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**********************************************************
   26964 Mon Sep 30 20:00:43 2013
new/usr/src/cmd/ssh/include/config.h
1097 glob(3c) needs to support non-POSIX options
3341 The sftp command should use the native glob()
**********************************************************
```

```
/* config.h.  Generated by configure.  */
/* config.h.in.  Generated from configure.ac by autoheader.  */
/* $Id: acconfig.h,v 1.145 2002/09/26 00:38:48 tim Exp $ */

/*
 * Copyright (c) 2001, 2010, Oracle and/or its affiliates. All rights reserved.
 * Copyright (c) 2013 Gary Mills
 */

#ifndef _CONFIG_H
#define _CONFIG_H

#ifdef __cplusplus
extern "C" {
#endif


/* Generated automatically from acconfig.h by autoheader. */
/* Please make your changes there */


/* Define to a Set Process Title type if your system is */
/* supported by bsd-setproctitle.c */
/* #undef SPT_TYPE */

/* setgroups() NOOP allowed */
/* #undef SETGROUPS_NOOP */

/* SCO workaround */
/* #undef BROKEN_SYS_TERMIO_H */

/* If your header files don't define LOGIN_PROGRAM, then use this (detected) */
/* from environment and PATH */
#define LOGIN_PROGRAM_FALLBACK "/usr/bin/login"

/* Define if your password has a pw_class field */
/* #undef HAVE_PW_CLASS_IN_PASSWD */

/* Define if your password has a pw_expire field */
/* #undef HAVE_PW_EXPIRE_IN_PASSWD */

/* Define if your password has a pw_change field */
/* #undef HAVE_PW_CHANGE_IN_PASSWD */

/* Define if your system uses access rights style file descriptor passing */
#define HAVE_ACCRIGHTS_IN_MSGHDR 1

/* Define if your system uses ancillary data style file descriptor passing */
/* #undef HAVE_CONTROL_IN_MSGHDR */

/* Define if you system's inet_ntoa is busted (e.g. Irix gcc issue) */
/* #undef BROKEN_INET_NTOA */

/* Define if your system defines sys_errlist[] */
#define HAVE_SYS_ERRLIST 1

/* Define if your system defines sys_nerr */
#define HAVE_SYS_NERR 1

/* Define if your system choked on IP TOS setting */
```



```
#define IP_TOS_IS_BROKEN 1

/* Define if you have the getuserattr function.  */
/* #undef HAVE_GETUSERATTR */

/* Work around problematic Linux PAM modules handling of PAM_TTY */
#define PAM_TTY_KLUDGE 1

/* Define if your snprintf is busted */
/* #undef BROKEN_SNPRINTF */

/* Define if you are on Cygwin */
/* #undef HAVE_CYGWIN */

/* Define if you have a broken realpath. */
/* #undef BROKEN_REALPATH */

/* Define if you are on NEWS-OS */
/* #undef HAVE_NEWS4 */

/* Define if you want to enable PAM support */
#define USE_PAM 1

/* Define if you want to enable AIX4's authenticate function */
/* #undef WITH_AIXAUTHENTICATE */

/*
 * Define if you have/want arrays (cluster-wide session managment, not C
 * arrays)
 */
/* #undef WITH_IRIX_ARRAY */

/* Define if you want IRIX project management */
/* #undef WITH_IRIX_PROJECT */

/* Define if you want IRIX audit trails */
/* #undef WITH_IRIX_AUDIT */

/* Define if you want IRIX kernel jobs */
/* #undef WITH_IRIX_JOBS */

/* Location of PRNGD/EGD random number socket */
/* #undef PRNGD_SOCKET */

/* Port number of PRNGD/EGD random number socket */
/* #undef PRNGD_PORT */

/* Builtin PRNG command timeout */
#define ENTROPY_TIMEOUT_MSEC 200

/* non-privileged user for privilege separation */
#define SSH_PRIVSEP_USER "sshd"

/* Define if you want to install preformatted manpages. */
/* #undef MANTYPE */

/* Define if your ssl headers are included with #include <openssl/header.h>  */
#define HAVE_OPENSSL 1

/* Define if Solaris' OpenSSL lacks AES support */
#define SOLARIS_OPENSSL_NO_AES 1

/* Define if Solaris-style Least Privilege is available */
#define HAVE_SOLARIS_PRIVILEGE 1

/* Define if you want Sun's alternative privilege separation */
```

```
127 #define ALTPRIVSEP

129 /* Define if you have Solaris-style Contracts */
130 #define HAVE_SOLARIS_CONTRACTS 1

132 /* Define if SVR4-style libcmd (for accessing /etc/default/ files) */
133 #define HAVE_DEFOPEN 1

135 /*
136  * Define if you are linking against RSAref. Used only to print the right
137  * message at run-time.
138  */
139 /* #undef RSAREF */

141 /* struct timeval */
142 #define HAVE_STRUCT_TIMEVAL 1

144 /* struct utmp and struct utmpx fields */
145 /* #undef HAVE_HOST_IN_UTMP */
146 #define HAVE_HOST_IN_UTMPX 1
147 /* #undef HAVE_ADDR_IN_UTMP */
148 /* #undef HAVE_ADDR_IN_UTMPX */
149 /* #undef HAVE_ADDR_V6_IN_UTMP */
150 /* #undef HAVE_ADDR_V6_IN_UTMPX */
151 #define HAVE_SYSLEN_IN_UTMPX 1
152 #define HAVE_PID_IN_UTMP 1
153 #define HAVE_TYPE_IN_UTMP 1
154 #define HAVE_TYPE_IN_UTMPX 1
155 /* #undef HAVE_TV_IN_UTMP */
156 #define HAVE_TV_IN_UTMPX 1
157 #define HAVE_ID_IN_UTMP 1
158 #define HAVE_ID_IN_UTMPX 1
159 #define HAVE_EXIT_IN_UTMP 1
160 #define HAVE_TIME_IN_UTMP 1
161 #define HAVE_TIME_IN_UTMPX 1

163 /* Define if you don't want to use your system's login() call */
164 /* #undef DISABLE_LOGIN */

166 /* Define if you don't want to use pututline() etc. to write [uw]tmp */
167 /* #undef DISABLE_PUTUTLINE */

169 /* Define if you don't want to use pututxline() etc. to write [uw]tmpx */
170 /* #undef DISABLE_PUTUTXLINE */

172 /* Define if you don't want to use lastlog */
173 /* #undef DISABLE_LASTLOG */

175 /* Define if you don't want to use lastlog in session.c */
176 /* #undef NO_SSH_LASTLOG */

178 /* Define if you don't want to use utmp */
179 #define DISABLE_UTMP 1

181 /* Define if you don't want to use utmpx */
182 /* #undef DISABLE_UTMPX */

184 /* Define if you don't want to use wtmp */
185 #define DISABLE_WTMP 1

187 /* Define if you don't want to use wtmpx */
188 /* #undef DISABLE_WTMPX */

190 /* Some systems need a utmpx entry for /bin/login to work */
191 #define LOGIN_NEEDS_UTMPX 1
```



```
193 /* Some versions of /bin/login need the TERM supplied on the commandline */
194 #define LOGIN_NEEDS_TERM 1

196 /* Define if your login program cannot handle end of options ("--") */
197 /* #undef LOGIN_NO_ENDOPT */

199 /* Define if you want to specify the path to your lastlog file */
200 #define CONF_LASTLOG_FILE "/var/adm/lastlog"

202 /* Define if you want to specify the path to your utmp file */
203 /* #undef CONF_UTMP_FILE */

205 /* Define if you want to specify the path to your wtmp file */
206 /* #undef CONF_WTMP_FILE */

208 /* Define if you want to specify the path to your utmpx file */
209 /* #undef CONF_UTMPX_FILE */

211 /* Define if you want to specify the path to your wtmpx file */
212 /* #undef CONF_WTMPX_FILE */

214 /* Define if you want external askpass support */
215 /* #undef USE_EXTERNAL_ASKPASS */

217 /* Define if libc defines __progname */
218 #define HAVE___PROGNAME 1

220 /* Define if compiler implements __FUNCTION__ */
221 #define HAVE___FUNCTION__ 1

223 /* Define if compiler implements __func__ */
224 #define HAVE___func__ 1

226 /* Define if you want GSS-API support */
227 #define GSSAPI 1

229 /* Define if you have <gssapi/gssapi.h> */
230 #define SUNW_GSSAPI 1

232 /* Define if you have GSS_Store_cred() */
233 #define HAVE_GSS_STORE_CRED  1

235 /* Define if you have __gss_userok() */
236 #define HAVE___GSS_USEROK 1

238 /* Define for simple authorization of GSS-API principals */
239 /* #undef GSSAPI_SIMPLE_USEROK */

241 /* Define if you have gsscred_name_to_unix_cred() (Solaris) */
242 #define HAVE_GSSCRED_API 1

244 /* Define if you have __gss_oid_to_mech() */
245 #define HAVE_GSS_OID_TO_MECH 1

247 /* Define if you have gss_oid_to_str() */
248 #define HAVE_GSS_OID_TO_STR 1

250 /* Define if you want support for MIT krb5 GSS internals */
251 /* #undef KRB5_GSS */

253 /* Define if you want support for GSI GSS internals */
254 /* #undef GSI_GSS */

256 /* Define if you want raw Kerberos 5 support */
257 /* #undef KRB5 */
```

```
259 /* Define if you want GSI/Globus authentication support */
260 /* #undef GSI */

262 /* Define this if you are using the Heimdal version of Kerberos V5 */
263 /* #undef HEIMDAL */

265 /* Define if you want Kerberos 4 support */
266 /* #undef KRB4 */

268 /* Define if you want AFS support */
269 /* #undef AFS */

271 /* Define if you want S/Key support */
272 /* #undef SKEY */

274 /* Define if you want TCP Wrappers support */
275 #define LIBWRAP 1

277 /* Define if your libraries define login() */
278 /* #undef HAVE_LOGIN */

280 /* Define if your libraries define getpagesize() */
281 #define HAVE_GETPAGESIZE 1

283 /* Define if xauth is found in your path */
284 #define XAUTH_PATH "/usr/X11/bin/xauth"

286 /* Define if rsh is found in your path */
287 #define RSH_PATH "/usr/bin/rsh"

289 /* Define if you want to allow MD5 passwords */
290 /* #undef HAVE_MD5_PASSWORDS */

292 /* Define if you want to disable shadow passwords */
293 /* #undef DISABLE_SHADOW */

295 /* Define if you want to use shadow password expire field */
296 /* #undef HAS_SHADOW_EXPIRE */

298 /* Define if you have Digital Unix Security Integration Architecture */
299 /* #undef HAVE_OSF_SIA */

301 /* Define if you have getpwanam(3) [SunOS 4.x] */
302 /* #undef HAVE_GETPWANAM */

304 /* Define if you have an old version of PAM which takes only one argument */
305 /* to pam_strerror */
306 /* #undef HAVE_OLD_PAM */

308 /* Define if you are using Solaris-derived PAM which passes pam_messages  */
309 /* to the conversation function with an extra level of indirection */
310 #define PAM_SUN_CODEBASE 1

312 /* Set this to your mail directory if you don't have maillock.h */
313 /* #undef MAIL_DIRECTORY */

315 /* Data types */
316 #define HAVE_U_INT 1
317 #define HAVE_INTXX_T 1
318 /* #undef HAVE_U_INTXX_T */
319 #define HAVE_UINTXX_T 1
320 #define HAVE_INT64_T 1
321 /* #undef HAVE_U_INT64_T */
322 #define HAVE_U_CHAR 1
323 #define HAVE_SIZE_T 1
324 #define HAVE_SSIZE_T 1
```



```
325 #define HAVE_CLOCK_T 1
326 #define HAVE_MODE_T 1
327 #define HAVE_PID_T 1
328 #define HAVE_SA_FAMILY_T 1
329 #define HAVE_STRUCT_SOCKADDR_STORAGE 1
330 #define HAVE_STRUCT_ADDRINFO 1
331 #define HAVE_STRUCT_IN6_ADDR 1
332 #define HAVE_STRUCT_SOCKADDR_IN6 1

334 /* Fields in struct sockaddr_storage */
335 #define HAVE_SS_FAMILY_IN_SS 1
336 /* #undef HAVE___SS_FAMILY_IN_SS */

338 /* Define if you have /dev/ptmx */
339 #define HAVE_DEV_PTMX 1

341 /* Define if you have /dev/ptc */
342 /* #undef HAVE_DEV_PTS_AND_PTC */

344 /* Define if you need to use IP address instead of hostname in $DISPLAY */
345 /* #undef IPADDR_IN_DISPLAY */

347 /*
348  * Specify the default $PATH. While /bin is a symbolic link to /usr/bin in
349  * Solaris, to include both of them there may help when users use
350  * ChrootDirectory options with plain SSH connections, without their own shell
351  * profiles.
352  */
353 #define USER_PATH "/usr/bin:/bin"

355 /* Specify location of ssh.pid */
356 #define _PATH_SSH_PIDDIR "/var/run"

358 /* Use IPv4 for connection by default, IPv6 can still if explicity asked */
359 /* #undef IPV4_DEFAULT */

361 /* getaddrinfo is broken (if present) */
362 /* #undef BROKEN_GETADDRINFO */

364 /* Workaround more Linux IPv6 quirks */
365 /* #undef DONT_TRY_OTHER_AF */

367 /* Detect IPv4 in IPv6 mapped addresses and treat as IPv4 */
368 #define IPV4_IN_IPV6 1

370 /* Define if you have BSD auth support */
371 /* #undef BSD_AUTH */

373 /* Define if X11 doesn't support AF_UNIX sockets on that system */
374 /* #undef NO_X11_UNIX_SOCKETS */

376 /* Define if the concept of ports only accessible to superusers isn't known */
377 /* #undef NO_IPPORT_RESERVED_CONCEPT */

379 /* Needed for SCO and NeXT */
380 /* #undef BROKEN_SAVED_UIDS */

382 /* Define if your system glob() function has the GLOB_ALTDIRFUNC extension */
383 #define GLOB_HAS_ALTDIRFUNC     1
382 /* #undef GLOB_HAS_ALTDIRFUNC */

385 /* Define if your system glob() function has gl_matchc options in glob_t */
386 #define GLOB_HAS_GL_MATCHC      1
385 /* #undef GLOB_HAS_GL_MATCHC */

388 /*
```

```
 389  * Define in your struct dirent expects you to allocate extra space for
 390  * d_name
 391  */
 392 #define BROKEN_ONE_BYTE_DIRENT_D_NAME 1

 394 /* Define if your getopt(3) defines and uses optreset */
 395 /* #undef HAVE_GETOPT_OPTRESET */

 397 /* Define on *nto-qnx systems */
 398 /* #undef MISSING_NFDBITS */

 400 /* Define on *nto-qnx systems */
 401 /* #undef MISSING_HOWMANY */

 403 /* Define on *nto-qnx systems */
 404 /* #undef MISSING_FD_MASK */

 406 /*
 407  * Use libedit or libtecla for sftp
 408  * If both USE_LIBEDIT and USE_LIBTECLA are defined, then USE_LIBEDIT will
 409  * have higher precedence.
 410  */
 411 #undef USE_LIBEDIT
 412 #define USE_LIBTECLA    1

 414 /* Define if you want to use OpenSSL's internally seeded PRNG only */
 415 #define OPENSSL_PRNG_ONLY 1

 417 /* Define if you shouldn't strip 'tty' from your ttyname in [uw]tmp */
 418 /* #undef WITH_ABBREV_NO_TTY */

 420 /* Define if you want a different $PATH for the superuser */
 421 #define SUPERUSER_PATH "/usr/sbin:/usr/bin"

 423 /* Path that unprivileged child will chroot() to in privep mode */
 424 /* #undef PRIVSEP_PATH */

 426 /* Define if your platform needs to skip post auth file descriptor passing */
 427 /* #undef DISABLE_FD_PASSING */


 430 /* Define to 1 if the 'getpgrp' function requires zero arguments. */
 431 #define GETPGRP_VOID 1

 433 /* Define to 1 if you have the 'arc4random' function. */
 434 /* #undef HAVE_ARC4RANDOM */

 436 /* Define to 1 if you have the 'asprintf' function. */
 437 #define HAVE_ASPRINTF 1

 439 /* Define to 1 if you have the 'b64_ntop' function. */
 440 /* #undef HAVE_B64_NTOP */

 442 /* Define to 1 if you have the 'bcopy' function. */
 443 #define HAVE_BCOPY 1

 445 /* Define to 1 if you have the 'bindresvport_sa' function. */
 446 /* #undef HAVE_BINDRESVPORT_SA */

 448 /* Define to 1 if you have the <bstring.h> header file. */
 449 /* #undef HAVE_BSTRING_H */

 451 /* Define to 1 if you have the 'clock' function. */
 452 #define HAVE_CLOCK 1

 454 /* Define to 1 if you have the <crypt.h> header file. */
```



```
 455 #define HAVE_CRYPT_H 1

 457 /* Define to 1 if you have the 'dirname' function. */
 458 #define HAVE_DIRNAME 1

 460 /* Define to 1 if you have the <endian.h> header file. */
 461 /* #undef HAVE_ENDIAN_H */

 463 /* Define to 1 if you have the 'endutent' function. */
 464 #define HAVE_ENDUTENT 1

