

IDOL KeyView

Software Version 12.10

HTML Export SDK Java Programming Guide



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Contents

Part I: Overview of HTML Export	8
Chapter 1: Introducing HTML Export	10
Overview	10
Features	10
Platforms, Compilers, and Dependencies	11
Supported Platforms	11
Supported Compilers	12
Software Dependencies	12
Windows Installation	13
UNIX Installation	14
Package Contents	15
License Information	15
Enable Advanced Document Readers	15
Pass License Information to KeyView	16
Directory Structure	17
Definition of Terms	19
Chapter 2: Getting Started	20
Architectural Overview	20
Enhance Performance	22
File Caching	22
Convert Files	22
Convert Files Out of Process	23
Configure Out-of-Process Conversions	24
Run Export Out of Process—Overview	26
Recommendations	26
Run Export Out of Process	27
Subfile Extraction	28
Convert Outlook Email without Using the Extraction API	29
Set Conversion Options	29
Set Conversion Options by Using the API	29
Explore Conversion Options with the Sample Programs	30
Templates	30
Use the HTML Export API	31
Input/Output Operations	31
Convert Files	32
Multithreaded Conversions	35
Use Callbacks	36
Example	36
Before Running Your Application	37
Export .NET Support	37
Third-Party Software and Redistributable Files	37

Sample Programs	38
Part II: Use the Export API	39
Chapter 3: Use the File Extraction API	41
Introduction	41
Extract Subfiles	42
Sanitize Absolute Paths	43
Extract Images	44
Recreate a File Hierarchy	44
Create a Root Node	44
Example	45
Extract Mail Metadata	46
Default Metadata Set	46
Extract the Default Metadata Set	47
Extract All Metadata	47
Microsoft Outlook (MSG) Metadata	48
Extract MSG-Specific Metadata	49
Microsoft Outlook Express (EML) and Mailbox (MBX) Metadata	49
Extract EML- or MBX-Specific Metadata	49
Lotus Notes Database (NSF) Metadata	50
Extract NSF-Specific Metadata	50
Microsoft Personal Folders File (PST) Metadata	50
MAPI Properties	50
Extract PST-Specific Metadata	51
Exclude Metadata from the Extracted Text File	51
Extract Subfiles from Outlook Files	52
Extract Subfiles from Outlook Express Files	52
Extract Subfiles from Mailbox Files	52
Extract Subfiles from Outlook Personal Folders Files	53
Choose the Reader to use for PST Files	53
MAPI Attachment Methods	55
Open Secured PST Files	55
Detect PST Files While the Outlook Client is Running	56
Extract Subfiles from Lotus Domino XML Language Files	56
Extract .DXL Files to HTML	57
Extract Subfiles from Lotus Notes Database Files	57
System Requirements	57
Installation and Configuration	58
Windows	58
Solaris	58
AIX 5.x	59
Linux	59
Open Secured NSF Files	60
Format Note Subfiles	60
Extract Subfiles from PDF Files	60
Improve Performance for PDFs with Many Small Images	60

Extract Embedded OLE Objects	61
Extract Subfiles from ZIP Files	61
Default File Names for Extracted Subfiles	61
Default File Name for Mail Formats	62
Default File Name for Embedded OLE Objects	63
Chapter 4: Use the HTML Export API	64
Extract Metadata	64
Extract Metadata by Using the API	65
Example	65
Extract Metadata by Using a Template File	67
Examples	68
\$SUMMARYNN	68
\$SUMMARY	68
\$USERSUMMARY	69
Extract File Format Information	69
Example	69
Convert Character Sets	70
Determine the Character Set of the Output Text	70
Guidelines for Character Set Conversion	71
Examples of Character Set Conversion	72
Document Character Set Can be Determined	72
Document Character Set Cannot be Determined	73
Set the Character Set During Conversion	73
Set the Character Set During File Extraction from a Container	74
Map Styles	74
Use the Java API	75
Use a Template file	75
Use Style Sheets	77
Display Vector Graphics on UNIX and Linux	78
Search and Highlight Terms	78
Convert Revision Tracking Information	79
Extract Text from Text Boxes	80
Convert PDF Files	80
Use the pdf2sr Reader	80
Convert PDF Files to a Logical Reading Order	81
Logical Reading Order and Paragraph Direction	82
Enable Logical Reading Order	82
Use the Java API	83
Use the formats_e.ini File	83
Generate a Table of Contents from PDF Bookmarks	84
Disable Bookmark Conversion	84
Convert Invisible Text	85
Toggle Invisible Text	85
Specify Opacity of Invisible Text	85
Convert Rotated Text	85
Control Hyphenation	86

Extract Custom Metadata from PDF Files	87
Convert Spreadsheet Files	87
Convert Hidden Text in Microsoft Excel Files	88
Convert Headers and Footers in Microsoft Excel 2003 Files	88
Specify Date and Time Format on UNIX Systems	88
Convert Very Large Numbers in Spreadsheet Cells to Precision Numbers	89
Extract Microsoft Excel Formulas	89
Convert XML Files	91
Configure Element Extraction for XML Documents	91
Modify Element Extraction Settings	92
Use the Java API	92
Modify Element Extraction Settings in the kvxconfig.ini File	92
Specify an Element's Namespace and Attribute	94
Add Configuration Settings for Custom XML Document Types	95
Error Messages	95
Show Hidden Data	98
Hidden Data in Microsoft Documents	98
Toggle Word Comment Settings in the formats_e.ini File	100
Toggle PowerPoint Slide Note Settings in the formats_e.ini File	100
Exclude Japanese Guide Text	100
Source Code Identification	101
Chapter 5: Sample Programs	102
Introduction	102
ExtractExport	102
HtmlTest	105
HtmlConvFileToFile	107
HtmlConvStreamToStream	109
 Part III: Appendixes	 112
Appendix A: Supported Formats	114
Key to Supported Formats Table	114
Supported Formats	116
File Classes	195
Appendix B: Document Readers	197
Key to Document Readers Table	197
Document Readers	199
Appendix C: Character Sets	229
Multibyte and Bidirectional Support	229
Coded Character Sets	237
Appendix D: Extract and Format Lotus Notes Subfiles	243
Overview	243
Customize XML Templates	243
Use Demo Templates	244
Use Old Templates	244

Disable XML Templates	244
Template Elements and Attributes	245
Conditional Elements	245
Control Elements	246
Data Elements	247
Date and Time Formats	250
Lotus Notes Date and Time Formats	250
KeyView Date and Time Formats	251
Appendix E: Export Tokens	256
Appendix F: File Format Detection	259
Introduction	259
Extract Format Information	259
Determine Format Support	259
Refine Detection of Text Files	260
Change the Amount of File Data to Read	260
Change the Percentage of Allowed Non-ASCII Characters	261
Use the File Extension for Detection	261
Allow Consecutive NULL Bytes in a Text File	261
Translate Format Information	262
Distinguish Between Formats	262
Determine a Document Reader	263
Appendix G: Files Required for Redistribution	264
Core Files	264
Support Files	265
Document Readers and Writers	267
Appendix H: Password Protected Files	275
Supported Password Protected File Types	275
Export Password Protected Files	276
Open Password Protected Container Files	276
Send documentation feedback	278

Part I: Overview of HTML Export

This section provides an overview of the Micro Focus IDOL KeyView Export SDK and describes how to use the Java implementation of the API.

- [Introducing HTML Export](#)
- [Getting Started](#)

Chapter 1: Introducing HTML Export

This guide is for developers who want to incorporate Micro Focus KeyView HTML conversion technology into their applications using a Java development environment. It is intended for readers who are familiar with HTML and Java.

• Overview	10
• Features	10
• Platforms, Compilers, and Dependencies	11
• Windows Installation	13
• UNIX Installation	14
• Package Contents	15
• License Information	15
• Directory Structure	17
• Definition of Terms	19

Overview

HTML Export is part of the KeyView Export SDK. It enables you to convert virtually any document, spreadsheet, presentation, or graphic into high-fidelity HTML. Incorporating this technology into your web-based applications enables your end-users to access a document even if they do not have the appropriate plug-in or native application. With HTML Export, you control the content, structure, and format of the HTML output using either easily customized templates, or the flexible and robust APIs.

The Export SDK supports a number of programming environments, such as Visual Basic, Java, .NET and Delphi and runs on all popular operating system platforms including Windows, Linux, Solaris, and IBM AIX.

The Export SDK is part of the KeyView suite of products. KeyView provides high-speed text extraction, conversion to web-ready HTML and well-formed XML, and high-fidelity document viewing.

Features

- Dynamically convert word processing, spreadsheet, presentation, and graphics files into web-ready, 4.0-compliant HTML.
- Export supports over 300 formats in 70 languages.
- Convert files either in-process or out of process. Out-of-process conversion ensures the stability and robustness of the calling application if a corrupt document causes an exception or causes the conversion process to fail.

- You can extract files embedded within files by using the File Extraction API, and then convert them by using the Export API.
- Use redirected input/output. You can provide an input stream that is not restricted to file system access.
- Export automatically recognizes the file format being converted and uses the appropriate reader. Your application does not need to rely on file name extensions to determine the file format.
- Create heading levels in the output file either by using the structure in the source document or by allowing Export to automatically generate a structure based on document properties, such as font or font attributes.
- Use callbacks to control aspects of the conversion process, such as file naming and the insertion of scripts.
- Insert predefined HTML markup at specific points in the output stream.
- Create navigable documents by automatically inserting links into target HTML. You can also break large documents into multiple linked web pages.
- Apply Cascading Style Sheets (CSS) to improve the fidelity of the output.
- Map paragraph and character styles in word processing documents to any markup that you specify in the output.
- Control the resolution of rasterized vector graphics to optimize storage requirements or image quality.
- Select the target format for converted graphics, including GIF, JPEG, CGM, PNG, WMF, and SVG on Windows, and JPEG and SVG on Unix and Linux.
- Define the background, colors, and fonts used in the final HTML document, or maintain the source document's existing attributes.

Platforms, Compilers, and Dependencies

This section lists the supported platforms, supported compilers, and software dependencies for the KeyView software.

Supported Platforms

The Java HTML Export SDK is supported on the following platforms.

- CentOS 7 x86, x64, and AArch64
- IBM AIX L6.1 PowerPC 32-bit and 64-bit
- IBM AIX L7.1 PowerPC 32-bit and 64-bit
- macOS 10.13 or later on 64-bit Apple-Intel architecture
- macOS 11 or later on Apple M1.

- Microsoft Windows Server 2012 x64
- Microsoft Windows Server 2016 x64
- Microsoft Windows Server 2019 x64
- Microsoft Windows 8 x86 and x64
- Microsoft Windows 10 x64
- Oracle Solaris 10 SPARC
- Oracle Solaris 10 x86 and x64
- Red Hat Enterprise Linux 6 x86 and x64
- Red Hat Enterprise Linux 7 x64
- Red Hat Enterprise Linux 8 x64
- SuSE Linux Enterprise Server 11 x86 and x64
- SuSE Linux Enterprise Server 12 x64
- SuSE Linux Enterprise Server 15 x64

Supported Compilers

The following table lists the supported compilers for the Java HTML Export SDK.

Component	Compiler
Java components	Java 7

Software Dependencies

To run KeyView on Windows requires the Microsoft Visual C++ 2019 redistributables to be installed.

To run KeyView on Linux/UNIX platforms requires `libstdc++.so.6` and `libgcc_s.so.1` from GCC 5.4. For your convenience, these are provided in the `bin` folder of your KeyView installation.

NOTE: If you are running KeyView out-of-process then the `servant` and `WK00P.exe` executables must be able to link to `libstdc++.so.6` and `libgcc_s.so.1`.

- If these are installed in a system folder, like `/lib64`, KeyView will find them automatically.
- If you prefer you can add the path of the folder containing these libraries to the environment variable `LD_LIBRARY_PATH`.

If you are running KeyView in-process:

- If your application is already linking to `libgcc_s` and `libstdc++` from GCC 5.4 or later, KeyView will use them as well and no further action is needed.

- If your application is linking to earlier versions of `libgcc_s` and `libstdc++`, Micro Focus recommends that you upgrade those binaries to those from GCC 5.4 or later.
- If your application is not linking to `libgcc_s` and `libstdc++` you must ensure those binaries are available in the same way as described in the instructions, above, for running KeyView out-of-process.

If older versions of `libgcc_s` and `libstdc++` are provided (but at least those from GCC 4.1) then most features will continue to work, but PDF Export, Optical Character Recognition, and RMS Decryption will not.

Some KeyView components require specific third-party software:

- Java Runtime Environment (JRE) or Java Software Developer Kit (JDK) version 7 or 8 is required for Java API and graphics conversion in Export SDK.
- Outlook 2002 or later is required to process Microsoft Outlook Personal Folders (PST) files using the MAPI-based reader (`pstsr`). The native PST readers (`pstxsr` and `pstnsr`) do not require Outlook.

NOTE: You must install an edition of Microsoft Outlook (32-bit or 64-bit) that matches the KeyView software. For example, if you use 32-bit KeyView, install 32-bit Outlook. If you use 64-bit KeyView, install 64-bit Outlook.

If the editions do not match, KeyView returns Error 32: `KVError_PSTAccessFailed` and an error message from Microsoft Office Outlook is displayed: Either there is a no default mail client or the current mail client cannot fulfill the messaging request. Please run Microsoft Outlook and set it as the default mail client.

- Lotus Notes or Lotus Domino is required for Lotus Notes database (NSF) file processing. The minimum requirement is 6.5.1, but version 8.5 is recommended.

Windows Installation

To install the SDK on Windows, use the following procedure.

To install the SDK

1. Run the installation program, `KeyViewProductNameSDK_VersionNumber_OS.exe`, where *ProductName* is the name of the product, *VersionNumber* is the product version number, and *OS* is the operating system.

For example:

`KeyViewExportSDK_12.10_Windows_X86_64.exe`


The installation wizard opens.

2. Read the instructions and click **Next**.

The License Agreement page opens.

3. Read the agreement. If you agree to the terms, click **I accept the agreement**, and then click **Next**.

The Installation Directory page opens.

4. Select the directory in which to install the SDK. To specify a directory other than the default, click , and then specify another directory. After choosing where to install the SDK, click **Next**.

The Pre-Installation Summary opens.

5. Review the settings, and then click **Next**.

The SDK is installed.

6. Click **Finish**.

UNIX Installation

To install the SDK, use one of the following procedures.

To install the SDK from the graphical interface

- Run the installation program and follow the on-screen instructions.

To install the SDK from the console

1. Run the installation program from the console as follows:

```
./KeyViewExportSDK_VersionNumber_Platform.exe --mode text
```

where:

VersionNumber is the product version.

Platform is the name of the platform.

2. Read the welcome message and instructions and press `Enter`.

The first page of the license agreement is displayed.

3. Read the license information, pressing `Enter` to continue through the text. After you finish reading the text, and if you accept the agreement, type `y` and press `Enter`.

You are asked to choose an installation folder.

4. Type an absolute path or press `Enter` to accept the default location.

The Pre-Installation summary is displayed.

5. If you are satisfied with the information displayed in the summary, press `Enter`.

The SDK is installed.

Package Contents

The Export installation contains:

- Libraries and executable files necessary for converting source documents into high-quality, web-ready HTML (see [Files Required for Redistribution, on page 264](#)).
- The include files that define the functions and structures used by the application to establish an interface with Export (see the `include` directory for HTML Export).
- The Java API implemented in the `com.verity.api.export` package contained in the `KeyView.jar` file.
- Several sample programs that demonstrate Export's functionality.
- Sample images that can be used as navigation buttons and background textures in your output.
- Template files that enable you to set conversion options without modifying at the API level. They can be used to generate a wide range of output, from highly-stylized user-defined HTML to stripped-down, text-only output suitable for use with an indexing engine.
- Sample style sheet: `WordStyle.css` (for word processing documents).

License Information

Your license key controls whether you have the full version of the KeyView SDK, or a trial version. It also determines whether the following advanced features are enabled:

- Advanced character set detection with the character set detection library (`kvlangdetect`).
- Advanced document readers:
 - Microsoft Outlook Personal Folders (PST) readers (`pstsr`, `pstnsr`, and `pstxsr`)
 - Lotus Notes database (NSF) reader (`nsfsr`)
 - Mailbox (MBX) reader (`mbxsr`)
- Processing of documents protected by Microsoft RMS encryption.

If you obtain a new license key from Micro Focus, you must update the licensing information that you pass to KeyView. See [Pass License Information to KeyView](#).

Enable Advanced Document Readers

To enable advanced readers, you must obtain an appropriate license key from Micro Focus and pass the license key to KeyView as described in [Pass License Information to KeyView](#).

If you are enabling the MBX reader in an existing installation of Export, in addition to updating the license key, change the parameter `208=em1` to `208=mbx` in the `formats_e.ini` file.

Pass License Information to KeyView

To provide license information to KeyView, do one of the following:

- Provide the license information through the API. Micro Focus recommends using this approach.
- Provide the license information as a text file named `kv.lic`. In earlier versions of KeyView, license information had to be stored in a file and included in the `bin` folder with the KeyView libraries. The ability to provide license information as a file has been deprecated and might be removed in future. You should no longer include license information in your application as a file. Micro Focus recommends that you pass license information to KeyView through the API instead.

If you have an evaluation version of KeyView and purchase a full version of the SDK, or you are adding a document reader (for example, the PST reader), you must update the license information that you pass to KeyView.

To provide license information through the API

- In the C API, provide license information when you initialize KeyView by calling `fpInitWithLicenseData()`.
- In the Java API, provide license information to KeyView when you instantiate the `HtmlExport` object.

To provide license information as a file

1. Open or create the license key file, `kv.lic`, in a text editor. The file must be saved in the same directory as the KeyView libraries, and must contain your organization name and license key.

```
COMPANY NAME  
XXXXXXX-XXXXXXX-XXXXXXX-XXXXXXX
```

2. Replace the text `COMPANY NAME` with the company name that appears at the top of the License Key Sheet provided by Micro Focus. Enter the text exactly as it appears in the document.
3. Replace the characters `XXXXXX-XXXXXXX-XXXXXXX-XXXXXXX` with the appropriate license key from the License Key Sheet provided by Micro Focus. The license key is listed in the **Key** column in the **Standalone Products** table. The key is a string that contains 31 characters, for example, `2TQD22D-2M6FV66-2KPF23S-2GEM5AB`. Enter the characters exactly as they appear in the document, including the dashes, but do not include a leading or trailing space.
4. The finished `kv.lic` file looks similar to the following:

```
Autonomy  
24QD22D-2M6FV66-2KPF23S-2G8M59B
```

5. Save the file.

Directory Structure

The following table describes the directories created during the HTML Export installation. The variable *install* is the path name of the Export installation directory (for example, /usr/autonomy/KeyviewExportSDK on UNIX, or C:\Program Files\Autonomy\KeyviewExportSDK on Windows). On UNIX, the HTML Export directory is named /htmlxpt.

The variable *os* is the operating system for which the SDK is installed. For example, the bin directory on a standard 32-bit Windows installation would be located at C:\Program Files\Autonomy\KeyviewExportSDK\WINDOWS\bin.

HTML Export installed directory structure

Directory	Description
<i>install</i> \os\bin	Contains the libraries, executables for sample programs, the Java program (kvraster.class), the Java applet (kvvector.jar), the format detection file, formats_e.ini, the license key file (kv.lic), and a number of other supporting files.
<i>install</i> \os\lib	(Solaris installations only) Contains the redistributable libstlport.so.1 library, which is required to run KeyView on Solaris platforms.
<i>install</i> \dotnet\sample	The HtmlConvFileToFile.cs C# sample program demonstrating the .NET interface.
<i>install</i> \htmllexport\docs	Contains the converted version of the sample word processing, spreadsheet, and presentations files.
<i>install</i> \htmllexport\guide	Contains the <i>HTML Export C Programming Guide</i> and <i>HTML Export Java Programming Guide</i> in HTML and PDF format.
<i>install</i> \htmllexport\include	Contains the header files for HTML Export.
<i>install</i> \htmllexport\programs\callback	Contains the C source code and supporting files for a sample program that demonstrates how user callbacks can dynamically shape the HTML conversion.
<i>install</i> \htmllexport\programs\cnv2html	Contains the C source code for a sample program that creates a single HTML file. The executable for this sample program is in the bin directory.
<i>install</i> \htmllexport\programs\cnv2htmlloop	Contains the C source code for a sample program that creates a single HTML file out of process.
<i>install</i>	Contains the C source code and supporting files for a sample

HTML Export installed directory structure, continued

Directory	Description
htmlini	program that uses template files to set the conversion options.
<i>install</i> \htmlexport\programs\images	Contains the background graphics and navigation buttons used by the template files.
<i>install</i> \htmlexport\programs\ini	Contains the template files used to set the conversion options in the C API.
<i>install</i> \htmlexport\programs\io_samp	Contains the C source code and supporting files for a sample program that demonstrates how to input a stream by providing a simple wrapper around the ANSI C interface <code>fread()</code> , <code>fopen()</code> , and so on.
<i>install</i> \htmlexport\programs\pdfini	Contains the configuration file used to extract custom metadata from PDF documents.
<i>install</i> \htmlexport\programs\tempout	The default output directory for converted files. Contains a sample style sheet.
<i>install</i> \htmlexport\programs\ tstextract	Contains the C source code and supporting files for a sample program that demonstrates the File Extraction interface.
<i>install</i> \htmlexport\rel_notes	Contains the <i>HTML Export Release Notes</i> in HTML and PDF format.
<i>install</i> \javaapi\ini	Contains the template files used with the Java API.
<i>install</i> \javaapi\javadoc	Contains the Javadoc for the Java API.
<i>install</i> \javaapi\sample	Contains the source files and sample programs for the Java API.
<i>install</i> \pdfexport\cnv2pdf	Contains the C source code for a sample program that creates a PDF file. The executable for this sample program is in the bin directory.
<i>install</i> \pdfexport\include	Contains the header files for PDF Export. For more information, see the <i>PDF Export Programming Guide</i> .
<i>install</i> \testdocs	Contains sample word processing, spreadsheet, and presentation files that you can use to test HTML Export's options. You might also find this directory useful when testing your own applications.

Definition of Terms

The following are specialized terms used throughout the guide.

anchor	HTML markup that defines both anchors and hyperlinks. An anchor is a named place in a document to which other documents can form a link. Anchors use the HTML anchor tags (<a>) to facilitate navigation within a document.
block	All source document content (including subheadings) associated with Heading Level 1. Export identifies and/or generates blocks from the input stream for the implementation of the your HTML markup.
block chunk or chunk	All source document content associated with Heading Levels 2 through 6. Chunks are subdivisions of blocks. You can supply specific HTML markup for the different levels of block chunks.
callback	A function optionally supplied by your application and called from the Export API. For example, callbacks allow your application to monitor the progress of the conversion process dynamically.
stream	Transmission of a file's content between memory and disk in a continuous flow.
token	The vehicle for conveying specific types of information to and from the API during the conversion process. Tokens are placeholders for markup that appears in the output. See Export Tokens, on page 256 .

Chapter 2: Getting Started

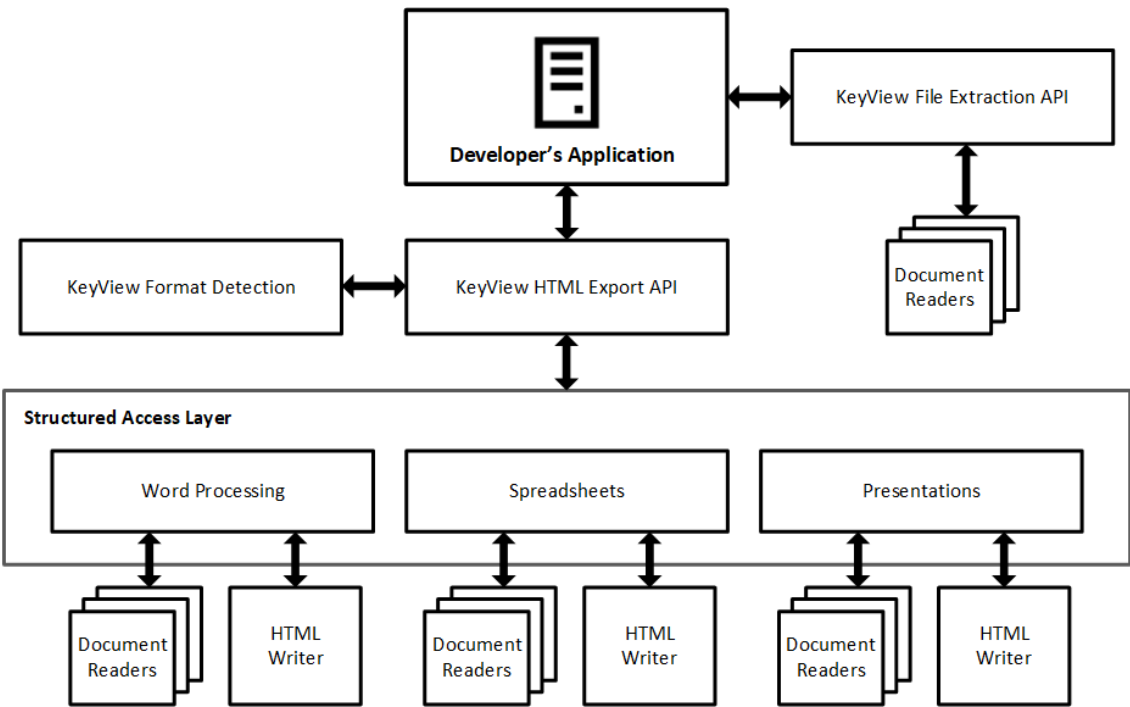
This section provides an overview of the HTML Export SDK and describes how to use the Java implementations of the API.

- [Architectural Overview](#)20
- [Enhance Performance](#)22
- [Convert Files](#)22
- [Convert Files Out of Process](#)23
- [Subfile Extraction](#)28
- [Set Conversion Options](#)29
- [Use the HTML Export API](#)31
- [Export .NET Support](#)37

Architectural Overview

The general architecture of the KeyView HTML conversion technology is the same across all supported platforms and is illustrated in the following diagram:

HTML Export Architecture



Each component is described in the following table.

Architectural Components

Component	Description
Developer's Application	The developer's application interfaces directly with the HTML Export API through either a C or Java implementation.
File Extraction API	The File Extraction API opens a file and extracts the file's subfiles so that the subfiles are available for conversion. See Use the File Extraction API, on page 41 .
HTML Export API	The HTML Export API exposes the functionality of HTML Export and controls all other HTML Export modules during the conversion process.
Format Detection Module	The format detection module determines the file type of the source file, which enables the HTML Export interface to load the appropriate structured access layer module and document reader. See File Format Detection, on page 259 .
Structured Access Layer	<p>The structured access layer contains three modules: one for word processing, one for spreadsheets, and one for presentations and graphics. Information from the format detection module determines which access layer module operates at this stage of the conversion. The structured access layer performs the following:</p> <ol style="list-style-type: none">1. Loads the appropriate document reader.2. Processes the data stream from the document reader.3. Determines table of contents entries.4. Sends the stream to the appropriate HTML writer.5. Accepts the HTML stream from the HTML writer.6. Generates the HTML output file with a table of contents, metadata, and the document's contents, and sends it to the HTML Export interface.
Document Reader	Each document reader reads a specific file format and sends a text stream of the document to the structured access layer. Word processing readers return a <i>token stream</i> to the structured access layer. A token stream contains the document contents and messages (tokens) that precede the content and identify the type of information that follows them. Each reader is loaded as required by the structured access layer. See Document Readers and Writers, on page 267 for a complete list of document readers.
HTML Writers	Each HTML writer accepts a text stream or token stream from the structured access layer and generates an equivalent HTML stream that is sent back to the structured access layer. The structured access layer then generates the output file. See Document Readers and Writers, on page 267 for a list of format writers.

Enhance Performance

KeyView is designed for optimal performance out of the box. However, there are some parameters that you can adjust to improve performance specifically for your system.

File Caching

To reduce the frequency of I/O operations, and consequently improve performance, the KeyView readers load file data into memory. The readers then read the data from the cache rather than the physical disk. You can configure the amount of memory used for file caching through the `formats_e.ini` file. Generally, when you increase the memory, performance improves.

By default, KeyView uses a maximum of 1 MB of memory for each thread. If the file data is larger than 1 MB, up to 1 MB of data is cached and the data beyond 1 MB is read from disk. The minimum amount of memory that can be used for file caching is 64 KB.

To determine a reasonable value, divide the maximum amount of memory you want KeyView to use for file caching by the total number of threads. For example, if you want KeyView to use a maximum of 50 MB of memory and have 10 threads, set the value to 5 MB.

To modify the memory allocated for file caching, change the value for the following parameter in the `[DiskCache]` section of the `formats_e.ini` file:

```
DiskCacheSize=1024
```

The value is in kilobytes. If this parameter is not set or is set to 0 (zero), the minimum value of 64 KB is used.

The `formats_e.ini` file is in the directory `install\OS\bin`, where `install` is the path name of the Export installation directory and `OS` is the name of the operating system.

Convert Files

KeyView Export SDK enables you to *convert* many different types of documents to HTML. Converting is the process of extracting the text from a document without the application-specific markup, and applying HTML markup. The conversion process can also include the following:

- Extracting subfiles to expose all subfiles for conversion. See [Subfile Extraction, on page 28](#).
- Setting conversion options to determine the content, structure, and appearance of the HTML output. See [Set Conversion Options, on page 29](#).
- Extracting the file's format to detect a file's format, and report the information to the API, which in turn reports the information to the developer's application. See [Extract File Format Information, on page 69](#).
- Extracting metadata (document properties) from a file. See [Extract Metadata, on page 64](#).

- Converting character sets to control the character set of both the input and the output text. See [Convert Character Sets, on page 70](#).
- Implementing callbacks to control the conversion while it is in progress. See [Use Callbacks, on page 36](#).

You can use one of the following methods to convert documents:

- Use the Java implementation of the API. See [Use the HTML Export API, on page 31](#) and the Javadoc in the directory `install\javaapi\javadoc`, where `install` is the path name of the Export installation directory.
- Use the Java sample programs. See [Sample Programs, on page 102](#).

NOTE: Micro Focus strongly recommends that you convert documents *out of process*. During out-of-process conversion, Export runs independently from the calling application. Out-of-process conversions protects the stability of the calling application in the rare case when a malformed document causes Export to fail. [Convert Files Out of Process, below](#).

Convert Files Out of Process

Export can run independently from the calling application. This is called *out of process*. Out-of-process conversions protect the stability of the calling application in the rare case when a malformed document causes Export to fail. You can also run Export in the same process as the calling application. This is called *in process*. However, it is strongly recommended you convert documents out of process whenever possible.

The Export out-of-process framework uses a client-server architecture. The calling application sends an out-of-process conversion request to the Service Request Broker in the main Export process. The Broker then creates, monitors, and manages a Servant process for the request—each request is handled by one independent Servant process. Data is exchanged between the application thread and the Servant through TCP/IP sockets. The source data is sent to the Servant process as a data stream or file, converted in the Servant, and then returned to the application thread. At that point, the application can either terminate the Servant process or send more data for conversion.

Multiple conversion requests can be sent from multiple threads in the calling application simultaneously. All requests sent from one thread are processed by the Servant mapped to that thread. In other words, each thread can only have one Servant to process its conversion requests.

Any standard conversion errors generated by the Servant are sent to the application.

NOTE: Currently, the main Export process and Servant processes must run on the same host.

The following are requirements for running Export out of process:

- Internet Protocol (TCP/IP) must be installed
- Multithreaded processing must be supported on the operating system platform
- The user application must be built with a multithreaded runtime library

The following methods run in-process or out of process:

- `convert`
- `convertTo`
- `getSummaryInfo`

NOTE: When converting out of process, these methods must be called after the call to start an out-of-process session and before the call to end an out-of-process session.

Other HTML Export methods and the File Extraction methods always run in-process.

Configure Out-of-Process Conversions

Although most components of the out-of-process conversion are transparent, the following parameters are configurable:

- File-size threshold/temporary file location
- Conversion time-out
- Listener port numbers and time-out
- Connection time-out and retry
- Servant process name

These parameters are defined internally, but you can override the default by defining the parameter in the `formats_e.ini` file. The `formats_e.ini` file is in the directory `install\OS\bin`, where `install` is the path name of the Export installation directory and `OS` is the name of the operating system.

To set the parameters, add the following section to the `formats_e.ini` file:

```
[KVExportOOPOptions]
TempFileSizeMark=
TempFilePath=
WaitForConvert=
WaitForConnectionTime=
ListenerPortList=
ListenerTimeout=
ConnectRetryInterval=
ConnectRetry=
ServantName=
```

Each parameter is described in the following table.

The default values for these parameters are set to ensure reasonable performance on most systems. If you are processing a large number of files, or running Export on a slow machine, you might need to increase some of the time-out and retry values.

Parameters for Out-of-Process Conversion

Parameter	Description
TempFileSizeMark unit = megabytes default=10	The <i>file-size threshold</i> . If the input file received by the Servant is larger than this value, temporary files are created to store the data. The directory in which the temporary files are stored is defined by the TempFilePath parameter. If the file received is smaller than this value, the data is stored in memory in the Servant. This applies only when the input is a stream.
TempFilePath type = file path default = current working directory	The directory in which temporary files are stored. Temporary files are created when the input file surpasses the file-size threshold (TempFileSizeMark). If the Servant cannot access the file path, an error is generated. This applies only when converting in stream mode.
WaitForConvert unit = seconds default = 1800 range = 30~3600	The length of time to wait for a Servant to convert a file. If the conversion is not completed within the specified time, the error code "wait for child process failed" is generated.
WaitForConnectionTime unit = seconds default = 180 range = 15~600	The length of time to wait for the Servant to connect to the application thread after the application has sent a conversion request to the Broker. If the Servant does not connect within the specified time, the error code "wait for child process failed" is generated. If there are many Servant processes running simultaneously, you might need to increase this value.
ListenerPortList type = integer default = 9985, 9986, 9987, 9988, 9989	The TCP/IP port number used for communication between the calling application and the Servant. You can specify a single port number, or a series of numbers separated by commas.
ListenerTimeout unit = seconds default = 10 range = 5~30	The length of time to wait for the Servant listener thread to get a process ID from the Servant after the connection is established. If the ID is not obtained within the specified time, the error code "wait for child process failed" is generated. During this time, no other Servant can connect with the application.
ConnectRetryInterval unit = microseconds default = 0.1 range = 50000~500000	The length of time to wait after a Servant has failed to connect to the application before it retries the connection. A Servant might be unable to connect because the application is waiting for another Servant to send a process ID. To calculate the <i>total retry interval</i> , the value set here is added to the platform-specific TCP retry value (on Windows, this is 1 second).

Parameters for Out-of-Process Conversion, continued

Parameter	Description
ConnectRetry type = integer default = 120 range = 30~600	<p>The number of attempts the Servant makes to connect to the calling application. This value and the total retry interval determine the total delay time. The total delay is calculated as follows:</p> $\text{ConnectRetryInterval} + \text{platform-specific_TCP_retry_value} * \text{ConnectRetry}$ <p>For example, if the <code>ConnectRetryInterval</code> is set to 2 seconds, and the Export process is running on Windows (the default TCP retry value on Windows is 1 second), the total delay would be:</p> $2 + 1 * 120 = 360$ <p>The Servant would attempt to connect to the application every 3 seconds for 120 attempts for a total of 360 seconds.</p>
ServantName type = string default = servant	The name of the Servant process. To move the Servant to another location, enter a fully qualified path.

Run Export Out of Process—Overview

To convert files out of process

1. If required, set parameters for the out-of-process conversion in the `formats_e.ini` file. See [Configure Out-of-Process Conversions, on page 24](#).
2. Instantiate an `HtmlExport` object.
3. Define the conversion options.
4. Initialize an out-of-process session.
5. Convert the input and/or call other functions that can run out of process.
6. Shut down the out-of-process session.
7. Repeat Step 3 to Step 6 for additional files.
8. Terminate the out-of-process session and the Servant process.
9. Shutdown the Export session.

Recommendations

- To ensure that multithreaded conversions are thread-safe, you must create a unique context pointer for every thread by instantiating an `HtmlExport` object. In addition, threads must not share context pointers, and the same context pointer must be used for all API calls in the same thread.

Creating a context pointer for every thread does not affect performance because the context pointer uses minimal resources.

- All methods that can run in out-of-process mode must be called within the out-of-process session (that is, after the call to initialize the out-of-process session and before the call to end the out-of-process session).
- When terminating an out-of-process session, persist the Servant process by setting the Boolean flag `bKeepServantAlive` in the `endOOPSession` method. If the Servant process remains active, subsequent conversion requests are processed more quickly because the Servant process is already prepared to receive data. Only terminate the Servant when there are no more out-of-process requests.
- To recover from a failure in the Servant process, start a new out-of-process session. This creates a new Servant process for the next conversion.

Run Export Out of Process

The `HtmlTest.java` sample program demonstrates how to run Export out of process.

To convert files out of process in the Java API

1. If required, set parameters for the out-of-process conversion in the `formats_e.ini` file. See [Configure Out-of-Process Conversions, on page 24](#).

2. Create an instance of the `HtmlExport` class.

```
HtmlExport objHtmlExport = new HtmlExport();
```

3. If you are using a template file to set the conversion options, call the `setIniFileName` method.

```
objHtmlExport.setIniFileName(iniFile);
```

4. If you are using the API to set the conversion options, create instances of the following classes:

```
HtmlOptionInfo  
HtmlTemplateInfo  
HtmlTOCOptionInfo  
StyleMapping  
HtmlHeadingInfo
```

Set the classes to the current `HtmlExport` object using the appropriate `set` methods. If you do not set the classes before calling the `startOOPSession` method, default values are used.

5. Set the location of the Export libraries by calling the `setExportDirectory` method. These are normally in the directory `install\OS\bin`, where `install` is the path name of the Export installation directory and `OS` is the name of the operating system.

```
objHtmlExport.setExportDirectory(exportDir);
```

6. Optionally, set the input source as either a file or stream by calling the `setInputSource` method.

```
// set the input source as a file  
objHtmlExport.setInputSource(inFile);
```

```
// or set the input source as a stream
inf = new File(inFile);
fis = new FileInputStream(inf);
objHtmlExport.setInputSource(fis);
```

The `setInputSource` method also accepts a `com.verity.api.SeekableInputStream`. Micro Focus recommends that you use this option, because it allows `KeyView` to seek in the file, only reading the parts it needs to read. If you need to use a Java `InputStream`, and you know the stream length, there is a method overload that allows the size to be passed in. Using this might allow `KeyView` to avoid caching the whole file. For more information, see [Input/Output Operations, on page 31](#).

