

Oracle® Outside In PDF Export

Developer's Guide

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Preface

PDF Export is part of Oracle's family of Original Equipment Manufacturer (OEM) technologies known as Outside In Technology, a powerful document extraction, conversion and viewing 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.

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Convention	Meaning
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<i>italic</i>	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.

Introduction

PDF Export allows an OEM to convert almost any document, spreadsheet or presentation file into a PDF file.

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://download.oracle.com/docs/cd/E14154_01/index.htm.

1.1 What's New in Release 8.3.5

- The updated list of supported formats is posted at http://www.oracle.com/technology/products/content-management/oit/oit_all.html.
- Performance enhancements have been implemented that both increase speed of conversion and reduce output file size. Numerous enhancements were made to improve PDF Export's output fidelity.
- Outside In has added support for Lotus Notes mail, also known as NSF files. This support requires the presence of a Lotus Notes client or a Lotus Domino server and is only supported on Win32. Details can be found in the section [NSF Support](#). There is also a new option associated with this support: [SCCOPT_LOTUSNOTESDIRECTORY](#).
- A new option, [SCCOPT_IGNORE_PASSWORD](#) (SOAP equivalent: [ignorePassword](#)), has been added to disable the password verification of files where the contents can be processed without validation of the password.
- Access to password-protected files has been added to certain Microsoft Office documents, PDF, Zip, and NSF files. See [DASetFileAccessCallback](#).
- An improved rendering engine, DEVECT, has been added that supports vector drawings, presentations, and charts. It replaces the old engine DEMET.
- A new callback, [EX_CALLBACK_ID_PAGECOUNT](#), returns a count of all of the pages rendered during the export process.
- A new option, [SCCOPT_SSSHOWHIDDENCELLS](#) (SOAP equivalent: [showHiddenSpreadsheetCells](#)), toggles display of hidden spreadsheet cells.
- The option [SCCOPT_WPMIMEHEADEROUTPUT](#) has been deprecated, and replaced with [SCCOPT_WPEMAILHEADEROUTPUT](#) (SOAP equivalent: [emailHeaderOutput](#)).
- A new option, [SCCOPT_REORDERMETHOD](#), has been added to enable reordering of bidirectional text.

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 filter produces the page layout for PDF output.
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 PDF file being written.
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).
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, `px/sdk/px_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, `cmmmap000.bin`, and third-party libraries.
- **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, `px/sdk/px_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.

1.5 How to Use PDF Export

Here's a step-by-step overview of how to export a PDF 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. See "[DAThreadInit](#)" on page 4-1 for more information about `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_FALLBACKFORMAT`
 - `SCCOPT_FIFLAGS`
 - `SCCOPT_TEMPDIR`

It is also necessary to set the `SCCOPT_FONTDIRECTORY` option before exporting a document. Files will fail to export unless `SCCOPT_FONTDIRECTORY` is defined.

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. See "[DASetOption](#)" on page 4-6 for more information on options and how to set them.
6. Open a Handle to PDF 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 either `FI_PDF` (for generic PDF 1.4) or `FI_PDFA` (for PDF/A-1a compliance).
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 PDF 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 PDF Export. `DADeInit` is called to de-initialize the Data Access technology.

1.6 Copyright Information

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Outside In PDF Export © 1991, 2010 Oracle.

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):

The software is based in part on the work of the Independent JPEG Group.

Windows Implementation Details

The Windows implementation of this software is delivered as a set of DLLs. This product supports the following platforms:

Platform	Detail
Windows (x86 32-bit)	Windows 2000, Windows 2003, Windows XP, Windows Vista, Windows 2008, and Windows 7
Windows (x86 64-bit)	Windows Server 2003 x64 Standard, Enterprise, Datacenter Editions (64-bit Extended Systems), and Windows 7

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 is a version of this package for the x86 version of Windows. This can be downloaded from www.microsoft.com/downloads, by searching on the site for the following package:

- `vcredist_x86.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
<code>\docs</code>	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.
<code>\redist</code>	Contains a working copy of the Windows version of the technology.
<code>\sdk\common</code>	Contains the C include files needed to build or rebuild the technology.
<code>\sdk\demo</code>	Contains the compiled executables of the sample applications.
<code>\sdk\lib</code>	Contains the library (.lib) files needed for the products.
<code>\sdk\resource</code>	Contains localization resource files.

Directory	Description
\sdk\samplecode	Contains a subdirectory holding the source code for a sample application.
\sdk\samplefiles	Contains sample files designed to exercise the technology.

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 nor will it work when an NSF file is embedded in another file. Either Lotus Notes version 8 or Lotus Domino version 8 must be installed on the same machine as OIT. SCCOPT_LOTUSNOTESDIRECTORY should be set to the directory containing the nnotes.dll. NSF support is only available on the Win32 platform.

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				

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
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
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

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
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
eximg.dll	Extended image conversion module		X			
expagelayout.dll	Page layout module			X		
sccing.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
cmmmap000.bin	Tables for character mapping (all character sets)	X	X	X	X	X
cmmmap000.sbc	Tables for character mapping (single-byte character sets). This file is located in the /sdk/common directory.	X	X	X	X	X
cmmmap000.dbc	Identical to cmmmap000.bin , but renamed for clarity (.dbc = double-byte character). This file is located in the /sdk/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

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 cmmmap000.bin with the new bin file, cmmmap000.sbc. For clarity, a copy of the cmmmap000.bin file (cmmmap000.dbc) is also included. Both cmmmap000.sbc and cmmmap000.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 PDF 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 environment.

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.

UNIX Implementation Details

The UNIX implementation of the Export product set is delivered as a set of shared libraries.

