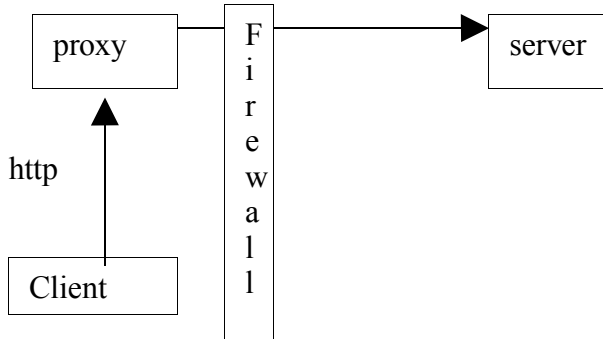**Direct http connection (with proxy and firewall)**

Connection to the server by using the protocol by means of a Proxy that allows us to establish a connection with the rmi server. The client must be placed behind a firewall. The firewall will not permit any direct connection with the rmi server.

For this setting, the following test cases are presented:
- Three computers with Linux as their operating system, one of them executing the server + registry (application RemoteCalculatorServer), other the client (RemotecalculatorClient) and other acting as firewall and proxy. A test will be performed with the server being on and it should work without any problems.
- On the other hand, we will try to make a connection with the server, being this off. In this case, the client must fail.
- Finally, we will test if the inoperability with the package provided by SUN does not work.

Execution case 1
Two computers with Linux as their operating system.
JDK 1.5.0 of SUN
Computer N° 1 must execute RemoteCalculatorServer
Computer N° 2 must execute RemoteCalculatorClient

Output Computer N°1(RemoteCalculatorServer)

24/02/2006 10:38:09 ar.org.fitc.test.rmi.integration.RemoteCalculatorServer main
INFO: RemoteCalculator Server Ready.
Matrix A entered from 0.0.0.0
[9, 2]
[6, 4]

Matrix B entered from 0.0.0.0
[1, 4]
[1, 5]

multiply Matrix called from 0.0.0.0
Result Matrix (multiply)
[11, 46]
[10, 44]

multiply Matrix called from 0.0.0.0
Result Matrix (multiply)
[11, 46]
[10, 44]

add Matrix called from 0.0.0.0
Result Matrix (add)
[10, 6]
[7, 9]

add Matrix called from 0.0.0.0
Result Matrix (add)
[10, 6]
[7, 9]

Vector A entered from 0.0.0.0
[50.21, 2000.125, 196.15, 36.95]

get Standard Deviation and Average called from 0.0.0.0
Standard Deviation: 955.5700453863042
Average: 570.85875
get Standard Deviation and Average called from 0.0.0.0
Standard Deviation: 955.5700453863042
Average: 570.85875

Output Computer N° 2(RemoteCalculatorClient)

Feb 24, 2006 8:20:11 AM ar.org.fitc.test.rmi.integration.RemoteCalculatorClientmain
INFO: RemoteCalculatorClient locating RMI registry on remote host "10.100.2.229".
Feb 24, 2006 8:20:11 AM ar.org.fitc.test.rmi.integration.RemoteCalculatorClientmain
INFO: RemoteCalculatorClient looking up service "RemoteCalculator".
Matrix A
[9, 2]
[6, 4]

Matrix B
[1, 4]
[1, 5]

Result Matrix (multiply)
[11, 46]
[10, 44]
Result Matrix (add)
[10, 6]
[7, 9]

Vector
[50.21, 2000.125, 196.15, 36.95]

Standard Deviation: 955.5700453863042
Average: 570.85875

Output Computer N° 1 (RemoteHashMapServer)

