SFS Transport Adaptor Programming Guide

Overview

The Simple FIX Socket Transport Adaptor (hereinafter SFS) provides the easy and quick way for the client applications to communicate with FIXEdge using FIX protocol. The Session level of the FIX protocol requires to control various aspects: messages sequence numbering, sequence gaps resolving, session state monitoring, etc. Client application doesn't need to support FIX session level (except Logon and Logout messages) when communicates with SFS adaptor.

SFS adaptor uses the TCP sockets and works as acceptor.

SFS Messages

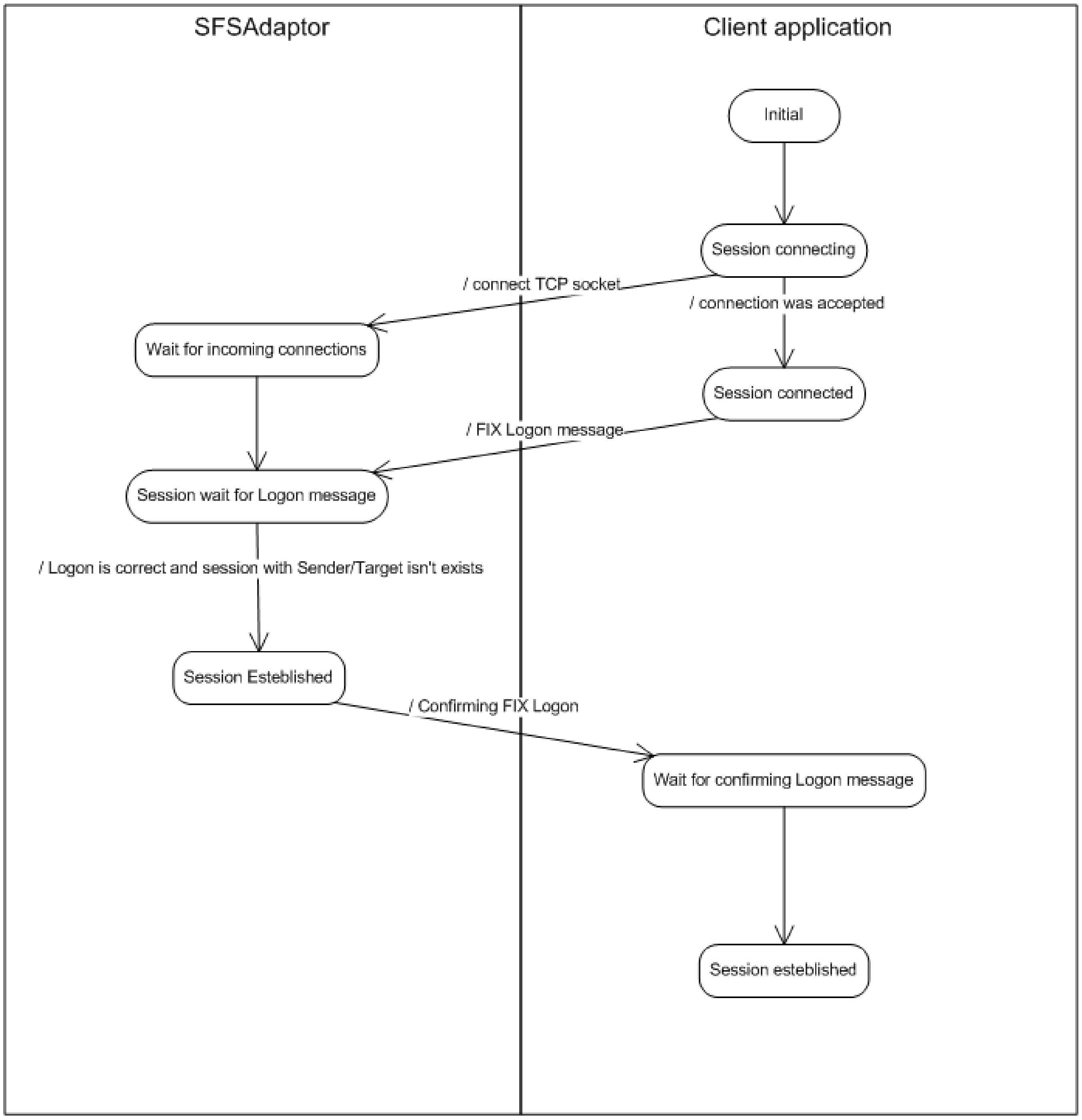
SFS adaptor supports all FIX.4x protocols. The following FIX messages can be sent to the SFS adaptor (other types of FIX messages aren't supported and handled):

- All Application-level FIX messages of the FIX.4x protocol
- FIX Logon message of the FIX.4x protocol - used to establish session between SFS adaptor and Client application
- FIX Logout message of the FIX.4x protocol - used to close session between SFS adaptor and Client application

Each SFS message should be formed according to the rules which are specified in the FIX protocol.