These products are supported on the following platforms:

Platform and Version	HTML Export	Image Export	PDF Export	Search Export	XML Export
HP-UX (RISC 32), 11.0 and 11i (v1.5, v1.6)	X	X		X	X
HP-UX (PA - RISC 64), 11i v3 (11.31)	X			X	X
HP-UX (Itanium 64) 11i (v1.5, v1.6), 11i v2 (11.23), and 11i v3 (11.31)	X		X	X	X
HP-UX (Itanium 32), 11i (v1.5, v1.6)		X			
IBM AIX (32-bit pSeries), 5.1 - 5.3	X	X	X	X	X
IBM AIX PPC (64-bit), 5.3	X			X	
iSeries (OS/400 using PASE), V5R2	X	X		X	
Red Hat Linux (x86), Advanced Server 3, 4, 5	X	X	X	X	X
Red Hat Linux (Itanium 64), Advanced Server 3, 4, 5	X			X	
Red Hat Linux (x86 64-bit), Red Hat Enterprise Linux (RHEL) 4	X		X	X	X
Red Hat Linux (zSeries, 31-bit), Advanced Server 3 and 4	X			X	X
SUSE Linux (X86), 9, 10, and Enterprise Server 9.0	X	X	X	X	X
SUSE Linux (Itanium 64), Enterprise Server 8	X			X	
SUSE (X86 64-bit) SUSE Enterprise Server (SLES), 9, 10	X		X	X	X
SUSE Linux (zSeries, 31-bit), version 9	X			X	X
Sun Solaris (SPARC), 8.x to 10x	X	X	X	X	X
Sun Solaris (SPARC) 64, 10x	X			X	
Sun Solaris (X86), 8.x - 10x	X	X		X	X

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. See "Changing Resources" on page 3-10 for details.
/sdk/samplecode	Contains a subdirectory holding the source code for a sample application. See Chapter 9, "Sample Applications" for more details.
/sdk/samplefiles	Contains sample files designed to exercise the technology.

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. See [Section 3.6, "Environment Variables"](#) for more details.

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_pdf.*	PDF generation module			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

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
libde_ss.*	Spreadsheet/Database (Excel, Calc, Lotus 123...)		X	X		X
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
libsc_img.*	Image conversion module	X	X			X
libex_itext.*	Export filter for SearchText				X	
libex_html.*	Export filter for HTML files	X				
libex_pagelayout.*	Page layout module			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

Library	Description	HTML Export	Image Export	PDF Export	Search Export	XML Export
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
libfreetype.so.6	TrueType font rendering module for the GD output solution. 32-bit Linux and Solaris SPARC only.	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. See [Chapter 9, "Sample Applications"](#) for a complete description of the 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 filters and a list of available display engines are 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 a `.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:

- *.f: Filter lists
- *.d: Display engine list
- *.opt: Persistent options

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 Outside In Technology and/or other Outside In 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 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 cmmmap000.bin with the new bin file, cmmmap000.sbc. For clarity, a copy of the cmmmap000.bin file (cmmmap000.dbc) is also included. Both cmmmap000.sbc and cmmmap000.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 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.

3.5.2 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 `libsig`. Refer here for more information:

<http://java.sun.com/javase/6/webnotes/trouble/TSG-VM/html/signals.html>

3.5.3 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
<code>\$PATH</code>	Must be set to include the directory containing the <code>.flt</code> files. Only applicable to AIX.

Variable	Description
\$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.
\$HOME	Must be set to allow the system to write the option, filter and display engine lists. See "Information Storage" on page 3-5 for details.

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`).

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. 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 Itanium (64 bit)

```
cc -w -o ../exsimple/unix/exsimple ../exsimple/unix/exsimple.c +DD64
-I../common -L../demo -lsc_ex -lsc_da -DUNIX_64 -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.

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 *-Llibrary 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.

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.

3.10.1 IBM AIX (32-bit pSeries)

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

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 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)

3.11.1.2 Other Libraries

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

- `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.

3.11.1.2.1 Libraries on Linux Systems as Distributed (IA32)

Advanced Server 3.0

Included	To be added
<code>libc.so.6</code> version	<code>/lib/libc-2.3.2</code>

Included	To be added
libstdc++	/usr/lib/libstdc++.so.5.0.3
libgcc_s.so.1	/lib/libgcc_s.so-3.2.3-20030829.so.1
Required to Use Outside In	<ul style="list-style-type: none"> ■ Default system install has the proper libstdc++.so.5 ■ Default system install includes libgcc_s.so.1

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
Required to Use Outside In	<ul style="list-style-type: none"> ■ Install libstdc++.so.5 (included with gcc 3.2 - 3.3.6) ■ Default system install includes libgcc_s.so.1

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
Required to Use Outside In	<ul style="list-style-type: none"> ■ Default system install has proper libstdc++.so.5 ■ Default system install has libgcc_so.1

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
Required to Use Outside In	<ul style="list-style-type: none"> ■ 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

3.11.1.2.2 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

Included	To be added
libgcc_s.so.1	/lib/libgcc_s.so.1
Required to Use Outside In	<ul style="list-style-type: none"> ■ Default system install has proper libstdc++.so.5 ■ Default system install has libgcc_so.1

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
Required to Use Outside In	<ul style="list-style-type: none"> ■ 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
Required to Use Outside In	<ul style="list-style-type: none"> ■ Default system install has proper libstdc++.so.5. ■ Default system install has libgcc_so.1

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 **PDF 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 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.

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 Sun 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`).

The command line below is 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 `-xc` flag to allow C++ style comments.

3.12.1 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 8 or 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 8 - Patch 111721-04
- For Solaris 9 - Patch 111722-04

Data Access Common Functions

The Data Access module is common to all Outside In SDKs. 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 initialization 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 Solaris (Sun).

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 is returned if DATHreadInit is called more than once in an application.

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 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 (
    VTLPDOC    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. See [Chapter 6, "Redirected IO"](#) for more information.
 - **IOTYPE_ARCHIVEOBJECT**: All platforms. Opens an embedded archive object for data access. **pSpec** points to a structure **IOSPECARCHIVEOBJECT** (see "[IOSPECARCHIVEOBJECT Structure](#)" on page 4-4 for details) 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 "[IOSPECLINKEDOBJECT Structure](#)" on page 4-3) 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 **scda.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_LOCATOR_TYPE_*) */
    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 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 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,  
    VTLPDOC   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 `scda.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 `scda.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 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, 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` 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` 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
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

Input file type	ExtendedFI	FallbackID	DAGetFileId	DAGetFileIdEx
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 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.
- **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 for which information is being retrieved.
- **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_SEARCHHTML_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 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:** 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.
- **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 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 as a separate function.

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,
    VTLPOID 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 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);
```

Parameters

- pCallback: Pointer to the callback function.

