

# Comparative reference to UNIX data types

Table A-1 lists a number of typedefs that are defined in System V.4 and 4.4BSD. The list is not intended to be exhaustive, but it might be of assistance if you run into trouble with a new typedef. You'll note a couple of things about the table:

- There is a significant deviation even between 4.4BSD and System V.4, although both are systems that have gone to some trouble to be portable.
- 4.4BSD uses a construct `long long` to describe 64 bit integers. This is not officially part of the C language, but is supported by the GNU C compiler, which is the standard compiler for 4.4BSD. The System V.4 compilers do not support `long long`, so they have to define `quad` as a structure containing two `long`s.

Table A-1: system type definitions

Type	Definition	Description
<code>addr_t (SVR4)</code>	<code>char *</code>	core address type
<code>amq_mount_tree (4.4BSD)</code>	<code>struct amq_mount_tree</code>	
<code>amq_mount_tree_p (4.4BSD)</code>	<code>amq_mount_tree *</code>	
<code>ansistat_t (SVR4)</code>	<code>struct ansi_state</code>	
<code>audio_info_t (4.4BSD)</code>	<code>struct audio_info</code>	
<code>auto_tree (4.4BSD)</code>	<code>struct auto_tree</code>	
<code>bitstr_t (4.4BSD)</code>	<code>unsigned char</code>	
<code>bool_t (4.4BSD)</code>	<code>int</code>	truth value
<code>boolean_t (4.4BSD)</code>	<code>int</code>	
<code>boolean_t (SVR4)</code>	<code>enum boolean</code>	
<code>caddr_t (4.4BSD)</code>	<code>char *</code>	core address
<code>cat_t (4.4BSD)</code>	<code>unsigned char</code>	
<code>cc_t</code>	<code>unsigned char</code>	
<code>cc_t<sup>1</sup></code>	<code>char</code>	
<code>charstat_t (SVR4)</code>	<code>struct char_stat</code>	
<code>chr_merge_t (SVR4)</code>	<code>struct chr_merge</code>	

Table A-1: system type definitions (continued)

Type	Definition	Description	
clock_t (4.4BSD)	unsigned long	count type	
clock_t (SVR4)	long		
cnt_t (SVR4)	short		
comp_t (4.4BSD)	u_short		
comp_t (SVR4)	ushort		
create_t (SVR4)	enum create	disk address	
daddr_t	long		
dbl_t (SVR4)	struct datab	device number	
dev_t	unsigned long		
dirent_t (SVR4)	struct dirent		
dmask_t (SVR4)	unsigned short		
dpt_dma_t (SVR4)	struct ScatterGather		
dpt_sblk_t (SVR4)	struct dpt_srb		
emask_t (SVR4)	unsigned short		
emcp_t (SVR4)	unsigned char *		
emip_t (SVR4)	struct emind *		
emop_t (SVR4)	struct emout *		
emp_t (SVR4)	struct emtab *		
entryno_t (SVR4)	int		
ether_addr_t (SVR4)	u_char []		
eucioc_t (SVR4)	struct eucioc		
faddr_t (SVR4)	char *		far address (XENIX Compatibility)
fhandle_t (4.4BSD)	struct fhandle	fixed point number	
fhandle_t (SVR4)	struct svcfh		
fixpt_t (4.4BSD)	unsigned long		
fpos_t (4.4BSD)	off_t		
fpos_t (SVR4)	long		
frtn_t (SVR4)	struct free_rtn	file system id type	
fsid_t (4.4BSD)	struct { long val[2]; }		
gdp_t (SVR4)	struct gdp	group id GID type group ID	
gdpmisc_t (SVR4)	struct gdpmisc		
gid_t (4.4BSD)	unsigned long		
gid_t (SVR4)	uid_t		
gid_t <sup>2</sup>	unsigned short		
greg_t (SVR4)	int		
gregset_t (SVR4)	greg_t []		
hostid_t (SVR4)	long		
id_t (SVR4)	long		process id, group id, etc.
idata_t (SVR4)	struct idata		

Table A-1: system type definitions (continued)

