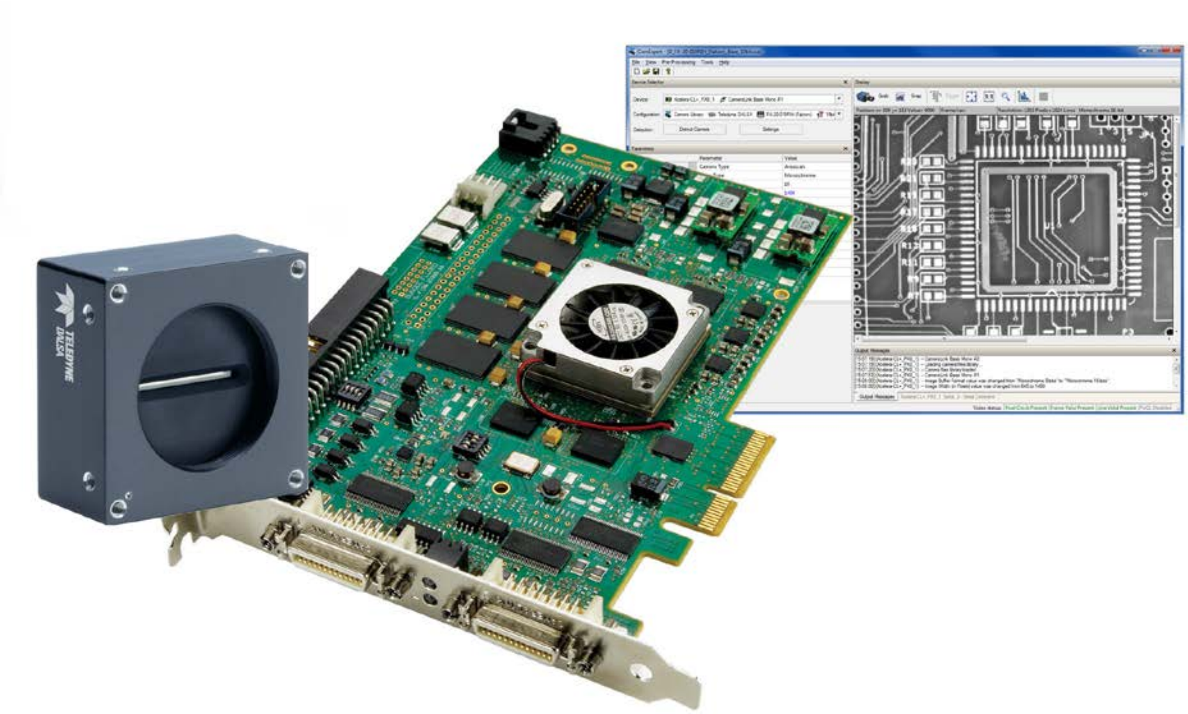
Sapera LT™ 8.10

Basic Modules Reference Manual

sensors | cameras | frame grabbers | processors | **software** | vision solutions



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About This Manual

This manual exists in Windows Help, and Adobe Acrobat® (PDF) formats (printed manuals are available as special orders). The Help and PDF formats make full use of hypertext cross-references. The Teledyne DALSA home page on the Internet, located at http://www.teledynedalsa.com/imaging, contains documents, software updates, demos, errata, utilities, and more.

About Teledyne DALSA

Teledyne DALSA is an international high performance semiconductor and electronics company that designs, develops, manufactures, and markets digital imaging products and solutions, in addition to providing wafer foundry services.

Teledyne DALSA Digital Imaging offers the widest range of machine vision components in the world. From industry-leading image sensors through powerful and sophisticated cameras, frame grabbers, vision processors and software to easy-to-use vision appliances and custom vision modules.

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Introduction

Overview of the Manual

The *Sapera LT Basic Modules Reference Manual* is the main reference for the Sapera C API. The manual is divided in two: the first part presents an overview of how to use the API, the second part describes the API's functions and parameters.

The *Sapera Acquisition Parameters Reference Manual* complements the Sapera LT Basic Modules Reference manual with a description of all the acquisition parameters, capabilities and definitions.

This manual covers the following topics:
• **Sapera C API Overview**
Information and examples on using the Sapera C API
• **Sapera Acquisition Modules API**
Description of the Sapera Acquisition modules and their functions.
Refer to the *Sapera LT Acquisition Parameters Reference Manual* for a description of the acquisition parameters and capabilities.
• **Sapera Basic Modules API**
Description of the Sapera Basic modules and their functions.
• **Error Messages**
Description of the error message returned by Sapera function calls.
• **Macro Definitions**
Description of all Sapera supplied macros.
• **Data Definitions**
Description of all data types used in Sapera.
• **Appendix A: Server Management**
Descriptions of acquisition controls including camera parameters and capabilities.
• **Appendix B: File Formats**
Description of all buffer, graphic font, and LUT file formats supported by Sapera LT.
• Teledyne DALSA Contact Information
Phone numbers, web site, and important email addresses.

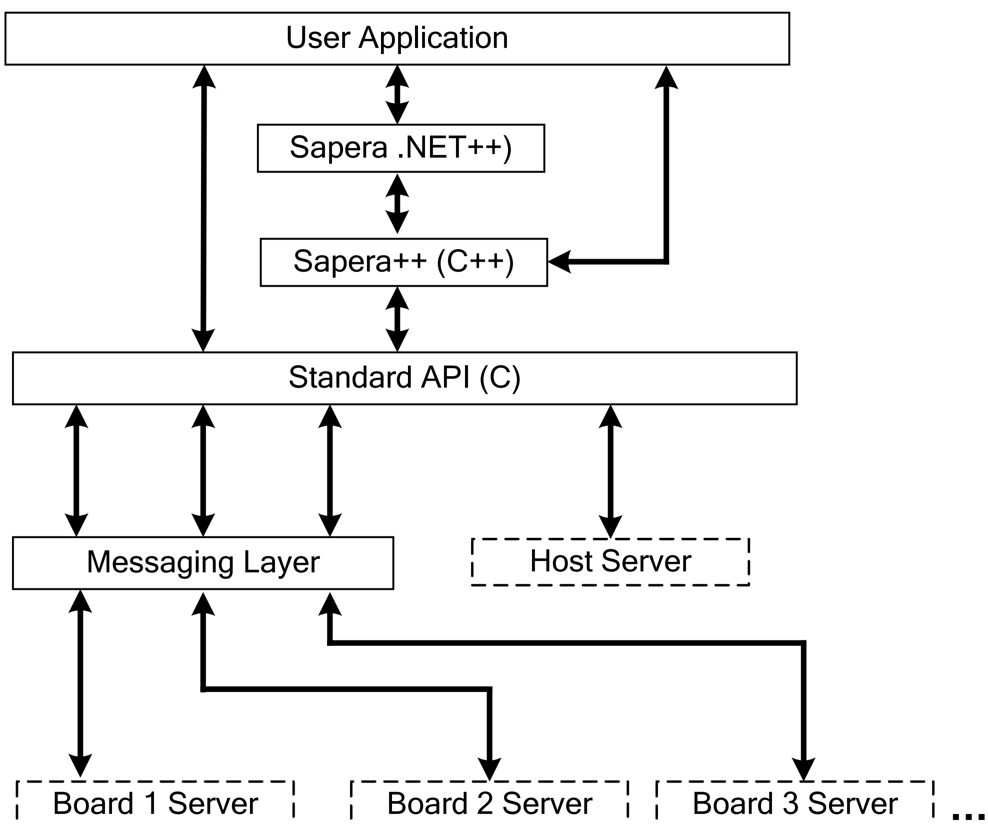
Sapera LT C API Overview

Sapera Architecture

The following section describes application architecture, related terms, and illustrates Sapera's library architecture.

Application Architecture

Whichever API is used (Sapera++, Sapera .NET, or Standard C), the Sapera LT modular architecture allows applications to be distributed on different Sapera LT servers. Each server can run either on the host computer or on a Teledyne DALSA device. Sapera LT calls are routed to different servers via the Sapera LT messaging layer in a fashion completely independent of the underlying hardware.



Definition of Terms

What is a server?

A Sapera Server is an abstract representation of a physical device like a frame-grabber, a processing board, or a desktop PC. In general, a Teledyne DALSA board is a server. Some processing boards, however, may contain several servers; this is true when using multi-processor boards.

A server allows Sapera applications to interact with the server's resources.

What is a static resource?

Resources attached to a physical device are called static resources. For example, a frame grabber can have an acquisition resource, display resource, and a processor resource. These resources can be manipulated to control a physical device through a Sapera Server.

What is a dynamic resource?

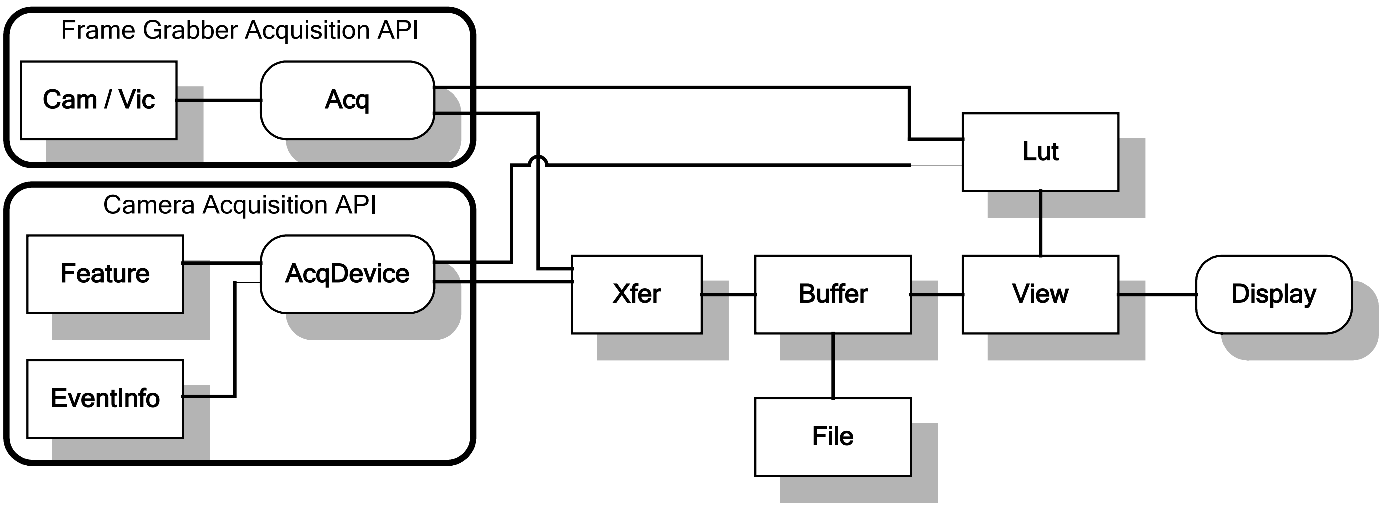
A dynamic resource is an abstract representation of data storage (such as a buffer, lookup table, object, and so forth) or links that connect the data storage to static resources. Unlike static resources, dynamic resources are not dependent on physical devices; therefore, users on a specified server can freely create dynamic resources.

What is a module?

A module is a set of functions used to access and/or control a static or a dynamic resource. The complete Sapera API is composed of a series of modules organized in a particular architecture. These modules are described in the Description of Sapera Modules section.

Library Architecture

The following block diagram illustrates the Sapera Library architecture illustrating all the module interconnections. In this diagram, standard rectangles represent *dynamic resource modules* while rounded rectangles represent *static resource modules*.



Description of Sapera Modules

Below is a brief description of the modules (blocks) and their connections to other modules.

Acquisition Module (Acq)

The Acquisition module refers to a static resource. It is used to control an acquisition device that is present on any Teledyne DALSA board that supports an acquisition section. The Acquisition module includes the functionality to read and write the acquisition parameters individually. Optionally, it can work in conjunction with both the Cam and Vic modules for grouping and storing parameters. The Transfer module, however, is required for synchronizing (starting or stopping) the acquisition process. This module is used by the Transfer module and uses the Cam and Vic modules.

Cam and Vic Modules

These two modules refer to dynamic resources. They are used for grouping and storing acquisition parameters related to the camera (cam) and video-input-conditioning (vic), respectively. Examples of *Cam* parameters include video format, number of input bits and the pixel clock, while examples of *Vic* parameters include brightness, contrast, and saturation.

Note: The *Cam* and *Vic* modules are strictly dedicated to the usage of cameras hooked to a frame grabber. To manipulate a GigE camera refer to the *AcqDevice* module.

AcqDevice Module

The AcqDevice module refers to a static resource. It is used to control a Teledyne DALSA camera device (for example, a GigE camera). The AcqDevice module includes the functionality to read and write the feature values individually or all at once. The module also allows to save/restore the features to/from a file. The Transfer module, however, is required for synchronizing (starting or stopping) the acquisition process. This module is used by the Transfer module and uses the Feature module.

Feature Module

The Feature module refers to a dynamic resource. It is used to retrieve the feature information from the AcqDevice module. Each feature supported by the AcqDevice module provides a set of capabilities such as name, type, access mode, and so forth, that can be obtained through the feature module.

EventInfo Module

The EventInfo module refers to a dynamic resource. It is used to retrieve information from the events sent by the AcqDevice module. Each event supported by the AcqDevice module provides a set of parameters that can be accessed individually through the EventInfo module.

Transfer Module (Xfer)

The Transfer module refers to a dynamic resource. It is used to establish a connection and perform a data transfer between a source and a destination resource. For example, it is used to control an acquisition process by using the Acquisition resource as the source and a Buffer resource as the destination. The Transfer module uses the Acq, AcqDevice, and Buffer modules.

Buffer Module

The Buffer module refers to a dynamic resource. The module includes the functionality to manipulate a generic buffer that can be either one-dimensional (a vector) or two-dimensional (an image). Buffers are the base data storage resources of Sapera. The Buffer module is used by the Transfer, View and Graphic modules.

LookUp Table Module (Lut)

The LookUp Table module refers to a dynamic resource. The module includes the functionality to manipulate a generic LookUp table. The LookUp Table may be used as an input (in an acquisition process), an output (in a display process), or processing LookUp Table. The Lookup Table module is used by the Acq, AcqDevice, and View modules.

View Module

The View module refers to a dynamic resource. It is used to establish a connection and perform a data transfer between the Buffer and Display resources. For example, it is used to display a buffer by transferring its data from system memory to video memory. The View module uses the Buffer and Display modules.

File Module

The File module refers to a dynamic resource. It is used to exchange images between buffers and files. Various file formats are supported (for example, TIFF, BMP, RAW, JPEG, AVI, and the Teledyne DALSA Custom Format - CRC).

Display Module

The Display module refers to a static resource. It is used to control a display device that is present on the system display (your computer video card) or on any Teledyne DALSA board supporting a display section. The Display module includes the functionality to read and write display parameters. In cases where the buffer is located outside video memory (system memory or off-screen memory), the View module transfers data to video memory. The Display module is used by the View module.

The Three Sapera APIs

Three different APIs are available under Sapera:

- Sapera++ classes (based on C++ language)
- Sapera .NET classes (based on .NET languages)
- Sapera Standard API (based on C language)

The following sections will illustrate the standard C API. For C++ and .NET API information consult the Sapera++ Programmer's Manual and the Sapera .NET Programmer's Manual respectively.

Header Files and Libraries (C API)

The following files are provided for building C applications with Sapera LT.

File Name	Description	Location
corapi.h	Main header file	**Sapera\Include**
corapi.lib	32-bit C library for Visual C++	**Sapera\Lib\Win32**
corapi.lib	32-bit C library for Borland C++ Builder XE1 to XE5	**Sapera\Lib\Win32\Borland**
corapi.lib	64-bit C library for Visual C++	**Sapera\Lib\Win64**

Creating a Sapera C Application

The following sections describe how to create a Sapera C application in Visual C++ 2005/2008/2010/2012/2013, and Borland C++ Builder XE1 to XE5.

Visual C++ 2005 / 2008 / 2010 / 2012 /2013

To compile and link an application that uses the Sapera C library:

- Include corapi.h in the program source code (it includes all other required headers)
- Add $(SAPERADIR)\Include in Project | Properties | C/C++ | General | Additional Include Directories.
- For a 32-bit application, insert $(SAPERADIR)\Lib\Win32\corapi.lib in Project | Add Existing Item …
- For a 64-bit application, insert $(SAPERADIR)\Lib\Win64\corapi.lib in Project | Add Existing Item …
- In Project | Properties | C/C++ | Code Generation | Runtime Library, choose the option Multi-threaded DLL (in release mode) or Multi-threaded Debug DLL (in debug mode).

Borland C++ Builder XE

Follow the steps below to compile and link a 32-bit application that uses the Sapera C library:

- Include corapi.h in the program source code (it includes all other required headers).
- Add $(SAPERADIR)\Include in Project | Options… | C++ Compiler | Paths and Defines | Include search path.
- Insert $(SAPERADIR)\Lib\Win32\Borland\corapi.lib in Project | Add to Project …

Writing Windows Applications (.exe) that use the Sapera LT Libraries

When using the Standard C API, you must call CorManOpen before any other API function. You must also call CorManClose after the last API function.

Writing Windows DLLs that use the Sapera LT Libraries

When using the Standard C API, you must call CorManOpen before any other API function. You must also call CorManClose after the last API function. However, you must not call these from the DllMain function.

API Naming Conventions

The following describes naming conventions for API functions.

Functions

The API functions follow standard naming conventions. First, all API functions are prefixed with “Cor”, derived from “Coreco”. This prefix is followed by the module name, as described before in the architecture, and next by the function name. All functions also return an error code. Below is the syntax description with some examples.

```
CORSTATUS Cor<module name><function name>(...)
```

Examples:

```
CORSTATUS status;             // Status code
status = CorBufferClear(...)  // Clear function of Buffer module
status = CorXferStart(...)    // Start function of Transfer module
status = CorLutNormal(...)    // Generate a normal lookUp table
```

Handles

All API functions refer to a server and/or a module handle (see Working with Handles). The server handle is always named CORSERVER. The module handles use the following syntax: COR<module name>

Examples:

```
CORSERVER hServer;   // Handle to a server
CORBUFFER hBuffer;   // Handle to a buffer
CORACQ hAcq;         // Handle to an acquisition
CORDISPLAY hDisplay; // Handle to a display
```

Capabilities and Parameters

Each resource may have a series of capabilities and parameters (see Capabilities and Parameters) that follow the syntax below:

For a capability number:

- COR<module name>_CAP_<capability name>

For a parameter number:

- COR<module name>_PRM_<capability name>

And for each of the possible values:

- COR<module name>_VAL_<capability name>_<value description>

Examples:

```
CORACQ_CAP_CHANNEL         // Capability Channel of Acquisition module
CORACQ_PRM_CHANNEL         // Parameter Channel of Acquisition module

CORACQ_VAL_CHANNEL_SINGLE  // Single channel value for Acquisition module
CORACQ_VAL_CHANNEL_DUAL    // Dual channel value for Acquisition module
```

Enumerated Arguments

A function may have one or more enumerated arguments. The list of possible values for such arguments are as follows:

- COR<module name>_<value description>

Example:

```
CORBUFFER_FILEFORMAT_BMP   // Bitmap file format in the buffer module
CORBUFFER_FILEFORMAT_TIFF  // TIFF file format in the buffer module
```

Working with Handles

Accessing resource data in Sapera can only be accomplished by calling an API function. Therefore, servers and resources are all assigned a handle. A handle is a structure containing the necessary information to access internal resource data. To get a handle to a resource involves two steps:

- Getting a server handle.
- Getting the resource handle.

Getting a Server Handle

There are three ways to get a server handle in Sapera:

- The default server, on which the current application is running, is obtained by calling the following function:

```
CORSERVER hServer;    // Declare a server handle

// Initialize Sapera API
CorManOpen();

// Get the default server handle
hServer = CorManGetLocalServer();
```

- You may also enumerate all of the currently available Sapera Servers, using for each an index that ranges from 0 to *nServer*-1, where *nServer* is the number of servers found by the API.

```
CORSTATUS status;     // Declare status code
UINT32 nCount;        // Declare a server count
UINT32 nIndex;        // Declare a server index
char szName[64];      // Declare a character string for returned name
CORSERVER hServer;    // Declare a server handle

// Initialize Sapera API
status = CorManOpen();

// Get the server count
status = CorManGetServerCount(&nCount);

// Get the server handle from an index
status = CorManGetServerByIndex(nIndex, szName, &hServer);
```

- You may also specify the exact server name.

```
CORSTATUS status;                 // Declare status code
CORSERVER hServer;                // Declare a server handle

// Initialize Sapera API
status = CorManOpen();

// Get the server handle by specifying a name
status = CorManGetServerByName("X64-CL_1", &hServer);
```

Use the following function to release the server handle when you have finished using it:

```
CORSTATUS status;                 // Declare status code
CORSERVER hServer;                // Declare a server handle

// Release the specified server handle
status = CorManReleaseServer(hServer);
```

A more comprehensive discussion on this topic is found in Appendix A: Server Management.

Getting the Resource Handle

The following describes getting static and creating dynamic handle resources.

Getting a Handle to a Static Resource

As noted in the Architecture Section, static resources are related to devices on a server. Therefore, their number depends on the specific server where they are located. Each static resource module includes a function to access the resource count, as in the following example:

```
CORSTATUS status;         // Declare status code
CORSERVER hServer;        // Declare a server handle
UINT32 nAcqCount;         // Declare a acquisition count
UINT32 nDisplayCount;     // Declare a display count

// Initialize Sapera API
status = CorManOpen();

// Get server handle
...

status = CorAcqGetCount(hServer, &nAcqCount);           // Get acquisition count
status = CorDisplayGetCount(hServer, &nDisplayCount);   // Get display count
```

You then obtain the resource handle by specifying an index ranging from 0 to *nxxxCount*-1. When the handle is no longer used, it must be released.

```
CORSTATUS status;     // Declare status code
CORSERVER hServer;    // Declare a server handle
CORACQ hAcq;          // Declare an acquisition handle
CORDISPLAY hDisplay;  // Declare an display handle

// Initialize Sapera API
status = CorManOpen();

// Get server handle
...

// Get resource handles
status = CorAcqGetHandle(hServer, 0, &hAcq);
status = CorDisplayGetHandle(hServer, 0, &hDisplay);

// Use them
...

// Release handles when finished
status = CorAcqRelease(hAcq);
status = CorDisplayRelease(hDisplay);


// Close Sapera API
status = CorManClose();
```

Creating a Handle for a Dynamic Resource

Because dynamic resources are not device-based their potential number is unlimited. Each dynamic resource has its own creation arguments. Below is an example showing the creation of a buffer and a lookup table.

```
CORSTATUS status;     // Declare status coed
CORSERVER hServer;    // Declare a server handle
CORBUFFER hBuffer;    // Declare a buffer handle
CORLUT hLut;          // Decalre a LUT handle

// Initialize Sapera API
status = CorManOpen();

// Get server handle
...

// Create resource handles
status = CorBufferNew(hServer, 640, 480, CORBUFFER_VAL_FORMAT_UINT8, 0, &hBuffer);
status = CorLutNew(hServer, 256, CORLUT_VAL_FORMAT_UINT8, &hLut);

// Use them
...

// Free handles when finished
status = CorBufferFree(hBuffer);
status = CorLutFree(hLut);

// Close Sapera API
status = CorManClose();
```

Error Management

The following describes interpreting status codes and monitoring Sapera errors.

Interpreting Status Codes

All Sapera functions return a status code. If the function executes successfully, it returns the CORSTATUS_OK status code. If an error is detected, the status code describes the nature and the level of the error within the called function. Some status codes also contain additional information related to the specific error. Furthermore, all status codes include a module identifier that indicates which module the function belongs to. The example below demonstrates how to get the different fields of the status code.

```
CORSTATUS status;     // Status code
UINT32 errorId;       // Error identifier
UINT32 errorInfo;     // Additional specific information
UINT32 errorLevel;    // Error level
UINT32 module;        // Module of the function called

// Initialize Sapera API
status = CorManOpen();

// Call an API function
status = CorXXX(...);

// Extract the status code's ID
// If the function succeeds will return CORSTATUS_OK,
// otherwise will return CORSTATUS_xxx.
// See Reference Manual for the complete list of error ID's

errorId = CORSTATUS_ID(status);

// Extract the status code's additional information
// This information is specific to the status code's ID
// Some status code don't support this field
// See Reference Manual for a detailed description of the values.

errorInfo = CORSTATUS_INFO(status);

// Extract the status code's level
// Will return one of the following values:
// CORSTATUS_LEVEL_FAT    Fatal error
// CORSTATUS_LEVEL_ERR    General error
// CORSTATUS_LEVEL_WRN    Warning
// CORSTATUS_LEVEL_INF    Information

errorLevel = CORSTATUS_LEVEL(status);

// Extract the module
// Will return one of the module identifier:
// CORSTATUS_MODULE_ACQ
// CORSTATUS_MODULE_BUFFER
// ...
// See Reference Manual for the complete list of modules

module = CORSTATUS_MODULE(status);

// Close Sapera API
status = CorManClose();
```

You can obtain an associated description string by calling the function CorManGetStatusText, which returns a string including a description of the status code.

```
CORSTATUS status;     // Status code
char szText[256];     // Status text

// Call an API function
status = CorXXX(...);

// Get the associated text string
CorManGetStatusText(status, szText, sizeof(szText), NULL, 0);
```

You can also obtain more detailed information by calling the function CorManGetStatusTextEx, which returns a string for each field of the status code.

```
CORSTATUS status;
char id[128], info[128], level[64], module[64];

// Call an API function
status = CorXXX(...);

// Get the associated text strings
CorManGetStatusTextEx(status, id, sizeof(id), info, sizeof(info), level, sizeof(level), module, sizeof(module));
```

Monitoring Sapera Errors

The **logview.exe** utility program included with Sapera provides an easy way to view status code returned by API functions. **logview.exe** is a simple Windows program that includes a list box that stores the status code description strings as soon as they are logged in the API. Options allow you to modify the different fields for display.

It is recommended to start **LogView** before starting your application and then let it run so it can be referred to any time a detailed error description is required. However, errors are also stored by a low-level service (running in the background), even if **LogView** is not running. Therefore, it is possible to run it only when a problem occurs while running your application.

Capabilities and Parameters

Resources can be characterized by a set of capabilities and parameters. Together they define a resource's ability and current state.

What is a Capability?

A capability, as its name implies, is a value or set of values that describe what a resource can do. Capabilities are used to determine the possible valid values that can be applied to a resource's parameters. They are read-only.

Accessing a Capability

A capability can be obtained from a resource by using the Cor<*module name*>GetCap function. It has the following prototype:

```
CorxxxGetCap(CORxxx handle, UINT32 cap, void *value)
```

- *handle*: valid handle to a resource
- *cap*: valid capability of the resource
- *value*: buffer of proper size to store the capability value(s). The size of a capability can be obtained by using the macro CORCAP_GETSIZE(*cap*)

What is a Parameter?

A parameter describes a characteristic of a resource. It can be read/write or read-only.

Accessing a Parameter

A parameter can be read by using the Cor<*module name*>GetPrm function. It has the following prototype:

```
CorxxxGetPrm(CORxxx handle, UINT32 prm, void *value)
```

- *handle*: valid handle to a resource
- *prm*: valid parameter of the resource
- *value*: buffer of proper size to store the parameter value. The size (in bytes) of a parameter can be obtained by using the macro CORPRM_GETSIZE(*prm*)

You can write parameters with the Cor<*module name*>SetPrm and Cor<*module name*>SetPrmEx functions. They have the following prototypes:

```
CorxxxSetPrm(CORxxx handle, UINT32 prm, UINT32 value)
CorxxxSetPrmEx(CORxxx handle, UINT32 prm, const void *value)
```

- *handle*: valid handle to a resource
- *prm*: valid parameter of the resource
- *value*: buffer of proper size to store the parameter value. The size in bytes of a parameter can be obtained by using the macro CORPRM_GETSIZE(*prm*)

The "Ex" function is used to write to a parameter whose value is greater than four bytes.

Acquiring Images

Required Modules

You need three Sapera modules to initiate the acquisition process:

- **Acq or AcqDevice:** The "Acq" module is needed if you are using a frame grabber while the "AcqDevice" module is needed if you are using a camera directly connected to your PC, such as a GigE camera.
- **Buffer**: Dynamic resource used to store the acquired data. The buffer can be allocated using most buffer types to enable the transfer (see the "Working with Buffers" section for more information about buffer types).
- **Transfer:** Dynamic resource used to link the acquisition to the buffer and to synchronize the acquisition operations.

Frame Grabber Acquisition Example

The example below demonstrates how to grab a live image into a buffer allocated in system memory, using the X64-CL board as an acquisition device.

As shown in this example, acquiring an image requires two files to configure the acquisition hardware: a CAM file and a VIC file. The former defines the characteristics of the camera whereas the latter defines how the camera and the acquisition hardware will be used. Refer to the CamExpert online help file for information on CAM and VIC video source parameter files.

Once the acquisition module is initialized using the CAM and VIC files, some parameters are retrieved from it (acquisition width, height, and format) and are used to create a compatible buffer.

Before starting the transfer, you must create a transfer path between the acquisition resource and the buffer resource. Furthermore, when requesting a transfer stop, you must call *CorXferWait* to wait for the transfer process to terminate completely.

```
// Transfer callback function: called each time a complete frame is transferred
//
CORSTATUS CCONV XferCallback (void *context, UINT32 eventType, UINT32 eventCount)
{
    // Display the last transferred frame
    CorViewShow(*(CORVIEW*) context);
    return CORSTATUS_OK;
}

//
// Example program
//
main()
{
    CORSTATUS status;     // Error code
    CORSERVER hSystem;    // System server handle
    CORSERVER hBoard;     // Board server handle
    CORCAM hCam;          // CAM handle
    CORVIC hVic;          // VIC handle
    CORACQ hAcq;          // Acquisition handle
    CORBUFFER hBuffer;    // Buffer handle
    CORXFER hXfer;        // Transfer handle
    CORVIEW hView;        // View handle
    CORDISPLAY hDisplay;  // Display handle
    UINT32 width, height, format;

    // Initialize Sapera API
    status = CorManOpen();

    // Get server handles (system and board)
    hSystem = CorManGetLocalServer();
    status = CorManGetServerByName("X64-CL_1", &hBoard);

    // Get acquisition handle
    status = CorAcqGetHandle(hBoard, 0, &hAcq);  // 0 = First instance

    // Create CAM/VIC handles
    status = CorCamNew(hSystem, &hCam);   // Camera
    status = CorVicNew(hSystem, &hVic);   // Video-Input-Conditionning

    // Load CAM/VIC parameters from file into system memory
    // The acquisition hardware is not initialized at this point
    status = CorCamLoad(hCam, "rs170.cca");
    status = CorVicLoad( hVic, "rs170.cvi");

    // Download the CAM/VIC parameters to the acquisition module
    // The acquisition hardware is now initialized
    status = CorAcqSetPrms(hAcq, hVic, hCam, FALSE);

    // Create a buffer compatible to acquisition
    status = CorAcqGetPrm(hAcq, CORACQ_PRM_SCALE_HORZ, &width);
    status = CorAcqGetPrm(hAcq, CORACQ_PRM_SCALE_VERT, &height);
    status = CorAcqGetPrm(hAcq, CORACQ_PRM_OUTPUT_FORMAT, &format);
    status = CorBufferNew(hSystem, width, height, format,
            CORBUFFER_VAL_TYPE_SCATTER_GATHER, &hBuffer);

    // Create a transfer handle to link acquisition to buffer
    status = CorXferNew(hBoard, hAcq, hBuffer, NULL, &hXfer);

    // Register a callback function on "End-Of-Frame" events
    status = CorXferRegisterCallback(hXfer, CORXFER_VAL_EVENT_TYPE_END_OF_FRAME,
              XferCallback, (void *)&hView);

    // Activate the connection between acquisition and buffer
    status = CorXferConnect(hXfer);

    // Get display handle
    status = CorDisplayGetHandle(hSystem, 0, &hDisplay);

    // Create a view handle and assign it to a HWND
    status = CorViewNew(hSystem, hDisplay, hBuffer, CORVIEW_VAL_MODE_AUTO_DETECT,
              &hView);
    status = CorViewSetPrm(hView, CORVIEW_PRM_HWND, -1); // -1: create new window

    // Start a continuous transfer (live grab)
    status = CorXferStart(hXfer, CORXFER_CONTINUOUS);
```

```
    printf("Press any key to stop grab\n");
    getchar(); // wait until a key has been hit

    // Stop the transfer and wait (timeout = 5 sec)
    status = CorXferStop(hXfer);
    status = CorXferWait(hXfer, 5000);

    // Break the connection between acquisition and buffer
    status = CorXferDisconnect(hXfer);

    printf("Press any key to terminate\n");
    getchar();

    // Release handles when finished (in the reverse order)
    status = CorViewFree(hView);
    status = CorDisplayRelease(hDisplay);
    status = CorXferFree(hXfer);
    status = CorBufferFree(hBuffer);
    status = CorVicFree(hVic);
    status = CorCamFree(hCam);
    status = CorAcqRelease(hAcq);

    // Close Sapera API
    status = CorManClose();

    return 0;
}
```

Modifying the Frame Grabber Parameters

The following describes how to modify frame grabber parameters individually or by group.

Modifying Parameters Individually

Acquisition parameters can be modified individually by using the *CorAcqSetPrm* and/or *CorAcqSetPrmEx* functions. When a new parameter value is requested, that value is verified against the current state of the acquisition module and the acquisition module capabilities. If the modification request is denied because the parameter is dependent on other parameters, then all the parameters in question must be modified by group, in which case you must refer to the next section.

```
CORSTATUS status;      // Error code
CORSERVER hSystem;     // System server handle
CORSERVER hBoard;      // Board server handle
CORACQ hAcq;           // Acquisition handle
UINT32 capSync;        // Sync capability (as an example)

// Initialize Sapera API
status = CorManOpen();

// Get server handles
hSystem = CorManGetLocalServer();
status = CorManGetServerByName("X64-CL_1", &hBoard);

// Get acquisition handle
status = CorAcqGetHandle(hBoard, 0, &hAcq);      // 0 = First instance

// Verify if sync on composite sync is supported
status = CorAcqGetCap(hAcq, CORACQ_CAP_SYNC, &capSync);
if (!status && (capSync & CORACQ_VAL_SYNC_COMP_SYNC))
{
    // Change the sync source to Composite Sync
    status = CorAcqSetPrm(hAcq, CORACQ_PRM_SYNC, CORACQ_VAL_SYNC_COMP_SYNC);
}


// Do something else
...


// Release handles when finished
status = CorAcqRelease(hAcq);

// Close Sapera API
status = CorManClose();
```

Modifying Parameters by Group

Acquisition parameters can be modified by group using the *CorAcqSetPrms* function. When a new set of values is requested, all modified parameters are verified against the given state and capabilities of the acquisition module.

```
CORSTATUS status;      // Error code
CORSERVER hSystem;     // System server handle
CORSERVER hBoard;      // Board server handle
CORACQ hAcq;           // Acquisition handle
CORCAM hCam;           // CAM handle
CORVIC hVic;           // VIC handle

// Initialize Sapera API
status = CorManOpen();

// Get server handles
hSystem = CorManGetLocalServer();
status = CorManGetServerByName("X64-CL_1", &hBoard);

// Get acquisition handle
status = CorAcqGetHandle(hBoard, 0, &hAcq);     // 0 = First instance

// Create a CAM resource (Camera)
status = CorCamNew( hSystem, &hCam);

// Create a VIC resource (Video-Input-Conditioning)
status = CorVicNew( hSystem, &hVic);

// Get current state of the acquisition module and lock parameters
status = CorAcqGetPrms(hAcq, hVic, hCam, TRUE);

// Modify parameters individually
status = CorVicSetPrm(hVic, CORVIC_PRM_CROP_WIDTH, 640);
status = CorVicSetPrm(hVic, CORVIC_PRM_CROP_HEIGHT, 480);
status = CorVicSetPrm(hVic, CORVIC_PRM_SCALE_HORZ, 640);
status = CorVicSetPrm(hVic, CORVIC_PRM_SCALE_VERT, 480);

// Apply the modified parameters on the acquisition module
status = CorAcqSetPrms(hAcq, hVic, hCam, TRUE);


// Do something else
...


// Release handles when finished
status = CorCamFree(hCam);
status = CorVicFree(hVic);
status = CorAcqRelease(hAcq);

// Close Sapera API
status = CorManClose();
```

Using an Input Lookup Table

An Input Lookup Table is first created using the LUT module API and then transferred to the acquisition module (if it has input lookup table capability). The example below illustrates the steps required.

```
CORSTATUS status;     // Error code
CORSERVER hSystem;    // System server handle
CORSERVER hBoard;     // Board server handle
CORACQ hAcq;          // Acquisition handle
CORLUT hLut;          // Lut handle
UINT32 nLut;          // Number of Acquisition LUT
UINT32 pixelDepth;    // Number of bits/pixel to acquire
UINT32 lutFormat;     // Acquisition LUT format
UINT32 entries;       // Total number of entries in the LUT

// Initialize Sapera API
status = CorManOpen();

// Get server handles
hSystem = CorManGetLocalServer();
status = CorManGetServerByName("X64-CL_1", &hBoard);

// Get acquisition handle
status = CorAcqGetHandle(hBoard, 0, &hAcq);    // 0 = First instance

// Check if the acquisition device has at least one lookup table available
status = CorAcqGetPrm(hAcq, CORACQ_PRM_LUT_MAX, &nLut);

if( nLut > 0)
{
   // Create a LUT resource
   // Get the pixel depth and current LUT format from the acquisition module
   status = CorAcqGetPrm(hAcq, CORACQ_PRM_PIXEL_DEPTH, &pixelDepth);
   status = CorAcqGetPrm(hAcq, CORACQ_PRM_LUT_FORMAT, &lutFormat);

   // Calculate the number of entries needed for the LUT
   entries = 1 << pixelDepth;

   // Create LUT resource
   status = CorLutNew(hSystem, entries, lutFormat, &hLut);

   // Initialize a reverse LUT
   status = CorLutReverse(hLut);

   // Load LUT to acquisition module LUT #0
   status = CorAcqSetLut(hAcq, hLut, 0);

   // Select LUT #0 as the active LUT
   status = CorAcqSetPrm(hAcq, CORACQ_PRM_LUT_NUMBER, 0);

   // Enable LUTs
   status = CorAcqSetPrm(hAcq, CORACQ_PRM_LUT_ENABLE, TRUE);

   // Release handles when finished
   status = CorLutFree(hLut);
}
status = CorAcqRelease(hAcq);

// Close Sapera API
status = CorManClose();
```

Camera Acquisition Example

The example below demonstrates how to grab a live image into a buffer allocated within system memory using the *Genie M640* camera as an acquisition device.

Acquiring an image can be performed either by using the camera default settings (feature values stored in the camera) or by loading a configuration file. The configuration file can be generated using *CamExpert*.

Once the AcqDevice module is initialized (with or without using a configuration file), some parameters are retrieved from it (acquisition width, height, and format) and are used to create a compatible buffer.

Before starting the transfer, you must create a transfer path between the AcqDevice resource and the buffer resource. Furthermore, when requesting a transfer stop, you must call *CorXferWait* to wait for the transfer process to terminate completely.

```
// Transfer callback function: called each time a complete frame is transferred
//
CORSTATUS CCONV XferCallback (void *context, UINT32 eventType, UINT32 eventCount)
{
	// Displays the last transferred frame
	CorViewShow(*(CORVIEW*) context);
	return CORSTATUS_OK;
}

//
// Example program
//
main()
{
	CORSTATUS status;        // Error code
	CORSERVER hSystemServer; // System server handle
	CORSERVER hAcqServer;    // Camera server handle
	CORACQDEVICE hAcqDevice; // Camera handle
	CORBUFFER hBuffer;       // Buffer handle
	CORXFER hXfer;           // Transfer handle
	CORVIEW hView;           // View handle
	CORDISPLAY hDisplay;     // Display handle
	UINT32 width, height, format;

	// Initialize Sapera API
	status = CorManOpen();

	// Gets server handles (system and camera)
	hSystemServer = CorManGetLocalServer();
	status = CorManGetServerByName("Genie_M640_1", &hAcqServer);

	// Gets camera handle
	status = CorAcqDeviceGetHandle(hAcqServer, 0, &hAcqDevice);  // 0 = First instance

	// Optionally loads a configuration file to program the camera
	// Otherwise, the camera will work with its default settings
	status = CorAcqDeviceLoadFeatures(hAcqDevice, "Genie_M640_Example.ccf");

	// Creates a buffer compatible with camera
	status = CorAcqDeviceGetFeatureValueByName(hAcqDevice, "Width", &width,
	      sizeof(width));
	status = CorAcqDeviceGetFeatureValueByName(hAcqDevice, "Height", &height,
	      sizeof(height));
	status = CorAcqDeviceGetFeatureValueByName(hAcqDevice, "SaperaBufferFormat",
	      &format, sizeof(format));
	status = CorBufferNew(hSystemServer, width, height, format,
	      CORBUFFER_VAL_TYPE_SCATTER_GATHER, &hBuffer);

	// Creates a transfer handle to link camera to buffer
	status = CorXferNew(hAcqServer, hAcqDevice, hBuffer, NULL, &hXfer);

	// Registers a callback function on "End-Of-Frame" events
	status = CorXferRegisterCallback(hXfer, CORXFER_VAL_EVENT_TYPE_END_OF_FRAME,
	                  XferCallback, (void *)&hView);

	// Activates the connection between camera and buffer
	status = CorXferConnect(hXfer);
```

```
        // Gets display handle
        status = CorDisplayGetHandle(hSystemServer, 0, &hDisplay);

        // Creates a view handle and assign it to a HWND
        status = CorViewNew(hSystemServer, hDisplay, hBuffer,
              CORVIEW_VAL_MODE_AUTO_DETECT,&hView);
        status = CorViewSetPrm(hView, CORVIEW_PRM_HWND, -1); // -1: create new window

        // Starts a continuous transfer (live grab)
        status = CorXferStart(hXfer, CORXFER_CONTINUOUS);

        printf("Press any key to stop grab\n");
        getch(); // wait until a key has been hit

        // Stops the transfer and waits (timeout = 5 sec)
        status = CorXferStop(hXfer);
        status = CorXferWait(hXfer, 5000);

        // Breaks the connection between acquisition and buffer
        status = CorXferDisconnect(hXfer);

        printf("Press any key to terminate\n");
        getch();

        // Releases handles when finished (in the reverse order)
        CorViewFree(hView);
        CorDisplayRelease(hDisplay);
        CorXferFree(hXfer);
        CorBufferFree(hBuffer);
        CorAcqDeviceRelease(hAcqDevice);
        CorManReleaseServer(hAcqServer);

        // Close Sapera API
        status = CorManClose();

        return 0;
}
```

Modifying the Camera Features

The following describes how to modify camera features individually or by group.

Accessing Feature Information and Values

The following example shows how features of the camera can be accessed. Information such as type, range and access mode can be retrieved for each supported feature. The AcqDevice module also allows modifying the feature values by directly writing to the camera. In some circumstances a set of feature values are tightly coupled together and must therefore be written to the camera all at once. The next section shows how to proceed in such a case.

```
//
// Callback Function
//
CORSTATUS CCONV CameraCallback(void *context, COREVENTINFO hEventInfo)
{
   CORSTATUS status;
   UINT32 eventCount;
   UINT32 eventIndex;
   char eventName[64];
   CORACQDEVICE hAcqDevice = (CORACQDEVICE) context;

   // Retrieve count, index and name of the received event
   status = CorEventInfoGetPrm(hEventInfo, COREVENTINFO_PRM_EVENT_COUNT, &eventCount);
   status = CorEventInfoGetPrm(hEventInfo, COREVENTINFO_PRM_EVENT_INDEX, &eventIndex);
   status = CorAcqDeviceGetEventNameByIndex(hAcqDevice, eventIndex, eventName,
            sizeof(eventName));

   // Check for "Feature Value Changed" event
   if (strcmp(eventName, "Feature Value Changed") == 0)
   {
      // Retrieve index and name of the feature that has changed
      int featureIndex;
      char featureName[64];
      status = CorEventInfoGetPrm(hEventInfo, COREVENTINFO_PRM_FEATURE_INDEX,
               &featureIndex);
      status = CorAcqDeviceGetFeatureNameByIndex(hAcqDevice, featureIndex,
               featureName, sizeof(featureName));
   }

   return CORSTATUS_OK;
}

//
// Main Program
//
main()
{
   CORSTATUS status;
   CORSERVER hSystemServer, hAcqServer;
   CORACQDEVICE hAcqDevice;
   UINT32 featureCount, featureIndex;
   CORFEATURE hFeature;
   UINT32 value, min, max, inc;
   UINT32 enumCount, enumIndex, enumValue;
   char enumString[64];
   UINT32 lutIndex, lutNEntries, lutFormat;
   CORLUT hLut;
   UINT32 numEvents, eventIndex;
   char eventName[64];

   // Initialize Sapera API
   status = CorManOpen();

   // Get handle to the system server
   hSystemServer = CorManGetLocalServer();

   // Get handle to the camera server
   status = CorManGetServerByName("Genie_M640_1", &hAcqServer);

   // Get handle to the camera resource
   status = CorAcqDeviceGetHandle(hAcqServer, 0, &hAcqDevice);

   // Get the number of features provided by the camera
   status = CorAcqDeviceGetFeatureCount(hAcqDevice, &featureCount);

   // Create an empty feature object (to receive information)
   status = CorFeatureNew(hAcqServer, &hFeature);

   //
   // Example 1 : Browse through the feature list
   //
   for (featureIndex = 0; featureIndex < featureCount; featureIndex++)
   {
      char featureName[CORPRM_GETSIZE(CORFEATURE_PRM_NAME)];
      UINT32 featureType;

      // Get information from current feature
```

```
      // Get feature object
      status = CorAcqDeviceGetFeatureInfoByIndex(hAcqDevice, featureIndex, hFeature);

      // Extract name and type from object
      status = CorFeatureGetPrm(hFeature, CORFEATURE_PRM_NAME, featureName);
      status = CorFeatureGetPrm(hFeature, CORFEATURE_PRM_TYPE, &featureType);

      // Get/set value from/to current feature
      switch (featureType)
      {
         // Feature is a 64-bit integer
      case CORFEATURE_VAL_TYPE_INT64:
         {
            UINT64 value;
            status = CorAcqDeviceGetFeatureValueByIndex(hAcqDevice, featureIndex,
                     &value, sizeof(value));
            value += 10;
            status = CorAcqDeviceSetFeatureValueByIndex(hAcqDevice, featureIndex,
                     &value, sizeof(value));
         }
         break;
         // Feature is a boolean
      case CORFEATURE_VAL_TYPE_BOOL:
         {
            BOOL value;
            status = CorAcqDeviceGetFeatureValueByIndex(hAcqDevice, featureIndex,
                     &value, sizeof(value));
            value = !value;
            status = CorAcqDeviceSetFeatureValueByIndex(hAcqDevice, featureIndex,
                     &value, sizeof(value));
         }
         break;
         // Other feature types
         // ...
      }
   }

   //
   // Example 2 : Access specific feature (integer example)
   //
   // Get feature object
   status = CorAcqDeviceGetFeatureInfoByName(hAcqDevice, "Gain", hFeature);

   // Extract minimum, maximum and increment values
   status = CorFeatureGetMin(hFeature, &min, sizeof(min));
   status = CorFeatureGetMax(hFeature, &max, sizeof(max));
   status = CorFeatureGetInc(hFeature, &inc, sizeof(inc));

   // Read, modify and write value
   status = CorAcqDeviceGetFeatureValueByName(hAcqDevice, "Gain", &value,
            sizeof(value));
   value += 10;
   status = CorAcqDeviceSetFeatureValueByName(hAcqDevice, "Gain", &value,
            sizeof(value));

   //
   // Example 3 : Access specific feature (enumeration example)
   //
   // Get feature object
   status = CorAcqDeviceGetFeatureInfoByName(hAcqDevice, "ExposureMode", hFeature);

   // Get number of items in enumeration
   status = CorFeatureGetEnumCount(hFeature, &enumCount);

   for (enumIndex = 0; enumIndex < enumCount; enumIndex++)
   {
      // Get item string and value
      status = CorFeatureGetEnumString(hFeature, enumIndex, enumString,
               sizeof(enumString));
      status = CorFeatureGetEnumValue(hFeature, enumIndex, &enumValue);
   }

   // Read a value and get its associated string
   status = CorAcqDeviceGetFeatureValueByName(hAcqDevice, "ExposureMode", &enumValue,
            sizeof(enumValue));
   status = CorFeatureGetEnumStringFromValue(hFeature, enumValue, enumString,
            sizeof(enumString));
```

```
   // Write a value corresponding to known string
   status = CorFeatureGetEnumValueFromString(hFeature, "Manual", &enumValue);
   status = CorAcqDeviceSetFeatureValueByName(hAcqDevice, "ExposureMode", &enumValue,
            sizeof(enumValue));

   //
   // Example 4 : Access specific feature (LUT example)
   //
   // Select a LUT and retrieve its size and format
   status = CorAcqDeviceGetFeatureValueByName(hAcqDevice, "LUTNumberEntries",
            &lutNEntries, sizeof(lutNEntries));
   status = CorAcqDeviceGetFeatureValueByName(hAcqDevice, "LUTFormat", &lutFormat,
            sizeof(lutFormat));

   // Create and generate a compatible software LUT
   status = CorLutNew(hSystemServer, lutNEntries, lutFormat, &hLut);
   status = CorLutReverse(hLut);

   // Write LUT values to camera
   status = CorAcqDeviceSetFeatureDataByName(hAcqDevice, "LUTData", hLut);

   //
   // Example 5 : Callback management
   //
   // Browse event list
   status = CorAcqDeviceGetEventCount(hAcqDevice, &numEvents);
   for (eventIndex = 0; eventIndex < numEvents; eventIndex++)
   {
      status = CorAcqDeviceGetEventNameByIndex(hAcqDevice, eventIndex, eventName,
               sizeof(eventName));
   }

   // Register event by name
   status = CorAcqDeviceRegisterCallbackByName(hAcqDevice, "Feature Value Changed",
            CameraCallback, hAcqDevice);

   // Modified a feature (Will trigger callback function)
   value = 150;
   status = CorAcqDeviceSetFeatureValueByName(hAcqDevice, "Gain", &value,
            sizeof(value));

   // Unregister event by name
   status = CorAcqDeviceUnregisterCallbackByName(hAcqDevice, "Feature Value Changed");

   // Release handles
   status = CorLutFree(hLut);
   status = CorFeatureFree(hFeature);
   status = CorAcqDeviceRelease(hAcqDevice);
   status = CorManReleaseServer(hAcqServer);
   status = CorManReleaseServer(hSystemServer);

   // Close Sapera API
   status = CorManClose();
}
```

Writing Feature Values by Group

When a series of features are tightly coupled it becomes almost impossible to modify those features without following a specific order. One example is the region-of-interest (ROI) where the four values (top, left, width and height) depend on each other. To circumvent this problem the AcqDevice module allows you to temporarily set the feature values in an “internal cache” and then downloads the values to the camera all at once. The following code illustrates the ROI example.

```
. . .

   CORSTATUS status;
   UINT32 value;

   // Set manual mode to update features
   status = CorAcqDeviceSetPrm(hAcqDevice, CORACQDEVICE_PRM_UPDATE_FEATURE_MODE,
      CORACQDEVICE_VAL_UPDATE_FEATURE_MODE_MANUAL);

   // Set buffer top position value (in the internal cache only)
   value = 50;
   status = CorAcqDeviceSetFeatureValueByName(hAcqDevice, "OffsetY", &value,
      sizeof(value));

   // Set buffer left position value (in the internal cache only)
   value = 50;
   status = CorAcqDeviceSetFeatureValueByName(hAcqDevice, "OffsetX", &value,
      sizeof(value));

   // Set buffer width value (in the internal cache only)
   value = 300;
   status = CorAcqDeviceSetFeatureValueByName(hAcqDevice, "Width", &value,
      sizeof(value));

   // Set buffer height value (in the internal cache only)
   value = 300;
   status = CorAcqDeviceSetFeatureValueByName(hAcqDevice, "Height", &value,
      sizeof(value));

   // Write features value to the device (by reading values from the internal cache)
   status = CorAcqDeviceUpdateFeaturesToDevice(hAcqDevice);

   // Set back the automatic mode
   status = CorAcqDeviceSetPrm(hAcqDevice, CORACQDEVICE_PRM_UPDATE_FEATURE_MODE,
      CORACQDEVICE_VAL_UPDATE_FEATURE_MODE_AUTO);
```

Displaying Images

Required Modules

The following three Sapera modules are required to initiate a display process:

- **Display**: Static resource based on an onboard display section.
- **Buffer**: Dynamic resource containing data to display. Several type options may be chosen when allocating the buffer to be compatible with the different display modes (see see the "Working with Buffers" section for more information about these options).
- **View**: Dynamic resource used to link the display to the buffer and to synchronize the display operations.

Display Example

The example below illustrates how to display an image contained within a system buffer to the computer VGA card. The buffer is transferred to the Windows desktop using the DIB mode (automatically detected by the View module). When using this mode, a Windows Device-Independent Bitmap (DIB) is first created before being sent to VGA memory. For more information on the View modes, see Modifying the View Parameters.

```
CORSTATUS status;     // Error code
CORSERVER hSystem;    // System server handle
CORDISPLAY hDisplay;      // Display handle
CORBUFFER hBuffer;    // Buffer handle
CORVIEW hView;        // View handle

// Initialize Sapera API
status = CorManOpen();

// Get system server handle
hSystem = CorManGetLocalServer();

// Get display handle
status = CorDisplayGetHandle(hSystem, 0, &hDisplay);

// Create a 640x480/8-bit monochrome buffer in system memory
status = CorBufferNew(hSystem, 640, 480, CORBUFFER_VAL_FORMAT_UINT8, CORBUFFER_VAL_TYPE_VIRTUAL, &hBuffer);

// Create a view handle
status = CorViewNew(hSystem, hDisplay, hBuffer, CORVIEW_VAL_MODE_AUTO_DETECT, &hView);

// Set HWND parameter to NULL to display image on the desktop
status = CorViewSetPrm(hView, CORVIEW_PRM_HWND, NULL);

// Display image in the desktop
status = CorViewShow(hView);

// Release handles when finished
status = CorViewFree(hView);         // Should be freed first
status = CorBufferFree(hBuffer);
status = CorDisplayRelease(hDisplay);

// Close Sapera API
status = CorManClose();
```

Modifying the View Parameters

The following describes view modes, source and destination windows, and zooming.

View Modes

Three viewing modes are available. Specifying CORVIEW_VAL_MODE_AUTO_DETECT when creating the View module will choose the appropriate mode, taking into account the given buffer.

- **DIB mode:** Used to display buffers of any pixel format. A View module can be created in DIB mode if the associated buffer is contiguous, scatter-gather, or virtual. DIB mode uses a device-independent bitmap to represent and transfer buffer data to the Display module.
- **BLT mode:** Used if the display device supports DirectDraw (Windows XP 32-bit only) and if the buffer is an offscreen buffer. If the display adapter supports it, BLT mode will perform a fast data transfer from the buffer to the display memory. This mode is usually faster than the DIB mode, if the buffer has been allocated in video memory and if the transfer occurs within the display adapter, thus freeing the CPU or PCI bus of potential bottlenecks. Create offscreen buffers in video memory using the same pixel format as the display adapter's current pixel format (for instance, RGB565 for a 65536 color configuration). For offscreen buffers in system memory, the CORDISPLAY_PRM_PIXEL_TYPE_OFFSCREEN parameter supplies a list of pixel formats that DirectDraw can copy directly to the display memory. If the buffer's pixel format is not in this list, a software conversion will be performed.
- **Keyer mode:** Used if the display device supports DirectDraw (Windows XP 32-bit only) and if the buffer is an overlay buffer. The display adapter's hardware can perform a color keying operation between the overlay buffer and the display memory using the keyer color defined by the CORVIEW_PRM_KEYER_COLOR parameters. The color keying mode is determined by the View module's CORVIEW_PRM_OVERLAY_MODE parameter.

Source and Destination Windows and Zooming

The following are the View module’s two reference windows:

- A source window that defines an area in the buffer to display.
- A destination window that defines a region on the display surface or in the target window’s client area (if CORVIEW_PRM_HWND is not 0) where the source window region is displayed.

Upon the creation of a new View module, the source window is by default the same size as the whole buffer viewed and is positioned at its origin. The destination window matches the dimensions of the source window and is positioned at the origin of the display surface or the target window’s client area. The dimensions and position of these windows can be modified using the CORVIEW_PRM_ROI_SRC_xxx and CORVIEW_PRM_ROI_DST_xxx parameters, if the CORVIEW_CAP_ROI_SRC and CORVIEW_CAP_ROI_DST capabilities are not 0 (for instructions on setting these parameters, see Displaying in a Windows Application). If these two windows have the same dimensions, no zooming is performed (the pixels are displayed as they are read in the buffer). If the destination window is a different size from the source window, the buffer elements are zoomed up or down (as appropriate) as they are displayed. The character of the zooming operation depends on the value of the CORVIEW_CAP_ZOOM_HORZ_METHOD and CORVIEW_CAP_ZOOM_VERT_METHOD capabilities. Zooming can be accomplished through pixel dropping or replication, interpolation, or by powers of 2. X and Y zoom methods are independent from each other.

	Zooming may influence the View module’s display speed (realtime refresh may not be possible).

Displaying in a Windows Application

The View module contains three callback functions, CorViewOnPaint, CorViewOnMove, and CorViewOnSize. They can be called in your Windows application's respective message handlers for WM_PAINT, WM_MOVE and WM_SIZE. Below is an example of a Windows application using the Visual C++'s MFC library. This is a dialog-based application whose dialog window is used to display the buffer content. The window's handle is passed as a parameter in the OnInitDialog handler to ensure that it is not null. The destination window is adjusted each time the dialog is resized. The source window corresponds to the buffer rectangle by default. The View module will scale the buffer contents into the dialog window because it is not adjusted.

```
CORSTATUS status;      // Error code
CORSERVER hSystem; // System server handle
CORDISPLAY hDisplay;      // Display handle
CORBUFFER hBuffer; // Buffer handle
CORVIEW hView;     // View handle

CCorViewDlg::CCorViewDlg()
{
// Initialize Sapera API
status = CorManOpen();

// Other initialization
...

// Get system server handle
hSystem = CorManGetLocalServer();

// Get display handle
status = CorDisplayGetHandle(hSystem, 0, &hDisplay);

// Create a 640x480/8-bit monochrome buffer in system memory
status = CorBufferNew(hSystem, 640, 480, CORBUFFER_VAL_FORMAT_UINT8, CORBUFFER_VAL_TYPE_VIRTUAL,
&hBuffer);

// Create a view handle
status = CorViewNew(hSystem, hDisplay, hBuffer, CORVIEW_VAL_MODE_AUTO_DETECT, &hView);
}

CCorViewDlg::~CCorViewDlg()
{
CORSTATUS status;      // Error code

// Release handles when finished
status = CorViewFree(hView);      // Should be freed first
status = CorBufferFree(hBuffer);
status = CorDisplayRelease(hDisplay);

// Close Sapera API
status = CorManClose();
}

BOOL CCorViewDlg::OnInitDialog()
{
// Call default handler
CDialog::OnInitDialog();

// Other initialization
...

// Set HWND parameter to window's handle
status = CorViewSetPrm(hView, CORVIEW_PRM_HWND, (UINT32)GetSafeHwnd());

return TRUE;
}

void CCorViewDlg::OnPaint()
{
if (IsIconic())
{
...
}
else
{
```

```
// Optionally call the default handler to paint a background
CDialog::OnPaint();

// Update view area
CorViewOnPaint(hView);
}
}

void CCorViewDlg::OnSize(UINT nType, int cx, int cy)
{
// Call default handler
CDialog::OnSize(nType, cx, cy);

// Fit destination window to window's client area
CRect cli;
GetClientRect(cli);
status = CorViewSetPrm(hView, CORVIEW_PRM_ROI_DST_LEFT, cli.left);
status = CorViewSetPrm(hView, CORVIEW_PRM_ROI_DST_TOP,  cli.top);
status = CorViewSetPrm(hView, CORVIEW_PRM_ROI_DST_WIDTH, cli.Width());
status = CorViewSetPrm(hView, CORVIEW_PRM_ROI_DST_HEIGHT, cli.Height());

// Update displayed area
CorViewOnSize(hView);
}

void CCorViewDlg::OnMove(int x, int y)
{
// Call default handler
CDialog::OnMove(x, y);

// Update displayed area
CorViewOnMove(hView);
}
```

Working with Buffers

Root and Child Buffers

A buffer is created in one of two ways: either as a root buffer (with no parent) or as a child buffer (with a parent). The parent of the child may also be a child itself, which allows you to build a buffer hierarchy with no restriction on the number of levels. A buffer can have more than one child buffer.

A child buffer shares the same memory space as its parent, and it defines an adjustable rectangular area within the root buffer. A child may be used by a processing function in order to process a region of interest. The example below shows how to create a root buffer with two child buffers.

Note: Child buffers must be freed before the root. If not, the root will return an error and will not be freed.

```
CORSTATUS status;                       // Status code
CORSERVER hServer;                      // Server handle
CORBUFFER hBuffer;                      // Root buffer handle
CORBUFFER hChildLeft, hChildRight;      // Child buffer handles

// Initialize Sapera API
status = CorManOpen();

// Get server handle
hServer = CorManGetLocalServer();

// Create a 640x480/8-bit monochrome buffer
status = CorBufferNew(hServer, 640, 480, CORBUFFER_VAL_FORMAT_UINT8, CORBUFFER_VAL_TYPE_SCATTER_GATHER,
&hBuffer);

// Create a child in the upper-left corner
status = CorBufferNewChild(hBuffer, 0, 0, 320, 240, &hChildLeft);

// Create a child in the upper-right corner
status = CorBufferNewChild(hBuffer, 320, 0, 320, 240, &hChildRight);

// Use buffers
...

// Free child buffers
status = CorBufferFree(hChildLeft);
status = CorBufferFree(hChildRight);

// Free root buffer
status = CorBufferFree(hBuffer);

// Close Sapera API
status = CorManClose();
```

Child buffer coordinates are accessed through four buffer parameters (*XMIN*, *YMIN*, *WIDTH*, and *HEIGHT*) that allow you to modify the position and size of the rectangle. The following example demonstrates several manipulations of the child buffers from the previous example.

```
// Swap buffers (left/right)
status = CorBufferSetPrm(hChildLeft, CORBUFFER_PRM_XMIN, 320);
status = CorBufferSetPrm(hChildRight, CORBUFFER_PRM_XMIN, 0);

// Set buffer as high as root
status = CorBufferSetPrm(hChildLeft, CORBUFFER_PRM_HEIGHT, 480);
status = CorBufferSetPrm(hChildRight, CORBUFFER_PRM_HEIGHT, 480);
```

Buffer Types

Various types of buffers can be created. The type of buffer created illustrates how it will be allocated and how it can be used with other modules, such as the Transfer or View modules.

Contiguous Memory Buffers

The buffer is allocated in contiguous memory. This means that the buffer is contained in a single, contiguous block of physical memory. The allocation mode allows the Transfer module to access the buffer through an efficient low-level process, for example, during an acquisition task. It is required to specify CORBUFFER_VAL_TYPE_CONTIGUOUS to allocate a buffer in contiguous memory when creating the buffer. Buffer size is limited by the amount of contiguous memory available which in turn is limited to one third of the total physical memory, up to 120MB. Use a scatter-gather buffer type to allocate large size buffers.

Scatter-Gather Memory Buffers

A buffer may be allocated in paged pool memory. This means that the buffer is composed of many 4K byte memory blocks (pages) that are locked in physical memory by the Buffer module. This particular allocation mode allows the Transfer module to access the buffer through an efficient low-level process, for example, during an acquisition task. It is required to specify CORBUFFER_VAL_TYPE_SCATTER_GATHER to allocate a scatter-gather buffer when creating a new buffer. Note that a scatter-gather buffer can be very large since it uses paged pool memory.

Unmapped Buffers

When the total amount of required buffer memory is close to or exceeds the amount of available virtual memory (2 GBytes under 32-bit Windows), then it is not possible to allocate and map the required memory.

When using the CORBUFFER_VAL_TYPE_UNMAPPED type, buffers are allocated in system memory. Pages are allocated but not mapped into the process virtual address space. Before trying to retrieve buffer virtual addresses, their memory has to be mapped into the process virtual address space by calling either the CorBufferMap or the CorBufferMapEx function. This buffer type can be logically ORed with CORBUFFER_VAL_TYPE_SCATTER_GATHER to create a source buffer or destination buffer for a transfer resource.

Virtual Buffers

Similar to a scatter-gather buffer except that pages of memory are not locked. This type of buffer permits the allocation of very large buffers; however, these buffers cannot be used as a source/destination for the transfer resource. It is required to specify CORBUFFER_VAL_TYPE_VIRTUAL to allocate a virtual buffer when creating the new buffer. This type of buffer may be used, for example, to store an image resulting from a processing operation. If you supply a contiguous scatter-gather or virtual buffer to CorViewNew, the View resource created will ensure that any pixel format can be displayed, sometimes at the expense of higher CPU utilization.

Offscreen and Overlay Buffers

These buffer types use DirectDraw (Windows XP 32-bit only) (which must be installed on the computer) to exploit the hardware acceleration provided by the display adapter. Note that these buffers are subject to some restrictions. Before creating this buffer type, verify that the CORDISPLAY_PRM_PIXEL_TYPE_OFFSCREEN or CORDISPLAY_PRM_PIXEL_TYPE_OVERLAY parameters list the pixel formats that can be displayed efficiently without software conversion. The parameters depend on the display adapter and its current display mode (256 colors, 16, 24, or 32 bits). Note that a buffer created using any of those types can be used in low-level transfer processes, such as an acquisition task.

If the display device supports DirectDraw and CORBUFFER_VAL_TYPE_OFFSCREEN is specified when a buffer is created, the buffer will be allocated in system memory. The View module created using a buffer of this type tries to use the display adapter's hardware to copy the buffer's contents from system memory to video display memory. A system memory offscreen buffer can be created using any pixel format; however, calling *CorViewShow* with its corresponding view will take longer to execute if its pixel format is not listed in the CORDISPLAY_PRM_PIXEL_TYPE_OFFSCREEN parameter.

Off-Screen Buffers in Video Memory

The buffer is allocated in offscreen video memory if CORBUFFER_VAL_TYPE_OFFSCREEN and CORBUFFER_VAL_TYPE_VIDEO is specified when creating the buffer (the two values should be ORed). The View module created using a buffer of this type uses the display adapter's hardware to perform a fast copy from video memory to video display memory. Typically, a buffer of this type is used when a graphical element is reused for several consecutive frames without modification. In this case, it is more efficient to keep this element in video memory and use the hardware to copy it to the appropriate position in each frame.

Note: If the display is in 256 color mode and 8-bit offscreen buffers are used, care should be taken to make certain that the buffers do not contain pixels with values within the 0-9 and 246-255 ranges. These values are reserved for Windows system colors and will not be displayed correctly.

Overlay Buffers

The buffer is allocated in video memory. Once a View module is created using this buffer and *CorViewShow* is initially called, the display adapter's overlay hardware will keep updating the display with the buffer's contents without additional *CorViewShow* calls. Note that the pixel format of an overlay buffer must be listed in the CORDISPLAY_PRM_PIXEL_TYPE_OVERLAY parameter. Typically, overlay buffers will support more pixel formats (like YUV) than offscreen buffers. Color keying is supported by overlays as well. The behaviour of the overlay regarding key colors is determined by the CORVIEW_PRM_OVERLAY_MODE parameter of the View module resource associated with the buffer.

Dummy Buffers

No memory is allocated for a dummy buffer in order that it does not contain any data elements. However, all of its size and format parameters are still valid. This means that any Sapera functionality from other modules that need access to buffer data elements will not work. The only exception is the Transfer module, which may use dummy buffers as placeholders when no data is to be physically transferred.

Reading and Writing a Buffer

The following describes accessing simple buffer data as well as accessing buffer data using pointers.

Simple Buffer Data Access

The simplest way to read or write data to a buffer is by accessing it element by element. The CorBufferReadElement and CorBufferWriteElement functions are used to read and write a single elements to a buffer, respectively. The following examples demonstrate how to access data in an 8-bit monochrome buffer.

```
CORSTATUS status;     // Status code
CORSERVER hServer;    // Server handle
CORBUFFER hBuffer;    // Buffer handle
UINT8 value;          // Unsigned character to store 8-bit value

// Initialize Sapera API
status = CorManOpen();

// Get server handle
...

// Create a 640x480/8-bit monochrome buffer
status = CorBufferNew(hServer, 640, 480, CORBUFFER_VAL_FORMAT_UINT8, CORBUFFER_VAL_TYPE_VIRTUAL, &hBuffer);

// Write a constant value at a specific position
value = 0x80;
status = CorBufferWriteElement(hBuffer, 100, 200, &value, sizeof( value));

// Read back the value
status = CorBufferReadElement(hBuffer, 100, 200, &value, sizeof( value));

// Free buffer
status = CorBufferFree(hBuffer);

// Close Sapera API
status = CorManClose();
```

Accessing buffer data in this way is quite straightforward but, unfortunately, it considerably slows down access time. Alternately, you can access data by reading/writing an array of elements with only one function call through the Buffer module's CorBufferRead and CorBufferWrite functions. Below is a sample code illustrating the usage of these functions.

```
CORSTATUS status;     // Status code
CORSERVER hServer;    // Server handle
CORBUFFER hBuffer;    // Buffer handle
UINT8 *array;         // Character array to store 8-bit values
UINT32 size;          // Size of the array in bytes

// Initialize Sapera API
status = CorManOpen();

// Get server handle
...

// Create a 640x480/8-bit monochrome buffer
status = CorBufferNew(hServer, 640, 480, CORBUFFER_VAL_FORMAT_UINT8, CORBUFFER_VAL_TYPE_VIRTUAL, &hBuffer);

// Create an array the same size as the buffer
size = 640 * 480 * sizeof( UINT8);
array  = (BYTE *) malloc(size);

// Fill array with values
...

// Write array to buffer
status = CorBufferWrite(hBuffer, 0, array, size);

// Read back array from buffer
status = CorBufferRead(hBuffer, 0, array, size);

// Free array and buffer
free(array);
status = CorBufferFree(hBuffer);

// Close Sapera API
status = CorManClose();
```

Buffer Data Access Using Pointers

Another way to access data stored in a buffer is to get a pointer to the buffer's memory by retrieving the value of its CORBUFFER_PRM_ADDRESS parameter. If the buffer has been allocated into video memory (that is, an offscreen-video buffer or an overlay buffer), it must be locked before its address can be obtained. A buffer is locked by setting its CORBUFFER_PRM_LOCKED to a non-zero value.

```
CORSTATUS status;      // Status code
CORSERVER hServer;     // Server handle
CORBUFFER hBuffer;     // Buffer handle
UINT16 *dataPtr;       // pointer to buffer memory
UINT8  *basePtr;       // pointer to buffer memory
UINT32 pitch;          // width of buffer created
UINT32 i,j;

// Initialize Sapera API
status = CorManOpen();

// Get server handle
...

// Create a 640x480/16-bit RGB 565 buffer in video memory
// Display should also be 16 bits

status = CorBufferNew(hServer, 640, 480, CORBUFFER_VAL_FORMAT_RGB565, CORBUFFER_VAL_TYPE_OFFSCREEN |
CORBUFFER_VAL_TYPE_VIDEO, &hBuffer);

// Get the pitch of the surface
status = CorBufferGetPrm(hBuffer, CORBUFFER_PRM_PITCH, &pitch);

// Lock buffer since it is in video memory
status = CorBufferSetPrm(hBuffer, CORBUFFER_PRM_LOCKED, TRUE);

// Get address of the buffer's memory
status = CorBufferGetPrm(hBuffer, CORBUFFER_PRM_ADDRESS, &basePtr);

for(i=0;i<480;i++)
    {
    dataPtr = (UINT16*)(basePtr + i*pitch);
    for(j=0;j<640;j++)
    {
        // Process the line pointed to by dataPtr
        ...
    }
}

// Unlock buffer
status = CorBufferSetPrm(hBuffer, CORBUFFER_PRM_LOCKED, FALSE);

// note: at this point, dataPtr should not be used anymore

// Free buffer
status = CorBufferFree(hBuffer);

// Close Sapera API
status = CorManClose();
```

Additional buffer functions allow you to read and write specific data structures such as lines, rectangles, and dots.

Sapera Frame Grabber Acquisition

Acquisition Parameters & Capabilities

This section describes the functions of the Acquisition, Camera, and VIC Modules. The parameters and capabilities are described in the Sapera LT Acquisition Parameters Reference Manual.