SFS Session

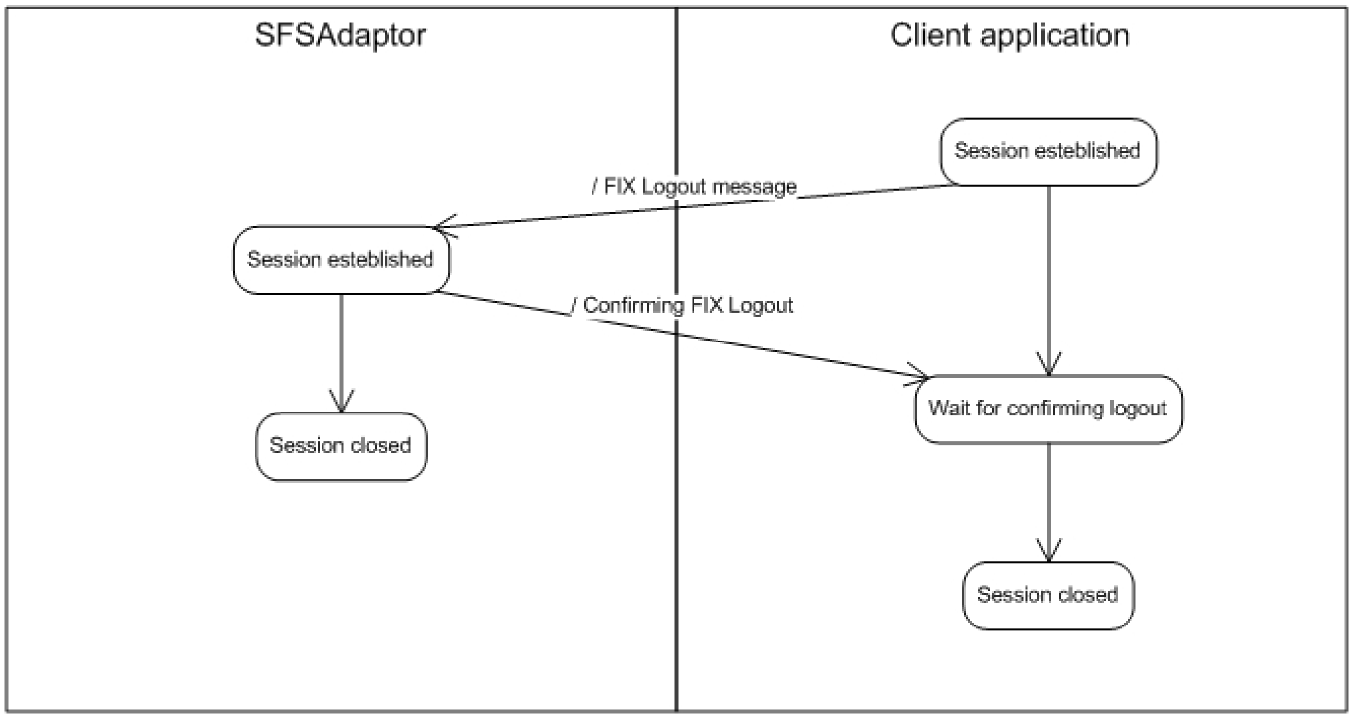
To establish new session Client Application should connect to the SFS adaptor listen socket and send FIX Logon message. SFS adaptor accepts new connection and handles received message. If Logon message is correct and SFS hasn't session with same SenderCompId and TargetCompId, SFS adaptor will send Confirming Logon message. When Client Application receives confirming FIX Logon message - session is established.


SFSAdaptor
Client application
Initial
Session connecting
/ connect TCP socket
/ connection was accepted
Wait for incoming connections
Session connected
/ FIX Logon message
Session wait for Logon message
/ Logon is correct and session with Sender/Target isn't exists
Session Esteblished
/ Confirming FIX Logon
Wait for confirming Logon message
Session esteblished

The established session closes in following situations:

- Client Application sends FIX Logout message
- Socket was closed
- Client Application sends any FIX session level message - duplicate Logon message, Heartbeat, Reject, Resend Request, Sequence Reset or Test Request
- SFS adaptor is terminating

To close connection Client Application has to send FIX Logout message and wait for the confirming Logout that SFSAdaptor will send.



