Oracle® Outside In Image Export

Developer's Guide

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Oracle Outside In Image Export Developer's Guide, Release 8.3.7

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Preface

Image Export is part of Oracle's family of Original Equipment Manufacturer (OEM) technologies known as Outside In Technology, a powerful document viewing and conversion technology that can access the information in more than 500 file formats.

Audience

This document is intended for software developers who are responsible for integrating Oracle Outside In Technology into their applications.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Documents

For more information, go to:

http://www.oracle.com/technetwork/indexes/documentation/index.html#middleware

and click on Outside In Technology.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.

Convention	Meaning
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.
Forward slashes (/)	Forward slashes are used to separate the directory levels in a path to a UNIX server, directory, or file. Forward slashes are also used to separate parts of an Internet address. A forward slash will always be included at the end of a UNIX directory name and might or might not be included at the end of an Internet address.
Backward slashes (\)	Backward slashes are used to separate the levels in a path to a Windows server, directory, or file. A backward slash will always be included at the end of a Windows server, directory, or file path.
<install_dir>/	This notation refers to the location on your system of the main product installation directory.

1 Introduction

Image Export allows an Original Equipment Manufacturer (OEM) to translate almost any document, spreadsheet or presentation into one of several image formats.

Image Export's primary goal is to produce a faithful representation of the source file in a raster image format. There are several raster output format options, including JPEG, TIFF, Windows Bitmap, GIF and PNG. Through a C API, the developer can specify what source file should be exported, set various options that affect the content and structure of the output and specify the name and location of the output file(s) produced.

There may be references to other Outside In Technology SDKs within this manual. To obtain complete documentation for any other Outside In product, see:

http://www.oracle.com/technetwork/indexes/documentation/index.html#middleware

and click on Outside In Technology.

1.1 What's New in Release 8.3.7

- The updated list of supported formats is linked from the page http://www.outsideinsdk.com/. Look for the data sheet with the latest supported formats.
- OIT's internal error processing has been updated and propagation of error codes throughout OIT has been improved. In many cases the error codes reported by OIT will now more accurately reflect the actual cause of the error. DAERR is now functionally the same as SCCERR and OIT API functions that return DAERR may return any of the SCCERR values defined in sccerr.h.
- The handling of HTML tables has been improved. Table cell widths will be based on the table size, not the page size. Inferred widths will be based on supplied widths where possible.
- Tab Leaders will be rendered as they appear in the original documents. Dot, hyphen, and underline tab leader options are supported.
- Support for charts in Office 2007 Binary Excel Files has been added.
- Support for CMYK color spaces in JPEG files has been added.
- Improved rendering of PDF Images with JBIG2, JPEG2000 compressions and with Explicit Masks has been added.
- Attachments in PDF Files are now supported.
- Cell alignment in tables has been improved.

- Support for basic conditional formatting has been added to the Excel 2007 filter.
- The SCCOPT_TEMPDIR option now supports IOTYPE_UNICODEPATH on Windows.
- The NSF filter is now supported on Linux x86-32 and Solaris Sparc 32. See Section 3.1.1, "NSF Support" in the Unix Implementation chapter for for details about Unix environment variables.
- The SCCOPT_PDF_FILTER_REORDER_BIDI (SOAP equivalent: reorderBIDI) option controls whether or not the PDF filter will attempt to reorder bidirectional text runs so that the output is in standard logical order as used by the Unicode 2.0 and later specification.

1.2 Architectural Overview

The basic architecture of Outside In technologies is the same across all supported platforms:

Filter/Module	Description
Input Filter	The input filters form the base of the architecture. Each one reads a specific file format or set of related formats and sends the data to OIT through a standard set of function calls. There are more than 150 of these filters that read more than 500 distinct file formats. Filters are loaded on demand by the data access module.
Export Filter	Architecturally similar to input filters, export filters know how to write out a specific format based on information coming from the chunker module. The export filters generate TIFF, BMP, GIF, JPEG, and PNG.
Chunker	The Chunker module is responsible for caching a certain amount of data from the filter and returning this data to the export filter.
Export	The Export module implements the export API and understands how to load and run individual export filters.
Data Access	The Data Access module implements a generic API for access to files. It understands how to identify and load the correct filter for all the supported file formats. The module delivers to the developer a generic handle to the requested file, which can then be used to run more specialized processes, such as the Export process.

1.3 Definition of Terms

The following terms are used in this documentation.

Term	Definition
Developer	Someone integrating this technology into another technology or application. Most likely this is you, the reader.
Source File	The file the developer wishes to export.
Output File	The file being written: TIFF, BMP, GIF, JPEG, and PNG.
Page	A single raster image representation of a page of output . Page sizes will vary depending on the parameters used for an export (maximum size or scaling, etc.) and other options that affect the output type for rendered images.

Term	Definition
Data Access Module	The core of Outside In Data Access, in the *SCCDA* library.
Data Access Submodule (also referred to as "Submodule")	This refers to any of the Outside In Data Access modules, including SCCEX (Export), but excluding SCCDA (Data Access). Note: Image Export normally comes with only the *SCCEX* Submodule.
Document Handle (also referred to as "`hDoc`")	A Document Handle is created when a file is opened using Data Access (see Chapter 4, "Data Access Common Functions"). Each Document Handle may have any number of Subhandles.
Subhandle (also referred to as "`hItem`")	Any of the handles created by a Submodule's `Open` function. Every Subhandle has a Document Handle associated with it. For example, the `hExport` returned by `EXOpenExport` is a Subhandle. The `DASetOption` and `DAGetOption` functions in the Data Access Module may be called with any Subhandle or Document Handle. The `DARetrieveDocHandle` function returns the Document Handle associated with any Subhandle.

1.4 Directory Structure

Each Outside In product has an sdk directory, under which there is a subdirectory for each platform on which the product ships (for example, ix/sdk/ix_win-x86-32_sdk). Under each of these directories are the following three subdirectories:

- **docs** - Contains both a PDF and HTML version of the product manual.
- **redist** - Contains only the files that the customer is allowed to redistribute. These include all the compiled modules, filter support files, .xsd and .dtd files, cmmap000.bin, and third-party libraries, like freetype.
- **sdk** - Contains the other subdirectories that used to be at the root-level of an sdk (common, lib (windows only), resource, samplefiles, and samplecode (previously samples). In addition, one new subdirectory has been added, demo, that holds all of the compiled sample apps and other files that are needed to demo the products. These are files that the customer should not redistribute (.cfg files, exportmaps, etc.).

In the root platform directory (for example, ix/sdk/ix_win-x86-32_sdk), there are two files:

- **README** - Explains the contents of the sdk, and that makedemo must be run in order to use the sample applications.
- **makedemo** (either .bat or .sh – platform-based) - This script will either copy (on Windows) or Symlink (on Unix) the contents of …/redist into …/sdk/demo, so that sample applications can then be run out of the demo directory.

1.4.1 Installing Multiple SDKs

If you load more than one OIT SDK, you must copy files from the secondary installations into the top-level OIT SDK directory as follows:

- **docs** – copy all subdirectories named “[product name]guide” into this directory.
- **redist** – copy all binaries into this directory.

- **sdk** – this directory has several subdirectories: common, demo, lib, resource, samplecode, samplefiles. In each case, copy all of the files from the secondary installation into the top-level OIT SDK subdirectory of the same name. If the top-level OIT SDK directory lacks any directories found in the directory being copied from, just copy those directories over.

1.5 How to Use Image Export

Here's a step-by-step overview of how to export a source file to an image file.

1. Call DAThreadInit if running in multiple threads (optional). On the Solaris Sparc and Linux X86-32 platforms, DAThreadInit should be called before DAInit to initialize threading if it is being used. On all other platforms, or if threading is not being used, DAInit should be the first call. For more information about DAThreadInit, see Section 4.2, "DAThreadInit."
2. Call DAInit to initialize the Data Access technology. This function needs to be called only once per application.
3. Set any options that require a NULL handle type (optional). Certain options need to be set before the desired source file is opened. These options are identified by requiring a NULL handle type. They include, but aren't limited to:
   - SCCOPT_EX_CALLBACKS
   - SCCOPT_EX_UNICODECALLBACKSTR
   - SCCOPT_FALLBACKFORMAT
   - SCCOPT_FIFLAGS
   - SCCOPT_TEMPDIR
   - SCCOPT_UNMAPPABLECHAR
4. Open the Source File. DAOpenDocument is called to create a document handle that uniquely identifies the source file. This handle may be used in subsequent calls to the EXOpenExport function or the open function of any other Data Access Submodule, and will be used to close the file when access is complete. This allows the file to be accessed from multiple Data Access Submodules without reopening.
5. Set the Options. If you require option values other than the default settings, call DASetOption to set options. Note that options listed in the Options Guide as having "Handle Types" that accept VTHEXPORT may be set any time before EXRunExport is called. For more information on options and how to set them, see Section 4.8, "DASetOption."
6. Open a Handle to Image Export. Using the document handle, EXOpenExport is called to obtain an export handle that identifies the file to the specific export product. This handle will be used in all subsequent calls to the specific export functions. The dwOutputId parameter of this function is used to specify that the output file type should be set to one of the following:
   - FI_GIF
   - FI_JPEGFIF
   - FI_JPEG2000
   - FI_PNG
   - FI_BMP
   - FI_TIFF

7. Make Any Required Calls to Annotation Functions. This is the point at which any calls to annotation functions (such as EXHiliteText, EXInsertText or EXHideText) should be made.
8. Export the File. EXRunExport is called to generate the output file(s) from the source file.
9. Close the Handle to Image Export. EXCloseExport is called to terminate the export process for the file. After this function is called, the export handle will no longer be valid, but the document handle may still be used.
10. Close the Source File. DACloseDocument is called to close the source file. After calling this function, the document handle will no longer be valid.
11. Close Image Export. DADeInit is called to de-initialize the Data Access technology.

1.6 Copyright Information

The following notice must be included in the documentation, help system, or About box of any software that uses any of Oracle's executable code:

The following notice must be included in the documentation of any software that uses Oracle's TIF6 filter (this filter reads TIFF and JPEG formats):

2

Windows Implementation Details

The Windows implementation of this software is delivered as a set of DLLs. For a list of the currently supported platforms, see:

http://www.oracle.com/technetwork/indexes/documentation/index.html#middleware

Click on Outside In Technology, then click the Certification Information PDF.

The 64-bit version of sccvw.dll will not load on an AMD-64 system without Visual C++ runtime version 8 installed. This happens because the system is missing the msvcr80.dll library, which is required. Users can download the required library from the following location:

http://www.microsoft.com/downloads/details.aspx?FamilyId=90548130-4468-4BBC-9673-D6ACABD5D13B&displaylang=en

2.1 Installation

To install the demo version of the SDK, copy the contents of the ZIP archive (available on the web site) to a local directory of your choice.

This product requires the Visual C++ libraries included in the Visual C++ Redistributable Package available from Microsoft. There are three versions of this package (x86, x64, and IA64) for each corresponding version of Windows. These can be downloaded from www.microsoft.com/downloads, by searching on the site for the following packages:

- vcredist_x86.exe
- vcredist_x64.exe
- vcredist_IA64.exe

The required download version is the "2005 SP1 Redistributable Package."

Outside In requires the msvcr80.dll redistributable module.

The installation directory should contain the following directory structure:

Directory	Description
\docs	Includes HTML and PDF versions of the manual you are reading right now. Release notes contain more up-to-the-minute information on product changes which occurred after documentation production.
\redist	Contains a working copy of the Windows version of the technology.

Directory	Description
\sdk\common	Contains the C include files needed to build or rebuild the technology.
\sdk\demo	Contains the compiled executables of the sample applications.
\sdk\lib	Contains the library (.lib) files needed for the products.
\sdk\resource	Contains localization resource files.
\sdk\samplecode	Contains a subdirectory holding the source code for a sample application.
\sdk\samplefiles	Contains sample input files authored in a variety of popular graphics, word processor, compression, spreadsheet and presentation applications.

2.1.1 NSF Support

Notes Storage Format (NSF) files are produced by the Lotus Notes Client or the Lotus Domino server. The NSF filter is the only Outside In filter that requires the native application to be present to filter the input documents. Due to integration with an outside application, NSF support will not work with redirected I/O, when an NSF file is embedded in another file, or with IOTYPE_UNICODEPATH. Either Lotus Notes version 8 or Lotus Domino version 8 must be installed on the same machine as OIT. On Windows, SCCOPT_LOTUSNOTESDIRECTORY should be set to the directory containing the nnotes.dll. NSF support is only available on the Win32 platform, Linux x86-32, and Solaris Sparc 32.

2.2 Libraries and Structure

The following is an overview of the files in the main installation directory for all five Outside In export products.

2.2.1 API DLLs

These libraries implement the API. They should be linked with the developer's application. Files with a .lib extension are included in the SDK.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
sccda.dll	Data Access module	X	X	X	X	X
sccex.dll	Export module	X	X	X	X	X
sccfi.dll	File Identification module (identifies files based on their contents).	X	X	X	X	X

The File ID Specification may not be used directly by any application or workflow without it being separately licensed expressly for that purpose.

2.2.2 Support DLLs

The following libraries are used for support.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
ccflex.dll	A data model adapter that converts from stream model utilized by Outside In filters to the FlexionDoc Tree model used as a basis by XML Export.					X
exhtml.dll	HTML Export module	X				
exxml.dll	XML Export module					X
libexpatw.dll	A third-part XML parser					X
ocemul.dll	Output component emulation module	X	X	X	X	X
ospdf.dll	PDF generation module			X		
oswin*.dll	Interface to the native GDI implementation oswin32.dll is the 32-bit version, oswin64.dll is the 64-bit version	X	X		X	X
sccanno.dll	The annotation module	X	X	X		
sccca.dll	Content Access module (provides organized chunker data for the developer)	X	X	X		
sccch.dll	Chunker (provides caching of and access to filter data for the export engines)	X	X	X	X	X
sccdu.dll	Display Utilities module (includes text formatting)	X	X	X	X	X
sccexind.dll	The core engine for all Search Export formats: SearchText, SearchHTML, SearchML and PageML				X	
sccfmt.dll	Formatting module (resolves numbers to formatted strings)	X	X	X	X	X
sccfut.dll	Filter utility module	X	X	X	X	X
sccind.dll	Indexing engine. In Search Export, it handles common functionality.	X	X	X	X	
scclo.dll	Localization library (all strings, menus, dialogs and dialog procedures reside here)	X	X	X	X	X
sccole2.dll	OLE rendering module	X	X	X	X	X

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
sccsd.dll	Schema Definition Module Manager (brokers multiple Schema Definition Modules)					X
sccut.dll	Utility functions, including IO subsystem	X	X	X	X	X
sccxt.dll	XTree module					X
sdflex.dll	Schema Definition module (handles conversion of XML string names and attribute values to compact binary representations and vice versa)					X
wvcore.dll	The GDI Abstraction layer	X	X	X	X	X

2.2.3 Engine Libraries

The following libraries are used for display purposes.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
debmp.dll	Raster rendering engine (TIFF, GIF, BMP, PNG, PCX…)			X		X
devect.dll	Vector/Presentation rendering engine (PowerPoint, Impress, Freelance…)	X	X	X		X
dess.dll	Spreadsheet/Database (Excel, Calc, Lotus 123…)		X	X		X
detree.dll	Archive (ZIP, GZIP, TAR…)		X	X		
dewp.dll	Document (Word, Writer, WordPerfect…)		X	X	X	

2.2.4 Filter and Export Filter Libraries

The following libraries are used for filtering.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
vs*.dll	Filters for specific file types (there are more than 150 of these filters, covering more than 500 file formats)	X	X	X	X	X
ltscsn10.dll lwpapin.dll ltscsd13.tlb lwpapipn.dat	Support files for the vslwp filter.	X	X	X	X	X
oitnsf.id	Support file for the vsnsf filter.	X	X	X	X	X
exgdsf.dll	Export filter for GIF, JPEG, and PNG graphics files.	X				X

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
eximg.dll	Extended image conversion module		X			
expagelayout.dll	Page layout module			X		
sccimg.dll	Image conversion module	X	X			X

2.2.5 Premier Graphics Filters

The following are graphics filters.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
i*2.flt	30 .flt files (import filters for premier graphics formats)	X	X	X	X	X
isgdi32.dll	Interface to premier graphics filters	X	X	X	X	X

2.2.6 Additional Files

The following files are also used.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
adinit.dat	Support file for the **vsacd2** filter	X	X	X	X	X
cmmap000.bin	Tables for character mapping (all character sets)	X	X	X	X	X
cmmap000.sbc	Tables for character mapping (single-byte character sets). This file is located in the /common directory.	X	X	X	X	X
cmmap000.dbc	Identical to **cmmap000.bin**, but renamed for clarity (.dbc = double-byte character). This file is located in the common directory.	X	X	X	X	X

2.3 The Basics

The following is a discussion of some basic usage and installation features.

All the steps outlined in this section are used in the sample applications provided with the SDK. Looking at the code for the **exsimple** sample application is recommended for those wishing to see a real-world example of this process.

2.3.1 What You Need in Your Source Code

Any source code that uses this product should `#include` the file sccex.h and `#define WINDOWS` and `WIN32` or `WIN64`. For example, a Windows application might have a source file with the following lines:

```
#define WINDOWS         /* Will be automatically defined if your
                           compiler defines _WINDOWS */
#define WIN32
#include <sccex.h>
```

The developer's application should be linked to the product DLLs through the provided libraries.

2.3.2 Options and Information Storage

This software is based on the Outside In Viewer Technology (or simply "Viewer Technology"). When using the Export products, a list of available filters and a list of available display engines are built by the technology, usually the first time the product runs. You do not need to ship these lists with your application. The lists are automatically recreated if corrupted or deleted.

The files used to store this information are stored in an .oit subdirectory in \Documents and Settings*user name*\Application Data.

If an .oit directory does not exist in the user's directory, the directory is created automatically. The files are automatically regenerated if corrupted or deleted.

The files are:

- *.f = Filter lists
- *.d = Display Engine lists
- *.opt = Persistent options

Some applications and services may run under a local system account for which there is no users "application data" folder. The technology first does a check for an environment variable called OIT_DATA_PATH. Then it checks for APPDATA, and then LOCALAPPDATA. If none of those exist, the options files are put into the executable path of the UT module.

These file names are intended to be unique enough to avoid conflict for any combination of machine name and install directory. This allows the user to run products in separate directories without having to reload the files above. The file names are built from an 11-character string derived from the directory the Outside In technology resides in and the name of the machine it is being run on. The string is generated by code derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm.

The software still functions if these lists cannot be created for some reason. In that situation, however, significant performance degradation should be expected.

2.3.3 Structure Alignment

Outside In is built with 8-byte structure alignment. This is the default setting for most Windows compilers. This and other compiler options that should be used are demonstrated in the files provided with the sample applications in samples\win.

2.3.4 Character Sets

The strings passed in the Windows API are ANSI1252 by default.

To optimize performance on systems that do not require DBCS support, a second character mapping bin file, that does not contain any of the DBCS pages, is now included. The second bin file gives additional performance benefits for English documents, but cannot handle DBCS documents. To use the new bin file, replace the cmmap000.bin with the new bin file, cmmap000.sbc. For clarity, a copy of the cmmap000.bin file (cmmap000.dbc) is also included. Both cmmap000.sbc and cmmap000.dbc are located in the \common directory of the technology.

2.3.5 Runtime Considerations

The files used by the product must be in the same directory as the developer's executable.

2.4 Default Font Aliases

The technology includes the following default font alias map for Windows. The first value is the original font, the second is the alias.

- Chicago = Arial
- Geneva = Arial
- New York = Times New Roman
- Helvetica = Arial
- Helv = Arial
- times = Times New Roman
- Times = Times New Roman
- Tms Roman = Times New Roman
- itc zapfdingbats = Zapfdinbats
- itc zapf dingbats = Zapfdinbats

2.5 Changing Resources

Outside In Image Export ships with the necessary files for OEMs to change any of the strings in the technology as they see fit.

Strings are stored in the lodlgstr.h file found in the resource directory. The file can be edited using any text editor.

> **Note:** Do not directly edit the scclo.rc file. Strings are saved with their identifiers in lodlgstr.h. If a new scclo.rc file is saved, it will contain numeric identifiers for strings, instead of their #define'd names.

Once the changes have been made, the updated scclo.dll file can be rebuilt using the following steps:

1. Compile the .res file:

```
rc /fo ".\scclo.res" /i "<path to header (.h) files folder>" /d "NDEBUG"
```

```
scclo.rc
```

2. Link the scclo.res file you've created with the scclo.obj file found in the resource directory to create a new scclo.dll:

```
link /DLL /OUT:scclo.dll scclo.obj scclo.res
```

> **Note:** Developers should make sure they have set up their environment variables to build the library for their specific architecture. For Windows x86_32, when compiling with VS 2005, the solution is to run vsvars32.bat (in a standard VS 2005 installation, this is found in C:\Program Files\Microsoft Visual Studio 8\Common7\Tools\). If this works correctly, you will see the statement, "Setting environment for using Microsoft Visual Studio 2005 x86 tools." If you do not complete this step, you may have conflicts that lead to unresolved symbols due to conflicts with the Microsoft CRT.

3. Embed the manifest (which is created in the \resource directory during step 2) into the new DLL:

```
mt -manifest scclo.dll.manifest -outputresource:scclo.dll;2
```

If you are not using Microsoft Visual Studio, substitute the appropriate development tools from your enviroment.

> **Note:** In previous versions of Outside In, it was possible to directly edit the SCCLO.DLL using Microsoft Visual Studio. Outside In DLLs are now digitally signed. Editing the signed DLL is not advisable.

3

UNIX Implementation Details

The UNIX implementation of the Export product set is delivered as a set of shared libraries. For a list of the currently supported platforms, see:

http://www.oracle.com/technetwork/indexes/documentation/index.html#middleware

Click on Outside In Technology, then click the Certification Information PDF.

3.1 Installation

To install the demo version of the SDK, copy the tgz file corresponding to your platform (available on the web site) to a local directory of your choice. Decompress the tgz file and then extract from the resulting tar file as follows:

```
gunzip tgzfile
tar xvf tarfile
```

The installation directory should contain the following directory structure:

Directory	Description
/docs	Includes HTML and PDF versions of the manual you are reading right now.
/redist	Contains a working copy of the UNIX version of the technology.
/sdk/common	Contains the C include files needed to build or rebuild the technology.
/sdk/demo	Contains the compiled executables of the sample applications.
/sdk/resource	Contains localization resource files. For details, see Section 3.8, "Changing Resources."
/sdk/samplecode	Contains a subdirectory holding the source code for a sample application. For details, see Chapter 9, "Sample Applications."
/sdk/samplefiles	Contains sample input files authored in a variety of popular graphics, word processor, compression, spreadsheet and presentation applications.

3.1.1 NSF Support

Notes Storage Format (NSF) files are produced by the Lotus Notes Client or the Lotus Domino server. The NSF filter is the only Outside In filter that requires the native

application to be present to filter the input documents. Due to integration with an outside application, NSF support will not work with redirected I/O nor will it work when an NSF file is embedded in another file. Lotus Domino version 8 must be installed on the same machine as OIT. The NSF filter is currently only supported on Win32, Linux x86-32, and Solaris Sparc 32. SCCOPT_LOTUSNOTESDIRECTORY is a Windows-only option and is ignored on Unix.

Additional steps must be taken to prepare the system. It is necessary to know the name of the directory in which Lotus Domino has been installed. On Linux, this default directory is /opt/ibm/lotus/notes/latest/linux. On Solaris, it is /opt/ibm/lotus/notes/latest/sunspa.

- In the Lotus Domino directory, check for the existence of a file called "notes.ini". If the file "notes.ini" does not exist, create it in that directory and ensure that it contains the following single line:

  [Notes]

- Add the Lotus Domino directory to the $LD_LIBRARY_PATH environment variable.
- Set the environment variable $Notes_ExecDirectory to the Lotus Domino directory.

3.2 Libraries and Structure

On UNIX platforms the Outside In products are delivered with a set of shared libraries. All libraries should be installed to a single directory. Depending upon your application, you may also need to add that directory to the system's runtime search path. For more details, see Section 3.6, "Environment Variables."

The following is a brief description of the included libraries and support files. In instances where a file extension is listed as .*, the file extension varies for each UNIX platform (**sl** on HP-UX, **so** on Linux and Solaris, and **a** or **o** on IBM AIX).

3.2.1 API Libraries

These libraries implement the API. They should be linked with the developer's application.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
libsc_da.*	Data Access module	X	X	X	X	X
libsc_ex.*	Export module	X	X	X	X	X
libsc_fi.*	File Identification module (identifies files based on their contents).	X	X	X	X	X

The File ID Specification may not be used directly by any application or workflow without it being separately licensed expressly for that purpose.

3.2.2 Support Libraries

The following libraries are used for support.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
liboc_emul.*	Output component emulation module	X	X	X	X	X
libos_gd.*	The internal rendering GDI implementation. **32-bit Linux and Solaris Sparc only.**	X	X		X	X
libos_xwin.*	The native GDI implementation	X	X		X	X
libsc_anno.*	The annotation module	X	X	X		
libsc_ca.*	Content Access module (provides organized chunker data for the developer)	X	X	X		
libsc_ch.*	Chunker (provides caching of and access to filter data for the export engines)	X	X	X	X	X
libsc_du.*	Display Utilities module (includes text formatting)	X	X	X	X	X
libsc_fmt.*	Formatting module (resolves numbers to formatted strings)	X	X	X	X	X
libsc_fut.*	Filter utility module	X	X	X	X	X
libsc_ind.*	Indexing engine. In Search Export, it handles common functionality.	X	X	X	X	
libsc_lo.*	Localization library (all strings, menus, dialogs and dialog procedures reside here)	X	X	X	X	X
libsc_ut.*	Utility functions, including IO subsystem	X	X	X	X	X
libsc_xp.*	XPrinter bridge	X	X		X	X
libwv_core.*	The Abstraction layer	X	X	X	X	X
libwv_gdlib.so	The GDI rendering module. **32-bit Linux and Solaris Sparc only.**	X	X		X	X

3.2.3 Engine Libraries

The following libraries are used for display purposes.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
libde_bmp.*	Raster rendering engine (TIFF, GIF, BMP, PNG, PCX…)			X		X
libde_vect.*	Vector/Presentation rendering engine (PowerPoint, Impress, Freelance…)	X	X	X		X
libde_ss.*	Spreadsheet/Database (Excel, Calc, Lotus 123…)		X	X		X

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
libde_tree*	Archive (ZIP, GZIP, TAR…)		X	X		
libde_wp.*	Document (Word, Writer, WordPerfect…)		X	X	X	

3.2.4 Filter and Export Filter Libraries

The following libraries are used for filtering.

libex_gdsf must be linked with libsc_img.* at compile time. This forces the filter to be dependent on libsc_img.* at runtime, even though that module may not be used directly. If you want to reduce your application's physical footprint, you can experiment with unlinking libsc_img.*.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
libvs_*.*	Filters for specific file types (there are more than 150 of these filters, covering more than 500 file formats)	X	X	X	X	X
libex_gdsf.*	Export filter for GIF, JPEG, and PNG graphics files.	X				X
libex_img.*	Extended image conversion module		X			
libsc_img.*	Image conversion module	X	X			X
libex_itext.*	Export filter for SearchText				X	
libex_html .*	Export filter for HTML files	X				

3.2.5 Premier Graphics Filters

The following are graphics filters.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
i*2.flt	These 30 .flt files are the import filters for premier graphics formats	X	X	X	X	X
isunx2.flt	Interface to premier graphics filters	X	X	X	X	X

3.2.6 Additional Files

The following files are also used.

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
adinit.dat	Support file for the vsacad and vsacd2 filters	X	X	X	X	X
cmmap000.bin	Tables for character mapping (all character sets)	X	X	X	X	X

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
cmmap000.sbc	Tables for character mapping (single-byte character sets). This file is located in the /common directory.	X	X	X	X	X
cmmap000.dbc	Identical to cmmap000.bin, but renamed for clarity (.dbc = double-byte character). This file is located in the common directory.	X	X	X	X	X
libfreetype.so.6	TrueType font rendering module for the GD output solution. **32-bit Linux and Solaris Sparc only.**	X	X	X	X	X
oitnsf.id	Support file for the vsnsf filter.	X	X	X	X	X

3.3 The Basics

Sample applications are provided with the SDK. These applications demonstrate most of the concepts described in this manual. For a complete description of the sample applications, see Chapter 9, "Sample Applications."

3.3.1 What You Need in Your Source Code

Any source code that uses this product should `#include` the file sccex.h and `#define` UNIX. For example, a 32-bit UNIX application might have a source file with the following lines:

```
#define UNIX
#include <sccex.h>
```

and a 64-bit UNIX application might have a source file with the following lines:

```
#define UNIX
#define UNIX_64
#include <sccex.h>
```

3.3.2 Information Storage

This software is based on the Outside In Viewer Technology (or simply "Viewer Technology"). A file of default options is always created, and a list of available display engines is also built by the technology, usually the first time the product runs (for UNIX implementations). You do not need to ship these lists with your application.

Lists are stored in the $HOME/.oit directory. If the $HOME environment variable is not set, the files are put in the same directory as the Outside In Technology. If an /.oit directory does not exist in the user's $HOME directory, the .oit directory is created

automatically by the technology. The files are automatically regenerated if corrupted or deleted.

The files are:

- *.d: Display engine list
- *.opt: Persistent options

The technology does not actually use the list of default options created by the Viewer Technology.

The filenames are intended to be unique enough to avoid conflict for any combination of machine name and install directory. This is intended to prevent problems with version conflicts when multiple versions of the Viewer Technology and/or other Viewer Technology-based products are installed on a single system. The filenames are built from an 11-character string derived from the directory the Outside In technology resides in and the name of the machine it is being run on. The string is generated by code derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm.

The products still function if these files cannot be created for some reason. In that situation, however, significant performance degradation should be expected.

3.4 Character Sets

The strings passed in the UNIX API are ISO8859-1 by default.

To optimize performance on systems that do not require DBCS support, a second character mapping bin file, that does not contain any of the DBCS pages, is now included. The second bin file gives additional performance benefits for English documents, but cannot handle DBCS documents. To use the new bin file, replace the cmmap000.bin with the new bin file, cmmap000.sbc. For clarity, a copy of the cmmap000.bin file (cmmap000.dbc) is also included. Both cmmap000.sbc and cmmap000.dbc are located in the /sdk/common directory of the technology.

