# Glasswall Core 2 Wrapper Documentation

## Purpose

The purpose of the wrappers is to expose the Core 2 SDK functionality through Python, C#, JavaScript and Java.

Each wrapper consists of:

* The wrapper itself: a bridge between the Core 2 SDK and the desired language;
* A series of supporting files (language dependent).

## General Requirements

The following general requirements must be met to use the wrappers and their test apps:

* The Glasswall Core 2 libraries and their dependencies
  + glasswall\_core2.dll
  + \*\_camera.dll
* A designated folder containing files to be input into Core 2
* A designated folder to hold the output from Core 2
* A policy file to modify the default Core 2 file processing behaviour
* The wrapper itself.

## Test Application Overview

Each wrapper is provided with a test application. This application is designed to call each of the Core2 APIs from the chosen language, and generate a log file of the results.   
The execution steps are:

* All supporting files, folders and dependencies are checked
* The contents of the output directory are erased in preparation for file processing
* For each file in the input directory:
  + A new folder is created in the output directory and is named for the file currently being processed
  + A series of 23 tests are performed, as detailed in the Wrapper Test Calls document
  + The files generated by Glasswall are saved in the specified output directory
  + A log file detailing the result of each test is generated and saved as local\_process\_log.txt
* When all files have been processed, a final log file named process\_log.txt is saved in the root of the output directory.

## JavaScript Wrapper

### Environment

* The JavaScript wrapper requires Node.js version 10.16.3. More recent versions of Node may not be compatible.
* Additional required modules are
  + node-ffi (Node.js Foreign Function Interface). The Node.js addon for loading and calling dynamic link libraries.
  + ref, the native addon for Node.js. This extends the Buffer class.
  + The node\_modules directory contents, as supplied.

Ensure that the Core 2 libraries and all required folders are accessible to the wrapper.

### Example Code

The following code uses the JavaScript wrapper to process a file and place the managed file in a buffer. A policy file is specified, and an analysis report is generated. Note that the memory buffer is non-persistent and will have to be processed, analysed, or stored, before the script finishes. The policies file, config\_sanitise.xml will be placed in the specified directory.

|  |
| --- |
| const fs = require('fs');  const path = require('path');  const ref = require('ref');    function main() {    let glasswall = require("c:\\demo\\Core2JS.js");  let gw = new glasswall("e:\\demo\\glasswall\_core2.dll");    try {  // open session  let session\_id = gw.GW2OpenSession();    // register inputfile  let return\_status = gw.GW2RegisterInputFile(session\_id, 'e:\\TestFiles\\C.bmp');    // register outputmemory: the processed data is non-persistent  let output\_file\_buffer = ref.alloc(ref.refType(ref.types.CString));  let output\_buffer\_size = ref.alloc(ref.types.size\_t, 0);  return\_status = gw.GW2RegisterOutputMemory(session\_id, output\_file\_buffer,  output\_buffer\_size);    // register policies file  return\_status = gw.GW2RegisterPoliciesFile(session\_id,  'e:\\Tasks\\W57240-Core\_2\_JavaScript\_Wrapper\\Src\\config\_sanitise.xml', 0);    // register analysis file  return\_status = gw.GW2RegisterAnalysisFile(session\_id,  'e:\\Output\\Analysis\_output.xml', 0); // 0 = AF\_XML    // run the session  return\_status = gw.GW2RunSession(session\_id);    // close the session  return\_status = gw.GW2CloseSession(session\_id);    }  catch (err) {  console.log(`error - exception caught: ${err}`);  process.exit();  }  }    if (require.main === module) {  main();  } |

## Java Wrapper

### Environment

* The Java wrapper requires a JRE to be installed. This wrapper has been tested with V8. Other versions may not be compatible.
* Ensure that a 64-bit version of the JRE is used.
* The Java wrapper requires all supporting files to be stored in the same directory as the wrapper itself. This means that the Core2 libraries and wrapper support files cannot be stored in subdirectories.
* Ensure that the Core2 Libraries and all required folders are accessible to the wrapper.

### Notes on Use

* Ensure that strings used for specifying filenames are null terminated. The following example includes a procedure named ‘StringToCBytes’ to perform the necessary conversion.
* Retrieval of buffer data is achieved by calling one of the GetBuffer() procedures.
* Buffer data for a session must be retrieved before the session is closed.