Acquisition Functions

Function	Description
CorAcqFreeFlatfield	*Deallocate a flatfield resource from an acquisition device.*
CorAcqGetCamIOControl	*Gets value of a custom camera I/O control.*
CorAcqGetCap	*Gets acquisition capability value from an acquisition device.*
CorAcqGetCount	*Gets the number of acquisition devices on a server.*
CorAcqGetFlatfield	*Get the gain and offset values for a flatfield resource.*
CorAcqGetHandle	*Gets a handle to an acquisition device.*
CorAcqGetImageFilter	*Gets the image filter kernel.*
CorAcqGetLut	*Gets input LUT values from an acquisition device.*
CorAcqGetPrm	*Gets acquisition parameter value from an acquisition device.*
CorAcqGetPrms	*Gets camera-dependent and VIC-dependent parameters from an acquisition device.*
CorAcqGetSerialPortName	*Retrives the serial port name used by an acquisition device.*
CorAcqNewFlatfield	*Create a flatfield resource for an acquisition device.*
CorAcqRegisterCallback	*Register callback function for an acquisition resource (32-bit version).*
CorAcqRegisterCallbackEx	*Register callback function for an acquisition resource (expanded 64-bit version).*
CorAcqRelease	*Releases handle to an acquisition device.*
CorAcqReset	*Resets an acquisition device.*
CorAcqResetModule	*Resets the resources associated with the server's acquisition device(s).*
CorAcqSetCamIOControl	*Sets value of a custom camera I/O control.*
CorAcqSetFlatfield	*Set the gain and offset values for a flatfield resource.*
CorAcqSetImageFilter	*Set the image filter kernel values.*
CorAcqSetLut	*Sets input LUT values for an acquisition device*
CorAcqSetPrm	*Sets a simple acquisition parameter of an acquisition device*
CorAcqSetPrmEx	*Sets a complex acquisition parameter of an acquisition device*
CorAcqSetPrms	*Sets camera-dependent and VIC-dependent parameters of an acquisition device*
CorAcqSoftwareTrigger	*Simulate a trigger to the acquisition device.*
CorAcqUnlock	*Unlocks acquisition parameters of an acquisition device*
CorAcqUnregisterCallback	*Unregister callback function for an acquisition resource*
CorAcqUnregisterCallbackEx	*Unregister callback function for an acquisition resource (expanded version)*

CorAcqFreeFlatfield

Deallocate a flatfield resource from an acquisition device

Prototype	CORSTATUS **CorAcqFreeFlatfield** (CORACQ *hAcq*, UINT32 flatfieldNumber);	
Description	Deallocate a flatfield resource for an acquisition device that was allocated with CorAcqNewFlatfield.	
Input	*hAcq*	Acquisition resource handle
	flatfieldNumber	The resource's flatfield number
Output	*None*	
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_NOT_AVAILABLE	
See Also	CorAcqNewFlatfield	

CorAcqGetCamIOControl

Get value of a custom camera I/O control

Prototype	CORSTATUS **CorAcqGetCamIOControl**(CORACQ *hAcq*, PCSTR *label*, UINT32 **value*);	
Description	Gets the current value of a custom camera I/O control.	
Input	*hAcq*	Acquisition resource handle
	label	String specifying the label of the custom camera I/O control to get the value from.
Output	*value*	Current value of the custom camera I/O
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID CORSTATUS_ARG_NULL (if *label* or *value* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_IMPLEMENTED	
Note	See Data Structures in the *Sapera LT Acquisition Parameters Reference Manual*, for retrieving correct values with specific macros.	

CorAcqGetCap

Get acquisition capability value from an acquisition device

Prototype	CORSTATUS **CorAcqGetCap**(CORACQ *hAcq*, UINT32 *cap*, void **value*);	
Description	Gets acquisition capability value from an acquisition device.	
Input	*hAcq*	Acquisition resource handle
	cap	Acquisition device capability requested
Output	*value*	Value of the capability
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_CAP_INVALID	

CorAcqGetCount

Get the number of acquisition devices on a server

Prototype	CORSTATUS **CorAcqGetCount**(CORSERVER *hServer*, UINT32 **count*);
Description	Gets the number of acquisition devices available on a server.
Input	*hServer* Server handle
Output	*count* Number of acquisition devices. The value of *count* is 0 when no acquisition device is available.
Return Value	CORSTATUS_OK CORSTATUS_NOT_IMPLEMENTED (when there is no Acquisition devices supported by the specified server) CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *count* is NULL)

CorAcqGetFlatfield

Get the gain and offset values for a flatfield resource

Prototype	CORSTATUS CorAcqGetFlatfield (CORACQ hAcq, UINT32 flatfieldNumber, CORBUFFER hBufferGain, CORBUFFER hBufferOffset);	
Description	Reads the gain and offset values for each pixel from the allocated flatfield resource.	
Input	*hAcq*	Acquisition resource handle
	flatfieldNumber	Flatfield Number
Output	*hBufferGain*	Buffer resource handle. The buffer contains the flatfield gain values for each pixel in the flatfield resource.
	hBufferOffset	Buffer resource handle. The buffer contains the flatfield offset values for each pixel in the flatfield resource.
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_NOT_AVAILABLE CORSTATUS_ARG_INCOMPATIBLE	
See Also	CorAcqNewFlatfield, CorAcqFreeFlatfield and CorAcqSetFlatfield	

CorAcqGetHandle

Get a handle to an acquisition device

Prototype	CORSTATUS **CorAcqGetHandle**(CORSERVER *hServer*, UINT32 *index*, CORACQ **hAcq*);	
Description	Gets a handle to an acquisition device.	
Input	*hServer*	Server handle
	index	Specifies the acquisition device to select. Valid values are in the range [0...*count*-1], where *count* is the value returned by CorAcqGetCount.
Output	*hAcq*	Acquisition resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_ACCESSIBLE CORSTATUS_RESOURCE_IN_USE	
See Also	CorAcqGetCount, CorAcqRelease	

CorAcqGetImageFilter

Get the image filter kernel values

Prototype	CORSTATUS **CorAcqGetImageFilter**(CORACQ hAcq, UINT32 imageFilterNumber, CORBUFFER hBufferKernel);	
Description	Reads the kernel values to the image filter.	
Input	*hAcq*	Acquisition resource handle.
	imageFilterNumber	Image filter to read.
	hBufferKernel	Buffer resource handle. The buffer contains the kernel values.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_NOT_AVAILABLE CORSTATUS_ARG_INCOMPATIBLE	
See Also	CorAcqSetImageFilter	
Note	hBufferKernel is a 2D buffer of INT32.	

CorAcqGetLut

Get input LUT values from an acquisition device

Prototype	CORSTATUS **CorAcqGetLut**(CORACQ *hAcq*, CORLUT *hLut*, UINT32 *lutNumber*);	
Description	Gets input LUT values from an acquisition device.	
Input	*hAcq*	Acquisition resource handle
	lutNumber	LUT number to get values from
Output	*hLut*	LUT resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INCOMPATIBLE_LUT CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_NOT_AVAILABLE	
Note	The LUT number value range is [0...CORACQ_PRM_LUT_MAX-1].	
See Also	CorAcqSetLut	

CorAcqGetPrm

Get acquisition parameter value from an acquisition device

Prototype	CORSTATUS **CorAcqGetPrm**(CORACQ *hAcq*, UINT32 *prm*, void **value*);	
Description	Gets acquisition parameter (simple and complex) value from an acquisition device. Make certain that *value* points to a data structure that matches the data type of the specified acquisition parameter. See Data Structures in the *Sapera LT Acquisition Parameters Reference Manual*, for retrieving correct values with specific macros.	
Input	*hAcq*	Acquisition resource handle
	prm	Acquisition parameter requested
Output	*value*	Current value of the requested parameter
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_PRM_INVALID	
See Also	CorAcqSetPrm and CorAcqSetPrmEx	

CorAcqGetPrms

Get camera-dependent and VIC-dependent parameter values from an acquisition device

Prototype	CORSTATUS **CorAcqGetPrms**(CORACQ *hAcq*, CORVIC *hVic*, CORCAM *hCam*, UINT32 *toLock*);	
Description	Gets camera-dependent and VIC-dependent parameter values from an acquisition device. The VIC and camera resource handles can be any valid handle obtained through CorVicNew and CorCamNew respectively. If the acquisition parameters are locked (*toLock* = TRUE), then the acquisition parameters cannot be modified by CorAcqSetPrms and CorAcqSetPrmEx. The only way to modify the parameters is to use CorAcqSetPrms with the same VIC and CAM handles that were used when locking the parameters. Refere to the CorAcqSetPrms for a more detailed explanation about the locking mechanism.	
Input	*hAcq*	Acquisition resource handle
	toLock	Lock acquisition parameters (TRUE or FALSE)
Output	*hVic*	VIC resource handle
	hCam	Camera resource handle
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_PARAMETERS_LOCKED	
See Also	CorAcqSetPrms, CorAcqSetPrm, CorAcqSetPrmEx, CorVicNew and CorCamNew	

CorAcqGetSerialPortName

Retrives the serial port name used by an acquisition device

Prototype	CORSTATUS **CorAcqGetSerialPortName**(CORACQ *hAcq*, UINT32 *portNameLengthMax*, char* *szSerialPortName*);	
Description	Copies the name of the serial port used with the acquisition device.	
Input	*hAcq*	Acquisition resource handle
	portNameLengthMax	Maximum number of characters to copy
Output	*szSerialPortName*	Name of the serial port
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_IMPLEMENTED	

CorAcqNewFlatfield

Allocate a flatfield resource for an acquisition resource

Prototype	CORSTATUS **CorAcqNewFlatfield** (CORACQ *hAcq*, UINT32 *pFlatfieldNumber);	
Description	Allocate a flatfield resource for an acquisition resource	
Input	*hAcq*	Acquisition resource handle
Output	*pFlatfieldNumber*	Pointer to a flatfield number
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_NOT_AVAILABLE	
See Also	CorAcqFreeFlatfield, CorAcqSetFlatfield andCorAcqGetFlatfield	

CorAcqRegisterCallback

Register callback function for an acquisition resource

Prototype CORSTATUS **CorAcqRegisterCallback**(CORACQ *hAcq*, UINT32 *eventType*, PCORCALLBACK *callbackFct*, void *context);

Description Registers callback function for the specified acquisition resource.

Input

hAcq	Acquisition resource handle
eventType	Type of event to register. See CORACQ_PRM_EVENT_TYPE in the *Sapera LT Acquisition Parameters Reference Manual*.
callbackFct	Callback function to register. The callback function is defined as follows: *CORSTATUS CCONV* *callback(void *context, UINT32 eventType, UINT32 eventCount);* When called, *context* will have the value specified at the callback function registration; *eventType* will contain the event(s) that trigged the call to the callback function; *eventCount* should increment by one at each call, with a starting value of 1. In case the acquisition resource cannot keep up because there are too many events to be signaled, *eventCount* will take non- consecutive values, indicating that events have been lost. See the Data Types section for the PCORCALLBACK definition.
context	Context pointer passed to the callback function when called

Output None

Return Value

CORSTATUS_OK
CORSTATUS_ARG_NULL
CORSTATUS_INVALID_HANDLE
CORSTATUS_NOT_AVAILABLE
CORSTATUS_RESOURCE_IN_USE

Note The values may be ORed if more than one event is desired. Moreover, when used, CORACQ_VAL_EVENT_TYPE_END_OF_LINE must be ORed with an *unsigned* integer representing the line (max 65535) on which the callback function has to be called while CORACQ_VAL_EVENT_TYPE_END_OF_NLINES must be ORed with an *unsigned* integer representing the number of lines (max 65535) after which the callback function has to be called.

Also note that the line number for which the callback function is called is not returned through its eventType argument; the corresponding bits are always set to 0.

See Also CorAcqUnregisterCallback

CorAcqRegisterCallbackEx

Register callback function for an acquisition resource

Prototype	CORSTATUS **CorAcqRegisterCallbackEx**(CORACQ *hAcq*, UINT64 *eventType*, PCOREVENTINFOCALLBACK *callback*, void *context);	
Description	Registers callback function for the specified acquisition resource.	
Input	*hAcq*	Acquisition resource handle
	eventType	Type of event to register. See CORACQ_PRM_EVENT_TYPE_EX in the *Sapera LT Acquisition Parameters Reference Manual*.
	callback	Callback function to register. The callback function is defined as follows: *CORSTATUS CCONV* *callback(void *context, UINT64 eventType, UINT64 eventCount);* When the event occurs in the acquisition device the specified callback function is called. The callback function provides information on the corresponding event (in the *COREVENTINFOCALLBACK* handle). Refer to the *EventInfo* module for more detail on the available information. The context pointer is also returned by the callback function allowing you to exchange user information between the callback and your application context.. See the Data Types section for the PCOREVENTINFOCALLBACK definition.
	context	Context pointer passed to the callback function when called
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_AVAILABLE CORSTATUS_RESOURCE_IN_USE	
Note	The values may be ORed if more than one event is desired. Moreover, when used, CORACQ_VAL_EVENT_TYPE_END_OF_LINE must be ORed with an *unsigned* integer representing the line (max 65535) on which the callback function has to be called while CORACQ_VAL_EVENT_TYPE_END_OF_NLINES must be ORed with an *unsigned* integer representing the number of lines (max 65535) after which the callback function has to be called. Also note that the line number for which the callback function is called is not returned through its eventType argument; the corresponding bits are always set to 0. This function allows timestamp events to be registered and will permit extra events that the 32-bit CorAcqRegisterCallback does not support. However, device drivers continue to support both functions.	
See Also	CorAcqUnregisterCallbackEx	

CorAcqRelease

Release handle to an acquisition device

Prototype	CORSTATUS **CorAcqRelease**(CORACQ *hAcq*);	
Description	Releases handle to an acquisition device.	
Input	*hAcq*	Acquisition resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorAcqGetHandle	

CorAcqReset

Reset an acquisition device

Prototype	CORSTATUS **CorAcqReset**(CORACQ *hAcq*);
Description	Reset and restore the default acquisition parameter values of the specified acquisition device.
Input	*hAcq* Acquisition resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_PARAMETERS_LOCKED CORSTATUS_SOFTWARE_ERROR
See Also	CorAcqResetModule

CorAcqResetModule

Reset the resources associated with the server's acquisition device(s)

Prototype	CORSTATUS **CorAcqResetModule** (CORSERVER *hServer*);
Description	This releases all the resources (handle, memory) currently allocated. Before using this function, make certain that no other application is currently using any acquisition device resource. Proceed with caution when using this function.
Input	*hServer* Server handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorAcqReset

CorAcqSetCamIOControl

Set value of a custom I/O control

Prototype	CORSTATUS **CorAcqSetCamIoControl**(CORACQ hAcq, PCSTR label, UINT32 value)
Description	Sets the state of a custom I/O control that was previously defined by the Camera parameter CORACQ_PRM_CAM_IO_CONTROL. Refer to the Custom Camera Control I/O Description section in the *Sapera LT Acquisition Parameters Reference Manual*, for a discussion about custom I/O control.
Input	*hAcq* Acquisition resource handle *label* String specifying the label of the custom camera I/O control *value* Value to write to the custom camera I/O control
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID CORSTATUS_ARG_NULL (if *label* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_IMPLEMENTED CORSTATUS_PARAMETERS_LOCKED
Note	See the Data Structures section in the *Sapera LT Acquisition Parameters Reference Manual*, for building correct values with specific macros.

CorAcqSetFlatfield

Set the gain and offset values for a flatfield resource

Prototype	CORSTATUS **CorAcqSetFlatfield** (CORACQ hAcq, UINT32 flatfieldNumber, CORBUFFER hBufferGain, CORBUFFER hBufferOffset);
Description	Writes the gain and offset values for each pixel to the allocated flatfield resource.
Input	*hAcq* Acquisition resource handle *flatfieldNumber* Flatfield Number *hBufferGain* Buffer resource handle. The buffer contains the flatfield gain values for each pixel in the flatfield resource. *hBufferOffset* Buffer resource handle. The buffer contains the flatfield offset values for each pixel in the flatfield resource.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_NOT_AVAILABLE CORSTATUS_ARG_INCOMPATIBLE
See Also	CorAcqNewFlatfield, CorAcqFreeFlatfield and CorAcqGetFlatfield

CorAcqSetImageFilter

Set the image filter kernel values

Prototype	CORSTATUS **CorAcqSetImageFilter**(CORACQ hAcq, UINT32 imageFilterNumber, CORBUFFER hBufferKernel);	
Description	Writes the kernel values to the image filter.	
Input	*hAcq*	Acquisition resource handle
	imageFilterNumber	Image filter to write
	hBufferKernel	Buffer resource handle. The buffer contains the kernel values.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_NOT_AVAILABLE CORSTATUS_ARG_INCOMPATIBLE	
See Also	CorAcqGetImageFilter	
Note	hBufferKernel is a 2D buffer of INT32.	

CorAcqSetLut

Set input LUT values for an acquisition device

Prototype	CORSTATUS **CorAcqSetLut**(CORACQ *hAcq*, CORLUT *hLut*, UINT32 *lutNumber*);	
Description	Sets input LUT values for an acquisition device.	
Input	*hAcq*	Acquisition resource handle
	hLut	LUT resource handle created with CorLutNew or CorLutNewFromFile.
	lutNumber	LUT number to write the values to. The LUT number value range is [0...CORACQ_PRM_LUT_MAX-1].
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_INCOMPATIBLE_LUT CORSTATUS_NO_MEMORY CORSTATUS_NOT_AVAILABLE	
See Also	CorAcqGetLut	

CorAcqSetPrm

Set a simple acquisition parameter of an acquisition device

Prototype CORSTATUS **CorAcqSetPrm**(CORACQ *hAcq*, UINT32 *prm*, UINT32 *value*);

Description Sets a simple acquisition device's parameter. A simple parameter is one that fits inside an UINT32. If the parameter is complex, use CorAcqSetPrmEx.

Acquisition parameters are normally initialized all at once by CorAcqSetPrms. One may want to modify certain parameters at a later time, such as those related to camera swithing, brightness and contrast settings. In this case, CorAcqSetPrm (or CorAcqSetPrmEx) should used for faster execution.

Input

hAcq Acquisition resource handle

prm Acquisition parameter to set

value New value of the parameter

Output None

Return Value

CORSTATUS_OK
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY
CORSTATUS_PARAMETERS_LOCKED
CORSTATUS_PRM_INVALID
CORSTATUS_PRM_INVALID_VALUE
CORSTATUS_PRM_MUTUALLY_EXCLUSIVE
CORSTATUS_PRM_NOT_AVAILABLE
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_PRM_READ_ONLY

Note See the section Data Structures in the *Sapera LT Acquisition Parameters Reference Manual*, for building correct values with specific macros.

See Also CorAcqGetPrm, CorAcqSetPrmEx and CorAcqSetPrms

CorAcqSetPrmEx

Set a complex acquisition parameter of an acquisition device

Prototype CORSTATUS **CorAcqSetPrmEx**(CORACQ *hAcq*, UINT32 *prm*, void **value*);

Description Sets a complex acquisition device's parameter. A complex parameter is greater in size than an UINT32. If the parameter size is UINT32, use either CorAcqSetPrm or CorAcqSetPrmEx.

Acquisition parameters are normally initialized all at once by CorAcqSetPrms One may want to modified certain parameters at a later time, such as those related to camera swithing, brightness and contrast settings. In this case, CorAcqSetPrmEx (or CorAcqSetPrm) should used for faster execution.

Input

hAcq Acquisition resource handle

prm Acquisition parameter to set

value New value of the parameter

Output None

Return Value

CORSTATUS_OK
CORSTATUS_ARG_NULL
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY
CORSTATUS_PARAMETERS_LOCKED
CORSTATUS_PRM_INVALID
CORSTATUS_PRM_INVALID_VALUE
CORSTATUS_PRM_MUTUALLY_EXCLUSIVE
CORSTATUS_PRM_NOT_AVAILABLE
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_PRM_READ_ONLY

See Also CorAcqGetPrm and CorAcqSetPrm

CorAcqSetPrms

Set camera-dependent and VIC-dependent parameter values of an acquisition device

Prototype	CORSTATUS **CorAcqSetPrms**(CORACQ *hAcq*, CORVIC *hVic*, CORCAM *hCam*, UINT32 *toUnlock*);
Description	Initializes an acquisition device with the specified camera-dependent and VIC-dependent parameter values. The Sapera Development environment provides a Windows application called CameraExpert that allows the user to create/modify CAM and VIC files. Using CorVicLoad and CorCamLoad, the VIC and CAM resource handles can then be obtained from the CAM and VIC files respectively If the acquisition parameters are locked (by a previous call to CorAcqGetPrms), then the same VIC and camera module handles that were used when locking the parameters initially must be used to set the parameters. Locking the parameters may allow faster hardware initialization depending on the actual device driver/hardware implementation because only the parameters that have changed since being locked will be reinitialized. Also, in the specific case where the parameters are locked, the *toUnlock* flag is used to determined the state of the parameters upon returning from this function: toUnlock = TRUE: unlock parameters toUnlock = FALSE: keep parameters locked Parameters can also be unlocked without any modifications by using CorAcqUnlock.
Input	*hAcq* Acquisition resource handle *hVic* VIC resource handle *hCam* Camera resource handle *toUnlock* Unlock acquisition parameters (TRUE or FALSE)
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_PARAMETERS_LOCKED CORSTATUS_PRM_INVALID_VALUE CORSTATUS_PRM_MUTUALLY_EXCLUSIVE CORSTATUS_PRM_NOT_AVAILABLE CORSTATUS_ARG_OUT_OF_RANGE
See Also	CorAcqGetPrms, CorAcqUnlock, CorVicNew and CorCamNew

CorAcqSoftwareTrigger

Simulate a trigger to the acquisition device

Prototype	CORSTATUS **CorAcqSoftwareTrigger**(CORACQ *hAcq*, UINT32 triggerType);
Description	Calling this function will simulate a hardware trigger to the acquisition device.
Input	*hAcq* Acquisition resource handle *UINT32* Type of trigger: CORACQ_CAP_SOFTWARE_TRIGGER.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_PRM_NOT_AVAILABLE CORSTATUS_INVALID_HANDLE

CorAcqUnlock

Unlock acquisition parameters of an acquisition device

Prototype	CORSTATUS **CorAcqUnlock**(CORACQ *hAcq*, CORVIC *hVic*, CORCAM *hCam*);	
Description	Unlock the acquisition parameters previously locked by a call to CorAcqGetPrms.	
Input	*hAcq*	Acquisition device resource handle
	hVic	VIC resource handle
	hCam	Camera resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_PARAMETERS_LOCKED	
Note	The VIC and camera resource handles must be the same VIC and camera module handles that were used when locking the parameters with CorAcqGetPrms.	
See Also	CorAcqGetPrms and CorAcqSetPrms	

CorAcqUnregisterCallback

Unregister callback function for an acquisition resource

Prototype	CORSTATUS **CorAcqUnregisterCallback**(CORACQ *hAcq*, PCORCALLBACK *callbackFct*);	
Description	Unregisters the specified acquisition resource callback function.	
Input	*hAcq*	Acquisition resource handle
	callbackFct	Callback function to unregister. See Data Types section for the PCORCALLBACK definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorAcqRegisterCallback	

CorAcqUnregisterCallbackEx

Unregister callback function for an acquisition resource

Prototype	CORSTATUS **CorAcqUnregisterCallback**(CORACQ *hAcq*, PCOREVENTINFOCALLBACK *callback*);	
Description	Unregisters the specified acquisition resource callback function.	
Input	*hAcq*	Acquisition resource handle
	callbackFct	Callback function to unregister. See Data Types section for the PCOREVENTINFOCALLBACK definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorAcqRegisterCallbackEx	

Camera Module Functions

The Camera Module manages all parameters that define a camera, such as camera type, video timings, and sync info. These parameters are usually fixed for a given camera. Parameters may be saved to or retrieved from a file and used to configure an Acquisition Module.

This section describes the functions of the Camera Module. The parameters and capabilities are described in the *Sapera LT Acquisition Parameters Reference Manual*.

Function	Description
CorCamFree	*Releases handle to a camera resource*
CorCamGetPrm	*Gets camera parameter value from a camera resource*
CorCamLoad	*Loads camera parameters from a file into a camera resource*
CorCamNew	*Creates a new camera resource*
CorCamSave	*Saves to a file the camera parameters of a camera resource*
CorCamSetPrm	*Sets a simple camera parameter of a camera resource*
CorCamSetPrmEx	*Sets a complex camera parameter of a camera resource*

CorCamFree

Release handle to a camera resource

Prototype	CORSTATUS **CorCamFree**(CORCAM *hCam*);	
Description	Releases handle to a camera resource.	
Input	*hCam*	Camera resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorCamNew	

CorCamGetPrm

Get camera parameter value from a camera resource

Prototype	CORSTATUS **CorCamGetPrm**(CORCAM *hCam*, UINT32 *prm*, void **value*);	
Description	Gets a camera parameter value from a camera resource.	
Input	*hCam*	Camera resource handle
	prm	Camera parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID	
See Also	CorCamSetPrm and CorCamSetPrmEx	

CorCamLoad

Load camera parameters from a file into a camera resource

Prototype	CORSTATUS **CorCamLoad**(CORCAM *hCam*, const char **filename*);
Description	Fills the camera-dependent acquisition parameters from a file. The function does not initialize the actual hardware. The function CorAcqGetPrms must be called to perform the hardware initialization.
Input	*filename* String specifying the path and filename
Output	*hCam* Camera resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *filename* is NULL) CORSTATUS_FILE_OPEN_ERROR CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_IMPLEMENTED
See Also	CorCamSave and CorCamNew

CorCamNew

Create a new camera resource

Prototype	CORSTATUS **CorCamNew**(CORSERVER *hServer*, CORCAM **hCam*);
Description	Allocates the data structure (dynamic resource) to store the camera parameters and returns the handle to it. The data structure is allocated on the local server; that is, where the application is running (typically the Host computer). Camera parameters may be loaded from the "Camera file" using the CorCamLoad function. The *hCamc* handle is used by the CorAcqGetPrms function to initialize the acquisition device with the camera parameters.
Input	*hServer* Server handle
Output	*hCam* Camera resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *hCam* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY
See Also	CorCamFree, CorCamLoad and CorAcqGetPrms

CorCamSave

Save the camera parameters of a camera resource

Prototype	CORSTATUS **CorCamSave**(CORCAM *hCam*, const char **filename*);
Description	Saves to a file the camera-dependent acquisition parameters of a camera resource.
Input	*hCam* Camera resource handle *filename* String specifying the path and filename.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *filename* is NULL) CORSTATUS_FILE_WRITE_ERROR CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_IMPLEMENTED
See Also	CorCamLoad

CorCamSetPrm

Set a simple camera parameter of a camera resource

Prototype CORSTATUS **CorCamSetPrm**(CORCAM *hCam*, UINT32 *prm*, UINT32 *value*);

Description Sets a simple camera resource parameter. A simple parameter is one that can fit inside an UINT32. If the parameter is complex, use the function CorCamSetPrmEx.

The CorAcqSetPrms function must then be called to initialize the acquisition hardware with the CAM resource parameters. Alternatively, simple CAM parameters can be applied individually to the acquisition hardware using CorAcqSetPrm.

Input

hCam	Camera resource handle
prm	Camera parameter to modify
value	New value of the parameter

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE
CORSTATUS_PRM_INVALID

See Also CorCamGetPrm, CorCamSetPrmEx and CorAcqSetPrms

CorCamSetPrmEx

Set a complex camera parameter of a camera resource

Prototype CORSTATUS **CorCamSetPrmEx**(CORCAM *hCam*, UINT32 *prm*, void **value*);

Description Sets a complex camera resource parameter. A complex parameter is of size greater than an UINT32. If the parameter size is UINT32, use either CorCamSetPrm or CorCamSetPrmEx.

The CorAcqSetPrms function must then be called to initialize the acquisition hardware with the CAM resource parameters. Alternatively, complex CAM parameters may be applied individually to the acquisition hardware using CorAcqSetPrmEx.

Input

hCam	Camera resource handle
prm	Camera parameter to modify
value	New value of the parameter

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *value* is NULL)
CORSTATUS_INVALID_HANDLE
CORSTATUS_PRM_INVALID

See Also CorCamGetPrm, CorCamSetPrm and CorAcqSetPrms

VIC Module Functions

The VIC (Video Input Conditioning) Module manages all parameters that are camera-independent, such as brightness and contrast. Parameters may be saved to or retrieved from a file and used to configure the acquisition hardware through Acquisition Module functions.

This section describes the functions of the VIC Module. The parameters and capabilities are described in the *Sapera LT Acquisition Parameters Reference Manual*.

Function	Description
CorVicFree	Releases handle to a VIC resource
CorVicGetPrm	Gets VIC parameters value from a VIC resource
CorVicLoad	Loads VIC parameters from a file into a VIC resource
CorVicNew	Allocates the data structure to store the VIC parameters
CorVicSave	Saves to a file the VIC parameters of a VIC resource
CorVicSetPrm	Sets a simple VIC parameter of a VIC resource
CorVicSetPrmEx	Sets a complex VIC parameter of a VIC resource

CorVicFree

Release handle to a VIC resource

Prototype	CORSTATUS **CorVicFree**(CORVIC *hVic*);	
Description	Releases the handle to a VIC resource.	
Input	*hVic*	VIC resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorVicNew	

CorVicGetPrm

Get VIC parameter value from a VIC resource

Prototype	CORSTATUS **CorVicGetPrm**(CORVIC *hVic*, UINT32 *prm*, void **value*);	
Description	Gets a VIC parameter value from a VIC resource.	
Input	*hVic*	VIC resource handle
	prm	VIC parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID	
See Also	CorVicSetPrm and CorVicSetPrmEx	

CorVicLoad

Load VIC parameters from a file into a VIC resource

Prototype CORSTATUS **CorVicLoad**(CORVIC *hVic*, const char **filename*);

Description Loads VIC parameters from a file into a VIC resource.

Input *filename* String specifying the path and filename

Output *hVic* VIC resource handle

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *filename* is NULL)
CORSTATUS_FILE_OPEN_ERROR
CORSTATUS_INVALID_HANDLE
CORSTATUS_NOT_IMPLEMENTED

See Also CorVicSave

CorVicNew

Create a new VIC resource handle

Prototype CORSTATUS **CorVicNew**(CORSERVER *hServer*, CORVIC **hVic*);

Description Allocates the data structure (dynamic resource) to store the VIC parameters and returns the handle to it.

The data structure is allocated on the local server, that is, where the application is running (typically the Host computer). The VIC parameters may be loaded from the "VIC file" using the CorVicLoad function. The *hVic* handle is used by the CorAcqGetPrms function to initialize the acquisition device with the VIC parameters.

Input *hServer* Handle to the Server where the VIC resource (data structure) will be allocated.

Output *hVic* New VIC resource handle

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *hVic* is NULL)
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY

See Also CorVicFree and CorVicLoad

CorVicSave

Save to a file the VIC parameters of a VIC resource

Prototype CORSTATUS **CorVicSave**(CORVIC *hVic*, const char **filename*);

Description Saves to a file the VIC resource parameters.

Input *hVic* VIC resource handle

filename String specifying the path and filename

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *filename* is NULL)
CORSTATUS_FILE_WRITE_ERROR
CORSTATUS_INVALID_HANDLE
CORSTATUS_NOT_IMPLEMENTED

See Also CorVicLoad

CorVicSetPrm

Set a simple VIC parameter of a VIC resource

Prototype	CORSTATUS **CorVicSetPrm**(CORVIC *hVic*, UINT32 *prm*, UINT32 *value*);
Description	Sets a simple VIC resource parameter. A simple parameter is one that fits inside an UINT32. If the parameter is complex, use CorVicSetPrmEx. The CorAcqSetPrms function must then be called to initialize the acquisition hardware with the VIC resource parameters. Alternatively, simple VIC parameters may be applied individually to the acquisition hardware using CorAcqSetPrm.
Input	*hVic* VIC resource handle *prm* VIC parameter to modify *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID
See Also	CorVicGetPrm, CorVicSetPrmEx, CorCamSetPrm and CorAcqSetPrms

CorVicSetPrmEx

Set a complex VIC parameter of a VIC resource

Prototype	CORSTATUS **CorVicSetPrmEx**(CORVIC *hVic*, UINT32 *prm*, void **value*);
Description	Sets a complex VIC resource parameter. A complex parameter has a size greater than an UINT32. If the parameter size is UINT32, use either CorVicSetPrm or CorVicSetPrmEx. The CorAcqSetPrms function must then be called to initialize the acquisition hardware with the VIC resource parameters. Alternatively, complex VIC parameters may be applied individually to the acquisition hardware using CorAcqSetPrmEx.
Input	*hVic* VIC resource handle *prm* VIC parameter to modify *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID
See Also	CorVicGetPrm, CorVicSetPrm, CorCamSetPrmEx and CorAcqSetPrms

Sapera Camera Acquisition

AcqDevice Module

The *AcqDevice* module functions provide read/write features from/to devices such as a GigE-Vision camera. The module also contains functions for sending commands and registering events to devices.

Note: Frame-grabber devices are not supported by this module. The *Acq* module must be used in such cases.

AcqDevice Parameters

ID	Parameters	Attribute
0x00	CORACQDEVICE_PRM_LABEL	Read-only
0x01	CORACQDEVICE_PRM_UPDATE_FEATURE_MODE	Read/write
0x02	CORACQDEVICE_PRM_CONFIG_NAME	Read/write
0x03	CORACQDEVICE_PRM_MODE_NAME	Read/write

CORACQDEVICE_PRM_LABEL

Description Acquisition device ID: Zero-terminated array of characters with a fixed size of 128 bytes.

Type CHAR[128]

Note This parameter is read-only.

CORACQDEVICE_PRM_CONFIG_NAME

Description Defines the configuration name to use when saving the device features using CorAcqDeviceSaveFeatures. It is then possible to uniquely identify different configuration files when the company name, camera model name, and mode name are the same. For example, “High Contrast”

When loading a configuration file using CorAcqDeviceLoadFeatures, this parameter is automatically updated.

Type CHAR[64]

See also CORACQDEVICE_PRM_MODE_NAME

CORACQDEVICE_PRM_MODE_NAME

Description Defines the mode name to use when saving the device features using CorAcqDeviceSaveFeatures. It is then possible to uniquely identify different modes when the company name and camera model name are the same. For example, “Single-Channel, Free-Running”

When loading a configuration file using CorAcqDeviceLoadFeatures, this parameter is automatically updated.

Type CHAR[64]

See also CORACQDEVICE_PRM_CONFIG_NAME

CORACQDEVICE_PRM_UPDATE_FEATURE_MODE

Description	Defines the mode by which features are written to the device. In the automatic mode (CORACQDEVICE_VAL_UPDATE_FEATURE_MODE_AUTO) every time a feature is set using the *CorAcqDeviceSetFeatureValue...* or *CorAcqDeviceSetFeatureData...* functions the feature value is immediately written to the device. In the manual mode (CORACQDEVICE_VAL_UPDATE_FEATURE_MODE_MANUAL) each feature is temporarily cached until the *CorAcqDeviceUpdateFeaturesToDevice* is called to write all features to the device at once.
Type	UINT32
Values	CORACQDEVICE_VAL_UPDATE_FEATURE_MODE_AUTO (0x00) Each feature is written to the device individually without being cached. CORACQDEVICE_VAL_UPDATE_FEATURE_MODE_MANUAL (0x01) Each feature is temporarily cached until *CorAcqDeviceUpdateFeaturesToDevice* is called.
Note	The default mode is automatic. However when setting a series of parameters that are related to each other (for instance a region-of-interest composed of four values) the manual mode is useful to avoid invalid temporary device states.

AcqDevice Functions

Function	Description
General Functions	
CorAcqDeviceResetModule	Resets the resources associated with the server's acquisition devices
CorAcqDeviceGetCount	Gets the number of acquisition devices on a server
CorAcqDeviceGetHandle	Gets a handle to an acquisition device with read/write access
CorAcqDeviceGetHandleReadOnly	Gets a handle to an acquisition device with read-only access
CorAcqDeviceRelease	Releases a handle to an acquisition device
CorAcqDeviceReset	Resets an acquisition device
Module Capability and Parameter Access Functions	
CorAcqDeviceGetCap	Gets a capability value from an acquisition device
CorAcqDeviceGetPrm	Gets a parameter value from an acquisition device
CorAcqDeviceSetPrm	Sets a simple parameter value to an acquisition device
CorAcqDeviceSetPrmEx	Sets a complex parameter value to an acquisition device
Feature Access Functions	
CorAcqDeviceGetFeatureCount	Returns the number of features supported by the acquisition device
CorAcqDeviceGetFeatureNameByIndex	Returns the name of a feature associated with a specified index
CorAcqDeviceGetFeatureIndexByName	Returns the index of a feature associated with a specified name
CorAcqDeviceIsFeatureAvailable	Returns whether or not a feature is supported by the acquisition device
CorAcqDeviceGetFeatureInfoByName	Returns information on a feature associated with a specified name
CorAcqDeviceGetFeatureInfoByIndex	Returns information on a feature associated with a specified index
CorAcqDeviceGetFeatureValueByName	Returns the value of a simple feature associated with a specified name
CorAcqDeviceGetFeatureValueByIndex	Returns the value of a simple feature associated with a specified index
CorAcqDeviceGetFeatureDataByName	Returns the value of a complex feature associated with a specified name
CorAcqDeviceGetFeatureDataByIndex	Returns the value of a complex feature associated with a specified index
CorAcqDeviceSetFeatureValueByName	Sets the value of a simple feature associated with a specified name
CorAcqDeviceSetFeatureValueByIndex	Sets the value of a simple feature associated with a specified index
CorAcqDeviceSetFeatureDataByName	Sets the value of an complex feature associated with a specified name
CorAcqDeviceSetFeatureDataByIndex	Sets the value of a complex feature associated with a specified index
CorAcqDeviceUpdateFeaturesToDevice	Sets all the features to the acquisition device at once
CorAcqDeviceUpdateFeaturesFromDevice	Gets all the features from the acquisition device at once
CorAcqDeviceLoadFeatures	Loads all the features from a configuration file
CorAcqDeviceSaveFeatures	Saves all (or a subset of) features to a configuration file.
CorAcqDeviceGetCategoryCount	Gets the number of unique feature category names
CorAcqDeviceGetCategoryPath	Gets the full path name of a unique feature category

Event Management Functions	
CorAcqDeviceGetEventCount	Returns the number of events supported by the acquisition device
CorAcqDeviceGetEventNameByIndex	Returns the name of an event associated with a specified index
CorAcqDeviceGetEventIndexByName	Returns the index of an event associated with a specified name
CorAcqDeviceIsEventAvailable	Returns whether or not an event is supported by the acquisition device
CorAcqDeviceRegisterCallbackByName	Registers a callback function for the event associated with a specified name
CorAcqDeviceRegisterCallbackByIndex	Registers a callback function for the event associated with a specified index
CorAcqDeviceUnregisterCallbackByName	Unregisters a callback function on the event associated with a specified name
CorAcqDeviceUnregisterCallbackByIndex	Unregisters a callback function on the event associated with a specified index
CorAcqDeviceIsCallbackRegisteredByName	Returns whether or not a callback function was registered on the event associated with a specified name
CorAcqDeviceIsCallbackRegisteredByIndex	Returns whether or not a callback function was registered on the event associated with a specified index
File Access Functions	
CorAcqDeviceIsFileAccessAvailable	Returns whether or not file access is supported by the acquisition device
CorAcqDeviceGetFileCount	Returns the number of files supported by the acquisition device
CorAcqDeviceGetFileNameByIndex	Returns the name of a file associated with a specified index
CorAcqDeviceGetFileIndexByName	Returns the index of a file associated with a specified name
CorAcqDeviceGetFilePropertyByIndex	Gets a property of a file associated with a specified index on the acquisition device
CorAcqDeviceGetFilePropertyByName	Gets a property of a file associated with a specified name on the acquisition device
CorAcqDeviceReadFileByIndex	Reads a file associated with a specified index from an acquisition device to a system host
CorAcqDeviceReadFileByName	Writes a file associated with a specified name from an acquisition device to a system host
CorAcqDeviceWriteFileByIndex	Writes a file associated with a specified index from a system host to an acquisition device
CorAcqDeviceReadFileByName	Writes a file associated with a specified name from a system host to an acquisition device
CorAcqDeviceDeleteFileByIndex	Deletes a file associated with a specified index from the acquisition device
CorAcqDeviceDeleteFileByName	Deletes a file associated with a specified name from the acquisition device

General Functions

The general functions are used to enumerate the acquisition devices in a system and enable/disable access to those devices.

CorAcqDeviceGetCount

Gets the number of server acquisition devices.

Prototype	CORSTATUS **CorAcqDeviceGetCount**(CORSERVER *server*, PUINT32 *count*);	
Description	Gets the number of acquisition devices available on a server.	
Input	*server*	Server handle
Output	*count*	Number of acquisition devices. The value of *count* is 0 when no acquisition device is available.
Return Value	CORSTATUS_OK CORSTATUS_NOT_IMPLEMENTED (when there is no Acquisition device supported by the specified server) CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *count* is NULL)	

CorAcqDeviceGetHandle

Gets a handle to an acquisition device with read/write access.

Prototype	CORSTATUS **CorAcqDeviceGetHandle**(CORSERVER *server*, UINT32 *index*, PCORACQDEVICE *acqDevice*);	
Description	Gets a handle to an acquisition device with read/write access. If the handle is already used by another application, use CorAcqDeviceGetHandleReadOnly to obtain read-only access to the device.	
Input	*server*	Handle to a server that contains an *AcqDevice* resource
	index	Specifies the acquisition device to select. Valid values are in the range [0...*count*-1], where *count* is the value returned by CorAcqDeviceGetCount.
Output	*acqDevice*	Acquisition resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_ACCESSIBLE CORSTATUS_RESOURCE_IN_USE	
See Also	CorAcqDeviceGetCount, CorAcqDeviceRelease, CorAcqDeviceGetHandleReadOnly	

CorAcqDeviceGetHandleReadOnly

Gets a handle to an acquisition device with read-only access.

Prototype	CORSTATUS **CorAcqDeviceGetHandleReadOnly**(CORSERVER *server*, UINT32 *index*, PCORACQDEVICE *acqDevice*);	
Description	Gets a handle to an acquisition device with read-only access. If the handle is already used by another application use this function to obtain read-only access to the device. To know what functions of the *AcqDevice* module are accessible with this type of handle, refer to the function documentation.	
Input	*server*	Server handle
	index	Specifies the acquisition device to select. Valid values are in the range [0...*count*-1], where *count* is the value returned by CorAcqDeviceGetCount.
Output	*acqDevice*	Acquisition resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_ACCESSIBLE	
See Also	CorAcqDeviceGetCount, CorAcqDeviceRelease, CorAcqDeviceGetHandle	

CorAcqDeviceRelease

Releases a handle to an acquisition device.

Prototype	CORSTATUS **CorAcqDeviceRelease**(CORACQDEVICE *acqDevice*);	
Description	Releases a handle to an acquisition device.	
Input	*acqDevice*	Acquisition resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorAcqDeviceGetHandle, CorAcqDeviceGetHandleReadOnly	

CorAcqDeviceReset

Resets an acquisition device.

Prototype	CORSTATUS **CorAcqDeviceReset**(CORACQDEVICE *acqDevice*);	
Description	Reset and restore the default acquisition parameter values of the specified acquisition device.	
Input	*acqDevice*	Acquisition resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_SOFTWARE_ERROR	
Note	This function is not valid for read-only handles.	
See Also	CorAcqDeviceResetModule	

CorAcqDeviceResetModule

Resets the resources associated with the server's acquisition devices.

Prototype	CORSTATUS **CorAcqDeviceResetModule**(CORSERVER *server*);
Description	Releases all resources (handle, memory) currently allocated. Before using this function, make certain that no other application is currently using any acquisition device resource. Proceed with caution when using this function.
Input	*hServer* *Server handle*
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
Note	This function is not valid for read-only handles.
See Also	CorAcqDeviceReset

Module Capability and Parameter Access Functions

The module capability and parameter access functions provide read/write capabilities and parameters for acquisition devices.

	Note: *Capabilities* and *parameters* control the behavior of an *AcqDevice* module. They are different from *features* which describe the attributes of the hardware device itself.

CorAcqDeviceGetCap

Gets a capability value from an acquisition device.

Prototype	CORSTATUS **CorAcqDeviceGetCap**(CORACQDEVICE *acqDevice*, UINT32 *cap*, void **value*);	
Description	Gets a capability value from an acquisition device. A capability defines the availability of the associated parameter.	
Input	*acqDevice*	Acquisition resource handle
	cap	Acquisition capability requested
Output	*value*	Value of the requested capability
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_CAP_INVALID	
See Also	CorAcqDeviceGetPrm	

CorAcqDeviceGetPrm

Gets a parameter value from an acquisition device.

Prototype	CORSTATUS **CorAcqDeviceGetPrm**(CORACQDEVICE *acqDevice*, UINT32 *prm*, void **value*);	
Description	Gets a parameter (simple and complex) value from an acquisition device. Make certain that the data storage pointed to by *value* matches the data type of the specified parameter. See the description of each parameter for the required data storage type.	
Input	*acqDevice*	Acquisition resource handle
	prm	Acquisition parameter requested
Output	*value*	Current value of the requested parameter
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_PRM_INVALID	
See Also	CorAcqDeviceSetPrm and CorAcqDeviceSetPrmEx	

CorAcqDeviceSetPrm

Sets a simple parameter value to an acquisition device.

Prototype CORSTATUS **CorAcqDeviceSetPrm**(CORACQDEVICE *acqDevice*, UINT32 *prm*, UINT32 *value*);

Description Sets a simple acquisition device parameter. A simple parameter is one that fits inside an UINT32. For complex parameters use CorAcqDeviceSetPrmEx. See the description of each parameter for the required data storage type.

Input

acqDevice	Acquisition resource handle
prm	Acquisition parameter to set
value	New value of the parameter

Output None

Return Value
CORSTATUS_OK
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY
CORSTATUS_PRM_INVALID
CORSTATUS_PRM_INVALID_VALUE
CORSTATUS_PRM_MUTUALLY_EXCLUSIVE
CORSTATUS_PRM_NOT_AVAILABLE
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_PRM_READ_ONLY

Note This function is not valid for read-only handles.

See Also CorAcqDeviceGetPrm, CorAcqDeviceSetPrmEx

CorAcqDeviceSetPrmEx

Sets a complex parameter value to an acquisition device.

Prototype CORSTATUS **CorAcqDeviceSetPrmEx**(CORACQDEVICE *acqDevice*, UINT32 *prm*, const void **value*);

Description Sets a complex acquisition device's parameter. A complex parameter is greater in size than an UINT32. If the parameter size is UINT32, use either CorAcqDeviceSetPrm or CorAcqDeviceSetPrmEx. See the description of each parameter for the required data storage type.

Input

acqDevice	Acquisition resource handle
prm	Acquisition parameter to set
value	New value of the parameter

Output None

Return Value
CORSTATUS_OK
CORSTATUS_ARG_NULL
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY
CORSTATUS_PRM_INVALID
CORSTATUS_PRM_INVALID_VALUE
CORSTATUS_PRM_MUTUALLY_EXCLUSIVE
CORSTATUS_PRM_NOT_AVAILABLE
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_PRM_READ_ONLY

Note This function is not valid for read-only handles.

See Also CorAcqDeviceGetPrm and CorAcqDeviceSetPrm

Feature Access Functions

The feature access functions are used to enumerate the list of features supported by the device, get information associated with each of those features and read/write the feature values from/to the device.

CorAcqDeviceGetCategoryCount

Gets the number of unique feature category names.

Prototype	CORSTATUS **CorAcqDeviceGetCategoryCount**(CORACQDEVICE *acqDevice*, PUINT32 *count*);
Description	Gets the number of unique feature category names. This is equivalent to getting the information for all available features (CorAcqDeviceGetFeatureCount followed by CorAcqDeviceGetFeatureInfoByIndex), retrieving the value of CORFEATURE_PRM_CATEGORY for each, and then counting the unique category names. After calling this function, you can call CorAcqDeviceGetCategoryPath to retrieve full path names for individual features, using a category index which can be any value in the range [0…*count*-1].
Input	*acqDevice* Acquisition resource handle
Output	*count* Number of feature categories
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
See Also	CorAcqDeviceGetCategoryPath

CorAcqDeviceGetCategoryPath

Gets the full path name of a unique feature category.

Prototype	CORSTATUS **CorAcqDeviceGetCategoryPath** (CORACQDEVICE *acqDevice*, UINT32 *categoryIndex*, PSTR *path*, UINT32 *pathSize*);	
Description	Returns the full path name of a feature category at a specified index, following a call to the CorAcqDeviceGetCategoryCount function to get the total number of categories. The returned path name is formatted according to the following rules: All path names begin with “\Root” or “\SaperaRoot” Top level categories are returned as “\Root\CategoryName” Second level categories are returned as “\Root\CategoryName\SubCategoryName” and so on… This allows parsing of category path names so that these can be shown using a hierarchical view in a GUI based application.	
Input	*acqDevice*	Acquisition resource handle
	categoryIndex	Index of the category. All indices in the range [0 … value returned by CorAcqDeviceGetCategoryCount – 1] are valid.
	pathSize	Size (in bytes) of the buffer pointed to by *path*
Output	*path*	Full path name of the category associated with the specified index
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorAcqDeviceGetCategoryCount	

CorAcqDeviceGetFeatureCount

Returns the number of features supported by the acquisition device.

Prototype CORSTATUS **CorAcqDeviceGetFeatureCount**(CORACQDEVICE *acqDevice*, PUINT32 *count*);

Description Returns the number of features supported by the acquisition device. Devices do not necessarily support the same feature set. For instance you can use this function to retrieve the number of features and then get information about those features using CorAcqDeviceGetFeatureInfo, using a feature index which can be any value in the range [0…*count*-1].

Input *acqDevice* Acquisition resource handle

Output *count* Number of features

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

CorAcqDeviceGetFeatureDataByIndex

Returns the value of a complex feature associated with a specified index.

Prototype CORSTATUS **CorAcqDeviceGetFeatureDataByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, CORHANDLE *dataDest*);

Description Returns the value of a *complex type* feature associated with a specified index. A complex type feature is a feature that is contained in a handle. See CORFEATURE_PRM_TYPE for a list of simple and complex types. For simple type features you must use the *CorAcqDeviceGetFeatureValueByIndex* instead.

The *dataDest* handle must be allocated by the user prior to calling this function. For example if the feature is contained in a *CorBuffer* module, you must allocate the buffer using *CorBufferNew*. Attributes of the buffer such as *width*, *height* and *format* must be obtained through others features provided by your acquisition device. Upon calling this function the buffer's data from the device will be copied to your buffer object.

Input *acqDevice* Acquisition resource handle

index Index of the feature. All indices in the range [0 … value returned by CorAcqDeviceGetFeatureCount – 1] are valid.

Output *dataDest* Resource handle to store feature data

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorAcqDeviceGetFeatureCount, CorAcqDeviceGetFeatureValueByIndex, CorAcqDeviceGetFeatureDataByName

CorAcqDeviceGetFeatureDataByName

Returns the value of a complex feature associated with a specified name.

Prototype	CORSTATUS **CorAcqDeviceGetFeatureDataByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, CORHANDLE *dataDest*);
Description	Returns the value of a *complex type* feature associated with a specified name. A complex type feature is a feature that is contained in a handle. See CORFEATURE_PRM_TYPE for a list of simple and complex types. For simple type features you must use the *CorAcqDeviceGetFeatureValueByName* instead. The *dataDest* handle must be allocated by the user prior to calling this function. For example if the feature is contained in a *CorBuffer* module, you must allocate the buffer using *CorBufferNew*. Attributes of the buffer such as *width*, *height* and *format* must be obtained through others features provided by your acquisition device. Upon calling this function the buffer's data from the device will be copied to your buffer object.
Input	*acqDevice* Acquisition resource handle *name* Feature name. See device User's Manual for the list of supported features.
Output	*dataDest* Resource handle to store feature data
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
See Also	CorAcqDeviceSetFeatureValueByName, CorAcqDeviceSetFeatureDataByIndex

CorAcqDeviceGetFeatureIndexByName

Returns the index of a feature associated with a specified name.

Prototype	CORSTATUS **CorAcqDeviceGetFeatureIndexByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, PUINT32 *index*);
Description	Returns the index of a feature associated with a specified name. This function is useful in building a list of indexes associated with the feature names you commonly use. Then those features are accessed by index to increase performance.
Input	*acqDevice* Acquisition resource handle *name* Feature name. See device User's Manual for the list of supported features.
Output	*index* Index of the feature associated with the specified name
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
See Also	CorAcqDeviceGetFeatureNameByIndex

CorAcqDeviceGetFeatureInfoByIndex

Returns information on a feature associated with a specified index.

Prototype	CORSTATUS **CorAcqDeviceGetFeatureInfoByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, CORFEATURE *feature*);	
Description	Returns information on a feature associated with a specified index. All information about the feature is stored in a *CorFeature* object. The *CorFeature* object contains the attributes of the feature such as name, type, range, and so forth. See the *CorFeature* module for more details.	
Input	*acqDevice*	Acquisition resource handle
	index	Index of the feature. All indices in the range [0 … value returned by CorAcqDeviceGetFeatureCount – 1] are valid.
Output	*feature*	Feature resource handle to store feature information
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorAcqDeviceGetFeatureCount, CorAcqDeviceGetFeatureInfoByName, Feature Module	

CorAcqDeviceGetFeatureInfoByName

Returns information on a feature associated with a specified name.

Prototype	CORSTATUS **CorAcqDeviceGetFeatureInfoByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, CORFEATURE *feature*);	
Description	Returns information on a feature associated with a specified name. All the information about the feature is stored in a *CorFeature* object. The *CorFeature* object contains the attributes of the feature such as name, type, range, and so forth. See the *CorFeature* module for more details.	
Input	*acqDevice*	Acquisition resource handle
	name	Feature name. See device User's Manual for the list of supported features.
Output	*feature*	Feature resource handle to store feature information
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorAcqDeviceGetFeatureInfoByIndex, Feature Module	

CorAcqDeviceGetFeatureNameByIndex

Returns the name of a feature associated with a specified index

Prototype	CORSTATUS **CorAcqDeviceGetFeatureNameByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, PSTR *name*, UINT32 *nameSize*);	
Description	Returns the name of a feature associated with a specified index. For instance you can use this function to display the name of all features supported by the device.	
Input	*acqDevice*	Acquisition resource handle
	index	Index of the feature. All indices in the range [0 … value returned by CorAcqDeviceGetFeatureCount – 1] are valid.
	nameSize	Size (in bytes) of the buffer pointed to by *name*
Output	*name*	Name of the feature associated with the specified index
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorAcqDeviceGetFeatureIndexByName	

CorAcqDeviceGetFeatureValueByIndex

Returns the value of a simple feature associated with a specified index.

Prototype	CORSTATUS **CorAcqDeviceGetFeatureValueByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, void **value*, UINT32 *valueSize*);
Description	Returns the value of a *simple type* feature associated with a specified index. A simple type feature is a feature that is NOT contained in a handle. See CORFEATURE_PRM_TYPE for a list of simple and complex types. For complex type features you must use the *CorAcqDeviceGetFeatureDataByIndex* instead. To determine the size of the buffer pointed to by *value* you must obtain the type of the feature using *CorAcqDeviceGetFeatureInfoByIndex*. Each feature type has its predetermined size.
Input	*acqDevice* Acquisition resource handle *index* Index of the feature. All indices in the range [0 … value returned by CorAcqDeviceGetFeatureCount – 1] are valid. *valueSize* Size of the buffer pointed to by *value* (in bytes)
Output	*value* Address of a buffer to store the feature value
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
Note	Except for unitless features, each feature has its specific native unit, for example millisecond, KHz, tenth of degree, and so forth. This information is obtained through the CORFEATURE_PRM_SI_UNIT and CORFEATURE_PRM_SI_TO_NATIVE_EXP10 parameters.
See Also	CorAcqDeviceGetFeatureCount ,CorAcqDeviceGetFeatureDataByIndex, CorAcqDeviceGetFeatureValueByName

CorAcqDeviceGetFeatureValueByName

Returns the value of a simple feature associated with a specified name.

Prototype	CORSTATUS **CorAcqDeviceGetFeatureValueByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, void **value*, UINT32 *valueSize*);
Description	Returns the value of a *simple type* feature associated with a specified name. A simple type feature is a feature that is NOT contained in a handle. See CORFEATURE_PRM_TYPE for a list of simple and complex types. For complex type features you must use the *CorAcqDeviceGetFeatureDataByName* instead. To determine the size of the buffer pointed to by *value* you must obtain the type of the feature using *CorAcqDeviceGetFeatureInfoByName*. Each feature type has its predetermined size.
Input	*acqDevice* Acquisition resource handle *name* Feature name. See device User's Manual for the list of supported features. *valueSize* Size of the buffer pointed to by *value* (in bytes)
Output	*value* Address of a buffer to store the feature value
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
Note	Except for unitless features, each feature has its specific native unit, for example millisecond, KHz, tenth of degree, and so forth. This information is obtained through the CORFEATURE_PRM_SI_UNIT and CORFEATURE_PRM_SI_TO_NATIVE_EXP10 parameters.
See Also	CorAcqDeviceGetFeatureDataByName, CorAcqDeviceGetFeatureValueByIndex

CorAcqDeviceIsFeatureAvailable

Returns whether or not a feature is supported by the acquisition device.

Prototype CORSTATUS **CorAcqDeviceIsFeatureAvailable**(CORACQDEVICE *acqDevice*, PCSTR *name*, PUINT32 *isAvailable*);

Description Returns whether or not a feature is supported by the acquisition device. This function is useful when an application supports several acquisition devices each having a different feature set.

Input

	acqDevice	Acquisition resource handle
	name	Feature name. See device User's Manual for the list of supported features.

Output

	isAvailable	True (1) if the feature is supported by the device. False (0) otherwise

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

CorAcqDeviceLoadFeatures

Loads all device features from a configuration file.

Prototype CORSTATUS **CorAcqDeviceLoadFeatures**(CORACQDEVICE *acqDevice*, PCSTR filename);

Description Loads all the features from a configuration file. This function reads the features from a *Sapera LT's CCF File* and writes them to the device. The CCF file is generated by the *Sapera LT CamExpert Program*.

For devices that support hardware persistence storage (see your Acquisition Device User's Manual) loading a CCF file is not mandatory. For other devices you must load a CCF file to ensure the device is in a usable state.

Input

	acqDevice	Acquisition resource handle
	filename	Name of the configuration file to load features from

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Note This function is not valid for read-only handles.

See Also CorAcqDeviceSaveFeatures

CorAcqDeviceSaveFeatures

Saves all or a subset of features to a configuration file.

Prototype CORSTATUS **CorAcqDeviceSaveFeatures**(CORACQDEVICE *acqDevice*, PCSTR *filename*);

Description Saves all or a subset of the device features to a configuration file. This function reads the features from the device and writes them to a *Sapera LT's CCF File*.

Not all features are saved. For example read-only features are not saved by default. To know what features are saved by default refer to CORFEATURE_PRM_SAVED_TO_CONFIG_FILE parameter. This parameter also allows you to control whether each individual feature is saved or not.

This function is useful for devices that do not support hardware persistence storage (see the Acquisition Device User's Manual) in order to retreive the feature values after a shut down of the device.

Input

acqDevice	Acquisition resource handle
filename	Name of the configuration file to save features to

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorAcqDeviceLoadFeatures

CorAcqDeviceSetFeatureDataByIndex

Sets the value of a complex feature associated with a specified index.

Prototype CORSTATUS **CorAcqDeviceSetFeatureDataByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, CORHANDLE *dataSrc*);

Description Sets the value of a *complex type* feature associated with a specified index. A complex type feature is a feature that is contained in a handle. See CORFEATURE_PRM_TYPE for a list of simple and complex types. For simple type features you must use *CorAcqDeviceSetFeatureValueByIndex* instead.

The *dataSrc* handle must be a valid handle containing the feature data to be set.

Input

acqDevice	Acquisition resource handle
index	Index of the feature. All indices in the range [0 … value returned by CorAcqDeviceGetFeatureCount – 1] are valid.
dataSrc	Resource handle that contains feature data

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Note This function is not valid for read-only handles.

See Also CorAcqDeviceGetFeatureCount, CorAcqDeviceSetFeatureValueByIndex, CorAcqDeviceSetFeatureDataByName

CorAcqDeviceSetFeatureDataByName

Sets the value of a complex feature associated with a specified name.

Prototype CORSTATUS **CorAcqDeviceSetFeatureDataByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, CORHANDLE *dataSrc*);

Description Sets the value of a *complex type* feature associated with a specified name. A complex type feature is a feature that is contained in a handle. See CORFEATURE_PRM_TYPE for a list of simple and complex types. For simple type features you must use *CorAcqDeviceSetFeatureValueByName* instead.

The *dataSrc* handle must be a valid handle containing the feature data to be set.

Input

acqDevice	Acquisition resource handle
name	Feature name. See device User's Manual for the list of supported features.
dataSrc	Resource handle that contains feature data

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Note This function is not valid for read-only handles.

See Also CorAcqDeviceSetFeatureValueByName CorAcqDeviceSetFeatureDataByIndex

CorAcqDeviceSetFeatureValueByIndex

Sets the value of a simple feature associated with a specified index.

Prototype CORSTATUS **CorAcqDeviceSetFeatureValueByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, const void **value*, UINT32 *valueSize*);

Description Sets the value of a *simple type* feature associated with a specified index. A simple type feature is a feature that is NOT contained in a handle. See CORFEATURE_PRM_TYPE for a list of simple and complex types. For complex type features you must use *CorAcqDeviceSetFeatureDataByIndex* instead.

To determine the size of the buffer pointed to by *value* you must obtain the feature type using *CorAcqDeviceGetFeatureInfoByIndex*. Each feature type has its predetermined size.

Input

acqDevice	Acquisition resource handle
index	Index of the feature. All indices in the range [0 … value returned by CorAcqDeviceGetFeatureCount – 1] are valid.
value	Address of a buffer that contains the feature value
valueSize	Size of the buffer pointed to by *value* (in bytes)

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Notes This function is not valid for read-only handles.

Except for unitless features, each feature has its specific native unit, for example millisecond, KHz, tenth of degree, and so forth. This information is obtained through the CORFEATURE_PRM_SI_UNIT and CORFEATURE_PRM_SI_TO_NATIVE_EXP10 parameters.

See Also CorAcqDeviceGetFeatureCount
CorAcqDeviceSetFeatureValueByName
CorAcqDeviceSetFeatureDataByIndex

CorAcqDeviceSetFeatureValueByName

Sets the value of a simple feature associated with a specified name.

Prototype CORSTATUS **CorAcqDeviceSetFeatureValueByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, const void **value*, UINT32 *valueSize*);

Description Sets the value of a *simple type* feature associated with a specified name. A simple type feature is a feature that is NOT contained in a handle. See CORFEATURE_PRM_TYPE for a list of simple and complex types. For complex type features you must use *CorAcqDeviceSetFeatureDataByName* instead.

To determine the size of the buffer pointed to by *value* you must obtain the feature type using *CorAcqDeviceGetFeatureInfoByName*. Each feature type has its predetermined size.

Input

acqDevice Acquisition resource handle

name Feature name. See device User's Manual for the list of supported features.

value Address of a buffer that contains the feature value

valueSize Size of the buffer pointed to by *value* (in bytes)

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Note This function is not valid for read-only handles.

Except for unitless features, each feature has its specific native unit, for example millisecond, KHz, tenth of degree, and so forth. This information is obtained through the CORFEATURE_PRM_SI_UNIT and CORFEATURE_PRM_SI_TO_NATIVE_EXP10 parameters.

See Also CorAcqDeviceSetFeatureValueByIndex, CorAcqDeviceSetFeatureDataByName

CorAcqDeviceUpdateFeaturesFromDevice

Gets all the features from the acquisition device at once.

Prototype CORSTATUS **CorAcqDeviceUpdateFeaturesFromDevice**(CORACQDEVICE *acqDevice*);

Description

Input

acqDevice Acquisition resource handle

Output None

Return Value Gets all the features from the acquisition device at once. This function must be used when the *feature update mode* is set to manual
(See CORACQDEVICE_PRM_FEATURE_UPDATE_MODE). In this mode writing individual features is done to an internal cache. Calling this function resets the internal cache to the values currently present in the device. This is useful when a certain number of features have been set to the internal cache but you want to undo those settings.

Note This function is not valid for read-only handles.

See Also CorAcqDeviceUpdateFeaturesToDevice, CORACQDEVICE_PRM_UPDATE_FEATURE_MODE

CorAcqDeviceUpdateFeaturesToDevice

Sets all the features to the acquisition device at once.

Prototype	CORSTATUS **CorAcqDeviceUpdateFeaturesToDevice**(CORACQDEVICE *acqDevice*);
Description	Sets all the features to the acquisition device at once. This function must be used when the *feature update mode* is set to manual (See CORACQDEVICE_PRM_FEATURE_UPDATE_MODE). In this mode writing individual features is done to an internal cache. After all the required features have been set, call this function to write them all to the device.
Input	*acqDevice* Acquisition resource handle
Output	None
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
Note	This function is not valid for read-only handles.
See Also	CorAcqDeviceUpdateFeaturesFromDevice, CORACQDEVICE_PRM_UPDATE_FEATURE_MODE

Event Management Functions

The event management functions are used to enumerate the list of events supported by the device and register user callback functions on those events.

CorAcqDeviceGetEventCount

Returns the number of events supported by the acquisition device.

Prototype	CORSTATUS **CorAcqDeviceGetEventCount**(CORACQDEVICE *acqDevice*, PUINT32 *count*);
Description	Returns the number of events supported by the acquisition device. Devices do not necessarily support the same event set. For instance you can use this function to retrieve the number of events and then get the name of those event using CorAcqDeviceGetEventNameByIndex, using an event index which can be any value in the range [0...*count*-1].
Input	*acqDevice* Acquisition resource handle
Output	*count* Number of events
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.

CorAcqDeviceGetEventIndexByName

Returns the index of an event associated with a specified name.

Prototype	CORSTATUS **CorAcqDeviceGetEventIndexByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, PUINT32 *index*);
Description	Returns the index of an event associated with a specified name.
Input	*acqDevice* Acquisition resource handle *name* Event name. See device User's Manual for the list of supported events.
Output	*index* Index of the event associated with the specified name
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
See Also	CorAcqDeviceGetEventIndexByName

CorAcqDeviceGetEventNameByIndex

Returns the name of an event associated with a specified index.

Prototype	CORSTATUS **CorAcqDeviceGetEventNameByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, PSTR *name*, UINT32 *nameSize*);
Description	Returns the name of an event associated with a specified index. The typical usage is converting an event index (retrieved from your callback information) to the corresponding name. You can then sort the events by name in order to call the appropriate event handling code.
Input	*acqDevice* Acquisition resource handle *index* Index of the event. All indices in the range [0 … value returned by CorAcqDeviceGetEventCount – 1] are valid. *nameSize* Size (in bytes) of the buffer pointed to by *name*
Output	*name* Name of the event associated with the specified index
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
See Also	CorAcqDeviceGetEventIndexByName and CorAcqDeviceGetEventCount

CorAcqDeviceIsEventAvailable

Returns whether or not an event is supported by the acquisition device.

Prototype	CORSTATUS **CorAcqDeviceIsEventAvailable**(CORACQDEVICE *acqDevice*, PCSTR *name*, PUINT32 *isAvailable*);	
Description	Returns whether or not an event is supported by the acquisition device. This function is useful when an application supports several acquisition devices each having a different event set.	
Input	*acqDevice*	Acquisition resource handle
	name	Event name. See device User's Manual for the list of supported events.
Output	*isAvailable*	TRUE if the event is supported by the device. FALSE otherwise
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	

CorAcqDeviceIsCallbackRegisteredByIndex

Returns whether or not a callback function was registered on the event associated with a specified index.

Prototype	CORSTATUS **CorAcqDeviceIsCallbackRegisteredByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, PUINT32 *isRegistered*);	
Description	Returns whether or not a callback function was registered on the event associated with a specified index. For example use this function in a loop to determine if the callback function associated with the current index has to be unregistered.	
Input	*acqDevice*	Acquisition resource handle
	index	Index of the event. All indices in the range [0 … value returned by CorAcqDeviceGetEventCount – 1] are valid.
Output	*isRegistered*	TRUE if a callback function was registered on this event. FALSE otherwise
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorAcqDeviceIsCallbackRegisteredByName and CorAcqDeviceGetEventCount	

CorAcqDeviceIsCallbackRegisteredByName

Returns whether or not a callback function was registered on the event associated with a specified name.

Prototype	CORSTATUS **CorAcqDeviceIsCallbackRegisteredByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, PUINT32 *isRegistered*);	
Description	Returns whether or not a callback function was registered on the event associated with a specified name.	
Input	*acqDevice*	Acquisition resource handle
	name	Event name. See device User's Manual for the list of supported events.
Output	*isRegistered*	TRUE if a callback function was registered on this event. FALSE otherwise
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorAcqDeviceIsCallbackRegisteredByIndex	

CorAcqDeviceRegisterCallbackByIndex

Registers a callback function on the event associated with a specified index.

Prototype	CORSTATUS **CorAcqDeviceRegisterCallbackByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, PCOREVENTINFOCALLBACK *callback*, void **context*);
Description	Registers an event by associating a callback function to the specified index. When the event occurs in the acquisition device the specified callback function is called. The callback function provides information on the corresponding event (in the *COREVENTINFO* handle). Refer to the *EventInfo* module for more detail on the available information. The context pointer is also returned by the callback function allowing you to exchange user information between the callback and your application context.
Input	*acqDevice* Acquisition resource handle
	index Index of the event. All indices in the range [0 … value returned by CorAcqDeviceGetEventCount – 1] are valid.
	callback Address of a user callback function of the following form:
Output	None
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.
Note	This function is not valid for read-only handles.
See Also	CorAcqDeviceRegisterCallbackByName, EventInfo Module, and CorAcqDeviceGetEventCount

Callback form (for *callback*):

```
CORSTATUS CCONV MyCallback(void *context, COREVENTINFO hEventInfo)
{
}
```

context Pointer to a user storage (that is, variable, structure, buffer, etc). Can be NULL.

CorAcqDeviceRegisterCallbackByName

Registers a callback function on the event associated with a specified name.

Prototype CORSTATUS **CorAcqDeviceRegisterCallbackByName**(CORACQDEVICE *acqDevice*, PCSTR *name*, PCOREVENTINFOCALLBACK *callback*, void **context*);

Description Registers an event by associating a callback function to the specified name. When the event occurs in the acquisition device the specified callback function is called. The callback function provides information on the corresponding event (in the *COREVENTINFO* handle). Refer to the *EventInfo* module for more detail on the available information. The context pointer is also returned by the callback function allowing you to exchange user information between the callback and your application context.

Input

acqDevice Acquisition resource handle

name Event name. See device User's Manual for the list of supported events.

callback Address of a user callback function of the following form:

```
CORSTATUS CCONV MyCallback(void *context, COREVENTINFO hEventInfo)
{
}
```

context Pointer to a user storage (that is, variable, structure, buffer, etc). Can be NULL.

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Note This function is not valid for read-only handles.

See Also CorAcqDeviceRegisterCallbackByIndex, EventInfo Module

Example

```
CORSTATUS CCONV MyCallback(void *context, COREVENTINFO hEventInfo)
{
   // Retrieve “AcqDevice” handle through context pointer
   // Context could be anything else
   CORACQDEVICE hAcqDevice = (CORACQDEVICE) context;

   // Access information using CorEventInfo...functions
   // ...
}

main()
{
   // ...
   CorAcqDeviceRegisterCallbackByName(hAcqDevice,
   “FeatureValueChanged”, MyCallback, hAcqDevice);
   // ...
   CorAcqDeviceUnregisterCallbackByName(hAcqDevice,
   “FeatureValueChanged”);
   // ...
}
```

CorAcqDeviceUnregisterCallbackByIndex

Unregisters a callback function on the event associated with a specified index.

Prototype CORSTATUS **CorAcqDeviceUnregisterCallbackByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*);

Description Unregisters a callback function on the event associated with a specified index. Use this function in a loop to unregister all the callback functions previously registered.

Input

	acqDevice	Acquisition resource handle
	index	Index of the event. All indices in the range [0 … value returned by CorAcqDeviceGetEventCount – 1] are valid.

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Note This function is not valid for read-only handles.

