NAME
address_families – socket address families (domains)

SYNOPSIS
#include <sys/types.h>   /* See NOTES */
#include <sys/socket.h>

int socket(int *domain***, int** *type***, int** *protocol***);**

DESCRIPTION
The *domain* argument of the **socket**(2) specifies a communication domain; this selects the protocol family which will be used for communication. These families are defined in *<sys/socket.h>*. The formats currently understood by the Linux kernel include:

AF_UNIX, **AF_LOCAL**
> Local communication. For further information, see **unix**(7).

AF_INET
> IPv4 Internet protocols. For further information, see **ip**(7).

AF_AX25
> Amateur radio AX.25 protocol. For further information, see **ax25**(4).

AF_IPX
> IPX – Novell protocols.

AF_APPLETALK
> AppleTalk For further information, see **ddp**(7).

AF_NETROM
> AX.25 packet layer protocol. For further information, see **netrom**(4), *The Packet Radio Protocols and Linux* ⟨https://www.tldp.org/HOWTO/AX25-HOWTO/x61.html⟩ and the *AX.25*, *NET/ROM*, and *ROSE network programming* chapters of the *Linux Amateur Radio AX.25 HOWTO* ⟨https://www.tldp.org/HOWTO/AX25-HOWTO/x2107.html⟩.

AF_BRIDGE
> Can't be used for creating sockets; mostly used for bridge links in **rtnetlink**(7) protocol commands.

AF_ATMPVC
> Access to raw ATM Permanent Virtual Circuits (PVCs). For further information, see the *ATM on Linux HOWTO* ⟨https://www.tldp.org/HOWTO/text/ATM-Linux-HOWTO⟩.

AF_X25
> ITU-T X.25 / ISO-8208 protocol. For further information, see **x25**(7).

AF_INET6
> IPv6 Internet protocols. For further information, see **ipv6**(7).

AF_ROSE
> RATS (Radio Amateur Telecommunications Society). Open Systems environment (ROSE) AX.25 packet layer protocol. For further information, see the resources listed for **AF_NETROM**.

AF_DECnet
> DECet protocol sockets. See *Documentation/networking/decnet.txt* in the Linux kernel source tree for details.

AF_NETBEUI
> Reserved for "802.2LLC project"; never used.

AF_SECURITY
> This was a short-lived (between Linux 2.1.30 and 2.1.99pre2) protocol family for firewall upcalls.

AF_KEY

Key management protocol, originally developed for usage with IPsec (since Linux 2.1.38). This has no relation to **keyctl**(2) and the in-kernel key storage facility. See RFC 2367 *PF_KEY Key Management API, Version 2* ⟨https://tools.ietf.org/html/rfc2367⟩ for details.

AF_NETLINK

Kernel user interface device. For further information, see **netlink**(7).

AF_PACKET

Low-level packet interface. For further information, see **packet**(7).

AF_ECONET

Acorn Econet protocol (removed in Linux 3.5). See the Econet documentation ⟨http://www.8bs.com/othrdnld/manuals/econet.shtml⟩ for details.

AF_ATMSVC

Access to ATM Switched Virtual Circuits (SVCs) See the *ATM on Linux HOWTO* ⟨https://www.tldp.org/HOWTO/text/ATM-Linux-HOWTO⟩ for details.

AF_RDS

Reliable Datagram Sockets (RDS) protocol (since Linux 2.6.30). RDS over RDMA has no relation to **AF_SMC** or **AF_XDP**. For further information, see **rds**(7), **rds−rdma**(7), and *Documentation/networking/rds.txt* in the Linux kernel source tree.

AF_IRDA

Socket interface over IrDA (moved to staging in Linux 4.14, removed in Linux 4.17). For further information, see **irda**(7).

AF_PPPOX

Generic PPP transport layer, for setting up L2 tunnels (L2TP and PPPoE). See *Documentation/networking/l2tp.txt* in the Linux kernel source tree for details.

AF_WANPIPE

Legacy protocol for wide area network (WAN) connectivity that was used by Sangoma WAN cards (called "WANPIPE"); removed in Linux 2.6.21.