7. Set up an out-of-process session by calling the `startOOPSession` method. This initializes the out-of-process session, creates a Servant process, establishes a communication channel between the application thread and the Servant, and sends the data to the Servant.

```
objHtmlExport.startOOPSession();
```

8. Convert the input and generate the output files by calling the `convertTo` method. You cannot use the `convert` methods that set the input source because the input source must be set *before* the out-of-process session is initialized. The `convertTo` method can only be called once in a single out-of-process session.

```
objHtmlExport.convertTo(outFile);
```

9. Terminate the out-of-process session by calling the `endOOPSession` method. The Servant ends the current conversion session, and releases the source data and session resources.

```
objHtmlExport.endOOPSession(TRUE);
```

10. Repeat [Step 3](#) through [Step 9](#) for additional files.

11. After all files are converted, terminate the out-of-process session *and* the Servant process by calling `endOOPSession` and setting the Boolean to `FALSE`.

```
objHtmlExport.endOOPSession(FALSE);
```

12. Terminate the Export session and free allocated system resources by calling the `shutdownExport()` method.

```
objHtmlExport.shutdownExport();
```

Subfile Extraction

To convert a file, you must first determine whether the source file contains any subfiles (attachments, embedded objects, and so on). A file that contains subfiles is called a *container* file. Compressed files (such as Zip), mail messages with attachments (such as Microsoft Outlook Express), mail stores (such as Microsoft Outlook Personal Folders), and compound documents with embedded OLE objects (such as a Microsoft Word document with an embedded Excel chart) are examples of container files.

If the file is a container file, the container must be opened and its subfiles extracted by using the *File Extraction API*. The extraction process is done repeatedly until all subfiles are extracted and exposed for conversion. After a subfile is extracted, you can use the HTML Export API to convert the file.

If a file is not a container, you should pass it directly to the HTML Export API for conversion without extraction.

See [Use the File Extraction API, on page 41](#) for more information.

Convert Outlook Email without Using the Extraction API

Micro Focus strongly recommends that you convert all container files, including Microsoft Outlook files, by using the File Extraction API. However, you can convert Outlook email messages (MSG) directly by using the Export API and the MSG reader (msgsr).

NOTE: The MSG reader only extracts the message body of an MSG file. Attachments are not extracted.

To convert MSG files by using the MSG reader, add the following to the `formats_e.ini` file (TRUE is case-sensitive):

```
[ContainerOptions]
bConvertMSG=TRUE
```

Set Conversion Options

Conversion options are parameters that determine the content, structure, and appearance of the HTML output. For example, you can specify:

- the markup inserted at the beginning and end of specific HTML blocks
- whether a heading is included in the table of contents
- the output character set
- the resolution at which graphics are converted.

Set Conversion Options by Using the API

You set conversion options using the following methods on your instance of `HtmlExport`:

- `setOptionInfo`
- `setTemplateInfo`
- `setTOCOptionInfo`

For more information about these methods and the options that you can set, refer to the Javadoc supplied with the HTML Export SDK.

Alternatively, you can set conversion options by passing the path of an initialization file to the API using the `setIniFileName` method on your instance of `HtmlExport`. For more information about initialization files, see [Explore Conversion Options with the Sample Programs](#), below.

Explore Conversion Options with the Sample Programs

To make it easier to explore the conversion options, HTML Export includes some sample configurations in the form of initialization (`.ini`) files. These are read by the [HtmlTest](#) sample program (you must supply the `.ini` file path as a command-line argument). The sample program reads the configuration, and converts your input file into HTML using the options you set, by passing them into the API. This lets you try out conversion options without programming.

You can use a text editor to customize the configuration files. In general, a section name refers to the structure containing an option, and a parameter name matches an element of that structure. For example:

```
[KVHTMLOptionsEx]
OutputCharSet=KVCS_SJIS
bForceOutputCharSet=TRUE
```

This sets the `OutputCharSet` and `bForceOutputCharSet` elements in the `KVHTMLOptionsEx` structure.

NOTE: To create valid HTML, an initialization file *must* define at least two structures: `KVHTMLTemplateEx` and `KVHTMLOptionsEx`. Additionally, if you enter markup in the template files that is not compliant with HTML standards, HTML Export inserts the markup into the output file unchanged. This might result in a malformed HTML file.

Templates

The template files for the Java API implementation are in the directory `install\javaapi\ini\html`, where `install` is the path name of the Export installation directory.

The following templates are provided for the Java implementation.

Template	Description
Callback (callback.ini)	<ul style="list-style-type: none">Based on the default template (default.ini).Implements a user callback named "UserCB_End_Block " at the bottom of the main HTML file.
Single file with table of contents (onefiletoc.ini)	<p>This template is useful when you want to print the document.</p> <ul style="list-style-type: none">Creates a single HTML file.Creates a table of contents at the top of the HTML document.Uses worksheet names to create the table of contents entries for spreadsheets. If worksheet names do not exist in the source document, "Sheet1," "Sheet2," "Sheet3," and so on are used.Uses slide titles to create the table of contents entries for presentations.

Template	Description
	<p>If slide titles do not exist in the source document, "slide 1," "slide 2," "slide 3," and so on are used.</p> <ul style="list-style-type: none">• Lists all metadata (title, subject, author, comments, and so on).• Converts graphics to JPEG with the original resolution preserved.• Converts presentation slides to HTML as individual JPEG files.
UNIX web server (defunix.ini)	<ul style="list-style-type: none">• Based on the default template (default.ini).• Converts embedded graphics or presentations to either JPEG or HTML Export's Java target. See Display Vector Graphics on UNIX and Linux, on page 78.

Use the HTML Export API

The Java version of the API provides an interface to the core functionality of the C API. It contains one primary class (`HtmlExport`) that wraps the conversion functionality of the C API. The `HtmlExport` class provides access to a family of methods called `convert`.

The API is implemented in the `com.verity.api.export` package, which is contained in the `KeyView.jar` file. The jar file is in the `install\javaapi` directory, where `install` is the path name of the Export installation directory.

For a full description of the Java API classes, see the Javadoc in the directory `install\javaapi\javadoc`. Sample programs are provided to demonstrate the Java API. See [Sample Programs, on page 102](#).

You can access the Java API directly or by setting conversion options in template files, which are then passed to the API. For more information on template files, see [Set Conversion Options, on page 29](#).

For information on the C API, see the *HTML Export C Programming Guide*.

Input/Output Operations

The HTML Export Java API supports several input and output methods. The source data can be a file accessed through a file path, a `com.verity.api.SeekableInputStream`, or a standard `java.io.InputStream`. You can send the output to a file, a `java.io.OutputStream`, or return it one chunk at a time in a byte array. The methods in the HTML Export Java API have multiple signatures in order to support these options.

You can set the input source by calling the `setInputSource` method, or when using the `convert` method. The latter takes the input source as one of its parameters. When you select a `convert` method, ensure that you use the correct signature for the desired input and output type.

When the input source is a stream, Micro Focus recommends passing a `SeekableInputStream` into `KeyView`, so that `KeyView` can read only the parts of the stream it needs to read. If you use a Java

InputStream, KeyView must store the stream as it is received, writing to a temporary file if the stream is large.

Sometimes, when the source is a Java InputStream, you can improve performance by passing in the stream size. If you do not supply the stream size, KeyView reads the entire stream before processing starts. If you can provide the stream size, KeyView might not need to read the whole stream.

Convert Files

To convert files

1. Instantiate an HtmlExport object.

```
LicenseInfo license = new LicenseInfo("YOUR_ORGANIZATION", "YOUR_KEY");  
m_objExport = new HtmlExport(license);
```

2. If you are using a template file to set the conversion options, call the setIniFileName method. It is recommended you set the full path to the template file.

```
m_objExport.setIniFileName(m_iniFile);
```

Conversion options are parameters that determine the content, structure, and appearance of the HTML output. See [Set Conversion Options, on page 29](#).

3. If you are using the API to set the conversion options, create instances of the following classes:

- HtmlOptionInfo
- HtmlTemplateInfo
- HtmlTOCOptionInfo
- StyleMapping
- HtmlHeadingInfo

Conversion options are parameters that determine the content, structure, and appearance of the HTML output. [Set Conversion Options, on page 29](#).

Set the classes to the current HtmlExport object using the following methods available in the HtmlExport class:

- setOptionInfo
- setTemplateInfo
- setTOCOptionInfo
- setStyleMapping

and the following method available in the HtmlTOCOptionInfo class:

- setHtmlHeadingInfo

4. Set the location of the Export libraries by calling the setExportDirectory method. These are normally in the directory *install\OS\bin*, where *install* is the path name of the Export

installation directory and *OS* is the name of the operating system.

```
m_objExport.setExportDirectory(m_exportDirectory);
```

5. Open the source file by calling the `extOpenDocument` method. This call defines the parameters necessary to open a file for extraction.

```
ExtOpenDocConfig odconfig = null;  
long extContextID = 0;  
odconfig = new ExtOpenDocConfig();  
odconfig.setUserName(m_userName);  
odconfig.setPassword(m_password);  
odconfig.setUserIDFile(m_userIDFile);  
odconfig.setExtractDirectory(m_extractDir);  
odconfig.setCreateRootNode(m_createRootNode);  
extContextID = m_objExport.extOpenDocument(inFile, odconfig);
```

6. Determine whether the main file is a container file (that is, whether it contains subfiles) by calling the `extGetMainFileInfo()` method.

```
ExtMainFileInfo maininfo = null;  
maininfo = m_objExport.extGetMainFileInfo(extContextID);
```

7. If the call to `extGetMainFileInfo()` determined that the source file is a container file, proceed to [Step 8](#); otherwise, proceed to [Step 11](#).

8. Determine whether the subfile is itself a container (that is, whether it contains subfiles) by calling the `extGetSubFileInfo` method.

```
ExtSubFileInfo subinfo = null;  
if(nSubFiles != 0)  
{  
    for(int index = 0; index < nSubFiles; index++)  
    {  
        subinfo = m_objExport.extGetSubFileInfo(extContextID, index);  
        ...  
    }  
}
```

9. Extract the subfile by calling the `extExtractSubFile` method.

```
ExtSubFileExtractConfig extconfig = null;  
extconfig = new ExtSubFileExtractConfig();  
extconfig.setCreateDirectory(true);  
extconfig.setOverWrite(true); extconfig.setExcludeMailHeader(m_  
excludeMailHeader);  
extinfo = m_objExport.extExtractSubFile(extContextID, index, extconfig);
```

10. If the call to `extGetSubFileInfo` determined that the subfile is a container file, repeat [Step 5](#) through [Step 9](#) until all subfiles are extracted; otherwise, proceed to [Step 11](#).
11. Optionally, set the input source as either a file or input stream by calling the `setInputSource` method.

```
if(m_inputMethod == Export.IO_METHOD_FILE)
{
    //input as file
    m_objExport.setInputSource(m_extractDir + filename);
}
else
{
    //input as stream
    File inf = new File(m_extractDir + filename);
    FileInputStream fis = new FileInputStream(inf);
    m_objExport.setInputSource(fis);
    fis.close();
}
```

The `setInputSource` method also accepts a `com.verity.api.SeekableInputStream`. Micro Focus recommends this option, because it allows `KeyView` to seek in the file, only reading the parts it needs to read. If you need to use a Java `InputStream`, and you know the stream length, there is a method overload that allows the size to be passed in. Using this might allow `KeyView` to avoid caching the whole file. For more information, see [Input/Output Operations, on page 31](#).

12. Set up an out-of-process session by calling the `startOOPSession` method. This initializes the out-of-process session, creates a Servant process, establishes a communication channel between the application thread and the Servant, and sends the data to the Servant.

```
m_objExport.startOOPSession();
```

13. Convert the input and generate the output files by calling the `convertTo` method. You cannot use the `convert` methods that set the input source because the input source must be set *before* the out-of-process session is initialized. The `convertTo` method can only be called once in a single out-of-process session.

```
if(m_outputMethod == Export.IO_METHOD_FILE)
{
    //convert to a file
    m_objExport.convertTo(m_extractDir + filename + m_extension);
}
else
{
    //convert to a stream
    File outf = new File(m_extractDir + filename + m_extension);
    FileOutputStream fos = new FileOutputStream(outf);
    m_objExport.convertTo(fos);
    fos.close();
}
```

14. If you are converting additional files, terminate the out-of-process session by calling the `endOOPSession` method and setting the Boolean to **TRUE**. The Servant ends the current conversion session and releases the source data and session resources.

If you are not converting additional files, terminate the out-of-process session and the Servant process by calling `endOOPSession` and setting the Boolean to **FALSE**.

```
if(i == (nSubFiles - 1))
{
    m_keepServantAlive = false;
}
else
{
    m_keepServantAlive = true;
}
m_objExport.endOOPSession(m_keepServantAlive);
```

15. Close the file by calling the `extCloseDocument()` method.

```
m_objExport.extCloseDocument(extContextID);
```

16. Repeat [Step 2](#) through [Step 15](#) for additional source files.

17. Terminate the session and free allocated system resources by calling the `shutdownExport()` method.

```
m_objExport.shutdownExport();
```

Multithreaded Conversions

To ensure that multithreaded conversions are thread-safe, you must create a unique Export context for every thread by instantiating an `HtmlExport` object. In addition, threads must not share context objects, and you must use the same context object for all API calls in the same thread. Creating a context object for every thread does not affect performance because the context object uses minimal resources.

For example, your Java code should have the following logic in a thread:

```
m_objExport = new HtmlExport(license);
m_objExport.setIniFileName(m_iniFile);
m_objExport.setExportDirectory(m_exportDir);
m_objExport.extOpenDocument(inFile, odconfig);
m_objExport.extGetMainFileInfo(extContextID) /* container file */
m_objExport.extGetSubFileInfo(extContextID, index);
m_objExport.extExtractSubFile(extContextID, index, extconfig);
m_objExport.startOOPSession();
m_objExport.convertTo(outFile);
m_objExport.endOOPSession(bKeepServantAlive TRUE);
m_objExport.extCloseDocument();
m_objExport.extOpenDocument(inFile, odconfig);
m_objExport.extGetMainFileInfo(extContextID); /* not a container file */
m_objExport.startOOPSession();
```

```
m_objExport.convertTo(outFile);  
m_objExport.endOOPSession(bKeepServantAlive TRUE);  
m_objExport.extCloseDocument();  
...  
m_objExport.shutdownExport();
```

Use Callbacks

Some Export methods enable you to specify a callback, which is called to control the conversion while it is in progress. For example, you can specify a callback to report progress during the conversion.

To use callbacks

1. If you are using the UserCBCallback interface, include the \$USERCB token in a member of KVHTMLTemplateEx. For example, placing "\$USERCB=my_callback " in pszFirstH1Start results in a callback at the point when pszFirstH1Start is processed. The user callback function is identified by the text assigned to \$USERCB, which in this example is my_callback.

NOTE: The callback identifier must be delimited by a trailing white space. For example, "my_callback "

The callback.ini template file provides an example of how to use callback tokens. The file is in the *install\javaapi\ini* directory. See [Export Tokens, on page 256](#) for more information on tokens.

2. Implement the callback interfaces. The callback interfaces are:

- CallbackConstants
- CallingContext
- ContinueCallback
- GetAnchorCallback
- GetAuxOutputCallback
- UserCBCallback

Sample implementations of the callback interfaces are in the *install\javaapi\sample\com\verity\api\htmlexport* directory, where *install* is the path name of the Export installation directory.

3. Declare the objects of the callback procedures you are going to use, and pass them to your instance of HtmlExport.

Example

```
ContinueCallback cci = new ContinueCallbackImpl();  
GetAnchorCallback gaci = new GetAnchorCallbackImpl();
```

```
GetAuxOutputCallback gaoci = new GetAuxOutputCallbackImpl();
UserCBCallback ucbi = new UserCBCallbackImpl();
CallingContext cContext = new CallingContextImpl();
objHtmlExport.setCallingContext(cContext);
objHtmlExport.setContinueCallback(cci);
objHtmlExport.setGetAnchorCallback(gaci);
objHtmlExport.setGetAuxOutputCallback(gaoci);
objHtmlExport.setUserCBCallback(ucbi);
```

Before Running Your Application

Before running your application, set the library path using one of the following methods:

- On Windows, add the location of `htmlexport.dll` to the PATH environment variable.
- On Linux and Solaris, add the location of `libhtmlexport.so` to the LD_LIBRARY_PATH environment variable.
- On AIX, add the location of `libhtmlexport.a` to the LIBPATH environment variable. You can also specify the library path as a system property as follows:

```
java -Djava.library.path=HTML_Export_bin_directory ...
```

Export .NET Support

KeyView provides interfaces to its Java APIs in the .NET environment. These interfaces enable you to write C# or Visual Basic .NET programs that call Export APIs and run them natively in the Microsoft .NET Common Language Runtime (CLR).

For a full description of the API classes, see the Javadoc in the directory `install\javaapi\javadoc`.

Third-Party Software and Redistributable Files

You need the following components to develop applications in the .NET environment:

- Microsoft .NET Framework Version 2.0 SDK
- Microsoft .NET Framework Version 2.0 Redistributable Package
- Micro Focus-supplied dynamic link library, `kvexportdotnet`, which is installed to the `Export\bin` directory.

NOTE: The KeyView installation does not register the Export .NET library in the Global Assembly Cache (GAC) on your machine.

The following files must be redistributed with your .NET application:

- kvexportdotnet library (.NET API)
- kvhtmlwrapper library (C wrapper around kvhtml)
- Microsoft .NET Framework Version 2.0 Redistributable Package
- other files listed in the [Files Required for Redistribution, on page 264](#).

Sample Programs

The following C# program is installed to the *Install_Dir\dotnetapi\sample* directory and can be compiled in Visual Studio:

- HtmlConvFileToFile.cs (See [HtmlConvFileToFile, on page 107](#))

Part II: Use the Export API

This section explains how to perform some basic tasks using the File Extraction and Export APIs, and describes the sample programs. It contains the following chapters:

- [Use the File Extraction API](#)
- [Use the HTML Export API](#)
- [Sample Programs](#)

Chapter 3: Use the File Extraction API

This section describes how to extract subfiles from a container file using the File Extraction API.

• Introduction	41
• Extract Subfiles	42
• Extract Images	44
• Recreate a File Hierarchy	44
• Extract Mail Metadata	46
• Extract Subfiles from Outlook Files	52
• Extract Subfiles from Outlook Express Files	52
• Extract Subfiles from Mailbox Files	52
• Extract Subfiles from Outlook Personal Folders Files	53
• Extract Subfiles from Lotus Domino XML Language Files	56
• Extract Subfiles from Lotus Notes Database Files	57
• Extract Subfiles from PDF Files	60
• Extract Embedded OLE Objects	61
• Extract Subfiles from ZIP Files	61
• Default File Names for Extracted Subfiles	61

Introduction

To convert a file, you must first determine whether the file contains any subfiles (attachments, embedded OLE objects, and so on). A file that contains subfiles is called a *container* file. A container file has a main file (parent) and subfiles (children) embedded in the main file.

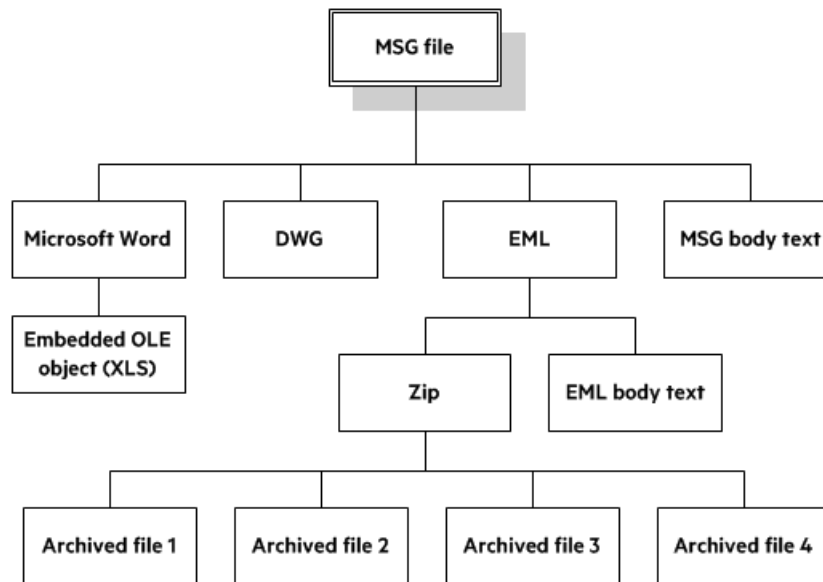
The following are examples of container files:

- Archive files such as ZIP, TAR, and RAR.
- Mail messages such as Outlook (MSG) and Outlook Express (EML).
- Mail stores such as Microsoft Outlook Personal Folders (PST), Mailbox (MBX), and Lotus Notes database (NSF).
- PDF files that contain file attachments.
- Compound documents with embedded OLE objects such as a Microsoft Word document with an embedded Excel chart.

NOTE: [Document Readers, on page 197](#) indicates which formats are treated as container files and are supported by the File Extraction API.

The subfiles might also be container files, creating a file hierarchy of multiple levels. For example, an MSG file (the root parent) might contain three attachments:

- a Microsoft Word document that contains an embedded Microsoft Excel spreadsheet.
- an AutoCAD drawing file (DWG).
- an EML file with an attached Zip file, which in turn contains four archived files.



NOTE: The parent MSG file contains four first-level children. The body text of a message file, although not a standalone file in the container, is considered a child of the parent file.

Extract Subfiles

To convert all files in a container file, the container must be opened and its subfiles extracted to either a file or a stream using the *File Extraction API*. The extraction process is done repeatedly until all subfiles are extracted and exposed for conversion. Once a subfile is extracted, you can call Export API methods to convert the data.

If you require a container file, including subfiles, to be converted to a single file, you must extract all files from the container, convert the files, and then append each converted output to its parent.

To extract subfiles, follow this general procedure

1. Open the source file by calling the `extOpenDocument` method. This call defines the parameters necessary to open a file for extraction.
2. Determine whether the main file is a container file (contains subfiles) by calling the `extGetMainFileInfo()` method.
3. If the call to `extGetMainFileInfo()` determined the source file is a container file, proceed to

[Step 4](#); otherwise, convert the file.

4. Determine whether the subfile is itself a container (contains subfiles) by calling the `extGetSubFileInfo` method.
5. Extract the subfile by calling the `extExtractSubFile` method.
6. If the call to `extGetSubFileInfo` determined the subfile is a container file, repeat [Step 1](#) through [Step 5](#) until all subfiles are extracted and the lowest level of subfiles is reached; otherwise, convert the file.

Sanitize Absolute Paths

When you extract a subfile from a container and write it to disk, you specify an extract directory and a path to extract the file to.

To set the path, you might use the path in the container file that you are extracting from, as returned from the `Filter.extGetSubFileInfo()` method. However, if the path is an absolute path, the file could be created outside the directory you have chosen as the extract directory. Your application might then contain a vulnerability that could be exploited to write files to unexpected locations in the file system. This section discusses some KeyView features that can help you secure your application by sanitizing paths.

KeyView always sanitizes relative paths that you pass in when extracting files, so that the paths remain within the extract directory you specify. For example, KeyView does not allow the use of `..` to move outside the extract directory.

KeyView can update absolute paths so that they remain within the extract directory. You can instruct KeyView to sanitize absolute paths programmatically (through the API), or by setting a parameter in the configuration file.

The following table shows the effect on some example paths.

Requested path	Path of extracted file (not sanitized)	Path of extracted file (sanitized)
<code>file.txt</code>	<code>extractDir/file.txt</code>	<code>extractDir/file.txt</code>
<code>dir/file.txt</code>	<code>extractDir/dir/file.txt</code>	<code>extractDir/dir/file.txt</code>
<code>../file.txt</code>	<code>extractDir/file.txt</code>	<code>extractDir/file.txt</code>
<code>/dir/file.txt</code>	<code>/dir/file.txt</code>	<code>extractDir/dir/file.txt</code>

To sanitize absolute paths

- Call the method `setSanitizeAbsolutePath` on the `ExtSubFileExtractConfig` that you pass in to `extExtractSubFile`. When KeyView sanitizes a path and the resulting directory does not exist, extraction fails unless you instruct KeyView to create the directory, so you might also want to call the method `setCreateDirectory`. You can find the path that a file was actually extracted to from the `ExtSubFileExtractInfo` object that is returned from the `extExtractSubFile` method.

To sanitize absolute paths (through configuration)

- In the `formats_e.ini` configuration file, set the parameter `SanitizeAbsoluteExtractPaths`, for example:

```
[Options]  
SanitizeAbsoluteExtractPaths=TRUE
```

Extract Images

You can use the File Extraction API to extract images within a file.

If you use this feature, images within the file behave in the same way as any other subfile. Extracted images have the name `image[X].[Y]`, where `[X]` is an integer, and `[Y]` is the extension. The format of the image is the same as the format in which it is stored in the document.

To extract images

- In `formats_e.ini`, set the following parameter.

```
[Options]  
ExtractImages=TRUE
```

Recreate a File Hierarchy

When a container file is extracted, any relationships between the subfiles in the container are not maintained. However, the File Extraction interface provides information that enables you to recreate the hierarchy. The hierarchy can be used to create a directory structure in a file system, or to categorize documents according to their relationship to each other. For example, if you use KeyView to generate text for a search engine, the hierarchical information enables your users to search for a document based on the document's parent or sibling. In addition, when the document is returned to the user, the parent and sibling documents can be returned as recommendations.

The information needed to recreate a file's hierarchy is provided in the call to `extGetSubFileInfo`. Call this method to retrieve an object of the `ExtSubFileInfo` class, then use the `getParentIndex()` and `getChildArray()` methods in this object to retrieve information about the subfile's parent and children. Since you can only retrieve the first-level children in a subfile, you must call `extGetSubFileInfo` repeatedly until information for the leaf-node children is extracted.

Create a Root Node

Because of their structure, some container files do not contain a subfile or folder which acts as a root directory on which the hierarchy can be based. For example, subfiles in a Zip archive can be extracted, but none of the subfiles represent the root of the hierarchy. In this case, an artificial *root node* must be created at the top of the file hierarchy as a point of reference for each child, and ultimately to recreate

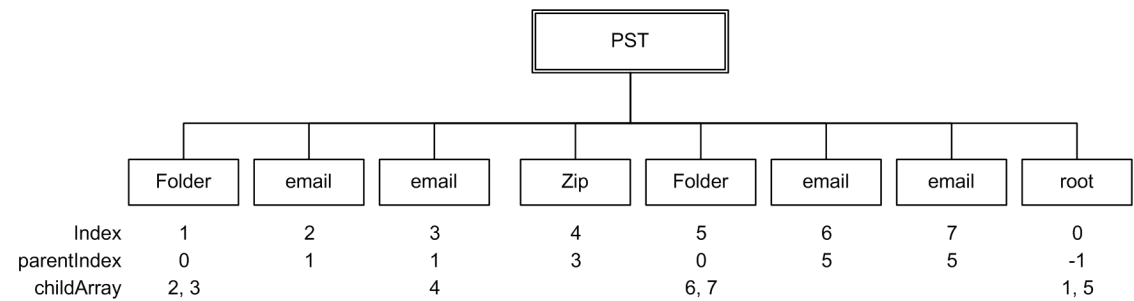
the relationships. This artificial root node is an internal object, and is extracted to disk as a directory called `root`. Its index number is 0.

To create a root node, call the `setCreateNode` method in the `ExtOpenDocConfig` object, and pass `ExtOpenDocConfig` to the `extOpenDocument` method. When a root node is created, the value returned from the `getNumSubFiles` method in the `ExtMainFileInfo` object includes the root node. For example, when you call `extGetMainFileInfo` on a Microsoft Word document with three embedded OLE objects and the root node is disabled, the number of subfiles is 3. If you create a root node, the number of subfiles is 4.

Example

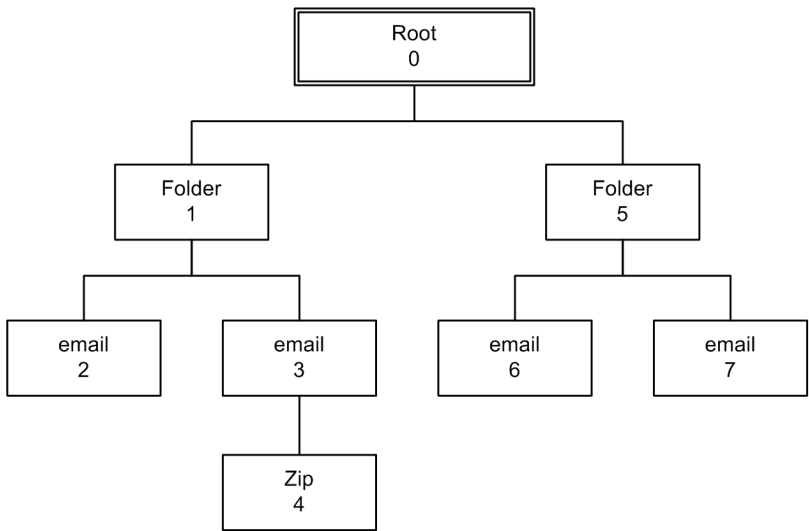
For example, you might extract a PST file that contains seven subfiles with a root node enabled. The call to `extGetMainFileInfo()` returns the number of subfiles as 8 (seven subfiles and one root node). The following diagram shows the structure and the available hierarchy information after the subfiles are extracted:

Extracted PST File



The `parentIndex` specifies the index number of a subfile's parent. The `childArray` specifies an array of a subfile's children. With this information, you can recreate the hierarchy shown in the following diagram:

Recreated File Hierarchy



Extract Mail Metadata

You can extract metadata such as subject, sender, and recipient from subfiles of mail formats by calling the `extGetSubFileMetadata()` method. You can extract a predefined set of metadata fields, or a list of metadata fields by their names or MAPI properties.

Default Metadata Set

KeyView internally defines a set of common mail metadata fields that can be extracted as a group from mail formats. This default metadata set is listed in the following table.

Default Mail Metadata List

Field Name (string to specify)	Description
From	The display name and email address of the sender.
Sent	The time the message was sent.
To	The display names and email addresses of the recipients.
Cc	The display names and email addresses of recipients who receive copies of the email.
Bcc	The display names and email addresses of recipients who received blind copies of the email.

Default Mail Metadata List, continued

Field Name (string to specify)	Description
Subject	The text in the subject line of the message.
Priority	The priority applied to the message.

Because mail formats use different terms for the same fields, the format's reader maps the default field name to the appropriate format-specific name. For example, when retrieving the default metadata set, the NSF field *Importance* is mapped to the name *Priority* and is returned.

You can also extract the default field names individually by passing the field name (such as *From*, *To*, and *Subject*); however, in this case, the string is not mapped to the format-specific name. For example, if you pass *Priority* in the call, you will retrieve the contents of the *Priority* field from an MBX file, but will not retrieve the contents of the *Importance* field from an NSF file.

NOTE: You cannot pass the field names listed in [MSG-Specific Metadata List, on the next page](#) individually for PST files. However, you can pass either the MAPI tag number or one of the constants in the Export class as integers. See [Microsoft Personal Folders File \(PST\) Metadata, on page 50](#).

Extract the Default Metadata Set

To extract the default metadata set, call the `extGetSubFileMetadata(long docContextID, int nSubFileIndex, ExtSubFileMetaConfig config)` method.

For example:

```
ExtSubFileMetaConfig metaConfig = new ExtSubFileMetaConfig();  
  
ExtSubFileMetadata subfilemeta = null;  
  
subfilemeta = m_objExport.extGetSubFileMetadata(extContextID, index, metaConfig);
```

Extract All Metadata

KeyView can extract all metadata from subfiles of MSG, EML, MBX, MIME, NSF, ICS, and DXL mail containers.

To extract all metadata, call the `setAllMetadata()` method of the `ExtSubFileMetaConfig` object, and pass `ExtSubFileMetaConfig` to the `extGetSubFileMetadata` method. For example:

```
config = new ExtSubFileMetaConfig();  
config.setAllMetadata(true);  
subFileMetadata = export.extGetSubFileMetadata(extContextID, i, config);
```

Microsoft Outlook (MSG) Metadata

In addition to the default metadata set, the metadata fields listed in the following table can be extracted for MSG files. The field name must be passed to `metaNameArray` in the call to the `extGetSubFileMetadata()` method.

MSG-Specific Metadata List

Field Name (string to specify)	Description
AttachFileName	An attachment's long file name and extension, excluding path.
ConversationTopic	The topic of the first message in a conversation thread. A conversation thread is a series of messages and replies. This is the first message's subject with any prefix removed.
CreationTime	The time the message or attachment was created. This value is displayed in the Sent field in the message's Properties dialog in Outlook.
InternetMessageID	The identifier for messages that come in over the Internet. This is the MAPI property <code>PR_INTERNET_MESSAGE_ID</code> . This property is not in the MAPI headers or MAPI documentation.
LastModificationTime	The time the message or attachment was last modified. This value is displayed in the Modified field in the message's Properties dialog in Outlook.
Location	The physical location of the event specified in the Outlook calendar entry.
MessageID	The message transfer system (MTS) identifier for the message transfer agent (MTA). This value is displayed on the Message ID tab in the message's Properties dialog in Outlook.
Received	The date and time a message was delivered. This value is displayed in the Received field in the message's Properties dialog in Outlook.
Sender	<p>The name and email address of the message sender. This value is a concatenation of two MAPI properties in the following format:</p> <p>"PR_SENDER_NAME" <PR_SENDER_EMAIL_ADDRESS></p> <p>The Sender value might be the same as or different than the default metadata From value (see Default Metadata Set, on page 46), depending on which MAPI properties exist in the MSG file.</p>
Sensitivity	The value indicating the message sender's opinion of the sensitivity of a message, such as Personal, Private, or Confidential. This value is displayed in the Sensitivity field in the message's Properties dialog in Outlook.
TransportMsgHeaders	Contains transport-specific message envelope information. This value corresponds to the MAPI property <code>PR_TRANSPORT_MESSAGE_HEADERS</code> .

MSG-Specific Metadata List, continued

Field Name (string to specify)	Description
StartDate	Contains an appointment start date. This value corresponds to the PR_START_DATE MAPI property.
EndDate	Contains an appointment end date. This value corresponds to the PR_END_DATE MAPI property.

Extract MSG-Specific Metadata

To extract specific metadata fields from an MSG file, use the method `extGetSubFileMetadata(long docContextID, int nSubFileIndex, java.lang.String[] metaNameArray, ExtSubFileMetaConfig config)` and pass the field name defined in [MSG-Specific Metadata List, on the previous page](#) to `metaNameArray` (the string is not case sensitive).

For example, the following code extracts the contents of the `ConversationTopic` and `MessageID` fields:

```
ExtSubFileMetaConfig metaConfig = new ExtSubFileMetaConfig();
ExtSubFileMetadata subfilemeta = null;

String[] metaNameArray = {"conversationtopic", "MessageID"};

subfilemeta = m_objExport.extGetSubFileMetadata(extContextID, index, metaNameArray,
metaConfig);
```

Microsoft Outlook Express (EML) and Mailbox (MBX) Metadata

In addition to the default metadata set, you can extract any metadata field that exists in the header of an EML or MBX file by passing the field's name. If the name is a valid field in the file, the contents of the field are returned. For example, to retrieve the name of the last mail server that received the message before it was delivered, you can pass the string "Received".

Extract EML- or MBX-Specific Metadata

To extract specific metadata fields from an EML or MBX file, use the method `extGetSubFileMetadata(long docContextID, int nSubFileIndex, java.lang.String[] metaNameArray, ExtSubFileMetaConfig config)` and pass the metadata name to `metaNameArray` (the string is not case sensitive).

For example, the following code extracts the contents of the `Received` and `Mime-version` fields:

```
ExtSubFileMetaConfig metaConfig = new ExtSubFileMetaConfig();
ExtSubFileMetadata subfilemeta = null;

String[] metaNameArray = {"Received", "Mime-version"};
```

```
subfilemeta = m_objExport.extGetSubFileMetadata(extContextID, index, metaNameArray,  
metaConfig);
```

Lotus Notes Database (NSF) Metadata

In addition to the default metadata set, you can extract any Lotus field name that exists in an NSF file by passing the field's name. (You can extract fields from mail NSF files and non-mail NSF files.) If the name is a valid field in the file, the field is returned. For example, to retrieve the date a document in an NSF file was last accessed, you would pass the string "\$LastAccessedDB".

NOTE: A complete list of NSF fields are provided in the Lotus Notes file `stdnames.h`. This header file is available in the Lotus API Toolkit.

Extract NSF-Specific Metadata

To extract specific metadata fields from an NSF file, use the method `extGetSubFileMetadata(long docContextID, int nSubFileIndex, java.lang.String[] metaNameArray, ExtSubFileMetaConfig config)` and pass the metadata name to `metaNameArray` (the string is not case sensitive).

For example, the following code extracts the contents of the Description and Categories fields:

```
ExtSubFileMetaConfig metaConfig = new ExtSubFileMetaConfig();  
ExtSubFileMetadata subfilemeta = null;  
  
String[] metaNameArray = {"description", "Categories"};  
  
subfilemeta = m_objExport.extGetSubFileMetadata(extContextID, index, metaNameArray,  
metaConfig);
```

Microsoft Personal Folders File (PST) Metadata

In addition to the default metadata set, you can extract Messaging Application Programming Interface (MAPI) properties from a PST file. These properties describe elements (subject, sender, recipient, and so on) of Outlook items within the PST file. Since the properties are stored in the PST file itself, they can be retrieved before the contents of the PST are extracted. This enables you to determine whether an Outlook item should be extracted based on a subfile's attributes. MAPI properties are also stored for Outlook attachments that are not mail messages (such as an attached Microsoft Word document or Lotus 1-2-3 file).

MAPI Properties

Each MAPI property is identified by a property tag, which is a constant that contains the property type and a unique identifier. For example, the property that indicates whether a message has attachments has the following components:

Property	PR_HASATTACH
----------	--------------

Identifier 0x0E1B
Property type PT_BOOLEAN (000B)
Property tag 0x0E1B000B

The Microsoft MAPI documentation on the Microsoft Developer Network website lists all available MAPI properties, their tags, and types.

You can retrieve any MAPI property that is of one of the MAPI property types listed below:

PT_I2 PT_DOUBLE PT_STRING8
PT_I4 PT_FLOAT PT_TSTRING
PT_BINARY PT_LONG PT_SYSTIME
PT_BOOLEAN PT_SHORT PT_UNICODE

NOTE: Properties with a PT_TSTRING type have the property type recompiled to either a Unicode string (PT_UNICODE) or to an ANSI string (PT_STRING8) depending on the operating system's character set. To retrieve the Unicode property, pass in the Unicode version of the tag. For example, the property tag for PR_SUBJECT is either 0x0037001E for an ANSI string, or 0x0037001F for a Unicode string.

Extract PST-Specific Metadata

In the call to extract subfile metadata, you can pass either the MAPI tag number (such as 0x0070001e) or one of the constants in the Export class (such as KVPR_SUBJECT). These constants are a subset of MAPI properties and use a KeyView naming convention. For example, the property PR_CONVERSATION_TOPIC is defined as KVPR_CONVERSATION_TOPIC. If the property you want to retrieve is not defined as a constant in the Export class, you must pass the MAPI tag number.