See Also CorAcqDeviceIsCallbackRegisteredByIndex, CorAcqDeviceIsCallbackRegisteredByName, CorAcqDeviceUnregisterCallbackByName, and CorAcqDeviceGetEventCount

Example

```
// Unregisters all the callback functions
//
UINT32 eventCount, eventIndex;
CorAcqDeviceGetEventCount(hAcqDevice, &eventCount);
for (eventIndex = 0; eventIndex < eventCount; eventIndex++)
{
   BOOL isRegistered;
   CorAcqDeviceIsCallbackRegistered(hAcqDevice, eventIndex,
   &isRegistered);
   if (isRegistered)
   {
      CorAcqDeviceUnregisterCallbackByIndex(hAcqDevice,
      eventIndex);
   }
}
```

CorAcqDeviceUnregisterCallbackByName

Unregisters a callback function on the event associated with a specified name.

Prototype CORSTATUS **CorAcqDeviceUnregisterCallbackByName**(CORACQDEVICE *acqDevice*, PCSTR *name*);

Description Unregisters a callback function on the event associated with a specified name. Use this function to unregister a callback function for which you know the name.

Input

	acqDevice	Acquisition resource handle
	name	Event name. See device User's Manual for the list of supported events.

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Note This function is not valid for read-only handles.

See Also CorAcqDeviceUnregisterCallbackByIndex

Note This function is not valid for read-only handles.

See Also CorAcqDeviceIsCallbackRegisteredByIndex, CorAcqDeviceIsCallbackRegisteredByName, CorAcqDeviceUnregisterCallbackByIndex

File Access Functions

The file access functions are used to access the files supported by the device, and read/write files from/to the device.

CorAcqDeviceDeleteFileByIndex

Deletes the specified file associated with an index on the acquisition device

Prototype	CORSTATUS **CorAcqDeviceDeleteFileByIndex**(CORACQDEVICE *acqDevice*, UINT32 *deviceFileIndex*);	
Description	Deletes the specified file associated with an index on the acquisition device.	
Input	*acqDevice*	Acquisition resource handle
	deviceFileIndex	Index of the file
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *deviceFileIndex* is NULL)	

CorAcqDeviceDeleteFileByName

Deletes the specified file associated with a name on the acquisition device

Prototype	CORSTATUS **CorAcqDeviceDeleteFileByName**(CORACQDEVICE *acqDevice*, PCSTR *deviceFileName*);	
Description	Deletes the specified file associated with a name on the acquisition device.	
Input	*acqDevice*	Acquisition resource handle
	deviceFileName	Name of the file
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *deviceFileName* is NULL)	

CorAcqDeviceGetFileCount

Gets the index of the file specified by the *fileName* parameter.

Prototype	CORSTATUS **CorAcqDeviceGetFileCount**(CORACQDEVICE acqDevice, PUINT32 count);	
Description	Gets the index of the file specified by the *fileName* parameter.	
Input	*acqDevice*	Acquisition resource handle
Output	*count*	Returns the number of files that the acquisition device holds. See the acquisition device User's Manual for the list of supported files.e.
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *count* is NULL)	

CorAcqDeviceGetFileIndexByName

Gets the index of the file specified by the *fileName* parameter

Prototype	CORSTATUS **CorAcqDeviceGetFileIndexByName**(CORACQDEVICE *acqDevice*, PCSTR *fileName*, PUINT32 *index*);
Description	Gets the index of the file specified by the *fileName* parameter.
Input	*acqDevice* Acquisition resource handle
	fileName Name of the file
Output	*index* Index of the file
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *fileName* is NULL)

CorAcqDeviceGetFileNameByIndex

Gets the name of the file specified by the *index* parameter.

Prototype	CORSTATUS **CorAcqDeviceGetFileNameByIndex**(CORACQDEVICE *acqDevice*, UINT32 *index*, PSTR *fileName*, UINT32 *nameSize*);
Description	Gets the name of the file specified by the *index* parameter.
Input	*acqDevice* Acquisition resource handle
	index Index of the file
Output	*fileName* Name of the file
	nameSize Specifies the maximum length of the character string that *fileName* can contain.
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *index* is NULL)

CorAcqDeviceGetFilePropertyByIndex

Gets the value for the specifed property type for the file associated with a specified index.

Prototype	CORSTATUS **CorAcqDeviceGetFilePropertyByIndex**(CORACQDEVICE *acqDevice*, UINT32 *fileIndex*, UINT32 *propertyType*, PUINT64 *pPropertyValue*);		
Description	Gets the value for the specifed property type for the file associated with a specified index.		
Input	*acqDevice*	Acquisition resource handle	
	fileIndex	Index of the file	
	propertyType	Specifies the required property. Currently supported values are:	
		CORACQDEVICE_FILE_PROPERTY_ACCESS_MODE	Access mode for the device file. Possible return values are:
		CORACQDEVICE_FILE_PROPERTY_FILE_SIZE	Device file size, in bytes
Output	*pPropertyValue*	Returns the property value. Possible values for the access mode are: CORACQDEVICE_VAL_FILE_ACCESS_MODE_NONE CORACQDEVICE_VAL_FILE_ACCESS_MODE_READ_ONLY CORACQDEVICE_VAL_FILE_ACCESS_MODE_WRITE_ONLY CORACQDEVICE_VAL_FILE_ACCESS_MODE_READ_WRITE	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *fileIndex* is NULL)		

CorAcqDeviceGetFilePropertyByName

Gets the value for the specifed property type for the file associated with a specified name.

Prototype	CORSTATUS **CorAcqDeviceGetFilePropertyByName**(CORACQDEVICE *acqDevice*, PCSTR *fileName*, UINT32 *propertyType*, PUINT64 *pPropertyValue*);		
Description	Gets the value for the specifed property type for the file associated with a specified name.		
Input	*acqDevice*	Acquisition resource handle	
	fileName	Name of the file	
	propertyType	Specifies the required property. Currently supported values are:	
		CORACQDEVICE_FILE_PROPERTY_ACCESS_MODE	Access mode for the device file.
		CORACQDEVICE_FILE_PROPERTY_FILE_SIZE	Device file size, in bytes
Output	*pPropertyValue*	Returns the property value. Possible values for the access mode are: CORACQDEVICE_VAL_FILE_ACCESS_MODE_NONE CORACQDEVICE_VAL_FILE_ACCESS_MODE_READ_ONLY CORACQDEVICE_VAL_FILE_ACCESS_MODE_WRITE_ONLY CORACQDEVICE_VAL_FILE_ACCESS_MODE_READ_WRITE	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *filename*is NULL)		

CorAcqDeviceIsFileAccessAvailable

Returns if file access is supported by the acquisition device

Prototype	CORSTATUS **CorAcqDeviceIsFileAccessAvailable**(CORACQDEVICE *acqDevice*, PUINT32 *isAvailable*);	
Description	Returns if file access is supported by the acquisition device.	
Input	*acqDevice*	Acquisition resource handle
Output	*isAvailable*	True (1) if file access is supported by the device. False (0) otherwise
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	

CorAcqDeviceReadFileByIndex

Reads the specified file associated with an index from the device and saves it in the specified location on the host computer.

Prototype	CORSTATUS **CorAcqDeviceReadFileByIndex**(CORACQDEVICE *acqDevice*, UINT32 *deviceFileIndex*, PCSTR *localFileName*);	
Description	Reads the specified file associated with an index from the device and saves it in the specified location on the host computer.	
Input	*acqDevice*	Acquisition resource handle
	deviceFileIndex	Index of the file
	localFileName	Full directory path and filename on the host computer to save the file..
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *deviceFileIndex* is NULL)	

CorAcqDeviceReadFileByName

Reads the specified file associated with a name from the device and saves it in the specified location on the host computer.

Prototype	CORSTATUS **CorAcqDeviceReadFileByName**(CORACQDEVICE *acqDevice*, PCSTR *deviceFileName*, PCSTR *localFileName*);	
Description	Reads the specified file associated with a name from the device and saves it in the specified location on the host computer.	
Input	*acqDevice*	Acquisition resource handle
	deviceFileName	Name of the file
	localFileName	Full directory path and filename on the host computer to save the file.
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *fileIndex* is NULL)	

CorAcqDeviceWriteFileByIndex

Writes to the specified file associated with an index on the device

Prototype	CORSTATUS **CorAcqDeviceWriteFileByIndex**(CORACQDEVICE *acqDevice*, PCSTR *localFileName*, UINT32 *deviceFileIndex*);
Description	Writes to the specified file associated with an index on the device.
Input	*acqDevice* — Acquisition resource handle *localFileName* — Full directory path and filename on the host computer of the file to write to the device *deviceFileIndex* — Index of the file on the device to overwrite
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *deviceFileIndex* is NULL)

CorAcqDeviceWriteFileByName

Writes to the specified file associated with a name on the device

Prototype	CORSTATUS **CorAcqDeviceWriteFileByName**(CORACQDEVICE *acqDevice*, PCSTR *localFileName*, PCSTR *deviceFileName*);
Description	Writes to the specified file associated with an index on the device.
Input	*acqDevice* — Acquisition resource handle *localFileName* — Full directory path and filename on the host computer of the file to write to the device *deviceFileName* — Name of the file on the device to overwrite
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_NULL (if *deviceFileName* is NULL)

Feature Module

The *Feature* module is used to retrieve the feature information from the *AcqDevice* module. Each feature supported by the *AcqDevice* module provides a set of capabilities such as name, type, access mode, and so forth, that can be obtained through the feature module. The feature module is used by *CorAcqDeviceGetFeatureInfo...* functions.

Feature Parameters

ID	Parameters	Type	Access
0x00	CORFEATURE_PRM_NAME	String (64 characters)	R only
0x01	CORFEATURE_PRM_TYPE	Enumeration	R only
0x02	CORFEATURE_PRM_STANDARD	Boolean	R only
0x03	CORFEATURE_PRM_ACCESS_MODE	Enumeration	R only
0x04	CORFEATURE_PRM_POLLING_TIME	32-bit Integer	R only
0x05	CORFEATURE_PRM_TOOL_TIP	String (256 characters)	R only
0x06	CORFEATURE_PRM_DISPLAY_NAME	String (64 characters)	R only
0x07	CORFEATURE_PRM_REPRESENTATION	Enumeration	R only
0x08	CORFEATURE_PRM_SIGN	Enumeration	R only
0x09	CORFEATURE_PRM_SI_UNIT	String (32 characters)	R only
0x0A	CORFEATURE_PRM_CATEGORY	String (64 characters)	R only
0x0B	CORFEATURE_PRM_WRITE_MODE	32-bit Integer	R only
0x0C	CORFEATURE_PRM_SAVED_TO_CONFIG_FILE	Boolean	RW
0x0D	CORFEATURE_PRM_SI_TO_NATIVE_EXP10	32-bit Integer	R only
0x0E	CORFEATURE_PRM_VISIBILITY	Enumeration	R only
0x0F	CORFEATURE_PRM_SELECTOR	Boolean	R only
0x10	CORFEATURE_PRM_ARRAY_LENGTH	32-bit Integer	R only
0x11	CORFEATURE_PRM_DESCRIPTION	String (512 characters)	R only
0x14	CORFEATURE_PRM_INCREMENT_TYPE	Enumeration	R only
0x15	CORFEATURE_PRM_VALID_VALUE_COUNT	32-bit Integer	R only
0x18	CORFEATURE_PRM_FLOAT_PRECISION	64-bit Integer	R only
0x19	CORFEATURE_PRM_FLOAT_NOTATION	Enumeration	R only

CORFEATURE_PRM_ACCESS_MODE

Description Determines the type of access for a feature. See the value descriptions below.

Type UINT32

Values

CORFEATURE_VAL_ACCESS_MODE_UNDEFINED
Undefined access mode

CORFEATURE_VAL_ACCESS_MODE_RW
The feature can be read and written. Most of the features are of this type.

CORFEATURE_VAL_ACCESS_MODE_RO
The feature can only be read. Certain type of features such as “Sensor Temperature” and “Sensor Resolution” cannot be written.

CORFEATURE_VAL_ACCESS_MODE_WO
The feature can only be written. Some features represent commands (or actions) such as “starting a calibration algorithm” for example. This kind of feature cannot be read back.

CORFEATURE_VAL_ACCESS_MODE_NP
The feature is not present. The feature is visible in the interface but is not implemented for this device.

CORFEATURE_VAL_ACCESS_MODE_NE
The feature is present but not enabled. Often used when a feature depends on another feature’s value.

CORFEATURE_PRM_ARRAY_LENGTH

Description Represents the number of bytes required to store the value of a feature of array type, that is, when the CORFEATURE_PRM_TYPE is CORFEATURE_VAL_TYPE_ARRAY. You can then create a buffer with a height of one line, and a width corresponding to this number of bytes, and then use the buffer handle when calling the *CorAcqDeviceGetFeatureData.../ CorAcqDeviceSetFeatureData...* functions.

Type UINT32

Values Positive integer

CORFEATURE_PRM_CATEGORY

Description Represents the category of features the current feature belongs to. All the features are divided into categories to simplify the presentation of features coming from a large feature set.

Type String (64 characters)

Values String representing the name of the category

Note The categories are useful to present a categorized list of features in a graphical user interface.

CORFEATURE_PRM_DESCRIPTION

Description Text representing the full description of the feature.

Type String (1024 characters)

Values String representing the description

Note This parameter can be used to display detailed textual information in a graphical user interface.

CORFEATURE_PRM_DISPLAY_NAME

Description	Represents the name of the feature in a more descriptive way than CORFEATURE_PRM_NAME. This name can be used for listing features in a graphical user interface.
Type	String (64 characters)
Values	String representing the display name of the feature
Note	This name must not be used as an index to the *AcqDevice* module functions. Use CORFEATURE_PRM_NAME instead.

CORFEATURE_PRM_FLOAT_NOTATION

Description	Gets the type of notation to use to display a float type feature.
Type	Enumeration
Values	Possible values are: **CORFEATURE_VAL_FLOAT_NOTATION_UNDEFINED** Undefined **CORFEATURE_VAL_FLOAT_NOTATION_FIXED** Display variable using fixed notation. For exampe, 123.4 **CORFEATURE_VAL_FLOAT_NOTATION_SCIENTIFIC** Display variable using scientific notation. For example, 1.234e-2.

CORFEATURE_PRM_FLOAT_PRECISION

Description	Gets the number of decimal places to display for a float type feature.
Type	UINT64
Values	Possible values are: **CORFEATURE_VAL_FLOAT_NOTATION_UNDEFINED** Undefined **CORFEATURE_VAL_FLOAT_NOTATION_FIXED** Display variable using fixed notation. For exampe, 123.4 **CORFEATURE_VAL_FLOAT_NOTATION_SCIENTIFIC** Display variable using scientific notation. For example, 1.234e-2.

CORFEATURE_PRM_INCREMENT_TYPE

Description	Determines the type of increment for an integer or floating-point feature. See the value descriptions below.
Type	UINT32
Values	Positive integer

CORFEATURE_PRM_NAME

Description	Represents the name of the feature. The name of a feature can be used as an index to the feature set in the *AcqDevice* module.
Type	String (64 characters)
Values	String representing the name of the feature
Note	This string should not be used for display in a graphical user interface. Instead the CORFEATURE_PRM_DISPLAY_NAME provides a more descriptive name.

CORFEATURE_PRM_POLLING_TIME

Description Interval of time between two consecutive feature updates. Some read-only features such as "Sensor Temperature" for instance must be read from the device at a certain frequency in order to refresh to feature module. You can modify this value to either increase or decrease the reshresh rate.

Type UINT32

Values Positive integer

CORFEATURE_PRM_REPRESENTATION

Description Determines the mathematical representation of a integer or float feature. See possible options below.

Type UINT32

Values

CORFEATURE_VAL_REPRESENTATION_UNDEFINED
Undefined representation

CORFEATURE_VAL_REPRESENTATION_LINEAR
The feature follows a linear scale

CORFEATURE_VAL_REPRESENTATION_LOGARITHMIC
The feature follows a logarithmic scale

CORFEATURE_VAL_REPRESENTATION_BOOLEAN
The feature is a boolean (can have two values: zero or non-zero)

CORFEATURE_PRM_SAVED_TO_CONFIG_FILE

Description Specifies whether or not a feature is saved to the configuration file when calling *CorAcqDeviceSaveFeatures*. All the features are assigned a default behavior. For example the read-only features are not saved while the read-write features are. You can however change the default behavoir using this parameter. For example a read-only feature such as "Sensor Temperature" is not saved by default. You set this parameter to TRUE to force the feature to be written to the configuration file.

Type Boolean

Values TRUE for allowing the feature to be saved, FALSE otherwise.

Note If you force read-only features to be saved those features will not be restored when loading back the CCF file. The reason is that the features are not writable to the device.

CORFEATURE_PRM_SELECTOR

Description Determines if the value of the current feature directly affects the values of other features, using a one to many parent-child relationship. For example, if the current feature represents a look-up table index, then the affected features could represent values associated with one specific look-up table.

In this case, the current feature is called the selector.

Use the following functions to find out which features are selected: CorFeatureGetSelectedCount, CorFeatureGetSelectedIndex, and CorFeatureGetSelectedName.

Type Boolean

Values TRUE if the feature is a selector, FALSE otherwise.

CORFEATURE_PRM_SIGN

Description Determines the sign of the integer or float feature. This information is useful when reading and writing feature values. By knowing the sign of the feature value you can "type cast" it to the corresponding C/C++ type.

Type UINT32

Values

CORFEATURE_VAL_SIGN_UNDEFINED
Sign is undefined

CORFEATURE_VAL_SIGN_SIGNED
The feature is a signed integer of float

CORFEATURE_VAL_SIGN_UNSIGNED
The feature is an unsigned integer of float

CORFEATURE_PRM_SI_TO_NATIVE_EXP10

Description Used to convert the value of a feature from SI unit (international system) to native unit (the unit used to read/write the feature through the API). The following equation describes the relation between the two unit systems:

$$V_{NATIVE} = V_{SI} * 10^{E}$$

Where *V* is the value of a feature and *E* is the current parameter.

Type 32-bit integer

Values The value is the exponent of a base 10. It can be negative or positive.

Example 1 You want to set the camera integration time to a known value in seconds. The "IntegrationDuration" feature is represented in microseconds. Therefore the current parameter value is 6. For instance if the desired integration time is 0.5 second you can compute the value to pass to *CorAcqDeviceSetFeatureValue...* as follows:

$$V_{NATIVE} = 0.5 * 10^{6} = 500000$$

Example 2 You want to monitor the temperature of the camera sensor. The "SensorTemperature" feature is reported in tenths of celcius degree. Therefore the current parameter value is 1. For instance if the feature value returned by *CorAcqDeviceGetFeatureValue...* is 205 then you can compute the temperature in celcius as follows:

$$V_{SI} = \frac{V_{NATIVE}}{10^{E}} = \frac{205}{10^{1}} = 20.5$$

Use the *CORFEATURE_SI_UNIT* parameter to retrieve the SI unit corresponding to the feature to monitor.

CORFEATURE_PRM_SI_UNIT

Description Describes the physical unit representing the feature in the international system (SI). Examples of units are Volts, Pixels, Celsius Degrees, and so forth. This information is useful to present in a graphical user interface.

Most of the time the unit used by the feature (the native unit) is NOT the SI unit directly but a multiple of it, for example the exposure time may be represented in microseconds instead of seconds. To convert the feature value to the SI unit you must use the *CORFEATURE_PRM_SI_TO_NATIVE_EXP10* conversion factor.

Type String (32 characters)

Values String representing the unit of the feature in the international system (SI)

Note Many features are unitless and therefore don't provide this information. In such a case an empty string is returned.

CORFEATURE_PRM_STANDARD

Description	Determines if a feature is standard or custom. Most of the features are standard. However sometimes custom features might be provided as part of a special version of an acquisition device driver.
Type	Boolean
Values	TRUE if the feature is standard, FALSE otherwise.

CORFEATURE_PRM_TOOL_TIP

Description	Small text representing the explanation of the feature.
Type	String (256 characters)
Values	String representing the tool tip
Note	This parameter can be used to implement tool tips in a graphical user interface.

CORFEATURE_PRM_TYPE

Description

Type UINT32

Values

CORFEATURE_VAL_TYPE_UNDEFINED Undefined type	Simple
CORFEATURE_VAL_TYPE_INT32 32-bit Integer	Simple
CORFEATURE_VAL_TYPE_INT64 64-bit Integer	Simple
CORFEATURE_VAL_TYPE_FLOAT 32-bit Floating-Point	Simple
CORFEATURE_VAL_TYPE_DOUBLE 64-bit Floating-Point	Simple
CORFEATURE_VAL_TYPE_BOOL Boolean	Simple
CORFEATURE_VAL_TYPE_ENUM Enumeration	Simple
CORFEATURE_VAL_TYPE_STRING ASCII character string	Simple
CORFEATURE_VAL_TYPE_BUFFER Buffer handle	Complex
CORFEATURE_VAL_TYPE_LUT LUT handle	Complex
CORFEATURE_VAL_TYPE_ARRAY Buffer handle	

Note

If the type is *simple* the feature must be read/written using the *CorAcqDeviceGetFeatureValue.../ CorAcqDeviceSetFeatureValue...* functions. If the type is *complex* the feature must be read/written using the *CorAcqDeviceGetFeatureData.../ CorAcqDeviceSetFeatureData...* functions.

If the feature is of array type, then the handle should refer to a buffer with a height of one line, and a width corresponding to the number of bytes given by the value of the CORFEATURE_PRM_ARRAY_LENGTH parameter.

CORFEATURE_PRM_VALID_VALUE_COUNT

Description Number of valid values for an integer or floating-point feature which defines them as a list, that is, the CORFEATURE_PRM_INCREMENT_TYPE parameter is CORFEATURE_VAL_INCREMENT_TYPE_LIST. In this case, use the CorFeatureGetValidValue function to enumerate these values.

Type UINT32

Values Positive integer

CORFEATURE_PRM_VISIBILITY

Description Determines the level of visibility assigned to a feature. This parameter is useful to classify the features in a graphical user interface in terms of user expertise.

Type UINT32

Values

CORFEATURE_VAL_VISIBILITY_UNDEFINED
Undefined visibility level

CORFEATURE_VAL_VISIBILITY_BEGINNER
Specifies that the feature should be made visible to any user.

CORFEATURE_VAL VISIBILITY EXPERT
Specifies that the feature should be made visible to users with a certain level of expertise.

CORFEATURE_VAL VISIBILITY GURU
Specifies that the feature should be made visible to users with a high level of expertise.

CORFEATURE_VAL VISIBILITY INVISIBLE
Specifies that the feature should not be made visible to any user. This level of visibility is normally used on obsolete or internal features.

CORFEATURE_PRM_WRITE_MODE

Description Determines whether or not a feature can be modified when the transfer module is connected and/or acquiring. Some features like the buffer dimensions for example cannot be changed while data is being transfered to the buffer.

Type UINT32

Values

CORFEATURE_VAL_WRITE_MODE_UNDEFINED
Undefined write mode

CORFEATURE_VAL_WRITE_MODE_ALWAYS
The feature can always be written.

CORFEATURE_VAL WRITE_MODE_NOT_ACQUIRING
The feature can only be written when the transfer module is not acquiring. If the transfer is currently acquiring you must stop the acquisition using *CorXferStop / CorXferWait* before modifying the feature value.

CORFEATURE_VAL WRITE_MODE_NOT_CONNECTED
The feature can only be written when the transfer module is not connected. If the transfer is currently connected you must disconnect it using *CorXferDisconnect* before modifying the feature value.

Note Use this information to prevent an application from changing certain features when the transfer module is connected and/or acquiring.

Feature Functions

Function	Description
Creation / Destruction	
CorFeatureNew	Creates an empty feature object
CorFeatureFree	Destroys a feature object
General Parameters	
CorFeatureGetPrm	Gets a parameter value from a feature object
CorFeatureGetPrm	Sets a simple parameter value to a feature object
CorFeatureSetPrmEx	Sets a complex parameter value to a feature object
Integer / Float-specific Parameters	
CorFeatureGetMin	Returns the minimum acceptable value for a feature
CorFeatureGetMax	Returns the maximum acceptable value for a feature
CorFeatureGetInc	Returns the minimum acceptable increment for a feature
CorFeatureGetValidValue	Returns one of a predefined set of valid values for a feature
Enumeration-specific Parameters	
CorFeatureGetEnumCount	Returns the number of items in an enumeration
CorFeatureGetEnumString	Returns the enumeration string corresponding to a specified index
CorFeatureGetEnumValue	Returns the enumeration value corresponding to a specified index
CorFeatureIsEnumEnabled	Returns whether or not the enumeration item corresponding to a specified index is enabled
CorFeatureGetEnumStringFromValue	Returns the enumeration string corresponding to a specified enumeration value
CorFeatureGetEnumValueFromString	Returns the enumeration value corresponding to a specified enumeration string
Selector-specific Parameters	
CorFeatureGetSelectedCount	Returns the number of features associated with a selector
CorFeatureGetSelectedIndex	Returns the index of a feature associated with a selector
CorFeatureGetSelectedName	Returns the name of a feature associated with a selector
CorFeatureGetSelectingCount	Returns the number of selectors associated with a feature
CorFeatureGetSelectingIndex	Returns the index of a selector associated with a feature
CorFeatureGetSelectingName	Returns the name of a selector associated with a feature

Creation/Destruction

CorFeatureFree

Destroys a feature object.

Prototype CORSTATUS **CorFeatureFree**(CORFEATURE *feature*);

Description Destroys a feature object previously created using *CorFeatureNew*.

Input *feature* Feature handle

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureNew

CorFeatureNew

Creates an empty feature object.

Prototype CORSTATUS **CorFeatureNew**(CORSERVER *server*, PCORFEATURE *feature*);

Description Creates an empty feature object. Upon creation the feature object is reset with null values. To fill-in a feature object call the *CorAcqDeviceGetFeatureInfo...* functions.

Input *server* Handle to a server where to create the feature object. Must be the same as that of the *CorAcqDevice* object.

Output feature Feature handle

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureFree, CorAcqDeviceGetFeatureInfoByIndex, CorAcqDeviceGetFeatureInfoByName

General Parameters

The general parameters are those that apply to all feature types (they are not specific to any particular type). For example the *name* of a feature is a general parameter.

CorFeatureGetPrm

Gets a parameter value from a feature object.

Prototype CORSTATUS **CorFeatureGetPrm**(CORFEATURE *feature*, UINT32 *prm*, void **value*);

Description Gets a parameter (simple and complex) value from a feature object. Make certain that the data storage pointed to by *value* matches the data type of the specified parameter. See the description of each parameter to know what kind of data storage it requires.

Input *feature* Feature handle
prm Feature parameter requested

Output *value* Current value of the requested parameter

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureSetPrm, CorFeatureSetPrmEx, Feature Parameters

CorFeatureSetPrm

Sets a simple parameter value to a feature object.

Prototype CORSTATUS **CorFeatureSetPrm**(CORFEATURE *feature*, UINT32 *prm*, UINT32 *value*);

Description Sets a simple feature parameter. A simple parameter is one that fits inside an UINT32. If the parameter is complex, use CorFeatureSetPrmEx. See the description of each parameter to know what kind of data storage it requires.

Input

feature	Feature handle
prm	Feature parameter to set
value	New value of the parameter

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetPrm, CorFeatureSetPrmEx, Feature Parameters

CorFeatureSetPrmEx

Sets a complex parameter value to a feature object.

Prototype CORSTATUS **CorFeatureSetPrmEx**(CORFEATURE *feature*, UINT32 *prm*, const void **value*);

Description Sets a complex feature parameter. A complex parameter is greater in size than an UINT32. If the parameter size is UINT32, use either CorFeatureSetPrm or CorFeatureSetPrmEx. See the description of each parameter to know what kind of data storage it requires.

Input

feature	Feature handle
prm	Feature parameter to set
value	New value of the parameter

Output None

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetPrm, CorFeatureSetPrm, Feature Parameters

Integer/Float-specific Parameters

The following paramters are specific to integer and float feature types.

CorFeatureGetInc

Returns the minimum acceptable increment for a feature.

Prototype	CORSTATUS **CorFeatureGetInc**(CORFEATURE *feature*, void **incVal*, UINT32 *valSize*);	
Description	Returns the minimum acceptable increment for an integer or a float feature. Some features cannot vary by increments of 1. Their value must be a multiple of a certain increment. For example the buffer cropping dimensions might require to be a multiple of 4 in order to optimize the data transfer.	
Input	*feature*	Feature handle
	valSize	Size of the *incVal* buffer
Output	*incVal*	Address of the buffer to store the increment value
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorFeatureGetMin, CorFeatureGetMax	

CorFeatureGetMax

Returns the maximum acceptable value for a feature.

Prototype	CORSTATUS **CorFeatureGetMax**(CORFEATURE *feature*, void **maxVal*, UINT32 *valSize*);	
Description	Returns the maximum acceptable value for a feature. For integer and float types *maxVal* must point to a variable of the same type as the feature. For a string type the maximum length of the string (excluding the trailing null character) is returned and *maxVal* must point to a UINT32 variable.	
Input	*feature*	Feature handle
	valSize	Size of the *maxVal* buffer
Output	*maxVal*	Address of the buffer to store the maximum value
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorFeatureGetMin, CorFeatureGetInc	

CorFeatureGetMin

Returns the minimum acceptable value for a feature.

Prototype	CORSTATUS **CorFeatureGetMin**(CORFEATURE *feature*, void **minVal*, UINT32 *valSize*);	
Description	Returns the minimum acceptable value for a feature. For integer and float types *minVal* must point to a variable of the same type as the feature. For a string type the minimum length of the string (excluding the trailing null character) is returned and *minVal* must point to a UINT32 variable.	
Input	*feature*	Feature handle
	valSize	Size of the *minVal* buffer
Output	*minVal*	Address of the buffer to store the minimum value
Return Value	CORSTATUS_OK if successful. For information on handling other CORSTATUS return values see the "Error Management" section.	
See Also	CorFeatureGetMax, CorFeatureGetIncc	

CorFeatureGetValidValue

Returns one of a predefined set of valid values for a feature.

Prototype CORSTATUS **CorFeatureGetValidValue**(CORFEATURE *feature*, UINT32 *valueIndex,* void **val*, UINT32 *valSize*);

Description Returns one of a predefined set of valid values for an integer or floating-point feature which defines them as a list, that is, the CORFEATURE_PRM_INCREMENT_TYPE parameter is CORFEATURE_VAL_INCREMENT_TYPE_LIST.

The *valueIndex* argument can be any value from 0 to the value of the CORFEATURE_PRM_VALID_VALUE_COUNT parameter, minus 1. The *val* argument must point to a variable of the same type as the feature.

Input

	feature	Feature handle
	valueIndex	Index of the valid value
	valSize	Size of the *val* buffer

Output

	val	Address of the buffer to store the valid value

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CORFEATURE_PRM_INCREMENT_TYPE, CORFEATURE_PRM_VALID_VALUE_COUNT

Enumeration-specific Parameters

The following paramters are specific to the enumeration feature type.

CorFeatureGetEnumCount

Returns the number of items in an enumeration.

Prototype CORSTATUS **CorFeatureGetEnumCount**(CORFEATURE *feature*, PUINT32 *count*);

Description Returns the number of items in an enumeration. Use this function along with *CorFeatureGetEnumString* and *CorFeatureGetEnumValue* to enumerate all the items contained within an enumeration feature.

Input

	feature	Feature handle

Output

	count	Number of items in the enumeration

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetEnumString, CorFeatureGetEnumValue

CorFeatureGetEnumString

Returns the enumeration string corresponding to a specified index.

Prototype CORSTATUS **CorFeatureGetEnumString**(CORFEATURE *feature*, UINT32 *index*, PSTR *enumString*, UINT32 *stringSize*);

Description Returns the enumeration string corresponding to a specified index. Use this function along with *CorFeatureGetEnumCount* and *CorFeatureGetEnumValue* to enumerate all the items contained within an enumeration feature.

Input

	feature	Feature handle
	index	Index of the enumeration item. Ranges from 0 to *CorFeatureGetEnumCount* - 1
	stringSize	Size of the *enumString* buffer (in bytes)

Output *enumString* String associated with the item specified by *index*

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetEnumCount

CorFeatureGetEnumStringFromValue

Returns the enumeration string corresponding to a specified enumeration value.

Prototype CORSTATUS **CorFeatureGetEnumStringFromValue**(CORFEATURE *feature*, UINT32 *value*, PSTR *enumString*, UINT32 *stringSize*);

Description Returns the enumeration string corresponding to a specified enumeration value. For example you may use this function to retrieve the string corresponding to an enumeration value returned by the *CorAcqDeviceGetFeatureValue...* functions.

Input

	feature	Feature handle
	value	Value to look for in the enumeration items
	stringSize	Size of the *enumString* buffer (in bytes)

Output *enumString* String associated with the specified value

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetEnumValueFromString

CorFeatureGetEnumValue

Returns the enumeration value corresponding to a specified index.

Prototype CORSTATUS **CorFeatureGetEnumValue**(CORFEATURE *feature*, UINT32 *index*, PUINT32 *value*);

Description Returns the enumeration value corresponding to a specified index. Use this function along with *CorFeatureGetEnumCount* and *CorFeatureGetEnumString* to enumerate all the items contained within an enumeration feature.

Input

	feature	Feature handle
	index	Index of the enumeration item. Ranges from 0 to *CorFeatureGetEnumCount* - 1

Output *value* Value associated with the item specified by *index*

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetEnumCount

CorFeatureGetEnumValueFromString

Returns the enumeration value corresponding to a specified enumeration string.

Prototype CORSTATUS **CorFeatureGetEnumValueFromString**(CORFEATURE *feature*, PCSTR *enumString*, PUINT32 *value*);

Description Returns the enumeration value corresponding to a specified enumeration string. For example you may use this function to retrieve the value corresponding to a known enumeration string and then set this value to the device using the *CorAcqDeviceSetFeatureValue...* functions.

Input

Input	*feature*	Feature handle
	enumString	String to look for in the enumeration items
Output	*value*	Value associated with the specified string

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetEnumStringFromValue

CorFeatureIsEnumEnabled

Returns whether or not the enumeration item corresponding to a specified index is enabled.

Prototype CORSTATUS **CorFeatureIsEnumEnabled**(CORFEATURE *feature*, UINT32 *index*, PUINT32 *enabled*);

Description Returns whether or not the enumeration item corresponding to a specified index is enabled. Each item in an enumeration is present for all the application duration. However an enumeration item may be dynamically enabled/disabled according to the value of another feature. Use this function to determine the enable state of an item at a given time.

Input	*feature*	Feature handle
	index	Index of the enumeration item. Ranges from 0 to *CorFeatureGetEnumCount* - 1
Output	*enabled*	TRUE if the item is enabled, FALSE otherwise.

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

Selector-specific Parameters

The following functions are specific to selectors

CorFeatureGetSelectedCount

Returns the number of features associated with a selector.

Prototype CORSTATUS **CorFeatureGetSelectedCount**(CORFEATURE *feature*, PUINT32 *count*);

Description Returns the number of features associated with a selector (value of CORFEATURE_PRM_SELECTOR is TRUE). These selected features can be considered as children of the current CORFEATURE object.

Input *feature* Feature handle

Output *count* Number of features associated with the selector, 0 if the current feature is not a selector.

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetSelectedIndex, CorFeatureGetSelectedName

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CorFeatureGetSelectedIndex

Returns the index of a feature associated with a selector.

Prototype CORSTATUS **CorFeatureGetSelectedIndex**(CORFEATURE *feature*, UINT32 *selectedIndex*, PUINT32 *featureIndex*);

Description Returns the acquisition device index of a feature associated with a selector (value of CORFEATURE_PRM_SELECTOR is TRUE). This feature can be considered a a child of the current CORFEATURE object.

The number of features associated with the selector is returned by CorFeatureGetSelectedCount.

The returned index can be used by CorAcqDeviceGetFeatureInfoByIndex to access the specified CORFEATURE object. The number of features supported by the acquisition device is returned by the.CorAcqDeviceGetFeatureCount.

Input *feature* Feature handle

selectedIndex Index of the selected feature, relative to the selector, from 0 to the value returned by CorFeatureGetSelectedCount, minus 1.

Output *featureIndex* Index of the selected feature, relative to the acquisition device, from 0 to the value returned by CorAcqDeviceGetFeatureCount, minus 1.

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetSelectedCount

CorFeatureGetSelectedName

Returns the name of a feature associated with a selector.

Prototype CORSTATUS **CorFeatureGetSelectedName**(CORFEATURE *feature*, UINT32 *selectedIndex*, PSTR *featureName*, UINT32 *nameSize*);

Description Returns the acquisition device name of a feature associated with a selector (value of CORFEATURE_PRM_SELECTOR is TRUE). This feature can be considered a a child of the current CORFEATURE object.

The number of featuresassociated with the selector is returned by CorFeatureGetSelectedCount.

The feature name can be used by CorAcqDeviceGetFeatureInfoByNameto access the specified CORFEATURE object. The number of features supported by the acquisition device is returned by CorAcqDeviceGetFeatureCount.

Input

feature Feature handle

selectedindex Index of the selected feature, relative to the selector, from 0 to the value returned by CorFeatureGetSelectedCount, minus 1.

Output

featureName Acquisition device feature name.

nameSize Size (in bytes) of the buffer pointed to by *featureName*.

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetSelectedCount

CorFeatureGetSelectingCount

Returns the number of selectors associated with a feature.

Prototype CORSTATUS **CorFeatureGetSelectingCount**(CORFEATURE *feature*, PUINT32 *count*);

Description Returns the number of selectors (value of CORFEATURE_PRM_SELECTOR is TRUE) associated with a feature. These selectors can be considered as parents of the current CORFEATURE object.

Input

feature Feature handle

Output

count Number of selectors associated with the current feature, 0 if there are no associated selectors.

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetSelectingIndex, CorFeatureGetSelectingName

CorFeatureGetSelectingIndex

Returns the index of a selector associated with a feature.

Prototype CORSTATUS **CorFeatureGetSelectingIndex**(CORFEATURE *feature*, UINT32 *selectingIndex*, PUINT32 *featureIndex*);

Description Returns the acquisition device index of a selector (value of CORFEATURE_PRM_SELECTOR is TRUE) associated with a feature. This feature can be considered a a parent of the current CORFEATURE object.

The number of selectors associated with a feature is returned by CorFeatureGetSelectingCount.

The returned index can be used by CorAcqDeviceGetFeatureInfoByIndex to access the specified CORFEATURE object. The number of features supported by the acquisition device is returned by the.CorAcqDeviceGetFeatureCount.

Input

feature Feature handle

selectingIndex Index of the selector, relative to the current feature, from 0 to the value returned by CorFeatureGetSelectingCount, minus 1.

Output

featureIndex Index of the selector, relative to the acquisition device, from 0 to the value returned by CorAcqDeviceGetFeatureCount, minus 1.

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetSelectingCount

CorFeatureGetSelectingName

Returns the name of a selector associated with a feature

Prototype CORSTATUS **CorFeatureGetSelectingName**(CORFEATURE *feature*, UINT32 *selectingIndex*, PSTR *featureName*, UINT32 *nameSize*);

Description Returns the acquisition device name of a selector (value of CORFEATURE_PRM_SELECTOR is TRUE) associated with a feature. This feature can be considered a a parent of the current CORFEATURE object.

The number of selectors associated with a feature is returned by CorFeatureGetSelectingCount.

The returned name can be used by CorAcqDeviceGetFeatureInfoByName to access the specified CORFEATURE object. The number of features supported by the acquisition device is returned by CorAcqDeviceGetFeatureCount.

Input

feature Feature handle

selectingIndex Index of the selector, relative to the current feature, from 0 to the value returned by CorFeatureGetSelectingCount, minus 1.

Output

featureName Acquisition device feature name.

nameSize Size (in bytes) of the buffer pointed to by *featureName*.

Return Value CORSTATUS_OK if successful.
For information on handling other CORSTATUS return values see the "Error Management" section.

See Also CorFeatureGetSelectingCount

EventInfo Module

The *EventInfo* module is used to retrieve information from the events sent by the *AcqDevice* or the *Manager* module. Each event supported by these modules provides a set of parameters that can be accessed individually through the *EventInfo* module.

EventInfo Parameters

ID	Parameters	Attribute
0x00	COREVENTINFO_PRM_EVENT_COUNT	Integer 32-bit
0x01	COREVENTINFO_PRM_EVENT_INDEX	Integer 32-bit
0x02	COREVENTINFO_PRM_EVENT_TYPE	Integer 32-bit
0x03	COREVENTINFO_PRM_HOST_TIME_STAMP	Integer 64-bit
0x04	COREVENTINFO_PRM_AUX_TIME_STAMP	Integer 64-bit
0x05	COREVENTINFO_PRM_GENERIC_0	Integer 32-bit
0x06	COREVENTINFO_PRM_GENERIC_1	Integer 32-bit
0x07	COREVENTINFO_PRM_GENERIC_2	Integer 32-bit
0x08	COREVENTINFO_PRM_GENERIC_3	Integer 32-bit
0x09	COREVENTINFO_PRM_CUSTOM_DATA	void pointer
0x0a	COREVENTINFO_PRM_CUSTOM_SIZE	Integer 32-bit
0x0b	COREVENTINFO_PRM_EVENT_TYPE64	Integer 64-bit

ID	Parameter Aliases	Alias of
0x05	COREVENTINFO_PRM_FEATURE_INDEX	COREVENTINFO_PRM_GENERIC_0
0x05	COREVENTINFO_PRM_SERVER_INDEX	COREVENTINFO_PRM_GENERIC_0
0x06	COREVENTINFO_PRM_FILE_PERCENT_PROGRESS	COREVENTINFO_PRM_GENERIC_1

COREVENTINFO_PRM_AUX_TIME_STAMP

Description	Timestamp corresponding to the moment when the event occurred on the device. Note, not all devices support this timestamp.
Type	UINT64
Values	This value is specific to the device. See the device driver User's Manual for more information on the availability of this value and the associated unit.
See Also	COREVENTINFO_PRM_HOST_TIME_STAMP

COREVENTINFO_PRM_CUSTOM_DATA

Description	Address of a buffer containing data associated to a custom event. This parameter is supported only in special versions of certain device drivers.
Type	void pointer
Note	See the device driver User's Manual for a description of the supported custom events.

COREVENTINFO_PRM_CUSTOM_SIZE

Description Size of the custom data pointed to by COREVENTINFO_PRM_CUSTOM_DATA. This parameter is supported only in special versions of certain device drivers.

Type UINT32

Note See the device driver User's Manual for a description of the supported custom events.

COREVENTINFO_PRM_EVENT_COUNT

Description Number of events that have occurred since the callback function was registered.

Type UINT32

Values Positive integer starting at 1.

Note There is one separate count per module. For example the *AcqDevice* module event counter is independent of that of the *Manager* module.

COREVENTINFO_PRM_EVENT_INDEX

Description Index of the event contained in the EventInfo object. This parameter is used by the events sent by the *AcqDevice* module only.

Type UINT32

Values Ranges from 0 to *CorAcqDeviceGetEventCount* – 1

See Also CorAcqDeviceRegisterCallbackByName, CorAcqDeviceRegisterCallbackByIndex

COREVENTINFO_PRM_EVENT_TYPE

Description Type of event contained in the EventInfo object. This parameter is used by the events sent by the *Manager* module only.

Type UINT32

Values See the *CorManRegisterCallbackEx* function for a list of available events.

COREVENTINFO_PRM_EVENT_TYPE64

Description Type of event contained in the EventInfo object. This parameter must be used for modules that support more than 32-bit events.

Type UINT64

Values See the different *RegisterCallbackEx* functions for a list of available events.

Note The 32-bit LSBs are the same as COREVENTINFO_PRM_EVENT_TYPE.

COREVENTINFO_PRM_FEATURE_INDEX

Description This parameter is an alias to the COREVENTINFO_PRM_GENERIC_0 parameter.

For example it is used by the "*FeatureInfoChanged*" and "*FeatureValueChanged*" events of the *AcqDevice* module. In this case it represents the index of the feature whose attributes or value have changed.

Type UINT32

Values Ranges from 0 to *CorAcqDeviceGetFeatureCount* – 1.

COREVENTINFO_PRM_FILE_PERCENT_PROGRESS

Description This parameter is an alias to the COREVENTINFO_PRM_GENERIC_1 parameter. It is used by the following events of the *Manager* module:
CORMAN_VAL_EVENT_TYPE_SERVER_FILE

It represents the percentage of completion of the file upload currently in progress.

Type UINT32

Values Ranges from 0 to 100

See Also COREVENTINFO_PRM_EVENT_TYPE

COREVENTINFO_PRM_GENERIC_0

Description First generic parameter shared by the different events. You should use aliases instead when they are available. Otherwise refer to the device driver User's Manual for a list of events using generic parameters.

Type UINT32

Values Specific to the event

Note For example COREVENTINFO_PRM_FEATURE_INDEX is an alias of this parameter.

COREVENTINFO_PRM_GENERIC_1

Description Second generic parameter shared by the different events. You should use aliases instead when they are available. Otherwise refer to the device driver User's Manual for a list of events using generic paramters.

Type UINT32

Values Specific to the event

COREVENTINFO_PRM_GENERIC_2

Description Third generic parameter shared by the different events. You should use aliases instead when they are available. Otherwise refer to the device driver User's Manual for a list of events using generic paramters.

Type UINT32

Values Specific to the event

COREVENTINFO_PRM_GENERIC_3

Description Fourth generic parameter shared by the different events. You should use aliases instead when they are available. Otherwise refer to the device driver User's Manual for a list of events using generic paramters.

Type UINT32

Values Specific to the event

COREVENTINFO_PRM_HOST_TIME_STAMP

Description Timestamp corresponding to the moment when the event occurred on the host.

Type UINT64

Values Under Windows, the value corresponding to the high-resolution performance counter is directly returned

Note For more detail on how to convert this value to time units, refer to *QueryPerformanceCounter* in the Windows API documenation.

COREVENTINFO_PRM_SERVER_INDEX

Description This parameter is an alias to the COREVENTINFO_PRM_GENERIC_0 parameter. It is used by the following events of the *Manager* module:
CORMAN_VAL_EVENT_TYPE_SERVER_NEW
CORMAN_VAL_EVENT_TYPE_SERVER_DISCONNECTED
CORMAN_VAL_EVENT_TYPE_SERVER_CONNECTED

It represents the index of the server that has been added or has changed its availability state.

Type UINT32

Values Ranges from 0 to *CorManGetServerCount* – 1

See Also COREVENTINFO_PRM_EVENT_TYPE

EventInfo Functions

Function	Description
CorEventInfoGetPrm	Gets a parameter value from an EventInfo object

CorEventInfoGetPrm

Gets a parameter value from an EventInfo object

Prototype CORSTATUS **CorEventInfoGetPrm**(COREVENTINFO *hEventInfo*, UINT32 *prm*, void* *pValue*);

Description Gets a parameter (simple and complex) value from an EventInfo object. Make certain that the data storage pointed to by *value* matches the data type of the specified parameter. See the description of each parameter to know what kind of data storage it requires.

Input *hEventInfo* EventInfo handle

prm EventInfo parameter requested

Output *value* Current value of the requested parameter

Return Value CORSTATUS_OK

See Also EventInfo Parameters

Sapera Basic Modules

Overview

The Basic Modules constitutes the core of the Sapera programming interface. This module provides everything to acquire, display, and access images. This section covers the following topics:

- **Buffer Module**
  Functions to create, read, and write memory buffers.
- **Counter Module**
  Functions to count internal or external events (not available in Sapera LT for 64-bit Windows).
- **Display Module**
  Functions to control the display device.
- **File Module**
  Functions to create, read, write, load, and save files.
- **Graphic Module**
  Functions to perform graphic operations on buffer resources.
- **I/O Module**
  Functions to control a block of general inputs and outputs.
- **LUT Module**
  Functions to define Lookup Tables that can be used by the Acquisition, Display, and Processing modules.
- **Manager Module**
  Functions that allow an application to manage available static resources.
- **PCI Device Module**
  Functions to manage the configuration space of PCI devices (not available in Sapera LT for 64-bit Windows).
- **Transfer Module**
  Functions to move data between various sources and destinations.
- **View Module**
  Functions to control a viewing window within the display device.
- **Error Messages**
  Descriptions of the Sapera error and status messages
- **Macro Definitions**
  Descriptions of the Sapera macros used to ensure code portability
- **Data Definitions**
  Descriptions of the Sapera data types used to ensure code portability
- **File Formats**
  Buffer file formats supported in the Sapera File Module.

Sapera Function General Return Codes

The following are general return codes that may be returned upon completion of a Sapera function:

- CORSTATUS_OK
  Returned upon the successful completion of a function.
- CORSTATUS_NO_MESSAGING_MEMORY
  Returned if there is not enough contiguous messaging memory available for sending or receiving a message. See "Configuring Sapera" in the *Sapera LT User's Manual* to learn how to increase Sapera messaging memory.
- CORSTATUS_NOT_IMPLEMENTED
  Returned if the function is not implemented on the server on which the function has been executed.
- CORSTATUS_TIMEOUT
  Returned if no answer has been received from the server on which the function has been executed.

The return values listed in the function descriptions are described in greater detail in the Error Messages section.

Buffer Module

The Buffer module functions create, read, and write memory buffers (located on the host system or onboard) of a given size and pixel format.

Capabilities

ID	Capability
0x00	CORBUFFER_CAP_PIXEL_DEPTH

CORBUFFER_CAP_PIXEL_DEPTH

Description	Specifies if the CORBUFFER_PRM_PIXEL_DEPTH parameter can be modified.
Type	UINT32
Values	TRUE, the CORBUFFER_PRM_PIXEL_DEPTH parameter can be modified. FALSE, the CORBUFFER_PRM_PIXEL_DEPTH parameter cannot be modified.
See Also	CORBUFFER_PRM_PIXEL_DEPTH

Parameters

ID	Parameters	Attribute
0x00	CORBUFFER_PRM_FORMAT	Read only
0x01	CORBUFFER_PRM_TYPE	Read only
0x02	CORBUFFER_PRM_DATASIZE	Read only
0x03	CORBUFFER_PRM_DATADEPTH	Read only
0x04	CORBUFFER_PRM_XMIN	Read/Write
0x05	CORBUFFER_PRM_YMIN	Read/Write
0x06	CORBUFFER_PRM_WIDTH	Read/Write
0x07	CORBUFFER_PRM_HEIGHT	Read/Write
0x08	CORBUFFER_PRM_ADDRESS	Read only
0x09	CORBUFFER_PRM_PHYSADDRESS	Read only
0x0a	CORBUFFER_PRM_ROOT	Read only
0x0b	CORBUFFER_PRM_PARENT	Read only
0x0c	CORBUFFER_PRM_MEM_WIDTH	Read only
0x0d	CORBUFFER_PRM_MEM_HEIGHT	Read only
0x0e	CORBUFFER_PRM_STATE	Read/Write
0x0f	CORBUFFER_PRM_SIGNED	Read only
0x10	CORBUFFER_PRM_NPAGES	Read only
0x11	CORBUFFER_PRM_PAGE	Read/Write
0x12	CORBUFFER_PRM_COUNTER_STAMP	Read/Write
0x13	CORBUFFER_PRM_SPACE_USED	Read/Write
0x14	Reserved	
0x15	Reserved	
0x16	Reserved	
0x17	Reserved	
0x18	CORBUFFER_PRM_LOCKED	Read/Write
0x19	CORBUFFER_PRM_PITCH	Read only
0x1a	CORBUFFER_PRM_PIXEL_DEPTH	Read/Write
0x1b	Reserved	
0x1c	CORBUFFER_PRM_	Read only
0x1d	CORBUFFER_PRM_MULTI_INDEX	Read only
0x1e	CORBUFFER_PRM_COLOR_ALIGNMENT	Read/Write
0x1f	CORBUFFER_PRM_IS_MULTI_FORMAT	Read only
0x20	CORBUFFER_PRM_PAGE_FORMAT	Read only

CORBUFFER_PRM_ADDRESS

Description	32-bit address of the buffer
Type	UINT32
Note	This is a linear address that allows the requesting process direct access to the buffer's contents, and is only valid within this processes address space. The address of a buffer allocated in video memory can only be obtained if the buffer parameter CORBUFFER_PRM_LOCKED has been set to a non-zero value.

CORBUFFER_PRM_COLOR_ALIGNMENT

Description Sets the color aligment when using the buffer format CORBUFFER_VAL_FORMAT_BICOLOR88 or CORBUFFER_VAL_FORMAT_BICOLOR1616.

Type UINT32

Values Possible values are CORBUFFER_VAL_COLOR_ALIGN_RGBG or CORBUFFER_VAL_COLOR_ALIGN_BGRG.

CORBUFFER_PRM_COUNTER_STAMP

Description Unique value associated with a buffer after an image has been acquired into it. This value is normally expressed in microseconds. It has no meaning by itself; however, subtracting counter stamp values for two buffers gives the amount of time elapsed between a common reference point for their respective data transfers.

Type UINT32

See Also The following transfer module capabilities and parameter:
CORXFER_CAP_COUNTER_STAMP_AVAILABLE, CORXFER_CAP_COUNTER_STAMP_MAX,
CORXFER_CAP_COUNTER_STAMP_TIME_BASE,
CORXFER_CAP_COUNTER_STAMP_EVENT_TYPE, and
CORXFER_PRM_COUNTER_STAMP_TIME_BASE

CORBUFFER_PRM_DATADEPTH

Description Number of bits per buffer element.

Type UINT32

CORBUFFER_PRM_DATASIZE

Description Size of one buffer element (in bytes).

Type UINT32

Values This value does depend on the buffer format.

CORBUFFER_PRM_FORMAT

Description Buffer data format. Defines a single buffer element's type.

Type UINT32

Values For a detailed description of the values, see CorBufferNew.

CORBUFFER_PRM_HEIGHT

Description Height of the buffer region of interest (ROI).

Type UINT32

Values Range within [0...MEM_HEIGHT]. Applies only to child buffers. For information on creating child buffers, see CorBufferNewChild.

CORBUFFER_PRM_HOST_COUNTER_STAMP

Description	Host counter timestamp at which a specific event occurred. This value is determined by the timebase of the CPU clock. Subtracting counter stamp values for two buffers gives the amount of time elapsed between a common reference point for their respective data transfers. Note, the CPU clock is common to all applications and devices on the PC. For example, if you have several Teledyne DALSA boards installed, they all refer to the same CPU clock.
Type	UINT64
See Also	See CORXFER_PRM_BUFFER_TIMESTAMP_MODULE and CORXFER_PRM_BUFFER_TIMESTAMP_EVENT to specify an event and a module for this counter.

CORBUFFER_PRM_IS_MULTI_FORMAT

Description	Returns TRUE if a buffer is multi-format, FALSE otherwise.
Type	BOOL
See Also	CORBUFFER_PRM_FORMAT

CORBUFFER_PRM_LOCKED

Description	Defines if a buffer has been locked.
Type	UINT32
Values	Boolean. A non-zero value indicates the buffer is locked.
Note	This parameter is used only for buffers created in video memory (that is, off-screen video buffers or overlay buffers). The buffer address can only be obtained if it is locked, otherwise the address could become invalid if another application (like a screen saver, full-screen DOS prompt, or pressing CTRL-ALT-DEL) takes control of the video memory. Insure that the buffer is only locked when necessary. If a buffer is used for processing, lock it just before its address is obtained and then unlock it once the processing is done.

CORBUFFER_PRM_MEM_HEIGHT

Description	Buffer height. Defines the number of rows in the buffer.
Type	UINT32

CORBUFFER_PRM_MEM_WIDTH

Description	Buffer width. Defines the number of pixels per line in the buffer.
Type	UINT32

CORBUFFER_PRM_MULTI_INDEX

Description	The buffer resource index, for a buffer within a multi-buffer.
Type	UINT32
Values	Ranges from 0 to the multi-buffer count -1, as specified in CorBufferMultiNew.

CORBUFFER_PRM_NPAGES

Description	Defines the number of pages within the buffer.
Type	UINT32

CORBUFFER_PRM_PAGE

Description Defines the buffer's active page for a multi-page buffer.

Type UINT32

Note The current page only applies when choosing what format to display when calling CorViewShow the function.

CORBUFFER_PRM_PAGE_FORMAT

Description Returns the individual formats included in the current buffer as a UINT32 list. The list terminates upon reaching a format with a value of 0, and should contain a number of formats equals to the value of the CORBUFFER_PRM_NPAGES parameter. An array of at least 64 elements should be allocated to store the value of this parameter.

This applies only to buffer types for which pixel data is stored in separate planes (pages), instead of being packed together. For example, 8-bit RGB planar , 8-bit HSI planar or multiformat buffer types.

Currently supported individual formats for multi-format buffer types are:

CORBUFFER_VAL_FORMAT_RGB888
CORBUFFER_VAL_FORMAT_MONO8
CORBUFFER_VAL_FORMAT_RGB161616
CORBUFFER_VAL_FORMAT_MONO16

Type UINT32 list

CORBUFFER_PRM_PARENT

Description Child buffer's parent handle.

Type CORBUFFER

Note Applies only to child buffers, created as described in CorBufferNewChild

CORBUFFER_PRM_PHYSADDRESS

Description Physical address of the buffer.

Type UINT32

Note The buffer physical address can be used to allow PCI devices access to the buffer contents. This address can be mapped to a linear address (using CorManMapBuffer) by a process running on the host, so as to give the process access to the buffer's contents.
The 32-bit address of a buffer allocated in video memory can only be obtained if the buffer’s CORBUFFER_PRM_LOCKED has been set to a non-zero value.

CORBUFFER_PRM_PITCH

Description Buffer’s memory pitch

Type UINT32

Values Contains the offset (in bytes) between two pixels in the same column on two consecutive lines, within the same buffer.

Note When an off-screen or overlay buffer is created, the memory region allocated may be wider than the requested width (for alignment purposes, hardware optimization, and so forth). In this case, each buffer line is padded with extra bytes to get a buffer that is CORBUFFER_PRM_PITCH bytes wide. Care should be taken not to access these extra bytes, especially if the buffer has been allocated in video memory.

CORBUFFER_PRM_PIXEL_DEPTH

Description	The buffer's number of significant bits per component. By default this value is initialized to the maximum. Refer to Data Formats section to know the maximum pixel depth value for a specific format. This maximum value may also be obtained using the **CorManGetPixelDepthMax** function.
Type	UINT32
Values	Unsigned integer ranging from **CorManGetPixelDepthMin**(format) to **CorManGetPixelDepthMax**(format), where *format* is given by CORBUFFER_PRM_FORMAT.
Note	An example usage of this parameter is when acquiring into a 16-bit monochrome buffer using a 10-bit camera. The CORBUFFER_PRM_PIXEL_DEPTH may be manually set to 10 in order to keep the information within the buffer. If the buffer is saved (using the File module) under the Teledyne DALSA Format (CRC), the pixel depth value is stored. When processing the buffer the pixel depth value may be used to process the significant bits only (for example, creating a LUT with the minimum required size).

CORBUFFER_PRM_ROOT

Description	Root buffer's handle.
Type	CORBUFFER
Values	Contains the buffer handle on top of the hierarchy. For information on creating child buffers, see CorBufferNewChild

CORBUFFER_PRM_SIGNED

Description	Sign of the buffer elements.
Type	UINT32
Values	CORBUFFER_VAL_FORMAT_UNSIGNED CORBUFFER_VAL_FORMAT_SIGNED

CORBUFFER_PRM_SPACE_USED

Description	Amount of space used in the buffer by the most recent data transfer. This value is usually equal to the buffer size, which indicates that the transfer was successful. If it is equal to 0, it means that no data has been acquired yet. If this value is non-zero, but less than the buffer size, this can indicate some kind of data transfer error. In this case, monitoring of acquisition and transfer events can give more information about the error. This value can also be smaller than the buffer size when acquiring variable length data streams. Also note that this value can also sometimes be equal to the buffer size, even if errors occurred during acquisition. In this case, monitoring of acquisition and transfer events can help identify possible errors.
Type	UINT32
Values	Unsigned integer representing the size in bytes of the last data stream transferred in the buffer.

CORBUFFER_PRM_STATE

Description Buffer state. Defines if the buffer is empty or full. If the buffer state is full then the state can also indicate an overflow condition.

This parameter may be used as a flag in an automated processing task. The EMPTY state indicates that new data can be written to the buffer while the FULL state indicates that data has not been processed. The OVERFLOW state indicates errors such as limited data bandwidth. This parameter can also be used in conjunction with the transfer module while cycling through a list of buffers.

For more information on using this parameter, see CORXFER_PRM_CYCLE_MODE. To ensure code portability, you should use the macros CORBUFFER_STATE_IS_EMPTY (UINT32 state), CORBUFFER_STATE_IS_FULL(UINT32 state), and CORBUFFER_STATE_IS_OVERFLOW(UINT32 state) to check the buffer state.

Type UINT32

Values CORBUFFER_VAL_STATE_EMPTY
Specifies that the buffer is ready to receive new data.
CORBUFFER_VAL_STATE_FULL
Specifies that the buffer contains unprocessed data.
CORBUFFER_VAL_STATE_OVERFLOW
Specifies that the buffer contains incomplete data due to insufficient data bandwidth.

CORBUFFER_PRM_TYPE

Description Defines the attributes of the buffer memory.

Type UINT32

Values For a detailed description of possible values, see CorBufferNew.

CORBUFFER_PRM_WIDTH

Description Buffer's region of interest (ROI) width in pixels.

Type UINT32

Values Unsigned integer. Range within [0...MEM_WIDTH]. Applies only to child buffers.
For information on creating child buffers, see CorBufferNew.

CORBUFFER_PRM_XMIN

Description Buffer's region of interest (ROI) origin along the X axis.

Type UINT32

Values Unsigned integer. Range within [0...MEM_WIDTH-1]. Applies only to child buffers.
For information on creating child buffers, see CorBufferNew.

CORBUFFER_PRM_YMIN

Description Buffer's region of interest (ROI) origin along the Y axis.

Type UINT32

Values Unsigned integer. Range within [0...MEM_HEIGHT-1]. Applies only to child buffers.
For information on creating child buffers, see CorBufferNew.

Macros

This section describes macros specific to the Sapera buffer module. They should always be used in your applications to ensure code portability.

CORBUFFER_FORMAT_INDEX (UINT32 format)

Definition Gets buffer format index

Return Value Unsigned integer

CORBUFFER_FORMAT_DATADEPTH (UINT32 format)

Definition Gets buffer data depth in bits

Return Value Unsigned integer

CORBUFFER_FORMAT_DATASIZE (UINT32 format)

Definition Gets buffer data size in bytes

Return Value Unsigned integer

CORBUFFER_FORMAT_IS_SIGNED (UINT32 format)

Definition Checks buffer sign

Return Value CORDATA_FORMAT_SIGNED if buffer format is signed, CORDATA_FORMAT_UNSIGNED otherwise

CORBUFFER_FORMAT_NPAGES (UINT32 format)

Definition Gets the number of pages needed to represent the buffer data format.

Return Value Unsigned integer ranging from 1 to n

Info CORBUFFER_VAL_FORMAT_RGBP8, CORBUFFER_VAL_FORMAT_RGBP16, and CORBUFFER_VAL_FORMAT_HSIP8 are currently the only multi-page buffer format supported (3 pages, one per component). All other buffer formats (monochrome and packed color) have a single page.

CORBUFFER_STATE_IS_EMPTY (UINT32 state)

Definition Checks if buffer state is empty

Return Value TRUE if buffer state is empty, FALSE otherwise

CORBUFFER_STATE_IS_FULL(UINT32 state)

Definition Checks if a buffer state is full

Return Value TRUE if buffer state is full, FALSE otherwise

Functions

Function	Description
CorBuffer	*Converts a Bayer-encoded image to an RGB image*
CorBufferClear	*Clears contents of a buffer resource*
CorBufferClearEx	*Clears contents of a buffer resource*
CorBufferClearBlack	*Clears contents of a buffer resource with the value corresponding to black according to the buffer format*
CorBufferColorConvert	*Converts a Bayer-encoded image to an RGB image*
CorBufferColorWhiteBalance	*Calculates the white balance coefficients used by the Bayer filter*
CorBufferConvertFormat	*Transfers images from the source buffer to the destination buffer and performs pixel format conversion if required*
CorBufferCopy	*Copies contents of a buffer resource into another buffer resource*
CorBufferCopyRect	*Copies a rectangular area of a buffer resource into another buffer resource*
CorBufferFree	*Frees handle to a buffer resource*
CorBufferGetPrm	*Gets buffer parameter value from a buffer resource*
CorBufferMap	*Maps a buffer using physical memory into the current process virtual address space*
CorBufferMapEx	*Map a region of a buffer using physical memory into the current process virtual address space*
CorBufferMergeComponents	*Merges source buffers into the different components of a color buffer*
CorBufferNew	*Creates in a specified server's memory a new buffer resource*
CorBufferNew1D	*Creates in a specified server's memory a new 1D buffer resource*
CorBufferNew2D	*Creates in a specified server's memory a new 2D buffer resource*
CorBufferNewChild	*Creates a new buffer resource within an existing buffer resource*
CorBufferNew1DChild	*Creates a new buffer resource within an existing 1D buffer resource*
CorBufferNew2DChild	*Creates a new buffer resource within an existing 2D buffer resource*
CorBufferNewEx	*Creates from a file and in a specified server's memory a new buffer resource*
CorBufferNew1DEx	*Creates from a file and in a specified server's memory a new 1D buffer resource*
CorBufferNew2DEx	*Creates from a file and in a specified server's memory a new 2D buffer resource*
CorBufferNewShared	*Creates in a server's memory a new buffer resource of the specified type that can be shared with other processes running on this server*
CorBufferNewSharedEx	*Creates in a specified server's memory a new buffer resource that references a previously allocated shared buffer.*
CorBufferRead	*Reads a series of elements from a buffer resource*
CorBufferReadDots	*Reads a set of elements from a buffer resource*
CorBufferReadElement	*Reads an element from a buffer resource*
CorBufferReadElementEx	*Reads an element from a buffer resource*
CorBufferReadLine	*Reads a set of linearly positioned elements from a buffer resource*
CorBufferReadRect	*Reads a set of elements forming a rectangular area from a buffer resource*
CorBufferSetPrm	*Sets a simple buffer parameter of a buffer resource*
CorBufferSetPrmEx	*Sets a complex buffer parameter of a buffer resource*
CorBufferSplitComponents	*Splits a color buffer into each of its components*
CorBufferUnmap	*Unmaps the buffer physical memory from the current process virtual address space*
CorBufferWrite	*Writes a series of elements into a buffer resource*

CorBufferWriteDots	*Writes a set of elements into a buffer resource*
CorBufferWriteElement	*Writes an element into a buffer resource*
CorBufferWriteElementEx	*Writes an element into a buffer resource*
CorBufferWriteLine	*Writes a set of linearly positioned elements into a buffer resource*
CorBufferWriteRect	*Writes aset of elements forming a rectangular area into a buffer resource*

CorBufferClear

Clear contents of a buffer resource

Prototype CORSTATUS **CorBufferClear**(CORBUFFER hB*uffer*, UINT32 *value*);

Description Clears contents of a buffer resource by writing a color value to all buffer elements.

The *value* parameter will be read as an UINT8, UINT16, or an UINT32 according to the buffer's element size. If the element size is larger than an UINT32, use CorBufferClearEx.

For certain formats, such as UYVY and YUY2, the color corresponding to black is not 0. Therefore, make certain that the color value assigned to *value* is defined according the pixel format of the buffer.\hCorBufferClearBlackshould be used when setting a buffer to a black.

Input
hBuffer Buffer resource handle
value Color value

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorBufferClearEx and CorBufferClearBlack

CorBufferClearEx

Clear contents of a buffer resource

Prototype CORSTATUS **CorBufferClearEx**(CORBUFFER *hBuffer*, const *void *value*, UINT32 *size*);

Description Clears contents of a buffer resource by writing a color value to all buffer elements. Required for an element size larger then UINT32.

For an element size less than or equal to UINT32, use either CorBufferClear (suggested) or CorBufferClearEx.

Input
hBuffer Buffer resource handle
value Color value
size Element size

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *value* is NULL)
CORSTATUS_INVALID_HANDLE

See Also CorBufferClear and CorBufferClearEx

CorBufferClearBlack

Clear buffer resource contents with the corresponding black value as per the buffer format

Prototype	CORSTATUS **CorBufferClearBlack**(CORBUFFER *hBuffer*);
Description	Clears buffer resource contents to the corresponding black color. The color value is automatically determined according to the buffer format. For certain formats such as UYVY and YUY2, the color corresponding to black is not 0. Thus calling this function instead of CorBufferClear with a value of 0, guarantees that the buffer will appear black.
Input	*hBuffer* Buffer resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorBufferClear and CorBufferClearEx

CorBufferColorConvert

Converts a Bayer-encoded image to an RGB image.

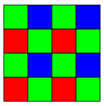
Prototype

CORSTATUS **CorBufferColorConvert**(CORBUFFER *src*, CORBUFFER *dst*, UINT32 *options*, CORDATA *wb*, CORLUT *lut*);

Description

Converts images from the color image format to RGB format. The Bayer format assigns each pixel in a monochrome image the value of one color channel. RGB images are created by using neighbouring pixel values to get the two missing color channels at each pixel.

Pixels in a row of a Bayer image alternate between the green channel value and either the red or the blue channel value. The default scheme is shown below.



The missing color channel values are determined using neighbouring pixel values for the color channel in question either by linear interpolation (CORBUFFER_VAL_COLOR_METHOD_1) or by one of the advanced methods (CORBUFFER_VAL_COLOR_METHOD_2 or METHOD_3). The advanced methods are more computationally expensive than the interpolation method but give better image quality when the input image contains many strong edges.

If the input image is 16-bit and the significant bits are stored in the lower bits (for example, 10-bit camera) the buffer's pixel depth (CORBUFFER_PRM_PIXEL_DEPTH) must be set to the number of significant bits.

The white balance coefficients (*wb*) are the R, G, and B gains applied to the input image before the filtering. These gains are used to balance the three color components so that a pure white at the input gives a pure white at the output.

The output lookup table (*lut*) may be used to apply a color correction after the filtering. A commonly used correction is gamma (*CorLutGamma* function of LUT module).

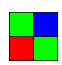
Input

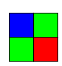
src Input buffer handle. The input buffer format must be one of the following: CORBUFFER_VAL_FORMAT_UINT8 CORBUFFER_VAL_FORMAT_UINT16

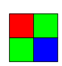
dst Output buffer handle. The output buffer format can be one of the following: CORBUFFER_VAL_FORMAT_RGB888 CORBUFFER_VAL_FORMAT_RGB8888

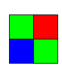
If the input format is CORBUFFER_VAL_FORMAT_UINT16, the output buffer format can also be CORBUFFER_VAL_FORMAT_RGB101010.

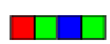
options This value must contain one of the **alignment options** listed below. The alignment mode must correspond to the upper left 2x2 square of your camera's bayer scheme. If the input buffer is a child, the alignment mode is internally recalculated with respect to the upper left corner.

CORBUFFER_VAL_COLOR_ALIGN_GB_RG 

CORBUFFER_VAL_COLOR_ALIGN_BG_GR 

CORBUFFER_VAL_COLOR_ALIGN_RG_GB 

CORBUFFER_VAL_COLOR_ALIGN_GR_BG 

CORBUFFER_VAL_COLOR_ALIGN_RG_BG 

CORBUFFER_VAL_COLOR_ALIGN_BG_RG 

The value must be ORed with one of the **filtering options** listed below. The filtering option specifies the method used for calculating the pixel values of the three color components.

CORBUFFER_VAL_COLOR_METHOD_1 This technique, based on 3x3 bi-linear interpolation, is fast but tends to smooth image edges.

CORBUFFER_VAL_COLOR_METHOD_2	This advanced technique is better for preserving image edges. However it works well only when the image has a strong green content. If not, a little amount of noise may be visible in objects.
CORBUFFER_VAL_COLOR_METHOD_3	This advanced technique is almost as good as method 2 for preserving the edges but is independent of the image green content. Little color artifacts of 1 pixel may be visible in edges.
CORBUFFER_VAL_COLOR_METHOD_4	This technique, based on 2x2 interpolation, is the simplest and fastest. Compared to 3x3 it is better at preserving edge sharpness but introduces a slight jitter in pixel position. In practice it is a good choice for image display but less recommended than 3x3 for accurate image processing.
CORBUFFER_VAL_COLOR_METHOD_5	This technique, based on a set of linear filters, works under the main assumption that edges have much stronger luminance than chrominance component.
CORBUFFER_VAL_COLOR_METHOD_6	Reserved.
CORBUFFER_VAL_COLOR_METHOD_7	Support for bi-color conversion for use with the Teledyne DALSA Piranha 4 camera.

wb White balance coefficients. Can be calculated by *CorBufferBayerWhiteBalance* or set manually as follows:

```
CORDATA wb;
wb.frgb.red = <Red Gain>
wb.frgb.green = <Green Gain>
wb.frgb.blue = <Blue Gain>
```

If no white balance is required, all gains must be set to 1.0.

lut LUT handle. Color lookup table applied after the filtering for color adjustment, for example, gamma correction. The number of entries required by the LUT must be 2^N, where N is the buffer's pixel depth (CORBUFFER_PRM_PIXEL_DEPTH). The LUT format must be one of the following according to the output format:
CORLUT_VAL_FORMAT_COLORNI8 CORLUT_VAL_FORMAT_COLORNI16

If no correction is required, can be set to CORHANDLE_NULL.

