Installation and Configuration

Of

NGINX as load balancer for TOMCAT

REVISION HISTORY

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1. Introduction

This document explains step by step process to install and configure NGINX as a Load balancer with two instances of Tomcat.

1.1 Audience

This is a technical document and will be useful for developers, architects and IT administrators.

Reader should have basic knowledge of NGINX, Tomcat and Ubuntu.

1.2 Pre-requisites

* Operating System: Ubuntu
* Access privilege: sudo (Super User)
* Installation Machine should have access to Internet

Step 1: Update system with latest upgrades/patches

sudo apt-get update

Step 2: Install Java

If Java is not installed, install Java Development Kit package with apt-get:

sudo apt-get install default-jdk

3. TOMCAT Installation

Create Tomcat group

Step 1

sudo groupadd tomcat

Next, create a new tomcat user.

Make tomcat user member of tomcat group, with a home directory of /opt/tomcat (where we will install Tomcat), and with a shell of /bin/false (so nobody can log into the account):

sudo useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat

Downlaod Tomcat

curl –O https://archive.apache.org/dist/tomcat/tomcat-8/v8.5.13/bin/apache-tomcat-8.5.13.tar.gz

Note: if future the given link may be down, in that case download the latest tomcat from apache tomcat site: <http://archive.apache.org/dist/tomcat/>

sudo mkdir /opt/tomcat

create two tomcat server directory

sudo mkdir /opt/tomcat/server

sudo mkdir /opt/tomcat/serverB

unzip the downloaded tomcat in serverA and server B by using below command

sudo tar xzvf apache-tomcat-8\*tar.gz -C /opt/tomcat/serverA --strip-components=1

sudo tar xzvf apache-tomcat-8\*tar.gz -C /opt/tomcat/serverB --strip-components=1

sudo mkdir /var/tomcat/serverA /var/tomcat/serverB

cd /opt/tomcat

sudo chown -R tomcat:tomcat serverA/ serverB/

Now the necessary files have been copied. So in next step let’s configure the server port, shutdown port and the connector port on server.xml file.

Open the server.xml files separatly and change the above mentioned port numbers.

sudo vi /opt/tomcat/serverA/conf/server.xml

<Server port="8006" shutdown="SHUTDOWN">

<Connector port="8081" protocol="HTTP/1.1"

connectionTimeout="20000"

URIEncoding="UTF-8"

redirectPort="8443" />

<Connector port="8010" protocol="AJP/1.3" redirectPort="8443" />

sudo vi /opt/tomcat/serverB/conf/server.xml

<Server port="8016" shutdown="SHUTDOWN">

<Connector port="8082" protocol="HTTP/1.1"

connectionTimeout="20000"

URIEncoding="UTF-8"

redirectPort="8443" />

<Connector port="8011" protocol="AJP/1.3" redirectPort="8443" />

After configuring server ports in serverA and server

Copy the application war file in

/opt/tomat/serverA/webapps/xxxx.war

/opt/tomat/serverB/webapps/xxxx.war

4. NGINX Installation

Use the below command to install NGINX

sudo apt-get install nginx

To check the status use the following command.

sudo nginx

You can now test the installation by opening the following URL in a browser  
<http://localhost:8080>

Let’s change the default port 8080 to port 80. You can do that in the nginx.conf file.

First stop nginx

sudo nginx -s stop

Now open the nginx.conf file and locate the listen attribute of the server. Change the value from 8080 to 80.

4.1. Configuration NGINX as Load balancer

cd /etc/nginx

vm nginx.conf

Add the following after Virtual Host Configs.

upstream tomcat {

server 10.10.201.80:8081;

server 10.10.201.80:8082;

}

server {

listen 80;

server\_name 10.10.201.80;

location / {

proxy\_pass http://tomcat;

proxy\_set\_header Host $host;

proxy\_set\_header X-Real-IP $remote\_addr;

proxy\_set\_header X-Forwarded-For $proxy\_add\_x\_forwarded\_for;

proxy\_set\_header X-Real-IP $remote\_addr;

}

}

5. Testing the application for load balancing

Start the nginx server

sudo nginx

start the tomcat servers – serverA and serverB

cd /opt/tomcat/serverA/bin

sudo ./startup.sh

cd /opt/tomcat/serverB/bin

sudo ./startup.sh

Open the deployed application in 80 port

http://<host-ip>:80/applicationname

6. **How to generate war using maven in command prompt: -**

Assuming MVN is placed in a directory and Path is mentioned in Environment variables “PATH” variable where java Path is defined.

$ cd \ - From this directory to go project directory where pom.xml reside. Like: - D:\LatestTrunk\eSync

$ mvn package

It will create the war file in target folder. File name should be like: D:\LatestTrunk\eSync\target\eSync-0.1.0.war

Note: - Please rename the file as eSync.war for easier use in future.

7. **Database and Table creation:** -

Create esyncdb as Database (DB) and Tables: -

1. mysql > Create Database esyncdb;
2. If DB is already exist then

1. mysql > Drop Database esyncdb;
2. mysql > Create Database esyncdb;
3. mysql > use esyncdb;
4. mysql > source file path\Esync\_tables.sql;

Note: - file path should like: - D:\LatestTrunk\databaseScripts.

Upper mentioned 3 and 4 command will create needed tables in esyndb Database.

8. **Copy war file to Tomcat and Start the tomcat:** -

$ cp srcfile destfile

Where srcfile should be source of war file, like: -

srcfile = D:\LatestTrunk\eSync\target\eSync.war

and destfile should be destination directory, like: -

destfile = C:\Users\sanjay.s\Desktop\Resource\apache-tomcat-8.0.14-windows-x64\apache-tomcat-8.0.14\webapps

$ cd C:/Users/sanjay.s/Desktop/Resource/apache-tomcat-8.0.14-windows-x64/apache-tomcat-8.0.14/bin

$ sh startup.sh