To extract specific MAPI properties from a PST file, use the method `extGetSubFileMetadata(long docContextID, int nSubFileIndex, int[] metaNameArray, ExtSubFileMetaConfig config)` and pass the tag number or constant to `metaNameArray`.

For example, the following code extracts the MAPI properties PR_SUBJECT and PR_ALTERNATE_RECIPIENT:

```
ExtSubFileMetaConfig metaConfig = new ExtSubFileMetaConfig();  
ExtSubFileMetadata subfilemeta = null;  
int[] metaNameArray = {Export.KVPR_SUBJECT, 0x3A010102};  
subfilemeta = m_objExport.extGetSubFileMetadata(extContextID, index, metaNameArray,  
metaConfig);
```

Exclude Metadata from the Extracted Text File

When a mail message is extracted, the message text and header information (To, From, Sent, and so on) is also extracted. You can prevent the header information from appearing in the text file.

To exclude the header information, call the `setExcludeMailHeader()` method of the `ExtSubFileExtractConfig` object, and pass `ExtSubFileExtractConfig` to the `extExtractSubFile` method. For example:

```
m_excludeMailHeader = true;

extconfig = new ExtSubFileExtractConfig();

extconfig.setExcludeMailHeader(m_excludeMailHeader);

extinfo = m_objExport.extExtractSubFile(extContextID, i, extconfig);
```

Extract Subfiles from Outlook Files

When you extract an Outlook file (MSG) to disk, the message text and header information (To, From, Sent, and so on) is extracted to a text file. (If you do not want the header information to appear in the text file, see [Exclude Metadata from the Extracted Text File, on the previous page.](#)) If the Outlook file contains a non-mail attachment, the attachment is extracted in its native format to a subdirectory. If the Outlook file contains a mail attachment, the attachment's message text and any attachments are extracted to a subdirectory.

Extract Subfiles from Outlook Express Files

When you extract an Outlook Express (EML) file to disk, the message text and header information (To, From, Sent, and so on) is extracted to a text file. (If you do not want the header information to appear in the text file, see [Exclude Metadata from the Extracted Text File, on the previous page.](#)) If the Outlook Express file contains a non-mail attachment, the attachment is extracted in its native format to the same directory as the message text file. If the Outlook Express file contains a mail attachment, the complete attachment (including message text and attachments), the message text file, and any non-mail attachments are extracted to the same directory as the main message.

NOTE: When the MBX reader (`mbxsr`) is enabled, it is used to filter MBX and EML files. If the MBX reader is not enabled, the EML reader (`emlsr`) is used.

Extract Subfiles from Mailbox Files

A Mailbox (MBX) file is a collection of individual emails compiled with RFC 822 and RFC 2045 - 2049 (MIME), and divided by message separators. There are many mail applications that export to an MBX format, such as Eudora Email and Mozilla Thunderbird.

When an MBX file is extracted to disk, the message text and header information (To, From, Sent, and so on) from each mail file are extracted to text files. (If you do not want the header information to appear in the text file, see [Exclude Metadata from the Extracted Text File, on the previous page.](#))

In Eudora MBX files, attachments are inserted as a link and are stored externally from the message. These attachments are not extracted, but the path to the attachment is returned in the call to the `extGetSubFileInfo` method. You can write code to retrieve the attachment based on the returned path.

For MBX files from other clients, KeyView extracts attachments when they are embedded in the message.

NOTE: The Mailbox (MBX) reader is an advanced feature and is sold and licensed separately. To enable this reader in a KeyView SDK, you must obtain the appropriate license key from Micro Focus.

Extract Subfiles from Outlook Personal Folders Files

KeyView can extract Outlook items such as messages, appointments, contacts, tasks, notes, and journal entries from a PST file. When a PST file is extracted to disk, the body text and header information (To, From, Sent, and so on) from each Outlook item is extracted to a text file. (If you do not want the header information to appear in the text file, see [Exclude Metadata from the Extracted Text File, on page 51](#).)

You can also extract messages from PST files as MSG files, including all their attachments, using the `setSaveAsMSG()` method in the `ExtSubFileExtractConfig` class.

If an Outlook item contains a non-mail attachment, the attachment is extracted in its native format to a subdirectory. If an Outlook item contains an Outlook attachment, the attached item's body text and any attachments are extracted to a subdirectory.

NOTE: The Microsoft Outlook Personal Folders (PST) readers are an advanced feature and are sold and licensed separately. To enable these readers in a KeyView SDK, you must obtain an appropriate license key from Micro Focus. For information about adding a new license key to an existing installation, see [Pass License Information to KeyView, on page 16](#).

Choose the Reader to use for PST Files

KeyView provides several ways of processing PST files:

- Indirectly, using the Microsoft Messaging Application Programming Interface (MAPI). MAPI is a Microsoft interface that enables different applications to exchange messages and attachments with each other. MAPI allows KeyView to open a PST file, traverse the folders, and extract items. The `pstsr` reader uses MAPI, but works only on Windows and requires that Microsoft Outlook is installed.
- Directly, without relying on the Microsoft interface to the PST format. Accessing the file directly does not require Microsoft Outlook. The `pstxsr` reader is available for Windows (32-bit and 64-bit) and Linux (64-bit only). The `pstnsr` reader is an alternative native reader, for the platforms not supported by `pstxsr`.

On Windows, the MAPI-based reader is used by default but you can choose `pstxsr` if you prefer. On UNIX platforms, only one of the native readers is available (`pstxsr` on Linux x64 and `pstnsr` on other platforms).

The differences between the readers are summarized in the following table.

Feature	Native Reader (pstxsr)	Native Reader (pstnsr)	MAPI-based Reader (pstsrr)
Platforms supported	Windows x86 and x64 Linux x64	All platforms not supported by pstxsr	Windows x86 and x64
Outlook required	No	No	Yes
MAPI properties supported	Yes. All properties defined in <code>mapitags.h</code> . Object properties are not supported.		
Password protection supported	Yes	Yes	Yes (using <code>KVCredential</code> structure)
Compressible encryption supported	Yes	Yes	Yes
High encryption supported	No	No	Yes

To change the reader used to process PST files, change the PST entry (file category value 297) in the `formats_e.ini` file. For example, to use `pstxsr`:

297=**pstx**

NOTE: You must make sure that the PST that you are extracting is not open in the Outlook client, and that the Outlook process is not running.

NOTE: When extracting subfiles from PST files, information on the distribution list used in an email is extracted to a file called `emailname.dist`. This applies to the MAPI reader (`pstsrr`) only.

System Requirements

MAPI is supported on Windows platforms only and relies on functionality in Outlook. If you want to use the MAPI-based reader, `pstsrr`, Microsoft Outlook must be installed on the same machine as your application. Outlook must also be the default email application. KeyView supports the following PST formats and Outlook clients:

- Outlook 97 or later PST files

NOTE: The Outlook client must be the same version as, or newer than, the version of Outlook that generated the PST file.

- Outlook 2002 or later clients

NOTE: You must install an edition of Microsoft Outlook (32-bit or 64-bit) that matches the KeyView software. For example, if you use 32-bit KeyView, install 32-bit Outlook. If you use 64-bit KeyView, install 64-bit Outlook.

If the editions do not match, KeyView returns Error 32: KVErrror_PSTAccessFailed and an error message from Microsoft Office Outlook is displayed: Either there is a no default mail client or the current mail client cannot fulfill the messaging request. Please run Microsoft Outlook and set it as the default mail client.

MAPI Attachment Methods

The way in which you can access the contents of a PST message attachment is determined by the MAPI *attachment method* applied to the attachment. For example, if the attachment is an embedded OLE object, it uses the ATTACH_OLE attachment method. KeyView can access message attachments that use the following attachment methods:

ATTACH_BY_VALUE

ATTACH_EMBEDDED_MSG

ATTACH_OLE

ATTACH_BY_REFERENCE

ATTACH_BY_REF_ONLY

ATTACH_BY_REF_RESOLVE

Attachments using the ATTACH_BY_VALUE, ATTACH_EMBEDDED_MSG, or ATTACH_OLE attachment methods are extracted automatically when the PST file is extracted. An "attach by reference" method means that the attachment is not in Outlook, but Outlook contains an absolute path to the attachment. Before you can extract these types of attachments, you must retrieve the path to access the attachment.

To extract "attach by reference" attachments

1. Determine whether the attachment uses an ATTACH_BY_REFERENCE, ATTACH_BY_REF_ONLY, or ATTACH_BY_REF_RESOLVE method by retrieving the MAPI property PR_ATTACH_METHOD.
2. If the attachment uses one of the "attach by reference" methods, get the fully qualified path to the attachment by retrieving the MAPI properties PR_ATTACH_LONG_PATHNAME or PR_ATTACH_PATHNAME.
3. You can then either copy the files from their original location to the path where the PST file is extracted, or use the Export API methods to convert the attachment.

Open Secured PST Files

KeyView enables you to specify credentials (user name and password), which are used to open a secured PST file for extraction.

Detect PST Files While the Outlook Client is Running

If you are running an Outlook client while running the File Extraction API, the KeyView format detection module (kwad) might not be able to open the PST file to determine the file's format because Outlook has the file locked. In this case, you can do one of the following:

- Close Outlook when using the Extraction API
- Detect PST files by extension only and bypass the format detection module. To enable this option, add the following lines to the `formats_e.ini` file.

```
[container_flags]
detectPSTbyExtension=1
```

NOTE: The `detectPSTbyExtension` option only applies when you are using the MAPI reader (psts).r).

NOTE: If you use this option, you must make sure in your code that valid PST files are passed to KeyView because the format detection module will not be available to verify the file type and pass the file to the appropriate reader.

Extract Subfiles from Lotus Domino XML Language Files

When you extract a Lotus Domino XML Language (.DXL) file, the message text and header information (*To*, *From*, *Sent*, and so on) is extracted to a text file.

NOTE: To prevent header information from being extracted, see [Exclude Metadata from the Extracted Text File, on page 51](#).

You can make sure that dates and times extracted from Lotus Domino .DXL files are displayed in a uniform format.

To extract custom date/time formats

- In the `formats_e.ini` file, set the `DateTimeFormat` option in the `[dxlsr]` section. For example:

```
[dxlsr]
DateTimeFormat=%m/%d/%Y %I:%M:%S %p
```

In this example, dates and times are extracted in the following format:

02/11/2003 11:36:09 AM

The format arguments are the same as those for the `strftime()` function. See <http://msdn.microsoft.com/en-us/library/fe06s4ak%28VS.71%29.aspx> for more information.

Extract .DXL Files to HTML

You can use the file extraction API to process .DXL files with an XSLT engine. The XSLT engine then transforms the extracted .DXL to .mail HTML files.

To extract .DXL files to HTML

- Set the following options in the `formats_e.ini` file:

```
[nsfsr]
ExportDXL=1
ExportDXL_PureXML=1
[dxlsr]
LNDDParser=2
```

Extract Subfiles from Lotus Notes Database Files

A Lotus Notes database is a single file that contains multiple documents called *notes*. Notes include design notes (such as forms, views, folders, navigators, outlines, pages, framesets, agents, and resources), data document notes, profile document notes, access control list notes, and collection (index) notes. KeyView can extract text items, attachments, and OLE objects from *data document notes* only. Data document notes include emails, journal entries, discussion threads, documents (Microsoft Office and Lotus SmartSuite), and so on.

All components of a note are prefixed by field names such as "SendTo:", "Subject:", and "Body:". When a note is extracted, the field names are not included in the extracted output; only the field values are extracted.

When a mail message in an NSF file is extracted to disk, the body text and header information (such as the values from the SendTo, From, and DeliveredDate fields) in each message is extracted to a text file. (If you do not want the header information to appear in the message text file, see [Exclude Metadata from the Extracted Text File, on page 51.](#))

NOTE: The Lotus Notes Database (NSF) reader is an advanced feature and is sold and licensed separately. To enable this reader in a KeyView SDK, you must obtain the appropriate license key from Micro Focus.

System Requirements

The NSF format is proprietary. Therefore, KeyView accesses NSF files indirectly by using the Lotus Notes API. Because the NSF reader relies on functionality in Lotus Notes, a Lotus Notes client or Lotus Domino server must be installed and configured on the same machine on which the application

converting NSF files is installed. On UNIX and Linux, the Lotus Domino server is required. On Windows, the Lotus Notes client or Lotus Domino server is required.

KeyView supports the following Lotus Notes clients and Domino servers:

- Lotus Notes 6.5.1
- Lotus Domino 6.5.1

KeyView supports NSF files on the same platforms supported by Lotus Notes and Lotus Domino:

- Windows XP x86 (Service Pack 1 and 2)
- Windows 2000 x86 (Service Pack 2)
- Solaris 8.0 and 9.0 (built on Solaris 8.0)
- Red Hat Enterprise Linux AS 3.0 (x86)
- SuSE Linux Enterprise Server 8 and 9 (x86)
- IBM AIX 5.1, 5L version 5.2

Installation and Configuration

Before KeyView can convert NSF files, you must set up the Lotus Notes client or Lotus Domino server. Full configuration is not required. The following steps outline the minimal setup for NSF conversion.

Windows

1. Install the Lotus Notes client or Lotus Domino server. You do not need to configure the client or server.
2. Make sure that the `notes.ini` file is in the proper location.
 - If Lotus Notes is installed, the file should appear in the `install\lotus\notes` directory, where `install` is the installation directory.
 - If only Lotus Domino is installed, the file should appear in the `install\lotus\domino` directory, where `install` is the installation directory.

If the file does not exist, create an ASCII file named `notes.ini`, and add the following text:

```
[Notes]
```

3. Add the KeyView bin directory and the `install\lotus\notes` or `install\lotus\domino` directory to the PATH environment variable (the KeyView bin directory must be first in the path). Micro Focus recommends that you add the KeyView bin directory because the Lotus Notes or Domino server installation might contain older KeyView OEM libraries.

Solaris

1. Install Lotus Domino server. You do not need to configure the server.
2. Make sure that the file `notes.ini` is in the `install/lotus/notes/latest/sunspa` directory,

where *install* is the directory where Lotus Notes is installed. If the file does not exist, create an ASCII file named *notes.ini*, and add the following text:

```
[Notes]
```

3. Add the *install/lotus/notes/latest/sunspa* directory to the PATH environment variable:

```
setenv PATH install/lotus/notes/latest/sunspa:$PATH
```

4. Add the *install/lotus/notes/latest/sunspa* and the KeyView bin directory to the LD_LIBRARY_PATH environment variable:

```
setenv LD_LIBRARY_PATH keyview_bin:install/lotus/notes/latest/sunspa:$LD_LIBRARY_PATH
```

where *keyview_bin* is the location of the KeyView bin directory. Micro Focus recommends that you add the KeyView bin directory because the Lotus Notes installation might contain older KeyView OEM libraries.

AIX 5.x

1. Install the *bos.iocp.rte* file set if it is not already installed, and reboot the machine. See the Lotus Domino server documentation for more information.
2. Install Lotus Domino server. You do not need to configure the server.
3. Make sure that the file *notes.ini* is in the *install/lotus/notes/latest/ibmpow* directory, where *install* is the directory where Lotus Notes is installed. If the file does not exist, create an ASCII file named *notes.ini*, and add the following text:

```
[Notes]
```

4. Add the *install/lotus/notes/latest/ibmpow* directory to the PATH environment variable:

```
setenv PATH install/lotus/notes/latest/ibmpow:$PATH
```

5. Add the *install/lotus/notes/latest/ibmpow* and the KeyView bin directory to the LIBPATH environment variable:

```
setenv LIBPATH keyview_bin:install/lotus/notes/latest/ibmpow:$LIBPATH
```

where *keyview_bin* is the location of the KeyView bin directory. Micro Focus recommends that you add the KeyView bin directory because the Lotus Notes installation might contain older KeyView OEM libraries.

Linux

1. Install Lotus Domino server. You do not need to configure the server.
2. Make sure the file *notes.ini* is in the *install/lotus/notes/latest/linux* directory, where *install* is the directory where Lotus Notes is installed. If the file does not exist, create an ASCII file named *notes.ini*, and add the following text:

```
[Notes]
```

3. Add the *install/lotus/notes/latest/linux* directory to the PATH environment variable:

```
setenv PATH install/lotus/notes/latest/linux:$PATH
```

4. Add the *install/lotus/notes/latest/linux* and the KeyView bin directory to the LD_LIBRARY_PATH environment variable:

```
setenv LD_LIBRARY_PATH keyview_bin:install/lotus/notes/latest/linux:$LD_LIBRARY_PATH
```

where *keyview_bin* is the location of the KeyView bin directory. Micro Focus recommends that you add the KeyView bin directory because the Lotus Notes installation might contain older KeyView OEM libraries.

Open Secured NSF Files

KeyView enables you to specify a user ID file and password to use to open a secured NSF file for extraction.

Format Note Subfiles

The KeyView NSF reader uses XML templates to format note subfiles. You can customize the templates to approximate the look and feel of the original notes as closely as possible. For more information, see [Extract and Format Lotus Notes Subfiles, on page 243](#).

Extract Subfiles from PDF Files

KeyView can extract document-level and page-level attachments from a PDF document. Document-level attachments are added by using the **Attach A File** tool, and can include links to or from the parent document or to other file attachments. Page-level attachments are added as comments by using various tools. Page-level or comment attachments display the File Attachment icon or the Speaker icon on the page where they are located. KeyView can also extract the files from Portfolio PDFs.

When a PDF file is extracted to disk, the PDF file is extracted to a directory and the PDF's attachments are saved in their native format to the same directory as the original PDF file.

Improve Performance for PDFs with Many Small Images

To improve performance when processing PDF files that contain many small images, you can choose to ignore images unless they exceed a minimum width and/or height. If an image is smaller than the minimum width or height, KeyView does not extract the image.

For example, to ignore images that are less than 16 pixels wide or less than 16 pixels in height, add the following to the [pdf_flags] section of the *formats_e.ini* file:

```
[pdf_flags]
process_images_with_min_width=16
process_images_with_min_height=16
```

Extract Embedded OLE Objects

Embedded OLE objects can be converted in two ways:

- Using the File Extraction API, the OLE object is first extracted from the main file and saved to disk. It can then be converted by making a separate conversion call.
- Using the HTML Export API, the main file is converted to HTML and the OLE object is converted to a graphics file that is referenced in the HTML file.

The File Extraction API can extract embedded OLE objects from the following types of documents:

- Lotus Notes (DXL)
- Microsoft Excel
- Microsoft Word
- Microsoft PowerPoint
- Microsoft Outlook
- Microsoft Visio
- Microsoft Project
- OASIS Open Document
- Rich Text Format (RTF)

When an embedded OLE object is extracted from its parent file, the location of the embedded file in the original document is not available. The parent and child are extracted as separate files.

Extract Subfiles from ZIP Files

You can extract ZIP files that are not password-protected by using the general method (see [Extract Subfiles, on page 42](#)). However, some ZIP files use password protection, in which case you must use a different method to enter the required credentials.

Default File Names for Extracted Subfiles

When a file name is not specified in the call to `extExtractSubFile`, in some cases, a default file name is applied to the extracted subfile.

Default File Name for Mail Formats

To avoid naming conflicts and problems with long file names, KeyView applies its own names to the extracted mail folders and mail items when a name is not supplied in the call to `extExtractSubFile`. A non-mail attachment retains its original file name and extension.

When the contents of a mail store or the message body of a mail message are extracted, the extracted file names might include the following:

- The first valid eight characters of the original folder name or "Subject" line of the mail message. If the "Subject" line is empty, the characters `kvext` are used, where `ext` is the format's extension. For example, the characters would be `"kvmsg"` for MSG, and `"kvnsf"` for NSF.

The following special characters are considered invalid and are ignored:

any non-printing character with a value less than `0x1F`

angle brackets (`<` `>`) double quotation mark (`"`)

asterisk (`*`) forward slash (`/`)

back slash (`\`) pipe (`|`)

colon (`:`) question mark (`?`)

For notes, the file name is derived from the first 24 characters of the note text. For contact entries, the file name is derived from the full name of the contact.

- The characters `_kvn`, where `n` is an integer incremented from 0 for each extracted item.
- One of the following extensions:

Type	File Extension
email message	<code>.mail</code>
calendar appointment	<code>.cal</code>
contact entry	<code>.cont</code>
task entry	<code>.task</code>
note	<code>.note</code>
journal entry	<code>.jrn1</code>
distribution list	<code>.dist</code>
posting note	<code>.post</code>

If the type cannot be determined for an MSG or PST file, the file is given a `.mail` extension.

If the type cannot be determined for an NSF file, the file is given a `.tmp` extension.

For example, an MSG mail message with the subject line "RE: Product roadmap" that contains the Microsoft Excel attachment `release_schedule.xls` is extracted as

```
RE produ_kv0.mail
```

```
release_schedule.xls
```

If an extracted message contains an embedded OLE object or any attachment that does not have a name, the object or attachment is extracted as `_kv#.tmp`.

Default File Name for Embedded OLE Objects

KeyView can apply a default name to an extracted embedded OLE object when a name is not supplied in the call to `extExtractSubFile`. When an embedded OLE object is extracted, the extracted file name might include the following:

- The first valid eight characters of the main file. The following special characters are considered invalid and are ignored:

any non-printing character with a value less than `0x1F`

angle brackets (`<` `>`)

double quotation mark (`"`)

asterisk (`*`)

forward slash (`/`)

back slash (`\`)

pipe (`|`)

colon (`:`)

question mark (`?`)

- The characters `_kvn`, where `n` is an integer incremented from 0 for each extracted object.
- If KeyView can determine the embedded OLE is a Microsoft Office document, the original extension is used. If the file type cannot be determined, the file is given a `.tmp` extension.

For example, let us say a Microsoft Word document (`sales_quarterly.doc`) contains two embedded OLE objects: a Microsoft Excel file called `west_region.xls`, and a bitmap created in the Word document. The embedded objects would be extracted as

```
sales_qu_kv0.xls
```

```
sales_qu_kv1.tmp
```

Chapter 4: Use the HTML Export API

This section describes how to perform some basic tasks by using the HTML Export API.

• Extract Metadata	64
• Extract File Format Information	69
• Convert Character Sets	70
• Map Styles	74
• Use Style Sheets	77
• Display Vector Graphics on UNIX and Linux	78
• Search and Highlight Terms	78
• Convert Revision Tracking Information	79
• Extract Text from Text Boxes	80
• Convert PDF Files	80
• Convert Spreadsheet Files	87
• Convert XML Files	91
• Error Messages	95
• Show Hidden Data	98
• Exclude Japanese Guide Text	100
• Source Code Identification	101

Extract Metadata

When a file format supports metadata, KeyView can extract and process that information. Metadata includes document information fields such as title, author, creation date, and file size. Depending on the file's format, metadata is referred to in a number of ways: for example, "summary information," "OLE summary information," "file information," and "document properties."

The metadata in mail formats (MSG and EML) and mail stores (PST, NSF, and MBX) is extracted differently than other formats. For information on extracting metadata from these formats, see [Extract Mail Metadata, on page 46](#).

NOTE: KeyView can extract metadata from a document only if metadata is defined in the document, and if the document reader can extract metadata for the file format. The section [Document Readers, on page 197](#) lists the file formats for which metadata can be extracted. KeyView does not generate metadata automatically from the document contents.

Extract Metadata by Using the API

You can extract the metadata at the API level. The API extracts all valid metadata fields that exist in the file.

To extract metadata using the Java API

1. Set the input source using the `setInputSource` method.
2. Call the `getSummaryInfo()` method of the `Export` object to retrieve an object of the `SummaryInfo` class.
3. Use the methods of the `SummaryInfo` object to retrieve the metadata information.

The `HtmlTest` sample program demonstrates how to extract metadata through the Java API. See [HtmlTest](#), on page 105.

Example

```
SummaryInfo[] sinfo = objHtmlExport.getSummaryInfo();

if(sinfo != null)
{
    System.out.println("\nSummary info has been extracted.");
    fos_sum = new FileOutputStream(summaryOutFile);
    DataOutputStream dos_sum = new DataOutputStream(fos_sum);

    for(int i=0; i<sinfo.length; i++)
    {
        if(sinfo[i].getElementName() != null)
        {
            dos_sum.writeBytes("Element name: " + sinfo[i].getElementName() + "\n");
            dos_sum.writeBytes("Element type: " + sinfo[i].getSumInfoType() + "\n");

            if(sinfo[i].getIsValid() == true)
            {
                if(sinfo[i].isDateTimeType())
                {
                    dos_sum.writeBytes("Date/time: ");
                    dos_sum.writeBytes(sinfo[i].getDateTime())
                }
                else
                {
                    byte[] data = sinfo[i].getData();

                    if(data != null)
                    {
                        dos_sum.writeBytes("Element data: ");

```

```
        dos_sum.write(data);
    }
}
dos_sum.writeBytes("\n\n");
}
}
dos_sum.close();
fos_sum.close();
}
sinfo = null;
```

The `SummaryInfo` class stores the metadata extraction results. After calling the `HtmlExport.getSummaryInfo()` method, call the get methods provided by each instance of this class to extract metadata.

The following describes each get method:

`getElementName` This method gets the name of the metadata element.
()

`getSumInfoType` This method specifies the data type of the metadata element. The possible types are:
()

- `KV_String`
- `KV_Int4`
- `KV_DateTime`
- `KV_ClipBoard`
- `KV_Bool`
- `KV_Unicode`
- `KV_IEEE8`
- `KV_Other`

If type is `KV_Bool`, data contains either `TRUE` or `FALSE`.

`KV_DateTime` and `KV_IEEE8` point to an 8-byte value.

`getIsValid()` This method specifies whether the data value is present in the document. `TRUE` specifies that the value is valid. For example, if the "Title" element was not populated in the document, `getIsValid` would return `FALSE`.

`isDateTimeType` This method determines whether the metadata element is of date/time type.
()

`getDateTime()` This method gets the date and time in the form of a string. If the metadata element is of date/time type, call this method to get the date and time in the form of a string, for example "Wed Jun 30 21:49:08 1993" or "135 Minutes".

`getData()` This method gets the content of the element.

If the metadata field is a date and time, the type is a 64-bit value representing the number of 100-nanosecond intervals since January 1, 1601.

You can also use the `isDateTimeType()` method to determine whether a metadata element is of date/time type, and then use the `getDateTime()` method to obtain the date/time in the form of a string.

Extract Metadata by Using a Template File

When using a template file, KeyView recognizes two types of metadata: *standard* and *non-standard*. Standard metadata includes fields, such as Title, Author, and Subject. The standard fields are enumerated from 1 to 41 in `KVSumType` in the header file `kvtypes.h`. Non-standard metadata includes any field not listed from 1 to 41 in `KVSumType`, such as user-defined fields (for example, custom property fields in Microsoft Word documents), or fields that are unique to a particular file type (for example, "Artist" or "Genre" fields in MP3 files). Enumerated types 42 and greater are reserved for non-standard metadata.

To extract metadata by using a template file

1. Insert metadata tokens in a member of the `KVHTMLTemplateEx` structure in the template file. This defines the point at which the metadata appears in the HTML output.
2. If you are using the `$USERSUMMARY` or `$SUMMARY` token, define the `szUserSummary` member of the `KVHTMLTemplateEx` structure in the template file. This determines the markup and tokens generated when these metadata tokens are processed.
3. In your application, read the template file and write the data to the `KVHTMLTemplateEx` structure.

The following metadata tokens can be used in the template files:

Token	Description
<code>\$SUMMARYNN</code>	Inserts the data from a <i>specified</i> metadata field. <i>NN</i> is a number from 00 through 42 enumerated in <code>KVSumType</code> in <code>kvtypes.h</code> .
<code>\$SUMMARY</code>	Inserts the data from valid metadata fields in the range of 0 to 33 using the markup provided in <code>pszUserSummary</code> .
<code>\$USERSUMMARY</code>	Inserts the data from <i>every</i> valid non-standard metadata field using the markup provided in <code>pszUserSummary</code> .
<code>\$CONTENT</code>	Inserts the content of the metadata field specified by the <code>\$NAME</code> token.
<code>\$NAME</code>	Inserts the name of a the metadata field, such as "Title," "Author," or "Subject."

Depending on the markup in `szUserSummary`, the extracted metadata might not appear in the browser when the HTML file is displayed, but might appear in the output file. Most of the KeyView-supplied template files extract standard metadata from a document, and include it in the output HTML. However, they do not display the metadata in a browser.

Examples

\$SUMMARY

The following markup displays the contents of the "Title" field at the top of the main HTML file:

```
szMainTop=<em><strong>$SUMMARY01</strong></em>
```

In KVSumType, 01 is the enumerated value for the "Title" metadata field.

\$SUMMARY

The following markup extracts all standard fields, and includes them in the first heading level 1 HTML block:

```
szFirstH1Start=$SUMMARY  
szUserSummary=<meta name="$NAME" content="$CONTENT" />
```

This example extracts the field name (\$NAME) and field content (\$CONTENT) for standard metadata from a document, and includes it at the beginning of the first Heading level 1 HTML block. However, it does not display the metadata in the browser. The HTML output might look like this:

```
<meta name="CodePage" content="1252" />  
<meta name="Title" content="My design document" />  
<meta name="Subject" content="design specifications" />  
<meta name="Author" content="John Doe" />  
<meta name="Keywords" content="" />  
<meta name="Comments" content="" />  
<meta name="Template" content="Normal.dot" />  
<meta name="LastAuthor" content="lchapman" />  
<meta name="RevNumber" content="6" />  
<meta name="EditTime" content="01/01/1601, 0:08" />  
<meta name="LastPrinted" content="14/01/2002, 14:06" />  
<meta name="Create_DTM" content="27/08/2003, 10:31" />  
<meta name="LastSave_DTM" content="29/08/2003, 14:07" />  
<meta name="PageCount" content="1" />  
<meta name="WordCount" content="4062" />  
<meta name="CharCount" content="23159" />  
<meta name="AppName" content="Microsoft Word 9.0" />  
<meta name="Security" content="0" />  
<meta name="Category" content="software" />  
<meta name="LineCount" content="192" />  
<meta name="ParCount" content="46" />  
<meta name="ScaleCrop" content="FALSE" />  
<meta name="Manager" content="" />  
<meta name="Company" content="Autonomy" />
```

To display the metadata in a browser, use the following markup in szUserSummary:

```
<hr>name="$NAME" content="$CONTENT" <br>/>
```

\$USERSUMMARY

The following markup extracts non-standard fields, and includes them at the bottom of the main HTML file:

```
szMainBottom=$USERSUMMARY  
szUserSummary=<meta name="$NAME" content="$CONTENT" />
```

This example extracts the field name (\$NAME) and field content (\$CONTENT) for non-standard metadata from a document, and includes it at the bottom of the main HTML file. However, it does not display the metadata in the browser. The HTML output might look like this:

```
meta name="Telephone number" content="444-111-2222"  
meta name="Recorded date" content="07/03/2003, 23:00"  
meta name="Source" content="TRUE"  
meta name="my property" content="reserved"
```

To display the metadata in a browser, use the following markup in szUserSummary:

```
<hr>name="$NAME" content="$CONTENT" <br>/>
```

Extract File Format Information

Export can detect a file's format, and report the information to the API, which in turn reports the information to the developer's application. This feature enables you to apply customized conversion settings based on a file's format. See [File Format Detection, on page 259](#) for more information on format detection.

To extract file format information

1. Set the input source using the setInputSource method.
2. Call the getAutoDetectInfo method of the Export object to retrieve an object of the AutoDetectInfo class.
3. Use the methods of the AutoDetectInfo object to retrieve the format information.

The HtmlTest sample program demonstrates how to extract format information through the Java API. See [HtmlTest, on page 105](#).

Example

```
AutoDetectInfo adinfo = objHtmlExport.getAutoDetectInfo();  
if(adinfo != null)  
{  
    outf_format = new File(docFormatOutFile);  
    fos_format = new FileOutputStream(outf_format);  
    DataOutputStream dos_format = new DataOutputStream(fos_format);  
    dos_format.writeBytes("Auto-detection result: \n");  
}
```

```
dos_format.writeBytes("\nCharacter set: " + adinfo.getCharacterSet());
dos_format.writeBytes("\nDocument class: " + adinfo.getDocumentClass());
dos_format.writeBytes("\nDocument format: " + adinfo.getDocumentFormat());
dos_format.writeBytes("\nFormat version: " + adinfo.getVersion());
dos_format.writeBytes("\nOther attributes:");
if(adinfo.isAppleDoubleEncoded())
{
    dos_format.writeBytes("\nApple double encoded.");
}
if(adinfo.isAppleSingleEncoded())
{
    dos_format.writeBytes("\nApple single encoded.");
}
if(adinfo.isEncrypted())
{
    dos_format.writeBytes("\nEncrypted.");
}
if(adinfo.isMacBinaryEncoded())
{
    dos_format.writeBytes("\nMac binary encoded.");
}
if(adinfo.isWangGDLencoded())
{
    dos_format.writeBytes("\nWang GDL encoded.");
}
dos_format.close();
fos_format.close();
adinfo = null;
```

Convert Character Sets

Export allows you to control the character set of both the input and the output text. This is accomplished by either

- setting the source and/or target character set in the API, or
- basing the input/output on the character set of the document (if the document character set is stored in the document and can be determined by the document reader).

The character sets are defined as constants in the Export class.

Not all character sets can be used to specify the target character set. See [Code Character Sets, on page 237](#) for a list of character sets that can be used as a target character set.

Determine the Character Set of the Output Text

To determine the output character set of a converted document, Export considers the following:

- Whether the reader can extract the character set from the document. This depends on whether the file format can provide character set information and whether the document actually contains character set information.

The section [Document Readers, on page 197](#) indicates the file formats for which character set information can be extracted. If character set information cannot be determined for your document type, you must set the source, the target character set, or both, in the API.

- Whether a source character set is set in the API.

NOTE: To set the source character set, you must specify a character set *and* set the parameter `setForceSourceCharSet` to `TRUE`.

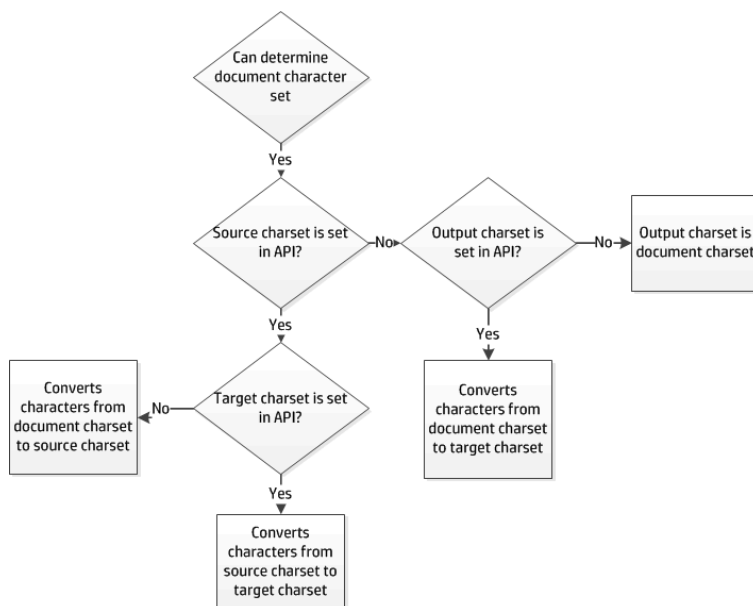
- Whether a target character set is set in the API.

NOTE: To set the target character set, you must specify a character set *and* set the parameter `setForceOutputCharSet` to `TRUE`.

Guidelines for Character Set Conversion

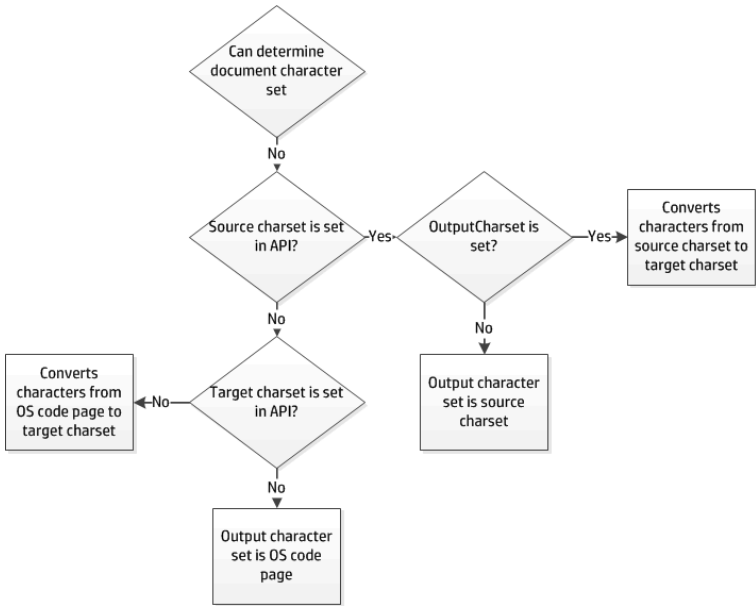
The following diagram shows how the output character set is determined when the document character set can be determined:

Document Character Set Can Be Determined



The following diagram shows how the output character set is determined when the document character set cannot be determined:

Document Character Set Cannot Be Determined



Examples of Character Set Conversion

The examples below demonstrate possible configurations for mapping character sets and the expected output for each scenario.

Document Character Set Can be Determined

For the example in the following table, the document is an RTF file. The section [Document Readers, on page 197](#) indicates that the document character set *can* be obtained from this file type. The document character set is Traditional Chinese (BIG5).

Document character set can be determined

Source charset set	Target charset set	Output charset
KVCS_GB	KVCS_UTF8	KVCS_UTF8 Converts GB (Simplified Chinese) to UTF-8. The output character set is the target character set specified in the API.
KVCS_GB	--	KVCS_GB Converts BIG5 to GB (Simplified Chinese). The output character set is the source character set specified in the API.
--	KVCS_UTF8	KVCS_UTF8 Converts BIG5 to UTF-8. The output character set is the target character set specified in the API.

Document character set can be determined, continued

Source charset set	Target charset set	Output charset
--	--	KVCS_BIG5 The output character set is the document character set. No conversion.

Document Character Set Cannot be Determined

For the example in the following table, the document is an ASCII file. The section [Document Readers, on page 197](#) indicates that the document character set *cannot* be obtained from this file type. The document character set is KVCS_1251.

Document character set cannot be determined

Source charset set	Target charset set	Output charset
KVCS_1252	KVCS_UTF8	KVCS_UTF8 Converts KVCS_1252 to KVCS_UTF8. The output character set is the target character set specified in the API.
KVCS_1252	KVCS_UNKNOWN	KVCS_1252 The output character set is the source character set specified in the API because KVCS_UNKNOWN cannot be used. No conversion.
KVCS_1252	--	KVCS_1252 The output character set is the source character set specified in the API. No conversion.
--	KVCS_1252	KVCS_1252 Converts OS code page to KVCS_1252. The output character set is the target character set specified in the API.
--	--	The output character set is OS code page. No conversion.

