The content is stored at .\csse477FinalProject\edu.rosehulman.sws\Reports\Milestone<X>

Change History

10/18/2015   Version 1.0: Original Document for Milestone 1

- Original UML Diagram
- Explanation of design patterns used
- Potential Design Improvements
- Test Report for Milestone 1

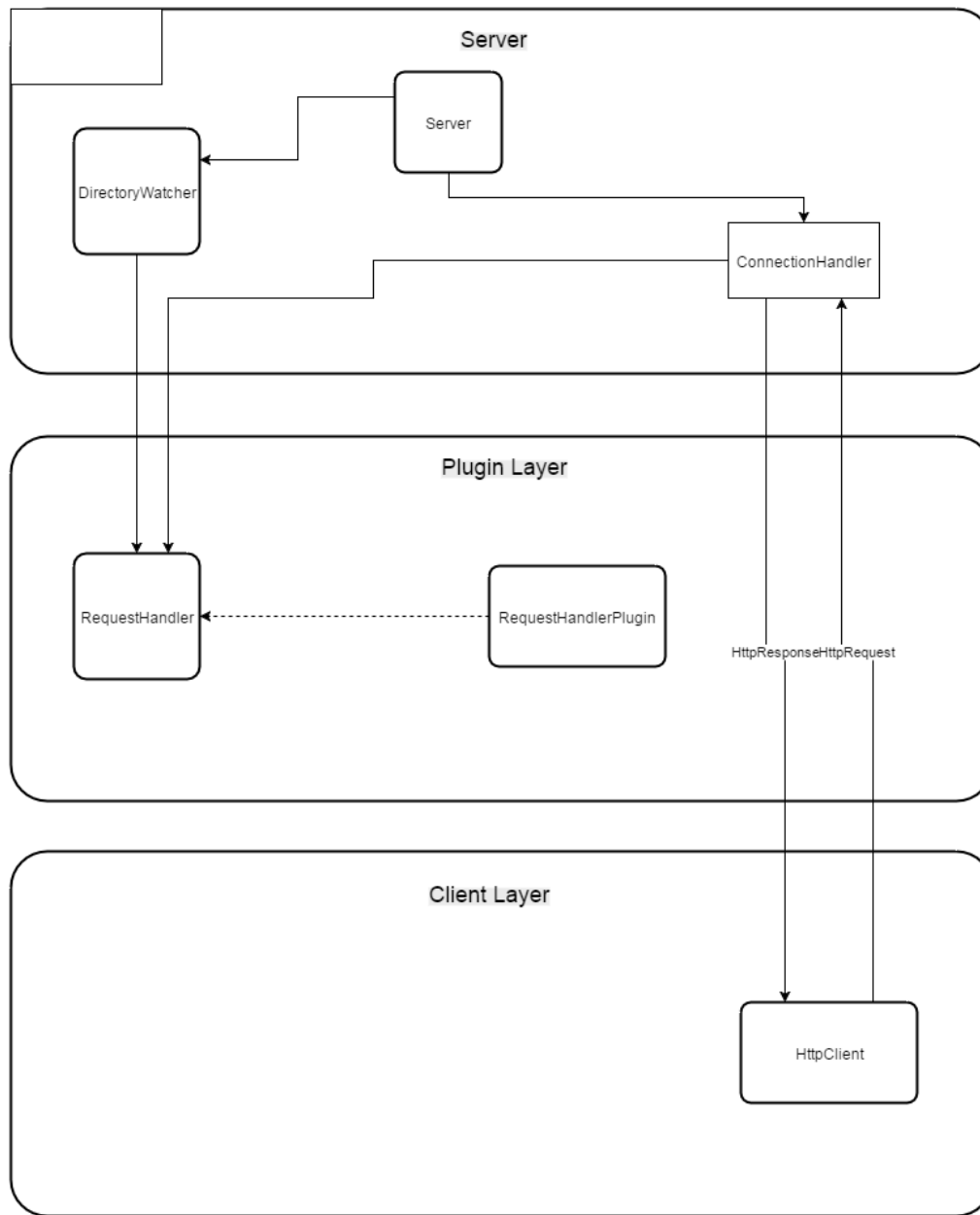10/25/2015   Version 2.0: Expanded for Milestone 2

