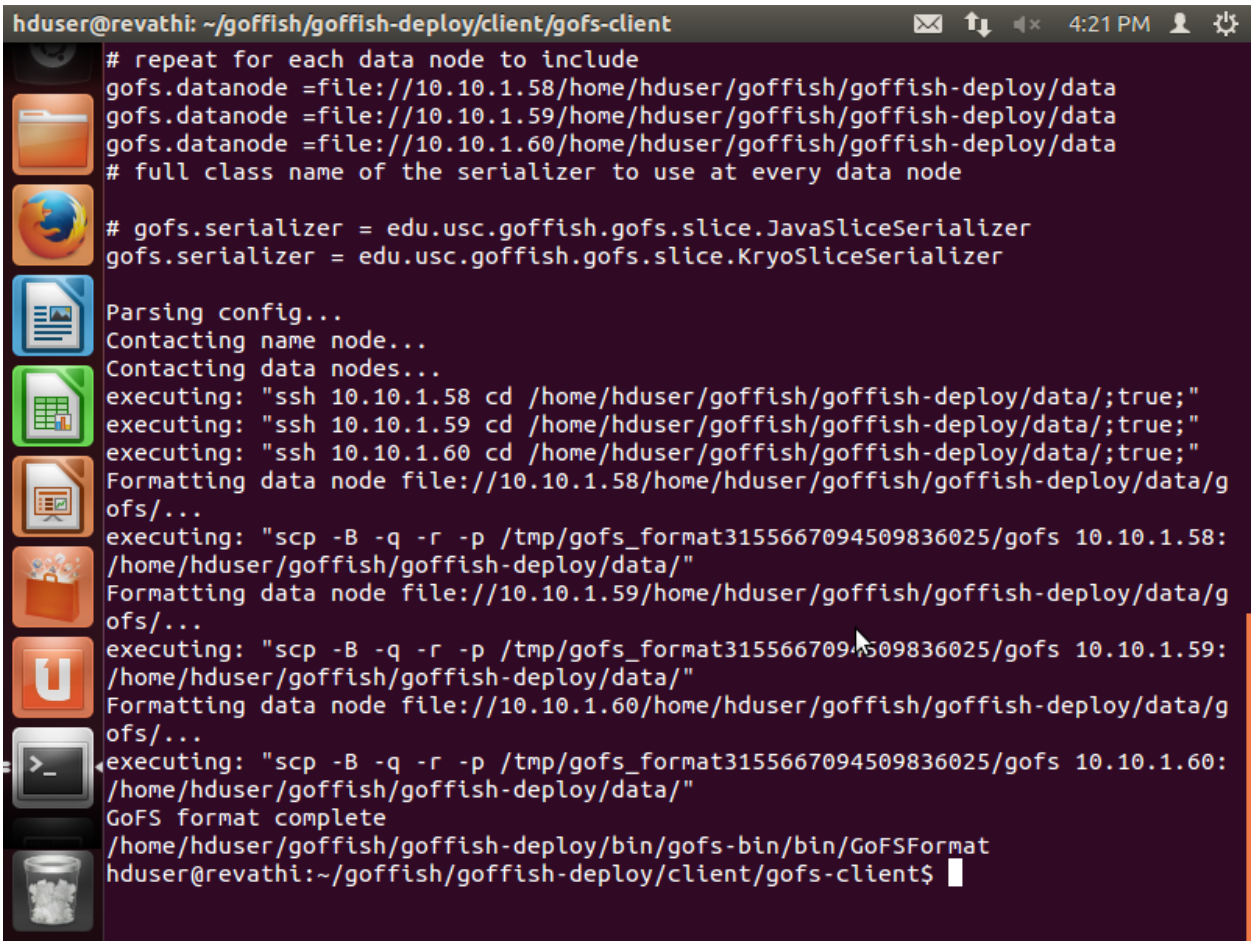
1) Start a GoFS server
2) Format the GoFS File System
3) Load the graph in to GoFS
4) Load the graph in to Gopher
5) Run Gopher job
6) Checking the result

Following steps describes how to perform each step:
Before starting the GoFS server give all the necessary permissions to gofs and gopher folders located inside client of goffish-deploy folder inside goffish folder.

