

Windows Data Types

The data types supported by Microsoft® Windows® are used to define function return values, function and message parameters, and structure members. They define the size and meaning of these elements.

The following table contains the following types: character, integer, Boolean, pointer, and handle. The character, integer, and Boolean types are common to most C compilers. Most of the pointer -type names begin with a prefix of **P** or **LP**. Handles refer to a resource that has been loaded into memory. For more information about handling 64-bit integers, see [Large Integers](#).

Data Types

| Value | Meaning |
|-------------------------|--|
| ATOM | Atom. For more information, see Atoms . |
| BOOL | Boolean variable (should be TRUE or FALSE). |
| BOOLEAN | Boolean variable (should be TRUE or FALSE). |
| BYTE | Byte (8 bits). |
| CALLBACK | Calling convention for callback functions. |
| CHAR | 8-bit Windows (ANSI) character. For more information, see Character Sets Used By Fonts . |
| COLORREF | Red, green, blue (RGB) color value (32 bits). See COLORREF for information on this type. |
| CONST | Variable whose value is to remain constant during execution. |
| CRITICAL_SECTION | Critical-section object. For more information, see Critical Section Objects . |
| DWORD | 32-bit unsigned integer. |
| DWORD_PTR | Unsigned long type for pointer precision. Use when casting a pointer to a long type to perform pointer arithmetic. (Also commonly used for general 32-bit parameters that have been extended to 64 bits in 64-bit Windows.) |
| DWORD32 | 32-bit unsigned integer. |
| DWORD64 | 64-bit unsigned integer. |
| FLOAT | Floating-point variable. |
| HACCEL | Handle to an accelerator table . |
| HANDLE | Handle to an object. |
| HBITMAP | Handle to a bitmap . |
| HBRUSH | Handle to a brush . |
| HCONV | Handle to a dynamic data exchange (DDE) conversation. |
| HCONVLIST | Handle to a DDE conversation list. |
| HCURSOR | Handle to a cursor . |
| HDC | Handle to a device context (DC). |
| HDDEDATA | Handle to DDE data. |
| HDESK | Handle to a desktop . |
| HDROP | Handle to an internal drop structure. |
| HDWP | Handle to a deferred window position structure. |

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| HENHMETAFILE | Handle to an enhanced metafile . |
| HFILE | Handle to a file opened by OpenFile , not CreateFile . |
| HFONT | Handle to a font . |
| HGDIOBJ | Handle to a GDI object. |
| HGLOBAL | Handle to a global memory block. |
| HHOOK | Handle to a hook . |
| HICON | Handle to an icon . |
| HIMAGELIST | Handle to an image list. |
| HIMC | Handle to input context. |
| HINSTANCE | Handle to an instance. |
| HKEY | Handle to a registry key. |
| HKL | Input locale identifier. |
| HLOCAL | Handle to a local memory block. |
| HMENU | Handle to a menu . |
| HMETAFILE | Handle to a metafile . |
| HMODULE | Handle to a module. The value is the base address of the module. |
| HMONITOR | Handle to a display monitor. |
| HPALETTE | Handle to a palette . |
| HPEN | Handle to a pen . |
| HRGN | Handle to a region . |
| HRSRC | Handle to a resource. |
| HSZ | Handle to a DDE string. |
| HWINSTA | Handle to a window station . |
| HWND | Handle to a window . |
| INT | 32-bit signed integer. |
| INT_PTR | Signed integral type for pointer precision. Use when casting a pointer to an integer to perform pointer arithmetic. |
| INT32 | 32-bit signed integer. |
| INT64 | 64-bit signed integer. |
| LANGID | Language identifier. For more information, see Locales . |
| LCID | Locale identifier. For more information, see Locales . |
| LCTYPE | Locale information type. For a list, see Locale and Language Information . |
| LONG | 32-bit signed integer. |
| LONG_PTR | Signed long type for pointer precision. Use when casting a pointer to a long to perform pointer arithmetic. |
| LONG32 | 32-bit signed integer. |
| LONG64 | 64-bit signed integer. |
| ONGLONG | 64-bit signed integer. |