- Creation of Change History
- Updated UML Diagram and UML Description
- Updated Architecture Diagram
- Potential Improvements
- Test Report for Milestone 2
- Created Milestone 2 Feature Listing

XX/XX/2015   Version 3.0: Expanded for Milestone 3

- Updates to Change History

Design

1. Detailed Design\Architecture Diagram

Thread that monitors the plugin folder and manages plugin availability

DirectoryWatcher
HashMap<String, RequestHandler> handlers;
HashMap<String, String> filenamesToURI;
WatchService watcher;
Path loadedDir;
Path activeDir;

void run();
HashMap<String, RequestHandler> getMap();
RequestHandler loadClass(String pathToJar);
void loadInitialPlugins();
void handleCreateFile(String filename);
void handleDeleteFile(String filename);

Protocol
constants
String getServerInfo();

HttpResponseFactory

HttpRequest
String getVersion();
Map<String, String> getHeader();
HttpRequest read();

throws

HttpResponse
File getFile();
Map<String, String> getHeader();
void put();

uses

uses

ProtocolException

ConnectionHandler
Socket getSocket();
void run();

Note that this is mainly for establishing basic functionality from milestone 1.

«RequestHandler»
abstract HttpResponse file_exists(String rootDirectory,String uri, File f, HttpRequest hr);
abstract HttpResponse file_no_exist(String rootDirectory,String uri, File f, HttpRequest hr);
abstract String getURI();
abstract List<string> getCommand();

OkHttpResponse
void fillInRestOfHeader();

CreatedHttpResponse
void fillInRestOfHeader();

BaseRequestHandler

NotModifiedHttpResponse
void fillInRestOfHeader();

uses

SuperRequestHandler

contained in

GetRequestHandler
HttpResponse file_exists();
HttpResponse file_no_exist();

PostRequestHandler
HttpResponse file_exists();
HttpResponse file_no_exist();

Server
synchronized void run();
synchronized void stop();
boolean isStoped();

contained in

DeleteRequestHandler
HttpResponse file_exists();
HttpResponse file_no_exist();

PutRequestHandler
HttpResponse file_exists();
HttpResponse file_no_exist();

WebServer
void initComponents();
void addListeners();

uses

SpringUtilities
static void makeGrid();
Other Utility Methods

For this milestone we used plug-in architecture to attach the RequestHandler(s) into a SuperRequestHandler. We used the DirectoryWatcher class to dynamically track changes to the plug-in folder.

Server

Server

DirectoryWatcher

ConnectionHandler

Plugin Layer

RequestHandler

RequestHandlerPlugin

HttpResponse HttpRequest

Client Layer

HttpClient

Milestone 1

2. List of Patterns

The main pattern that is used so far is the Strategy pattern. The factory pattern is also used for HttpResponse(s).

3. How could we improve the design?
The greatest weakness that currently exists is that multiple clients connect directly to the same server. For this approach, the client needs to know a lot of information about the remote server to be able to connect to it. And this isn't always the best for expanding systems. The server may also care what kind of device is connecting to it and need to worry about that. In this way, a server/client relationship can start to take on too much burden. The best way of improving the design would be to add in a Broker pattern or something like it.
4. Milestone 1 Test Report (on the next page)

HTTP 1.1 Test Client

Connection Settings

Server Name	localhost	Port Number	8080	Connect
Sleep Time (ms)	100	Requests	10	Disconnect

Connection Request

User-Agent: HttpTestClient/1.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.8
If-Modified-Since: Sun, 25 Sep 2011 23:30:55 GMT
Content-Length: 12

Hello World!

