

# Sockets

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**Abstract**—Lorem ipsum dolor sit amet, consectetur adipiscing elit. Curabitur pellentesque mauris tellus, a facilisis metus congue et. Nullam gravida laoreet justo, auctor rutrum nibh porttitor nec. Suspendisse potenti. Nam in tincidunt nibh. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Morbi enim ex, dapibus efficitur lorem sit amet, maximus dictum eros.

**Index Terms**—Socket, IP Address, Port, Pipelines

## I. INTRODUCTION

Modern computer networks rely on many technologies to function efficiently and effectively. The complex system is made of many smaller components each functioning to facilitate communication between two computer endpoints. Among the smaller components is the socket.

Non-common uses

It is attackable?

Can be used in creative ways

Is it the best?

## II. DEFINITION

A socket is not a physical piece of the computer, but rather, it is the idea that subdivisions can be made on the network interface to separate traffic and route it correctly to where it needs to go. A socket consists of an Internet Protocol (IP) address and a port number. It is commonly written in the form of 192.168.0.1:8080 [6]. Some port numbers, such as 80 and 443, are reserved for specific applications or communication types while others are free for application programmers to utilize. Both IP Addresses and port numbers are “managed” by many local organizations, however the <https://www.iana.org/Internet Assigned Numbers Authority> (IANA)

is commonly regarded as one of the most accurate authority for reference purposes.

## III. USES

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### A. General Programming

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### B. Interprocess Communication

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### C. Internet Applications

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#### *D. Distributed Computing*

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### IV. MASTER/SLAVE RELATIONSHIPS

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### V. SECURITY

As with most aspects of the internet today, security is an issue that cannot be ignored when discussing web sockets. Even though the standard has been around for decades, it has not been reliably or adequately updated to protect against modern security threats. This is due to many complicating factors that are outside the scope of this paper. However, below are some examples of both commonly exploited and uncommonly exploited vulnerabilities in the socket communication protocol as well as potential experimental solutions.

#### *A. Vulnerabilities*

There is no security built into the socket protocol. This means that all applications that use sockets must be designed to protect against any and all possible attack vectors. Some protections are given by host operating systems, however they are not all-inclusive and not always sufficient.

#### *B. Exploits*

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#### *C. Potential Solutions*

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### VI. EXPERIMENTAL USES

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### VII. COMPARISON

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#### *A. Pipes*

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## B. Remote Procedure Calls (RPC)

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## VIII. CONCLUSION

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