Output *None*

Return Value CORSTATUS_OK
CORSTATUS_INCOMPATIBLE_BUFFER
CORSTATUS_INCOMPATIBLE_LUT
CORSTATUS_ARG_INVALID_VALUE

See Also CorBufferColorWhiteBalance, CORBUFFER_PRM_PIXEL_DEPTH, CorLutNew and CorLutGamma

CorBufferColorWhiteBalance

Calculates the white balance coefficients used by the Color filter.

Prototype CORSTATUS **CorBufferColorWhiteBalance**(CORBUFFER *src*, UINT32 *options*, PCORDATA *pWB*);

Description Calculates the white balance coefficients used by CorBufferColorConvert on a color-encoded input image. The input buffer should be a region-of-interest (ROI) of a color-encoded image containing a uniformly illuminated white region. The intensity of the pixels should be as high as possible but not saturated. The coefficients are calculated as follows:

$$G_R = \mathrm{Max}(\overline{R}, \overline{G}, \overline{B}) / \overline{R}$$

$$G_G = \mathrm{Max}(\overline{R}, \overline{G}, \overline{B}) / \overline{G}$$

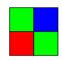
$$G_B = \mathrm{Max}(\overline{R}, \overline{G}, \overline{B}) / \overline{B}$$

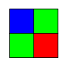
where $\overline{R}$, $\overline{G}$ and $\overline{B}$ are the average value of each color component calculated on all the pixels of the input image.

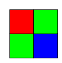
Input

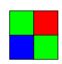
src Input buffer handle. The input buffer format must be one of the following:
CORBUFFER_VAL_FORMAT_UINT8 CORBUFFER_VAL_FORMAT_UINT16

options Used for selecting alignment. This value must contain one of the following:

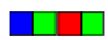
CORBUFFER_VAL_COLOR_ALIGN_GB_RG 

CORBUFFER_VAL_COLOR_ALIGN_BG_GR 

CORBUFFER_VAL_COLOR_ALIGN_RG_GB 

CORBUFFER_VAL_COLOR_ALIGN_GR_BG 

CORBUFFER_VAL_COLOR_ALIGN_RG_BG 

CORBUFFER_VAL_COLOR_ALIGN_BG_RG 

Output *pWB* Address of a CORDATA structure to store the coefficients.

Return Value
CORSTATUS_OK
CORSTATUS_INCOMPATIBLE_BUFFER
CORSTATUS_ARG_INVALID_VALUE

See Also CorBufferColorConvert and CorBufferNewChild

CorBufferConvertFormat

Transfer image from source buffer to destination buffer and perform pixel format conversion if required

Prototype CORSTATUS **CorBufferConvertFormat**(CORBUFFER *hSrc*, CORBUFFER *hDst*, UINT32 *options*);

Description Transfers image from the source buffer to the destination buffer and performs required pixel format conversion.

Input

hSrc Source buffer resource handle

options Any of the following options can be specified:

CORBUFFER_CONVERT_RANGE_CLIP
When a source pixel value is outside the destination buffer format's range, it gets clipped to the nearest valid value. This is the default method.

CORBUFFER_CONVERT_RANGE_REMAP
The source buffer format is mapped to the destination buffer's format. When the source and destination pixel depth are different (for example, when converting from MONO16 to MONO8) the buffer CORBUFFER_PRM_PIXEL_DEPTH value is used to determine how the pixel values are remapped. This option cannot be used when the destination is floating-point.

Output *hDst* Destination buffer resource handle

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID
CORSTATUS_INCOMPATIBLE_BUFFER
CORSTATUS_INVALID_HANDLE
CORSTATUS_NOT_IMPLEMENTED

Note For multiformat buffers (for example, CORBUFFER_VAL_FORMAT_RGB888_MONO8 and CORBUFFER_VAL_FORMAT_RGB161616_MONO16) this function can be used to extract only the mono or RGB components to a MONO8/RGB888/RGB8888 or MONO16/RGB161616/RGB161616 buffer.

See Also CorBufferMergeComponents and CorBufferSplitComponents

CorBufferCopy

Copy contents of a buffer resource into another buffer resource

Prototype CORSTATUS **CorBufferCopy**(CORBUFFER *hSrc*, UINT32 *x*, UINT32 *y*, CORBUFFER *hDst*);

Description Copies the source buffer to location (*x*,*y*) of the destination buffer. When the source buffer is larger than the destination buffer, only the section of the source that fits into the destination is copied. Buffers do not have to be located on the same server.

Input

hSrc Buffer resource handle (source)

x Horizontal offset in destination buffer

y Vertical offset in destination buffer

hDst Buffer resource handle (destination)

Output None

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_INVALID_HANDLE

See Also CorBufferCopyRect

CorBufferCopyRect

Copy a rectangular area of a buffer resource into another buffer resource

Prototype	CORSTATUS **CorBufferCopyRect**(CORBUFFER *hSrc*, UINT32 *xSrc*, UINT32 *ySrc*, UINT32 *width*, UINT32 *height*, CORBUFFER hD*st*, UINT32 *xDst*, UINT32 *yDst*);
Description	Copies a rectangular area of the source buffer, defined by (*xSrc*, *ySrc*, *width*, *height*), to the location (*xDst*, *yDst*) in the destination buffer. When the source area is larger than the destination buffer, only the section of the source that fits the destination is copied. Buffers do not have to be located on the same server.
Input	*hSrc* Source buffer resource handle *xSrc* Horizontal offset of rectangle in source buffer *ySrc* Vertical offset of rectangle in source buffer *width* Horizontal length of the rectangle *height* Vertical length of the rectangle *hDst* Destination buffer resource handle *xDst* Horizontal offset in destination buffer *yDst* Vertical offset in destination buffer
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE
Note	For 1-bit data buffers, *xSrc*, *xDst* and *width* must be a multiple of 8.
See Also	CorBufferCopy

CorBufferFree

Free the handle to a buffer resource

Prototype	CORSTATUS **CorBufferFree**(CORBUFFER *hBuffer*);
Description	Free the handle and all resources used by a buffer resource. Any child buffers **MUST** be freed before calling CorBufferFree for the parent buffer.
Input	*hBufer* Buffer resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_RESOURCE_LINKED
See Also	CorBufferNew, CorBufferNewChild and CorBufferNewEx

CorBufferGetPrm

Gets buffer parameter value from a buffer resource

Prototype	CORSTATUS **CorBufferGetPrm**(CORBUFFER *hBuffer*, UINT32 *prm*, void **value*);	
Description	Get the buffer parameter value from a buffer resource. See the section Parameters for a descriptive list of all buffer parameters.	
Input	*hBuffer*	Buffer resource handle
	prm	Buffer parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID	
See Also	CorBufferSetPrm, CorBufferSetPrmEx and Parameters Section	

CorBufferMap

Map a buffer using physical memory into the virtual address space of the current process.

Prototype	CORSTATUS **CorBufferMap**(CORBUFFER *hBuffer*);	
Description	Maps a buffer using physical memory into the current process virtual address space	
Input	*hBuffer*	Buffer resource handle
Notes	This function should only be used for a buffer that has been created using the CORBUFFER_VAL_TYPE_UNMAPPED buffer type. For mapping a region, see the CorBufferMapEx function.This function is not available in Sapera LT for 64-bit Windows.	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_RESOURCE_IN_USE CORSTATUS_NO_MEMORY	
See Also	CorBufferMapEx, CorBufferUnmap	

CorBufferMapEx

Map a region of a buffer using physical memory into the virtual address space of the current process.

Prototype	CORSTATUS **CorBufferMapEx**(CORBUFFER *hBuffer, UINT64 offset, UINT32 size*);	
Description	Map a region of a buffer using physical memory into the current process virtual address space	
Input	*hBuffer*	Buffer resource handle
	offset	Offset in byte from the origin
	size	Size in byte of the region to be mapped
Notes	This function should only be used for a buffer that has been created using the CORBUFFER_VAL_TYPE_ UNMAPPED buffer type.This function is not available in Sapera LT for 64-bit Windows.	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_ARG_INVALID_VALUE CORSTATUS_RESOURCE_IN_USE CORSTATUS_NO_MEMORY	
See Also	CorBufferUnmap	

CorBufferMergeComponents

Merge source buffers into the different components of a color buffer

Prototype CORSTATUS **CorBufferMergeComponents**(CORBUFFER *hCompA*, CORBUFFER *hCompB*, CORBUFFER *hCompC*, CORBUFFER *hDst*, UINT32 *options*);

Description Merges source buffers into the different components of a color buffer.

Input

hCompA Source buffer resource handle (can be set to NULL).

hCompB Source buffer resource handle (can be set to NULL).

hCompC Source buffer resource handle (can be set to NULL).

options Any of the following options can be specified:

CORBUFFER_CONVERT_RANGE_CLIP
When a source pixel's value is outside the destination buffer format's range, it gets clipped to the nearest valid value. This is the default method.

CORBUFFER_CONVERT_RANGE_REMAP

The source buffer's format is mapped to the destination buffer's format. When the source's and the destination's pixel depth are different (for example, when converting from MONO16 to MONO8) the buffers' CORBUFFER_PRM_PIXEL_DEPTH value is used to determine how the pixel values are remapped. This option cannot be used when the destination is floating-point.

Output *hDst* Destination buffer resource handle.

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID
CORSTATUS_INCOMPATIBLE_BUFFER
CORSTATUS_INVALID_HANDLE
CORSTATUS_NOT_IMPLEMENTED

Note All the source buffers should have the same format, dimensions, and pixel depth.

For multiformat buffers, RGB888 and MONO8 are merged into a CORBUFFER_VAL_FORMAT_RGB888_MONO8 buffer and RGB161616 and MONO16 are merged into a CORBUFFER_VAL_FORMAT_RGB161616_MONO16 buffer (the 'hCompC' argument is ignored).

See Also CorBufferConvertFormat and CorBufferSplitComponents

CorBufferMultiFree

Free the handle to a multi-buffer resource

Prototype CORSTATUS **CorBufferMultiFree**(CORBUFFERMULTI *hBufferMulti*, CORBUFFER *hBuffers*[]);

Description Free the handles and all resources used by a multi-buffer resource.

Input

hBufferMulti BufferMulti resource handle

hBuffers Array of Buffer resource handles

Output None

Return Value
CORSTATUS_OK
CORSTATUS_INVALID_HANDLE
CORSTATUS_RESOURCE_LINKED

See Also CorBufferMultiNew

CorBufferMultiNew

Create in a specified server's memory a new multi-buffer resource

Prototype CORSTATUS **CorBufferMultiNew** (CORSERVER *hServer*, UINT32 *width*, UINT32 *height*, UINT32 *format*, UINT32 *type*, CORBUFFERMULTI **hBufferMulti*, CORBUFFER *hBuffers*[], UINT32 *count*);

Description Creates in a server's memory multiple new buffer resources of the specified type, format, and size.

Input

hServer Server handle

width Width of new buffers in pixels

height Height of new buffers in pixels

format See Data Formats for detailed format descriptions.

Monochrome and **Unsigned integer**

CORBUFFER_VAL_FORMAT_MONO1
CORBUFFER_VAL_FORMAT_MONO8
CORBUFFER_VAL_FORMAT_MONO16
CORBUFFER_VAL_FORMAT_MONO32

Integer (monochrome with sign)

CORBUFFER_VAL_FORMAT_INT8
CORBUFFER_VAL_FORMAT_INT16
CORBUFFER_VAL_FORMAT_INT32

Color

CORBUFFER_VAL_FORMAT_RGB5551
CORBUFFER_VAL_FORMAT_RGB565
CORBUFFER_VAL_FORMAT_RGB888
CORBUFFER_VAL_FORMAT_RGB8888
CORBUFFER_VAL_FORMAT_RGB101010
CORBUFFER_VAL_FORMAT_RGB161616
CORBUFFER_VAL_FORMAT_RGB16161616
CORBUFFER_VAL_FORMAT_RGBP8
CORBUFFER_VAL_FORMAT_RGBP16
CORBUFFER_VAL_FORMAT_RGBR888
CORBUFFER_VAL_FORMAT_UYVY
CORBUFFER_VAL_FORMAT_YUY2
CORBUFFER_VAL_FORMAT_YVYU
CORBUFFER_VAL_FORMAT_YUYV
CORBUFFER_VAL_FORMAT_Y411
CORBUFFER_VAL_FORMAT_Y211
CORBUFFER_VAL_FORMAT_YUV
CORBUFFER_VAL_FORMAT_HSV
CORBUFFER_VAL_FORMAT_HSI
CORBUFFER_VAL_FORMAT_HSIP8
CORBUFFER_VAL_FORMAT_BICOLOR88
CORBUFFER_VAL_FORMAT_BICOLOR1616

Multiformat

CORBUFFER_VAL_FORMAT_RGB888_MONO8
CORBUFFER_VAL_FORMAT_RGB161616_MONO16

Other

CORBUFFER_VAL_FORMAT_FLOAT
CORBUFFER_VAL_FORMAT_COMPLEX
CORBUFFER_VAL_FORMAT_POINT
CORBUFFER_VAL_FORMAT_FPOINT

type The following buffer types are valid.

CORBUFFER_VAL_TYPE_SCATTER_GATHER
The buffers are allocated in noncontiguous memory (paged pool). Pages are locked in physical memory so that a scatter-gather list can be constructed. This type allows allocation of very large sized buffers used as source and destination for the transfer resource. Note that the maximum amount of memory that can be allocated with respect to available memory on the computer depends upon the operating system and the application(s) used.

	count	Number of buffers to allocate
Output	*hBufferMulti*	BufferMulti resource handle. Can be used to assign all buffers to a transfer pair.
	hBuffers	Array of Buffer resource handles allocated.

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_ARG_NULL (if *hBufferMulti* is NULL)
CORSTATUS_DDRAW_ERROR
CORSTATUS_DDRAW_NOT_AVAILABLE
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY

See Also CorBufferMultiFree

CorBufferNew

Create in a specified server's memory a new buffer resource

Prototype CORSTATUS **CorBufferNew**(CORSERVER *hServer*, UINT32 *width*, UINT32 *height*, UINT32 *format*, UINT32 *type*, CORBUFFER **hBuffer*);

Description Creates in a server's memory a new buffer resource of the specified type, format, and size.

Input

hServer Server handle

width Width of new buffer in pixels

height Height of new buffer in pixels

format See Data Formats for detailed format descriptions.

Monochrome and **Unsigned integer**

CORBUFFER_VAL_FORMAT_MONO1
CORBUFFER_VAL_FORMAT_MONO8
CORBUFFER_VAL_FORMAT_MONO16
CORBUFFER_VAL_FORMAT_MONO32

Integer (monochrome with sign)

CORBUFFER_VAL_FORMAT_INT8
CORBUFFER_VAL_FORMAT_INT16
CORBUFFER_VAL_FORMAT_INT32

Color

CORBUFFER_VAL_FORMAT_RGB5551
CORBUFFER_VAL_FORMAT_RGB565
CORBUFFER_VAL_FORMAT_RGB888
CORBUFFER_VAL_FORMAT_RGB8888
CORBUFFER_VAL_FORMAT_RGB101010
CORBUFFER_VAL_FORMAT_RGB161616
CORBUFFER_VAL_FORMAT_RGB16161616
CORBUFFER_VAL_FORMAT_RGBP8
CORBUFFER_VAL_FORMAT_RGBP16
CORBUFFER_VAL_FORMAT_RGBR888
CORBUFFER_VAL_FORMAT_UYVY
CORBUFFER_VAL_FORMAT_YUY2
CORBUFFER_VAL_FORMAT_YVYU
CORBUFFER_VAL_FORMAT_YUYV
CORBUFFER_VAL_FORMAT_Y411
CORBUFFER_VAL_FORMAT_Y211
CORBUFFER_VAL_FORMAT_YUV
CORBUFFER_VAL_FORMAT_HSV
CORBUFFER_VAL_FORMAT_HSI
CORBUFFER_VAL_FORMAT_HSIP8
CORBUFFER_VAL_FORMAT_BICOLOR88
CORBUFFER_VAL_FORMAT_BICOLOR1616

Multiformat

CORBUFFER_VAL_FORMAT_RGB888_MONO8
CORBUFFER_VAL_FORMAT_RGB161616_MONO16

Other

CORBUFFER_VAL_FORMAT_FLOAT
CORBUFFER_VAL_FORMAT_COMPLEX
CORBUFFER_VAL_FORMAT_POINT
CORBUFFER_VAL_FORMAT_FPOINT

type The following buffer types are valid.

CORBUFFER_VAL_TYPE_CONTIGUOUS
The buffer is allocated in Contiguous Memory. The buffer data is contained in a single memory block (no segmentation). Allocated buffers can be used as source and destination for the transfer resource.

CORBUFFER_VAL_TYPE_SCATTER_GATHER
The buffer is allocated in noncontiguous memory (paged pool). Pages are locked in physical memory so that a scatter-gather list can be constructed. This type allows allocation of very large sized buffers used as source and destination for the

transfer resource. Note that the maximum amount of memory that can be allocated with respect to available memory on the computer depends upon the operating system and the application(s) used.

CORBUFFER_VAL_TYPE_VIRTUAL
Similar to a scatter-gather buffer except that the memory pages are not locked. This type allows allocation of very large buffers, but they cannot be used as source or destination for the transfer resource.

CORBUFFER_VAL_TYPE_UNMAPPED
The buffer is allocated in system memory. Pages are allocated but not mapped into the process virtual address space. Before trying to retrieve the buffer virtual address, the buffer's memory has to be mapped into the process virtual address space by calling either the CorBufferMap or the CorBufferMapEx function. This buffer type can be logically ORed with CORBUFFER_VAL_TYPE_SCATTER_GATHER to create a source buffer or destination buffer for a transfer resource.

CORBUFFER_VAL_TYPE_OFFSCREEN
The buffer is allocated in system memory. The Display Module view created using this buffer type may use the display adapter's hardware to copy the system memory buffer to the display memory. A system memory off-screen buffer can be created using any pixel format, but calling CorViewShow with its corresponding view will take longer to execute if its pixel format is not listed in the CORDISPLAY_PRM_PIXEL_TYPE_OFFSCREEN parameter.

CORBUFFER_VAL_TYPE_VIDEO
The buffer is allocated in off-screen video memory. The view created using a buffer of this type uses the display adapter's hardware to perform a fast copy from video memory to video memory. Typically, a buffer of this type is used when a graphical element is reused for several consecutive frames without modification. In this case, it is more efficient to keep this element in video memory and use the display hardware to copy it to the appropriate position in each frame.

CORBUFFER_VAL_TYPE_OVERLAY
This buffer is allocated in video memory. Once you create a view using this buffer and call CorViewShow once, the display adapter's overlay hardware will keep updating the display with the buffer's contents without additional CorViewShow calls. The pixel format of an overlay buffer must be listed in the CORDISPLAY_PRM_PIXEL_TYPE_OVERLAY parameter. Typically, overlay buffers will support more pixel formats (like YUV) than off-screen buffers. Also, color keying is supported for overlays. The behavior of the overlay regarding key colors is determined by the CORVIEW_PRM_MODE parameter.

CORBUFFER_VAL_TYPE_DUMMY
No memory is allocated for a dummy buffer in order that it does not contain any data elements. This type of buffer may be used as a placeholder by the Transfer Module when no data is to be physically transferred.

Output *hBuffer* Buffer resource handle

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_ARG_NULL (if *hBuffer* is NULL)
CORSTATUS_DDRAW_ERROR
CORSTATUS_DDRAW_NOT_AVAILABLE
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY

Notes
Type CORBUFFER_VAL_TYPE_MONO1
(1-bit data depth) buffers are created with the following restrictions:
- Width must be a multiple of 8
- Type must be CONTIGUOUS, SCATTER_GATHER, or VIRTUAL

Type CORBUFFER_VAL_TYPE_OFFSCREEN, CORBUFFER_VAL_TYPE_VIDEO, & CORBUFFER_VAL_TYPE_OVERLAY
utilize Windows and VGA hardware DirectDraw (Windows XP 32-bit only) support to create and display buffers in off-screen VGA surfaces. Under different combinations of Windows version, DirectX version, and the VGA driver, the following three conditions may cause failure with DirectDraw in the creation of off-screen surface buffers.
- Having a screen saver activated.

- Opening a full screen Command session (DOS prompt).
- Pressing CTL-ALT-DEL which hides the current Desktop and displays a Windows menu.

Properly written Sapera applications should present any DirectDraw errors as a windows message box to the user. As part of the message, the above points can be presented as solutions to the problem. It is suggested that these conditions be avoided on the application target system. Review and test each condition to understand the behavior in your environment.

The multi-format buffer types (CORBUFFER_VAL_FORMAT_RGB888_MONO8 and CORBUFFER_VAL_FORMAT_RGB161616_MONO16) do not support Color (Bayer) conversion; loading and saving these buffer types only suppoer the CRC and RAW formats. Use the CorBufferSplitComponents to split these buffers into two buffers with their respective RGB and MONO formats.

CorBufferNew1D

Create in a specified server's memory at a given address a new 1D buffer resource

Prototype CORSTATUS **CorBufferNew1D**(CORSERVER *hServer*, UINT32 *width*, UINT32 *format*, UINT32 *type*, CORBUFFER **hBuffer*);

Description Creates in a specified server's memory a new one-dimensional buffer resource of the specified type, format, and size.

Input	*hServer*	Server handle
	width	Width of new child buffer in pixels
	format	Format of new buffer. See CorBufferNew.
	type	Type of new buffer.
Output	*hBuffer*	Buffer resource handle

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_ARG_NULL (if hBuffer is NULL)
CORSTATUS_DDRAW_ERROR
CORSTATUS_DDRAW_NOT_AVAILABLE
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY

See Also CorBufferFree

CorBufferNew2D

Create in a specified server's memory at a given address a new 2D buffer resource

Prototype CORSTATUS **CorBufferNew2D**(CORSERVER *hServer*, UINT32 *width*, UINT32 *height*, UINT32 *format*, UINT32 *type*, CORBUFFER **hBuffer*);

Description Creates in a specified server's memory a new two-dimensional buffer resource of the specified type, height, format, and size.

Input

Input	*hServer*	Server handle
	width	Width of new child buffer in pixels
	height	Height of new child buffer in lines
	format	Format of new buffer. See CorBufferNew.
	type	Type of new buffer
Output	*hBuffer*	Buffer resource handle

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_ARG_NULL(if hBuffer is NULL)
CORSTATUS_DDRAW_ERROR
CORSTATUS_DDRAW_NOT_AVAILABLE
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY

See Also CorBufferFree

CorBufferNewChild

Create a new buffer resource within an existing buffer

Prototype CORSTATUS **CorBufferNewChild**(CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, UINT32 *width*, UINT32 *height*, CORBUFFER **hChild*);

Description Creates a new buffer resource as a sub-area of an existing parent buffer. The sub-area rectangle (specified by *x*, *y*, *width* and *height*) must not exceed any of the parent's borders.

Input	*hBuffer*	Buffer resource handle
	x	Horizontal offset between parent and child's top left corners.
	y	Vertical offset between parent and child's top left corners.
	width	Width of new child buffer in pixels.
	height	Height of new child buffer in pixels.
Output	*hChild*	Buffer resource handle

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID
CORSTATUS_ARG_NULL (if *hChild* is NULL)
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY

Note The child buffer is not a separate copy of the parent buffer.
A 1-bit data child buffer must have the same dimensions as the parent buffer.

See Also CorBufferFree

CorBufferNew1DChild

Create a new 1D buffer resource within an existing 1D buffer

Prototype	CORSTATUS **CorBufferNew1DChild**(CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *width*, CORBUFFER **hChild*);	
Description	Creates a new one dimensional buffer resource as a sub-area of an existing parent buffer. The sub-area (specified by *x and*, *width*) must not exceed any of the parent's borders.	
Input	*hBuffer*	Buffer resource handle
	x	Horizontal offset between parent and child's top left corners.
	width	Width of new child buffer in pixels.
Output	*hChild*	Buffer resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID CORSTATUS_ARG_NULL (if *hChild* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY	
Note	The child buffer is not a separate copy of the parent buffer. A 1-bit data child buffer must have the same dimensions as the parent buffer.	
See Also	CorBufferFree	

CorBufferNew2DChild

Create a new 2D buffer resource within an existing 2D buffer

Prototype	CORSTATUS **CorBufferNew2DChild**(CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, UINT32 *width*, UINT32 *height*, CORBUFFER **hChild*);	
Description	Creates a new two dimensional buffer resource as a sub-area of an existing parent buffer. The sub-area (specified by *x*, *y*, *width* and *height*) must not exceed any of the parent's borders.	
Input	*hBuffer*	Buffer resource handle
	x	Horizontal offset between parent and child's top left corners.
	y	Vertical offset between parent and child's top left corners.
	width	Width of new child buffer in pixels.
	height	Height of new child buffer in pixels.
Output	*hChild*	Buffer resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID CORSTATUS_ARG_NULL (if *hChild* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY	
Note	The child buffer is not a separate copy of the parent buffer. A 1-bit data child buffer must have the same dimensions than its parent.	
See Also	CorBufferFree	

CorBufferNewEx

Create in a specified server's memory at a given address a new buffer resource

Prototype	CORSTATUS **CorBufferNewEx**(CORSERVER *hServer*, UINT32 UINT32 *width*, UINT32 *height*, UINT32 *format*, UINT32 *type*, UINT32 *physAddress*, UINT32 *virtualAddress*, CORBUFFER **hBuffer*);
Description	Creates in a specified server's memory (virtual or physical address) a new buffer resource of the specified type, format, and size. If the physical address is specified as 0, the virtual address must not be 0, and that memory is not considered as contiguous. If the physical address is not specified as 0 then the virtual address should be specified as 0. In this case, the virtual address is determined automatically from the physical address and read by getting the CORBUFFER_PRM_ADDRESS parameter.

Input	*hServer*	Server handle
	width	Width of new child buffer in pixels.
	height	Height of new child buffer in pixels.
	format	Format of new buffer, see CorBufferNew
	type	New buffer type values: CORBUFFER_VAL_TYPE_SCATTER_GATHER or CORBUFFER_VAL_TYPE_CONTIGUOUS.
	physAddress	Physical address of new buffer.
	virtualAddress	Virtual address of new buffer.
Output	*hBuffer*	Buffer resource handle

Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE CORSTATUS_ARG_NULL (if *hBuffer* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY
See Also	CorBufferFree and CORBUFFER_PRM_ADDRESS

CorBufferNew1DEx

Create in a specified server's memory at a given address a new 1D buffer resource

Prototype	CORSTATUS **CorBufferNewEx**(CORSERVER *hServer*, UINT32 UINT32 *width*, UINT32 *format*, UINT32 *type*, UINT32 *physAddress*, UINT32 *virtualAddress*, CORBUFFER **hBuffer*);
Description	Creates in a specified server's memory (virtual or physical address) a new one dimensional buffer resource of the specified type, format, and size. If the physical address is specified as 0, the virtual address must not be 0, and that memory is not considered as contiguous. If the physical address is not specified as 0 then the virtual address should be specified as 0. In this case the virtual address is determined automatically from the physical address and read by getting the CORBUFFER_PRM_ADDRESS parameter.

Input	*hServer*	Server handle
	width	Width of new child buffer in pixels.
	format	Format of new buffer, see CorBufferNew
	type	New buffer type values: CORBUFFER_VAL_TYPE_SCATTER_GATHER or CORBUFFER_VAL_TYPE_CONTIGUOUS.
	physAddress	Physical address of new buffer.
	virtualAddress	Virtual address of new buffer.
Output	*hBuffer*	Buffer resource handle

Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE CORSTATUS_ARG_NULL (if *hBuffer* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY
See Also	CorBufferFree and CORBUFFER_PRM_ADDRESS

CorBufferNew2DEx

Create in a specified server's memory at a given address a new 2D buffer resource

Prototype	CORSTATUS **CorBufferNew2DEx**(CORSERVER *hServer*, UINT32 *width*, UINT32 *height*, UINT32 *format*, UINT32 *type*, UINT32 *physAddress*, UINT32 *virtualAddress*, CORBUFFER **hBuffer*);	
Description	Creates in a specified server's memory (virtual or physical address) a new two dimensional buffer resource of the specified type, format, and size. If the physical address is specified as 0, the virtual address must not be 0, and that memory is not considered as contiguous. If the physical address is not specified as 0 then the virtual address should be specified as 0. In this case the virtual address is determined automatically from the physical address and read by getting the CORBUFFER_PRM_ADDRESS parameter.	
Input	*hServer*	Server handle
	width	Width of new child buffer in pixels.
	height	Height of new child buffer in pixels.
	format	Format of new buffer, see CorBufferNew.
	type	New buffer type value. CORBUFFER_VAL_TYPE_SCATTER_GATHER or CORBUFFER_VAL_TYPE_CONTIGUOUS.
	physAddress	Physical address of new buffer.
	virtualAddress	Virtual address of new buffer.
Output	*hBuffer*	Buffer resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE CORSTATUS_ARG_NULL (if *hBuffer* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY	
See Also	CorBufferFree and CORBUFFER_PRM_ADDRESS	

CorBufferNewShared

Create in a specified server's memory a new buffer resource that can be shared between processes

Prototype CORSTATUS **CorBufferNewShared**(CORSERVER *hServer*, UINT32 *width*, UINT32 *height*, UINT32 *format*, UINT32 *type*, PCSTR name, CORBUFFER **hBuffer*);

Description Creates in a server's memory a new buffer resource of the specified type, format, and size that can be shared with other processes running on this server

Input

hServer Server handle

width Width of new buffer in pixels

height Height of new buffer in pixels

format Format of new buffer, see CorBufferNew.

type The following buffer types are valid.
(See the "*Sapera LT User's Manual*" for further information).

CORBUFFER_VAL_TYPE_SCATTER_GATHER
The buffer is allocated in noncontiguous memory (paged pool). Pages are locked in physical memory so that a scatter-gather list can be constructed. This type allows allocation of very large sized buffers used as source and destination for the transfer resource. Note that the maximum amount of memory that can be allocated with respect to available memory on the computer depends upon the operating system and the application(s) used.

CORBUFFER_VAL_TYPE_VIRTUAL
Similar to a scatter-gather buffer except that the memory pages are not locked. This type allows allocation of very large buffers, but they cannot be used as source or destination for the transfer resource.

name Name to be given to the shared buffer.

This name has to be unique in the system since it will be used to reference a specific shared buffer resource

Output *hBuffer* Buffer resource handle

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_ARG_NULL (if either *hBuffer* or name is NULL)
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY

Notes Type CORBUFFER_VAL_TYPE_MONO1
(1-bit data depth) buffers are restricted to a width that must be a multiple of 8.

See Also CorBufferFree

CorBufferNewSharedEx

Create in a specified server's memory a new buffer resource that references a previously allocated shared buffer

Prototype CORSTATUS **CorBufferNewSharedEx**(CORSERVER *hServer*, UINT32 *type PCSTR name,* CORBUFFER **hBuffer*);

Description Creates in a specified server's memory a new buffer resource that references a previously allocated shared buffer.

Input

HServer Server handle

Type The following buffer types are valid.
(See the "*Sapera LT User's Manual*" for further information).

CORBUFFER_VAL_TYPE_SCATTER_GATHER
The buffer is allocated in noncontiguous memory (paged pool). Pages are locked in physical memory so that a scatter-gather list can be constructed. This type allows allocation of very large sized buffers used as source and destination for the transfer resource. Note that the maximum amount of memory that can be allocated with respect to available memory on the computer depends upon the operating system and the application(s) used.

CORBUFFER_VAL_TYPE_VIRTUAL
Similar to a scatter-gather buffer except that the memory pages are not locked. This type allows allocation of very large buffers, but they cannot be used as source or destination for the transfer resource.

name Name of a previously allocated shared buffer.

Output *hBuffer* Buffer resource handle

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_ARG_NULL (if *hBuffer* is NULL)
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY

See Also CorBufferNewShared and CorBufferFree

CorBufferRead

Read a series of elements from a buffer resource

Prototype CORSTATUS **CorBufferRead**(CORBUFFER *hBuffer*, UINT32 *offset*, void **array*, UINT32 *size*);

Description Reads a consecutive series of elements continuously from the specified buffer resource. Elements are read to the end of the buffer line and then continued from the beginning of the next line, until *length* elements have been read. Elements are then copied into a one-dimensional destination array.

Input

hBuffer Buffer resource handle

offset Offset to seek within the buffer prior to read (in pixels)

size Size of transfer (*number of elements* × CORBUFFER_PRM_DATASIZE bytes).
For 1-bit data buffers, size should be *((number of elements + 7) >> 3)* bytes.

Output *array* Array which can accommodate the requested size
(*number of elements* × CORBUFFER_PRM_DATASIZE).
For 1-bit data buffers, the array size should be *((number of elements + 7) >> 3)* bytes.

Return Value
CORSTATUS_OK
CORSTATUS_ARG_NULL (if *array* is NULL)
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_INVALID_HANDLE

Note Reading elements from video memory buffers may be very slow.
For 1-bit data buffers, the offset must be a multiple of 8.

See Also CorBufferWrite

CorBufferReadDots

Read a set of elements from a buffer resource

Prototype CORSTATUS **CorBufferReadDots**(CORBUFFER *hBuffer*, UINT32 *xStart*, UINT32 *yStart*, const UINT8 **dirs*, UINT32 *nDirs*, void **array*, UINT32 *size*);

Description Reads *nDirs* elements to an *array* from a set of locations in a buffer resource as defined by *xStart, yStart* and the list of directions given by *dirs.*

Input

hBuffer Buffer resource handle

xStart Horizontal position of first element (dot) to read

yStart Vertical position of first element (dot) to read

dirs Series of bytes defining the path to follow. Each byte represents the direction to the next adjacent element to read, as indicated in the following table.

Value	1	2	3	4	5	6	7	8
Direction	E	NE	N	NW	W	SW	S	SE

A value of zero or greater than 8 is ignored; the previous element is read again.

nDirs Amount of given directions (or dots to read)

size Size of transfer (*nDirs*×CORBUFFER_PRM_DATASIZE bytes)

Output

array Array which can accommodate the requested number of elements (*nDirs*×CORBUFFER_PRM_DATASIZE)

Return Value

CORSTATUS_OK
CORSTATUS_ARG_NULL (if *array* is NULL)
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_INVALID_HANDLE

Note Reading elements from video memory buffers may be very slow.
Function not supported by 1-bit data buffers.

See Also CorBufferWriteDots

CorBufferReadElement

Read an element from a buffer resource

Prototype CORSTATUS **CorBufferReadElement**(CORBUFFER *hBuffer*, UINT32 *xPos*, UINT32 *yPos*, void **element*, UINT32 *size*);

Description Reads a single element at (*xPos,yPos*) from a buffer resource.

Input

hBuffer Buffer resource handle

xPos Horizontal position of the element in the buffer

yPos Vertical position of the element in the buffer

size Size of transfer (CORBUFFER_PRM_DATASIZE bytes)

Output

element Current value of the element

Return Value

CORSTATUS_OK
CORSTATUS_ARG_NULL (if *element* is NULL)
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_INVALID_HANDLE

Note Reading elements from video memory buffers may be very slow.

For multifformat buffer types the order is B/G/R/M. For CORBUFFER_VAL_FORMAT_RGB888_MONO8 this is a 32-bit value; for CORBUFFER_VAL_FORMAT_RGB161616_MONO16 this is a 64-bit value.

See Also CorBufferWriteElement

CorBufferReadElementEx

Read an element from a buffer resource

Prototype	CORSTATUS **CorBufferReadElementEx**(CORBUFFER *hBuffer*, UINT32 *xPos*, UINT32 *yPos*, CORDATA **element*);	
Description	Reads an element from a buffer resource and pack its value into the CORDATA argument.	
Input	*hBuffer*	Buffer resource handle
	xPos	Horizontal position of the element in the buffer
	yPos	Vertical position of the element in the buffer
Output	*element*	Current value of the element. See Data Types for the *CORDATA* definition.
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *element* is NULL) CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE	
Note	Reading elements from video memory buffers may be very slow. Multiformat buffers (for example, CORBUFFER_VAL_FORMAT_RGB888_MONO8 and CORBUFFER_VAL_FORMAT_RGB161616_MONO16) use the 'rgba' structure (red/green/blue/alpha) inside CORDATA values.	
See Also	CorBufferWriteElementEx	

CorBufferReadLine

Read a set of linearly positioned elements from a buffer resource

Prototype	CORSTATUS **CorBufferReadLine**(CORBUFFER *hBuffer*, UINT32 *x1*, UINT32 *y1*, UINT32 *x2*, UINT32 *y2*, UINT32 **nElements*, void **array*, UINT32 *size*);	
Description	Read elements in a line within a buffer, from position (*x1*,*y1*) to position (*x2*,*y2*), and copies them into an array.	
Input	*hBuffer*	Buffer resource handle
	x1	Horizontal position of first element to read
	y1	Vertical position of first element to read
	x2	Horizontal position of last element to read
	y2	Vertical position of last element to read
	size	Size of transfer (MAX(ABS(x2-x1), ABS(y2-y1) + 1) × CORBUFFER_PRM_DATASIZE bytes)
Output	*array*	Array which can accommodate the requested number of elements (MAX(ABS(x2-x1), ABS(y2-y1) + 1) × CORBUFFER_PRM_DATASIZE)
	nElements	Number of elements read
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE CORSTATUS_ARG_NULL (if *number of elements* or *array* is NULL) CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE	
Note	Reading elements from video memory buffers may be very slow. Function not supported by 1-bit data buffers.	
See Also	CorBufferWriteLine	

CorBufferReadRect

Read a set of elements forming a rectangular area from a buffer resource

Prototype	CORSTATUS **CorBufferReadRect**(CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, UINT32 *width*, UINT32 *height*, void **array*, UINT32 *size*);	
Description	Reads the elements of a rectangular area from a buffer resource into an array.	
Input	*hBuffer*	Buffer resource handle
	x	Horizontal offset in source buffer
	y	Vertical offset in source buffer
	width	Horizontal length of the rectangle (must be 2 or greater)
	height	Vertical length of the rectangle (must be 2 or greater)
	size	Size of transfer (*width*×*height*×CORBUFFER_PRM_DATASIZE bytes) For 1-bit data buffers, *size* should be *((width×height) >> 3)* bytes
Output	*array*	Array which can accommodate the requested number of elements (*width*×*height*×CORBUFFER_PRM_DATASIZE) For 1-bit data buffers, the *array* size should be *((width×height) >> 3)* bytes
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *array* is NULL) CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE	
Note	Reading elements from video memory buffers may be very slow. For 1-bit data buffers, *x* and *width* must be in multiples of 8.	
See Also	CorBufferWriteRect	

CorBufferSetPrm

Set a simple buffer parameter of a buffer resource

Prototype	CORSTATUS **CorBufferSetPrm**(CORBUFFER *hBuffer*, UINT32 *prm*, UINT32 *value*);	
Description	Sets a simple parameter of a buffer resource. A simple parameter fits inside an UINT32.	
Input	*hBuffer*	Buffer resource handle
	prm	Buffer parameter to set
	value	New value of the parameter
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID CORSTATUS_PRM_NOT_AVAILABLE CORSTATUS_PRM_READ_ONLY	
Note	For complex parameters, use CorBufferSetPrmEx. See the Parameters section.	
See Also	CorBufferGetPrm and CorBufferSetPrmEx	

CorBufferSetPrmEx

Set a complex buffer parameter of a buffer resource

Prototype CORSTATUS **CorBufferSetPrmEx**(CORBUFFER *hBuffer*, UINT32 *prm*, const void **value*);

Description Sets a complex parameter of a buffer resource. A complex parameter is greater than an UINT32.

Input

hBuffer	Buffer resource handle
prm	Buffer parameter to set
value	New value of the parameter

Output None

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_ARG_NULL (if *value* is NULL)
CORSTATUS_INVALID_HANDLE
CORSTATUS_PRM_INVALID
CORSTATUS_PRM_NOT_AVAILABLE
CORSTATUS_PRM_READ_ONLY

Note If the parameter size is UINT32, either CorBufferSetPrm or CorBufferSetPrmEx can be used.

See Also CorBufferGetPrm, CorBufferSetPrm and Parameters section

CorBufferSplitComponents

Split a color buffer into each of its components

Prototype CORSTATUS **CorBufferSplitComponents**(CORBUFFER *hSrc*, CORBUFFER *hCompA*, CORBUFFER *hCompB*, CORBUFFER *hCompC*, UINT32 *options*);

Description Splits a color buffer into each of its components.

Input

hSrc Source buffer resource handle.

options Any of the following options can be specified:

CORBUFFER_CONVERT_RANGE_CLIP
When a source pixel's value is outside the destination buffer format's range, it gets clipped to the nearest valid value. This is the default method.

CORBUFFER_CONVERT_RANGE_REMAP

The source buffer's format is mapped to the destination buffer's format. When the source and the destination pixel depths are different (for example, when converting from MONO16 to MONO8) the buffers' CORBUFFER_PRM_PIXEL_DEPTH value is used to determine how the pixel values are remapped. This option cannot be used when the destination is floating-point.

Output

hCompA	Destination buffer resource handle (can be set to NULL).
hCompB	Destination buffer resource handle (can be set to NULL).
hCompC	Destination buffer resource handle (can be set to NULL).

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID
CORSTATUS_INCOMPATIBLE_BUFFER
CORSTATUS_NOT_IMPLEMENTED
CORSTATUS_INVALID_HANDLE

Note All the destination buffers should have the same format, dimensions, and pixel depth.

Multiformat buffers CORBUFFER_VAL_FORMAT_RGB888_MONO8 and CORBUFFER_VAL_FORMAT_RGB161616_MONO16 are split into corresponding RGB888/RGB161616 and MONO8/MONO16 buffers (the 'hCompC' argument is ignored).

See Also CorBufferConvertFormatand CorBufferMergeComponents

CorBufferUnmap

Unmap the buffer physical memory from the current process virtual address space

Prototype	CORSTATUS **CorBufferUnmap**(CORBUFFER *hBuffer*);
Description	Unmap the buffer physical memory from the current process virtual address space
Input	*hBuffer* Buffer resource handle
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY This function is not available in Sapera LT for 64-bit Windows.
See Also	CorBufferMap and CorBufferMapEx

CorBufferWrite

Write a series of elements to a buffer resource

Prototype	CORSTATUS **CorBufferWrite**(CORBUFFER *hBuffer*, UINT32 *offset*, const void **array*, UINT32 *size*);	
Description	Writes a series of elements from a one-dimensional source array to the buffer resource.	
Input	*hBuffer*	Buffer resource handle
	offset	Offset to seek within the buffer prior to write (in pixels)
	array	Array which contains the elements to be written: (*number of elements*×CORBUFFER_PRM_DATASIZE) bytes. For 1-bit data buffers, the array size should be *((number of elements + 7) >> 3)* bytes
	size	Size of transfer (*number of elements*×CORBUFFER_PRM_DATASIZE) bytes For 1-bit data buffers, the array size is *((number of elements + 7) >> 3)* bytes
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *array* is NULL) CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE	
Note	For 1-bit data buffers, *offset* must be a multiple of 8.	
See Also	CorBufferRead	

CorBufferWriteDots

Write at specific locations a series of elements to a buffer resource

Prototype CORSTATUS **CorBufferWriteDots**(CORBUFFER *hBuffer*, UINT32 *xStart*, UINT32 *yStart*, const UINT8 **dirs*, UINT32 *nDirs*, const void **array*, UINT32 *size*);

Description Writes *nDirs* elements from an *array* to the set of locations in a buffer resource as defined by *xStart, yStart* and the list of directions given by *dirs.*

Input

hBuffer Buffer resource handle

xStart Horizontal position of first element (dot) to write

yStart Vertical position of first element (dot) to write

dirs Series of bytes defining the path to follow. Each byte represents the direction to the next adjacent element to write, as indicated in the following below:

Value	1	2	3	4	5	6	7	8
Direction	E	NE	N	NW	W	SW	S	SE

A value of zero or greater than 8 is ignored; the previous element is written again.

nDirs Amount of given directions (or dots to read)

array Array which contains the elements to be written (*nDirs*×CORBUFFER_PRM_DATASIZE)

size Size of transfer (*nDirs*×CORBUFFER_PRM_DATASIZE bytes)

Output None

Return Value
CORSTATUS_OK
CORSTATUS_ARG_NULL (if *dirs* or *array* is NULL)
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_INVALID_HANDLE

Note Not supported by 1-bit data buffers.

See Also \hCorBufferReadDots

CorBufferWriteElement

Write an element to a buffer resource

Prototype CORSTATUS **CorBufferWriteElement**(CORBUFFER *hBuffer*, UINT32 *xPos*, UINT32 *yPos*, const void **element*, UINT32 *size*);

Description Writes the value pointed to by *element*, to location (*xPos*, *yPos*) in the *buffer resource*.

Input

hBuffer Buffer resource handle

xPos Horizontal position of the element in the buffer

yPos Vertical position of the element in the buffer

element New value for the specified location (CORBUFFER_PRM_DATASIZE)

size Number of bytes to write corresponding to (CORBUFFER_PRM_DATASIZE bytes)

Return Value
CORSTATUS_OK
CORSTATUS_ARG_NULL (if *element* is NULL)
CORSTATUS_ARG_OUT_OF_RANGE
CORSTATUS_INVALID_HANDLE

Note For multifformat buffer types the order is B/G/R/M. For CORBUFFER_VAL_FORMAT_RGB888_MONO8 this is a 32-bit value; for CORBUFFER_VAL_FORMAT_RGB161616_MONO16 this is a 64-bit value.

See Also \hCorBufferReadElement

CorBufferWriteElementEx

Write an element to a buffer resource

Prototype	CORSTATUS **CorBufferWriteElementEx**(CORBUFFER *hBuffer*, UINT32 *xPos*, UINT32 *yPos*, CORDATA *element*);
Description	Writes the value in *element*, to location (*xPos*, *yPos*) in the buffer resource.
Input	*hBuffer* Buffer resource handle
	xPos Horizontal position of the element in the buffer
	yPos Vertical position of the element in the buffer
	element New value for the specified location. See Data Types for CORDATA definition.
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE
Note	Multiformat buffers (for example, CORBUFFER_VAL_FORMAT_RGB888_MONO8 and CORBUFFER_VAL_FORMAT_RGB161616_MONO16) use the 'rgba' structure (red/green/blue/alpha) inside CORDATA values.
See Also	CorBufferReadElementEx

CorBufferWriteLine

Write a set of linearly positioned elements into a buffer resource

Prototype	CORSTATUS **CorBufferWriteLine**(CORBUFFER *hBuffer*, UINT32 *x1*, UINT32 *y1*, UINT32 *x2*, UINT32 *y2*, UINT32 **nElements*, const void **array*, UINT32 *size*);
Description	Writes a line into a buffer, from element at position (*x1*,*y1*) to element at position (*x2*,*y2*). The new value of each line element is specified by the contents of *array*. If position (*x2*,*y2*) is outside the buffer boundary the line write ends. The number of elements written is stored in *nElements*, under all conditions.
Input	*hBuffer* Buffer resource handle
	x1 Horizontal position of first element to be written
	y1 Vertical position of first element to be written
	x2 Horizontal position of last element to be written
	y2 Vertical position of last element to be written
	array Array containing the elements to be written (MAX(ABS(x2-x1), ABS(y2-y1) + 1) × CORBUFFER_PRM_DATASIZE)
	size Number of bytes to write: (MAX(ABS(x2-x1), ABS(y2-y1) + 1) × CORBUFFER_PRM_DATASIZE bytes)
Output	*nElements* Number of elements written
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *nElements* or *array* is NULL) CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE
Note	For 1-bit data buffers, *offset* must be a multiple of 8.
See Also	CorBufferReadLine

CorBufferWriteRect

Write a set of elements forming a rectangular area into a buffer resource

Prototype	CORSTATUS **CorBufferWriteRect**(CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, UINT32 *width*, UINT32 *height*, const void **array*, UINT32 *size*);	
Description	Writes the contents of an array to a rectangular region into a buffer resource.	
Input	*hBuffer*	Buffer resource handle
	x	Horizontal offset in destination buffer
	y	Vertical offset in destination buffer
	width	Horizontal length of the rectangle (must be 2 or higher)
	height	Vertical length of the rectangle (must be 2 or higher)
	array	Array which contains the elements to be written (*width*×*height*×CORBUFFER_PRM_DATASIZE)
		For 1-bit data buffers, the *array* size should be *((width×height) >> 3)* bytes
	size	Size of transfer (*width*×*height*×CORBUFFER_PRM_DATASIZE bytes). For 1-bit data buffers, *size* should be *((width×height) >> 3)* bytes
Output	None	For 1-bit data buffers, *x* and *width* must be multiples of 8.
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE CORSTATUS_ARG_NULL (if *array* is NULL) CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE	
See Also	\hCorBufferReadRect	

Display Module

The Display Module is used to control the display device.

Parameters

ID	Parameter	Attribute
0x00	CORDISPLAY_PRM_WIDTH	Read/Write
0x01	CORDISPLAY_PRM_HEIGHT	Read/Write
0x02	CORDISPLAY_PRM_REFRESH	Read/Write
0x03	CORDISPLAY_PRM_INTERLACED	Read/Write
0x04	Reserved	
0x05	Reserved	
0x06	Reserved	
0x07	Reserved	
0x08	Reserved	
0x09	Reserved	
0x0a	CORDISPLAY_PRM_PIXEL_DEPTH	Read/Write
0x0b	CORDISPLAY_PRM_LABEL	Read/Write
0x0c	CORDISPLAY_PRM_PIXEL_TYPE_OFFSCREEN	Read Only
0x0d	CORDISPLAY_PRM_PIXEL_TYPE_OVERLAY	Read Only
0x0e	CORDISPLAY_PRM_TYPE	Read Only
0x0f	CORDISPLAY_PRM_INDEX	Read Only
0x10	Reserved	
0x11	Reserved	
0x12	Reserved	
0x13	Reserved	

CORDISPLAY_PRM_HEIGHT

Description	Height (in lines) of the display surface.
Type	UINT32
Note	This parameter is read-only on the system display.

CORDISPLAY_PRM_INDEX

Description	The display resource index, as specified in the call to CorDisplayGetHandle.
Type	UINT32
See Also	CorDisplayGetHandle

CORDISPLAY_PRM_INTERLACED

Description	Specifies whether or not the display device is interlaced.
Type	UINT32
Values	TRUE FALSE
Note	This parameter is read-only on the system display.

CORDISPLAY_PRM_LABEL

Description	The display device's string ID.
Type	CHAR[128]
Values	Zero-terminated array of characters with a fixed size of 128 bytes.
Note	This parameter is read-only.

CORDISPLAY_PRM_PIXEL_DEPTH

Description	The size of the display surface pixels (in bits).
Type	UINT32
Note	This parameter is read-only on the system display.

CORDISPLAY_PRM_PIXEL_TYPE_OFFSCREEN

Description	Displays the pixel formats that the display supports for off-screen surfaces.
Type	UINT32[32]
Values	Zero-terminated array of UINT32 values with a fixed size of 32 dwords.
See Also	CorBufferNew and Data Formats

CORDISPLAY_PRM_PIXEL_TYPE_OVERLAY

Description	Displays the pixel formats that the display supports for overlay surface.
Type	UINT32[32]
Values	Zero-terminated array of UINT32 values with a fixed size of 32 dwords.
Note	The available pixel formats may not be correctly detected if there is another application using the display adapter's overlay hardware at the same time.
See Also	CorBufferNew and Data Formats

CORDISPLAY_PRM_REFRESH

Description	Display device's refresh rate.
Type	UINT32
Note	This parameter is read-only on the system display.

CORDISPLAY_PRM_TYPE

Description	The display type.
Type	UINT32
Values	CORDISPLAY_VAL_TYPE_SYSTEM A display under the control of the primary Windows display driver. This is the same display that normally displays the Windows desktop. In Sapera, it belongs to the System server. CORDISPLAY_VAL_TYPE_DUPLICATE A secondary display that shows the same contents as the primary Windows VGA display.. CORDISPLAY_VAL_TYPE_EXTENDED A secondary display that extends the desktop from the primary Windows VGA display. CORDISPLAY_VAL_TYPE_INDEPENDENT A secondary display that is completely independent from the primary Windows VGA display.
Note	An independent display has limited support in Sapera. Most capabilities and parameters are not available and certain functions may not be implemented.

CORDISPLAY_PRM_WIDTH

Description	Width (in pixels) of the display surface.
Type	UINT32
Note	This parameter is read-only on the system display.

Functions

Function	Description
CorDisplayGetCap	*Gets display capability value from a display device*
CorDisplayGetCount	*Gets the number of display devices on a server*
CorDisplayGetDC	*Gets the Windows device context corresponding to the entire screen*
CorDisplayGetHandle	*Gets an handle to a display device*
CorDisplayGetPrm	*Gets display parameter value from a display device*
CorDisplayRelease	*Releases handle to a display device*
CorDisplayReleaseDC	*Releases the Windows device context corresponding to the entire screen*
CorDisplayRelease	*Resets a display device*
CorDisplayResetModule	*Resets the resources associated with the server's display device(s)*
CorDisplaySetPrm	*Sets a simple display parameter of a display device*
CorDisplaySetPrmEx	*Sets a complex display parameter of a display device*

CorDisplayGetCap

Get display capability value from a display device

Prototype CORSTATUS **CorDisplayGetCap**(CORDISPLAY hD*isplay*, UINT32 *cap*, void **value*);

Description Gets a display capability value from a display device.

Input *hDisplay* Display resource handle

cap Display device capability requested

Output *value* Value of the capability

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *value* is NULL)
CORSTATUS_CAP_INVALID
CORSTATUS_CAP_NOT_AVAILABLE
CORSTATUS_INVALID_HANDLE

CorDisplayGetCount

Get the number of display devices on a server

Prototype CORSTATUS **CorDisplayGetCount**(CORSERVER hS*erver*, UINT32 **count*);

Description Gets the number of display devices on a server.

Input *hServer* Server handle

Output *count* Number of display devices

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *count* is NULL)
CORSTATUS_INVALID_HANDLE

Note The content of *count* is 0 when there is no display device available.

CorDisplayGetDC

Get Windows device context for a display device

Prototype	CORSTATUS **CorDisplayGetDC**(CORDISPLAY *hDisplay*, void **pDC*);	
Description	Gets the Windows device context corresponding to the entire screen for the specified display device	
Input	*hDisplay*	Display resource handle
Output	*pDC*	The device context
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *pDC* is NULL) CORSTATUS_INVALID_HANDLE	

CorDisplayGetHandle

Get an handle to a display device

Prototype	CORSTATUS **CorDisplayGetHandle**(CORSERVER *hServer*, UINT32 *index*, CORDISPLAY *hD*isplay*);	
Description	Gets an handle to a display device.	
Input	*hServer*	Server handle
	index	Specifies which display device to select. Valid values are in the range [0...*count*-1], where *count* is the value returned by CorDisplayGetCount.
Output	*hDisplay*	Display resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *hDisplay* is NULL) CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_RESOURCE_IN_USE	
See Also	CorDisplayGetCount and CorDisplayRelease	

CorDisplayGetPrm

Get display parameter value from a display device

Prototype	CORSTATUS **CorDisplayGetParam**(CORDISPLAY *hDisplay*, UINT32 *prm*, void **value*);	
Description	Gets parameter value from a display device.	
Input	*hDisplay*	Display resource handle
	prm	Display parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID CORSTATUS_PRM_NOT_AVAILABLE	
See Also	CorDisplaySetPrm	

CorDisplayRelease

Release handle to a display device

Prototype	CORSTATUS **CorDisplayRelease**(CORDISPLAY *hDisplay*);
Description	Releases handle to display device
Input	*hDisplay* Display resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorDisplayGetHandle

CorDisplayReleaseDC

Release Windows device context for a display device

Prototype	CORSTATUS **CorDisplayReleaseDC**(CORDISPLAY *hDisplay*);
Description	Releases the Windows device context corresponding to the entire screen for the specified display device
Input	*hDisplay* Display resource handle
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE

CorDisplayReset

Reset a display device

Prototype	CORSTATUS **CorDisplayReset**(CORDISPLAY *hDisplay*);
Description	Resets a display device. Restores the default values of display parameters of the specified display device.
Input	*hDisplay* Display resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorDisplayRelease

CorDisplayResetModule

Reset the resources associated with the server's display device(s)

Prototype	CORSTATUS **CorDisplayResetModule**(CORSERVER *hServer*);
Description	Resets the resources associated with the server's display device(s). Releases all resources (handle, memory) currently allocated. Make certain no other application is currently using any display device resource. This function should be used with caution.
Input	*hServer* Server handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE

CorDisplaySetPrm

Set a simple display parameter of a display device

Prototype	CORSTATUS **CorDisplaySetPrm**(CORDISPLAY *hDisplay*, UINT32 *prm*, UINT32 *value*);
Description	Sets a simple display parameter of a display device
Input	*hDisplay* Display resource handle *prm* Display parameter to set *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_CAP_NOT_AVAILABLE CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID CORSTATUS_PRM_INVALID_VALUE CORSTATUS_PRM_NOT_AVAILABLE CORSTATUS_PRM_READ_ONLY
Note	A simple parameter fits inside an UINT32. If the parameter is complex, use CorDisplaySetPrmEx.
See Also	CorDisplayGetPrm and CorDisplaySetPrmEx

CorDisplaySetPrmEx

Set a complex display parameter of a display device

Prototype	CORSTATUS **CorDisplaySetPrmEx**(CORDISPLAY *hDisplay*, UINT32 *prm*, const void **value*);
Description	Sets a complex display parameter of a display device
Input	*hDisplay* Display resource handle *prm* Display parameter to set *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_CAP_NOT_AVAILABLE CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID CORSTATUS_PRM_INVALID_VALUE CORSTATUS_PRM_NOT_AVAILABLE CORSTATUS_PRM_READ_ONLY
Note	A complex parameter is one whose size is greater than an UINT32. If the parameter size is UINT32, use either CorDisplaySetPrm or CorDisplaySetPrmEx.
See Also	CorDisplayGetPrm and CorDisplaySetPrm

File Module

The File Module functions create, read, write, load, and save files of a given size and format.

Parameters

ID	Parameter	Attribute
0x00	CORFILE_PRM_FORMAT	Read Only
0x01	CORFILE_PRM_DATAFORMAT	Read Only
0x02	CORFILE_PRM_DATASIZE	Read Only
0x03	CORFILE_PRM_DATADEPTH	Read Only
0x04	CORFILE_PRM_XMIN	Read Only
0x05	CORFILE_PRM_YMIN	Read Only
0x06	CORFILE_PRM_WIDTH	Read Only
0x07	CORFILE_PRM_HEIGHT	Read Only
0x08	CORFILE_PRM_MEM_WIDTH	Read Only
0x09	CORFILE_PRM_MEM_HEIGHT	Read Only
0x0a	CORFILE_PRM_SIGNED	Read Only
0x0b	CORFILE_PRM_COMPRESSION	Read Only
0x0c	CORFILE_PRM_LUT	Read/Write
0x0d	CORFILE_PRM_SIZE	Read/Write
0xoe	CORFILE_PRM_NUM_FRAMES	Read Only
0x0f	CORFILE_PRM_FRAMERATE	Read Only
0x010	CORFILE_PRM_NAME	Read Only
0x011	CORFILE_PRM_ACCESS	Read Only

CORFILE_PRM_ACCESS

Description File access. Determines the type of reading or writing operations permitted.

Type UINT32

Values
CORFILE__VAL_ACCESS_RDONLY
CORFILE__VAL_ACCESS_RDWR
CORFILE__VAL_ACCESS_WRONLY

CORFILE_PRM_COMPRESSION

Description File compression type

Type UINT32

Values
CORFILE_VAL_COMPRESSION_NONE
CORFILE_VAL_COMPRESSION_RLE
CORFILE_VAL_COMPRESSION_LZW
CORFILE_VAL_COMPRESSION_JPEG
CORFILE_VAL_COMPRESSION_JPEG_2000
CORFILE_VAL_COMPRESSION_I263 (Intel H.263)
CORFILE_VAL_COMPRESSION_CVID (Radius Cinepack codec)
CORFILE_VAL_COMPRESSION_IV32 (Intel Indeo 3.2)
CORFILE_VAL_COMPRESSION_MSVC (Microsoft Video 1)
CORFILE_VAL_COMPRESSION_IV50 (Intel Indeo 5.0)
CORFILE_VAL_COMPRESSION_UNKNOWN

CORFILE_PRM_DATADEPTH

Description	Number of bits per File element.
Type	UINT32

CORFILE_PRM_DATAFORMAT

Description	File data format. Determines the buffer format corresponding to a single file element's type.
Type	UINT32
Values	For a detailed description of the values, see Data Formats

CORFILE_PRM_DATASIZE

Description	Size of one File element (in bytes).
Type	UINT32
Values	This value will depend on the File data format.

CORFILE_PRM_FORMAT

Description	File format.	
Type	UINT32	
Values	Windows bitmap files :	CORFILE_VAL_FORMAT_BMP
	TIFF files:	CORFILE_VAL_FORMAT_TIF CORFILE_VAL_FORMAT_TIFF
	Teledyne DALSA raw data files:	CORFILE_VAL_FORMAT_CRC
	Raw data files:	CORFILE_VAL_FORMAT_RAW
	JPEG files:	CORFILE_VAL_FORMAT_JPG CORFILE_VAL_FORMAT_JPEG
	JPEG 2000 files:	CORFILE_VAL_FORMAT_JPEG_2000
	AVI files:	CORFILE_VAL_FORMAT_AVI
	Others:	CORFILE_VAL_FORMAT_UNKNOWN

CORFILE_PRM_FRAMERATE

Description	Frame rate (number of images per second) of a specified image sequence.
Type	FLOAT

CORFILE_PRM_HEIGHT

Description	Height of the File's region of interest (ROI).
Type	UINT32
Values	Range within [0...MEM_HEIGHT].

CORFILE_PRM_MEM_HEIGHT

Description	File's height. Determines the number of rows in the File.
Type	UINT32

CORFILE_PRM_LUT

Description	File Lookup table if any
Type	PUINT8
Values	Array of 256, 3x8 bit, RGB values (CORDATA_FORMAT_RGB888)

CORFILE_PRM_MEM_WIDTH

Description	File's width. Determines the number of columns in the File.
Type	UINT32

CORFILE_PRM_NAME

Description	The File name.
Type	CHAR[128]
Values	Null-terminated array of characters with a fixed size of 128 bytes.

CORFILE_PRM_NUM_FRAMES

Description	Determines the number of image buffers in the File.
Type	UINT32

CORFILE_PRM_SIGNED

Description	Sign of the File elements.
Type	UINT32
Values	CORDATA_FORMAT_UNSIGNED CORDATA_FORMAT_SIGNED

CORFILE_PRM_SIZE

Description	File's size. Determines the size in bytes of the specified File.
Type	UINT32

CORFILE_PRM_WIDTH

Description	Width of the File's region of interest (ROI).
Type	UINT32
Values	Range within [0...MEM_WIDTH].

CORFILE_PRM_XMIN

Description	Origin of the File's region of interest (ROI) along the X axis.
Type	UINT32
Values	Range within [0...MEM_WIDTH-1].

CORFILE_PRM_YMIN

Description	Origin of the File's region of interest (ROI) along the Y axis.
Type	UINT32
Values	Range within [0...MEM_HEIGHT-1].

Functions

Function	Description
CorFileAddSequence	*Adds a sequence of image buffers to a File*
CorFileCopy	*Copies the content of a File resource into another File resource*
CorFileFree	*Frees handle to a File resource*
CorFileGetPrm	*Gets File parameter value from a File resource*
CorFileLoad	*Loads an image from a File into a Buffer resource*
CorFileLoadSequence	*Loads a sequence of images from a file into separate buffers*
CorFileNew	*Creates in a specified server's memory a new File resource*
CorFileRead	*Reads a series of elements from a File resource*
CorFileReadEx	*Reads a series of elements from a File resource*
CorFileSave	*Saves to a File the contents of a Buffer resource*
CorFileSaveSequence	*Saves a sequence of image buffers to a File*
CorFileSeek	*Moves file pointer to a specified location*
CorFileSetPrm	*Sets a simple File parameter of a File resource*
CorFileSetPrmEx	*Sets a complex File parameter of a File resource*
CorFileWrite	*Writes a series of elements into a File resource*

CorFileAddSequence

Add a sequence of image buffers to a File

Prototype	CORSTATUS **CorFileAddSequence**(CORFILE *hFile*, CORHANDLE **hSrc*, UINT32 *nFrames*, FLOAT *frameRate*, PCSTR *options*);	
Description	Add to a File the content of a sequence of image Buffers.	
Input	*hFile*	File resource handle
	hSrc	Array of Buffer resource handles
	nFrames	Number of image buffers within the sequence
	frameRate	Playback rate in number of images per second for the sequence.
	options	Argument-parsing string (may be set to NULL for automatic detection of the file format). The case insensitive switches available are listed below and may be used to form the expression: **-format** [value] or **-f** [value] The file format value supported is: **avi** or **corfile_format_avi**. example: -f CORFILE_VAL_FORMAT_AVI **-compression** [value] or **-c** [value] The codec supported for compression is: none or corfile_val_compression_none (No compression)
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_FILE_OPTIONS_ERROR CORSTATUS_FILE_WRITE_ERROR CORSTATUS_FILE_OPEN_ERROR CORSTATUS_FILE_CREATE_ERROR CORSTATUS_FILE_READ_ERROR CORSTATUS_INCOMPATIBLE_FORMAT CORSTATUS_FILE_FORMAT_UNKNOWN CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY	
Note	The only format currently supported is AVI (Audio Video Interleave). The buffers within the sequence must be the same data format as the images stored in the AVI file. The File should be opened in read/write mode. For the list of input buffer formats supported by CorFileAddSequence see section Buffer file formats.	
See Also	CorFileLoadSequence, CorFileSaveSequence and CorFileGetPrm	

CorFileCopy

Copies contents of a File resource into another File resource

Prototype	CORSTATUS **CorFileCopy**(CORFILE *hSrc*, CORFILE *hDst*);	
Description	Copies the contents of the source file into the destination buffer.	
Input	*hSrc*	File resource handle (source)
	hDst	File resource handle (destination)
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID CORSTATUS_ARG_OUT_OF_RANGE CORSTATUS_INVALID_HANDLE CORSTATUS_INVALID_HANDLE CORSTATUS_INVALID_HANDLE CORSTATUS_INVALID_HANDLE	
Note	The source and destination files may be located on different servers	

CorFileFree

Frees handle to a File resource

Prototype	CORSTATUS **CorFileFree**(CORFILE *hFile*);	
Description	Frees handle to a File resource.	
Input	*hFile*	File resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_FILE_CLOSE_ERROR CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_AVAILABLE	

CorFileGetPrm

Gets File parameter value from a File resource

Prototype	CORSTATUS **CorFileGetPrm**(CORFILE *hFile*, UINT32 *prm*, void **value*);	
Description	Gets File parameter value from a File resource.	
Input	*hFile*	File resource handle
	prm	File parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_FILE_FORMAT_UNKNOWN CORSTATUS_FILE_WRITE_ONLY CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID CORSTATUS_PRM_NOT_AVAILABLE	
See Also	CorFileSetPrm and CorFileSetPrmEx	

CorFileLoad

Loads an image from a file into a Buffer resource

Prototype CORSTATUS **CorFileLoad**(CORFILE *hFile*, CORHANDLE *hDst*, PCSTR options);

Description Load an image from a File into a Buffer resource. Currently, the following file formats are supported:

TIFF Tag Image File Format.
BMP Microsoft Windows Bitmap Format.
CRC Teledyne DALSA raw data file format.
RAW Raw data file format.
JPEG Jpeg file format.

For a detailed description of some of these file formats (BMP, CRC, and RAW), refer to the section "Buffer File Formats" of the *Appendix B: File Formats*.

Input

hFile File resource handle

hDst Buffer resource handle

options Argument-parsing string (may be set to NULL for automatic detection of the file format). The case insensitive switches available are listed below and may be used to form the argument string:

-format [value] or **-f** [value] - for file format.
The file format value supported is one of the following:
raw or **corfile_format_raw -** for raw data files.
Bmp or **corfile_format_bmp -** for windows bitmap files.
tif, tiff, corfile_format_tif or **corfile_format_tiff -** for TIF files.
jpg, jpeg, corfile_format_jpg or **corfile_format_jpeg -** for JPEG files.
jp2, jpeg_2000, or **corfile_format_jpg_2000** – for JPEG 2000 files.
crc or **corfile_format_crc -** for Teledyne DALSA raw data files.
auto or **corfile_format_unknown** - for automatic detection of image format.
example: -format AUTO

The following switches are required only for raw data files:
-width [value] or **-w** [value], example: -width 512

-height [value] or **-h** [value], example: -h 512

-offset [value] or **-o** [value], example: -offset 64

The following switch is used for JPEG 2000 files only:
-component [value] or **–cmp** [value]
That switch determines which component (red, green, or blue) of a color JPEG 2000 file will be loaded when *hDst* is monochrome. Value is 0 for red, 1 for green, and 2 for blue.

Output None

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_FILE_OPEN_ERROR
CORSTATUS_FILE_OPTIONS_ERROR
CORSTATUS_FILE_FORMAT_UNKNOWN
CORSTATUS_FILE_READ_ERROR
CORSTATUS_FILE_WRITE_ONLY
CORSTATUS_INCOMPATIBLE_FORMAT
CORSTATUS_INVALID_HANDLE

Note If the Buffer isn't large enough, the image is clipped to Buffer's size. The Buffer must be the same format as the image stored in the file (use CorFileGetPrm to get the file data format).

