# 개요)

# 이 문서는 리눅스 centos7.x에서 일반유저가 root권한 없이 systemd systemctl 을 사용해서 서비스를 구동할수 있도록 있게 도움을 주기 위해서 제작한다. 사용되는 예제 application 은 tomcat8 apache-tomcat-8.5.61.tar.gz이다.

**전제조건: 최초 uid.service를 작성과 jdk사용을 위한 루트권한. Tomcat 구동을 위한 java 8버전 이상.**

## Sudo root 권한 없이 일반 유저로 systemctl 사용하기 위해서는 최초에 한번 root 권한이 필요하다.

## 그후에는 전부 user 권한(이문서에서는 tester란 유저로 uid는 1001이다. 이 유저 uid넘버로아래와 같은 user@1001.service파일을 생성한다. 만약 id user 명령어로 uid가 1002면 1002.service가 될것이다.

현재 테스트 서버 예)

[tester@nfserver ~]$ cat /etc/systemd/system/user@1001.service

[Unit]

Description=User Manager for UID %i

After=systemd-user-sessions.service

# These are present in the RHEL8 version of this file except that the unit is Requires, not Wants.

# It's listed as Wants here so that if this file is used in a RHEL7 settings, it will not fail.

# If a user upgrades from RHEL7 to RHEL8, this unit file will continue to work until it's

# deleted the next time they upgrade Tableau Server itself.

After=user-runtime-dir@%i.service

Wants=user-runtime-dir@%i.service

[Service]

LimitNOFILE=infinity

LimitNPROC=infinity

User=%i

PAMName=systemd-user

Type=notify

# PermissionsStartOnly is deprecated and will be removed in future versions of systemd

# This is required for all systemd versions prior to version 231

PermissionsStartOnly=true

ExecStartPre=/bin/loginctl enable-linger %i

ExecStart=-/lib/systemd/systemd --user

Slice=user-%i.slice

KillMode=mixed

Delegate=yes

TasksMax=infinity

Restart=always

RestartSec=15

[Install]

WantedBy=default.target

# tomcat 설치하기.(jdk포함)

[root@nfserver system]# yum -y install java-1.8.0-openjdk.x86\_64 java-1.8.0-openjdk-devel.x86\_64

# tomcat download

[tester@nfserver ~]$ wget <https://downloads.apache.org/tomcat/tomcat-8/v8.5.61/bin/apache-tomcat-8.5.61.tar.gz>

[tester@nfserver ~]$ java -version

openjdk version "1.8.0\_282"

OpenJDK Runtime Environment (build 1.8.0\_282-b08)

OpenJDK 64-Bit Server VM (build 25.282-b08, mixed mode)

[tester@nfserver ~]$ tar xvzf apache-tomcat-8.5.61.tar.gz

#id check command

[tester@nfserver ~]$ id tester

uid=1001(tester) gid=1001(tester) groups=1001(tester)

[tester@nfserver ~]$ ln -s apache-tomcat-8.5.61 tomcat8

#Vi 편집기로 환경파일을 편집한다.

[tester@nfserver tomcat8]$ vi ~/.bashrc

# .bashrc

# Source global definitions

if [ -f /etc/bashrc ]; then

. /etc/bashrc

fi

# User specific aliases and functions

# User run time directory set by pam\_systemd. No relateion to X.

export XDG\_RUNTIME\_DIR=/run/user/$(id -u)

#Java home

JAVA\_HOME=/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.282.b08-1.el7\_9.x86\_64

#Tomcat home

CATALINA\_HOME=/home/tester/tomcat8

#Classpath

CLASSPATH=$JAVA\_HOME/jre/lib:$JAVA\_HOME/lib/tools.jar:$CATALINA\_HOME/lib-jsp-api.jar:$CATALINA\_HOME/lib/servlet-api.jar

#Path

PATH=$PATH:$JAVA\_HOME/bin:/bin:/sbin

export JAVA\_HOME PATH CLASSPATH CATALINA\_HOME

#환경설정을 체크한다.