 466 /* Define to 1 if you have the 'endutxent' function. */
 467 #define HAVE_ENDUTXENT 1

 469 /* Define to 1 if you have the 'fchmod' function. */
 470 #define HAVE_FCHMOD 1

 472 /* Define to 1 if you have the 'fchown' function. */
 473 #define HAVE_FCHOWN 1

 475 /* Define to 1 if you have the <floatingpoint.h> header file. */
 476 #define HAVE_FLOATINGPOINT_H 1

 478 /* Define to 1 if you have the 'freeaddrinfo' function. */
 479 #define HAVE_FREEADDRINFO 1

 481 /* Define to 1 if you have the 'futimes' function. */
 482 /* #undef HAVE_FUTIMES */

 484 /* Define to 1 if you have the 'gai_strerror' function. */
 485 #define HAVE_GAI_STRERROR 1

 487 /* Define to 1 if you have the 'getaddrinfo' function. */
 488 #define HAVE_GETADDRINFO 1

 490 /* Define to 1 if you have the 'getcwd' function. */
 491 #define HAVE_GETCWD 1

 493 /* Define to 1 if you have the 'getgrouplist' function. */
 494 /* #undef HAVE_GETGROUPLIST */

 496 /* Define to 1 if you have the 'getluid' function. */
 497 /* #undef HAVE_GETLUID */

 499 /* Define to 1 if you have the 'getnameinfo' function. */
 500 #define HAVE_GETNAMEINFO 1

 502 /* Define to 1 if you have the 'getopt' function. */
 503 #define HAVE_GETOPT 1

 505 /* Define to 1 if you have the <getopt.h> header file. */
 506 /* #undef HAVE_GETOPT_H */

 508 /* Define to 1 if you have the 'getpeereid' function. */
 509 /* #undef HAVE_GETPEEREID */

 511 /* Define to 1 if you have the 'getpeerucred' function. */
 512 #define HAVE_GETPEERUCRED 1

 514 /* Define to 1 if you have the 'getpwanam' function. */
 515 /* #undef HAVE_GETPWANAM */

 517 /* Define to 1 if you have the 'getrlimit' function. */
 518 #define HAVE_GETRLIMIT 1

 520 /* Define to 1 if you have the 'getrusage' function. */
```

```
#define HAVE_GETRUSAGE 1

/* Define to 1 if you have the 'gettimeofday' function. */
#define HAVE_GETTIMEOFDAY 1

/* Define to 1 if you have the 'getttyent' function. */
/* #undef HAVE_GETTTYENT */

/* Define to 1 if you have the 'getutent' function. */
#define HAVE_GETUTENT 1

/* Define to 1 if you have the 'getutid' function. */
#define HAVE_GETUTID 1

/* Define to 1 if you have the 'getutline' function. */
#define HAVE_GETUTLINE 1

/* Define to 1 if you have the 'getutxent' function. */
#define HAVE_GETUTXENT 1

/* Define to 1 if you have the 'getutxid' function. */
#define HAVE_GETUTXID 1

/* Define to 1 if you have the 'getutxline' function. */
#define HAVE_GETUTXLINE 1

/* Define to 1 if you have the 'glob' function. */
#define HAVE_GLOB 1

/* Define to 1 if you have the <glob.h> header file. */
#define HAVE_GLOB_H 1

/* Define to 1 if you have the <ia.h> header file. */
/* #undef HAVE_IA_H */

/* Define to 1 if you have the 'inet_aton' function. */
/* #undef HAVE_INET_ATON */

/* Define to 1 if you have the 'inet_ntoa' function. */
#define HAVE_INET_NTOA 1

/* Define to 1 if you have the 'inet_ntop' function. */
#define HAVE_INET_NTOP 1

/* Define to 1 if you have the 'innetgr' function. */
#define HAVE_INNETGR 1

/* Define to 1 if you have the <inttypes.h> header file. */
#define HAVE_INTTYPES_H 1

/* Define to 1 if you have the <krb.h> header file. */
/* #undef HAVE_KRB_H */

/* Define to 1 if you have the <lastlog.h> header file. */
#define HAVE_LASTLOG_H 1

/* Define to 1 if you have the 'crypt' library (-lcrypt). */
/* #undef HAVE_LIBCRYPT */

/* Define to 1 if you have the 'des' library (-ldes). */
/* #undef HAVE_LIBDES */

/* Define to 1 if you have the 'des425' library (-ldes425). */
/* #undef HAVE_LIBDES425 */

/* Define to 1 if you have the 'dl' library (-ldl). */
```



```
#define HAVE_LIBDL 1

/* Define to 1 if you have the <libgen.h> header file. */
#define HAVE_LIBGEN_H 1

/* Define to 1 if you have the 'krb' library (-lkrb). */
/* #undef HAVE_LIBKRB */

/* Define to 1 if you have the 'krb4' library (-lkrb4). */
/* #undef HAVE_LIBKRB4 */

/* Define to 1 if you have the 'nsl' library (-lnsl). */
#define HAVE_LIBNSL 1

/* Define to 1 if you have the 'pam' library (-lpam). */
#define HAVE_LIBPAM 1

/* Define to 1 if you have the 'resolv' library (-lresolv). */
/* #undef HAVE_LIBRESOLV */

/* Define to 1 if you have the 'sectok' library (-lsectok). */
/* #undef HAVE_LIBSECTOK */

/* Define to 1 if you have the 'socket' library (-lsocket). */
#define HAVE_LIBSOCKET 1

/* Define to 1 if you have the <libutil.h> header file. */
/* #undef HAVE_LIBUTIL_H */

/* Define to 1 if you have the 'xnet' library (-lxnet). */
/* #undef HAVE_LIBXNET */

/* Define to 1 if you have the 'z' library (-lz). */
#define HAVE_LIBZ 1

/* Define to 1 if you have the <limits.h> header file. */
#define HAVE_LIMITS_H 1

/* Define to 1 if you have the <login.h> header file. */
/* #undef HAVE_LOGIN_H */

/* Define to 1 if you have the 'logout' function. */
/* #undef HAVE_LOGOUT */

/* Define to 1 if you have the 'logwtmp' function. */
/* #undef HAVE_LOGWTMP */

/* Define to 1 if you have the <maillock.h> header file. */
#define HAVE_MAILLOCK_H 1

/* Define to 1 if you have the 'md5_crypt' function. */
/* #undef HAVE_MD5_CRYPT */

/* Define to 1 if you have the 'memmove' function. */
#define HAVE_MEMMOVE 1

/* Define to 1 if you have the <memory.h> header file. */
#define HAVE_MEMORY_H 1

/* Define to 1 if you have mkstemp, mkstemps and mkdtemp */
#define HAVE_MKDTEMP 1

/* Define to 1 if you have the 'mmap' function. */
#define HAVE_MMAP 1

/* Define to 1 if you have the <netdb.h> header file. */
```

```
653 #define HAVE_NETDB_H 1

655 /* Define to 1 if you have the <netgroup.h> header file. */
656 /* #undef HAVE_NETGROUP_H */

658 /* Define to 1 if you have the <netinet/in_systm.h> header file. */
659 #define HAVE_NETINET_IN_SYSTM_H 1

661 /* Define to 1 if you have the 'ngetaddrinfo' function. */
662 /* #undef HAVE_NGETADDRINFO */

664 /* Define to 1 if you have the 'ogetaddrinfo' function. */
665 /* #undef HAVE_OGETADDRINFO */

667 /* Define to 1 if you have the 'openpty' function. */
668 /* #undef HAVE_OPENPTY */

670 /* Define to 1 if you have the 'pam_getenvlist' function. */
671 #define HAVE_PAM_GETENVLIST 1

673 /* Define to 1 if you have the <paths.h> header file. */
674 /* #undef HAVE_PATHS_H */

676 /* Define to 1 if you have the <pty.h> header file. */
677 /* #undef HAVE_PTY_H */

679 /* Define to 1 if you have the 'pututline' function. */
680 #define HAVE_PUTUTLINE 1

682 /* Define to 1 if you have the 'pututxline' function. */
683 #define HAVE_PUTUTXLINE 1

685 /* Define to 1 if you have the 'readpassphrase' function. */
686 /* #undef HAVE_READPASSPHRASE */

688 /* Define to 1 if you have the <readpassphrase.h> header file. */
689 /* #undef HAVE_READPASSPHRASE_H */

691 /* Define to 1 if you have the 'realpath' function. */
692 #define HAVE_REALPATH 1

694 /* Define to 1 if you have the 'recvmsg' function. */
695 #define HAVE_RECVMSG 1

697 /* Define to 1 if you have the <rpc/types.h> header file. */
698 #define HAVE_RPC_TYPES_H 1

700 /* Define to 1 if you have the 'rresvport_af' function. */
701 #define HAVE_RRESVPORT_AF 1

703 /* Define to 1 if you have the <sectok.h> header file. */
704 /* #undef HAVE_SECTOK_H */

706 /* Define to 1 if you have the <security/pam_appl.h> header file. */
707 #define HAVE_SECURITY_PAM_APPL_H 1

709 /* Define to 1 if you have the 'sendmsg' function. */
710 #define HAVE_SENDMSG 1

712 /* Define to 1 if you have the 'setdtablesize' function. */
713 /* #undef HAVE_SETDTABLESIZE */

715 /* Define to 1 if you have the 'setegid' function. */
716 #define HAVE_SETEGID 1

718 /* Define to 1 if you have the 'setenv' function. */
```



```
719 #define HAVE_SETENV 1

721 /* Define to 1 if you have the 'seteuid' function. */
722 #define HAVE_SETEUID 1

724 /* Define to 1 if you have the 'setgroups' function. */
725 #define HAVE_SETGROUPS 1

727 /* Define to 1 if you have the 'setlogin' function. */
728 /* #undef HAVE_SETLOGIN */

730 /* Define to 1 if you have the 'setluid' function. */
731 /* #undef HAVE_SETLUID */

733 /* Define to 1 if you have the 'setpcred' function. */
734 /* #undef HAVE_SETPCRED */

736 /* Define to 1 if you have the 'setproctitle' function. */
737 /* #undef HAVE_SETPROCTITLE */

739 /* Define to 1 if you have the 'setresgid' function. */
740 /* #undef HAVE_SETRESGID */

742 /* Define to 1 if you have the 'setreuid' function. */
743 #define HAVE_SETREUID 1

745 /* Define to 1 if you have the 'setrlimit' function. */
746 #define HAVE_SETRLIMIT 1

748 /* Define to 1 if you have the 'setsid' function. */
749 #define HAVE_SETSID 1

751 /* Define to 1 if you have the 'setutent' function. */
752 #define HAVE_SETUTENT 1

754 /* Define to 1 if you have the 'setutxent' function. */
755 #define HAVE_SETUTXENT 1

757 /* Define to 1 if you have the 'setvbuf' function. */
758 #define HAVE_SETVBUF 1

760 /* Define to 1 if you have the <shadow.h> header file. */
761 #define HAVE_SHADOW_H 1

763 /* Define to 1 if you have the 'sigaction' function. */
764 #define HAVE_SIGACTION 1

766 /* Define to 1 if you have the 'sigvec' function. */
767 /* #undef HAVE_SIGVEC */

769 /* Define to 1 if the system has the type 'sig_atomic_t'. */
770 #define HAVE_SIG_ATOMIC_T 1

772 /* Define to 1 if you have the 'snprintf' function. */
773 #define HAVE_SNPRINTF 1

775 /* Define to 1 if you have the 'socketpair' function. */
776 #define HAVE_SOCKETPAIR 1

778 /* Define to 1 if you have the <stddef.h> header file. */
779 #define HAVE_STDDEF_H 1

781 /* Define to 1 if you have the <stdint.h> header file. */
782 /* #undef HAVE_STDINT_H */

784 /* Define to 1 if you have the <stdlib.h> header file. */
```

```
#define HAVE_STDLIB_H 1

/* Define to 1 if you have the ‘strerror’ function. */
#define HAVE_STRERROR 1

/* Define to 1 if you have the ‘strftime’ function. */
#define HAVE_STRFTIME 1

/* Define to 1 if you have the <strings.h> header file. */
#define HAVE_STRINGS_H 1

/* Define to 1 if you have the <string.h> header file. */
#define HAVE_STRING_H 1

/* Define to 1 if you have the ‘strlcat’ function. */
#define HAVE_STRLCAT 1

/* Define to 1 if you have the ‘strlcpy’ function. */
#define HAVE_STRLCPY 1

/* Define to 1 if you have the ‘strmode’ function. */
/* #undef HAVE_STRMODE */

/* Define to 1 if ‘st_blksize’ is member of ‘struct stat’. */
#define HAVE_STRUCT_STAT_ST_BLKSIZE 1

/* Define to 1 if you have the ‘sysconf’ function. */
#define HAVE_SYSCONF 1

/* Define to 1 if you have the <sys/bitypes.h> header file. */
/* #undef HAVE_SYS_BITYPES_H */

/* Define to 1 if you have the <sys/bsdtty.h> header file. */
/* #undef HAVE_SYS_BSDTTY_H */

/* Define to 1 if you have the <sys/cdefs.h> header file. */
/* #undef HAVE_SYS_CDEFS_H */


/* Define to 1 if you have the <sys/mman.h> header file. */
#define HAVE_SYS_MMAN_H 1

/* Define to 1 if you have the <sys/select.h> header file. */
#define HAVE_SYS_SELECT_H 1

/* Define to 1 if you have the <sys/stat.h> header file. */
#define HAVE_SYS_STAT_H 1

/* Define to 1 if you have the <sys/stropts.h> header file. */
#define HAVE_SYS_STROPTS_H 1

/* Define to 1 if you have the <sys/sysmacros.h> header file. */
#define HAVE_SYS_SYSMACROS_H 1

/* Define to 1 if you have the <sys/time.h> header file. */
#define HAVE_SYS_TIME_H 1

/* Define to 1 if you have the <sys/types.h> header file. */
#define HAVE_SYS_TYPES_H 1

/* Define to 1 if you have the <sys/un.h> header file. */
#define HAVE_SYS_UN_H 1

/* Define to 1 if you have the ‘tcgetpgrp’ function. */
#define HAVE_TCGETPGRP 1
```



```
/* Define to 1 if you have the ‘time’ function. */
#define HAVE_TIME 1

/* Define to 1 if you have the <time.h> header file. */
#define HAVE_TIME_H 1

/* Define to 1 if you have the <tmpdir.h> header file. */
/* #undef HAVE_TMPDIR_H */

/* Define to 1 if you have the ‘truncate’ function. */
#define HAVE_TRUNCATE 1

/* Define to 1 if you have the <ttyent.h> header file. */
/* #undef HAVE_TTYENT_H */

/* Define to 1 if you have the <ucred.h> header file. */
#define HAVE_UCRED_H 1

/* Define to 1 if you have the <unistd.h> header file. */
#define HAVE_UNISTD_H 1

/* Define to 1 if you have the ‘updwtmp’ function. */
#define HAVE_UPDWTMP 1

/* Define to 1 if you have the <usersec.h> header file. */
/* #undef HAVE_USERSEC_H */

/* Define to 1 if you have the <util.h> header file. */
/* #undef HAVE_UTIL_H */

/* Define to 1 if you have the ‘utimes’ function. */
#define HAVE_UTIMES 1

/* Define to 1 if you have the <utime.h> header file. */
#define HAVE_UTIME_H 1

/* Define to 1 if you have the ‘utmpname’ function. */
#define HAVE_UTMPNAME 1

/* Define to 1 if you have the ‘utmpxname’ function. */
#define HAVE_UTMPXNAME 1

/* Define to 1 if you have the <utmpx.h> header file. */
#define HAVE_UTMPX_H 1

/* Define to 1 if you have the <utmp.h> header file. */
#define HAVE_UTMP_H 1

/* Define to 1 if you have the ‘vasprintf’ function. */
#define HAVE_VASPRINTF 1

/* Define to 1 if you have the ‘vhangup’ function. */
#define HAVE_VHANGUP 1

/* Define to 1 if you have the ‘vsnprintf’ function. */
#define HAVE_VSNPRINTF 1

/* Define to 1 if you have the ‘waitpid’ function. */
#define HAVE_WAITPID 1

/* Define to 1 if you have the ‘_getpty’ function. */
/* #undef HAVE__GETPTY */

/* Define to 1 if you have the ‘__b64_ntop’ function. */
/* #undef HAVE___B64_NTOP */
```

```
 917 /* Define to the address where bug reports for this package should be sent. */
 918 #define PACKAGE_BUGREPORT ""

 920 /* Define to the full name of this package. */
 921 #define PACKAGE_NAME ""

 923 /* Define to the full name and version of this package. */
 924 #define PACKAGE_STRING ""

 926 /* Define to the one symbol short name of this package. */
 927 #define PACKAGE_TARNAME ""

 929 /* Define to the version of this package. */
 930 #define PACKAGE_VERSION ""

 932 /* The size of a 'char', as computed by sizeof. */
 933 #define SIZEOF_CHAR 1

 935 /* The size of a 'int', as computed by sizeof. */
 936 #define SIZEOF_INT 4

 938 /* The size of a 'long int', as computed by sizeof. */
 939 #define SIZEOF_LONG_INT 4

 941 /* The size of a 'long long int', as computed by sizeof. */
 942 #define SIZEOF_LONG_LONG_INT 8