See Also CorFileSave and CorFileGetPrm

CorFileLoadSequence

Loads a sequence of images from a File into separate Buffers

Prototype	CORSTATUS **CorFileLoadSequence**(CORFILE *hFile*, CORHANDLE **hDst*, UINT32 *nFrames*, UINT32 *startFrame*, PCSTR *options*);	
Description	Loads a sequence of images from a File into separate Buffers.	
Input	*hFile*	File resource handle
	hDst	Array of Buffer resource handles
	nFrames	Number of Buffers within the array
	startFrame	Index of the first image of the sequence to load
	options	See CorFileAddSequence
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_FILE_OPTIONS_ERROR CORSTATUS_FILE_READ_ERROR CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_INCOMPATIBLE_FORMAT CORSTATUS_FILE_FORMAT_UNKNOWN	
Note	If a specified Buffer is not large enough, the corresponding image is clipped to the Buffer's size. The Buffers must be the same format as the images stored in the file (use CorFileGetPrm to get the file data format).	
See Also	CorFileAddSequence and CorFileSaveSequence	

CorFileNew

Create in a specified server's memory a new File resource

Prototype	CORSTATUS **CorFileNew**(CORSERVER *hServer*, const char *filename*[], const char *mode*[], CORFILE **hFile*);	
Description	Creates in a specified server's memory a new File resource.	
Input	*hServer*	Server handle
	filename	File name
	mode	Specified open mode, as follows: "r", "rb" for read only files (the file must exist). "w", "wb" for write only files (if the file exists, its content is destroyed). "r+" for both reading and writing (the file must exist).
Output	*hFile*	File resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *hFile* or *filename* or *mode* is NULL) CORSTATUS_FILE_CREATE_ERROR CORSTATUS_FILE_OPEN_ERROR CORSTATUS_FILE_OPEN_MODE_INVALID CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY	
See Also	CorFileFree	

CorFileRead

Read a series of elements from a File resource

Prototype	CORSTATUS **CorFileRead**(CORFILE *hFILE*, void **array*, UINT32 *nItem*, UINT32 *itemSize*);	
Description	Reads a consecutive series of elements from the specified File resource and copies them into a one-dimensional destination array.	
Input	*hFile*	File resource handle
	nItem	Number of elements to read
	itemSize	Size of an element (bytes)
Output	*array*	Array to accommodate the requested number of elements (*nItem*×*itemSize*)
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *array* is NULL) CORSTATUS_FILE_READ_ERROR CORSTATUS_FILE_WRITE_ONLY CORSTATUS_INVALID_HANDLE	
See Also	CorFileReadEx and CorFileWrite	

CorFileReadEx

Reads a series of elements from a File resource

Prototype	CORSTATUS **CorFileReadEx**(CORFILE *hFILE*, void **array*, UINT32 *nItem*, UINT32 *itemSize*, UINT32 **nRead*);	
Description	Reads a consecutive series of elements from the specified File resource and copies them into a one-dimensional destination array.	
Input	*hFile*	File resource handle
	nItem	Number of elements to read
	itemSize	Size of an element (bytes)
Output	*array*	Array to accommodate the requested number of elements (*nItem*×*itemSize*)
	nRead	Number of bytes read
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *array* is NULL) CORSTATUS_FILE_READ_ERROR CORSTATUS_FILE_WRITE_ONLY CORSTATUS_INVALID_HANDLE	
See Also	CorFileRead and CorFileWrite	

CorFileSave

Save to a File the content of a Buffer resource

Prototype	CORSTATUS **CorFileSave**(CORFILE *hFile*, CORHANDLE *hSrc*, PCSTR *options*);	
Description	Saves to a File the content of a Buffer resource. Current supported file formats are BMP, TIFF, JPEG, raw Teledyne DALSA file and RAW data files. For the list of input buffer formats supported by CorFileSave see section Buffer file formats.	
Input	*hFile*	File resource handle
	hSrc	Buffer resource handle
	options	Argument-parsing string. The case insensitive switches available are listed below and may be used to form the expression: **-format** [value] or **-f** [value] The file format value supported is one of the following: **raw** or **corfile_format_raw**. **bmp** or **corfile_format_bmp**. **tif, tiff, corfile_format_tif** or **corfile_format_tiff**. **crc** or **corfile_format_crc**. **jpg, jpeg, corfile_format_jpg** or **corfile_format_jpeg**. **jp2, jpeg_2000** or **corfile_format_jpg**. example: -f tif **-quality** [value] or **-q** [value] This option is used to set the jpeg compression level. The quality value is an integer within [1, 100] interval. example: -q 90. When saving a JPEG 2000 file, if the quality value is 100, a lossless compression method is used. When quality is not specified, default value is 0 to minimize file size. -**compression** [value] or –**c** [value] This options is used to set the TIFF compression algorithm. The following values are supported: **none** or **corfile_val_compression_none** **rle** or **corfile_val_compression_rle** **lzw** or **corfile_val_compression_lzw** **jpg**, **jpeg** or **corfile_val_compression_jpg** It should be noted that the Lempel-Ziv-Welch algorithm (used when value **lzw** is set) has been enabled in Sapera only once the related patents have expired.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *options* is NULL) CORSTATUS_FILE_OPTIONS_ERROR CORSTATUS_FILE_WRITE_ERROR CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_INCOMPATIBLE_FORMAT CORSTATUS_FILE_FORMAT_UNKNOWN	
Note	Multiformat buffers (for example, CORBUFFER_VAL_FORMAT_RGB888_MONO8 and CORBUFFER_VAL_FORMAT_RGB161616_MONO16) only support saving as CRC and RAW formats.	
See Also	CorFileLoad	

CorFileSaveSequence

Saves a sequence of image buffers to a File

Prototype CORSTATUS **CorFileSaveSequence**(CORFILE *hFile*, CORHANDLE **hSrc*, UINT32 *nFrames*, FLOAT *frameRate*, PCSTR *options*);

Description Saves a sequence of image buffers to a File.

Input

hFile	File resource handle
hSrc	Array of Buffer resource handles
nFrames	Number of Buffers within the array
options	See **CorFileAddSequence**

Output None

Return Value
CORSTATUS_OK
CORSTATUS_ARG_NULL (if *options* is NULL)
CORSTATUS_FILE_OPTIONS_ERROR
CORSTATUS_FILE_WRITE_ERROR
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY
CORSTATUS_INCOMPATIBLE_FORMAT
CORSTATUS_FILE_FORMAT_UNKNOWNCORSTATUS_FORMAT_UNKNOWN

Note For the list of input buffer formats supported by CorFileSaveSequence see section Buffer Data Formats Supported as Input by FileSave Functions.

See Also CorFileAddSequence and CorFileLoadSequence

CorFileSeek

Move file pointer to a specified location

Prototype CORSTATUS **CorFileSeek**(CORFILE *hFile*, INT32 *offset*, INT32 *origin*);

Description Move file pointer to a specified location

Input

hFile	File resource handle
offset	Number of bytes from origin
origin	Initial position Beginning of file: CORFILE_BEGIN Current position: CORFILE_CURRENT End of file: CORFILE_END

Output None

Return Value
CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE
CORSTATUS_FILE_SEEK_ERROR
CORSTATUS_INVALID_HANDLE

CorFileSetPrm

Set a simple File parameter of a File resource

Prototype	CORSTATUS **CorFileSetPrm**(CORFILE *hFile*, UINT32 *prm*, UINT32 *value*);
Description	Sets a simple File parameter of a File resource
Input	*hFile* File resource handle *prm* File parameter to set *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE CORSTATUS_FILE_READ_ONLY CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID CORSTATUS_PRM_NOT_AVAILABLE CORSTATUS_PRM_READ_ONLY
Note	A simple parameter fits inside an UINT32. If the parameter is complex, use CorFileSetPrmEx.
See Also	CorFileGetPrm and CorFileSetPrmEx

CorFileSetPrmEx

Set a complex File parameter of a File resource

Prototype	CORSTATUS **CorFileSetPrmEx**(CORFILE *hFile*, UINT32 *prm*, const void **value*);
Description	Sets a complex File parameter of a File resource.
Input	*hFile* File resource handle *prm* File parameter to set *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_FILE_FORMAT_UNKNOWN CORSTATUS_FILE_READ_ONLY CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID CORSTATUS_PRM_NOT_AVAILABLE CORSTATUS_PRM_READ_ONLY
Note	A complex parameter is one whose size is greater than an UINT32. If the parameter size is UINT32, use either CorFileSetPrm or CorFileSetPrmEx. Only the LUT parameter (CORFILE_PRM_LUT) can be set in a File resource, the other parameters are Read Only.
See Also	CorFileGetPrm and CorFileSetPrmEx

CorFileWrite

Write a series of elements to a File resource

Prototype	CORSTATUS **CorFileWrite**(CORFILE *hFile*, const void **array*, UINT32 *nItem*, UINT32 *itemSize*);	
Description	Writes a series of elements from an one-dimensional source array to a File resource.	
Input	*hFile*	File resource handle
	array	Array which contains the elements to be written
	nItem	Number of elements to write
	itemSize	Size of an element in bytes
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *array* is NULL) CORSTATUS_FILE_READ_ONLY CORSTATUS_FILE_WRITE_ERROR CORSTATUS_INVALID_HANDLE	
See Also	CorFileRead	

I/O Module

The General I/O Module is used to control a block of general inputs and outputs (I/O signal pins). A block of general inputs and outputs is a group of I/Os which can be read and/or written all at once. For a TTL level type I/O, its state is considered **on** or **active** if the measured voltage on the I/O is 5V (typical).

Definitions

This section describes the the methods related to the I/O module.

CORGIO_VAL_INPUT_CONTROL_METHOD_1

Numerical Value	0x00000001 (Hardware Latch)
Description	This method latches the value of the input I/O pins when there is a signal pulse on the input control pin.

CORGIO_VAL_OUTPUT_CONTROL_METHOD_1

Numerical Value	0x00000001 (Auto latch)
Description	This method generates a pulse on the output control pin each time a new value is written to it by the user.

CORGIO_VAL_OUTPUT_CONTROL_METHOD_2

Numerical Value	0x00000001 (Manual latch)
Description	This method allows the function CorGioSetOutputControlState to control the state of the output control pin.

Capabilities

ID	Capability
0x00	CORGIO_CAP_IO_COUNT
0x01	CORGIO_CAP_DIR_INPUT
0x02	CORGIO_CAP_DIR_OUTPUT
0x03	CORGIO_CAP_DIR_TRISTATE
0x04	CORGIO_CAP_INPUT_CONTROL_METHOD
0x05	CORGIO_CAP_INPUT_CONTROL_POLARITY
0X06	CORGIO_CAP_OUTPUT_CONTROL_METHOD
0X07	CORGIO_CAP_OUTPUT_CONTROL_POLARITY
0X08	CORGIO_CAP_OUTPUT_TYPE
0X09	CORGIO_CAP_INPUT_LEVEL
0x0a	CORGIO_CAP_CONNECTOR
0x0b	CORGIO_CAP_EVENT_TYPE
0x0c	CORGIO_CAP_FAULT_DETECT
0x0d	CORGIO_CAP_POWER_GOOD
0x0e	CORGIO_CAP_READ_ONLY

CORGIO_CAP_CONNECTOR

Description	Specifies which connectors can be use for this I/O device
Type	UINT32
Values	See CORGIO_PRM_CONNECTOR.

CORGIO_CAP_DIR_INPUT

Description	Specifies which I/O can be set as inputs.
Type	UINT32
Values	If bit 'n' is 1, then the associated I/O can be an input.

CORGIO_CAP_DIR_OUTPUT

Description	Specifies which I/O can be set as outputs.
Type	UINT32
Values	If bit 'n' is 1, then the associated I/O can be an output.

CORGIO_CAP_DIR_TRISTATE

Description	Specifies which I/O can be tri-stated.
Type	UINT32
Values	If bit 'n' is 1, then the associated I/O can be tri-stated.

CORGIO_CAP_EVENT_TYPE

Description	Specifies the event type(s) that can be registered.
Type	UINT32
Values	CORGIO_VAL_EVENT_TYPE_RISING_EDGE (0x000000001) CORGIO_VAL_EVENT_TYPE_FALLING_EDGE (0x00000002) CORGIO_VAL_EVENT_TYPE_FAULT (0x00000004)
Note	The returned value is the ORed combination of the valid values.

CORGIO_CAP_FAULT_DETECT

Description	Specifies if the I/O device has a fault detection.
Type	BOOL
Values	If TRUE, the device has a fault detection
Note	See CORGIO_PRM_FAULT_DETECT.

CORGIO_CAP_INPUT_CONTROL_METHOD

Description	Specifies which input control methods are available for this I/O device.
Type	UINT32
Values	See CORGIO_PRM_OUTPUT_CONTROL_METHOD.

CORGIO_CAP_INPUT_CONTROL_POLARITY

Description	Specifies which signal polarities are available for the input control pin on this I/O device
Type	UINT32
Values	CORGIO_VAL_POLARITY_ACTIVE_LOW CORGIO_VAL_POLARITY_ACTIVE_HIGH CORGIO_VAL_POLARITY_RISING_EDGE CORGIO_VAL_POLARITY_FALLING_EDGE CORGIO_VAL_POLARITY_BOTH_EDGE CORGIO_VAL_POLARITY_DOUBLE_PULSE_RISING_EDGE CORGIO_VAL_POLARITY_DOUBLE_PULSE_FALLING_EDGE

CORGIO_CAP_INPUT_LEVEL

Description Specifies the input levels for this I/O device.

Type UINT32

Values
CORGIO_VAL_INPUT_LEVEL_TTL
CORGIO_VAL_INPUT_LEVEL_422
CORGIO_VAL_INPUT_LEVEL_LVDS
CORGIO_VAL_INPUT_LEVEL_24VOLTS
CORGIO_VAL_INPUT_LEVEL_LVTTL
CORGIO_VAL_INPUT_LEVEL_12VOLTS

Note The returned value is the ORed combination of the valid values.

CORGIO_CAP_IO_COUNT

Description Specifies the number of individual I/Os in the block.

Type UINT32

CORGIO_CAP_OUTPUT_CONTROL_METHOD

Description Specifies which output control methods are available for this I/O device.

Type UINT32

Values
CORGIO_VAL_OUTPUT_CONTROL_METHOD_OFF
CORGIO_VAL_OUTPUT_CONTROL_METHOD_1
CORGIO_VAL_OUTPUT_CONTROL_METHOD_2
CORGIO_VAL_OUTPUT_CONTROL_METHOD_3
CORGIO_VAL_OUTPUT_CONTROL_METHOD_4
CORGIO_VAL_OUTPUT_CONTROL_METHOD_5

CORGIO_CAP_OUTPUT_CONTROL_POLARITY

Description Specifies which signal polarities are available for the output control pin on this I/O device.

Type UINT32

Values
CORGIO_VAL_POLARITY_ACTIVE_LOW
CORGIO_VAL_POLARITY_ACTIVE_HIGH
CORGIO_VAL_POLARITY_RISING_EDGE
CORGIO_VAL_POLARITY_FALLING_EDGE
CORGIO_VAL_POLARITY_BOTH_EDGE
CORGIO_VAL_POLARITY_DOUBLE_PULSE_RISING_EDGE
CORGIO_VAL_POLARITY_DOUBLE_PULSE_FALLING_EDGE

CORGIO_CAP_OUTPUT_TYPE

Description Specifies the output types for this I/O device.

Type UINT32

Values
CORGIO_VAL_OUTPUT_TYPE_PNP (0x00000001)
CORGIO_VAL_OUTPUT_TYPE_NPN (0x00000002)
CORGIO_VAL_OUTPUT_TYPE_LED (0x00000004)
CORGIO_VAL_OUTPUT_TYPE_OPTOCOUPLE (0x00000008)
CORGIO_VAL_OUTPUT_TYPE_TTL (0x000000010)
CORGIO_VAL_OUTPUT_TYPE_LVTTL (0x00000020)

Note The returned value is the ORed combination of the valid values.

CORGIO_CAP_POWER_GOOD

Description	Specifies if the I/O device has a power good output.
Type	BOOL
Values	If TRUE, the device has a power good output. This output is an open collector output. See CORGIO_PRM_POWER_GOOD.

CORGIO_CAP_READ_ONLY

Description	Specifies if the I/O is read-only. If an I/O is reserved for the grab controller (for example, external trigger, strobe or board sync), it is read-only and the GIO module cannot modify the state of that I/O.
Type	BOOL
Values	If TRUE, the I/O is read-only.

Parameters

ID	Parameters	Attribute
0x00	CORGIO_PRM_LABEL	Read Only
0x01	CORGIO_PRM_DEVICE_ID	Read Only
0x02	*Reserved*	
0x03	CORGIO_PRM_DIR_OUTPUT	Read/Write
0x04	CORGIO_PRM_DIR_TRISTATE	Read/Write
0x05	CORGIO_PRM_INPUT_CONTROL_METHOD	Read/Write
0x06	CORGIO_PRM_INPUT_CONTROL_POLARITY	Read/Write
0x07	CORGIO_PRM_OUTPUT_CONTROL_METHOD	Read/Write
0x08	CORGIO_PRM_OUTPUT_CONTROL_POLARITY	Read/Write
0x09	CORGIO_PRM_OUTPUT_TYPE	Read/Write
0x0a	CORGIO_PRM_INPUT_LEVEL	Read/Write
0x0b	CORGIO_PRM_CONNECTOR	Read/Write
0x0c	CORGIO_PRM_FAULT_DETECT	Read Only
0x0d	CORGIO_PRM_POWER_GOOD	Read/Write

CORGIO_PRM_CONNECTOR

Description Selects which connector is used for this I/O device

Type UINT32

Values CORGIO_VAL_CONNECTOR_1 (0x00000001)
CORGIO_VAL_CONNECTOR_2 (0x00000002)
If bit 'n' is 1, then the associated connector can be used.

Note This value is board specific.

CORGIO_PRM_DEVICE_ID

Description The General I/O's device ID.

Type UINT32

Note CORGIO_PRM_DEVICE_ID is a read-only parameter.

CORGIO_PRM_DIR_OUTPUT

Description Specifies which I/O are set as outputs.

Type UINT32

Values If bit 'n' is 1, then the associated I/O is an output; otherwise it is an input.

CORGIO_PRM_DIR_TRISTATE

Description Specifies which I/O are to be tri-stated.

Type UINT32

Values If bit 'n' is 1, then the associated I/O is tri-stated; otherwise it is not.

CORGIO_PRM_FAULT_DETECT

Description	Use to get the fault detect status for this I/O device.
Type	BOOL
Values	If TRUE, a fault has been detected.
Note	If TRUE, the fault needs to be corrected and the device needs to be reset.

CORGIO_PRM_INPUT_CONTROL_METHOD

Description	Selects which input control method is activated for this I/O device.
Type	UINT32
Values	CORGIO_VAL_INPUT_CONTROL_METHOD_OFF (0x00000000) CORGIO_VAL_INPUT_CONTROL_METHOD_1 (0x00000001) CORGIO_VAL_INPUT_CONTROL_METHOD_2 (0x00000002) CORGIO_VAL_INPUT_CONTROL_METHOD_3 (0x00000004) CORGIO_VAL_INPUT_CONTROL_METHOD_4 (0x00000008) CORGIO_VAL_INPUT_CONTROL_METHOD_5 (0x00000010)

CORGIO_PRM_INPUT_CONTROL_POLARITY

Description	Specifies which signal polarity to use for the input control pin on this I/O device
Type	UINT32
Values	CORGIO_VAL_POLARITY_ACTIVE_LOW (0x00000001) CORGIO_VAL_POLARITY_ACTIVE_HIGH (0x00000002) CORGIO_VAL_POLARITY_RISING_EDGE (0x00000004) CORGIO_VAL_POLARITY_FALLING_EDGE (0x00000008) CORGIO_VAL_POLARITY_BOTH_EDGE (0x00000010) CORGIO_VAL_POLARITY_DOUBLE_PULSE_RISING_EDGE (0x00000020) CORGIO_VAL_POLARITY_DOUBLE_PULSE_FALLING_EDGE (0x00000040)

CORGIO_PRM_INPUT_LEVEL

Description	Selects which input level is used for this I/O device.	
Type	UINT32	
Values	CORGIO_VAL_INPUT_LEVEL_TTL	(0x00000001)
	CORGIO_VAL_INPUT_LEVEL_422	(0x00000002)
	CORGIO_VAL_INPUT_LEVEL_LVDS	(0x00000004)
	CORGIO_VAL_INPUT_LEVEL_24VOLTS	(0x00000008)
	CORGIO_VAL_INPUT_LEVEL_OPTO	(0x00000010)
	CORGIO_VAL_INPUT_LEVEL_LVTTL	(0x00000020)
	CORGIO_VAL_INPUT_LEVEL_12VOLTS	(0x00000040)

CORGIO_PRM_LABEL

Description	The General I/O's string ID.
Type	CHAR[128]
Values	Zero-terminated array of characters with a fixed size of 128 bytes.
Note	CORGIO_PRM_LABEL is a read-only parameter.

CORGIO_PRM_OUTPUT_CONTROL_METHOD

Description	Selects which output control method is activated for this I/O device
Type	UINT32
Values	CORGIO_VAL_OUTPUT_CONTROL_METHOD_OFF (0x00000000) CORGIO_VAL_OUTPUT_CONTROL_METHOD_1 (0x00000001) CORGIO_VAL_OUTPUT_CONTROL_METHOD_2 (0x00000002) CORGIO_VAL_OUTPUT_CONTROL_METHOD_3 (0x00000004) CORGIO_VAL_OUTPUT_CONTROL_METHOD_4 (0x00000008) CORGIO_VAL_OUTPUT_CONTROL_METHOD_5 (0x00000010)

CORGIO_PRM_OUTPUT_CONTROL_POLARITY

Description	Specifies which signal polarity to use for the output control pin on this I/O device
Type	UINT32
Values	CORGIO_VAL_POLARITY_ACTIVE_LOW (0x00000001) CORGIO_VAL_POLARITY_ACTIVE_HIGH (0x00000002) CORGIO_VAL_POLARITY_RISING_EDGE (0x00000004) CORGIO_VAL_POLARITY_FALLING_EDGE (0x00000008) CORGIO_VAL_POLARITY_BOTH_EDGE (0x00000010) CORGIO_VAL_POLARITY_DOUBLE_PULSE_RISING_EDGE (0x00000020) CORGIO_VAL_POLARITY_DOUBLE_PULSE_FALLING_EDGE (0x00000040)

CORGIO_PRM_OUTPUT_TYPE

Description	Selects which output type is activated for this I/O device.	
Type	UINT32	
Values	CORGIO_VAL_OUTPUT_TYPE_PNP	(0x00000001)
	CORGIO_VAL_OUTPUT_TYPE_NPN	(0x00000002)
	CORGIO_VAL_OUTPUT_TYPE_LED	(0x00000004)
	CORGIO_VAL_OUTPUT_TYPE_OPTOCOUPLE	(0x00000008)
	CORGIO_VAL_OUTPUT_TYPE_TTL	(0x00000010)
	CORGIO_VAL_OUTPUT_TYPE_LVTTL	(0x00000020)

CORGIO_PRM_POWER_GOOD

Description	Sets the power good output.
Type	BOOL
Values	TRUE or FALSE See CORGIO_CAP_POWER_GOOD.

Functions

Function	Description
CorGioGetCap	*Gets a general I/O capability value*
CorGioGetCount	*Gets the number of general I/O devices on a server*
CorGioGetHandle	*Gets a handle to a general I/O device*
CorGioGetPrm	*Gets a general I/O parameter value*
CorGioGetState	*Gets the current I/O states*
CorGioRegisterCallback	*Registers a function that will be called when an input I/O generates an interrupt*
CorGioRegisterCallbackEx	*Registers a function that will be called when an input I/O generates an interrupt*
CorGioRelease	*Releases a handle to a general I/O device*
CorGioReset	*Resets a general I/O device*
CorGioResetModule	*Resets the resources associated with the server's general I/O device(s)*
CorGioSetPrm	*Sets a simple general I/O parameter*
CorGioSetPrmEx	*Sets a complex general I/O parameter*
CorGioSetOutputControlState	*Set the state of the IO ouput.*
CorGioSetState	*Sets the state of the I/Os*
CorGioUnregisterCallback	*Unregisters a callback function*
CorGioUnregisterCallbackEx	*Unregisters a callback function*

CorGioGetCap

Get general I/O capability value

Prototype CORSTATUS **CorGioGetCap**(CORGIO *hGio*, UINT32 *cap*, void **value*);

Description Gets general I/O capability value.

Input *hGio* General I/O resource handle

cap General I/O device capability requested

Output *value* Value of the capability

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_CAP_INVALID and CORSTATUS_INVALID_HANDLE

CorGioGetCount

Get the number of general I/O devices on a server

Prototype CORSTATUS **CorGioGetCount**(CORSERVER *hServer*, UINT32 **count*);

Description Gets the number of general I/O devices available on a server.

Input *hServer* Server handle

Output *count* Number of general I/O devices

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *count* is NULL), CORSTATUS_INVALID_HANDLE

Note The content of *count* is 0 when there is no general I/O device available.

CorGioGetHandle

Get a handle to a general I/O device

Prototype	CORSTATUS **CorGioGetHandle**(CORSERVER *hServer*, UINT32 *deviceId*, CORGIO **hGio*);	
Description	Gets a handle to a general I/O device.	
Input	*hServer*	Server handle
	deviceId	Specifies which general I/O device to select. Valid values are in the range [0...*count*-1], where *count* is the value returned by CORGIOGetCount.
Output	*hGio*	General I/O resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *hGio* is NULL), CORSTATUS_ARG_OUT_OF_RANGE, CORSTATUS_INVALID_HANDLE, CORSTATUS_NO_MEMORY and CORSTATUS_RESOURCE_IN_USE	
See Also	CorGioGetCount and CorGioRelease	

CorGioGetPrm

Get general I/O parameter value

Prototype	CORSTATUS **CorGioGetPrm**(CORGIO *hGio*, UINT32 *prm*, void **value*);	
Description	Gets general I/O parameter value.	
Input	*hGio*	General I/O resource handle
	prm	General I/O parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_INVALID_HANDLE and CORSTATUS_PRM_INVALID	
See Also	CorGioRelease and CorGioSetPrmEx	

CorGioGetState

Get the state of the I/Os

Prototype	CORSTATUS **CorGioGetState**(CORGIO *hGio*, UINT32 **value*);	
Description	Gets the state of the I/Os.	
Input	*hGio*	General I/O resource handle
Output	*value*	Current I/O values. If a bit is '1', then the corresponding I/O is **high**; otherwise, it is **low**.
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE and CORSTATUS_SERVICE_NOT_AVAILABLE	
See Also	CorGioSetPrm and CorGioSetPrmEx	

CorGioRegisterCallback

Register a function that will be called when an input I/O generates an interrupt.

Prototype CORSTATUS **CorGioRegisterCallback**(CORGIO *hGio*, UINT32 *eventType*, UINT32 *io*, void* *callbackFct* , void **context*)

Description Registers a function that will be called when an input I/O generates an interrupt.

Input

hGio	General I/O resource handle
eventType	Type of event to register: CORGIO_VAL_EVENT_TYPE_RISING_EDGE CORGIO_VAL_EVENT_TYPE_FALLING_EDGE CORGIO_VAL_EVENT_TYPE_FAULT CORGIO_VAL_EVENT_TYPE_MASK
io	If bit 'n' is 1, then the corresponding I/O will cause *callbackFct* to be called.
callbackFct	Callback function to be registered. Define your callback function as follows: *CORSTATUS CCONV* *callback (void *context, UINT32 eventType, UINT32 eventCount);* When called, *context* will have the value you have specified at callback function registration; *eventType* will contain the event(s) that triggered the call to your callback function; *eventCount* should increment by one at each call, with a starting value of 1. In case the counter resource cannot keep up because there is too many events to be signaled, *eventCount* will take nonconsecutive values, indicating that events have been lost. See the Data Types section for the PCORCALLBACK definition.
context	Context pointer to be passed to the callback function when called.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE, CORSTATUS_RESOURCE_IN_USE
(if attempting to associate a callback function to an I/O that already has a callback)
CORSTATUS_SERVICE_NOT_AVAILABLE

See Also CorGioUnregisterCallback

CorGioRegisterCallbackEx

Register callback function for an acquisition resource

Prototype CORSTATUS CORAPIFUNC **CorGioRegisterCallbackEx**(CORGIO hGio, UINT32 eventType, UINT32 io, PCOREVENTINFOCALLBACK callbackFunc, void *context);

Description Registers a function that will be called when an input I/O generates an interrupt.

Input

hGio General I/O resource handle

eventType Type of event to register:
CORGIO_VAL_EVENT_TYPE_RISING_EDGE
CORGIO_VAL_EVENT_TYPE_FALLING_EDGE
CORGIO_VAL_EVENT_TYPE_FAULT
CORGIO_VAL_EVENT_TYPE_MASK

io If bit 'n' is 1, then the corresponding I/O will cause *callbackFct* to be called.

callback Callback function to register. The callback function is defined as follows:
CORSTATUS CCONV
*callback(void *context, UINT64 eventType, UINT64 eventCount);*

When the event occurs in the acquisition device the specified callback function is called. The callback function provides information on the corresponding event (in the P*COREVENTINFOCALLBACK* handle). Refer to the *EventInfo* module for more detail on the available information. The context pointer is also returned by the callback function allowing you to exchange user information between the callback and your application context..

See the Data Types section for the PCORCALLBACK definition.

context Context pointer passed to the callback function when called

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL
CORSTATUS_INVALID_HANDLE
CORSTATUS_NOT_AVAILABLE
CORSTATUS_RESOURCE_IN_USE

Note The values may be ORed if more than one event is desired.

This function allows timestamp events to be registered. However, device drivers continue to support both functions.

See Also CorGioUnregisterCallbackEx

CorGioRelease

Release handle to a general I/O device

Prototype CORSTATUS **CorGioRelease**(CORGIO *hGio*);

Description Releases handle to a general I/O device.

Input *hGio* General I/O resource handle

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorGioGetHandle

CorGioReset

Reset a general I/O device

Prototype CORSTATUS **CorGioReset**(CORGIO *hGio*);

Description Resets a general I/O device. Restores the default values for general I/O parameters.

Input *hGio* General I/O resource handle

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE and CORSTATUS_SERVICE_NOT_AVAILABLE

CorGioResetModule

Reset the resources associated with the server's general I/O device(s)

Prototype CORSTATUS **CorGioResetModule**(CORSERVER *hServer*);

Description Resets the resources associated with the server's general I/O device(s). Releases all resources (handle, memory) currently allocated. Make certain that no other application is currently using any general I/O device resource. This function should be use with caution.

Input *hServer* Server handle

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

CorGioSetPrm

Set a simple general I/O parameter

Prototype CORSTATUS **CorGioSetPrm**(CORGIO *hGio*, UINT32 *prm*, UINT32 *value*);

Description Sets a simple general I/O parameter.

Input

hGio	General I/O resource handle
prm	General I/O parameter to set
value	New value of the parameter

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY
CORSTATUS_PRM_INVALID
CORSTATUS_PRM_INVALID_VALUE
CORSTATUS_PRM_MUTUALLY_EXCLUSIVE
CORSTATUS_PRM_NOT_AVAILABLE
CORSTATUS_PRM_OUT_OF_RANGE
CORSTATUS_PRM_READ_ONLY

Note A simple parameter fits inside an UINT32. If the parameter is complex, use CorGioSetPrmEx.

See Also CorGioGetPrm and CorGioSetPrmEx

CorGioSetPrmEx

Set a complex general I/O parameter

Prototype	CORSTATUS **CorGioSetPrmEx**(CORGIO *hGio*, UINT32 *prm*, void **value*);
Description	Sets a complex general I/O parameter.
Input	*hGio* General I/O resource handle *prm* General I/O parameter to set *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY CORSTATUS_PRM_INVALID CORSTATUS_PRM_INVALID_VALUE CORSTATUS_PRM_MUTUALLY_EXCLUSIVE CORSTATUS_PRM_NOT_AVAILABLE CORSTATUS_PRM_OUT_OF_RANGE CORSTATUS_PRM_READ_ONLY
Note	A complex parameter is one whose size is greater than an UINT32. If the parameter size is UINT32, used either CorGioSetPrm or CorGioSetPrmEx.
See Also	CorGioGetPrm and CorGioSetPrm

CorGioSetOutputControlState

Set the state of the IO ouput. This is a board specific function. See the board user's manual.

Prototype	CORSTATUS **CorGioSetOutputControlState**(CORGIO *hGio*,,UINT32 *ioMask*, UINT32 *value*);
Description	Sets the state of the I/O output.
Input	*hGio* General I/O resource handle *ioMask* If a bit is '1', then the corresponding Output will be affected. *value*
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE CORSTATUS_SERVICE_NOT_AVAILABLE
See Also	CorGioGetPrm and CorGioSetPrmEx

CorGioSetState

Set the state of the I/Os

Prototype CORSTATUS **CorGioSetState**(CORGIO *hGio*, UINT32 *ioMask*, UINT32 *value*);

Description Sets the state of the general I/O pins, if available on the hardware.

Input

hGio	General I/O resource handle
ioMask	Mask specifying the I/Os to modify. If bit 'n' is 1, then the I/O will be written with the corresponding bit in *value.*
value	New I/O values. If a bit is '1', the corresponding I/O will be set to **high**; otherwise, it will be set to **low**. Value represents a bit-field.

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_INCOMPATIBLE (if trying to set the state of an input pin)
CORSTATUS_INVALID_HANDLE and CORSTATUS_SERVICE_NOT_AVAILABLE

See Also CorGioGetPrm and CorGioSetPrmEx

CorGioUnregisterCallback

Unregister a callback function.

Prototype CORSTATUS **CorGioUnregisterCallback**(CORGIO *hGio*, void* *callbackFct*);

Description Unregisters a callback function.

Input

hGio	General I/O resource handle
callbackFct	Pointer to a callback function that has been previously registered.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorGioRegisterCallback

CorGioUnregisterCallbackEx

Unregister callback function for an I/O resource

Prototype CORSTATUS CORAPIFUNC *CorGioUnregisterCallbackEx*(CORGIO *hGio*, PCOREVENTINFOCALLBACK *callbackFunc*);

Description Unregisters a callback function.

Input

hGio	General I/O resource handle
callbackFct	Callback function to unregister. See Data Types section for the PCOREVENTINFOCALLBACK definition.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorGioRegisterCallbackEx

Module

The LUT (Lookup Table) Module defines LUT data structures that are used by the Acquisition, Display, and Processing modules. Refer to the functions CorAcqSetLut and CorViewSetLut for a description on how to apply the LUTs to the Acquisition and Display hardware, respectively.

Parameters

ID	Parameter	Attribute
0x00	CORLUT_PRM_ADDRESS	Read Only
0x01	CORLUT_PRM_DATASIZE	Read Only
0x02	CORLUT_PRM_FORMAT	Read Only
0x03	CORLUT_PRM_NPAGES	Read Only
0x04	CORLUT_PRM_NENTRIES	Read Only
0x05	CORLUT_PRM_SIZE	Read Only
0x06	CORLUT_PRM_PHYSADDRESS	Read Only
0x07	CORLUT_PRM_SIGNED	Read Only

CORLUT_PRM_ADDRESS

Description Address of the buffer containing the lookup table.

Type UINT32

Values 32-bit address of the buffer.

CORLUT_PRM_DATASIZE

Description Size of one lookup table element (in bytes).

Type UINT32

Values Will have a value of 1 or 2.

CORLUT_PRM_FORMAT

Description Lookup table data format. Determines a single LUT element's type.

Type UINT32

Values For a detailed description of the values, see CorLutNew.

CORLUT_PRM_NENTRIES

Description The number of elements in a lookup table; also, the number of different pixel values which can be transformed by the LUT.

Type UINT32

Values Usually ranges from 256 to 65536.

CORLUT_PRM_NPAGES

Description The number of pages in the lookup table. Usually understood as the number of color planes represented in the LUT.

Type UINT32

Values 1: Monochrome LUT
3: Color LUT

CORLUT_PRM_PHYSADDRESS

Description	Physical address of the buffer containing the lookup table.
Type	UINT32
Values	32-bit address of the buffer.

CORLUT_PRM_SIGNED

Description	Sign of the lookup table elements.
Type	UINT32
Values	CORLUT_VAL_FORMAT_UNSIGNED CORLUT_VAL_FORMAT_SIGNED

CORLUT_PRM_SIZE

Description	Size of the lookup table data buffer (in bytes).
Type	UINT32
Values	The value is a product of the number of entries, the element size, and the number of color components (1 for monochrome, 3 for color).

Functions

Function	Description
CorLutAdd	*Performs addition operation on a LUT resource*
CorLutAnd	*Performs logical AND operation on a LUT resource*
CorLutASub	*Performs absolute subtraction operation on a LUT resource*
CorLutBit	*Sets a binary pattern in a LUT resource*
CorLutClip	*Clips the lookup table values of a LUT resource*
CorLutCopy	*Copies a source LUT resource to a destination LUT resource*
CorLutFree	*Releases handle to a LUT resource*
CorLutGamma	*Computes by means of a gamma law the lookup table values of a LUT resource*
CorLutGetPrm	*Gets LUT parameter value from a LUT resource*
CorLutLoad	*Loads a LUT resource from a file*
CorLutMax	*Performs maximum operation on a LUT resource*
CorLutMin	*Performs minimum operation on a LUT resource*
CorLutNew	*Creates in a specified server's memory a new LUT resource*
CorLutNewFromFile	*Creates from a file and in a specified server's memory a new LUT resource*
CorLutNormal	*Sets a normal lookup table for a LUT resource*
CorLutOr	*Performs logical OR operation on a LUT resource*
CorLutRead	*Reads a series of elements from a LUT resource*
CorLutReadEx	*Reads an element from a LUT resource*
CorLutReverse	*Sets a reverse lookup table for a LUT resource*
CorLutRoll	*Shifts the lookup table values of a LUT resource*
CorLutSave	*Saves to a file the content of a LUT resource*
CorLutScale	*Performs scaling operation on a LUT resource*
CorLutSetPrm	*Sets a simple LUT parameter of a LUT resource*
CorLutSetPrmEx	*Sets a complex LUT parameter of a LUT resource*
CorLutShift	*Shifts the lookup table values of a LUT resource*
CorLutSlope	*Slopes the lookup table values of a LUT resource*
CorLutSub	*Performs subtraction operation on a LUT resource*
CorLutThreshold1	*Sets a single-threshold lookup table for a LUT resource*
CorLutThreshold2	*Sets a double-threshold for the lookup table values of a LUT resource*
CorLutWrite	*Writes a series of elements into a LUT resource*
CorLutWriteEx	*Writes an element into a LUT resource*
CorLutXor	*Performs logical XOR operation on a LUT resource*

CorLutAdd

Perform addition operation on a LUT resource

Prototype CORSTATUS **CorLutAdd**(CORLUT hL*ut*, CORDATA *k*);

Description Modifies the LUT values through the addition operation, using a gray level of *k*. Each entry is calculated as follows: *lut[i]* = *lut[I]+k*

Input

hLut	LUT resource handle
k	Constant. See Data Types for *CORDATA* definition.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorLutASubCorLutSub

CorLutAnd

Perform logical AND operation on a LUT resource

Prototype CORSTATUS **CorLutAnd**(CORLUT hL*ut*, CORDATA *k*);

Description Modifies the LUT valuesthrough the logical AND operation, using a gray level of *k*. Each entry is calculated as follows: *lut[i]* = *lut[i]* AND *k*

Input

hLut	LUT resource handle
k	Constant. See Data Types for *CORDATA* definition.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorLutOr and CorLutXor

CorLutASub

Perform absolute difference operation on a LUT resource

Prototype CORSTATUS **CorLutASub**(CORLUT hL*ut*, CORDATA *k*);

Description Modifies the LUT values through the absolute difference operation, using a gray level of *k*. Each entry is calculated as follows: *lut[i]* = abs(*lut[i]*-*k*)

Input

hLut	LUT to be transformed
k	Constant. See Data Types for *CORDATA* definition.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorLutAdd and CorLutSub

CorLutBit

Set a binary pattern in a LUT resource

Prototype CORSTATUS **CorLutBit**(CORLUT h*Lut*, UINT32 *bit*, CORDATA *k*);

Description Sets a binary pattern in a LUT resource. Only entries that the bit, as specified by the *bit* argument, is set to 1, are set to the color *k*.
Each entry is calculated as follows: *lut[i] = (i & (1L << bit)*) ? *k* : *lut[i]*

Input

hLut	LUT resource handle
bit	Selected bit
k	Color assigned when bit is on. See Data Types for *CORDATA* definition.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

CorLutClip

Clip the lookup table values of a LUT resource

Prototype CORSTATUS **CorLutClip**(CORLUT h*Lut*, INT32 *imin*, INT32 *imax*, CORDATA *omin*, CORDATA *omax*);

Description Computes the values of a LUT resource so that the gray levels clip to the specified values. This will keep only the pixels in the range [*imin*...*imax*] and map them to the range [*omin*...*omax*].

Input

hLut	LUT resource handle
imin	Minimum index of clipping region
imax	Maximum index of clipping region
omin	Minimum color to which the minimum index is mapped. See Data Types for *CORDATA* definition.
omax	Maximum color to which the maximum index is mapped. See Data Types for *CORDATA* definition.

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_INCOMPATIBLE, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE

CorLutCopy

Copy a source LUT resource to a destination LUT resource

Prototype CORSTATUS **CorLutCopy**(CORLUT *hSrc*, CORLUT *hDst*);

Description Copies the values of one LUT to another.

Input

hSrc	LUT resource handle (source)
hDst	LUT resource handle (destination)

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_INVALID, CORSTATUS_INCOMPATIBLE_LUT and CORSTATUS_INVALID_HANDLE

Note When the source LUT size is larger than the destination LUT size, only the section of the source that fits the destination is copied.

CorLutFree

Release handle to a LUT resource

Prototype	CORSTATUS **CorLutFree**(CORLUT *hLut*);
Description	Releases handle to a LUT resource.
Input	*hLut* LUT resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorLutNew and CorLutNewFromFile

CorLutGamma

Compute by means of a gamma law the lookup table values of a LUT resource

Prototype	CORSTATUS **CorLutGamma**(CORLUT *hLut*, FLOAT *factor*);
Description	Computes the values of a LUT resource using an inverse gamma law with *factor*. Used to correct the camera's light response, which is often set to be a power function (referred to as the gamma function). A gamma factor of 1 means no correction will be applied, and a normal LUT is computed.
Input	*hLut* LUT resource handle *factor* Gamma law factor; must be positive
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE, CORSTATUS_INCOMPATIBLE_LUT and CORSTATUS_INVALID_HANDLE

CorLutGetPrm

Get LUT parameter value from a LUT resource

Prototype	CORSTATUS **CorLutGetPrm**(CORLUT *hLut*, UINT32 *prm*, void **value*);
Description	Gets LUT parameter value from a LUT resource
Input	*hLut* LUT resource handle *prm* LUT parameter requested
Output	*value* Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_INVALID_HANDLE and CORSTATUS_PRM_INVALID
See Also	CorLutSetPrm and CorLutSetPrmEx

CorLutLoad

Load a LUT resource from a file

Prototype	CORSTATUS **CorLutLoad**(CORLUT hL*ut*, const char *f*ilename*);	
Description	Loads a LUT resource from a file.	
Input	*hLut*	LUT resource handle
	filename	String specifying the path and filename
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *filename* is NULL) CORSTATUS_FILE_OPEN_ERROR, CORSTATUS_FILE_READ_ERROR, CORSTATUS_INVALID_HANDLE and CORSTATUS_NO_MEMORY	
Note	If the LUT buffer is not large enough, data read from file is clipped to the LUT's size.	
See Also	CorLutSave and LUT File Format	

CorLutMax

Perform maximum operation on a LUT resource

Prototype	CORSTATUS **CorLutMax**(CORLUT hL*ut*, CORDATA *k*);	
Description	Replaces each element of the existing LUT by the maximum of either its value or the specified gray level *k*. Each entry is calculated as follows: *lut[i]* = max(*k*,*lut[i]*)	
Input	*hLut*	LUT resource handle
	k	Constant. See Data Types for *CORDATA* definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorLutMin	

CorLutMin

Perform minimum operation on a LUT resource

Prototype	CORSTATUS **CorLutMin**(CORLUT hL*ut*, CORDATA *k*);	
Description	Replaces each element of the existing LUT by the minimum of either its value or the specified gray level *k*. Each entry is calculated as follows: *lut[i]* = min(*k*,*lut[i]*)	
Input	*hLut*	LUT resource handle
	k	Constant. See Data Types for *CORDATA* definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorLutMax	

CorLutNew

Create in a specified server's memory a new LUT resource

Prototype	CORSTATUS **CorLutNew**(CORSERVER *hServer*, UINT32 *nEntries*, UNIT32 *format*, CORLUT **hLut*);	
Description	Allocates and initializes a LUT of the specified size and format.	
Input	*hServer*	Server handle
	nEntries	Number of entries in the LUT
	format	The format of the LUT entries is determined either by the ORing the format and bit width values, or using one of the combined values. The sign value can optionally be ORed to the result.

Format values:

Monochrome: Each element stores monochrome data.
The LUT is a single vector of such elements.

CORLUT_VAL_FORMAT_MONO8
CORLUT_VAL_FORMAT_MONO9
CORLUT_VAL_FORMAT_MONO10
CORLUT_VAL_FORMAT_MONO11
CORLUT_VAL_FORMAT_MONO12
CORLUT_VAL_FORMAT_MONO13
CORLUT_VAL_FORMAT_MONO14
CORLUT_VAL_FORMAT_MONO15
CORLUT_VAL_FORMAT_MONO16

Unsigned integer (same as monochrome): Each element stores monochrome data. The LUT is a single vector of such elements.

CORLUT_VAL_FORMAT_UINT8
CORLUT_VAL_FORMAT_UINT9
CORLUT_VAL_FORMAT_UINT10
CORLUT_VAL_FORMAT_UINT11
CORLUT_VAL_FORMAT_UINT12
CORLUT_VAL_FORMAT_UINT13
CORLUT_VAL_FORMAT_UINT14
CORLUT_VAL_FORMAT_UINT15
CORLUT_VAL_FORMAT_UINT16

Signed integer (monochrome with a sign)

Each element stores monochrome data. The LUT is a single vector of such elements

CORLUT_VAL_FORMAT_INT8
CORLUT_VAL_FORMAT_INT9
CORLUT_VAL_FORMAT_INT10
CORLUT_VAL_FORMAT_INT11
CORLUT_VAL_FORMAT_INT12
CORLUT_VAL_FORMAT_INT13
CORLUT_VAL_FORMAT_INT14
CORLUT_VAL_FORMAT_INT15
CORLUT_VAL_FORMAT_INT16

Color non-interlaced: One element stores data for one color component. Each color component is represented as a separate vector of single-component elements.

CORLUT_VAL_FORMAT_COLORNI8
CORLUT_VAL_FORMAT_COLORNI9
CORLUT_VAL_FORMAT_COLORNI10
CORLUT_VAL_FORMAT_COLORNI11
CORLUT_VAL_FORMAT_COLORNI12
CORLUT_VAL_FORMAT_COLORNI13
CORLUT_VAL_FORMAT_COLORNI14
CORLUT_VAL_FORMAT_COLORNI15
CORLUT_VAL_FORMAT_COLORNI16

Color interlaced: One element stores data for the three color components. The LUT is a single vector of such elements.

CORLUT_VAL_FORMAT_COLORI8
CORLUT_VAL_FORMAT_COLORI9
CORLUT_VAL_FORMAT_COLORI10
CORLUT_VAL_FORMAT_COLORI11
CORLUT_VAL_FORMAT_COLORI12
CORLUT_VAL_FORMAT_COLORI13
CORLUT_VAL_FORMAT_COLORI14
CORLUT_VAL_FORMAT_COLORI15
CORLUT_VAL_FORMAT_COLORI16

Output *hLut* LUT resource handle

Return Value CORSTATUS_OK
CORSTATUS_ARG_INVALID_VALUE, CORSTATUS_ARG_NULL (if *hLut* is NULL), CORSTATUS_INVALID_HANDLE and CORSTATUS_NO_MEMORY

See Also CorLutFree and CorLutNewFromFile

CorLutNewFromFile

Create from a file and in specified server's memory a new LUT resource

Prototype CORSTATUS **CorLutNewFromFile**(CORSERVER *hServer*, const *char *filename*, CORLUT **hLut*);

Description Allocates and initializes a LUT of the same format as the designated file's LUT.

Input *hServer* Server handle

filename String specifying the path and name

Output *hLut* LUT resource handle

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *filename* is NULL)
CORSTATUS_FILE_OPEN_ERROR, CORSTATUS_FILE_READ_ERROR,
CORSTATUS_INVALID_HANDLE and CORSTATUS_NO_MEMORY

Note Same as calling CorLutNew then CorLutLoad.

See Also CorLutFree and CorLutNew

CorLutNormal

Set a normal lookup table for a LUT resource

Prototype CORSTATUS **CorLutNormal**(CORLUT *hLut*);

Description Defines a normal (linear) LUT.
Each entry is assigned the following value: *lut[i] = i * (2* ^{n} */ CORLUT_PRM_NENTRIES)*
where n = number of bits per entry (See CORLUT_PRM_FORMAT)

Input *hLut* LUT resource handle

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

CorLutOr

Perform logical OR operation on a LUT resource

Prototype	CORSTATUS **CorLutOr**(CORLUT *hLut*, CORDATA *k*);	
Description	Modifies the values of a LUT through the logical OR operation, using a gray level of *k*. Each entry is calculated as follows: *lut[i]* = *lut[i]* OR *k*	
Input	*hLut*	LUT resource handle
	k	Constant. See Data Types for CORDATA definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorLutXor	

CorLutRead

Read a series of elements from a LUT resource

Prototype	CORSTATUS **CorLutRead**(CORLUT hL*ut*, UINT32 *offset*, void **array, UINT32 size*);	
Description	Reads a consecutive series of elements from the specified LUT and copies them into an one-dimensional destination array.	
Input	*hLut*	LUT resource handle
	offset	Offset to seek within the LUT prior to copy
	size	Size of transfer (*nElements* × *elementSize* bytes)
Output	*array*	Array which can accommodate the requested number of elements (*nElements* × *elementSize*)
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *array* is NULL), CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	
See Also	CorLutWrite	

CorLutReadEx

Read an element from a LUT resource

Prototype	CORSTATUS **CorLutReadEx**(CORLUT hL*ut*, UINT32 *offset*, CORDATA *element);	
Description	Reads an element from the specified LUT.	
Input	*hLut*	LUT resource handle
	offset	Offset to seek within the LUT prior to read
Output	*element*	Current value of the element. See Data Types for *CORDATA* definition.
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *element* is NULL), CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	
See Also	CorLutWriteEx	

CorLutReverse

Sets a reverse lookup table for a LUT resource

Prototype CORSTATUS **CorLutReverse**(CORLUT *hLut*);

Description Sets a reverse LUT: *lut[i] = max-i*, where *max* is the highest pixel value.
For instance, for an unsigned 8 bit/pixel image, *max* is set to 255; an unsigned 16 bit/pixel has *max* set to 65535.

Input *hLut* LUT resource handle

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

CorLutRoll

Shift the lookup table values of a LUT resource

Prototype CORSTATUS **CorLutRoll**(CORLUT *hLut*, INT32 *rol*);

Description Shifts a LUT, wrapping the values at each end. The direction of shift is determined by the sign of the argument *rol*. A positive *rol* shifts the LUT from the low indexes to the higher ones, while a negative *rol* shifts the LUT from high indexes to lower ones.

Input *hLut* LUT resource handle

rol Number of shifts of the LUT indexes

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE and CORSTATUS_NO_MEMORY

See Also CorLutShift

CorLutSave

Saves to a file the content of a LUT resource

Prototype CORSTATUS **CorLutSave**(CORLUT *hLut*, const char **filename*);

Description Saves to a file the content of a LUT resource.

Input *hLut* LUT resource handle

filename String specifying the path and filename

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *filename* is NULL),
CORSTATUS_FILE_CREATE_ERROR, CORSTATUS_FILE_WRITE_ERROR and
CORSTATUS_INVALID_HANDLE

See Also CorLutLoad and LUT File Format

CorLutScale

Perform scaling operation on a LUT resource

Prototype	CORSTATUS **CorLutScale**(CORLUT *hLut*, CORDATA *k*);	
Description	Modifies the values of a LUT through a scaling operation, using a gray level of *k*. Each entry is calculated as follows: *lut[i] = lut[i]*k/maxcolor*	
Input	*hLut*	LUT resource handle
	k	Constant. See Data Types for *CORDATA* definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	

CorLutSetPrm

Set a simple LUT parameter of a LUT resource

Prototype	CORSTATUS **CorLutSetPrm**(CORLUT *hLut*, UINT32 *prm*, UINT32 *value*);	
Description	Sets a simple LUT parameter of a LUT resource.	
Input	*hLut*	LUT resource handle
	prm	LUT parameter to set
	value	New value of the parameter
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_PRM_INVALID and CORSTATUS_PRM_READ_ONLY	
Note	A simple parameter fits inside an UINT32. If the parameter is complex, use CorLutSetPrmEx. All LUT parameters are read-only parameters. Therefore, you can get their values with CorLutGetPrm but cannot change these values with CorLutSetPrm.	
See Also	CorLutGetPrm and CorLutSetPrmEx	

CorLutSetPrmEx

Set a complex LUT parameter of a LUT resource

Prototype	CORSTATUS **CorLutSetPrmEx**(CORLUT *hLut*, UINT32 *prm*, const void **value*);	
Description	Sets a complex LUT parameter of a LUT resource.	
Input	*hLut*	LUT resource handle
	prm	LUT parameter to set
	value	New value of the parameter
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_INVALID_HANDLE CORSTATUS_PRM_INVALID and CORSTATUS_PRM_READ_ONLY	
Note	A complex parameter is one whose size is greater than an UINT32. If the parameter size is UINT32, use either CorLutSetPrm or CorLutSetPrmEx.	
See Also	CorLutGetPrm and CorLutSetPrm	

CorLutShift

Shift the lookup table values of a LUT resource

Prototype	CORSTATUS **CorLutShift**(CORLUT *hLut*, INT32 *nShift*);
Description	Shifts the values of a LUT by *nShift*. If *nShift* is positive, values are shifted left; if *nShift* is negative, values are shifted right.
Input	*hLut* LUT resource handle *nShift* Number of shift bits
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorLutRoll

CorLutSlope

Slope the lookup table values of a LUT resource

Prototype	CORSTATUS **CorLutSlope**(CORLUT *hLut*, INT32 *i1*, CORDATA *c1*, INT32 *i2*, CORDATA *c2*);
Description	Modifies the values of the LUT so that the pixels in the range [*i1*...*i2*] are mapped to the range [*c1*...*c2*]. Pixels outside of the range are unchanged.
Input	*hLut* LUT resource handle *i1* Minimum index of slope region. *c1* Minimum color to which the minimum index is mapped. See Data Types for *CORDATA* definition. *i2* Maximum index of slope region *c2* Maximum color to which the maximum index is mapped. See Data Types for *CORDATA* definition.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_INCOMPATIBLE, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE

CorLutSub

Perform subtraction operation on a LUT resource

Prototype	CORSTATUS **CorLutSub**(CORLUT *hLut*, CORDATA *k*);
Description	Modifies the values of a LUT through the subtraction operation, using a gray level of *k*. Each entry is calculated as follows: *lut[i] = lut[i]-k*
Input	*hLut* LUT resource handle *k* Constant. See Data Types for *CORDATA* definition.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorLutAdd and CorLutASub

CorLutThreshold1

Sets a single-threshold lookup table for a LUT resource

Prototype	CORSTATUS **CorLutThreshold1**(CORLUT *hLut*, CORDATA *thrs*);	
Description	Sets a threshold LUT. Pixels under *thrs* are set to the lowest color value, the others are set to the highest color value.	
Input	*hLut*	LUT resource handle
	thrs	Threshold gray level. See Data Types for *CORDATA* definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorLutThreshold2	

CorLutThreshold2

Sets a double-threshold lookup table for a LUT resource

Prototype	CORSTATUS **CorLutThreshold2**(CORLUT *hLut*, CORDATA *thrs1*, CORDATA *thrs2*);	
Description	Sets a threshold LUT. Pixels in the range [*thrs1*...*thrs2*] are mapped to the highest color value, the others are set to the lowest color value.	
Input	*hLut*	LUT resource handle
	thrs1	Threshold gray level. See Data Types for *CORDATA* definition.
	thrs2	Threshold gray level. See Data Types for *CORDATA* definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorLutThreshold1	

CorLutWrite

Write a series of elements into a LUT resource

Prototype	CORSTATUS **CorLutWrite**(CORLUT *hLut*, UINT32 *offset*, void **array, UINT32 size*);	
Description	Writes a series of elements from an one-dimensional source array to a LUT resource.	
Input	*hLut*	LUT resource handle
	offset	Offset to seek within the LUT prior to copy
	array	Array which contains the elements to be written (*nElements*×*elementSize*)
	size	Size of transfer (*nElements*×*elementSize*)
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *array* is NULL), CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	
See Also	CorLutRead	

CorLutWriteEx

Write an element into a LUT resource

Prototype	CORSTATUS **CorLutWriteEx**(CORLUT *hLut*, UINT32 *offset*, CORDATA data);	
Description	Writes an element to a LUT resource.	
Input	*hLut*	LUT resource handle
	offset	Offset to seek within the LUT prior to write
	data	New value of the element. See Data Types for *CORDATA* definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	
See Also	CorLutReadEx	

CorLutXor

Perform logical XOR operation on a LUT resource

Prototype	CORSTATUS **CorLutXor**(CORLUT *hLut*, CORDATA *k*);	
Description	Modifies the values of a LUT through the logical XOR operation, using a gray level of *k*. Each entry is calculated as follows: *lut[i]* = *lut[i]* XOR *k*	
Input	*hLut*	LUT resource handle
	k	Constant. See Data Types for *CORDATA* definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorLutOr	

Manager Module

The Manager Module allows the application to connect to other available resources (boards).

CORMAN_SAPERA_VERSION_INFO Structure Definition

```
typedef struct
{
   // Version number = major.minor.revision.build (for example, 6.12.01.0712)
   UINT32 major;
   UINT32 minor;
   UINT32 revision;
   UINT32 build;
   UINT32 licenseType;        // License type =
                              //      CORMAN_VAL_SAPERA_LICENSE_RUNTIME or
                              //      CORMAN_VAL_SAPERA_LICENSE_EVAL or
                              //      CORMAN_VAL_SAPERA_LICENSE_SDK
   UINT32 evalDaysRemaining;  // Number of days left for evaluation version
} CORMAN_SAPERA_VERSION_INFO, *PCORMAN_SAPERA_VERSION_INFO;
```

Functions

Function	Description
CorManAllocContigBuffer	*Allocates a contiguous memory block*
CorManClose	*Closes the Sapera standard API*
CorManDetectAllServers	*Detects GenCP cameras after a Sapera application has been started*
CorManExecuteCmd	*Executes an application on a specified server*
CorManFreeContigBuffer	*Frees a contiguous memory block*
CorManGetHandleByIndex	*Gets a handle registered on a remote server by index.*
CorManGetHandleByName	*Gets a handle registered on a remote server from its name.*
CorManGetInstallationDirectory	*Gets full path of installation directory.*
CorManGetLocalServer	*Gets handle for local server*
CorManGetPixelDepthMax	*Returns the maximum number of significant bits per component for a data format*
CorManGetPixelDepthMin	*Returns the minimum number of significant bits per component for a data format*
CorManGetRemoteServerByName	*Gets the server handle corresponding to a specific name on a remote server*
CorManGetRemoteServerChild	*Gets the server handle corresponding to one child of a parent remote server.*
CorManGetRemoteServerParent	*Gets the server handle corresponding to the parent of one child remote server.*
CorManGetSaperaVersionInfo	*Gets Sapera LT version and license information*
CorManGetServerByIndex	*Gets server handle by index*
CorManGetServerByName	*Gets server handle from its name*
CorManGetServerCount	*Gets number of available servers*
CorManGetServerSerialNumber	*Gets the serial number for the specified server*
CorManGetStatusText	*Gets text for ID and info fields in status code*
CorManGetStatusTextEx	*Gets text for all fields in status code*
CorManGetStringFromFormat	*Gets a text description of a Sapera data format*
CorManIsBufferTypeSupported	*Identifies buffer types supported by an acquisition server*
CorManIsLocalHandle	*Checks for a local handle*
CorManIsServerAccessible	*Checks if a server is accessible in the server database*

CorManIsSystemHandle	*Checks for a System handle*
CorManLogMessage	*Adds a “printf-like” user string in the Sapera Log Viewer.*
CorManLogStatus	*Adds a predefined string corresponding to a status in the Sapera Log Viewer.*
CorManMapBuffer	*Maps a contiguous memory block in current process address space*
CorManOpen	*Initializes the Sapera standard API*
CorManRegisterCallback	*Registers a callback function to be called when receiving a user command*
CorManRegisterCallbackEx	*Registers a callback function to be called for server related events*
CorManRegisterHandle	*Adds a handle to the local handle database to allow other servers to access it*
CorManReleaseHandle	*Releases a handle obtained from CorManGetHandleByName or CorManGetHandleByIndex*
CorManReleaseServer	*Releases a server handle*
CorManResetServer	*Resets a server (hardware reset)*
CorManSetLocalServerName	*Sets name of local server*
CorManGetTimeout	*Gets communication time out*
CorManSetTimeout	*Sets communication time out*
CorManSoftResetServer	*Resets a server (software reset)*
CorManUnmapBuffer	*Unmaps a previously mapped contiguous memory block in current process address space*
CorManUnregisterCallback	*Unregisters the callback function to be called when receiving a user command*
CorManUnregisterCallbackEx	*Unregisters the callback function to be called for server related events*
CorManUnregisterHandle	*Removes a handle from the local handle database*
CorManUserCmd	*Sends a user command to a server*
CorManWaitForServerReady	*Waits until a given server is ready*
CorManWriteFile	*Returns the file transfer progress*

CorManAllocContigBuffer

Allocate a contiguous memory block

Prototype	CORSTATUS **CorManAllocContigBuffer**(UINT32 *nBytes*, UINT32 **physAddr*, void ***addr*);
Description	Allocates a block in contiguous memory. Contiguous memory is allocated as a single memory block in physical memory which is not pageable and not moveable.
Input	*nBytes* Number of bytes requested
Output	*physAddr* Physical address *addr* Virtual address
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *physAddr* or *addr* is NULL) and CORSTATUS_NO_MEMORY
See Also	CorManFreeContigBuffer

CorManClose

Closes the Sapera standard API

Prototype	CORSTATUS **CorManClose**(void);
Description	Terminates all access to the standard C library. This must be the last Sapera call in an application program.
Return Value	CORSTATUS_OK CORSTATUS_INSUFFICIENT_RESOURCES
Notes	This function must not be called from the DllMain function of a Windows DLL
See Also	CorManOpen

CorManDetectAllServers

Detects Sapera servers after an application has been started

Prototype	CORSTATUS **CorManDetectAllServers**(UINT32 *serverType*);
Description	Use this function to detect GenCP cameras after a Sapera application has been started. In a typical application, device detection (discovery) is initiated during application startup. If a GenCP camera is connected after an application has been launched, it will not be detected automatically. Use this function to trigger the camera discovery process. Note that you must register the CORMAN_VAL_EVENT_TYPE_SERVER_NEW event before calling this function.
Input	*serverType* Specifies the type of server to detect. Currently, the only possible value is: • CORMAN_VAL_DETECTION_SERVER_TYPE_GENCP: Detect GenCP servers only
Return Value	CORSTATUS_OK CORSTATUS_INSUFFICIENT_RESOURCES
Notes	This function has no effect for GigE-Vision cameras, for which simply registering the CORMAN_VAL_EVENT_TYPE_SERVER_NEW event is sufficient
See Also	CorManRegisterCallback, CorManRegisterCallbackEx

CorManExecuteCmd

Executes an application on a specified server

Prototype	CORSTATUS **CorManExecuteCmd**(CORSERVER hServer, const char *szCmdLine*[])	
Description	Executes a command line application on a remote server. For example, this function can run a user application on a processing board.	
Input	*hServer*	Board server handle
	szCmdLine	String containing the application name to execute (including any application arguments)
Return Value	CORSTATUS_OK CORSTATUS_NO_MEMORY, CORSTATUS_ARG_INVALID, CORSTATUS_INVALID_HANDLE, CORSTATUS_SERVER_NOT_FOUND, CORSTATUS_TIMEOUT and CORSTATUS_BOARD_NOT_READY	
Notes	The executed application uses the environment variables (for example, PATH) defined in the remote server's system.	

CorManFreeContigBuffer

Free a contiguous memory buffer

Prototype	CORSTATUS **CorManFreeContigBuffer**(void **addr*);	
Description	Frees a contiguous memory block. Contiguous memory is allocated as a single memory block in physical memory which is not pageable and not moveable.	
Input	*addr*	Virtual address
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *addr* is NULL) and CORSTATUS_ARG_INVALID	
See Also	CorManAllocContigBuffer	

CorManGetHandleByIndex

Gets a handle registered on a remote server by index.

Prototype	CORSTATUS **CorManGetHandleByIndex**(CORSERVER *hServer*, UINT32 *index*, PCORHANDLE *pHandle*);	
Description	Gets a handle from a remote server's handle database by index. The handle must have been previously registered using CorManRegisterHandle on the remote server.	
Input	*hServer*	Handle to the remote server where the handle is registered.
	index	Index to the remote server's handle database.
Output	*pHandle*	Pointer to a handle.
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *pHandle* is NULL) and CORSTATUS_NOT_ACCESSIBLE	
See Also	CorManRegisterHandle, CorManGetHandleByName and CorManReleaseHandle	

CorManGetHandleByName

Gets a handle registered on a remote server from its name.

Prototype	CORSTATUS **CorManGetHandleByName**(CORSERVER *hServer*, PSTR *name*, PCORHANDLE *pHandle*);	
Description	Gets a handle from a remote server's handle database from its name. The handle must have been previously registered using CorManRegisterHandle on the remote server.	
Input	*hServer*	Handle to the remote server on which to get the handle.
	name	Name of the handle in the remote server's handle database.
Output	*pHandle*	Pointer to a handle.
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *name* or *pHandle* is NULL) CORSTATUS_NOT_ACCESSIBLE	
See Also	CorManRegisterHandle, CorManGetHandleByIndex and CorManReleaseHandle	

CorManGetInstallationDirectory

Gets full path of installation directory

Prototype	CORSTATUS **CorManGetInstallationDirectory**(CORSERVER *hServer*, PSTR *pInstallDir*, UINT32 strSize);
Description	Gets the directory where Sapera LT or a Sapera driver is installed.
Input	*hServer* Handle of Sapera LT system server or Sapera board server. *strSize* Size of buffer for storing the installation directory.
Output	*pInstallDir* Product installation directory (for example, "c:\Program Files\Teledyne DALSA\Sapera").
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL
See Also	CorManGetLocalServer, CorManGetServerByIndex and CorManGetServerByName

CorManGetLocalServer

Get handle for local server

Prototype	CORSERVER **CorManGetLocalServer**();
Description	Gets server handle corresponding to current process.
Input	None
Output	None
Return Value	Local server handle
Notes	Under Win32, the returned server handle may not be the same as the one you get when you use CorManGetServerByName for the local system.
See Also	CorManGetServerByName

CorManGetPixelDepthMax

Gets the maximum pixel depth

Prototype	UINT32 **CorManGetPixelDepthMax**(UINT32 *format*);
Description	Returns the maximum number of significant bits per component for a data format. This value is documented for each data format in the Data Formats section.
Input	*format* Data format (Refer to Data Formats section for a detailed list).
Output	*None*
Return Value	The maximum number of bits per component.
See Also	CORBUFFER_PRM_PIXEL_DEPTH

CorManGetPixelDepthMin

Gets the minimum pixel depth

Prototype	UINT32 **CorManGetPixelDepthMin**(UINT32 *format*);
Description	Returns the minimum number of significant bits per component for a data format. This value is documented for each data format in the Data Formats section.
Input	*format* Data format (Refer to Data Formats section for a detailed list).
Output	*None*
Return Value	The minimum number of bits per component.
See Also	CORBUFFER_PRM_PIXEL_DEPTH

CorManGetRemoteServerByName

Get the server handle from a specific remote server name

Prototype	CORSTATUS **CorManGetServerByName**(CORSERVER *hRemoteServer*, const char **name*, CORSERVER **hServer*);
Description	Gets the server handle corresponding to a specific name on a remote server Use this function to get from another Win32 system a handle to a server corresponding to an individual Win32 process (not listed in the Sapera Server database). You first need to create an alias for this server from its own process on the remote system.
Input	*hRemoteServer* Remote server handle *name* Server name
Output	*hServer* Server handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID and CORSTATUS_SERVER_NOT_FOUND
See Also	erName

CorManGetRemoteServerChild

Get the child server handle from a remote parent server

Prototype	CORSTATUS **CorManGetRemoteServerChild**(CORSERVER *hServer*, UINT8 *nChild*, PCORSERVER *handle*)
Description	This function obtains the child server handle via the parent server handle. Useful for boards with multiple processors. For example the Python board contains one parent server (Python_1) and four child processors (Python_1_C60.. Python_4_C60). This function allows you to obtain any child server handle without specifying the name of that specific child server.
Input	*hServer* Parent server handle *nChild* Child server index (1..N) where N is the number of child servers on the parent board.
Output	*handle* Child server handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID and CORSTATUS_INVALID_HANDLE
See Also	CorManGetRemoteServerParent

CorManGetRemoteServerParent

Get the parent server handle from a remote child server

Prototype	CORSTATUS **CorManGetRemoteServerParent**(CORSERVER *hServer*, PCORSERVER *handle*)
Description	This function obtains the parent server handle via the handle of one of its child servers. Useful on boards with multiple processors. For example the Python board contains one parent server (Python_1) and four child processors (Python_1_C60.. Python_4_C60). This function allows you to obtain the parent server handle without specifying the name of the parent.
Input	*hServer* Child server handle
Output	*handle* Parent server handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID and CORSTATUS_INVALID_HANDLE
See Also	CorManGetRemoteServerChild

CorManGetSaperaVersionInfo

Get Sapera LT version and license information

Prototype	CORSTATUS **CorManGetSaperaVersionInfo**(PCORMAN_SAPERA_VERSION_INFO *pVersionInfo*);
Description	Use this function to retrieve the current Sapera LT version number, and to identify whether it is a runtime, evaluation, or full SDK installation.
Output	*pVersionInfo* Version information structure. See CORMAN_SAPERA_VERSION_INFO structure definition.
Return Value	CORSTATUS_OK, CORSTATUS_ARG_INVALID

CorManGetServerByIndex

Get server handle by index

Prototype	CORSTATUS **CorManGetServerByIndex**(UINT32 *index*, char **name*, CORSERVER **hServer*);	
Description	Use this function to retrieve handles for servers listed in the Sapera Server database.	
Input	*index*	Specifies which server to get. Valid values are in the range [0...*count*-1], where *count* is the value returned by CorManGetServerCount.
Output	*name*	Server name Server names are limited to 30 characters. If this argument is NULL, the server name won't be returned.
	hServer	Server handle. If this argument is NULL, the handle won't be returned, which is useful if only the server name is needed.
Return Value	CORSTATUS_OK CORSTATUS_SERVER_NOT_FOUND	
Notes	Use the Sapera configuration program to obtain a list of all available servers in your system and their names.	
See Also	CorManGetServerCount, CorManGetServerByName and CorManReleaseServer	

CorManGetServerByName

Get server handle from its name

Prototype	CORSTATUS **CorManGetServerByName**(const char **name*, CORSERVER **server*);	
Description	Gets server handle from its name.	
Input	*name*	Server name
Output	*server*	Server handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_SERVER_NOT_FOUND	
Notes	Use the Sapera configuration program to obtain a list of all available servers in your system and their names. Use this function to retrieve handles both for servers listed in the Sapera Server database and for those corresponding to individual processes. For the latter, use an alias you created previously for this server from its own process.	
See Also	CorManGetServerByIndex erName CorManReleaseServer	

CorManGetServerCount

Get the number of available server

Prototype	CORSTATUS **CorManGetServerCount**(UINT32 **count*);
Description	Gets the number of available servers.
Input	None
Output	*count* Number of available servers
Return Value	CORSTATUS_OK CORSTATUS_OK
Notes	Use the Sapera configuration program to obtain a list of all available servers in your system. This function returns the number of servers currently listed in the Sapera Server database, it does not include those associated to individual Win32 processes.
See Also	CorManGetServerByIndex

CorManGetServerSerialNumber

Gets the serial number for the specified server.

Prototype	CORSTATUS **CorManGetServerSerialNumber**(CORSERVER *hServer*, PSTR *serial*);
Description	Gets the serial number for the specified Sapera Server. This number is assigned by Teledyne DALSA and programmed into the EEPROM of the board associated with the server.
Input	*hServer* Handle to the server.
Output	*serial* Character string that receives the resulting information in the format seen within the board's Viewer window. The first letter is either an "S" or an "H" followed by seven numbers, for example, 'S1234567'. Make certain that the string is long enough for the serial number plus the terminating NULL character.
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *serial* is NULL) CORSTATUS_ARG_INVALID
Notes	There is no serial number associated with the System server. This function is only supported for frame grabbers and older Genie cameras (not Genie-TS). When using other camera servers (GigE-Vision or GenCP), you need a valid CorAcqDevice object from which the serial number can be retrieved through a named feature.
See Also	CorManGetServerByIndex and CorManGetServerByName

CorManGetStatusText

Get text strings for "ID" and "info" fields of a given status value

Prototype	CORSTATUS **CorManGetStatusText**(CORSTATUS *status*, char **idBuf*, UINT32 *idBufSize*, char **infoBuf*, UINT32 *infoBufSize*);	
Description	Gets text strings for "ID" and "info" fields of a given status value.	
Input	*Status*	Status value
	idBufSize	ID buffer size
	infoBufSize	Information buffer size
Output	*idBuf*	ID string
	infoBuf	Information string
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE	

CorManGetStatusTextEx

Get text strings for all the fields of a given status value

Prototype	CORSTATUS **CorManGetStatusTextEx**(CORSTATUS *status*, char **idBuf*, UINT32 *idBufSize*, char **infoBuf*, UINT32 *infoBufSize*, char **levelBuf*, UINT32 *levelBufSize*, char **moduleBuf*, UINT32 *moduleBufSize*);	
Description	Gets text strings for all the fields (ID, Info, Level, and Module) of a given status value.	
Input	*status*	Status value
	idBufSize	ID buffer size
	infoBufSize	Information buffer size
	levelBufSize	Level buffer size
	moduleBufSize	Module buffer size
Output	*idBuf*	ID string
	infoBuf	Information string
	levelBuf	Level string
	moduleBuf	Module string
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE	

CorManGetStringFromFormat

Get a text description of a Sapera data format

Prototype	BOOL **CorManGetSringFromFormat**(UINT32 *format*, char **szFormat*);	
Description	Get an identification string for the Sapera data format, for example, 'RGB888'	
Input	*format*	Sapera data format
Output	*szFormat*	String description, set to '(unknown)' if the format is unrecognized
Return Value	TRUE if a non-NULL string argument is specified , FALSE otherwise	

CorManGetTimeout

Get communication timeout

Prototype	UINT32 **CorManGetTimeout**();
Description	Gets communication timeout.
Input	None
Output	None
Return Value	Communication timeout in milliseconds.