Connection Command

Generate Persistent Request	Generate Cache Request	Start DOS Attack	Send
Generate Bad Request	Generate Version Request	Stop DOS Attack	Clear

Connection Response

HTTP 1.1 Test Client by C.R. Rupakheti

Connection Established!
Request Sent. Waiting for response ...
---------- Header ----------------
HTTP/1.1 200 OK
date : Sun Oct 18 15:41:59 EDT 2015
server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)
last-modified : Sun Oct 18 15:40:43 EDT 2015
content-length : 0
provider : Chandan R. Rupakheti
connection : Close
content-type : text/html
------------- Body ---------------

Socket Disconnected!
Connection Established!
Request Sent. Waiting for response ...
---------- Header ----------------
HTTP/1.1 404 Not Found
date : Sun Oct 18 15:42:16 EDT 2015
server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)
provider : Chandan R. Rupakheti
connection : Close
------------- Body ---------------

Socket Disconnected!
Connection Established!
Request Sent. Waiting for response ...
---------- Header ----------------
HTTP/1.1 200 OK
date : Sun Oct 18 15:43:23 EDT 2015
server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)
last-modified : Sun Oct 18 15:43:23 EDT 2015
content-length : 12
provider : Chandan R. Rupakheti
connection : Close

Above is a shot of the client (browser). The log file for this scenario lives in the main project at
.\csse477FinalProject\edu.rosehulman.sws\Reports\Milestone1

```
Console ⊠
WebServer [Java Application] C:\Program Files\Java\jre1.8.0_40\bin\javaw.exe (Oct 18, 2015, 3:41:39 PM)
----------- Header ----------------
DELETE /index.html HTTP/1.1
if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT
content-length: 12
accept-language: en-US,en;q=0.8
host: localhost
connection: Keep-Alive
user-agent: HttpTestClient/1.0
accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
------------- Body ---------------
Hello World!--------------------------------

----------- Header ----------------
POST /index.html HTTP/1.1
if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT
content-length: 12
accept-language: en-US,en;q=0.8
host: localhost
connection: Keep-Alive
user-agent: HttpTestClient/1.0
accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
------------- Body ---------------
Hello World!--------------------------------

----------- Header ----------------
GET /index.html HTTP/1.1
if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT
content-length: 12|
accept-language: en-US,en;q=0.8
host: localhost
connection: Keep-Alive
user-agent: HttpTestClient/1.0
accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
------------- Body ---------------
Hello World!--------------------------------
```

Above is a shot of the server. The log file for this scenario lives in the main project at .\csse477FinalProject\edu.rosehulman.sws\Reports\Milestone1

Milestone 2

Milestone 2 Report

The first screenshot shows that we were able to dynamically unload the jar file for the testing handler. It successfully performed the get request, and then failed after we unloaded it. The other ones are other examples of it working through the jar files. (Next Page)

Edit Source Refactor Navigate

Package Explorer ⊠

- ▷ CreatedHttpResponse.java
- ▷ HttpRequest.java
- ▷ HttpResponse.java
- ▷ HttpResponseFactory.java
- ▷ NotModifiedHttpResponse
- ▷ OkHttpResponse.java
- ▷ Protocol.java
- ▷ ProtocolException.java
- ▷ RequestHandler.java
- ▽ ⊞ > server
  - ▷ ⊞ > ConnectionHandler.java
  - ▷ ⊞ > DirectoryWatcher.java
  - ▷ ⊞ GMTConversion.java
  - ▷ ⊞ Server.java
- ▽ ⊞ > TestRequestHandler
  - ▷ ⊞ > GetRequestHandler.java
  - ▷ ⊞ > PostRequestHandler.java
  - ▷ ⊞ > TestRequestHandler.java
- ▷ ▰ JRE System Library [JavaSE-1.7]
- ▽ ⊞ > activePlugins
  - ▷ TestRequestHandler.jar
- ▽ ⊞ > plugins
  - ▷ TestRequestHandler.jar
- ▷ ⊟ Report
- ▽ ⊟ > web
  - ▷ index.html
  - ▷ rmiclient.jar
  - ▷ rmiserver.jar
- ⊞ edu.rosehulman.sws.testutility [csse
- ▽ ⊞ src
  - ▽ ⊞ httpclient
    - ▷ ⊞ HttpClient.java
    - ▷ ⊞ HttpResponse.java
    - ▷ ⊞ ProtocolException.java

