

A TUTORIAL ON NETWORK APPLICATION DEVELOPMENT

USING JAVA

TUTORIAL PRESENTATION

*Stephen Fyfe
Central College
800 University
Pella, IA 50219
(515) 628-5305
fyfes@central.edu*

The Java programming language has many structures designed to make network programming simpler and more accessible. This can allow the development of more sophisticated networked applications in less time. This tutorial will present several tools for developing network applications that are a part of the Java programming language. Participants will have the opportunity to try these tools out and develop simple applications using the tools. Some of the tools that will be presented include Java sockets, and Java remote method invocation (RMI).

One of the main tools that Java provides for network programming is a **socket**. This is a common tool that is used in many network applications no matter what language is used for development. A Java socket is used to open a connection with another computer and then the program uses the socket to communicate with the remote computer. Java provides two types of sockets. There are sockets for clients and sockets for servers.

Java's remote method invocation (RMI) package provides a set of tools that allow one computer to execute a method (function) on another computer. There are two sides to Java's RMI. First the host or server must create a remote object. A remote object has a set of methods which it controls. A remote object will also implement a remote interface (or multiple remote interfaces) which declares the methods of the remote object that can be executed through that interface. On the client side, the client obtains a reference to the remote object using the remote objects IP address, and is then able to execute methods on the host using the remote interface.

These are just some of the networking tools that Java provides and will be covered in the tutorial. Other tools may be covered as time permits. This tutorial will NOT be an introduction to Java. It will be assumed that the participants will be able to read Java code, although they may have not written and compiled a Java program. Participants who have not used Java, but are proficient in C++ will likely be able to follow most of the code used in the tutorial.