24장 웹채팅 구현

24.1 환경 구축

24.1.1 호스트명 등록

[c:\Windows\System32\drivers\etc\hosts]

```
# localhost name resolution is handle within DNS itself.
#       127.0.0.1       localhost
#       ::1             localhost
192.168.18.128      localdomain
192.168.18.128      chat
192.168.18.128      chat.localdomain
```

24.1.2 Apache Http Server 설치 및 설정

(1) Windows 시스템에 설치

- Apache HTTP Server 2.2.25 버전을 설치한다.
  - Network Domain: localdomain
  - Server Name: chat.localdomain
  - Administrator's Email Address: admin@chat.localdomain

- Custom setup type으로 설치한다.
  - "Build Headers and Libraries"을 "This feature will be installed on local hard drive"로 선택
  - Install to: D:\prod\apacheHttp\

- httpd.conf, httpd-vhosts.conf 설정 파일들을 수정한다.

[d:/prod/apacheHttp/conf/httpd.conf]

```
#
# This is the main Apache HTTP server configuration file.  It contains the
# configuration directives that give the server its instructions.
# See <URL:http://httpd.apache.org/docs/2.2> for detailed information.
# In particular, see
# <URL:http://httpd.apache.org/docs/2.2/mod/directives.html>
# for a discussion of each configuration directive.
#
# Do NOT simply read the instructions in here without understanding
# what they do.  They're here only as hints or reminders.  If you are unsure
# consult the online docs. You have been warned.
#
# Configuration and logfile names: If the filenames you specify for many
# of the server's control files begin with "/" (or "drive:/" for Win32), the
# server will use that explicit path.  If the filenames do *not* begin
# with "/", the value of ServerRoot is prepended -- so 'log/access_log'
# with ServerRoot set to '/www' will be interpreted by the
# server as '/www/log/access_log', where as '/log/access_log' will be
# interpreted as '/log/access_log'.
#
# NOTE: Where filenames are specified, you must use forward slashes
# instead of backslashes (e.g., "c:/apache" instead of "c:\apache").
```

```
# If a drive letter is omitted, the drive on which httpd.exe is located
# will be used by default.  It is recommended that you always supply
# an explicit drive letter in absolute paths to avoid confusion.

#
# ServerRoot: The top of the directory tree under which the server's
# configuration, error, and log files are kept.
#
# Do not add a slash at the end of the directory path.  If you point
# ServerRoot at a non-local disk, be sure to point the LockFile directive
# at a local disk.  If you wish to share the same ServerRoot for multiple
# httpd daemons, you will need to change at least LockFile and PidFile.
#
ServerRoot "D:/prod/apacheHttp"

#
# Listen: Allows you to bind Apache to specific IP addresses and/or
# ports, instead of the default. See also the <VirtualHost>
# directive.
#
# Change this to Listen on specific IP addresses as shown below to
# prevent Apache from glomming onto all bound IP addresses.
#
#Listen 12.34.56.78:80
Listen 80

#
# Dynamic Shared Object (DSO) Support
#
# To be able to use the functionality of a module which was built as a DSO you
# have to place corresponding `LoadModule' lines at this location so the
# directives contained in it are actually available _before_ they are used.
# Statically compiled modules (those listed by `httpd -l') do not need
# to be loaded here.
#
# Example:
# LoadModule foo_module modules/mod_foo.so
#
LoadModule actions_module modules/mod_actions.so
LoadModule alias_module modules/mod_alias.so
LoadModule asis_module modules/mod_asis.so
LoadModule auth_basic_module modules/mod_auth_basic.so
#LoadModule auth_digest_module modules/mod_auth_digest.so
#LoadModule authn_alias_module modules/mod_authn_alias.so
#LoadModule authn_anon_module modules/mod_authn_anon.so
#LoadModule authn_dbd_module modules/mod_authn_dbd.so
#LoadModule authn_dbm_module modules/mod_authn_dbm.so
LoadModule authn_default_module modules/mod_authn_default.so
LoadModule authn_file_module modules/mod_authn_file.so
#LoadModule authnz_ldap_module modules/mod_authnz_ldap.so
#LoadModule authz_dbm_module modules/mod_authz_dbm.so
LoadModule authz_default_module modules/mod_authz_default.so
LoadModule authz_groupfile_module modules/mod_authz_groupfile.so
LoadModule authz_host_module modules/mod_authz_host.so
#LoadModule authz_owner_module modules/mod_authz_owner.so
LoadModule authz_user_module modules/mod_authz_user.so
LoadModule autoindex_module modules/mod_autoindex.so
#LoadModule cache_module modules/mod_cache.so
#LoadModule cern_meta_module modules/mod_cern_meta.so
LoadModule cgi_module modules/mod_cgi.so
#LoadModule charset_lite_module modules/mod_charset_lite.so
#LoadModule dav_module modules/mod_dav.so
#LoadModule dav_fs_module modules/mod_dav_fs.so
#LoadModule dav_lock_module modules/mod_dav_lock.so
#LoadModule dbd_module modules/mod_dbd.so
```

```
#LoadModule deflate_module modules/mod_deflate.so
LoadModule dir_module modules/mod_dir.so
#LoadModule disk_cache_module modules/mod_disk_cache.so
#LoadModule dumpio_module modules/mod_dumpio.so
LoadModule env_module modules/mod_env.so
#LoadModule expires_module modules/mod_expires.so
#LoadModule ext_filter_module modules/mod_ext_filter.so
#LoadModule file_cache_module modules/mod_file_cache.so
#LoadModule filter_module modules/mod_filter.so
#LoadModule headers_module modules/mod_headers.so
#LoadModule ident_module modules/mod_ident.so
#LoadModule imagemap_module modules/mod_imagemap.so
LoadModule include_module modules/mod_include.so
#LoadModule info_module modules/mod_info.so
LoadModule isapi_module modules/mod_isapi.so
#LoadModule ldap_module modules/mod_ldap.so
#LoadModule logio_module modules/mod_logio.so
LoadModule log_config_module modules/mod_log_config.so
#LoadModule log_forensic_module modules/mod_log_forensic.so
#LoadModule mem_cache_module modules/mod_mem_cache.so
LoadModule mime_module modules/mod_mime.so
#LoadModule mime_magic_module modules/mod_mime_magic.so
LoadModule negotiation_module modules/mod_negotiation.so

#LoadModule proxy_module modules/mod_proxy.so
#LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
#LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
#LoadModule proxy_connect_module modules/mod_proxy_connect.so
#LoadModule proxy_ftp_module modules/mod_proxy_ftp.so
#LoadModule proxy_http_module modules/mod_proxy_http.so