3.5 Runtime Considerations

The following is information to consider during run-time.

3.5.1 X Server Requirement

Note: The X Server requirement can be eliminated by setting the SCCOPT_RENDERING_PREFER_OIT option to TRUE.

Access to a running X Windows server and the presence of Motif (or LessTif on Linux) are required to convert from non-raster or vector formats on UNIX systems. Examples of non-raster/vector graphics files include CAD drawings and presentation files such as Power Point 97 files. Bitmap graphic conversion (handled in XML Export by the libde_bmp.* engine) does not require access to a running X Windows server. Examples of bitmap file formats include GIF, JPEG, TIFF, and Windows BMP files.

A runtime check for the presence of X libraries is performed to accommodate system with and without available X servers. This check looks on the system-specific library path variable for the X libraries. If the X libraries are not found, this product does not perform vector graphics conversion.

Be sure to set the $DISPLAY environment variable before running this product when non-raster/vector graphic conversion is needed. This is especially important to remember in situations such as CGI programs that start with a limited environment.

For example, when running the technology from a remote session, setting DISPLAY=:0.0 tells the system to use the X Windows server on the console.

3.5.2 OLE2 Objects

Some documents that the developer is attempting to convert may contain embedded OLE2 objects. There are platform-dependent limits on what the technology can do with OLE2 objects. However, Outside In attempts to take advantage of the fact that some documents accompany an OLE2 embedding with a graphic "snapshot," in the form of a Windows metafile.

On all platforms, when a metafile snapshot is available, the technology uses it to convert the object. When a metafile snapshot is not available on UNIX platforms, the technology is unable to convert the OLE2 object.

3.5.3 Machine-Dependent Graphics Context

The system uses a machine configuration dependent graphics context to render some images. The number of colors available in the systems graphics context is a particularly important limiting factor. For example, if the video driver for a system running Outside In is set up to display 256 colors, images produced on that system would be limited to 256 colors.

- For all vector image formats that HX converts, we require that the X11 display support either 1 bit, 4 bits, 8 bits, 24 bits, or 32 bits.
- If SCCOPT_RENDERING_PREFER_OIT = TRUE on UNIX then we're using internal rendering of vector formats, and we don't use the X11 display.
- Raster image formats when converted do not need the X11 display, so are not sensitive to the bit depth of the display.

Note: SCCOPT_RENDERING_PREFER_OIT is only supported on Linux x86-32 and Solaris Sparc-32 platforms.

3.5.4 Signal Handling

These products trap and handle the following signals:

- SIGABRT
- SIGBUS
- SIGFPE
- SIGILL
- SIGINT
- SIGSEGV
- SIGTERM

Developers who wish to override our default handling of these signals should set up their own signal handlers. This may be safely done after the developer's application has called DAInit().

Note: The Java Native Interface (JNI) allows Java code to call and be called by native code (C/C++ in the case of OIT). You may run into problems if Java isn't allowed to handle signals and forward them to OIT. If OIT catches the signals and forwards them to Java, the JVMs will sometimes crash. OIT installs signal handlers when DAInit() is called, so if you call OIT after the JVM is created, you will need to use libjsig. Refer here for more information:

http://www.oracle.com/technetwork/java/javase/index-137495.html

3.5.5 Runtime Search Path and $ORIGIN

Libraries and sample applications are all built with the $ORIGIN variable as part of the binaries' runtime search path. This means that at runtime, OIT libraries will automatically look in the directory they were loaded from to find their dependent libraries. You don't necessarily need to include the technology directory in your LD_LIBRARY_PATH or SHLIB_PATH.

As an example, an application that resides in the same directory as the OIT libraries and includes $ORIGIN in its runtime search path will have its dependent OIT libraries found automatically. You will still need to include the technology directory in your linker's search path at link time using something like -L and possibly -rpath-link.

Another example is an application that loads OIT libraries from a known directory. The loading of the first OIT library will locate the dependent libraries.

Note: This feature does not work on AIX and FreeBSD.

3.6 Environment Variables

Several environment variables may be used at run time. Following is a short summary of those variables and their usage.

Variable	Description
$PATH	Must be set to include the directory containing the .flt files. Only applicable to AIX.
$LD_LIBRARY_PATH (FreeBSD, HP-UX Itanium 64, Linux, Solaris) $SHLIB_PATH (HP-UX RISC 32) $LIBPATH (AIX, iSeries)	These variables help your system's dynamic loader locate objects at runtime. If you have problems with libraries failing to load, try adding the path to the Outside In libraries to the appropriate environment variable. See your system's manual for the dynamic loader and its configuration for details. Note that for products that have a 64-bit PA/RISC, 64-bit Solaris and Linux PPC/PPC64 distributable, they will also go under $LD_LIBRARY_PATH.
$DISPLAY	Must be set to point to a valid X Server to render files, unless you plan to use the SCCOPT_RENDERING_PREFER_OIT option. For details, see Section 3.5.1, "X Server Requirement."

Variable	Description
$GDFONTPATH	Must be set if you intend to use the SCCOPT_RENDERING_PREFER_OIT option. This variable includes one or more paths to fonts for use with Outside In's internal graphics rendering code.
$HOME	Must be set to allow the system to write the option, filter and display engine lists. For details, see Section 3.3.2, "Information Storage."

3.7 Default Font Aliases

The technology includes the following default font alias map for UNIX platforms. The first value is the original font, and the second is the alias.

- 61 = Liberation Sans
- Andale Mono = Liberation Sans
- Courier = Liberation Sans
- Courier New = Liberation Sans
- Lucida Console = Liberation Sans
- MS Gothic = Liberation Sans
- MS Mincho = Liberation Sans
- OCR A Extended = Liberation Sans
- OCR B = Liberation Sans
- Agency FB = Liberation Sans
- Arial = Liberation Sans
- Arial Black = Liberation Sans
- Arial Narrow = Liberation Sans
- Arial Rounded MT = Liberation Sans
- Arial Unicode MS = Liberation Sans
- Berline Sans FB = Liberation Sans
- Calibri = Liberation Sans
- Frank Gothic Demi = Liberation Sans
- Frank Gothic Medium Cond = Liberation Sans
- Franklin Gothic Book = Liberation Sans
- Futura = Liberation Sans
- Geneva = Liberation Sans
- Gill Sans = Liberation Sans
- Gill Sans MT = Liberation Sans
- Lucida Sans Regular = Liberation Sans
- Lucida Sans Unicode = Liberation Sans
- Modern No. 20 = Liberation Sans

- Tahoma = Liberation Sans
- Trebuchet MS = Liberation Sans
- Tw Cen MT = Liberation Sans
- Verdana = Liberation Sans
- Albany = Liberation Sans
- Franklin Gothic = Liberation Sans
- Franklin Demi = Liberation Sans
- Franklin Demi Cond = Liberation Sans
- Franklin Gothic Heavy = Liberation Sans
- Algerian = Liberation Serif
- Baskerville = Liberation Serif
- Bell MT = Liberation Serif
- Bodoni MT = Liberation Serif
- Bodoni MT Black = Liberation Serif
- Book Antiqua = Liberation Serif
- Bookman Old Style = Liberation Serif
- Calisto MT = Liberation Serif
- Cambria = Liberation Serif
- Centaur = Liberation Serif
- Century = Liberation Serif
- Century Gothic = Liberation Serif
- Century Schoolbook = Liberation Serif
- Elephant = Liberation Serif
- Footlight MT Light = Liberation Serif
- Garamond = Liberation Serif
- Georgia = Liberation Serif
- Goudy Old Style = Liberation Serif
- Lucida Bright = Liberation Serif
- MS Serif = Liberation Serif
- New York = Liberation Serif
- Palatino = Liberation Serif
- Perpetua = Liberation Serif
- Times = Liberation Serif
- times = Liberation Serif
- Times New Roman = Liberation Serif

3.8 Changing Resources

All of the strings used in the UNIX versions of Outside In products are contained in the lodlgstr.h file. This file, located in the resource directory, can be modified for internationalization and other purposes. Everything necessary to rebuild the resource library to use the modified source file is included with the SDK.

In addition to lodlgstr.h, the scclo.o object file is provided. This is necessary for the linking phase of the build. A makefile has also been provided for building the library. The makefile allows building on all of the UNIX platforms supported by Outside In. It may be necessary to make minor modifications to the makefile so the system header files and libraries can be found for compiling and linking.

Standard INCLUDE and LIB *make* variables are defined for each platform in the makefile. Edit these variables to point to the header files and libraries on your particular system. Other make variables are:

- TECHINCLUDE: May need to be edited to point to the location of the Outside In /common header files supplied with the SDK.
- BUILDDIR: May need to be edited to point to the location of the makefile, lodlgstr.h, and scclo.o (which should all be in the same directory).

After these variables are set, change to the build directory and type make. The libsc_lo resource library is built and placed in the appropriate platform-specific directory. To use this library, copy it into the directory where the Outside In product is stored and the new, modified resource strings are used by the technology.

Menu constants are included in lomenu.h in the common directory.

3.9 HP-UX Compiling and Linking

The libsc_ex.sl and libsc_da.sl libraries are the only ones that must be linked with your application. They can be loaded when your application starts by linking them directly at compile time or they can be loaded dynamically by your application using library load functions (for example, shl_load).

To use Image Export's annotation functions, you also must link to libsc_ca.sl, requiring a separate license to Outside In Content Access or Search Export. Contact your Outside In sales representative for more information.

The shared libraries are dependent on the presence of the X libraries Xm, Xt and X11 if vector graphics support is required. It is the application developer's responsibility to ensure that the needed functions from these libraries are present before the product libraries are used.

The following is an example command line used to compile the sample application **exsimple** from the /sdk/samplecode directory. The command lines are separated into sections for HP-UX and HP-UX on Itanium (which requires GCC). This command line is only an example. The actual command line required on the developer's system may vary. The example assumes that the include and library file search paths for the technology libraries and any required X libraries are set correctly. If they are not set correctly, the search paths for the include and/or library files must be explicitly specified via the -I *include file path* and/or -L *library file path* options, respectively, so that the compiler and linker can locate all required files.

3.9.1 HP-UX on RISC

```
cc -w -o ../exsimple/unix/exsimple ../exsimple/unix/exsimple.c +DAportable -Ae
-I/usr/include -I../../common -L../../demo -L/usr/lib -lsc_ex -lsc_da
```

```
-Wl,+s,+b,'$ORIGIN'
```

3.9.2 HP-UX on RISC (64 bit)

```
cc -w -o ../exsimple/unix/exsimple ../exsimple/unix/exsimple.c +DD64
-I/usr/include -I../../common -L../../demo -L/usr/lib/pa20_64 -DUNIX_64 -lsc_ex
-lsc_da -Wl,+s,+b,'$ORIGIN'
```

3.10 IBM AIX Compiling and Linking

All libraries should be installed into a single directory and the directory must be included in the system's shared library path ($LIBPATH). $LIBPATH *must* be set and must point to the directory containing the Outside In Technology.

Outside In technology has been updated to increase performance, at a cost of using more memory. It is possible that this increased memory usage may cause a problem on AIX systems, which can be very conservative in the amount of memory they grant to processes. If your application experiences problems due to memory limitations with Outside In, you may be able to fix this problem by using the "large page" memory model.

If you anticipate viewing or converting very large files with Outside In technology, we recommend linking your applications with the -bmaxdata flag. For example:

```
cc -o foo foo.c -bmaxdata:0x80000000
```

If you are currently seeing "illegal instruction" errors followed by immediate program exit, this is likely due to not using the large data model.

The libsc_ex.a and libsc_da.a libraries are the only ones that must be linked with your application. They can be loaded when your application starts by linking them directly at compile time or they can be loaded dynamically by your application using library load functions (for example, load and loadbind) with the .o versions of the libraries provided.

To use the **Image Export** annotation function, you must also link to libsc_ca.sl, requiring a separate license to Outside In Content Access or Search Export. Contact your Outside In sales representative for more information.

The shared libraries are dependent on the presence of the X libraries Xm, Xt and X11 if vector graphics support is required. It is the application developer's responsibility to ensure that the needed functions from these libraries are present before the product libraries are used.

> **Note:** If the DISPLAY environment variable is set to point to an X Server on a machine where nobody is currently logged on, any calls to connect to the X Server do not return. They hang the calling application. Therefore, Outside In times out after five seconds of attempting to connect to the X Server if no connection is established in that time.

The following is an example command line used to compile the sample application exsimple from the /sdk/samplecode directory. This command line is only an example. The actual command line required on the developer's system may vary. The example assumes that the include and library file search paths for the technology libraries and any required X libraries are set correctly. If they are not set correctly, the search paths for the include and/or library files must be explicitly specified via the -I *include file*

path and/or -L*ibrary file path* options, respectively, so that the compiler and linker can locate all required files.

Developers may need to use the -qcpluscmt flag to allow C++ style comments.

```
gcc -w -o ../exsimple/unix/exsimple ../exsimple/unix/exsimple.c -I../../common
-L../../demo -lsc_ex -lsc_da -DFUNCPROTO
```

Two versions of some AIX modules are included in this package. If the libsc_ex.o and libsc_da.o files are included on the compiler's command line with a path it causes that path to be hard coded in the executable. The -L option does not detect object files, and forcing developers to keep a copy of these files in their own source directory would be clumsy at best. On the other hand, **load** does not work with library archive files, only with object files.

3.11 Linux Compiling and Linking

This section discusses issues involving Linux compiling and linking.

3.11.1 Library Compatibility

This section discusses Linux compatibility issues when using libraries.

3.11.1.1 Motif Libraries

Problems can be seen when using Export products and trying to convert graphics files. For example, zero-byte graphics files are generated if the technology cannot find the proper Motif library. You can check to see if this is the case by running the following command:

```
ldd libos_xwin.so
```

This prints a list of the dependencies that this library has. If the line for the Motif library is similar to the following then your system may not have a compatible Motif library:

```
libXm.so.3 => not found
```

The solution is to install a compatible Motif library and use it to build your application. Often, the installation discs for your particular Linux platform have the proper libraries. If your installation discs do not have the libraries, instructions for downloading a binary rpm can be found at http://rpmfind.net/linux/RPM.

If you are doing development, you must use the proper header files, as well.

The following is the Motif library version used by Oracle when building and testing the Outside In binaries.

- x86 Linux - OpenMotif v. 2.2.3

If a directory needs to be specified for the compiler to find the shared libraries, the $LD_LIBRARY_PATH environment variable is recommended. This prevents the compiler from hard-coding the library's current directory into the executable as the only directory to search for the library at run time. Instead, the system first searches the directories specified by $LD_LIBRARY_PATH for the library.

3.11.1.2 GLIBC and Compiler Versions

The following table indicates the compiler version used and the minimum required version of the GNU standard C library needed for Outside In operation.

Distribution	Compiler Version	GLIBC Version
x86 Linux	3.3.2	libc.so.6 (2.3 or newer)

3.11.1.3 Other Libraries

In addition to libc.so.6, Outside In is dependent upon the following libraries:

- libXm.so.3 (in particular, libXm.so.3.0.2 or newer, due to issues in OpenMotif 2.2.2)
- libXt.so.6
- libstdc++.so.5.0.5
- libgcc_so.1

libgcc_s.so.1 was introduced with GCC 3.0, so any distribution based on a pre-GCC 3.0 compiler does not include libgcc_s.so.1.

The following table summarizes what is included with the RedHat and SUSE distributions supported by Outside In and what needs to be added/modified to make Outside In run on these systems. Developers may have trouble building with libstdc++.so.5 versions before 5.0.5 due to unversioned symbols. Upgrade to 5.0.5 to correct the problem.

3.11.1.3.1 Libraries on Linux Systems as Distributed (IA32)

Advanced Server 3.0

Included	To be added
libc.so.6 version	/lib/libc-2.3.2
libstdc++	/usr/lib/libstdc++.so.5.0.3
libgcc_s.so.1	/lib/libgcc_s.so-3.2.3-20030829.so.1
libXm.so.X	libXm.so.2 (OpenMotif 2.1.30-8) libXm.so.3.0.1 (OpenMotif 2.2.2-16)
Required to Use Outside In	■ Default system install has the proper libstdc++.so.5 ■ Default system install includes libgcc_s.so.1 ■ Update to >= libXm.so.3.0.2 (OpenMotif >=2.2.3) ■ Install X libraries

Advanced Server 4.0

Included	To be added
libc.so.6 version	/lib/libc-2.3.4
libstdc++	/usr/lib/libstdc++.so.6.0.3
libgcc_s.so.1	/usr/lib/libgcc_s.so-3.4.3-20041213.so.1
libXm.so.X	libXm.so.2 (OpenMotif 2.1.30-11) libXm.so.3.0.2 (OpenMotif 2.2.3-6)

Included	To be added
Required to Use Outside In	■ Install libstdc++.so.5 (included with gcc 3.2 - 3.3.6) ■ Default system install includes libgcc_s.so.1 ■ Install Motif 2.2.3 from distribution media ■ Install X libraries

SUSE 8.1

Included	To be added
libc.so.6 version	/lib/libc.so.6 (GLIBC 2.2.5)
libstdc++	/usr/lib/libstdc++.so.5.0.0
libgcc_s.so.1	/lib/libgcc_s.so.1
libXm.so.X	libXm.so.3.0.1
Required to Use Outside In	■ Default system install has proper libstdc++.so.5 ■ Default system install has libgcc_so.1 ■ Update to >= libXm.so.3.0.2 (OpenMotif >=2.2.3) ■ Install X libraries

SUSE 9.0

Included	To be added
libc.so.6 version	/lib/libc.so.6 (GLIBC 2.3.4)
libstdc++	/usr/lib/libstdc++.so.5.0.6 + old libraries
libgcc_s.so.1	/lib/libgcc_s.so.1
libXm.so.X	libXm.so.3.0.1
Required to Use Outside In	■ Default system install has proper libstdc++.so.5 ■ Default system install has libgcc_so.1 ■ Update to >= libXm.so.3.0.2 (OpenMotif >=2.2.3) ■ Install X libraries

3.11.1.3.2 Libraries on Linux Systems as Distributed (IA64)

SUSE 8.1

Included	To be added
libc.so.6 version	/lib/libc.so.6 (GLIBC 2.2.5)
libstdc++	/usr/lib/libstdc++.so.5.0.0
libgcc_s.so.1	/lib/libgcc_s.so.1
libXm.so.X	libXm.so.3.0.1

Included	To be added
Required to Use Outside In	■ Default system install has proper libstdc++.so.5 ■ Default system install has libgcc_so.1 ■ Update to >= libXm.so.3.0.2 (OpenMotif >=2.2.3) ■ Install X libraries

SUSE 9.0

Included	To be added
libc.so.6 version	/lib/libc.so.6 (GLIBC 2.3.4)
libstdc++	/usr/lib/libstdc++.so.5.0.6 + old libraries
libgcc_s.so.1	/lib/libgcc_s.so.1
libXm.so.X	libXm.so.3.0.1
Required to Use Outside In	■ Default system install has proper libstdc++.so.5 ■ Default system install has libgcc_so.1 ■ Update to >= libXm.so.3.0.2 (OpenMotif >=2.2.3) ■ Install X libraries

SUSE Linux Enterprise Server 8.0

Included	To be added
libc.so.6 version	/lib/libc.so.6.1 (GLIBC 2.2.6)
libstdc++	/usr/lib/libstdc++-libc6.2-2.so.3 /usr/lib/libstdc++.so.5.0.0
libgcc_s.so.1	/lib/libgcc_s.so.1
libXm.so.X	libXm.so.3.0.1
Required to Use Outside In	■ Default system install has proper libstdc++.so.5. ■ Default system install has libgcc_so.1 ■ Update to >= libXm.so.3.0.2 (OpenMotif >=2.2.3) ■ Install X libraries

3.11.2 Compiling and Linking

The libsc_ex.so and libsc_da.so are the only libraries that must be linked with your applications. They can be loaded when your application starts by linking them directly at compile time or they can be loaded dynamically by your application using library load functions (for example, dlopen).

To use **Image Export** annotation functions, you must also link to libsc_ca.so, requiring a separate license to Outside In Content Access or Search Export. Contact your Outside In sales representative for more information.

The shared libraries are dependent on the presence of the X libraries Xm, Xt and X11 if vector graphics support is required. It is the application developer's responsibility to ensure that the needed functions from these libraries are present before the product libraries are used.

The following are example command lines used to compile the sample application **exsimple** from the /sdk/samplecode directory. This command line is only an example. The actual command line required on the developer's system may vary.

The example assumes that the include and library file search paths for the technology libraries and any required X libraries are set correctly. If they are not set correctly, the search paths for the include and/or library files must be explicitly specified via the -I *include file path* and/or -L *library file path* options, respectively, so the compiler and linker can locate all required files.

The -L/usr/X11R6/lib option is also available.

3.11.2.1 Linux 32-bit

```
gcc -w -o ../exsimple/unix/exsimple ../exsimple/unix/exsimple.c
-I/usr/local/include -I../../common -L../../demo -L/usr/local/lib -lsc_ex -lsc_da
-Wl,-rpath,../../demo -Wl,-rpath,'${ORIGIN}'
```

3.11.2.2 Linux 64-bit

```
gcc -w -o ../exsimple/unix/exsimple ../exsimple/unix/exsimple.c
-I/usr/local/include -I../../common -L../../demo -L/usr/local/lib -lsc_ex -lsc_da
-DUNIX_64 -Wl,-rpath,../../demo -Wl,-rpath,'${ORIGIN}'
```

3.12 Oracle Solaris Compiling and Linking

Note: These products do not support the "Solaris BSD" mode.

All libraries should be installed into a single directory. The libsc_ex.so, and libsc_da.so libraries must be linked with your application. It can be loaded when your application starts by linking them directly at compile time or they can be loaded dynamically by your application using library load functions (for example, **dlopen**).

To use **Image Export** annotation functions, you must link to libsc_ca.sl, requiring a separate license to Outside In Content Access or Search Export. Contact your Outside In sales representative for more information.

The shared libraries are dependent on the presence of the X libraries Xm, Xt and X11 if vector graphics support is required. It is the application developer's responsibility to ensure that the needed functions from these libraries are present before the product libraries are used.

The following is an example command line used to compile the sample application **exsimple** from the /sdk/samplecode directory. This command line is only an example. The actual command line required on the developer's system may vary. The example assumes that the include and library file search paths for the technology libraries and any required X libraries are set correctly. If they are not set correctly, the search paths for the include and/or library files must be explicitly specified via the -I *include file path*> and/or *-L library file path* options, respectively, so that the compiler and linker can locate all required files.

Developers may need to use the -xcc flag to allow C++ style comments.

3.12.1 Oracle Solaris SPARC

```
cc -w -o ../exsimple/unix/exsimple ../exsimple/unix/exsimple.c -I/usr/include
-I/usr/dt/share/include -I../../common -L../../demo -L/usr/lib -L/lib -lsc_ex
-lsc_da -Wl,-R,../../demo -Wl,-R,'${ORIGIN}'
```

Note: When running the 32-bit SPARC binaries on Solaris 9 systems, you may see the following error:

```
ld.so.1: simple: fatal: libm.so.1: version `SUNW_1.1.1' not found
(required by file ./libsc_vw.so)
```

This is due to a missing system patch. Please apply one of the following patches (or its successor) to your system to correct.

- For Solaris 9 - Patch 111722-04

3.12.2 Oracle Solaris x86

Note: Your system will require Solaris patch 108436, which contains the C++ library libCstd.so.1.

```
cc -w -o ../exsimple/unix/exsimple ../exsimple/unix/exsimple.c -I/usr/include
-I/usr/dt/share/include -I../../common -L../../demo -L/usr/lib -L/lib -lsc_ex
-lsc_da -Wl,-R,../../demo -Wl,-R,'${ORIGIN}'
```

3.12.3 Oracle Solaris X Server Display Memory Issue

On Solaris, the X Server does not free the memory for a display until the last close display call is made on that display. This problem is limited strictly to the Oracle Solaris OS and does not affect any other platforms, UNIX or otherwise. It also does not affect HTML Export when graphics conversions are turned off.

This problem is most noticeable when doing large amounts of graphics processing, when system memory usage can grow without bound. This memory can only be freed by shutting down the X Windows display the user pointed the technology to use via the DISPLAY environment variable. If that display is the "console" display, the user must log out of the console in order to free the memory. Users may be able to avoid this problem by choosing a display that they can close periodically.

4

Data Access Common Functions

The Data Access module is common to all Outside In technologies. It provides a way to open a generic handle to a source file. This handle can then be used in the functions described in this chapter.

4.1 DAInit

This function tells the Data Access module to perform any necessary initialization it needs to prepare for document access. This function must be called before the first time the application uses the module to retrieve data from any document.

DAInit should only be called once per application, at application startup time. Any number of documents can be opened for text access between calls to DAInit and DADeInit. If DAInit succeeds, DADeInit must be called regardless of any other API calls.

Prototype

```
DAERR DAInit();
```

Return Values

- DAERR_OK: If the initializ or one of the SCCERR_ values in sccerr.hation was successful. Otherwise, one of the other DAERR_ values in sccda.h is returned.

4.2 DAThreadInit

Multiple threads are supported for all Windows platforms and the 32-bit versions of Linux x86 and Solaris SPARC. The DAThreadInit function is required on all of these platforms. Failed initialization of this function does not impair other API calls. If the function is not called or fails, stub functions are called instead of mutex functions.

DAThreadInit initializes the technology, preparing it to be run in a thread. This preparation includes setting up mutex function pointers to prevent threads from clashing in critical sections of the technology's code. The developer must actually code the threads after this function has been called. DAThreadInit should be called just before the call to DAInit and only once per process. Both functions should be called before the developer's application begins the thread.

Prototype

```
VTLONG DAThreadInit(VTSHORT ThreadOption);
```

Parameters

ThreadOption: can be one of the following values:

- DATHREAD_INIT_NOTHREADS: No thread support requested.
- DATHREAD_INIT_PTHREADS: Support for PTHREADS requested.
- DATHREAD_INIT_NATIVETHREADS: Support for native threading requested. Supported only on Oracle Solaris.

Return Values

- DATHREAD_INIT_SUCCESS: The initialization was successful.
- DATHREAD_INIT_FAILED: The initialization was unsuccessful.
- DATHREAD_INIT_ALREADY_CALLED: DAThreadInit has already been initialized. This value isreturned if DAThreadInit is called more than once in an application.
- DAERR_OK: If the initialization was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.3 DADeInit

This function tells the Data Access module that it will not be asked to read additional documents, so it should perform any cleanup tasks that may be necessary. This function should be called at application shutdown time, and only if the module was successfully initialized with a call to DAInit.

Prototype

```
DAERR DADeInit();
```

Return Values

- DAERR_OK: If the de-initialization was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.4 DAOpenDocument

Opens a source file to make it accessible by one or more of the data access technologies. If DAOpenDocument succeeds, DACloseDocument must be called regardless of any other API calls.

For IO types other than IOTYPE_REDIRECT, the subdocument specification may be specified as part of the file's path. This is accomplished by appending a question mark delimiter to the path, followed by the subdocument specification. For example, to specify the third item within the file c:\docs\file.zip, specify the path c:\docs\file.zip?item.3 in the call to DAOpenDocument. DAOpenDocument always attempts to open the specification as a file first. In the unlikely event there is a file with the same name (including the question mark) as a file plus the subdocument specification, that file is opened instead of the archive item.

To take advantage of this feature when providing access to the input file using redirected IO, a subdocument specification must be provided via a response to an IOGetInfo message, IOGETINFO_SUBDOC_SPEC. To specify an item in an archive, first follow the standard redirected IO methods to provide a BASEIO pointer to the archive file itself. To specify an item within the archive, a redirected IO object must respond to the IOGETINFO_SUBDOC_SPEC message by copying to the supplied

buffer the subdocument specification of the archive item to be opened. This message is received during the processing of DAOpenDocument.

Prototype

```
DAERR DAOpenDocument(
   VTLPHDOC    lphDoc,
   VTDWORD     dwSpecType,
   VTLPVOID    pSpec,
   VTDWORD     dwFlags);
```

Parameters

- lphDoc: Pointer to a handle that will be filled with a value uniquely identifying the document to data access. The developer uses this handle in subsequent calls to data access to identify this particular source file. This is not an operating system file handle.
- dwSpecType: Describes the contents of pSpec. Together, dwSpecType and pSpec describe the location of the source file. Must be one of the following values:
  - IOTYPE_ANSIPATH: Windows only. pSpec points to a NULL-terminated full path name using the ANSI character set and FAT 8.3 (Win16) or NTFS (Win32 and Win64) file name conventions.
  - IOTYPE_UNICODEPATH: Windows only. pSpec points to a NULL-terminated full path name using the Unicode character set and NTFS (Win32 and Win64) file name conventions.
  - IOTYPE_UNIXPATH: UNIX platforms only. pSpec points to a NULL-terminated full path name using the system default character set and UNIX path conventions.
  - IOTYPE_REDIRECT: All platforms. pSpec points to a developer-defined struct that allows the developer to redirect the IO routines used to read the file. For more information, see Chapter 6, "Redirected IO."
  - IOTYPE_ARCHIVEOBJECT: All platforms. Opens an embedded archive object for data access. pSpec points to a structure IOSPECARCHIVEOBJECT (for details, see Section 4.4.2, "IOSPECARCHIVEOBJECT Structure") that has been filled with values returned in a SCCCA_OBJECT content entry from Content Access.
  - IOTYPE_LINKEDOBJECT: All platforms. Opens an object specified by a linked object for data access. pSpec points to a structure IOSPECLINKEDOBJECT (see Section 4.4.1, "IOSPECLINKEDOBJECT Structure") that has been filled with values returned in an SCCCA_BEGINTAG or SCCCA_ENDTAG with a subtype of SCCCA_LINKEDOBJECT content entry from Content Access.
- pSpec: File location specification.
- dwFlags: The low WORD is the file ID for the document (0 by default). If you set the file ID incorrectly, the technology fails. If set to 0, the file identification technology determines the input file type automatically. The high WORD should be set to 0.