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| LPARAM | Message parameter. |
| LPBOOL | Pointer to a BOOL . |
| LPBYTE | Pointer to a BYTE . |
| LPCOLORREF | Pointer to a COLORREF value. |
| LPCritical_SECTION | Pointer to a CRITICAL_SECTION . |
| LPCSTR | Pointer to a constant null-terminated string of 8-bit Windows (ANSI) characters. For more information, see Character Sets Used By Fonts . |
| LPCTSTR | An LPCWSTR if UNICODE is defined, an LPCTSTR otherwise. |
| LPCVOID | Pointer to a constant of any type. |
| LPCWSTR | Pointer to a constant null-terminated string of 16-bit Unicode characters. For more information, see Character Sets Used By Fonts . |
| LPDWORD | Pointer to a DWORD . |
| LPHANDLE | Pointer to a HANDLE . |
| LPINT | Pointer to an INT . |
| LPLONG | Pointer to a LONG . |
| LPSTR | Pointer to a null-terminated string of 8-bit Windows (ANSI) characters. For more information, see Character Sets Used By Fonts . |
| LPTSTR | An LPWSTR if UNICODE is defined, an LPSTR otherwise. |
| LPVOID | Pointer to any type. |
| LPWORD | Pointer to a WORD . |
| LPWSTR | Pointer to a null-terminated string of 16-bit Unicode characters. For more information, see Character Sets Used By Fonts . |
| LRESULT | Signed result of message processing. |
| LUID | Locally unique identifier. |
| PBOOL | Pointer to a BOOL . |
| PBOOLEAN | Pointer to a BOOL . |
| PBYTE | Pointer to a BYTE . |
| PCHAR | Pointer to a CHAR . |
| PCritical_SECTION | Pointer to a CRITICAL_SECTION . |
| PCSTR | Pointer to a constant null-terminated string of 8-bit Windows (ANSI) characters. For more information, see Character Sets Used By Fonts . |
| PCTSTR | A PCWSTR if UNICODE is defined, a PCSTR otherwise. |
| PCWCH | Pointer to a constant WCHAR . |
| PCWSTR | Pointer to a constant null-terminated string of 16-bit Unicode characters. For more information, see Character Sets Used By Fonts . |
| PDWORD | Pointer to a DWORD . |
| PFLOAT | Pointer to a FLOAT . |

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| PHANDLE | Pointer to a HANDLE . |
| PHKEY | Pointer to an HKEY . |
| PINT | Pointer to an INT . |
| PLCID | Pointer to an LCID . |
| PLONG | Pointer to a LONG . |
| PLUID | Pointer to a LUID . |
| POINTER_32 | 32-bit pointer. On a 32-bit system, this is a native pointer. On a 64-bit system, this is a truncated 64-bit pointer. |
| POINTER_64 | 64-bit pointer. On a 64-bit system, this is a native pointer. On a 32-bit system, this is a sign-extended 32-bit pointer. |
| PSHORT | Pointer to a SHORT . |
| PSTR | Pointer to a null-terminated string of 8-bit Windows (ANSI) characters. For more information, see Character Sets Used By Fonts . |
| PTBYTE | Pointer to a TBYTE . |
| PTCHAR | Pointer to a TCHAR . |
| PTSTR | PWSTR if UNICODE is defined, a PSTR otherwise. |
| PTBYTE | Pointer to a TBYTE . |
| PTCHAR | Pointer to a TCHAR . |
| PTSTR | A PWSTR if UNICODE is defined, a PSTR otherwise. |
| PUCHAR | Pointer to a UCHAR . |
| PUINT | Pointer to a UINT . |
| PULONG | Pointer to a ULONG . |
| PUSHORT | Pointer to a USHORT . |
| PVOID | Pointer to any type. |
| PWCHAR | Pointer to a WCHAR . |
| PWORD | Pointer to a WORD . |
| PWSTR | Pointer to a null-terminated string of 16-bit Unicode characters. For more information, see Character Sets Used By Fonts . |
| REGSAM | Security access mask for registry key. |
| SC_HANDLE | Handle to a service control manager database. For more information, see SCM Handles . |
| SC_LOCK | Handle to a service control manager database lock. For more information, see SCM Handles . |
| SERVICE_STATUS_HANDLE | Handle to a service status value. For more information, see SCM Handles . |
| SHORT | Short integer (16 bits). |
| SIZE_T | The maximum number of bytes to which a pointer can point. Use for a count that must span the full range of a pointer. |
| SSIZE_T | Signed SIZE_T . |
| TBYTE | A WCHAR if UNICODE is defined, a CHAR otherwise. |

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| TCHAR | A WCHAR if UNICODE is defined, a CHAR otherwise. |
| UCHAR | Unsigned CHAR . |
| UINT | Unsigned INT . |
| UINT_PTR | Unsigned INT_PTR . |
| UINT32 | Unsigned INT32 . |
| UINT64 | Unsigned INT64 . |
| ULONG | Unsigned LONG . |
| ULONG_PTR | Unsigned LONG_PTR . |
| ULONG32 | Unsigned LONG32 . |
| ULONG64 | Unsigned LONG64 . |
| ULONGLONG | 64-bit unsigned integer. |
| UNSIGNED | Unsigned attribute. |
| USHORT | Unsigned SHORT . |
| VOID | Any type. |
| WCHAR | 16-bit Unicode character. For more information, see Character Sets Used By Fonts . |
| WINAPI | Calling convention for system functions. |
| WORD | 16-bit unsigned integer. |
| WPARAM | Message parameter. |

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