

26.2 The `<stdlib.h>` Header: General Utilities

`<stdlib.h>` serves as a catch-all for functions that don't fit into any of the other headers. The functions in `<stdlib.h>` fall into eight groups:

- Numeric conversion functions
- Pseudo-random sequence generation functions
- Memory-management functions
- Communication with the environment
- Searching and sorting utilities
- Integer arithmetic functions
- Multibyte/wide-character conversion functions
- Multibyte/wide-string conversion functions

We'll look at each group in turn, with three exceptions: the memory management functions, the multibyte/wide-character conversion functions, and the multibyte/wide-string conversion functions.

The memory-management functions (`malloc`, `calloc`, `realloc`, and `free`) permit a program to allocate a block of memory and then later release it or change its size. Chapter 17 describes all four functions in some detail.

The multibyte/wide-character conversion functions are used to convert a multibyte character to a wide character or vice-versa. The multibyte/wide-string conversion functions perform similar conversions between multibyte strings and wide strings. Both groups of functions are discussed in Section 25.2.

Numeric Conversion Functions

```
double atof(const char *nptr);
int atoi(const char *nptr);
long int atol(const char *nptr);
long long int atoll(const char *nptr);

double strtod(const char * restrict nptr,
              char ** restrict endptr);
float strtof(const char * restrict nptr,
             char ** restrict endptr);
long double strtold(const char * restrict nptr,
                   char ** restrict endptr);

long int strtol(const char * restrict nptr,
               char ** restrict endptr, int base);
```