Return Values

- DAERR_OK: Returned if the open was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.4.1 IOSPECLINKEDOBJECT Structure

Structure used by DAOpenDocument.

Prototype

```
typedef struct IOSPECLINKEDOBJECTtag
   {
   VTDWORD    dwStructSize;
   VTSYSPARAM hDoc;
   VTDWORD    dwObjectId;  /* Object identifier. */
   VTDWORD    dwType;      /* Linked Object type */
                           /* (SO_LOCATORTYPE_*) */
   VTDWORD    dwParam1;    /* parameter for DoSpecial call */
   VTDWORD    dwParam2;    /* parameter for DoSpecial call */
   VTDWORD    dwReserved1; /* Reserved. */
   VTDWORD    dwReserved2; /* Reserved. */
} IOSPECLINKEDOBJECT,  * PIOSPECLINKEDOBJECT;
```

4.4.2 IOSPECARCHIVEOBJECT Structure

Structure used by DAOpenDocument.

Prototype

```
typedef struct IOSPECARCHIVEOBJECTtag
   {
   VTDWORD dwStructSize;
   VTDWORD hDoc;        /* Parent Doc hDoc */
   VTDWORD dwNodeId;    /* Node ID */
   VTDWORD dwStreamId;
   VTDWORD dwReserved1; /* Must always be 0 */
   VTDWORD dwReserved2; /* Must always be 0 */
} IOSPECARCHIVEOBJECT,  * PIOSPECARCHIVEOBJECT;
```

4.5 DAOpenNextDocument

Allows an existing Export or Data Access document handle to be used or reused when opening a new document, enabling options to be preserved across multiple exports, or allowing multiple documents to be exported to the same output destination.

This function uses an existing "reference" handle as a starting point for opening another document. The reference handle may be either a document handle (obtained through DAOpenDocument) or an export handle (obtained via a call to EXOpenExport). The difference between using these two handle types is that certain document specification types (subdocuments of the original document) will not be successfully opened when a document handle is used as the reference handle. If an Export handle is used as the reference handle, subdocument specifications are allowed.

Since the same handle is used multiple times, only a single call to DACloseDocument is needed. Each document is actually closed when the next document is opened; successive calls to DAOpenNextDocument free the resources used in previous calls.

Using this function allows developers to make multiple calls to the EX functions, without having to re-set options every time. Options can be set once for the original document, and retained for each subsequent document.

Additionally, some export libraries allow exporting multiple source documents to a single output document. Currently, this is supported for PDF and multi-page TIFF

output only. To do this, a developer would export the first document normally, then call DAOpenNextDocument to open the subsequent source documents, followed by a call to EXRunExport. EXOpenExport and EXCloseExport should only be called once each for this type of export.

Prototype

```
DAERR DAOpenNextDocument(
     VTHANDLE hReference,
     VTDWORD  dwSpecType,
     VTLPVOID pSpec,
     VTDWORD  dwFlags );
```

Parameters

- hReference: this VTHANDLE value may be either an hDoc, the VTHDOC document handle obtained through a prior call to DAOpenDocument; or an hExport, the VTHEXPORT handle obtained from a prior call to EXOpenExport. This is not an operating system file handle.
- dwSpecType: Describes the contents of pSpec. The dwSpecType values allowed by DAOpenDocument for this parameter are acceptable, with the exceptions that IOTYPE_ARCHIVEOBJECT and IOTYPE_LINKEDOBJECT are only allowed when hReference is an Export handle, obtained via a call to EXOpenExport.
- pSpec: File location specification.
- dwFlags: The low WORD is the file ID for the document (0 by default). If you set the file ID incorrectly, the technology fails. If set to 0, the file identification technology determines the input file type automatically. The high WORD should be set to 0.

Return Values

- DAERR_OK: Returned if the open was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.
- DAERR_FEATURENOTAVAIL: Returned if the value specified by dwSpecType is not one of the supported spec types for this operation.

4.6 DACloseDocument

This function is called to close a file opened by the reader that has not encountered a fatal error.

Prototype

```
DAERR DACloseDocument(
   VTHDOC hDoc);
```

Parameters

- hDoc: Identifier of open document. Must be a handle returned by the DAOpenDocument function.

Return Value

- DAERR_OK: Returned if close succeeded. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.7 DARetrieveDocHandle

This function returns the document handle associated with any type of Data Access handle. This allows the developer to only keep the value of hItem, instead of both hItem and hDoc.

Prototype

```
DAERR DARetrieveDocHandle(
   VTHDOC     hItem,
   VTLPHDOC   phDoc);
```

Parameters

- hItem: Identifier of open document. May be the subhandle returned by the DAOpenDocument or DAOpenTreeRecord functions in the data access submodule. Passing in an hDoc created by DAOpenDocument for this parameter results in an error.
- phDoc: Pointer to a handle to be filled with the document handle associated with the passed subhandle.

Return Value

- DAERR_OK: Returned if the handle in phDoc is valid. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.8 DASetOption

This function is called to set the value of a data access option.

Prototype

```
DAERR DASetOption(
   VTHDOC      hDoc,
   VTDWORD     dwOptionId,
   VTLPVOID    pValue,
   VTDWORD     dwValueSize);
```

Parameters

- hDoc: Identifier of open document. May be a VTHDOC returned by the DAOpenDocument function, or the subhandle returned by the DAOpenDocument or DAOpenTreeRecord functions (VTHCONTENT, VTHTEXT, etc.). Setting an option for a VTHDOC affects all subhandles opened under it, while setting an option for a subhandle affects only that handle.

  If this parameter is NULL, then setting the option affects all documents opened thereafter. Once an option is set using the NULL handle, this option becomes the default option thereafter. This parameter should only be set to NULL if the option being set can take that value.
- dwOptionId: The identifier of the option to be set.
- pValue: Pointer to a buffer containing the value of the option.
- dwValueSize: The size in bytes of the data pointed to by pValue. For a string value, the NULL terminator should be included when calculating dwValueSize.

Return Value

- DAERR_OK: Returned if DASetOption succeeded. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.9 DAGetOption

This function is called to retrieve the value of a data access option. The results of a call to this option are only valid if DASetOption has already been called on the option.

Prototype

```
DAERR DAGetOption(
   VTHDOC    hItem,
   VTDWORD   dwOptionId,
   VTLPVOID  pValue,
   VTLPDWORD pSize);
```

Parameters

- hItem: Identifier of open document. May be a VTHDOC returned by the DAOpenDocument function, or the subhandle returned by the DAOpenDocument or DAOpenTreeRecord functions (VTHCONTENT, VTHTEXT, etc.). Getting an option for a VTHDOC gets the value of that option for that handle, which may be different than the subhandle's value.
- dwOptionId: The identifier of the option to be returned.
- pValue: Pointer to a buffer containing the value of the option.
- pSize: This VTDWORD should be initialized by the caller to the size of the buffer pointed to by pValue. If this size is sufficient, the option value is copied into pValue and pSize is set to the actual size of the option value. If the size is not sufficient, pSize is set to the size of the buffer needed for the option and an error is returned.

Return Value

- DAERR_OK: Returned if DAGetOption was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.10 DAGetFileId

This function allows the developer to retrieve the format of the file based on the technology's content-based file identification process. This can be used to make intelligent decisions about how to process the file and to give the user feedback about the format of the file they are working with.

Note: in cases where File ID returns a value of FI_UNKNOWN, then this function will apply the Fallback Format before returning a result.

Prototype

```
DAERR DAGetFileId(
   VTHDOC      hDoc,
   VTLPDWORD   pdwFileId);
```

Parameters

- hDoc: Identifier of open document. May be a VTHDOC returned by the DAOpenDocument function, or the subhandle returned by the DAOpenDocument or DAOpenTreeRecord functions (VTHEXPORT, VTHCONTENT, VTHTEXT, etc.).
- pdwFileId: Pointer to a DWORD that receives a file identification number for the file. These numbers are defined in sccfi.h.

Return Value

- DAERR_OK: Returned if DAGetFileId was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.11 DAGetFileIdEx

This function allows the developer to retrieve the format of the file based on the technology's content-based file identification process. This can be used to make intelligent decisions about how to process the file and to give the user feedback about the format of the file they are working with. This function has all the functionality of DAGetFileID and adds the ability to return the raw FI value; in other words, the value returned by normal FI, without applying the FallbackFI setting.

Prototype

```
DAERR DAGetFileIdEx(
   VTHDOC      hDoc,
   VTLPDWORD   pdwFileId,
   VTDWORD     dwFlags);
```

Parameters

- hDoc: Identifier of open document. May be a VTHDOC returned by the DAOpenDocument function, or the subhandle returned by the DAOpenDocument or DAOpenTreeRecord functions (VTHEXPORT, VTHCONTENT, VTHTEXT, etc.).
- pdwFileId: Pointer to a DWORD that receives a file identification number for the file. These numbers are defined in sccfi.h.
- dwFlags: DWORD that allows user to request specific behavior.
  - DA_FILEINFO_RAWFI: This flag tells DAGetFileIdEx() to return the result of the File Identification operation before Extended File Ident. is performed and without applying the FallbackFI value.

Return Value

- DAERR_OK: Returned if DAGetFileIdEx was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned. See the following tables for examples of expected output depending on the value of various options.

Values with RAWFI turned off

Input file type	ExtendedFI	FallbackID	DAGetFileId	DAGetFileIdEx
true binary	off	fallback value	fallback value	fallback value
true binary	on	fallback value	fallback value	fallback value

Input file type	ExtendedFI	FallbackID	DAGetFileId	DAGetFileIdEx
true text	off	fallback value	fallback value	fallback value
true text	on	fallback value	40XX	40XX

Values with RAWFI turned on

Input file type	ExtendedFI	FallbackID	DAGetFileId	DAGetFileIdEx
true binary	off	fallback value	fallback value	1999
true binary	on	fallback value	fallback value	1999
true text	off	fallback value	fallback value	1999
true text	on	fallback value	40XX	1999

4.12 DAGetErrorString

This function returns to the developer a string describing the input error code. If the error string returned does not fit the buffer provided, it is truncated.

```
VTVOID DAGetErrorString(
   DAERR      deError,
   VTLPVOID   pBuffer,
   VTDWORD    dwBufSize);
```

Parameters

- Error: Error code passed in by the developer for which an error message is to be returned.
- pBuffer: This buffer is allocated by the caller and is filled in with the error message by this routine. The error message will be a NULL-terminated string.
- dwBufSize: Size of what pBuffer points to in bytes.

Return Value

- none

4.13 DAGetTreeCount

This function is called to retrieve the number of records in an archive file.

```
DAERR DAGetTreeCount(
      VTHDOC      hDoc,
      VTLPDWORD   lpRecordCount);
```

Parameters

- hDoc: Identifier of open document. May be a VTHDOC returned by the DAOpenDocument function, or the subhandle returned by any of the DAOpenDocument or DAOpenTreeRecord functions (VTHCONTENT, VTHTEXT, etc.).
- lpRecordCount: A pointer to a VTLPDWORD that is filled with the number of stored archive records.

Return Value

- DAERR_OK: DAGetTreeCount was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.
- DAERR_BADPARAM: The selected file does not contain an archive section, or the requested record does not exist.

4.14 DAGetTreeRecord

This function is called to retrieve information about a record in an archive file.

```
DAERR DAGetTreeRecord(
      VTHDOC         hDoc,
      PSCCDATREENODE pTreeNode);
```

Parameters

- hDoc: Identifier of open document. May be a VTHDOC returned by the DAOpenDocument function, or the subhandle by any of the DAOpenDocument or DAOpenTreeRecord functions (VTHCONTENT, VTHTEXT, etc.).
- pTreeNode: A pointer to a PSCCDATREENODE structure that is filled with information about the selected record.

Return Values

- DAERR_OK: DAGetTreeRecord was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.
- DAERR_BADPARAM: The selected file does not contain an archive section, or the requested record does not exist.
- DAERR_EMPTYFILE: Empty file.
- DAERR_PROTECTEDFILE: Password protected or encrypted file.
- DAERR_SUPFILEOPENFAILS: Supplementary file open failed.
- DAERR_FILTERNOTAVAIL: The file's type is known, but the appropriate filter is not available.
- DAERR_FILTERLOADFAILED: An error occurred during the initialization of the appropriate filter.

4.14.1 SCCDATREENODE Structure

This structure is passed by the OEM through the DAGetTreeRecord function. The structure is defined in sccda as follows:

```
typedef struct SCCDATREENODEtag{
   VTDWORD   dwSize;
   VTDWORD   dwNode;
   VTBYTE    szName[1024];
   VTDWORD   dwFileSize;
   VTDWORD   dwTime;
   VTDWORD   dwFlags;
   VTDWORD   dwCharSet;
   } SCCDATREENODE,  *PSCCDATREENODE;
```

Parameters

- dwSize: Must be set by the OEM to sizeof(SCCDATREENODE).

- dwNode: The number of the record to retrieve information about.
- szName: A buffer to hold the name of the record.
- dwFileSize: Returns the file size, in bytes, of the requested record.
- dwTime: Returns the timestamp of the requested record, in MS-DOS time.
- dwFlags: Returns additional information about the node. It can be a combination of the following:
  - SCCDA_TREENODEFLAG_FOLDER: Indicating that the selected node is a folder and not a file.
  - SCCDA_TREENODEFLAG_SELECTED: Indicating that the node is selected.
  - SCCDA_TREENODEFLAG_FOCUS: Indicating that the node has focus.
- dwCharSet: Returns the SO_* (charsets.h) character set of the characters in szName. The output character set is either the default native environment character set or Unicode if the SCCID_SYSTEMFLAGS is set to SCCVW_SYSTEM_UNICODE.

4.15 DAOpenTreeRecord

This function is called to open a record within an archive file and make it accessible by one or more of the data access technologies.

Search Export Only: Search Export's default behavior is to automatically open and process the contents of an archive. Use DAOpenTreeRecord and SCCOPT_XML_SEARCHML_FLAGS to change the default behavior if discrete processing of each document in an archive is desired.

```
DAERR DAOpenTreeRecord(
      VTHDOC      hDoc,
      VTLPHDOC    lphDoc,
      VTDWORD     dwRecord);
```

lphDoc is *not* a file handle.

Parameters

- hDoc: Identifier of open document. May be a VTHDOC returned by the DAOpenDocument function, or the subhandle returned by the DAOpenDocument or DAOpenTreeRecord functions (VTHCONTENT, VTHTEXT, etc.).
- lphDoc: Pointer to a handle that is filled with a value uniquely identifying the document to data access. The developer uses this handle in subsequent calls to data access to identify this particular document.
- dwRecord: The record in the archive file to be opened.

Return Value

- DAERR_OK: Returned if DAOpenTreeRecord was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.16 DASaveTreeRecord

This function is called to extract a record in an archive file to disk.

```
DAERR DASaveTreeRecord(
      VTHDOC      hDoc,
      VTDWORD     dwRecord,
      VTDWORD     dwSpecType,
      VTLPVOID    pSpec,
      VTDWORD     dwFlags);
```

Parameters

- hDoc: Handle that uniquely identifies the document to data access. This is not an operating system file handle.
- dwRecord: The record in the archive file to be extracted.
- dwSpecType: Describes the contents of pSpec. Together, dwSpecType and pSpec describe the location of the source file where the file will be extracted. Must be one of the following values:
  - IOTYPE_ANSIPATH: Windows only. pSpec points to a NULL-terminated full path name using the ANSI character set and FAT 8.3 (Win16) or NTFS (Win32 and Win64) filename conventions.
  - IOTYPE_UNICODEPATH: Windows only. pSpec points to a NULL-terminated full path name using the Unicode character set and NTFS (Win32 and Win64) file name conventions.
  - IOTYPE_UNIXPATH: X Windows on UNIX platforms only. pSpec points to a NULL-terminated full path name using the system default character set and UNIX path conventions.
- pSpec: File location specification. See the descriptions for individual dwSpecType values.
- dwFlags: Currently not used. Should be set to 0.

Return Values

- DAERR_OK: Returned if the save was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.
- DAERR_UNSUPPORTEDCOMP: Unsupported Compression Encountered.
- DAERR_PROTECTEDFILE: The file is encrypted.
- DAERR_BADPARAM: The request option is invalid. The record is possibly a directory.

Otherwise, one of the other DAERR_ values in sccda.h is returned.

Currently, only extracting a single file is supported. There is a known limitation where files in a Microsoft Binder file cannot be extracted.

4.17 DACloseTreeRecord

This function is called to close an open record file handle.

Search Export Only: Search Export's default behavior is to automatically open and process the contents of an archive. Use DACloseTreeRecord and SCCOPT_XML_SEARCHML_FLAGS to change the default behavior if discrete processing of each document in an archive is desired.

```
DAERR DACloseTreeRecord(
      VTHDOC      hDoc);
```

Parameters

- hDoc: Identifier of open record document.

Return Value

- DAERR_OK: Returned if DACloseTreeRecord was successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.18 DASetStatCallback

This function sets up a callback that the technology periodically calls to verify the file is still being processed. The customer can use this with a monitoring process to help identify files that may be hung. Because this function is called more frequently than other callbacks, it is implemented separately.

Use of the Status Callback Function

An application's status callback function will be called periodically by Outside In to provide a status message. Currently, the only status message defined is OIT_STATUS_WORKING, which provides a "sign of life" that can be used during unusually long processing operations to verify that Outside In has not stopped working. If the application decides that it would not like to continue processing the current document, it may use the return value from this function to tell Outside In to abort.

The status callback function has two return values defined:

- OIT_STATUS_CONTINUE: Tells Outside In to continue processing the current document.
- OIT_STATUS_ABORT: Tells Outside In to stop processing the current document.

The following is an example of a minimal status callback function.

```
VTDWORD MyStatusCallback( VTHANDLE hUnique, VTDWORD dwID, VTSYSVAL
pCallbackData, VTSYSVAL pAppData)
{
    if(dwID == OIT_STATUS_WORKING)
    {
        if( checkNeedToAbort( pAppData ) )
            return (OIT_STATUS_ABORT);
    }

    return (OIT_STATUS_CONTINUE);
}
```

Prototype

```
DAERR DASetStatCallback(DASTATCALLBACKFN pCallback,
   VTHANDLE hUnique,
   VTLPVOID pAppData)
```

Parameters

- pCallback: Pointer to the callback function.
- hUnique: Handle that may either be an hDoc or an hExport.
- pAppData: User-defined data. Outside In never uses this value other than to provide it to the callback function.

The callback function should be of type DASTATCALLBACKFN. This function has the following signature:

```
(VTHANDLE hUnique, VTDWORD dwID, VTSYSVAL pCallbackData, VTSYSVAL pAppData)
```

- hUnique: Handle that may either be an hDoc or an hExport
- dwID: Handle that indicates the callback status.
  - OIT_STATUS_WORKING
  - OIT_STATUS_CONTINUE
  - OIT_STATUS_CANCEL
  - OIT_STATUS_ABORT
- pCallbackData: Currently always NULL
- pAppData: User-defined data provided to DASetStatCallback

Return Values

- DAERR_OK: If successful. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

4.19 DASetFileAccessCallback

This function sets up a callback that the technology will call into to request information required to open an input file. This information may be the password of the file or a support file location.

Use of the File Access Callback

When the technology encounters a file that requires additional information to access its contents, the application's callback function will be called for this information. Currently, only two different forms of information will be requested: the password of a document, or the file used by Lotus Notes to authenticate the user information.

The status callback function has two return values defined:

- SCCERR_OK: Tells Outside In that the requested information is provided.
- SCCERR_CANCEL: Tells Outside In that the requested information is not available.

This function will be repeatedly called if the information provided is not valid (such as the wrong password). It is the responsibility of the application to provide the correct information or return SCCERR_CANCEL.

Prototype

```
DAERR DASetFileAccessCallback (DAFILEACCESSCALLBACKFN pCallback);
   VTHANDLE hUnique,
   VTLPVOID pAppData)
```

Parameters

- pCallback: Pointer to the callback function.

Return Values

- DAERR_OK: If successful. Otherwise, one of the other DAERR_ values defined in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

The callback function should be of type DAFILEACCESSCALLBACKFN. This function has the following signature:

```
typedef VTDWORD (* DAFILEACCESSCALLBACKFN)(VTDWORD dwID, VTSYSVAL pRequestData,
VTSYSVAL pReturnData, VTDWORD dwReturnDataSize);
```

- dwID – ID of information requested:
  - OIT_FILEACCESS_PASSWORD – Requesting the password of the file
  - OIT_FILEACCESS_NOTESID – Requesting the Notes ID file location
- pRequestData – Information about the file.

```
typedef struct {
      VTDWORD   dwSize;           /* size of this structure */
      VTWORD    wFIId;            /* FI id of reference file */
      VTDWORD   dwSpecType;       /* file spec type */
      VTVOID   *pSpec;            /* pointer to a file spec */
      VTDWORD   dwRootSpecType;   /* root file spec type */
      VTVOID   *pRootSpec;        /* pointer to the root file spec */
      VTDWORD   dwAttemptNumber;  /* The number of times the callback has */
                                  /* already been called for the currently */
                                  /* requested item of information */
} IOREQUESTDATA, * PIOREQUESTDATA;
```

- pReturnData – Pointer to the buffer to hold the requested information – for OIT_FILEACCESS_PASSWORD and OIT_FILEACCESS_NOTESID, the buffer is an array of WORD characters.
- dwReturnDataSize – Size of the return buffer.

Note: Not all formats that use passwords are supported. Only Office binary (97-2003), Office 2007, Lotus NSF, PDF (with RC4 encryption), Zip (with AES 128 & 256 bit, ZipCrypto) are currently supported.

5

Export Functions

This chapter outlines the basic functions used to initiate the conversion of documents using the product API.

5.1 General Functions

The following functions are general functions used in most products.

5.1.1 EXOpenExport

This function is used to initiate the export process for a file that has been opened by DAOpenDocument. If EXOpenExport succeeds, EXCloseExport must be called regardless of any other API calls.

> **Note:** SCCOPT_GRAPHIC_TYPE = FI_NONE must be set (via DASetOption) before the call to EXOpenExport. Otherwise, the SCCUT_FILTEROPTIMIZEDFORTEXT speed enhancement for the PDF filter is not set. This will result in slower exports of PDFs when graphic output is not required.

Prototype

```
SCCERR EXOpenExport(
   VTHDOC       hDoc,
   VTDWORD      dwOutputId,
   VTDWORD      dwSpecType,
   VTLPVOID     pSpec,
   VTDWORD      dwFlags,
   VTSYSPARAM   dwReserved,
   VTLPVOID     pCallbackFunc,
   VTSYSPARAM   dwCallbackData,
   VTLPHEXPORT  phExport);
```

phExport is *not* a file handle.

Parameters

- hDoc: A handle that identifies the source file, created by DAOpenDocument. Knowledge of this should only affect OEMs under the most unusual of circumstances.

- dwOutputId: File ID of the desired format of the output file. This value must be set to the following values:
  - FI_GIF
  - FI_JPEG2000
  - FI_JPEGFIF
  - FI_PNG
  - FI_BMP
  - FI_TIFF
- dwSpecType: Describes the contents of pSpec. Together, dwSpecType and pSpec describe the location of the initial output file. Must be one of the following values:
  - IOTYPE_ANSIPATH: Windows only. pSpec points to a NULL-terminated full path name using the ANSI character set and FAT 8.3 (Win16) or NTFS (Win32 and Win64) file name conventions.
  - IOTYPE_UNICODEPATH: Windows only. pSpec points to a NULL-terminated full path name using the Unicode character set and NTFS file name conventions.

    Note: If you are using IOTYPE_UNICODEPATH as a file spec type, if the calling application is providing an export callback function, you should set the option SCCOPT_EX_UNICODECALLBACKSTR to TRUE. Refer to the documentation on callbacks such as EX_CALLBACK_ID_CREATENEWFILE and the EXURLFILEIOCALLBACKDATAW structure for details

  - IOTYPE_UNIXPATH: UNIX platforms only. pSpec points to a NULL-terminated full path name using the system default character set and UNIX path conventions.
  - IOTYPE_REDIRECT: All platforms. pSpec may be NULL, and all file information specified in the callback routine. This allows the developer to redirect the IO routines used to write the files. For more information, see Chapter 6, "Redirected IO."
- pSpec: Initial output file location specification. This is either a pointer to a buffer or NULL. Usage differs depending on product:
  - If the pointer is not NULL, the file referred to by the pSpec is assumed to be already open and the buffer's contents are based on the value of the dwSpecType parameter. See the descriptions for individual dwSpecType values in the preceding list.
  - Passing NULL indicates the developer will use the EX_CALLBACK_ID_CREATENEWFILE callback to specify the initial output file instead of specifying it here. When this parameter is NULL, the developer must handle the EX_CALLBACK_ID_CREATENEWFILE callback or EXOpenExport returns an error.
- dwFlags: Must be set by developer to 0.
- dwReserved: Reserved. Must be set by developer to 0.
- pCallbackFunc: Pointer to a function of the type EXCALLBACKPROC. This function is used to give the developer control of certain aspects of the export

process as they occur. For more details, see the definition for EXCALLBACKPROC in Section 5.1.2, "EXCALLBACKPROC." This parameter may be set to NULL if the developer does not wish to handle callbacks.

- dwCallbackData: This parameter ispassed transparently to the function specified by pCallbackFunc. The developer may use this value for any purpose, including passing context information into the callback function.
- phExport: Pointer to a handle that receives a value uniquely identifying the document to the product routines. If the function fails, this value is set to VTHDOC_INVALID.

Return Values

- SCCERR_OK: If the open was successful. Otherwise, one of the other SCCERR_ values in sccerr.h is returned.

5.1.2 EXCALLBACKPROC

Type definition for the developer's callback function.

Prototype

```
DAERR (DA_ENTRYMODPTR EXCALLBACKPROC)(
   VTHEXPORT    hExport,
   VTSYSPARAM   dwCallbackData,
   VTDWORD      dwCommandOrInfoId,
   VTLPVOID     pCommandOrInfoData);
```

Parameters

- hExport: Export handle for the document. Must be a handle returned by the EXOpenExport function.
- dwCallbackData: This value is passed to EXOpenExport in the dwCallbackData parameter.
- dwCommandOrInfoId: Indicates the type of callback. For information about supported callbacks, see Chapter 7, "Callbacks."
- pCommandOrInfoData: Data associated with dwCommandOrInfoId. for information about supported callbacks, see Chapter 7, "Callbacks."

Return Values

- SCCERR_OK: Command was handled by the callback function.
- SCCERR_BADPARAM: One of the function parameters was invalid.
- SCCERR_NOTHANDLED: Callback function did not handle the command. This return value must be the default for all values of dwCommandOrInfoId the developer does not handle.

5.1.3 EXCloseExport

This function is called to terminate the export process for a file.

Prototype

```
SCCERR EXCloseExport(
   VTHEXPORT   hExport);
```

Parameters

- hExport: Export handle for the document. Must be a handle returned by the EXOpenExport function.

Return Values

- SCCERR_OK: Returned if the close was successful. Otherwise, one of the other SCCERR_ values in sccerr.h is returned.

5.1.4 EXRunExport

This function is called to run the export process.

Prototype

```
SCCERR EXRunExport(
   VTHEXPORT   hExport);
```

Parameters

- hExport: Export handle for the document. Must be a handle returned by the EXOpenExport function.

Return Values

- SCCERR_OK: Returned if the export was successful. Otherwise, one of the other SCCERR_ values in sccerr.h is returned.

5.2 Annotation Functions

Annotations are a way to highlight, insert, or delete text in product output, without modifying the original document. Examples of ways annotations can be used by developers include:

- highlighting search hits
- inserting notes to comment on text in the original document
- deleting sensitive information not intended for viewing

Other Outside In products are required to ascertain the proper character positions where the developer wishes to make annotations. Currently, only Content Access and the SearchML output format (available in Search Export) can be used to get these positions. Although the Content Access module is included with the product, license to use the Content Access API is not automatically granted with the purchase of the Export software.

A separate license for Content Access or Search Export is required to enable use of any of the annotation features that are supported by Image Export. Contact your Outside In sales representative for more information.

The following notes should be considered when using annotations:

- Processing annotations slow down the conversion process to some extent.
- While other products in the Outside In family support annotations, not all products support all types of annotations.
- The ACC acronym (Actual Character Count) is used in the following function descriptions. ACCs represent the location of text in the source document data stream. They represent a marker just before the location of text, and this marker is zero-based.

This is why startACC parameters should be set to an ACC value that represents the position just prior to the first character and endACC parameters should be set to an ACC value that represents the position just past the last character in the range. For this reason, users should make sure endACC values are 1 greater than the ACC of the last character in the desired range of annotation.

- Calling EXCloseExport causes all annotations set so far to be cleared.

5.2.1 EXHiliteText

This function allows the developer to change foreground and background colors of a range of characters from the input document.

The colors set by this option can be overridden by the equivalent settings in the ExInsertText function.

Prototype

```
DAERR EXHiliteText(
VTHEXPORT           hExport,
PEXANNOHILITETEXT   pHiliteText);
```

Parameters

- hExport: Export handle for the document. Must be the handle returned by the EXOpenExport() function.
- pHiliteText: Pointer to a structure containing the information on what to highlight and how to highlight it.

Structure

A C data structure defined in sccex.h as follows:

```
typedef struct EXANNOHILITETEXTtag
{
   VTDWORD         dwSize;
   VTDWORD         dwStartACC;
   VTDWORD         dwEndACC;     /* Last char to highlight +1 */
   VTDWORD         dwOptions;
   SCCVWCOLORREF   sForeground;
   SCCVWCOLORREF   sBackground;
   VTWORD          wCharAttr;
   VTWORD          wCharAttrMask;
} EXANNOHILITETEXT;
```

- dwSize: Must be set by the developer to sizeof(EXANNOHILITETEXT).
- dwStartACC: The ACC of the first character to be highlighted.
- dwEndACC: ACC of the last character to be highlighted +1. Ranges for annotations have their end point set one past the ACC of the last character in the range. For example, to highlight a single character at ACC position 5, dwStartACC would be set to 5, and dwEndACC would be set to 5+1=6.
- dwOptions: Flags that provide highlight options. The default is all flags set to off. The valid flags are:
  - SCCVW_USEFOREGROUND: Indicates that sForeground defines the foreground text color to apply to highlights.
  - SCCVW_USEBACKGROUND: Indicates that sBackground defines the background text color to apply to highlights.