 944 /* The size of a 'short int', as computed by sizeof. */
 945 #define SIZEOF_SHORT_INT 2

 947 /* Define to 1 if you have the ANSI C header files. */
 948 #define STDC_HEADERS 1

 950 /*
 951  * Define to 1 if your processor stores words with the most significant byte
 952  * first (like Motorola and SPARC, unlike Intel and VAX).
 953  */
 954 #define WORDS_BIGENDIAN 1

 956 /* Number of bits in a file offset, on hosts where this is settable. */
 957 #define _FILE_OFFSET_BITS 64

 959 /* Define for large files, on AIX-style hosts. */
 960 /* #undef _LARGE_FILES */

 962 /*
 963  * Define as '__inline' if that's what the C compiler calls it, or to nothing if
 964  * it is not supported.
 965  */
 966 /* #undef inline */

 968 /* type to use in place of socklen_t if not defined */
 969 /* #undef socklen_t */

 971 /* Define for BSM auditing (Solaris) support */
 972 #define HAVE_BSM 1

 974 /* Define if compiling in ON */
 975 #define SUNW_SSH 1

 977 /* ****************** Shouldn't need to edit below this line ************** */

 979 #ifdef __cplusplus
 980 }
```

_____***unchanged_portion_omitted_***

```
**********************************************************
    6311 Mon Sep 30 20:00:45 2013
new/usr/src/head/glob.h
1097 glob(3c) needs to support non-POSIX options
3341 The sftp command should use the native glob()
**********************************************************
```

```
/*
 * CDDL HEADER START
 *
 * The contents of this file are subject to the terms of the
 * Common Development and Distribution License, Version 1.0 only
 * (the "License").  You may not use this file except in compliance
 * with the License.
 *
 * You can obtain a copy of the license at usr/src/OPENSOLARIS.LICENSE
 * or http://www.opensolaris.org/os/licensing.
 * See the License for the specific language governing permissions
 * and limitations under the License.
 *
 * When distributing Covered Code, include this CDDL HEADER in each
 * file and include the License file at usr/src/OPENSOLARIS.LICENSE.
 * If applicable, add the following below this CDDL HEADER, with the
 * fields enclosed by brackets "[]" replaced with your own identifying
 * information: Portions Copyright [yyyy] [name of copyright owner]
 *
 * CDDL HEADER END
 */

/*
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 * Copyright 2003 Sun Microsystems, Inc.  All rights reserved.
 * Use is subject to license terms.
 */

/*
 * Copyright (c) 1989, 1993
 *      The Regents of the University of California.  All rights reserved.
 *
 * This code is derived from software contributed to Berkeley by
 * Guido van Rossum.
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 * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
 * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
 * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
 * OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
 * SUCH DAMAGE.
 *
 *      @(#)glob.h      8.1 (Berkeley) 6/2/93
 */
```



```
#ifndef _GLOB_H
#define _GLOB_H

#pragma ident   "%Z%%M% %I%     %E% SMI"

#include <sys/feature_tests.h>
#include <sys/types.h>
#include <sys/stat.h>
#include <dirent.h>

#ifdef  __cplusplus
extern "C" {
#endif

typedef struct  glob_t  {
        /*
         * Members specified by POSIX
         */
        size_t  gl_pathc;       /* Total count of paths matched by pattern */
        size_t  gl_pathc;               /* Count of paths matched by pattern */
        char    **gl_pathv;     /* List of matched pathnames */
        size_t  gl_offs;        /* # of slots reserved in gl_pathv */

        /*
         * Internal-use members:
         *
         * NB: The next two members are carried in both the
         * libc backward compatibility wrapper functions and
         * the extended functions.
         */
        /* following are internal to the implementation */
        char    **gl_pathp;     /* gl_pathv + gl_offs */
        int     gl_pathn;       /* # of elements allocated */

        /*
         * Non-POSIX extensions
         *
         * NB: The following members are not carried in
         * the libc backward compatibility wrapper functions.
         */
        int     gl_matchc;      /* Count of paths matching pattern. */
        int     gl_flags;       /* Copy of flags parameter to glob. */
        struct  stat **gl_statv; /* Stat entries corresponding to gl_pathv */

        /*
         * Alternate filesystem access methods for glob; replacement
         * versions of closedir(3), readdir(3), opendir(3), stat(2)
         * and lstat(2).
         */
        void (*gl_closedir)(void *);
        struct dirent *(*gl_readdir)(void *);
        void *(*gl_opendir)(const char *);
        int (*gl_lstat)(const char *, struct stat *);
        int (*gl_stat)(const char *, struct stat *);
}       glob_t;

/*
```

```
 120  * POSIX "flags" argument to glob function.
  53  * "flags" argument to glob function.
 121  */
 122 #define GLOB_ERR        0x0001          /* Don't continue on directory error */
 123 #define GLOB_MARK       0x0002          /* Mark directories with trailing / */
 124 #define GLOB_NOSORT     0x0004          /* Don't sort pathnames */
 125 #define GLOB_NOCHECK    0x0008          /* Return unquoted arg if no match */
 126 #define GLOB_DOOFFS     0x0010          /* Ignore gl_offs unless set */
 127 #define GLOB_APPEND     0x0020          /* Append to previous glob_t */
 128 #define GLOB_NOESCAPE   0x0040          /* Backslashes do not quote M-chars */

 130 /*
 131  * Non-POSIX "flags" argument to glob function, from OpenBSD.
 132  */
 133 #if !defined(__XOPEN_OR_POSIX) || defined(__EXTENSIONS__)
 134 #define GLOB_POSIX      0x007F  /* All POSIX flags */
 135 #define GLOB_BRACE      0x0080  /* Expand braces ala csh. */
 136 #define GLOB_MAGCHAR    0x0100  /* Pattern had globbing characters. */
 137 #define GLOB_NOMAGIC    0x0200  /* GLOB_NOCHECK without magic chars (csh). */
 138 #define GLOB_QUOTE      0x0400  /* Quote special chars with \. */
 139 #define GLOB_TILDE      0x0800  /* Expand tilde names from the passwd file. */
 140 #define GLOB_LIMIT      0x2000  /* Limit pattern match output to ARG_MAX */
 141 #define GLOB_KEEPSTAT   0x4000  /* Retain stat data for paths in gl_statv. */
 142 #define GLOB_ALTDIRFUNC 0x8000  /* Use alternately specified directory funcs. */
 143 #endif /* !defined(__XOPEN_OR_POSIX) || defined(__EXTENSIONS__) */

 145 /*
 146  * Error returns from "glob"
 147  */
 148 #define GLOB_NOSYS      (-4)            /* function not supported (XPG4) */
 149 #define GLOB_NOMATCH    (-3)            /* Pattern does not match */
 150 #define GLOB_NOSPACE    (-2)            /* Not enough memory */
 151 #define GLOB_ABORTED    (-1)            /* GLOB_ERR set or errfunc return!=0 */
 152 #define GLOB_ABEND      GLOB_ABORTED    /* backward compatibility */

 154 #ifdef __PRAGMA_REDEFINE_EXTNAME
 155 #pragma redefine_extname        glob    _glob_ext
 156 #pragma redefine_extname        globfree        _globfree_ext
 157 #else /* __PRAGMA_REDEFINE_EXTNAME */
 158 #define glob    _glob_ext
 159 #define globfree        _globfree_ext
 160 #endif /* __PRAGMA_REDEFINE_EXTNAME */

 162 #if defined(__STDC__)

 164 extern int glob(const char *_RESTRICT_KYWD, int, int(*)(const char *, int),
 165                 glob_t *_RESTRICT_KYWD);
 166 extern void globfree(glob_t *);

 168 #else /* __STDC__ */

  75 #else
 170 extern int glob();
 171 extern void globfree();
  78 #endif

 173 #endif /* __STDC__ */

 175 #ifdef  __cplusplus
 176 }
_____unchanged_portion_omitted_
```

```
**********************************************************
   54369 Mon Sep 30 20:00:46 2013
new/usr/src/lib/libc/port/mapfile-vers
1097 glob(3c) needs to support non-POSIX options
3341 The sftp command should use the native glob()
**********************************************************
______unchanged_portion_omitted_



2538 # There should never be more than one SUNWprivate version.
2539 # Don't add any more.  Add new private symbols to SUNWprivate_1.1

2541 SYMBOL_VERSION SUNWprivate_1.1 {
2542     global:
2543         ___Argv                 { FLAGS = NODIRECT };
2544         cfree                   { FLAGS = NODIRECT };
2545         _cswidth;
2546         __ctype_mask;
2547         __environ_lock          { FLAGS = NODIRECT };
2548         __inf_read;
2549         __inf_written;
2550         __i_size;
2551         _isnanf                 { TYPE = FUNCTION; FILTER = libm.so.2 };
2552         __iswrune;
2553         __libc_threaded;
2554         _lib_version            { FLAGS = NODIRECT };
2555         _logb                   { TYPE = FUNCTION; FILTER = libm.so.2 };
2556         _lone                   { FLAGS = NODYNSORT };
2557         _lten                   { FLAGS = NODYNSORT };
2558         _lzero                  { FLAGS = NODYNSORT };
2559         __malloc_lock;
2560         _memcmp;
2561         _memcpy                 { FLAGS = NODYNSORT };
2562         _memmove;
2563         _memset;
2564         _modff                  { TYPE = FUNCTION; FILTER = libm.so.2 };
2565         __nan_read;
2566         __nan_written;
2567         __nextwctype;
2568         __nis_debug_bind;
2569         __nis_debug_calls;
2570         __nis_debug_file;
2571         __nis_debug_rpc;
2572         __nis_prefsrv;
2573         __nis_preftype;
2574         __nis_server;
2575         _nss_default_finders;
2576         __progname              { FLAGS = NODIRECT };
2577         _smbuf;
2578         _sp;
2579         __strdupa_str           { FLAGS = NODIRECT };
2580         __strdupa_len           { FLAGS = NODIRECT };
2581         _tdb_bootstrap;
2582         __threaded;
2583         thr_probe_getfunc_addr;
2584         __trans_lower;
2585         __trans_upper;
2586         _uberdata;
2587         __xpg6                  { FLAGS = NODIRECT };

2589 $if _ELF32
2590         _dladdr                 { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2591         _dladdr1                { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2592         _dlclose                { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2593         _dldump                 { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
```



```
2594         _dlerror                { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2595         _dlinfo                 { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2596         _dlmopen                { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2597         _dlopen                 { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2598         _dlsym                  { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2599         _ld_libc                { TYPE = FUNCTION; FILTER = /usr/lib/ld.so.1 };
2600         _sys_errlist;
2601         _sys_errs;
2602         _sys_index;
2603         _sys_nerr               { FLAGS = NODYNSORT };
2604         _sys_num_err;
2605 $elif sparcv9
2606         _dladdr         { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2607         _dladdr1        { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2608         _dlclose        { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2609         _dldump         { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2610         _dlerror        { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2611         _dlinfo         { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2612         _dlmopen        { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2613         _dlopen         { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2614         _dlsym          { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2615         _ld_libc        { TYPE = FUNCTION; FILTER = /usr/lib/sparcv9/ld.so.1 };
2616 $elif amd64
2617         _dladdr         { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2618         _dladdr1        { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2619         _dlamd64getunwind { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2620         _dlclose        { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2621         _dldump         { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2622         _dlerror        { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2623         _dlinfo         { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2624         _dlmopen        { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2625         _dlopen         { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2626         _dlsym          { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2627         _ld_libc        { TYPE = FUNCTION; FILTER = /usr/lib/amd64/ld.so.1 };
2628 $else
2629 $error unknown platform
2630 $endif

2632 $if _sparc
2633         __lyday_to_month;
2634         __mon_lengths;
2635         __yday_to_month;
2636 $endif
2637 $if i386
2638         _sse_hw;
2639 $endif

2641     protected:
2642         acctctl;
2643         allocids;
2644         _assert_c99;
2645         __assert_c99;
2646         _assfail;
2647         attr_count;
2648         attr_to_data_type;
2649         attr_to_name;
2650         attr_to_option;
2651         attr_to_xattr_view;
2652         _autofssys;
2653         _bufsync;
2654         _cladm;
2655         __class_quadruple;
2656         core_get_default_content;
2657         core_get_default_path;
2658         core_get_global_content;
2659         core_get_global_path;
```

```
2660         core_get_options;
2661         core_get_process_content;
2662         core_get_process_path;
2663         core_set_default_content;
2664         core_set_default_path;
2665         core_set_global_content;
2666         core_set_global_path;
2667         core_set_options;
2668         core_set_process_content;
2669         core_set_process_path;
2670         dbm_close_status;
2671         dbm_do_nextkey;
2672         dbm_setdefwrite;
2673         _D_cplx_div;
2674         _D_cplx_div_ix;
2675         _D_cplx_div_rx;
2676         _D_cplx_mul;
2677         defclose_r;
2678         defcntl;
2679         defcntl_r;
2680         defopen;
2681         defopen_r;
2682         defread;
2683         defread_r;
2684         _delete;
2685         _dgettext;
2686         _doprnt;
2687         _doscan;
2688         _errfp;
2689         _errxfp;
2690         exportfs;
2691         _F_cplx_div;
2692         _F_cplx_div_ix;
2693         _F_cplx_div_rx;
2694         _F_cplx_mul;
2695         __fgetwc_xpg5;
2696         __fgetws_xpg5;
2697         _findbuf;
2698         _findiop;
2699         __fini_daemon_priv;
2700         _finite;
2701         _fork1                  { FLAGS = NODYNSORT };
2702         _forkall                { FLAGS = NODYNSORT };
2703         _fpclass;
2704         _fpgetmask;
2705         _fpgetround;
2706         _fpgetsticky;
2707         _fprintf;
2708         _fpsetmask;
2709         _fpsetround;
2710         _fpsetsticky;
2711         __fputwc_xpg5;
2712         __fputws_xpg5;
2713         _ftw;
2714         _gcvt;
2715         _getarg;
2716         __getcontext;
2717         _getdents;
2718         _get_exit_frame_monitor;
2719         _getfp;
2720         _getgroupsbymember;
2721         _getlogin_r;
2722         _getsp;
2723         __gettsp;
2724         getvmusage;
2725         __getwchar_xpg5;
```



```
2726         __getwc_xpg5;
2727         _glob_ext;
2728         _globfree_ext;
2729         gtty;
2730         __idmap_flush_kcache;
2731         __idmap_reg;
2732         __idmap_unreg;
2733         __init_daemon_priv;
2734         __init_suid_priv;
2735         _insert;
2736         inst_sync;
2737         _iswctype;
2738         klpd_create;
2739         klpd_getpath;
2740         klpd_getport;
2741         klpd_getucred;
2742         klpd_register;
2743         klpd_register_id;
2744         klpd_unregister;
2745         klpd_unregister_id;
2746         _lgrp_home_fast         { FLAGS = NODYNSORT };
2747         _lgrpsys;
2748         _lltostr;
2749         _lock_clear;
2750         _lock_try;
2751         _ltzset;
2752         lwp_self;
2753         makeut;
2754         makeutx;
2755         _mbftowc;
2756         mcfiller;
2757         mntopt;
2758         modctl;
2759         modutx;
2760         msgctl64;
2761         __multi_innetgr;
2762         _mutex_destroy          { FLAGS = NODYNSORT };
2763         mutex_held;
2764         _mutex_init             { FLAGS = NODYNSORT };
2765         _mutex_unlock           { FLAGS = NODYNSORT };
2766         name_to_attr;
2767         nfs_getfh;
2768         nfssvc;
2769         _nfssys;
2770         __nis_get_environment;
2771         _nss_db_state_destr;
2772         nss_default_key2str;
2773         nss_delete;
2774         nss_endent;
2775         nss_getent;
2776         _nss_initf_group;
2777         _nss_initf_netgroup;
2778         _nss_initf_passwd;
2779         _nss_initf_shadow;
2780         nss_packed_arg_init;
2781         nss_packed_context_init;
2782         nss_packed_getkey;
2783         nss_packed_set_status;
2784         nss_search;
2785         nss_setent;
2786         _nss_XbyY_fgets;
2787         __nsw_extended_action_v1;
2788         __nsw_freeconfig_v1;
2789         __nsw_getconfig_v1;
2790         __nthreads;
2791         __openattrdirat;
```

```
2792         option_to_attr;
2793         __priv_bracket;
2794         __priv_relinquish;
2795         pset_assign_forced;
2796         pset_bind_lwp;
2797         _psignal;
2798         _pthread_setcleanupinit;
2799         __putwchar_xpg5;
2800         __putwc_xpg5;
2801         rctlctl;
2802         rctllist;
2803         _realbufend;
2804         _resume;
2805         _resume_ret;
2806         _rpcsys;
2807         _sbrk_grow_aligned;
2808         scrwidth;
2809         semctl64;
2810         _semctl64;
2811         set_setcontext_enforcement;
2812         _setbufend;
2813         __set_errno;
2814         setprojrctl;
2815         _setregid;
2816         _setreuid;
2817         setsigacthandler;
2818         shmctl64;
2819         _shmctl64;
2820         sigflag;
2821         _signal;
2822         _sigoff;
2823         _sigon;
2824         _so_accept;
2825         _so_bind;
2826         _sockconfig;
2827         _so_connect;
2828         _so_getpeername;
2829         _so_getsockname;
2830         _so_getsockopt;
2831         _so_listen;
2832         _so_recv;
2833         _so_recvfrom;
2834         _so_recvmsg;
2835         _so_send;
2836         _so_sendmsg;
2837         _so_sendto;
2838         _so_setsockopt;
2839         _so_shutdown;
2840         _so_socket;
2841         _so_socketpair;
2842         str2group;
2843         str2passwd;
2844         str2spwd;
2845         __strptime_dontzero;
2846         stty;
2847         syscall;
2848         _sysconfig;
2849         __systemcall;
2850         thr_continue_allmutators;
2851         _thr_continue_allmutators;
2852         thr_continue_mutator;
2853         _thr_continue_mutator;
2854         thr_getstate;
2855         _thr_getstate;
2856         thr_mutators_barrier;
2857         _thr_mutators_barrier;
```



