18CSC302J (Computer Networks Lab)

Lab session 1 - STUDY OF HEADER FILES WITH RESPECT TO SOCKET PROGRAMMING

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1. <sys/types.h>

This header file contains definitions to allow for the porting of BSD programs. **<sys/types.h>** must usually be included before other socket-related header files

2. sys/uio.h>

<sys/types.h> must be included before this header file. This structure is used by the **readv** , **writev** , **sendmsg** , and **recvmsg** calls.

3. <errno.h>

This header file contains definitions for the macro identifiers that name system error status conditions. When a SAS/C Library function sets an error status by assigning a nonzero value to **errno** , the calling program can check for a particular value by using the name defined in **<errno.h>**

4. <sys/ioctl.h>

This header file contains definitions for the symbols required by the **ioctl** function, as well as the declaration for **ioctl** .

5. <fcntl.h>

This header file contains definitions for the constants associated with the **fcntl** function, as well as declarations for UNIX style I/O functions. Failure to include the **<sys/uio.h>** header file before this header file may result in a warning message if **readv** or **writev** is called.

6. <sys/socket.h>

This header file contains macro definitions related to the creation of sockets, for example, the type of socket (stream, datagram, or raw), the options supported, and the address family. (**AF_UNIX** is supported if integrated sockets are used.) The SAS/C Compiler only supports the TCP/IP and the **AF_INET** Internet address family. The **<sys/socket.h>** header file contains declarations for most of the functions that operate on sockets. You must include the **<sys/types.h>** header file before this header file.

7. <netdb.h>

This header file contains structures returned by the network database library.

8. <netinet/in.h>

This header file contains constants and structures defined by the Internet system.

9. <netinet/in_systm.h>

This header file contains definitions to facilitate the porting of low-level network control and query Internetwork Control and Message Protocol (ICMP), and Internetwork Protocol (IP) raw socket type applications. The Internet ping client utility is an example of such a program.

10. <netinet/ip_icmp.h>

This header file contains definitions of constants and structures required for using the ICMP protocol as described in IBM's RFC 792. Prior inclusion of **<netinet/in_systm.h>** is required.

11. <netinet/ip.h>

This header file contains definitions of constants and structures required for using the IP protocol (Internet Protocol, Version 4) as described in IBM's RFC 791. Prior inclusion of **<netinet/in_systm.h>** is required.

12. <netinet/udp.h>

This header file contains definitions of the User Datagram Protocol (UDP) header for UDP datagrams. UDP datagrams consist of a fixed header section immediately followed by the data section.

13. <arpa/inet.h>

This header file contains declarations for the network address resolution functions. You must include the **<netinet/in.h>** header file before this header file.

14. <resolv.h>

This header file contains global definitions for the resolver.

15. <net/if.h>

This header file contains structures that define the network interface and provide a packet transport mechanism. **<net/if.h>** is useful only for low-level programming of the network interface. You must include the **<sys/types.h>** and **<sys/socket.h>** header files before this header file.

16. <strings.h>

This header file provides compatibility with the BSD UNIX **<strings.h>** header file and the **index** , **rindex** , **bzero** , **ffs** , and **bcmp** functions.

17. <sys/socket.h>

Contains data definitions and socket structures

18. <sys/socketvar.h>

Defines the kernel structure per socket and contains buffer queues

19. </sys/un.h>

Defines structures for the UNIX interprocess communication domain.