- SCCVW_USECHARATTR: Indicates that wCharAttr defines the character attributes to apply to highlights.
- sForeground: Defines the foreground text color to be used if the SCCVW_USEFOREGROUND flag is set in dwOptions. Set this value with the SCCANNORGB(red, green, blue) macro. The red, green and blue values are percentages of the color from 0-255 (with 255 being 100%). There is no default value for this parameter -- if it is set, the color must be specified.
- sBackground: Defines the background text color to be used if the SCCVW_USEBACKGROUND flag is set in dwOptions. Set this value with the SCCANNORGB(red, green, blue) macro. The red, green and blue values are percentages of the color from 0-255 (with 255 being 100%). There is no default value for this parameter. If it is set, the color must be specified.
- wCharAttr: Defines the character attributes to use if SCCVW_USECHARATTR is set in dwOptions. Only bits with the corresponding bits set in wCharAttrMask are affected. To turn off all character attributes, set this to SCCVW_CHARATTR_NORMAL (the default) and set wCharAttrMask to -1. Otherwise, set this to any of the following character attributes OR-ed together:
  * SCCVW_CHARATTR_UNDERLINE
  * SCCVW_CHARATTR_ITALIC
  * SCCVW_CHARATTR_BOLD
  * SCCVW_CHARATTR_STRIKEOUT
  * SCCVW_CHARATTR_SMALLCAPS: Not supported.
  * SCCVW_CHARATTR_OUTLINE: Not currently supported.
  * SCCVW_CHARATTR_SHADOW: Not currently supported.
  * SCCVW_CHARATTR_CAPS: Not currently supported.
  * SCCVW_CHARATTR_SUBSCRIPT
  * SCCVW_CHARATTR_SUPERSCRIPT
  * SCCVW_CHARATTR_DUNDERLINE: Currently supported as single underline in **Image Export**.
  * SCCVW_CHARATTR_WORDUNDERLINE
  * SCCVW_CHARATTR_DOTUNDERLINE: Currently supported as single underline.

- wCharAttrMask: Defines which character attributes to change based on the settings of the bits in wCharAttr. Uses the same bit flags defined above for wCharAttr. Only attributes whose flag is set in this mask are modified to match the state specified by wCharAttr. This mask provides a way to distinguish between bits being set in wCharAttr because the developer wants to force a change to the character attributes and bits in wCharAttr that the developer would rather set to "inherit from the source document." The following are real-world examples of these interactions (all examples assume that SCCVW_USECHARATTR is set in dwOptions):
  - *Example 1*: wCharAttr is set to SCCVW_CHARATTR_BOLD and wCharAttrMask is set to SCCVW_CHARATTR_BOLD. This results in bold being forced on in the annotation.

- *Example 2*: wCharAttr is set to SCCVW_CHARATTR_BOLD and wCharAttrMask is set to 0. This results in bold being left the way it was in the source document in the annotation.
- *Example 3*: wCharAttr is set to 0 and wCharAttrMask is set to SCCVW_CHARATTR_BOLD. This results in bold being forced off in the annotation.

  The default value for this is 0, meaning that all the flags in wCharAttr are ignored.

Return Values

- DAERR_OK: Returned if the annotation was successfully added. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

5.2.2 EXInsertText

This function inserts a text string at a specified point in the document. The developer may also change character attributes or foreground or background colors. These settings override any provided by ExHiliteText.

Prototype

```
DAERR EXInsertText(
VTHEXPORT           hExport,
PEXANNOINSERTTEXT   pInsertText);
```

Parameters

- hExport: Export handle for the document. Must be the handle returned by the EXOpenExport() function.
- pInsertText: Pointer to a structure containing the information on the text to insert.

Structure

A C data structure defined in sccex.h as follows:

```
typedef struct EXANNOINSERTTEXTtag
{
   VTDWORD         dwSize;
   VTDWORD         dwTextACC;
   VTLPWORD        pText;
   VTDWORD         dwOptions;
   SCCVWCOLORREF   sForeground;
   SCCVWCOLORREF   sBackground;
   VTWORD          wCharAttr;
   VTWORD          wCharAttrMask;
} EXANNOINSERTTEXT;
```

- dwSize: Must be set by the OEM to sizeof(EXANNOINSERTTEXT).
- dwTextACC: Place to insert the string pointed to by pText. The string is inserted before the character normally at this ACC position. By default, the inserted string inherits the text attributes of the character at this position in the input document.
- pText: The text to be inserted. Specified as a Unicode string.

- dwOptions: This parameter sets flags that provide highlight options. The default is all flags off. The flags are:
  - SCCVW_USEFOREGROUND: Indicates that sForeground defines the foreground text color to apply to highlights.
  - SCCVW_USEBACKGROUND: Indicates that sBackground defines the background text color to apply to highlights.
  - SCCVW_USECHARATTR: Indicates that wCharAttr defines the character attributes to apply to highlights.
- sForeground: Defines the foreground text color to be used if the SCCVW_USEFOREGROUND flag is set in dwOptions. Set this value with the SCCANNORGB(red, green, blue) macro. The red, green and blue values are percentages of the color from 0-255 (with 255 being 100%). There is no default value for this parameter -- if it is set, the color must be specified.
- sBackground: Defines the background text color to be used if the SCCVW_USEBACKGROUND flag is set in dwOptions. Set this value with the SCCANNORGB(red, green, blue) macro. The red, green and blue values are percentages of the color from 0-255 (with 255 being 100%). There is no default value for this paramete. If it is set, the color must be specified.
- wCharAttr: Defines the character attributes to use if SCCVW_USECHARATTR is set in dwOptions. Only bits with the corresponding bits set in wCharAttrMask are affected. To turn off all character attributes, set this to SCCVW_CHARATTR_NORMAL (the default) and set wCharAttrMask to -1. Otherwise, set this to any of the following character attributes OR-ed together:
  - SCCVW_CHARATTR_UNDERLINE
  - SCCVW_CHARATTR_ITALIC
  - SCCVW_CHARATTR_BOLD
  - SCCVW_CHARATTR_STRIKEOUT
  - SCCVW_CHARATTR_SMALLCAPS: Not currently supported in Image Export.
  - SCCVW_CHARATTR_OUTLINE: Not currently supported.
  - SCCVW_CHARATTR_SHADOW: Not currently supported.
  - SCCVW_CHARATTR_CAPS: Not currently supported.
  - SCCVW_CHARATTR_SUBSCRIPT: SCCVW_CHARATTR_SUPERSCRIPT
  - SCCVW_CHARATTR_DUNDERLINE: Currently supported as single underline.
  - SCCVW_CHARATTR_WORDUNDERLINE: SCCVW_CHARATTR_DOTUNDERLINE
- wCharAttrMask: Defines which character attributes to change based on the settings of the bits in wCharAttr. Uses the same bit flags defined above for wCharAttr. Only attributes whose flag is set in this mask are modified to match the state specified by wCharAttr. This mask provides a way to distinguish between bits being set in wCharAttr because the developer wants to force a change to the character attributes, and bits in wCharAttr that the developer would rather set to "inherit from the source document."

The following are real-world examples of these interactions (all examples assume that SCCVW_USECHARATTR is set in dwOptions):

- *Example 1*: wCharAttr is set to SCCVW_CHARATTR_BOLD and wCharAttrMask is set to SCCVW_CHARATTR_BOLD. This results in bold being forced on in the annotation.
- *Example 2*: wCharAttr is set to SCCVW_CHARATTR_BOLD and wCharAttrMask is set to 0. This results in bold being left the way it was in the source document in the annotation.
- *Example 3*: wCharAttr is set to 0 and wCharAttrMask is set to SCCVW_CHARATTR_BOLD. This results in bold being forced off in the annotation.

The default value for this is 0, meaning that all the flags in wCharAttr are ignored.

Return Values

- DAERR_OK: The annotation was successfully added. Otherwise, one of the other DAERR_ values in sccda.h or one of the SCCERR_ values in sccerr.h is returned.

5.2.3 EXHideText

This function removes the selected range of characters in the input document from the output.

The hidden text does not appear in any form in the final converted document.

Prototype

```
SCCERR EXHideText(
VTHEXPORT         hExport,
PEXANNOHIDETEXT   pHideText)
```

Parameters

- hExportL Export handle for the document. Must be the handle returned by the EXOpenExport() function.
- pHideText: Pointer to an EXANNOHIDETEXT structure containing the information on the section of text to hide.

5.2.3.1 EXANNOHIDETEXT Structure

A C data structure defined in sccex.h as follows:

```
typedef struct EXANNOHIDETEXTtag
{
   VTDWORD    dwSize;
   VTDWORD    dwStartACC;
   VTDWORD    dwEndACC;     /* Last char to hide +1 */
} EXANNOHIDETEXT;
```

- dwSize: Must be set by the OEM to sizeof(EXANNOHIDETEXT).
- dwStartACC: Position of the first character to be hidden.
- dwEndACC: Position of the last character to be hidden, plus one.

Return Values

- SCCERR_OK: Returned if the annotation was successfully added. Otherwise, one of the other SCCERR_* values in sccerr.h is returned.

6

Redirected IO

Anywhere a file specification (dwSpecType and pSpec parameters) is passed to a function in the product, the developer may use Redirected IO to completely take over responsibility for the low level IO calls of that particular file. The source file and all output files can be redirected in this way.

Redirected IO allows the developer great flexibility in the storage of, and access to, converted documents. For example, documents may be stored on file systems not supported natively by the software, or in a unique directory tree structure determined by the type of file.

6.1 Using Redirected IO

A developer can redirect the IO for an input or output file by providing a data structure that contains pointers to custom IO routines for reading and writing. This data structure is passed in place of a typical file specification. The developer must set the dwSpecType parameter of the DAOpenDocument call to IOTYPE_REDIRECT when the DAOpenDocument call is sent.

When dwSpecType is set this way, the pSpec element must contain a pointer to a developer-defined data structure that begins with a BASEIO structure (defined in baseIO.H). The BASEIO structure contains pointers to the basic IO functions for the IO system such as Read, Seek, Tell, etc. The developer must initialize these function pointers to their own functions that perform IO tasks. Beyond the BASEIO element, the developer may place any data he or she likes. For instance, a developer's structure may be similar to the following:

```
typedef struct MYFILEtag
{
   BASEIO    sBaseIO;       /* must be the first element */
   VTDWORD   dwMyInfo1;
   VTDWORD   dwMyInfo2;
   .
   .
   .
} MYFILE;
```

Because the pSpec passed is essentially the "file handle" used by the software, the developer can redirect the IO on a file-by-file basis while still exporting "regular" disk-based files.

The BASEIO structure is defined as follows:

```
typedef struct BASEIOtag
{
    IOCLOSEPROC pClose;
```

```
    IOREADPROC pRead;
    IOWRITEPROC pWrite;
    IOSEEKPROC pSeek;
    IOTELLPROC pTell;
    IOGETINFOPROC pGetInfo;
    IOOPENPROC pOpen; /* pOpen *MUST* be set to NULL. */
#ifndef NLM
    IOSEEK64PROC pSeek64;
    IOTELL64PROC pTell64;
#endif
    VTVOID *aDummy[3];
} BASEIO, * PBASEIO;
```

The developer must implement the Close, Read, Write, Seek, Tell and GetInfo routines. The Open routine must be set to NULL. The first parameter to each of these routines is called hFile and is of the type HIOFILE. HIOFILE is simply the VTLPVOID to your data structure that was passed in the pSpec parameter of the DAOpenDocument call.

The sample source code for a simple implementation of Redirected IO is in the samples directory. This sample redirects the technology's IO through the fopen, fgetc, fseek, ftell and fclose run-time library routines.

Important: Redirected IO does not cache the whole file. Seeks can occur throughout the file during the course of conversion. If the developer is implementing redirected IO on a slow or sequential link, it is the developer's responsibility to cache the file locally.

6.2 Opening Files

The developer does not see a call to pOpen when using redirected IO. When IOTYPE_REDIRECT is used, the structure passed in pSpec is defined to represent a file that is already open. The software can immediately call the pRead, pSeek, pTell and pWrite functions.

Files specified as using redirected IO must be open by the time they are handed off to the software.

6.3 IOClose

Closes the file identified by hFile and cleans up all memory associated with the file.

If you dynamically allocate your own file structures (MYFILE in the preceding discussion) it is required that the memory allocated be freed inside the call to IOClose or sometime thereafter.

Prototype

```
IOERR IOClose(
   HIOFILE   hFile);
```

Parameters

- hFile: Identifies the file to be closed. Should be cast into a pointer to your data structure (MYFILE in the preceding discussion).

Return Values

- IOERR_OK: Close was successful.
- IOERR_UNKNOWN: Some error occurred on close.

6.4 IORead

Reads data from the current file position forward and resets the position to the byte after the last byte read.

Prototype

```
IOERR IORead(
   HIOFILE         hFile,
   VTBYTE        * pData,
   VTDWORD         dwSize,
   VTDWORD       * pCount);
```

Parameters

- hFile: Identifies the file to be read. Should be cast into a pointer to your data structure (MYFILE in the preceding discussion).
- pData: Points to the buffer into which the bytes should be read. Will be at least dwSize bytes big.
- dwSize: Number of bytes to read.
- pCount: Points to the number of bytes actually read by the function. This value is only valid if the return value is IOERR_OK.

Return Values

- IOERR_OK: Read was successful. pCount contains the number of bytes read and pData contains the bytes themselves.
- IOERR_EOF: Read failed because the file pointer was beyond the end of the file at the time of the read.
- IOERR_UNKNOWN: Read failed for some other reason.

6.5 IOWrite

Writes data from the current file position forward and resets the position to the byte after the last byte written.

Prototype

```
IOERR IOWrite(
   HIOFILE         hFile,
   VTBYTE       *  pData,
   VTDWORD         dwSize,
   VTDWORD       * pCount);
```

Parameters

- hFile: Identifies the file where the data is to be written. Should be cast into a pointer to your data structure (MYFILE in the preceding discussion).
- pData: Points to the buffer from which the bytes should be written. It must be at least dwSize bytes big. It is good practice to treat the data passed in by pData as "read only." This helps prevent unexpected behavior elsewhere in the system.

- dwSize: Number of bytes to write.
- pCount: Points to the number of bytes actually written by the function. This value is only valid if the return value is IOERR_OK.

Return Values

- IOERR_OK: Write was successful, pCount contains the number of bytes written.
- IOERR_UNKNOWN: Write failed for some reason.

6.6 IOSeek

Moves the current file position.

Prototype

```
IOERR IOSeek(
   HIOFILE   hFile,
   VTWORD    wFrom,
   VTLONG    lOffset);
```

Parameters

- hFile: Identifies the file to be read. Should be cast into a pointer to your data structure (MYFILE in the preceding discussion).
- wFrom: One of the following values:
  - IOSEEK_TOP: Move the file position lOffset bytes from the top (beginning) of the file.
  - IOSEEK_BOTTOM: Move the file position lOffset bytes from the bottom (end) of the file.
  - IOSEEK_CURRENT: Move the file position lOffset bytes from the current file position.
- lOffset: Number of bytes to move the file pointer. A positive value moves the file pointer forward in the file and a negative value moves it backward. If a requested seek value would move the file pointer before the beginning of the file, the file pointer should remain unchanged and IOERR_UNKNOWN should be returned. Seeking past EOF is allowed. In that case IOERR_OK should be returned. IOTell would return the requested seek position and IORead should return IOERR_EOF and 0 bytes read.

Return Values

- IOERR_OK: Seek was successful.
- IOERR_UNKNOWN: Seek failed for some reason.

6.7 IOTell

Returns the current file position.

Prototype

```
IOERR IOTell(
   HIOFILE         hFile,
   VTDWORD       * pOffset);
```

Parameters

- hFile: Identifies the file to be read. Should be cast into a pointer to your data structure (MYFILE in the preceding discussion).
- pOffset: Points to the current file position returned by the function.

Return Values

- IOERR_OK: Tell was successful.
- IOERR_UNKNOWN: Tell failed for some reason.

6.8 IOGetInfo

Returns information about an open file.

Prototype

```
IOERR IOGetInfo(
   HIOFILE        hFile,
   VTDWORD        dwInfoId,
   VTVOID       * pInfo);
```

Parameters

- hFile: Identifies the file to be read. Should be cast into a pointer to your data structure (MYFILE in the previous discussion).
- dwInfoId: One of the following values:
  - IOGETINFO_FILENAME: pInfo points to a string that should be filled with the base file name (no path) of the open file (for example TEST.DOC). If you do not know the file name, return IOERR_UNKNOWN. Certain file types (such as DataEase) must know the original file name in order to open secondary files required to correctly view the original file. If you return IOERR_UNKNOWN, these file types do not convert. For details, see Section 6.8.1, "IOGENSECONDARY and IOGENSECONDARYW Structures."
  - IOGETINFO_PATHNAME: pInfo points to a string that should be filled with the fully qualified path name (including the file name) of the open file. For example, C:\MYDIR\TEST.DOC. If you do not know the path name, return IOERR_UNKNOWN.
  - IOGETINFO_PATHTYPE: pInfo points to a DWORD that should be filled with the IOTYPE of the path returned by IOGETINFO_PATHNAME. For instance, if you return a DOS path name in the Unicode character set, you should return IOTYPE_UNICODEPATH. Even if redirected IO is in use, this should not be set to IOTYPE_REDIRECT. The value should reflect the style of path to be returned or any other values detailed in Section 5.1.1, "EXOpenExport.".
  - IOGETINFO_ISOLE2STORAGE: Must return IOERR_FALSE. pInfo is not used.
  - IOGETINFO_GENSECONDARY: pInfo points to a structure of type IOGENSECONDARY. Some file types require supporting files to be opened. These supporting files may contain formatting information or extra data. When using HTML Export, templates may link to other templates, and the paths to those templates must be resolved. Correct handling of IOGETINFO_GENSECONDARY is critical to the operation of the Outside In technology.

For a list of these file types, see Section 6.8.2, "File Types That Cause IOGETINFO_GENSECONDARY."

Because the developer is in total control of the IO for the primary file, the technology does not know how to generate a path to these secondary files or even if the secondary files are accessible through the regular file system. The IOGETINFO_GENSECONDARY call gives the developer a chance to resolve this problem by generating a new IO specification for the secondary file in question. The developer gets just the base file name (often embedded in the original document or generated from the primary file's name) of the secondary file.

The developer may either use one of the standard Outside In IO types or totally redirect the IO for the secondary file, as well. For more details, see Section 6.8.1, "IOGENSECONDARY and IOGENSECONDARYW Structures.".

- IOGETINFO_SUBDOC_SPEC: This message should be handled only if the currently open file is an archive and a particular item within the archive is intended to be specified as the input file in a call to DAOpenDocument. In this case, pInfo points to a single-byte character string that should be filled with the subdocument specification of an item within the open file. For example, item.2 specifies item 2 within the archive file. When specifying a subdocument specification, return IOERR_OK. Any other return values cause the results of this message to be ignored.
- IOGETINFO_64BITIO: For redirected I/O that wishes to use 64-bit seek/tell functions, your IOGetInfo function must respond IOERR_TRUE to this dwInfoId. In addition, the pSeek64/pTell64 items in the baseio structure must be valid pointers to the proper function types.

Any other value should return IOERR_BADINFOID.

- pInfo: The size of the pInfo buffer depends on the **dwInfoId** selected. For IOGETINFO_FILENAME and IOGETINFO_PATHNAME, the buffer is of size MAX_PATH characters (each character is either one byte or two, depending on PATHTYPE). The IOGETINFO_PATHTYPE buffer is the size of a VTDWORD.

Return Values

- IOERR_OK: GetInfo was successful.
- IOERR_TRUE: Affirmative response from a true or false GetInfo.
- IOERR_FALSE: Negative response from a true or false GetInfo.
- IOERR_BADINFOID: dwInfoId can not be handled by this file type.
- IOERR_INVALIDSPEC: The file spec is bad for this type.
- IOERR_UNKNOWN: GetInfo failed for some other reason.

6.8.1 IOGENSECONDARY and IOGENSECONDARYW Structures

These structures are passed to the developer through the IOGetInfo function. They allow the developer to tell the technology where a secondary file, needed by the conversion process, is located.

The SpecType of the original file determines which of these two structures is used. If the SpecType is IOTYPE_UNICODEPATH, IOGENSECONDARYW is used. pFileName points to a Unicode string terminated with a NULL WORD. For all other SpecTypes, IOGENSECONDARY is used and pFileName points to a string terminated with a NULL BYTE.

When using HTML Export, consider the situation where the software must access a secondary template file. In that case, the SpecType of the original template specified by the option SCCOPT_EX_TEMPLATE determines which of the two structures is used.

The following is a C data structure defined in SCCIO.H:

```
typedef struct
{
   VTDWORD     dwSize;
   VTLPBYTE    pFileName;
   VTDWORD     dwSpecType;
   VTLPVOID    pSpec;
   VTDWORD     dwOpenFlags
} IOGENSECONDARY, * PIOGENSECONDARY;

typedef struct
{
   VTDWORD     dwSize;
   VTLPWORD    pFileName;
   VTDWORD     dwSpecType;
   VTLPVOID    pSpec;
   VTDWORD     dwOpenFlags
} IOGENSECONDARYW, * PIOGENSECONDARYW;
```

Parameters

- dwSize: Will be set to sizeof (IOGENSECONDARY) or sizeof (IOGENSECONDARYW) (both of these values are the same).
- pFileName: A pointer to a string representing the file name of the secondary file that the technology requires. It is usually a name stored in the primary file (such as MYSTYLE.STY for a Word for DOS file) or a name generated from the primary file name. The primary file for a DataEase database has a .dba extension. The secondary name is the same file name but with a .dbm extension.
- dwSpecType: The developer must fill this with the IOSPEC for the secondary file.
- pSpec: On entry, this pointer points to an array of 1024 bytes. If the dwSpecType is set a regular IOTYPE such as IOTYPE_ANSIPATH, the developer may fill this array with the path name or structure required for that IOTYPE. If the developer is redirecting access to the secondary file, then dwSpecType will be IOTYPE_REDIRECT and the developer should replace pSpec with a pointer to a developer-defined structure that begins with the BASEIO structure (see Section 6.1, "Using Redirected IO").

  The file is supposed to be opened by the OEM's redirected IO code by the time they return the BASEIO struct. This is because the pOpen routine in the BASEIO struct is supposed to be NULL.
- dwOpenFlags: Set by the technology. A set of bit flags describing how the secondary file should be opened. Multiple flags may be used by bitwise OR-ing them together. The following flags are currently used:
  - IOOPEN_READ: The secondary file should be opened for read.
  - IOOPEN_WRITE: The secondary file should be opened for write. If the specified file already exists, its contents are erased when this flag is set.
  - IOOPEN_CREATE: The secondary file should be created (if it does not already exist) and opened for write.

6.8.2 File Types That Cause IOGETINFO_GENSECONDARY

The following file types cause IOGETINFO_GENSECONDARY:

- Microsoft Word for DOS Versions 4, 5 and 6: Used to open and read the style sheet file associated with the document. The filter degrades if the style sheet is not present.
- Harvard Graphics DOS 3.x: Used to open and read the individual slides within ScreenShow and palette files. Files with the extension .ch3 are individual graphics or slides that can be opened using no secondary files. Files with the extension .sy3 are ScreenShows that reference a list of .ch3 files via the secondary file mechanism. There is also an optional palette file that can be referenced from a .ch3 file, but the filter degrades if the palette file is not present.
- R:Base: Used to open and read required schema file. The R:Base data files are named ????2.rbf but the data is useless without the schema file named ????1.rbf. There is also a ????3.rbf file associated with each database, but it is not used.
- Paradox 4.0 and Above: Used to open and read memo field data file. Paradox uses a separate file for all memo field data larger than 32 bytes.
- DataEase: Used to open and read the data file. DataEase databases include a .dba file that contains the schema (the file that the technology can identify as DataEase) and a .dbm file that contains the actual data.
- Templates (HTML Export): Any template that contains a `{## link}` will need to open the linked files. Additionally, when the root template is opened using redirected IO, each `{## copy}` macro in the template will result in a IOGETINFO_GENSECONDARY call, as well.

6.9 IOSEEK64PROC / IOTELL64PROC

These functions are for seek/tell using 64-bit offsets. These functions are not used by default. Rather, they are used if the IOGETINFO_64BITIO message returns IOERR_TRUE. This is so redirected I/O using strictly 32-bit I/O is unaffected.

6.9.1 IOSeek64

Moves the current file position.

Prototype

```
IOERR IOSeek64(
HIOFILE hFile,
VTWORD wFrom,
VTOFF_T offset);
```

Parameters

The parameter information is the same as for IOSeek(). However, the size of the VTOFF_T offset for IOSeek64() is 64-bit unlike the 32-bit offset in IOSeek().

6.9.2 IOTell64

Returns the current file position.

Prototype

```
IOERR IOTell64(
HIOFILE hFile,
VTOFF_T * pOffset);
```

Parameters

The parameter information is the same as for IOTell(). The only change is the use of a pointer to a 64-bit parameter for returning the offset.

7

Callbacks

Callbacks allow the developer to intervene at critical points in the export process. Read more about the callback procedure and the EXOpenExport function call in Section 5.1.1, "EXOpenExport." Each heading in this chapter is a possible value for the dwCommandOrInfoId parameter passed to the developer's callback.

The new SCCOPT_EX_CALLBACKS option allows developers to enable or disable some or all of these callbacks. See the Options documentation for details.

This section describes callbacks set in EXOpenExport. A second callback function, DASetStartCallback, can provide information about the progress of a file conversion. For more details, see Chapter 4, "Data Access Common Functions."

7.1 Callbacks Used In Image Export

The following information applies to Image Export.

7.1.1 EX_CALLBACK_ID_CREATENEWFILE

This callback is made any time a new output file needs to be generated. This gives the developer the chance to execute routines before each new file is created.

It allows the developer to override the standard naming for a file or to redirect entirely the IO calls for a file. This callback is made for all output files that are created.

If redirected IO is being used on output files, this callback must be implemented.

For this callback, the pCommandOrInfoData parameter points to a structure of type EXFILEIOCALLBACKDATA:

```
typedef struct EXFILEIOCALLBACKDATAtag
{
   HIOFILE    hParentFile;
   VTDWORD    dwParentOutputId;
   VTDWORD    dwAssociation;
   VTDWORD    dwOutputId;
   VTDWORD    dwFlags;
   VTDWORD    dwSpecType;
   VTLPVOID   pSpec;
   VTLPVOID   pExportData;
   VTLPVOID   pTemplateName;
} EXFILEIOCALLBACKDATA;
```

- hParentFile: Handle to the initial output file with which the new file is associated. The dwAssociation describes the relationship. This handle is not intended for use by the developer. Set by caller.

- dwParentOutputId: Set by caller. The type of the parent file. This value is as used in the original ExOpenExport in the dwOutputId field. For example, for JPEG this value should be FI_JPEGFIF.
- dwAssociation: One of the following values:
  - CU_ROOT: For the initial output file.
  - CU_SIBLING: For new files that are not somehow owned by the parent file.
- dwOutputId: The type of the new file. This value should be the same as the value in dwParentOutputID.
- dwFlags: Reserved
- dwSpecType: IO specification type. For details about IO specifications, see Section 4.4, "DAOpenDocument."

  This member in conjunction with pSpec allows the developer to select any location for the new file or even redirect its IO calls entirely. For more details, see Chapter 6, "Redirected IO." When the developer receives this callback, the value of this element is undefined. Must be set by developer if this callback returns SCCERR_OK.
- pSpec: This field holds the IO specification of the output file to be created. pSpec points to a buffer that is 1024 bytes in size. If your application needs to set the specification of the output file, it may do so by either writing new data into this buffer, or by changing the value of pSpec to point to memory owned by your application. If pSpec is set to a new value, then your application must ensure that this memory stays valid for an appropriate length of time, at least until the next callback message is received, or EXRunExport returns.

  If the current export operation is using redirected IO, your application must create a redirected IO data structure for the new file and set pSpec to point to it. This pointer must stay valid until the structure's pClose function is called.

  If your application sets dwSpecType to IOTYPE_UNICODEPATH, the specification must contain UCS-2 encoded Unicode characters.

  When your application receives this callback, the contents of the buffer pointed to by pSpec are undefined. A specification must be defined by your application if this callback returns SCCERR_OK.
- pExportData: Pointer to data specific to the individual export. In this case, always a pointer to either an EXURLFILEIOCALLBACKDATA structure or an EXURLFILEIOCALLBACKDATAW structure. The EXURLFILEIOCALLBACKDATAW struct is only used when the SCCOPT_UNICODECALLBACKSTR option is set to TRUE. These two structures are defined in EXURLFILEIOCALLBACKDATA / EXURLFILEIOCALLBACKDATAW Structures. Set by caller.
- pTemplateName: NULL

7.1.1.1 EXURLFILEIOCALLBACKDATA / EXURLFILEIOCALLBACKDATAW Structures

The EXURLFILEIOCALLBACKDATA and EXURLFILEIOCALLBACKDATAW structures are defined as follows:

```
typedef struct EXURLFILEIOCALLBACKDATAtag
{
   VTDWORD   dwSize;
   VTBYTE    szURLString[VT_MAX_URL];
```

```
   VTDWORD   dwFileID;
} EXURLFILEIOCALLBACKDATA;

typedef struct EXURLFILEIOCALLBACKDATAWtag
{
   VTDWORD   dwSize;
   VTWORD    wzURLString[VT_MAX_URL];
   VTDWORD   dwFileID;
} EXURLFILEIOCALLBACKDATAW;
```

- dwSize: Set by Image Export to sizeof(EXURLFILEIOCALLBACKDATA) or sizeof(EXURLFILEIOCALLBACKDATAW).
- szURLString / wzURLString: This parameter can be set by the developer to a new URL that references the newly created file. This parameter is optional unless the pSpec provided by the developer points to something that cannot be used as a URL (as when using redirected IO, for example). In that case, this parameter must be set.

  This string is written into any output file that needs to reference the newly created file, with appropriate conversions between single and double byte output. Because this parameter is a URL, it is assumed to be URL encoded. When used in conjunction with dwSpecType and pSpec, this parameter can be used to generate almost any structure or location for the output files, including things like writing the output files into a database and then using a CGI mechanism to retrieve them.