```
2858         thr_probe_setup;
2859         _thr_schedctl;
2860         thr_setmutator;
2861         _thr_setmutator;
2862         thr_setstate;
2863         _thr_setstate;
2864         thr_sighndlrinfo;
2865         _thr_sighndlrinfo;
2866         _thr_slot_offset;
2867         thr_suspend_allmutators;
2868         _thr_suspend_allmutators;
2869         thr_suspend_mutator;
2870         _thr_suspend_mutator;
2871         thr_wait_mutator;
2872         _thr_wait_mutator;
2873         __tls_get_addr;
2874         tpool_create;
2875         tpool_dispatch;
2876         tpool_destroy;
2877         tpool_wait;
2878         tpool_suspend;
2879         tpool_suspended;
2880         tpool_resume;
2881         tpool_member;
2882         _ttyname_dev;
2883         _ucred_alloc;
2884         ucred_getamask;
2885         _ucred_getamask;
2886         ucred_getasid;
2887         _ucred_getasid;
2888         ucred_getatid;
2889         _ucred_getatid;
2890         ucred_getauid;
2891         _ucred_getauid;
2892         _ulltostr;
2893         _uncached_getgrgid_r;
2894         _uncached_getgrnam_r;
2895         _uncached_getpwnam_r;
2896         _uncached_getpwuid_r;
2897         __ungetwc_xpg5;
2898         _unordered;
2899         utssys;
2900         _verrfp;
2901         _verrxfp;
2902         _vwarnfp;
2903         _vwarnxfp;
2904         _warnfp;
2905         _warnxfp;
2906         __wcsftime_xpg5;
2907         __wcstok_xpg5;
2908         wdbindf;
2909         wdchkind;
2910         wddelim;
2911         _wrtchk;
2912         _xflsbuf;
2913         _xgetwidth;
2914         zone_add_datalink;
2915         zone_boot;
2916         zone_check_datalink;
2917         zone_create;
2918         zone_destroy;
2919         zone_enter;
2920         zone_getattr;
2921         zone_get_id;
2922         zone_list;
2923         zone_list_datalink;
```

```
2924         zonept;
2925         zone_remove_datalink;
2926         zone_setattr;
2927         zone_shutdown;
2928         zone_version;

2930 $if _ELF32
2931         __divdi3;
2932         _file_set;
2933         _fprintf_c89;
2934         _fscanf_c89;
2935         _fwprintf_c89;
2936         _fwscanf_c89;
2937         _imaxabs_c89;
2938         _imaxdiv_c89;
2939         __moddi3;
2940         _printf_c89;
2941         _scanf_c89;
2942         _snprintf_c89;
2943         _sprintf_c89;
2944         _sscanf_c89;
2945         _strtoimax_c89;
2946         _strtoumax_c89;
2947         _swprintf_c89;
2948         _swscanf_c89;
2949         __udivdi3;
2950         __umoddi3;
2951         _vfprintf_c89;
2952         _vfscanf_c89;
2953         _vfwprintf_c89;
2954         _vfwscanf_c89;
2955         _vprintf_c89;
2956         _vscanf_c89;
2957         _vsnprintf_c89;
2958         _vsprintf_c89;
2959         _vsscanf_c89;
2960         _vswprintf_c89;
2961         _vswscanf_c89;
2962         _vwprintf_c89;
2963         _vwscanf_c89;
2964         _wcstoimax_c89;
2965         _wcstoumax_c89;
2966         _wprintf_c89;
2967         _wscanf_c89;
2968 $endif

2970 $if _sparc
2971         _cerror;
2972         install_utrap;
2973         _install_utrap;
2974         nop;
2975         _Q_cplx_div;
2976         _Q_cplx_div_ix;
2977         _Q_cplx_div_rx;
2978         _Q_cplx_lr_div;
2979         _Q_cplx_lr_div_ix;
2980         _Q_cplx_lr_div_rx;
2981         _Q_cplx_lr_mul;
2982         _Q_cplx_mul;
2983         _QgetRD;
2984         _xregs_clrptr;
2985 $endif

2987 $if sparc32
2988         __ashldi3;
2989         __ashrdi3;
```



```
2990         _cerror64;
2991         __cmpdi2;
2992         __floatdidf;
2993         __floatdisf;
2994         __floatundidf;
2995         __floatundisf;
2996         __lshrdi3;
2997         __muldi3;
2998         __ucmpdi2;
2999 $endif

3001 $if _x86
3002         _D_cplx_lr_div;
3003         _D_cplx_lr_div_ix;
3004         _D_cplx_lr_div_rx;
3005         _F_cplx_lr_div;
3006         _F_cplx_lr_div_ix;
3007         _F_cplx_lr_div_rx;
3008         __fltrounds;
3009         sysi86;
3010         _sysi86;
3011         _X_cplx_div;
3012         _X_cplx_div_ix;
3013         _X_cplx_div_rx;
3014         _X_cplx_lr_div;
3015         _X_cplx_lr_div_ix;
3016         _X_cplx_lr_div_rx;
3017         _X_cplx_mul;
3018         __xgetRD;
3019         __xtol;
3020         __xtoll;
3021         __xtoul;
3022         __xtoull;
3023 $endif

3025 $if i386
3026         __divrem64;
3027         ___tls_get_addr;
3028         __udivrem64;
3029 $endif

3031 # The following functions should not be exported from libc,
3032 # but /lib/libm.so.2, some older versions of the Studio
3033 # compiler/debugger components, and some ancient programs
3034 # found in /usr/dist reference them.  When we no longer
3035 # care about these old and broken binary objects, these
3036 # symbols should be deleted.
3037         _brk                                    { FLAGS = NODYNSORT };
3038         _cond_broadcast                         { FLAGS = NODYNSORT };
3039         _cond_init                              { FLAGS = NODYNSORT };
3040         _cond_signal                            { FLAGS = NODYNSORT };
3041         _cond_wait                              { FLAGS = NODYNSORT };
3042         _ecvt                                   { FLAGS = NODYNSORT };
3043         _fcvt                                   { FLAGS = NODYNSORT };
3044         _getc_unlocked                          { FLAGS = NODYNSORT };
3045         _llseek                                 { FLAGS = NODYNSORT };
3046         _pthread_attr_getdetachstate            { FLAGS = NODYNSORT };
3047         _pthread_attr_getinheritsched           { FLAGS = NODYNSORT };
3048         _pthread_attr_getschedparam             { FLAGS = NODYNSORT };
3049         _pthread_attr_getschedpolicy            { FLAGS = NODYNSORT };
3050         _pthread_attr_getscope                  { FLAGS = NODYNSORT };
3051         _pthread_attr_getstackaddr              { FLAGS = NODYNSORT };
3052         _pthread_attr_getstacksize              { FLAGS = NODYNSORT };
3053         _pthread_attr_init                      { FLAGS = NODYNSORT };
3054         _pthread_condattr_getpshared            { FLAGS = NODYNSORT };
3055         _pthread_condattr_init                  { FLAGS = NODYNSORT };
```

```
3056         _pthread_cond_init                     { FLAGS = NODYNSORT };
3057         _pthread_create                        { FLAGS = NODYNSORT };
3058         _pthread_getschedparam                 { FLAGS = NODYNSORT };
3059         _pthread_join                          { FLAGS = NODYNSORT };
3060         _pthread_key_create                    { FLAGS = NODYNSORT };
3061         _pthread_mutexattr_getprioceiling      { FLAGS = NODYNSORT };
3062         _pthread_mutexattr_getprotocol         { FLAGS = NODYNSORT };
3063         _pthread_mutexattr_getpshared          { FLAGS = NODYNSORT };
3064         _pthread_mutexattr_init                { FLAGS = NODYNSORT };
3065         _pthread_mutex_getprioceiling          { FLAGS = NODYNSORT };
3066         _pthread_mutex_init                    { FLAGS = NODYNSORT };
3067         _pthread_sigmask                       { FLAGS = NODYNSORT };
3068         _rwlock_init                           { FLAGS = NODYNSORT };
3069         _rw_rdlock                             { FLAGS = NODYNSORT };
3070         _rw_unlock                             { FLAGS = NODYNSORT };
3071         _rw_wrlock                             { FLAGS = NODYNSORT };
3072         _sbrk_unlocked                         { FLAGS = NODYNSORT };
3073         _select                                { FLAGS = NODYNSORT };
3074         _sema_init                             { FLAGS = NODYNSORT };
3075         _sema_post                             { FLAGS = NODYNSORT };
3076         _sema_trywait                          { FLAGS = NODYNSORT };
3077         _sema_wait                             { FLAGS = NODYNSORT };
3078         _sysfs                                 { FLAGS = NODYNSORT };
3079         _thr_create                            { FLAGS = NODYNSORT };
3080         _thr_exit                              { FLAGS = NODYNSORT };
3081         _thr_getprio                           { FLAGS = NODYNSORT };
3082         _thr_getspecific                       { FLAGS = NODYNSORT };
3083         _thr_join                              { FLAGS = NODYNSORT };
3084         _thr_keycreate                         { FLAGS = NODYNSORT };
3085         _thr_kill                              { FLAGS = NODYNSORT };
3086         _thr_main                              { FLAGS = NODYNSORT };
3087         _thr_self                              { FLAGS = NODYNSORT };
3088         _thr_setspecific                       { FLAGS = NODYNSORT };
3089         _thr_sigsetmask                        { FLAGS = NODYNSORT };
3090         _thr_stksegment                        { FLAGS = NODYNSORT };
3091         _ungetc_unlocked                       { FLAGS = NODYNSORT };

3093     local:
3094         __imax_lldiv                           { FLAGS = NODYNSORT };
3095         _ti_thr_self                           { FLAGS = NODYNSORT };
3096         *;

3098 $if lf64
3099         _seekdir64              { FLAGS = NODYNSORT };
3100         _telldir64              { FLAGS = NODYNSORT };
3101 $endif

3103 $if _sparc
3104         __cerror                { FLAGS = NODYNSORT };
3105 $endif

3107 $if sparc32
3108         __cerror64              { FLAGS = NODYNSORT };
3109 $endif

3111 $if sparcv9
3112         __cleanup               { FLAGS = NODYNSORT };
3113 $endif

3115 $if i386
3116         _syscall6               { FLAGS = NODYNSORT };
3117         __systemcall6           { FLAGS = NODYNSORT };
3118 $endif

3120 $if amd64
3121         ___tls_get_addr         { FLAGS = NODYNSORT };
```



```
3122 $endif
3123 };
```

_____***unchanged_portion_omitted_***

```
**********************************************************
   33021 Mon Sep 30 20:00:46 2013
new/usr/src/lib/libc/port/regex/glob.c
1097 glob(3c) needs to support non-POSIX options
3341 The sftp command should use the native glob()
**********************************************************
```

```
/*
 * Copyright (c) 2013 Gary Mills
 */
/*      $OpenBSD: glob.c,v 1.39 2012/01/20 07:09:42 tedu Exp $ */
/*
 * Copyright (c) 1989, 1993
 *      The Regents of the University of California.  All rights reserved.
 * CDDL HEADER START
 *
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 *
 * CDDL HEADER END
 */

/*
 * glob(3) -- a superset of the one defined in POSIX 1003.2.
 * Copyright 2008 Sun Microsystems, Inc.  All rights reserved.
 * Use is subject to license terms.
 */

/*
 * This code is MKS code ported to Solaris originally with minimum
 * modifications so that upgrades from MKS would readily integrate.
```



```
 * The MKS basis for this modification was:
 *
 * The [!...] convention to negate a range is supported (SysV, Posix, ksh).
 *      $Id: glob.c 1.31 1994/04/07 22:50:43 mark
 *
 * Optional extra services, controlled by flags not defined by POSIX:
 * Additional modifications have been made to this code to make it
 * 64-bit clean.
 */

/*
 * glob, globfree -- POSIX.2 compatible file name expansion routines.
 *
 * GLOB_QUOTE:
 *      Escaping convention: \ inhibits any special meaning the following
 *      character might have (except \ at end of string is retained).
 * GLOB_MAGCHAR:
 *      Set in gl_flags if pattern contained a globbing character.
 * GLOB_NOMAGIC:
 *      Same as GLOB_NOCHECK, but it will only append pattern if it did
 *      not contain any magic characters.  [Used in csh style globbing]
 * GLOB_ALTDIRFUNC:
 *      Use alternately specified directory access functions.
 * GLOB_TILDE:
 *      expand ~user/foo to the /home/dir/of/user/foo
 * GLOB_BRACE:
 *      expand {1,2}{a,b} to 1a 1b 2a 2b
 * gl_matchc:
 *      Number of matches in the current invocation of glob.
 * Copyright 1985, 1991 by Mortice Kern Systems Inc.  All rights reserved.
 *
 * Written by Eric Gisin.
 */

#include "lint.h"
#pragma ident   "%Z%%M% %I%     %E% SMI"

#include <sys/param.h>
#include <sys/stat.h>
#pragma weak _glob = glob
#pragma weak _globfree = globfree

#include <ctype.h>
#include <dirent.h>
#include <errno.h>
#include <glob.h>
#include <limits.h>
#include <pwd.h>
#include "lint.h"
#include <stdio.h>
#include <unistd.h>
#include <limits.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <wchar.h>
#include <wctype.h>
#include <dirent.h>
#include <sys/stat.h>
#include <glob.h>
#include <errno.h>
#include <fnmatch.h>

/*
 * This is the legacy glob_t prior to illumos enhancement 1097,
 * used when old programs call the old libc glob functions.
```

```
 83  * (New programs call the _glob_ext, _globfree_ext functions.)
 84  * This struct should be considered "carved in stone".
 85  */
 86 typedef struct  old_glob_t      {
 87         size_t  gl_pathc;               /* Count of paths matched by pattern */
 88         char    **gl_pathv;             /* List of matched pathnames */
 89         size_t  gl_offs;                /* # of slots reserved in gl_pathv */
 90         /* following are internal to the implementation */
 91         char    **gl_pathp;             /* gl_pathv + gl_offs */
 92         int     gl_pathn;               /* # of elements allocated */
 93 }       old_glob_t;
 63 #define GLOB__CHECK     0x80    /* stat generated paths */

 95 /*
 96  * For old programs, the external names need to be the old names:
 97  * glob() and globfree() .  We've redefined those already to
 98  *  _glob_ext() and _globfree_ext() .  Now redefine old_glob()
 99  * and old_globfree() to glob() and globfree() .
100  */
101 #ifdef __PRAGMA_REDEFINE_EXTNAME
102 #pragma redefine_extname        old_glob        glob
103 #pragma redefine_extname        old_globfree    globfree
104 #endif /* __PRAGMA_REDEFINE_EXTNAME */

106 #define DOLLAR          '$'
107 #define DOT             '.'
108 #define EOS             '\0'
109 #define LBRACKET        '['
110 #define NOT             '!'
111 #define QUESTION        '?'
112 #define QUOTE           '\\'
113 #define RANGE           '-'
114 #define RBRACKET        ']'
115 #define SEP             '/'
116 #define STAR            '*'
117 #define TILDE           '~'
118 #define UNDERSCORE      '_'
119 #define LBRACE          '{'
120 #define RBRACE          '}'
121 #define SLASH           '/'
122 #define COMMA           ','
123 #define COLON           ':'

125 #define M_QUOTE         0x800000
126 #define M_PROTECT       0x400000

128 typedef struct wcat {
129         wchar_t w_wc;
130         uint_t w_at;
131 } wcat_t;

133 #define M_ALL           '*'     /* Plus M_QUOTE */
134 #define M_END           ']'     /* Plus M_QUOTE */
135 #define M_NOT           '!'     /* Plus M_QUOTE */
136 #define M_ONE           '?'     /* Plus M_QUOTE */
137 #define M_RNG           '-'     /* Plus M_QUOTE */
138 #define M_SET           '['     /* Plus M_QUOTE */
139 #define M_CLASS         ':'     /* Plus M_QUOTE */
140 #define ismeta(c)       (((c).w_at&M_QUOTE) != 0)

142 #define INITIAL                 8       /* initial pathv allocation */
 66 #define NULLCPP ((char **)0)    /* Null char ** */
 67 #define NAME_MAX        1024    /* something large */

144 #define GLOB_LIMIT_MALLOC       65536
145 #define GLOB_LIMIT_STAT         2048
```