Return Values

- DAERR_OK: If successful. Otherwise, one of the other DAERR_ values defined in sccda.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 Microsoft Office binary (97-2003) and Microsoft Office 2007, Lotus NSF, PDF (with RC4 encryption), and Zip (with AES 128 & 256 bit, ZipCrypto) are currently supported.

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 export 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,
    VTLPOID     pSpec,
    VTDWORD     dwFlags,
    VTSYSPARAM  dwReserved,
    VTLPOID     pCallbackFunc,
    VTSYSPARAM  dwCallbackData,
    VTLPEXPORT  phExport);
```

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 either FI_PDF (for generic PDF 1.4) or FI_PDFA (for PDF/A-1a compliance).

- **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.
 - **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. See [Chapter 6, "Redirected IO"](#) for more information.
- **pSpec**: Initial output file location specification. This is either a pointer to a buffer or NULL.

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. See the definition for EXCALLBACKPROC in ["EXCALLBACKPROC"](#) on page 5-2 for more details. This parameter may be set to NULL if the developer does not wish to handle callbacks.
- **dwCallbackData**: This parameter is passed 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. phExport is *not* a file handle.

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. See [Chapter 7, "Callbacks"](#) for information about supported callbacks.
- **pCommandOrInfoData**: Data associated with dwCommandOrInfoId. See [Chapter 7, "Callbacks"](#) for information about supported 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 PDF Export. Contact your Outside In sales representative for more information.

The following notes should be considered when using annotations:

- Processing annotations slows 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.

`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(
  VTEXPORT          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 in **PDF 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`
 - * `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 `scdda.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 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 currently supported in PDF 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 `scda.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 `scex.h` as follows:

```
typedef struct EXANNOHIDETEXTtag
{
    VTDWORD    dwSize;
    VTDWORD    dwStartACC;
    VTDWORD    dwEndACC;    /* Last char to hide +1 */
    VTLPCHAR   pBookmark;   /* HTML Export Only */
} 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 `scerr.h` is returned.

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.

When using **PDF Export**, redirected IO can also be used in conjunction with callbacks (discussed in [Chapter 7, "Callbacks"](#)).

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. */
#ifdef 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 DOpenDocument 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. See ["IOGENSECONDARY and IOGENSECONDARYW Structures"](#) on page 6-6.
 - `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 ["EXOpenExport"](#) on page 5-1.
 - `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.

See ["File Types That Cause IOGETINFO_GENSECONDARY"](#) on page 6-8 for a list of these file types.

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 ["IOGENSECONDARY and IOGENSECONDARYW Structures"](#) on page 6-6.

- 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. pInfoName points to a Unicode string terminated with a NULL WORD. For all other SpecTypes, IOGENSECONDARY is used and pInfoName 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
{
    VTDDWORD    dwSize;
    VTLPBYTE    pFileName;
    VTDDWORD    dwSpecType;
    VTLPVOID    pSpec;
    VTDDWORD    dwOpenFlags
} IOGENSECONDARY, * PIOGENSECONDARY;

typedef struct
{
    VTDDWORD    dwSize;
    VTLPWORD    pFileName;
    VTDDWORD    dwSpecType;
    VTLPVOID    pSpec;
    VTDDWORD    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 "[Using Redirected IO](#)" on page 6-1).

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 ????.rbf but the data is useless without the schema file named ????.rbf. There is also a ????.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.

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 ["EXOpenExport"](#) on page 5-1. 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. See [Chapter 4, "Data Access Common Functions"](#) for more details.

7.1 Callbacks Used In PDF Export

The following information applies to PDF 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. It does not include the already open initial file passed to EXOpen Export, unless of course redirected IO is in use with a pSpec of NULL.

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 either `FI_PDF` (for generic PDF 1.4) or `FI_PDFA` (for PDF/A-1a compliance).
- **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 is either `FI_PDF` (for generic PDF 1.4) or `FI_PDFA` (for PDF/A-1a compliance).
- **dwFlags:** Reserved
- **dwSpecType:** IO specification type. See "[DAOpenDocument](#)" on page 4-2 for details about IO specifications.

This member in conjunction with `pSpec` allows the developer to choose any location for the new file or even redirect its IO calls entirely. See [Chapter 6, "Redirected IO"](#) for more details. 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_UNICODE`, 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 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.

- **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.

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

PDF 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.

This callback occurs during the execution of EXRunExport.

Data Type

VTDWORD

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 PDF Export Issues

Two issues have been identified when using PDF Export:

- 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 (`FL_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` (FallbackFormat on the server version) prevents the software from exporting unidentified binary files as though they were text.
- The `SCCOPT_FONTDIRECTORY` option must be set.
- Only TrueType fonts are supported in PDF Export at this time.

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.

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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.

See [Chapter 3, "UNIX Implementation Details"](#) for specific information about building the sample applications on your UNIX OS.

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 pxsample

The following is a basic implementation that uses the default settings for every option. This sample is provided for instructional value rather than functionality. The fonts for the export are assumed to be in \$HOME/fonts for UNIX platforms, and

C:\WINDOWS\FONTS for Windows platforms; if the directory does not exist, the export will fail.

`pxsample Inputfile Outputfile`

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.

