



**Future Technology Devices
International Ltd.**

FTChipID Programmer's Guide

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1 Welcome to the FTChipID Programmer's Guide

This document describes the functions available in the FTChipID DLL which can be used to return FTDIChip-ID information for FT232R and FT245R devices.

Specifically, the [FTID_GetDeviceChipID](#) function can be used to extract the unique FTDIChip-ID from an FT232R or FT245R device. This number is not changeable by the end user and can be used to tie application software to a specific piece of hardware containing an FT232R or FT245R device.

Please note that the latest version of FTDI's D2XX drivers must be installed to use the FTChipID DLL. The latest D2XX driver can be downloaded from the [D2XX Drivers page](#) of the [FTDI web site](#).

The current version of the FTChipID DLL and several code examples are available for free download from the [FTDIChip-ID page](#) of the [FTDI web site](#).

2 FTChipID Functions

2.1 FTID_GetNumDevices

Returns the number of available FT232R and FT245R devices connected to a system.

FTID_STATUS **FTID_GetNumDevices** (*lpdwNumDevices*)

Parameters

lpdwNumDevices Pointer to a variable of type DWORD which receives the actual number of available FT232R and FT245R devices connected to a system

Return Value

FTID_SUCCESS if successful, otherwise the return value is one of the following FTID error codes:

FTID_IO_ERROR

Remarks

This function can be used to provide the maximum index for using with [FTID_GetDeviceSerialNumber](#)^[4], [FTID_GetDeviceDescription](#)^[5], [FTID_GetDeviceLocationID](#)^[6] and [FTID_GetDeviceChipID](#)^[7].

Example

```
FTID_STATUS Status = FTID_SUCCESS;
DWORD NumDevices = 0;

Status = FTID_GetNumDevices(&NumDevices);
```

2.2 FTID_GetDeviceSerialNumber

Returns the serial number of an available FT232R or FT245R device.

FTID_STATUS **FTID_GetDeviceSerialNumber** (DWORD *dwDeviceIndex*, LPSTR *lpSerialBuffer*, DWORD *dwSerialBufferLength*)

Parameters

<i>dwDeviceIndex</i>	Index of the FT232R or FT245R device.
<i>lpSerialBuffer</i>	Pointer to buffer that receives the serial number of the FT232R or FT245R device. The string will be NULL terminated.
<i>dwSerialBufferLength</i>	Length of the buffer created for the device serial number.

Return Value

FTID_SUCCESS if successful, otherwise the return value is one of the following FTID error codes:

- FTID_DEVICE_NOT_FOUND
- FTID_INVALID_DEVICE_NAME_INDEX
- FTID_PASSED_NULL_POINTER
- FTID_BUFFER_SIZE_TOO_SMALL
- FTID_IO_ERROR

Remarks

The [FTID_GetNumDevices](#)^[3] function can be used to obtain the number of available FT232R and FT245R devices connected to a system. The device index is 0 based.

Example

```
FTID_STATUS Status = FTID_SUCCESS;
char SerialNumber[256];

Status = FTID_GetDeviceSerialNumber(0, SerialNumber, 256);
```

2.3 FTID_GetDeviceDescription

Returns the description of an available FT232R or FT245R device.

FTID_STATUS**FTID_GetDeviceDescription** (DWORD *dwDeviceIndex*, LPSTR *lpDescriptionBuffer*, DWORD *dwDescriptionBufferLength*)

Parameters

<i>dwDeviceIndex</i>	Index of the FT232R or FT245R device.
<i>lpDescriptionBuffer</i>	Pointer to buffer that receives the description of the FT232R or FT245R device. The string will be NULL terminated.
<i>dwDescriptionBufferLength</i>	Length of the buffer created for the device description.

Return Value

FTID_SUCCESS if successful, otherwise the return value is one of the following FTID error codes:

FTID_DEVICE_NOT_FOUND
FTID_INVALID_DEVICE_NAME_INDEX
FTID_PASSED_NULL_POINTER
FTID_BUFFER_SIZE_TOO_SMALL
FTID_IO_ERROR

Remarks

The [FTID_GetNumDevices](#)^[3] function can be used to obtain the number of available FT232R and FT245R devices connected to a system. The device index is 0 based.

Example

```
FTID_STATUS Status = FTID_SUCCESS;  
char Description[256];  
  
Status = FTID_GetDeviceDescription(0, Description, 256);
```

2.4 FTID_GetDeviceLocationID

Returns the location ID of an available FT232R or FT245R device.

FTID_STATUS FTID_GetDeviceLocationID (DWORD *dwDeviceIndex*, LPDWORD *lpdwLocationIDBuffer*)

Parameters

<i>dwDeviceIndex</i>	Index of the FT232R or FT245R device.
<i>lpdwLocationIDBuffer</i>	Pointer to buffer that receives the location ID for the FT232R or FT245R device.