Set the Character Set During Conversion

You can convert the character set of a file at the time the file is converted.

To specify the source character set, use the `setSourceCharSet` method of the `OptionInfo` object and set `setForceSourceCharSet` to `TRUE`.

To specify the target character set, use the `setOutputCharSet` method of the `OptionInfo` object and set `setForceOutputCharSet` to `TRUE`.

Set the Character Set During File Extraction from a Container

You can convert the character set of a container subfile at the time the subfile is extracted from the container and before it is converted to HTML. This is most often used to set the output character set of a mail message's body text. See [Use the File Extraction API, on page 41](#).

To specify the source and target character set of a subfile

1. Use the methods of the `ExtSubFileExtractConfig` object to set the source and target character set.
2. Call the `extExtractSubFile` method of the `Export` object and pass in the `ExtSubFileExtractConfig` object.

Map Styles

Export can map paragraph and character styles in any word processing format that contains styles (such as Microsoft Word, RTF, or Folio Flat File) to user-defined markup. This feature is useful for shaping the look of the HTML output, or for generating user-defined metadata (including using XML tags) for indexing, searching, and navigation. With this feature, you can redact (hide) text in the source document, delete content, or change the overall structure of the output. You can also embed style sheet styles in the output defined in the HTML.

To enable style mapping, you must indicate which paragraph and/or character styles are to be mapped, and define the starting and ending markup to be included in the HTML output.

For example, if the source Microsoft Word document contains the character style "Recipe," and the content of the style in Microsoft Word is "Brownies," you can specify that the starting markup be `<recipe>` and the ending markup `</recipe>`. This would result in the output HTML containing: `<recipe>Brownies</recipe>`.

You can also use style mapping to control the look of the HTML output either by using a Cascading Style Sheet (CSS) or by defining the style directly in the starting markup. For example, if a Word document contains the paragraph style "Colorful", you can have markup of the form `<p><div class="rainbow">` inserted at the front of the paragraph and markup of the form `</div></p>` inserted at the end of the paragraph. "Rainbow" is a CSS style defined in an externally provided CSS file referenced at the top of the HTML output.

Style mapping is enabled in the `wordstyle.ini` template file. The *HTML Export Getting Started* page demonstrates the output resulting from a conversion with `wordstyle.ini`. The Getting Started page, named `htmstart.html`, is in the directory `install\htmlexport\docs`, where `install` is the path name of the Export installation directory. The source documents used in the page are in the directory `install\testdocs`.

NOTE: When the user-defined markup in `kvstyle` conflicts with other markup generated by Export, the user-defined markup takes precedence.

Use the Java API

To map styles using the Java API

1. Create an instance of the `StyleMapping` class. Using the object's methods, specify the style mapping information. The information includes
 - the markup to be added to the beginning and end of a paragraph or character style.
 - the name of the word processing style (for example, "Heading 1") to which style mapping applies. Style names are case sensitive.
 - the flag which defines instructions on how to process the content associated with a paragraph or character style. The flags are defined as constants in the `Export` class and listed in [Flags for Defining Styles, on the next page](#).
2. Call the `setStyleMapping()` method of the `Export` object and pass the `StyleMapping` object.

Use a Template file

To map styles by using a template file

1. Use the `KVStyle` parameter to specify how many styles are being mapped. For example, if there are nine mapped heading levels, add the following:

```
[KVStyle]
NumStyles=9
```

2. For each style, there must be a `[StyleX]` entry that contains the markup that appears at the start and end of the defined style. For example, in the `wordstyle.ini` sample file, the first heading level is defined as follows:

```
[Style1]
StyleName=Colorful
MarkupStart=<div class="colorful">
MarkupEnd=<!-- end of colorful --></div>
```

3. For each style, define the flag that applies. Flags define instructions on how to process the content associated with a paragraph or character style.

They are defined as constants in the `Export` class and listed in [Flags for Defining Styles, on the next page](#).

```
Flags=KVSTYLE_HEADING3
```

A finished entry in a template file could look like this:

```
[KVStyle]
NumStyles=3

[Style1]
StyleName=Colorful
MarkupStart=<div class="Colorful">
```

```

MarkUpEnd=<!-- End of Colorful --></div>
Flags=0

[Style2]
StyleName=RedactPara
MarkUpStart=<div class="RedactPara">
MarkUpEnd=<!-- End of RedactPara --></div>
Flags=2048

[Style3]
StyleName=Code
MarkUpStart=<pre>
MarkUpEnd=<!-- End of Code --></pre>
Flags=KVSTYLE_PRE

```

Flags for Defining Styles

Flag	Description
KVSTYLE_PRE	The KVSTYLE_PRE flag specifies that white space should be preserved (treated as characters, not word separators), and that mode changes, such as changes in font size within a paragraph, should be ignored. This allows the tags <code><pre></code> and <code></pre></code> to be used.
KVSTYLE_HEADING[1-6]	<p>The flags KVSTYLE_HEADING[1-6] specify that a given style is to be detected and processed as a heading. Heading flags are exclusive. This means a style cannot be processed as both h1 and h2.</p> <p>By default, Export maps the heading style "Heading 1" to <code><h1></h1></code>, and so on, for heading levels 1 through 6. If you use style mappings, the default mapping is overridden. Therefore, you must supply markup for <i>all</i> heading levels. HTML Export uses heading levels to define the overall structure of the HTML output.</p>
KVSTYLE_ORDERLIST	The KVSTYLE_ORDERLIST flag specifies that the style should be tagged as an ordered list. Currently not implemented.
KVSTYLE_UNORDEREDLIST	The KVSTYLE_UNORDEREDLIST flag specifies that the style should be tagged as an unordered list. Currently not implemented.
KVSTYLE_DELETECONTENT	The KVSTYLE_DELETECONTENT flag specifies that the content associated with the style tag should be deleted from the output.
KVSTYLE_ONCONSECUTIVEPARAGRAPHS	The KVSTYLE_ONCONSECUTIVEPARAGRAPHS flag specifies that the style should be applied to consecutive paragraphs of the document. If this flag is used, and two or more paragraphs require the same style, the opening and closing tags that normally appear between each paragraph are not generated.
KVSTYLE_REDACT	The KVSTYLE_REDACT flag is used to hide sensitive or confidential information in the source document. It specifies that the text associated with the style tag should be replaced in the HTML output

Flags for Defining Styles, continued

Flag	Description
	with a selected character. The default replacement character is "X", but you can specify a different replacement character by using the <code>setRedact</code> (<code>java.lang.Byte b</code>) method of the <code>OptionInfo</code> class.
<code>KVSTYLE_DEFAULT</code>	The <code>KVSTYLE_DEFAULT</code> flag specifies that special processing should not be applied to the content.

Use Style Sheets

You can use style sheets to define the overall layout and type specifications of the HTML output. Export can write style sheet information to an external Cascading Style Sheet (CSS) file, or read the information from an existing CSS file during the conversion. The formatting data can either be stored within the output HTML file (inline), or externally in a CSS file. Using an external style sheet makes the HTML output significantly smaller, and allows you to use the same style sheet for many conversions.

NOTE: Cascading style sheets can be used only with word processing documents.

To enable CSS formatting and output the generated formatting data within the output HTML stream, set the style sheet type to inline by using one of the following methods:

- Use the `setStyleSheetType` method of the `HtmlexportOptionInfo` class to set the option to `Htmlexport.STYLESHEET_CSS_INLINE`.
- Set the `eStyleSheetType` parameter in a template file to `CSS_INLINE`.

To enable CSS formatting and output the generated formatting data in an external CSS file that is referenced in the HTML output as a tag

1. Set the style sheet type to an external file by using one of the following methods:
 - Use the `setStyleSheetType` method of the `HtmlexportOptionInfo` class to set the type to `Htmlexport.STYLESHEET_CSS_TOFILE`.
 - Set the `eStyleSheetType` parameter in a template file to `CSS_TOFILE`.
2. In the template file, use the `$STYLESHEET` token to specify the URL of the style sheet in the HTML output. The external CSS file is referenced in the output HTML by a `LINK` statement of the form:

```
<LINK rel="STYLESHEET" href="CSS_file" type="text/css">
```
3. Call the `setExternalStyleFile` method of the `Export` object to set the path and file name of the style sheet file.
 - If the file does not exist in the specified location, it is created.
 - If the file exists, but is empty, CSS styles are written to the file.

- If the file exists and is not empty, the conversion attempts to use the predefined styles, and appends any new styles that are required for the conversion.
- If the file is not a CSS file or if it points to a non-existent directory, the `LINK` statement is written, but the style sheet information is added inline (`CSS_INLINE`), and an external CSS file is not generated.
- If a style file has been set, you can disable it for the next convert call by calling the `setExternalStyleFile` method again and passing in an empty string.

Display Vector Graphics on UNIX and Linux

Export offers the option of rasterizing vector graphic content from source documents into a variety of graphics formats including JPEG, PNG, WMF, and CGM. This solution is implemented with Windows Graphical Device Interface (GDI) code, and therefore is not portable to other platforms.

The output format of vector graphics is defined by using the `setOutputVectorGraphicType()` method in the `HtmlOptionInfo` class, and the options are defined as constants in the `Export` class.

To display vector graphics in presentation, word processing, and spreadsheet files on UNIX and Linux, Export can convert the files directly to JPEG by using a Java program named `kvraster.class`. This program uses the Java Abstract Windowing Toolkit (AWT). Alternatively, rather than rasterizing, Export can output text from vector graphics in SVG format, which works the same as on Windows.

To convert the file

1. If rasterizing, add the location of the JRE to the `PATH` environment variable.
2. Use one of the following methods to set the graphic type to JPEG:
 - Use the `setOutputVectorGraphicType` method of the `OptionInfo` class to set the type to `Export.GRAPHIC_TYPE_JPEG` (for raster output) or `Export.GRAPHIC_TYPE_SVG` (for text-only vector output).
 - Set the `OutputVectorGraphicType` parameter of the `defunix.ini` template file to `KVGFX_JPEG` (for raster output), or `KVGFX_SVG` (for text-only vector output).
3. Convert the document to HTML. The graphics in the document are converted to JPEG or SVG and stored in the output directory.

Search and Highlight Terms

`KeyView` can use the highlighting API to find and highlight specified text strings in the HTML output. Only text strings that exactly match the search term are highlighted. For example, if you specify the term *house*, the string *house* is highlighted in **house**, **houses**, and **housed**, but is not highlighted in the term *housing*. You can define the text attributes used to highlight the text, such as bold, red, or underlined, and the text's target character set.

If a specified term contains HTML code, it is not found. For example, if the phrase *weekly schedule* was specified, the following string in the output HTML would not be found:

```
weekly <b>schedule</b>
```

If you specify multiple terms, and some terms are subsets of other terms, Micro Focus recommends that you specify the superset first. For example,

```
["North American car manufacturers" "car manufacturers" "car"]
```

To specify search terms using the Java API

1. Create an instance of the `HtmlHighlight` class and, using the object's methods, specify the list of terms, the highlighting attributes, and the case-sensitivity Boolean.
2. Call the `setHighlight()` method and pass the `HtmlHighlight` object.

Convert Revision Tracking Information

The revision tracking feature in applications—such as Microsoft Word's **Track Changes**—marks changes to a document (typically, strikethrough for deleted text and underline for inserted text) and tracks each change by reviewer name and date.

If revision tracking was enabled when changes were made to a document, you can configure Export to convert the deleted text and graphics and include revision tracking information in the HTML output. (The deleted content and revision tracking information is excluded from the HTML output by default.)

Content that was added to the document is identified by `<ins>` tags and is underlined when displayed in a browser. Content that was deleted from the document is identified by `` tags and is displayed with strikethrough formatting.

The `<ins>` and `` tags include `cite` and `datetime` attributes, which define the name of the reviewer who made the change and the date on which the change was made respectively. (The date is in ISO-8601 format: YYYY-MM-DDThh:mm:ss.) The tags also include a `title` attribute which displays the author and date information in a browser.

For example, the following markup is generated for inserted text:

```
<ins title="Inserted: JohnD, 2006-04-24T14:47:00" cite="mailto:JohnD"
datetime="2006-04-24T14:47:00">This text was added</ins> in a previous version.
```

This text is displayed in the browser as:

This text was added in a previous version.

When you hover the cursor over the underlined text in the browser, the text **"Inserted: JohnD, 2006-04-24T14:47:00"** is displayed as a ToolTip.

The following markup is generated for deleted text:

```
<del title="Deleted: JohnD, 2006-04-24T14:56:00" cite="mailto:JohnD"
datetime="2006-04-24T14:56:00">This text was deleted</del> in a previous version.
```

This text is displayed in the browser as:

~~This text was deleted~~ in a previous version.

When you hover the cursor over the strikethrough text in the browser, the text "**Deleted: JohnD, 2006-04-24T14:56:00**" is displayed as a ToolTip.

NOTE: Whether the text is displayed with strikethrough or underline depends on the configuration and capabilities of the browser.

To convert deleted text and graphics and include revision tracking information, call the `includeRevisionMark` method. For example:

```
if(inclRevisionMark == true)
{
    objHtmlExport.includeRevisionMark();
}
```

To reset the flag and exclude deleted content and revision tracking information from the HTML output, call the `excludeRevisionMark` method. For example:

```
if(inclRevisionMark == false)
{
    objHtmlExport.excludeRevisionMark();
}
```

Extract Text from Text Boxes

By default, the contents of Microsoft Word text boxes are converted to graphics and exported. Alternatively, you can convert the contents of text boxes to text.

NOTE: The extracted text box text is not formatted.

To enable text box extraction

- Add the following to the `formats_e.ini` file:

```
[WordTextBoxOptions]
OutputText=true
```

Convert PDF Files

Export has special configuration options that allow greater control over the conversion of PDF files. These options can improve the fidelity and accuracy of the HTML output.

Use the pdf2sr Reader

The `pdf2sr` reader generates a high fidelity raster image of each page in a PDF file. The output HTML will also contain the text, with a zero opacity value, so that you can search for text when viewing the

output in a web browser.

The pdf2sr reader has the following features:

- supports standard and custom metadata (non-XMP)
- supports basic text extraction
- supports password protected PDFs

The pdf2sr reader has the following limitations:

- does not support logical order
- does not support bidi PDFs
- does not extract subfiles
- does not extract bookmarks from PDFs
- does not give estimations on percent embedded fonts match with display glyphs
- does not support XMP metadata
- does not support headers or footers
- supports annotations only in the raster output, not as searchable text
- does not support content access stream
- does not support tagged content (PDFs)

To use the pdf2sr reader

1. Open the `formats_e.ini` file with a text editor.
2. In the `[Formats]` section, set the following:

```
200=pdf2
```

Convert PDF Files to a Logical Reading Order

The PDF format is primarily designed for presentation and printing of brochures, magazines, forms, reports, and other materials with complex visual designs. Most PDF files do not contain the *logical structure* of the original document—the correct reading order, for example, and the presence and meaning of significant elements such as headers, footers, columns, tables, and so on.

KeyView can convert a PDF file either by using the file's internal unstructured paragraph flow, or by applying a structure to the paragraphs to reproduce the logical reading order of the visual page. Logical reading order enables KeyView to produce PDF files that contain languages that read from right-to-left (such as Hebrew and Arabic) in the correct reading direction.

NOTE: The algorithm used to reproduce the reading order of a PDF page is based on common page layouts. The paragraph flow generated for PDFs with unique or complex page designs might not emulate the original reading order exactly.

For example, page design elements such as drop caps, callouts that cross column boundaries, and significant changes in font size might disrupt the logical flow of the output text.

Logical Reading Order and Paragraph Direction

By default, KeyView produces an *unstructured* text stream for PDF files. This means that PDF paragraphs are extracted in the order in which they are stored in the file, not the order in which they appear on the visual page. For example, a three-column article could be output with the headers and the title at the end of the output file, and the second column extracted before the first column. Although this output does not represent a logical reading order, it accurately reflects the internal structure of the PDF.

You can configure KeyView to produce a *structured* text stream that flows in a specified direction. This means that PDF paragraphs are extracted in the order (logical reading order) and direction (left-to-right or right-to-left) in which they appear on the page.

The following paragraph direction options are available.

Paragraph Direction Option	Description
Left-to-right	Paragraphs flow logically and read from left to right. You should specify this option when most of your documents are in a language that uses a left-to-right reading order, such as English or German.
Right-to-left	Paragraphs flow logically and read from right to left. You should specify this option when most of your documents are in a language that uses a right-to-left reading order, such as Hebrew or Arabic.
Dynamic	Paragraphs flow logically. The PDF reader determines the paragraph direction for each PDF page, and then sets the direction accordingly. When a paragraph direction is not specified, this option is used.

Conversions might be slower when logical reading order is enabled. For optimal speed, use an unstructured paragraph flow.

The paragraph direction options control the direction of paragraphs on a page; they do not control the text direction in a paragraph. For example, let us say that a PDF file contains English paragraphs in three columns that read from left to right, but 80% of the second paragraph contains Hebrew characters. If the left-to-right logical reading order is enabled, the paragraphs are ordered logically in the output—title paragraph, then paragraph 1, 2, 3, and so on—and flow from the top left of the first column to the bottom right of the third column. However, the *text* direction of the second paragraph is determined independently of the page by the PDF reader, and is output from right to left.

NOTE: Extraction of metadata is not affected by the paragraph direction setting. The characters and words in metadata fields are extracted in the correct reading direction regardless of whether logical reading order is enabled.

Enable Logical Reading Order

You can enable logical reading order by using either the API or the `formats_e.ini` file. Setting the direction in the API overrides the setting in the `formats_e.ini` file.

Use the Java API

To enable PDF logical reading order in the Java API

1. Use the `setPDFLogicalOrder(int orderFlag)` method of the `HtmlExport` object, and set the `orderFlag` argument to one of the following flags.

Flag	Description
PDF_LOGICAL_ORDER_LTR	Logical reading order and left-to-right paragraph direction
PDF_LOGICAL_ORDER_RTL	Logical reading order and right-to-left paragraph direction
PDF_LOGICAL_ORDER_AUTO	Logical reading order. The PDF reader determines the paragraph direction for each PDF page, and then sets the direction accordingly. This option is used when a paragraph direction is not specified.
PDF_LOGICAL_ORDER_RAW	Unstructured paragraph flow. This is the default behavior. Set this flag if logical reading order is enabled, and you want to return to an unstructured paragraph flow.

For example,

```
objHTMLExport.setPDFLogicalOrder(Export.PDF_LOGICAL_ORDER_RTL);
```

Use the `formats_e.ini` File

The `formats_e.ini` file is in the directory `install\OS\bin`, where `install` is the path name of the Export installation directory and `OS` is the name of the operating system.

To enable logical reading order by using the `formats_e.ini` file

1. Change the PDF reader entry in the `[Formats]` section of the `formats_e.ini` file as follows:

```
[Formats]
200=1pdf
```

2. Optionally, add the following section to the end of the `formats_e.ini` file:

```
[pdf_flags]
pdf_direction=paragraph_direction
```

where `paragraph_direction` is one of the following:

Flag	Description
------	-------------

LPDF_ LTR	Left-to-right paragraph direction
--------------	-----------------------------------

LPDF_ RTL	Right-to-left paragraph direction
--------------	-----------------------------------

LPDF_ AUTO	The PDF reader determines the paragraph direction for each PDF page, and then sets the direction accordingly. When a paragraph direction is not specified, this option is used.
---------------	---

LPDF_ RAW	Unstructured paragraph flow. This is the default behavior. If logical reading order is enabled, and you want to return to an unstructured paragraph flow, set this flag.
--------------	--

Generate a Table of Contents from PDF Bookmarks

When you convert PDF files to HTML by using the basic reader (`pdfsr`), the table of contents is generated from "bookmarks" within the PDF file. The hyperlinked table of contents can appear either at the beginning of the HTML file or in a separate frame.

Micro Focus recommends that you configure the conversion so that the table of contents appears in a separate frame (the template `pdfframe.ini` demonstrates how to do this, see [Set Conversion Options, on page 29](#)). Export uses absolute positioning when converting a PDF file, that is, the text appears in the exact position as in the original document. Table of contents entries do not contain absolute positioning information. Therefore, if the main document and the table of contents are generated in the same output file, the table of contents entries might overlap the body text in the document.

NOTE: When PDF bookmarks are converted to a table of contents in HTML, the generated links do not lead to the exact location of the destination marker, but jump to the page on which the destination marker exists. This is similar to the behavior of the Adobe Acrobat Reader.

Disable Bookmark Conversion

By default, Export converts PDF bookmarks to a table of contents in the HTML output. However, you can configure Export not to generate a table of contents based on the PDF bookmarks.

To prevent conversion of PDF bookmarks

1. Create an instance of the `ConfigOption` class. Set the `OptionType` argument to `CFG_SUPPRESSTOCPRINTIMAGE`, and the `OptionValue` argument to `1`.
2. Call the `setConfigOption` method and pass the `ConfigOption` object.
3. Call a convert method. See the Javadoc in the directory `install\javaapi\javadoc`, where `install` is the path name of the Export installation directory.

NOTE: A table of contents is not generated when a PDF file does *not* contain bookmarks, or when `CFG_SUPPRESSTOCPRINTIMAGE` is set.

Convert Invisible Text

PDF documents sometimes contain invisible text. You can search this text in Adobe PDF Reader, but you cannot view it in a web browser.

Toggle Invisible Text

You can add a JavaScript button to the upper right corner of the exported page, which you can click to toggle between invisible and regular text. When you turn on invisible text, the invisible text is displayed and the regular content is hidden; when you turn off invisible text, the invisible text is hidden.

Invisible text is hidden by default. The toggle button only appears if invisible text is detected in the PDF document.

To add an invisible text toggle button

- Set the `CFG_PDFINVISIBLETEXTTOGGLE` field of the `HtmlExport` object. The parameter passed in is the label name for the toggle button.

Specify Opacity of Invisible Text

Invisible text often occurs in PDF documents when the PDF software processes rasterized images through optical character recognition and then inserts the text in the PDF. You might want to display both the invisible text as well as the rasterized image. To do so, you can set the invisible text *opacity* as determined by an integer from 0 to 100, where 0 hides the invisible text and 100 displays it fully.

Invisible text opacity is set to 0 by default.

To set invisible text opacity

- Set the `CFG_SETPDFINVISIBLETEXTOPACITY` field of the `HtmlExport` object to a value between 0 and 100.

Convert Rotated Text

By default, rotated text is displayed in its original position, at the original font size, and at 0 degrees rotation in the HTML output. The text is not rotated in the HTML output because text rotation is not supported by HTML.

Because the text is the original size, but might be displayed in a smaller space (at 0 degrees), the text might overlap adjacent text in the HTML output. To avoid this problem, you can specify that the rotated text be removed from its original position and displayed at the bottom of the HTML page on which it appears.

To specify that rotated text be displayed at the bottom of the HTML page

1. Create an instance of the `ConfigOption` class. Set the `OptionType` argument to `CFG_SETTEXTROTATE`, and the `OptionValue` argument to `1`.
2. Call the `setConfigOption` method and pass the `ConfigOption` object.
3. Call a convert method. See the Javadoc in the directory `install\javaapi\javadoc`, where `install` is the path name of the Export installation directory.
4. When this feature is enabled, white space is added to the bottom of every HTML page to accommodate any rotated text.

NOTE: When this feature is enabled, white space is added to the bottom of every HTML page to accommodate any rotated text.

Control Hyphenation

There are two types of hyphens in a PDF document:

- A *soft hyphen* is added to a word by a word processor to divide the word across two lines. This is a discretionary hyphen and is used to ensure proper text flow in justified text.
- A *hard hyphen* is intentionally added to a word regardless of the word's position in the text flow. It is required by the rules of grammar or word usage. For example, compound words, such as "three-week vacation" and "self-confident" contain hard hyphens.

By default, KeyView maintains the source document's soft hyphens in the output HTML to more accurately represent the source document's layout. However, if you are using Export to generate text output for an indexing engine or are not concerned with maintaining the document's layout, Micro Focus recommends that you remove soft hyphens from the HTML output. To remove soft hyphens, you must enable the soft hyphen flag.

NOTE: If the soft hyphen flag is enabled, every hyphen at the end of a line is considered a soft hyphen and removed from the HTML output. If a hard hyphen appears at the end of a line, it is also removed. This might result in an intentionally hyphenated word being extracted without a hyphen.

To remove soft hyphens from the HTML output

1. Create an instance of the `ConfigOption` class. Set the `OptionType` argument to `CFG_DELSOFTHYPHEN` and the `OptionValue` argument to `1`.
2. Call the `setConfigOption` method and pass the `ConfigOption` object.
3. Call a convert method. See the Javadoc in the directory `install\javaapi\javadoc`, where `install` is the path name of the Export installation directory.

Extract Custom Metadata from PDF Files

To extract custom metadata from your PDF files, add the custom metadata names to the `pdfsr.ini` file provided, and copy the modified file to the `\bin` directory. You can then extract metadata as you normally would.

The `pdfsr.ini` is in the directory `samples\pdfini`, and has the following structure:

```
<META>
<TOTAL>total_item_number</TOTAL>,
/metadata_tag_name datatype,
</META>
```

Parameter	Description
total item number	The total number of metadata tags that are listed.
metadata_tag_name	The metadata tag name used in the PDF files.
datatype	The data type of the metadata field. The possible types are: <ul style="list-style-type: none">KV_StringKV_Int4KV_DateTimeKV_ClipBoardKV_BoolKV_UnicodeKV_IEEE8KV_Other

For example:

```
<META>
<TOTAL> 4 </TOTAL>
/part_number      INT4
/volume           INT4
/purchase_date    DATETIME
/customer         STRING
</META>
```

Convert Spreadsheet Files

Export has special configuration options that allow greater control over the conversion of spreadsheet files.

Convert Hidden Text in Microsoft Excel Files

Normally, Export does not convert hidden text from a Microsoft Excel spreadsheet because it is assumed that the text should not be exposed. You can change this default behavior and convert text in hidden rows, columns, and sheets by adding the following lines to the `formats_e.ini` file:

```
[Options]
gethiddeninfo=1
```

Convert Headers and Footers in Microsoft Excel 2003 Files

Normally, Export does not convert headers and footers from Microsoft Excel 2003 spreadsheets. You can change this default behavior and convert headers and footers by adding the following lines to the `formats_e.ini` file:

```
[Options]
ShowHeaderFooter=1
```

Specify Date and Time Format on UNIX Systems

System date and time format information is not stored in Microsoft Excel files. On Windows systems, you can specify a locale setting to determine the date and time format. However, on UNIX systems, the date and time format is set to the U.S. short date format by default (mm/dd/yyyy). To change the format, you must use a `formats_e.ini` option.

To specify the system date and time format on UNIX systems

- In the `formats.ini` file, specify the following options:
 - `SysDateTime`. The format to use when a cell is formatted using the system format including both the date and the time.
 - `SysLongDate`. The format to use when a cell is formatted using the system long date format.
 - `SysShortDate`. The format to use when a cell is formatted using the system short date format.
 - `SysTime`. The format to use when a cell is formatted using the system time format.

NOTE: These values cannot contain spaces.

For example, if you specify `SysDateTime=%d/%m/%Y`, dates and times are extracted in the following format:

28/02/2008

The format arguments are the same as those for the `strftime()` function. Refer to the following web page for more information.

See <http://linux.die.net/man/3/strftime> for more information.

Convert Very Large Numbers in Spreadsheet Cells to Precision Numbers

You can export numbers in Microsoft Excel files and write them to the output without formatting. By default, numbers are exported in the format specified by the Excel file (for example, *General*, *Currency*, and *Date*). Spreadsheets might contain cells that have very large numbers in them. Excel displays the numbers in a scientific notation that rounds or truncates the numbers.

To export numbers without formatting, add the following options in the following lines to the `formats_e.ini` file:

```
[Options]
ignoredefnumformats=1
```

Extract Microsoft Excel Formulas

Normally, the actual value of a formula is extracted from an Excel spreadsheet; the formula from which the value is derived is not included in the output. However, KeyView enables you to include the value as well as the formula in the output. For example, if Export is configured to extract the formula and the formula value, the output might look like this:

245 = SUM(B21:B26)

The calculated value from the cell is 245, and the formula from which the value is derived is SUM (B21:B26).

NOTE: Depending on the complexity of the formulas, enabling formula extraction might result in slightly slower performance.

To set the extraction option for formulas, add the following lines to the `formats_e.ini` file:

```
[Options]
getformulastring=option
```

where *option* is one of the following:

Option	Description
0	Extract the formula value only. This is the default. Set this option if formula extraction is enabled, and you want to return to the default.
1	Extract the formula only.
2	Extract the formula and the formula value.

NOTE: If a function in a formula is not supported or is invalid, and option 1 or 2 is specified, only the calculated value is extracted. See the following table for a list of supported functions.

When formula extraction is enabled, Export can extract Microsoft Excel formulas containing the functions listed in the following table:

Supported Microsoft Excel Functions

=ABS()	=ACOS()	=AND()	=AREAS()
=ASIN()	=ATAN2()	=ATAN2()	=AVERAGE()
=CELL()	=CHAR()	=CHOOSE()	=CLEAN()
=CODE()	=COLUMN()	=COLUMNS()	=CONCATENATE()
=COS()	=COUNT()	=COUNTA()	=DATE()
=DATEVALUE()	=DAVERAGE()	=DAY()	=DCOUNT()
=DDB()	=DMAX()	=DMIN()	=DOLLAR()
=DSTDEV()	=DSUM()	=DVAR()	=EXACT()
=EXP()	=FACT()	=FALSE()	=FIND()
=FIXED()	=FV()	=GROWTH()	=HLOOKUP()
=HOUR()	=ISBLANK()	=IF()	=INDEX()
=INDIRECT()	=INT()	=IPMT()	=IRR()
=ISERR()	=ISERROR()	=ISNA()	=ISNUMBER()
=ISREF()	=ISTEXT()	=LEFT()	=LEN()
=LINEST()	=LN()	=LOG()	=LOG10()
=LOGEST()	=LOOKUP()	=LOWER()	=MATCH()
=MAX()	=MDETERM()	=MID()	=MIN()
=MINUTE()	=MINVERSE()	=MIRR()	=MMULT()
=MOD()	=MONTH()	=N()	=NA()
=NOT()	=NOW()	=NPER()	=NPV()
=OFFSET()	=OR()	=PI()	=PMT()
=PPMT()	=PRODUCT()	=PROPER()	=PV()
=RATE()	=REPLACE()	=REPT()	=RIGHT()
=ROUND()	=ROUND()	=ROW()	=ROWS()
=SEARCH()	=SECOND()	=SIGN()	=SIN()
=SLN()	=SQRT()	=STDEV()	=SUBSTITUTE()
=SUM()	=SYD()	=T()	=TAN()
=TEXT()	=TIME()	=TIMEVALUE()	=TODAY()

=TRANPOSE() =TREND() =TRIM() =TRUE()
=TYPE() =UPPER() =VALUE() =VAR()
=VLOOKUP() =WEEKDAY() =YEAR()

Convert XML Files

Export enables you to extract all or selected content from source XML files (see [Configure Element Extraction for XML Documents, below](#)). It detects the following XML formats:

- generic XML
- Microsoft Office 2003 XML (Word, Excel, and Visio)
- StarOffice/OpenOffice XML (text document, presentation, and spreadsheet)

See [File Format Detection, on page 259](#) for more information on format detection.

Configure Element Extraction for XML Documents

When you convert XML files, you can specify which elements and attributes are extracted according to the file's format ID or *root element*. This is useful when you want to extract only relevant text elements, such as abstracts from reports, or a list of authors from an anthology.

A root element is an element in which all other elements are contained. In the XML sample below, `book` is the root element:

```
<book>
  <title>XML Introduction</title>
  <product id="33-657" status="draft">XML Tutorial</product>
  <chapter>Introduction to XML
    <para>What is HTML</para>
    <para>What is XML</para>
  </chapter>
  <chapter>XML Syntax
    <para>Elements must have a closing tag</para>
    <para>Elements must be properly nested</para>
  </chapter>
</book>
```

For example, you could specify that when converting files with the root element `book`, the element `title` is extracted as metadata, and only `product` elements with a `status` attribute value of `draft` are extracted.

When you extract an element, the child elements within the element are also extracted. For example, if you extract the element `chapter` from the sample above, the child element `para` is also extracted.

Export defines default element extraction settings for the following XML formats:

- generic XML
- Microsoft Office 2003 XML (Word, Excel, and Visio)
- StarOffice/OpenOffice XML (text document, presentation, and spreadsheet)

These settings are defined internally and are used when converting these file formats; however, you can modify their values.

In addition to the default extraction settings, you can also add custom settings for your own XML document types. If you do not define custom settings for your own XML document types, the settings for the generic XML are used.

Modify Element Extraction Settings

You can modify configuration settings for XML documents by using the API.

You can also test this feature by modifying the `kvxconfig.ini` file, and passing it to the sample program `htmlConvFileToFile`.

NOTE: You can use customized element extraction settings only when converting files in process. When converting out of process, the default extraction settings are used.

Use the Java API

You can use the Java API to modify the settings for the standard XML document types, or to add configuration settings for your own XML document types.

To modify settings

1. Declare an array of `XMLConfigSet` objects.
2. Create an instance of the `ConfigOption` class with the following arguments:
 - a. Set the `OptionType` to `CFG_SETXMLCONFIGINFO`.
 - b. Set the `OptionValue` to `0`.
 - c. Set `OptionData` to the array object.
3. Call the `setConfigOption` method, and pass the `ConfigOption` object.
4. Call a convert method. For example:

```
XMLConfigSet[] XMLInfo;  
ConfigOption config=new ConfigOption(Export.CFG_SETXMLCONFIGINFO, 0, XMLInfo);  
objExport.setConfigOption(config);
```

Modify Element Extraction Settings in the kvxconfig.ini File

The `kvxconfig.ini` file contains default element extraction settings for supported XML formats. The file is in the directory `install\OS\bin`, where `install` is the path name of the Export installation directory and `OS` is the name of the operating system.

For example, the following entry defines extraction settings for the Microsoft Visio 2003 XML format:

```
[config3]
eKVFormat=MS_Visio_XML_Fmt
szRoot=
szInMetaElement=DocumentProperties
szExMetaElement=PreviewPicture
szInContentElement=Text
szExContentElement=
szInAttribute=
```

The following options are available.

Configuration Option	Description
eKVFormat	<p>The format ID as detected by the KeyView detection module. This determines the file type to which these extraction settings apply. See File Format Detection, on page 259 for more information on format ID values.</p> <p>If you are adding configuration settings for a custom XML document type, this is not defined.</p>
szRoot	<p>The file's root element. When the format ID is not defined, the root element is used to determine the file type to which these settings apply.</p> <p>To further qualify the element, specify its namespace. See Specify an Element's Namespace and Attribute, on the next page.</p>
szInMetaElement	<p>The elements extracted from the file as metadata. All other elements are extracted as text.</p> <p>Multiple entries must be separated by commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, on the next page.</p>
szExMetaElement	<p>The child elements in the included metadata elements that are not extracted from the file as metadata. For example, the default extraction settings for the Visio XML format extract the DocumentProperties element as metadata. This element includes child elements such as Title, Subject, Author, Description, and so on. However, the child element PreviewPicture is defined in szExMetaElement because it is binary data and should not be extracted.</p> <p>You cannot exclude any metadata elements from the output for StarOffice files. All metadata is extracted regardless of this setting.</p> <p>Multiple entries must be separated by commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, on the next page.</p>
szInContentElement	<p>The elements extracted from the file as content text. Enter an asterisk (*) to extract all elements including child elements.</p> <p>Multiple entries must be separated by commas. To further qualify the</p>

Configuration Option	Description
	element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, below .
szExContentElement	<p>The child elements in the included content elements that are not extracted from the file as content text.</p> <p>Multiple entries must be separated by commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, below.</p>
szInAttribute	<p>The attribute values extracted from the file. If attributes are not defined here, attribute values are not extracted.</p> <p>Enter the namespace (if used), element name, and attribute name in the following format:</p> <p><i>namespace:elementname@attributename</i></p> <p>For example:</p> <p>keyview:division@name</p> <p>Separate multiple entries with commas.</p>

Specify an Element's Namespace and Attribute

To further qualify an element, you can specify that the element must exist in a certain namespace, must contain a specific attribute, or both. To define the namespace *and* attribute of an element, enter the following:

ns_prefix:elemname@attribname=attribvalue

You must enclose attribute values that contain space in quotation marks.

For example, the following entry:

`bg:language@id=xml`

extracts a language element in the namespace bg that contains the attribute name id with the value of "xml". This entry extracts the following element from an XML file:

```
<bg:language id="xml">XML is a simple, flexible text format derived from  
SGML</bg:language>
```

but does not extract:

```
<bg:language id="sgml">SGML is a system for defining markup  
languages.</bg:language>
```

or

```
<adv:language id="xml">The namespace should be a Uniform Resource Identifier  
(URI).</adv:language>
```

Add Configuration Settings for Custom XML Document Types

You can define element extraction settings for custom XML document types by adding the settings to the `kvxconfig.ini` file. For example, for files containing the root element `keyviewxml`, you could add the following section to the end of the initialization file:

```
[config101]
eKVFormat=
szRoot=keyviewxml
szInMetaElement=dc:title,dc:meta@title,dc:meta@name=title
szExMetaElement=

szInContentElement=keyview:division@name=dev,keyview:division@name=export,p@style="
Heading 1"
szExContentElement=
szInAttribute=keyview:division@name
```

The custom extraction settings must be preceded by a section heading named `[configN]`, where *N* is an integer that starts at 100 and increases by 1 for each additional file type (for example, `[config100]`, `[config101]`, `[config102]`, and so on). The default extraction settings for the supported XML formats are numbered `config0` to `config99`. Currently only 0 to 6 are used.

Because a custom XML document type is not recognized by the KeyView detection module, the format ID is not defined. The file type is identified by the file's root element only.

If a custom XML document type is not defined in the `kvxconfig.ini` file or by the `setConfigOption` method, the default extraction settings for a generic XML document are used.

Error Messages

When a KeyView exception is thrown, it might be caused by one of the following errors.

Exception	Description
KVERR_Success	Function completed successfully.
KVERR_DLLNotFound	A DLL or shared library was not found.
KVERR_OutOfCore	Memory allocation failure.
KVERR_processCancelled	Callback function returns FALSE.
KVERR_badInputStream	Invalid or corrupt input stream.
KVERR_badOutputType	Invalid output is requested.
KVERR_General	General error.
KVERR_FormatNotSupported	File format is not supported.