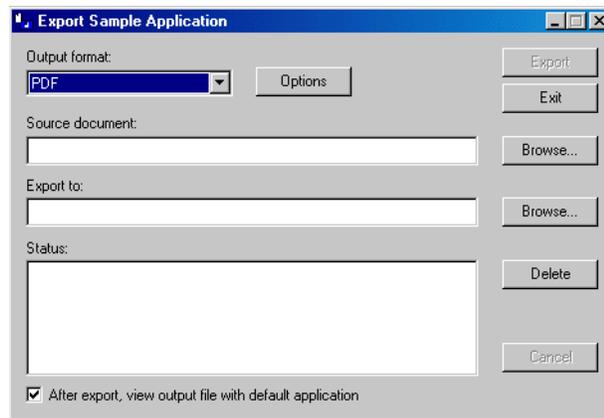
Important: No default options are set at initial runtime. The time the software is used, click the **Options** button and set the options. Failure to do this generates export errors.

The application allows the user to run a single source file. The user can choose 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 PDF 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 drop-down 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. Use 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 choose 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. Pressing **Delete** before each export solves this problem.

- 'After Export, view output file with default application' Check Box: 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: 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 choose the source file, an 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 to either FI_PDF (for generic PDF 1.4) or FI_PDFA (for PDF/A-1a compliance) before running the software.
- 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.
- It is required that the "fontdirectory" section of the configuration file be set to point to a valid font directory.

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. See "[exsimple](#)" on page 9-3 for details.

9.2.5 pxanno

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 PDF 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
- Font Directory (PDF Export only): the location of system fonts.

The following sample command lines demonstrate this command:

```
pxanno InputFile OutputFile HiliteString FontDirectory
```

A license for Content Access or Search Export is required to enable use of any of the annotation features supported by PDF 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 `samples/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. `hx.cfg` (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 if you so choose not to.

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. If you are using a UNIX system, see [Chapter 3, "UNIX Implementation Details"](#) for information about properly setting up your environment to use the Outside In SDK:

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 HTML as the export type. Change this type accordingly:

```
ExportTest.bat myworddoc.doc output.html hx.cfg
```

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

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PDF Export Options

Options are parameters affecting the behavior of an export or transformation. This chapter presents both the C/C++ and SOAP options relevant to the PDF Export product.

B.1 PDF 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`.

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.

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 "`SCCOPT_FIFLAGS`" on page B-3), 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.

Handle Types

VTHDOC

Scope

Local

Data Type

VTWORD

Data

The Unicode value for the character to use.

Default

- 0x002a = "*"

B.1.2 Input Handling

This section discusses input handling options.

B.1.2.1 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 PDF 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.1.2.2 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.1.2.3 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.

Default

0: All flags turned off

B.1.2.4 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.1.2.5 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: The NSF filter is currently only supported on Win32.

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.1.2.6 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.1.2.7 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.

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 Compression

This section discusses compression options.

B.1.3.1 SCCOPT_APPLYFILTER

This option determines if ZLIB compression will be applied to all object streams when generating the PDF output file.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTBOOL

Data

- TRUE: ZLIB compression is applied to all output streams.
- FALSE: ZLIB compression is not applied to any output stream.

Default

TRUE

B.1.3.2 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

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.1.3.3 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`.

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

- GIF files
- TIF files using LZW compression
- PDF files that use internal LZW compression
- ZIP and self-extracting archive (.EXE) files containing "shrunk" files
- Postscript files using LZW compression

PDF 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.

Handle Types

HDOC, HEXPORT

Scope

Local

Data Type

VTDWORD

Data

- `SCCVW_FILTER_LZW_ENABLED`: LZW compressed files will be read normally.

- `SCCVW_FILTER_LZW_DISABLED`: LZW compressed files will not be read.

Default`SCCVW_FILTER_LZW_ENABLED`

B.1.4 Graphics

This section discusses graphics options.

B.1.4.1 `SCCOPT_GRAPHIC_OUTPUTDPI`

This option allows the user to specify the output graphics device's resolution in DPI and only applies to images embedded in a PDF 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 PDF 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 for all other content the resolution used internally by PDF Export will be in effect.

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.

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 72 dots per inch.

B.1.4.2 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 Spreadsheet and Database File Rendering

This section discusses spreadsheet and database options.

B.1.5.1 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, PDF 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.1.5.2 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.1.5.3 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.1.5.4 SCCOPT_MAXSSDBPAGEHEIGHT

Normally, the size of pages 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](#) option is 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:

$$\text{memory} = [\text{max. worksheet/table height (in inches)}] \times [\text{max. worksheet/table width (in inches)}] \times [\text{dpi setting}]^2 \times 3 \text{ bytes/pixel} + \text{a bit extra for the needs of the rest of the conversion}$$

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.

Please see [Figure B-1, "Logic Flow for Determining the Page Size of Spreadsheet and Database Pages"](#) for a diagram which clarifies the interactions of all of the options mentioned in this discussion.

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

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTDWORD

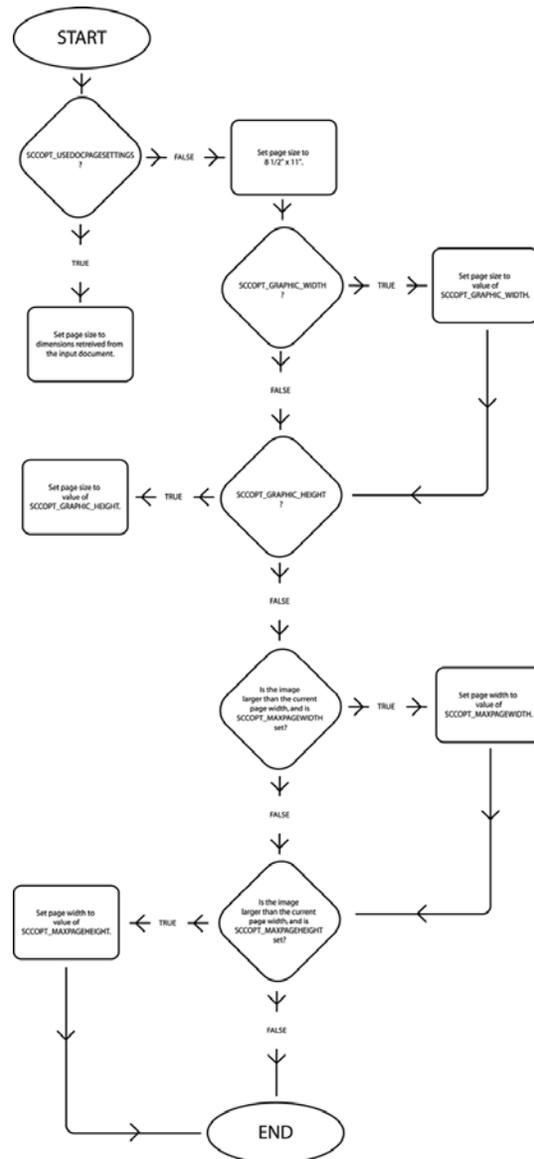
Data

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 this option will be ignored.