#LoadModule proxy_scgi_module modules/mod_proxy_scgi.so
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
LoadModule proxy_connect_module modules/mod_proxy_connect.so
LoadModule proxy_ftp_module modules/mod_proxy_ftp.so
LoadModule proxy_http_module modules/mod_proxy_http.so
LoadModule proxy_scgi_module modules/mod_proxy_scgi.so

#LoadModule reqtimeout_module modules/mod_reqtimeout.so
#LoadModule rewrite_module modules/mod_rewrite.so
LoadModule setenvif_module modules/mod_setenvif.so
#LoadModule speling_module modules/mod_speling.so
#LoadModule ssl_module modules/mod_ssl.so
#LoadModule status_module modules/mod_status.so
#LoadModule substitute_module modules/mod_substitute.so
#LoadModule unique_id_module modules/mod_unique_id.so
#LoadModule userdir_module modules/mod_userdir.so
#LoadModule usertrack_module modules/mod_usertrack.so
#LoadModule version_module modules/mod_version.so

#LoadModule vhost_alias_module modules/mod_vhost_alias.so
LoadModule vhost_alias_module modules/mod_vhost_alias.so

<IfModule !mpm_netware_module>
<IfModule !mpm_winnt_module>
#
# If you wish httpd to run as a different user or group, you must run
# httpd as root initially and it will switch.
#
# User/Group: The name (or #number) of the user/group to run httpd as.
# It is usually good practice to create a dedicated user and group for
# running httpd, as with most system services.
#
User daemon
```

```
Group daemon

</IfModule>
</IfModule>

# 'Main' server configuration
#
# The directives in this section set up the values used by the 'main'
# server, which responds to any requests that aren't handled by a
# <VirtualHost> definition.  These values also provide defaults for
# any <VirtualHost> containers you may define later in the file.
#
# All of these directives may appear inside <VirtualHost> containers,
# in which case these default settings will be overridden for the
# virtual host being defined.
#

#
# ServerAdmin: Your address, where problems with the server should be
# e-mailed.  This address appears on some server-generated pages, such
# as error documents.  e.g. admin@your-domain.com
#
ServerAdmin admin@chat.localdomain

#
# ServerName gives the name and port that the server uses to identify itself.
# This can often be determined automatically, but we recommend you specify
# it explicitly to prevent problems during startup.
#
# If your host doesn't have a registered DNS name, enter its IP address here.
#
#ServerName chat.localdomain:80

#
# DocumentRoot: The directory out of which you will serve your
# documents. By default, all requests are taken from this directory, but
# symbolic links and aliases may be used to point to other locations.
#
DocumentRoot "D:/prod/apacheHttp/htdocs"

#
# Each directory to which Apache has access can be configured with respect
# to which services and features are allowed and/or disabled in that
# directory (and its subdirectories).
#
# First, we configure the "default" to be a very restrictive set of
# features.
#
<Directory />
    Options FollowSymLinks
    AllowOverride None
    Order deny,allow
    Deny from all
</Directory>

#
# Note that from this point forward you must specifically allow
# particular features to be enabled - so if something's not working as
# you might expect, make sure that you have specifically enabled it
# below.
#

#
# This should be changed to whatever you set DocumentRoot to.
#
```

```
<Directory "D:/prod/apacheHttp/htdocs">
    #
    # Possible values for the Options directive are "None", "All",
    # or any combination of:
    #   Indexes Includes FollowSymLinks SymLinksifOwnerMatch ExecCGI MultiViews
    #
    # Note that "MultiViews" must be named *explicitly* --- "Options All"
    # doesn't give it to you.
    #
    # The Options directive is both complicated and important.  Please see
    # http://httpd.apache.org/docs/2.2/mod/core.html#options
    # for more information.
    #
    Options Indexes FollowSymLinks

    #
    # AllowOverride controls what directives may be placed in .htaccess files.
    # It can be "All", "None", or any combination of the keywords:
    #   Options FileInfo AuthConfig Limit
    #
    AllowOverride None

    #
    # Controls who can get stuff from this server.
    #
    Order allow,deny
    Allow from all

</Directory>

#
# DirectoryIndex: sets the file that Apache will serve if a directory
# is requested.
#
<IfModule dir_module>
    DirectoryIndex index.html
</IfModule>

#
# The following lines prevent .htaccess and .htpasswd files from being
# viewed by Web clients.
#
<FilesMatch "^\.ht">
    Order allow,deny
    Deny from all
    Satisfy All
</FilesMatch>

#
# ErrorLog: The location of the error log file.
# If you do not specify an ErrorLog directive within a <VirtualHost>
# container, error messages relating to that virtual host will be
# logged here.  If you *do* define an error logfile for a <VirtualHost>
# container, that host's errors will be logged there and not here.
#
ErrorLog "logs/error.log"

#
# LogLevel: Control the number of messages logged to the error_log.
# Possible values include: debug, info, notice, warn, error, crit,
# alert, emerg.
#
LogLevel warn

<IfModule log_config_module>
```

```
    #
    # The following directives define some format nicknames for use with
    # a CustomLog directive (see below).
    #
    LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\"" combined
    LogFormat "%h %l %u %t \"%r\" %>s %b" common

    <IfModule logio_module>
      # You need to enable mod_logio.c to use %I and %O
      LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\" %I %O" combinedio
    </IfModule>

    #
    # The location and format of the access logfile (Common Logfile Format).
    # If you do not define any access logfiles within a <VirtualHost>
    # container, they will be logged here.  Contrariwise, if you *do*
    # define per-<VirtualHost> access logfiles, transactions will be
    # logged therein and *not* in this file.
    #
    CustomLog "logs/access.log" common

    #
    # If you prefer a logfile with access, agent, and referer information
    # (Combined Logfile Format) you can use the following directive.
    #
    #CustomLog "logs/access.log" combined
</IfModule>

<IfModule alias_module>
    #