Exception	Description
KVERR_PasswordProtected	File is encrypted or password-protected. KeyView only supports secure PST, NSF, and ZIP files.
KVERR_ADSNotFound	Adobe Document Server not found. This error is obsolete.
KVERR_AutoDetFail	Autodetect error.
KVERR_AutoDetNoFormat	Unable to detect file format.
KVERR_ReaderInitError	Error initializing the reader.
KVERR_NoReader	No reader available for this format.
KVERR_CreateOutputFileFailed	Unable to create output file. If the overwrite flag in setOverWrite is FALSE and a subfile has the same name as a file in the target path, this error is generated.
KVERR_CreateTempFileFailed	Unable to create temporary file.
KVERR_ErrorWritingToOutputFile	Error writing to output file.
KVERR_CreateProcessFailed	Error creating a child process.
KVERR_WaitForChildFailed	Wait for child process failed.
KVERR_ChildTimeOut	Child process hung/timed out.
KVERR_ArchiveFileNotFound	Attempt to extract nonexistent file.
KVERR_ArchiveFatalError	Fatal error processing an archive file.
KVError_OpenStreamFailure = KVERR_ArchiveFatalError +1	Failed to open a stream during out-of-process filtering. This is used by KeyView Filter.
KVError_InterfaceFunctionNotFound	An interface function was not found during out-of-process filtering. This is used by KeyView Filter.
KVError_InputFileNotFound	Could not find the input file during out-of-process filtering. This is used by KeyView Filter.
KVError_OpenOutputFileFailed	Could not open the output file during out-of-process filtering. This is used by KeyView Filter.
KVError_MemoryLeak	Memory leak occurred during out-of-process filtering. This is used by KeyView Filter.
KVError_MemoryOverwrite	Memory overwrite occurred during out-of-process filtering. This is used by KeyView Filter.
KVError_GPF	Exception occurred during out-of-process filtering. This is used by

Exception	Description
	KeyView Filter.
KVError_OopCore	Memory dump was generated in a child process during out-of-process filtering. This is used by KeyView Filter.
KVError_KVoopLogFailed	Creation of out-of-process error log failed. This is used by KeyView Filter.
KVError_OverNestedFileLimit	The container file has more than the allowable number of child documents. One or more child documents were not converted. Currently, this is not used.
KVError_PSTAccessFailed	<p>The PST file could not be converted. This error might be returned when a call to extOpenDocument returns NULL for one of the following reasons:</p> <ul style="list-style-type: none">• Microsoft Outlook client is not installed• Microsoft Outlook client is installed, but is not the default email client• Microsoft Outlook client is installed, but is not configured correctly• PST file is corrupt• PST file is read-only (PST files must allow read and write access)• MAPI call fails• The bit editions of Microsoft Outlook do not match the bit editions of the KeyView software. <p>For example, if 32-bit KeyView is used, 32-bit Outlook must be installed. If 64-bit KeyView is used, 64-bit Outlook must be installed.</p>
KVError_PasswordRequired	To open the file, credentials must be provided. This error might be returned when a call to extOpenDocument returns NULL.
KVError_InvalidArgs	The input argument or structure is invalid. This is generated by the File Extraction APIs.
KVError_OutputFileExists	A file with the same name already exists in the output directory. This error is generated when extracting a subfile from a container file with the setOverWrite flag set to FALSE, and a file by the same name already exists in the output directory.
KVError_ReaderUsageDenied	The current license key does not enable the document reader required to convert the file. This error might be returned when a call to extOpenDocument returns NULL.

Exception	Description
	Some document readers are considered advanced features and are licensed separately from the KeyView SDK (for example, the PST and MBX readers). Contact your Micro Focus sales representative to get an updated license key
KVError_OopBadConfig	Information in the kvxconfig.ini file is incomplete and cannot be used to convert the XML file.
KVError_OopBrokenPipe	Data was not transferred between the parent and child processes during out-of-process filtering because either the parent or child failed. This is used by KeyView Filter.
KVError_OopPipe0EF	Data was not transferred between the parent and child processes during out-of-process filtering because the parent process was shutdown. This is used by KeyView Filter.
KVError_IPCTimeOut	Either the parent or child process is waiting for a reply or request during out-of-process filtering. This is used by KeyView Filter.
KVError_InvalidOopDriverSignature	A client sent a request to the File Extraction out-of-process server, but context driver does not exist on the server. This is used by KeyView Filter.
KVError_InvalidOopServiceSignature	A client sent a request to a File Extraction out-of-process server that does not exist. If this error is generated on the call to fpClose(), it can be ignored. This is used by KeyView Filter.

Show Hidden Data

Microsoft Word, Excel, and PowerPoint documents contain hidden information, some of which is shown by default when exported, and some of which is hidden by default. There are several options that allow you to determine which types of hidden data are shown.

Hidden Data in Microsoft Documents

You can show several types of hidden data from Microsoft Word, Excel, and PowerPoint documents, each of which has a corresponding parameter in the Export class, which you can set to change the default behavior. The following table lists each data type, its default behavior, and its corresponding configuration API flag.

Hidden data settings

Hidden Data Type	Default Behavior	Configuration API Parameter
Microsoft Word		
Comments ¹	Shown ²	CFG_WP_NOCOMMENTS
Hidden text	Hidden	CFG_WP_SHOWHIDDENTEXT
Date field codes	Calculated date	CFG_WP_SHOWDATEFIELDPCODE
File name field codes	Document file name	CFG_WP_SHOWFILENAMEFIELDPCODE
Microsoft Excel		
Hidden information	Hidden	CFG_SS_SHOWHIDDENINFOR
Comments	Hidden	CFG_SS_SHOWCOMMENTS
Formulas	Calculated value	CFG_SS_SHOWFORMULA
Microsoft PowerPoint		
Hidden slides	Shown	CFG_PG_HIDEHIDDENSLIDE
Comments	Shown ³	CFG_PG_HIDECOMMENT
Comments slide	Hidden	CFG_PG_SHOWCOMMENTSSLIDE ⁴
Slide notes ⁵	Hidden	CFG_PG_SHOWSLIDENOTES

To toggle the display of hidden data

- Use the `setConfigOption` method of the `Export` object, and set the `config` parameter to one of the options listed in [Hidden data settings, above](#). Setting a hidden data parameter changes the *default* behavior.

For example:

```
objExport.setConfigOption(Export.CFG_WP_SHOWHIDDENTEXT);
```

In this case, the configuration parameter ensures that hidden text in Microsoft Word documents is shown (it is hidden by default).

¹Word comment settings can also be toggled with a configuration parameter in the `formats_e.ini` file. See [Toggle Word Comment Settings in the formats_e.ini File, on the next page](#).

²Shown by default in documents from Microsoft Word 97 and later.

³Shown by default in Microsoft PowerPoint 97 to 2000 documents.

⁴This setting affects PowerPoint 2003 and 2007 only.

⁵PowerPoint slide note settings can also be toggled with a configuration parameter in the `formats_e.ini` file. See [Toggle PowerPoint Slide Note Settings in the formats_e.ini File, on the next page](#).

Toggle Word Comment Settings in the formats_e.ini File

Microsoft Word 97 to 2003 comment settings can also be controlled through a parameter in the formats_e.ini file.

The formats_e.ini file is in the directory *install\OS\bin*, where *install* is the path name of the Export installation directory and *OS* is the name of the operating system.

To toggle comment output in formats_e.ini

1. Open the formats_e.ini file in a text editor.
2. Under [Options], add the WP_NOCOMMENTS parameter and set it to 0 to show comments, or 1 to hide comments. For example:

```
[Options]
WP_NOCOMMENTS=1
```

NOTE: The CFG_WP_NOCOMMENTS configuration API flag overrides the setting in formats_e.ini.

Toggle PowerPoint Slide Note Settings in the formats_e.ini File

Microsoft PowerPoint slide note settings can also be controlled through a parameter in the formats_e.ini file.

The formats_e.ini file is in the directory *install\OS\bin*, where *install* is the path name of the Export installation directory and *OS* is the name of the operating system.

To toggle slide note output in formats_e.ini

1. Open the formats_e.ini file in a text editor.
2. Under [Options], add the ShowSlideNotes parameter and set it to 1 to show slide notes, or 0 to hide slide notes. For example:

```
[Options]
ShowSlideNotes=1
```

NOTE: The CFG_PG_SHOWSLIDENOTES configuration API flag overrides the setting in formats_e.ini.

Exclude Japanese Guide Text

This option prevents output of Japanese phonetic guide text when Microsoft Excel (.xlsx) files are processed.

To prevent output of Japanese phonetic guide text

- In `formats_e.ini`, set the following parameter.

```
[Options]  
NoPhoneticGuides=TRUE
```

Source Code Identification

When KeyView auto-detects a file that contains source code, it can attempt to identify the programming language that it is written in.

NOTE: Source code identification is available only on Windows 64-bit, Linux 64-bit, and macOS 64-bit platforms.

You can set source code identification to different levels.

Option	Description
KVSOURCECODE_OFF	Do not enable source code identification.
KVSOURCECODE_ENABLED	Enable source code identification for the most common source code formats.
KVSOURCECODE_EXTENDED	Enable source code identification for all supported source code formats. This option might lead to false positives in some cases (for example, a C++ file might get identified as a rarer format).

For the complete list of source code formats supported for both options, see [Supported Formats, on page 116](#).

To configure source code identification

- In `formats_e.ini`, set the following parameter to the appropriate level.

```
[Options]  
SourceCodeDetection=KVSOURCECODE_ENABLED
```

Chapter 5: Sample Programs

This section describes the Java sample programs provided with HTML Export.

• Introduction	102
• ExtractExport	102
• HtmlTest	105
• HtmlConvFileToFile	107
• HtmlConvStreamToStream	109

Introduction

The Java sample programs demonstrate how to use the Java implementation of HTML Export. The sample code is intended to provide a starting point for your own applications or to be used for reference purposes.

The following Java sample programs are provided:

- [ExtractExport](#), below
- [HtmlTest](#), on page 105
- [HtmlConvFileToFile](#), on page 107
- [HtmlConvStreamToStream](#), on page 109

The source code for the programs is in the directory *install\javaapi\sample*.

In addition to the sample programs, the following support files are also provided:

Sample configuration files:

- `HtmlSampleConfig.txt`

Batch and C shell files that run each program:

- `HtmlConvFileToFile.bat (.csh)`
- `HtmlConvStreamToStream.bat (.csh)`

ExtractExport

This program demonstrates the File Extraction interface and basic functionality of the Export interface. The `HtmlTest` sample program demonstrates more advanced functionality of the Export interface. See [HtmlTest](#), on page 105.

The `ExtractExport` program demonstrates the following functionality:

- opens a document
- extracts subfiles from a document
- repeats subfile extraction until all subfiles are extracted
- sets conversion options through a template file
- converts the subfile (or subfiles) and main file to HTML or XML
- enables you to specify the command-line options listed in [Options for the ExtractExport Sample Program, below](#)

NOTE: This sample program demonstrates how to export from a `java.io.InputStream` object. However, Micro Focus recommends that you implement a `com.verity.api.SeekableInputStream` and pass this into `KeyView` instead. Micro Focus recommends this option because it allows `KeyView` to seek in the file, only reading the parts it needs to read. For more information, see [Input/Output Operations, on page 31](#).

To run ExtractExport

1. Add the location of the `javaapi\KeyView.jar` file, the `javaapi\sample` directory, and the `Export bin` directory to the `CLASSPATH` environment variable.
2. Run the program as follows:

```
java -Djava.library.path=bin_directory ExtractExport [options] bin_directory  
infile input_file output_file
```

where:

- `bin_directory` is the path to the `Export bin` directory.
- `options` is one or more of the options listed in [Options for the ExtractExport Sample Program, below](#).
- `infile` is the path and file name of a template file.
- `input_file` is the path and file name of the source file.
- `output_file` is the path and file name of the output file if the source file is not a container file.

Options for the ExtractExport Sample Program

Option	Description
-extonly	This option extracts the subfiles from a source file, but does not convert the files after extraction.
-extdir directory	This option sets the suggested directory to which the subfiles are extracted.
-ext-fbody	This option extracts the formatted version of the message body (HTML or RTF) from mail files when possible.

Options for the ExtractExport Sample Program, continued

Option	Description
-xml	This option converts the files to XML. The default is HTML. To use this option, XML Export must be installed.
-source-cs charset	This option sets the character set of the source file. charset is a character set defined as a constant in the Export class. See Code Character Sets, on page 237 .
-target-cs charset	This option sets the character set of the output file. charset is a character set defined as a constant in the Export class. See Code Character Sets, on page 237 .
-little- end	This option sets the byte order for Unicode text to little endian.
-is	This option sets the input as a stream. The default is file.
-os	This option sets the output as a stream. The default is file.
-open-user username	This option specifies the user name used to open a protected PST or NSF file.
-open-pass password	This option specifies the password used to open a protected PST or NSF file.
-open- idfile idfile	This option specifies the user ID file used to open a protected PST or NSF file.
-open- createroot	This option creates a root directory on which a hierarchy can be based. See Create a Root Node, on page 44 .
-ext-nodir	This option specifies that the subfile directory structure is not created.
-ext- noheader	This option excludes mail header information from extracted message body text file. See Exclude Metadata from the Extracted Text File, on page 51 .
-meta outfile	This option extracts default mail metadata and writes it to a file. See Extract Mail Metadata, on page 46 .
-oop	This option converts the files in a separate process. See Convert Files Out of Process, on page 23 .
-ip	This option runs file extraction in the same process as the calling application (in process). See Convert Files Out of Process, on page 23 .

HtmlTest

This program converts an input document to an output document and allows you to specify options in the command line. The command-line options are listed in [Options for the HTMLTest Sample Program, below](#). This program demonstrates most of the methods available in the Java API.

NOTE: This sample program demonstrates how to export from a `java.io.InputStream` object. However, Micro Focus recommends that you implement a `com.verity.api.SeekableInputStream` and pass this into `KeyView` instead. Micro Focus recommends this option because it allows `KeyView` to seek in the file, only reading the parts it needs to read. For more information, see [Input/Output Operations, on page 31](#).

To run HtmlTest

1. Add the location of the `javaapi\KeyView.jar` file, the `javaapi\sample` directory, and the Export bin directory to the CLASSPATH environment variable.
2. Run the program as follows:

```
java -Djava.library.path=bin_directory HtmlTest [options] bin_directory inifile  
inputfile outputfile
```

where:

- `bin_directory` is the path to the Export bin directory.
- `options` is one or more of the options listed in [Options for the HTMLTest Sample Program, below](#).
- `inifile` is the full path and file name of a template file. See [Explore Conversion Options with the Sample Programs, on page 30](#).
- `inputfile` is the path and file name of the source file.
- `outputfile` is the path and file name of the generated file.

If a path is not specified, the file is output to the current directory.

Options for the HTMLTest Sample Program

Option	Description
-is	This option sets the input as a stream. The default is file.
-os	This option sets the output as a stream. The default is file.
-oop	This option runs Export as a separate process. See Convert Files Out of Process, on page 23 . The .NET version of the sample program does not support this option.

Options for the HTMLTest Sample Program, continued

Option	Description
-oopksa	<p>This option keeps a Servant process active after the Export out-of-process session is terminated. If the Servant remains active, subsequent conversion requests are processed more quickly because the Servant is already prepared to receive data.</p> <p>The .NET version of the sample program does not support this option.</p>
-x xmlconfigfile	<p>This option converts an XML file using customized extraction settings defined in the kvxconfig.ini file. If you do not enter the full path to the configuration file, the program looks for the file in the current working directory (<i>install\OS\bin</i>, where <i>install</i> is the path name of the Export installation directory and <i>OS</i> is the name of the operating system). See Convert XML Files, on page 91.</p>
-z tempdirectory	<p>This option specifies a temporary directory in which temporary files generated by the conversion process are stored.</p> <p>On Windows systems, there is a 64 K size limit to the temporary directory. After the limit is reached, you must either create a new directory or delete the contents of the existing directory; otherwise, you might receive an error message.</p>
-docformat formatfile	<p>This option extracts the file format information and writes it to a file.</p> <p>formatfile is the name of the file to which the format information is written.</p>
-summary summaryfile	<p>This option extracts the metadata and writes it to a file.</p> <p>summaryfile is the name of the file to which the metadata is written. See Extract Metadata, on page 64.</p>
-list listfile	<p>This option displays a list of the files that are automatically generated during the conversion.</p> <p>listfile is the name of the file to which the file list is written.</p>
-hifipdf	<p>This option specifies the type of reader used to convert PDF documents. In HTML Export, PDF documents are converted using either the graphic-based PDF reader, named kppdfldr, or the basic PDF reader, named pdfsr. See Convert PDF Files, on page 80. By default, the basic reader (pdfsr) is used to convert PDF documents.</p>
-suptocim	<p>If you set this option, bookmarks in a PDF file are not used to generate a table of contents in the HTML output. By default, the table of contents is generated from "bookmarks" within the PDF file. See Convert PDF Files, on page 80.</p>
-textrotate	<p>This option specifies that rotated text should be displayed at the bottom of a page on which it appears. By default, rotated text in a file is displayed in its original position, at the original font size, and at 0 degrees rotation. The text is not rotated in the HTML output because text rotation is not supported by HTML. See Convert Rotated Text, on page 85.</p>

Options for the HTMLTest Sample Program, continued

Option	Description
	Currently, this configuration option only applies to PDF files.
-pdforder orderFlag	<p>This option specifies that PDF files are output in a logical reading order. The orderFlag parameter is one of the following:</p> <ul style="list-style-type: none">• ltr—left-to-right paragraph direction.• rtl—right-to-left paragraph direction.• auto—The PDF reader determines the paragraph direction (left-to-right or right-to-left) for each PDF page, and then sets the direction accordingly.• raw—Unstructured paragraph flow. <p>See Convert PDF Files to a Logical Reading Order, on page 81.</p>
-hl term term term	This option specifies the text string or strings that are found and highlighted in the HTML output. You can specify a maximum of three terms. See Search and Highlight Terms, on page 78 .
-hlcs charset	This option specifies the character set of the highlighted search terms in the HTML output.
-hlig	This option specifies that the text search is case insensitive. This option can be used only when the target character set for the highlighted search term is KVCS_1252.
-rm	If you set this option, text and graphics that were deleted from a document with revision tracking enabled are converted, and revision tracking information is included in the HTML output. See Convert Revision Tracking Information, on page 79 .
-dsh	This option specifies that soft hyphens in PDF files are deleted from the converted output. See Control Hyphenation, on page 86 .

HtmlConvFileToFile

This program converts an input file to an output file using Java API calls in HTML Export, and a template file. See [Explore Conversion Options with the Sample Programs, on page 30](#) for more information on template files. The program is available in C# (HtmlConvFileToFile.cs) for .NET and Java (HtmlConvFileToFile.java).

This program demonstrates the following functions:

- Extracts file format information (document type, format, and version) if it is available in the source document.

- Extracts metadata if it is available in the source document. Although the program extracts all the metadata in the document, it displays only the first element of metadata.
- Displays a list of the files that are automatically generated during the conversion.
- Configures the PDF reader used in the conversion. See [Convert PDF Files, on page 80](#).

The basic PDF reader (pdfsr) is used by default in the sample program. To specify that the graphic-based PDF reader is to be used to convert PDF documents, remove the comment from the following line in the `HtmlConvFileToFile.java` file:

```
objHtmlExport.setConfigOption(new ConfigOption(HtmlExport.CFG_SETHIFIPDF, 1, null));
```

- Specifies the directory in which temporary files created during conversion processes are stored. To specify the temporary directory, remove the comment from the following line in the `HtmlConvFileToFile.java` file:
- ```
objHtmlExport.setConfigOption(new ConfigOption(Export.CFG_SETTEMPDIRECTORY, 0, "C:\\tmp"));
```
- Extracts elements from a source XML file based on the extraction settings in the `kvxconfig.ini` file. See [Convert XML Files, on page 91](#).

## Run HtmlConvFileToFile on Windows

### To run HtmlConvFileToFile on Windows

1. In the file `HtmlConvFileToFile.bat`, set the following variables.

`INSTALL_DIR`     The absolute path of the KeyView Export SDK installation directory.

`PLATFORM`        The platform name.

2. In `HtmlSampleConfig.txt`, specify the following values, one on each line.

| Line | Value                                                                                                                                                                                                                              |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | The path to the template file to use in the conversion.<br><br>You can use the template files in the directory <code>install\htmlexport\programs\ini</code> , where <code>install</code> is the Export SDK installation directory. |
| 2    | The path to the Export SDK bin directory.                                                                                                                                                                                          |
| 3    | (Optional) If you are processing XML files you can specify the location of the <code>kvxconfig.ini</code> file that contains extraction settings. This is in the bin directory.                                                    |

3. Run the program. For the Java version of the program, run the batch file in the `install\javaapi\sample` directory. Type the following:

```
HtmlConvFileToFile inputfile outputfile
```

For the .NET version of the program, compile the program in Visual Studio and run the program from the Export bin directory:

```
HtmlConvFileToFile.exe inputfile outputfile
```

where:

*inputfile* is the path of the source file.

*outputfile* is the path and file name of the generated HTML file.

## Run HtmlConvFileToFile on UNIX

### To run HtmlConvFileToFile on UNIX

1. In the file `HtmlConvFileToFile.csh`, set the following variables.

`INSTALL_DIR`     The absolute path of the KeyView Export SDK installation directory.

`PLATFORM`        The platform name.

2. In `HtmlSampleConfig.txt`, specify the following values, one on each line.

| Line | Value                                                                                                                                                                                                                  |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | The path to the template file to use in the conversion.<br><br>You can use the template files in the directory <i>install</i> \htmlexport\programs\ini, where <i>install</i> is the Export SDK installation directory. |
| 2    | The path to the Export SDK bin directory.                                                                                                                                                                              |
| 3    | (Optional) If you are processing XML files you can specify the location of the <code>kvxconfig.ini</code> file that contains extraction settings. This is in the bin directory.                                        |

3. Run the program:

```
./HtmlConvFileToFile.csh inputfile outputfile
```

where:

*inputfile* is the path of the source file.

*outputfile* is the path and file name of the generated HTML file.

## HtmlConvStreamToStream

This program converts an input stream to an output stream using Java API calls in HTML Export, and a template file. See [Explore Conversion Options with the Sample Programs, on page 30](#) for more information on template files.

**NOTE:** This sample program demonstrates how to export from a `java.io.InputStream` object. However, Micro Focus recommends that you implement a `com.verity.api.SeekableInputStream` and pass this into `KeyView` instead. Micro Focus recommends this option because it allows `KeyView` to seek in the file, only reading the parts it needs to read. For more information, see [Input/Output Operations, on page 31](#).

## Run HtmlConvStreamToStream on Windows

### To run HtmlConvStreamToStream on Windows

1. In the file `HtmlConvStreamToStream.bat`, set the following variables.

`INSTALL_DIR`     The absolute path of the KeyView Export SDK installation directory.  
`PLATFORM`        The platform name.

2. In `HtmlSampleConfig.txt`, specify the following values, one on each line.

| Line | Value                                                                                                                                                                                                                              |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | The path to the template file to use in the conversion.<br><br>You can use the template files in the directory <code>install\htmlexport\programs\ini</code> , where <code>install</code> is the Export SDK installation directory. |
| 2    | The path to the Export SDK bin directory.                                                                                                                                                                                          |

3. Run the batch file in the `install/javaapi/sample` directory. Type the following:

```
HtmlConvStreamToStream inputfile
```

where `inputfile` is the path of the source file.

The generated HTML is output to the current console (standard out).

## Run HtmlConvStreamToStream on UNIX

### To run HtmlConvStreamToStream on UNIX

1. In the file `HtmlConvStreamToStream.csh`, set the following variables.

`INSTALL_DIR`     The absolute path of the KeyView Export SDK installation directory.  
`PLATFORM`        The platform name.

2. In `HtmlSampleConfig.txt`, specify the following values, one on each line.

| Line | Value                                                                                                                                                                                                                  |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | The path to the template file to use in the conversion.<br><br>You can use the template files in the directory <i>install</i> \htmlexport\programs\ini, where <i>install</i> is the Export SDK installation directory. |
| 2    | The path to the Export SDK bin directory.                                                                                                                                                                              |

3. Run the C shell file in the *install*/javaapi/sample directory. Type the following:

```
./HtmlConvStreamToStream.csh inputfile
```

where *inputfile* is the path of the source file.

The generated HTML is output to the current console (standard out).

# Part III: Appendixes

This section lists supported formats, supported character sets and redistributed files, and provides information on format detection.

- [Supported Formats](#)
- [Document Readers](#)
- [Character Sets](#)
- [Extract and Format Lotus Notes Subfiles](#)
- [Export Tokens](#)
- [File Format Detection](#)
- [Files Required for Redistribution](#)
- [Password Protected Files](#)





# Appendix A: Supported Formats

This section lists the file formats that KeyView can detect.

- [Key to Supported Formats Table](#) ..... 114
- [Supported Formats](#) ..... 116
- [File Classes](#) ..... 195

## Key to Supported Formats Table

The supported formats table includes the following information:

| Column      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Format Name | The format name that is returned by KeyView format detection. <ul style="list-style-type: none"><li>• In the C API, these values are defined in the <code>ENDocFmt</code> enumeration in <code>adDocFmt.h</code>.</li><li>• In the .NET API these values are defined in the <code>Autonomy.API.Export.DocFormat</code> enumeration.</li><li>• In the Java API these values are defined in the <code>com.verity.api.DocFormat</code> enumeration.</li></ul> |
| Number      | The format number that is returned by KeyView format detection. This is the value associated with the Format Name in the relevant enumeration.                                                                                                                                                                                                                                                                                                             |
| Category    | This value is used in the KeyView configuration file <code>formats.ini</code> to specify the reader to use to filter, export, or view the format. Several formats might have the same category value.                                                                                                                                                                                                                                                      |
| Description | A short description of the file format.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MIME Type   | The MIME type (if any).                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Extension   | A list of common file extensions for the file format. <div><b>NOTE:</b> This is not a complete list of file extensions. KeyView does not distinguish between file types based on their extension. Instead, it detects the file format based on the file content. This is more reliable because content cannot always be predicted from the file extension, and because some file extensions are associated with multiple formats.</div>                    |
| File Class  | The KeyView file class. <ul style="list-style-type: none"><li>• In the C API, these values are defined in the <code>ENDocClass</code> enumeration in</li></ul>                                                                                                                                                                                                                                                                                             |

|  |                                                                                                                                                                                                                                                                                                    |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><code>adinfo.h</code>.</p> <ul style="list-style-type: none"><li>• In the .NET API these values are defined in the <code>Autonomy.API.Export.DocClass</code> enumeration.</li><li>• In the Java API these values are defined in the <code>com.verity.api.DocClass</code> enumeration.</li></ul> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# Supported Formats

| Format Name            | Number | Category | Description                                     | MIME Type             | Extension | File Class      | Readers                                             |
|------------------------|--------|----------|-------------------------------------------------|-----------------------|-----------|-----------------|-----------------------------------------------------|
| Reserved__Fmt          | -1     | -1       |                                                 |                       |           | AutoDetNoFormat |                                                     |
| Unknown_Fmt            | 0      | 0        |                                                 |                       |           | AutoDetNoFormat |                                                     |
| AES_Multiplus_Comm_Fmt | 1      | 1        | Multiplus (AES)                                 |                       | PTF       | adWORDPROCESSOR |                                                     |
| ASCII_Text_Fmt         | 2      | 2        | Plain Text file                                 | text/plain            | TXT       | adWORDPROCESSOR | <a href="#">afsr</a>                                |
| MSDOS_Batch_File_Fmt   | 3      | 2        | MS-DOS Batch File                               | application/x-bat     | BAT       | adEXECUTABLE    | <a href="#">afsr</a>                                |
| Applix_Alis_Fmt        | 4      | 3        | Applix Asterix                                  |                       | AX        | adWORDPROCESSOR | <a href="#">axsr</a>                                |
| BMP_Fmt                | 5      | 4        | Windows Bitmap Image (BMP)                      | image/bmp             | BMP       | adRASTERIMAGE   | <a href="#">bmpsr</a> ,<br><a href="#">kpbmprdr</a> |
| CT_DEF_Fmt             | 6      | 5        | Convergent Technologies DEF Comm. Format        |                       |           | adWORDPROCESSOR | <a href="#">cdsr</a>                                |
| Corel_Draw_Fmt         | 7      | 6        | CorelDRAW (up to version 13/X3)                 | application/coreldraw | CDR       | adVECTORGRAPHIC | <a href="#">kpcdrdr</a>                             |
| CGM_ClearText_Fmt      | 8      | 8        | Computer Graphics Metafile (CGM)                |                       | CGM       | adVECTORGRAPHIC | <a href="#">kpcgmrdr</a>                            |
| CGM_Binary_Fmt         | 9      | 8        | Computer Graphics Metafile (CGM)                | image/cgm             | CGM       | adVECTORGRAPHIC | <a href="#">kpcgmrdr</a>                            |
| CGM_Character_Fmt      | 10     | 8        | Computer Graphics Metafile (CGM)                |                       | CGM       | adVECTORGRAPHIC | <a href="#">kpcgmrdr</a>                            |
| Word_Connection_Fmt    | 11     | 9        | Word Connection                                 |                       | CN        | adWORDPROCESSOR | <a href="#">stringssr</a>                           |
| COMET_TOP_Word_Fmt     | 12     | 10       | Nixdorf COMET TOP Financial Accounting software |                       |           | adWORDPROCESSOR |                                                     |
| CEOwrite_Fmt           | 13     | 11       | CEOwrite                                        |                       | CW        | adWORDPROCESSOR | <a href="#">stringssr</a>                           |
| DSA101_Fmt             | 14     | 12       | DSA101 (Honeywell Bull)                         |                       |           | adWORDPROCESSOR | <a href="#">stringssr</a>                           |
| DCA_RFT_Fmt            | 15     | 13       | IBM DCA-RFT (Revisable Form)                    | application/dca-rft   | RFT, DC   | adWORDPROCESSOR | <a href="#">dcasr</a>                               |
| CDA_DDIF_Fmt           | 16     | 14       | CDA / DDIF                                      |                       | DDIF      | adWORDPROCESSOR |                                                     |

| Format Name              | Number | Category | Description                          | MIME Type                  | Extension    | File Class                        | Readers                                         |
|--------------------------|--------|----------|--------------------------------------|----------------------------|--------------|-----------------------------------|-------------------------------------------------|
| DG_CDS_Fmt               | 17     | 16       | DG Common Data Stream (CDS)          |                            | CDS          | adWORDPROCESSOR                   | <a href="#">stringssr</a>                       |
| Micrografx_Draw_Fmt      | 18     | 18       | Windows Draw (Micrografx)            | image/x-mgx-dsf            | DRW          | adVECTORGRAPHIC                   |                                                 |
| Data_Point_VistaWord_Fmt | 19     | 19       | Vistaword                            |                            | DV           | adWORDPROCESSOR                   | <a href="#">stringssr</a>                       |
| DECdx_Fmt                | 20     | 20       | DEC WPS Plus DX format               | application/dec-dx         | DX           | adWORDPROCESSOR                   |                                                 |
| Enable_WP_Fmt            | 21     | 21       | Enable Word Processing               | application/ewp            | WPF          | adWORDPROCESSOR                   | <a href="#">stringssr</a>                       |
| EPSF_Fmt                 | 22     | 22       | Encapsulated PostScript              | application/postscript     | EPS          | adRASTERIMAGE,<br>adVECTORGRAPHIC | <a href="#">kpepsrdr</a>                        |
| Preview_EPSF_Fmt         | 23     | 22       | Encapsulated PostScript              | application/postscript     |              | adRASTERIMAGE,<br>adVECTORGRAPHIC | <a href="#">kpepsrdr</a>                        |
| MS_Executable_Fmt        | 24     | 23       | MSDOS/Windows executable             | application/x-msdownload   | EXE          | adEXECUTABLE                      | <a href="#">exesr</a>                           |
| G31D_Fmt                 | 25     | 24       | CCITT G3 1D                          |                            |              | adRASTERIMAGE                     |                                                 |
| GIF_87a_Fmt              | 26     | 25       | Graphics Interchange Format (GIF87a) | image/gif                  | GIF          | adRASTERIMAGE                     | <a href="#">gifsr</a> , <a href="#">kpgifdr</a> |
| GIF_89a_Fmt              | 27     | 25       | Graphics Interchange Format (GIF89a) | image/gif                  | GIF          | adRASTERIMAGE                     | <a href="#">gifsr</a> , <a href="#">kpgifdr</a> |
| HP_Word_PC_Fmt           | 28     | 26       | HP Word PC                           |                            | HW           | adWORDPROCESSOR                   | <a href="#">stringssr</a>                       |
| IBM_1403_LinePrinter_Fmt | 29     | 27       | IBM 1403 Line Printer                |                            | I4           | adWORDPROCESSOR                   |                                                 |
| IBM_DCF_Script_Fmt       | 30     | 28       | DCF Script                           |                            | IC           | adWORDPROCESSOR                   | <a href="#">stringssr</a>                       |
| IBM_DCA_FFT_Fmt          | 31     | 29       | DCA-FFT (IBM Final Form)             | text/x-ibm-fft             | IF, FFT      | adWORDPROCESSOR                   |                                                 |
| Interleaf_Fmt            | 32     | 30       | Interleaf                            |                            |              | adWORDPROCESSOR                   |                                                 |
| GEM_Image_Fmt            | 33     | 31       | GEM Bit Image                        |                            | IMG          | adRASTERIMAGE                     |                                                 |
| IBM_Display_Write_Fmt    | 34     | 32       | IBM DisplayWrite                     | application/x-displaywrite | IP           | adWORDPROCESSOR                   | <a href="#">dw4sr</a>                           |
| Sun_Raster_Fmt           | 35     | 33       | Sun Raster image                     | image/x-cmu-raster         | RAS, RS, SUN | adRASTERIMAGE                     | <a href="#">kpsunrdr</a>                        |
| Ami_Pro_Fmt              | 36     | 35       | Lotus Ami Pro                        | application/x-lotus-amipro | SAM          | adWORDPROCESSOR                   | <a href="#">lasr</a>                            |
| Ami_Pro_StyleSheet_Fmt   | 37     | 35       | Lotus Ami Pro Style Sheet            |                            |              | adWORDPROCESSOR                   | <a href="#">lasr</a>                            |
| MORE_Fmt                 | 38     | 36       | MORE Database MAC                    |                            |              | adOUTLINE                         |                                                 |
| Lyrix_Fmt                | 39     | 37       | Lyrix Word Processing                |                            |              | adWORDPROCESSOR                   | <a href="#">stringssr</a>                       |

| Format Name                | Number | Category | Description                                                | MIME Type                    | Extension      | File Class      | Readers                   |
|----------------------------|--------|----------|------------------------------------------------------------|------------------------------|----------------|-----------------|---------------------------|
| MASS_11_Fmt                | 40     | 38       | MASS-11                                                    | application/x-mass-11        | M1             | adWORDPROCESSOR | <a href="#">stringssr</a> |
| MacPaint_Fmt               | 41     | 39       | MacPaint                                                   | image/x-macpaint             | MAC, PIC, PNTG | adRASTERIMAGE   | <a href="#">kpmacrdr</a>  |
| MS_Word_Mac_Fmt            | 42     | 40       | Microsoft Word for Macintosh (up to version 3)             | application/msword           | DOC            | adWORDPROCESSOR | <a href="#">mbsr</a>      |
| SmartWare_II_Comm_Fmt      | 43     | 41       | SmartWare II                                               |                              |                | adCOMMUNICATION |                           |
| MS_Word_Win_Fmt            | 44     | 42       | Microsoft Word for Windows (up to version 6)               | application/msword           | DOC, WPS       | adWORDPROCESSOR | <a href="#">misr</a>      |
| Multimate_Fmt              | 45     | 43       | MultiMate                                                  | application/x-multimate      | MM             | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Multimate_Fnote_Fmt        | 46     | 43       | MultiMate Footnote File                                    | application/x-multimate-note | MMFN           | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Multimate_Adv_Fmt          | 47     | 43       | MultiMate Advantage                                        |                              |                | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Multimate_Adv_Fnote_Fmt    | 48     | 43       | MultiMate Advantage Footnote File                          |                              |                | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Multimate_Adv_II_Fmt       | 49     | 43       | MultiMate Advantage II                                     |                              |                | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Multimate_Adv_II_Fnote_Fmt | 50     | 43       | MultiMate Advantage II Footnote File                       |                              | FBX, FNX       | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Multiplan_PC_Fmt           | 51     | 44       | Microsoft Multiplan (PC)                                   | application/x-ms-multiplan   |                | adSPREADSHEET   |                           |
| Multiplan_Mac_Fmt          | 52     | 44       | Microsoft Multiplan (Mac)                                  | application/x-ms-multiplan   |                | adSPREADSHEET   |                           |
| MS_RTF_Fmt                 | 53     | 45       | Rich Text Format (RTF)                                     | application/rtf              | RTF            | adWORDPROCESSOR | <a href="#">rtfsr</a>     |
| MS_Word_PC_Fmt             | 54     | 46       | Microsoft Word for PC (up to version 6)                    | application/x-ms-wordpc      | MW             | adWORDPROCESSOR | <a href="#">mwsr</a>      |
| MS_Word_PC_StyleSheet_Fmt  | 55     | 46       | Microsoft Word for PC (up to version 6) Style Sheet        |                              |                | adWORDPROCESSOR | <a href="#">mwsr</a>      |
| MS_Word_PC_Glossary_Fmt    | 56     | 46       | Microsoft Word for PC (up to version 6) Glossary           |                              |                | adWORDPROCESSOR | <a href="#">mwsr</a>      |
| MS_Word_PC_Driver_Fmt      | 57     | 46       | Microsoft Word for PC (up to version 6) Driver             |                              |                | adWORDPROCESSOR | <a href="#">mwsr</a>      |
| MS_Word_PC_Misc_Fmt        | 58     | 46       | Microsoft Word for PC (up to version 6) Miscellaneous File |                              |                | adWORDPROCESSOR | <a href="#">mwsr</a>      |
| NBI_Async_Archive_Fmt      | 59     | 47       | NBI Async Archive Format                                   |                              |                | adWORDPROCESSOR |                           |
| Navy_DIF_Fmt               | 60     | 48       | Navy DIF (document interchange format)                     | application/x-navy           | ND             | adWORDPROCESSOR | <a href="#">stringssr</a> |