  The current size limitation is 2048 characters. If the size exceeds this limit, the URL will be truncated and rendered useless.
- dwFileID: Set by the product. This is used as a unique identifier for each output file generated. It may be used for an OEM-specific purpose. When using HTML Export, this identifier is always set to zero when this callback is made as the result of a `{## copy}` statement in the template.

Return Value

- SCCERR_OK: dwSpecType, pSpec and szURLString (or wzURLString) have been populated with valid values.
- SCCERR_NOTHANDLED: Default naming should be used.
- SCCERR_FILEOPENFAILED: Some error was encountered creating a new output.

7.1.2 EX_CALLBACK_ID_NEWFILEINFO

This informational callback is made just after each new file has been created. Like the EX_CALLBACK_ID_CREATENEWFILE callback, the pExportData parameter points to an EXURLFILEIOCALLBACKDATA or an EXURLFILEIOCALLBACKDATW structure, but in this case the structure should be treated as read-only and the dwSpecType, pSpec and szURLString (or wzURLString) will be filled in.

This callback occurs for every new file. If the developer has used the EX_CALLBACK_ID_CREATENEWFILE notification to change the location of (or to set up redirected IO for) the new file, the data structure echoes back the information set by the developer during the EX_CALLBACK_ID_CREATENEWFILE callback.

Return Value

Must be either SCCERR_OK or SCCERR_NOTHANDLED. Return value is currently ignored.

7.1.3 EX_CALLBACK_ID_PAGECOUNT

Image Export uses this callback message to return a count of all of the output pages produced during an export operation. This count reflects the number of pages created by Outside In's processing of the input document; which in some cases may differ slightly from the number of pages as seen in the document's original application. The page count is not necessarily the same as the number of output files produced. For example, exporting to TIFF images will result in the same page count regardless of whether a single multi-page file was created or multiple individual TIFF files were created.

This callback occurs during the execution of EXRunExport.

Data Type

VTDWORD

8

Implementation Issues

This chapter covers some issues specific to using the Export products.

8.1 Running in 24x7 Environments

To ensure robust 24x7 performance in server applications embedding the different export products, it is strongly recommended that the technology be run in a process separate from the server's primary process.

The file filtering technology underlying the technology represents almost a quarter of a million lines of code. This code is expected to robustly deal with any stream of bytes, of any length (any file), in all cases. Oracle has dedicated, and continues to dedicate, significant effort into making this technology extremely robust. However, in real world situations, expect that some small number of malformed files may force the filters into unstable states. This generally results in either a memory exception (which can be trapped and recovered from gracefully), infinite loop or a wild pointer that causes the filter to write into memory that is part of the same process but does not belong to the filter. In the latter situation, this wild pointer condition cannot be trapped.

On the desktop this is not a significant problem since the number of files being dealt with is relatively small. In a 24x7 server environment, however, a wild pointer can be extremely disruptive to the server process and produce serious problems. The best solution for dealing with this problem is to run any application that reads complex file formats in a separate process. This solution protects the application from the susceptibility of filtering technology to the unknown quality of input files.

It must be stressed that files that lead to wild pointers or infinite loops occur very infrequently, usually as a result of a third-party conversion process or beta versions of applications. Oracle is committed to addressing these issues and to updating and expanding its testing tools and corpus of documents to proactively minimize this "garbage in-garbage out" problem.

8.2 Running in Multiple Threads or Processes

On certain platforms, export products may be run in a multithreaded or multiprocessing application. The thing to remember when doing so is that each thread must go through all the steps listed in Chapter 1, "Introduction."

8.3 Image Export Issues

Four issues have been encountered when using Image Export:

- If a spreadsheet contains embedded graphics, embedded charts, or merged cells that cross page boundaries, Image Export does not clip these objects correctly. The objects appear in the correct position, but they bleed into the margins. In addition, some information may be duplicated on multiple pages as a result of this improper clipping. These errors should never result in information being omitted from the output.
- When processing fonts that are not TrueType fonts, the output graphic will contain text that appears "blocky" as a result of shortcomings in Image Export's smoothing algorithm.
- There is currently no method of specifying how wide a field in a database should be. Occasionally this will lead to situations where information in a database field will not be included in the output graphic, resulting in a loss of content.
- If multiple pages of garbage output occur when exporting images, it is possible that the default setting of the SCCOPT_FALLBACKFORMAT (FallbackFormatEnum on the server version) option (FI_ASCII-8) is forcing the technology to attempt to read files that it cannot identify as text. Setting the pertinent option to the value FI_NONE prevents the software from exporting unidentified binary files as though they were text.

9 Sample Applications

Each of the sample applications included in this SDK is designed to highlight a specific aspect of the technology's functionality. We ship built versions of these sample applications. The compiled executables should be in the root directory where the product is installed.

> **Note:** To use Transformation Server, you will need to set the TSROOT variable to the location of the Transformation Server installed SDK. For example, for a Linux version of Transformation Server, you would set:
> TSROOT=/user/jsmith/ts/ts_linux-x86-32_sdk/sdk.

9.1 Building the Samples on a Windows System

Microsoft Visual Studio project files are provided for building each of the sample applications. For 32-bit versions of Windows, versions of the project files are provided for Visual Studio 6 (.dsp files) and Visual Studio 2005 (.vcproj files).

Because .vcproj files may not pick up the right compiler on their own, you need to make sure that you are building with the Win64 configuration in Visual Studio 2005. For 64-bit versions of Windows, only the Visual Studio 2005 versions are available.

The project files for the sample applications can be found in the samplecode\win subdirectory of the Outside In SDK.

For specific information about building the sample applications on your UNIX OS, see Chapter 3, "UNIX Implementation Details."

9.2 An Overview of the Sample Applications

Here's a quick tour of the sample applications provided with this product. Not all of the sample applications are provided for both the Windows and UNIX platforms. See the heading of each application's subsection for clarification.

9.2.1 *sample

The name of this sample application varies according to product (**ixsample** for Image Export).

The following is a basic implementation that uses the default settings for every option.

```
ixsample Inputfile Outputfile
```

This sample is provided for instructional value rather than functionality. The output format is always TIF. As an exercise, you may want to try changing the EXOpenExport() call in the application so that it outputs a different graphic type.

9.2.2 export (Windows Only)

This application was designed to facilitate the testing of the software and should not be assumed to be of commercial quality.

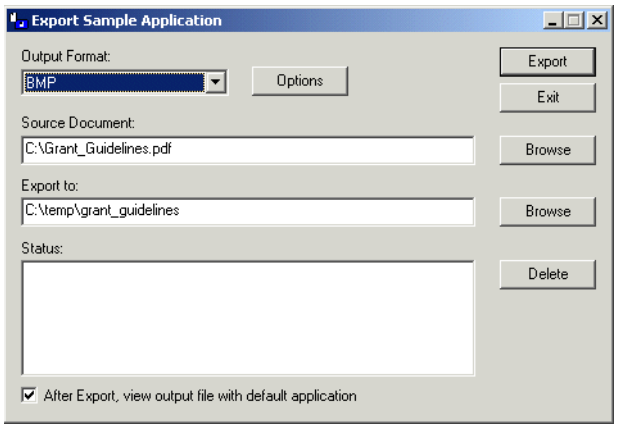
> **Important:** No default options are set at initial runtime. The time the software is used, click the **Options** button and set the options. Failure to do this generates export errors.

The application allows the user to run a single source file. The user can select the source file, an output file and set the various options.

9.2.2.1 The export Main Window

The following figure shows the Main Window for the export application.

Figure 9–1 export Main Window for Image Export



The Main Window is composed of several elements, discussed here.

- **Output Format** menu: This menu allows the user to select the type of output to generate. An entry for the format(s) you license will appear in this menu.
- **Options** button: This opens up a new dialog with one or more tabs exposing the options for the selected product.
- Source document field: This is the document to be exported. Click the **Browse** button to pick the source file, or type in the path name.

- 'Export to' field: This is the initial resulting output file. Type in a file name or use the Browse button to select a file. Other output files are named based on the one chosen here.
- **Delete** button: Clicking this button deletes all files generated by the last export, listed in the Status: field. This is useful when multiple output files are produced because the default naming rules do not overwrite an existing file. If you run Export over and over again with the same output file name, you can produce a large number of files. Clicking **Delete** before each export solves this problem.
- 'After Export, view output file with default application' checkbox: If the export was successful, checking this box launches the initial output file in the application associated with the output flavor's default extension.
- **Export** button: Click this button to start the export process once you've determined the export settings.
- **Exit** button: Click to close the Export application.

9.2.3 exsimple

This simple command line driven program allows the user to run a single source file through the software. The user can select the source file and output file and set the various options.

To run the program, type:

```
exsimple in_file out_file config_file
```

- *in_file* is the input file to be converted
- *out_file* is the output location
- *config_file* is the configuration file that sets the conversion options. If no configuration file is specified, default.cfg in the current directory is used.

The configuration file is a text file used to set the conversion options. We recommend reading through the configuration file for more information about valid options and their values (use of invalid options results in **exsimple** not producing output).

Follow these instructions to set configurable options.

- Set the Output ID before running the software. It is required and must not be omitted. It is also recommended that you set SCCOPT_FALLBACKFORMAT to FI_NONE. This prevents the export of unidentified binary files as though they were text, which could generate pages of garbage output.

9.2.4 exredir

This sample application is based on the **exsimple** sample application. It is designed to demonstrate how to use redirected IO and callbacks when using the software. It takes the same arguments and command line structure as exsimple and the same configuration files can be used. For details, see Section 9.2.3, "exsimple."

9.2.5 ixanno

This sample application is provided more for the instructional value its sample code offers than for the functionality it provides when executed. It primarily works as an example of how to integrate Content Access with Image Export. This particular application does search hit highlighting. However, the general principles of how to get

ACC text positions from Content Access should be evident from perusing the source code.

This command takes the following parameters:

- InputFile
- OutputFIle
- HiliteString

When using Image Export, the output type is always TIF.

The following sample command line demonstrates this command:

```
ixanno InputFile OutputFile HiliteString
```

A license for Content Access or Search Export is required to enable use of any of the annotation features supported by Image Export. Contact your Outside In sales representative for more information.

9.3 Accessing the SDK via a Java Wrapper

The ExJava Java wrapper, working in tandem with the exporter sample application, provides a working example of one method of interfacing with Oracle's C-based SDK products from a Java application. Export.jar is a Java API wrapper used by a Java application to control the exporter executable and set conversion options. exporter is a C-based executable which performs conversions using the modules in the Outside In SDK.

The exporter executable should be placed in the root directory of the Outside In SDK being used. If more than one Outside In SDK is being used, the contents of each SDK should be unpacked to the same root directory. Export.jar should be placed somewhere in your classpath.

On UNIX systems this sample application must be run from the directory containing the Outside In technology.

Java version 1.3.1 or higher is required to run this sample application.

9.3.1 The ExJava Wrapper API

The JavaDocs documentation for the Java API is provided in the /sdk//samplecode/ExJava/docs directory. Conversion options are set using the ExportProperties.

Additionally, the appropriate .cfg file for the ExportTest sample application found in the Examples/ExportTest directory may provide further insight as to what properties are available and how they correspond to options and values for options.

The Export.jar and its source code can be found in the Java API directory. Place Export.jar somewhere in your classpath. In order to use the ExportTest sample application (which demonstrates how a Java application can use the ExJava API) without modifying your system configuration or the ExJava sample application, you should place the Export.jar file in the root directory of the Outside In SDK product you are using.

9.3.2 The C-Based Exporter Application

This is a standalone executable that runs out of process from the Java API. The Java API controls the conversion through command line parameters that are passed to the

executable. After the conversion completes, the executable returns a conversion status code to the Java API. The command line parameters are base-64 encoded to allow for the use of Unicode encoded paths.

As the exporter executable is a C-based application, you will need to make sure the Java API can find the version of exporter appropriate for the platform you are using. Generally, and specifically for the purpose of using the ExportTest sample application, the correct executable should be copied to the root directory of the Oracle export SDK product you are using.

A compiled version of the C exporter program is included in the SDK with the rest of the Outside In binaries. The source for exporter is located in the /sdk/samplecode/ExJava/exporter directory.

The current implementation of ExJava may not produce an error if it cannot find the exporter application. This known issue may be corrected in a future version of ExJava.

9.3.3 Compiling the Executables

A Microsoft Visual Studio 6.0 project file and a UNIX makefile are provided in Exporter/Win and Exporter/Unix, respectively, so that you can modify the Exporter executable or compile it for a platform other than those for which compiled versions of exporter are provided. If you unpacked the ExJava package into the root directory of one of Oracle's export SDK products, you should be able to use the Visual Studio Project and makefile as is. Otherwise, you will need to edit them in order to provide paths to the Oracle export SDK include and library files.

If you are compiling ExJava for use on the Solaris platform, make sure your LD_LIBRARY_PATH contains the Outside In SDK path before trying to build the Exporter module.

9.3.4 The ExportTest Sample Application

ExportTest is an example of how a Java developer could use the ExJava wrapper to use one of the Outside In SDKs. The following is a list of the components that should be placed in the root directory of the Outside In SDK you are using in order to run this sample application:

1. Export.jar (from the Java API directory)
2. Exporter module for the platform you wish to use (located in the /sdk/samplecode/ExJava/Exporter/Win or /sdk/samplecode/ExJava/Exporter/Unix directory, depending on which platform you are using)
3. ix.cfg file (also in Examples/ExportTest directory)
4. If you are running ExportTest on a UNIX system, make sure to edit the .cfg file so it reflects the correct name of the exporter module you renamed.
5. ExportTest.jar (also in Examples/ExportTest directory)
6. The appropriate batch file to run the ExportTest application (ExportTest.bat for Windows and ExportTest.sh for UNIX, both located in the Examples/ExportTest directory)

Once these files are properly copied, execute the batch file with the name/path of an input file to convert, the name for the base output file and the name of the configuration file to use for setting conversion options.

ExportTest.jar uses the contents of the configuration file to determine what option/value pairs it should use when doing the conversion. It is not necessary to use a configuration file when developing your own application.

9.3.5 An Example Conversion Using the ExJava Wrapper

This is a simple outline of the steps for using the ExJava wrapper on a Windows system to convert a Word document called MyWordDoc.Doc. For information about properly setting up your environment to use the Outside In SDK in a UNIX environment, see: Chapter 3, "UNIX Implementation Details."

1. Edit the .cfg file and make sure outputid is set to the FI* value appropriate for the Outside In product you've licensed. Alter any other parameters in the .cfg file as needed then save the file.
2. Execute the following command. The sample command below assumes BMP as the export type. Change this type accordingly:

```
ExportTest.bat myworddoc.doc output.bmp ix.cfg
```

A

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This appendix provides a comprehensive overview of all copyright and licensing information for Outside In Image Export.

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B

Image Export Options

Options are parameters affecting the behavior of an export or transformation. These options are available to the developer when using Image Export. This chapter presents both the C/C++ and SOAP options relevant to the Image Export product.

While default values are provided, users are encouraged to set all options for a number of reasons. In some cases, the default values were chosen to provide backwards compatibility. In other cases, the default values were chosen arbitrarily from a range of possibilities.

One reason that users may want to avoid using the default value for an option is that the default value may change from one release to the next. This is because as standards evolve over time, defaults may be updated to reflect the current status of the technology.

B.1 Image Export C/C++ Options

Options are set using the DASetOption call. It is recommended that developers familiarize themselves with all of the options available.

Options may be Local, in which case they only affect the handle for which they are set, or Global, in which case they automatically affect all handles associated with the hDoc and must be set before the call to DAOpenDocument.

B.1.1 Character Mapping

This section discusses character mapping options.

B.1.1.1 SCCOPT_DEFAULTINPUTCHARSET

This option is used in cases where Outside In cannot determine the character set used to encode the text of an input file. When all other means of determining the file's character set are exhausted, Outside In will assume that an input document is encoded in the character set specified by this option. This is most often used when reading plain-text files, but may also be used when reading HTML or PDF files. The possible character sets are listed in charsets.h.

When "extended test for text" is enabled (see Section B.1.3.2, "SCCOPT_FIFLAGS"), this option will still apply to plain-text input files that are not identified as EBCDIC or Unicode.

This option supersedes the SCCOPT_FALLBACKFORMAT option for selecting the character set assumed for plain-text files. For backwards compatibility, use of deprecated character-set -related values is still currently supported for SCCOPT_FALLBACKFORMAT, though internally such values will be translated into equivalent

values for the SCCOPT_DEFAULTINPUTCHARSET. As a result, if an application were to set both options, the last such value set for either option will be the value that takes effect.

Handle Types
NULL, VTHDOC

Scope
Global

Data Type
VTDWORD

Default
- ANSI1252 on Windows and Latin-1 on UNIX.

Data
The data types are listed in charsets.h.

B.1.1.2 SCCOPT_UNMAPPABLECHAR
This option selects the character used when a character cannot be found in the output character set. This option takes the Unicode value for the replacement character. It is left to the user to make sure that the selected replacement character is available in the output character set.

Handle Types
VTHDOC

Scope
Local

Data Type
VTWORD

Data
The Unicode value for the character to use.

Default
- 0x002a = "*"

B.1.2 Output
This section discusses output options.

B.1.2.1 SCCOPT_RENDERING_PREFER_OIT
This option is only valid on 32-bit Linux (Red Hat and Suse) and Solaris Sparc platforms.

When this option is set to TRUE, the technology will attempt to use its internal graphics code to render fonts and graphics. When set to FALSE, the technology will render images using the operating system's native graphics subsystem (X11 on

UNIX/Linux platforms). This requires that there be an X11 display and a valid DISPLAY variable, regardless of the type of input document.

It is important for the system to be able to locate useable fonts when this option is set to TRUE. Only TrueType fonts (*.ttf or *.ttc files) are currently supported. To ensure that the system can find them, make sure that the environment variable GDFONTPATH includes one or more paths to these files. If the variable GDFONTPATH can't be found, the current directory is used. If fonts are called for and cannot be found, Image Export will exit with an error. Also note that when copying Windows fonts to a UNIX system, the font extension for the files (*.ttf or *.ttc) must be lowercase, or they will not be detected during the search for available fonts. Oracle does not provide fonts with any Outside In product.

Handle Types

NULL, VTHDOC

Scope

Global

Data Type

VTBOOL

Data

One of the following values:

- TRUE: Use the technology's internal graphics rendering code to produce bitmap output files whenever possible.
- FALSE: Use the operating system's native graphics subsystem.

Default

FALSE

B.1.3 Input Handling

This section discusses input handling options.

B.1.3.1 SCCOPT_FALLBACKFORMAT

This option controls how files are handled when their specific application type cannot be determined. This normally affects all plain-text files, because plain-text files are generally identified by process of elimination, for example, when a file isn't identified as having been created by a known application, it is treated as a plain-text file.

It is recommended that FI_NONE be set to prevent Image Export from exporting unidentified binary files as though they were text, which could generate many pages of "garbage" output.

This option must be set for an hDoc before any subhandle has been created for that hDoc.

A number of values that were formerly allowed for this option have been deprecated. Specifically, the values that selected specific plain-text character sets are no longer to be used. Instead, applications should use the SCCOPT_DEFAULTINPUTCHARSET option for such functionality.

Handle Types
NULL, VTHDOC

Scope
Global

Data Type
VTDWORD

Data
The high VTWORD of this value is reserved and should be set to 0, and the low VTWORD must have one of the following values:

- FI_TEXT: Unidentified file types will be treated as text files.
- FI_NONE: Outside In will not attempt to process files whose type cannot be identified. This will include text files. When this option is selected, an attempt to process a file of unidentified type will cause Outside In to return an error value of DAERR_FILTERNOTAVAIL (or SCCERR_NOFILTER).

Default
- FI_TEXT

B.1.3.2 SCCOPT_FIFLAGS
This option affects how an input file's internal format (application type) is identified when the file is first opened by the Outside In technology. When the extended test flag is in effect, and an input file is identified as being either 7-bit ASCII, EBCDIC, or Unicode, the file's contents will be interpreted as such by the export process.

The extended test is optional because it requires extra processing and cannot guarantee complete accuracy (which would require the inspection of every single byte in a file to eliminate false positives.)

Handle Types
NULL, VTHDOC

Scope
Global

Data Type
VTDWORD

Data
One of the following values:

- SCCUT_FI_NORMAL: This is the default value. When this is set, standard file identification behavior occurs.
- SCCUT_FI_EXTENDEDTEST: If set, the File Identification code will run an extended test on all files that are not identified.

Default

- SCCUT_FI_EXTENDEDTEST: The technology will attempt an extra test after the file is first opened to see if it is 7-bit text or EBCDIC.

B.1.3.3 SCCOPT_LOTUSNOTESDIRECTORY

This option allows the developer to specify the location of a Lotus Notes or Domino installation for use by the NSF filter. A valid Lotus installation directory must contain the file nnotes.dll.

> **Note:** Please see section 2.1.1 for NSF support on Win32 or section 3.1.1 for NSF support on Linux x86-32 or Solaris Sparc 32.

Handle Types

NULL

Scope

Global

Data Type

VTLPBYTE

Data

A path to the Lotus Notes directory.

Default

If this option isn't set, then OIT will first attempt to load the Lotus library according to the operating system's PATH environment variable, and then attempt to find and load the Lotus library as indicated in HKEY_CLASSES_ROOT\Notes.Link.

B.1.3.4 SCCOPT_PDF_FILTER_REORDER_BIDI

This option controls whether or not the PDF filter will attempt to reorder bidirectional text runs so that the output is in standard logical order as used by the Unicode 2.0 and later specification. This additional processing will result in slower filter performance according to the amount of bidirectional data in the file.

Handle Types

VTHDOC, NULL

Scope

Global

Data Type

VTDWORD

Data

- SCCUT_FILTER_STANDARD_BIDI
- SCCUT_FILTER_REORDERED_BIDI

Default
SCCUT_FILTER_STANDARD_BIDI

B.1.3.5 SCCOPT_TIMEZONE
This option allows the user to define an offset to GMT that will be applied during date formatting, allowing date values to be displayed in a selectable time zone. This option affects the formatting of numbers that have been defined as date values (e.g., most dates in spreadsheet cells). This option will not affect dates that are stored as text.

> **Note:** Daylight savings is not supported. The sent time in msg files when viewed in Outlook can be an hour different from the time sent when an image of the msg file is created.

Handle Types
NULL, VTHDOC

Scope
Global

Data Type
VTLONG

Data
Integer parameter from -96 to 96, representing 15-minute offsets from GMT. To query the operating system for the time zone set on the machine, specify SCC_TIMEZONE_USENATIVE.

Default
- 0: GMT time

B.1.3.6 SCCOPT_FORMATFLAGS
This option allows the developer to set flags that enable options that span multiple export products.

Handle Types
VTHDOC

Scope
Local

Data Type
VTDWORD

Data
- SCCOPT_FLAGS_ALLISODATETIMES: When this flag is set, all Date and Time values are converted to the ISO 8601 standard. This conversion can only be performed using dates that are stored as numeric data within the original file.
- SCCOPT_FLAGS_STRICTFILEACCESS: When an embedded file or URL can't be opened with the full path, OIT will sometimes try and open the referenced file

from other locations, including the current directory. When this flag is set, it will prevent OIT from trying to open the file from any location other than the fully qualified path or URL.

Default
0: All flags turned off

B.1.3.7 SCCOPT_IGNORE_PASSWORD
This option can disable the password verification of files where the contents can be processed without validation of the password. If this option is not set, the filter should prompt for a password if it handles password-protected files.

As of Release 8.3.5, only the PST Filter supports this option.

Scope
Global

Data Type
VTBOOL

Data
- TRUE: Ignore validation of the password
- FALSE: Prompt for the password

Default
FALSE

B.1.3.8 SCCOPT_REORDERMETHOD
This option controls how the technology reorders bidirectional text.

Data Type
VTDWORD

Data
One of the following values:

- SCCUT_REORDER_UNICODE_OFF: This disables any processing for unicode characters. This option is the default.
- SCCUT_REORDER_UNICODE_LTOR: Characters reordered using the Unicode bidirectional algorithm
- SCCUT_REORDER_UNICODE_RTOL: Characters displayed in right-to-left order

B.1.4 Compression
This section describes compression options.

B.1.4.1 SCCOPT_FILTERJPG
This option can disable access to any files using JPEG compression, such as JPG graphic files or TIFF files using JPEG compression, or files with embedded JPEG graphics. Attempts to read or write such files when this option is enabled will fail and

return the error SCCERR_UNSUPPORTEDCOMPRESSION if the entire file is JPEG compressed, and grey boxes for embedded JPEG-compressed graphics.

The following is a list of file types affected when this option is disabled:

- JPG files
- Postscript files containing JPG images
- PDFs containing JPEG images

Note that the setting for this option overrides the requested output graphic format when there is a conflict.

Handle Types
HDOC, HEXPORT

Scope
Local

Data Type
VTDWORD

Data
- SCCVW_FILTER_JPG_ENABLED: Allow access to files that use JPEG compression
- SCCVW_FILTER_JPG_DISABLED: Do not allow access to files that use JPEG compression

Default
SCCVW_FILTER_JPG_ENABLED

B.1.4.2 SCCOPT_FILTERLZW
This option can disable access to any files using Lempel-Ziv-Welch (LZW) compression, such as .GIF files, .ZIP files or self-extracting archive (.EXE) files containing "shrunk" files. Attempts to read or write such files when this option is enabled will fail and return the error SCCERR_UNSUPPORTEDCOMPRESSION if the entire file is LZW compressed, and grey boxes for embedded LZW-compressed graphics.

The following is a list of file types affected when this option is disabled:

- GIF files
- TIF files using LZW compression (note that TIF files will still be created when LZW compression is used and this option is enabled, but the resulting images will be large, uncompressed TIF files)
- PDF files that use internal LZW compression
- ZIP and self-extracting archive (.EXE) files containing "shrunk" files
- Postscript files using LZW compression

Image Export will not be affected by this option when processing formats that compress subfile contents but not subfile names, such as TAR and ZIP.

Although this option can disable access to files in ZIP or EXE archives stored using LZW compression, any files in such archives that were stored using any other form of compression will still be accessible.

The setting for this option overrides the requested output graphic format when there is a conflict.

Handle Types
HDOC, HEXPORT

Scope
Local

Data Type
VTDWORD

Data
- SCCVW_FILTER_LZW_ENABLED: LZW compressed files will be read and written normally.
- SCCVW_FILTER_LZW_DISABLED: LZW compressed files will not be read or written.

Default
SCCVW_FILTER_LZW_ENABLED

B.1.5 Graphics

This section discusses graphics options.

B.1.5.1 SCCOPT_GIF_INTERLACED

This option allows the developer to specify interlaced or non-interlaced GIF output. Interlaced GIFs are useful when graphics are to be downloaded over slow Internet connections. They allow the browser to begin to render a low-resolution view of the graphic quickly and then increase the quality of the image as it is received. There is no real penalty for using interlaced graphics.

This option is only valid if the dwOutputID parameter of the EXOpenExport function is set to FI_GIF.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTBOOL

Data
One of the following values:

- TRUE: Produce interlaced GIFs.

- FALSE: Produce non-interlaced GIFs.

Default
TRUE

B.1.5.2 SCCOPT_GRAPHIC_CROPPING
When set to SCCGRAPHIC_CROPTOCONTENT, this option forces Image Export to crop whitespace from the edge of each output image. This includes margins and any unused space at the end of a page. This results in smaller output files without any loss of original input document content.

If there is no content, then no cropping is performed.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTDWORD

Data
- SCCGRAPHIC_CROPTOCONTENT: Files are cropped to smallest bounding rectangle.
- SCCGRAPHIC_NOCROPPING: Files are not cropped.

Default
SCCGRAPHIC_NOCROPPING

B.1.5.3 SCCOPT_GRAPHIC_HEIGHT
This option defines the absolute height in pixels to which exported graphics will be resized. If this option is set and the SCCOPT_GRAPHIC_WIDTH option is not, the width of the image will be calculated based on the aspect ratio of the source image. The developer should be aware that very large values for this option or SCCOPT_GRAPHIC_WIDTH could produce images whose size exceeds available system memory, resulting in conversion failure.

If you are exporting a non-graphic file (word processing, spreadsheet or archive) and the settings for SCCOPT_GRAPHIC_HEIGHT and SCCOPT_GRAPHIC_WIDTH do not match the aspect ratio of the original document, the exported image will have whitespace added so that the original file's aspect ratio is maintained.

The settings for the SCCOPT_GRAPHIC_HEIGHTLIMIT and SCCOPT_GRAPHIC_WIDTH options can override the setting for SCCOPT_GRAPHIC_HEIGHT.

Handle Types
VTDWORD

Scope
Local

Data Type
VTDWORD

Data
The desired absolute height of the output image, in pixels.

Default
- 0: No absolute height specified.

B.1.5.4 SCCOPT_GRAPHIC_HEIGHTLIMIT
Note that this option differs from the behavior of setting the height of graphics by using in that it sets an upper limit on the image height. Images larger than this limit will be reduced to the limit value. However, images smaller than this height will not be enlarged when using this option. Setting the height using SCCOPT_GRAPHIC_HEIGHT causes all output images to be reduced or enlarged to be of the specified height.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTDWORD

Data
The maximum height of the output graphic in pixels. A value of zero is equivalent to SCCGRAPHIC_NOLIMIT, which causes this option to be ignored.

Default
- SCCGRAPHIC_NOLIMIT: No absolute height limit specified.

B.1.5.5 SCCOPT_GRAPHIC_OUTPUTDPI
This option allows the user to specify the output graphics device's resolution in DPI and only applies to images whose size is specified in physical units (in/cm). For example, consider a 1" square, 100 DPI graphic that is to be rendered on a 50 DPI device (SCCOPT_GRAPHIC_OUTPUTDPI is set to 50). In this case, the size of the resulting TIFF, BMP, JPEG, GIF, or PNG will be 50 x 50 pixels.

In addition, the special #define of SCCGRAPHIC_MAINTAIN_IMAGE_DPI, which is defined as 0, can be used to suppress any dimensional changes to an image. In other words, a 1" square, 100 DPI graphic will be converted to an image that is 100 x 100 pixels in size. This value indicates that the DPI of the output device is not important. It extracts the maximum resolution from the input image with the smallest exported image size.