Type	Definition	Description
<code>index_t</code> (SVR4)	short	index into bitmaps
<code>indx_t</code> (4.4BSD)	<code>u_int16_t</code>	
<code>ino_t</code>	unsigned long	inode number
<code>inode_t</code> (SVR4)	struct <code>inode</code>	
<code>instr_t</code> (SVR4)	char	
<code>int8_t</code> (4.4BSD)	char	8 bit signed integer
<code>int16_t</code> (4.4BSD)	short	16 bit integer
<code>int32_t</code> (4.4BSD)	int	32 bit integer
<code>int64_t</code> (4.4BSD)	long long	64 bit integer
<code>ioctl_t</code> (4.4BSD)	void *	Third arg of <code>ioctl</code>
<code>jdata_t</code> (SVR4)	struct <code>jdata</code>	
<code>k_fltset_t</code> (SVR4)	unsigned long	kernel fault set type
<code>k_sigset_t</code> (SVR4)	unsigned long	kernel signal set type
<code>key_t</code> (4.4BSD)	long	IPC key type
<code>key_t</code> (SVR4)	int	IPC key type
<code>klm_testargs</code> (SVR4)	struct <code>klm_testargs</code>	
<code>klm_testreply</code> (SVR4)	struct <code>klm_testreply</code>	
<code>kmabuf_t</code> (SVR4)	struct <code>kmabuf</code>	
<code>kmasync_t</code> (SVR4)	struct <code>kmasync</code>	
<code>kvm_t</code> (4.4BSD)	struct <code>__kvm</code>	
<code>label_t</code> (SVR4)	struct <code>{int val [6];}</code>	<code>setjmp/longjmp</code> save area
<code>level_t</code> (SVR4)	<code>lid_t</code>	user's view of security level
<code>lid_t</code> (SVR4)	unsigned long	internal representation of security level
<code>lock_data_t</code> (4.4BSD)	struct <code>lock</code>	
<code>lock_t</code> (SVR4)	short	lock work for busy wait
<code>major_t</code> (SVR4)	unsigned long	major part of device number
<code>mblk_t</code> (SVR4)	struct <code>msgb</code>	
<code>minor_t</code> (SVR4)	unsigned long	minor part of device number
<code>mode_t</code> (4.4BSD)	unsigned short	permissions
<code>mode_t</code> (SVR4)	unsigned long	file attribute type
<code>n_time</code>	<code>u_long</code>	ms since 00:00 GMT
<code>nfsv2fh_t</code> (4.4BSD)	union <code>nfsv2fh</code>	
<code>nl_catd</code> (SVR4)	<code>nl_catd_t *</code>	
<code>nlink_t</code> (4.4BSD)	unsigned short	link count
<code>nlink_t</code> (SVR4)	unsigned long	file link type

Table A-1: system type definitions (continued)

Type	Definition	Description
<code>nmcp_t (SVR4)</code>	<code>unsigned char *</code>	
<code>nmp_t (SVR4)</code>	<code>struct nmtab *</code>	
<code>nmsp_t (SVR4)</code>	<code>struct nmseq *</code>	
<code>o_dev_t (SVR4)</code>	<code>short</code>	old device type
<code>o_gid_t (SVR4)</code>	<code>o_uid_t</code>	old GID type
<code>o_ino_t (SVR4)</code>	<code>unsigned short</code>	old inode type
<code>o_mode_t (SVR4)</code>	<code>unsigned short</code>	old file attribute type
<code>o_nlink_t (SVR4)</code>	<code>short</code>	old file link type
<code>o_pid_t (SVR4)</code>	<code>short</code>	old process id type
<code>o_uid_t (SVR4)</code>	<code>unsigned short</code>	old UID type
<code>off_t (4.4BSD)</code>	<code>quad_t</code>	file offset type
<code>off_t (SVR4)</code>	<code>long</code>	file offset type
<code>paddr_t (4.4BSD)</code>	<code>long</code>	physical address type
<code>paddr_t (SVR4)</code>	<code>unsigned long</code>	physical address type
<code>pgno_t (4.4BSD)</code>	<code>u_int32_t</code>	
<code>pid_t (4.4BSD)</code>	<code>long</code>	process id
<code>pid_t (SVR4)</code>	<code>long</code>	process id type
<code>priv_t (SVR4)</code>	<code>unsigned long</code>	
<code>ptr_t (4.4BSD)</code>	<code>void *</code>	pointer type
<code>ptrdiff_t</code>	<code>int</code>	Difference between two pointers
<code>pvec_t (SVR4)</code>	<code>unsigned long</code>	kernel privilege vector
<code>qaddr_t (4.4BSD)</code>	<code>quad_t *</code>	
<code>qband_t (SVR4)</code>	<code>struct qband</code>	
<code>qshift_t (4.4BSD)</code>	<code>u_quad_t</code>	
<code>quad_t (4.4BSD)</code>	<code>long long</code>	
<code>queue_t (SVR4)</code>	<code>struct queue</code>	
<code>reco_t (4.4BSD)</code>	<code>u_int32_t</code>	
<code>regoff_t (4.4BSD)</code>	<code>off_t</code>	
<code>rf_token_t (SVR4)</code>	<code>struct rf_token</code>	
<code>rlim_t (SVR4)</code>	<code>unsigned long</code>	
<code>rm_t (SVR4)</code>	<code>enum rm</code>	
<code>rune_t (4.4BSD)</code>	<code>int</code>	"rune" type: extended character
<code>rval_t (SVR4)</code>	<code>union rval</code>	
<code>s_token (SVR4)</code>	<code>u_long</code>	
<code>scrmap_t (SVR4)</code>	<code>unsigned char []</code>	Screen map type
<code>scrmap_t (SVR4)</code>	<code>unsigned char *</code>	Pointer to screen map type
<code>segsz_t (4.4BSD)</code>	<code>long</code>	segment size
<code>sel_t (SVR4)</code>	<code>unsigned short</code>	selector type