| Format Name             | Number | Category | Description                          | MIME Type                | Extension | File Class                     | Readers                                         |
|-------------------------|--------|----------|--------------------------------------|--------------------------|-----------|--------------------------------|-------------------------------------------------|
| NBI_Net_Archive_Fmt     | 61     | 49       | NBI OASys Net Archive Format         |                          | NN        | adWORDPROCESSOR                | <a href="#">nnsr</a>                            |
| NIOS_TOP_Fmt            | 62     | 50       | NIOS TOP                             |                          |           | adWORDPROCESSOR                |                                                 |
| FileMaker_Mac_Fmt       | 63     | 51       | Filemaker MAC                        |                          | FP5, FP7  | adDATABASE                     |                                                 |
| ODA_Q1_11_Fmt           | 64     | 52       | ODA / ODIF Q1 11                     |                          | OD        | adWORDPROCESSOR                | <a href="#">stringssr</a>                       |
| ODA_Q1_12_Fmt           | 65     | 52       | ODA / ODIF Q1 12                     |                          | OD        | adWORDPROCESSOR                | <a href="#">stringssr</a>                       |
| OLIDIF_Fmt              | 66     | 53       | OLIDIF (Olivetti)                    |                          |           | adWORDPROCESSOR                |                                                 |
| Office_Writer_Fmt       | 67     | 55       | Office Writer                        |                          | OW        | adWORDPROCESSOR                | <a href="#">stringssr</a>                       |
| PC_Paintbrush_Fmt       | 68     | 56       | PC Paintbrush Graphics (PCX)         | image/vnd.zbrush.pcx     | PCX       | adRASTERIMAGE                  | <a href="#">kppcxrdr</a>                        |
| CPT_Comm_Fmt            | 69     | 57       | CPT Corporation word processor       |                          | PF        | adWORDPROCESSOR                | <a href="#">stringssr</a>                       |
| Lotus_PIC_Fmt           | 70     | 58       | Lotus PIC                            | image/x-pict             | PIC       | adVECTORGRAPHIC                | <a href="#">kppicrdr</a>                        |
| Mac_PICT_Fmt            | 71     | 59       | Macintosh Raster / QuickDraw Picture | image/x-pict             | PCT       | adRASTERIMAGE, adVECTORGRAPHIC | <a href="#">kppctrdr</a>                        |
| Philips_Script_Word_Fmt | 72     | 60       | Philips Script                       |                          |           | adWORDPROCESSOR                |                                                 |
| PostScript_Fmt          | 73     | 61       | PostScript                           | application/postscript   | PS        | adVECTORGRAPHIC                |                                                 |
| PRIMEWORD_Fmt           | 74     | 62       | PRIMEWORD                            |                          |           | adWORDPROCESSOR                | <a href="#">pwsr</a>                            |
| Quadratron_Q_One_v1_Fmt | 75     | 63       | Q-One V1.93J                         |                          | Q1, QX    | adWORDPROCESSOR                | <a href="#">stringssr</a>                       |
| Quadratron_Q_One_v2_Fmt | 76     | 64       | Q-One V2.0                           |                          | Q1, QX    | adWORDPROCESSOR                | <a href="#">stringssr</a>                       |
| SAMNA_Word_IV_Fmt       | 77     | 65       | SAMNA Word                           |                          | SAM       | adWORDPROCESSOR                | <a href="#">stringssr</a>                       |
| Ami_Pro_Draw_Fmt        | 78     | 66       | Lotus Ami Pro Draw                   |                          | SDW       | adVECTORGRAPHIC, adRASTERIMAGE | <a href="#">kpsdwrdr</a>                        |
| SYLK_Spreadsheet_Fmt    | 79     | 67       | SYmbolic LinK (SYLK) format          |                          | SLK       | adSPREADSHEET                  |                                                 |
| SmartWare_II_WP_Fmt     | 80     | 68       | Informix SmartWare II word processor |                          | DOC, SMT  | adWORDPROCESSOR                | <a href="#">swsr</a>                            |
| Symphony_Fmt            | 81     | 69       | Lotus Symphony spreadsheet           | application/vnd.symphony | WR1       | adSPREADSHEET                  |                                                 |
| Targa_Fmt               | 82     | 70       | Truevision Targa image               | image/x-tga              | TGA       | adRASTERIMAGE                  | <a href="#">kpTGArdr</a>                        |
| TIFF_Fmt                | 83     | 71       | Tagged Image File Format             | image/tiff               | TIF, TIFF | adRASTERIMAGE,                 | <a href="#">kptifdr</a> , <a href="#">tifsr</a> |

| Format Name                 | Number | Category | Description                        | MIME Type                       | Extension  | File Class                     | Readers                   |
|-----------------------------|--------|----------|------------------------------------|---------------------------------|------------|--------------------------------|---------------------------|
|                             |        |          | (TIFF)                             |                                 |            | adFAXFORMAT                    |                           |
| Targon_Word_Fmt             | 84     | 72       | Targon Word                        |                                 | TW         | adWORDPROCESSOR                | <a href="#">stringssr</a> |
| Uniplex_Ucalc_Fmt           | 85     | 73       | Uniplex Ucalc                      |                                 | SS         | adSPREADSHEET                  |                           |
| Uniplex_WP_Fmt              | 86     | 74       | Uniplex word processor             |                                 | UP         | adWORDPROCESSOR                | <a href="#">stringssr</a> |
| MS_Word_UNIX_Fmt            | 87     | 75       | Microsoft Word UNIX                | application/msword              |            | adWORDPROCESSOR                |                           |
| WANG_PC_Fmt                 | 88     | 76       | Wang IWP for PC                    | application/x-wang-iwp          | DOC        | adWORDPROCESSOR                |                           |
| WordERA_Fmt                 | 89     | 77       | WordERA                            |                                 | DC, GL, FR | adWORDPROCESSOR                | <a href="#">stringssr</a> |
| WANG_WPS_Comm_Fmt           | 90     | 78       | WANG WPS                           |                                 | WF         | adWORDPROCESSOR                | <a href="#">stringssr</a> |
| WordPerfect_Mac_Fmt         | 91     | 79       | WordPerfect MAC                    | application/x-corel-wordperfect |            | adWORDPROCESSOR                | <a href="#">wpmsr</a>     |
| WordPerfect_Fmt             | 92     | 86       | WordPerfect version 4              | application/x-corel-wordperfect | WP, WP4    | adWORDPROCESSOR                | <a href="#">stringssr</a> |
| WordPerfect_VAX_Fmt         | 93     | 139      | WordPerfect VAX                    | application/x-corel-wordperfect |            | adWORDPROCESSOR                |                           |
| WordPerfect_Macro_Fmt       | 94     | 139      | WordPerfect Macro                  | application/vnd.wordperfect     | MRS        | adWORDPROCESSOR                |                           |
| WordPerfect_Dictionary_Fmt  | 95     | 139      | WordPerfect Spelling Dictionary    | application/vnd.wordperfect     | SPW        | adWORDPROCESSOR                |                           |
| WordPerfect_Thesaurus_Fmt   | 96     | 139      | WordPerfect Thesaurus              | application/vnd.wordperfect     |            | adWORDPROCESSOR                |                           |
| WordPerfect_Resource_Fmt    | 97     | 139      | WordPerfect Resource File          | application/vnd.wordperfect     | WWK, PRS   | adWORDPROCESSOR                |                           |
| WordPerfect_Driver_Fmt      | 98     | 139      | WordPerfect Driver                 | application/vnd.wordperfect     | IRS, VRS   | adWORDPROCESSOR                |                           |
| WordPerfect_Cfg_Fmt         | 99     | 139      | WordPerfect Configuration File     | application/vnd.wordperfect     | PFX        | adWORDPROCESSOR                |                           |
| WordPerfect_Hyphenation_Fmt | 100    | 139      | WordPerfect Hyphenation Dictionary | application/vnd.wordperfect     | HYC        | adWORDPROCESSOR                |                           |
| WordPerfect_Misc_Fmt        | 101    | 139      | WordPerfect Miscellaneous File     | application/vnd.wordperfect     |            | adWORDPROCESSOR                |                           |
| WordMARC_Fmt                | 102    | 82       | WordMARC Composer                  | video/x-ms-wm                   | WM, PW     | adWORDPROCESSOR                | <a href="#">stringssr</a> |
| Windows_Metatile_Fmt        | 103    | 83       | Windows Metatile                   | image/wmf                       | WMF        | adVECTORGRAPHIC, adRASTERIMAGE | <a href="#">kpwmfrdr</a>  |
| Windows_Metatile_NoHdr_Fmt  | 104    | 83       | Windows Metatile (no header)       | image/wmf                       | WMF        | adVECTORGRAPHIC                | <a href="#">kpwmfrdr</a>  |
| SmartWare_II_DB_Fmt         | 105    | 84       | Informix SmartWare II database     | database/x-smartdata            |            | adDATABASE                     |                           |



| Format Name              | Number | Category | Description                                 | MIME Type                          | Extension | File Class                     | Readers           |
|--------------------------|--------|----------|---------------------------------------------|------------------------------------|-----------|--------------------------------|-------------------|
| WordPerfect_Graphics_Fmt | 106    | 195      | WordPerfect Graphics (version 2 and higher) | application/vnd.wordperfect        | WPG, QPG  | adRASTERIMAGE, adVECTORGRAPHIC | kpwg2rdr, kwpgrdr |
| WordStar_Fmt             | 107    | 87       | WordStar                                    | application/vnd.wordstar           | WS, WSD   | adWORDPROCESSOR                | stringssr         |
| WANG_WITA_Fmt            | 108    | 88       | WANG WITA                                   |                                    | WT        | adWORDPROCESSOR                | stringssr         |
| Xerox_860_Comm_Fmt       | 109    | 89       | Xerox 860                                   |                                    |           | adWORDPROCESSOR                | stringssr         |
| Xerox_Writer_Fmt         | 110    | 91       | Xerox Writer                                |                                    |           | adWORDPROCESSOR                | stringssr         |
| DIF_SpreadSheet_Fmt      | 111    | 92       | Data Interchange Format (DIF)               | application/dif+xml                | DIF       | adSPREADSHEET                  | difsr             |
| Enable_Spreadsheet_Fmt   | 112    | 93       | Enable Spreadsheet                          | application/vnd.epson.ssf          | SSF       | adSPREADSHEET                  |                   |
| SuperCalc_Fmt            | 113    | 94       | Sorcim SuperCalc spreadsheet                | application/x-supercalc5           | CAL       | adSPREADSHEET                  |                   |
| UltraCalc_Fmt            | 114    | 95       | UltraCalc spreadsheet                       |                                    |           | adSPREADSHEET                  |                   |
| SmartWare_II_SS_Fmt      | 115    | 96       | Informix SmartWare II spreadsheet           | application/x-smartware            |           | adSPREADSHEET                  |                   |
| SOF_Encapsulation_Fmt    | 116    | 97       | Serialized Object Format (SOF)              | application/java-serialized-object | SOF       | adENCAPSULATION                |                   |
| PowerPoint_Win_Fmt       | 117    | 98       | Microsoft PowerPoint PC (up to version 4)   | application/x-ms-powerpoint        | PPT       | adPRESENTATION                 | kpp40rdr          |
| PowerPoint_Mac_Fmt       | 118    | 99       | Microsoft PowerPoint MAC (up to version 4)  | application/x-ms-powerpoint        | PPT       | adPRESENTATION                 | olesr             |
| PowerPoint_95_Fmt        | 119    | 212      | Microsoft PowerPoint 95                     | application/x-ms-powerpoint        | PPT       | adPRESENTATION                 | kpp95rdr          |
| PowerPoint_97_Fmt        | 120    | 272      | Microsoft PowerPoint 97                     | application/x-ms-powerpoint        | PPT       | adPRESENTATION                 | kpp97rdr          |
| PageMaker_Mac_Fmt        | 121    | 100      | PageMaker for Macintosh                     |                                    |           | adDESKTOPPUBLSH                |                   |
| PageMaker_Win_Fmt        | 122    | 101      | PageMaker for Windows                       |                                    |           | adDESKTOPPUBLSH                |                   |
| MS_Works_Mac_WP_Fmt      | 123    | 103      | Microsoft Works Word Processor for MAC      | application/x-msworks              | MWK       | adWORDPROCESSOR                | stringssr         |
| MS_Works_Mac_DB_Fmt      | 124    | 104      | Microsoft Works Database for MAC            | application/x-msworks              |           | adDATABASE                     |                   |
| MS_Works_Mac_SS_Fmt      | 125    | 105      | Microsoft Works Spreadsheet for MAC         | application/x-msworks              |           | adSPREADSHEET                  | mwssr             |
| MS_Works_Mac_Comm_Fmt    | 126    | 106      | Microsoft Works Communication for MAC       | application/x-msworks              |           | adCOMMUNICATION                |                   |
| MS_Works_DOS_WP_Fmt      | 127    | 107      | Microsoft Works Word Processor for DOS      | application/x-msworks              | WPS       | adWORDPROCESSOR                | stringssr         |

| Format Name               | Number | Category | Description                                             | MIME Type                  | Extension                                | File Class       | Readers                                             |
|---------------------------|--------|----------|---------------------------------------------------------|----------------------------|------------------------------------------|------------------|-----------------------------------------------------|
| MS_Works_DOS_DB_Fmt       | 128    | 108      | Microsoft Works Database for DOS                        | application/x-msworks      | WDB                                      | adDATABASE       |                                                     |
| MS_Works_DOS_SS_Fmt       | 129    | 109      | Microsoft Works Spreadsheet for DOS                     | application/x-msworks      |                                          | adSPREADSHEET    | <a href="#">mwssr</a>                               |
| MS_Works_Win_WP_Fmt       | 130    | 227      | Microsoft Works Word Processor for Windows (up to 2000) | application/x-msworks      | WPS, W40                                 | adWORDPROCESSOR  | <a href="#">msw6sr</a> ,<br><a href="#">mwsr</a>    |
| MS_Works_Win_DB_Fmt       | 131    | 231      | Microsoft Works Database for Windows                    | application/x-msworks      |                                          | adDATABASE       |                                                     |
| MS_Works_Win_SS_Fmt       | 132    | 228      | Microsoft Works Spreadsheet for Windows                 | application/x-msworks      | WKS, S30, S40                            | adSPREADSHEET    | <a href="#">mwssr</a>                               |
| PC_Library_Fmt            | 133    | 111      | DOS/Windows Object Library                              | application/x-archive      | LIB, A                                   | adLIBRARY        |                                                     |
| MacWrite_Fmt              | 134    | 112      | MacWrite                                                | application/macwriteii     |                                          | adWORDPROCESSOR  | <a href="#">stringssr</a>                           |
| MacWrite_II_Fmt           | 135    | 113      | MacWrite II                                             | application/macwriteii     |                                          | adWORDPROCESSOR  | <a href="#">stringssr</a>                           |
| Freehand_Fmt              | 136    | 114      | Adobe/Macrovision FreeHand image                        | image/x-freehand           | FH3, FH4, FH5, FH7, FH8, FH9, FH10, FH11 | adVECTORGRAPHIC  |                                                     |
| Disk_Doubler_Fmt          | 137    | 115      | Disk Doubler                                            |                            |                                          | adENCAPSULATION  |                                                     |
| HP_GL_Fmt                 | 138    | 116      | HP Graphics Language                                    | vector/x-hpgl              | HPGL, HPG                                | adVECTORGRAPHIC  |                                                     |
| FrameMaker_Fmt            | 139    | 136      | FrameMaker                                              | application/vnd.frameMaker | FM, FRM                                  | adDESKTOPPUBLISH |                                                     |
| FrameMaker_Book_Fmt       | 140    | 136      | FrameMaker Book                                         | application/vnd.frameMaker | BOOK                                     | adDESKTOPPUBLISH |                                                     |
| Maker_Markup_Language_Fmt | 141    | 174      | Maker Markup Language                                   | application/vnd.mif        |                                          | adDESKTOPPUBLISH |                                                     |
| Maker_Interchange_Fmt     | 142    | 117      | Adobe FrameMaker Interchange Format (MIF)               | application/x-mif          | MIF                                      | adWORDPROCESSOR  | <a href="#">mifsr</a>                               |
| JPEG_File_Interchange_Fmt | 143    | 118      | JPEG Interchange Format                                 | image/jpeg                 | JPG, JPEG                                | adRASTERIMAGE    | <a href="#">jpgsr</a> ,<br><a href="#">kjpggrdr</a> |
| Reflex_Fmt                | 144    | 119      | Borland Reflex database                                 | database/reflex            |                                          | adDATABASE       |                                                     |
| Framework_Fmt             | 145    | 276      | Framework office suite                                  |                            |                                          | adMIXED          |                                                     |
| Framework_II_Fmt          | 146    | 120      | Framework II office suite                               |                            | FW3                                      | adMIXED          |                                                     |
| Paradox_Fmt               | 147    | 121      | Borland Paradox database                                | application/paradox        | DB                                       | adDATABASE       |                                                     |
| MS_Windows_Write_Fmt      | 148    | 123      | Microsoft Windows Write                                 | application/x-ms-write     | WRI                                      | adWORDPROCESSOR  | <a href="#">mwsr</a>                                |
| Quattro_Pro_DOS_Fmt       | 149    | 124      | Corel Quattro Pro for DOS                               | application/x-quattropro   | WQ1                                      | adSPREADSHEET    |                                                     |

| Format Name                | Number | Category | Description                                       | MIME Type                 | Extension     | File Class                    | Readers                                             |
|----------------------------|--------|----------|---------------------------------------------------|---------------------------|---------------|-------------------------------|-----------------------------------------------------|
| Quattro_Pro_Win_Fmt        | 150    | 184      | Corel Quattro Pro for Windows                     | application/x-quattro-win | WB1, WB2, WB3 | adSPREADSHEET                 | <a href="#">qpssr</a>                               |
| Persuasion_Fmt             | 151    | 126      | Adobe Persuasion                                  |                           |               | adPRESENTATION                |                                                     |
| Windows_Icon_Fmt           | 152    | 128      | Windows Icon Format                               | image/vnd.microsoft.icon  | ICO           | adRASTERIMAGE                 | <a href="#">kpicordr</a>                            |
| Windows_Cursor_Fmt         | 153    | 133      | Windows Cursor                                    | image/x-win-bitmap        | CUR           | adRASTERIMAGE                 |                                                     |
| MS_Project_Activity_Fmt    | 154    | 129      | Microsoft Project (up to version 3) activity file |                           |               | adSCHEDULE                    |                                                     |
| MS_Project_Resource_Fmt    | 155    | 129      | Microsoft Project (up to version 3) resource file |                           |               | adSCHEDULE                    |                                                     |
| MS_Project_Calc_Fmt        | 156    | 129      | Microsoft Project (up to version 3) calc file     |                           |               | adSCHEDULE                    |                                                     |
| PKZIP_Fmt                  | 157    | 132      | ZIP Archive                                       | application/zip           | ZIP, ZIPX     | adENCAPSULATION, adEXECUTABLE | <a href="#">unzip</a>                               |
| Quark_Xpress_Fmt           | 158    | 134      | Quark Xpress MAC                                  |                           |               | adDESKTOPPUBLSH               |                                                     |
| ARC_PAK_Archive_Fmt        | 159    | 135      | PAK/ARC Archive                                   |                           | ARC, PAK      | adENCAPSULATION               |                                                     |
| MS_Publisher_Fmt           | 160    | 137      | Microsoft Publisher (up to version 3)             | application/x-mspublisher | PUB           | adDESKTOPPUBLSH               | <a href="#">mspubsr</a>                             |
| PlanPerfect_Fmt            | 161    | 138      | PlanPerfect                                       |                           |               | adSCHEDULE                    |                                                     |
| WordPerfect_Auxiliary_Fmt  | 162    | 139      | Corel WordPerfect auxiliary file                  |                           | WPW           | adMISC, adENCAPSULATION       |                                                     |
| MS_WAVE_Audio_Fmt          | 163    | 141      | Microsoft Wave audio                              | audio/wav                 | WAV           | adSOUND                       | <a href="#">MCI</a> , <a href="#">riffsr</a>        |
| MIDI_Audio_Fmt             | 164    | 142      | MIDI audio                                        | audio/mid                 | MID, MIDI     | adSOUND                       | <a href="#">MCI</a>                                 |
| AutoCAD_DXF_Binary_Fmt     | 165    | 143      | Autodesk AutoCAD DXF binary format                | image/x-dxf               | DXF           | adVECTORGRAPHIC               | <a href="#">kpDXFrdr</a> , <a href="#">kpODArdr</a> |
| AutoCAD_DXF_Text_Fmt       | 166    | 143      | Autodesk AutoCAD DXF text format                  | image/x-dxf               | DXF           | adVECTORGRAPHIC               | <a href="#">kpDXFrdr</a> , <a href="#">kpODArdr</a> |
| dBase_Fmt                  | 167    | 144      | dBase Database III+/IV                            | application/x-dbf         | DBF, VCX      | adDATABASE                    | <a href="#">dbfsr</a>                               |
| OS_2_PM_Metatile_Fmt       | 168    | 145      | OS/2 PM Metatile                                  |                           | MET           | adVECTORGRAPHIC               |                                                     |
| Lasergraphics_Language_Fmt | 169    | 146      | Lasergraphics Language                            |                           |               | adVECTORGRAPHIC               |                                                     |
| AutoShade_Rendering_Fmt    | 170    | 147      | AutoShade Rendering                               | application/x-autoshade   |               | adVECTORGRAPHIC               |                                                     |
| GEM_VDI_Fmt                | 171    | 148      | GEM VDI Metatile image                            |                           | GEM, GDI      | adVECTORGRAPHIC               |                                                     |

| Format Name               | Number | Category | Description                               | MIME Type                | Extension | File Class      | Readers                   |
|---------------------------|--------|----------|-------------------------------------------|--------------------------|-----------|-----------------|---------------------------|
| Windows_Help_Fmt          | 172    | 149      | Windows Help File                         | application/winhelp      | HLP       | adMISC          |                           |
| Volkswriter_Fmt           | 173    | 150      | Volkswriter word processor                |                          | VW4       | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Ability_WP_Fmt            | 174    | 151      | Ability Word Processor                    |                          |           | adWORDPROCESSOR |                           |
| Ability_DB_Fmt            | 175    | 151      | Ability Database                          |                          |           | adDATABASE      |                           |
| Ability_SS_Fmt            | 176    | 151      | Ability Spreadsheet                       |                          |           | adSPREADSHEET   |                           |
| Ability_Comm_Fmt          | 177    | 151      | Ability Presentation                      |                          |           | adCOMMUNICATION |                           |
| Ability_Image_Fmt         | 178    | 151      | Ability Image                             |                          |           | adRASTERIMAGE   |                           |
| XyWrite_Fmt               | 179    | 152      | XYWrite / Nota Bene                       |                          | XY4       | adWORDPROCESSOR | <a href="#">xywsr</a>     |
| CSV_Fmt                   | 180    | 153      | CSV (Comma Separated Values)              | text/csv                 | CSV       | adSPREADSHEET   | <a href="#">csvsr</a>     |
| IBM_Writing_Assistant_Fmt | 181    | 154      | IBM Writing Assistant                     |                          | IWA       | adWORDPROCESSOR | <a href="#">stringssr</a> |
| WordStar_2000_Fmt         | 182    | 155      | WordStar 2000                             |                          | WS2       | adWORDPROCESSOR | <a href="#">stringssr</a> |
| HP_PCL_Fmt                | 183    | 157      | HP Printer Control Language               | application/pcl          | PCL       | adVECTORGRAPHIC |                           |
| UNIX_Exe_PreSysV_VAX_Fmt  | 184    | 158      | UNIX executable (PDP-11/pre-System V VAX) | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Exe_Basic_16_Fmt     | 185    | 158      | UNIX executable (Basic-16)                | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Exe_x86_Fmt          | 186    | 158      | UNIX executable (x86)                     | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Exe_iAPX_286_Fmt     | 187    | 158      | UNIX executable (iAPX 286)                | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Exe_MC68k_Fmt        | 188    | 158      | UNIX executable (MC680x0)                 | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Exe_3B20_Fmt         | 189    | 158      | UNIX executable (3B20)                    | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Exe_WE32000_Fmt      | 190    | 158      | UNIX executable (WE32000)                 | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Exe_VAX_Fmt          | 191    | 158      | UNIX executable (VAX)                     | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Exe_Bell_5_Fmt       | 192    | 158      | UNIX executable (Bell 5.0)                | application/octet-stream |           | adEXECUTABLE    |                           |
| UNIX_Obj_VAX_Demand_Fmt   | 193    | 159      | UNIX object module (VAX Demand)           |                          |           | adOBJECTMODULE  |                           |
| UNIX_Obj_MS8086_Fmt       | 194    | 159      | UNIX object module (old                   |                          |           | adOBJECTMODULE  |                           |

| Format Name             | Number | Category | Description                    | MIME Type                | Extension | File Class      | Readers                   |
|-------------------------|--------|----------|--------------------------------|--------------------------|-----------|-----------------|---------------------------|
|                         |        |          | MS 8086)                       |                          |           |                 |                           |
| UNIX_Obj_Z8000_Fmt      | 195    | 159      | UNIX object module (Z8000)     |                          |           | adOBJECTMODULE  |                           |
| AU_Audio_Fmt            | 196    | 161      | NeXT/Sun Audio Data            | audio/basic              | AU, SND   | adSOUND         | <a href="#">MCI</a>       |
| NeWS_Font_Fmt           | 197    | 162      | NeWS bitmap font               |                          |           | adFONT          |                           |
| cpio_Archive_CRCChr_Fmt | 198    | 163      | cpio archive (CRC Header)      | application/x-cpio       | CPIO      | adENCAPSULATION |                           |
| cpio_Archive_CHRhdr_Fmt | 199    | 163      | cpio archive (CHR Header)      | application/x-cpio       | CPIO      | adENCAPSULATION |                           |
| PEX_Binary_Archive_Fmt  | 200    | 164      | SUN PEX Binary Archive         |                          |           | adENCAPSULATION |                           |
| Sun_vfont_Fmt           | 201    | 165      | SUN vfont Definition           |                          |           | adFONT          |                           |
| Curses_Screen_Fmt       | 202    | 166      | Curses Screen Image            |                          |           | adRASTERIMAGE   |                           |
| UUEncoded_Fmt           | 203    | 167      | UU-encoded text                | text/x-uencode           | UUE       | adENCAPSULATION | <a href="#">uudsr</a>     |
| WriteNow_Fmt            | 204    | 168      | WriteNow MAC                   |                          |           | adWORDPROCESSOR | <a href="#">stringssr</a> |
| PC_Obj_Fmt              | 205    | 169      | DOS/Windows Object Module      | application/octet-stream | OBJ, EXP  | adOBJECTMODULE  |                           |
| Windows_Group_Fmt       | 206    | 170      | Windows Group                  |                          | GRP       | adMISC          |                           |
| TrueType_Font_Fmt       | 207    | 171      | TrueType Font                  | application/x-font-ttf   | TTF       | adFONT          |                           |
| Windows_PIF_Fmt         | 208    | 172      | Program Information File (PIF) | application/octet-stream | PIF       | adMISC          |                           |
| MS_COM_Executable_Fmt   | 209    | 173      | PC (.COM)                      | application/octet-stream | COM       | adEXECUTABLE    |                           |
| StuftIt_Fmt             | 210    | 175      | StuftIt (MAC)                  | application/x-stuffit    | HQX       | adENCAPSULATION |                           |
| PeachCalc_Fmt           | 211    | 176      | PeachCalc                      |                          | CAL       | adSPREADSHEET   |                           |
| Wang_GDL_Fmt            | 212    | 177      | WANG Office GDL Header         |                          |           | adENCAPSULATION |                           |
| Q_A_DOS_Fmt             | 213    | 179      | Symantec Q&A for DOS           | application/x-qa-write   |           | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Q_A_Win_Fmt             | 214    | 180      | Symantec Q&A for Windows       | application/x-qa-write   | JW        | adWORDPROCESSOR | <a href="#">stringssr</a> |
| WPS_PLUS_Fmt            | 215    | 181      | WPS-PLUS                       | application/vnd.ms-wpl   | WPL       | adWORDPROCESSOR | <a href="#">stringssr</a> |
| DCX_Fmt                 | 216    | 182      | DCX FAX Format(PCX images)     | image/dcx                | DCX       | adFAXFORMAT     | <a href="#">kpdcxrdr</a>  |
| OLE_Fmt                 | 217    | 183      | OLE Compound Document          |                          | OLE       | adENCAPSULATION | <a href="#">olesr</a>     |

| Format Name            | Number | Category | Description                                   | MIME Type                | Extension | File Class      | Readers                                                                                                    |
|------------------------|--------|----------|-----------------------------------------------|--------------------------|-----------|-----------------|------------------------------------------------------------------------------------------------------------|
| EBCDIC_Fmt             | 218    | 186      | EBCDIC Text                                   | application/ebcdic       |           | adWORDPROCESSOR |                                                                                                            |
| DCS_Fmt                | 219    | 187      | DCS                                           |                          |           | adWORDPROCESSOR |                                                                                                            |
| UNIX_SHAR_Fmt          | 220    | 190      | SHAR shell archive format                     | application/x-shar       | SHAR      | adENCAPSULATION |                                                                                                            |
| Lotus_Notes_BitMap_Fmt | 221    | 191      | Lotus Notes Bitmap                            |                          |           | adRASTERIMAGE   |                                                                                                            |
| Lotus_Notes_CDF_Fmt    | 222    | 193      | Lotus Notes CDF                               | application/cdf          | CDF       | adWORDPROCESSOR | <a href="#">stringssr</a>                                                                                  |
| Compress_Fmt           | 223    | 192      | UNIX Compress archive                         | application/x-compress   | Z         | adENCAPSULATION | <a href="#">kvzee</a> ,<br><a href="#">kvzeesr</a>                                                         |
| GZ_Compress_Fmt        | 224    | 198      | GZ Compress archive                           | application/gzip         | GZ        | adENCAPSULATION | <a href="#">kvgz</a> , <a href="#">kvgzsr</a>                                                              |
| TAR_Fmt                | 225    | 194      | TAR (tape archive)                            | application/tar          | TAR       | adENCAPSULATION | <a href="#">tarsr</a>                                                                                      |
| ODIF_FOD26_Fmt         | 226    | 196      | Open Document Architecture (ODA / ODIF) FOD26 | application/oda          | F26       | adWORDPROCESSOR |                                                                                                            |
| ODIF_FOD36_Fmt         | 227    | 196      | Open Document Architecture (ODA / ODIF) FOD36 | application/oda          | F36       | adWORDPROCESSOR |                                                                                                            |
| ALIS_Fmt               | 228    | 197      | ALIS                                          |                          |           | adWORDPROCESSOR |                                                                                                            |
| Envoy_Fmt              | 229    | 199      | WordPerfect Envoy                             | application/envoy        | EVY       | adWORDPROCESSOR |                                                                                                            |
| PDF_Fmt                | 230    | 200      | Adobe PDF (Portable Document Format)          | application/pdf          | PDF       | adWORDPROCESSOR | <a href="#">kppdf2rdr</a> ,<br><a href="#">kppdfdr</a> ,<br><a href="#">pdf2sr</a> , <a href="#">pdfsr</a> |
| BinHex_Fmt             | 231    | 206      | BinHex                                        | application/mac-binhex40 | HQX       | adENCAPSULATION | <a href="#">kvhqxsr</a>                                                                                    |
| SMTP_Fmt               | 232    | 207      | SMTP (Text Mail / Outlook Express)            | message/rfc822           | SMTP      | adENCAPSULATION | <a href="#">emlsr</a>                                                                                      |
| MIME_Fmt               | 233    | 208      | MIME (EML / MBX email) <sup>1</sup>           | message/rfc822           | EML, MBX  | adENCAPSULATION | <a href="#">mbxsr</a>                                                                                      |
| USENET_Fmt             | 234    | 264      | USENET                                        | message/news             |           | adWORDPROCESSOR |                                                                                                            |
| SGML_Fmt               | 235    | 209      | SGML                                          | text/sgml                | SGML      | adWORDPROCESSOR | <a href="#">afsr</a>                                                                                       |
| HTML_Fmt               | 236    | 210      | HTML                                          | text/html                | HTM, HTML | adWORDPROCESSOR | <a href="#">htmsr</a>                                                                                      |
| ACT_Fmt                | 237    | 211      | ACT! CRM software                             |                          | ACT       | adWORDPROCESSOR |                                                                                                            |
| PNG_Fmt                | 238    | 213      | Portable Network Graphics (PNG)               | image/png                | PNG       | adRASTERIMAGE   | <a href="#">kppngrdr</a> ,<br><a href="#">pngsr</a>                                                        |
| MS_Video_Fmt           | 239    | 214      | Video for Windows (AVI)                       | video/avi                | AVI       | adMOVIE         | <a href="#">MCI</a>                                                                                        |
| Windows_Animated_      | 240    | 215      | Windows Animated Cursor                       |                          | ANI       | adRASTERIMAGE   | <a href="#">kpanirdr</a>                                                                                   |

| Format Name                  | Number | Category | Description                          | MIME Type                  | Extension       | File Class      | Readers                                       |
|------------------------------|--------|----------|--------------------------------------|----------------------------|-----------------|-----------------|-----------------------------------------------|
| Cursor_Fmt                   |        |          |                                      |                            |                 |                 |                                               |
| Windows_CPP_Obj_Storage_Fmt  | 241    | 216      | Windows C++ Object Storage           |                            |                 | adMIXED         |                                               |
| Windows_Palette_Fmt          | 242    | 217      | Windows Palette                      |                            | PAL             | adRASTERIMAGE   |                                               |
| RIFF_DIB_Fmt                 | 243    | 218      | RIFF Device Independent Bitmap       |                            |                 | adRASTERIMAGE   |                                               |
| RIFF_MIDI_Fmt                | 244    | 219      | RIFF MIDI                            | audio/midi                 | RMI             | adSOUND         |                                               |
| RIFF_Multimedia_Movie_Fmt    | 245    | 220      | RIFF Multimedia Movie                |                            | MMM             | adMOVIE         |                                               |
| MPEG_Fmt                     | 246    | 221      | MPEG Movie                           | video/mpeg                 |                 | adMOVIE         |                                               |
| QuickTime_Fmt                | 247    | 222      | QuickTime Movie, MPEG-4 audio        | video/quicktime            | MOV, QT, MP4    | adMOVIE         | <a href="#">MCI</a> , <a href="#">mpeg4sr</a> |
| AIFF_Fmt                     | 248    | 223      | Audio Interchange File Format (AIFF) | audio/aiff                 | AIF, AIFF, AIFC | adSOUND         | <a href="#">MCI</a> , <a href="#">aiffsr</a>  |
| Amiga_MOD_Fmt                | 249    | 224      | Amiga MOD                            |                            | MOD             | adSOUND         |                                               |
| Amiga_IFF_8SVX_Fmt           | 250    | 225      | Amiga IFF (8SVX) Sound               | audio/x-8svx               | IFF             | adSOUND         |                                               |
| Creative_Voice_Audio_Fmt     | 251    | 226      | Creative Voice (VOC)                 |                            | VOC             | adSOUND         |                                               |
| AutoDesk_Animator_FLI_Fmt    | 252    | 229      | AutoDesk Animator FLIC               | video/x-fli                | FLI             | adANIMATION     |                                               |
| AutoDesk_AnimatorPro_FLC_Fmt | 253    | 230      | AutoDesk Animator Pro FLIC           | video/x-flc                | FLC             | adANIMATION     |                                               |
| Compactor_Archive_Fmt        | 254    | 233      | Compactor / Compact Pro              | application/mac-compactpro |                 | adENCAPSULATION |                                               |
| VRML_Fmt                     | 255    | 234      | VRML                                 | model/vrml                 | WRL             | adVECTORGRAPHIC |                                               |
| QuickDraw_3D_Metafile_Fmt    | 256    | 235      | QuickDraw 3D Metafile                |                            |                 | adVECTORGRAPHIC |                                               |
| PGP_Secret_Keyring_Fmt       | 257    | 236      | PGP Secret Keyring                   | application/pgp            |                 | adENCAPSULATION |                                               |
| PGP_Public_Keyring_Fmt       | 258    | 237      | PGP Public Keyring                   | application/pgp            |                 | adENCAPSULATION |                                               |
| PGP_Encrypted_Data_Fmt       | 259    | 238      | PGP Encrypted Data                   | application/pgp            |                 | adENCAPSULATION |                                               |
| PGP_Signed_Data_Fmt          | 260    | 239      | PGP Signed Data                      | application/pgp            |                 | adENCAPSULATION |                                               |
| PGP_SignedEncrypted_Data_Fmt | 261    | 240      | PGP Signed and Encrypted Data        | application/pgp            |                 | adENCAPSULATION |                                               |

| Format Name                  | Number | Category | Description                         | MIME Type                       | Extension       | File Class      | Readers                                             |
|------------------------------|--------|----------|-------------------------------------|---------------------------------|-----------------|-----------------|-----------------------------------------------------|
| PGP_Sign_Certificate_Fmt     | 262    | 241      | PGP Signature Certificate           | application/pgp-signature       | SIG             | adENCAPSULATION |                                                     |
| PGP_Compressed_Data_Fmt      | 263    | 246      | PGP Compressed Data                 | application/pgp                 |                 | adENCAPSULATION |                                                     |
| PGP_ASCII_Public_Keyring_Fmt | 264    | 242      | ASCII-armored PGP Public Keyring    | application/pgp                 | PGP             | adENCAPSULATION |                                                     |
| PGP_ASCII_Encoded_Fmt        | 265    | 243      | ASCII-armored PGP encoded           | application/pgp                 |                 | adENCAPSULATION |                                                     |
| PGP_ASCII_Signed_Fmt         | 266    | 244      | ASCII-armored PGP signed            | application/pgp                 |                 | adENCAPSULATION |                                                     |
| OLE_DIB_Fmt                  | 267    | 245      | OLE DIB object                      |                                 |                 | adRASTERIMAGE   |                                                     |
| SGI_Image_Fmt                | 268    | 247      | SGI RGB Image                       | image/sgi                       | RGB             | adRASTERIMAGE   | <a href="#">kpsgirdr</a>                            |
| Lotus_ScreenCam_Fmt          | 269    | 248      | Lotus ScreenCam                     | application/vnd.lotus-screencam | SCM             | adANIMATION     |                                                     |
| MPEG_Audio_Fmt               | 270    | 249      | MPEG-1 Audio layer3 (MP3)           | audio/mpeg                      | MPEGA, MPG, MP3 | adSOUND         | <a href="#">MCI</a> , <a href="#">mp3sr</a>         |
| FTP_Software_Session_Fmt     | 271    | 250      | FTP Session Data                    |                                 | STE             | adCOMMUNICATION |                                                     |
| Netscape_Bookmark_File_Fmt   | 272    | 210      | Netscape Bookmark File              | text/html                       |                 | adWORDPROCESSOR | <a href="#">htmsr</a>                               |
| Corel_Draw_CMx_Fmt           | 273    | 252      | Corel CMX                           | application/cmx                 | CMX             | adVECTORGRAPHIC |                                                     |
| AutoDesk_DWG_Fmt             | 274    | 253      | AutoDesk AutoCAD Drawing (DWG)      | image/x-dwg                     | DWG             | adVECTORGRAPHIC | <a href="#">kpDWGrdr</a> , <a href="#">kpODArdr</a> |
| AutoDesk_WHIP_Fmt            | 275    | 254      | AutoDesk WHIP                       |                                 | WHP             | adVECTORGRAPHIC |                                                     |
| Macromedia_Director_Fmt      | 276    | 255      | Macromedia Shockwave/Adobe Director | application/x-director          | DCR, DXR, DIR   | adANIMATION     |                                                     |
| Real_Audio_Fmt               | 277    | 256      | Real Audio                          | audio/x-pn-realaudio            | RM, RA          | adSOUND         |                                                     |
| MSDOS_Device_Driver_Fmt      | 278    | 257      | MSDOS Device Driver                 | application/octet-stream        | SYS             | adEXECUTABLE    |                                                     |
| Micrografx_Designer_Fmt      | 279    | 258      | Micrografx Designer                 |                                 | DSF             | adVECTORGRAPHIC |                                                     |
| SVF_Fmt                      | 280    | 259      | Simple Vector Format (SVF)          | image/x-svf                     | SVF             | adVECTORGRAPHIC |                                                     |
| Applix_Words_Fmt             | 281    | 261      | Applix Words                        | application/x-applix-word       | AW              | adWORDPROCESSOR | <a href="#">awsr</a>                                |