Return Value

FTID_SUCCESS if successful, otherwise the return value is one of the following FTID error codes:

FTID_DEVICE_NOT_FOUND
FTID_INVALID_DEVICE_NAME_INDEX
FTID_IO_ERROR

Remarks

The [FTID_GetNumDevices](#)^[3] function can be used to obtain the number of available FT232R and FT245R devices connected to a system. The device index is 0 based. **Please note that Linux does not support location IDs.**

Example

```
FTID_STATUS Status = FTID_SUCCESS;  
DWORD LocID = 0;  
  
Status = FTID_GetDeviceLocationID(0, &LocID);
```

2.5 FTID_GetDeviceChipID

Returns the FTDIChip-ID of an available FT232R or FT245R device.

FTID_STATUS **FTID_GetDeviceChipID** (DWORD *dwDeviceIndex*, LPDWORD *lpdwChipIDBuffer*)

Parameters

<i>dwDeviceIndex</i>	Index of the FT232R or FT245R device.
<i>lpdwChipIDBuffer</i>	Pointer to buffer that receives the FTDIChip-ID for the FT232R or FT245R device.

Return Value

FTID_SUCCESS if successful, otherwise the return value is one of the following FTID error codes:

```
FTID_DEVICE_NOT_FOUND  
FTID_INVALID_DEVICE_NAME_INDEX  
FTID_IO_ERROR
```

Remarks

The [FTID_GetNumDevices](#)^[3] function can be used to obtain the number of available FT232R and FT245R devices connected to a system. The device index is 0 based.

Example

```
FTID_STATUS Status = FTID_SUCCESS;  
DWORD ChipID = 0;  
  
Status = FTID_GetDeviceChipID(0, &ChipID);
```


2.6 FTID_GetChipIDFromHandle

Returns the FTIDChip-ID of an FT232R or FT245R device using its handle.

FTID_STATUS **FTID_GetChipIDfromHandle** (FT_HANDLE *Handle*, LPDWORD *lpdwChipIDBuffer*)

Parameters

<i>Handle</i>	Valid handle of the FT232R or FT245R device.
<i>lpdwChipIDBuffer</i>	Pointer to buffer that receives the FTIDChip-ID for the FT232R or FT245R device.

Return Value

FTID_SUCCESS if successful, otherwise the return value is one of the following FTID error codes:

```

FTID_INVALID_HANDLE
FTID_DEVICE_NOT_FOUND
FTID_PASSED_NULL_POINTER
FTID_INVALID_RHANDLE
FTID_IO_ERROR

```

Remarks

The *ftHandle* parameter is a valid FT232R or FT245R handle returned from the [D2XX functions FT_Open](#) or [FT_OpenEx](#). If the handle is for a different device type or is not a valid handle, the function will return FTID_INVALID_RHANDLE. The device handle must be closed using the D2XX [FT_Close](#) function when communication with the device is complete.

Example

```

FT_HANDLE Handle;
FT_STATUS ftStatus;
FTID_STATUS Status = FTID_SUCCESS;
DWORD ChipID = 0;

ftStatus = FT_Open(0, &Handle);
if(ftStatus != FT_OK) {
// FT_Open failed
return;
}

Status = FTID_GetDeviceChipID(Handle, &ChipID);
if(ftStatus != FT_OK) {
// Failed to get ChipID
return;
}

FT_Close(Handle);

```

2.7 FTID_GetDLLVersion

Returns the FTChipID DLL version number.

FTID_STATUS **FTID_GetDLLVersion** (LPSTR *lpVersionBuffer*, DWORD *VersionBufferSize*)

Parameters

<i>lpVersionBuffer</i>	Pointer to buffer that receives the version number string of the FTChipID DLL.
<i>VersionBufferSize</i>	Length of the buffer created for the DLL version number.

Return Value

FTID_SUCCESS if successful, otherwise the return value is one of the following FTID error codes:

FTID_BUFFER_SIZE_TOO_SMALL
FTID_PASSED_NULL_POINTER

Example

```
FTID_STATUS Status = FTID_SUCCESS;  
char Version[100];  
  
Status = FTID_GetDLLVersion(Version, 100);
```

2.8 FTID_GetErrorCodeString

Returns an error code explanation in English.

FTID_STATUS**FTID_GetErrorCodeString** LPSTR *lpLanguage*, FTID_STATUS *ErrorCode*, LPSTR *lpErrorBuffer*, DWORD *ErrorBufferLength*

Parameters

<i>lpLanguage</i>	Language to return the error code explanation in.
<i>ErrorCode</i>	FTID_STATUS code to return the string for.
<i>lpErrorBuffer</i>	Buffer to receive the error code string.
<i>ErrorBufferLength</i>	Length of the buffer created for the DLL version number.