Setting this option to SCCGRAPHIC_MAINTAIN_IMAGE_DPI may result in the creation of extremely large images. Be aware that there may be limitations in the system running this technology that could result in undesirably large bandwidth consumption or an error message. Additionally, an out of memory error message will be generated if system memory is insufficient to handle a particularly large image.

Also note that the SCCGRAPHIC_MAINTAIN_IMAGE_DPI setting will force the technology to use the DPI settings already present in raster images, but will use the current screen resolution as the DPI setting for any other type of input file.

For some output graphic types, there may be a discrepancy between the value set by this option and the DPI value reported by some graphics applications. The discrepancy occurs when the output format uses metric units (DPM, or dots per meter) instead of English units (DPI, or dots per inch). Depending on how the graphics application performs rounding on meters to inches conversions, the DPI value reported may be 1 unit more than expected. An example of a format which may exhibit this problem is PNG.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data

The DPI to use when exporting graphic images. The maximum value allowed is SCCGRAPHIC_MAX_SANE_BITMAP_DPI, which is currently defined to be 2400 DPI.

Default

- SCCGRAPHIC_DEFAULT_OUTPUT_DPI: Currently defined to be 96 dots per inch.

B.1.5.6 SCCOPT_GRAPHIC_SIZELIMIT

This option is used to set the maximum size of the exported graphic in pixels. It may be used to prevent inordinately large graphics from being converted to equally cumbersome output files, thus preventing bandwidth waste.

SCCOPT_GRAPHIC_SIZELIMIT takes precedence over all other options and settings that affect the size of a converted graphic.

When creating a multi-page TIFF file, this limit is applied on a per page basis. It is not a pixel limit on the entire output file.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data

The total number of pixels in the output graphic. A value of zero ("0"), which is equivalent to SCCGRAPHIC_NOLIMIT, causes this option to be ignored.

Default

- SCCGRAPHIC_NOLIMIT: Option is turned off.

B.1.5.7 SCCOPT_GRAPHIC_SIZEMETHOD

This option determines the method used to size graphics. The developer can choose among three methods, each of which involves some degree of trade off between the quality of the resulting image and speed of conversion.

Using the quick sizing option results in the fastest conversion of color graphics, though the quality of the converted graphic will be somewhat degraded. The smooth sizing option results in a more accurate representation of the original graphic, as it uses anti-aliasing. Antialiased images may appear smoother and can be easier to read, but rendering when this option is set will require additional processing time. The grayscale only option also uses antialiasing, but only for grayscale graphics, and the quick sizing option for any color graphics.

The smooth sizing option does not work on images which have a width or height of more than 4096 pixels.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data

One of the following values:

- SCCGRAPHIC_QUICKSIZING: Resize without antialiasing
- SCCGRAPHIC_SMOOTHSIZING: Resize using antialiasing
- SCCGRAPHIC_SMOOTHGRAYSCALESIZING: Resize using antialiasing for grayscale graphics only (no antialiasing for color graphics)

Default

SCCGRAPHIC_SMOOTHSIZING

B.1.5.8 SCCOPT_GRAPHIC_TRANSPARENCYCOLOR

This option allows the user to set the color used as the "transparency color" in the output graphic file. Naturally, this option is only used when the selected output graphic file format supports transparency (GIF and PNG only). If the option is not set, the default behavior is to use the same color value that the input file used as the transparency color.

Use the SCCVWRGB(r, g, b) macro to create the color value to pass to this option. The red, green and blue values are percentages of the color from 0-255 (with 255 being 100%). Note that this macro should be used to set a variable of type SCCVWCOLORREF and that variable should then be passed to the set option routine (instead of trying to use the macro as part of the set option call directly).

Since there is no way to "unset" an option once it has been set, the developer may set the option to SCCGRAPHIC_DEFAULTTRANSPARENCYCOLOR if they wish to revert to the default behavior.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
SCCVWCOLORREF

Data
An RGB color value created with the SCCVWRGB(r, g, b) macro.

Default
- SCCGRAPHIC_DEFAULTTRANSPARENCYCOLOR: Use the same transparency color as the source document.

B.1.5.9 SCCOPT_GRAPHIC_WIDTH
This option defines the absolute width in pixels to which exported graphics will be resized. If this option is set and the Section B.1.5.3, "SCCOPT_GRAPHIC_HEIGHT" option is not, the height of the image will be calculated based on the aspect ratio of the source image. The developer should be aware that very large values for this option or SCCOPT_GRAPHIC_HEIGHT could produce images whose size exceeds available system memory, resulting in conversion failure.

If you are exporting a non-graphic file (word processing, spreadsheet or archive) and the settings for SCCOPT_GRAPHIC_HEIGHT and SCCOPT_GRAPHIC_WIDTH do not match the aspect ratio of the original document, the exported image will have whitespace added so that the original file's aspect ratio is maintained.

The settings for the SCCOPT_GRAPHIC_HEIGHTLIMIT and SCCOPT_GRAPHIC_WIDTHLIMIT options can override the setting for SCCOPT_GRAPHIC_WIDTH.

Handle Types
VTDWORD

Scope
Local

Data Type
VTDWORD

Data
The desired absolute width of the output image, in pixels.

Default
- 0: No absolute width specified.

B.1.5.10 SCCOPT_GRAPHIC_WIDTHLIMIT

This option allows a hard limit to be set for how wide in pixels an exported graphic may be. Any images wider than this limit will be resized to match the limit. It should be noted that regardless whether the SCCOPT_GRAPHIC_HEIGHTLIMIT option is set or not, any resized images will preserve their original aspect ratio.

Note that this option differs from the behavior of setting the width of graphics by using SCCOPT_GRAPHIC_WIDTH in that it sets an upper limit on the image width. Images larger than this limit will be reduced to the limit value. However, images smaller than this width will not be enlarged when using this option. Setting the width using SCCOPT_GRAPHIC_WIDTH causes all output images to be reduced or enlarged to be of the specified width.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data

The maximum width of the output graphic in pixels. A value of zero is equivalent to SCCGRAPHIC_NOLIMIT, which causes this option to be ignored.

Default

- SCCGRAPHIC_NOLIMIT: No absolute width limit specified.

B.1.5.11 SCCOPT_IMAGEX_TIFFOPTIONS

This option allows the developer to specify sub-options unique to the TIFF output file type, in order to control color depth, byte structure and rendering method.

This option is only required if the dwOutputId in the EXOpenExport call is set to FI_TIFF.

When any of the CCITT compression models are used, the color space must be black and white (SCCGRAPHIC_TIFF1BITBW).

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

The EXTIFFOPTIONS structure.

B.1.5.11.1 EXTIFFOPTIONS Structure This structure is used by the SCCOPT_IMAGEX_TIFFOPTIONS option to set various options related to TIFF conversion.

EXTIFFOPTIONS is a C data structure defined in sccop.h as follows:

```
typedef struct
{
   VTDWORD   dwSize;
   VTDWORD   dwColorSpace;
   VTDWORD   dwCompression;
   VTDWORD   dwByteOrder;
   VTDWORD   dwTIFFFlags;
   VTDWORD   dwFillOrder;
} EXTIFFOPTIONS,  * LPEXTIFFOPTIONS;
```

Parameters

- dwSize: Must be set to sizeof(EXTIFFOPTIONS).
- dwColorSpace: This option will specify the TIFF color depth and color options. The following settings are valid:
  - SCCGRAPHIC_TIFF1BITBW: 1 bit black and white
  - SCCGRAPHIC_TIFF8BITPAL: 8 bit palette
  - SCCGRAPHIC_TIFF24BITRGB: 24 bit RGB (this is the default value for this parameter)
- dwCompression: This option will specify the type of compression used in the TIFF file that is generated. The following settings are valid:
  - SCCGRAPHIC_TIFFCOMPNONE: No compression
  - SCCGRAPHIC_TIFFCOMPPB: Packbits compression (this is the default value for this parameter)
  - SCCGRAPHIC_TIFFCOMPLZW: LZW compression
  - SCCGRAPHIC_TIFFCOMP1D: CCITT – 1D. Please note that when setting this type of compression, dwColorSpace must be set to SCCGRAPHIC_ TIFF1BITBW.
  - SCCGRAPHIC_TIFFCOMPGRP3: CCITT – Group 3 Fax. Please note that when setting this type of compression, dwColorSpace must be set to SCCGRAPHIC_TIFF1BITBW.
  - SCCGRAPHIC_TIFFCOMPGRP4: CCITT – Group 4 Fax. Please note that when setting this type of compression, dwColorSpace must be set to SCCGRAPHIC_TIFF1BITBW.
- dwByteOrder: This option determines the byte order used within the file:
  - SCCGRAPHIC_TIFFBOBIGE: This will use "big-endian" (Motorola) byte ordering.
  - SCCGRAPHIC_TIFFBOLITTLEE: This will use "little-endian" (Intel) byte ordering (this is the default value for this parameter).
- dwTIFFFlags: These are additional flags for setting other options in a TIFF file:
  - SCCGRAPHIC_TIFFFLAGS_NONE: No flags are used (this is the default value for this parameter).
  - SCCGRAPHIC_TIFFFLAGS_ONEFILE: When this flag is set, the output of multiple pages from one input document will generate a single file with a separate image for each page converted.

- dwFillOrder: This option determines the fill order used within the file. The value of this element only affects TIFF output when the dwCompression element is set to SCCGRAPHIC_TIFFCOMPGRP3 and the dwColorSpace element is set to SCCGRAPHIC_TIFF1BITBW.
  - SCCGRAPHIC_TIFF_FILLORDER1: Selects TIFF fill order 1, which is the default for this parameter and is recommended for most TIFF files intended for file stores.
  - SCCGRAPHIC_TIFF_FILLORDER2: Selects TIFF fill order 2, which is the recommended fill order for TIFF files intended for electronic transmission (for example, fax).

B.1.5.12 SCCOPT_JPEG_QUALITY

This option allows the developer to specify the lossyness of JPEG compression. The option is only valid if the dwOutputID parameter of the EXOpenExport function is set to FI_JPEGFIF.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data

A value from 1 to 100, with 100 being the highest quality but the least compression, and 1 being the lowest quality but the most compression.

Default

100

B.1.5.13 SCCOPT_QUICKTHUMBNAIL

SCCOPT_QUICKTHUMBNAIL is a Windows-only option. When SCCOPT_QUICKTHUMBNAIL option is set to true the technology will render scaled images with a focus on speed and reduced overall memory usage. This focus on speed and memory usage, in some cases, will cause the resulting images to be less readable than when this option is set to false.

Scope

Local

Data Type

VTBOOL

Default

FALSE

B.1.6 Spreadsheet and Database File Rendering

This section discusses spreadsheet and database options.

B.1.6.1 SCCOPT_DBPRINTFITTOPAGE

This option scales a spreadsheet file to a certain percent or to a page width or height. However, in an effort to preserve readability after scaling, Image Export will not shrink a database document to under approximately one-third of its original size.

It should be noted that when this option is set to SCCVW_DBPRINTFITMODE_NOMAP, the pages of the database file are printed down first and then across.

Please note that any margins applied as a result of settings for the SCCOPT_DEFAULTPRINTMARGINS option will be included in any scaling that is applied to the output image as a result of settings for this option.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data

One of the following values:

- SCCVW_DBPRINTFITMODE_NOMAP: This will not do any scaling of the database image. It will render in its original size onto as many pages as are required to fit the data.
- SCCVW_DBPRINTFITMODE_FITTOPAGES: This will fit the database to one page, scaling to the image width or height depending on the page size and database size.
- SCCVW_DBPRINTFITMODE_FITTOWIDTH: This will scale the database on the rendered image so it is no larger than one page wide.
- SCCVW_DBPRINTFITMODE_FITTOHEIGHT: This will scale the database on the rendered image so it is no larger than one page high.

Default

SCCVW_DBPRINTFITMODE_FITTOPAGES

B.1.6.2 SCCOPT_DBPRINTGRIDLINES

If this option is TRUE, lines are generated between cells in the rendered images.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type
VTBOOL

Default
TRUE

B.1.6.3 SCCOPT_DBPRINTHEADINGS
If this option is TRUE, field headings will be generated along with the data.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTBOOL

Default
TRUE

B.1.6.4 SCCOPT_MAXSSDBPAGEHEIGHT
Normally, the size of images generated from spreadsheet worksheets and database tables is limited to the size of the page defined by the input document's page size information and how the SCCOPT_USEDOCPAGESETTINGS, SCCOPT_GRAPHIC_WIDTH and SCCOPT_GRAPHIC_HEIGHT options are set. If, after scaling is factored in, the resulting image is too large to fit on a single page, it is split up into multiple pages.

The SCCOPT_MAXSSDBPAGEWIDTH and SCCOPT_MAXSSDBPAGEHEIGHT options are used to change the size of a page to match the scaled size of the page being rendered - within limits. The key reason for those limits is that rendering very large pages can easily overwhelm the memory available on the system. When using this feature, a calculation should be made to be sure that the values passed in work within said memory limits. The values for these two options will override the current page dimensions if necessary.

The memory needed may be calculated based on the following:

```
memory = [max. worksheet/table height (in inches)]  x  [max. worksheet/table width
(in inches)]  x  [dpi setting]2  x  3 bytes/pixel  +  a bit extra for the needs of
the rest of the conversion
```

By default, these options are set to the current page dimensions. Users may choose to set only one of the two options if desired. If, for example, only the SCCOPT_MAXSSDBPAGEWIDTH is set, then the height of the page will be based on the normal page height.

When a worksheet or table is larger than the maximum values specified by these options, then the file is rendered on multiple pages, with the requested (larger) page dimensions.

These new options grow the page size (if needed) to match the size of the worksheet or table. This differs from the SCCOPT_GRAPHIC_WIDTH and SCCOPT_GRAPHIC_

HEIGHT options, which set an absolute page size without regard to the size of the worksheet or table.

If text in cells ends up extending past the edge of the cell and beyond the edge of the page, Image Export writes one or more additional pages for the overflow text.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

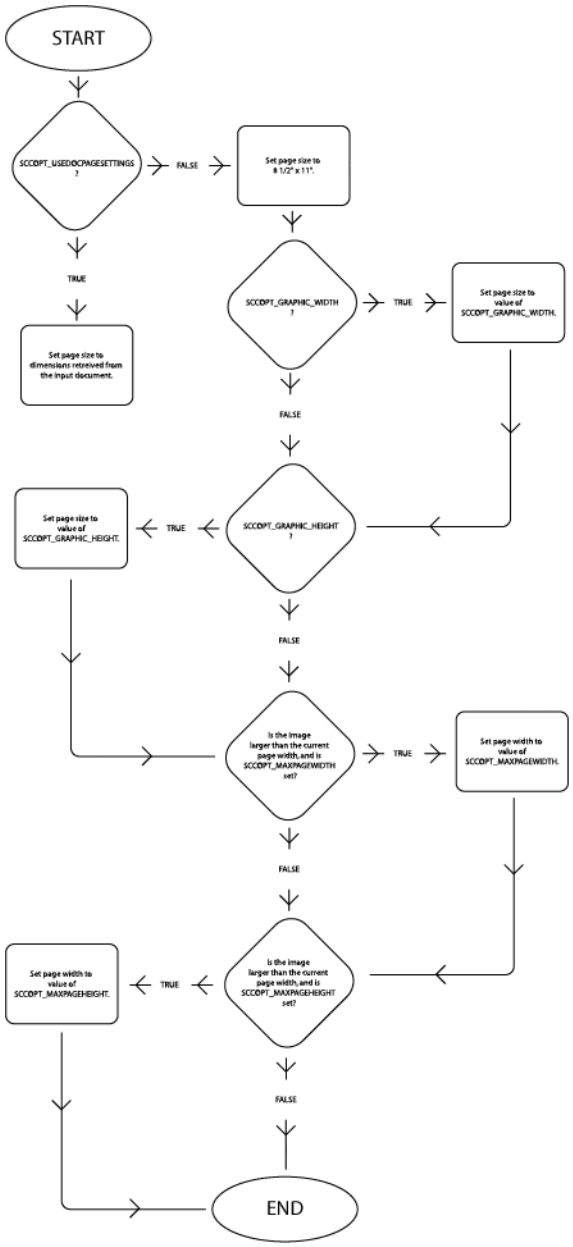
Data

The maximum page height (including margins) specified in twips (1440 twips are in 1 inch). If the value specified is smaller than the page height, then Image Export will return a SCCERR_INVALIDMAXSSDBPAGE error.

Default

- 0: Use the page height defined by the input document's page size information and by the SCCOPT_USEDOCPAGESETTINGS, SCCOPT_GRAPHIC_HEIGHTLIMIT and SCCOPT_GRAPHIC_HEIGHT options.

Figure B–1 Logic Flow for Determining the Page Size of Spreadsheet and Database Pages



B.1.6.5 SCCOPT_MAXSSDBPAGEWIDTH

See the documentation for SCCOPT_MAXSSDBPAGEHEIGHT for a full discussion of how this option works and interacts with other options affecting the page size of images generated from spreadsheet and database pages.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Size
VTDWORD

Data
The maximum page width (including margins) specified in twips (1440 twips are in 1 inch). If the value specified is smaller than the page width, then Image Export will return a SCCERR_INVALIDMAXSSDBPAGE error.

Default
- 0: Use the page width defined by the input document's page size information and by the SCCOPT_USEDOCPAGESETTINGS, SCCOPT_GRAPHIC_WIDTHLIMIT and SCCOPT_GRAPHIC_WIDTH options.

B.1.6.6 SCCOPT_SSPRINTDIRECTION
This option controls the pattern in which the pages are rendered, either across first and then down, or down first and then across.

This option is overridden when the SCCOPT_USEDOCPAGESETTINGS option is set to TRUE and print direction is specified in the input document.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTDWORD

Data
One of the following values:

- SCCVW_SSPRINTDIRECTION_ACROSS: Will specify that pages are printed across first and then down.
- SCCVW_SSPRINTDIRECTION_DOWN: Will specify that pages are printed down first and then across.

Default
SCCVW_SSPRINTDIRECTION_DOWN

B.1.6.7 SCCOPT_SSPRINTFITTOPAGE
This option requests that the spreadsheet file be fit to one page.

Please note that any margins applied as a result of settings for the SCCOPT_DEFAULTPRINTMARGINS option will be included in any scaling that is applied to the output image as a result of settings for this option.

This option is overridden when the SCCOPT_USEDOCPAGESETTINGS option is set to TRUE and fitting the page to the printer's image limits is specified in the input document.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTDWORD

Data
One of the following values:

- SCCVW_SSPRINTFITMODE_NOMAP: No scaling is performed on the spreadsheet image. It will render in its original size onto as many pages as are required to fit the data.
- SCCVW_SSPRINTFITMODE_FITTOPAGES: Will scale the spreadsheet in the rendered image to fit to the number of pages specified in the SCCOPT_SSPRINTSCALEXHIGH and SCCOPT_SSPRINTSCALEXWIDE options. Since aspect ratio is maintained, the lesser of the two dimensions (width or height) will determine the scale factor. Note that if either SCCOPT_SSPRINTSCALEXHIGH or SCCOPT_SSPRINTSCALEXWIDE is set to 0, the value in the other option will be nullified.
- SCCVW_SSPRINTFITMODE_FITTOWIDTH: Will scale the spreadsheet in the rendered image so it is no larger than one page wide.
- SCCVW_SSPRINTFITMODE_FITTOHEIGHT: Will scale the spreadsheet in the rendered image so it is no larger than one page high.
- SCCVW_SSPRINTFITMODE_SCALE: Will scale the spreadsheet in the rendered image using the scale value stored in the SCCOPT_SSPRINTSCALEPERCENT option.

Default
- SCCVW_SSPRINTFITMODE_SCALE; Scales the rendered image of the spreadsheet using the scale value stored in the SCCOPT_SSPRINTSCALEPERCENT option (which is 100 by default).

B.1.6.8 SCCOPT_SSPRINTGRIDLINES
If this option is TRUE, a line is generated between cells in the rendered image.

This option is overridden when the SCCOPT_USEDOCPAGESETTINGS option is set to TRUE and printing grid lines between cells is specified in the input document.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTBOOL

Default
TRUE

B.1.6.9 SCCOPT_SSPRINTHEADINGS
If this option is TRUE, row and column headings will be rendered along with the data.

This option is overridden when the SCCOPT_USEDOCPAGESETTINGS option is set to TRUE and printing column and row headers is specified in the input document.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTBOOL

Default
FALSE

B.1.6.10 SCCOPT_SSPRINTSCALEPERCENT
This option will scale spreadsheet pages by the percentage specified. The option has no effect unless the SCCOPT_SSPRINTFITTOPAGE option is set to SCCVW_SSPRINTFITMODE_SCALE.

This option must take a value between 1 and 100. If any value outside of this range is used, the option will be ignored.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTDWORD

Default
100

B.1.6.11 SCCOPT_SSPRINTSCALEXHIGH
This option will fit the spreadsheet image to the number of vertical pages specified. The setting for this option will have no effect unless the SCCOPT_SSPRINTFITTOPAGE option is set to SCCVW_SSPRINTFITMODE_FITTOPAGES.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTDWORD

Default
1

B.1.6.12 SCCOPT_SSPRINTSCALEXWIDE
This option will fit the spreadsheet image to the number of horizontal pages specified. The setting for this option will have no effect unless the SCCOPT_SSPRINTFITTOPAGE option is set to SCCVW_SSPRINTFITMODE_FITTOPAGES.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTDWORD

Default
1

B.1.6.13 SCCOPT_SSSHOWHIDDENCELLS
This option lets you determine whether or not to show hidden rows or columns when rendering spreadsheets. It is used to expand the widths of cells that are hidden by virtue of having their row height or column width reduced to 0. This is a BOOLEAN option that will leave the data hidden when it is FALSE, and show all hidden rows and columns when it is TRUE, displayed using the default row width or default column height.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTBOOL

Data
- TRUE: Displays hidden cells.
- FALSE: Does not display hidden cells.

Default
FALSE

B.1.6.14 SCCOPT_EX_SHOWHIDDENSSDATA

The setting for this option determines whether or not hidden sheets in a spreadsheet will be included in the output. When set to FALSE (the default), the hidden elements are not written. When set to TRUE, they are placed in the output in the same manner as regular spreadsheet data.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTBOOL

Data

- TRUE: Allow hidden data to be placed in the output.
- FALSE: Prevent hidden data from being placed in the output.

Default

FALSE

B.1.7 Page Rendering

This section discusses page rendering options.

B.1.7.1 SCCOPT_DEFAULTPRINTMARGINS

This option specifies the top, left, bottom and right margins in twips from the edges of the image. For instance, setting all the values to 1440 creates a 1-inch margin on all sides. Page margins will only be applied when formatting word processing, database and spreadsheet files.

Please note all margins are applied before scaling with the SCCOPT_DBPRINTFITTOPAGE, SCCOPT_SSPRINTFITTOPAGE, SCCOPT_GRAPHIC_HEIGHT, SCCOPT_GRAPHIC_WIDTH, or SCCOPT_GRAPHIC_SIZELIMIT options.

This option is overridden when the SCCOPT_USEDOCPAGESETTINGS option is set to TRUE and print margins are specified in the input document.

This option does not affect the output of bitmap, presentation, vector or archive files.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

The SCCVWPRINTMARGINS structure.

B.1.7.1.1 SCCVWPRINTMARGINS Structure This structure is used by the SCCOPT_DEFAULTPRINTMARGINS option to specify margin settings.

SCCVWPRINTMARGINS is a C data structure defined in sccvw.h as follows:

```
typedef struct SCCVWPRINTMARGINStag
   {
   VTDWORD  dwTop;
   VTDWORD  dwBottom;
   VTDWORD  dwLeft;
   VTDWORD  dwRight;
} SCCVWPRINTMARGINS,  * PSCCVWPRINTMARGINS;
```

Parameters

- dwTop: Margin from the top edge of the image (in twips). Default is 1 inch.
- dwBottom: Margin from the bottom edge of the image (in twips). Default is 1 inch.
- dwLeft: Margin from the left edge of the image (in twips). Default is 1 inch.
- dwRight: Margin from the right edge of the image (in twips). Default is 1 inch.

B.1.7.2 SCCOPT_PRINTENDPAGE

This option indicates the page that rendering should end on. It is only valid if the option SCCOPT_WHATTOPRINT has the value SCCVW_PRINT_PAGERANGE.

Note that page range settings are one-based and inclusive. Therefore, specifying a range with SCCOPT_PRINTENDPAGE equal to 5 and SCCOPT_PRINTSTARTPAGE equal to 3 would export any of the three pages that follow, if they exist: 3, 4 and 5.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Default

- 0: The last page at the end of the document.

B.1.7.3 SCCOPT_PRINTSTARTPAGE

This option indicates the page rendering should start on. It is only valid if the option SCCOPT_WHATTOPRINT has the value SCCVW_PRINT_PAGERANGE.

Note that page range settings are one-based and inclusive. Therefore, specifying a range with SCCOPT_PRINTENDPAGE equal to 5 and SCCOPT_PRINTSTARTPAGE equal to 3 would export any of the three pages that follow, if they exist: 3, 4 and 5.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type
VTDWORD

Default
- 0: Printing will begin with the first page of the document.

B.1.7.4 SCCOPT_USEDOCPAGESETTINGS
This option is used to select the document's page layout information when rendering.

If TRUE the document's native (or author selected) page margins, paper size, page scaling and page orientation are used when available from the filter.

The values of the SCCOPT_DEFAULTPRINTMARGINS, SCCOPT_SSPRINTGRIDLINES, SCCOPT_SSPRINTHEADINGS, SCCOPT_SSPRINTDIRECTION, and SCCOPT_SSPRINTFITTOPAGE options are overridden if this option is set to TRUE and the properties associated with those options are specified in the input document. Additionally, print area and page breaks in spreadsheet documents are ignored unless this option is set to TRUE.

If FALSE, the page margins, size, orientation and scaling are set to specific values rather than those in the native document. The page size is forced to 8 1/2" x 11" in portrait orientation, but this may be changed by setting the SCCOPT_GRAPHIC_HEIGHT and/or SCCOPT_GRAPHIC_WIDTH options. The margins are forced 1" all around, but may be changed by setting the defaultMargins option. The scaling for the document will be set to 100%, although this may be changed by setting any of the various scaling options.

It should be noted that this option also affects page orientation for both input spreadsheets and word processing documents.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTBOOL

Default
TRUE

B.1.7.5 SCCOPT_WHATTOPRINT
This option indicates whether the whole file or a selected range of pages should be rendered.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTDWORD

Data
One of the following values:

- SCCVW_PRINT_PAGERANGE: The pages in the one-based, inclusive range from SCCOPT_PRINTSTARTPAGE to SCCOPT_PRINTENDPAGE will be printed.
- SCCVW_PRINT_ALLPAGES: The entire document will be printed.

Default
SCCVW_PRINT_ALLPAGES

B.1.7.6 SCCOPT_NUMBERFORMAT
This option is used to control the formatting of numbers. It is useful for setting environment dependent variables related to international support. The default values are retrieved from the operating system for the Windows platform, and are set to logical U.S. defaults on all other platforms.

Data Type
SCCVWNUMBERFORMAT and SCCVWNUMBERFORMAT775 structures

B.1.7.6.1 SCCVWNUMBERFORMAT775 and SCCVWNUMBERFORMAT Structures These structures are used to set the SCCID_NUMBERFORMAT option. The fields of the structures allow the developer to control variables related to international support. Please note that the SCCVWNUMBERFORMAT775 structure always assumes 2-digit year data, whereas the SCCVWNUMBERFORMAT structure allows for both 2- and 4-digital year data.

These are C data structures defined in sccvw.h as follows:

```
typedef struct SCCVWNUMBERFORMAT775tag
   {
   VTTCHAR   cDecimalSep;
   VTTCHAR   cThousandSep;
   VTTCHAR   cDateSep;
   VTTCHAR   cTimeSep;
   VTTCHAR   szCurrencySymbol[8];
   VTTCHAR   szAM[8];
   VTTCHAR   szPM[8];
   VTDWORD   dwNumBytesAM;
   VTDWORD   dwNumBytesPM;
   VTWORD    wCurrencyPosition;
   VTWORD    wShortDateOrder;
   } SCCVWNUMBERFORMAT775,  * PSCCVWNUMBERFORMAT775;

typedef struct SCCVWNUMBERFORMATtag
   {
   VTTCHAR   cDecimalSep;
   VTTCHAR   cThousandSep;
   VTTCHAR   cDateSep;
   VTTCHAR   cTimeSep;
   VTTCHAR   szCurrencySymbol[8];
   VTTCHAR   szAM[8];
   VTTCHAR   szPM[8];
   VTDWORD    dwNumBytesAM
```

```
VTDWORD   dwNumBytesPM;
VTWORD    wCurrencyPosition
VTWORD    wShortDateOrder;
VTWORD    wShortDateYearDigits;
VTWORD    wShortDateMonthDigits;
VTWORD    wShortDateDayDigits;
VTWORD    wShortDateFlags;
} SCCVWNUMBERFORMAT,  * PSCCVWNUMBERFORMAT;
```

Parameters

- cDecimalSep: The character used for the decimal separator when formatting currency.
- cThousandSep: The character used for the thousands separator when formatting currency.
- cDateSep: The character used to separate years, months, and days when formatting dates. This option only works on variable formats. For example, only one of the several date formats in Microsoft Excel is variable.
- cTimeSep: The character used to separate hours, minutes, and seconds when formatting times. This option only works on variable formats. For example, only one of the several time formats in Microsoft Excel is variable.
- szCurrencySymbol: The string used for the currency symbol when formatting currency.
- szAM: The string used to indicate "AM" when formatting times.
- szPM: The string used to indicate "PM" when formatting times.
- dwNumBytesAM: Number of bytes of the string stored in szAM.
- dwNumBytesPM: Number of bytes of the string stored in szPM.
- wCurrencyPosition: Flags that indicate the positioning of the currency symbol when formatting currency. Only six specific filters are supported: SOC6, WG2, WK4, WK6, WPW, and VISO.
  - SCCVW_CURRENCY_LEADS: The currency symbol is placed before the amount.
  - SCCVW_CURRENCY_TRAILS: The currency symbol is placed after the amount.
  - SCCVW_CURRENCY_SPACE: A space is placed between the currency and the amount.
  - SCCVW_CURRENCY_NOSPACE: A space is not placed between the currency and the amount.
- wShortDateOrder: Indicates the order used when formatting short dates (numeric dates). This option only works on variable formats. For example, only one of the several date formats in Microsoft Excel is variable. One of the following:
  - SCCVW_DATEORDER_MDY: Month, Day, Year
  - SCCVW_DATEORDER_DMY: Day, Month, Year
  - SCCVW_DATEORDER_YMD: Year, Month, Date
- wShortDateYearDigits: This parameter is specific to the SCCVWNUMBERFORMAT structure. This is the number of digits in the year as specified by the Windows registry entry sShortDate. This option only works on

variable formats. For example, only one of the several date formats in Microsoft Excel is variable.