HTTP 1.1 Test Client

Connection Settings

Server Name	localhost	Port Number	8080
Sleep Time (ms)	100	Requests	10

Connection Request

```
GET /index.html HTTP/1.1
Host: localhost
Connection: Keep-Alive
User-Agent: HttpTestClient/1.0
Accept: text/html,text/plain,application/xml,application/json
Accept-Language: en-US,en;q=0.8
```

Connection Command

Generate Persistent Request	Generate Cache Request	Start DOS Attack
Generate Bad Request	Generate Version Request	Stop DOS Attack

Connection Response

```
HTTP 1.1 Test Client by C.R. Rupakheti
----------------------------------------
Connection Established!
Request Sent. Waiting for response ...
---------- Header ----------------
HTTP/1.1 200 OK
date : Sun Oct 25 22:33:26 EDT 2015
server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)
last-modified : Sun Oct 25 22:08:15 EDT 2015
content-length : 3
provider : Chandan R. Rupakheti
connection : Close
content-type : text/html
------------- Body ---------------
abc
--------------------------------
Socket Disconnected!
Connection Established!
Request Sent. Waiting for response ...
---------- Header ----------------
HTTP/1.1 400 Bad Request
date : Sun Oct 25 22:34:04 EDT 2015
server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)
provider : Chandan R. Rupakheti
connection : Close
------------- Body ---------------

--------------------------------
```

HTTP 1.1 Test Client

Connection Settings

Server Name	localhost	**Port Number**	8080	**Connect**
Sleep Time (ms)	100	**Requests**	10	**Disconnect**

Connection Request

```
GET /Testing HTTP/1.1
Host: localhost
Connection: Keep-Alive
User-Agent: HttpTestClient/1.0
Accept: text/html,text/plain,application/xml,application/json
Accept-Language: en-US,en;q=0.8
```

Connection Command

Generate Persistent Request	**Generate Cache Request**	**Start DOS Attack**	**Send**
Generate Bad Request	**Generate Version Request**	**Stop DOS Attack**	**Clear**

Connection Response

```
server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)
provider : Chandan R. Rupakheti
connection : Close
-------------- Body ---------------


----------------------------------
Socket Disconnected!
Connection Established!
Request Sent. Waiting for response ...
----------- Header ----------------
HTTP/1.1 200 OK
date : Sun Oct 25 22:29:37 EDT 2015
server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)
last-modified : Sun Oct 25 22:29:37 EDT 2015
content-length : 0
provider : Chandan R. Rupakheti
connection : Close
-------------- Body ---------------


----------------------------------
Socket Disconnected!
```

HTTP 1.1 Test Client by C.R. Rupakheti

Connection Established!

Request Sent. Waiting for response ...

----------- Header ----------------

HTTP/1.1 200 OK

date : Sun Oct 18 15:41:59 EDT 2015

server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)

last-modified : Sun Oct 18 15:40:43 EDT 2015

content-length : 0

provider : Chandan R. Rupakheti

connection : Close

content-type : text/html

------------- Body ---------------

Socket Disconnected!

Connection Established!

Request Sent. Waiting for response ...

----------- Header ----------------

HTTP/1.1 404 Not Found

date : Sun Oct 18 15:42:16 EDT 2015

server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)

provider : Chandan R. Rupakheti

connection : Close

------------- Body ---------------

Socket Disconnected!

Connection Established!

Request Sent. Waiting for response ...

----------- Header ----------------

HTTP/1.1 200 OK

date : Sun Oct 18 15:43:23 EDT 2015

server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)

last-modified : Sun Oct 18 15:43:23 EDT 2015

content-length : 12

provider : Chandan R. Rupakheti

connection : Close

content-type : text/html

------------- Body ---------------

Hello World!