Client application sample

The sample SFS client application is represented below. It connects to the passed host:port, establishes connection, sends application message and closes connection.

```
/**
* $Revision: 1.5.2.1 $
*
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*/
#include "iostream"
#include "string"
#include "Winsock2.h"
using namespace std;
string getMessageType(const string& msg);
int main(int argc, char* argv[])
{
if(3 != argc){
cout<< "Usage: \nSFSClient.exe hostip port"<< endl;
return 1;
}
WSADATA wsaData;
if(WSAStartup(MAKEWORD(2,2), &wsaData)) // WSAStartup failed
return 1;
// resolve host name into address
unsigned long addr = inet_addr(argv[1]);
in_addr address;
memcpy(&address, &addr, sizeof(address));
int port = atoi(argv[2]);
// connect to the SFS adaptor
SOCKET sock = socket(AF_INET, SOCK_STREAM, 0);
if (INVALID_SOCKET == sock){
cout<< "Unable to create socket!"<< endl;
return 1;
}
struct sockaddr_in sockAddr;
memset(&sockAddr,'\0',sizeof(sockAddr));
sockAddr.sin_family = AF_INET;
sockAddr.sin_addr = address;
sockAddr.sin_port = htons(port);
if(0 != connect(sock, (struct sockaddr*) &sockAddr ,sizeof(sockAddr))){
cout<< "Unable to connect socket!"<< endl;
closesocket(sock);
return 1;
}
// send Fix Logon message
string logonMsg = "8=FIX.4.49=6635=A49=TSender56=Receiver34=152=20070219-10:12:5298=0108=3010=250";
int ret = send(sock, logonMsg.c_str(), static_cast<int>(logonMsg.size()), 0);
if(SOCKET_ERROR == ret){
cout<< "Unable to send FIX Logon message into the socket!"<< endl;
closesocket(sock);
return 1;
}
// receive Confirming FIX Logon message
char buffer[1024];
ret = ::recv(sock, buffer, 1023, 0);
if(SOCKET_ERROR == ret){
cout<< "Unable to send FIX Logon message into the socket!"<< endl;
closesocket(sock);
return 1;
}
// verify that it's Logon message
if("A" != getMessageType(string(buffer, ret))){
cout<< "The received message isn't a corfirming logon message!"<< endl;
closesocket(sock);
return 1;
}
// send Fix Order message
string orderMsg = "8=FIX.4.49=12835=D49=TSender56=Receiver34=250=3073797=Y52=20070219-10:12:
5411=9000100855=TESTB54=160=20060217-10:00:0038=400040=110=048"; ret = send(sock, orderMsg.c_str(),
static_cast<int>(orderMsg.size()), 0);
if(SOCKET_ERROR == ret){
cout<< "Unable to send FIX NewOrderSingle message into the socket!"<< endl;
closesocket(sock);
return 1;
}
// send Fix Logout message
string logoutMsg = "8=FIX.4.49=8135=549=TSender56=Receiver34=4000252=20070219-10:12:5458=Sample was
complete10=118";
ret = send(sock, logoutMsg.c_str(), static_cast<int>(logoutMsg.size()), 0);
if(SOCKET_ERROR == ret){
cout<< "Unable to send FIX NewOrderSingle message into the socket!"<< endl;
closesocket(sock);
return 1;
}
// receive Confirming FIX Logon message
ret = ::recv(sock, buffer, 1023, 0);
if(SOCKET_ERROR == ret){
cout<< "Unable to send FIX Logon message into the socket!"<< endl;
closesocket(sock);
return 1;
}
// verify that it's Logon message
if("5" != getMessageType(string(buffer, ret))){
cout<< "The received message isn't a corfirming logout message!"<< endl;
closesocket(sock);
return 1;
}
//closing socket
closesocket(sock);
return 0;
}
string getMessageType(const string& msg)
{
size_t beginPos = msg.find("8=FIX.4.4");
if(string::npos == beginPos)
return "";
size_t msgSizeBegins = msg.find("9=", beginPos);
if(string::npos == msgSizeBegins)
return "";
size_t msgSizeEnds = msg.find("", msgSizeBegins + 1);
if(string::npos == msgSizeEnds)
return "";
string msgLen = msg.substr(msgSizeBegins + 3, msgSizeEnds - msgSizeBegins - 3);
int msgSize = atoi(msgLen.c_str());
size_t msgTypeBegins = msg.find("35=", msgSizeEnds);
if((string::npos == msgTypeBegins)||(msgTypeBegins > msgSizeEnds + msgSize))
return "";
size_t msgTypeEnds = msg.find("", msgTypeBegins + 1);
if((string::npos == msgTypeEnds)||(msgTypeEnds > msgSizeEnds + msgSize))
return "";
return msg.substr(msgTypeBegins + 4, msgTypeEnds - msgTypeBegins - 4);
}
```