    # Redirect: Allows you to tell clients about documents that used to
    # exist in your server's namespace, but do not anymore. The client
    # will make a new request for the document at its new location.
    # Example:
    # Redirect permanent /foo http://chat.localdomain/bar

    #
    # Alias: Maps web paths into filesystem paths and is used to
    # access content that does not live under the DocumentRoot.
    # Example:
    # Alias /webpath /full/filesystem/path
    #
    # If you include a trailing / on /webpath then the server will
    # require it to be present in the URL.  You will also likely
    # need to provide a <Directory> section to allow access to
    # the filesystem path.

    #
    # ScriptAlias: This controls which directories contain server scripts.
    # ScriptAliases are essentially the same as Aliases, except that
    # documents in the target directory are treated as applications and
    # run by the server when requested rather than as documents sent to the
    # client.  The same rules about trailing "/" apply to ScriptAlias
    # directives as to Alias.
    #
    ScriptAlias /cgi-bin/ "D:/prod/apacheHttp/cgi-bin/"

</IfModule>

<IfModule cgid_module>
    #
    # ScriptSock: On threaded servers, designate the path to the UNIX
    # socket used to communicate with the CGI daemon of mod_cgid.
    #
    #Scriptsock logs/cgisock
```

```
</IfModule>

#
# "D:/prod/apacheHttp/cgi-bin" should be changed to whatever your ScriptAliased
# CGI directory exists, if you have that configured.
#
<Directory "D:/prod/apacheHttp/cgi-bin">
    AllowOverride None
    Options None
    Order allow,deny
    Allow from all
</Directory>

#
# DefaultType: the default MIME type the server will use for a document
# if it cannot otherwise determine one, such as from filename extensions.
# If your server contains mostly text or HTML documents, "text/plain" is
# a good value.  If most of your content is binary, such as applications
# or images, you may want to use "application/octet-stream" instead to
# keep browsers from trying to display binary files as though they are
# text.
#
DefaultType text/plain

<IfModule mime_module>
    #
    # TypesConfig points to the file containing the list of mappings from
    # filename extension to MIME-type.
    #
    TypesConfig conf/mime.types

    #
    # AddType allows you to add to or override the MIME configuration
    # file specified in TypesConfig for specific file types.
    #
    #AddType application/x-gzip .tgz
    #
    # AddEncoding allows you to have certain browsers uncompress
    # information on the fly. Note: Not all browsers support this.
    #
    #AddEncoding x-compress .Z
    #AddEncoding x-gzip .gz .tgz
    #
    # If the AddEncoding directives above are commented-out, then you
    # probably should define those extensions to indicate media types:
    #
    AddType application/x-compress .Z
    AddType application/x-gzip .gz .tgz

    #
    # AddHandler allows you to map certain file extensions to "handlers":
    # actions unrelated to filetype. These can be either built into the server
    # or added with the Action directive (see below)
    #
    # To use CGI scripts outside of ScriptAliased directories:
    # (You will also need to add "ExecCGI" to the "Options" directive.)
    #
    #AddHandler cgi-script .cgi

    # For type maps (negotiated resources):
    #AddHandler type-map var

    #
    # Filters allow you to process content before it is sent to the client.
    #
```

```
    # To parse .shtml files for server-side includes (SSI):
    # (You will also need to add "Includes" to the "Options" directive.)
    #
    #AddType text/html .shtml
    #AddOutputFilter INCLUDES .shtml
</IfModule>

#
# The mod_mime_magic module allows the server to use various hints from the
# contents of the file itself to determine its type.  The MIMEMagicFile
# directive tells the module where the hint definitions are located.
#
#MIMEMagicFile conf/magic

#
# Customizable error responses come in three flavors:
# 1) plain text 2) local redirects 3) external redirects
#
# Some examples:
#ErrorDocument 500 "The server made a boo boo."
#ErrorDocument 404 /missing.html
#ErrorDocument 404 "/cgi-bin/missing_handler.pl"
#ErrorDocument 402 http://chat.localdomain/subscription_info.html
#

#
# MaxRanges: Maximum number of Ranges in a request before
# returning the entire resource, or one of the special
# values 'default', 'none' or 'unlimited'.
# Default setting is to accept 200 Ranges.
#MaxRanges unlimited

#
# EnableMMAP and EnableSendfile: On systems that support it,
# memory-mapping or the sendfile syscall is used to deliver
# files.  This usually improves server performance, but must
# be turned off when serving from networked-mounted
# filesystems or if support for these functions is otherwise
# broken on your system.
#
#EnableMMAP off
#EnableSendfile off

# Supplemental configuration
#
# The configuration files in the conf/extra/ directory can be
# included to add extra features or to modify the default configuration of
# the server, or you may simply copy their contents here and change as
# necessary.

# Server-pool management (MPM specific)
#Include conf/extra/httpd-mpm.conf

# Multi-language error messages
#Include conf/extra/httpd-multilang-errordoc.conf

# Fancy directory listings
#Include conf/extra/httpd-autoindex.conf

# Language settings
#Include conf/extra/httpd-languages.conf

# User home directories
#Include conf/extra/httpd-userdir.conf
```

```
# Real-time info on requests and configuration
#Include conf/extra/httpd-info.conf

# Virtual hosts
#Include conf/extra/httpd-vhosts.conf
Include conf/extra/httpd-vhosts.conf

# Local access to the Apache HTTP Server Manual
#Include conf/extra/httpd-manual.conf

# Distributed authoring and versioning (WebDAV)
#Include conf/extra/httpd-dav.conf

# Various default settings
#Include conf/extra/httpd-default.conf

# Secure (SSL/TLS) connections
#Include conf/extra/httpd-ssl.conf
#
# Note: The following must must be present to support
#       starting without SSL on platforms with no /dev/random equivalent
#       but a statically compiled-in mod_ssl.
#
<IfModule ssl_module>
SSLRandomSeed startup builtin
SSLRandomSeed connect builtin
</IfModule>
```