1. Start GoFS server
Go to ~/goffish/goffish-deploy/client/gofs-client
Now run the script “gofs-client.py”
$python gofs-client.py START
It will start the GoFS server

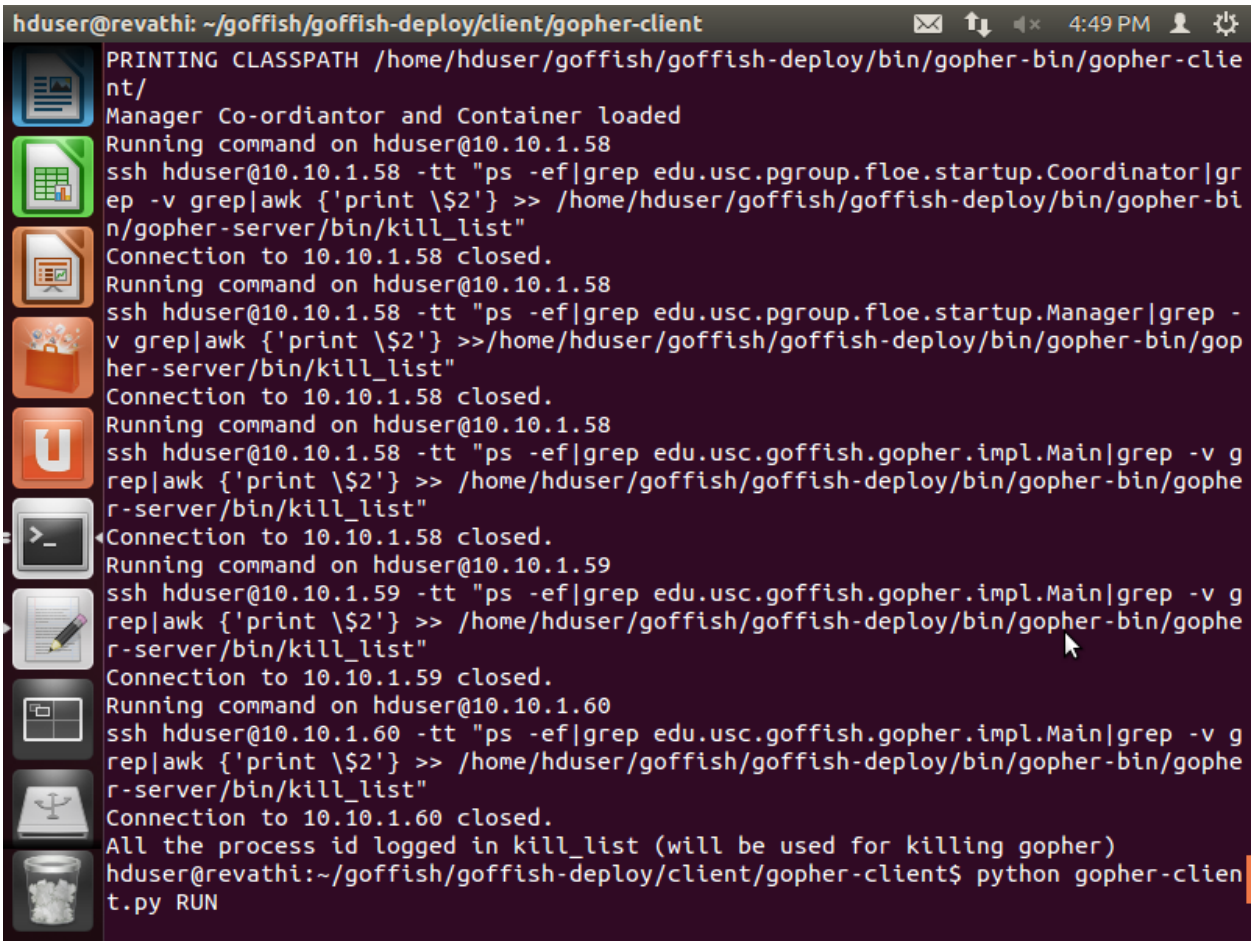


2. Format the GoFS File System
Now open another terminal and in the same folder run
$python gofs-client.py FORMAT
It will format the gofs file system