```
146 #define GLOB_LIMIT_READDIR      16384
 69 static int      globit(size_t, const char *, glob_t *, int,
 70         int (*)(const char *, int), char **);
 71 static int      pstrcmp(const void *, const void *);
 72 static int      append(glob_t *, const char *);

148 /* Limit of recursion during matching attempts. */
149 #define GLOB_LIMIT_RECUR        64
 74 /*
 75  * Free all space consumed by glob.
 76  */
 77 void
 78 globfree(glob_t *gp)
 79 {
 80         size_t i;

151 struct glob_lim {
152         size_t  glim_malloc;
153         size_t  glim_stat;
154         size_t  glim_readdir;
155 };
 82         if (gp->gl_pathv == 0)
 83                 return;

157 struct glob_path_stat {
158         char            *gps_path;
159         struct stat     *gps_stat;
160 };
 85         for (i = gp->gl_offs; i < gp->gl_offs + gp->gl_pathc; ++i)
 86                 free(gp->gl_pathv[i]);
 87         free((void *)gp->gl_pathv);

162 static int       compare(const void *, const void *);
163 static int       compare_gps(const void *, const void *);
164 static int       g_Ctoc(const wcat_t *, char *, uint_t);
165 static int       g_lstat(wcat_t *, struct stat *, glob_t *);
166 static DIR      *g_opendir(wcat_t *, glob_t *);
167 static wcat_t   *g_strchr(const wcat_t *, wchar_t);
168 static int       g_stat(wcat_t *, struct stat *, glob_t *);
169 static int       glob0(const wcat_t *, glob_t *, struct glob_lim *,
170                        int (*)(const char *, int));
171 static int       glob1(wcat_t *, wcat_t *, glob_t *, struct glob_lim *,
172                        int (*)(const char *, int));
173 static int       glob2(wcat_t *, wcat_t *, wcat_t *, wcat_t *, wcat_t *,
174                        wcat_t *, glob_t *, struct glob_lim *,
175                        int (*)(const char *, int));
176 static int       glob3(wcat_t *, wcat_t *, wcat_t *, wcat_t *, wcat_t *,
177                        wcat_t *, wcat_t *, glob_t *, struct glob_lim *,
178                        int (*)(const char *, int));
179 static int       globextend(const wcat_t *, glob_t *, struct glob_lim *,
180                           struct stat *);
181 static
182 const wcat_t    *globtilde(const wcat_t *, wcat_t *, size_t, glob_t *);
183 static int       globexp1(const wcat_t *, glob_t *, struct glob_lim *,
184                           int (*)(const char *, int));
185 static int       globexp2(const wcat_t *, const wcat_t *, glob_t *,
186                           struct glob_lim *, int (*)(const char *, int));
187 static int       match(wcat_t *, wcat_t *, wcat_t *, int);

189 static void
190 qprintf(wcat_t *p)
191 {
192         (void) p;       /* dtrace, debugger... */
 89         gp->gl_pathc = 0;
 90         gp->gl_pathv = NULLCPP;
193 }
```

```
/*
 * Extended glob() function, selected by #pragma redefine_extname
 * in glob.h with the external name _glob_ext() .
 * Do filename expansion.
 */
int
_glob_ext(const char *pattern, int flags, int (*errfunc)(const char *, int),
    glob_t *pglob)
glob(const char *pattern, int flags,
        int (*errfn)(const char *, int), glob_t *gp)
{
        const char *patnext;
        int n;
        size_t patlen;
        wchar_t c;
        wcat_t *bufnext, *bufend, patbuf[MAXPATHLEN];
        struct glob_lim limit = { 0, 0, 0 };
        int rv;
        size_t i;
        size_t ipathc;
        char    *path;

        if ((patlen = strnlen(pattern, PATH_MAX)) == PATH_MAX)
                return (GLOB_NOMATCH);
        if ((flags & GLOB_DOOFFS) == 0)
                gp->gl_offs = 0;

        patnext = pattern;
        if (!(flags & GLOB_APPEND)) {
                pglob->gl_pathc = 0;
                pglob->gl_pathn = 0;
                pglob->gl_pathv = NULL;
                if ((flags & GLOB_KEEPSTAT) != 0)
                        pglob->gl_statv = NULL;
                if (!(flags & GLOB_DOOFFS))
                        pglob->gl_offs = 0;
        }
        pglob->gl_flags = flags & ~GLOB_MAGCHAR;
        pglob->gl_matchc = 0;
                gp->gl_pathc = 0;
                gp->gl_pathn = gp->gl_offs + INITIAL;
                gp->gl_pathv = (char **)malloc(sizeof (char *) * gp->gl_pathn);

        if (pglob->gl_offs >= INT_MAX || pglob->gl_pathc >= INT_MAX ||
            pglob->gl_pathc >= INT_MAX - pglob->gl_offs - 1)
                if (gp->gl_pathv == NULLCPP)
                return (GLOB_NOSPACE);
                gp->gl_pathp = gp->gl_pathv + gp->gl_offs;

        bufnext = patbuf;
        bufend = bufnext + MAXPATHLEN - 1;
        patlen += 1;
        if (flags & GLOB_NOESCAPE) {
                while (bufnext < bufend) {
                        if ((n = mbtowc(&c, patnext, patlen)) > 0) {
                                patnext += n;
                                patlen -= n;
                                bufnext->w_at = 0;
                                (bufnext++)->w_wc = c;
                        } else if (n == 0) {
                                break;
                        } else {
                                return (GLOB_NOMATCH);
                for (i = 0; i < gp->gl_offs; ++i)
                        gp->gl_pathv[i] = NULL;
```



```
                        }
                }
        } else {
                /* Protect the quoted characters. */
                while (bufnext < bufend) {
                        if ((n = mbtowc(&c, patnext, patlen)) > 0) {
                                patnext += n;
                                patlen -= n;
                                if (c == QUOTE) {
                                        n = mbtowc(&c, patnext, patlen);
                                        if (n < 0)
                                                return (GLOB_NOMATCH);
                                        if (n > 0) {
                                                patnext += n;
                                                patlen -= n;
                                        }
                                        if (n == 0)
                                                c = QUOTE;
                                        bufnext->w_at = M_PROTECT;
                                        (bufnext++)->w_wc = c;
                                } else {
                                        bufnext->w_at = 0;
                                        (bufnext++)->w_wc = c;
                                }
                        } else if (n == 0) {
                                break;
                        } else {
                                return (GLOB_NOMATCH);
                        }
                }
        }
        bufnext->w_at = 0;
        bufnext->w_wc = EOS;

        if (flags & GLOB_BRACE)
                return (globexp1(patbuf, pglob, &limit, errfunc));
        else
                return (glob0(patbuf, pglob, &limit, errfunc));
}
        if ((path = malloc(strlen(pattern)+1)) == NULL)
                return (GLOB_NOSPACE);

/*
 * Expand recursively a glob {} pattern. When there is no more expansion
 * invoke the standard globbing routine to glob the rest of the magic
 * characters
 */
static int
globexp1(const wcat_t *pattern, glob_t *pglob, struct glob_lim *limitp,
    int (*errfunc)(const char *, int))
{
        const wcat_t *ptr = pattern;
        ipathc = gp->gl_pathc;
        rv = globit(0, pattern, gp, flags, errfn, &path);

        /* Protect a single {}, for find(1), like csh */
        if (pattern[0].w_wc == LBRACE && pattern[1].w_wc == RBRACE &&
            pattern[2].w_wc == EOS)
                return (glob0(pattern, pglob, limitp, errfunc));

        if ((ptr = (const wcat_t *) g_strchr(ptr, LBRACE)) != NULL)
                return (globexp2(ptr, pattern, pglob, limitp, errfunc));

        return (glob0(pattern, pglob, limitp, errfunc));
}
```

```
/*
 * Recursive brace globbing helper. Tries to expand a single brace.
 * If it succeeds then it invokes globexp1 with the new pattern.
 * If it fails then it tries to glob the rest of the pattern and returns.
 */
static int
globexp2(const wcat_t *ptr, const wcat_t *pattern, glob_t *pglob,
    struct glob_lim *limitp, int (*errfunc)(const char *, int))
{
        int     i, rv;
        wcat_t   *lm, *ls;
        const wcat_t *pe, *pm, *pl;
        wcat_t    patbuf[MAXPATHLEN];

        /* copy part up to the brace */
        for (lm = patbuf, pm = pattern; pm != ptr; *lm++ = *pm++)
                ;
        lm->w_at = 0;
        lm->w_wc = EOS;
        ls = lm;

        /* Find the balanced brace */
        for (i = 0, pe = ++ptr; pe->w_wc != EOS; pe++)
                if (pe->w_wc == LBRACKET) {
                        /* Ignore everything between [] */
                        for (pm = pe++; pe->w_wc != RBRACKET &&
                            pe->w_wc != EOS; pe++)
                                ;
                        if (pe->w_wc == EOS) {
        if (rv == GLOB_ABORTED) {
                                /*
                                 * We could not find a matching RBRACKET.
                                 * Ignore and just look for RBRACE
                 * User's error function returned non-zero, or GLOB_ERR was
                 * set, and we encountered a directory we couldn't search.
                                 */
                                pe = pm;
                free(path);
                return (GLOB_ABORTED);
                        }
                } else if (pe->w_wc == LBRACE) {
                        i++;
                } else if (pe->w_wc == RBRACE) {
                        if (i == 0)
                                break;
                        i--;
                }

        /* Non matching braces; just glob the pattern */
        if (i != 0 || pe->w_wc == EOS)
                return (glob0(patbuf, pglob, limitp, errfunc));

        for (i = 0, pl = pm = ptr; pm <= pe; pm++) {
                switch (pm->w_wc) {
                case LBRACKET:
                        /* Ignore everything between [] */
                        for (pl = pm++; pm->w_wc != RBRACKET && pm->w_wc != EOS;
                            pm++)
                                ;
                        if (pm->w_wc == EOS) {
                                /*
                                 * We could not find a matching RBRACKET.
                                 * Ignore and just look for RBRACE
                                 */
                                pm = pl;
```



```
        i = gp->gl_pathc - ipathc;
        if (i >= 1 && !(flags & GLOB_NOSORT)) {
                qsort((char *)(gp->gl_pathp+ipathc), i, sizeof (char *),
                    pstrcmp);
                        }
                        break;

                case LBRACE:
                        i++;
                        break;

                case RBRACE:
                        if (i) {
                                i--;
                                break;
        if (i == 0) {
                if (flags & GLOB_NOCHECK)
                        (void) append(gp, pattern);
                else
                        rv = GLOB_NOMATCH;
                        }
                        /* FALLTHROUGH */
                case COMMA:
                        if (i && pm->w_wc == COMMA)
                                break;
                        else {
                                /* Append the current string */
                                for (lm = ls; (pl < pm); *lm++ = *pl++)
                                        ;
        gp->gl_pathp[gp->gl_pathc] = NULL;
        free(path);

                                /*
                                 * Append the rest of the pattern after the
                                 * closing brace
                                 */
                                for (pl = pe + 1;
                                    (*lm++ = *pl++).w_wc != EOS; /* */)
                                        ;

                                /* Expand the current pattern */
                                rv = globexp1(patbuf, pglob, limitp, errfunc);
                                if (rv && rv != GLOB_NOMATCH)
                                        return (rv);

                                /* move after the comma, to the next string */
                                pl = pm + 1;
                        }
                        break;

                default:
                        break;
                }
        }
        return (0);
}



/*
 * expand tilde from the passwd file.
 * Recursive routine to match glob pattern, and walk directories.
 */
static const wcat_t *
globtilde(const wcat_t *pattern, wcat_t *patbuf, size_t patbuf_len,
    glob_t *pglob)
```

```
157 int
158 globit(size_t dend, const char *sp, glob_t *gp, int flags,
159         int (*errfn)(const char *, int), char **path)
421 {
422         struct passwd *pwd;
423         char *h;
424         const wcat_t *p;
425         wcat_t *b, *eb, *q;
426         int n;
427         size_t lenh;
428         wchar_t c;
161         size_t n;
162         size_t m;
163         ssize_t end = 0;        /* end of expanded directory */
164         char *pat = (char *)sp; /* pattern component */
165         char *dp = (*path) + dend;
166         int expand = 0;         /* path has pattern */
167         char *cp;
168         struct stat64 sb;
169         DIR *dirp;
170         struct dirent64 *d;
171         int err;

430         if (pattern->w_wc != TILDE || !(pglob->gl_flags & GLOB_TILDE))
431                 return (pattern);

433         /* Copy up to the end of the string or / */
434         eb = &patbuf[patbuf_len - 1];
435         for (p = pattern + 1, q = patbuf;
436             q < eb && p->w_wc != EOS && p->w_wc != SLASH; *q++ = *p++)
437                 ;

439         q->w_at = 0;
440         q->w_wc = EOS;

442         /* What to do if patbuf is full? */

444         if (patbuf[0].w_wc == EOS) {
445                 /*
446                  * handle a plain ~ or ~/ by expanding $HOME
447                  * first and then trying the password file
448                  */
449                 if (issetugid() != 0)
450                         return (pattern);
451                 if ((h = getenv("HOME")) == NULL) {
452                         if ((pwd = getpwuid(getuid())) == NULL)
453                                 return (pattern);
454                         else
455                                 h = pwd->pw_dir;
456                 }
457         } else {
458                 /*
459                  * Expand a ~user
460                  */
461                 if ((pwd = getpwnam((char *)patbuf)) == NULL)
462                         return (pattern);
463                 else
464                         h = pwd->pw_dir;
465         }

467         /* Copy the home directory */
468         lenh = strlen(h) + 1;
469         for (b = patbuf; b < eb && *h != EOS; b++) {
470                 if ((n = mbtowc(&c, h, lenh)) > 0) {
471                         h += n;
472                         lenh -= n;
```



```
473                         b->w_at = 0;
474                         b->w_wc = c;
475                 } else if (n < 0) {
476                         return (pattern);
477                 } else {
478                         break;
479                 }
480         }

482         /* Append the rest of the pattern */
483         while (b < eb && (*b++ = *p++).w_wc != EOS)
484                 ;
485         b->w_at = 0;
486         b->w_wc = EOS;

488         return (patbuf);
489 }

491 static int
492 g_charclass(const wcat_t **patternp, wcat_t **bufnextp)
493 {
494         const wcat_t *pattern = *patternp + 1;
495         wcat_t *bufnext = *bufnextp;
496         const wcat_t *colon;
497         char cbuf[MB_LEN_MAX + 32];
498         wctype_t cc;
499         size_t len;

501         if ((colon = g_strchr(pattern, COLON)) == NULL ||
502             colon[1].w_wc != RBRACKET)
503                 return (1);     /* not a character class */

505         len = (size_t)(colon - pattern);
506         if (len + MB_LEN_MAX + 1 > sizeof (cbuf))
507                 return (-1);    /* invalid character class */
508         {
509                 wchar_t w;
510                 const wcat_t *s1 = pattern;
511                 char *s2 = cbuf;
512                 size_t n = len;

514                 /* Copy the string. */
515                 while (n > 0) {
516                         w = (s1++)->w_wc;
517                         /* Character class names must be ASCII. */
518                         if (iswascii(w)) {
519                                 n--;
520                                 *s2++ = w;
521                         } else {
522                                 return (-1);    /* invalid character class */
523                         }
524                 }
525                 *s2 = EOS;
526         }
527         if ((cc = wctype(cbuf)) == 0)
528                 return (-1);    /* invalid character class */
529         bufnext->w_at = M_QUOTE;
530         (bufnext++)->w_wc = M_CLASS;
531         bufnext->w_at = 0;
532         (bufnext++)->w_wc = cc;
533         *bufnextp = bufnext;
534         *patternp += len + 3;

173         for (;;)
174                 switch (*dp++ = *(unsigned char *)sp++) {
175                 case '\0':      /* end of source path */
```

```
176                         if (expand)
177                                 goto Expand;
178                         else {
179                                 if (!(flags & GLOB_NOCHECK) ||
180                                     flags & (GLOB__CHECK|GLOB_MARK))
181                                         if (stat64(*path, &sb) < 0) {
536         return (0);
537 }

539 /*
540  * The main glob() routine: compiles the pattern (optionally processing
541  * quotes), calls glob1() to do the real pattern matching, and finally
542  * sorts the list (unless unsorted operation is requested).  Returns 0
543  * if things went well, nonzero if errors occurred.  It is not an error
544  * to find no matches.
545  */
546 static int
547 glob0(const wcat_t *pattern, glob_t *pglob, struct glob_lim *limitp,
548     int (*errfunc)(const char *, int))
549 {
550         const wcat_t *qpatnext;
551         int err, oldpathc;
552         wchar_t c;
553         int a;
554         wcat_t *bufnext, patbuf[MAXPATHLEN];

556         qpatnext = globtilde(pattern, patbuf, MAXPATHLEN, pglob);
557         oldpathc = pglob->gl_pathc;
558         bufnext = patbuf;