AF_LLC

Logical link control (IEEE 802.2 LLC) protocol, upper part of data link layer of ISO/OSI networking protocol stack (since Linux 2.4); has no relation to **AF_PACKET**. See chapter *13.5.3. Logical Link Control* in *Understanding Linux Kernel Internals* (O'Reilly Media, 2006) and *IEEE Standards for Local Area Networks: Logical Link Control* (The Institute of Electronics and Electronics Engineers, Inc., New York, New York, 1985) for details. See also some historical notes ⟨https://wiki.linuxfoundation.org/networking/llc⟩ regarding its development.

AF_IB InfiniBand native addressing (since Linux 3.11).

AF_MPLS

Multiprotocol Label Switching (since Linux 4.1); mostly used for configuring MPLS routing via **netlink**(7), as it doesn't expose ability to create sockets to user space.

AF_CAN

Controller Area Network automotive bus protocol (since Linux 2.6.25). See *Documentation/networking/can.rst* in the Linux kernel source tree for details.

AF_TIPC

TIPC, "cluster domain sockets" protocol (since Linux 2.6.16). See *TIPC Programmer's Guide* ⟨http://tipc.io/programming.html⟩ and the protocol description ⟨http://tipc.io/protocol.html⟩ for details.

AF_BLUETOOTH

Bluetooth low-level socket protocol (since Linux 3.11). See *Bluetooth Management API overview* ⟨https://git.kernel.org/pub/scm/bluetooth/bluez.git/tree/doc/mgmt-api.txt⟩ and *An Introduction to Bluetooth Programming* by Albert Huang ⟨https://people.csail.mit.edu/albert/bluez-intro/⟩ for

details.

AF_IUCV

IUCV (inter-user communication vehicle) z/VM protocol for hypervisor-guest interaction (since Linux 2.6.21); has no relation to **AF_VSOCK** and/or **AF_SMC** See *IUCV protocol overview* ⟨https://www.ibm.com/support/knowledgecenter/en/SSB27U_6.4.0/com.ibm.zvm.v640.hcpb4 /iucv.htm⟩ for details.

AF_RXRPC

Rx, Andrew File System remote procedure call protocol (since Linux 2.6.22). See *Documentation/networking/rxrpc.txt* in the Linux kernel source tree for details.

AF_ISDN

New "modular ISDN" driver interface protocol (since Linux 2.6.27). See the mISDN wiki ⟨http://www.misdn.eu/wiki/Main_Page/⟩ for details.

AF_PHONET

Nokia cellular modem IPC/RPC interface (since Linux 2.6.31). See *Documentation/networking/phonet.txt* in the Linux kernel source tree for details.

AF_IEEE802154

IEEE 802.15.4 WPAN (wireless personal area network) raw packet protocol (since Linux 2.6.31). See *Documentation/networking/ieee802154.txt* in the Linux kernel source tree for details.

AF_CAIF

Ericsson's Communication CPU to Application CPU interface (CAIF) protocol (since Linux 2.6.36). See *Documentation/networking/caif/Linux−CAIF.txt* in the Linux kernel source tree for details.

AF_ALG

Interface to kernel crypto API (since Linux 2.6.38). See *Documentation/crypto/userspace−if.rst* in the Linux kernel source tree for details.

AF_VSOCK

VMWare VSockets protocol for hypervisor-guest interaction (since Linux 3.9); has no relation to **AF_IUCV** and **AF_SMC**. For further information, see **vsock**(7).

AF_KCM

KCM (kernel connection multiplexer) interface (since Linux 4.6). See *Documentation/networking/kcm.txt* in the Linux kernel source tree for details.

AF_QIPCRTR

Qualcomm IPC router interface protocol (since Linux 4.7).

AF_SMC

SMC-R (shared memory communications over RDMA) protocol (since Linux 4.11), and SMC-D (shared memory communications, direct memory access) protocol for intra-node z/VM quest interaction (since Linux 4.19); has no relation to **AF_RDS**, **AF_IUCV** or **AF_VSOCK**. See RFC 7609 *IBM's Shared Memory Communications over RDMA (SMC-R) Protocol* ⟨https://tools.ietf.org/html/rfc7609⟩ for details regarding SMC-R. See *SMC-D Reference Information* ⟨https://www-01.ibm.com/software/network/commserver/SMC-D/index.html⟩ for details regarding SMC-D.

AF_XDP

XDP (express data path) interface (since Linux 4.18). See *Documentation/networking/af_xdp.rst* in the Linux kernel source tree for details.

SEE ALSO

socket(2), **socket**(7)