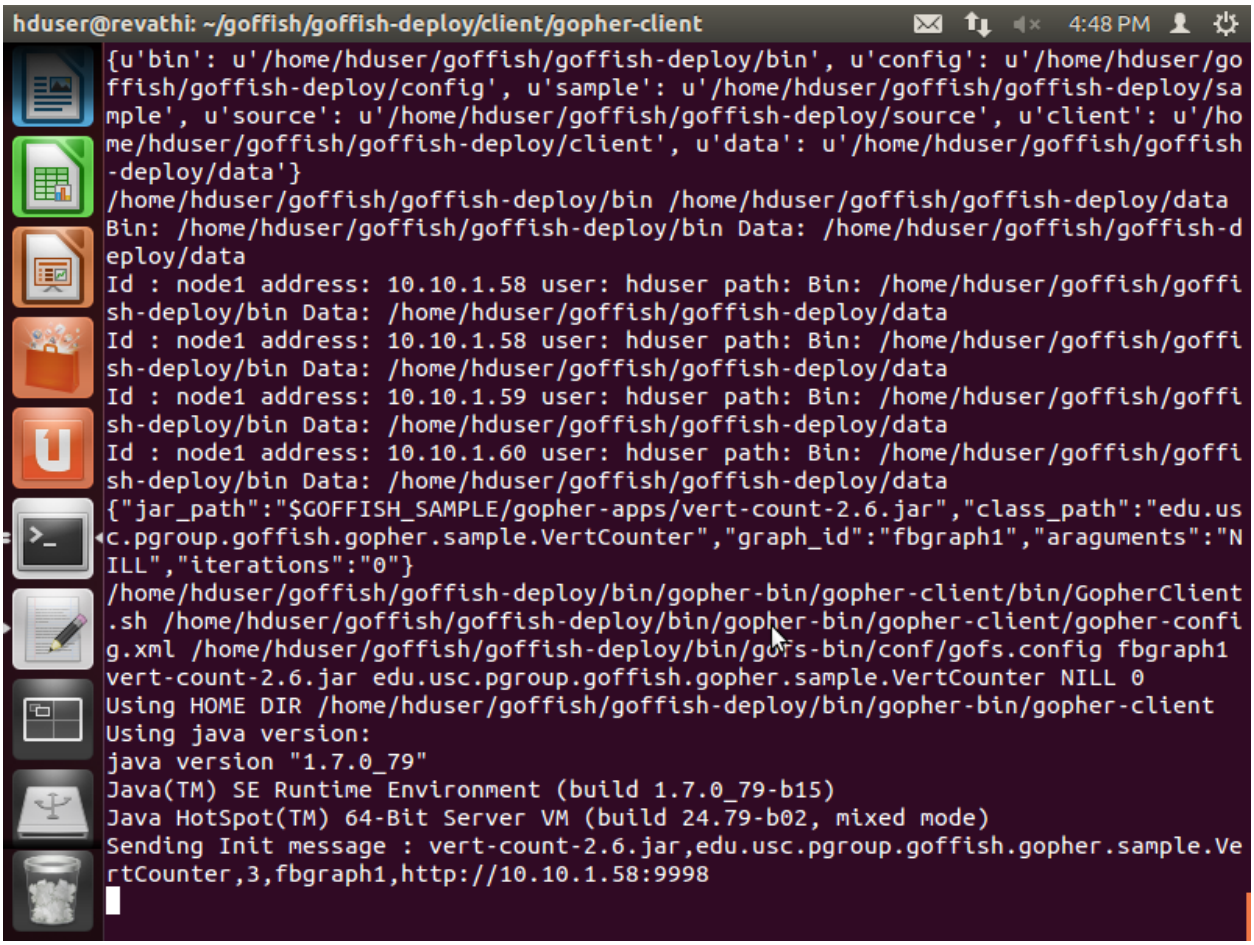


3. Loading Graph in GoFS
In the same folder run
$python gofs-client.py LOAD
It will deploy the Facebook graph on GoFS

4. Loading graph in Gopher
Go to ~/goffish/goffish-deploy/client/gopher-client
Now run the script “gopher-client.py”
$python gopher-client.py LOAD
This will load the gopher jar in all the machiines in goffish cluster as well as start the manager and coordinator (part of floe framework) which supervises the execution