[d:/prod/apacheHttp/Apache2.2/conf/extra/httpd-vhosts.conf]

```
#
# Virtual Hosts
#
# If you want to maintain multiple domains/hostnames on your
# machine you can setup VirtualHost containers for them. Most configurations
# use only name-based virtual hosts so the server doesn't need to worry about
# IP addresses. This is indicated by the asterisks in the directives below.
#
# Please see the documentation at
# <URL:http://httpd.apache.org/docs/2.2/vhosts/>
# for further details before you try to setup virtual hosts.
#
# You may use the command line option '-S' to verify your virtual host
# configuration.

#
# Use name-based virtual hosting.
#
NameVirtualHost *:80

#
# VirtualHost example:
# Almost any Apache directive may go into a VirtualHost container.
# The first VirtualHost section is used for all requests that do not
# match a ServerName or ServerAlias in any <VirtualHost> block.
#


<VirtualHost *:80>
    # 아래 내용 추가
    #ProxyPass               /                   http://www.naver.com/
    #ProxyPassReverse        /                   http://www.naver.com/
    ProxyPass                /http-bind/         http://chat.localdomain:7070/http-bind/
    ProxyPassReverse         /http-bind/         http://chat.localdomain:7070/http-bind/
```

```
</VirtualHost>
```

(2) Ubuntu Linux에 설치

```
# 1. 설치
$ sudo apt-get update
$ sudo apt-get install apache2

# Adjust the Firewall
$ sudo ufw app list
$ sudo ufw allow 'Apache Full'
$ sudo ufw status


# 2. 서비스 시작 및 상태 확인
$ sudo systemctl restart apache2
$ sudo systemctl status apache2


# 3. proxy 설정
$ sudo a2enmod proxy
$ sudo a2enmod proxy_http
$ sudo vi /etc/apache2/sites-available/000-default.conf

<VirtualHost>
        ProxyRequests Off
        ProxyPreserveHost On
        <Proxy *>
           Order deny,allow
           Allow from all
        </Proxy>

        ProxyPass / http://127.0.0.1:8080/
        ProxyPassReverse / http://127.0.0.1:8080/

        ProxyPass /http-bind/ http://127.0.0.1:7070/http-bind/
        ProxyPassReverse /http-bind/ http://127.0.0.1:7070/http-bind
</VirtualHost>

# 4. 서비스를 재시작하고, http://192.168.18.128/로 접속해 본다.
$ sudo systemctl restart apache2
```