Default

- 0: Use the page height defined by the input document's page size information and by the [SCCOPT_USEDOCPAGESETTINGS](#).

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



B.1.5.5 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 this option will be ignored.

Default

- 0: Use the page width defined by the input document's page size information and by the `SCCOPT_USEDOCPAGESETTINGS` option.

B.1.5.6 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.1.5.7 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.1.5.8 SCCOPT_SSPRINTGRIDLINES

If this option is TRUE, a line is generated between cells in the rendered images.

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.1.5.9 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.1.5.10 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.1.5.11 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.1.5.12 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.1.5.13 SCCOPT_SSSHOWHIDDCELLS

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.1.5.14 SCCOPT_EX_SHOWHIDDCSSDATA

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.1.6 Page Rendering

This section discusses page rendering options.

B.1.6.1 SCCOPT_DEFAULTPAGESIZE

This option allows the developer to specify the size of each page in the generated PDF output file. The size may be specified in inches, points, centimeters or picas. This option is only valid when [SCCOPT_USEDOCPAGESETTINGS](#) is set to FALSE.

1 inch = 6 picas = 72 points = ~ 2.54 cm

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

DEFAULTPAGESIZE Structure

Data

Structure containing the height and width of the page, and a field indicating the units used.

Default

8.5 inches by 11 inches

B.1.6.1.1 DEFAULTPAGESIZE Structure

```
typedef struct DEFAULTPAGESIZEtag
{
    VTFLOAT dwHeight;
    VTFLOAT dwWidth;
    VTDWORD wUnits;
}DEFAULTPAGESIZE, *LPDEFAULTPAGESIZE;
```

Parameters

Note: You must define a value for both `dwHeight` and `dwWidth` in `wUnits`. If you define only height or only width, the image is not scaled.

- `dwHeight`: Height of the page. Default is 11 inches.
- `dwWidth`: Width of the page. Default is 8.5 inches.
- `wUnits`: One of the following (`SCCGRAPHIC_INCHES` is the default):
 - `SCCGRAPHIC_INCHES`
 - `SCCGRAPHIC_POINTS`
 - `SCCGRAPHIC_CENTIMETERS`
 - `SCCGRAPHIC_PICAS`

B.1.6.2 SCCOPT_DEFAULTPRINTMARGINS

This option specifies the top, left, bottom and right margins in twips from the edges of the page. 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](#) or [SCCOPT_SSPRINTFITTOPAGE](#) options.

This option is overridden when the `SCCOPT_USEDOPAGESETTINGS` 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.1.6.2.1 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 page (in twips). Default is 1 inch.
- `dwBottom`: Margin from the bottom edge of the page (in twips). Default is 1 inch.
- `dwLeft`: Margin from the left edge of the page (in twips). Default is 1 inch.

- `dwRight`: Margin from the right edge of the page (in twips). Default is 1 inch.

B.1.6.3 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.1.6.4 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.1.6.5 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_DEFAULTPAGESIZE](#), [SCCOPT_DEFAULTPRINTMARGINS](#), [SCCOPT_SSPRINTGRIDLINES](#), [SCCOPT_SSPRINTHEADINGS](#), [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_DEFAULTPAGESIZE](#) option. The margins are forced 1" all around, but may be changed by setting the [SCCOPT_DEFAULTPRINTMARGINS](#) 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.1.6.6 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.1.6.7 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.1.6.7.1 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.1.6.8 SCCOPT_DOLINEARIZATION

Linearization is a method by which PDF renderers are able to render pages of the PDF file before the entire document is loaded. Linearized output is both larger and takes longer to produce; this option allows you to produce non-linearized PDF so that the export process will be quicker and result in a smaller output file.

Type

VTBOOL

Default

False

B.1.6.9 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.1.7 Font Rendering

This section discusses font rendering options.

B.1.7.1 SCCOPT_DEFAULTPRINTFONT

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

This option sets the font to use when the chunker-specified font is either excluded by [SCCOPT_FONTFILTER](#) or is not available on the system. It is also the font used when the font in the source file is not available on the system performing the conversion.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

SCCVWFONTSPECstructure

B.1.7.1.1 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 PDF Export.
- **wType:** Should be set to 0.

B.1.7.2 SCCOPT_EMBEDFONTS

This option allows the developer to specify whether or not fonts should be embedded in the file. In order to comply with the PDF/A-1a spec, this option is forced to a value of TRUE when FI_PDFA is selected for the output type.

Handle Type

VTHDOC, VTHEXPORT

Scope

local

Data Type

VTBOOL

Data

A Boolean value indicating if fonts should be embedded.

Default Value

FALSE

B.1.7.3 SCCOPT_FONTDIRECTORY

This option allows the developer to specify a directory where fonts are located that are valid for use by PDF Export.

This option must be set prior to performing any exports. Please note that PDF Export only supports single TrueType fonts (*.ttf, *.TTF), not TrueType collections (*.ttc, *.TTC), Windows bitmap fonts (*.fon, *.FON), or any other type of font. Also, PDF Export does not require case-sensitive font filenames on UNIX systems.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTLPBYTE

Data

A path to the fonts.

Default

The fonts subdirectory of the current working directory.

B.1.7.4 SCCOPT_FONTFILTER

This option allows the developer to specify a list of fonts to be included or excluded during the export process.