CorManIsBufferTypeSupported

Identifies buffer types supported by an acquisition server

Prototype	CORSTATUS **CorManIsBufferTypeSupported**(CORSERVER *hServer*, UINT32 bufType, PUINT32 isSupported);	
Description	Checks if an acquisition server supports data transfers to a specific buffer type	
Input	*hServer*	Handle of Sapera LT acquisition server.
	bufType	Type of buffer to check, see CorBufferNew for a list of possible values
Output	*isSupported*	TRUE if the buffer type is supported, FALSE otherwise
Return Value	CORSTATUS_OK CORSTATUS_NOT_IMPLEMENTED	
Notes	For most acquisition hardware, the return value is CORSTATUS_NOT_IMPLEMENTED, so it is not possible to determine is the buffer type is supported. In this case, an error will be returned by the CorXferConnect (or CorXferConnectEx) function when trying to set up a transfer to an unsupported buffer type.	
See Also	CorBufferNew, CorXferConnect, CorXferConnectEx	

CorManIsLocalHandle

Check for a local handle

Prototype	BOOLEAN **CorManIsLocalHandle**(CORHANDLE *handle*);	
Description	Checks for a handle belonging to the local server.	
Input	*handle*	Sapera handle
Output	None	
Return Value	TRUE if handle is a local handle, FALSE otherwise	

CorManIsServerAccessible

Checks if a server is accessible in the server database

Prototype	BOOLEAN **CorManIsServerAccessible**(UINT32 *index*);	
Description	Checks if the resources belonging to a server are currently accessible. Although existing handles for these resources are still valid when their server becomes unaccessible, they must be left alone or released (for example, CorAcqDeviceRelease). When a Sapera application starts, all detected servers are automatically accessible. However, some Sapera camera devices (GigE-Vision and GenCP) can be connected and disconnected while a Sapera application is running. When such a device is connected for the first time, its server is automatically accessible. When the device is later disconnected, the server becomes unaccessible. If it is reconnected again, the server is once again accessible. Accessibility of servers can also be determined by registering callbacks for server related events using CorManRegisterCallbackEx. Note that you should not use this function for devices which are always connected (for example., frame grabbers), since the return value may not correspond to the actual resource accessibility for the corresponding server.	
Input	*index*	Server index
Output	None	
Return Value	TRUE if server is accessible, FALSE otherwise	
See Also	CorManRegisterCallbackEx	

CorManIsSystemHandle

Check for a system handle

Prototype	BOOLEAN **CorManIsSystemHandle**(CORHANDLE *handle*);
Description	Checks for a handle belonging to the 'System' server.
Input	*handle* SAPERA handle
Output	None
Return Value	TRUE if handle is a System handle, FALSE otherwise

CorManLogMessage

Appends a "printf-like" user string to the Sapera Log Viewer output

Prototype	CORSTATUS **CorManLogMessage**(UINT32 *logtype*, PCSTR *msg*, PCSTR *file*, UINT32 *line*)
Description	This function allows the appended user string to implement formatting as available with the *printf* function so as to display any data type.
Input	*logtype* Error level: CORLOG_TYPEID_ERR (Normal error) CORLOG_TYPEID_FAT (Fatal error) CORLOG_TYPEID_WRN (Warning) CORLOG_TYPEID_INF (Information)
	msg A "printf-like" string containing the message to display.
	file String containing the file name in which the error occurred. The macro *__FILE__* can be used to specify the current file.
	line Line number where the error occurred. The macro *__LINE__* can be used to specify the current line.
Output	None
Return Value	CORSTATUS_OK and CORSTATUS_ARG_NULL

CorManLogStatus

Appends a predefined status string to the Sapera Log Viewer output

Prototype	CORSTATUS **CorManLogStatus**(CORSTATUS *status*, PCSTR *file*, UINT32 *line*)
Description	The appended string is composed with three different status fields. This function does not allow custom formatting. A custom message can be appended by extracting the required status fields with *CorManGetStatusTextEx*, and then formatted using *CorManLogMessage.*
Input	*status* Error status returned by any Sapera function.
	file String containing the file name in which the error occurred. The macro *__FILE__* can be used to specify the current file.
	line Line number where the error occurred. The macro *__LINE__* can be used to specify the current line.
Output	None
Return Value	CORSTATUS_OK and CORSTATUS_ARG_NULL
See Also	CorManGetStatusTextEx

CorManMapBuffer

Map a contiguous memory block in current process address space

Prototype	CORSTATUS **CorManMapBuffer**(UINT32 *physAddr*, UINT32 *size*, void ***virtualAddr*);	
Description	Maps a contiguous memory block in current process address space	
Input	*physAddr*	Physical address of a contiguous memory block
	size	Contiguous memory block size in bytes
Output	*virtualAddr*	Virtual address of the contiguous memory block
Return Value	CORSTATUS_OK CORSTATUS_NO_MEMORY	
Note	To unmap a previously mapped contiguous memory block use CorManUnmapBuffer.	
See Also	CorManUnmapBuffer	

CorManOpen

Initializes the Sapera standard API

Prototype	CORSTATUS **CorManOpen**(void);
Description	Initiates access to the standard C library. This must be the first Sapera call in an application program.
Return Value	CORSTATUS_OK CORSTATUS_INSUFFICIENT_RESOURCES
Notes	This function must not be called from the DllMain function of a Windows DLL
See Also	CorManClose

CorManRegisterCallback

Register a callback function to be called when receiving a user command

Prototype	CORSTATUS **CorManRegisterCallback**(CORSERVER *hServer*, PCORMANCALLBACK *callback*);	
Description	Registers a callback function to be called when receiving a user command	
Input	*hServer*	Server handle.
	callback	Callback function to call
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
Note	The callback function must be defined as: CORSTATUS CCONV callbackFct(UINT32 cmd, void *inData, UINT32 inDataSize, void *outData, UINT32 outDataSize);	
See Also	CorManUnregisterCallback and CorManUserCmd	

CorManRegisterCallbackEx

Register a callback function for server related events

Prototype	CORSTATUS **CorManRegisterCallbackEx**(UINT32 *eventType*, PCOREVENTINFOCALLBACK *callback*, void **context*);	
Description	Registers a callback function for server related events. The callback function provides information on the corresponding event (in the *COREVENTINFO* handle). Refer to the *EventInfo* module for more detail on the available information. The context pointer is also returned by the callback function allowing you to exchange user information between the callback and your application context. Note that server related events are only available when dealing with Sapera camera devices (GigE-Vision and GenCP), that can be connected and disconnected while a Sapera application is running.	
Input	*eventType*	Type of event to register. The callback function will be called when the specified event(s) occur. The values may be ORed if more than one event is desired. The CORMAN_VAL_EVENT_TYPE_SERVER_NEW event occurs when a new device is connected while a Sapera application is already running. The CORMAN_VAL_EVENT_TYPE_SERVER_DISCONNECTED event occurs when the device corresponding to an existing server is disconnected (replaces CORMAN_VAL_EVENT_TYPE_SERVER_NOT_ACCESSIBLE, which is now deprecated). The CORMAN_VAL_EVENT_TYPE_SERVER_CONNECTED event occurs when the device corresponding to an existing, unaccessible server is reconnected (replaces CORMAN_VAL_EVENT_TYPE_SERVER_ACCESSIBLE, which is now deprecated). The CORMAN_VAL_EVENT_TYPE_SERVER_DATABASE_FULL event occurs when there is no room left in the Sapera server database for a new device that has just been connected.

	callback	Address of a user callback function of the following form:
		
		`CORSTATUS CCONV MyCallback(void *context, COREVENTINFO hEventInfo)`
		`{`
		`}`

	context	Pointer to user storage (that is, variable, structure, buffer, etc). Can be NULL.
Output	None	In the callback function, obtain the event type that triggered the callback by reading COREVENTINFO_PRM_EVENT_TYPE. For all events except the last, you can obtain a handle to the server by calling *CorManGetServerByIndex* using the server index specified by COREVENTINFO_PRM_SERVER_INDEX.
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *callback* is NULL), CORSTATUS_NOT_AVAILABLE, CORSTATUS_RESOURCE_IN_USE, CORSTATUS_TIMEOUT	
Notes		
See Also	CorManIsServerAccessible, CorManRegisterCallbackEx	

CorManRegisterHandle

Adds a handle to the local handle database to allow other servers to access it.

Prototype	CORSTATUS **CorManRegisterHandle**(CORHANDLE *handle*, PSTR *name*, PUINT32 *pIndex*);	
Description	By registering a handle using this function you allow all other servers to get this handle through CorManGetHandleByIndex or CorManGetHandleByName.	
Input	*handle*	handle to register.
	name	Name to give the handle in the database. If NULL, a default name "Handle_X" is given, where "X" corresponds to the index returned by *pIndex* (for example, Handle_0, Handle_1, …).
Output	*pIndex*	Index in the handle database where the handle is added. Can be NULL.
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorManUnregisterHandle, CorManGetHandleByIndex and CorManGetHandleByName	

CorManReleaseHandle

Releases a handle obtained from *CorManGetHandleByName* or *CorManGetHandleByIndex.*

Prototype	CORSTATUS **CorManReleaseHandle**(CORHANDLE *handle*);	
Description	Releases a handle obtained from *CorManGetHandleByName* or *CorManGetHandleByIndex*.	
Input	*handle*	Handle to release.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorManGetHandleByIndex and CorManGetHandleByName	

CorManReleaseServer

Release server handle

Prototype	CORSTATUS **CorManReleaseServer**(CORSERVER *hServer*);	
Description	Releases server handle.	
Input	*hServer*	Server handle.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorManGetLocalServer, CorManGetRemoteServerByName, CorManGetServerByIndex and CorManGetServerByName	

CorManResetServer

Resets server (hardware reset)

Prototype	CORSTATUS **CorManResetServer**(CORSERVER *hServer*);
Description	Performs a hardware reset on a server.
Input	*hServer* Server handle.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
Notes	After calling this function, all resources from the server cannot be used anymore; they must be released first.

CorManSetLocalServerName

Set local server name

Prototype	CORSTATUS **CorManSetLocalServerName**(const char **serverName*);
Description	Sets a new name for the server corresponding to current process
Input	*serverName* New name for local server
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL *(if serverName is NULL)* CORSTATUS_RESOURCE_LOCKED
Note	Defines an alias for the server corresponding to the current process, so that its handle can be retrieved from a remote server.
See Also	CorManGetLocalServer and CorManGetRemoteServerByName

CorManSoftResetServer

Resets server (software reset)

Prototype	CORSTATUS **CorManSoftResetServer**(CORSERVER *hServer*);
Description	Performs a software reset on a server.
Input	*hServer* Server handle.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
Notes	After calling this function, all resources from the server cannot be used anymore; they must be released first.

CorManSetTimeout

Set communication timeout

Prototype	void **CorManSetTimeout**(UINT32 *timeOut*);
Description	Sets communication timeout.
Input	*timeOut* Communication timeout in milliseconds.
Output	None
Return Value	(none; function has void return type)

CorManUnmapBuffer

Unmap a contiguous memory block in current process address space

Prototype	CORSTATUS **CorManUnmapBuffer(** void **virtualAddr*);
Description	Unmaps a contiguous memory block in current process address space
Input	*virtualAddr* Previously mapped virtual address to be unmapped.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL *(if virtualAddr is NULL)*
See Also	CorManMapBuffer

CorManUnregisterCallback

Unregister the callback function to be called when receiving a user command

Prototype	CORSTATUS **CorManUnregisterCallback**(CORSERVER *hServer*);
Description	Unregisters the callback function to be called when receiving a user command
Input	*hServer* Server handle.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorManRegisterCallback and CorManUserCmd

CorManUnregisterCallbackEx

Unregister the callback function for server related events

Prototype	CORSTATUS **CorManUnregisterCallbackEx**(void);
Description	Unregisters the callback function for server related events.
Input	None
Output	None
Return Value	CORSTATUS_OK CORSTATUS_TIMEOUT
See Also	CorManRegisterCallbackEx

CorManUnregisterHandle

Removes a handle from the local handle database

Prototype	CORSTATUS **CorManUnregisterHandle**(CORHANDLE *handle*);
Description	Removes a handle from the local handle database. This function must be used to remove a handle previously added by *CorManRegisterHandle*.
Input	*handle* Handle to unregister.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
See Also	CorManRegisterHandle

CorManUserCmd

Send a user command to a remote server

Prototype	CORSTATUS **CorManUserCmd**(CORSERVER *hServer*, UINT32 *cmd*, void **inData*, UINT32 *inDataSize*, void **outData*, UINT32 *outDataSize*);
Description	Sends a user command to a server. To receive a user command, use CorManRegisterCallback to register a callback function to be called when receiving a user command from a server. To unregister the callback function use CorManUnregisterCallback.
Input	*hServer* Server handle. *cmd* User command number (0 .. 65536). *inData* Input data. *inDataSize* Input data size in bytes. *outData* Output data. *outDataSize* Output data size in bytes.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE
Note	*inData* allows data to be sent along with the user command to the registered callback function; *outData* allows data to be received resulting from the execution of the user command. Both *inData* and *outData* can be specified as *NULL*.
See Also	CorManRegisterCallback CorManUnregisterCallback

CorManWaitForServerReady

Wait until a given server is ready

Prototype	CORSTATUS **CorManWaitForServerReady**(CORSERVER *hServer*, UINT32 *timeOut*);
Description	Waits until a given server is ready. The function returns CORSTATUS_OK as soon as the server is ready, or with CORSTATUS_TIMEOUT if the *timeOut* seconds have elapsed.
Input	*hServer* Server handle *timeOut* Maximum time (in seconds) to wait
Output	None
Return Value	CORSTATUS_OK CORSTATUS_TIMEOUT
See Also	CorManGetServerByIndex and CorManGetServerByName

CorManWriteFile

Returns the file transfer progress

Prototype	CORSTATUS **CorManWriteFile**(CORSERVER *hServer*,PCSTR *localFileName* UINT32 *deviceFileIndex*;
Description	Returns the file transfer progress, as a percentage of the file size, when transferring a file to non-volatile memory on a device. See the acquisition device User's Manual for the list of supported files.
Input	*hServer* Server handle *localFileName* Name of the device file. See the acquisition device User's Manual for the list of supported files. *deviceFileIndex* Index of the file. All indices in the range from 0 to the value returned by the GetFileCount method, minus 1, are valid.
Output	None
Return Value	CORSTATUS_OK
See Also	CorManGetServerByIndex and CorManGetServerByName

Transfer Module

The Transfer Module is responsible for moving data between various sources and destinations.

Capabilities

ID	Capability
0x00	*Reserved*
0x01	CORXFER_CAP_EVENT_TYPE
0x02	CORXFER_CAP_CROP_HORZ
0x03	CORXFER_CAP_CROP_LEFT_MIN
0x04	CORXFER_CAP_CROP_LEFT_MAX
0x05	CORXFER_CAP_CROP_LEFT_MULT
0x06	CORXFER_CAP_CROP_VERT
0x07	CORXFER_CAP_CROP_TOP_MIN
0x08	CORXFER_CAP_CROP_TOP_MAX
0x09	CORXFER_CAP_CROP_TOP_MULT
0x0a	CORXFER_CAP_CROP_WIDTH_MIN
0x0b	CORXFER_CAP_CROP_WIDTH_MAX
0x0c	CORXFER_CAP_CROP_WIDTH_MULT
0x0d	CORXFER_CAP_CROP_HEIGHT_MIN
0x0e	CORXFER_CAP_CROP_HEIGHT_MAX
0x0f	CORXFER_CAP_CROP_HEIGHT_MULT
0x10	CORXFER_CAP_SCALE_HORZ_METHOD
0x11	CORXFER_CAP_SCALE_HORZ_MIN
0x12	CORXFER_CAP_SCALE_HORZ_MAX
0x13	CORXFER_CAP_SCALE_HORZ_MULT
0x14	CORXFER_CAP_SCALE_HORZ_MIN_FACTOR
0x15	CORXFER_CAP_SCALE_HORZ_MAX_FACTOR
0x16	CORXFER_CAP_SCALE_VERT_METHOD
0x17	CORXFER_CAP_SCALE_VERT_MIN
0x18	CORXFER_CAP_SCALE_VERT_MAX
0x19	CORXFER_CAP_SCALE_VERT_MULT
0x1a	CORXFER_CAP_SCALE_VERT_MIN_FACTOR
0x1b	CORXFER_CAP_SCALE_VERT_MAX_FACTOR
0x1c	CORXFER_CAP_COUNTER_STAMP_EVENT_TYPE
0x1d	CORXFER_CAP_MAX_XFER_SIZE
0x1e	CORXFER_CAP_SCALE_HORZ
0x1f	CORXFER_CAP_SCALE_VERT
0x20	CORXFER_CAP_FLIP
0x21	CORXFER_CAP_NB_INT_BUFFERS
0x22	CORXFER_CAP_EVENT_COUNT_SOURCE
0x23	CORXFER_CAP_MAX_FRAME_COUNT
	Reserved
0x25	CORXFER_CAP_COUNTER_STAMP_AVAILABLE
0x26	CORXFER_CAP_COUNTER_STAMP_TIME_BASE
0x27	CORXFER_CAP_COUNTER_STAMP_MAX

0x28	CORXFER_CAP_CYCLE_MODE
0x29	CORXFER_CAP_FLATFIELD
0x2d	CORXFER_CAP_PROCESSING_MODE
0x30	CORXFER_CAP_BUFFER_TIMESTAMP_MODULE_ACQ
0x31	CORXFER_CAP_BUFFER_TIMESTAMP_EVENT_ACQ
0x32	CORXFER_CAP_BUFFER_TIMESTAMP_MODULE_XFER
0x33	CORXFER_CAP_BUFFER_TIMESTAMP_EVENT_XFER
0x34	CORXFER_CAP_LINE_MERGING
0x35	CORXFER_CAP_EVENT_TYPE_EX
0x36	CORXFER_CAP_LEVEL_EVENT_TYPE

CORXFER_CAP_BUFFER_TIMESTAMP_EVENT_ACQ

Description	Available events from the acquisition module
Type	UINT32
Values	CORACQ_VAL_EVENT_TYPE_EXTERNAL_TRIGGER (0x01000000) CORACQ_VAL_EVENT_TYPE_START_OF_FRAME (0x00080000) CORACQ_VAL_EVENT_TYPE_END_OF_FRAME (0x00800000).
Note	See CORXFER_PRM_BUFFER_TIMESTAMP_EVENT. The returned value is the ORed combination of the valid values

CORXFER_CAP_BUFFER_TIMESTAMP_MODULE_ACQ

Description	Specifies if the acquisition module supports host buffer timestamps.
Type	UINT32
Values	TRUE, host timestamp is available. FALSE, host timestamp is not available.
Note	See CORXFER_PRM_BUFFER_TIMESTAMP_EVENT and CORBUFFER_PRM_.

CORXFER_CAP_BUFFER_TIMESTAMP_EVENT_XFER

Description	Available events from the transfer module.
Type	UINT32
Values	CORXFER_VAL_EVENT_TYPE_START_OF_FRAME (0x00080000) CORXFER_VAL_EVENT_TYPE_END_OF_FRAME (0x00800000).
Note	See CORXFER_PRM_BUFFER_TIMESTAMP_EVENT and CORBUFFER_PRM_. The returned value is the ORed combination of the valid values.

CORXFER_CAP_BUFFER_TIMESTAMP_MODULE_XFER

Description	Specifies if the transfer module supports host buffer timestamps.
Type	UINT32
Values	TRUE, host timestamp is available. FALSE, host timestamp is not available.
Note	See CORXFER_PRM_BUFFER_TIMESTAMP_EVENT and CORBUFFER_PRM_.

CORXFER_CAP_COUNTER_STAMP_AVAILABLE

Description Specifies if the transfer resource supports a counter stamp.

Type UINT32

Values TRUE, Counter stamp is available.
FALSE, Counter stamp is not available.

CORXFER_CAP_COUNTER_STAMP_MAX

Description Specifies the maximum value for the counter stamp

Type UINT32

Values

Note Only valid if CORXFER_CAP_COUNTER_STAMP_AVAILABLE is TRUE

CORXFER_CAP_COUNTER_STAMP_TIME_BASE

Description Specifies the counter stamp time base values available

Type UINT32

Values See CORXFER_PRM_COUNTER_STAMP_BASE..

Note The returned value is the ORed combination of the valid values.
Only valid if CORXFER_CAP_COUNTER_STAMP_AVAILABLE is TRUE.

CORXFER_CAP_COUNTER_STAMP_EVENT_TYPE

Description Specifies the event type(s) that will perform a counter stamp of the transfer destination.

Type UINT32

Values See CORXFER_PRM_EVENT_TYPE.

Note The returned value is the ORed combination of the valid values.

CORXFER_CAP_CROP_HEIGHT_MAX

Description Specifies the maximum supported cropping height value (in lines) of the transferred data.

Type UINT32

CORXFER_CAP_CROP_HEIGHT_MIN

Description Specifies the minimum supported cropping height value (in lines) of the transferred data.

Type UINT32

CORXFER_CAP_CROP_HEIGHT_MULT

Description Specifies the supported cropping height granularity (in lines) of the transferred data.

Type UINT32

CORXFER_CAP_CROP_HORZ

Description Specifies if the transfer device supports horizontal cropping of the transferred data.

Type UINT32

Values TRUE, Horizontal cropping is supported.
FALSE, Horizontal cropping is not supported.

CORXFER_CAP_CROP_LEFT_MAX

Description Specifies the maximum supported left side cropping value (in pixels) of the transferred data.

Type UINT32

CORXFER_CAP_CROP_LEFT_MIN

Description Specifies the minimum supported left side cropping value (in pixels) of the transferred data.

Type UINT32

CORXFER_CAP_CROP_LEFT_MULT

Description Specifies the supported left side cropping granularity (in pixels) of the transferred data.

Type UINT32

CORXFER_CAP_CROP_TOP_MAX

Description Specifies the maximum supported cropping value (in lines) for the top of the transferred data.

Type UINT32

CORXFER_CAP_CROP_TOP_MIN

Description Specifies the minimum supported cropping value (in lines) for the top of the transferred data

Type UINT32

CORXFER_CAP_CROP_TOP_MULT

Description Specifies the supported cropping granularity (in lines) for the top of the transferred data.

Type UINT32

CORXFER_CAP_CROP_VERT

Description Specifies if the transfer device supports vertical cropping of the transferred data.

Type UINT32

Values TRUE, Vertical cropping is supported.
FALSE, Vertical cropping is not supported.

CORXFER_CAP_CROP_WIDTH_MAX

Description Specifies the maximum supported cropping width value (in pixels) of the transferred data.

Type UINT32

CORXFER_CAP_CROP_WIDTH_MIN

Description Specifies the minimum supported width cropping value (in pixels) of the transferred data.

Type UINT32

CORXFER_CAP_CROP_WIDTH_MULT

Description Specifies the supported cropping granularity (in pixels) for the width of the transferred data.

Type UINT32

CORXFER_CAP_CYCLE_MODE

Description	Specifies the different cycle modes supported by the transfer module for the current transfer level.
Type	UINT32
Values	See CORXFER_PRM_CYCLE_MODE.
Note	Use the macro CORXFER_IS_CYCLE_MODE_SUPPORTED to test for the valid cycle mode.
Example Code	#define CORXFER_CAP_CYCLE_MODE CORXFER_CAP(40, 4)

```
// use this macro to check if a cycle mode is supported
// cap is the capability of the transfer level
// cycleMode is a CORXFER_VAL_CYCLE_MODE_XXXX value
#define CORXFER_IS_CYCLE_MODE_SUPPORTED(cap,cycleMode) (((cap)&(1 << ((cycleMode)
& 31))) != 0)
```

CORXFER_CAP_EVENT_COUNT_SOURCE

Description	Specifies the possible handle types that can increase the event count for each call to the transfer callback function.
Type	UINT32
Values	See CORXFER_PRM_EVENT_TYPE.
Note	The returned value is the ORed combination of the valid values.

CORXFER_CAP_EVENT_TYPE

Description	Specifies the event type(s) that can be registered.
Type	UINT32
Values	See CORXFER_PRM_EVENT_TYPE.
Note	The returned value is the ORed combination of the valid values.

CORXFER_CAP_EVENT_TYPE_EX

Description	Specifies the event type(s) that can be registered.
Type	UINT64
Values	See CORXFER_PRM_EVENT_TYPE.
Note	The returned value is the ORed combination of the valid values. This is a 64-bit version of the CORXFER_CAP_EVENT_TYPE capability, where the 32 LSBs of the 2 capabilities are always the same.

CORXFER_CAP_FLATFIELD

Description	Specifies the different flatfield modes supported by the transfer module.
Type	BOOL
Values	CORXFER_VAL_FLATFIELD_NOT_SUPPORTED (0x00000000) CORXFER_VAL_FLATFIELD_SUPPORTED (0x00000001) See CORXFER_PRM_FLATFIELD_NUMBER.

CORXFER_CAP_FLIP

Description	Specifies the different flipping modes supported by the transfer module.
Type	UINT32
Values	See CORXFER_PRM_FLIP
Note	The returned value is the ORed combination of the valid values.

CORXFER_CAP_LEVEL_EVENT_TYPE

Description	Specifies the events available on a level.
Type	UINT64
Values	See CORXFER_PRM_EVENT_TYPE_EX`
Note	The returned value is the ORed combination of the valid values.

CORXFER_CAP_LINE_MERGING

Description	Specifies the different line merging modes supported by the transfer module.
Type	BOOL
Values	CORXFER_VAL_LINE_MERGING_AUTO (0x00000000) CORXFER_VAL_LINE_MERGING_ON (0x00000001) CORXFER_VAL_LINE_MERGING_OFF (0x00000002) See CORXFER_PRM_LINE_MERGING.

CORXFER_CAP_MAX_FRAME_COUNT

Description	Specifies the maximum number of frames that can be acquired in a sequential grab, that is, when calling the CorXferStart function with a count argument not equal to CORXFER_CONTINUOUS
Type	UINT32

CORXFER_CAP_MAX_XFER_SIZE

Description	Specifies the maximum number of bytes the transfer device can transfer.
Type	UINT32

CORXFER_CAP_NB_INT_BUFFERS

Description	Gets the internal buffer capability of the board. This is the creation mode of the internal buffers.
Type	UINT32
Values	CORXFER_VAL_NB_INT_BUFFERS_NONE (0x00000000), none available. CORXFER_VAL_NB_INT_BUFFERS_MANUAL (0x00000001), created by the application. The user must create the internal buffer by using a handle to the board, and then append the buffer to the Xfer module. The number of possible buffers is limited by the size of the frame grabber's internal buffer memory. CORXFER_VAL_NB_INT_BUFFERS_AUTO (0x00000002), automatically created. The internal buffers are not accessible by the user. When buffers are created automatically, use CORXFER_PRM_NB_INT_BUFFERS to set the number of internal buffers.

CORXFER_CAP_PROCESSING_MODE

Description Gets the processing capability of the board.

Type UINT32

Values See CORXFER_PRM_PROCESSING_MODE.

Note The processing behavior is specific to the board driver. See the board user's manual for more information about the processing.

CORXFER_CAP_SCALE_HORZ

Description Specifies if the transfer device supports horizontal scaling.

Type UINT32

Values TRUE, Horizontal scaling is available.
FALSE, Horizontal scaling is not available.

CORXFER_CAP_SCALE_HORZ_MAX

Description Specifies the maximum number of pixels that can be output by the transfer resource.

Type UINT32

CORXFER_CAP_SCALE_HORZ_MAX_FACTOR

Description Specifies the maximum horizontal upscaling ratio supported by the transfer resource.

Type UINT32

Notes The ratio is equal to CORXFER_CAP_SCALE_HORZ_MAX_FACTOR/ CORXFER_VAL_SCALE_FACTOR

CORXFER_CAP_SCALE_HORZ_METHOD

Description Specifies the different horizontal scaling methods supported by the transfer resource.

Type UINT32

Values See CORXFER_PRM_SCALE_HORZ_METHOD.

Note The returned value is the ORed combination of the valid values.

CORXFER_CAP_SCALE_HORZ_MIN

Description Specifies the minimum number of pixels that can be output by the transfer resource.

Type UINT32

CORXFER_CAP_SCALE_HORZ_MIN_FACTOR

Description Specifies the minimum horizontal downscaling ratio supported by the transfer resource.

Type UINT32

Note The ratio is equal to 1/(COXFER_CAP_SCALE_HORZ_MIN_FACTOR/ CORXFER_VAL_SCALE_FACTOR).

CORXFER_CAP_SCALE_HORZ_MULT

Description Specifies the granularity (in pixels) that can be output by the transfer resource.

Type UINT32

CORXFER_CAP_SCALE_VERT

Description Specifies if the transfer resource supports vertical scaling.

Type UINT32

Values TRUE, Vertical scaling is available.
FALSE, Vertical scaling is not available.

CORXFER_CAP_SCALE_VERT_MAX

Description Specifies the maximum number of lines that can be output by the transfer resource.

Type UINT32

CORXFER_CAP_SCALE_VERT_MAX_FACTOR

Description Specifies the maximum vertical upscaling ratio supported by the transfer resource.

Type UINT32

Note The ratio is equal to:
CORXFER_CAP_SCALE_VERT_MAX_FACTOR/ CORXFER_VAL_SCALE_FACTOR.

CORXFER_CAP_SCALE_VERT_METHOD

Description Specifies the different vertical scaling methods supported by the transfer resource.

Type UINT32

Values See CORXFER_PRM_SCALE_VERT_METHOD.

Note The returned value is the ORed combination of the valid values.

CORXFER_CAP_SCALE_VERT_MIN

Description Specifies the minimum number of lines that can be output by the transfer resource.

Type UINT32

CORXFER_CAP_SCALE_VERT_MIN_FACTOR

Description Specifies the minimum vertical downscaling ratio supported by the transfer resource.

Type UINT32

Note The ratio is equal to:
1/(CORXFERCAP_SCALE_VERT_MIN_FACTOR/ CORXFER_VAL_SCALE_FACTOR).

CORXFER_CAP_SCALE_VERT_MULT

Description Specifies the vertical granularity (in lines) that can be output by the transfer resource.

Type UINT32

Parameters

ID	Parameter	Attribute
0x00	*Reserved*	------------
0x01	*Reserved*	------------
0x02	CORXFER_PRM_CROP_LEFT	Read/Write
0x03	CORXFER_PRM_CROP_TOP	Read/Write
0x04	CORXFER_PRM_CROP_WIDTH	Read/Write
0x05	CORXFER_PRM_CROP_HEIGHT	Read/Write
0x06	CORXFER_PRM_SCALE_HORZ	Read/Write
0x07	CORXFER_PRM_SCALE_VERT	Read/Write
0x08	CORXFER_PRM_SCALE_HORZ_METHOD	Read/Write
0x09	CORXFER_PRM_SCALE_VERT_METHOD	Read/Write
0x0a	CORXFER_PRM_EVENT_TYPE	Read Only
0x0b	CORXFER_PRM_EVENT_COUNT	Read Only
0x0c	CORXFER_PRM_START_MODE	Read/Write
0x0d	CORXFER_PRM_TIMEOUT	Read/Write
0x0e	CORXFER_PRM_CYCLE_MODE	Read/Write
0x0f	CORXFER_PRM_EVENT_SERVER	Read Only
0x10	CORXFER_PRM_EVENT_CALLBACK	Read Only
0x11	CORXFER_PRM_EVENT_CONTEXT	Read Only
0x12	CORXFER_PRM_FLIP	Read/Write
0x13	CORXFER_PRM_NB_INT_BUFFERS	Read/Write
0x14	CORXFER_PRM_EVENT_COUNT_SOURCE	Read/Write
0x15	*Reserved*	
0x16	CORXFER_PRM_COUNTER_STAMP_BASE	Read/Write
0x17	CORXFER_PRM_FLATFIELD_NUMBER	Read/Write
0x1b	CORXFER_PRM_PROCESSING_MODE	Read/Write
0x1e	CORXFER_PRM_BUFFER_TIMESTAMP_MODULE	Read/Write
0x1f	CORXFER_PRM_BUFFER_TIMESTAMP_EVENT	Read/Write
0x20	CORXFER_PRM_LINE_MERGING	Read/Write
0x21	CORXFER_PRM_EVENT_TYPE_EX	Read/Write
0x22	CORXFER_PRM_LEVEL_EVENT_CALLBACK	Read Only
0x23	CORXFER_PRM_LEVEL_EVENT_CONTEXT	Read Only
0x24	CORXFER_PRM_LEVEL_EVENT_COUNT	Read Only
0x25	CORXFER_PRM_LEVEL_EVENT_SERVER	Read Only
0x26	CORXFER_PRM_LEVEL_EVENT_TYPE	Read/Write

CORXFER_PRM_BUFFER_TIMESTAMP_MODULE

Description	Selects from which module an event will set the buffer parameter CORBUFFER_PRM_.
Type	UINT32
Values	CORXFER_VAL_BUFFER_TIMESTAMP_MODULE_XFER (0x00000013), the timestamp event comes from the xfer module CORXFER_VAL_BUFFER_TIMESTAMP_MODULE_ACQ (0x00000001), the timestamp event comes from the acquisition module
Note	The parameter must be set before calling CorXferConnect

CORXFER_PRM_BUFFER_TIMESTAMP_EVENT

Description	Selects the event that will set the buffer parameter CORBUFFER_PRM_.
Type	UINT32
Values	CORXFER_VAL_EVENT_TYPE_START_OF_FRAME (0x00080000) [1] CORXFER_VAL_EVENT_TYPE_END_OF_FRAME (0x00800000) CORACQ_VAL_EVENT_TYPE_EXTERNAL_TRIGGER (0x01000000) [2] CORACQ_VAL_EVENT_TYPE_START_OF_FRAME (0x00080000) [2] CORACQ_VAL_EVENT_TYPE_END_OF_FRAME (0x00800000)
Note	1. Only if CORXFER_PRM_BUFFER TIMESTAMP_MODULE is equal to CORXFER_VAL_BUFFER_TIMESTAMP_MODULE_XFER 2. Only if CORXFER_PRM_BUFFER TIMESTAMP_MODULE is equal to CORXFER_VAL_BUFFER_TIMESTAMP_MODULE_ACQ See CORXFER_PRM_BUFFER TIMESTAMP_MODULE, CORBUFFER_PRM_HOST_COUNTER_STAMP. The parameter must be set before calling CorXferConnect.

CORXFER_PRM_COUNTER_STAMP_BASE

Description	Sets the counter stamp time base.
Type	UINT32
Values	CORXFER_VAL_TIME_BASE_US (0x00000001), the time base is in micro-seconds CORXFER_VAL_TIME_BASE_MS (0x00000002), the time base is in milli-seconds CORXFER_VAL_TIME_BASE_LINE_TRIGGER (0x00000004), the time base is in external line trigger or shaft encoder pulse counts after drop and multiply factors. CORXFER_VAL_TIME_BASE_LINE (0x00000008), the time base is in line valid CORXFER_VAL_TIME_BASE_FRAME (0x00000010), the time base is in frame valid or VS CORXFER_VAL_TIME_BASE_EXT_FRAME_TRIGGER (0x00000020), the time base is in external trigger counts CORXFER_VAL_TIME_BASE_SHAFT_ENCODER (0x00000040), the time base is the shaft encoder input (before drop or/and multiply factors.
Note	Only valid if CORXFER_CAP_COUNTER_STAMP_AVAILABLE is TRUE. See CORXFER_CAP_COUNTER_STAMP_TIME_BASE.

CORXFER_PRM_CROP_HEIGHT

Description	Cropped height of the transferred data (in lines).
Type	UINT32

CORXFER_PRM_CROP_LEFT

Description	Number of pixels to crop from the left side of the transferred data.
Type	UINT32

CORXFER_PRM_CROP_TOP

Description	Number of lines to crop from the top of the transferred data.
Type	UINT32

CORXFER_PRM_CROP_WIDTH

Description	Cropped width of the transferred data (in pixels).
Type	UINT32

CORXFER_PRM_CYCLE_MODE

Description Sets the mode used by the transfer device to specify which buffer gets the next data transfer.

Type UINT32

Values The available modes differ by the way in which they specify which buffer gets the next data transfer.

The empty state refers to the case where buffer data has been completely processed and may be overwritten. It is set by application code as soon as it has finished processing buffer data.

The full state refers to the case where buffer data has not been processed since its latest data transfer. It is set by the transfer device as soon as a data transfer has completed.

The current buffer is the one in which the latest data transfer occurred.

The next buffer is the one immediately after the current buffer, with wraparound to the first buffer at the end of the list.

The trash buffer is defined as the last buffer in the list for the WITH_TRASH modes only. Its state is always considered to be empty by the transfer device.

CORXFER_VAL_CYCLE_MODE_ASYNCHRONOUS (0x00000000),
Always transfer to the next buffer regardless of its state.

CORXFER_VAL_CYCLE_MODE_SYNCHRONOUS (0x00000001),
If next buffer is empty, then transfer to next buffer, otherwise, transfer to current buffer.

CORXFER_VAL_CYCLE_MODE_SYNCHRONOUS_WITH_TRASH (0x00000002),
If next buffer is empty, then transfer to the next buffer, otherwise, transfer to the trash buffer. Repeat transferring to the trash buffer as long as the next buffer is full.

CORXFER_VAL_CYCLE_MODE_OFF (0x00000003),
Always transfer to the current buffer.

CORXFER_VAL_CYCLE_MODE_NEXT_EMPTY (0x00000004),
If next buffer is empty, then transfer to next buffer, otherwise, transfer to next empty buffer in the list. If all buffers are full, then transfer to current buffer.

CORXFER_VAL_CYCLE_MODE_SYNCHRONOUS_NEXT_EMPTY_WITH_TRASH (0x00000005),
If next buffer is empty, then transfer to next buffer, otherwise, transfer to next empty buffer in the list. If all buffers are full, then transfer to trash buffer. Repeat transferring to the trash buffer as long as there is no empty buffer in the list.

See Also CORBUFFER_PRM_STATE

CORXFER_PRM_EVENT_CALLBACK

Description Callback registered using the function CorXferRegisterCallback for the current item selected.

Type PCORCALLBACK

Values Pointer to the callback function registered.

Note This parameter is read-only.

CORXFER_PRM_EVENT_CONTEXT

Description Context pointer registered using the function CorXferRegisterCallback for the current item selected..

Type void *

Values Pointer to the context.

Note This parameter is read-only.

CORXFER_PRM_EVENT_COUNT

Description	Number of events that have occurred for the current item selected since a callback function was registered using the CorXferRegisterCallback function.
Type	UINT32
Note	This parameter is read-only.

CORXFER_PRM_EVENT_COUNT_SOURCE

Description	Handle type that increases the event count for each call to the transfer callback function.
Type	UINT32
Values	CORXFER_VAL_EVENT_COUNT_SOURCE_DST (0x0000001) The event count is associated with the destination handle, which is usually a buffer. This means that all buffers in a list have their own event count. CORXFER_VAL_EVENT_COUNT_SOURCE_SRC (0x0000002) The event count is associated with the source handle which is usually an acquisition device. This means that the count increases at each acquired frame.

CORXFER_PRM_EVENT_SERVER

Description	Server to which an event notification through a callback function will be made.
Type	CORSERVER
Values	Server handle.
Note	This parameter is read-only.

CORXFER_PRM_EVENT_TYPE

Description	Event to be signaled while a transfer is in progress.
Type	UINT32
Values	CORXFER_VAL_EVENT_TYPE_START_OF_FIELD (0x00010000) Call the callback function at the start of an odd or even field. CORXFER_VAL_EVENT_TYPE_START_OF_ODD (0x0020000) Call the callback function at the start of an odd field. CORXFER_VAL_EVENT_TYPE_START_OF_EVEN (0x00040000) Call the callback function at the start of an even field. CORXFER_VAL_EVENT_TYPE_START_OF_FRAME (0x00080000) Call the callback at the start of a frame. CORXFER_VAL_EVENT_TYPE_END_OF_FIELD (0x00100000) Call the callback function at the end of an odd or even field. CORXFER_VAL_EVENT_TYPE_END_OF_ODD (0x00200000) Call the callback function at the end of an odd field. CORXFER_VAL_EVENT_TYPE_END_OF_EVEN (0x00400000) Call the callback function at the end of an even field. CORXFER_VAL_EVENT_TYPE_END_OF_FRAME (0x00800000) Call the callback function at the end of a frame. CORXFER_VAL_EVENT_TYPE_END_OF_LINE (0x01000000) Call the callback function at end of line *n*. CORXFER_VAL_EVENT_TYPE_END_OF_NLINES (0x02000000) Call the callback function at end of *n* lines. CORXFER_VAL_EVENT_TYPE_END_OF_TRANSFER (0x04000000) Call the callback function at the end of a transfer. CORXFER_VAL_EVENT_TYPE_LINE_UNDERRUN (0x08000000) Call the callback function if during a transfer the number of active pixels per line received from a video source is smaller than requested. CORXFER_VAL_EVENT_TYPE_FIELD_UNDERRUN (0x10000000) Call the callback function if during a transfer the number of active lines per field received from a video source is smaller than requested.
Note	The values may be ORed if more than one event is desired.

CORXFER_PRM_EVENT_TYPE_EX

Description	Event to be signaled while a transfer is in progress.
Type	UINT64
Values	See CORXFER_PRM_EVENT_TYPE.
Note	The values may be ORed if more than one event is desired. This is a 64-bit version of the CORACQ_PRM_EVENT_TYPE parameter, the 32 LSBs of the 2 capabilities are always the same. Currently, values are the same as CORXFER_PRM_EVENT_TYPE. This 64-bit function provides for future expansion beyond the limits of the 32-bit CORXFER_PRM_EVENT_TYPE.

CORXFER_PRM_FLATFIELD_NUMBER

Description	The flatfield number used for the current source and destination.
Type	UINT32

CORXFER_PRM_FLIP

Description	The transfer module Flipping Mode control.
Type	UINT32
Values	CORXFER_VAL_FLIP_OFF (0x00000000), Will not flip incoming lines and frames. CORXFER_VAL_FLIP_HORZ (0x00000001), Will flip incoming lines for the current destination buffer; that is the rightmost pixels become the leftmost pixels. CORXFER_VAL_FLIP_VERT (0x00000002), Will flip incoming frames for the current destination buffer; that is the bottom lines become the top lines.
Limits	This value must match one of the supported capabilities of the transfer module given by CORXFER_CAP_FLIP

CORXFER_PRM_LEVEL_EVENT_CALLBACK

Description	Callback registered using the function CorXferRegisterCallbackEx for the level of the currently selected item.
Type	PCOREVENTINFOCALLBACK
Values	Pointer to the callback function registered.
Note	This parameter is read-only.

CORXFER_PRM_LEVEL_EVENT_CONTEXT

Description	Context pointer registered using the function CorXferRegisterCallbackEx for the level of the currently selected item.
Type	void *
Values	Pointer to the context.
Note	This parameter is read-only.

CORXFER_PRM_LEVEL_EVENT_COUNT

Description	Number of events that have occurred for the level of the currently selected item since a callback function was registered using the CorXferRegisterCallbackEx function.
Type	UINT64
Note	This parameter is read-only.

CORXFER_PRM_LEVEL_EVENT_SERVER

Description	Server to which an event notification through a callback function will be made based on the level of the currently selected item.
Type	CORSERVER
Values	Server handle.
Note	This parameter is read-only.

CORXFER_PRM_LEVEL_EVENT_TYPE

Description	Event to be signaled while a transfer is in progress based on the currently selected level..
Type	UINT64
Values	See CORXFER_PRM_EVENT_TYPE_EX.
Note	The values may be ORed if more than one event is required.

CORXFER_PRM_LINE_MERGING

Description	Sets the enable state of line merging. When supported by hardware, line merging allows multiple lines to be concatenated and considered as a single line (typically used in 8 or 10 tap formats) to increase the maximum throughput. By default, this feature is enabled. If processing requires that only single lines be output, this feature can be disabled.
Type	UINT32
Values	CORXFER_VAL_LINE_MERGING_AUTO (0x00000000), Automatically enables line merging if supported. CORXFER_VAL_LINE_MERGING_ON (0x00000001),Enable line merging. CORXFER_VAL_LINE_MERGING_OFF (0x00000002), Disable line merging.
Limits	This value must match one of the supported capabilities of the transfer module given by CORXFER_CAP_LINE_MERGING

CORXFER_PRM_NB_INT_BUFFERS

Description	Sets the number of internal buffers on the frame grabber that will be used when acquiring images.
Type	UINT32
Values	CORXFER_VAL_NB_INT_BUFFERS_NONE (0x00000000), none available. CORXFER_VAL_NB_INT_BUFFERS_MANUAL (0x00000001), created by the application. The user must create the internal buffer by using a handle to the board, and then append the buffer to the Xfer module. CORXFER_VAL_NB_INT_BUFFERS_AUTO (0x00000002), automatically created. The internal buffers are not accessible by the user.

CORXFER_PRM_PROCESSING_MODE

Description	Sets the processing mode of the board.
Type	UINT32
Values	CORXFER_VAL_PROCESSING_MODE_NONE (0x00000000)= not available. CORXFER_VAL_PROCESSING_MODE_1(0x00000001) = processing mode 1 (board specific) CORXFER_VAL_PROCESSING_MODE_2 (0x00000002)= processing mode 2 (board specific) CORXFER_VAL_PROCESSING_MODE_3 (0x00000004)= processing mode 3 (board specific) CORXFER_VAL_PROCESSING_MODE_DLUT (0x00000008)= processing mode 4 (board specific)
Note	A processing mode can only be set before calling CorXferConnect

CORXFER_PRM_SCALE_HORZ

Description	Number of pixels per line to be output by the transfer.
Type	UINT32

CORXFER_PRM_SCALE_HORZ_METHOD

Description	Horizontal scaling method.
Type	UINT32
Values	CORXFER_VAL_SCALE_DISABLE (0x00000000), Disable horizontal scaling. CORXER_VAL_SCALE_SIMPLE (0x00000001), Horizontal scaling drops pixels. CORXFER_VAL_SCALE_INTERPOLATION(0x00000003) , Horizontal scaling interpolates pixels. CORXFER_VAL_SCALE_POW2 (0x00000004), Horizontal scaling factor must be a power of 2.

CORXFER_PRM_SCALE_VERT

Description	Number of lines per frame to be output by the transfer.
Type	UINT32

CORXFER_PRM_SCALE_VERT_METHOD

Description	Vertical scaling method.
Type	UINT32
Values	CORXFER_VAL_SCALE_DISABLE (0x00000001), Disable vertical scaling. CORXFER_VAL_SCALE_SIMPLE, (0x00000002) Vertical scaling drops lines. CORXFER_VAL_SCALE_INTERPOLATION (0x00000003), Vertical scaling interpolates lines. CORXFER_VAL_SCALE_POW2 (0x00000004),Vertical scaling factor must be a power of 2.

CORXFER_PRM_START_MODE

Description	Controls the behavior of CorXferStart function when called.
Type	UINT32
Values	CORXFER_VAL_START_MODE_ASYNCHRONOUS (0x00000000) When starting a transfer, CorXferStart returns immediately without waiting for the transfer to begin. CORXFER_VAL_START_MODE_SYNCHRONOUS (0x00000001) When starting a single frame transfer, CorXferStart returns only when the transfer has been completed. CORXFER_VAL_START_MODE_HALF_ASYNCHRONOUS (0x00000002) If a transfer is currently in progress when starting a new single frame transfer, CorXferStart will wait for the first transfer to finish and then start the transfer. It then returns immediately. CORXFER_VAL_START_MODE_SEQUENTIAL (0x00000003) If a multi-level transfer is defined (that is, acquisition to on-board memory to host memory), the transfer process will wait until all frames in the sequence are in the on-board memory before sending them to the host memory.
Note	This parameter has no effect when starting a transfer in continuous mode.

CORXFER_PRM_TIMEOUT

Description	Specifies the maximum number of milliseconds to wait for a transfer to finish.
Type	UINT32

CORXFER_DESC Structure Definition

```
// CORXFER_DESC Structure Definition

typedef struct
{
    UINT32 frame;  //has the following values:
    //CORXFER_VAL_FRAME_INTERLACED
    //CORXFER_VAL_FRAME_NON_INTERLACED

    UINT32 fieldOrder; //has the following values if frame is interlaced:
    //CORXFER_VAL_FIELD_ORDER_ODD_EVEN
    //CORXFER_VAL_FIELD_ORDER_EVEN_ODD
    //CORXFER_VAL_FIELD_ORDER_ANY_ORDER
    UINT32 widthByte;  //line width of the frame in bytes
    UINT32 height; //frame height in lines
    UINT32 incByte;    //the stride between two lines in bytes
    //(even if the frame is interlaced,
    //incByte should usually be equal to widthByte)

} CORXFER_DESC, *PCORXFER_DESC;   //any parameter with a value of 0 is ignored


//the source is then interrogated to retrieve the
//corresponding information when possible)
```

Functions

Function	Description
CorXferAbort	*Aborts transfer asynchronously for a transfer resource*
CorXferAppend	*Appends item to the transfer description list of a transfer resource. Source and destination resource have a single port.*
CorXferAppendEx	*Appends item to the transfer description list of a transfer resource. Source and destination resource can have more than one port.*
CorXferConnect	*Builds the transfer description list and locks resources of a transfer resource*
CorXferConnectEx	*Builds the transfer description list and locks resources of a transfer resource (with a timeout)*
CorXferDisconnect	*Frees resources used by a transfer resource*
CorXferFree	*Frees handle to a transfer resource*
CorXferGetCap	*Gets transfer capability value from a transfer resource*
CorXferGetPrm	*Gets transfer parameter value from a transfer resource*
CorXferNew	*Creates in the specified server's memory a new transfer resource handle. Source and destination resource have a single port.*
CorXferNewEx	*Creates in the specified server's memory a new transfer resource handle. Source and destination resource can have more than one port.*
CorXferRegisterCallback	*Registers callback function for a transfer resource*
CorXferRegisterCallbackEx	*Registers callback function for a transfer resource. This extended version supports newer event types (64-bit) and additional information.*
CorXferReset	*Resets a transfer resource*
CorXferResetModule	*Resets the resources associated with the server's transfer device(s)*
CorXferSelect	*Selects an item as the current item of a transfer resource. Source and destination resource have a single port.*
CorXferSelectEx	*Selects an item as the current item of a transfer resource. Source and destination resource can have more than one port.*
CorXferSetPrm	*Sets a simple transfer parameter of a transfer resource*
CorXferSetPrmEx	*Sets a complex transfer parameter of a transfer resource*
CorXferStart	*Starts transfer for a transfer resource*
CorXferStop	*Stops transfer synchronously for a transfer resource*
CorXferUnregisterCallback	*Unregisters callback function for a transfer resource*
	Unregisters callback function for a transfer resource
CorXferWait	*Waits until end of transfer or until timeout for a transfer resource*

CorXferAbort

Stop transfer asynchronously for a transfer resource

Prototype	CORSTATUS **CorXferAbort**(CORXFER *hXfer*);
Description	Stops transfer asynchronously for a transfer resource. On return, transfer is finished but part of the last transferred frame may be corrupted.
Input	*hXfer* Transfer resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE and CORSTATUS_XFER_NOT_CONNECTED

CorXferAppend

Append item to the transfer description list of a transfer resource

Prototype	CORSTATUS **CorXferAppend**(CORXFER *hXfer*, CORHANDLE *hSrc*, CORHANDLE *hDst*, CORXFER_DESC**pDesc*);
Description	Appends item to the transfer description list of a transfer resource. The new appended item (hSrc, hDst) becomes the current item. If the source and/or the destination resource have more than one port, port number 0 will be used.
Input	*hXfer* — Transfer resource handle *hSrc* — Resource handle (source) *hDst* — Resource handle (destination) *pDesc* — Transfer description structure. See CORXFER_DESC Structure Definition.
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INCOMPATIBLE_BUFFER, CORSTATUS_INVALID_HANDLE CORSTATUS_NO_MEMORY, CORSTATUS_ROUTING_NOT_IMPLEMENTED and CORSTATUS_XFER_CANT_CYCLE
Note	If *pDesc* is specified as NULL, automatic source format detection will be used to provide all the information needed to specify the transfer. When transferring to a buffer resource, the specified buffer must have been created using the CORBUFFER_VAL_TYPE_CONTIGUOUS or CORBUFFER_VAL_TYPE_SCATTER_GATHER type. Otherwise, CORSTATUS_INCOMPATIBLE_BUFFER is returned. If there is not enough local memory to add the (hSrc, hDst) items to the transfer description list, CORSTATUS_NO_MEMORY is returned. If there is no available transfer path for the newly added (hSrc, hDst) item, CORSTATUS_ROUTING_NOT_IMPLEMENTED is returned. If for the newly added (hSrc, hDst) item in the transfer description list, the hDst resource location has already been added and the transfer resource does not support cycle transfer for this type of resource, CORSTATUS_XFER_CANT_CYCLE is returned.
See also	CorXferAppendEx

CorXferAppendEx

Append item to the transfer description list of a transfer resource

Prototype	CORSTATUS **CorXferAppendEx**(CORXFER *hXfer*, CORHANDLE *hSrc*, UINT32 *srcPort*, CORHANDLE *hDst*, UINT32 *dstPort*, CORXFER_DESC***pDesc*);
Description	Appends item to the transfer description list of a transfer resource. Source and destination resource can have more than one port. The new appended item (hSrc, hDst) becomes the current item.

Input

hXfer	Transfer resource handle
hSrc	Resource handle (source)
srcPort	Source port number
hDst	Resource handle (destination)
dstPort	Destination port number
pDesc	Transfer description structure. See CORXFER_DESC Structure Definition.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INCOMPATIBLE_BUFFER, CORSTATUS_INVALID_HANDLE
CORSTATUS_NO_MEMORY, CORSTATUS_ROUTING_NOT_IMPLEMENTED and
CORSTATUS_XFER_CANT_CYCLE

Note

If *pDesc* is specified as NULL, automatic source format detection will be used to provide all the information needed to specify the transfer.

When transferring to a buffer resource, the specified buffer must have been created using the CORBUFFER_VAL_TYPE_CONTIGUOUS or CORBUFFER_VAL_TYPE_SCATTER_GATHER type. Otherwise, CORSTATUS_INCOMPATIBLE_BUFFER is returned.

If there is not enough local memory to add the (hSrc, hDst) items to the transfer description list, CORSTATUS_NO_MEMORY is returned.

If there is no available transfer path for the newly added (hSrc, hDst) item, CORSTATUS_ROUTING_NOT_IMPLEMENTED is returned.

If for the newly added (hSrc, hDst) item in the transfer description list, the hDst resource location has already been added and the transfer resource does not support cycle transfer for this type of resource, CORSTATUS_XFER_CANT_CYCLE is returned.

CorXferConnect

Build the transfer description list and locks resources of a transfer resource

Prototype	CORSTATUS **CorXferConnect**(CORXFER *hXfer*);
Description	Builds the transfer description list and locks resources for a transfer resource
Input	*hXfer* Transfer resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INCOMPATIBLE_SIZE, CORSTATUS_INVALID_HANDLE, CORSTATUS_NO_MEMORY, CORSTATUS_RESOURCE_IN_USE, CORSTATUS_ROUTING_IN_USE, CORSTATUS_XFER_EMPTY_LIST and CORSTATUS_XFER_MAX_SIZE
Note	If there are resources already in use that are needed to build the transfer description list, CORSTATUS_RESOURCE_IN_USE is returned. If for any one of the (hSrc, hDst) items in the transfer description list, the size of the source resource is larger than the size of the destination resource, CORSTATUS_INCOMPATIBLE_SIZE is returned. If for any one of the (hSrc, hDst) items in the transfer description list, the size in bytes of the source resource is larger than the CORXFER_CAP_MAX_XFER_SIZE capability, CORSTATUS_XFER_MAX_SIZE is returned. If the transfer description list is empty, CORSTATUS_XFER_EMPTY_LIST is returned. If there is a routing already in use that is needed to build the transfer description list, CORSTATUS_ROUTING_IN_USE is returned. If there is not enough local memory to build the local representation of the transfer description list, CORSTATUS_NO_MEMORY is returned.
See Also	CorXferDisconnect

CorXferConnectEx

Build the transfer description list and locks resources of a transfer resource (with a timeout)

Prototype CORSTATUS **CorXferConnectEx**(CORXFER *hXfer*, UINT32 *timeout*);

Description Builds the transfer description list and locks resources for a transfer resource

Input

	hXfer	Transfer resource handle
	timeout	Maximum time to wait (in milliseconds)

Output None

Return Value CORSTATUS_OK
CORSTATUS_INCOMPATIBLE_SIZE, CORSTATUS_INVALID_HANDLE,
CORSTATUS_NO_MEMORY, CORSTATUS_RESOURCE_IN_USE, CORSTATUS_ROUTING_IN_USE,
CORSTATUS_XFER_EMPTY_LIST and CORSTATUS_XFER_MAX_SIZE

Note If there are resources already in use that are needed to build the transfer description list, CORSTATUS_RESOURCE_IN_USE is returned.

If for any one of the (hSrc, hDst) items in the transfer description list, the size of the source resource is larger than the size of the destination resource, CORSTATUS_INCOMPATIBLE_SIZE is returned.

If for any one of the (hSrc, hDst) items in the transfer description list, the size in bytes of the source resource is larger than the CORXFER_CAP_MAX_XFER_SIZE capability, CORSTATUS_XFER_MAX_SIZE is returned.

If the transfer description list is empty, CORSTATUS_XFER_EMPTY_LIST is returned.

If there is a routing already in use that is needed to build the transfer description list, CORSTATUS_ROUTING_IN_USE is returned.

If there is not enough local memory to build the local representation of the transfer description list, CORSTATUS_NO_MEMORY is returned.

The time required by CorXferConnect can be high when the amount of memory taken by the buffer resources is very large, and can even exceed the Sapera LT communication timeout value (obtained by calling CorManGetTimeout). In this case, the call to CorXferConnect returns CORSTATUS_TIMEOUT. The *timeout* argument can then be used to specify a larger amount of time. The largest of this value and of the communication timeout value is then used internally by CorXferConnect.

See Also CorXferConnect, CorXferDisconnect, CorManGetTimeout, CorManSetTimeout

CorXferDisconnect

Free resources used by a transfer resource

Prototype CORSTATUS **CorXferDisconnect**(CORXFER *hXfer*);

Description Frees resources used by a transfer resource.

Input *hXfer* Transfer resource handle

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorXferConnect

CorXferFree

Free handle to a transfer resource

Prototype	CORSTATUS **CorXferFree**(CORXFER *hXfer*);	
Description	Frees handle to a transfer resource	
Input	*hXfer*	Transfer resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE and CORSTATUS_RESOURCE_IN_USE	
See Also	CorXferNew	

CorXferGetCap

Get transfer capability value from a transfer resource

Prototype	CORSTATUS **CorXferGetCap**(CORXFER *hXfer*, UINT32 *cap*, void **value*);	
Description	Gets transfer capability value for the current item of a transfer resource.	
Input	*hXfer*	Transfer resource handle
	cap	Transfer device capability requested
Output	*value*	Value of the capability
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_CAP_INVALID and CORSTATUS_INVALID_HANDLE	
Note	To select an item (hSrc, hDst) as the current item of a transfer resource, use CorXferSelect.	
See Also	CorXferSetPrm, CorXferSetPrmEx and CorXferSelect	

CorXferGetPrm

Get transfer parameter value from a transfer resource

Prototype	CORSTATUS **CorXferGetPrm**(CORXFER *hXfer*, UINT32 *prm*, void **value*);	
Description	Gets transfer parameter value from a transfer resource.	
Input	*hXfer*	Transfer resource handle
	prm	Transfer parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_INVALID_HANDLE, CORSTATUS_PRM_INVALID and CORSTATUS_PRM_NOT_AVAILABLE	
Note	To select an item (hSrc, hDst) as the current transfer resource item, use CorXferSelect.	
See Also	CorXferSetPrm, CorXferSetPrmEx and CorXferSelect	

CorXferNew

Create in the specified server's memory a new transfer resource

Prototype	CORSTATUS **CorXferNew**(CORSERVER *hServer*, CORHANDLE *hSrc*, CORHANDLE *hDst*, CORXFER_DESC **pDesc*, CORXFER **hXfer*);
Description	Creates in the specified server's memory a new transfer resource. The new item (hSrc, hDst) becomes the current item. If the source and/or the destination resource have more than one port, port number 0 will be used.
Input	*hServer* Server handle *hSrc* Source of transfer *hDst* Destination of transfer *pDesc* Transfer description structure. See CORXFER_DESC Structure Definition
Output	*hXfer* Transfer resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_ARG_NULL (if *hXfer* is NULL), , CORSTATUS_INVALID_HANDLE, CORSTATUS_INCOMPATIBLE_BUFFER, CORSTATUS_INVALID_HANDLE, CORSTATUS_NO_MEMORY, CORSTATUS_ROUTING_NOT_IMPLEMENTED and CORSTATUS_XFER_CANT_CYCLE
Note	If *pDesc* is specified as NULL, automatic source format detection will provide all the information needed to specify the transfer. The specified buffer must be created using CORBUFFER_VAL_TYPE_CONTIGUOUS or CORBUFFER_VAL_TYPE_SCATTER_GATHER when transferring to a buffer resource. Otherwise, CORSTATUS_INCOMPATIBLE_BUFFER is returned. If there is not enough local memory to add the *hSrc* and *hDst* items to the transfer description list, CORSTATUS_NO_MEMORY is returned. If there is no available transfer path for the newly added *hSrc* and *hDst* items, CORSTATUS_ROUTING_NOT_IMPLEMENTED is returned. For the newly added *hSrc* and *hDst* items in the transfer description list, if the *hDst* resource has been previously added and the transfer resource does not support cycle transfers, CORSTATUS_XFER_CANT_CYCLE is returned.
See Also	CorXferFree, CorXferAppend and CorXferNewEx

CorXferNewEx

Create in the specified server's memory a new transfer resource

Prototype	CORSTATUS **CorXferNewEx**(CORSERVER *hServer*, CORHANDLE *hSrc*, UINT32 *srcPort*, CORHANDLE *hDst*, UINT32 *dstPort*, CORXFER_DESC **pDesc*, CORXFER **hXfer*);	
Description	Creates in the specified server's memory a new transfer resource. Source and destination resource can have more than one port. The new items *hSrc* and *hDst* are now the current items.	
Input	*hServer*	Server handle
	hSrc	Source of transfer
	srcPort	Source port number
	hDst	Destination of transfer
	dstPort	Destination port number
	pDesc	Transfer description structure. See CORXFER_DESC Structure Definition
Output	*hXfer*	Transfer resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_ARG_NULL (if *hXfer* is NULL), CORSTATUS_INCOMPATIBLE_BUFFER, CORSTATUS_INVALID_HANDLE, CORSTATUS_NO_MEMORY, CORSTATUS_ROUTING_NOT_IMPLEMENTED and CORSTATUS_XFER_CANT_CYCLE	
Note	If *pDesc* is specified as NULL, automatic source format detection will provide all the information needed to specify the transfer. The specified buffer must have been created using CORBUFFER_VAL_TYPE_CONTIGUOUS or CORBUFFER_VAL_TYPE_SCATTER_GATHER when transferring to a buffer resource. Otherwise, CORSTATUS_INCOMPATIBLE_BUFFER is returned. If there is not enough local memory to add the *hSrc* and *hDst* items to the transfer description list, CORSTATUS_NO_MEMORY is returned. If there is no available transfer path for the newly added *hSrc* and *hDst* items, CORSTATUS_ROUTING_NOT_IMPLEMENTED is returned. For the newly added *hSrc* and *hDst* items in the transfer description list, if the *hDst* resource has been previously added and the transfer resource does not support cycle transfer for this type of resource, CORSTATUS_XFER_CANT_CYCLE is returned.	
See Also	CorXferFree and CorXferAppendEx	

CorXferRegisterCallback

Register callback function for a transfer resource

Prototype	CORSTATUS **CorXferRegisterCallback**(CORXFER *hXfer*, UINT32 *eventType*, PCORCALLBACK *callbackFct*, void **context*);	
Description	Registers callback function for the current item of a transfer resource.	
Input	*hXfer*	Transfer resource handle
	eventType	Type of event to register. The callback function will be called when the specified event(s) occur. See CORXFER_PRM_EVENT_TYPE.
	callbackFct	Callback function must be defined as follow: *CORSTATUS CCONV* *callback (void *context, UINT32 eventType, UINT32 eventCount);* When called, *context* contains the value specified at callback function registration; and *eventType* contains the event(s) that triggered the call to the callback function. The *eventCount* argument starts with a value of 1, and then is incremented either by the source or the destination handle for the transfer, as specified by the CORXFER_PRM_EVENT_COUNT_SOURCE parameter. This counter is reinitialized each time a new transfer is started by calling *CorXferStart*. In case the transfer resource can not keep up because there are too many events to be signaled, *eventCount* will take non-consecutive values, indicating that events have been lost. See the Data Types section for the PCORCALLBACK definition.
	context	Context pointer to be passed to the callback function when called
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *callbackFct* is NULL), CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_AVAILABLE and CORSTATUS_RESOURCE_IN_USE	
Note	The values may be ORed if more than one event is desired. To select an item (hSrc, hDst) as the current item of a transfer resource, use CorXferSelect. When used, CORXFER_VAL_EVENT_TYPE_END_OF_LINE must be ORed with an *unsigned* integer representing the line on which the callback function has to be called, while CORXFER_VAL_EVENT_TYPE_END_OF_NLINES must be ORed with an *unsigned* integer representing the number of lines after which the callback function has to be called. Also note that the line number for which the callback function is called is not returned through its eventType argument; the corresponding bits are always set to 0.	
See Also	CorXferUnregisterCallback, CorXferSelect and CORXFER_PRM_EVENT_COUNT_SOURCE	

CorXferRegisterCallbackEx

Register callback function for a transfer resource

Prototype	CORSTATUS **CorXferRegisterCallbackEx**(CORXFER *hXfer*, UINT32 *xferElement*, UINT64 *eventType*, PCOREVENTINFOCALLBACK *callback*, void **context*);	
Description	Registers callback function for the specified element of a transfer resource.	
Input	*hXfer*	Transfer resource handle
	xferElement	Indicates where to register the callback: on currently selected pair or level: CORXFER_VAL_ELEMENT_PAIR (0x00000000) CORXFER_VAL_ELEMENT_LEVEL (0x00000001)
	eventType	Type of event to register. See CORXFER_PRM_EVENT_TYPE_EX.

	callback	Callback function to register. The callback function provides information on the corresponding event (in the *COREVENTINFO* handle). Refer to the *EventInfo* module for more detail on the available information
		`CORSTATUS CCONV MyCallback(void *context, COREVENTINFO hEventInfo)`
		`{`
		`}.`

Output	*context*	Context pointer passed to the callback function when called
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *callbackFct* is NULL), CORSTATUS_INVALID_HANDLE CORSTATUS_NOT_AVAILABLE and CORSTATUS_RESOURCE_IN_USE	
Note	The values may be ORed if more than one event is desired. To select an item (hSrc, hDst) as the current item of a transfer resource, use CorXferSelect. When used, CORXFER_VAL_EVENT_TYPE_END_OF_LINE must be ORed with an *unsigned* integer representing the line on which the callback function has to be called, while CORXFER_VAL_EVENT_TYPE_END_OF_NLINES must be ORed with an *unsigned* integer representing the number of lines after which the callback function has to be called. Also note that the line number for which the callback function is called is not returned through its eventType argument; the corresponding bits are always set to 0.	
See Also	CorXferUnregisterCallbackEx, CorXferSelect and CORXFER_PRM_EVENT_COUNT_SOURCE	

CorXferReset

Reset a transfer resource

Prototype	CORSTATUS **CorXferReset**(CORXFER *hXfer*);	
Description	Deletes the existing transfer routing associated with the specified transfer resource.	
Input	*hXfer*	Transfer resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_NOT_ACCESSIBLE, CORSTATUS_RESOURCE_IN_USE and CORSTATUS_XFER_NOT_CONNECTED	

CorXferResetModule

Reset the resources associated with the server's transfer device(s)

Prototype	CORSTATUS **CorXferResetModule**(CORSERVER *hServer*);
Description	Resets the resources associated with the server's transfer device(s). It will release all resources (handle, memory) currently allocated. When using this function, make certain that no other application is currently using any transfer device resources. This function should be used with caution.
Input	*hServer* Server handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE

CorXferSelect

Select an item as the current item of a transfer resource

Prototype	CORSTATUS **CorXferSelect**(CORXFER *hXfer*, CORHANDLE *hSrc*, CORHANDLE *hDst*, UINT32 *index*);	
Description	Selects an item as the current item of a transfer resource. If the source and/or the destination resource have more than one port, port number 0 will be used.	
Input	*hXfer*	Transfer resource handle
	hSrc	Resource handle (source)
	hDst	Resource handle (destination)
	index	Specifies which item to select. Valid values are in the range [0...n-1], where n is the number of items having the same source and destinations. Usually index is 0.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE and CORSTATUS_RESOURCE_IN_USE	
See Also	CorXferSelectEx, CorXferGetCap, CorXferGetPrm, CorXferSetPrm, CorXferRegisterCallback, CorXferSetPrmEx and CorXferUnregisterCallback	

CorXferSelectEx

Select an item as the current item of a transfer resource

Prototype	CORSTATUS **CorXferSelectEx**(CORXFER *hXfer*, CORHANDLE *hSrc*, UINT32 *srcPort*, CORHANDLE *hDst*, UINT32 *dstPort*, UINT32 *index*);	
Description	Selects an item as the current item of a transfer resource. Source and destination resource can have more than one port.	
Input	*hXfer*	Transfer resource handle
	hSrc	Resource handle (source)
	srcPort	Source port number
	hDst	Resource handle (destination)
	dstPort	Destination port number
	index	Specifies which item to select. Valid values are in the range [0...n-1], where n is the number of items having the same source and destinations. Usually, index is 0.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE and CORSTATUS_RESOURCE_IN_USE	
See Also	CorXferGetCap, CorXferGetPrm, CorXferSetPrm, CorXferRegisterCallback, CorXferSetPrmEx and CorXferUnregisterCallback	

CorXferSetPrm

Set a simple transfer parameter of a transfer resource

Prototype	CORSTATUS **CorXferSetPrm**(CORXFER *hXfer*, UINT32 *prm*, UINT32 *value*);
Description	Sets a simple transfer parameter for the current item of a transfer resource.
Input	*hXfer* Transfer resource handle *prm* Transfer parameter to set *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_PRM_INVALID_VALUE, CORSTATUS_PRM_NOT_AVAILABLE and CORSTATUS_PRM_READ_ONLY
Note	A simple parameter fits inside an UINT32. If the parameter is complex, use CorXferSetPrmEx. To select an item (hSrc, hDst) as the current item of a transfer resource, use CorXferSelect.
See Also	CorXferSetPrm, CorXferSetPrmEx and CorXferSelect

CorXferSetPrmEx

Set a complex transfer parameter of a transfer resource

Prototype	CORSTATUS **CorXferSetPrmEx**(CORXFER *hXfer*, UINT32 *prm*, const void **value*);
Description	Sets a complex transfer parameter for the current item of a transfer resource.
Input	*hXfer* Transfer resource handle *prm* Transfer parameter to set *value* New value of the parameter
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL) CORSTATUS_INVALID_HANDLE, CORSTATUS_PRM_INVALID_VALUE, CORSTATUS_PRM_NOT_AVAILABLE and CORSTATUS_PRM_READ_ONLY
Note	A complex parameter is greater than an UINT32. If the parameter size is UINT32, either CorXferSetPrm or CorXferSetPrmEx can be used. To select an item (hSrc, hDst) as the current item of a transfer resource, use CorXferSelect.
See Also	CorXferGetPrm, CorXferSetPrm and CorXferSelect

CorXferStart

Start transfer for a transfer resource

Prototype	CORSTATUS **CorXferStart**(CORXFER *hXfer*, UINT32 *count*);	
Description	Starts transfer for a transfer resource	
Input	*hXfer*	Transfer object handle
	count	Numerical value within the range [1...CORXFER_CAP_MAX_FRAME_COUNT] or CORXFER_CONTINUOUS.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_NOT_ACCESSIBLE, CORSTATUS_RESOURCE_IN_USE, CORSTATUS_XFER_NOT_CONNECTED, CORSTATUS_TIMEOUT and CORSTATUS_ARG_INVALID	
Note	Before calling CorXferStart, the transfer resource has to be connected to the hardware by calling CorXferConnect; otherwise, CORSTATUS_XFER_NOT_CONNECTED is returned. When calling CorXferStart, if a transfer is still in progress and the CORXFER_PRM_START_MODE parameter has been set to CORXFER_VAL_START_MODE_ASYNCHRONOUS, then CORSTATUS_RESOURCE_IN_USE is returned. When calling CorXferStart, if a transfer is still in progress and CORXFER_PRM_START_MODE parameter has been set to CORXFER_VAL_START_MODE_SYNCHRONOUS or CORXFER_VAL_START_MODE_HALF_ASYNCHRONOUS, then CORSTATUS_TIMEOUT is returned. For stopping a transfer started in continuous mode, CorXferStop must first be called to flag the end of the transfer, followed by a call to CorXferWait to wait for the actual end of transfer. If for any reason the source of the transfer does not provide enough data for the transfer to finish, CorXferAbort must be used to force an asynchronous end of transfer. In this situation, calling CorXferStop would have no effect.	
See Also	CorXferAbort and CorXferStop	

CorXferStop

Stop transfer synchronously for a transfer resource

Prototype	CORSTATUS **CorXferStop**(CORXFER *hXfer*);	
Description	Stops transfer synchronously for a transfer resource. Transfer will be stopped at the end of the current frame; therefore, last transferred frame is valid.	
Input	*hXfer*	Transfer resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID_VALUE, CORSTATUS_INVALID_HANDLE	
Note	Function call returns immediately, therefore current transfers can still be in progress. To detect the actual end of transfer, CorXferWait should be used. If for any reason the source of transfer does not provide enough data for the transfer to finish, CorXferAbort must be used to force an asynchronous end of transfer. In this situation, calling CorXferStop would have no effect.	
See Also	CorXferAbort, CorXferStart and CorXferWait	

CorXferUnregisterCallback

Unregister callback function for a transfer resource

Prototype	CORSTATUS **CorXferUnregisterCallback**(CORXFER *hXfer*, PCORCALLBACK *callbackFct*);	
Description	Unregisters callback function for the current item of a transfer resource.	
Input	*hXfer*	Transfer resource handle
	callbackFct	Callback function to unregister. See the Data Types section for the PCORCALLBACK definition.
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
Note	To select an item (hSrc, hDst) as the current transfer resource, use CorXferSelect.	
See Also	CorXferRegisterCallback and CorXferSelect	

CorXferUnregisterCallbackEx

Unregister callback function for a transfer resource

Prototype	CORSTATUS **CorXferUnregisterCallbackEx**(CORXFER *hXfer*, UINT32 *xferElement*, PCOREVENTINFOCALLBACK *callbackFct*);		
Description	Unregisters callback function for the current item of a transfer resource.		
Input	*hXfer*	Transfer resource handle	
	xFerElement	Indicates where to unregister the callback: on currently selected pair or level (group):	
		CORXFER_VAL_ELEMENT_PAIR	Unregisters the callback for the currently selected source/destination pair.
		CORXFER_VAL_ELEMENT_LEVEL	Unregisters the callback for the currently selected source and all its destination pairs.
	callbackFct	Callback function to unregister. See the Data Types section for the PCOREVENTINFOCALLBACK definition.	
Output	None		
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE		
Note	To select an item (hSrc, hDst) as the current transfer resource, use CorXferSelect.		
See Also	CorXferRegisterCallbackEx and CorXferSelect		

CorXferWait

Wait until end of transfer or until timeout for a transfer resource

Prototype	CORSTATUS **CorXferWait**(CORXFER *hXfer*, UINT32 *timeout*);	
Description	Waits until end of transfer or until timeout for a transfer resource.	
Input	*hXfer*	Transfer resource handle
	timeout	Maximum time to wait (in ms)
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_XFER_NOT_CONNECTED CORSTATUS_TIMEOUT	
Note	If the transfer has not finished within the specified timeout interval, CORSTATUS_TIMEOUT is returned. The reason could be that the specified timeout interval was too small or that the transfer source didn't provided enough data for the transfer to finish. To asynchronously end the transfer, CorXferAbort function is used.	
See Also	CorXferStart	

View Module

The View Module controls a viewing window within the display device.