560         /*
561          * We don't need to check for buffer overflow any more.
562          * The pattern has already been copied to an internal buffer.
563          */
564         while ((a = qpatnext->w_at), (c = (qpatnext++)->w_wc) != EOS) {
565                 switch (c) {
566                 case LBRACKET:
567                         if (a != 0) {
568                                 bufnext->w_at = a;
569                                 (bufnext++)->w_wc = c;
570                                 break;
571                         }
572                         a = qpatnext->w_at;
573                         c = qpatnext->w_wc;
574                         if (a == 0 && c == NOT)
575                                 ++qpatnext;
576                         if (qpatnext->w_wc == EOS ||
577                             g_strchr(qpatnext+1, RBRACKET) == NULL) {
578                                 bufnext->w_at = 0;
579                                 (bufnext++)->w_wc = LBRACKET;
580                                 if (a == 0 && c == NOT)
581                                         --qpatnext;
582                                 break;
184                                 if (flags & GLOB_MARK && S_ISDIR(sb.st_mode)) {
185                                         *dp = '\0';
186                                         *--dp = '/';
583                         }
584                         bufnext->w_at = M_QUOTE;
585                         (bufnext++)->w_wc = M_SET;
586                         if (a == 0 && c == NOT) {
587                                 bufnext->w_at = M_QUOTE;
588                                 (bufnext++)->w_wc = M_NOT;
589                         }
590                         a = qpatnext->w_at;
591                         c = (qpatnext++)->w_wc;
592                         do {
```



```
593                                 if (a == 0 && c == LBRACKET &&
594                                     qpatnext->w_wc == COLON) {
595                                         do {
596                                                 err = g_charclass(&qpatnext,
597                                                     &bufnext);
598                                                 if (err)
599                                                         break;
600                                                 a = qpatnext->w_at;
601                                                 c = (qpatnext++)->w_wc;
602                                         } while (a == 0 && c == LBRACKET &&
603                                             qpatnext->w_wc == COLON);
604                                         if (err == -1 &&
605                                             !(pglob->gl_flags & GLOB_NOCHECK))
606                                                 return (GLOB_NOMATCH);
607                                         if (a == 0 && c == RBRACKET)
608                                                 break;
609                                 }
610                                 bufnext->w_at = a;
611                                 (bufnext++)->w_wc = c;
612                                 if (qpatnext->w_at == 0 &&
613                                     qpatnext->w_wc == RANGE) {
614                                         a = qpatnext[1].w_at;
615                                         c = qpatnext[1].w_wc;
616                                         if (qpatnext[1].w_at != 0 ||
617                                             qpatnext[1].w_wc != RBRACKET) {
618                                                 bufnext->w_at = M_QUOTE;
619                                                 (bufnext++)->w_wc = M_RNG;
620                                                 bufnext->w_at = a;
621                                                 (bufnext++)->w_wc = c;
622                                                 qpatnext += 2;
623                                         }
624                                 }
625                                 a = qpatnext->w_at;
626                                 c = (qpatnext++)->w_wc;
627                         } while (a != 0 || c != RBRACKET);
628                         pglob->gl_flags |= GLOB_MAGCHAR;
629                         bufnext->w_at = M_QUOTE;
630                         (bufnext++)->w_wc = M_END;
631                         break;
632                 case QUESTION:
633                         if (a != 0) {
634                                 bufnext->w_at = a;
635                                 (bufnext++)->w_wc = c;
636                                 break;
637                         }
638                         pglob->gl_flags |= GLOB_MAGCHAR;
639                         bufnext->w_at = M_QUOTE;
640                         (bufnext++)->w_wc = M_ONE;
641                         break;
642                 case STAR:
643                         if (a != 0) {
644                                 bufnext->w_at = a;
645                                 (bufnext++)->w_wc = c;
646                                 break;
647                         }
648                         pglob->gl_flags |= GLOB_MAGCHAR;
649                         /*
650                          * collapse adjacent stars to one,
651                          * to avoid exponential behavior
652                          */
653                         if (bufnext == patbuf ||
654                             bufnext[-1].w_at != M_QUOTE ||
655                             bufnext[-1].w_wc != M_ALL) {
656                                 bufnext->w_at = M_QUOTE;
657                                 (bufnext++)->w_wc = M_ALL;
658                         }
```

```
659                         break;
660                 default:
661                         bufnext->w_at = a;
662                         (bufnext++)->w_wc = c;
663                         break;
664                 }
665         }
666         bufnext->w_at = 0;
667         bufnext->w_wc = EOS;
668         qprintf(patbuf);

670         if ((err = glob1(patbuf, patbuf+MAXPATHLEN-1, pglob, limitp, errfunc))
671             != 0)
672                 return (err);

674         /*
675          * If there was no match we are going to append the pattern
676          * if GLOB_NOCHECK was specified or if GLOB_NOMAGIC was specified
677          * and the pattern did not contain any magic characters
678          * GLOB_NOMAGIC is there just for compatibility with csh.
679          */
680         if (pglob->gl_pathc == oldpathc) {
681                 if ((pglob->gl_flags & GLOB_NOCHECK) ||
682                     ((pglob->gl_flags & GLOB_NOMAGIC) &&
683                     !(pglob->gl_flags & GLOB_MAGCHAR)))
684                         return (globextend(pattern, pglob, limitp, NULL));
685                 else
686                         return (GLOB_NOMATCH);
687         }
688         if (!(pglob->gl_flags & GLOB_NOSORT)) {
689                 if ((pglob->gl_flags & GLOB_KEEPSTAT)) {
690                         /* Keep the paths and stat info synced during sort */
691                         struct glob_path_stat *path_stat;
692                         int i;
693                         int n = pglob->gl_pathc - oldpathc;
694                         int o = pglob->gl_offs + oldpathc;

696                         if ((path_stat = calloc(n, sizeof (*path_stat))) ==
697                             NULL)
188                                 if (append(gp, *path) < 0) {
698                                 return (GLOB_NOSPACE);
699                         for (i = 0; i < n; i++) {
700                                 path_stat[i].gps_path = pglob->gl_pathv[o + i];
701                                 path_stat[i].gps_stat = pglob->gl_statv[o + i];
702                         }
703                         qsort(path_stat, n, sizeof (*path_stat), compare_gps);
704                         for (i = 0; i < n; i++) {
705                                 pglob->gl_pathv[o + i] = path_stat[i].gps_path;
706                                 pglob->gl_statv[o + i] = path_stat[i].gps_stat;
707                         }
708                         free(path_stat);
709                 } else {
710                         qsort(pglob->gl_pathv + pglob->gl_offs + oldpathc,
711                             pglob->gl_pathc - oldpathc, sizeof (char *),
712                             compare);
713                 }
714         }
715         return (0);
716 }
192                         }
193                         /*NOTREACHED*/

718 static int
719 compare(const void *p, const void *q)
720 {
721         return (strcmp(*(char **)p, *(char **)q));
```



```
722 }
195                 case '*':
196                 case '?':
197                 case '[':
198                 case '\\':
199                         ++expand;
200                         break;

724 static int
725 compare_gps(const void *_p, const void *_q)
726 {
727         const struct glob_path_stat *p = (const struct glob_path_stat *)_p;
728         const struct glob_path_stat *q = (const struct glob_path_stat *)_q;
202                 case '/':
203                         if (expand)
204                                 goto Expand;
205                         end = dp - *path;
206                         pat = (char *)sp;
207                         break;

730         return (strcmp(p->gps_path, q->gps_path));
731 }

733 static int
734 glob1(wcat_t *pattern, wcat_t *pattern_last, glob_t *pglob,
735     struct glob_lim *limitp, int (*errfunc)(const char *, int))
736 {
737         wcat_t pathbuf[MAXPATHLEN];

739         /* A null pathname is invalid -- POSIX 1003.1 sect. 2.4. */
740         if (pattern->w_wc == EOS)
741                 return (0);
742         return (glob2(pathbuf, pathbuf+MAXPATHLEN-1,
743             pathbuf, pathbuf+MAXPATHLEN-1,
744             pattern, pattern_last, pglob, limitp, errfunc));
745 }

747 /*
748  * The functions glob2 and glob3 are mutually recursive; there is one level
749  * of recursion for each segment in the pattern that contains one or more
750  * meta characters.
751  */
752 static int
753 glob2(wcat_t *pathbuf, wcat_t *pathbuf_last, wcat_t *pathend,
754     wcat_t *pathend_last, wcat_t *pattern, wcat_t *pattern_last,
755     glob_t *pglob, struct glob_lim *limitp, int (*errfunc)(const char *, int))
756 {
757         struct stat sb;
758         wcat_t *p, *q;
759         int anymeta;

761         /*
762          * Loop over pattern segments until end of pattern or until
763          * segment with meta character found.
764          */
765         for (anymeta = 0; ; ) {
766                 if (pattern->w_wc == EOS) {             /* End of pattern? */
767                         pathend->w_at = 0;
768                         pathend->w_wc = EOS;

770                         if ((pglob->gl_flags & GLOB_LIMIT) &&
771                             limitp->glim_stat++ >= GLOB_LIMIT_STAT) {
772                                 errno = 0;
773                                 pathend->w_at = 0;
774                                 (pathend++)->w_wc = SEP;
775                                 pathend->w_at = 0;
```

```
776                             pathend->w_wc = EOS;
777                             return (GLOB_NOSPACE);
209             Expand:
210                     /* determine directory and open it */
211                     (*path)[end] = '\0';
212                     dirp = opendir(**path == '\0' ? "." : *path);
213                     if (dirp == NULL) {
214                             if (errfn != 0 && errfn(*path, errno) != 0 ||
215                                 flags&GLOB_ERR) {
216                                     return (GLOB_ABORTED);
778                     }
779                     if (g_lstat(pathbuf, &sb, pglob))
780                             return (0);

782                     if (((pglob->gl_flags & GLOB_MARK) &&
783                         (pathend[-1].w_at != 0 ||
784                         pathend[-1].w_wc != SEP)) &&
785                         (S_ISDIR(sb.st_mode) ||
786                         (S_ISLNK(sb.st_mode) &&
787                         (g_stat(pathbuf, &sb, pglob) == 0) &&
788                         S_ISDIR(sb.st_mode)))) {
789                             if (pathend+1 > pathend_last)
790                                     return (GLOB_NOSPACE);
791                             pathend->w_at = 0;
792                             (pathend++)->w_wc = SEP;
793                             pathend->w_at = 0;
794                             pathend->w_wc = EOS;
795                     }
796                     ++pglob->gl_matchc;
797                     return (globextend(pathbuf, pglob, limitp, &sb));
798             }

800             /* Find end of next segment, copy tentatively to pathend. */
801             q = pathend;
802             p = pattern;
803             while (p->w_wc != EOS && p->w_wc != SEP) {
804                     if (ismeta(*p))
805                             anymeta = 1;
806                     if (q+1 > pathend_last)
221                     /* extract pattern component */
222                     n = sp - pat;
223                     if ((cp = malloc(n)) == NULL) {
224                             (void) closedir(dirp);
807                             return (GLOB_NOSPACE);
808                     *q++ = *p++;
809             }
227                     pat = memcpy(cp, pat, n);
228                     pat[n-1] = '\0';
229                     if (*--sp != '\0')
230                             flags |= GLOB__CHECK;

811             if (!anymeta) {         /* No expansion, do next segment. */
812                     pathend = q;
813                     pattern = p;
814                     while (pattern->w_wc == SEP) {
815                             if (pathend+1 > pathend_last)
232                     /* expand path to max. expansion */
233                     n = dp - *path;
234                     *path = realloc(*path,
235                         strlen(*path) + NAME_MAX + strlen(sp) + 1);
236                     if (*path == NULL) {
237                             (void) closedir(dirp);
238                             free(pat);
816                                     return (GLOB_NOSPACE);
817                             *pathend++ = *pattern++;
818                     }
```



```
819                 } else  {
820                         /* Need expansion, recurse. */
821                         return (glob3(pathbuf, pathbuf_last, pathend,
822                             pathend_last, pattern, p, pattern_last,
823                             pglob, limitp, errfunc));
824                 }
825         }
826         /* NOTREACHED */
827 }
241                         dp = (*path) + n;

829 static int
830 glob3(wcat_t *pathbuf, wcat_t *pathbuf_last, wcat_t *pathend,
831     wcat_t *pathend_last, wcat_t *pattern, wcat_t *restpattern,
832     wcat_t *restpattern_last, glob_t *pglob, struct glob_lim *limitp,
833     int (*errfunc)(const char *, int))
834 {
835         struct dirent *dp;
836         DIR *dirp;
837         int err;
838         char buf[MAXPATHLEN];

840         /*
841          * The readdirfunc declaration can't be prototyped, because it is
842          * assigned, below, to two functions which are prototyped in glob.h
843          * and dirent.h as taking pointers to differently typed opaque
844          * structures.
845          */
846         struct dirent *(*readdirfunc)(void *);

848         if (pathend > pathend_last)
849                 return (GLOB_NOSPACE);
850         pathend->w_at = 0;
851         pathend->w_wc = EOS;
852         errno = 0;

854         if ((dirp = g_opendir(pathbuf, pglob)) == NULL) {
855                 /* TODO: don't call for ENOENT or ENOTDIR? */
856                 if (errfunc) {
857                         if (g_Ctoc(pathbuf, buf, sizeof (buf)))
858                                 return (GLOB_ABORTED);
859                         if (errfunc(buf, errno) ||
860                             pglob->gl_flags & GLOB_ERR)
861                                 return (GLOB_ABORTED);
862                 }
863                 return (0);
864         }

243                         /* read directory and match entries */
866         err = 0;

868         /* Search directory for matching names. */
869         if (pglob->gl_flags & GLOB_ALTDIRFUNC)
870                 readdirfunc = pglob->gl_readdir;
871         else
872                 readdirfunc = (struct dirent *(*)(void *))readdir;
873         while ((dp = (*readdirfunc)(dirp))) {
874                 char *sc;
875                 wcat_t *dc;
876                 int n;
877                 int lensc;
878                 wchar_t w;

880                 if ((pglob->gl_flags & GLOB_LIMIT) &&
881                     limitp->glim_readdir++ >= GLOB_LIMIT_READDIR) {
882                         errno = 0;
```

```
883                         pathend->w_at = 0;
884                         (pathend++)->w_wc = SEP;
885                         pathend->w_at = 0;
886                         pathend->w_wc = EOS;
887                         err = GLOB_NOSPACE;
888                         break;
889                 }

891                 /* Initial DOT must be matched literally. */
892                 if (dp->d_name[0] == DOT && pattern->w_wc != DOT)
245                         while ((d = readdir64(dirp)) != NULL) {
246                                 cp = d->d_name;
247                                 if ((flags&GLOB_NOESCAPE)
248                                     ? fnmatch(pat, cp, FNM_PERIOD|FNM_NOESCAPE)
249                                     : fnmatch(pat, cp, FNM_PERIOD))
893                         continue;
894                 dc = pathend;
895                 sc = dp->d_name;
896                 lensc = strlen(sc) + 1;
897                 while (dc < pathend_last) {
898                         if ((n = mbtowc(&w, sc, lensc)) <= 0) {
899                                 sc += 1;
900                                 lensc -= 1;
901                                 dc->w_at = 0;
902                                 dc->w_wc = EOS;
903                         } else {
904                                 sc += n;
905                                 lensc -= n;
906                                 dc->w_at = 0;
907                                 dc->w_wc = w;
908                         }
909                         dc++;
910                         if (n <= 0)
911                                 break;
912                 }
913                 if (dc >= pathend_last) {
914                         dc->w_at = 0;
915                         dc->w_wc = EOS;
916                         err = GLOB_NOSPACE;
917                         break;
918                 }
919                 if (n < 0) {
920                         err = GLOB_NOMATCH;
921                         break;
922                 }

924                 if (!match(pathend, pattern, restpattern, GLOB_LIMIT_RECUR)) {
925                         pathend->w_at = 0;
926                         pathend->w_wc = EOS;
927                         continue;
928                 }
929                 err = glob2(pathbuf, pathbuf_last, --dc, pathend_last,
930                     restpattern, restpattern_last, pglob, limitp,
931                     errfunc);
932                 if (err)
252                         n = strlen(cp);
253                         (void) memcpy((*path) + end, cp, n);
254                         m = dp - *path;
255                         err = globit(end+n, sp, gp, flags, errfn, path);
256                         dp = (*path) + m;   /* globit can move path */
257                         if (err != 0)
933                         break;
934         }

936         if (pglob->gl_flags & GLOB_ALTDIRFUNC)
937                 (*pglob->gl_closedir)(dirp);
```



```
938         else
939                 (void) closedir(dirp);
262                         free(pat);
940         return (err);
941 }


944 /*
945  * Extend the gl_pathv member of a glob_t structure to accommodate a new item,
946  * add the new item, and update gl_pathc.  Avoids excessive reallocation
947  * by doubling the number of elements each time.  Uses gl_pathn to contain
948  * the number.
949  *
950  * Return 0 if new item added, error code if memory couldn't be allocated.
951  *
952  * Invariant of the glob_t structure:
953  *      Either gl_pathc is zero and gl_pathv is NULL; or gl_pathc > 0 and
954  *      gl_pathv points to (gl_offs + gl_pathc + 1) items.
955  */
956 static int
957 globextend(const wcat_t *path, glob_t *pglob, struct glob_lim *limitp,
958     struct stat *sb)
959 {
960         char **pathv;
961         ssize_t i;
962         size_t allocn, newn, len;
963         char *copy = NULL;
964         const wcat_t *p;
965         struct stat **statv;
966         char junk[MB_LEN_MAX];
967         int n;

969         allocn = pglob->gl_pathn;
970         newn = 2 + pglob->gl_pathc + pglob->gl_offs;