### Example Code

The following code uses the Java wrapper to process a file and place the managed file in a buffer. A policy file is specified, and an analysis report is generated. Note that the memory buffer is non-persistent and will have to be processed, analysed, or stored, before the script finishes. The policies file, config\_sanitise.xml will be placed in the specified directory.

|  |
| --- |
| import java.io.ByteArrayOutputStream;  import java.io.IOException;  public class Core2JavaExample  {  private static byte[] StringToCBytes(String input\_string)  {  // Procedure to convert Java String to NULL-terminated CString  ByteArrayOutputStream cstring\_stream = new ByteArrayOutputStream();  byte[] return\_value = input\_string.getBytes("UTF-8");    // Terminate with /0  cstring\_stream.write(return\_value, 0, return\_value.length);  cstring\_stream.write(0);  return\_value = cstring\_stream.toByteArray();  return return\_value;  }  public static void main(String argv[]) throws IOException  {  System.loadLibrary("Core2JavaBridge");  Core2JavaBridge gw = new Core2JavaBridge();    try  {  // open session  int session\_id = gw.GW2OpenSession();    // register inputfile  int return\_status = gw.GW2RegisterInputFile(session\_id,  StringToCBytes("C:\\temp\\input\\Test.jpg"));    // register outputmemory: the processed data is non-persistent  return\_status = gw.GW2RegisterOutputMemory(session\_id);    // register policies file  return\_status = gw.GW2RegisterPoliciesFile(session\_id,  StringToCBytes("C:\\temp\\xmlconfig.xml"), 0); // 0 = PF\_XML    // register analysis file  return\_status = gw.GW2RegisterAnalysisFile(session\_id,  StringToCBytes("C:\\temp\\Analysis\_output.xml"), 0); // 0 = AF\_XML    // run the session  return\_status = gw.GW2RunSession(session\_id);    // close the session  return\_status = gw.GW2CloseSession(session\_id);    }  catch (Exception error)  {  System.out.println("error - exception caught: " + error.getMessage());  }  }  } |

## Python Wrapper

* This has been tested on versions 3.6 and 2.7 of python.

### Environment

* You need to ensure that you have the Glasswall.py wrapper file accessible.
* Ensure that the Core 2 libraries and all required folders are accessible to the wrapper.

### Example Code

The following code uses the Python wrapper to process a file and place the managed file in a buffer. A policy file is specified, and an analysis report is generated. Note that the memory buffer is non-persistent and will have to be processed, analysed, or stored, before the script finishes. The policies file, config\_sanitise.xml will be placed in the specified directory.

|  |
| --- |
| from Glasswall import Glasswall  import ctypes as ct    class PythonWrapper:  buffer = ct.c\_void\_p()  buffer\_length = ct.c\_size\_t()    # create Glasswall object.  gw = Glasswall(r'e:\Core2\_dlls')    # open session  session\_id = gw.open\_session()    # register inputfile  return\_status = gw.register\_input\_file(session\_id, r'e:\Input\A.xlsx')    # register outputmemory: the processed data is non-persistent  return\_status = gw.register\_output\_memory(session\_id, buffer, buffer\_length)    # register policies file  return\_status = gw.register\_policies\_file(session\_id, r'e:\Config\ config\_sanitise.xml', 0)    # register analysis file  return\_status = gw.register\_analysis\_file(session\_id, r'e:\Output\Analysis.xml')    # run the session  return\_status = gw.run\_session(session\_id)    # close the session  return\_status = gw.close\_session(session\_id) |

## C# Wrapper

### Environment

* Ensure that the DLL (“glasswall.core2.csharp.wrapper”) is added as a reference to your environment to be able to use it.
* Ensure that the Core2 Libraries and all required folders are accessible to the wrapper.

### Example Code

The following code uses the C# wrapper to process a file and place the managed file in a buffer. A policy file is specified, and an analysis report is generated. Note that the memory buffer is non-persistent and will have to be processed, analysed, or stored, before the script finishes. The policies file, config\_sanitise.xml will be placed in the specified directory.

|  |
| --- |
| using glasswall.core2.wrapper;  using system;  class Program  {  static void Main(string[] args)  {  IntPtr buffer = new IntPtr();  UIntPtr bufferLength = new UIntPtr();    // create Glasswall object.  var gw = new Glasswall("e:\\Core2\_dlls");    // open session  var sessionId = gw.OpenSession();    // register inputfile  var returnStatus = gw.RegisterInputFile(sessionId, "e:\\Input\\A.xlsx");    // register outputmemory: the processed data is non-persistent  returnStatus = gw.RegisterOutputMemory(sessionId, out buffer, ref bufferLength);    // register policies file  returnStatus = gw.RegisterPoliciesFile(sessionId, "e:\\Config\\config\_sanatise.xml", 0);    // register analysis file  returnStatus = gw.RegisterAnalysisFile(sessionId, "e:\\Output\\Analysis.xml", 0);    // run the session  returnStatus = gw.RunSession(sessionId);    // close the session  returnStatus = gw.CloseSession(sessionId);  }  } |