| Format Name             | Number | Category | Description                         | MIME Type                     | Extension          | File Class      | Readers                  |
|-------------------------|--------|----------|-------------------------------------|-------------------------------|--------------------|-----------------|--------------------------|
| Applix_Graphics_Fmt     | 282    | 262      | Applix Graphics                     |                               | AG                 | adPRESENTATION  | <a href="#">kpagrdr</a>  |
| MS_Access_Fmt           | 283    | 263      | Microsoft Access (versions 1 and 2) | application/x-msaccess        | MDB                | adDATABASE      | <a href="#">mdbsr</a>    |
| MS_Access_95_Fmt        | 284    | 263      | Microsoft Access 95                 | application/msaccess          | MDB                | adDATABASE      | <a href="#">mdbsr</a>    |
| MS_Access_97_Fmt        | 285    | 263      | Microsoft Access 97                 | application/msaccess          | MDB                | adDATABASE      | <a href="#">mdbsr</a>    |
| MacBinary_Fmt           | 286    | 265      | MacBinary                           | application/x-macbinary       | BIN                | adENCAPSULATION | <a href="#">macbinsr</a> |
| Apple_Single_Fmt        | 287    | 266      | Apple Single                        |                               |                    | adENCAPSULATION |                          |
| Apple_Double_Fmt        | 288    | 267      | Apple Double                        | multipart/appledouble         | AD                 | adENCAPSULATION |                          |
| Enhanced_Metafile_Fmt   | 289    | 270      | Enhanced Metafile                   | image/x-emf                   | EMF                | adVECTORGRAPHIC | <a href="#">kpemfrdr</a> |
| MS_Office_Drawing_Fmt   | 290    | 271      | Microsoft Office Drawing            |                               |                    | adVECTORGRAPHIC | <a href="#">kpmsordr</a> |
| XML_Fmt                 | 291    | 285      | XML                                 | text/xml                      | XML                | adWORDPROCESSOR | <a href="#">xmlsr</a>    |
| DeVice_Independent_Fmt  | 292    | 274      | DeVice Independent file (DVI)       | application/x-dvi             | DVI                | adVECTORGRAPHIC |                          |
| Unicode_Fmt             | 293    | 275      | Unicode text file                   | text/plain                    | UNI                | adWORDPROCESSOR | <a href="#">unisr</a>    |
| Lotus_123_Worksheet_Fmt | 294    | 81       | Lotus 1-2-3                         | application/x-lotus-123       | WKS, WK1, WK3, WK4 | adSPREADSHEET   | <a href="#">wkssr</a>    |
| Lotus_123_Format_Fmt    | 295    | 81       | Lotus 1-2-3 Formatting              | application/x-123             | FM3                | adSPREADSHEET   | <a href="#">l123sr</a>   |
| Lotus_123_97_Fmt        | 296    | 81       | Lotus 1-2-3 97                      | application/x-lotus-123       | 123                | adSPREADSHEET   | <a href="#">l123sr</a>   |
| Lotus_Word_Pro_96_Fmt   | 297    | 268      | Lotus Word Pro 96                   | application/vnd.lotus-wordpro | LWP, MWP           | adWORDPROCESSOR | <a href="#">lwpsr</a>    |
| Lotus_Word_Pro_97_Fmt   | 298    | 268      | Lotus Word Pro 97                   | application/vnd.lotus-wordpro | LWP, MWP           | adWORDPROCESSOR | <a href="#">lwpsr</a>    |
| Freelance_DOS_Fmt       | 299    | 140      | Lotus Freelance for DOS             | application/x-freelance       | PRZ                | adPRESENTATION  | <a href="#">kpprzdr</a>  |
| Freelance_Win_Fmt       | 300    | 140      | Lotus Freelance for Windows         | application/x-freelance       | PRE, FLW           | adPRESENTATION  | <a href="#">kpprerdr</a> |
| Freelance_OS2_Fmt       | 301    | 140      | Lotus Freelance for OS/2            | application/x-freelance       | PRS                | adPRESENTATION  | <a href="#">kpprerdr</a> |
| Freelance_96_Fmt        | 302    | 140      | Lotus Freelance 96                  | application/x-freelance       | PRZ                | adPRESENTATION  | <a href="#">kpprzdr</a>  |
| Freelance_97_Fmt        | 303    | 140      | Lotus Freelance 97                  | application/x-freelance       | PRZ                | adPRESENTATION  | <a href="#">kpprzdr</a>  |
| MS_Word_95_Fmt          | 304    | 189      | Microsoft Word 95                   | application/msword            | DOC                | adWORDPROCESSOR | <a href="#">mw6sr</a>    |
| MS_Word_97_Fmt          | 305    | 269      | Microsoft Word 97                   | application/msword            | DOC, WPS, WBK      | adWORDPROCESSOR | <a href="#">mw8sr</a>    |
| Excel_Fmt               | 306    | 90       | Microsoft Excel (up to version 5)   | application/x-ms-excel        | XLS                | adSPREADSHEET   | <a href="#">xlssr</a>    |
| Excel_Chart_Fmt         | 307    | 90       | Microsoft Excel (up to              | application/x-ms-excel        | XLC                | adSPREADSHEET   | <a href="#">xlssr</a>    |

| Format Name                  | Number | Category | Description                             | MIME Type                        | Extension | File Class      | Readers                                           |
|------------------------------|--------|----------|-----------------------------------------|----------------------------------|-----------|-----------------|---------------------------------------------------|
|                              |        |          | version 5) chart                        |                                  |           |                 |                                                   |
| Excel_Macro_Fmt              | 308    | 90       | Microsoft Excel (up to version 5) macro | application/vnd.ms-excel         | XLM       | adSPREADSHEET   | <a href="#">xlssr</a>                             |
| Excel_95_Fmt                 | 309    | 188      | Microsoft Excel 95                      | application/x-ms-excel           | XLS       | adSPREADSHEET   | <a href="#">xlssr</a>                             |
| Excel_97_Fmt                 | 310    | 188      | Microsoft Excel 97                      | application/x-ms-excel           | XLS, XLR  | adSPREADSHEET   | <a href="#">xlssr</a>                             |
| Corel_Presentations_Fmt      | 311    | 127      | Corel Presentations                     | application/x-corelpresentations | XFD, XFDL | adPRESENTATION  | <a href="#">kpshwrdr</a>                          |
| Harvard_Graphics_Fmt         | 312    | 131      | Harvard Graphics                        |                                  | PR4       | adPRESENTATION  |                                                   |
| Harvard_Graphics_Chart_Fmt   | 313    | 131      | Harvard Graphics Chart                  |                                  | CH3, CHT  | adVECTORGRAPHIC |                                                   |
| Harvard_Graphics_Symbol_Fmt  | 314    | 131      | Harvard Graphics Symbol File (v3)       |                                  | SY3       | adVECTORGRAPHIC |                                                   |
| Harvard_Graphics_Cfg_Fmt     | 315    | 131      | Harvard Graphics Configuration File     |                                  |           | adVECTORGRAPHIC |                                                   |
| Harvard_Graphics_Palette_Fmt | 316    | 131      | Harvard Graphics Palette                |                                  | PL        | adVECTORGRAPHIC |                                                   |
| Lotus_123_R9_Fmt             | 317    | 81       | Lotus 1-2-3 Release 9                   | application/x-lotus-123          | 123       | adSPREADSHEET   | <a href="#">l123sr</a>                            |
| Applix_Spreadsheets_Fmt      | 318    | 278      | Applix Spreadsheets                     | application/x-applix-spreadsheet | AS        | adSPREADSHEET   | <a href="#">assr</a>                              |
| MS_Pocket_Word_Fmt           | 319    | 45       | Microsoft Pocket Word for Handheld PC   |                                  | PWD       | adWORDPROCESSOR | <a href="#">rtfsr</a>                             |
| MS_DIB_Fmt                   | 320    | 279      | Microsoft Device Independent Bitmap     | image/bmp                        | DIB       | adRASTERIMAGE   |                                                   |
| MS_Word_2000_Fmt             | 321    | 269      | Microsoft Word 2000                     | application/msword               | DOC       | adWORDPROCESSOR | <a href="#">mw8sr</a>                             |
| Excel_2000_Fmt               | 322    | 188      | Microsoft Excel 2000                    | application/x-ms-excel           | XLS       | adSPREADSHEET   | <a href="#">xlssr</a>                             |
| PowerPoint_2000_Fmt          | 323    | 272      | Microsoft PowerPoint 2000               | application/x-ms-powerpoint      | PPT       | adPRESENTATION  | <a href="#">kpp97rdr</a>                          |
| MS_Access_2000_Fmt           | 324    | 263      | Microsoft Access 2000                   | application/x-msaccess           | MDB       | adDATABASE      | <a href="#">mdbsr</a>                             |
| MS_Project_4_Fmt             | 325    | 281      | Microsoft Project 4                     |                                  | MPP       | adSCHEDULE      | <a href="#">mpps</a>                              |
| MS_Project_41_Fmt            | 326    | 281      | Microsoft Project 4.1                   |                                  | MPP       | adSCHEDULE      | <a href="#">mpps</a>                              |
| MS_Project_98_Fmt            | 327    | 281      | Microsoft Project 98                    | application/vnd.ms-project       | MPP       | adSCHEDULE      | <a href="#">mpps</a>                              |
| Folio_Flat_Fmt               | 328    | 282      | Folio Flat File                         |                                  | FFF       | adWORDPROCESSOR | <a href="#">foliosr</a>                           |
| HWP_Fmt                      | 329    | 283      | Haansoft Hangul HWP (Arae-Ah Hangul)    | application/x-hwp                | HWP       | adWORDPROCESSOR | <a href="#">hwposr</a> ,<br><a href="#">hwpsr</a> |

| Format Name         | Number | Category | Description                                       | MIME Type                      | Extension     | File Class      | Readers                                              |
|---------------------|--------|----------|---------------------------------------------------|--------------------------------|---------------|-----------------|------------------------------------------------------|
| ICHITARO_Fmt        | 330    | 284      | ICHITARO (v4-10)                                  | application/x-ichitaro         | JTD           | adWORDPROCESSOR | <a href="#">jtdsr</a>                                |
| IS_XML_Fmt          | 331    | 273      | Extended or Custom XML                            | text/xml                       | XML           | adWORDPROCESSOR |                                                      |
| Oasys_Fmt           | 332    | 286      | Fujitsu OASYS                                     | application/vnd.fujitsu.oasys  | OAS, OA2, OA3 | adWORDPROCESSOR | <a href="#">oa2sr</a>                                |
| PBM_ASC_Fmt         | 333    | 287      | Portable Bitmap Utilities<br>ASCII format (PBM)   | image/pbm                      | PBM, PNM      | adRASTERIMAGE   |                                                      |
| PBM_BIN_Fmt         | 334    | 287      | Portable Bitmap Utilities<br>BINARY format (PBM)  | image/pbm                      | PBM, PNM      | adRASTERIMAGE   |                                                      |
| PGM_ASC_Fmt         | 335    | 288      | Portable Greymap Utilities<br>ASCII format (PGM)  | image/x-pgm                    | PGM, PNM      | adRASTERIMAGE   |                                                      |
| PGM_BIN_Fmt         | 336    | 288      | Portable Greymap Utilities<br>BINARY format (PGM) | image/x-pgm                    | PGM, PNM      | adRASTERIMAGE   |                                                      |
| PPM_ASC_Fmt         | 337    | 289      | Portable Pixmap Utilities<br>ASCII format (PPM)   | image/x-portable-pixmap        | PPM, PNM      | adRASTERIMAGE   |                                                      |
| PPM_BIN_Fmt         | 338    | 289      | Portable Pixmap Utilities<br>BINARY format (PPM)  | image/x-portable-pixmap        | PPM, PNM      | adRASTERIMAGE   |                                                      |
| XBM_Fmt             | 339    | 290      | X Bitmap format (XBM)                             | image/x-xbitmap                | XBM           | adRASTERIMAGE   |                                                      |
| XPM_Fmt             | 340    | 291      | X Pixmap format (XPM)                             | image/xpm                      | XPM           | adRASTERIMAGE   |                                                      |
| FPX_Fmt             | 341    | 292      | Kodak FlashPix FPX<br>Image format                | image/fpx                      | FPX           | adRASTERIMAGE   | <a href="#">olesr</a>                                |
| PCD_Fmt             | 342    | 293      | PCD Image format                                  | image/pcd                      | PCD           | adRASTERIMAGE   |                                                      |
| MS_Visio_Fmt        | 343    | 294      | Microsoft Visio (up to<br>version 11)             | image/x-vsd                    | VSD           | adPRESENTATION  | <a href="#">kpVSD2rdr</a> ,<br><a href="#">vsdsr</a> |
| MS_Project_2000_Fmt | 344    | 281      | Microsoft Project 2000                            | application/vnd.ms-project     | MPP           | adSCHEDULE      | <a href="#">mppsrs</a>                               |
| MS_Outlook_Fmt      | 345    | 295      | Microsoft Outlook<br>message                      | application/vnd.ms-outlook     | MSG, OFT      | adENCAPSULATION | <a href="#">msgsr</a>                                |
| ELF_Relocatable_Fmt | 346    | 159      | ELF Relocatable                                   | application/octet-stream       | O             | adOBJECTMODULE  |                                                      |
| ELF_Executable_Fmt  | 347    | 158      | ELF Executable                                    | application/octet-stream       |               | adEXECUTABLE    |                                                      |
| ELF_Dynamic_Lib_Fmt | 348    | 160      | ELF Dynamic Library                               | application/octet-stream       | SO            | adLIBRARY       |                                                      |
| MS_Word_XML_Fmt     | 349    | 285      | Microsoft Word 2003 XML                           | text/xml                       | XML           | adWORDPROCESSOR | <a href="#">xmlsr</a>                                |
| MS_Excel_XML_Fmt    | 350    | 285      | Microsoft Excel 2003 XML                          | text/xml                       | XML           | adWORDPROCESSOR | <a href="#">xmlsr</a>                                |
| MS_Visio_XML_Fmt    | 351    | 285      | Microsoft Visio 2003 XML                          | text/xml                       | VDX           | adWORDPROCESSOR | <a href="#">xmlsr</a>                                |
| SO_Text_XML_Fmt     | 352    | 314      | OpenDocument format<br>(OpenOffice 1/StarOffice)  | application/vnd.sun.xml.writer | SXW           | adWORDPROCESSOR | <a href="#">odfwpsr</a>                              |

| Format Name             | Number | Category | Description                                                        | MIME Type                       | Extension              | File Class                    | Readers                                                                  |
|-------------------------|--------|----------|--------------------------------------------------------------------|---------------------------------|------------------------|-------------------------------|--------------------------------------------------------------------------|
|                         |        |          | 6,7) Text XML                                                      |                                 |                        |                               |                                                                          |
| SO_Spreadsheet_XML_Fmt  | 353    | 315      | OpenDocument format (OpenOffice 1/StarOffice 6,7) Spreadsheet XML  | application/vnd.sun.xml.calc    | SXC, STC               | adSPREADSHEET                 | <a href="#">sosr</a>                                                     |
| SO_Presentation_XML_Fmt | 354    | 316      | OpenDocument format (OpenOffice 1/StarOffice 6,7) Presentation XML | application/vnd.sun.xml.impress | SXD, SXI               | adPRESENTATION                | <a href="#">kpodfrdr</a>                                                 |
| XHTML_Fmt               | 355    | 296      | XHTML                                                              | text/xhtml                      | XML, XHTML, XHT        | adWORDPROCESSOR               |                                                                          |
| MS_OutlookPST_Fmt       | 356    | 297      | Microsoft Outlook Personal Folders File (.pst)                     | application/vnd.ms-outlook-pst  | PST                    | adENCAPSULATION               | <a href="#">pstnsr</a> , <a href="#">psters</a> , <a href="#">pstxsr</a> |
| RAR_Fmt                 | 357    | 298      | RAR archive format                                                 | application/x-rar-compressed    | RAR, REV, R00, R01     | adENCAPSULATION, adEXECUTABLE | <a href="#">rarsr</a>                                                    |
| Lotus_Notes_NSF_Fmt     | 358    | 299      | IBM Lotus Notes Database NSF/NTF                                   | application/x-lotus-notes       | NSF                    | adENCAPSULATION               | <a href="#">nsfsr</a>                                                    |
| Macromedia_Flash_Fmt    | 359    | 300      | Macromedia Flash (.swf)                                            | application/x-shockwave-flash   | SWF, SWD               | adWORDPROCESSOR               | <a href="#">swfsr</a>                                                    |
| MS_Word_2007_Fmt        | 360    | 301      | Microsoft Word 2007 XML - Docx                                     | application/x-ms-word07         | DOCX, DOTX             | adWORDPROCESSOR               | <a href="#">mwxsr</a>                                                    |
| MS_Excel_2007_Fmt       | 361    | 302      | Microsoft Excel 2007 XML                                           | application/x-ms-excel07        | XLSX, XLTX             | adSPREADSHEET                 | <a href="#">xlsxsr</a>                                                   |
| MS_PPT_2007_Fmt         | 362    | 303      | Microsoft PowerPoint 2007 XML                                      | application/x-ms-powerpoint07   | PPTX, POTX, PPSX       | adPRESENTATION                | <a href="#">kpppxrdr</a>                                                 |
| OpenPGP_Fmt             | 363    | 304      | OpenPGP Message Format (with new packet format)                    | application/pgp-encrypted       | PGP                    | adENCAPSULATION               |                                                                          |
| Intergraph_V7_DGN_Fmt   | 364    | 305      | Intergraph Standard File Format (ISFF) V7 DGN (non-OLE)            |                                 | DGN                    | adVECTORGRAPHIC               |                                                                          |
| MicroStation_V8_DGN_Fmt | 365    | 306      | MicroStation V8 DGN (OLE)                                          |                                 | DGN                    | adVECTORGRAPHIC               | <a href="#">olesr</a>                                                    |
| MS_Word_Macro_2007_Fmt  | 366    | 307      | Microsoft Word Macro 2007 XML                                      | application/x-ms-word07m        | DOCM, DOTM             | adWORDPROCESSOR               | <a href="#">mwxsr</a>                                                    |
| MS_Excel_Macro_2007_Fmt | 367    | 308      | Microsoft Excel Macro 2007 XML                                     | application/x-ms-excel07m       | XLSM, XLTM, XLAM       | adSPREADSHEET                 | <a href="#">xlsxsr</a>                                                   |
| MS_PPT_Macro_2007_Fmt   | 368    | 309      | Microsoft PPT Macro 2007 XML                                       | application/x-ms-powerpoint07m  | PPTM, POTM, PPSM, PPAM | adPRESENTATION                | <a href="#">kpppxrdr</a>                                                 |
| LZH_Fmt                 | 369    | 310      | LZH Archive                                                        | application/x-lzh-compressed    | LZH, LHA               | adENCAPSULATION               | <a href="#">lzhsr</a>                                                    |
| Office_2007_Fmt         | 370    | 311      | Office 2007 document                                               |                                 | XLSB                   | adMISC                        |                                                                          |

| Format Name               | Number | Category | Description                                       | MIME Type                                             | Extension | File Class                    | Readers                  |
|---------------------------|--------|----------|---------------------------------------------------|-------------------------------------------------------|-----------|-------------------------------|--------------------------|
| MS_XPS_Fmt                | 371    | 312      | Microsoft Open XML Paper Specification (XPS/OXPS) | application/vnd.ms-xpsdocument                        | XPS, OXPS | adWORDPROCESSOR               | <a href="#">xpssr</a>    |
| Lotus_Domino_DXL_Fmt      | 372    | 313      | IBM Domino Data in XML format (.dxl)              | text/xml                                              | DXL       | adENCAPSULATION               | <a href="#">dxlsr</a>    |
| ODF_Text_Fmt              | 373    | 314      | ODF Text                                          | application/vnd.oasis.opendocument.text               | ODT       | adWORDPROCESSOR               | <a href="#">odfwpsr</a>  |
| ODF_Spreadsheet_Fmt       | 374    | 315      | ODF Spreadsheet                                   | application/vnd.oasis.opendocument.spreadsheet        | ODS       | adSPREADSHEET                 | <a href="#">odfsssr</a>  |
| ODF_Presentation_Fmt      | 375    | 316      | ODF Presentation                                  | application/vnd.oasis.opendocument.presentation       | ODP       | adPRESENTATION                | <a href="#">kpodfrdr</a> |
| Legato_Extender_ONM_Fmt   | 376    | 317      | Legato Extender Native Message ONM                | application/x-lotus-notes                             | ONM       | adENCAPSULATION               | <a href="#">onmsr</a>    |
| bin_Unknown_Fmt           | 377    | 318      | Bin unknown format (.xxx)                         |                                                       |           | adWORDPROCESSOR               |                          |
| TNEF_Fmt                  | 378    | 319      | Transport Neutral Encapsulation Format (TNEF)     | application/vnd.ms-tnef                               |           | adENCAPSULATION               | <a href="#">tnefsr</a>   |
| CADAM_Drawing_Fmt         | 379    | 320      | CADAM Drawing                                     |                                                       | CDD       | adVECTORGRAPHIC               |                          |
| CADAM_Drawing_Overlay_Fmt | 380    | 321      | CADAM Drawing Overlay                             |                                                       | CDO       | adVECTORGRAPHIC               |                          |
| NURSTOR_Drawing_Fmt       | 381    | 322      | NURSTOR Drawing                                   |                                                       | NUR       | adVECTORGRAPHIC               |                          |
| HP_GLP_Fmt                | 382    | 323      | HP Graphics Language (Plotter)                    | vector/x-hpgl2                                        | HPG       | adVECTORGRAPHIC               |                          |
| ASF_Fmt                   | 383    | 324      | Advanced Systems Format (ASF)                     | application/x-ms-asf                                  | ASF       | adMISC                        | <a href="#">asfsr</a>    |
| WMA_Fmt                   | 384    | 325      | Windows Media Audio Format (WMA)                  | audio/x-ms-wma                                        | WMA       | adSOUND                       | <a href="#">asfsr</a>    |
| WMV_Fmt                   | 385    | 326      | Windows Media Video Format (WMV)                  | video/x-ms-wmv                                        | WMV       | adMOVIE                       | <a href="#">asfsr</a>    |
| EMX_Fmt                   | 386    | 327      | Legato EMailXtender Archives Format (EMX)         |                                                       | EMX       | adENCAPSULATION               | <a href="#">emxsr</a>    |
| Z7Z_Fmt                   | 387    | 328      | 7-Zip archive (7z)                                | application/7z                                        | 7Z        | adENCAPSULATION, adEXECUTABLE | <a href="#">z7zsr</a>    |
| MS_Excel_Binary_2007_Fmt  | 388    | 329      | Microsoft Excel Binary 2007                       | application/vnd.ms-excel.sheet.binary.macroenabled.12 | XLSB      | adSPREADSHEET                 | <a href="#">xlsbsr</a>   |
| CAB_Fmt                   | 389    | 330      | Microsoft Cabinet File (CAB)                      | application/vnd.ms-cab-compressed                     | CAB       | adENCAPSULATION               | <a href="#">cabsr</a>    |
| CATIA_Fmt                 | 390    | 331      | CATIA Formats (CAT*)                              |                                                       | CATPART,  | adVECTORGRAPHIC               | <a href="#">kpCATrdr</a> |

| Format Name            | Number | Category | Description                               | MIME Type                                   | Extension               | File Class      | Readers                   |
|------------------------|--------|----------|-------------------------------------------|---------------------------------------------|-------------------------|-----------------|---------------------------|
|                        |        |          |                                           |                                             | CATPRODUCT <sup>2</sup> |                 |                           |
| YIM_Fmt                | 391    | 332      | Yahoo! Instant Messenger History          |                                             | DAT                     | adWORDPROCESSOR | <a href="#">yimsr</a>     |
| ODF_Drawing_Fmt        | 392    | 316      | ODF Drawing/Graphics                      | application/vnd.oasis.opendocument.graphics | ODG                     | adVECTORGRAPHIC | <a href="#">kpodfrdr</a>  |
| Founder_CEB_Fmt        | 393    | 333      | Founder Chinese E-paper Basic (ceb)       | application/ceb                             | CEB                     | adWORDPROCESSOR | <a href="#">cebsr</a>     |
| QPW_Fmt                | 394    | 334      | Corel Quattro Pro 9+ for Windows          | application/quattro-pro                     | QPW                     | adSPREADSHEET   | <a href="#">qpwsr</a>     |
| MHT_Fmt                | 395    | 335      | MIME HTML MHTML format (MHT) <sup>1</sup> | multipart/related                           | MHT, MHTML              | adWORDPROCESSOR | <a href="#">mhtsr</a>     |
| MDI_Fmt                | 396    | 336      | Microsoft Document Imaging Format         | image/vnd.ms-modi                           | MDI                     | adRASTERIMAGE   |                           |
| GRV_Fmt                | 397    | 337      | Microsoft Office Groove Format            | application/vnd.groove-injector             | GRV                     | adWORDPROCESSOR |                           |
| IWWP_Fmt               | 398    | 338      | Apple iWork Pages format                  | application/vnd.apple.pages                 | PAGES                   | adWORDPROCESSOR | <a href="#">iwwpsr</a>    |
| IWSS_Fmt               | 399    | 339      | Apple iWork Numbers format                | application/vnd.apple.numbers               | NUMBERS                 | adSPREADSHEET   | <a href="#">iwsssr</a>    |
| IWPG_Fmt               | 400    | 340      | Apple iWork Keynote format                | application/vnd.apple.keynote               | KEY                     | adPRESENTATION  | <a href="#">kplWPGdr</a>  |
| BKF_Fmt                | 401    | 341      | Microsoft Windows Backup File             |                                             | BKF                     | adENCAPSULATION | <a href="#">bkfsr</a>     |
| MS_Access_2007_Fmt     | 402    | 342      | Microsoft Access 2007                     | application/msaccess                        | ACCDB                   | adDATABASE      | <a href="#">mdbsr</a>     |
| ENT_Fmt                | 403    | 343      | Microsoft Entourage Database Format       |                                             |                         | adENCAPSULATION | <a href="#">entsr</a>     |
| DMG_Fmt                | 404    | 344      | Mac Disk Copy Disk Image File             | application/x-apple-diskimage               | DMG, ISO, IMAGE         | adENCAPSULATION | <a href="#">dmgsr</a>     |
| CWK_Fmt                | 405    | 345      | AppleWorks (Claris Works) File            | application/appleworks                      | CWK                     | adWORDPROCESSOR | <a href="#">stringssr</a> |
| OO3_Fmt                | 406    | 346      | Omni Outliner V3 File                     |                                             | OO3                     | adWORDPROCESSOR | <a href="#">oo3sr</a>     |
| OPML_Fmt               | 407    | 347      | Omni Outliner OPML File                   |                                             | OPML                    | adWORDPROCESSOR | <a href="#">oo3sr</a>     |
| Omni_Graffle_XML_Fmt   | 408    | 348      | Omni Graffle XML File                     |                                             | GRAFFLE                 | adVECTORGRAPHIC | <a href="#">kpGFLdr</a>   |
| PSD_Fmt                | 409    | 349      | Adobe Photoshop Document                  | image/vnd.adobe.photoshop                   | PSD, PSB                | adRASTERIMAGE   | <a href="#">psdsr</a>     |
| Apple_Binary_PList_Fmt | 410    | 350      | Apple Binary Property List                | application/x-bplist                        | PLIST                   | adMISC          |                           |

| Format Name         | Number | Category | Description                                            | MIME Type                           | Extension                               | File Class       | Readers                                                 |
|---------------------|--------|----------|--------------------------------------------------------|-------------------------------------|-----------------------------------------|------------------|---------------------------------------------------------|
|                     |        |          | format                                                 |                                     |                                         |                  |                                                         |
| Apple_iChat_Fmt     | 411    | 351      | Apple iChat format                                     |                                     | ICHAT                                   | adWORDPROCESSOR  | <a href="#">ichatsr</a>                                 |
| OOOUTLINE_Fmt       | 412    | 352      | OOutliner File                                         |                                     | OOOUTLINE                               | adWORDPROCESSOR  | <a href="#">oo3sr</a>                                   |
| BZIP2_Fmt           | 413    | 353      | Bzip 2 Compressed File                                 | application/x-bzip2                 | BZ2                                     | adENCAPSULATION  | <a href="#">bzip2sr</a>                                 |
| ISO_Fmt             | 414    | 354      | ISO-9660 CD Disc Image Format                          | application/x-iso9660-image         | ISO                                     | adENCAPSULATION  | <a href="#">isosr</a>                                   |
| DocuWorks_Fmt       | 415    | 355      | DocuWorks Format                                       | application/vnd.fujixerox.docuworks | XDW                                     | adWORDPROCESSOR  |                                                         |
| RealMedia_Fmt       | 416    | 356      | RealMedia Streaming Media                              | application/vnd.rm-realmedia        | RM, RA                                  | adMOVIE          |                                                         |
| AC3Audio_Fmt        | 417    | 357      | AC3 Audio File Format                                  | audio/ac3                           | AC3                                     | adSOUND          |                                                         |
| NEF_Fmt             | 418    | 358      | Nero Encrypted File                                    |                                     | NEF                                     | adENCAPSULATION  |                                                         |
| SolidWorks_Fmt      | 419    | 359      | SolidWorks Format Files                                |                                     | SLDASM,<br>SLDPRT,<br>SLDDRW,<br>SLDDRT | adVECTORGRAPHIC  | <a href="#">olesr</a>                                   |
| XFDL_Fmt            | 420    | 366      | Extensible Forms Description Language                  | application/x-xfdl                  | XFDL, XFD                               | adPRESENTATION   | <a href="#">kpXFDLrdr</a>                               |
| Apple_XML_PList_Fmt | 421    | 367      | Apple XML Property List format                         | application/x-plist                 | PLIST                                   | adMISC           |                                                         |
| OneNote_Fmt         | 422    | 368      | Microsoft OneNote Note Format                          | application/onenote                 | ONE                                     | adWORDPROCESSOR  | <a href="#">onesr</a>                                   |
| IFilter_Fmt         | 423    | 369      | iFilter                                                |                                     |                                         | adWORDPROCESSOR  |                                                         |
| Dicom_Fmt           | 424    | 370      | Digital Imaging and Communications in Medicine (Dicom) | application/dicom                   | DCM                                     | adRASTERIMAGE    | <a href="#">dcmsr</a>                                   |
| EnCase_Fmt          | 425    | 371      | Expert Witness Compression Format (EnCase)             |                                     | E01, L01, Lx01                          | adENCAPSULATION  | <a href="#">encase2sr</a> ,<br><a href="#">encasesr</a> |
| Scrap_Fmt           | 426    | 372      | Shell Scrap Object File                                |                                     | SHS                                     | adENCAPSULATION  | <a href="#">olesr</a>                                   |
| MS_Project_2007_Fmt | 427    | 373      | Microsoft Project 2007                                 | application/vnd.ms-project          | MPP                                     | adSCHEDULE       | <a href="#">mppsrr</a>                                  |
| MS_Publisher_98_Fmt | 428    | 374      | Microsoft Publisher from version 98                    | application/x-mspublisher           | PUB                                     | adDESKTOPPUBLISH | <a href="#">mspubsr</a>                                 |
| Skype_Fmt           | 429    | 375      | Skype Log File                                         |                                     | DBB                                     | adWORDPROCESSOR  | <a href="#">skypesr</a>                                 |
| HL7_Fmt             | 430    | 377      | Health level7 message                                  |                                     | HL7                                     | adWORDPROCESSOR  | <a href="#">hl7sr</a>                                   |

| Format Name             | Number | Category | Description                                        | MIME Type                      | Extension                                   | File Class      | Readers                                                  |
|-------------------------|--------|----------|----------------------------------------------------|--------------------------------|---------------------------------------------|-----------------|----------------------------------------------------------|
| MS_OutlookOST_Fmt       | 431    | 378      | Microsoft Outlook Offline Folders File (OST)       | application/vnd.ms-outlook-pst | OST                                         | adENCAPSULATION | <a href="#">pffsr</a>                                    |
| Epub_Fmt                | 432    | 379      | Open Publication Structure electronic publication  | application/epub+zip           | EPUB                                        | adWORDPROCESSOR | <a href="#">epubsr</a>                                   |
| MS_OEDBX_Fmt            | 433    | 380      | Microsoft Outlook Express DBX Message Database     |                                | DBX                                         | adENCAPSULATION | <a href="#">dbxsr</a>                                    |
| BB_Activ_Fmt            | 434    | 381      | BlackBerry Activation File                         |                                | DAT                                         | adWORDPROCESSOR |                                                          |
| DiskImage_Fmt           | 435    | 382      | Disk Image                                         |                                | DMG                                         | adENCAPSULATION |                                                          |
| Milestone_Fmt           | 436    | 383      | Milestone Document                                 |                                | MLS, ML3, ML4, ML5, ML6, ML7, ML8, ML9, MLA | adRASTERIMAGE   |                                                          |
| E_Transcript_Fmt        | 437    | 384      | RealLegal E-Transcript File                        |                                | PTX                                         | adWORDPROCESSOR |                                                          |
| PostScript_Font_Fmt     | 438    | 385      | PostScript Type 1 Font                             | application/x-font             | PFB                                         | adFONT          | <a href="#">pfasr</a>                                    |
| Ghost_DiskImage_Fmt     | 439    | 386      | Ghost Disk Image File                              |                                | GHO, GHS                                    | adENCAPSULATION |                                                          |
| JPEG_2000_JP2_File_Fmt  | 440    | 387      | JPEG-2000 JP2 File Format Syntax (ISO/IEC 15444-1) | image/jp2                      | JP2, JPF, J2K, JPWL, JPX, PGX               | adRASTERIMAGE   | <a href="#">jp2000sr</a> ,<br><a href="#">kjp2000rdr</a> |
| Unicode_HTML_Fmt        | 441    | 388      | Unicode HTML                                       | text/html                      | HTM, HTML                                   | adWORDPROCESSOR | <a href="#">unihmsr</a>                                  |
| CHM_Fmt                 | 442    | 389      | Microsoft Compiled HTML Help                       | application/x-chm              | CHM                                         | adENCAPSULATION | <a href="#">chmsr</a>                                    |
| EMCMF_Fmt               | 443    | 390      | Documentum EMCMF format                            |                                | EMCMF                                       | adENCAPSULATION | <a href="#">msgsr</a>                                    |
| MS_Access_2007_Tmpl_Fmt | 444    | 391      | Microsoft Access 2007 Template                     |                                | ACCDT                                       | adDATABASE      |                                                          |
| Jungum_Fmt              | 445    | 392      | Samsung Electronics Jungum Global document         | application/jungum             | GUL                                         | adWORDPROCESSOR |                                                          |
| JBIG2_Fmt               | 446    | 393      | JBIG2 File Format                                  | image/jbig2                    | JB2, JBIG2                                  | adRASTERIMAGE   | <a href="#">kpJBIG2rdr</a>                               |
| EFax_Fmt                | 447    | 394      | eFax file                                          |                                | EFX                                         | adRASTERIMAGE   |                                                          |
| AD1_Fmt                 | 448    | 395      | AD1 Evidence file                                  |                                | AD1                                         | adENCAPSULATION | <a href="#">ad1sr</a>                                    |
| SketchUp_Fmt            | 449    | 396      | Google SketchUp                                    |                                | SKP                                         | adVECTORGRAPHIC |                                                          |
| GWFS_Email_Fmt          | 450    | 397      | GroupWise FileSurf email                           |                                | GWFS                                        | adENCAPSULATION | <a href="#">gwfssr</a>                                   |
| JNT_Fmt                 | 451    | 398      | Windows Journal format                             |                                | JNT                                         | adWORDPROCESSOR |                                                          |



| Format Name             | Number | Category | Description                                     | MIME Type                             | Extension        | File Class      | Readers                                       |
|-------------------------|--------|----------|-------------------------------------------------|---------------------------------------|------------------|-----------------|-----------------------------------------------|
| Yahoo_yChat_Fmt         | 452    | 399      | Yahoo! Messenger chat log                       |                                       | YCHAT            | adWORDPROCESSOR |                                               |
| PaperPort_MAX_File_Fmt  | 453    | 400      | PaperPort MAX image file                        | image/max                             | MAX              | adRASTERIMAGE   |                                               |
| ARJ_Fmt                 | 454    | 402      | ARJ (Archive by Robert Jung) file format        | application/arj                       | ARJ              | adENCAPSULATION | <a href="#">multiarcsr</a>                    |
| RPMSG_Fmt               | 455    | 403      | Microsoft Outlook Restricted Permission Message | application/x-microsoft-rpmsg-message | RPMSG            | adENCAPSULATION | <a href="#">rpmsgsr</a>                       |
| MAT_Fmt                 | 456    | 404      | MATLAB file format                              | application/x-matlab-data             | MAT, FIG         | adWORDPROCESSOR |                                               |
| SGY_Fmt                 | 457    | 405      | SEG-Y Seismic Data format                       |                                       | SGY, SEGY        | adWORDPROCESSOR |                                               |
| CDXA_MPEG_PS_Fmt        | 458    | 406      | MPEG-PS container with CDXA stream              | video/mpeg                            | MPG              | adMOVIE         |                                               |
| EVT_Fmt                 | 459    | 407      | Microsoft Windows NT Event Log                  |                                       | EVT              | adMISC          |                                               |
| EVTX_Fmt                | 460    | 408      | Microsoft Windows Vista Event Log               |                                       | EVTX             | adMISC          |                                               |
| MS_OutlookOLM_Fmt       | 461    | 409      | Microsoft Outlook for Macintosh format          |                                       | OLM              | adENCAPSULATION | <a href="#">olmsr</a>                         |
| WARC_Fmt                | 462    | 410      | Web ARChive                                     | application/warc                      | WARC             | adENCAPSULATION |                                               |
| JAVAClass_Fmt           | 463    | 411      | Java Class format                               | application/x-java-class              | CLASS            | adWORDPROCESSOR |                                               |
| VCF_Fmt                 | 464    | 412      | Microsoft Outlook vCard file format             | text/vcard                            | VCF              | adWORDPROCESSOR | <a href="#">vcfsr</a>                         |
| EDB_Fmt                 | 465    | 413      | Microsoft Exchange Server Database file format  |                                       | EDB              | adENCAPSULATION |                                               |
| ICS_Fmt                 | 466    | 414      | Microsoft Outlook iCalendar file format         | text/calendar                         | ICS, VCS         | adENCAPSULATION | <a href="#">icssr</a>                         |
| MS_Visio_2013_Fmt       | 467    | 415      | Microsoft Visio 2013                            | application/vnd.visio                 | VSDX, VSTX, VSSX | adPRESENTATION  | <a href="#">ActiveX components, kpVSDXrdr</a> |
| MS_Visio_2013_Macro_Fmt | 468    | 415      | Microsoft Visio 2013 macro                      | application/vnd.visio                 | VSDM, VSTM, VSSM | adPRESENTATION  | <a href="#">kpVSDXrdr</a>                     |
| ICHITARO_Compr_Fmt      | 469    | 417      | ICHITARO Compressed format                      | application/x-js-taro                 | JTDC             | adWORDPROCESSOR | <a href="#">jtdsr</a>                         |