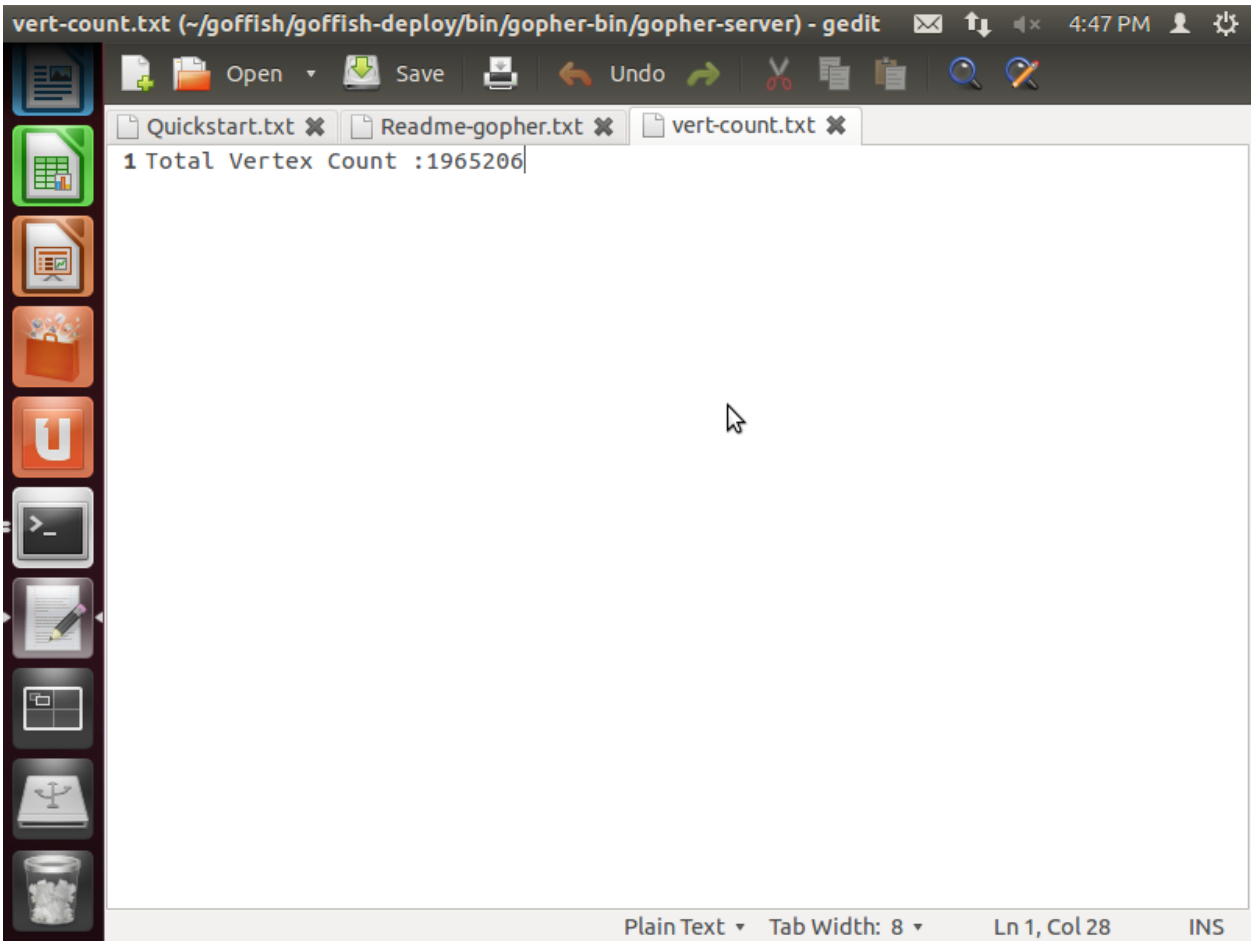


5. Running sample gopher job
In the same folder run
$python gopher-client.py RUN
This will run the gopher job on goffish. Currently this script will keep on running even when the gopher job has stopped. Click ^C to close the gopher job



6. After you have completed the gopher job run following command
$python gopher-client.py KILL
This will kill the manger and coordinator. If not next time you load a gopher job you will get a MIME type exception

7. Checking the result
The above script will keep running.
To check the result go to $goffish/goffish-deploy/bin/gopher-server-2.0
We will see a file “vert-count.txt” having output
Total Vertex Count: 4039



This documentation is all about installing and running a sample graph (vertex count program on Facebook graph) on GoFFish platform. We can also run other sample graphs on this platform.

Log Files:

The log files created are:

- Container.log
- Partition.log
- Subgraph.log

These files contain the logs from which the computation time, IO time and total app time can be observed.