Capabilities

ID	Capability
0x00	*Reserved*
0x01	*Reserved*
0x02	CORVIEW_CAP_ZORDER
0x03	CORVIEW_CAP_FLIP
0x04	*Reserved*
0x05	CORVIEW_CAP_COLOR_SPACE_CONVERT
0x06	CORVIEW_CAP_ROTATE
0x07	CORVIEW_CAP_RANGE
0x08	*Reserved*
0x09	CORVIEW_CAP_ROI_SRC
0x0a	CORVIEW_CAP_ROI_DST
0x0b	CORVIEW_CAP_ZOOM_HORZ
0x0c	CORVIEW_CAP_ZOOM_HORZ_METHOD
0x0d	CORVIEW_CAP_ZOOM_HORZ_MIN
0x0e	CORVIEW_CAP_ZOOM_HORZ_MAX
0x0f	CORVIEW_CAP_ZOOM_HORZ_MULT
0x10	CORVIEW_CAP_ZOOM_HORZ_MIN_FACTOR
0x11	CORVIEW_CAP_ZOOM_HORZ_MAX_FACTOR
0x12	CORVIEW_CAP_ZOOM_VERT
0x13	CORVIEW_CAP_ZOOM_VERT_METHOD
0x14	CORVIEW_CAP_ZOOM_VERT_MIN
0x15	CORVIEW_CAP_ZOOM_VERT_MAX
0x16	CORVIEW_CAP_ZOOM_VERT_MULT
0x17	CORVIEW_CAP_ZOOM_VERT_MIN_FACTOR
0x18	CORVIEW_CAP_ZOOM_VERT_MAX_FACTOR
0x19	*Reserved*
0x1a	CORVIEW_CAP_LUT_ENABLE
0x1b	CORVIEW_CAP_LUT
0x1c	*Reserved*
0x1d	*Reserved*
0x1e	*Reserved*
0x1f	*Reserved*
0x20	CORVIEW_CAP_OVERLAY_MODE
0x21	CORVIEW_CAP_RANGE_MAX

CORVIEW_CAP_COLOR_SPACE_CONVERT

Description	Specifies whether this view can convert video information from one color space to another (the buffer's color space to the display's color space) while it's being displayed.
Type	UINT32
Values	TRUE, The video information can be converted. FALSE, The video information cannot be converted.

CORVIEW_CAP_FLIP

Description	Specifies whether this view can be flipped during display.
Type	UINT32
Values	CORVIEW_VAL_FLIP_X: Can be flipped vertically.
	CORVIEW_VAL_FLIP_Y: Can be flipped horizontally.
Note	The values may be ORed when both are supported.
See Also	CORVIEW_PRM_FLIP_X and CORVIEW_PRM_FLIP_Y

CORVIEW_CAP_LUT

Description	Specifies if an output LUT is available.
Type	UINT32
Values	TRUE: At least one LUT is available. FALSE: No LUT is available.
See Also	CORVIEW_PRM_LUT_MAX and CORVIEW_PRM_LUT_ENABLE

CORVIEW_CAP_LUT_ENABLE

Description	Specifies if an output LUT can be enabled/disabled.
Type	UINT32
Values	TRUE, Output LUT can be enabled/disabled. FALSE, Output LUT cannot be enabled/disabled.

CORVIEW_CAP_OVERLAY_MODE

Description	Specifies the behavior of a view when the overlay is available.
Type	UINT32
Values	See CORVIEW_PRM_MODE.

CORVIEW_CAP_RANGE

Description	Specifies whether a range within the pixel bit depth can be designated for viewing.
Type	UINT32
Values	TRUE, The range can be designated for viewing. FALSE, The range cannot be designated for viewing.
Note	Useful when a buffer must be viewed on a display which is only capable of displaying at a lower bit depth than the buffer pixel depth.
See Also	CORVIEW_PRM_RANGE

CORVIEW_CAP_RANGE_MAX

Description	Specifies the maximum value allowed for CORVIEW_PRM_RANGE.
Type	UINT32
Values	The value corresponds to the maximum number of bits of the attached buffer (**CorManGetPixelDepthMax**) minus the view's bit depth.
Note	Useful when a buffer must be viewed on a display that is only capable of displaying at a lower bit depth than the buffer pixel depth.
See Also	CORVIEW_CAP_RANGE and CORVIEW_PRM_RANGE.

CORVIEW_CAP_ROTATE

Description	Specifies whether this view can rotate the video information while it is being displayed.
Type	UINT32
Values	CORVIEW_VAL_ROTATE_ANY, Supports arbitrary integer angle rotation. CORVIEW_VAL_ROTATE_90, Supports rotation angles that are a multiple of 90 degrees.
See Also	CORVIEW_PRM_ROTATE

CORVIEW_CAP_ROI_DST

Description	Specifies whether a destination ROI can be defined on the associated display surface. If so, after the ROI is set up, the video information contained within the source ROI is displayed in the destination ROI. This video information is zoomed when necessary to fill the destination ROI.
Type	UINT32
Values	TRUE, The destination ROI can be defined. FALSE, The destination ROI cannot be defined.
Note	Used to be CORVIEW_CAP_WIN_DST
See Also	CORVIEW_PRM_ROI_DST_HEIGHT, CORVIEW_PRM_ROI_DST_LEFT, CORVIEW_PRM_ROI_DST_TOP and CORVIEW_PRM_ROI_DST_WIDTH

CORVIEW_CAP_ROI_SRC

Description	Specifies whether a source ROI can be defined in the associated buffer. If so, after the ROI is set up, only the region delimited by the ROI is displayed.
Type	UINT32
Values	TRUE, The source ROI can be defined. FALSE, The source ROI cannot be defined.
Note	Used to be CORVIEW_CAP_WIN_SRC
See Also	CORVIEW_PRM_ROI_SRC_HEIGHT, CORVIEW_PRM_ROI_SRC_LEFT, CORVIEW_PRM_ROI_SRC_TOP and CORVIEW_PRM_ROI_SRC_WIDTH

CORVIEW_CAP_ZOOM_HORZ

Description	Specifies whether the view supports horizontal zooming.
Type	UINT32
Values	TRUE, The view supports horizontal zooming. FALSE, The view does not support horizontal zooming.
Note	View zoom applies only to a single view, not to the whole display surface.
See Also	CORVIEW_CAP_ZOOM_VERT

CORVIEW_CAP_ZOOM_HORZ_MAX

Description Maximum valid value (in pixels) for the horizontal zoom.

Type UINT32

Note An alternative to CORVIEW_CAP_ZOOM_HORZ_MAX_FACTOR. One and/or the other may be specified.

CORVIEW_CAP_ZOOM_HORZ_MAX_FACTOR

Description Maximum horizontal zoom factor.

Type UINT32

Note A factor of 1000 is equivalent to a 1:1 zoom (no zoom). An alternative to CORVIEW_CAP_ZOOM_HORZ_MAX. One and/or the other may be specified.

CORVIEW_CAP_ZOOM_HORZ_METHOD

Description Horizontal zooming method implemented by the view.

Type INT32

Values CORVIEW_VAL_ZOOM_METHOD_SIMPLE
Simple zoom using pixel dropping or replication.

CORVIEW_VAL_ZOOM_METHOD_INTERPOLATION
Interpolated zoom.

CORVIEW_VAL_ZOOM_METHOD_POW2
Zoom by a power of 2 (for example, 2x, 4x, 8x, and so forth).

CORVIEW_VAL_ZOOM_METHOD_INTEGER
Zoom by an integer factor (for example, 2x, 3x, 4x, 5x, and so forth).

Note The values may be ORed if more than one zoom method applies.
View zoom applies to a single view, not the whole display surface.

CORVIEW_CAP_ZOOM_HORZ_MIN

Description Minimum valid value (in pixels) for the horizontal zoom.

Type UINT32

Note An alternative to CORVIEW_CAP_ZOOM_HORZ_MIN_FACTOR. One and/or the other may be specified.

CORVIEW_CAP_ZOOM_HORZ_MIN_FACTOR

Description Minimum horizontal zoom factor.

Type UINT32

Note An alternative to CORVIEW_CAP_ZOOM_HORZ_MIN. A factor of 1000 is equivalent to a 1:1 zoom (no zoom).

CORVIEW_CAP_ZOOM_HORZ_MULT

Description Granularity (in pixels) for the horizontal zoom parameter.

Type UINT32

Note The horizontal zoom dimension must be a multiple of this value.

CORVIEW_CAP_ZOOM_VERT

Description	Specifies whether the view supports vertical zooming.
Type	UINT32
Values	TRUE, The display supports vertical zooming. FALSE, The display does not support vertical zooming.
Note	View zoom applies only to a single view, not to the whole display surface.
See Also	CORVIEW_CAP_ZOOM_HORZ

CORVIEW_CAP_ZOOM_VERT_MAX

Description	Maximum valid value (in pixels) for the vertical zoom.
Type	UINT32
Note	An alternative to CORVIEW_CAP_ZOOM_VERT_MAX_FACTOR.

CORVIEW_CAP_ZOOM_VERT_MAX_FACTOR

Description	Maximum vertical zoom factor.
Type	UINT32
Note	A factor of 1000 is equivalent to a 1:1 zoom (no zoom). An alternative to CORVIEW_CAP_ZOOM_VERT_MAX. One and/or the other may be specified.

CORVIEW_CAP_ZOOM_VERT_METHOD

Description	Vertical zooming method implemented by the view.
Type	INT32
Values	See CORVIEW_PRM_ZOOM_HORZ_METHOD.
Note	The values may be ORed if more than one zoom method applies. View zoom applies to a single view, not the whole display surface.

CORVIEW_CAP_ZOOM_VERT_MIN

Description	Minimum valid value (in pixels) for the vertical zoom.
Type	UINT32
Note	An alternative to CORVIEW_CAP_ZOOM_HORZ_MIN_FACTOR. One and/or the other may be specified.

CORVIEW_CAP_ZOOM_VERT_MIN_FACTOR

Description	Minimum vertical zoom factor.
Type	UINT32
Note	An alternative to CORVIEW_CAP_ZOOM_VERT_MIN. A factor of 1000 is equivalent to a 1:1 zoom (no zoom). One and/or the other may be specified.

CORVIEW_CAP_ZOOM_VERT_MULT

Description	Granularity (in pixels) for the vertical zoom parameter.
Type	UINT32
Note	The vertical zoom dimension must be a multiple of this value.

CORVIEW_CAP_ZORDER

Description	Specifies whether this view can be Z-ordered (have its relative position in the Z-plane specified) on the display associated with it.
Type	UINT32
Values	TRUE, The view can be Z-ordered. FALSE, The view cannot be Z-ordered.
See Also	CORVIEW_PRM_ZORDER

Parameters

ID	Parameter	Attribute
0x00	*Reserved*	
0x01	CORVIEW_PRM_KEYER_COLOR_RED	Read/Write
0x02	CORVIEW_PRM_KEYER_COLOR_GREEN	Read/Write
0x03	CORVIEW_PRM_KEYER_COLOR_BLUE	Read/Write
0x04	CORVIEW_PRM_KEYER_COLOR_PALETTE	Read/Write
0x05	CORVIEW_PRM_KEYER_CHROMA_LO	Read/Write
0x06	CORVIEW_PRM_KEYER_CHROMA_HI	Read/Write
0x07	*Reserved*	
0x08	*Reserved*	
0x09	*Reserved*	
0x0a	*Reserved*	
0x0b	*Reserved*	
0x0c	CORVIEW_PRM_HWND	Read/Write
0x0d	CORVIEW_PRM_LUT_NUMBER	Read/Write
0x0e	CORVIEW_PRM_FLIP_X	Read/Write
0x0f	CORVIEW_PRM_FLIP_Y	Read/Write
0x10	CORVIEW_PRM_ROTATE	Read/Write
0x11	CORVIEW_PRM_ZORDER	Read/Write
0x12	CORVIEW_PRM_RANGE	Read/Write
0x13	*Reserved*	
0x14	CORVIEW_PRM_ROI_SRC_LEFT	Read/Write
0x15	CORVIEW_PRM_ROI_SRC_TOP	Read/Write
0x16	*Reserved*	
0x17	CORVIEW_PRM_ROI_SRC_HEIGHT	Read/Write
0x18	CORVIEW_PRM_ROI_SRC_WIDTH	Read/Write
0x19	CORVIEW_PRM_ROI_DST_LEFT	Read/Write
0x1a	CORVIEW_PRM_ROI_DST_TOP	Read/Write
0x1b	CORVIEW_PRM_ROI_DST_HEIGHT	Read/Write
0x1c	CORVIEW_PRM_ROI_DST_WIDTH	Read/Write
0x1d	*Reserved*	
0x1e	CORVIEW_PRM_LUT_MAX	Read Only
0x1f	CORVIEW_PRM_LUT_ENABLE	Read/Write
0x20	CORVIEW_PRM_LUT_FORMAT	Read Only
0x21	CORVIEW_PRM_MODE	Read Only
0x22	CORVIEW_PRM_OVERLAY_MODE	Read/Write
0x23	CORVIEW_PRM_HWND_TITLE	Read/Write
0x24	*Reserved*	
0x25	*Reserved*	
0x26	*Reserved*	
0x27	*Reserved*	
0x28	CORVIEW_PRM_ZOOM_HORZ_METHOD	Read/Write
0x29	CORVIEW_PRM_ZOOM_VERT_METHOD	Read/Write

CORVIEW_PRM_ALPHA_BLEND_CONST

Description Sets the alpha blend constants used for alpha blending between source and destination.

Type CORVIEW_ALPHA_BLEND_CONSTS

Note This parameter is a structure. The CorViewSetPrmEx function must be used to set the value.

CORVIEW_PRM_ALPHA_BLEND_MODE

Description Sets the alpha blending mode. Only effective when alpha blending is enabled with the CORVIEW_PRM_OVERLAY_MODE parameter.

Type UINT32

Values CORVIEW_VAL_ALPHA_BLEND_SRC_CONST (0x00000001)
The CORVIEW_PRM_ALPHA_BLEND_SRC_CONST will be used as the weighing factor for the source pixels..

CORVIEW_VAL_ALPHA_BLEND_DST_CONST (0x00000002)
The CORVIEW_PRM_ALPHA_BLEND_DST_CONST is used as the weighing factor for the destination pixels. If this feature is not enabled, the weighing factor used for the destination pixel is (100% - CORVIEW_PRM_ALPHA_BLEND_SRC_CONST)

CORVIEW_PRM_ALPHA_KEY_MODE

Description Used to read or set the alpha keying mode. This value only has an effect when alpha keying is enabled.with the CORVIEW_PRM_OVERLAY_MODE parameter.

Type UINT32

Values CORVIEW_VAL_ALPHA_KEY_SRC_NOT_EQUAL (0x00000001)
The source pixel is displayed at full (100%) intensity if the alpha value in the source pixel does not equal CORVIEW_PRM_ALPHA_KEY_VALUE.

CORVIEW_VAL_ALPHA_KEY_DST_NOT_EQUAL (0x00000002)
The destination pixel is displayed at full (100%) intensity, if the alpha value in the destination pixel does not equal CORVIEW_PRM_ALPHA_KEY_VALUE.

CORVIEW_PRM_ALPHA_KEY_VALUE

Description Sets the value that is compared with the alpha keying bits of the source or destination surface when alpha keying is enabled.

Type UINT32

Limits Value limits - maximum alpha value supported by the destination or source pixel format.
RGB5551 surface: value can be 0 or 1
RGB8888 surface: value can be 0 to 255.

Note CORVIEW_PRM_ALPHA_KEY_MODE indicates whether this value is compared with the alpha bits of the source buffer or the alpha bits of the destination buffer

CORVIEW_PRM_FLIP_X

Description Enable/disable X axis vertical flipping of the source image while the view is displayed.

Type UINT32

Values TRUE, Enables vertical flipping.
FALSE, Disables vertical flipping.

Note Valid only when CORVIEW_CAP_FLIP includes the CORVIEW_CAP_FLIP_X flag.

See Also CORVIEW_CAP_FLIP and CORVIEW_PRM_FLIP_Y

CORVIEW_PRM_FLIP_Y

Description	Enable/disable Y axis horizontal flipping of the source image while the view is displayed.
Type	UINT32
Values	TRUE, Enables horizontal flipping. FALSE, Disables horizontal flipping.
Note	Valid only when CORVIEW_CAP_FLIP includes the CORVIEW_CAP_FLIP_Y flag.
See Also	CORVIEW_CAP_FLIP and CORVIEW_PRM_FLIP_X

CORVIEW_PRM_HWND

Description	Window handle to be used as the destination view display surface. When specified, the destination rectangle becomes relative to the window's client area rectangle, instead of the whole display surface.
Type	HWND
Values	Valid window handles including NULL. If set to –1, Sapera will automatically create a window running in a separate thread (supported on single monitor configurations only). In this case, CORVIEW_PRM_HWND can be read later to obtain the HWND of the created window.
Notes	Valid only on a system display.This parameter has 64 bits in Sapera LT for 64-bit Windows, therefore to change its value use the CorViewSetPrmEx function instead of CorViewSetPrm.
See also	CORVIEW_PRM_HWND_TITLE

CORVIEW_PRM_HWND_TITLE

Description	Specifies the title of the window created by Sapera if CORVIEW_PRM_HWND is set to –1.
Type	CHAR[128]
Values	Zero-terminated array of characters with a fixed size of 128 bytes.
See Also	CorViewSetPrmEx

CORVIEW_PRM_KEYER_CHROMA_HI

Description	The upper keying color range used with CORVIEW_VAL_KEYER_TYPE_CHROMA color keyer.
Type	UINT32
Values	*Unsigned* integer with format dependent on the color mode of the target display.
Note	Colors for all color modes are defined using an UINT32 value, although some of them will not be represented in the full 32 bits.
See Also	CORVIEW_PRM_KEYER_CHROMA_LO

CORVIEW_PRM_KEYER_CHROMA_LO

Description	The lower keying color range used with a CORVIEW_VAL_KEYER_TYPE_CHROMA color keyer.
Type	UINT32
Values	*Unsigned* integer with format dependent on the color mode of the target display.
Note	Colors for all color modes are defined using an UINT32 value, although some of them will not be represented in the full 32 bits.
See Also	CORVIEW_PRM_KEYER_CHROMA_HI

CORVIEW_PRM_KEYER_COLOR_BLUE

Description The blue component (0 to 255) of the keying color used with a CORVIEW_VAL_KEYER_TYPE_COLOR color keyer.

Type UINT32

Note Used in all color display modes except 256-color.

CORVIEW_PRM_KEYER_COLOR_GREEN

Description The green component (0 to 255) of the keying color used with a CORVIEW_VAL_KEYER_TYPE_COLOR color keyer.

Type UINT32

Note Used in all color display modes except 256-color.

CORVIEW_PRM_KEYER_COLOR_PALETTE

Description The palette keying index used with a CORVIEW_VAL_KEYER_TYPE_COLOR color keyer.

Type UINT32

Values *Unsigned* integer values [0...255]

Note Used only in the 256-color display mode.

CORVIEW_PRM_KEYER_COLOR_RED

Description The red component (0 to 255) of the keying color used with a CORVIEW_VAL_KEYER_TYPE_COLOR color keyer.

Type UINT32

Note Used in all color display modes except 256-color.

CORVIEW_PRM_LUT_ENABLE

Description Enable/disable the output LUT after checking CORVIEW_CAP_LUT_ENABLE.

Type UINT32

Values TRUE, Enable the output LUT.
FALSE, Disable the output LUT.

CORVIEW_PRM_LUT_FORMAT

Description LUT format

Type UINT32

Note Read only parameter.

CORVIEW_PRM_LUT_MAX

Description Maximum number of LUTs available, based on the current pixel depth and format.

Type UINT32

Note Read only parameter.

CORVIEW_PRM_LUT_NUMBER

Description Selects an active output LUT from among those available.

Type UINT32

Values [0...CORVIEW_CAP_LUT -1]

Note Valid only when CORVIEW_CAP_LUT is not zero.

CORVIEW_PRM_MODE

Description Specifies the type of transfer between the buffer and the viewer. This parameter reflects the mode specified by the argument in the CorViewNew function. If the mode specified is CORVIEW_VAL_MODE_AUTO_DETECT, then the mode selected by the driver is returned.

Type UINT32

Values See CorViewNew

See Also CorBufferNew, CORVIEW_PRM_OVERLAY_MODE, CORVIEW_PRM_KEYER_COLOR_PALETTE, CORVIEW_PRM_KEYER_COLOR_RED, CORVIEW_PRM_KEYER_COLOR_GREEN, CORVIEW_PRM_KEYER_COLOR_BLUE, CORVIEW_PRM_KEYER_CHROMA_HI and CORVIEW_PRM_KEYER_CHROMA_LO

Note Read only parameter.

CORVIEW_PRM_OVERLAY_MODE

Description Specifies the behavior of a view when CORVIEW_PRM_MODE is set to CORVIEW_VAL_MODE_OVERLAY.

Type UINT32

Values CORVIEW_VAL_OVERLAY_MODE_ALWAYS_ON_TOP
No color keying scheme is in effect. The associated buffer's contents will be displayed directly on the screen using the display adapter's overlay hardware. This is the fastest method, but its drawback is that other windows will not be displayed correctly if they come in front of the Sapera application that has the overlay.

CORVIEW_VAL_OVERLAY_MODE_AUTO_COLOR_KEYING
A destination key color scheme is enabled, that is, a source buffer pixel will only be displayed if the corresponding pixel on the display surface has the key color. Each time CorViewShow is called, the defined key color is painted on the display surface ROI. Calling CorViewOnPaint will only repaint the key color on the portion of the display surface that has been revealed

CORVIEW_VAL_OVERLAY_MODE_MANUAL_COLOR_KEYING
Similar to auto-keying mode, but the user is responsible for painting the key color on the display surface. This gives the user more flexibility as to where the overlay image should be displayed. An easy way to paint the key color is to use a video memory off-screen buffer that contains the key color. This buffer can be copied very quickly to the display surface by the display adapter's hardware and thus minimizes the CPU load.

See Also CorBufferNew, CorViewNew, CORVIEW_PRM_KEYER_COLOR_PALETTE, CORVIEW_PRM_KEYER_COLOR_RED, CORVIEW_PRM_KEYER_COLOR_GREEN, CORVIEW_PRM_KEYER_COLOR_BLUE, CORVIEW_PRM_KEYER_CHROMA_HI and CORVIEW_PRM_KEYER_CHROMA_LO

CORVIEW_PRM_RANGE

Description	Specifies how many of the most significant bits are not to be displayed. If the display only uses a subset of the image data (for example, a 32-bit image on an 8-bit display), this parameter's value determines the offset of the subset from the image data high bit.
Type	UINT32
Values	[0...CORVIEW_CAP_RANGE_MAX]
Note	Valid only when CORVIEW_CAP_RANGE is not zero. Useful when a buffer must be viewed on a display which can only display at a lower bit depth than the buffer pixel depth (for example, 16-bit monochrome buffers). Refer to CORVIEW_CAP_RANGE_MAX for the maximum value allowed for this parameter.

CORVIEW_PRM_ROTATE

Description	Specifies the angle that the source image is rotated when the view is being displayed.
Type	UINT32
Values	[0...359] If the CORVIEW_CAP_ROTATE capability includes the CORVIEW_VAL_ROTATE_90 flag, only values of 0, 90, 180, and 270 are valid.
Note	Valid only when CORVIEW_CAP_ROTATE is not zero.

CORVIEW_PRM_ROI_DST_HEIGHT

Description	Height of the destination ROI of the display surface which is associated with the view.
Type	UINT32
Values	[0...display height-CORVIEW_PRM_ROI_DST_TOP] or [0...window client area height-CORVIEW_PRM_ROI_DST_TOP]
Note	Valid only when CORVIEW_CAP_ROI_DST is not zero. By default, the initial source ROI dimensions are the same as those of the source buffer. When the destination ROI dimensions differ from those of the source ROI, the source buffer will be zoomed.

CORVIEW_PRM_ROI_DST_LEFT

Description	Left edge coordinate of the destination ROI relative to the coordinates of the display surface associated with the view. If a display window is specified, the coordinate is relative to the display window's client area.
Type	UINT32
Values	[0...display width-1] or [0...window client area width-1]
Note	Valid only when CORVIEW_CAP_ROI_DST is not zero. By default, the initial destination ROI dimensions are the same as those of the source buffer.

CORVIEW_PRM_ROI_DST_TOP

Description	Top edge coordinate of the destination ROI relative to the coordinates of the display surface associated with the view. If a display window is specified, the coordinate is relative to the display window's client area.
Type	UINT32
Values	[0...display height-1] or [0...window client area height-1]
Note	Valid only when CORVIEW_CAP_ROI_DST is not zero. By default, the initial destination ROI dimensions are the same as those of the source buffer.

CORVIEW_PRM_ROI_DST_WIDTH

Description	Width of the destination ROI of the display surface associated with the view.
Type	UINT32
Values	[0...display width- CORVIEW_PRM_ROI_DST_LEFT] or [0...window client area width- CORVIEW_PRM_ROI_DST_LEFT]
Note	Valid only when CORVIEW_CAP_ROI_DST is not zero. By default, the initial source ROI dimensions are the same as those of the source buffer. When the destination ROI dimensions differ from those of the source ROI, the source buffer will be zoomed.

CORVIEW_PRM_ROI_SRC_HEIGHT

Description	Height of the source ROI of the buffer associated with the view.
Type	UINT32
Values	[0...buffer height-CORVIEW_PRM_ROI_SRC_TOP]
Note	Valid only when CORVIEW_CAP_ROI_SRC is not zero. By default, the initial source ROI dimensions are the same as those of the source buffer. When the source ROI dimensions differ from those of the destination ROI, the source buffer will be zoomed.

CORVIEW_PRM_ROI_SRC_LEFT

Description	Left edge coordinate of the source ROI relative to the coordinates of the buffer associated with the view.
Type	UINT32
Values	[0...buffer width-1]
Note	Valid only when CORVIEW_CAP_ROI_SRC is not zero. By default, the initial source ROI dimensions are the same as those of the source buffer.

CORVIEW_PRM_ROI_SRC_TOP

Description	Top edge coordinate of the source ROI relative to the coordinates of the buffer associated with the view.
Type	UINT32
Values	[0...buffer height-1]
Note	Valid only when CORVIEW_CAP_ROI_SRC is not zero. By default, the initial source ROI dimensions are the same as those of the source buffer.

CORVIEW_PRM_ROI_SRC_WIDTH

Description	Width of the source ROI of the buffer associated with the view.
Type	UINT32
Values	[0...buffer width-CORVIEW_PRM_ROI_SRC_LEFT]
Note	Valid only when CORVIEW_CAP_ROI_SRC is not zero. By default, the initial source ROI dimensions are the same as those of the source buffer. When the source ROI dimensions differ from those of the destination ROI, the source buffer will be zoomed.

CORVIEW_PRM_ZOOM_HORZ_METHOD

Description Sets the zooming horizontal method.

Type UINT32

Values CORVIEW_VAL_ZOOM_METHOD_SIMPLE
Simple zoom using pixel dropping or replication.

CORVIEW_VAL_ZOOM_METHOD_INTERPOLATION
Interpolated zoom.

CORVIEW_VAL_ZOOM_METHOD_POW2
Zoom by a power of 2 (for example, 2x, 4x, 8x, and so forth).

CORVIEW_VAL_ZOOM_METHOD_INTEGER
Zoom by an integer factor (for example, 2x, 3x, 4x, 5x, and so forth)

See also CORVIEW_CAP_ZOOM_HORZ_METHOD

CORVIEW_PRM_ZOOM_VERT_METHOD

Description Sets the zooming vertical method.

Type UINT32

Values CORVIEW_VAL_ZOOM_METHOD_SIMPLE
Simple zoom using pixel dropping or replication.

CORVIEW_VAL_ZOOM_METHOD_INTERPOLATION
Interpolated zoom.

CORVIEW_VAL_ZOOM_METHOD_POW2
Zoom by a power of 2 (for example, 2x, 4x, 8x, and so forth).

CORVIEW_VAL_ZOOM_METHOD_INTEGER
Zoom by an integer factor (for example, 2x, 3x, 4x, 5x, and so forth)

See also CORVIEW_CAP_ZOOM_VERT_METHOD

CORVIEW_PRM_ZORDER

Description The relative ordering of this view in relation to other views on the same display surface. Used when there is more than one keyed view on a dedicated display, such as an overlay or pass-through.

Type UINT32

Values [0...topmost view on this display]

Note Valid only when CORVIEW_CAP_ZORDER is not zero.

Functions

Function	Description
CorViewBlit	*Copies data between the off-screen/overlay buffers associated with the views*
CorViewFree	*Releases handle to a view resource*
CorViewGetCap	*Gets view capability value from a view resource*
CorViewGetLut	*Gets output LUT values from a view resource*
CorViewGetPrm	*Gets view parameter value from a view resource*
CorViewHide	*Stops displaying a view resource*
CorViewNew	*Creates in the specified server's memory a new view resource*
CorViewOnMove	*WM_MOVE handler callback function of a view resource*
CorViewOnPaint	*WM_PAINT handler callback function of a view resource*
CorViewOnSize	*WM_SIZE handler callback function of a view resource*
CorViewSetBuffer	*Set a new buffer resource for a view resource*
CorViewSetLut	*Sets output LUT values to a view resource*
CorViewSetPrm	*Sets a simple view parameter of a view resource*
CorViewSetPrmEx	*Sets a complex view parameter of a view resource*
CorViewShow	*Displays a view resource*
CorViewShowWithOps	*Displays a view resource using alternate parameters*
CorViewUpdatePos	*Updates position of a view resource*

CorViewBlit

Copies data between the off-screen/overlay buffers associated with the views

Prototype CORSTATUS **CorViewBlit**(CORVIEW *hSource*, CORVIEW *hDest*, UINT32 *ops*, CORVIEW_BLIT_DESC **prms*);

Description Copies ("blits") data between the off-screen/overlay buffers associated with the views.

Input

hSource Source view resource handle

hDest Destination view resource handle

ops Operations to be applied during the blit. Can be ORed to combine operations.

CORVIEW_OPS_SRC_ROI
Override the source ROI defined for the source view.
CORVIEW_OPS_DST_ROI
Override the source ROI defined for the destination view.
CORVIEW_OPS_ROTATION
Rotate the source image by a given angle into the destination image.
CORVIEW_OPS_MIRROR_UP_DOWN
Flip the source image vertically into the destination image.
CORVIEW_OPS_MIRROR_LEFT_RIGHT
Flip the source image horizontally into the destination image
CORVIEW_OPS_COLOR_FILL
Disregard source buffer contents; fill the destination with a given color.
CORVIEW_OPS_SRC_KEY_COLOR
Apply a source key color scheme during the blit. Only the source pixels not corresponding to the key color will get copied.
CORVIEW_OPS_DST_KEY_COLOR
Apply a destination key color scheme during the blit. Only the destination pixels corresponding to the key color will get copied.

prms Pointer to a structure containing parameters that affect the blit operations. See CORVIEW_BLIT_DESC Structure Definition.

Output None

Return Value CORSTATUS_OK
CORSTATUS_INCOMPATIBLE_VIEW, CORSTATUS_DDRAW_ERROR,
CORSTATUS_ARG_INVALID_VALUE, CORSTATUS_ARG_NULL (if *prms* is NULL) and
CORSTATUS_NOT_IMPLEMENTED

Note The source and destination views must be associated with either off-screen or overlay buffers. The pixel formats of the buffers should be the same. Not all operations are necessarily supported, alone or combined. Since CorViewBlit uses hardware acceleration (through DirectDraw (Windows XP 32-bit only)), the supported operations may depend on the display adapter's hardware, driver version, and buffer pixel formats. The operations supported are not necessarily the same for overlay buffers as for off-screen buffers.

See Also CorViewNew

CorViewFree

Release handle to a view resource

Prototype	CORSTATUS **CorViewFree**(CORVIEW *hView*);
Description	Releases handle to a view resource.
Input	*hView* View resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_DDRAW_ERROR, CORSTATUS_INVALID_HANDLE and CORSTATUS_RESOURCE_IN_USE
Note	The *hView* handle is invalid after a call to this function. Only after the view has been destroyed when using this function can the buffer be destroyed. An attempt to do otherwise will cause an error in CorBufferFree. Likewise, the display may not be released before the view using it is destroyed.
See Also	CorViewNew and CorBufferFree

CorViewGetCap

Get view capability value from a view resource

Prototype	CORSTATUS **CorViewGetCap**(CORVIEW *hView*, UINT32 *cap*, UINT32 **value*);	
Description	Gets view capability value from a view resource	
Input	*hView*	View resource handle
	cap	View resource capability requested
Output	*value*	Value of the capability
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_CAP_INVALID, CORSTATUS_CAP_NOT_AVAILABLE and CORSTATUS_INVALID_HANDLE	
Note	If the capability number passed as the argument does not exist, CORSTATUS_CAP_INVALID is returned. If the capability is not valid on a particular device, CORSTATUS_CAP_NOT_AVAILABLE is returned.	
See Also	CorViewGetPrm and CorViewSetPrm	

CorViewGetLut

Gets output LUT values from a view resource

Prototype	CORSTATUS **CorViewGetLut**(CORVIEW *hView*, CORLUT *hLut,* UINT32 *lutNumber*);	
Description	Copies the values of the LUT specified by *lutNumber* into hLut.	
Input	*hView*	View resource handle
	hLut	LUT resource handle
	lutNumber	LUT number in view resource
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE, CORSTATUS_CAP_NOT_AVAILABLE, CORSTATUS_INCOMPATIBLE_LUT and CORSTATUS_INVALID_HANDLE	
Note	This function will succeed only if the CORVIEW_CAP_LUT capability is TRUE; otherwise, CORSTATUS_CAP_NOT_AVAILABLE is returned. If multiple LUTs are available for the view, the values of the one specified by lutNumber will be copied. The LUT number value range is [0...CORVIEW_PRM_MAX_LUT1].	
See Also	CorViewSetLut and CORVIEW_PRM_LUT_NUMBER	

CorViewGetPrm

Get view parameter value from a view resource

Prototype	CORSTATUS **CorViewGetPrm**(CORVIEW *hView*, UINT32 *prm*, void **value*);	
Description	Gets view parameter value from a view resource.	
Input	*hView*	View resource handle
	prm	View parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_INVALID_HANDLE, CORSTATUS_PRM_INVALID and CORSTATUS_PRM_NOT_AVAILABLE	
Note	If the parameter number passed as the argument does not exist, CORSTATUS_PRM_INVALID is returned. If the parameter is not valid on a particular device, CORSTATUS_PRM_NOT_AVAILABLE is returned.	
See Also	CorViewGetCap and CorViewSetPrm	

CorViewHide

Stops displaying a view resource

Prototype	CORSTATUS **CorViewHide**(CORVIEW *hView*);	
Description	Stops displaying a view resource.	
Input	*hView*	View resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_DDRAW_ERROR, CORSTATUS_INVALID_HANDLE	
Note	CORSTATUS_DDRAW_ERROR is returned when an error occurs while accessing DirectDraw (Windows XP 32-bit only) implementation.	
See Also	CorViewShow	

CorViewNew

Create in the specified server's memory a new view resource

Prototype	CORSTATUS **CorViewNew**(CORSERVER *hServer*, CORDISPLAY *hDisplay,* CORBUFFER *hBuffer,* UINT32 *mode,* CORVIEW **hView*);	
Description	Create a new view resource in a specific mode from the display and buffer parameters.	
Input	*hServer*	Server handle
	hDisplay	Display resource handle
	hBuffer	Buffer resource handle
	mode	Viewing mode. With Sapera 3.50 or later, use the auto-detect mode. CORVIEW_VAL_MODE_AUTO_DETECT, The appropriate mode will be selected among the three following modes depending on the buffer. CORVIEW_VAL_MODE_DIB, This mode uses a device-independent bitmap to represent and transfer buffer data to the display. This option can only be selected if the buffer is of type contiguous, scatter-gather, or virtual. If the buffer is of one of those types, the auto-detect option will automatically choose this option. CORVIEW_VAL_MODE_OVERLAY, This mode uses the display adapter's overlay hardware to display the overlay buffer. If a keying operation is performed, the overlay buffer will be displayed only if the color of the corresponding pixel, seen on the display, has a specific value or a value within a given range. The default value of the key color can be modified. Furthermore, this is the fastest mode since it does not require any data transfer. Note that this option can only be selected if the buffer is of type *overlay*, and if it is, the auto-detect option will automatically choose this mode.
Output	*hView*	View resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *hView* is NULL), CORSTATUS_DDRAW_ERROR, CORSTATUS_DDRAW_NOT_AVAILABLE, CORSTATUS_INCOMPATIBLE_BUFFER, CORSTATUS_INCOMPATIBLE_LOCATION, CORSTATUS_INVALID_HANDLE and CORSTATUS_NO_MEMORY	
Note	If the buffer cannot be associated with the display or the desired viewing mode is not available, the view is not created and CORSTATUS_DDRAW_ERROR is returned. If the *hBuffer* or *hDisplay* parameters are not on the same server as the *server* parameter, the view is not created and CORSTATUS_INCOMPATIBLE_LOCATION is returned. If the buffer type is not compatible with the mode, the view is not created and CORSTATUS_INCOMPATIBLE_BUFFER is returned. The buffer cannot be destroyed before the view using it is destroyed. An attempt to do so will cause an error in CorBufferFree. This also applies to the display handle.	
See Also	CORBUFFER_PRM_TYPE and CORVIEW_PRM_OVERLAY_MODE	

CorViewOnMove

WM_MOVE handler callback function of a view resource

Prototype	CORSTATUS **CorViewOnMove**(CORVIEW *hView*);
Description	A callback function that should be called in the WM_MOVE message handler of the target window if the display is a system display and CORVIEW_PRM_HWND is not 0.
Input	*hView* View resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_DDRAW_ERROR and CORSTATUS_INVALID_HANDLE
Note	If CORVIEW_PRM_HWND is 0, CORSTATUS_PRM_INVALID_VALUE is returned. CORSTATUS_DDRAW_ERROR is returned for errors while accessing DirectDraw (Windows XP 32-bit only).
See Also	CorViewHide, CorViewShow and CorViewUpdatePos

CorViewOnPaint

WM_PAINT handler callback function of a view resource

Prototype	CORSTATUS **CorViewOnPaint**(CORVIEW *hView*);
Description	A callback function that should be called in the WM_PAINT message handler of the target window if the display is a system display and CORVIEW_PRM_HWND is not 0.
Input	*hView* View resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_DDRAW_ERROR and CORSTATUS_INVALID_HANDLE
Note	The only difference with CorViewShow is in the case of an auto-keying overlay. In that case, CorViewOnPaint will repaint the key color only in the region of the view's ROI which has been invalidated since the last call of CorViewOnPaint or CorViewShow; whereas CorViewShow will repaint the key color on the whole ROI. If CORVIEW_PRM_HWND is 0, CORSTATUS_PRM_INVALID_VALUE is returned. CORSTATUS_DDRAW_ERROR is returned when an error occurs while accessing the DirectDraw (Windows XP 32-bit only) implementation.
See Also	CorViewHide, CorViewShow and CorViewUpdatePos

CorViewOnSize

WM_SIZE handler callback function of a view resource

Prototype	CORSTATUS **CorViewOnSize**(CORVIEW *hView*);
Description	A callback function that should be called in the WM_SIZE message handler of the target window if the display is a system display and CORVIEW_PRM_HWND is not 0.
Input	*hView* View resource handle
Output	None
Return Value	CORSTATUS_OK CORSTATUS_DDRAW_ERROR and CORSTATUS_INVALID_HANDLE
Note	If CORVIEW_PRM_HWND is 0, CORSTATUS_PRM_INVALID_VALUE is returned. CORSTATUS_DDRAW_ERROR is returned for errors while accessing DirectDraw (Windows XP 32-bit only).
See Also	CorViewHide, CorViewShow and CorViewUpdatePos

CorViewSetBuffer

Set a new buffer resource for a view resource

Prototype	CORSTATUS **CorViewSetBuffer**(CORVIEW hView, CORBUFFER *hBuffer*);	
Description	Sets a new buffer resource for a view resource	
Input	hView	View resource handle
	hBuffer	Buffer resource handle
Notes	New buffer resource must have the same size and format as the buffer resource that has been specified when creating the view resource.	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE and CORSTATUS_ARG_INVALID	
See Also	CorViewNew	

CorViewSetLut

Sets output LUT values to a view resource

Prototype	CORSTATUS **CorViewSetLut**(CORVIEW *hView*, CORLUT *hLut,* UINT32 *lutNumber*);	
Description	Copies the values of hLut into the LUT specified by lutNumber.	
Input	*hView*	View resource handle
	hLut	LUT resource handle created with CorLutNew or CorLutNewFromFile.
	lutNumber	LUT number in View resource. If multiple LUTs are available for the View, the values of the one specified by lutNumber will be copied. The *lutNumber* value range is [0... CORVIEW_CAP_LUT-1].
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_OUT_OF_RANGE, CORSTATUS_CAP_NOT_AVAILABLE, CORSTATUS_INCOMPATIBLE_LUT, CORSTATUS_INVALID_HANDLE and CORSTATUS_NOT_IMPLEMENTED	
Note	This function will succeed only if the CORVIEW_CAP_LUT capability is TRUE; otherwise, CORSTATUS_CAP_NOT_AVAILABLE is returned.	
See Also	CorViewGetLut and CORVIEW_PRM_LUT_NUMBER	

CorViewSetPrm

Sets a simple view parameter of a view resource

Prototype	CORSTATUS **CorViewSetPrm**(CORVIEW *hView*, UINT32 *prm*, UINT32 *value*);	
Description	Sets a simple view parameter to a new value	
Input	*hView*	View resource handle
	prm	View parameter to modify
	value	New value of the parameter
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_PRM_INVALID and CORSTATUS_PRM_NOT_AVAILABLE	
See Also	CorViewGetPrm and CorViewGetCap	

CorViewSetPrmEx

Sets a complex view parameter of a view resource

Prototype	CORSTATUS **CorViewSetPrmEx**(CORVIEW *hView*, UINT32 *param*, const void * *value*);	
Description	Sets a complex view parameter to a new value	
Input	*hView*	View resource handle
	param	View parameter to modify
	value	New value of the parameter
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_PRM_INVALID, CORSTATUS_PRM_NOT_AVAILABLE and CORSTATUS_PRM_READ_ONLY	
Note	A complex parameter is greater than a UINT32 (like CORVIEW_PRM_HWND_TITLE). If the parameter size is UINT32, use either CorViewSetPrm or CorViewSetPrmEx.	
See Also	CorViewGetPrm and CorViewGetCap	

CorViewShow

Displays a view resource

Prototype	CORSTATUS **CorViewShow**(CORVIEW *hView*);	
Description	Displays a view resource.	
Input	*hView*	View resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_DDRAW_ERROR CORSTATUS_NOT_ACCESSIBLE, CORSTATUS_INCOMPATIBLE_BUFFER	
Note	Displays the view using the mode specified at the creation of the view. If the buffer associated with the view is an overlay and the value of CORVIEW_PRM_MODE is CORVIEW_VAL_OVERLAY MODE_AUTO_KEYING, CorViewShow will paint the chosen keying color in the client area of the target window, provided CORVIEW_PRM_HWND is not 0 and the display is a system display. If the buffer associated with the view is an overlay buffer, calling CorViewShow will return an error if the pixel format is not listed in CORDISPLAY_PRM_PIXEL_TYPE_OVERLAY. If the associated buffer is an off-screen buffer, calling CorViewShow may take more time to execute if that buffer's pixel format is not listed in CORDISPLAY_PRM_PIXEL_TYPE_OFFSCREEN. In that case, the conversion of pixel format and copying to display memory is done in software. For multiformat buffers (for example, CORBUFFER_VAL_FORMAT_RGB888_MONO8 and CORBUFFER_VAL_FORMAT_RGB161616_MONO16) the buffer to display, mono or RGB, is set by CORBUFFER_PRM_PAGE. Note, it is not required to use CorViewFree/CorViewNew when switching buffer pages.	
See Also	CorViewHide, CorViewShowWithOps, CORVIEW_PRM_MODE and CORVIEW_PRM_OVERLAY_MODE	

CorViewShowWithOps

Displays a view resource using alternate parameters

Prototype	CORSTATUS **CorViewShowWithOps**(CORVIEW *hView*, UINT32 *ops*, CORVIEW_BLIT_DESC **prms*);	
Description	Displays a view resource using alternate parameters, using the mode specified by the buffer associated with the view.	
Input	*hView*	View resource handle
	ops	Blit operations to apply which override the view resource's parameters. Valid values are the same as for the *ops* parameter of CorViewBlit.
	prms	Pointer to a structure containing parameters that affect the blit operations. See CORVIEW_BLIT_DESC Structure Definition
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE, CORSTATUS_DDRAW_ERROR and CORSTATUS_NOT_ACCESSIBLE	
Note	Displays the view using the mode specified by the buffer associated with the view. Calling CorViewShowWithOps for a view whose associated buffer's type is not CORBUFFER_VAL_TYPE_OFFSCREEN or CORBUFFER_VAL_TYPE_OVERLAY, will return an error. If the buffer associated with the view is an overlay and the value of CORVIEW_PRM_OVERLAY_MODE is CORVIEW_VAL_OVERLAY_MODE_AUTO_KEYING, CorViewShowWithOps will paint the chosen keying color in the client area of the target window, provided CORVIEW_PRM_HWND is not 0 and the display is a system display.	
See Also	CorViewBlit and CorViewHide	

CorViewUpdatePos

Updates the position of a view resource

Prototype	CORSTATUS **CorViewUpdatePos**(CORVIEW *hVew*);	
Description	Updates the position of the view on the display surface without showing it. CorViewUpdatePos will take into account the current CORVIEW_PRM_ROI_SRC and CORVIEW_PRM_ROI_DST as well as the new target window position if the display is a system display and CORVIEW_PRM_HWND is not 0.	
Input	*hView*	View resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorViewHide and CorViewShow	

CORVIEW_BLIT_DESC Structure Definition

```
// CORVIEW_BLIT_DESC Structure Definition
typedef struct
{
   UINT32 roi_src_left;   //roi values are coordinates in pixels,
                          //relative to the respective buffers
   UINT32 roi_src_top;
   UINT32 roi_src_height;
   UINT32 roi_src_width;
   UINT32 roi_dst_left;
   UINT32 roi_dst_top;
   UINT32 roi_dst_height;
   UINT32 roi_dst_width;
   UINT32 rotation_angle; //rotation_angle can take values from 0 to 359
   UINT32 color_fill;     //color_fill should be in the same format as the //destination buffer's pixel format
   UINT32 dst_key_color;  //key_color parameters should be in the same pixel //format as the source and
                          destination buffers
   UINT32 src_key_color;
 } CORVIEW_BLIT_DESC, *PCORVIEW_BLIT_DESC;
```

PCI Device Module

The PCI Device Module permits an application to manage the configuration space of PCI devices.

This module is not available in Sapera LT for 64-bit Windows.

Functions

Function	Description
CorPciFindClassCode	*Find a PCI device with a specific class code*
CorPciFindDevice	*Find a PCI device with a specific vendor ID and device ID*
CorPciGetByte	*Read a byte from the configuration space of a PCI device*
CorPciGetData	*Read an array of data from the configuration space of a PCI device*
CorPciGetDword	*Read a double word from the configuration space of a PCI device*
CorPciGetInfo	*Get PCI BIOS information, such as the number of PCI buses, hardware mechanisms, and version*
CorPciGetVGADevice	*Get PCI device handle to a device that has VGA class code*
CorPciGetWord	*Read a word from the configuration space of a PCI device*
CorPciNewDevice	*Create a new PCI device handle given a PCI bus number, a PCI slot number, and a PCI function number*
CorPciPutByte	*Write a byte in the configuration space of a PCI device*
CorPciPutDword	*Write a double word in the configuration space of a PCI device*
CorPciPutWord	*Write a word in the configuration space of a PCI device*
CorPciRelease	*Release a PCI device*
CorPciSetBusNumber	*Force the number of PCI buses in the system*

CorPciFindClassCode

Find a PCI device with a specific class code

Prototype CORSTATUS **CorPciFindClassCode**(CORSERVER *hServer*, UINT32 *classcode*, UINT16 *index*, CORPCIDEVICE **hPciDevice*);

Description Find a PCI device with a specific class code

Input

hServer	Server handle
classCode	PCI device class code
index	PCI device index

Output

hPciDevice	PCI device handle

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *hPciDevice* is NULL), CORSTATUS_INVALID_HANDLE

See Also CorPciFindDevice, CorPciGetVGADevice and CorPciNewDevice

CorPciFindDevice

Find a PCI device with a specific vendor ID and device ID

Prototype	CORSTATUS **CorPciFindDevice**(CORSERVER *hServer*, UINT16 *vendorID*, UINT16 *deviceID*, UINT16 *index*, CORPCIDEVICE **hPciDevice*);	
Description	Find a PCI device with a specific vendor ID and device ID	
Input	*hServer*	Server handle
	vendorID	PCI device vendor ID
	deviceID	PCI device device ID
	index	PCI device index (usually 0)
Output	*hPciDevice*	PCI device handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *hPciDevice* is NULL)	
Note	PCI device index must be used when more than one PCI device has the same vendor ID and device ID.	
See Also	CorPciFindClassCode, CorPciGetVGADevice and CorPciNewDevice	

CorPciGetByte

Read a byte from the configuration space of a PCI device

Prototype	CORSTATUS **CorPciGetByte**(CORPCIDEVICE *hPciDevice*, UINT16 *reg*, PUINT8 *data*);	
Description	Read a byte from the configuration space of a PCI device.	
Input	*hPciDevice*	PCI device handle
	reg	Offset in configuration space
Output	*data*	Byte read from configuration space
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *data* is NULL), CORSTATUS_INVALID_HANDLE	
See Also	CorPciGetData, CorPciGetDword and CorPciGetWord	

CorPciGetData

Read an array of data from the configuration space of a PCI device

Prototype	CORSTATUS **CorPciGetData**(CORPCIDEVICE *hPciDevice*, UINT16 *basereg*, UINT16 *nbytes*, void* *data*);	
Description	Read an array of data from the configuration space of a PCI device.	
Input	*hPciDevice*	PCI device handle
	basereg	Offset in configuration space
	nbytes	Number of bytes to read
Output	*data*	Data read from configuration space
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *data* is NULL), CORSTATUS_INVALID_HANDLE	
See Also	CorPciGetDword and CorPciGetWord	

CorPciGetDword

Read a double word from the configuration space of a PCI device

Prototype	CORSTATUS **CorPciGetDword**(CORPCIDEVICE *hPciDevice*, UINT16 *reg*, PUINT32 *data*);	
Description	Read a double word from the configuration space of a PCI device.	
Input	*hPciDevice*	PCI device handle
	reg	Offset in configuration space
Output	*data*	Double word read from configuration space
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *data* is NULL), CORSTATUS_INVALID_HANDLE	
See Also	CorPciGetData and CorPciGetWord	

CorPciGetInfo

Get PCI BIOS information

Prototype	CORSTATUS **CorPciGetInfo**(CORSERVER *hServer*, PUINT16 *version*, PUINT8 *mechanism*, PUINT8 *nBuses*);	
Description	Get information such as the number of PCI buses, hardware mechanisms, and version.	
Input	*hServere*	Server handle
Output	*version*	BIOS version
	mechanism	Hardware mechanism
	nBuses	Number of PCI buses
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *version, mechanism or nBuses* is NULL) CORSTATUS_INVALID_HANDLE	

CorPciGetVGADevice

Gets PCI device handle to a device that has VGA class code

Prototype	CORSTATUS **CorPciGetVGADevice**(CORSERVER *hServer*, UINT16 *index*, CORPCIDEVICE **hPciDevice*);	
Description	Gets PCI device handle to a device that has a VGA class code	
Input	*hServer*	Server handle
	index	PCI device index (usually 0)
Output	*hPciDevice*	PCI device handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *hPciDevice* is NULL) and CORSTATUS_INVALID_HANDLE	
See Also	CorPciFindClassCode, CorPciFindDevice and CorPciNewDevice	

CorPciGetWord

Read a word from the configuration space of a PCI device

Prototype CORSTATUS **CorPciGetWord**(CORPCIDEVICE *hPciDevice*, UINT16 *reg*, PUINT16 *data*);

Description Read a word from the configuration space of a PCI device.

Input

hPciDevice PCI device handle

reg Offset in configuration space

Output *data* Word read from configuration space

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *data* is NULL) and CORSTATUS_INVALID_HANDLE

See Also CorPciGetData and CorPciGetDword

CorPciNewDevice

Create a PCI device handle given a PCI bus number, a PCI slot number and a PCI function number

Prototype CORSTATUS **CorPciNewDevice**(CORSERVER *hServer*, UINT8 *bus*, UINT8 *slot*, UINT8 *func*, CORPCIDEVICE **hPciDevice*);

Description Create a PCI device handle given a PCI bus number, a PCI slot number and a PCI function number

Input

hServer Server handle

bus Bus number

slot Slot number

func Function number

Output *hPciDevice* PCI device handle

Return Value CORSTATUS_OK
CORSTATUS_ARG_NULL (if *hPciDevice* is NULL) and CORSTATUS_INVALID_HANDLE

See Also CorPciFindClassCode, CorPciFindDevice and CorPciGetVGADevice

CorPciPutByte

Write a byte in the configuration space of a PCI device

Prototype CORSTATUS **CorPciPutByte**(CORPCIDEVICE *hPciDevice*, UINT16 *reg*, UINT8 *data*);

Description Write a byte in the configuration space of a PCI device.

Input

hPciDevice PCI device handle

reg Offset in configuration space

data Byte to write in configuration space

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

See Also CorPciPutDword and CorPciPutWord

CorPciPutDword

Write a double word in the configuration space of a PCI device

Prototype	CORSTATUS **CorPciGetDword**(CORPCIDEVICE *hPciDevice*, UINT16 *reg*, PUINT32 *data*);	
Description	Write a double word in the configuration space of a PCI device.	
Input	*hPciDevice*	PCI device handle
	reg	Offset in configuration space
	data	Double word to write in configuration space
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorPciPutByte and CorPciPutWord	

CorPciPutWord

Write a word in the configuration space of a PCI device

Prototype	CORSTATUS **CorPciPutWord**(CORPCIDEVICE *hPciDevice*, UINT16 *reg*, UINT16 *data*);	
Description	Write a word in the configuration space of a PCI device.	
Input	*hPciDevice*	PCI device handle
	reg	Offset in configuration space
	data	Word to write in configuration space
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorPciPutByte and CorPciPutDword	

CorPciRelease

Release a PCI device

Prototype	CORSTATUS **CorPciRelease**(CORPCIDEVICE *hPciDevice*);	
Description	Release a PCI device	
Input	*hPciDevice*	PCI device handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorPciNewDevice	

CorPciSetBusNumber

Force the number of PCI buses in the system

Prototype	CORSTATUS **CorPciSetBusNumber**(CORSERVER *hServer*, PUINT8 *nbuses*);	
Description	Force the number of PCI buses in the system	
Input	*hServer*	Server handle
	nbuses	Number of PCI buses
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
Note	The number of PCI buses can only be incremented.	

Error Messages

Bit Description

All functions return a 32-bit CORSTATUS value, which is in the following format:

Bits	31-28	27-22	21-20	19-8	7-0
Description	Reserved	Module ID	Level	Info	Status ID

Bit Field	Description
Status ID	8-bits: a CORSTATUS_xxx constant. Where xxx references the status ID number.
Info	12-bits: a CORSTATUS_INFO_xxx constant or CORSTATUS_xxx constant. Refer to the status message descriptions for the Info field returned.
Level	2-bits: a CORSTATUS_LEVEL_xxx: constant.
Module ID	6-bits: a CORSTATUS_MODULE_xxx constant.

The CorManGetStatusTextEx function may be used to extract a description string for each of the bit fields. Refer to the "Error Management" section of the *Sapera LT User's Manual* for more details.

Status ID

ID	Message
0x00	CORSTATUS_OK
0x01	CORSTATUS_INVALID_HANDLE
0x0a	CORSTATUS_INCOMPATIBLE_ACQ
0x0b	CORSTATUS_INCOMPATIBLE_BUFFER
0x0d	CORSTATUS_INCOMPATIBLE_CAM
0x0e	CORSTATUS_INCOMPATIBLE_DISPLAY
0x0f	CORSTATUS_INCOMPATIBLE_GRAPHIC
0x10	CORSTATUS_INCOMPATIBLE_KERNEL
0x11	CORSTATUS_INCOMPATIBLE_LUT
0x12	CORSTATUS_INCOMPATIBLE_MANAGER
0x14	CORSTATUS_INCOMPATIBLE_VIC
0x15	CORSTATUS_INCOMPATIBLE_VIEW
0x16	CORSTATUS_INCOMPATIBLE_XFER
0x17	CORSTATUS_INCOMPATIBLE_STRING
0x1a	CORSTATUS_INCOMPATIBLE_FILE
0x1b	CORSTATUS_INCOMPATIBLE_FEATURE
0x1c	CORSTATUS_INCOMPATIBLE_ACQDEVICE
0x1e	CORSTATUS_CAP_INVALID
0x1f	CORSTATUS_CAP_NOT_AVAILABLE
0x20	CORSTATUS_FEATURE_INVALID
0x21	CORSTATUS_FEATURE_NOT_ACCESSIBLE
0x22	CORSTATUS_FEATURE_LOCKED

0x23	CORSTATUS_FEATURE_READ_ONLY
0x24	CORSTATUS_FEATURE_WRITE_ONLY
0x25	CORSTATUS_FEATURE_INVALID_VALUE
0x28	CORSTATUS_PRM_INVALID
0x29	CORSTATUS_PRM_NOT_AVAILABLE
0x2a	CORSTATUS_PRM_OUT_OF_RANGE
0x2b	CORSTATUS_PRM_INVALID_VALUE
0x2c	CORSTATUS_PRM_READ_ONLY
0x2d	CORSTATUS_PRM_MUTUALLY_EXCLUSIVE
0x32	CORSTATUS_ARG_INVALID
0x33	CORSTATUS_ARG_OUT_OF_RANGE
0x34	CORSTATUS_ARG_INCOMPATIBLE
0x35	CORSTATUS_ARG_INVALID_VALUE
0x36	CORSTATUS_ARG_NULL
0x39	CORSTATUS_FILE_OPTIONS_ERROR
0x3a	CORSTATUS_FILE_OPEN_MODE_INVALID
0x3b	CORSTATUS_FILE_SEEK_ERROR
0x3c	CORSTATUS_FILE_CREATE_ERROR
0x3d	CORSTATUS_FILE_OPEN_ERROR
0x3e	CORSTATUS_FILE_READ_ERROR
0x3f	CORSTATUS_FILE_WRITE_ERROR
0x40	CORSTATUS_FILE_CLOSE_ERROR
0x41	CORSTATUS_FILE_FORMAT_UNKNOWN
0x42	CORSTATUS_FILE_FIELD_VALUE_NOT_SUPPORTED
0x43	CORSTATUS_FILE_GET_FIELD_ERROR
0x44	CORSTATUS_FILE_READ_ONLY
0x45	CORSTATUS_FILE_WRITE_ONLY
0x46	CORSTATUS_NOT_IMPLEMENTED
0x47	CORSTATUS_NO_MEMORY
0x48	CORSTATUS_CLIPPING_OCCURED
0x49	CORSTATUS_HARDWARE_ERROR
0x4a	CORSTATUS_SERVICE_NOT_AVAILABLE
0x4b	CORSTATUS_NOT_ACCESSIBLE
0x4c	CORSTATUS_NOT_AVAILABLE
0x4d	CORSTATUS_ROUTING_NOT_IMPLEMENTED
0x4e	CORSTATUS_ROUTING_NOT_AVAILABLE
0x4f	CORSTATUS_ROUTING_IN_USE
0x50	CORSTATUS_INCOMPATIBLE_SIZE
0x51	CORSTATUS_INCOMPATIBLE_FORMAT
0x53	CORSTATUS_INCOMPATIBLE_LOCATION
0x54	CORSTATUS_RESOURCE_IN_USE
0x55	CORSTATUS_RESOURCE_LINKED
0x56	CORSTATUS_SOFTWARE_ERROR
0x57	CORSTATUS_PARAMETERS_LOCKED
0x58	CORSTATUS_XFER_NOT_CONNECTED
0x59	CORSTATUS_XFER_EMPTY_LIST
0x5a	CORSTATUS_XFER_CANT_CYCLE

0x5b	CORSTATUS_ROUTING_NOT_SPECIFIED
0x5d	CORSTATUS_TRANSFER_IN_PROGRESS
0x5f	CORSTATUS_SERVER_NOT_FOUND
0x60	CORSTATUS_CANNOT_SIGNAL_EVENT
0x61	CORSTATUS_NO_MESSAGE
0x62	CORSTATUS_TIMEOUT
0x63	CORSTATUS_INVALID_ALIGNMENT
0x64	CORSTATUS_DDRAW_256_COLORS
0x65	CORSTATUS_PCI_IO_ERROR
0x67	CORSTATUS_EVENT_CREATE_ERROR
0x68	CORSTATUS_BOARD_NOT_READY
0x69	CORSTATUS_XFER_MAX_SIZE
0x6b	CORSTATUS_RESOURCE_LOCKED
0x6c	CORSTATUS_NO_MESSAGING_MEMORY
0x6d	CORSTATUS_DDRAW_NOT_AVAILABLE
0x6e	CORSTATUS_DDRAW_ERROR
0x6f	CORSTATUS_RESOURCE_NOT_LOCKED
0x70	CORSTATUS_DISK_ON_CHIP_ERROR
0x73	CORSTATUS_INSUFFICIENT_BANDWIDTH
0x74	CORSTATUS_FILE_TELL_ERROR
0x75	CORSTATUS_MAX_PROCESS_EXCEEDED
0x76	CORSTATUS_XFER_COUNT_MULT_SRC_FRAME_COUNT
0x77	CORSTATUS_ACQ_CONNECTED_TO_XFER
0x78	CORSTATUS_INSUFFICIENT_BOARD_MEMORY
0x79	CORSTATUS_INSUFFICIENT_RESOURCES
0x7a	CORSTATUS_MISSING_RESOURCE
0x7b	CORSTATUS_NO_DEVICE_FOUND
0x7c	CORSTATUS_RESOURCE_NOT_CONNECTED
0x7d	CORSTATUS_SERVER_DATABASE_FULL
0x7f	CORSTATUS_DEVICE_NOT_CONNECTED
0x80	CORSTATUS_RESOURCE_ACCESS
0x81	CORSTATUS_DEVICE_NOT_RESPONDING
0x82	CORSTATUS_DATA_INVALID
0x83	CORSTATUS_RESOURCE_READ
0x84	CORSTATUS_RESOURCE_WRITE
0x85	CORSTATUS_CONNECTION_DROPPED
0x86	CORSTATUS_EVALUATION_PERIOD_EXPIRED
0x87	CORSTATUS_EXTERNAL_POWER_NOT_PRESENT
0x88	CORSTATUS_CAMERA_POWER_ERROR
0x89	CORSTATUS_REBOOT_REQUIRED

CORSTATUS_ACQ_CONNECTED_TO_XFER

Definition	The resource cannot be modified while the acquistion is connected to a transfer module.
Info	The parameter number.
Note	None

CORSTATUS_ARG_INCOMPATIBLE

Definition An incompatible argument was passed to a function.

Info The argument number.

Note Arguments are numbered starting at 1.

CORSTATUS_ARG_INVALID

Definition An invalid argument was passed to a function.

Info The argument number.

Note Arguments are numbered starting at 1.

CORSTATUS_ARG_INVALID_VALUE

Definition An argument with an invalid value was passed to a function.

Info The argument number.

Note Arguments are numbered starting at 1.

CORSTATUS_ARG_NULL

Definition A null argument was passed to a function.

Info The argument number.

Note Arguments are numbered starting at 1.

CORSTATUS_ARG_OUT_OF_RANGE

Definition An out-of-range argument was passed to a function.

Info The argument number.

Note Arguments are numbered starting at 1.

CORSTATUS_BOARD_NOT_READY

Definition Sapera has been unable to bind to the board device driver.

Info None

CORSTATUS_CAMERA_POWER_ERROR

Definition External power is connected, but a hardware error (for example, short-circuit) occurred when applied to the camera

Info None

CORSTATUS_CANNOT_SIGNAL_EVENT

Definition While trying to send a message, the Sapera message engine got an error when signaling an event object.

Info None

CORSTATUS_CAP_INVALID

Definition An invalid capability was requested.

Info The capability number.

CORSTATUS_CAP_NOT_AVAILABLE

Definition	An unavailable capability was requested.
Info	The capability number.

CORSTATUS_CLIPPING_OCCURED

Definition	A rectangle clipping occurred while processing a buffer.
Info	None

CORSTATUS_CONNECTION_DROPPED

Definition	Logical connection with a device was lost. This error is generated if a device is disconnected and/or no longer responds.
Info	None

CORSTATUS_DATA_INVALID

Definition	Expected data is invalid. Possible causes can be checksum or protocol errors.
Info	None

CORSTATUS_DEVICE_NOT_CONNECTED

Definition	The device is not connected.
Info	None

CORSTATUS_DEVICE_NOT_RESPONDING

Definition	The device is not responding.
Info	None

CORSTATUS_DISK_ON_CHIP_ERROR

Definition	There was an error accessing the Disk-On-Chip located on a Sapera board.
Info	The Disk-On-Chip error code

CORSTATUS_DDRAW_256_COLORS

Definition	The VGA graphics mode must be in 256 colors or more.
Info	None

CORSTATUS_DDRAW_ERROR

Definition	DirectDraw (Windows XP 32-bit only) cannot provide the requested service.
Info	None

CORSTATUS_DDRAW_NOT_AVAILABLE

Definition	DirectDraw (Windows XP 32-bit only) services are not available.
Info	None

CORSTATUS_EVALUATION_PERIOD_EXPIRED

Definition No product key has been specified for the currently installed version of Sapera LT, and the evaluation period has expired.

Info None

CORSTATUS_EVENT_CREATE_ERROR

Definition While trying to send a message, the Sapera message engine got an error when creating an event object.

Info None

CORSTATUS_EXTERNAL_POWER_NOT_PRESENT

Definition No external power is connected to the board

Info None

CORSTATUS_FEATURE_INVALID

Definition An invalid feature was passed to a function.

Info The argument number for the feature.

Note Arguments are numbered starting at 1.

CORSTATUS_FEATURE_INVALID_VALUE

Definition A feature with an invalid value was passed to a function.

Info The feature index.

CORSTATUS_FEATURE_LOCKED

Definition A feature is locked (cannot be written).

Info The feature index.

CORSTATUS_FEATURE_NOT_ACCESSIBLE

Definition An error occurred while accessing any intermediate underlying implementation for a feature.

Info The feature index.

CORSTATUS_FEATURE_READ_ONLY

Definition A feature could not be written because it is read only.

Info The feature index.

CORSTATUS_FEATURE_WRITE_ONLY

Definition A feature could not be read because it is write only.

Info The feature index.

CORSTATUS_FILE_CLOSE_ERROR

Definition Error closing file.

Info None

CORSTATUS_FILE_CREATE_ERROR

Definition	Error creating file.
Info	None

CORSTATUS_FILE_FIELD_VALUE_NOT_SUPPORTED

Definition	One or more header field values from the specified image file are not supported.
Info	None

CORSTATUS_FILE_FORMAT_UNKNOWN

Definition	File format is unknown.
Info	None

CORSTATUS_FILE_GET_FIELD_ERROR

Definition	Failed to get header field information from the specified image.
Info	None

CORSTATUS_FILE_OPEN_ERROR

Definition	Error opening file.
Info	None

CORSTATUS_FILE_OPEN_MODE_INVALID

Definition	File open mode is invalid.
Info	None

CORSTATUS_FILE_OPTIONS_ERROR

Definition	File options is invalid.
Info	None

CORSTATUS_FILE_READ_ERROR

Definition	Error reading file.
Info	None

CORSTATUS_FILE_READ_ONLY

Definition	File can only be read.
Info	None

CORSTATUS_FILE_SEEK_ERROR

Definition	A seek error occurred while accessing the file.
Info	None

CORSTATUS_FILE_TELL_ERROR

Definition A seek error occurred while trying to set the current position in the specified file.

Info None

CORSTATUS_FILE_WRITE_ERROR

Definition Error writing file.

Info None

CORSTATUS_FILE_WRITE_ONLY

Definition File can only be written.

Info None

CORSTATUS_HARDWARE_ERROR

Definition General hardware error. This error is usually fatal.

Info Hardware specific information about the error.

CORSTATUS_INCOMPATIBLE_ACQ

Definition An acquisition parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_ACQDEVICE

Definition An acquisition device parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_BUFFER

Definition A buffer is incompatible with another API object, prohibiting the two from functioning together.