24/02/2006 12:21:05 ar.org.fitc.test.rmi.integration.RemoteHashServer main

INFO: RemoteMapServer creating a local RMI registry on the default port.
24/02/2006 12:21:06 ar.org.fitc.test.rmi.integration.RemoteHashServer main
INFO: RemoteMapServer creating local object and remote adapter.
24/02/2006 12:21:06 ar.org.fitc.test.rmi.integration.RemoteHashServer main
INFO: RemoteMapServer publishing service "RemoteHashMap" in local registry.
24/02/2006 12:21:06 ar.org.fitc.test.rmi.integration.RemoteHashServer main
INFO: Published RemoteMap as service "RemoteHashMap". Ready.
Internal HashMap Status... Timestamp: 1140794495015
get() called 0 time(s)..

put() called 1 time(s)
Internal HashMap Status... Timestamp: 1140794495026
get() called 0 time(s)..
put() called 2 time(s)
Internal HashMap Status... Timestamp: 1140794495043
get() called 0 time(s)..
put() called 3 time(s)
Internal HashMap Status... Timestamp: 1140794495058
get() called 0 time(s)..
put() called 4 time(s)
Internal HashMap Status... Timestamp: 1140794495074
get() called 0 time(s)..
put() called 5 time(s)
Internal HashMap Status... Timestamp: 1140794495086
get() called 0 time(s)..
put() called 6 time(s)
Internal HashMap Status... Timestamp: 1140794495096
get() called 0 time(s)..
put() called 7 time(s)
Internal HashMap Status... Timestamp: 1140794495162
get() called 1 time(s)..
put() called 7 time(s)
Internal HashMap Status... Timestamp: 1140794495203
get() called 2 time(s)..
put() called 7 time(s)
Internal HashMap Status... Timestamp: 1140794495213
get() called 3 time(s)..
put() called 7 time(s)
Internal HashMap Status... Timestamp: 1140794495224
get() called 4 time(s)..
put() called 7 time(s)
Internal HashMap Status... Timestamp: 1140794495240
get() called 5 time(s)..
put() called 7 time(s)
Internal HashMap Status... Timestamp: 1140794495250
get() called 6 time(s)..
put() called 7 time(s)
Internal HashMap Status... Timestamp: 1140794495281
get() called 7 time(s)..
put() called 7 time(s)

Output Computer N° 2 (RemoteHashMapClient)

RemoteMapClient locating RMI registry on remote host "10.100.2.229".
Feb 24, 2006 8:58:51 AM ar.org.fitc.test.rmi.integration.RemoteHashClient main
INFO: RemoteMapClient looking up service "RemoteHashMap".
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient putCall
INFO: RemoteMapClient inserting on 10.100.2.229 key=one, value=pride
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient putCall
INFO: RemoteMapClient inserting on 10.100.2.229 key=two, value=envy
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient putCall
INFO: RemoteMapClient inserting on 10.100.2.229 key=three, value=gluttony
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient putCall
INFO: RemoteMapClient inserting on 10.100.2.229 key=four, value=lust
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient putCall
INFO: RemoteMapClient inserting on 10.100.2.229 key=five, value=anger
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient putCall
INFO: RemoteMapClient inserting on 10.100.2.229 key=six, value=greed
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient putCall
INFO: RemoteMapClient inserting on 10.100.2.229 key=seven, value=sloth
RemoteMapClient HashMap successfully populated...

Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient sizeCall
INFO: RemoteMapClient HashMap size: 7
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient main
INFO: RemoteMapClient HashMap size correct...
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient getCall
INFO: RemoteMapClient found at 10.100.2.229, value=pride
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient getCall
INFO: RemoteMapClient found at 10.100.2.229, value=envy
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient getCall
INFO: RemoteMapClient found at 10.100.2.229, value=gluttony
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient getCall
INFO: RemoteMapClient found at 10.100.2.229, value=lust
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient getCall
INFO: RemoteMapClient found at 10.100.2.229, value=anger
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient getCall
INFO: RemoteMapClient found at 10.100.2.229, value=greed
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient getCall
INFO: RemoteMapClient found at 10.100.2.229, value=sloth
Feb 24, 2006 8:59:07 AM ar.org.fitc.test.rmi.integration.RemoteHashClient main
INFO: RemoteMapClient HashMap check passed...