- wShortDateMonthDigits: This parameter is specific to the SCCVWNUMBERFORMAT structure. This is the number of digits in the month as specified by the Windows registry entry sShortDate.
- wShortDateDayDigits: This parameter is specific to the SCCVWNUMBERFORMAT structure. This is the number of digits in the day as specified by the Windows registry entry sShortDate.
- wShortDateFlags: This parameter is specific to the SCCVWNUMBERFORMAT structure. It is reserved for internal use.

B.1.7.7 SCCOPT_WPEMAILHEADEROUTPUT

The former option SCCOPT_WPMIMEHEADEROUTPUT has been deprecated. This option controls rendering of email headers.

Scope

Global

Data Type

VTDWORD

Data

One of these values:

- SCCUT_WP_EMAILHEADERSTANDARD: Displays "To," "From," "Subject," "CC," "BCC," "Date Sent," and "Attachments" header fields only. The filter outputs any fields not listed above as hidden fields, so they will not display.
- SCCUT_WP_EMAILHEADERALL: Displays all available email headers.

Default

SCCUT_WP_EMAILHEADERSTANDARD

B.1.8 Font Rendering

This section discusses font rendering options.

B.1.8.1 SCCOPT_DEFAULTPRINTFONT

This option sets the font to use when the chunker-specified font is not available on the system. It is also the font used when the font in source file is not available on the system performing the conversion.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

SCCVWFONTSPEC Structure

B.1.8.1.1 SCCVWFONTSPEC Structure This structure is used by various options to specify a font.

SCCVWFONTSPEC is a C data structure defined in sccvw.h as follows:

```
typedef struct
   {
   VTTCHAR  szFace[40];
   VTWORD   wHeight;
   VTWORD   wAttr;
   VTWORD   wType;
   } SCCVWFONTSPEC,  * LPSCCVWFONTSPEC;
```

Parameters

- szFace: The name of the font. For example, "Helvetica Compressed." The default is "Arial", however this default is constrained by the fonts available on the system.
- wHeight: Size of the font in half points. For example, a value of 24 will produce a 12-point font. This size is only applied when the font size is not known. The default is 10-point, however this default is constrained by the font sizes available on the system.
- wAttr: The attributes of the font. This parameter is used primarily by the Outside In Viewer Technology and is currently ignored by ImageExport.
- wType: Should be set to 0.

B.1.8.2 SCCOPT_PRINTFONTALIAS

This option sets or gets printer font aliases according to the SCCVWFONTALIAS structure.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

The SCCVWFONTALIAS structure.

B.1.8.2.1 SCCVWFONTALIAS Structure This structure is used in the SCCOPT_PRINTFONTALIAS option.

SCCVWFONTALIAS is a C data structure defined in sccvw.h as follows:

```
typedef struct SCCVWFONTALIAS
   {
   VTDWORD   dwSize;
   VTDWORD   dwAliasID;
   VTDWORD   dwFlags;
   VTWORD    szwOriginal[SCCVW_FONTNAMEMAX];
   VTWORD    szwAlias[SCCVW_FONTNAMEMAX];
   } SCCVWFONTALIAS;
```

Parameters

- dwSize: Must be set by the developer to sizeof(SCCVWFONTALIAS).

- dwAliasID: ID of the aliasing in the current list of aliases. In Image Export, the default is that no alias is applied.
- dwFlags: The usage of these flags depends on whether this structure is being used with the DASetOption or DAGetOption message. It should be set to one of the following:
  - SCCVW_FONTALIAS_COUNT (DAGetOption): dwAliasID will be filled with the count of current font aliases for that device.
  - SCCVW_FONTALIAS_ALIASNAME (DASetOption): The alias of szwAlias for szwOriginal will be used when szwOriginal is not available on the device. When a font alias is added to the list, this can affect the alias count. If an alias already exists for szwOriginal, the new szwAlias will replace it.
  - SCCVW_FONTALIAS_ALIASNAME (DAGetOption): szwAlias will be filled if there is an alias in the alias list for the font in szwOriginal on that device.
  - SCCVW_FONTALIAS_GETALIASBYID (DAGetOption): szwAlias and szwOriginal will be filled by the technology for the alias in the numbered slot identified by the ID.
  - SCCVW_FONTALIAS_GETALIASID (DAGetOption): dwAliasID will be set for the font in szwOriginal. If none exists, the dwAliasID will be 0xFFFFFFF.
  - SCCVW_FONTALIAS_REMOVEALIASBYID (DASetOption): The alias in that slot will be removed if one exists. When a font alias is removed from the list, this can affect the other alias IDs.
  - SCCVW_FONTALIAS_REMOVEALIASBYNAME (DASetOption): The alias for the font szwOriginal will be removed from the alias list if one exists. When a font alias is removed from the list, this can affect the other alias IDs.
  - SCCVW_FONTALIAS_REMOVEALL (DASetOption): The alias list will be cleared out and the count will be zero.
  - SCCVW_FONTALIAS_USEDEFAULTS (DASetOption): This clears the existing alias list and sets it to a list of default aliases that is variable by platform.
- szwOriginal: This represents the original name of a font that will be mapped when this font is not available. This name should be a Unicode string.
- szwAlias: This represents the new name of a font that will be used as a replacement for the unmapped font named in szwOriginal. This name should be a Unicode string.

Data

The technology assumes the following default mappings. The first value is the szwOriginal Value, the second is the szwAlias Value.

- Chicago = Arial
- Geneva = Arial
- New York = Times New Roman
- Helvetica = Arial
- Helv = Arial
- times = Times New Roman
- Times = Times New Roman

- Tms Roman = Times New Roman
- Symbol = Symbol
- itc zapfdingbats = Zapfdingbats
- itc zapf dingbats = Zapfdingbats

B.1.9 Watermarks

This section discusses watermark options.

By default, the watermark image is centered in the middle of the target image.

B.1.9.1 SCCOPT_GRAPHIC_WATERMARK_OPACITY

This option must be set and defined to turn on watermarking support. A value of 0 is default and turns watermarking off. Values (1 to 255) specify a level of transparency. 255 is fully opaque. 1 is very transparent.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data

A value between 1 and 255. The value of 0 turns watermarking off.

Default

0

B.1.9.2 SCCOPT_GRAPHIC_WATERMARK_PATH

This option needs to be set to specify a watermark file and path.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTLPVOID

Data

A pointer to a buffer containing a null-terminated string. The buffer must contain a path to the file containing the watermark image. The buffer can be no larger than sizeof(IMGWATERMARKPATH) bytes.

Default

There is no default. If you intend to use watermarks, you must set this option.

B.1.9.3 SCCOPT_GRAPHIC_WATERMARK_SCALETYPE

Indicates whether to scale the watermark image or not. A value of SCCGRAPHIC_WATERMARK_SCALETYPE_NONE means that we blend the watermark onto the original graphic with the original watermark height and width. This is the default value. A value of SCCGRAPHIC_WATERMARK_SCALETYPE_PERCENT means that we will scale the watermark to be a certain percentage of the original watermark's height and width.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data

- SCCGRAPHIC_WATERMARK_SCALETYPE_NONE: When set means no scaling of the watermark image is to be done.
- SCCGRAPHIC_WATERMARK_SCALETYPE_PERCENT: When set means that the watermark image is to be scaled to a percentage of its size. The percentage that is used is set by the SCCOPT_GRAPHIC_WATERMARK_SCALEPERCENT option.

Default

SCCGRAPHIC_WATERMARK_SCALETYPE_NONE

B.1.9.4 SCCOPT_GRAPHIC_WATERMARK_SCALEPERCENT

Active when SCCOPT_GRAPHIC_WATERMARK_SCALETYPE is set to SCCGRAPHIC_WATERMARK_SCALETYPE_PERCENT. Values (1 to 100) scale the watermark to be a specified percent of its original size. A value of 100 (default) overlays the target image with the watermark image at its original size; e.g., if the original graphic watermark is 4x4 and the target image is 6x8, the graphic watermark will be scaled to 4x4 to overlay the target image.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

Data
Values of 1 to 100 scale the watermark image to a percentage of the watermark image's size.

Default
100

B.1.9.5 SCCOPT_GRAPHIC_WATERMARK_HORIZONTALPOS
Offset in pixels within target image to adjust watermark position. Default value is 0.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTLONG

Data
The number of pixels to offset the image in the horizontal direction. The watermark image is centered in the middle of target image, and then the watermark image is moved by this many pixels. A positive value moves the watermark towards the right, a negative value moves the watermark towards the left.

Default
0

B.1.9.6 SCCOPT_GRAPHIC_WATERMARK_VERTICALPOS
Offset in pixels to adjust the watermark position within the target image. Default value is 0.

Handle Types
VTHDOC, VTHEXPORT

Scope
Local

Data Type
VTLONG

Data
The number of pixels to offset the image in the vertical direction. The watermark image is centered in the middle of the target image, and then the watermark image is moved by this many pixels. A positive value moves the watermark towards the bottom, and a negative value moves the watermark towards the top.

Default
0

B.1.10 Callbacks

This section discusses callback options.

B.1.10.1 SCCOPT_EX_CALLBACKS

This is an advanced option that casual users of Image Export may ignore.

This option is used to disable callbacks being made from Image Export. Callbacks that are disabled will behave as if they were made and the developer had returned SCCERR_NOTHANDLED.

The option takes a VTDWORD field of flags. When the flag is set, the callback is enabled. By default, all callbacks are enabled. You can activate multiple callbacks by bitwise OR-ing them together. You can also disable multiple callbacks by bitwise &-ing the SCCEX_CALLBACKFLAG_ALLENABLED value with the one's complement of the corresponding callback flags. The following #defines are to be used for enabling the various callbacks:

Flag	Associated Callbacks
SCCEX_CALLBACKFLAG_ CREATENEWFILE	EX_CALLBACK_ID_CREATENEWFILE
SCCEX_CALLBACKFLAG_ NEWFILEINFO	EX_CALLBACK_ID_NEWFILEINFO

In addition, the following two special values are available:

- SCCEX_CALLBACKFLAG_ALLDISABLED: Disables the receipt of all callbacks. Additionally, bitwise OR-ing this value with one or more flags enables the corresponding callbacks. For example, SCCEX_CALLBACKFLAG_ALTLINK | SCCEX_CALLBACKFLAG_CREATENEWFILE enables the ALTLINK and CREATENEWFILE callbacks, but disables all others.
- SCCEX_CALLBACKFLAG_ALLENABLED: Enables the receipt of all callbacks. Additionally, bitwise &-ing this value with the one's complement of one or more flags disables the corresponding callbacks. For example, SCCEX_ CALLBACKFLAG_ALLENABLED& (~SCCEX_CALLBACKALTLINK & ~SCCEX_CALLBACKFLAG_CREATENEWFILE) disables the ALTLINK and CREATENEWFILE callbacks, but enables all others.

Handle Types

VTHDOC

Scope

Local

Data Type

VTDWORD

Data

One or more of the valid flags, bitwise OR-ed together

Default

- SCCEX_CALLBACKFLAG_ALLENABLED: All callbacks are available to the developer.

B.1.10.2 SCCOPT_EX_UNICODECALLBACKSTR

This option determines the format of strings used in the callback functions. For those structures that contain a field of type BYTE or LPBYTE, a comparable structure has been added which has a similar field of type WORD or LPWORD. These structures will have the same name as the original structure, with the addition of a "W" at the end.

When this option is set to TRUE, any time a callback uses a structure with a string, it will use the new structure. Also, any strings that the callback function returns will be expected to follow the same guidelines. If the option is set to FALSE, all callbacks will use single-byte character strings.

For example, if this option is set to TRUE, and the EX_CALLBACK_ID_ CREATENEWFILE callback is called, the pExportData parameter to the callback will point to an EXURLFILEIOCALLBACKDATAW structure. If the option is set to FALSE, the pCommandOrInfoData parameter will point to an EXURLFILEIOCALLBACKDATA structure.

This option should be set before EXOpenExport is called.

Handle Types

VTHDOC

Scope

Local

Data Type

VTBOOL

Data

One of the following values:

- TRUE: Use Unicode strings in callbacks.
- FALSE: Do not use Unicode strings in callbacks.

Default

FALSE

B.1.11 File System

This section discusses file sysem options.

B.1.11.1 SCCOPT_IO_BUFFERSIZE

This set of three options allows the user to adjust buffer sizes to tailor memory usage to the machine's ability. The numbers specified in these options are in kilobytes. These are advanced options that casual users of Image Export may ignore.

Handle Type

NULL, VTHDOC

Scope

Global

Data Type

SCCBUFFEROPTIONSstructure

Data

A buffer options structure

B.1.11.1.1 SCCBUFFEROPTIONS Structure

```
typedef struct SCCBUFFEROPTIONStag
{
   VTDWORD dwReadBufferSize;     /* size of the I/O Read buffer
                                 in KB */
   VTDWORD dwMMapBufferSize;     /* maximum size for the I/O
                                 Memory Map buffer in KB */
   VTDWORD dwTempBufferSize;     /* maximum size for the memory-
                                 mapped temp files in KB */
   VTDWORD dwFlags;              /* use flags */
} SCCBUFFEROPTIONS, *PSCCBUFFEROPTIONS;
```

Parameters

- dwReadBufferSize: Used to define the number of bytes that will read from disk into memory at any given time. Once the buffer has data, further file reads will proceed within the buffer until the end of the buffer is reached, at which point the buffer will again be filled from the disk. This can lead to performance improvements in many file formats, regardless of the size of the document.
- dwMMapBufferSize: Used to define a maximum size that a document can be and use a memory-mapped I/O model. In this situation, the entire file is read from disk into memory and all further I/O is performed on the data in memory. This can lead to significantly improved performance, but note that either the entire file can be read into memory, or it cannot. If both of these buffers are set, then if the file is smaller than the dwMMapBufferSize, the entire file will be read into memory; if not, it will be read in blocks defined by the dwReadBufferSize.
- dwTempBufferSize: The maximum size that a temporary file can occupy in memory before being written to disk as a physical file. Storing temporary files in memory can boost performance on archives, files that have embedded objects or attachments. If set to 0, all temporary files will be written to disk.
- dwFlags
  - SCCBUFOPT_SET_READBUFSIZE 1
  - SCCBUFOPT_SET_MMAPBUFSIZE 2
  - SCCBUFOPT_SET_TEMPBUFSIZE 4

  To set any of the three buffer sizes, set the corresponding flag while calling dwSetOption.

Default

The default settings for these options are:

- #define SCCBUFOPT_DEFAULT_READBUFSIZE 2: A 2KB read buffer.
- #define SCCBUFOPT_DEFAULT_MMAPBUFSIZE 8192: An 8MB memory-map size.
- #define SCCBUFOPT_DEFAULT_TEMPBUFSIZE 2048: A 2MB temp-file limit.

Minimum and maximum sizes for each are:

- SCCBUFOPT_MIN_READBUFSIZE 1: Read one Kbyte at a time.
- SCCBUFOPT_MIN_MMAPBUFSIZE 0: Don't use memory-mapped input.
- SCCBUFOPT_MIN_TEMPBUFSIZE 0: Don't use memory temp files
- SCCBUFOPT_MAX_READBUFSIZE 0x003fffff, SCCBUFOPT_MAX_MMAPBUFSIZE 0x003fffff, SCCBUFOPT_MAX_TEMPBUFSIZE 0x003fffff: These maximums correspond to the largest file size possible under the 4GB DWORD limit.

B.1.11.2 SCCOPT_TEMPDIR

From time to time, the technology needs to create one or more temporary files. This option sets the directory to be used for those files.

It is recommended that this option be set as part of a system to clean up temporary files left behind in the event of abnormal program termination. By using this option with code to delete files older than a predefined time limit, the OEM can help to ensure that the number of temporary files does not grow without limit.

Note: This option will be ignored if SCCOPT_REDIRECTTEMPFILE is set.

Handle Types

NULL, VTHDOC

Scope

Global

Data Type

SCCUTTEMPDIRSPEC structure

B.1.11.2.1 SCCUTTEMPDIRSPEC Structure This structure is used in the SCCOPT_TEMPDIR option.

SCCUTTEMPDIRSPEC is a C data structure defined in sccvw.h as follows:

```
typedef struct SCCUTTEMPDIRSPEC
{
   VTDWORD   dwSize;
   VTDWORD   dwSpecType;
   VTBYTE    szTempDirName[SCCUT_FILENAMEMAX];
} SCCUTTEMPDIRSPEC,  * LPSCCUTTEMPDIRSPEC;
```

There is currently a limitation. dwSpecType describes the contents of szTempDirName. Together, dwSpecType and szTempDirName describe the location of the source file. The only dwSpecType values supported at this time are:

- IOTYPE_ANSIPATH: Windows only. szTempDirName points to a NULL-terminated full path name using the ANSI character set and FAT 8.3 (Win16) or NTFS (Win32 and Win64) file name conventions.
- IOTYPE_UNICODEPATH: Windows only. szTempDirName points to a NULL-terminated full path name using the Unicode character set and NTFS file name conventions. Note that the length of the path name is limited to SCCUT_

FILENAMEMAX bytes, or (SCCUT_FILENAMEMAX / 2) double-byte Unicode characters.

- IOTYPE_UNIXPATH: X Windows on UNIX platforms only. szTempDirName points to a NULL-terminated full path name using the system default character set and UNIX path conventions.

Specifically not supported at this time is IOTYPE_REDIRECT.

Users should also note that temporary files created by the technology are not subject to callbacks (such as EX_CALLBACK_ID_CREATENEWFILE) normally made when files are created.

Parameters

- dwSize: Set to sizeof(SCCUTTEMPDIRSPEC).
- dwSpecType: IOTYPE_ANSIPATH, IOTYPE_UNICODEPATH, or IOTYPE_ UNIXPATH
- szTempDirName: The path to the directory to use for the temporary files. Note that if all SCCUT_FILENAMEMAX bytes in the buffer are filled, there will not be space left for file names.

Default

The system default directory for temporary files. On UNIX systems, this is the value of environment variable $TMP. On Windows systems, it is the value of environment variable %TMP%.

B.1.11.3 SCCOPT_DOCUMENTMEMORYMODE

This option determines the maximum amount of memory that the chunker may use to store the document's data, from 4 MB to 1 GB. The more memory the chunker has available to it, the less often it needs to re-read data from the document.

Handle Types

NULL, VTHDOC

Scope

Global

Data Type

VTDWORD

Parameters

- SCCDOCUMENTMEMORYMODE_SMALLEST 1 - 4MB
- SCCDOCUMENTMEMORYMODE_SMALL 2 - 16MB
- SCCDOCUMENTMEMORYMODE_MEDIUM 3 - 64MB
- SCCDOCUMENTMEMORYMODE_LARGE 4 - 256MB
- SCCDOCUMENTMEMORYMODE_LARGEST 5 - 1 GB

Default

SCCDOCUMENTMEMORYMODE_SMALL 2 - 16MB

B.1.11.4 SCCOPT_REDIRECTTEMPFILE

This option is set when the developer wants to use redirected IO to completely take over responsibility for the low level IO calls of the temp file.

Handle Types

NULL, VTHDOC

Scope

Global (not persistent)

Data Type

VTLPVOID: pCallbackFunc

Function pointer of the redirect IO callback.

Redirect call back function:

```
typedef
{
     VTDWORD (* REDIRECTTEMPFILECALLBACKPROC)
     (HIOFILE *phFile,
     VTVOID *pSpec,
     VTDWORD dwFileFlags);
```

There is another option to handle the temp directory, SCCOPT_TEMPDIR. Only one of these two can be set by the developer. The SCCOPT_TEMPDIR option will be ignored if SCCOPT_REDIRECTTEMPFILE is set. These files may be safely deleted when the Close function is called.

B.2 Image Export SOAP Options

This chapter details the Web Services implementation of options in Transformation Server. However, there are links to API-specific information for the C and JAVA client interfaces to the technology within each of the following sections.

B.2.1 How Options Work

An option is defined by an identifier and an associated value. The identifier (hOptions) indicates what particular option is being specified. The option value data must be in a form that conforms to the set of supported data types.

Note that it is not necessarily an error to specify options that are not understood by the export engine, but some transformation engines may require that certain options be specified.

B.2.2 Character Mapping

This section applies to character mapping options.

B.2.2.1 defaultInputCharset

This option is used in cases where Outside In cannot determine the character set used to encode the text of an input file. When all other means of determining the file's character set are exhausted, Outside In will assume that an input document is encoded in the character set specified by this option. This is most often used when reading plain-text files, but may also be used when reading HTML or PDF files.

When the "extended test for text" is enabled (see Section B.2.4.2, "extendedTestForText"), this option will still apply to plain-text input files that are not identified as EBCDIC or Unicode.

This option supersedes the fallbackFormat option for selecting the character set assumed for plain-text files. For backwards compatibility, use of deprecated character-set -related values is still currently supported for fallbackFormat, though internally such values will be translated into equivalent values for the defaultInputCharset. As a result, if an application were to set both options, the last such value set for either option will be the value that takes effect.

Data Type

DefaultInputCharSet

Data

The SOAP representation of the character set to use, from the values in defaultInputCharSetEnum.

B.2.2.2 unmappableCharacter

This option selects the character used when a character cannot be found in the output character set. This option takes the Unicode value for the replacement character. It is left to the user to make sure that the selected replacement character is available in the output character set.

Data Type

xsd:unsignedShort

Data

The Unicode value for the character to use.

Default

- 0x002a = "*"

Links

- C Client Implementation: XSD_unsignedShort
- JAVA Client Implementation: UnsignedShort

B.2.3 Output

This section applies to output options.

B.2.3.1 preferOITRendering

This option is only valid on the Linux (Red Hat and Suse) and Solaris Sparc platforms.

When this option is set to true, the technology will attempt to use its internal graphics code to render fonts and graphics. When set to false, the technology will render images using the operating system's native graphics subsystem (X11 on UNIX/Linux platforms). This requires that there be an X11 display and a valid DISPLAY variable, regardless of the type of input document.

It is important for the system to be able to locate useable fonts when this option is set to true. Only TrueType fonts (*.ttf or *.ttc files) are currently supported. To ensure that the system can find them, make sure that the environment variable GDFONTPATH

includes one or more paths to these files. If the variable GDFONTPATH can't be found, the current directory is used. If fonts are called for and cannot be found, Image Export will exit with an error. Also note that when copying Windows fonts to a UNIX system, the font extension for the files (*.ttf or *.ttc) must be lowercase, or they will not be detected during the search for available fonts. Oracle does not provide fonts with any Outside In product.

If preferOITRendering is set in a particular instance of tsagent, it cannot be changed in that agent until the agent is terminated.

Data Type

xsd:boolean

Data

One of the following values:

- true: Use the technology's internal graphics rendering code to produce bitmap output files whenever possible.
- false: Use the operating system's native graphics subsystem.

Default

false

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.4 Input Handling

This section discusses input handling options.

B.2.4.1 fallbackFormat

This option controls how files are handled when their specific application type cannot be determined. This normally affects all plain-text files, because plain-text files are generally identified by process of elimination, for example, when a file isn't identified as having been created by a known application, it is treated as a plain-text file.

It is recommended that noFallbackFormat be set to prevent Image Export from exporting unidentified binary files as though they were text, which could generate many pages of "garbage" output.

A number of values that were formerly allowed for this option have been deprecated. Specifically, the values that selected specific plain-text character sets are no longer to be used. Instead, applications should use the defaultInputCharset option for such functionality.

Data Type

FallbackFormatEnum

Data

One of the following values:

- fallbackToText: Unidentified file types will be treated as text files.

- noFallbackFormat: Outside In will not attempt to process files whose type cannot be identified. This will include text files. When this option is selected, an attempt to process a file of unidentified type will cause Outside In to return an error value of SCCERR_UNSUPPORTEDFORMAT.

Default

- ASCII-8

Links

- C Client Implementation: OIT_FallbackFormatEnum
- JAVA Client Implementation: FallbackFormatEnum

B.2.4.2 extendedTestForText

This option affects how an input file's internal format (application type) is identified when the file is first opened by the Outside In technology. When the extended test flag is in effect, and an input file is identified as being either 7-bit ASCII, EBCDIC, or Unicode, the file's contents will be interpreted as such by the export process.

The extended test is optional because it requires extra processing and cannot guarantee complete accuracy (which would require the inspection of every single byte in a file to eliminate false positives.)

Data Type

xsd:boolean

Data

One of the following values:

- false: This is the default value. When this is set, standard file identification behavior occurs.
- true: If set, the File Identification code will run an extended test on all files that are not identified.

Default

- true: The technology will attempt an extra test after the file is first opened to see if it is 7-bit text or EBCDIC.

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.4.3 ignorePassword

This option can disable the password verification of files where the contents can be processed without validation of the password. If this option is not set, the filter should prompt for a password if it handles password-protected files.

As of Release 8.3.5, only the PST Filter supports this option.

Data Type

xsd:boolean

Data

- true: Ignore validation of the password
- false: Prompt for the password

Default

false

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.4.4 reorderBIDI

This option controls whether or not the PDF filter will attempt to reorder bidirectional text runs so that the output is in standard logical order as used by the Unicode 2.0 and later specification. This additional processing will result in slower filter performance according to the amount of bidirectional data in the file.

Data Type

xsd:boolean

Data

- true: The PDF filter uses standard ordering.
- false: The PDF filter will attempt to reorder bidirectional text runs.

Default

false

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.4.5 timezone

This option allows the user to define an offset to GMT that will be applied during date formatting, allowing date values to be displayed in a selectable time zone. This option affects the formatting of numbers that have been defined as date values (e.g., most dates in spreadsheet cells). This option will not affect dates that are stored as text.

Data Type

xsd:int

Data

Integer parameter from -96 to 96, representing 15-minute offsets from GMT. To query the operating system for the time zone set on the machine, specify the numeric value of 61440 (0xF000 in hexadecimal).

Default

- 0: GMT time

Links

- C Client Implementation: XSD_int
- JAVA Client Implementation: Integer

B.2.5 Compression

This section discusses compression options.

B.2.5.1 allowJPEG

This option can disable access to any files using JPEG compression, such as JPG graphic files or TIFF files using JPEG compression, or files with embedded JPEG graphics. Attempts to read or write such files when this option is enabled will fail and return the error SCCERR_UNSUPPORTEDCOMPRESSION if the entire file is JPEG compressed, and grey boxes for embedded JPEG-compressed graphics.

The following is a list of file types affected when this option is disabled:

- JPG files
- Postscript files containing JPG images
- PDFs containing JPEG images

Note that the setting for this option overrides the requested output graphic format when there is a conflict.

Data Type

xsd:boolean

Data

- true: Allow access to files that use JPEG compression
- false: Do not allow access to files that use JPEG compression

Default

true

B.2.5.2 allowLZW

This option can disable access to any files using Lempel-Ziv-Welch (LZW) compression, such as .GIF files, .ZIP files or self-extracting archive (.EXE) files containing "shrunk" files. Attempts to read or write such files when this option is enabled will fail and return the error SCCERR_UNSUPPORTEDCOMPRESSION if the entire file is LZW compressed, and grey boxes for embedded LZW-compressed graphics.

The following is a list of file types affected when this option is disabled:

- GIF files
- TIF files using LZW compression: TIF files will still be created when LZW compression is used and this option is enabled, but the resulting images will be large, uncompressed TIF files)
- PDF files that use internal LZW compression
- ZIP and self-extracting archive (.EXE) files containing "shrunk" files
- Postscript files using LZW compression

Image Export will not be affected by this option when processing formats that compress subfile contents but not subfile names, such as TAR and ZIP.

Although this option can disable access to files in ZIP or EXE archives stored using LZW compression, any files in such archives that were stored using any other form of compression will still be accessible.

The setting for this option overrides the requested output graphic format when there is a conflict.

Data Type

xsd:boolean

Data

- true: LZW compressed files will be read and written normally.
- false: LZW compressed files will not be read or written.

Default

true

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.6 Graphics

This section discusses graphics options.

B.2.6.1 graphicGifInterlaced

This option allows the developer to specify interlaced or non-interlaced GIF output. Interlaced GIFs are useful when graphics are to be downloaded over slow Internet connections. They allow the browser to begin to render a low-resolution view of the graphic quickly and then increase the quality of the image as it is received. There is no real penalty for using interlaced graphics.

This option is only valid if the dwOutputID parameter of the EXOpenExport function is set to FI_GIF.

Data Type

xsd:boolean

Data

One of the following values:

- true: Produce interlaced GIFs.
- false: Produce non-interlaced GIFs.

Default

true

Links

- C Client Implementation: XSD_boolean

- JAVA Client Implementation: Boolean

B.2.6.2 graphicCropping

When set to cropToContent, this option forces Image Export to crop whitespace from the edge of each output image. This includes margins and any unused space at the end of a page. This results in smaller output files without any loss of original input document content.

If there is no content, then no cropping is performed.

Data Type

GraphicCroppingEnum

Data

- cropToContent: Files are cropped to smallest bounding rectangle.
- noCropping: Files are not cropped.

Default

noCropping

Links

- C Client Implementation: OIT_GraphicCroppingEnum
- JAVA Client Implementation: GraphicCroppingEnum

B.2.6.3 graphicHeight

This option defines the absolute height in pixels to which exported graphics will be resized. If this option is set and the graphicWidth option is not, the width of the image will be calculated based on the aspect ratio of the source image. The developer should be aware that very large values for this option or "graphicWidth" could produce images whose size exceeds available system memory, resulting in conversion failure.