Handle Types

VTHDOC, VTHEXPORT

Scope

Local

Data Type

FONTFILTERLIST Structure

Data

A structure containing the list of fonts and an attribute indicating whether the list is an inclusion list or exclusion list.

Default

All fonts included during the export process.

B.1.7.4.1 FONTFILTERLIST Structure

```
typedef struct FONTFILTERLISTtag
{
    BOOL            bExclude;
    PFONTNAMELIST  pFontList;
}FONTFILTERLIST;
```

Parameters

- **bExclude:** If true, then the accompanying font list is an exclusion list. If false, the list is an inclusion list.

- `pFontList`: Pointer to a `FONTNAMELIST` structure (see [FONTNAMELIST Structure](#) later in this section) that contains the names of the fonts to include or exclude.

B.1.7.4.2 FONTNAMELIST Structure

```
typedef struct FONTNAMELISTtag *PFONTNAMELIST;
typedef struct FONTNAMELISTtag
{
    BYTE          szFontName[SCCUT_FILENEMEMAX];
    FONTNAMELIST pNextFont;
}FONTNAMELIST;
```

Parameters

- `szFontName`: Name of font to include or exclude.
- `pNextFont`: Pointer to a `FONTNAMELIST` structure that contains the name of the next font to include or exclude. The pointer in the final structure in this linked list should point to `NULL`.

B.1.7.5 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.1.7.5.1 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_FONTNEMEMAX];
    VTWORD   szwAlias[SCCVW_FONTNEMEMAX];
} SCCVWFONTALIAS;
```

Parameters

- `dwSize`: Must be set by the developer to `sizeof(SCCVWFONTALIAS)`.
- `dwAliasID`: ID of the aliasing in the current list of aliases. In PDF 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_ALIASKNAME (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_ALIASKNAME (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 0xFFFFFFFF.
 - 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 zapf dingbats = Zapf dingbats
- itc zapf dingbats = Zapf dingbats

B.1.8 Watermarks

This section discusses watermark options.

You can use any raster formats supported by OIT as watermarks. By default, the watermark image is centered in the middle of the target image.

B.1.8.1 SCCOPT_ENABLEWATERMARK

This option allows the developer to specify if a watermark should be included on each of the rendered PDF pages.

Handle Type

VTHDOC, VTHEXPORT

Scope

Local

Data Type

VTBOOL

Data

Boolean indicating if a watermark is to be included in the rendering.

Default Value

FALSE

B.1.8.2 SCCOPT_WATERMARKIO

This option allows the developer to specify the location of the file to be used as a watermark. It also provides scaling options for the watermark.

If no scaling is specified for the watermark, the technology will default to using the actual size of the image as given.

Handle Type

VTHDOC, VTHEXPORT

Scope

Local

Data Type

WATERMARKIO Structure

Data

Structure containing information on the location of the watermark, the scaling value of the watermark as a percentage of the size of the original image, and the type of IO to use (IOTYPE_ANSIPATH, IOTYPE_REDIRECT, or IOTYPE_UNIXPATH).

Default Value

Each element of the [WATERMARKIO Structure](#) has its own default value. See the following section for more information.

B.1.8.2.1 WATERMARKIO Structure

```
typedef struct WATERMARKIOtag
{
    VTVOID*          phDoc;
    VTDWORD          dwType;
    WATERMARKPATH   Path;
    VTDWORD          dwScalingMethod;
    VTDWORD          dwScalePercent;
}WATERMARKIO, * LPWATERMARKIO;
```

Parameters

- **phDoc:** Should only be filled in if the dwType is equal to IOTYPE_REDIRECT.
- **dwType:** Valid values are IOTYPE_ANSIPATH, IOTYPE_REDIRECT or IOTYPE_UNIXPATH. No default -- this element MUST be set.
- **Path:** This is a WATERMARKPATH structure. See "[WATERMARKPATH Structure](#)" after this table.
- **dwScalingMethod:** Contains the type of scaling, if any, the user would like applied to the watermark. Valid values are SCCGRAPHIC_NOSCALING (the default), SCCGRAPHIC_NOMAP, SCCGRAPHIC_FITTOPAGE or SCCGRAPHIC_SCALE.
- **dwScalePercent:** If dwScalingMethod is set to SCCGRAPHIC_SCALE, then dwScalePercent contains the amount to scale the watermark. Default value is 100, which means the watermark will be scaled at 100% of its original size.

B.1.8.2.2 WATERMARKPATH Structure

```
typedef struct WATERMARKPATHtag {
    VTCHAR          szWaterMarkPath[SCCUT_FILENAMESIZE];
    VTDWORD          dwMaxSize;
}WATERMARKPATH, * LPWATERMARKPATH;
```

Parameters

- **szWaterMarkPath:** A character array of size SCCUT_FILENAMESIZE.
- **dwMaxSize:** Should be set to SCCUT_FILENAMESIZE.

B.1.8.3 SCCOPT_WATERMARKPOSITION

This option allows the developer to specify where on the page the watermark should be placed.

No scaling of watermark graphics is performed, so a graphic larger than the page or located such that the entire image cannot fit on the page will be cropped to fit the page.

Handle Type

VTHDOC, VTHEXPORT

Scope

Local

Data Type

WATERMARKPOS Structure

Data

Structure containing a positional indicator for the watermark, as well as vertical and horizontal offset values that are used.

Default Value

Determined by the value of `dwWatermarkPos` in the [WATERMARKPOS Structure](#).

B.1.8.3.1 WATERMARKPOS Structure