24.2 Chat server (openfire)

24.2.1 설치

■ 아래 웹사이트에서 "Openfire 4.1.6"을 다운로드 받아 설치한다. Openfire 4.2x 이상 버전에서 websocket plugin이 지원하지 않으므로 반드시 "Openfire 4.1.6"으로 설치해야 한다.

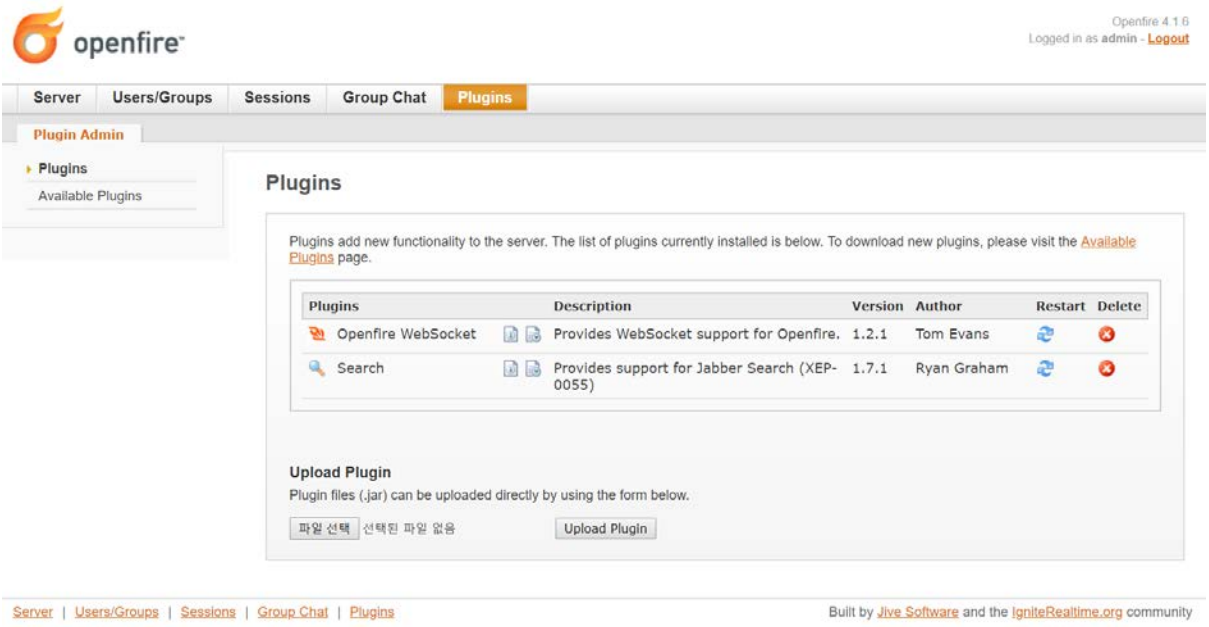
- 4.1.6 버젼: https://github.com/igniterealtime/Openfire/releases/tag/v4.1.6
- 현재 버젼: https://www.igniterealtime.org/downloads/
- 이전 버젼: https://github.com/igniterealtime/Openfire/releases