Return Value

FTID_SUCCESS if successful, otherwise the return value is one of the following FTID error codes:

FTID_BUFFER_SIZE_TOO_SMALL
FTID_PASSED_NULL_POINTER

Example

```
FTID_STATUS Status = FTID_SUCCESS;  
char ErrorMessage[256];  
  
dStatus = FTID_BUFFER_SIZE_TOO_SMALL;  
Status = FTID_GetErrorCodeString("EN", dStatus, ErrorMessage, 256);
```

3 Appendix

3.1 Type Definitions

For Visual C++ applications, these values are pre-declared in the header file ([FTChipID.h](#)^[12]). For other languages, these definitions will have to be converted to use equivalent types and may have to be defined in an include file or within the body of the code.

DWORD	Unsigned long (4 bytes)
LPDWORD	Long pointer to a DWORD value
BOOL	Boolean value (4 bytes)
LPSTR	Long pointer to a NULL terminated string

FTID_STATUS (DWORD)

```
FTID_SUCCESS = 0
FTID_INVALID_HANDLE = 1
FTID_DEVICE_NOT_FOUND = 2
FTID_DEVICE_NOT_OPENED = 3
FTID_IO_ERROR = 4
FTID_INSUFFICIENT_RESOURCES = 5

FTID_BUFFER_SIZE_TOO_SMALL = 20
FTID_PASSED_NULL_POINTER = 21
FTID_INVALID_LANGUAGE_CODE = 22
FTID_INVALID_RHANDLE = 23
FTID_INVALID_STATUS_CODE = 0xFFFFFFFF
```

3.2 FTChipID.H

```

#ifndef __FTCHIPID_H_
#define __FTCHIPID_H_

// The following ifdef block is the standard way of creating macros which make exporting
// from a DLL simpler. All files within this DLL are compiled with the FTCHIPID_EXPORTS
// symbol defined on the command line. this symbol should not be defined on any project
// that uses this DLL. This way any other project whose source files include this file see
// FTCHIPID_API functions as being imported from a DLL, whereas this DLL sees symbols
// defined with this macro as being exported.
#ifdef FTCHIPID_EXPORTS
#define FTCHIPID_API __declspec(dllexport)
#else
#define FTCHIPID_API __declspec(dllimport)
#endif

typedef unsigned long FTID_STATUS;

// this can be moved to the API header
#define FTID_SUCCESS 0
#define FTID_INVALID_HANDLE 1 //
FT_INVALID_HANDLE
#define FTID_DEVICE_NOT_FOUND 2 // FT_DEVICE_NOT_FOUND
#define FTID_DEVICE_NOT_OPENED 3 // FT_DEVICE_NOT_OPENED
#define FTID_IO_ERROR 4 // FT_IO_ERROR
#define FTID_INSUFFICIENT_RESOURCES 5 //
FT_INSUFFICIENT_RESOURCES
#define FTID_INVALID_PARAMETER 6 // FT_INVALID_PARAMETER

#define FTID_BUFFER_SIZE_TOO_SMALL 20
#define FTID_PASSED_NULL_POINTER 21
#define FTID_INVALID_LANGUAGE_CODE 22
#define FTID_INVALID_RHANDLE 23
#define FTID_INVALID_STATUS_CODE 0xFFFFFFFF

#ifdef __cplusplus
extern "C" {
#endif

// Device Related
FTCHIPID_API
FTID_STATUS WINAPI FTID_GetNumDevices(unsigned long * Devices);

FTCHIPID_API
FTID_STATUS WINAPI FTID_GetDeviceSerialNumber(unsigned long DeviceIndex, char *
SerialBuffer, unsigned long SerialBufferLength);

FTCHIPID_API
FTID_STATUS WINAPI FTID_GetDeviceDescription(unsigned long DeviceIndex, char *
DescriptionBuffer, unsigned long DescriptionBufferLength);

FTCHIPID_API
FTID_STATUS WINAPI FTID_GetDeviceLocationID(unsigned long DeviceIndex, unsigned long *
LocationIDBuffer);

FTCHIPID_API

```

```
FTID_STATUS WINAPI FTID_GetDeviceChipID(unsigned long DeviceIndex, unsigned long *  
ChipIDBuffer);
```

```
FTCHIPID_API  
FTID_STATUS WINAPI FTID_GetChipIDFromHandle(FT_HANDLE Handle, unsigned long *  
ChipIDBuffer);
```

```
// General  
FTCHIPID_API  
FTID_STATUS WINAPI FTID_GetDllVersion(char * VersionBuffer, unsigned long  
VersionBufferSize);
```

```
FTCHIPID_API  
FTID_STATUS WINAPI FTID_GetErrorCodeString(char * Language, FTID_STATUS ErrorCode,  
char * ErrorBuffer, unsigned long ErrorBufferLength);
```

```
#ifdef __cplusplus  
}  
#endif
```

```
#endif
```

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