```
typedef struct WATERMARKPOSTag
{
    VTDWORD    dwWatermarkPos;
    VTLONG     lVerticalPos;
    VTLONG     lHorizontalPos;
}WATERMARKPOS, * LPWATERMARKPOS;
```

Parameters

- `dwWatermarkPos`: Defines where the user wants the watermark to be placed. Currently the only valid value for this option is `SCCGRAPHIC_OFFSETFROMCENTER`.
- `lVerticalPos`: `lVerticalPos` specifies the distance, in twips, to move the watermark from the center. Negative values correspond to below center, and positive values correspond to above center. The default is zero (center).
- `lHorizontalPos`: `lHorizontalPos` specifies the distance, in twips, to move the watermark from the center. Negative values correspond to left of center, and positive values correspond to right of center. The default is zero (center).

B.1.9 Callbacks

This section discusses callback options.

B.1.9.1 SCCOPT_EX_CALLBACKS

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

This option is used to disable callbacks being made from PDF 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:

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_CALLBACKFLAG_ALTLINK &`

~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.1.9.2 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.1.10 File System

This section discusses file system options.

B.1.10.1 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 PDF Export may ignore.

Handle Type

NULL, VTHDOC

Scope

Global

Data Type

SCCBUFFEROPTIONS Structure

Data

A buffer options structure

B.1.10.1.1 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.1.10.2 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.1.10.2.1 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_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 are IOTYPE_UNICODEPATH and 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_UNICODE 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.1.10.3 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.1.10.4 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 PDF Export SOAP Options

This chapter details the Web Services implementation of options in Transformation Server. However, there are references 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 discusses 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 [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.

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 Input Handling

This section discusses input handling options.

B.2.3.1 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 PDF 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.2.3.2 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.2.3.3 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.2.3.4 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.2.4 Compression

This section discusses compression options.

B.2.4.1 applyZLIB

This option determines if ZLIB compression will be applied to fonts and raster graphics while generating the PDF output file.

Data Type

xsd:boolean

Data

- true: ZLIB compression is applied to fonts and embedded graphics.
- false: ZLIB compression is not applied to fonts and embedded graphics.

Default

false

Links

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

B.2.4.2 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

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.2.4.3 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 such files when this option is enabled will fail and return the error SCCERR_UNSUPPORTEDCOMPRESSION.

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

- GIF files
- TIF files using LZW compression
- PDF files that use internal LZW compression
- ZIP and self-extracting archive (.EXE) files containing "shrunk" files
- Postscript files using LZW compression

PDF 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.

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.2.5 Graphics

This section discusses graphics options.

B.2.5.1 graphicOutputDPI

This option allows the user to specify the output graphics device's resolution in DPI and only applies to images embedded in a PDF 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 PDF 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.

Data Type

xsd:unsignedInt

Data

The DPI to use when exporting graphic images. The maximum value allowed is 2400 DPI.

Default

- 72: 72 dots per inch.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.5.2 graphicSizeMode

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

GraphicSizeModeEnum

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 Spreadsheet and Database File Rendering

This section discusses spreadsheets and database options.

B.2.6.1 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, PDF 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.
- dbFitToHeight: 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.2.6.2 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.2.6.3 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.2.6.4 maxSsDbPageHeight

Normally, the size of pages 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](#) option is 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.

Please see [Figure B-2, "Logic Flow for Determining the Page Size of Spreadsheet and Database Pages"](#) for a diagram which clarifies the interactions of all of the options mentioned in this discussion.

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

Data Type

xsd:unsignedInt

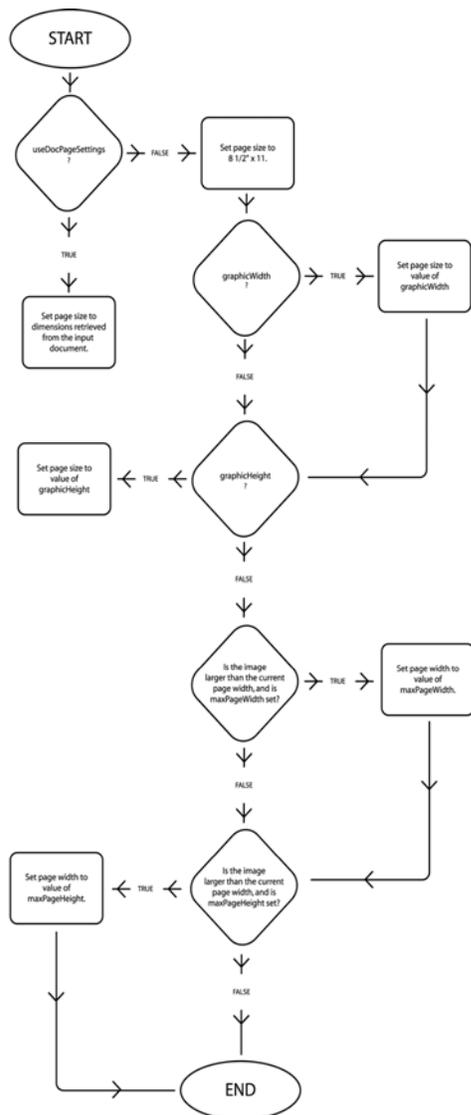
Data

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 this option will be ignored.

Default

- 0: Use the page height defined by the input document's page size information and by the [useDocumentPageSettings](#) option.

Figure B–2 Logic Flow for Determining the Page Size of Spreadsheet and Database Pages



B.2.6.5 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 this option will be ignored.

Default

- 0: Use the page width defined by the input document's page size information and by the [useDocumentPageSettings](#) option.

B.2.6.6 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.2.6.7 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.2.6.8 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.2.6.9 spreadsheetShowGridLines

If this option is true, a line is generated between cells in the rendered images.

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.2.6.10 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.2.6.11 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.2.6.12 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.2.6.13 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.2.7 Page Rendering

This section discusses page rendering options.

B.2.7.1 defaultMargins

This option specifies the top, left, bottom and right margins in twips from the edges of the page. 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](#) or [spreadsheetFitToPage](#) 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.2.7.2 defaultPageHeight

This option sets the default page height of the output. The units for this value is determined by the defaultPageUnits option.

This is a floating point value.

Data Type

xsd:float

Default

11 inches

Links

- C Client Implementation: XSD_float
- JAVA Client Implementation: Float

B.2.7.3 defaultPageWidth

This option sets the default page width of the output. The units for this value is determined by the defaultPageUnits option.