(1) Ubuntu에 설치

```
# 1. 설치 전에 OS에 사용중인 포트를 확인한다.
pvs@ubuntu:~$ sudo netstat -nlp |grep 9090
tcp6       0      0 :::9090                 :::*                    LISTEN      5617/tnslsnr

# 만약 위와 같이 오라클DB가 사용중이라면 다른 것으로 변경한다.
pvs@ubuntu:/var/lib$ sqlplus /nolog

SQL*Plus: Release 11.2.0.2.0 Production on Sun Jul 19 10:27:42 2020

Copyright (c) 1982, 2011, Oracle.  All rights reserved.

SQL> connect
Enter user-name: system
Enter password: sys
Connected.
SQL> Exec DBMS_XDB.SETHTTPPORT(3010);

PL/SQL procedure successfully completed.

SQL> quit
Disconnected from Oracle Database 11g Express Edition Release 11.2.0.2.0 - 64bit Production
pvs@ubuntu:/var/lib$


# 2. 설치하기
pvs@ubuntu:~/Downloads$ sudo dpkg --install openfire_4.1.6_all.deb
pvs@ubuntu:~/Downloads$ systemctl start openfire


# 3. 서비스 상태 확인
pvs@ubuntu:~/Downloads$ systemctl status openfire
● openfire.service - LSB: Start/stop openfire jabber server
   Loaded: loaded (/etc/init.d/openfire; bad; vendor preset: enabled)
   Active: active (running) since 일 2020-07-19 10:59:00 KST; 45s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 10670 ExecStart=/etc/init.d/openfire start (code=exited, status=0/SUC
   CGroup: /system.slice/openfire.service
           └─10680 /usr/lib/jvm/java-8-openjdk-amd64/jre/bin/java -server -Dopen

pvs@ubuntu:~/Downloads$ netstat -an |grep ":9090"
tcp6       0      0 :::9090                 :::*                    LISTEN


# 4. Oracel DB 계정 생성
# openfire 스키마 참조: /usr/share/openfire/resources/database/openfire_oracle.sql
pvs@ubuntu:~/Downloads$ sqlplus system/sys
SQL> CREATE USER OPENFIRE IDENTIFIED BY OPENFIRE;
SQL> GRANT CONNECT, RESOURCE TO OPENFIRE;
SQL> QUIT
pvs@ubuntu:~/Downloads$ sqlplus OPENFIRE/OPENFIRE

# ojdbc6.jar 파일 복사
root@ubuntu:/usr/share/openfire/lib# cp /disk2/pvs/prod/jdk1.8.0_92/lib/ojdbc6.jar .
root@ubuntu:/usr/share/openfire/lib# chown openfire:openfire ojdbc6.jar


# 5. 설정하기: http://192.168.18.128:9090/setup/index.jsp


# 6. 제거하기
pvs@ubuntu:~/Downloads$ sudo dpkg -r openfire
```