Execution case 2

Requirements
A computer with Linux as its operating system
The computer must execute RemoteCalculatorClient with the JDK 1.5.0 of SUN

Output Computer N° 1(RemoteCalculatorClient)

24/02/2006 12:37:44 ar.org.fitc.test.rmi.integration.RemoteCalculatorClient main
INFO: RemoteCalculatorClient locating RMI registry on remote host "10.100.2.229".
24/02/2006 12:37:44 ar.org.fitc.test.rmi.integration.RemoteCalculatorClient main
INFO: RemoteCalculatorClient looking up service "RemoteCalculator".
24/02/2006 12:37:44 ar.org.fitc.test.rmi.integration.RemoteCalculatorClient main
INFO: RemoteCalculatorClient problem with RemoteCalculator, exception:
 java.rmi.ConnectException: Connection refused to host: 10.100.2.229; nested exception is:
        java.net.ConnectException: Connection refused

Output Computer N° 2 (RemoteHashMapClient)
RemoteMapClient locating RMI registry on remote host "10.100.2.229".
24/02/2006 12:38:02 ar.org.fitc.test.rmi.integration.RemoteHashClient main
INFO: RemoteMapClient looking up service "RemoteHashMap".
RemoteMapClient problem with RemoteMap, exception:
   java.rmi.ConnectException: Connection refused to host: 10.100.2.229; nested exception is:
        java.net.ConnectException: Connection refused
pride
24/02/2006 12:38:02 ar.org.fitc.test.rmi.integration.RemoteHashClient putCall
INFO: RemoteMapClient inserting on 10.100.2.229 key=one, value=pride
Exception in thread "main" java.lang.NullPointerException
        at ar.org.fitc.test.rmi.integration.RemoteHashClient.putCall(RemoteHashClient.java:101)
        at ar.org.fitc.test.rmi.integration.RemoteHashClient.populateHashMap(RemoteHashClient.java:91)
        at ar.org.fitc.test.rmi.integration.RemoteHashClient.main(RemoteHashClient.java:71)

Execution case 3
Requirements

Two computers with Linux as their operating system.
JDK 1.5.0 of SUN
Computer N° 1 must execute RemoteCalculatorServer
Computer N° 2 must execute RemoteCalculatorClient

Output Computer N° 1(RemoteCalculatorServert)

24/02/2006 12:44:01 ar.org.fitc.test.rmi.integration.RemoteCalculatorServer main
INFO: RemoteCalculator Server Ready.

Output Computer N° 2(RemoteCalculatorClient)

Feb 24, 2006 9:22:02 AM ar.org.fitc.test.rmi.integration.RemoteHashClient main
INFO: RemoteMapClient looking up service "RemoteHashMap".
RemoteMapClient locating RMI registry on remote host "10.100.2.229".

Output Computer N° 1 (RemoteHashMapServer)

24/02/2006 12:40:42 ar.org.fitc.test.rmi.integration.RemoteHashServer main
INFO: RemoteMapServer creating a local RMI registry on the default port.
24/02/2006 12:40:43 ar.org.fitc.test.rmi.integration.RemoteHashServer main
INFO: RemoteMapServer creating local object and remote adapter.
24/02/2006 12:40:43 ar.org.fitc.test.rmi.integration.RemoteHashServer main
INFO: RemoteMapServer publishing service "RemoteHashMap" in local registry.
24/02/2006 12:40:43 ar.org.fitc.test.rmi.integration.RemoteHashServer main
INFO: Published RemoteMap as service "RemoteHashMap". Ready.

Output Computer N° 2 (RemoteHashMapClient)

RemoteMapClient locating RMI registry on remote host "10.100.2.229".
Feb 24, 2006 9:18:47 AM ar.org.fitc.test.rmi.integration.RemoteHashClient main
INFO: RemoteMapClient looking up service "RemoteHashMap".