Info The reason for the incompatibility.

CORSTATUS_INCOMPATIBLE_CAM

Definition A camera parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_DISPLAY

Definition A display parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_FEATURE

Definition A feature parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_FILE

Definition A file parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_FORMAT

Definition The formats of two or more resources are not compatible, prohibiting them from functioning together.

Info None

CORSTATUS_INCOMPATIBLE_GRAPHIC

Definition A graphic parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_KERNEL

Definition A kernel parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_LOCATION

Definition The location of two resources are incompatible.

Info None

CORSTATUS_INCOMPATIBLE_LUT

Definition An LUT parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_MANAGER

Definition A manager parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_SIZE

Definition The size of two or more resources are not compatible, prohibiting them from functioning together.

Info None

CORSTATUS_INCOMPATIBLE_STRING

Definition An error was detected while parsing the C expression in the string.

Info None

CORSTATUS_INCOMPATIBLE_VIC

Definition A VIC parameter is incompatible.

Info The parameter number.

CORSTATUS_INCOMPATIBLE_VIEW

Definition	A view parameter is incompatible.
Info	The parameter number.

CORSTATUS_INCOMPATIBLE_XFER

Definition	A transfer parameter is incompatible.
Info	The parameter number.

CORSTATUS_INSUFFICIENT_BANDWIDTH

Definition	The requested data transfer bandwidth exceeds the hardware capabilities.
Info	None

CORSTATUS_INSUFFICIENT_BOARD_MEMORY

Definition	There is insufficient memory on the acquisition board.
Info	None

CORSTATUS_INSUFFICIENT_RESOURCES

Definition	A requested or required resource cannot be obtained because there are none available.
Info	None

CORSTATUS_INVALID_ALIGNMENT

Definition	Memory block was not aligned on a 32-bit boundary.
Info	None

CORSTATUS_INVALID_HANDLE

Definition	Invalid handle.
Info	CORSTATUS_MODULE_xxx constant.

CORSTATUS_MAX_PROCESS_EXCEEDED

Definition	The maximum number of processes that can be bound to a driver has been exceeded. A maximum of 16 processes is currently supported.
Info	None

CORSTATUS_MISSING_RESOURCE

Definition	A required supporting DLL resource is missing
Info	None

CORSTATUS_NO_DEVICE_FOUND

Definition	No Sapera compatible device was found
Info	None

CORSTATUS_NO_MEMORY

Definition There is not enough memory for the required allocation.

Info None

CORSTATUS_NO_MESSAGE

Definition Even if the Sapera messaging engine has been signaled, no message is available.

Info None

CORSTATUS_NO_MESSAGING_MEMORY

Definition There is not enough messaging memory for the required allocation.

Info None.

Note Use the Sapera Configuration utility to increase the amount of messaging memory.

CORSTATUS_NOT_ACCESSIBLE

Definition An error occurred while accessing any intermediate underlying implementation in the process of executing an API function.

Info None

CORSTATUS_NOT_AVAILABLE

Definition The resource is not available.

Info None

CORSTATUS_NOT_IMPLEMENTED

Definition The function is not implemented.

Info None

CORSTATUS_OK

Definition No error.

Info None

CORSTATUS_PARAMETERS_LOCKED

Definition Module's parameters are locked (cannot be written).

Info None

CORSTATUS_PCI_IO_ERROR

Definition Reading or writing to the device's PCI configuration space failed.

Info None

CORSTATUS_PRM_INVALID

Definition An invalid, nonexistent parameter was specified.

Info None

CORSTATUS_PRM_INVALID_VALUE

Definition A parameter could not be set because the value is invalid.

Info The parameter number.

CORSTATUS_PRM_MUTUALLY_EXCLUSIVE

Definition A parameter could not be set because it is mutually exclusive with another parameter.

Info The parameter number.

CORSTATUS_PRM_NOT_AVAILABLE

Definition A parameter could not be read or written because it is unavailable, usually because the capability governing it is not available.

Info The parameter number.

CORSTATUS_PRM_OUT_OF_RANGE

Definition A parameter could not be set because the value is out of range.

Info The parameter number.

CORSTATUS_PRM_READ_ONLY

Definition A parameter could not be written because it is read only.

Info The parameter number.

CORSTATUS_REBOOT_REQUIRED

Definition A reboot of the computer is required. This can happen after resetting a board.

Info None

CORSTATUS_RESOURCE_ACCESS

Definition The resource is not accessible.

Info None

CORSTATUS_RESOURCE_IN_USE

Definition A requested or required resource is already being used by the user or the API.

Info None

CORSTATUS_RESOURCE_LINKED

Definition The resource is linked to another resource and cannot be freed.

Info None

CORSTATUS_RESOURCE_NOT_CONNECTED

Definition The resource is not connected

Info None

CORSTATUS_RESOURCE_READ

Definition Cannot read from the resource. Resource could be a file, socket, dedicated hardware, or other device. This error is usually fatal. Use the Sapera LogViewer utility to see a more descriptive error message.

Info None

CORSTATUS_RESOURCE_WRITE

Definition Cannot read from the resource. Resouce could be file, socket, dedicated hardware or other device. This error is usually fatal. Use the Sapera LogViewer utility to see a more descriptive error message.

Info None

CORSTATUS_RESOURCE_LOCKED

Definition The resource is locked and cannot be modified. Array module functions return this status ID when the parameter LOCKED is set.

Info None

CORSTATUS_RESOURCE_NOT_LOCKED

Definition The resource needs to be locked before use.

Info None

CORSTATUS_ROUTING_IN_USE

Definition The transfer routing (path) is already used.

Info None

CORSTATUS_ROUTING_NOT_AVAILABLE

Definition The transfer routing (path) is not available.

Info None

CORSTATUS_ROUTING_NOT_IMPLEMENTED

Definition The transfer routing (path) is not implemented.

Info None

CORSTATUS_ROUTING_NOT_SPECIFIED

Definition The transfer routing cannot be established because there is no source/destination pair.

Info None

CORSTATUS_SERVER_DATABASE_FULL

Definition The internal database containing the list of servers is full.

Info None

CORSTATUS_SERVER_NOT_FOUND

Definition	The requested server was not found. The server name may not be present in the Sapera Server list. Check in the Sapera configuration program to verify the presence of the server. If present, it may not be responding.
Info	None

CORSTATUS_SERVICE_NOT_AVAILABLE

Definition	Windows service is not running.
Info	None

CORSTATUS_SOFTWARE_ERROR

Definition	General software error.
Info	Software specific information about the error.

CORSTATUS_TIMEOUT

Definition	There was no response from a module.
Info	CORSTATUS_MODULE_xxx constant.

CORSTATUS_TRANSFER_IN_PROGRESS

Definition	Operation could not be performed because a transfer is in progress.
Info	None

CORSTATUS_XFER_CANT_CYCLE

Definition	No transfer cycle is possible for the current destination resource.
Info	None

CORSTATUS_XFER_COUNT_MULT_SRC_FRAME_COUNT

Definition	The number of frames to acquire (count argument of function CorXferStart) is not a multiple of the number of frames output by the source. For example, if the source outputs 3 frames per external trigger, the number of frames to acquire needs to be a multiple of 3.
Info	None

CORSTATUS_XFER_EMPTY_LIST

Definition	There is no data to transfer.
Info	None

CORSTATUS_XFER_MAX_SIZE

Definition	The size of the requested transfer is greater than the maximum. Use the capability CORXFER_CAP_MAX_XFER_SIZE to get this maximum.
Info	None

CORSTATUS_XFER_NOT_CONNECTED

Definition	The transfer is not connected.
Info	None

Level

ID	Value	Definition
0x00	CORSTATUS_LEVEL_ERR	Error
0x01	CORSTATUS_LEVEL_FAT	Fatal error
0x02	CORSTATUS_LEVEL_WRN	Warning
0x03	CORSTATUS_LEVEL_INF	Information

Module ID

ID	Value	Module name
0x01	CORSTATUS_MODULE_ACQ	Acquisition module
0x02	CORSTATUS_MODULE_BUFFER	Buffer module
0x04	CORSTATUS_MODULE_CAM	Camera module
0x05	CORSTATUS_MODULE_DISPLAY	Display module
0x07	CORSTATUS_MODULE_GRAPHIC	Graphic module
0x08	CORSTATUS_MODULE_HOST	Host module
0x0a	CORSTATUS_MODULE_LOG	Log module
0x0b	CORSTATUS_MODULE_LUT	LUT module
0x0c	CORSTATUS_MODULE_MANAGER	API control module
0x0d	CORSTATUS_MODULE_MEMORY	Memory management module
0x0e	CORSTATUS_MODULE_PCI	PCI module
0x11	CORSTATUS_MODULE_VIC	VIC module
0x12	CORSTATUS_MODULE_VIEW	View module
0x13	CORSTATUS_MODULE_XFER	Transfer module
0x14	CORSTATUS_MODULE_VDI	Video display interface module
0x15	CORSTATUS_MODULE_SERVER	Server module
0x17	CORSTATUS_MODULE_FILE	File module
0x19	CORSTATUS_MODULE_GIO	General IO module
0x20	CORSTATUS_MODULE_EVENTINFO	Event information module
0x21	CORSTATUS_MODULE_FEATURE	Feature module
0x22	CORSTATUS_MODULE_ACQDEVICE	Acquisition device module

Macro Definitions

Sapera Macros

This section describes all the macros used in Sapera. The macros should always be used within user applications to ensure code portability.

VALIDATE_HANDLE_ACQ(CORACQ hAcq)

Definition Validates acquisition module handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_ACQDEVICE(CORACQDEVICE hAcqDevice)

Definition Validates acquisition device module handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_BUFFER(CORBUFFER hBuffer)

Definition Validates buffer resource handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_CAM(CORCAM hCam)

Definition Validates camera resource handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_DISPLAY(CORDISPLAY hDisplay)

Definition Validates display device handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_EVENTINFO(COREVENTINFO hEventInfo)

Definition Validates event information resource handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_FEATURE(CORFEATURE hFeature)

Definition Validates feature resource handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_FILE(CORFILE hFile)

Definition Validates file resource handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_GIO(CORGIO hGIO)

Definition Validates global input/output device handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_GRAPHIC(CORGRAPHIC hGraphic)

Definition Validates graphic device handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_LUT(CORLUT hLut)

Definition Validates lookup table resource handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_PCI_DEVICE(CORPCIDEVICE hPciDevice)

Definition Validates PCI device handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_VIC(CORVIC hVIC)

Definition Validates video input conditioning resource handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_VIEW(CORVIEW hView)

Definition Validates view resource handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

VALIDATE_HANDLE_XFER(CORXFER hXfer)

Definition Validates transfer device handle

Returns CORSTATUS_OK if the handle is valid, CORSTATUS_INVALID_HANDLE otherwise

CORHANDLE_NULL

Definition Should be used to initialize non-allocated handles.

Data Definitions

Data Types

This section describes all the data types used in Sapera. They should always be used in your applications to ensure code portability.

BOOLEAN

```
8-bits unsigned integer
```

CORDATA

```
typedef union
{
    INT32 mono;
    struct  {
        INT32 red;
        INT32 green;
        INT32 blue;
    } rgb;
    struct
    {
        INT32 h;
        INT32 s;
        INT32 i;
    } hsi;
    struct
    {
        INT32 h;
        INT32 s;
        INT32 v;
    } hsv;
    struct
    {
        INT32 y;
        INT32 u;
        INT32 v;
    } yuv;
    struct
    {
        INT32 x;
        INT32 y;
    } point;
    FLOAT flt;
    struct
    {
        UINT16 alpha;
        UINT16 red;
        UINT16 green;
        UINT16 blue;
    } rgba;
    struct
    {
        FLOAT real;
        FLOAT imag;
    } cplx;
    struct
    {
        FLOAT x;
        FLOAT y;
    } fpoint;
    struct
    {
        FLOAT red;
        FLOAT green;
        FLOAT blue;
    } frgb;
 } CORDATA, *PCORDATA;
```

CORPOINT

```
typedef struct {
    INT32 x;
    INT32 y;
} CRL_POINT, *PCRL_POINT;
```

CORSTATUS

32-bits unsigned integer

INT8

8-bits signed integer

INT16

16-bits signed integer

INT32

32-bits signed integer

PBOOLEAN

Pointer to an 8-bit unsigned integer

PCORCALLBACK

```
typedef CORSTATUS (CCONV *PCORCALLBACK) (void *context, UINT32 eventType, UINT32 eventCount);
```

PCOREVENTINFOCALLBACK

```
typedef CORSTATUS (CCONV *PCOREVENTINFOCALLBACK) (void *context, COREVENTINFO hEventInfo);
```

PCORMANCALLBACK

```
typedef CORSTATUS (CCONV *PCORMANCALLBACK) (UINT32 cmd, void *inData, UINT32 inDataSize, void *outData, UINT32
outDataSize);
```

PINT8

Pointer to an 8-bits signed integer

PINT16

Pointer to a 16-bits signed integer

PINT32

Pointer to a 32-bits signed integer

PUINT8

Pointer to an 8-bits unsigned integer

PUINT16

Pointer to a 16-bits unsigned integer

PUINT32

Pointer to a 32-bits unsigned integer

UINT8

8-bits unsigned integer

UINT16

16-bits unsigned integer

UINT32

32-bits unsigned integer

Data Formats

This section describes all the data formats supported in Sapera. These formats are used by the Buffer, Kernel, File, and Acquisition modules. Each of these modules refers to these formats with different parameter names, although they are completely compatible. For example, the following assignment is acceptable.

```
UINT32 format;
CorBufferGetPrm(hBuffer, CORBUFFER_PRM_FORMAT, &format);// Read buffer format
CorAcqSetPrm(hAcq, CORACQ_PRM_OUTPUT_FORMAT, format);       // Force it to Acq
```

Data Formats:

BICOLOR88	INT32	RGB8888	UINT16
BICOLOR1616	MONO1	RGB101010	UINT32
COMPLEX	MONO8	RGB161616	UYVY
FLOAT	MONO16	RGB161616_MONO16	YUV
FPOINT	MONO32	RGB16161616	YUY2
HSI	POINT	RGBP8	YVYU
HSIP8	RGB5551	RGBP16	YUYV
HSV	RGB565	RGBR888	Y411
INT8	RGB888	UINT1	
INT16	RGB888_MONO8	UINT8	

AIA Pixel Format Naming Convention (PFNC) Equivalents

<table>
<tr><th>PFNC Format</th><th>Sapera Data Format</th><th>Buffer Byte Alignment
(bit order is little endian)</th></tr>
<tr><td>RGBG8
BGRG8</td><td>BICOLOR88</td><td>
<table><tr><td>Byte 0</td><td>Byte 1</td><td>Byte 2</td><td>Byte 3</td><td>Byte 4</td><td>Byte 5</td><td>Byte 6</td><td>Byte 7</td></tr>
<tr><td>R_1</td><td>G_1</td><td>B_1</td><td>G_1</td><td>R_2</td><td>G_3</td><td>B_2</td><td>G_4</td></tr></table>
Or
<table><tr><td>Byte 0</td><td>Byte 1</td><td>Byte 2</td><td>Byte 3</td><td>Byte 4</td><td>Byte 5</td><td>Byte 6</td><td>Byte 7</td></tr>
<tr><td>B_1</td><td>G_1</td><td>R_1</td><td>G_2</td><td>B_2</td><td>G_3</td><td>R_2</td><td>G_4</td></tr></table>
</td></tr>
<tr><td>RGBG16
BGRG16</td><td>BICOLOR1616</td><td>
<table><tr><td>Byte 0-1</td><td>Byte 2-3</td><td>Byte 4-5</td><td>Byte 6-7</td></tr>
<tr><td>R_1</td><td>G_1</td><td>B_1</td><td>G_2</td></tr></table>
Or
<table><tr><td>Byte 0-1</td><td>Byte 2-3</td><td>Byte 4-5</td><td>Byte 6-7</td></tr>
<tr><td>B_1</td><td>G_1</td><td>R_1</td><td>G_2</td></tr></table>
</td></tr>
<tr><td>ISHa8</td><td>HSI</td><td>
<table><tr><td>Byte 0</td><td>Byte 1</td><td>Byte 2</td><td>Byte 3</td><td>Byte 4</td><td>Byte 5</td><td>Byte 6</td><td>Byte 7</td></tr>
<tr><td>I_1</td><td>S_1</td><td>H_1</td><td>A_1</td><td>I_2</td><td>S_2</td><td>H_2</td><td>A_2</td></tr></table>
</td></tr>
<tr><td>HSI8_Planar</td><td>HSIP8</td><td>
<table><tr><td>Page 0</td><td>Page 1</td><td>Page 2</td></tr>
<tr><td>H_1</td><td>S_1</td><td>I_1</td></tr></table>
</td></tr>
<tr><td>VSHa8</td><td>HSV</td><td>
<table><tr><td>Byte 0</td><td>Byte 1</td><td>Byte 2</td><td>Byte 3</td><td>Byte 4</td><td>Byte 5</td><td>Byte 6</td><td>Byte 7</td></tr>
<tr><td>V_1</td><td>S_1</td><td>H_1</td><td>A_1</td><td>V_2</td><td>S_2</td><td>H_2</td><td>A_2</td></tr></table>
</td></tr>
<tr><td>MONO1</td><td>MONO1</td><td>
<table><tr><td colspan="8">Byte 0</td><td colspan="8">Byte 1</td></tr>
<tr><td>Y_8</td><td>Y_7</td><td>Y_6</td><td>Y_5</td><td>Y_4</td><td>Y_3</td><td>Y_2</td><td>Y_1</td><td>Y_{16}</td><td>Y_{15}</td><td>Y_{14}</td><td>Y_{13}</td><td>Y_{12}</td><td>Y_{11}</td><td>Y_{10}</td><td>Y_9</td></tr></table>
</td></tr>
<tr><td>MONO8</td><td>MONO8</td><td>
<table><tr><td>Byte 0</td><td>Byte 1</td><td>Byte 2</td><td>Byte 3</td></tr>
<tr><td>Y_1</td><td>Y_2</td><td>Y_3</td><td>Y_4</td></tr></table>
</td></tr>
<tr><td>MONO16</td><td>MONO16</td><td>
<table><tr><td>Byte 0-1</td><td>Byte 2-3</td><td>Byte 4-5</td><td>Byte 6-7</td></tr>
<tr><td>Y_1</td><td>Y_2</td><td>Y_3</td><td>Y_4</td></tr></table>
</td></tr>
<tr><td>MONO32</td><td>MONO32</td><td>
<table><tr><td>Byte 0-3</td><td>Byte 4-7</td><td>Byte 8-11</td><td>Byte 12-15</td></tr>
<tr><td>Y_1</td><td>Y_2</td><td>Y_3</td><td>Y_4</td></tr></table>
</td></tr>
</table>

Format	Sapera format	Layout
BayerGR8 BayerRG8 BayerGB8 BayerBG8	MONO8	Byte 0: Y_1; Byte 1: Y_2; Byte 2: Y_3; Byte 3: Y_4
BayerGR10 BayerRG10 BayerGB10 BayerBG10	MONO16	Byte 0-1: Y_1; Byte 2-3: Y_2; Byte 4-5: Y_3; Byte 6-7: Y_4
BGRa5551	RGB5551	Bit 4:0: B_1; Bit 9:5: G_1; Bit 14:10: R_1; Bit 15: A_1; Bit 4:0: B_2; Bit 9:5: G_2; Bit 14:10: R_2; Bit 15: A_2
BGR565	RGB565	Bit 4:0: B_1; Bit 10:5: G_1; Bit 15:11: R_1; Bit 20:16: B_2; Bit 26:21: G_2; Bit 31:27: R_2; Bit 4:0: B_3; Bit 10:5: G_3
BGR8	RGB888	Byte 0: B_1; Byte 1: G_1; Byte 2: R_1; Byte 3: B_2; Byte 4: G_2; Byte 5: R_2; Byte 6: B_3; Byte 7: G_3
BGRY8	RGB888_MONO8	Byte 0: B_1; Byte 1: G_1; Byte 2: R_1; Byte 3: Y_1; Byte 4: B_2; Byte 5: G_2; Byte 6: R_2; Byte 7: Y_2
BGRa8	RGB8888	Byte 0: B_1; Byte 1: G_1; Byte 2: R_1; Byte 3: A_1; Byte 4: B_2; Byte 5: G_2; Byte 6: R_2; Byte 7: A_2
BGR10p	RGB101010	Bit 9:0: B_1; Bit 19:10: G_1; Bit 29:20: R_1; Bit 31:30: Not Used; Bit 9:0: B_2; Bit 19:10: G_2; Bit 29:20: R_2; Bit 31:30: Not Used
BGR16	RGB161616	Byte 0-1: B_1; Byte 2-3: G_1; Byte 4-5: R_1; Byte 6-7: B_2; Byte 8-9: G_2; Byte 10-11: R_2; Byte 12-13: B_3; Byte 14-15: G_3
BGRY16	RGB161616_MONO16	Byte 0-1: B_1; Byte 2-3: G_1; Byte 4-5: R_1; Byte 6-7: Y_1; Byte 8-9: B_2; Byte 10-11: G_2; Byte 12-13: R_2; Byte 14-15: Y_2
BGRa16	RGB16161616	Byte 0-1: B_1; Byte 2-3: G_1; Byte 4-5: R_1; Byte 6-7: A_1; Byte 8-9: B_2; Byte 10-11: G_2; Byte 12-13: R_2; Byte 14-15: A_2
RGB8_Planar	RGBP8	Page 0: R_1; Page 1: G_1; Page 2: B_1
RGB16_Planar	RGBP16	Page 0: R_1; Page 1: G_1; Page 2: B_1
RGB8	RGBR888	Byte 0: R_1; Byte 1: G_1; Byte 2: B_1; Byte 3: R_2; Byte 4: G_2; Byte 5: B_2; Byte 6: R_3; Byte 7: G_3
YUV422_8_UYVY	UYVY	Byte 0: U_1; Byte 1: Y_1; Byte 2: V_1; Byte 3: Y_2; Byte 4: U_2; Byte 5: Y_3; Byte 6: V_2; Byte 7: Y_4
YUVa8	YUV	Byte 0: Y_1; Byte 1: U_1; Byte 2: V_1; Byte 3: A_1; Byte 4: Y_2; Byte 5: U_2; Byte 6: V_2; Byte 7: A_2
YUV422_8	YUY2	Byte 0: Y_1; Byte 1: U_1; Byte 2: Y_2; Byte 3: V_1; Byte 4: Y_3; Byte 5: U_2; Byte 6: Y_4; Byte 7: V_2
YUV8_YVYU	YVYU	Byte 0: Y_1; Byte 1: V_1; Byte 2: Y_2; Byte 3: U_1; Byte 4: Y_3; Byte 5: V_2; Byte 6: Y_4; Byte 7: U_2
YUV422_8	YUYV	Byte 0: Y_1; Byte 1: U_1; Byte 2: Y_2; Byte 3: V_1; Byte 4: Y_3; Byte 5: U_2; Byte 6: Y_4; Byte 7: V_2
YUV411_8_UYVY	Y411	Byte 0: Y_1 Y_2 U_1; Byte 3: Y_3 Y_4 V_1; Byte 6: Y_5 Y_6 U_5; Byte 9: Y_7 Y_8 V_5 U_2 Y_7 V_2 Y_8

BICOLOR88

Related Parameter Values CORBUFFER_VAL_FORMAT_BICOLOR88
CORACQ_VAL_OUTPUT_FORMAT_BICOLOR88

Number of Components 2

Number of Bits 8 per component, 32 total

Value Range [0…255] (*unsigned*)

Bit Organization The bit organization is set using the parameter CORBUFFER_PRM_COLOR_ALIGNMENT. Possible values are CORBUFFER_VAL_COLOR_ALIGN_RGBG or CORBUFFER_VAL_COLOR_ALIGN_BGRG
1 pixel is generated for 2 components (RG or BG) therefore the buffer width is twice the size of resulting image.

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
R_1	G_1	B_1	G_1	R_2	G_3	B_2	G_4

Or

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
B_1	G_1	R_1	G_2	B_2	G_3	R_2	G_4

Note Represents a RGB color value.

BICOLOR1616

Related Parameter Values CORBUFFER_VAL_FORMAT_BICOLOR16
CORACQ_VAL_OUTPUT_FORMAT_BICOLOR16

Number of Components 2

Number of Bits 16 per component, 64 total

Value Range [0…65535] (*unsigned*)

Bit Organization The bit organization is set using the parameter CORBUFFER_PRM_COLOR_ALIGNMENT. Possible values are CORBUFFER_VAL_COLOR_ALIGN_RGBG or CORBUFFER_VAL_COLOR_ALIGN_BGRG
1 pixel is generated for 2 components (RG or BG) therefore the buffer width is twice the size of resulting image.

Byte 0-1	Byte 2-3	Byte 4-5	Byte 6-7
R_1	G_1	B_1	G_2

Or

Byte 0-1	Byte 2-3	Byte 4-5	Byte 6-7
B_1	G_1	R_1	G_2

Note Represents a RGB color value.

COMPLEX

Related Parameter Values CORBUFFER_VAL_FORMAT_COMPLEX

Number of Components 2

Number of Bits 32 per component, 64 total

Value Range Maximum representable: +/-3.402823466e+38
Minimum positive value: 1.175494351e–38

Bit Organization 0-31: Real component
32-63: Imaginary component

Note Represents a pair of floating-point numbers. This data format is always *signed*.

FLOAT

Related Parameter Values CORBUFFER_VAL_FORMAT_FLOAT
CORKERNEL_VAL_FORMAT_FLOAT

Number of Components 1

Number of Bits 32

Value Range Maximum representable: +/-3.402823466e+38
Minimum positive value: 1.175494351e–38

Note Represents a single floating-point number. This data format is always *signed*.

FPOINT

Related Parameter Values CORBUFFER_VAL_FORMAT_FPOINT

Number of Components 2

Number of Bits 32 per component, 64 total

Value Range Maximum representable: +/-3.402823466e+38
Minimum positive value: 1.175494351e–38

Bit Organization 0-31: X component
32-63: Y component

Note Represents a pair of float. It is usually used for storing image coordinates. This data format is always *signed*.

HSI

Related Parameter Values CORBUFFER_VAL_FORMAT_HSI

Number of Components 3

Number of Bits 8 per component, 32 total

Value Range [0...255]

Bit Organization 0-7: Intensity component
8-15: Saturation component
16-23: Hue component
24-31: Alpha channel

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
I_1	S_1	H_1	A_1	I_2	S_2	H_2	A_2

Note Represents a HSI color value.

HSIP8

Related Parameter Values CORBUFFER_VAL_FORMAT_HSIP8

Number of Components 1

Number of Pages 3

Page 0	Page 1	Page 2
H_1	S_1	I_1

Number of Bits 8 per component

Value Range [0...255]

Note Represents a planar HSI color value.

HSV

Related Parameter Values CORBUFFER_VAL_FORMAT_HSV

Number of Components 3

Number of Bits 8 per component, 32 total

Value Range [0…255]

Bit Organization 0-7: Value component
8-15: Saturation component
16-23: Hue component
24-31: Alpha channel

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
V_1	S_1	H_1	A_1	V_2	S_2	H_2	A_2

Note Represents a HSV color value.

INT8

Related Parameter Values CORBUFFER_VAL_FORMAT_INT8

Number of Components 1

Number of Bits 8

Value Range [-128…127]

Note Represents a single monochrome value.

INT16

Related Parameter Values CORBUFFER_VAL_FORMAT_INT16

Number of Components 1

Number of Bits 16 (pixel depth can range from 9 to 16)

Value Range [-32768,32767]

Note Represents a single monochrome value.

INT32

Related Parameter Values CORBUFFER_VAL_FORMAT_INT32
CORKERNEL_VAL_FORMAT_INT32

Number of Components 1

Number of Bits 32

Value Range [-2147483648…2147483647]

Note Represents a single monochrome value.

MONO1

Related Parameter Values CORBUFFER_VAL_FORMAT_MONO1

Number of Components 1

Number of Bits 1

			Byte 0			
Y_1	Y_2	Y_3	....	Y_{30}	Y_{31}	Y_{32}

Value Range [0…1] (*unsigned*)

Note Represents a single monochrome value.

MONO8

Related Parameter Values	CORBUFFER_VAL_FORMAT_MONO8 CORACQ_VAL_OUTPUT_FORMAT_MONO8
Number of Components	1
Number of Bits	8

Byte 0	Byte 1	Byte 2	Byte 3
Y_1	Y_2	Y_3	Y_4

Value Range	[0...255] (*unsigned*) [-128...127] (*signed*)
Note	Represents a single monochrome value.

MONO16

Related Parameter Values	CORBUFFER_VAL_FORMAT_MONO16 CORACQ_VAL_OUTPUT_FORMAT_MONO16
Number of Components	1
Number of Bits	16 (pixel depth can range from 9 to 16)

Byte 0-1	Byte 2-3	Byte 4-5	Byte 6-7
Y_1	Y_2	Y_3	Y_4

Value Range	[0...65535] (*unsigned*) [-32768,32767] (*signed*)
Note	Represents a single monochrome value.

MONO32

Related Parameter Values	CORBUFFER_VAL_FORMAT_MONO32 CORKERNEL_VAL_FORMAT_MONO32 CORACQ_VAL_OUTPUT_FORMAT_MONO32
Number of Components	1
Number of Bits	32

Byte 0-3	Byte 4-7	Byte 8-11	Byte 12-15
Y_1	Y_2	Y_3	Y_4

Value Range	[0...4294967295] (*unsigned*) [-2147483648...2147483647] (*signed*)
Note	Represents a single monochrome value.

POINT

Related Parameter Values	CORBUFFER_VAL_FORMAT_POINT
Number of Components	2
Number of Bits	32 per component, 64 total
Value Range	[-2147483648...2147483647]
Bit Organization	0-31: X component 32-63: Y component
Note	Represents a pair of integers. It is usually used for storing image coordinates. This data format is always *signed*.

RGB5551

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB5551 CORACQ_VAL_OUTPUT_FORMAT_RGB5551
Number of Components	3
Number of Bits	5 per component, 16 total
Value Range	[0…31] (*unsigned*) [-16…15] (*signed*)
Bit Organization	0-4: Blue component 5-9: Green component 10-14: Red component 15: 1-bit alpha channel

Bit 4:0	Bit 9:5	Bit 14:10	Bit 15	Bit 4:0	Bit 9:5	Bit 14:10	Bit 15
B_1	G_1	R_1	A_1	B_2	G_2	R_2	A_2

Note Represents a RGB color value.

RGB565

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB565 CORACQ_VAL_OUTPUT_FORMAT_RGB565
Number of Components	3
Number of Bits	5, 6, 5 (for red, green and blue components respectively),16 total
Value Range	Red/blue: [0…31] (*unsigned*), [-16…15] (*signed*) Green: [0…63] (*unsigned*), [-32…31] (*signed*)
Bit Organization	0-4: Blue component 5-10: Green component 11-15: Red component

Bit 4:0	Bit 10:5	Bit 15:11	Bit 20:16	Bit 26:21	Bit 31:27	Bit 4:0	Bit 10:5
B_1	G_1	R_1	B_2	G_2	R_2	B_3	G_3

Note Represents a RGB color value.

RGB888

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB888 CORACQ_VAL_OUTPUT_FORMAT_RGB888
Number of Components	3
Number of Bits	8 per component, 24 total
Value Range	[0…255] (*unsigned*) [-128…127] (*signed*)
Bit Organization	0-7: Blue component 8-15: Green component 16-23: Red component

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
B_1	G_1	R_1	B_2	G_2	R_2	B_3	G_3

Note Represents a RGB color value with the blue component stored first.

RGB888_MONO8

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB888_MONO8 CORACQ_VAL_OUTPUT_FORMAT_RGB888_MONO8
Number of Components	4
Number of Bits	8 per component, 32 total
Value Range	[0...255] (*unsigned*) [-128...127] (*signed*)
Bit Organization	0-7: Blue component 8-15: Green component 16-23: Red component 24-31: IR (mono) component

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
B_1	G_1	R_1	Y_1	B_2	G_2	R_2	Y_2

Note Represents an 8-bit multiformat buffer with RGB and IR (mono) components.

RGB8888

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB8888 CORACQ_VAL_OUTPUT_FORMAT_RGB8888
Number of Components	3
Number of Bits	8 per component, 32 total
Value Range	[0...255] (*unsigned*) [-128...127] (*signed*)
Bit Organization	0-7: Blue component 8-15: Green component 16-23: Red component 24-31: Alpha channel

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
B_1	G_1	R_1	A_1	B_2	G_2	R_2	A_2

Note Represents a RGB color value.

RGB101010

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB101010 CORACQ_VAL_OUTPUT_FORMAT_RGB101010
Number of Components	3
Number of Bits	10 per component, 32 total
Value Range	[0...1023] (*unsigned*) [-512...511] (*signed*)
Bit Organization	0-9: Blue component 10-19: Green component 20-29: Red component 30-31: Not used

Bit 9:0	Bit 19:10	Bit 29:20	Bit 31:30	Bit 9:0	Bit 19:10	Bit 29:20	Bit 31:30
B_1	G_1	R_1	Not Used	B_2	G_2	R_2	Not Used

Note Represents a RGB color value.

RGB161616

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB161616 CORACQ_VAL_OUTPUT_FORMAT_RGB161616
Number of Components	3
Number of Bits	16 per component, 48 total (pixel depth can range from 9 to 16)
Value Range	[0…65535] (*unsigned*) [-32768…32767] (*signed*)
Bit Organization	0-15: Blue component 16-31: Green component 32-47: Red component

Byte 0-1	Byte 2-3	Byte 4-5	Byte 6-7	Byte 8-9	Byte 10-11	Byte 12-13	Byte 14-15
B_1	G_1	R_1	B_2	G_2	R_2	B_3	G_3

Note	Represents a RGB color value.

RGB161616_MONO16

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB161616_MONO16 CORACQ_VAL_OUTPUT_FORMAT_RGB161616_MONO16
Number of Components	4
Number of Bits	16 per component, 64 total (pixel depth can range from 9 to 16)
Value Range	[0…65535] (*unsigned*) [-32768…32767] (*signed*)
Bit Organization	0-15: Blue component 16-31: Green component 32-47: Red component 48-63: IR (mono) component

Byte 0-1	Byte 2-3	Byte 4-5	Byte 6-7	Byte 8-9	Byte 10-11	Byte 12-13	Byte 14-15
B_1	G_1	R_1	Y_1	B_2	G_2	R_2	Y_2

Note	Represents a 16-bit multiformat buffer with RGB and IR (mono) components.

RGB16161616

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGB16161616 CORACQ_VAL_OUTPUT_FORMAT_RGB161616
Number of Components	4
Number of Bits	16 per component, 64 total (pixel depth can range from 9 to 16)
Value Range	[0…65535] (unsigned) [-32768…32767] (signed)
Bit Organization	0-15: Blue component 16-31: Green component 32-47: Red component 48-63: Alpha component

Byte 0-1	Byte 2-3	Byte 4-5	Byte 6-7	Byte 8-9	Byte 10-11	Byte 12-13	Byte 14-15
B_1	G_1	R_1	A_1	B_2	G_2	R_2	A_2

Note	Represents a RGBA color value.

RGBP8

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGBP8 CORACQ_VAL_OUTPUT_FORMAT_RGBP8
Number of Components	1
Number of Pages	3

Page 0	Page 1	Page 2
R_1	G_1	B_1

Number of Bits	8
Value Range	[0...255]
Note	Represents a planar RGB value

RGBP16

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGBP16 CORACQ_VAL_OUTPUT_FORMAT_RGBP16
Number of Components	1
Number of Pages	3

Page 0	Page 1	Page 2
R_1	G_1	B_1

Number of Bits	16 (pixel depth can range from 9 to 16)
Value Range	[0...65535]
Note	Represents a planar RGB value

RGBR888

Related Parameter Values	CORBUFFER_VAL_FORMAT_RGBR888 CORACQ_VAL_OUTPUT_FORMAT_RGBR888
Number of Components	3
Number of Bits	8 per component, 24 total
Value Range	[0...255] (*unsigned*) [-128...127] (*signed*)
Bit Organization	0-7: Red component 8-15: Green component 16-23: Blue component

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
R_1	G_1	B_1	R_2	G_2	B_2	R_3	G_3

Note	Represents a RGB color value with the red component stored first.

UINT1

Related Parameter Values	CORBUFFER_VAL_FORMAT_UINT1 CORBUFFER_VAL_FORMAT_BINARY
Number of Components	1
Number of Bits	1
Value Range	[0...1]
Note	Represents a single monochrome value.

UINT8

Related Parameter Values	CORBUFFER_VAL_FORMAT_UINT8
Number of Components	1
Number of Bits	8
Value Range	[0...255]
Note	Represents a single monochrome value.

UINT16

Related Parameter Values	CORBUFFER_VAL_FORMAT_UINT16
Number of Components	1
Number of Bits	16 (pixel depth can range from 9 to 16)
Value Range	[0...65535]
Note	Represents a single monochrome value.

UINT32

Related Parameter Values	CORBUFFER_VAL_FORMAT_UINT32
Number of Components	1
Number of Bits	32
Value Range	[0...4294967295]
Note	Represents a single monochrome value.

UYVY

Related Parameter Values	CORBUFFER_VAL_FORMAT_UYVY CORACQ_VAL_OUTPUT_FORMAT_UYVY
Number of Components	3
Number of Bits	8 per component (16 per element)
Value Range	Y: [0...255] U: [-128...127] V: [-128...127]
Bit Organization	First element: 0–7: U_0 8–15: Y_0 Second element: 0-7: V_0 8-15: Y_1

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
U_1	Y_1	V_1	Y_2	U_2	Y_3	V_2	Y_4

Note	This is a 4:2:2 subsampled format in which for every two luminance components (Y) there is one set of color components (U, V). At least two consecutive elements (an UINT32) are needed to retrieve all the information for the individual components.

YUV

Related Parameter Values	CORBUFFER_VAL_FORMAT_YUV
Number of Components	3
Number of Bits	8 per component, 32 total
Value Range	[0...255]
Bit Organization	0-7: Y component 8-15: U component 16-23: V component 24-31: Alpha channel

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Y_1	U_1	V_1	A_1	Y_2	U_2	V_2	A_2

Note	Represents a YUV color value.

YUY2

Related Parameter Values	CORBUFFER_VAL_FORMAT_YUY2 CORACQ_VAL_OUTPUT_FORMAT_YUY2
Number of Components	3
Number of Bits	8 per component (16 per element)
Value Range	Y: [0...255] U: [-128...127] V: [-128...127]
Bit Organization	First element: 0–7: Y_0 8–15: U_0 Second element: 0-7: Y_1 8-15: V_0

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Y_1	U_1	Y_2	V_1	Y_3	U_2	Y_4	V_2

Note	Alias for the YUYV format. This is a 4:2:2 subsampled format in which for every two luminance components (Y) there is one set of color components (U, V). At least two consecutive elements (an UINT32) are needed to retrieve all the information for the individual components.

YVYU

Related Parameter Values	CORBUFFER_VAL_FORMAT_YVYU CORACQ_VAL_OUTPUT_FORMAT_YVYU
Number of Components	3
Number of Bits	8 per component, effectively 16 per element
Value Range	Y: [0...255] U: [-128...127] V: [-128...127]
Bit Organization	First element: 0–7: Y_0 8–15: V_0 Second element: 0-7: Y_1 8-15: U_0

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Y_1	V_1	Y_2	U_1	Y_3	V_2	Y_4	U_2

Note	This is a 4:2:2 subsampled format in which for every two luminance components (Y) there is one set of color components (U, V). At least two consecutive elements (an UINT32) are needed to retrieve all the information for the individual components.

YUYV

Related Parameter Values	CORBUFFER_VAL_FORMAT_YUYV CORACQ_VAL_OUTPUT_FORMAT_YUYV
Number of Components	3
Number of Bits	8 per component (16 per element)
Value Range	Y: [0...255] U: [-128...127] V: [-128...127]
Bit Organization	First element: 0–7: Y_0 8–15: U_0 Second element: 0-7: Y_1 8-15: V_0

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Y_1	U_1	Y_2	V_1	Y_3	U_2	Y_4	V_2

Note	Alias for the YUY2 format. This is a 4:2:2 subsampled format in which for every two luminance components (Y) there is one set of color components (U, V). At least two consecutive elements (an UINT32) are needed to retrieve all the information for the individual components.

Y411

Related Parameter Values
CORBUFFER_VAL_FORMAT_Y411
CORACQ_VAL_OUTPUT_FORMAT_Y411

Number of Components
3

Number of Bits
8 per component (12 bits average per pixel)

Value Range
Y: [0...255]
U: [-128...127]
V: [-128...127]

Bit Organization
First element:
0–7: Y_0
8–15: Y_1
16-23: U_0
Second element:
24–31: Y_3
0-7: Y_4
8-15: V_0

Byte 0			Byte 3			Byte 6			Byte 9						
Y_1	Y_2	U_1	Y_3	Y_4	V_1	Y_5	Y_6	U_5	Y_7	Y_8	V_5	U_2	Y_7	V_2	Y_8

Note
This is a 4:1:1 subsampled format in which for every four luminance components (Y) there is one set of color components (U, V). At least 6 consecutive bytes are needed to retrieve all the information for the individual components, for 12 bits average per pixel.

Appendix A: Server Management

The Server Database

The section Working with Handles gives only a quick overview of how Sapera manages servers. Additional issues often need to be considered, especially when running in a Windows environment. Some basic knowledge of the Sapera Server database is required in order to explain these concepts.

When Windows boots up, a list of all available Sapera Servers is built into Sapera's Manager module on the host computer. This list is called the "*Server database*". It contains the following types and numbers of entries:

- The 'System' entry is always present in the database. It corresponds to the host computer.
- For any Sapera-compatible board (for example, Xcelera-CL PX4) physically present in the system, there is at least one entry in the database. This entry is represented by the name "BoardName_x" where "x" is a numerical value ranging from 1 to the number of boards of this type (for example, Xcelera-CL_PX4_1, Xcelera-CL_PX4_2, …).
- For any Sapera-compatible camera (for example, Genie) accessible from the system, there is at least one entry in the database. This entry is represented by the name "CameraName_x" where "x" is a numerical value ranging from 1 to the number of boards of this type (for example, Genie_M640_1, Genie_M640_2, …).

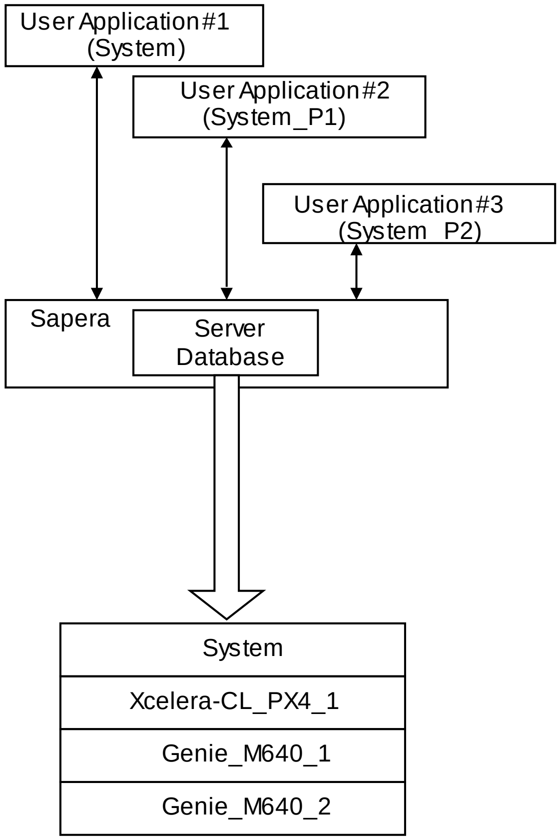
The database is made available to all application programs that are using Sapera. Use the **SapConf.exe** program to look up the contents of the database.

Note that not all servers are listed in the database. When running multiple Win32 applications at the same time, a new server is dynamically created for each application for the duration of the process only. The server for the first process will have the same name as the server listed in the database for the current Win32 environment. For example, on the host, the name corresponds to the "System" server. Servers for all other processes running Sapera applications are not part of the database.

Although servers listed in the database have recognized names that can be used directly, this is not the case for servers corresponding to Win32 applications. Sapera, however, permits each server to be assigned an alias in the form of a text string that will allow applications to retrieve any needed server handle at all times.

Server Management Diagram

The diagram below illustrates server management in a system containing one Xcelera-CL PX4, and having access to two Genie M640 cameras. The Sapera Server is the first Sapera process initiated and inherits the name "System". This is followed by two other applications running on the same platform and being assigned the names "System_P1" and "System_P2" respectively. These servers are not included in the database.


User Application #1
(System)
User Application #2
(System_P1)
User Application #3
(System_P2)
Sapera
Server
Database
System
Xcelera-CL_PX4_1
Genie_M640_1
Genie_M640_2

Getting a Server Handle (revisited)

The previous information in this section illustrated the basics of getting server handles. The following looks more extensively into the different methods of getting server handles.

Get the server corresponding to the currently running Win32 process:

```
CORSTATUS status;                  // Declare status code
CORSERVER hCurrentServer;          // Declare a server handle

// Initialize Sapera API
status = CorManOpen();

// Get the server handle for this process
status = CorManGetLocalServer(&hCurrentServer);
```

Use the following method if the server's database index is known:

```
CORSTATUS status;      // Declare status code
UINT32 nCount;         // Declare a server count
UINT32 nIndex;         // Declare a server index
char szName[64];       // Declare a character string for returned name
CORSERVER hServer;     // Declare a server handle

// Initialize Sapera API
status = CorManOpen();

// Get the number of servers in the database
status = CorManGetServerCount(&nCount);

// Get the server handle from a database index
// The indices start at 0 (which is always 'System')
status = CorManGetServerByIndex(nIndex, szName, &hServer);
```

Use the server's database name directly if it is known:

```
CORSTATUS status;                  // Declare status code
CORSERVER hGenieServer;            // Declare a server handle

// Initialize Sapera API
status = CorManOpen();

// Get the server handle by specifying its database name
status = CorManGetServerByName("Genie_M640_1", &hGenieServer);
```

Appendix B: File Formats

Buffer file formats

This section describes some buffer file formats supported in the Sapera File Module as implemented by the functions CorFileLoad and CorFileSave.

CORFILE_VAL_FORMAT_CRC

Teledyne DALSA file format

Offset	Size	Description
0	UINT32	Magic Number (must be 0x1A435243)
4-12	UINT32	Reserved
16	UINT32	Buffer width in pixels
20	UINT32	Buffer height in lines
24	UINT32	ROI's horizontal minimum
28	UINT32	ROI's vertical minimum
32	UINT32	ROI's horizontal length
36	UINT32	ROI's vertical length
40-60	UNIT32	Reserved
64	UINT32	Number of bytes per pixel
68	UINT32	Number of bits per pixel
72	UINT32	Number of planes
76-152	UNIT32	Reserved
156	M	Buffer data

Where **M** is given by the following expression:
(**ROI's horizontal length** × **ROI's vertical length** × **Number of bytes per pixel** x **Number of planes**)

CORFILE_VAL_FORMAT_RAW

Raw file format

Offset	Size	Description
N	M	Buffer data

N (in bytes) is the location of the buffer data.

M is given by the following expression:
(**horizontal buffer length** × **vertical buffer length** × **Number of bytes per pixel**)

CORFILE_VAL_FORMAT_BMP

Windows Bitmap file format

Offset	Size	Description
0	UINT16	Magic Number (must be ASCII "BM")
2	UINT32	Size in bytes of the file
6	UINT16	Reserved
8	UINT16	Reserved
10	UINT32	Byte offset in files where image begins
14	UINT32	Size of the BITMAPINFO header
18	INT32	Image width in pixels
22	INT32	Image height in pixels
26	UINT16	Number of image planes, must be 1
28	UINT16	Total bits per pixels, 1, 4, 8, 16, 24, 32
30	UINT32	Compression type BI_RGB – none BI_RLE4 – RLE 4 bit BI_RLE8 – RLE 8 bit BI_BITFIELDS - Bitfields
34	UINT32	Size in bytes of compressed image, or zero
38	INT32	Horizontal resolution, in pixel/meter
42	INT32	Vertical resolution, in pixel/meter
46	UINT32	Number of colors used
50	UINT32	Number of important colors
54	RGBQUAD * N	Color map
54+4*N	M	Bitmap Data

- Where **N** is the number of colors used and **M** the number of bitmap data in bytes.
- If bpp (bits per pixel) is 24, N = 0.
- If bpp is 16 or 32,
  If the compression specification is BI_BITFIELDS (Bitfields), N = 3.
  If the compression specification is BI_RGB (uncompressed), N = 0.
- Otherwise, N = (1 << bpp).

Buffer Data Formats Supported as Input by FileSave Functions

Buffer Data Format	File Format						
	BMP	TIF	CRC	RAW	JPEG	JPEG 2000	AVI uncompressed
BICOLOR88	X (1)	X (1)	X	X			
BICOLOR1616	X (1)	X (1)	X	X			
COMPLEX			X	X			
FLOAT			X	X			
FPOINT			X	X			
HSI			X	X			
HSIP8			X	X			
HSV			X	X			
INT8	X (2)	X	X	X		X	
INT16	X (2)	X	X	X		X	
INT32			X	X			
INT64			X	X			
MONO1	X	X	X	X			X
MONO8	X	X	X	X	X	X	X
MONO16	X (2)	X	X	X	X (2)	X	X (2)
MONO32			X	X			
MONO64			X	X			
POINT			X	X			
RGB5551	X	X (2)	X	X			X
RGB565	X	X (2)	X	X		X	
RGB888	X	X	X	X	X	X	X
RGB888_MONO8			X	X			
RGB8888	X	X (2)	X	X	X	X	X
RGB101010	X	X (4)	X	X		X	
RGB161616	X (3)	X	X	X		X	
RGB161616_MONO16			X	X			
RGB16161616	X (3)	X (4)	X	X			
RGBP8	X (2)	X (2)	X	X		X	
RGBP16	X (3)	X (4)	X	X			
RGBR888	X (2)	X (2)	X	X	X (2)	X (2)	X (2)
UINT1	X	X	X	X			X
UINT8	X	X	X	X	X	X	X
UINT16	X (2)	X	X	X	X (2)	X	X (2)
UINT32			X	X			
UINT64			X	X			
UYVY	X (2)	X (2)	X	X	X (2)	X (2)	X (2)
YUV			X	X			
YUY2	X (2)	X (2)	X	X	X (2)	X (2)	X (2)
YVYU	X (2)	X (2)	X	X	X (2)	X (2)	X (2)
YUYV	X (2)	X (2)	X	X	X (2)	X (2)	X (2)
Y211			X	X			
Y411			X	X			

(1) Buffer data are converted to RGB888 format prior to being saved into file.
(2) Buffer data are converted to MONO8 (equivalent to UINT8) format prior to being saved into file.
(3) Buffer data are converted to RGB101010 format prior to being saved into file.
(4) Buffer data are converted to RGB161616 format prior to being saved into file.

LUT File Format

This section describes the LUT file format used in the LUT module. See the CorLutLoad and CorLutSave functions.

Offset	Size	Description
0	UINT32	Lut format
4-8	UINT32	Reserved
12	UINT32	Number of entries
16-40	UINT32	Reserved
44	M	LUT data

where **M** is given by the field Size of LUT in bytes.

Appendix C: Obsolete Modules

The Graphics module has been deprecated and is no longer officially supported. However, the module will continue to compile.

Graphic Module [Obsolete]

This module performs graphic operations on buffer resources.

Capabilities [Obsolete]

ID	Capability
0x00	CORGRAPHIC_CAP_FILL
0x01	CORGRAPHIC_CAP_TEXT

CORGRAPHIC_CAP_FILL [Obsolete]

Description Specifies whether the graphic device supports area filling.

Type UINT32

Values TRUE, The graphic device supports area filling.
FALSE, The graphic device does not support area filling.

CORGRAPHIC_CAP_TEXT [Obsolete]

Description Specifies whether the graphic device supports text drawing.

Type UINT32

Values TRUE, The graphic device supports text drawing.
FALSE, The graphic device does not support text drawing.

Parameters [Obsolete]

ID	Parameter	Attribute
0x00	CORGRAPHIC_PRM_OPM	Read/Write
0x01	*Not defined*	
0x02	CORGRAPHIC_PRM_BKCOLOR	Read/Write
0x03	CORGRAPHIC_PRM_COLOR	Read/Write
0x04	CORGRAPHIC_PRM_FONTSCALE	Read/Write
0x05	CORGRAPHIC_PRM_FONTNAME	Read/Write
0x06	CORGRAPHIC_PRM_LABEL	Read Only
0x07	CORGRAPHIC_PRM_TEXTALIGN	Read/Write
0x08	CORGRAPHIC_PRM_CLIP_ENABLE	Read/Write

CORGRAPHIC_PRM_OPM [Obsolete]

Description	Operation mode
Type	UINT32
Values	CORGRAPHIC_VAL_OPM_REP, destination= CORGRAPHIC_PRM_COLOR CORGRAPHIC_VAL_OPM_XOR, destination= source ^ CORGRAPHIC_PRM_COLOR CORGRAPHIC_VAL_OPM_AND, destination= source & CORGRAPHIC_PRM_COLOR CORGRAPHIC_VAL_OPM_OR, destination= source | CORGRAPHIC_PRM_COLOR CORGRAPHIC_VAL_OPM_T, When enabled, a pixel operation that yields a 0 value is considered transparent, and will not overwrite the current value of the destination pixel.
Note	CORGRAPHIC_VAL_OPM_T can be ORed with one of the other operation mode.

CORGRAPHIC_PRM_BKCOLOR [Obsolete]

Description	Background color (monochrome or color value)
Type	*CORDATA*
Note	See Data Types for *CORDATA* definition.

CORGRAPHIC_PRM_CLIP_ENABLE [Obsolete]

Description	Enables or disables clipping.
Type	*CORDATA*
Values	TRUE, Enable FALSE, Disable
Note	Default value is FALSE

CORGRAPHIC_PRM_COLOR [Obsolete]

Description	Foreground color (monochrome or color value)
Type	*CORDATA*
Note	See Data Types for *CORDATA* definition.

CORGRAPHIC_PRM_FONTSCALE [Obsolete]

Description	Font scaling factor
Type	UINT32
Note	Text can only be up-scaled using this parameter.

CORGRAPHIC_PRM_FONTNAME [Obsolete]

Description	Graphic font file name
Type	CHAR[128]
Values	Zero-terminated array of characters specifying the path and filename of the font file to be used when drawing text.

CORGRAPHIC_PRM_LABEL [Obsolete]

Description	The graphic device's string ID.
Type	CHAR[128]
Values	Zero-terminated array of characters width a fixed size of 128 bytes.
Note	CORGRAPHIC_PRM_LABEL is a read-only parameter.

CORGRAPHIC_PRM_TEXTALIGN [Obsolete]

Description	Horizontal alignment of text
Type	UINT32
Values	CORGRAPHIC_VAL_TEXTALIGN_L, Align text with the left margin CORGRAPHIC_VAL_TEXTALIGN_C, Center text CORGRAPHIC_VAL_TEXTALIGN_R, Align text with the right margin
Note	The default text alignment mode is CORGRAPHIC_VAL_TEXTALIGN_L

Functions [Obsolete]

Function	Description
CorGraphicArc	*Draws an arc in a buffer resource using a graphic device*
CorGraphicCircle	*Draws a circle in a buffer resource using a graphic device*
CorGraphicClear	*Clears an area of a buffer resource using a graphic device*
CorGraphicDot	*Draws a dot in a buffer resource using a graphic device*
CorGraphicDots	*Draws a series of dots in a buffer resource using a graphic device*
CorGraphicDrawVector	*Draws a vector in a buffer resource using a graphic device*
CorGraphicEllipse	*Draws an ellipse in a buffer resource using a graphic device*
CorGraphicFill	*Fills an enclosed area in a buffer resource using a graphic device*
CorGraphicGetCap	*Gets capability value from a graphic device*
CorGraphicGetCount	*Gets the number of graphic devices on a server*
CorGraphicGetHandle	*Gets a handle to a graphic device*
CorGraphicGetPrm	*Gets parameter value from a graphic device*
CorGraphicGrid	*Draws a grid in a buffer resource using a graphic device*
CorGraphicLine	*Draws a line in a buffer resource using a graphic device*
CorGraphicRect	*Draws a rectangle in a buffer resource using a graphic device*
CorGraphicRelease	*Releases handle to a graphic device*
CorGraphicReset	*Resets a graphic device*
CorGraphicResetModule	*Reset resources associated with the server graphic device*
CorGraphicSetFont	*Sets the font to be used by a graphic device*
CorGraphicSetPrm	*Sets a simple graphic parameter of a graphic device*
CorGraphicSetPrmEx	*Sets a complex graphic parameter of a graphic device*
CorGraphicTarget	*Draws a crosshair in a buffer resource using a graphic device*
CorGraphicText	*Draws text in a buffer resource using a graphic device*
CorGraphicTextEx	*Draws text in a buffer resource at any angle using a graphic device*

CorGraphicArc [Obsolete]

Draw an arc in a buffer resource using a graphic device

Prototype CORSTATUS **CorGraphicArc**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, UINT32 *xRadius*, UINT32 *yRadius*, UINT32 *startAngle*, UINT32 *endAngle*, BOOLEAN *fill*);

Description Draws an arc in a specified buffer resource using a graphic device. The arc is actually a segment of an ellipse described by the parameters *xRadius* and *yRadius*.

Input

hGraphic	Graphic resource handle
hBuffer	Buffer resource handle
x	X-coordinate of ellipse's origin
y	Y-coordinate of ellipse's origin
xRadius	Horizontal radius of ellipse
yRadius	Vertical radius of ellipse
startAngle	Angle of ellipse that will define the arc's starting point
endAngle	Angle of ellipse that will define the arc's ending point
fill	Arc is filled if *fill* has a value of TRUE

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE

CorGraphicCircle [Obsolete]

Draw a circle in a buffer resource using a graphic device

Prototype CORSTATUS **CorGraphicCircle**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, UINT32 *radius*, BOOLEAN *fill*);

Description Draws a circle in a specified buffer resource.

Input

hGraphic	Graphic resource handle
hBuffer	Buffer resource handle
x	X-coordinate of circle's origin
y	Y-coordinate of circle's origin
radius	Circle radius
fill	Circle is filled if *fill* has a value of TRUE

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE, CORSTATUS_ARG_INVALID and CORSTATUS_ARG_OUT_OF_RANGE

CorGraphicClear [Obsolete]

Clear an area of a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicClear**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x1*, UINT32 *y1*, UINT32 *x2*, UINT32 *y2*);
Description	Clears a rectangular area in a specified buffer resource using a graphic device. The rectangular area is defined by giving the coordinates for a starting corner and an ending corner.
Input	*hGraphic* Graphic resource handle
	hBuffer Buffer resource handle
	x1 X-coordinate of the starting corner
	y1 Y-coordinate of the starting corner
	x2 X-coordinate of the ending corner
	y2 Y-coordinate of the ending corner
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_INCOMPATIBLE, CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE

CorGraphicDot [Obsolete]

Draw a dot in a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicDot**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*);
Description	Draws a dot in a specified buffer resource using a graphic device.
Input	*hGraphic* Graphic resource handle
	hBuffer Buffer resource handle
	x Dot's x-coordinate
	y Dot's y-coordinate
Output	None
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE

CorGraphicDots [Obsolete]

Draw a series of dots in a buffer resource using a graphic device

Prototype CORSTATUS **CorGraphicDots**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, CORBUFFER *hDots*, UINT32 *nPixels*);

Description Draws a series of dots in a specified buffer resource using a graphic device.

Input

hGraphic Graphic resource handle

hBuffer Buffer resource handle

x First dot's X-coordinate

y First dot's Y-coordinate

hDots Series of bytes defining the path to follow. Each byte represents the direction to the next adjacent pixel to draw, as indicated in the table below:

Value	1	2	3	4	5	6	7	8
Direction	E	NE	N	NW	W	SW	S	SE

A value of zero or any value greater than 8 is interpreted as not moving, causing the previous element to be drawn again.

nPixels Amount of dots to plot in the given direction

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE

CorGraphicDrawVector [Obsolete]

Draw a vector in a buffer resource using a graphic device

Prototype CORSTATUS **CorGraphicDrawVector**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, CORBUFFER *vector*, INT32 *min*, INT32 *max*, UINT32 *n*);

Description The CorGraphicDrawVector operator accepts vectors of integer numbers, floating point numbers, or vectors of points. Point input data is plotted using the (*x*,*y*) coordinate of the data. Scalar data is plotted using the vector index (starting from 0) as the X coordinate and the element value as the Y coordinate.

Input

hGraphic Graphic resource handle

hBuffer Buffer resource handle

vector Vector to draw

min Minimum Y value to be plotted

max Maximum Y value to be plotted

n Number of values to be plotted

Output None

Return Value CORSTATUS_OK
CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE

CorGraphicEllipse [Obsolete]

Draw an ellipse in a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicEllipse**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, UINT32 *xRadius*, UINT32 *yRadius*, BOOLEAN *fill*);	
Description	Draws an ellipse in a specified buffer resource using a graphic device.	
Input	*hGraphic*	Graphic resource handle
	hBuffer	Buffer resource handle
	x	X-coordinate of ellipse's origin
	y	Y-coordinate of ellipse's origin
	xRadius	Horizontal radius of ellipse
	yRadius	Vertical radius of ellipse
	fill	The ellipse is filled if *fill* has a value of TRUE
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	

CorGraphicFill [Obsolete]

Fill an enclosed area in a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicFill**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *xSeed*, UINT32 *ySeed*);	
Description	Fills an enclosed area in a specified buffer resource using a graphic device.	
Input	*hGraphic*	Graphic resource handle
	hBuffer	Buffer resource handle
	xSeed	X-coordinate of seed point
	ySeed	Y-coordinate of seed point
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE, CORSTATUS_NO_MEMORY	

CorGraphicGetCap [Obsolete]

Gets graphic capability value from a graphic device

Prototype	CORSTATUS **CorGraphicGetCap**(CORGRAPHIC *hGraphic*, UINT32 *cap*, void **value*);	
Description	Gets a graphic capability value from a graphic device.	
Input	*hGraphic*	Graphic resource handle
	cap	Graphic device capability requested
	value	Value of the capability
Output	None	
Return Value	CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_CAP_INVALID, CORSTATUS_CAP_NOT_AVAILABLE and CORSTATUS_INVALID_HANDLE	

CorGraphicGetCount [Obsolete]

Get the number of graphic devices on a server

Prototype	CORSTATUS **CorGraphicGetCount**(CORSERVER *hServer*, UINT32 **count*);	
Description	Gets the number of graphic devices on a server.	
Input	*hServer*	Server handle
Output	*count*	Number of graphic devices
Note	The content of count is 0 when there is no graphic device available.	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *count* is NULL), CORSTATUS_INVALID_HANDLE	

CorGraphicGetHandle [Obsolete]

Get a handle to a graphic device

Prototype	CORSTATUS **CorGraphicGetHandle**(CORSERVER *hServer*, UINT32 *index*, CORGRAPHIC **hGraphic*);	
Description	Gets an handle to a graphic device.	
Input	*hServer*	Server handle
	index	Specifies which graphic device to select. Valid values are in the range [0...count-1], where *count* is the value returned by CorGraphicGetCount.
Output	*hGraphic*	Graphic resource handle
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *hGraphic* is NULL), CORSTATUS_ARG_OUT_OF_RANGE, CORSTATUS_INVALID_HANDLE and CORSTATUS_NO_MEMORY	
See Also	CorGraphicGetCount and CorGraphicRelease	

CorGraphicGetPrm [Obsolete]

Get graphic parameter value from a graphic device

Prototype	CORSTATUS **CorGraphicGetPrm**(CORGRAPHIC *hGraphic*, UINT32 *prm*, void **value*);	
Description	Gets graphic parameter value from a graphic device.	
Input	*hGraphic*	Graphic resource handle
	prm	Graphic parameter requested
Output	*value*	Current value of the parameter
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_INVALID_HANDLE, CORSTATUS_PRM_INVALID	
See Also	CorGraphicSetPrm and CorGraphicSetPrmEx	

CorGraphicGrid [Obsolete]

Draws a grid in a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicGrid**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x1*, UINT32 *y1*, UINT32 *x2*, UINT32 *y2*, UINT32 *nx*, UINT32 *ny*);	
Description	Draws a grid in a buffer resource by defining a rectangular area's start and end corners, and the horizontal and vertical grid spacing.	
Input	*hGraphic*	Graphic resource handle
	hBuffer	Buffer resource handle
	x1	X-coordinate of the starting corner
	y1	Y-coordinate of the starting corner
	x2	X-coordinate of the ending corner
	y2	Y-coordinate of the ending corner
	nx	Horizontal grid spacing
	ny	Vertical grid spacing
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INCOMPATIBLE, CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	

CorGraphicLine [Obsolete]

Draws a line in a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicLine**(CORGRAPHIC *hGraphic*, CORBUFFER *buffer*, UINT32 *x1*, UINT32 *y1*, UINT32 *x2*, UINT32 *y2*);	
Description	Draws a line in a specified buffer resource using a graphic device.	
Input	*hGraphic*	Graphic resource handle
	hBuffer	Buffer resource handle
	x1	X-coordinate of the line's starting point
	y1	Y-coordinate of the line's starting point
	x2	X-coordinate of the line's ending point
	y2	Y-coordinate of the line's ending point
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	

CorGraphicRect [Obsolete]

Draws a rectangle in a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicRect**(CORGRAPHIC *hGraphic*, CORBUFFER *buffer*, UINT32 *x1*, UINT32 *y1*, UINT32 *x2*, UINT32 *y2*, BOOLEAN *fill*);	
Description	Draws a rectangular area in a specified buffer resource using a graphic device. The rectangle is defined by giving the coordinates for a starting corner and an ending corner.	
Input	*hGraphic*	Graphic resource handle
	hBuffer	Buffer resource handle
	x1	X-coordinate of the starting corner
	y1	Y-coordinate of the starting corner
	x2	X-coordinate of the ending corner
	y2	Y-coordinate of the ending corner
	fill	Rectangle is filled if *fill* has a value of TRUE
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INCOMPATIBLE, CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	

CorGraphicRelease [Obsolete]

Release handle to graphic device

Prototype	CORSTATUS **CorGraphicRelease**(CORGRAPHIC *hGraphic*);	
Description	Releases handle to graphic device.	
Input	*hGraphic*	Graphic resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	
See Also	CorGraphicGetHandle	

CorGraphicReset [Obsolete]

Reset a graphic device

Prototype	CORSTATUS **CorGraphicReset**(CORGRAPHIC *hGraphic*);	
Description	Resets a graphic device. Restores the default graphic parameters of the specified device.	
Input	*hGraphic*	Graphic resource handle
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_INVALID_HANDLE	

CorGraphicResetModule [Obsolete]

Reset the resources associated with the server's graphic devise(s)

Prototype CORSTATUS **CorGraphicResetModule** (CORSERVER *hServer*);

Description Resets the resources associated with the server's graphic device(s). Releases all resources (handle, memory) currently allocated. When using this function, make certain that no other application is currently using any graphic resource. This function should be used with caution.

Input *hServer* Server handle

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE

CorGraphicSetFont [Obsolete]

Set the font to be used by a graphic device

Prototype CORSTATUS **CorGraphicSetFont**(CORGRAPHIC *hGraphic*, const char **fontName*, const void **fontData*, UINT32 *fontDataSize*);

Description Sets the font to be used by a graphic device.

Input

hGraphic	Graphic resource handle
fontName	String specifying the path and filename of a binary font file to be used or the name to be attribute to the font in *fontData* array.
fontData	Array which contains the font to be used (*fontDataSize*). Must be *NULL* when *fontName* contains the path and filename of a binary font file.
fontDataSize	Size of *fontData* array (in bytes). Should be 0 when *fontName* contains the path and filename of a binary font file.

Output None

Return Value CORSTATUS_OK
CORSTATUS_FILE_OPEN_ERROR, CORSTATUS_FILE_READ_ERROR, CORSTATUS_INVALID_HANDLE and CORSTATUS_NO_MEMORY

Note If *fontData* is NULL, *fontName* must contains the path and filename of a binary font file.

CorGraphicSetPrm [Obsolete]

Set a simple graphic parameter of a graphic device

Prototype CORSTATUS **CorGraphicSetPrm**(CORGRAPHIC *hGraphic*, UINT32 *prm*, UINT32 *value*);

Description Sets a simple graphic parameter of a graphic device.

Input

hGraphic	Graphic resource handle
prm	Graphic parameter to set
value	New value of the parameter

Output None

Return Value CORSTATUS_OK
CORSTATUS_INVALID_HANDLE and CORSTATUS_PRM_INVALID

Note A simple parameter fits inside an UINT32. For complex parameters use CorGraphicSetPrmEx.

See Also CorGraphicGetPrm

CorGraphicSetPrmEx [Obsolete]

Set a complex graphic parameter of a graphic device

Prototype	CORSTATUS **CorGraphicSetPrmEx**(CORGRAPHIC *hGraphic*, UINT32 *prm*, const void **value*);	
Description	Sets the value of a specified graphic parameter.	
Input	*hGraphic*	Graphic resource handle
	prm	Graphic parameter to set
	value	New value of the parameter
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_NULL (if *value* is NULL), CORSTATUS_INVALID_HANDLE and CORSTATUS_PRM_INVALID	
Note	A complex parameter is one whose size is greater than an UINT32. If the parameter size is UINT32, use either CorGraphicSetPrm or CorGraphicSetPrmEx.	
See Also	CorGraphicGetPrm	

CorGraphicTarget [Obsolete]

Draws a crosshair in a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicTarget**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*);	
Description	Draw a crosshair in a specified buffer resource using a graphic device.	
Input	*hGraphic*	Graphic resource handle
	hBuffer	Buffer resource handle
	x	Target center X coordinate
	y	Target center Y coordinate
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_ARG_OUT_OF_RANGE and CORSTATUS_INVALID_HANDLE	

CorGraphicText [Obsolete]

Draw text in a buffer resource using a graphic device

Prototype	CORSTATUS **CorGraphicText**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, const char *text[]*);	
Description	Draws text in a specified buffer resource using a graphic device.	
Input	*hGraphic*	Graphic resource handle
	hBuffer	Buffer resource handle
	x	X-coordinate for text origin
	y	Y-coordinate for text origin
	text	Text string to draw
Output	None	
	CORSTATUS_ARG_INVALID, CORSTATUS_ARG_NULL (if *text* is NULL), CORSTATUS_ARG_OUT_OF_RANGE, CORSTATUS_INVALID_HANDLE and CORSTATUS_PRM_INVALID_VALUE	
See Also	CorGraphicTextEx	

CorGraphicTextEx [Obsolete]

Draw text in a buffer at any angle using a graphic device

Prototype	CORSTATUS **CorGraphicTextEx**(CORGRAPHIC *hGraphic*, CORBUFFER *hBuffer*, UINT32 *x*, UINT32 *y*, UINT32 *angle*, const char *text[]*);	
Description	Draws text in a specified buffer at a specified angle using a graphic device.	
Input	*hGraphic*	Graphic resource handle
	hBuffer	Buffer resource handle
	x	X-coordinate for text origin
	y	Y-coordinate for text origin
	angle	Angle at which to rotate text
	text	Text string to draw
Output	None	
Return Value	CORSTATUS_OK CORSTATUS_ARG_INVALID, CORSTATUS_ARG_NULL (if *text* is NULL),CORSTATUS_ARG_OUT_OF_RANGE, CORSTATUS_INVALID_HANDLE and CORSTATUS_PRM_INVALID_VALUE	
See Also	CorGraphicText	

Contact Information

The following sections provide sales and technical support contact information.

Sales Information

Visit our web site:	www.teledynedalsa.com/corp/contact/
Email:	mailto:info@teledynedalsa.com

Technical Support

Submit any support question or request via our web site:

Technical support form via our web page:	
Support requests for imaging product installations	http://www.teledynedalsa.com/imaging/support
Support requests for imaging applications	
Camera support information	
Product literature and driver updates	

When encountering hardware or software problems, please have the following documents included in your support request:

- The Sapera Log Viewer .txt file
- The PCI Diagnostic PciDiag.txt file (for frame grabbers)
- The Device Manager BoardInfo.txt file (for frame grabbers)

Note, the Sapera Log Viewer and PCI Diagnostic tools are available from the Windows start menu shortcut **Start•All Programs•Teledyne DALSA•Sapera LT**.
The Device Manager utility is available as part of the driver installation for your Teledyne DALSA device and is available from the Windows start menu shortcut **Start•All Programs•Teledyne DALSA•<Device Name>•Device Manager**.