Socket Disconnected!

Connection Established!

Request Sent. Waiting for response ...

----------- Header ----------------

HTTP/1.1 200 OK

date : Sun Oct 18 15:43:36 EDT 2015

server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)

last-modified : Sun Oct 18 15:43:36 EDT 2015

content-length : 24

provider : Chandan R. Rupakheti

connection : Close

content-type : text/html

------------- Body ---------------

Hello World!Hello World!

Socket Disconnected!

Connection Established!

Request Sent. Waiting for response ...

----------- Header ----------------

HTTP/1.1 204 No Content

date : Sun Oct 18 15:43:46 EDT 2015

server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)

provider : Chandan R. Rupakheti

connection : Close

------------- Body ---------------

Socket Disconnected!

Connection Established!

Request Sent. Waiting for response ...

----------- Header ----------------

HTTP/1.1 201 Created

date : Sun Oct 18 15:43:52 EDT 2015

server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)

provider : Chandan R. Rupakheti

etag : index.html

connection : Close

------------- Body ---------------

Socket Disconnected!

Connection Established!

Request Sent. Waiting for response ...

----------- Header ----------------

HTTP/1.1 200 OK

date : Sun Oct 18 15:44:04 EDT 2015

server : SimpleWebServer(SWS)/1.0.0 (Windows 7/6.1/amd64)

last-modified : Sun Oct 18 15:43:52 EDT 2015

content-length : 12

provider : Chandan R. Rupakheti

connection : Close

content-type : text/html

------------- Body ---------------

Hello World!

Socket Disconnected!

The browser log file for this scenario is above

----------- Header ----------------

GET /index.html HTTP/1.1

if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT

accept-language: en-US,en;q=0.8

host: localhost

connection: Keep-Alive

user-agent: HttpTestClient/1.0

accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

------------- Body ---------------

----------- Header ---------------

GET /web/index.html HTTP/1.1

if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT

accept-language: en-US,en;q=0.8

host: localhost

connection: Keep-Alive

user-agent: HttpTestClient/1.0

accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

------------- Body ---------------

----------- Header ---------------

PUT /index.html HTTP/1.1

if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT

content-length: 12

accept-language: en-US,en;q=0.8

host: localhost

connection: Keep-Alive

user-agent: HttpTestClient/1.0

accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

------------- Body ---------------

Hello World!--------------------------------

----------- Header ---------------

POST /index.html HTTP/1.1

if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT

content-length: 12

accept-language: en-US,en;q=0.8

host: localhost

connection: Keep-Alive

user-agent: HttpTestClient/1.0

accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

------------- Body ---------------

Hello World!--------------------------------

----------- Header ----------------

DELETE /index.html HTTP/1.1

if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT

content-length: 12

accept-language: en-US,en;q=0.8

host: localhost

connection: Keep-Alive

user-agent: HttpTestClient/1.0

accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

------------- Body ---------------

Hello World!---------------------------------

----------- Header ----------------

POST /index.html HTTP/1.1

if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT

content-length: 12

accept-language: en-US,en;q=0.8

host: localhost

connection: Keep-Alive

user-agent: HttpTestClient/1.0

accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

------------- Body ---------------

Hello World!---------------------------------

----------- Header ----------------

GET /index.html HTTP/1.1

if-modified-since: Sun, 25 Sep 2011 23:30:55 GMT

content-length: 12

accept-language: en-US,en;q=0.8

host: localhost

connection: Keep-Alive

user-agent: HttpTestClient/1.0

accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

------------- Body --------------

Hello World!---------------------------------

The server log file for this scenario is above

Milestone 2 Feature Listing

1. DirectoryWatcher   Implementation: Austin May
2. Plug-in Architecture   Implementation: Jonathan Taylor/Zach Haloski
3. Updates to Report   Implementation: Team

Milestone 2 Potential Future Improvements

Handle having two plug-ins with the same URI if they implement different methods.

Milestone 3