972         if (newn <= allocn) {
973                 pathv = pglob->gl_pathv;
974                 if ((pglob->gl_flags & GLOB_KEEPSTAT) != 0)
975                         statv = pglob->gl_statv;
976         } else {
977                 if (allocn == 0)
978                         allocn = pglob->gl_offs + INITIAL;
979                 allocn *= 2;
980                 if (pglob->gl_offs >= INT_MAX ||
981                     pglob->gl_pathc >= INT_MAX ||
982                     allocn >= INT_MAX ||
983                     SIZE_MAX / sizeof (*pathv) <= allocn ||
984                     SIZE_MAX / sizeof (*statv) <= allocn) {
985                 nospace:
986                         for (i = pglob->gl_offs; i < (ssize_t)(newn - 2);
987                             i++) {
988                                 if (pglob->gl_pathv && pglob->gl_pathv[i])
989                                         free(pglob->gl_pathv[i]);
990                                 if ((pglob->gl_flags & GLOB_KEEPSTAT) != 0 &&
991                                     pglob->gl_statv && pglob->gl_statv[i])
992                                         free(pglob->gl_statv[i]);
993                         }
994                         if (pglob->gl_pathv) {
995                                 free(pglob->gl_pathv);
996                                 pglob->gl_pathv = NULL;
997                         }
998                         if ((pglob->gl_flags & GLOB_KEEPSTAT) != 0 &&
999                             pglob->gl_statv) {
1000                                free(pglob->gl_statv);
1001                                pglob->gl_statv = NULL;
1002                        }
```

```
1003                        return (GLOB_NOSPACE);
1004                }
1005                limitp->glim_malloc += allocn * sizeof (*pathv);
1006                pathv = realloc(pglob->gl_pathv, allocn * sizeof (*pathv));
1007                if (pathv == NULL)
1008                        goto nospace;
1009                if ((pglob->gl_flags & GLOB_KEEPSTAT) != 0) {
1010                        limitp->glim_malloc += allocn * sizeof (*statv);
1011                        statv = realloc(pglob->gl_statv,
1012                            allocn * sizeof (*statv));
1013                        if (statv == NULL)
1014                                goto nospace;
1015                }
1016        }
1017        pglob->gl_pathn = allocn;

1019        if (pglob->gl_pathv == NULL && pglob->gl_offs > 0) {
1020                /* first time around -- clear initial gl_offs items */
1021                pathv += pglob->gl_offs;
1022                for (i = pglob->gl_offs; --i >= 0; )
1023                        *--pathv = NULL;
1024        }
1025        pglob->gl_pathv = pathv;

1027        if ((pglob->gl_flags & GLOB_KEEPSTAT) != 0) {
1028                if (pglob->gl_statv == NULL && pglob->gl_offs > 0) {
1029                        /* first time around -- clear initial gl_offs items */
1030                        statv += pglob->gl_offs;
1031                        for (i = pglob->gl_offs; --i >= 0; )
1032                                *--statv = NULL;
1033                }
1034                pglob->gl_statv = statv;
1035                if (sb == NULL)
1036                        statv[pglob->gl_offs + pglob->gl_pathc] = NULL;
1037                else {
1038                        limitp->glim_malloc += sizeof (**statv);
1039                        if ((statv[pglob->gl_offs + pglob->gl_pathc] =
1040                            malloc(sizeof (**statv))) == NULL)
1041                                goto copy_error;
1042                        (void) memcpy(statv[pglob->gl_offs + pglob->gl_pathc],
1043                            sb, sizeof (*sb));
1044                }
1045                statv[pglob->gl_offs + pglob->gl_pathc + 1] = NULL;
1046        }

1048        len = MB_LEN_MAX;
1049        p = path;
1050        while ((n = wctomb(junk, p->w_wc)) > 0) {
1051                len += n;
1052                if ((p++)->w_wc == EOS)
1053                        break;
1054        }
1055        if (n < 0)
1056                return (GLOB_NOMATCH);

1058        limitp->glim_malloc += len;
1059        if ((copy = malloc(len)) != NULL) {
1060                if (g_Ctoc(path, copy, len)) {
1061                        free(copy);
1062                        return (GLOB_NOSPACE);
1063                }
1064                pathv[pglob->gl_offs + pglob->gl_pathc++] = copy;
1065        }
1066        pathv[pglob->gl_offs + pglob->gl_pathc] = NULL;

1068        if ((pglob->gl_flags & GLOB_LIMIT) &&
```



```
1069                limitp->glim_malloc >= GLOB_LIMIT_MALLOC) {
1070                    errno = 0;
1071                    return (GLOB_NOSPACE);
1072            }
1073            copy_error:
1074            return (copy == NULL ? GLOB_NOSPACE : 0);
 265                    /* NOTREACHED */
1075 }


1078 /*
1079  * pattern matching function for filenames.  Each occurrence of the *
1080  * pattern causes a recursion level.
 269  * Comparison routine for two name arguments, called by qsort.
1081  */
1082 static int
1083 match(wcat_t *name, wcat_t *pat, wcat_t *patend, int recur)
 271 int
 272 pstrcmp(const void *npp1, const void *npp2)
1084 {
1085            int ok, negate_range;
1086            wcat_t c, k;

1088            if (recur-- == 0)
1089                    return (1);

1091            while (pat < patend) {
1092                    c = *pat++;
1093                    switch (c.w_wc) {
1094                    case M_ALL:
1095                            if (c.w_at != M_QUOTE) {
1096                                    k = *name++;
1097                                    if (k.w_at != c.w_at || k.w_wc != c.w_wc)
1098                                            return (0);
1099                                    break;
1100                            }
1101                            while (pat < patend && pat->w_at == M_QUOTE &&
1102                                pat->w_wc == M_ALL)
1103                                    pat++;  /* eat consecutive '*' */
1104                            if (pat == patend)
1105                                    return (1);
1106                            do {
1107                                    if (match(name, pat, patend, recur))
1108                                            return (1);
1109                            } while ((name++)->w_wc != EOS);
1110                            return (0);
1111                    case M_ONE:
1112                            if (c.w_at != M_QUOTE) {
1113                                    k = *name++;
1114                                    if (k.w_at != c.w_at || k.w_wc != c.w_wc)
1115                                            return (0);
1116                                    break;
1117                            }
1118                            if ((name++)->w_wc == EOS)
1119                                    return (0);
1120                            break;
1121                    case M_SET:
1122                            if (c.w_at != M_QUOTE) {
1123                                    k = *name++;
1124                                    if (k.w_at != c.w_at || k.w_wc != c.w_wc)
1125                                            return (0);
1126                                    break;
1127                            }
1128                            ok = 0;
1129                            if ((k = *name++).w_wc == EOS)
1130                                    return (0);
```

```
                        if ((negate_range = (pat->w_at == M_QUOTE &&
                            pat->w_wc == M_NOT)) != 0)
                                ++pat;
                        while (((c = *pat++).w_at != M_QUOTE) ||
                            c.w_wc != M_END) {
                                if (c.w_at == M_QUOTE && c.w_wc == M_CLASS) {
                                        wcat_t cc;

                                        cc.w_at = pat->w_at;
                                        cc.w_wc = pat->w_wc;
                                        if (iswctype(k.w_wc, cc.w_wc))
                                                ok = 1;
                                        ++pat;
                                }
                                if (pat->w_at == M_QUOTE &&
                                    pat->w_wc == M_RNG) {
                                        if (c.w_wc <= k.w_wc &&
                                            k.w_wc <= pat[1].w_wc)
                                                ok = 1;
                                        pat += 2;
                                } else if (c.w_wc == k.w_wc)
                                        ok = 1;
                        }
                        if (ok == negate_range)
                                return (0);
                        break;
                default:
                        k = *name++;
                        if (k.w_at != c.w_at || k.w_wc != c.w_wc)
                                return (0);
                        break;
                }
        }
        return (name->w_wc == EOS);
        return (strcoll(*(char **)npp1, *(char **)npp2));
}

/*
 * Extended globfree() function, selected by #pragma redefine_extname
 * in glob.h with the external name _globfree_ext() .
 * Add a new matched filename to the glob_t structure, increasing the
 * size of that array, as required.
 */
void
_globfree_ext(glob_t *pglob)
int
append(glob_t *gp, const char *str)
{
        int i;
        char **pp;
        char *cp;

        if (pglob->gl_pathv != NULL) {
                pp = pglob->gl_pathv + pglob->gl_offs;
                for (i = pglob->gl_pathc; i--; ++pp)
                        if (*pp)
                                free(*pp);
                free(pglob->gl_pathv);
                pglob->gl_pathv = NULL;
        }
        if ((pglob->gl_flags & GLOB_KEEPSTAT) != 0 &&
            pglob->gl_statv != NULL) {
                for (i = 0; i < pglob->gl_pathc; i++) {
                        if (pglob->gl_statv[i] != NULL)
                                free(pglob->gl_statv[i]);
                }
```



```
                free(pglob->gl_statv);
                pglob->gl_statv = NULL;
        }
}
        if ((cp = malloc(strlen(str)+1)) == NULL)
                return (GLOB_NOSPACE);
        gp->gl_pathp[gp->gl_pathc++] = strcpy(cp, str);

static DIR *
g_opendir(wcat_t *str, glob_t *pglob)
{
        char buf[MAXPATHLEN];

        if (str->w_wc == EOS)
                (void) strlcpy(buf, ".", sizeof (buf));
        else {
                if (g_Ctoc(str, buf, sizeof (buf)))
                        return (NULL);
        if ((gp->gl_pathc + gp->gl_offs) >= gp->gl_pathn) {
                gp->gl_pathn *= 2;
                gp->gl_pathv = (char **)realloc((void *)gp->gl_pathv,
                    gp->gl_pathn * sizeof (char *));
                if (gp->gl_pathv == NULLCPP)
                        return (GLOB_NOSPACE);
                gp->gl_pathp = gp->gl_pathv + gp->gl_offs;
        }

        if (pglob->gl_flags & GLOB_ALTDIRFUNC)
                return ((*pglob->gl_opendir)(buf));

        return (opendir(buf));
}

static int
g_lstat(wcat_t *fn, struct stat *sb, glob_t *pglob)
{
        char buf[MAXPATHLEN];

        if (g_Ctoc(fn, buf, sizeof (buf)))
                return (-1);
        if (pglob->gl_flags & GLOB_ALTDIRFUNC)
                return ((*pglob->gl_lstat)(buf, sb));
        return (lstat(buf, sb));
}

static int
g_stat(wcat_t *fn, struct stat *sb, glob_t *pglob)
{
        char buf[MAXPATHLEN];

        if (g_Ctoc(fn, buf, sizeof (buf)))
                return (-1);
        if (pglob->gl_flags & GLOB_ALTDIRFUNC)
                return ((*pglob->gl_stat)(buf, sb));
        return (stat(buf, sb));
}

static wcat_t *
g_strchr(const wcat_t *str, wchar_t ch)
{
        do {
                if (str->w_at == 0 && str->w_wc == ch)
                        return ((wcat_t *)str);
        } while ((str++)->w_wc != EOS);
        return (NULL);
}
```

```
1248 static int
1249 g_Ctoc(const wcat_t *str, char *buf, uint_t len)
1250 {
1251         int n;
1252         wchar_t w;

1254         while (len >= MB_LEN_MAX) {
1255                 w = (str++)->w_wc;
1256                 if ((n = wctomb(buf, w)) > 0) {
1257                         len -= n;
1258                         buf += n;
1259                 }
1260                 if (n < 0)
1261                         break;
1262                 if (w == EOS)
1263                         return (0);
1264         }
1265         return (1);
1266 }

1268 /* glob() function with legacy glob structure */
1269 int
1270 old_glob(const char *pattern, int flags, int (*errfunc)(const char *, int),
1271     old_glob_t *pglob)
1272 {

1274         glob_t gl;
1275         int rv;

1277         flags &= GLOB_POSIX;

1279         (void) memset(&gl, 0, sizeof (gl));

1281         /*
1282          * Copy all the members, old to new.  There's
1283          * really no point in micro-optimizing the copying.
1284          * Other members are set to zero.
1285          */
1286         gl.gl_pathc = pglob->gl_pathc;
1287         gl.gl_pathv = pglob->gl_pathv;
1288         gl.gl_offs = pglob->gl_offs;
1289         gl.gl_pathp = pglob->gl_pathp;
1290         gl.gl_pathn = pglob->gl_pathn;

1292         rv = _glob_ext(pattern, flags, errfunc, &gl);

1294         /*
1295          * Copy all the members, new to old.  There's
1296          * really no point in micro-optimizing the copying.
1297          */
1298         pglob->gl_pathc = gl.gl_pathc;
1299         pglob->gl_pathv = gl.gl_pathv;
1300         pglob->gl_offs = gl.gl_offs;
1301         pglob->gl_pathp = gl.gl_pathp;
1302         pglob->gl_pathn = gl.gl_pathn;

1304         return (rv);
1305 }

1307 /* globfree() function with legacy glob structure */
1308 void
1309 old_globfree(old_glob_t *pglob)
1310 {
1311         glob_t gl;
```



```
1313         (void) memset(&gl, 0, sizeof (gl));

1315         /*
1316          * Copy all the members, old to new.  There's
1317          * really no point in micro-optimizing the copying.
1318          * Other members are set to zero.
1319          */
1320         gl.gl_pathc = pglob->gl_pathc;
1321         gl.gl_pathv = pglob->gl_pathv;
1322         gl.gl_offs = pglob->gl_offs;
1323         gl.gl_pathp = pglob->gl_pathp;
1324         gl.gl_pathn = pglob->gl_pathn;

1326         _globfree_ext(&gl);

1328         /*
1329          * Copy all the members, new to old.  There's
1330          * really no point in micro-optimizing the copying.
1331          */
1332         pglob->gl_pathc = gl.gl_pathc;
1333         pglob->gl_pathv = gl.gl_pathv;
1334         pglob->gl_offs = gl.gl_offs;
1335         pglob->gl_pathp = gl.gl_pathp;
1336         pglob->gl_pathn = gl.gl_pathn;

1338 }

1340 /* End */
```

```
**********************************************************
   17719 Mon Sep 30 20:00:47 2013
new/usr/src/man/man3c/glob.3c
1097 glob(3c) needs to support non-POSIX options
3341 The sftp command should use the native glob()
**********************************************************
'\" te
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.\"
.\" $OpenBSD: glob.3,v 1.30 2012/01/20 07:09:42 tedu Exp $
.\"
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.TH GLOB 3C "Nov 1, 2003"
.SH NAME
glob, globfree \- generate path names matching a pattern
.SH SYNOPSIS
.LP
.nf
#include <glob.h>

\fBint\fR \fBglob\fR(\fBconst char *restrict\fR \fIpattern\fR, \fBint\fR \fIflag
     \fBint(*\fR\fIerrfunc\fR)(const char *\fIepath\fR, int \fIeerrno)\fR,
     \fBglob_t *restrict\fR \fIpglob\fR);
.fi

.LP
.nf
\fBvoid\fR \fBglobfree\fR(\fBglob_t *\fR\fIpglob\fR);
```



```
.fi

.SH DESCRIPTION
.sp
.LP
The \fBglob()\fR function is a path name generator.
.sp
.LP
The \fBglobfree()\fR function frees any memory allocated by \fBglob()\fR
associated with \fIpglob\fR.
.SS "\fIpattern\fR Argument"
.sp
.LP
The argument \fIpattern\fR is a pointer to a path name pattern to be expanded.
The \fBglob()\fR function matches all accessible path names against this
pattern and develops a list of all path names that match. In order to have
access to a path name, \fBglob()\fR requires search permission on every
component of a path except the last, and read permission on each directory of
any filename component of \fIpattern\fR that contains any of the following
special characters:
.sp
.in +2
.nf
*        ?        [
.fi
.in -2

.SS "\fIpglob\fR Argument"
.sp
.LP
The structure type \fBglob_t\fR is defined in the header \fB<glob.h>\fR and
includes at least the following members:
.sp
.in +2
.nf
size_t   gl_pathc;     /* Total count of paths matched by */
size_t   gl_pathc;     /* count of paths matched by */
                       /* pattern */
char     **gl_pathv;   /* List of matched path names */
size_t   gl_offs;      /* # of slots reserved in gl_pathv */
int      gl_matchc;    /* Count of paths matching pattern. */
int      gl_flags;     /* Copy of flags parameter to glob. */
char     **gl_pathv;   /* pointer to list of matched */
                       /* path names */
size_t   gl_offs;      /* slots to reserve at beginning */
                       /* of gl_pathv */
.fi
.in -2

.sp
.LP
The \fBglob()\fR function stores the number of matched path names into
\fIpglob\(mi>\fR\fBgl_pathc\fR and a pointer to a list of pointers to path
names into \fIpglob\(mi>\fR\fBgl_pathv.\fR The path names are in sort order as
defined by the current setting of the  \fBLC_COLLATE\fR category. The first
pointer after the last path name is a \fINULL\fR pointer. If the pattern does
not match any path names, the returned number of matched paths is set to 0, and
the contents of \fIpglob\(mi>\fR\fBgl_pathv\fR are implementation-dependent.
.sp
.LP
It is the caller's responsibility to create the structure pointed to by
\fIpglob\fR. The \fBglob()\fR function allocates other space as needed,
including the memory pointed to by \fBgl_pathv\fR. The \fBglobfree()\fR
function frees any space associated with \fIpglob\fR from a previous call to
\fBglob()\fR.
.SS "\fIflags\fR Argument"
```

