# Distributed Systems Coursework - Test Cases

James King

March 2, 2013

## 1 Connect to Master Server

### 1.1 Method

A pair of servers with distinct ports will be initiated, and then a client program. Both servers and the client will then report which server they have decided is the master server through the *get master* command.

### 1.2 Expected Result

All programs should give the same result when being queried for the name of the master server.

### 1.3 Actual Result

#### 1.3.1 Server A

```
$ ./server.sh localhost 3125
Reading departments file "../departments.txt"
Found 30 department definitions
Reading hosts file "../hosts.txt"
Found 2 host definitions
Created new RMI registry at port 3125
Connected to RMI registry at localhost 3125
DatabaseConnection bound to registry
Polling servers to find identifier...
Server identifier: 1
Type "help" to get a list of all commands
```

#### 1.3.2 Server B

```
$ ./server.sh localhost 3126
Reading departments file "../departments.txt"
Found 30 department definitions
Reading hosts file "../hosts.txt"
Found 2 host definitions
Created new RMI registry at port 3126
Connected to RMI registry at localhost 3126
DatabaseConnection bound to registry
Polling servers to find identifier...
Server identifier: 2
Synchronizing with master server...
Type "help" to get a list of all commands
```

#### 1.3.3 Client

```
$ ./client.sh
Reading departments file "../departments.txt"
Found 30 department definitions
Reading hosts file "../hosts.txt"
Found 2 host definitions
Type "help" to get a list of all commands
```

#### 1.3.4 Server A

```
> get master
host-a@localhost:3125
```

#### 1.3.5 Server B

```
> get master
host-a@localhost:3125
```

#### 1.3.6 Client

```
> get master
host-a@localhost:3125
```

### 1.4 Verdict

Success

## 2 Record Insertion and Seletion

### 2.1 Method

Following on from the previous test, the client will insert a data record into the master server's database with *insert*, and then retrieve it again with *select*.

### 2.2 Expected Result

The selected data should be identical to the inserted information.

### 2.3 Actual Results

#### 2.3.1 Client

```
> insert James King 150 2 200
SUCCESS
#1 James King, Engineering and Computing Sciences, year 2, 200 credits

> select identifier == 1
Selected 1 item(s):
#1 James King, Engineering and Computing Sciences, year 2, 200 credits
```

### 2.4 Verdict

Success

# 3 Swap Primary Server

## 3.1 Method

Following the last test, the master server will be shut down and the client will make the same *select* request again. Then the server will be restarted, and the other server shut down afterwards. Finally, the request will be executed one more time.

## 3.2 Expected Result

The select request should provide the same data as was originally inserted each time.

## 3.3 Actual Results

### 3.3.1 Server A

```
> exit
Exiting...
```

### 3.3.2 Client

```
> select identifier == 1
Selected 1 item(s):
#1 James King, Engineering and Computing Sciences, year 2, 200 credits
```

### 3.3.3 Server A

```
$ ./server.sh localhost 3125
Reading departments file "../departments.txt"
Found 30 department definitions
Reading hosts file "../hosts.txt"
Found 2 host definitions
Created new RMI registry at port 3125
Connected to RMI registry at localhost 3125
DatabaseConnection bound to registry
Polling servers to find identifier...
Server identifier: 3
Synchronizing with master server...
Type "help" to get a list of all commands
```

### 3.3.4 Server B

```
> exit
Exiting...
```

### 3.3.5 Client

```
> select identifier == 1
Selected 1 item(s):
#1 James King, Engineering and Computing Sciences, year 2, 200 credits
```

## 3.4 Verdict

Success