If you are exporting a non-graphic file (word processing, spreadsheet or archive) and the settings for graphicHeight and graphicWidth do not match the aspect ratio of the original document, the exported image will have whitespace added so that the original file's aspect ratio is maintained.

The settings for the graphicHeightLimit and graphicWidthLimit options can override the setting for graphicHeight.

Handle Types

VTDWORD

Scope

Local

Data Type

xsd:unsignedInt

Data

The desired absolute height of the output image, in pixels.

Default

- 0: No absolute height specified.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.6.4 graphicHeightLimit

This option allows a hard limit to be set for how tall in pixels an exported graphic may be. Any images taller than this limit will be resized to match the limit. It should be noted that regardless of whether the graphicWidthLimit option is set or not, any resized images will preserve their original aspect ratio.

Note that this option differs from the behavior of setting the height of graphics by using in that it sets an upper limit on the image height. Images larger than this limit will be reduced to the limit value. However, images smaller than this height will not be enlarged when using this option. Setting the height using graphicHeight causes all output images to be reduced or enlarged to be of the specified height.

Data Type

xsd:unsignedInt

Data

The maximum height of the output graphic in pixels. A value of zero causes this option to be ignored.

Default

- 0: No absolute height limit specified.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.6.5 graphicOutputDPI

This option allows the user to specify the output graphics device's resolution in DPI and only applies to images whose size is specified in physical units (in/cm). For example, consider a 1" square, 100 DPI graphic that is to be rendered on a 50 DPI device (graphicOutputDPI is set to 50). In this case, the size of the resulting TIFF, BMP, JPEG, GIF, or PNG will be 50 x 50 pixels.

You may also specify the value 0 for the DPI, which will cause the output image to be created with identical pixel dimensions as the original input image, without consideration for physical measurements of image size.

Setting this option to 0 may result in the creation of extremely large images. Be aware that there may be limitations in the system running this technology that could result in undesirably large bandwidth consumption or an error message. Additionally, an out of memory error message will be generated if system memory is insufficient to handle a particularly large image.

Also note that the 0 setting will force the technology to use the DPI settings already present in raster images, but will use the current screen resolution as the DPI setting for any other type of input file.

For some output graphic types, there may be a discrepancy between the value set by this option and the DPI value reported by some graphics applications. The discrepancy occurs when the output format uses metric units (DPM, or dots per meter) instead of English units (DPI, or dots per inch). Depending on how the graphics application performs rounding on meters to inches conversions, the DPI value reported may be 1 unit more than expected. An example of a format which may exhibit this problem is PNG.

Data Type

xsd:unsignedInt

Data

The DPI to use when exporting graphic images. The maximum value allowed is 2400 DPI.

Default

- 96: 96 dots per inch.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.6.6 graphicSizeLimit

This option is used to set the maximum size of the exported graphic in pixels. It may be used to prevent inordinately large graphics from being converted to equally cumbersome output files, thus preventing bandwidth waste.

graphicSizeLimit takes precedence over all other options and settings that affect the size of a converted graphic.

When creating a multi-page TIFF file, this limit is applied on a per page basis. It is not a pixel limit on the entire output file.

Data Type

xsd:unsignedInt

Data

The total number of pixels in the output graphic. A value of zero ("0") causes this option to be ignored.

Default

- 0: Option is turned off.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.6.7 graphicSizeMethod

This option determines the method used to size graphics. The developer can choose among three methods, each of which involves some degree of trade off between the quality of the resulting image and speed of conversion.

Using the quick sizing option results in the fastest conversion of color graphics, though the quality of the converted graphic will be somewhat degraded. The smooth sizing option results in a more accurate representation of the original graphic, as it uses anti-aliasing. Antialiased images may appear smoother and can be easier to read, but rendering when this option is set will require additional processing time. The grayscale only option also uses antialiasing, but only for grayscale graphics, and the quick sizing option for any color graphics.

The smooth sizing option does not work on images which have a width or height of more than 4096 pixels.

Data Type

GraphicSizeMethodEnum

Data

One of the following values:

- quick: Resize without antialiasing
- smooth: Resize using antialiasing
- smoothGray: Resize using antialiasing for grayscale graphics only (no antialiasing for color graphics)

Default

smooth

Links

- C Client Implementation: OIT_GraphicSizeMethodEnum
- JAVA Client Implementation: GraphicSizeMethodEnum

B.2.6.8 graphicTransparencyColor

This option allows the user to set the color used as the "transparency color" in the output graphic file. Naturally, this option is only used when the selected output graphic file format supports transparency (GIF and PNG only). If the option is not set, the default behavior is to use the same color value that the input file used as the transparency color.

Use the SCCVWRGB(r, g, b) macro to create the color value to pass to this option. The red, green and blue values are percentages of the color from 0-255 (with 255 being 100%). Note that this macro should be used to set a variable of type xsd:unsignedInt and that variable should then be passed to the set option routine (instead of trying to use the macro as part of the set option call directly).

Since there is no way to "unset" an option once it has been set, the developer may set the option to -1 if they wish to revert to the default behavior.

Data Type

xsd:unsignedInt

Data

An RGB color value created with the SCCVWRGB(r, g, b) macro.

Default

- -1: Use the same transparency color as the source document.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.6.9 graphicWidth

This option defines the absolute width in pixels to which exported graphics will be resized. If this option is set and the graphicHeight option is not, the height of the image will be calculated based on the aspect ratio of the source image. The developer should be aware that very large values for this option or graphicHeight could produce images whose size exceeds available system memory, resulting in conversion failure.

If you are exporting a non-graphic file (word processing, spreadsheet or archive) and the settings for graphicHeight and graphicWidth do not match the aspect ratio of the original document, the exported image will have whitespace added so that the original file's aspect ratio is maintained.

The settings for the graphicHeightLimit and graphicWidthLimit options can override the setting for graphicWidth.

Handle Types

VTDWORD

Scope

Local

Data Type

xsd:unsignedInt

Data

The desired absolute width of the output image, in pixels.

Default

- 0: No absolute width specified.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.6.10 graphicWidthLimit

This option allows a hard limit to be set for how wide in pixels an exported graphic may be. Any images wider than this limit will be resized to match the limit. It should be noted that regardless of whether the graphicHeightLimit option is set or not, any resized images will preserve their original aspect ratio.

Note that this option differs from the behavior of setting the width of graphics by using graphicWidth in that it sets an upper limit on the image width. Images larger than this limit will be reduced to the limit value. However, images smaller than this width will not be enlarged when using this option. Setting the width using

graphicWidth causes all output images to be reduced or enlarged to be of the specified width.

Data Type

xsd:unsignedInt

Data

The maximum width of the output graphic in pixels. A value of zero causes this option to be ignored.

Default

- 0: No absolute width limit specified.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.6.11 tiffOptions

This option allows the developer to specify sub-options unique to the TIFF output file type, in order to control color depth, byte structure and rendering method.

This option is only required if the output type is set to tiff.

When any of the CCITT compression models are used, the color space must be black and white (Black and White).

Data Type

TiffOptions is a complexType data structure composed of four elements, corresponding to the color space, compression, byte-ordering and multi-page aspects of generated TIFF files. The elements of this data type are as follows:

Parameters

- colorSpace: This element has a data type of TiffColorSpaceEnum, which contains values that specify the TIFF color depth and color options. The following settings are valid:
  - Black and White: 1 bit black and white
  - 8 Bit Palette: 8 bit palette
  - 24 Bit RGB: 24 bit RGB (this is the default value for this parameter)
- compression: This element has a data type of TiffCompressionEnum, which contains values that specify the type of compression used in the TIFF file that is generated. The following settings are valid:
  - None: No compression
  - PackBits: Packbits compression (this is the default value for this parameter)
  - LZW Compression: LZW compression
  - CCITT - 1D: CCITT – 1D. Please note that when setting this type of compression, colorSpace must be set to Black and White.
  - CCITT - Group 3 Fax: CCITT – Group 3 Fax. Please note that when setting this type of compression, colorSpace must be set to Black and White.

  - CCITT - Group 4 Fax: CCITT – Group 4 Fax. Please note that when setting this type of compression, colorSpace must be set to Black and White.
- byteOrder: This element has a data type of TiffByteOrderEnum that determines the byte order used within the file:
  - tiff_big_endian: This will use "big-endian" (Motorola) byte ordering.
  - tiff_little_endian: This will use "little-endian" (Intel) byte ordering (this is the default value for this parameter).
- createOneFile: This element has an xsd:boolean data type that determines whether or not multi-page TIFFs will be created. These are additional flags for setting other options in a TIFF file:
  - false: A TIFF image will be created for each page of a multi-page input document. No flags are used (this is the default value for this parameter).
  - true: The output of multiple pages from one input document will generate a single file with a separate image for each page converted.
- fillOrder: This element has a data type of TiffFillOrderEnum that determines the fill order used within the file. The value of this element only affects TIFF output when the compression element is set to CCITT - Group 3 Fax and the colorSpace element is set to Black and White.
  - fillOrder-1: Selects TIFF fill order 1, which is the default for this parameter and is recommended for most TIFF files intended for file stores.
  - fillOrder-2: Selects TIFF fill order 2, which is the recommended fill order for TIFF files intended for electronic transmission (for example, fax).

Links

- C Client Implementation: OIT_TiffOptions
- JAVA Client Implementation: TiffOptions

B.2.6.12 graphicJpegQuality

This option allows the developer to specify the lossyness of JPEG compression. The option is only valid if the option is set to jpeg.

Data Type

xsd:unsignedInt

Data

A value from 1 to 100, with 100 being the highest quality but the least compression, and 1 being the lowest quality but the most compression.

Default

100

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.7 Spreadsheet and Database File Rendering

This section discusses spreadsheet and database options.

B.2.7.1 databaseFitToPage

This option scales a spreadsheet file to a certain percent or to a page width or height. However, in an effort to preserve readability after scaling, Image Export will not shrink a database document to under approximately one-third of its original size.

It should be noted that when this option is set to dbNoScaling, the pages of the database file are printed down first and then across.

Please note that any margins applied as a result of settings for the defaultMargins option will be included in any scaling that is applied to the output image as a result of settings for this option.

Data Type

DatabaseFitToPageEnum

Data

One of the following values:

- dbNoScaling: This will not do any scaling of the database image. It will render in its original size onto as many pages as are required to fit the data.
- dbFitToPages: This will fit the database to one page, scaling to the image width or height depending on the page size and database size.
- dbFitToWidth: This will scale the database on the rendered image so it is no larger than one page wide.
- dbFitToWidth: This will scale the database on the rendered image so it is no larger than one page high.

Default

dbFitToPages

Links

- C Client Implementation: OIT_DatabaseFitToPageEnum.
- JAVA Client Implementation: DatabaseFitToPageEnum

B.2.7.2 databaseShowGridLines

If this option is true, lines are generated between cells in the rendered images.

Data Type

xsd:boolean

Default

true

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.7.3 databaseShowHeadings

If this option is true, field headings will be generated along with the data.

Data Type

xsd:boolean

Default

true

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.7.4 maxSsDbPageHeight

Normally, the size of images generated from spreadsheet worksheets and database tables is limited to the size of the page defined by the input document's page size information and how the useDocumentPageSettings, graphicWidth and graphicHeight options are set. If, after scaling is factored in, the resulting image is too large to fit on a single page, it is split up into multiple pages.

The maxSsDbPageWidth and maxSsDbPageHeight options are used to change the size of a page to match the scaled size of the page being rendered - within limits. The key reason for those limits is that rendering very large pages can easily overwhelm the memory available on the system. When using this feature, a calculation should be made to be sure that the values passed in work within said memory limits. The values for these two options will override the current page dimensions if necessary.

The memory needed may be calculated based on the following:

```
memory = [max. worksheet/table height (in inches)]  x  [max. worksheet/table width
(in inches)]  x  [dpi setting]2  x  3 bytes/pixel  +  a bit extra for the needs of
the rest of the conversion
```

By default, these options are set to the current page dimensions. Users may choose to set only one of the two options if desired. If, for example, only the maxSsDbPageWidth is set, then the height of the page will be based on the normal page height.

When a worksheet or table is larger than the maximum values specified by these options, then the file is rendered on multiple pages, with the requested (larger) page dimensions.

These new options grow the page size (if needed) to match the size of the worksheet or table. This differs from the graphicWidth and graphicHeight options, which set an absolute page size without regard to the size of the worksheet or table.

For a diagram that clarifies the interactions of all of the options mentioned in this discussion, see Section B.1.6.4, "SCCOPT_MAXSSDBPAGEHEIGHT."

If text in cells ends up extending past the edge of the cell and beyond the edge of the page, Image Export writes one or more additional pages for the overflow text.

Data Type

xsd:unsignedInt

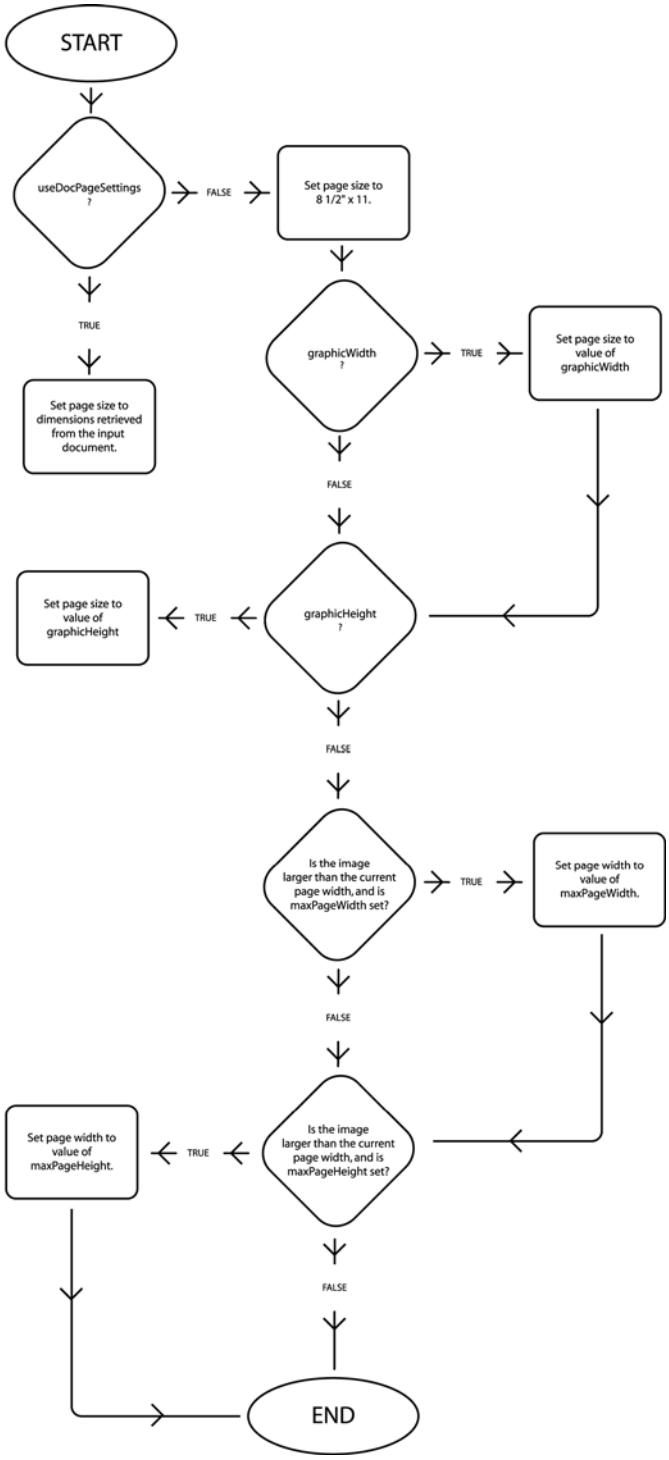
Data

The maximum page height (including margins) specified in twips (1440 twips are in 1 inch). If the value specified is smaller than the page height, then Image Export will return a SCCERR_INVALIDMAXSSDBPAGE error.

Default

- 0: Use the page height defined by the input document's page size information and by the useDocumentPageSettings, graphicHeightLimit and graphicHeight options.

Figure B–2 Logic Flow for Determining the Page Size of Spreadsheet and Database Pages



B.2.7.5 maxSsDbPageWidth

See the documentation for maxSsDbPageHeight for a full discussion of how this option works and interacts with other options affecting the page size of images generated from spreadsheet and database pages.

Data Size

xsd:unsignedInt

Data

The maximum page width (including margins) specified in twips (1440 twips are in 1 inch). If the value specified is smaller than the page width, then Image Export will return a SCCERR_INVALIDMAXSSDBPAGE error.

Default

- 0: Use the page width defined by the input document's page size information and by the useDocumentPageSettings, graphicWidthLimit and graphicWidth options.

B.2.7.6 showHiddenSpreadsheetCells

This option lets you determine whether or not to show hidden rows or columns when rendering spreadsheets. It is used to expand the widths of cells that are hidden by virtue of having their row height or column width reduced to 0. This is a BOOLEAN option that will leave the data hidden when it is false, and show all hidden rows and columns when it is true, displayed using the default row width or default column height.

Data Type

xsd:boolean

Data

- true: Displays hidden cells.
- false: Does not display hidden cells.

Default

false

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.7.7 spreadsheetPageDirection

This option controls the pattern in which the pages are rendered, either across first and then down, or down first and then across.

This option is overridden when the useDocumentPageSettings option is set to true and print direction is specified in the input document.

Data Type

SpreadSheetPageDirectionEnum

Data

One of the following values:

- acrossThenDown: Will specify that pages are printed across first and then down.
- downThenAcross: Will specify that pages are printed down first and then across.

Default

downThenAcross

Links

- C Client Implementation: OIT_SpreadsheetPageDirectionEnum
- JAVA Client Implementation: SpreadsheetPageDirectionEnum

B.2.7.8 spreadsheetFitToPage

This option requests that the spreadsheet file be fit to one page.

Please note that any margins applied as a result of settings for the defaultMargins option will be included in any scaling that is applied to the output image as a result of settings for this option.

This option is overridden when the useDocumentPageSettings option is set to true and fitting the page to the printer's image limits is specified in the input document.

Data Type

SpreadsheetFitToPageEnum

Data

One of the following values:

- ssNoScaling: No scaling is performed on the spreadsheet image. It will render in its original size onto as many pages as are required to fit the data.
- ssFitToPages: Will scale the spreadsheet in the rendered image to fit to the number of pages specified in the spreadsheetScaleXPagesHigh and spreadsheetScaleXPagesWide options. Since aspect ratio is maintained, the lesser of the two dimensions (width or height) will determine the scale factor. Note that if either spreadsheetScaleXPagesHigh or spreadsheetScaleXPagesWide is set to 0, the value in the other option will be nullified.
- ssFitToWidth: Will scale the spreadsheet in the rendered image so it is no larger than one page wide.
- ssFitToHeight: Will scale the spreadsheet in the rendered image so it is no larger than one page high.
- ssScaleByPercentage: Will scale the spreadsheet in the rendered image using the scale value stored in the spreadsheetScalePercentage option.

Default

- ssScaleByPercentage: Scales the rendered image of the spreadsheet using the scale value stored in the spreadsheetScalePercentage option (which is 100 by default).

Links

- C Client Implementation: OIT_SpreadsheetFitToPageEnum
- JAVA Client Implementation: SpreadsheetFitToPageEnum

B.2.7.9 spreadsheetShowGridLines

If this option is true, a line is generated between cells in the rendered image.

This option is overridden when the useDocumentPageSettings option is set to true and printing grid lines between cells is specified in the input document.

Data Type
xsd:boolean

Default
true

Links
- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.7.10 spreadsheetShowHeadings
If this option is true, row and column headings will be rendered along with the data.

This option is overridden when the useDocumentPageSettings option is set to true and printing column and row headers is specified in the input document.

Data Type
xsd:boolean

Default
false

Links
- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.7.11 spreadsheetScalePercentage
This option will scale spreadsheet pages by the percentage specified. The option has no effect unless the spreadsheetFitToPage option is set to ssScaleByPercentage.

This option must take a value between 1 and 100. If any value outside of this range is used, the option will be ignored.

Data Type
xsd:unsignedInt

Default
100

Links
- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.7.12 spreadsheetScaleXPagesHigh
This option will fit the spreadsheet image to the number of vertical pages specified. The setting for this option will have no effect unless the spreadsheetFitToPage option is set to ssFitToPages.

Data Type
xsd:unsignedInt

Default
1

Links
- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.7.13 spreadsheetScaleXPagesWide
This option will fit the spreadsheet image to the number of horizontal pages specified. The setting for this option will have no effect unless the spreadsheetFitToPage option is set to ssFitToPages.

Data Type
xsd:unsignedInt

Default
1

Links
- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.8 Page Rendering
This section discusses age rendering options.

B.2.8.1 defaultMargins
This option specifies the top, left, bottom and right margins in twips from the edges of the image. For instance, setting all the values to 1440 creates a 1-inch margin on all sides. Page margins will only be applied when formatting word processing, database and spreadsheet files.

Please note all margins are applied before scaling with the databaseFitToPage, spreadsheetFitToPage, graphicHeight, graphicWidth, or graphicSizeLimit options.

This option is overridden when the useDocumentPageSettings option is set to true and print margins are specified in the input document.

This option does not affect the output of bitmap, presentation, vector or archive files.

Data Type
DefaultMargins

Data
- top: Margin from the top edge of the image (in twips). Default is 1 inch.
- bottom: Margin from the bottom edge of the image (in twips). Default is 1 inch.
- left: Margin from the left edge of the image (in twips). Default is 1 inch.

- right: Margin from the right edge of the image (in twips). Default is 1 inch.

Links

- C Client Implementation: OIT_DefaultMargins
- JAVA Client Implementation: DefaultMargins

B.2.8.2 emailHeaderOutput

This option controls display of email headers in the output.

Data Type

EmailHeaderOutputEnum

Data

One of these values:

- emailHeaderStandard: Displays "To," "From," "Subject," "CC," "BCC," "Date Sent," and "Attachments" header fields only. The filter outputs any fields not listed above as hidden fields, so they will not display.
- emailHeaderAll: Displays all available email headers.

Default

emailHeaderStandard

Links

- C Client Implementation: OIT_EmailHeaderOutputEnum
- JAVA Client Implementation: EmailHeaderOutputEnum

B.2.8.3 endPage

This option indicates the page that rendering should end on. It is only valid if the option usePageRange has the value true.

Note that page range settings are one-based and inclusive. Therefore, specifying a range with endPage equal to 5 and startPage equal to 3 would export any of the three pages that follow, if they exist: 3, 4 and 5.

Data Type

xsd:unsignedInt

Default

- 0: The last page at the end of the document.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.8.4 startPage

This option indicates the page rendering should start on. It is only valid if the option usePageRange has the value true.

Note that page range settings are one-based and inclusive. Therefore, specifying a range with endPage equal to 5 and startPage equal to 3 would export any of the three pages that follow, if they exist: 3, 4 and 5.

Data Type

xsd:unsignedInt

Default

- 0: Printing will begin with the first page of the document.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.8.5 useDocumentPageSettings

This option is used to select the document's page layout information when rendering.

If true the document's native (or author selected) page margins, paper size, page scaling and page orientation are used when available from the filter.

The values of the defaultMargins, spreadsheetShowGridLines, spreadsheetShowHeadings, spreadsheetPageDirection, and spreadsheetFitToPage options are overridden if this option is set to true and the properties associated with those options are specified in the input document. Additionally, print area and page breaks in spreadsheet documents are ignored unless this option is set to true.

If false, the page margins, size, orientation and scaling are set to specific values rather than those in the native document. The page size is forced to 8 1/2" x 11" in portrait orientation, but this may be changed by setting the graphicHeight and/or graphicWidth options. The margins are forced 1" all around, but may be changed by setting the defaultMargins option. The scaling for the document will be set to 100%, although this may be changed by setting any of the various scaling options.

It should be noted that this option also affects page orientation for both input spreadsheets and word processing documents.

Data Type

xsd:boolean

Default

true

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.8.6 usePageRange

This option indicates whether the whole file or a selected range of pages should be rendered.

Data Type

xsd:boolean

Data

One of the following values:

- true: The pages in the one-based, inclusive range from startPage to endPage will be printed.
- false: The entire document will be printed.

Default

false

Links

- C Client Implementation: XSD_boolean
- JAVA Client Implementation: Boolean

B.2.9 Font Rendering

This section pertains to font rendering options.

B.2.9.1 defaultFont

This option sets the font to use when the chunker-specified font is not available on the system. It is also the font used when the font in a source file is not available on the system performing the conversion.

Data Type

The DefaultFont option is a complexType data structure composed of two elements. The elements are as follows:

Parameters

- fontName: An xsd:string value indicating the name of the font. For example, "Helvetica Compressed." The default is "Arial", however this default is constrained by the fonts available on the system.
- height: An xsd:unsignedShort value indicating the size of the font in half points. For example, a value of 24 will produce a 12-point font. This size is only applied when the font size is not known. The default is 10-point, however this default is constrained by the font sizes available on the system.

Links

- C Client Implementation: OIT_DefaultFont
- JAVA Client Implementation: DefaultFont

B.2.9.2 fontAlias

This option sets or gets printer font aliases. For example, Chicago=Arial forces Chicago to be rendered as Arial.

Data Type

xsd:string

Data

The xsd:string value takes the form of font=alias, as in this example:

```
Chicago=Arial
```

The technology assumes the following default mappings. The first value is the font name, the second is the alias name.

- Chicago = Arial
- Geneva = Arial
- New York = Times New Roman
- Helvetica = Arial
- Helv = Arial
- times = Times New Roman
- Times = Times New Roman
- Tms Roman = Times New Roman
- Symbol = Symbol
- itc zapfdingbats = Zapfdingbats
- itc zapf dingbats = Zapfdingbats

Links

- C Client Implementation: XSD_string
- JAVA Client Implementation:String

B.2.10 Watermarks

This section discusses watermark options.

By default, the watermark image is centered in the middle of the target image.

B.2.10.1 graphicWatermarkOpacity

This option must be set and defined to turn on watermarking support. A value of 0 is default and turns watermarking off. Values (1 to 255) specify a level of transparency. 255 is fully opaque. 1 is very transparent.

Data Type

xsd:unsignedInt

Data

A value between 1 and 255. The value of 0 turns watermarking off.

Default

0

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.10.2 graphicWatermarkPath

This option needs to be set to specify a watermark file and path.

Data Type

xsd:string

Data

A pointer to a buffer containing a null-terminated string. The buffer must contain a path to the file containing the watermark image. The buffer can be no larger than sizeof(IMGWATERMARKPATH) bytes.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.10.3 graphicWatermarkScaleType

Indicates whether to scale the watermark image or not. A value of scaleWatermarkOff means that we blend the watermark onto the original graphic with the original watermark height and width. This is the default value. A value of scaleWatermarkByPercent means that we will scale the watermark to be a certain percentage of the original watermark's height and width.

Data Type

GraphicWatermarkScaleTypeEnum

Data

- scaleWatermarkOff: When set means no scaling of the watermark image is to be done.
- scaleWatermarkByPercent: When set means that the watermark image is to be scaled to a percentage of its size. The percentage that is used is set by the graphicWatermarkScalePercent option.

Default

scaleWatermarkOff

Links

- C Client Implementation: OIT_GraphicWatermarkScaleTypeEnum
- JAVA Client Implementation: GraphicWatermarkScaleTypeEnum

B.2.10.4 graphicWatermarkScalePercent

Active when graphicWatermarkScaleType is set to scaleWatermarkByPercent. Values (1 to 100) scale the watermark to be a specified percent of its original size. A value of 100 (default) overlays the target image with the watermark image at its original size; e.g., if the original graphic watermark is 4x4 and the target image is 6x8, the graphic watermark will be scaled to 4x4 to overlay the target image.

Data Type

xsd:unsignedInt

Data
Values of 1 to 100 scale the watermark image to a percentage of the watermark image's size.

Default
100

Links
- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.10.5 graphicWatermarkHorizPos
Offset in pixels within target image to adjust watermark position. Default value is 0.

Data Type
xsd:int

Data
The number of pixels to offset the image in the horizontal direction. The watermark image is centered in the middle of target image, and then the watermark image is moved by this many pixels. A positive value moves the watermark towards the right, a negative value moves the watermark towards the left.

Default
0

Links
- C Client Implementation: XSD_int
- JAVA Client Implementation: Integer

B.2.10.6 graphicWatermarkVertPos
Offset in pixels to adjust the watermark position within the target image. Default value is 0.

Data Type
xsd:int

Data
The number of pixels to offset the image in the vertical direction. The watermark image is centered in the middle of the target image, and then the watermark image is moved by this many pixels. A positive value moves the watermark towards the bottom, and a negative value moves the watermark towards the top.

Default
0

Links
- C Client Implementation: XSD_int

- JAVA Client Implementation: Integer

B.2.11 File System

This section pertains to file system options.

B.2.11.1 fileAccess

This option supplies information to OIT when information is required to open an input file. This information may be the password of the file or a support file location.

Further information about how Transformation Server implements this option will be forthcoming.

B.2.11.2 readBufferSize

Used to define the number of bytes that that will read from disk into memory at any given time. Once the buffer has data, further file reads will proceed within the buffer until the end of the buffer is reached, at which point the buffer will again be filled from the disk. This can lead to performance improvements in many file formats, regardless of the size of the document.

Data Type

xsd:unsignedInt

Data

The size of the buffer in kilobytes.

Default

2

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.11.3 memoryMappedInputSize

Used to define a maximum size that a document can be and use a memory-mapped I/O model. In this situation, the entire file is read from disk into memory and all further I/O is performed on the data in memory. This can lead to significantly improved performance, but note that either the entire file can be read into memory, or it cannot. If both of these buffers are set, then if the file is smaller that the dwMMapBufferSize, the entire file will be read into memory, if not, it will be read in blocks defined by the dwReadBufferSize.

Data Type

xsd:unsignedInt

Data

The size of the buffer in kilobytes.

Default

8192

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.11.4 tempBufferSize

The maximum size that a temporary file can occupy in memory before being written to disk as a physical file. Storing temporary files in memory can boost performance on archives, files that have embedded objects or attachments. If set to 0, all temporary files will be written to disk.

Data Type

xsd:unsignedInt

Data

The size of the buffer in kilobytes.

Default

2048

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

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