24.2.2 설정

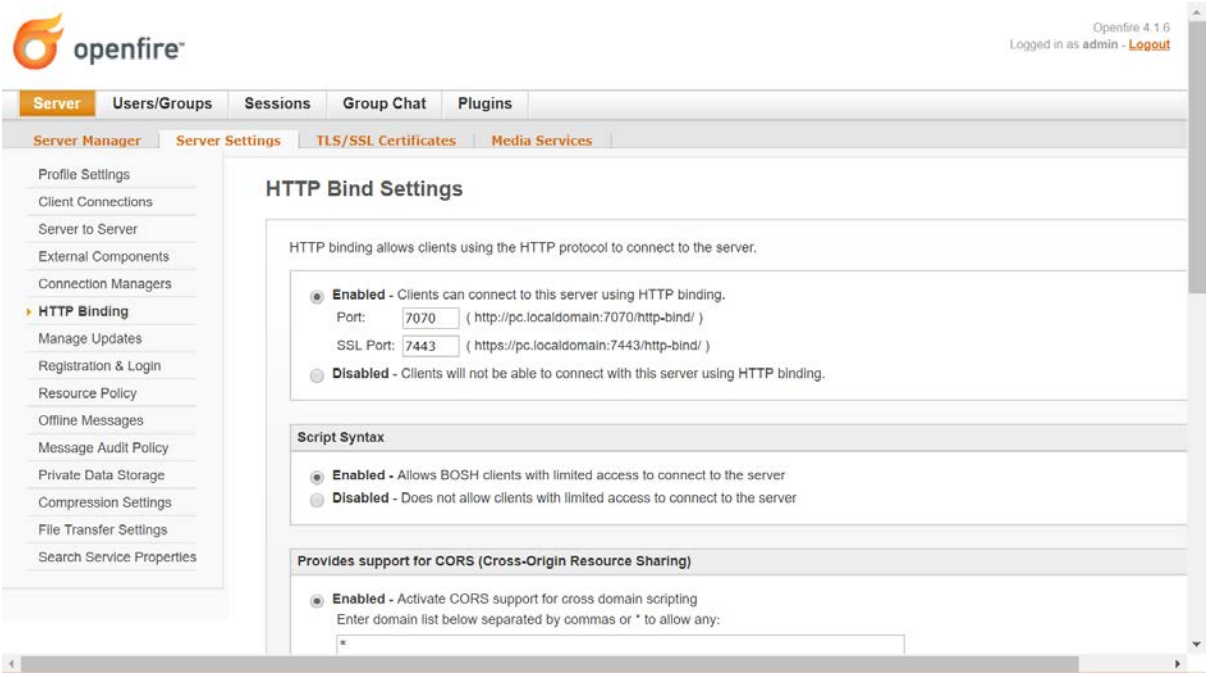
(1) websocket plugin 설치



(2) HTTP Bind Settings

■ 메뉴 [Server > Server Setttings > HTTP Binding]을 선택하여 아래와 같이 설정하고 저장한 후, openfire 서비스를 재실행한다.

- Enabled: Cients can connect to this server using HTTP binding.
  - Port: 7070
  - SSL Port: 7443
- Script Syntax: Enabled
- Privides support for XFF (X-Forwarded-For) headers: Enabled



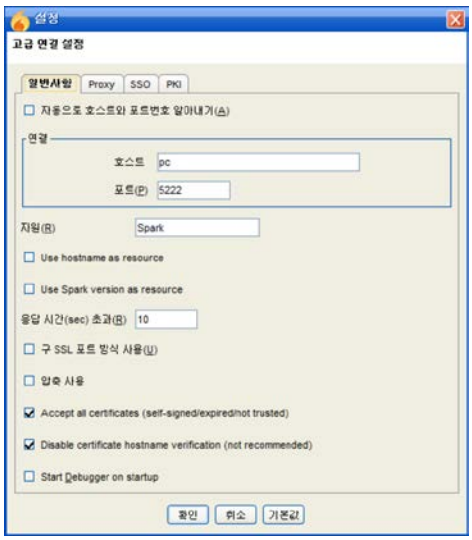
24.3 Chat client (spark)

24.3.1 설치

■ openfire 사이트에서 "Spark 2.8.3"를 다운로드 받아 설치한다.

24.3.2 설정

■ 로그인 화면의 "기타 설정 > 일반사항" 탭에서 "Accept all certificates"와 "Disable certificate hostname verification"을 선택한다.



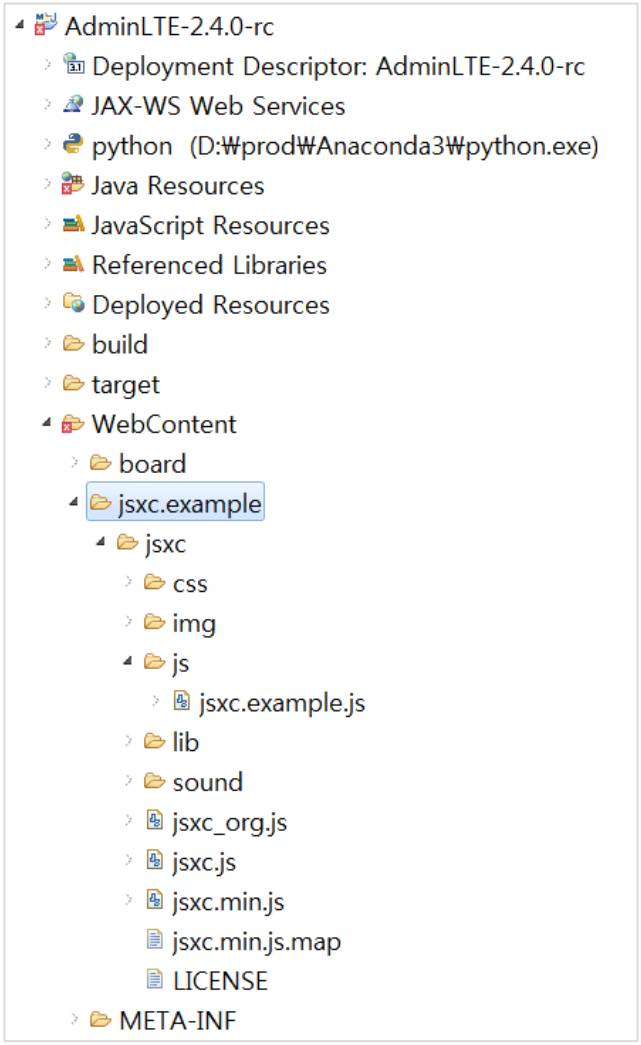
24.4 웹어플리케이션에 포함시키기

24.4.1 JavaScript XMPP Chat

■ "JavaScript XMPP Chat" 모듈은 chat server에 자바 스크립트를 이용하여 웹으로 접속하기 위한 클라이언트 모듈이다.
- 다운로드: https://www.jsxc.org/

24.4.2 jsxc 설치

■ 아래 사이트에서 "jsxc v3.3.2"를 다운로드 받아 포함시킬 웹어플리케이션 위치에 복사해 놓는다. (다운로드: https://github.com/jsxc/jsxc/releases)