This is a floating point value.

Data Type

xsd:float

Default

8.5 inches

Links

- C Client Implementation: XSD_float
- JAVA Client Implementation: Float

B.2.7.4 defaultPageUnits

This option allows the OEM to specify the units of measures for the [defaultPageHeight](#) and [defaultPageWidth](#) options.

If the developer changes the unit of measure, after having earlier set the units, then no attempt will be made to convert the height and width from the previous unit of measure to the current unit of measure.

One of the following:

- inches
- points
- centimeters
- picas

Data Type

DefaultPageUnitsEnum

Default

inches

Links

- C Client Implementation: OIT_DefaultPageUnitsEnum
- JAVA Client Implementation: DefaultPageUnitsEnum

B.2.7.5 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.2.7.6 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.2.7.7 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.2.7.8 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 [defaultPageHeight](#), [defaultPageWidth](#), [defaultMargins](#), [spreadsheetShowGridLines](#), [spreadsheetPageDirection](#), [spreadsheetShowHeadings](#), 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 [defaultPageHeight](#), [defaultPageWidth](#), and [defaultPageUnits](#) 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.2.7.9 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.2.8 Font Rendering

This section discusses font rendering options.

B.2.8.1 defaultFont

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

This option sets the font to use when the chunker-specified font is either excluded by [excludeFont](#) or 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.2.8.2 embedFonts

This option allows the developer to specify whether or not fonts should be embedded in the file. Note that for PDF/A compliance, this option must be set to true.

Data Type

xsd:boolean

Data

A Boolean value indicating if fonts should be embedded.

Default Value

false

Links

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

B.2.8.3 excludeFont

This option allows the developer to specify a list of fonts that should be the only fonts excluded from the export process. To build a list of excluded fonts, the developer must issue an excludeFont option per font to be excluded.

Setting excludeFont followed by an includeFont will cause all the excludeFont to be ignored.

Data Type

xsd:string

Data

The font to exclude.

Default

None.

Links

- C Client Implementation: XSD_string
- JAVA Client Implementation: String

B.2.8.4 includeFont

This option allows the developer to specify a list of fonts that should be the only fonts included in the export process. To build a list of included fonts, the developer must issue an includeFont option per font to be included.

Setting includeFont followed by an excludeFont will cause all the includeFont to be ignored.

Data Type

xsd:string

Data

The font to include.

Default

None.

Links

- C Client Implementation: XSD_string
- JAVA Client Implementation: String

B.2.8.5 fontDirectory

This option allows the developer to specify a directory where fonts are located that are valid for use by PDF Export.

This option must be set prior to performing any exports. Please note that PDF Export only supports *.ttf and *.ttc (TrueType) fonts, not *.fon (non-TrueType) fonts. Also, PDF Export does not require case-sensitive font filenames on UNIX systems.

Data Type

xsd:string

Data

A path to the fonts.

Default

The fonts subdirectory of the current working directory.

Links

- C Client Implementation: XSD_string
- JAVA Client Implementation: String

B.2.8.6 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 zapf dingbats = Zapf dingbats
- itc zapf dingbats = Zapf dingbats

Links

- C Client Implementation: XSD_string
- JAVA Client Implementation: String

B.2.9 Watermarks

This section discusses watermark options.

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

B.2.9.1 enableWatermark

This option allows the developer to specify if a watermark should be included on each of the rendered PDF pages.

Data Type

xsd:boolean

Data

Boolean indicating if a watermark is to be included in the rendering.

Default Value

false

Links

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

B.2.9.2 watermarkHorizOffset

This option sets the horizontal offset of a watermark image relative to the center of a page. It is intended to be used when the [watermarkPosition](#) option is set to a value of `offsetFromCenter`. It should also be paired with the [watermarkVertOffset](#) option.

This value is in twips. 1440 twips equals 1 inch.

Data Type

xsd:signedInt

Default

- 0: No offset specified.

Links

- C Client Implementation: XSD_signedInt
- JAVA Client Implementation: SignedInt

B.2.9.3 watermarkImage

This option specifies the location of the watermark image using an IOSpec. Redirected IO is allowed.

Data Type

IOSpec

Default

No location specified.

Links

- C Client Implementation: TS_IOSpec
- JAVA Client Implementation: IOSpec

B.2.9.4 watermarkPosition

This option allows the developer to specify where on the page the watermark should be placed.

No scaling of watermark graphics is performed, so a graphic larger than the page or located such that the entire image cannot fit on the page will be cropped to fit the page.

Data Type

WatermarkPositionEnum

Data

Enumeration containing a positional indicator for the watermark, as well as watermarkXOffset and watermarkYOffset values that are used.

Default Value

offsetFromCenter

Links

- C Client Implementation: OIT_WatermarkPositionEnum
- JAVA Client Implementation: WatermarkPositionEnum

B.2.9.5 watermarkScalePercent

This option specifies a fixed scaling amount for a watermark image. This option must be set in conjunction with [watermarkScaling](#).

Data Type

xsd:unsignedInt

Default

- 0: No scaling specified.

Links

- C Client Implementation: XSD_unsignedInt
- JAVA Client Implementation: UnsignedInt

B.2.9.6 watermarkScaling

This option specifies how scaling of the watermark is to be done. If the watermark is to be scaled by a fixed percentage, the `pdfScale` value must be used, and the `watermarkScalePercent` option must also be set.

Data Type

WatermarkScalingEnum

Default

- 0: No scaling specified.

Links

- C Client Implementation: `OIT_WatermarkScalingEnum`
- JAVA Client Implementation: `WatermarkScalingEnum`

B.2.9.7 watermarkVertOffset

This option sets the vertical offset of a watermark image relative to the center of a page. It is intended to be used when the `watermarkPosition` option is set to a value of `offsetFromCenter`. It should also be paired with the `watermarkHorizOffset` option.

This value is in twips. 1440 twips equals 1 inch.

Data Type

xsd:signedInt

Default

- 0: No offset specified.

Links

- C Client Implementation: `XSD_unsignedInt`
- JAVA Client Implementation: `UnsignedInt`

B.2.10 File System

This section pertains to file system options.

B.2.10.1 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.2.10.2 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.2.10.3 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 than 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.2.10.4 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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