tester@nfserver ~]$ source .bashrc

[tester@nfserver ~]$ echo $JAVA\_HOME

/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.282.b08-1.el7\_9.x86\_64

# tomcat8.service systemd 파일 작성하기.

[tester@nfserver ~]$ mkdir -p .config/systemd/user/

[tester@nfserver ~]$ vi .config/systemd/user/tomcat8.service

# Systemd unit file for tomcat8

[# Systemd unit file for tomcat

[Unit]

Description=Apache Tomcat Web Application Container

[Service]

Type=forking

WorkingDirectory=/home/tester/tomcat8/bin

Environment="JAVA\_HOME=/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.282.b08-1.el7\_9.x86\_64/"

Environment="CATALINA\_HOME=/home/tester/tomcat8"

Environment="CATALINA\_BASE=/home/tester/tomcat8"

Environment="CATALINA\_OPTS=-Xms128M -Xmx256M -server -XX:+UseParallelGC"

Environment="JAVA\_OPTS=-Djava.security.egd=file:///dev/urandom"

ExecStart=/home/tester/tomcat8/bin/startup.sh

ExecStop=/home/tester/tomcat8/bin/shutdown.sh

#UMask=0007

RestartSec=10

Restart=always

Restart=always

[Install]

WantedBy=multi-user.target

# tomcat8.service reload및 구동하기(systemctl)

중요) catalina.sh에 실행권한을 준다.

[tester@nfserver bin]$ pwd

/home/tester/tomcat8/bin

[tester@nfserver bin]$ chmod +x catalina.sh

[tester@nfserver ~]$ systemctl --user list-unit-files tomcat8.service

UNIT FILE STATE

tomcat8.service disabled

1 unit files listed.

[tester@nfserver ~]$ systemctl --user daemon-reload

tester@nfserver bin]$ systemctl --user enable tomcat8.service

Created symlink from /home/tester/.config/systemd/user/multi-user.target.wants/tomcat8.service to /home/tester/.config/systemd/user/tomcat8.service.

[tester@nfserver user]$ systemctl --user stop tomcat8

[tester@nfserver user]$ systemctl --user start tomcat8

[tester@nfserver user]$

[tester@nfserver logs]$ pwd

/home/tester/apache-tomcat-8.5.61/logs

[tester@nfserver logs]$ tail -f catalina.2021-02-03.log

03-Feb-2021 07:54:15.719 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [/home/tester/apache-tomcat-8.5.61/webapps/docs]

03-Feb-2021 07:54:15.754 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deployment of web application directory [/home/tester/apache-tomcat-8.5.61/webapps/docs] has finished in [35] ms

03-Feb-2021 07:54:15.754 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [/home/tester/apache-tomcat-8.5.61/webapps/examples]

03-Feb-2021 07:54:16.179 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deployment of web application directory [/home/tester/apache-tomcat-8.5.61/webapps/examples] has finished in [425] ms

03-Feb-2021 07:54:16.179 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [/home/tester/apache-tomcat-8.5.61/webapps/host-manager]

03-Feb-2021 07:54:16.236 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deployment of web application directory [/home/tester/apache-tomcat-8.5.61/webapps/host-manager] has finished in [57] ms

03-Feb-2021 07:54:16.237 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [/home/tester/apache-tomcat-8.5.61/webapps/manager]

03-Feb-2021 07:54:16.275 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deployment of web application directory [/home/tester/apache-tomcat-8.5.61/webapps/manager] has finished in [38] ms

03-Feb-2021 07:54:16.283 INFO [main] org.apache.coyote.AbstractProtocol.start Starting ProtocolHandler ["http-nio-8080"]

03-Feb-2021 07:54:16.333 INFO [main] org.apache.catalina.startup.Catalina.start Server startup in 1145 ms

# 결론)

Application 이 꼭 systemd.service 를 이용하도록 만들어졌고, 시스템에서는 함부로 root 나 sudo 권한을 줄수

없을때에는 유저에게 centos7.x등에서 제공하는 user level의 systemd –user command를 사용할수 있도록

함으로써 권한관계를 명확히 하여 시스템 운영및 보안등에 효과를 가져올수 있다.