24.4.3 jsxc 설정

[WebContent/jsxc.example/jsxc/js/jsxc.example.js]

```
01    $(function() {
02
```

```
03            if (jsxc.xmpp.conn == null) {
04                    jsxc.init({
05                            xmpp : {
06                                    url : 'http://chat.localdomain/http-bind/'
07                            },
08                            root : '/jsxc.example/jsxc'
09                    });
10
11                    var username = "${authUser.id}";
12                    var password = "${authUser.password}";
13                    var jid = username + '@localhost';
14
15                    jsxc.start(jid, password);
16            }
17
18            $('#webTalkLogin').click(jsxc.gui.showLoginBox);
19            // $('#webTalkLogout').click(jsxc.xmpp.logout);
20            $('#webTalkLogout').on("click", function() {
21                    if (jsxc.xmpp.conn != null) {
22                            jsxc.xmpp.logout();
23                            alert("성공적으로 로그아웃 되었습니다.");
24                    }
25                    window.location.href = "${pageContext.request.contextPath}/login.do";
26            });
27
28    });
```

24.4.4 소스 코드

■ 주요 파일인 "WebContent/jsxc.example/jsxc/jsxc.js"파일을 열어 사용자 화면과 관련 메시지 등을 조정한다.

[WebContent/jsxc.example/jsxc/js/jsxc.example.js]

```
01    ...(생략)...
02    jsxc.gui.template['loginBox'] = '<h3>웹톡 로그인</h3>\n' +
03    '<form class="form-horizontal">\n' +
04    '   <div class="form-group">\n' +
05    '      <label class="col-sm-4 control-label" for="jsxc_username">사용자명</label>\n' +
06    '      <div class="col-sm-8">\n' +
07    '         <input type="text" name="username" id="jsxc_username" class="form-control" required="required"
08    data-var="my_node" />\n' +
09    '      </div>\n' +
10    '   </div>\n' +
11    '   <div class="form-group">\n' +
12    '      <label class="col-sm-4 control-label" for="jsxc_password">비밀번호</label>\n' +
13    '      <div class="col-sm-8">\n' +
14    '         <input type="password" name="password" required="required" class="form-control"
15    id="jsxc_password" />\n' +
16    '      </div>\n' +
17    '   </div>\n' +
18    '   <div class="jsxc_alert jsxc_alert-warning" data-i18n="Sorry_we_cant_authentikate_"></div>\n' +
19    '   <div class="form-group">\n' +
20    '      <div class="col-sm-offset-4 col-sm-9">\n' +
21    '         <button type="reset" class="btn btn-default jsxc_close" name="clear">취소</button>\n' +
22    '         <button type="submit" class="btn btn-primary" name="commit">접속</button>\n' +
23    '      </div>\n' +
24    '   </div>\n' +
25    '</form>\n' +
26    '';
27    ...(생략)...
```

[WebContent/WEB-INF/view/include/header.jspf]

```
01    ...(생략)...
02    <!-- start 웹톡 -->
03    <script
04              src="${pageContext.request.contextPath}/jsxc.example/jsxc/lib/jquery-1.9.1.min.js"></script>
05    <script
06              src="${pageContext.request.contextPath}/jsxc.example/jsxc/lib/jquery-ui-
07    1.10.4.custom.min.js"></script>
08    <script
09              src="${pageContext.request.contextPath}/jsxc.example/jsxc/lib/jquery.slimscroll.js"></script>
10    <script
11              src="${pageContext.request.contextPath}/jsxc.example/jsxc/lib/jquery.fullscreen.js"></script>
12    <script
13              src="${pageContext.request.contextPath}/jsxc.example/jsxc/lib/jsxc.dep.js"></script>
14    <script
15              src="${pageContext.request.contextPath}/jsxc.example/jsxc/jsxc.js"></script>
16    <script
17              src="${pageContext.request.contextPath}/jsxc.example/jsxc/js/jsxc.example.js"></script>
18    <link
19              href="${pageContext.request.contextPath}/jsxc.example/jsxc/css/jquery-ui.min.css"
20              media="all" rel="stylesheet" type="text/css" />
21    <link
22              href="${pageContext.request.contextPath}/jsxc.example/jsxc/css/jsxc.css"
23              media="all" rel="stylesheet" type="text/css" />
24    <link
25              href="${pageContext.request.contextPath}/jsxc.example/css/jsxc.example.css"
26              media="all" rel="stylesheet" type="text/css" />
27    <!-- end 웹톡 -->
28
29    ...(생략)...
30    <div class="col-xs-4 text-center">
31          <a href="#" id="webTalkLogin">웹톡</a>
32    </div>
```

24.4.5 실행 화면

■ 아래 화면은 "AdminLTE" 웹어플리케이션에 추가된 화면이다.