```
121 .sp
122 .LP
123 The \fIflags\fR argument is used to control the behavior of \fBglob()\fR. The
124 value of \fIflags\fR is a bitwise inclusive \fBOR\fR of zero or more of the
125 following constants, which are defined in the header <\fBglob.h\fR>:
126 .sp
127 .ne 2
128 .na
129 \fB\fBGLOB_APPEND\fR\fR
130 .ad
131 .RS 17n
132 Append path names generated to the ones from a previous call to \fBglob()\fR.
133 .RE

135 .sp
136 .ne 2
137 .na
138 \fB\fBGLOB_DOOFFS\fR\fR
139 .ad
140 .RS 17n
141 Make use of \fIpglob\(mi>\fR\fBgl_offs\fR\fI\&.\fR If this flag is set,
142 \fIpglob\(mi>\fR\fBgl_offs\fR is used to specify how many \fINULL\fR pointers
143 to add to the beginning of \fIpglob\(mi>\fR\fBgl_pathv\fR\fI\&.\fR In other
144 words, \fIpglob\(mi>\fR\fBgl_pathv\fR will point to
145 \fIpglob\(mi>\fR\fBgl_offs\fR \fINULL\fR pointers, followed by
146 \fIpglob\(mi>\fR\fBgl_pathc\fR path name pointers, followed by a \fINULL\fR
147 pointer.
148 .RE

150 .sp
151 .ne 2
152 .na
153 \fB\fBGLOB_ERR\fR\fR
154 .ad
155 .RS 17n
156 Causes \fBglob()\fR to return when it encounters a directory that it cannot
157 open or read. Ordinarily, \fBglob()\fR continues to find matches.
158 .RE

160 .sp
161 .ne 2
162 .na
163 \fB\fBGLOB_MARK\fR\fR
164 .ad
165 .RS 17n
166 Each path name that is a directory that matches \fIpattern\fR has a slash
167 appended.
168 .RE

170 .sp
171 .ne 2
172 .na
173 \fB\fBGLOB_NOCHECK\fR\fR
174 .ad
175 .RS 17n
176 If \fIpattern\fR does not match any path name, then \fBglob()\fR returns a list
177 consisting of only \fIpattern\fR, and the number of matched path names is 1.
178 .RE

180 .sp
181 .ne 2
182 .na
183 \fB\fBGLOB_NOESCAPE\fR\fR
184 .ad
185 .RS 17n
186 Disable backslash escaping.
```



```
187 .RE

189 .sp
190 .ne 2
191 .na
192 \fB\fBGLOB_NOSORT\fR\fR
193 .ad
194 .RS 17n
195 Ordinarily, \fBglob()\fR sorts the matching path names according to the current
196 setting of the \fBLC_COLLATE\fR category.  When this flag is used the order of
197 path names returned is unspecified.
198 .RE

200 .sp
201 .ne 2
202 .na
203 \fB\fBGLOB_ALTDIRFUNC\fR\fR
204 .ad
205 .RS 17n
206 The following additional fields in the \fIpglob\fR structure
207 have been initialized with alternate functions for
208 \fBglob()\fR to use to open, read, and close directories and
209 to get stat information on names found in those directories:
210 .sp
211 .nf
212 void *(*gl_opendir)(const char *);
213 struct dirent *(*gl_readdir)(void *);
214 void (*gl_closedir)(void *);
215 int (*gl_lstat)(const char *, struct stat *);
216 int (*gl_stat)(const char *, struct stat *);
217 .fi
218 .sp
219 This extension is provided to allow programs such as
220 \fBufsrestore\fR(1M) to provide globbing from directories stored
221 on tape.
222 .RE

224 .sp
225 .ne 2
226 .na
227 \fB\fBGLOB_BRACE\fR\fR
228 .ad
229 .RS 17n
230 Pre-process the pattern string to expand `{pat,pat,...}'
231 strings like \fBcsh\fR(1).  The pattern `{}' is left unexpanded
232 for historical reasons.  (\fBcsh\fR(1) does the same thing
233 to ease typing of \fBfind\fR(1) patterns.)
234 .RE

236 .sp
237 .ne 2
238 .na
239 \fB\fBGLOB_MAGCHAR\fR\fR
240 .ad
241 .RS 17n
242 Set by the \fBglob()\fR function if the pattern included globbing
243 characters.  See the description of the usage of
244 the \fBgl_matchc\fR structure member for more details.
245 .RE

247 .sp
248 .ne 2
249 .na
250 \fB\fBGLOB_NOMAGIC\fR\fR
251 .ad
252 .RS 17n
```

```
Is the same as \fBGLOB_NOCHECK\fR but it only appends the
pattern if it does not contain any of the special characters
‘*’, ‘?’, or ‘[’.  \fBGLOB_NOMAGIC\fR is provided to
simplify implementing the historic \fBcsh\fR(1) globbing behavior
and should probably not be used anywhere else.
.RE

.sp
.ne 2
.na
\fB\fBGLOB_QUOTE\fR\fR
.ad
.RS 17n
This option has no effect and is included for backwards
compatibility with older sources.
.RE

.sp
.ne 2
.na
\fB\fBGLOB_TILDE\fR\fR
.ad
.RS 17n
Expand patterns that start with ‘~’ to user name home
directories.
.RE

.sp
.ne 2
.na
\fB\fBGLOB_LIMIT\fR\fR
.ad
.RS 17n
Limit the amount of memory used by matches to \fIARG_MAX\fR.
This option should be set for programs that can be coerced
to a denial of service attack via patterns that
expand to a very large number of matches, such as a long
string of ‘*/../*/..’.
.RE

.sp
.ne 2
.na
\fB\fBGLOB_KEEPSTAT\fR\fR
.ad
.RS 17n
Retain a copy of the \fBstat\fR(2) information retrieved for
matching paths in the gl_statv array:
.sp
.nf
struct stat **gl_statv;
.fi
.sp
This option may be used to avoid \fBlstat\fR(2) lookups in
cases where they are expensive.
.RE

.sp
.LP
The \fBGLOB_APPEND\fR flag can be used to append a new set of path names to
those found in a previous call to \fBglob()\fR. The following rules apply when
two or more calls to \fBglob()\fR are made with the same value of \fIpglob\fR
and without intervening calls to \fBglobfree()\fR:
.RS +4
.TP
1.
```



```
The first such call must not set \fBGLOB_APPEND.\fR All subsequent calls
must set it.
.RE
.RS +4
.TP
2.
All the calls must set \fBGLOB_DOOFFS,\fR or all must not set it.
.RE
.RS +4
.TP
3.
After the second call, \fIpglob\(mi>\fR\fBgl_pathv\fR points to a list
containing the following:
.RS +4
.TP
a.
Zero or more \fINULL\fR pointers, as specified by \fBGLOB_DOOFFS\fR and
\fIpglob\(mi>\fR\fBgl_offs\fR.
.RE
.RS +4
.TP
b.
Pointers to the path names that were in the \fIpglob\(mi>\fR\fBgl_pathv\fR
list before the call, in the same order as before.
.RE
.RS +4
.TP
c.
Pointers to the new path names generated by the second call, in the
specified order.
.RE
.RE
.RS +4
.TP
4.
The count returned in \fIpglob\(mi>\fR\fBgl_pathc\fR will be the total
number of path names from the two calls.
.RE
.RS +4
.TP
5.
The application can change any of the fields after a call to \fBglob()\fR.
If it does, it must reset them to the original value before a subsequent call,
using the same \fIpglob\fR value, to \fBglobfree()\fR or \fBglob()\fR with the
\fBGLOB_APPEND\fR flag.
.RE
.SS "\fIerrfunc\fR and \fIepath\fR Arguments"
.sp
.LP
If, during the search, a directory is encountered that cannot be opened or read
and \fIerrfunc\fR is not a \fINULL\fR pointer, \fBglob()\fR calls
\fB(\fR\fI*errfunc\fR\fB)\fR with two arguments:
.RS +4
.TP
1.
The \fIepath\fR argument is a pointer to the path that failed.
.RE
.RS +4
.TP
2.
The \fIeerrno\fR argument is the value of \fIerrno\fR from the failure, as
set by the \fBopendir\fR(3C), \fBreaddir\fR(3C) or \fBstat\fR(2) functions.
(Other values may be used to report other errors not explicitly documented for
those functions.)
.RE
```

```
.sp
.LP
If \fB(\fR\fI*errfunc\fR\fB)\fR is called and returns non-zero, or if the
\fBGLOB_ERR\fR flag is set in \fIflags\fR, \fBglob()\fR stops the scan and
returns \fBGLOB_ABORTED\fR after setting \fIgl_pathc\fR and \fIgl_pathv\fR in
\fIpglob\fR to reflect the paths already scanned. If \fBGLOB_ERR\fR is not set
and either \fIerrfunc\fR is a \fINULL\fR pointer or
\fB(\fR\fI*errfunc\fR\fB)\fR returns 0, the error is ignored.
.SH RETURN VALUES
The following constants are defined as error return values for \fBglob()\fR:
.sp
.LP
On successful completion, \fBglob()\fR returns zero.
In addition the fields of pglob contain the values described below:

.sp
.ne 2
.na
\fB\fBgl_pathc\fR\fR
\fB\fBGLOB_ABORTED\fR\fR
.ad
.RS 16n
Contains the total number of matched pathnames so far.
This includes other matches from previous invocations of
\fBglob()\fR if \fBGLOB_APPEND\fR was specified.
The scan was stopped because \fBGLOB_ERR\fR was set or
\fB(\fR\fI*errfunc\fR\fB)\fR returned non-zero.
.RE

.sp
.ne 2
.na
\fB\fBgl_matchc\fR\fR
\fB\fBGLOB_NOMATCH\fR\fR
.ad
.RS 16n
Contains the number of matched pathnames in the current
invocation of \fBglob()\fR.
The pattern does not match any existing path name, and \fBGLOB_NOCHECK\fR was
not set in flags.
.RE

.sp
.ne 2
.na
\fB\fBgl_flags\fR\fR
\fB\fBGLOG_NOSPACE\fR\fR
.ad
.RS 16n
Contains a copy of the flags parameter with the bit
\fBGLOB_MAGCHAR\fR set if pattern contained any of the special
characters ‘*’, ‘?’, or ‘[’, cleared if not.
An attempt to allocate memory failed.
.RE

.sp
.ne 2
.na
\fB\fBgl_pathv\fR\fR
.ad
.RS 16n
Contains a pointer to a null-terminated list of matched
pathnames.  However, if \fBgl_pathc\fR is zero, the contents of
\fBgl_pathv\fR are undefined.
.RE
```



```
.LP
If \fB(\fR\fI*errfunc\fR\fB)\fR is called and returns non-zero, or if the
\fBGLOB_ERR\fR flag is set in \fIflags\fR, \fBglob()\fR stops the scan and
returns \fBGLOB_ABORTED\fR after setting \fIgl_pathc\fR and \fIgl_pathv\fR in
\fIpglob\fR to reflect the paths already scanned. If \fBGLOB_ERR\fR is not set
and either \fIerrfunc\fR is a \fINULL\fR pointer or
\fB(\fR\fI*errfunc\fR\fB)\fR returns 0, the error is ignored.
.SH RETURN VALUES
.sp
.ne 2
.na
\fB\fBgl_statv\fR\fR
.ad
.RS 16n
If the \fBGLOB_KEEPSTAT\fR flag was set, \fBgl_statv\fR contains a
pointer to a null-terminated list of matched \fBstat\fR(2)
objects corresponding to the paths in \fBgl_pathc\fR.
.RE

.sp
.LP
If \fBglob()\fR terminates due to an error, it sets \fBerrno\fR and
returns one of the following non-zero constants. defined in <\fBglob.h\fR>:

The following values are returned by \fBglob()\fR:
.sp
.ne 2
.na
\fB\fBGLOB_ABORTED\fR\fR
\fB\fB0\fR\fR
.ad
.RS 16n
The scan was stopped because \fBGLOB_ERR\fR was set or
\fB(\fR\fI*errfunc\fR\fB)\fR returned non-zero.
.RS 12n
Successful completion. The argument \fIpglob\(mi>\fR\fBgl_pathc\fR returns the
number of matched path names and the argument \fIpglob\(mi>\fR\fBgl_pathv\fR
contains a pointer to a null-terminated list of matched and sorted path names.
However, if \fIpglob\(mi>\fR\fBgl_pathc\fR is 0, the content of
\fIpglob\(mi>\fR\fBgl_pathv\fR is undefined.
.RE

.sp
.ne 2
.na
\fB\fBGLOB_NOMATCH\fR\fR
\fB\fBnon-zero\fR\fR
.ad
.RS 16n
The pattern does not match any existing path name, and \fBGLOB_NOCHECK\fR was
not set in flags.
.RS 12n
An error has occurred. Non-zero constants are defined in <\fBglob.h\fR>. The
arguments \fIpglob\(mi>\fR\fBgl_pathc\fR and \fIpglob\(mi>\fR\fBgl_pathv\fR are
still set as defined above.
.RE

.sp
.ne 2
.na
\fB\fBGLOB_NOSPACE\fR\fR
.ad
.RS 16n
An attempt to allocate memory failed.
.RE
```

```
.sp
.ne 2
.na
\fB\fBGLOB_NOSYS\fR\fR
.ad
.RS 16n
The requested function is not supported by this version of
\fBglob()\fR.
.RE

.LP
The arguments \fIpglob\(mi>\fR\fBgl_pathc\fR and \fIpglob\(mi>\fR\fBgl_pathv\fR
specified above.
.sp
.LP
The \fBglobfree()\fR function returns no value.
.SH USAGE
.sp
.LP
This function is not provided for the purpose of enabling utilities to perform
path name expansion on their arguments, as this operation is performed by the
shell, and utilities are explicitly not expected to redo this. Instead, it is
provided for applications that need to do path name expansion on strings
obtained from other sources, such as a pattern typed by a user or read from a
file.
.sp
.LP
If a utility needs to see if a path name matches a given pattern, it can use
\fBfnmatch\fR(3C).
.sp
.LP
Note that \fBgl_pathc\fR and \fBgl_pathv\fR have meaning even if \fBglob()\fR
fails. This allows \fBglob()\fR to report partial results in the event of an
error. However, if \fBgl_pathc\fR is 0, \fBgl_pathv\fR is unspecified even if
\fBglob()\fR did not return an error.
.sp
.LP
The \fBGLOB_NOCHECK\fR option could be used when an application wants to expand
a path name if wildcards are specified, but wants to treat the pattern as just
a string otherwise.
.sp
.LP
The new path names generated by a subsequent call with \fBGLOB_APPEND\fR are
not sorted together with the previous path names. This mirrors the way that the
shell handles path name expansion when multiple expansions are done on a
command line.
.sp
.LP
Applications that need tilde and parameter expansion should use the
\fBwordexp\fR(3C) function.
.SH EXAMPLES
.LP
\fBExample 1 \fRExample of \fBglob_doofs\fR function.
.sp
.LP
One use of the \fBGLOB_DOOFFS\fR flag is by applications that build an argument
list for use with the \fBexecv()\fR, \fBexecve()\fR, or \fBexecvp()\fR
functions (see \fBexec\fR(2)). Suppose, for example, that an application wants
to do the equivalent of:

.sp
.in +2
.nf
\fBls\fR \fB-l\fR *.c
.fi
.in -2
```



```
.sp
.LP
but for some reason:

.sp
.in +2
.nf
system("ls -l *.c")
.fi
.in -2

.sp
.LP
is not acceptable. The application could obtain approximately the same result
using the sequence:

.sp
.in +2
.nf
globbuf.gl_offs = 2;
glob ("*.c", GLOB_DOOFFS, NULL, &globbuf);
globbuf.gl_pathv[0] = "ls";
globbuf.gl_pathv[1] = "-l";
execvp ("ls", &globbuf.gl_pathv[0]);
.fi
.in -2

.sp
.LP
Using the same example:

.sp
.in +2
.nf
\fBls\fR \fB-l\fR *.c *.h
.fi
.in -2

.sp
.LP
could be approximately simulated using \fBGLOB_APPEND\fR as follows:

.sp
.in +2
.nf
\fBglobbuf.gl_offs = 2;
glob ("*.c", GLOB_DOOFFS, NULL, &globbuf);
glob ("*.h", GLOB_DOOFFS|GLOB_APPEND, NULL, &globbuf);
\&.\|.\|.\fR
.fi
.in -2

.SH ATTRIBUTES
.sp
.LP
See \fBattributes\fR(5) for descriptions of the following attributes:
.sp

.sp
.TS
box;
c | c
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
_
```

```
 619 Interface Stability     Standard
 620 _
 621 MT-Level        MT-Safe
 622 .TE

 624 .SH SEE ALSO
 625 .sp
 626 .LP
 627 \fBexecv\fR(2), \fBstat\fR(2), \fBfnmatch\fR(3C), \fBopendir\fR(3C),
 628 \fBreaddir\fR(3C), \fBwordexp\fR(3C), \fBattributes\fR(5), \fBstandards\fR(5)
```