Table A-1: system type definitions (continued)

Type	Definition	Description	
sema_t (SVR4)	int	return type of signal function	
sig_atomic_t	int		
sig_t (4.4BSD)	void (*) (int)		
sigset_t (4.4BSD)	unsigned int	to return byte count or indicate error	
size_t (4.4BSD)	int		
size_t (SVR4)	unsigned		
speed_t (4.4BSD)	long		
speed_t (SVR4)	unsigned long		
spl_t (SVR4)	int		
srqtab_t (SVR4)	unsigned char []		
ssize_t (4.4BSD)	int		
stack_t (SVR4)	struct sigaltstack		String map index type
stridx_t (SVR4)	ushort []		
strmap_t (SVR4)	unchar []	String map table type	
sv_t (SVR4)	char	swap offset	
swblk_t (4.4BSD)	long		
symfollow_t (SVR4)	enum symfollow	system id	
sysid_t (SVR4)	short		
tcflag_t	unsigned long		
tcl_addr_t (SVR4)	struct tcl_addr		
tcl_data_t (SVR4)	union tcl_data		
tcl_endpt_t (SVR4)	struct tcl_endpt		
tco_addr_t (SVR4)	struct tco_addr		
tco_endpt_t (SVR4)	struct tco_endpt		
tcoo_addr_t (SVR4)	struct tcoo_addr		
tcoo_endpt_t (SVR4)	struct tcoo_endpt		
time_t	long	time of day in seconds	
tpproto_t (SVR4)	struct tpproto	Abbreviation	
tpr_t (4.4BSD)	struct session *		
ttychar_t (4.4BSD)	unsigned char [] []		
u_char	unsigned char		
u_int	unsigned int		
u_int16_t (4.4BSD)	unsigned short		16 bit unsigned int
u_int32_t (4.4BSD)	unsigned int		32 bit unsigned int
u_int64_t (4.4BSD)	unsigned long long		64 bit unsigned int
u_int8_t (4.4BSD)	unsigned char		64 bit unsigned int
u_long	unsigned long		quads
u_quad_t (4.4BSD)	unsigned long long	quads	
u_short	unsigned short	Abbreviation	

Table A-1: system type definitions (continued)

Type	Definition	Description
<code>uchar_t (SVR4)</code>	unsigned char	
<code>uid_t (4.4BSD)</code>	unsigned long	User ID
<code>uid_t (SVR4)</code>	long	User ID
<code>uid_t<sup>2</sup></code>	unsigned short	User ID
<code>uinfo_t (SVR4)</code>	struct master *	
<code>uint</code>	unsigned int	Abbreviation
<code>uint_t (SVR4)</code>	unsigned int	
<code>uio_rw_t (SVR4)</code>	enum uio_rw	
<code>uio_seg_t (SVR4)</code>	enum uio_seg	
<code>ulong (SVR4)</code>	unsigned long	Abbreviation
<code>ulong_t (SVR4)</code>	unsigned long	
<code>uchar (SVR4)</code>	unsigned char	Abbreviation
<code>use_t (SVR4)</code>	unsigned char	use count for swap
<code>ushort</code>	unsigned short	Abbreviation
<code>ushort_t (SVR4)</code>	unsigned short	
<code>vcexcl_t (SVR4)</code>	enum vcexcl	
<code>vfs_namemap_t (4.4BSD)</code>	struct vfs_namemap	
<code>vifbitmap_t (4.4BSD)</code>	u_long	
<code>vifi_t (4.4BSD)</code>	u_short	type of a vif index
<code>vpix_page_t (SVR4)</code>	struct vpix_page	
<code>wchar_t (4.4BSD)</code>	int	Wide character type
<code>wchar_t (SVR4)</code>	long	Wide character type
<code>whymountroot_t (SVR4)</code>	enum whymountroot	
<code>xdrproc_t</code>	bool_t (*)( )	

<sup>1</sup> Only 4.4BSD telnet<sup>2</sup> Only 4.4BSD Kerberos