| Format Name                      | Number | Category | Description                         | MIME Type                                  | Extension    | File Class      | Readers                                                 |
|----------------------------------|--------|----------|-------------------------------------|--------------------------------------------|--------------|-----------------|---------------------------------------------------------|
| IWWP13_Fmt                       | 470    | 418      | Apple iWork 2013 Pages format       |                                            | IWA, PAGES   | adWORDPROCESSOR | <a href="#">iwwp13sr</a>                                |
| IWSS13_Fmt                       | 471    | 419      | Apple iWork 2013 Numbers format     |                                            | IWA, NUMBERS | adSPREADSHEET   | <a href="#">iwss13sr</a>                                |
| IWPG13_Fmt                       | 472    | 420      | Apple iWork 2013 Keynote format     |                                            | IWA, KEY     | adPRESENTATION  | <a href="#">kplWPG13rdr</a> , <a href="#">kplWPGrdr</a> |
| XZ_Fmt                           | 473    | 421      | XZ archive format                   | application/x-xz                           | XZ           | adENCAPSULATION | <a href="#">multiarcsr</a>                              |
| Sony_WAVE64_Fmt                  | 474    | 422      | Sony Wave64 format                  | audio/wav64                                | W64          | adSOUND         |                                                         |
| Conifer_WAVPACK_Fmt              | 475    | 423      | Conifer Wavpack format              | audio/x-wavpack                            | WV           | adSOUND         |                                                         |
| Xiph_OGG_VORBIS_Fmt              | 476    | 424      | Xiph Ogg Vorbis format              | audio/ogg                                  | OGG          | adSOUND         |                                                         |
| MS_Visio_2013_Stencil_Fmt        | 477    | 415      | MS Visio 2013 stencil format        | application/vnd.visio                      | VSSX         | adPRESENTATION  | <a href="#">kpVSDXrdr</a>                               |
| MS_Visio_2013_Stencil_Macro_Fmt  | 478    | 415      | MS Visio 2013 stencil Macro format  | application/vnd.visio                      | VSSM         | adPRESENTATION  | <a href="#">kpVSDXrdr</a>                               |
| MS_Visio_2013_Template_Fmt       | 479    | 415      | MS Visio 2013 template format       | application/vnd.visio                      | VSTX         | adPRESENTATION  | <a href="#">kpVSDXrdr</a>                               |
| MS_Visio_2013_Template_Macro_Fmt | 480    | 415      | MS Visio 2013 template Macro format | application/vnd.visio                      | VSTM         | adPRESENTATION  | <a href="#">kpVSDXrdr</a>                               |
| Borland_Reflex_2_Fmt             | 481    | 425      | Borland Reflex 2 format             |                                            | R2D          | adDATABASE      |                                                         |
| PKCS_12_Fmt                      | 482    | 426      | PKCS #12 (p12) format               | application/x-pkcs12                       | P12, PFX     | adWORDPROCESSOR |                                                         |
| B1_Fmt                           | 483    | 427      | B1 format                           | application/x-b1                           | B1           | adENCAPSULATION | <a href="#">b1sr</a>                                    |
| ISO_IEC_MPEG_4_Fmt               | 484    | 428      | ISO/IEC MPEG-4 (ISO 14496) format   | video/mp4                                  | MP4          | adMOVIE         | <a href="#">mpeg4sr</a>                                 |
| RAR5_Fmt                         | 485    | 429      | RAR5 Format                         | application/x-rar-compressed               | RAR          | adENCAPSULATION | <a href="#">multiarcsr</a>                              |
| Unigraphics_NX_Fmt               | 486    | 362      | Unigraphics (UG) NX CAD Format      |                                            | PRT          | adVECTORGRAPHIC | <a href="#">kpUGrdr</a>                                 |
| PTC_Creo_Fmt                     | 487    | 430      | PTC Creo CAD Format                 |                                            | ASM, PRT     | adVECTORGRAPHIC |                                                         |
| KML_Fmt                          | 488    | 431      | Keyhole Markup Language             | application/vnd.google-earth.kml+xml       | KML          | adWORDPROCESSOR | <a href="#">xmlsr</a>                                   |
| KMZ_Fmt                          | 489    | 432      | Zipped Keyhole Markup Language      | application/vnd.google-earth.kmz           | KMZ          | adWORDPROCESSOR | <a href="#">unzip</a>                                   |
| WML_Fmt                          | 490    | 433      | Wireless Markup Language            | text/vnd.wap.wml                           | WML          | adWORDPROCESSOR | <a href="#">xmlsr</a>                                   |
| ODF_Formula_Fmt                  | 491    | 434      | ODF Formula                         | application/vnd.oasis.opendocument.formula | ODF          | adWORDPROCESSOR | <a href="#">unzip</a>                                   |

| Format Name         | Number | Category | Description                                    | MIME Type                           | Extension     | File Class      | Readers                                               |
|---------------------|--------|----------|------------------------------------------------|-------------------------------------|---------------|-----------------|-------------------------------------------------------|
| SO_Text_Fmt         | 492    | 435      | Star Office 4,5 Writer Text                    | application/vnd.stardivision.writer | SDW, SGL, VOR | adWORDPROCESSOR | <a href="#">kpsdwrdr</a> ,<br><a href="#">starwsr</a> |
| SO_Spreadsheet_Fmt  | 493    | 436      | Star Office 4,5 Calc Spreadsheet               | application/vnd.stardivision.calc   | SDC           | adSPREADSHEET   | <a href="#">starcsr</a>                               |
| SO_Presentation_Fmt | 494    | 437      | Star Office 4,5 Impress Presentation           | application/vnd.stardivision.draw   | SDD, SDA      | adPRESENTATION  | <a href="#">kpsddrdr</a>                              |
| SO_Math_Fmt         | 495    | 438      | Star Office 4,5 Math                           | application/vnd.stardivision.math   | SMF           | adMISC          | <a href="#">olesr</a>                                 |
| STEP_Fmt            | 496    | 439      | ISO 10303-21 STEP format                       |                                     |               | adMISC          |                                                       |
| STL_Fmt             | 497    | 364      | 3D Systems Stereo Lithography STL ASCII format |                                     |               | adCAD           |                                                       |
| AppleScript_Fmt     | 498    | 440      | AppleScript Source Code <sup>3</sup>           | text/x-applescript                  | APPLESCRIPT   | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Assembly_Fmt        | 499    | 441      | Assembly Code <sup>3</sup>                     | text/x-assembly                     |               | adSOURCECODE    | <a href="#">afsr</a>                                  |
| C_Fmt               | 500    | 442      | C Source Code <sup>3</sup>                     | text/x-c                            | C, H          | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Csharp_Fmt          | 501    | 443      | C# Source Code <sup>3</sup>                    | text/x-csharp                       | CS            | adSOURCECODE    | <a href="#">afsr</a>                                  |
| CPlusPlus_Fmt       | 502    | 444      | C++ Source Code <sup>3</sup>                   | text/x-c++                          | CPP, HPP      | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Css_Fmt             | 503    | 445      | Cascading Style Sheet <sup>3</sup>             | text/css                            | CSS           | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Clojure_Fmt         | 504    | 446      | Clojure Source Code <sup>3</sup>               | text/x-clojure                      | CLJ, CL2      | adSOURCECODE    | <a href="#">afsr</a>                                  |
| CoffeeScript_Fmt    | 505    | 447      | CoffeeScript Source Code <sup>3</sup>          | text/x-coffeescript                 | COFFEE, CAKE  | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Lisp_Fmt            | 506    | 448      | Common Lisp Source Code <sup>3</sup>           | text/x-common-lisp                  | EL            | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Dockerfile_Fmt      | 507    | 449      | Dockerfile <sup>3</sup>                        | text/x-dockerfile                   |               | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Eiffel_Fmt          | 508    | 450      | Eiffel Source Code <sup>3</sup>                | text/x-eiffel                       | E             | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Erlang_Fmt          | 509    | 451      | Erlang Source Code <sup>3</sup>                | text/x-erlang                       | ERL, ES       | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Fsharp_Fmt          | 510    | 452      | F# Source Code <sup>3</sup>                    | text/x-fsharp                       | FS            | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Fortran_Fmt         | 511    | 453      | Fortran Source Code <sup>3</sup>               | text/x-fortran                      | F             | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Go_Fmt              | 512    | 454      | Go Source Code <sup>3</sup>                    | text/x-go                           | GO            | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Groovy_Fmt          | 513    | 455      | Groovy Source Code <sup>3</sup>                | text/x-groovy                       | GRT, GVV      | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Haskell_Fmt         | 514    | 456      | Haskell Source Code <sup>3</sup>               | text/x-haskell                      | HS            | adSOURCECODE    | <a href="#">afsr</a>                                  |
| Ini_Fmt             | 515    | 457      | Initialization (INI) file <sup>3</sup>         | text/x-ini                          |               | adSOURCECODE    | <a href="#">afsr</a>                                  |

| Format Name     | Number | Category | Description                                          | MIME Type           | Extension   | File Class   | Readers              |
|-----------------|--------|----------|------------------------------------------------------|---------------------|-------------|--------------|----------------------|
| Java_Fmt        | 516    | 458      | Java Source Code <sup>3</sup>                        | text/x-java-source  | JAVA        | adSOURCECODE | <a href="#">afsr</a> |
| Javascript_Fmt  | 517    | 459      | Javascript Source Code <sup>3</sup>                  | text/javascript     | JS          | adSOURCECODE | <a href="#">afsr</a> |
| Lua_Fmt         | 518    | 460      | Lua Source Code <sup>3</sup>                         | text/x-lua          | LUA         | adSOURCECODE | <a href="#">afsr</a> |
| Makefile_Fmt    | 519    | 461      | Makefile <sup>3</sup>                                | text/x-makefile     | MAKE        | adSOURCECODE | <a href="#">afsr</a> |
| Mathematica_Fmt | 520    | 462      | Wolfram Mathematica Source Code <sup>3</sup>         | text/x-mathematica  | M           | adSOURCECODE | <a href="#">afsr</a> |
| ObjC_Fmt        | 521    | 464      | Objective-C Source Code <sup>3</sup>                 | text/x-objc         |             | adSOURCECODE | <a href="#">afsr</a> |
| ObjCpp_Fmt      | 522    | 465      | Objective-C++ Source Code <sup>3</sup>               | text/x-objectivec++ |             | adSOURCECODE | <a href="#">afsr</a> |
| ObjJ_Fmt        | 523    | 466      | Objective-J Source Code <sup>3</sup>                 | text/x-objectivej   | J           | adSOURCECODE | <a href="#">afsr</a> |
| PHP_Fmt         | 524    | 467      | PHP Source Code <sup>3</sup>                         | text/x-php          | PHP         | adSOURCECODE | <a href="#">afsr</a> |
| PLSQL_Fmt       | 525    | 468      | PLSQL Source Code <sup>3</sup>                       | text/x-plsql        |             | adSOURCECODE | <a href="#">afsr</a> |
| Pascal_Fmt      | 526    | 469      | Pascal Source Code <sup>3</sup>                      | text/x-pascal       | PASCAL      | adSOURCECODE | <a href="#">afsr</a> |
| Perl_Fmt        | 527    | 470      | Perl Source Code <sup>3</sup>                        | text/x-perl         | PL          | adSOURCECODE | <a href="#">afsr</a> |
| Powershell_Fmt  | 528    | 471      | PowerShell Source Code <sup>3</sup>                  | text/x-powershell   | PS1         | adSOURCECODE | <a href="#">afsr</a> |
| Prolog_Fmt      | 529    | 472      | Prolog Source Code <sup>3</sup>                      | text/x-prolog       | PRO, PROLOG | adSOURCECODE | <a href="#">afsr</a> |
| Puppet_Fmt      | 530    | 473      | Puppet Source Code <sup>3</sup>                      | text/x-puppet       | PP          | adSOURCECODE | <a href="#">afsr</a> |
| Python_Fmt      | 531    | 474      | Python Source Code <sup>3</sup>                      | text/x-python       | PY          | adSOURCECODE | <a href="#">afsr</a> |
| R_Fmt           | 532    | 475      | R Source Code <sup>3</sup>                           | text/x-rsrc         | R           | adSOURCECODE | <a href="#">afsr</a> |
| Ruby_Fmt        | 533    | 476      | Ruby Source Code <sup>3</sup>                        | text/x-ruby         | RB          | adSOURCECODE | <a href="#">afsr</a> |
| Rust_Fmt        | 534    | 477      | Rust Source Code <sup>3</sup>                        | text/x-rust         | RS          | adSOURCECODE | <a href="#">afsr</a> |
| Scala_Fmt       | 535    | 478      | Scala Source Code <sup>3</sup>                       | text/x-scala        | SC          | adSOURCECODE | <a href="#">afsr</a> |
| Shell_Fmt       | 536    | 479      | Shell Script <sup>3</sup>                            | application/x-sh    | SH          | adSOURCECODE | <a href="#">afsr</a> |
| Smalltalk_Fmt   | 537    | 480      | Smalltalk Source Code <sup>3</sup>                   | text/x-stsrc        | ST          | adSOURCECODE | <a href="#">afsr</a> |
| ML_Fmt          | 538    | 481      | Standard ML Source Code <sup>3</sup>                 | text/x-ml           | ML          | adSOURCECODE | <a href="#">afsr</a> |
| Swift_Fmt       | 539    | 482      | Swift Source Code <sup>3</sup>                       | text/x-swift        | SWIFT       | adSOURCECODE | <a href="#">afsr</a> |
| Tcl_Fmt         | 540    | 483      | Tool Command Language (Tcl) Source Code <sup>3</sup> | text/x-tcl          | TM          | adSOURCECODE | <a href="#">afsr</a> |
| Tex_Fmt         | 541    | 484      | TeX Typesetting File <sup>3</sup>                    | application/x-tex   |             | adSOURCECODE | <a href="#">afsr</a> |

| Format Name               | Number | Category | Description                         | MIME Type                     | Extension   | File Class      | Readers               |
|---------------------------|--------|----------|-------------------------------------|-------------------------------|-------------|-----------------|-----------------------|
| TypeScript_Fmt            | 542    | 485      | TypeScript Source Code <sup>3</sup> | text/x-typescript             | TS          | adSOURCECODE    | <a href="#">afsr</a>  |
| Verilog_Fmt               | 543    | 486      | Verilog Source Code <sup>3</sup>    | text/x-verilog                | V           | adSOURCECODE    | <a href="#">afsr</a>  |
| YAML_Fmt                  | 544    | 487      | YAML File <sup>3</sup>              | text/x-yaml                   | YML         | adSOURCECODE    | <a href="#">afsr</a>  |
| Wiki_Fmt                  | 545    | 488      | MediaWiki File                      | text/x-mediawiki              |             | adWORDPROCESSOR | <a href="#">afsr</a>  |
| MS_Word_2007_Flat_XML_Fmt | 546    | 301      | Microsoft Word 2007 XML - Flat xml  | text/xml                      | XML         | adWORDPROCESSOR | <a href="#">mwxsr</a> |
| Matroska_Fmt              | 547    | 489      | Matroska video File                 | video/x-matroska              | MKV         | adMOVIE         |                       |
| SVG_Fmt                   | 548    | 490      | Scalable Vector Graphics image      | image/svg+xml                 | SVG         | adVECTORGRAPHIC | <a href="#">xmlsr</a> |
| Shapefile_Fmt             | 549    | 491      | Shapefile                           | application/x-shapefile       | SHP, SHX    | adGIS           |                       |
| Flash_Video_Fmt           | 550    | 492      | Flash video File                    | video/x-flv                   | FLV         | adMOVIE         |                       |
| Embedded_OpenType_Fmt     | 551    | 493      | Embedded OpenType font              | application/vnd.ms-fontobject | EOT         | adFONT          |                       |
| Web_Open_Font_Fmt         | 552    | 494      | Web Open Font Format                | font/woff                     | WOFF, WOFF2 | adFONT          |                       |
| OpenType_Fmt              | 553    | 495      | OpenType Font                       | font/otf                      | OTF         | adFONT          |                       |
| MNG_Fmt                   | 554    | 496      | Multiple-image Network Graphics     | video/x-mng                   | MNG         | adANIMATION     |                       |
| JNG_Fmt                   | 555    | 497      | JPEG Network Graphics               | image/x-jng                   | JNG         | adRASTERIMAGE   |                       |
| AppleScript_Binary_Fmt    | 556    | 498      | AppleScript Binary Source Code      |                               | SCPT        | adSOURCECODE    |                       |
| Maya_Binary_Fmt           | 557    | 499      | Autodesk Maya binary file           |                               | MB          | adCAD           |                       |
| Jupiter_Tessellation_Fmt  | 558    | 363      | UGS Jupiter Tessellation file       |                               | JT          | adCAD           |                       |
| OGV_Fmt                   | 559    | 500      | Ogg Theora Video format             | video/ogg                     | OGV         | adMOVIE         |                       |
| OGG_Container_Fmt         | 560    | 501      | General Ogg Container format        | application/ogg               | OGG         | adMISC          |                       |
| GNU_Message_Catalog_Fmt   | 561    | 502      | GNU Message Catalog format          |                               | MO          | adMISC          |                       |
| Windows_Shortcut_Fmt      | 562    | 503      | Windows shortcut file               | application/x-ms-shortcut     | LNK         | adMISC          |                       |
| Apple_Typedstream_Fmt     | 563    | 504      | Apple/NeXT typedstream data format  |                               |             | adMISC          |                       |
| XCF_Fmt                   | 564    | 505      | GIMP XCF image                      | image/x-xcf                   | XCF         | adRASTERIMAGE   |                       |

| Format Name              | Number | Category | Description                               | MIME Type                  | Extension     | File Class      | Readers |
|--------------------------|--------|----------|-------------------------------------------|----------------------------|---------------|-----------------|---------|
| PaintShop_Pro_Fmt        | 565    | 506      | PaintShop Pro image                       |                            | PSP, PSPIMAGE | adRASTERIMAGE   |         |
| SQLite_Database_Fmt      | 566    | 507      | SQLite database format                    | application/x-sqlite3      | QHC           | adDATABASE      |         |
| MySQL_Table_Fmt          | 567    | 508      | MySQL table definition file               |                            | FRM           | adDATABASE      |         |
| Microsoft_Program_DB_Fmt | 568    | 509      | Microsoft Program Database format         |                            | PDB           | adDATABASE      |         |
| OpenEXR_Fmt              | 569    | 510      | OpenEXR image format                      |                            | EXR           | adRASTERIMAGE   |         |
| XMV_Fmt                  | 570    | 511      | 4X Movie File                             |                            | 4XM           | adMOVIE         |         |
| AMV_Fmt                  | 571    | 512      | AMV video file                            |                            | AMV           | adMOVIE         |         |
| NIFF_Fmt                 | 572    | 513      | Notation Interchange File Format          |                            | NIF           | adSOUND         |         |
| CuBase_Fmt               | 573    | 514      | Steinberg CuBase file                     |                            |               | adSOUND         |         |
| SoundFont_Fmt            | 574    | 515      | SoundFont file                            |                            |               | adSOUND         |         |
| WebP_Fmt                 | 575    | 516      | WebP image                                | image/webp                 | WEBP          | adRASTERIMAGE   |         |
| ICC_Fmt                  | 576    | 517      | International Color Consortium files      | application/vnd.iccprofile | ICC, ICM      | adMISC          |         |
| PCF_Fmt                  | 577    | 518      | X11 Portable Compiled Font file           | application/x-font-pcf     | PCF           | adFONT          |         |
| WebM_Fmt                 | 578    | 519      | WebM video file                           | video/webm                 | WEBM          | adMOVIE         |         |
| AMFF_Fmt                 | 579    | 520      | Amiga Metafile                            |                            | AMF           | adVECTORGRAPHIC |         |
| ANBM_Fmt                 | 580    | 521      | IFF Animated Bitmap                       |                            |               | adRASTERIMAGE   |         |
| ANIM_Fmt                 | 581    | 522      | IFF Amiga animated raster graphics format |                            |               | adRASTERIMAGE   |         |
| DEEP_Fmt                 | 582    | 523      | IFF-DEEP TVPaint image                    |                            | DEEP          | adRASTERIMAGE   |         |
| FAXX_Fmt                 | 583    | 524      | IFF-FAXX Facsimile image                  |                            |               | adRASTERIMAGE   |         |
| ICON_Fmt                 | 584    | 525      | IFF Glow Icon image                       |                            |               | adRASTERIMAGE   |         |
| ILBM_Fmt                 | 585    | 526      | Interleaved BitMap image                  |                            | IFF           | adRASTERIMAGE   |         |
| LWOB_Fmt                 | 586    | 527      | LightWave Object format                   |                            | LWOB          | adMISC          |         |
| MAUD_Fmt                 | 587    | 528      | IFF-MAUD MacroSystem audio format         |                            |               | adSOUND         |         |
| PBM_Fmt                  | 588    | 529      | IFF Planar BitMap                         |                            |               | adRASTERIMAGE   |         |

| Format Name                     | Number | Category | Description                                  | MIME Type              | Extension | File Class      | Readers                 |
|---------------------------------|--------|----------|----------------------------------------------|------------------------|-----------|-----------------|-------------------------|
| TDDD_Fmt                        | 589    | 530      | IFF TDDD and Imagine Object animation format |                        | TDD       | adRASTERIMAGE   |                         |
| DjVu_Fmt                        | 590    | 531      | AT&T DjVu format                             | image/vnd.djvu         | DJVU      | adWORDPROCESSOR |                         |
| InDesign_Fmt                    | 591    | 532      | Adobe InDesign document                      | application/x-indesign | INDD      | adDESKTOPPUBLSH |                         |
| Calamus_Fmt                     | 592    | 533      | Calamus Desktop Publishing                   |                        |           | adDESKTOPPUBLSH |                         |
| Adaptive_MultiRate_Fmt          | 593    | 534      | Adaptive Multi-Rate audio format             | audio/amr              | AMR       | adSOUND         |                         |
| FLAC_Fmt                        | 594    | 535      | Free Lossless Audio Codec format             | audio/flac             | FLAC      | adSOUND         |                         |
| Ogg_FLAC_Fmt                    | 595    | 536      | Ogg Container FLAC audio format              |                        | OGG       | adSOUND         |                         |
| SAS7BDAT_Fmt                    | 596    | 537      | SAS7BDAT database storage format             |                        | SAS7BDAT  | adDATABASE      | <a href="#">sassr</a>   |
| Design_Web_Format_Fmt           | 597    | 538      | Autodesk Design Web Format                   | model/vnd.dwf          | DWF       | adCAD           |                         |
| Adobe_Flash_Audio_Book_Fmt      | 598    | 539      | Adobe Flash Player audio book                | audio/mp4              | F4B       | adSOUND         | <a href="#">mpeg4sr</a> |
| Adobe_Flash_Audio_Fmt           | 599    | 540      | Adobe Flash Player audio                     | audio/mp4              | F4A       | adSOUND         | <a href="#">mpeg4sr</a> |
| Adobe_Flash_Protected_Video_Fmt | 600    | 541      | Adobe Flash Player protected video           | video/mp4              | F4P       | adMOVIE         | <a href="#">mpeg4sr</a> |
| Adobe_Flash_Video_Fmt           | 601    | 542      | Adobe Flash Player video                     | video/x-f4v            | F4V       | adMOVIE         | <a href="#">mpeg4sr</a> |
| Audible_Audiobook_Fmt           | 602    | 543      | Audible Enhanced Audiobook                   | audio/vnd.audible.aax  | AAX       | adSOUND         | <a href="#">mpeg4sr</a> |
| Canon_Camera_Fmt                | 603    | 544      | Canon Digital Camera image                   |                        |           | adRASTERIMAGE   |                         |
| Canon_Raw_Fmt                   | 604    | 545      | Canon Raw image                              |                        | CR3       | adRASTERIMAGE   |                         |
| Casio_Camera_Fmt                | 605    | 546      | Casio Digital Camera image                   |                        |           | adRASTERIMAGE   |                         |
| Convergent_Design_Fmt           | 606    | 547      | Convergent Design file                       |                        |           | adRASTERIMAGE   |                         |
| DMB_MAF_Audio_Fmt               | 607    | 548      | DMB MAF audio                                |                        |           | adSOUND         |                         |
| DMB_MAF_Video_Fmt               | 608    | 549      | DMB MAF video                                |                        |           | adMOVIE         |                         |
| DMP_Content_Fmt                 | 609    | 550      | Digital Media Project Content Format         |                        |           | adMISC          |                         |

| Format Name                   | Number | Category | Description                                      | MIME Type           | Extension | File Class      | Readers                                                   |
|-------------------------------|--------|----------|--------------------------------------------------|---------------------|-----------|-----------------|-----------------------------------------------------------|
| DVB_Fmt                       | 610    | 551      | Digital Video Broadcast format                   | video/vnd.dvb.file  | DVB       | adMOVIE         |                                                           |
| Dirac_Wavelet_Compression_Fmt | 611    | 552      | ISO-BMFF Dirac Wavelet compression               |                     |           | adMISC          |                                                           |
| HEICS_Image_Sequence_Fmt      | 612    | 553      | High Efficiency Image Format HEVC image sequence | image/heic-sequence | HEICS     | adRASTERIMAGE   |                                                           |
| HEIC_Image_Fmt                | 613    | 554      | High Efficiency Image Format HEVC image          | image/heic          | HEIC      | adRASTERIMAGE   |                                                           |
| HEIFS_Image_Sequence_Fmt      | 614    | 555      | High Efficiency Image Format image sequence      | image/heif-sequence | HEIFS     | adRASTERIMAGE   |                                                           |
| HEIF_Image_Fmt                | 615    | 556      | High Efficiency Image Format image               | image/heif          | HEIF      | adRASTERIMAGE   |                                                           |
| ISMACryp_Fmt                  | 616    | 557      | ISMACryp 2.0 Encrypted format                    |                     |           | adENCAPSULATION |                                                           |
| ISO_3GPP2_Fmt                 | 617    | 558      | 3GPP2 video file                                 | video/3gpp2         | 3G2       | adMOVIE         | <a href="#">mpeg4sr</a>                                   |
| ISO_3GPP_Fmt                  | 618    | 559      | 3GPP video file                                  | video/3gpp          | 3GP       | adMOVIE         | <a href="#">mpeg4sr</a>                                   |
| ISO_JPEG2000_JP2_Fmt          | 619    | 560      | ISO-BMFF JPEG 2000 image                         | image/jp2           | JP2       | adRASTERIMAGE   | <a href="#">jp2000sr</a> ,<br><a href="#">kpjp2000rdr</a> |
| ISO_JPEG2000_JPM_Fmt          | 620    | 561      | ISO-BMFF JPEG 2000 compound image                | image/jpm           | JPM       | adRASTERIMAGE   | <a href="#">jp2000sr</a> ,<br><a href="#">kpjp2000rdr</a> |
| ISO_JPEG2000_JPX_Fmt          | 621    | 562      | ISO-BMFF JPEG 2000 with extensions               | image/jpx           | JPX       | adRASTERIMAGE   | <a href="#">jp2000sr</a> ,<br><a href="#">kpjp2000rdr</a> |
| ISO_QuickTime_Fmt             | 622    | 563      | Apple ISO-BMFF QuickTime video                   | video/quicktime     | QT, MOV   | adMOVIE         | <a href="#">MCI</a>                                       |
| KDDI_Video_Fmt                | 623    | 564      | KDDI Video file                                  | video/3gpp2         |           | adMOVIE         | <a href="#">mpeg4sr</a>                                   |
| MAF_Photo_Player_Fmt          | 624    | 565      | MAF Photo Player                                 |                     |           | adMISC          |                                                           |
| MPEG4_AVC_Fmt                 | 625    | 566      | ISO-BMFF MPEG-4 with AVC extension               | video/mp4           |           | adMOVIE         | <a href="#">mpeg4sr</a>                                   |
| MPEG4_M4A_Fmt                 | 626    | 567      | Apple MPEG-4 Part 14 audio                       | audio/x-m4a         | M4A       | adSOUND         | <a href="#">mpeg4sr</a>                                   |
| MPEG4_M4B_Fmt                 | 627    | 568      | Apple MPEG-4 Part 14 audio book                  | audio/mp4           | M4B       | adSOUND         | <a href="#">mpeg4sr</a>                                   |
| MPEG4_M4P_Fmt                 | 628    | 569      | Apple MPEG-4 Part 14 protected audio             | audio/mp4           | M4P       | adSOUND         | <a href="#">mpeg4sr</a>                                   |



| Format Name                      | Number | Category | Description                                | MIME Type       | Extension          | File Class    | Readers                                                   |
|----------------------------------|--------|----------|--------------------------------------------|-----------------|--------------------|---------------|-----------------------------------------------------------|
| MPEG4_M4V_Fmt                    | 629    | 570      | Apple MPEG-4 Part 14 video                 | video/x-m4v     | M4V                | adMOVIE       | <a href="#">mpeg4sr</a>                                   |
| MPEG4_Sony_PSP_Fmt               | 630    | 571      | Sony PSP MPEG-4                            | audio/mp4       | MP4                | adSOUND       | <a href="#">mpeg4sr</a>                                   |
| MPEG_21_Fmt                      | 631    | 572      | MPEG-21                                    | audio/mp4       |                    | adMISC        | <a href="#">mpeg4sr</a>                                   |
| Mobile_QuickTime_Fmt             | 632    | 573      | Mobile QuickTime video                     | video/quicktime | MQV                | adMOVIE       | <a href="#">MCI</a>                                       |
| Motion_JPEG_2000_Fmt             | 633    | 574      | Motion JPEG 2000                           | video/mj2       | MJ2, MJP2          | adMOVIE       | <a href="#">jp2000sr</a> ,<br><a href="#">kpjp2000rdr</a> |
| NTT_MPEG4_Fmt                    | 634    | 575      | NTT MPEG-4                                 | video/mp4       |                    | adMOVIE       | <a href="#">mpeg4sr</a>                                   |
| Nero_MPEG4_AVC_Profile           | 635    | 576      | Nero MPEG-4 profile with AVC extension     | video/mp4       |                    | adMOVIE       |                                                           |
| Nero_MPEG4_Audio_Fmt             | 636    | 577      | Nero AAC audio                             | audio/mp4       |                    | adSOUND       | <a href="#">mpeg4sr</a>                                   |
| Nero_MPEG4_Profile               | 637    | 578      | Nero MPEG-4 profile                        | video/mp4       |                    | adMOVIE       |                                                           |
| OMA_DRM_Fmt                      | 638    | 579      | OMA DRM (ISOBMFF) Format                   |                 |                    | adMISC        |                                                           |
| Panasonic_Camera_Fmt             | 639    | 580      | Panasonic Digital Camera image             |                 |                    | adRASTERIMAGE |                                                           |
| Ross_Video_Fmt                   | 640    | 581      | Ross video                                 |                 |                    | adMOVIE       |                                                           |
| SDA_Video_Fmt                    | 641    | 582      | SDA SD Memory Card video                   |                 |                    | adMOVIE       |                                                           |
| Samsung_Stereoscopic_Fmt         | 642    | 583      | Samsung stereoscopic stream                |                 |                    | adMISC        |                                                           |
| Sony_XAVC_Fmt                    | 643    | 584      | Sony XAVC video                            |                 |                    | adMOVIE       | <a href="#">mpeg4sr</a>                                   |
| JPEG_2000_PGX_Fmt                | 644    | 585      | JPEG 2000 PGX Verification Model image     |                 | PGX                | adRASTERIMAGE | <a href="#">jp2000sr</a> ,<br><a href="#">kpjp2000rdr</a> |
| Apple_Desktop_Services_Store_Fmt | 645    | 586      | Apple Desktop Services Store file          |                 | DS_Store           | adMISC        |                                                           |
| Core_Audio_Fmt                   | 646    | 587      | Apple Core Audio Format                    | audio/x-caf     | CAF                | adSOUND       |                                                           |
| VICAR_Fmt                        | 647    | 588      | VICAR image format                         |                 | IMG                | adRASTERIMAGE |                                                           |
| FITS_Fmt                         | 648    | 589      | Flexible Image Transport System FITS image | image/fits      | FIT                | adRASTERIMAGE |                                                           |
| DIF_Fmt                          | 649    | 590      | Digital Interface Format (DIF) DV video    |                 | DV                 | adMOVIE       |                                                           |
| MPEG_Transport_Stream_Fmt        | 650    | 591      | MPEG Transport Stream data                 | video/MP2T      | TS, M2T, M2TS, MTS | adMISC        |                                                           |

| Format Name         | Number | Category | Description                                            | MIME Type            | Extension | File Class      | Readers |
|---------------------|--------|----------|--------------------------------------------------------|----------------------|-----------|-----------------|---------|
| MPEG_Sequence_Fmt   | 651    | 592      | MPEG Sequence format                                   | video/mpeg           |           | adMISC          |         |
| Ogg_OGM_Fmt         | 652    | 593      | Ogg OGM video format                                   | video/ogg            | OGM       | adMOVIE         |         |
| Ogg_Speex_Fmt       | 653    | 594      | Ogg Speex audio format                                 | audio/ogg            | SPX       | adSOUND         |         |
| Ogg_Opus_Fmt        | 654    | 595      | Ogg Opus audio format                                  | audio/ogg            | OGG       | adSOUND         |         |
| Musepack_Audio_Fmt  | 655    | 596      | Musepack audio format                                  | audio/x-musepack     | MPC       | adSOUND         |         |
| ART_Image_Fmt       | 656    | 597      | ART image format                                       |                      | ART       | adRASTERIMAGE   |         |
| Vivo_Fmt            | 657    | 598      | Vivo audio-video format                                | video/vnd.vivo       | VIV       | adMOVIE         |         |
| QCP_Fmt             | 658    | 599      | Qualcomm QCP audio                                     | audio/qcelp          | QCP       | adSOUND         |         |
| CSP_Codec_Fmt       | 659    | 600      | Creative Signal Processor codec                        |                      | CSP       | adMISC          |         |
| TwinVQ_Fmt          | 660    | 601      | NTT TwinVQ audio format                                |                      | VQF       | adSOUND         |         |
| Interplay_MVE_Fmt   | 661    | 602      | Interplay MVE video format                             |                      | MVE       | adMOVIE         |         |
| IRIX_Moviemaker_Fmt | 662    | 603      | IRIX Silicon Graphics moviemaker video file            | video/x-sgi-movie    | MV, MOVIE | adMOVIE         |         |
| Sega_FILM_Fmt       | 663    | 604      | Sega FILM video format                                 |                      | CPK, CAK  | adMOVIE         |         |
| SMAF_Fmt            | 664    | 605      | Synthetic music Mobile Application Format              | application/vnd.smaf | MMF       | adSOUND         |         |
| NIST_SPHERE_Fmt     | 665    | 606      | NIST SPeech HEader REsources format                    |                      | NIST      | adSOUND         |         |
| Chinese_AVS_Fmt     | 666    | 607      | Chinese AVS video format                               |                      |           | adMOVIE         |         |
| VQA_Fmt             | 667    | 608      | Westwood Studios Vector Quantized Animation video file |                      | VQA       | adANIMATION     |         |
| YAFA_Fmt            | 668    | 609      | Wildfire YAFA animation                                |                      | YAFA      | adANIMATION     |         |
| Origin_MVE_Fmt      | 669    | 610      | Origin Wing Commander III MVE movie format             |                      | MVE       | adMOVIE         |         |
| BBC_Dirac_Fmt       | 670    | 611      | BBC Dirac video format                                 | video/x-dirac        | DRC       | adMOVIE         |         |
| Maya_ASCII_Fmt      | 671    | 612      | Autodesk Maya ASCII file format                        |                      | MA        | adCAD           |         |
| RenderMan_Fmt       | 672    | 613      | Pixar RenderMan Interface Bytestream file              |                      | RIB       | adVECTORGRAPHIC |         |
| NOFF_Binary_Fmt     | 673    | 614      | NOFF 3D Object File                                    |                      | NOFF      | adVECTORGRAPHIC |         |

| Format Name               | Number | Category | Description                                    | MIME Type                         | Extension | File Class      | Readers               |
|---------------------------|--------|----------|------------------------------------------------|-----------------------------------|-----------|-----------------|-----------------------|
|                           |        |          | Format                                         |                                   |           |                 |                       |
| VTK_ASCII_Fmt             | 674    | 615      | Visualization Toolkit VTK ASCII format         |                                   | VTK       | adVECTORGRAPHIC |                       |
| VTK_Binary_Fmt            | 675    | 616      | Visualization Toolkit VTK Binary format        |                                   | VTK       | adVECTORGRAPHIC |                       |
| Wolfram_CDF_Fmt           | 676    | 617      | Wolfram Mathematica Computable Document Format | application/cdf                   | CDF       | adMISC          |                       |
| Wolfram_Notebook_Fmt      | 677    | 618      | Wolfram Mathematica Notebook Format            |                                   | NB        | adMISC          |                       |
| HDF4_Fmt                  | 678    | 619      | Hierarchical Data Format HDF4                  | application/x-hdf                 | HDF, H4   | adMISC          |                       |
| HDF5_Fmt                  | 679    | 620      | Hierarchical Data Format HDF5                  | application/x-hdf                 | HDF, H5   | adMISC          |                       |
| ARMovie_Fmt               | 680    | 621      | Acorn RISC ARMovie video format                |                                   | RPL       | adMOVIE         |                       |
| Windows_TV_DVR_Fmt        | 681    | 622      | Windows Television DVR format                  |                                   | WTV       | adMOVIE         |                       |
| InstallShield_Z_Fmt       | 682    | 623      | InstallShield Z archive format                 | application/x-compress            | Z         | adENCAPSULATION |                       |
| MS_DirectDraw_Surface_Fmt | 683    | 624      | Microsoft DirectDraw Surface container format  |                                   | DDS       | adENCAPSULATION |                       |
| Bink_Fmt                  | 684    | 625      | Bink audio-video container format              |                                   | BIK, BK2  | adMOVIE         |                       |
| LZMA_Fmt                  | 685    | 626      | LZMA compressed data format                    | application/x-lzma                | LZMA      | adENCAPSULATION |                       |
| True_Audio_Fmt            | 686    | 627      | True Audio format                              | audio/x-tta                       | TTA       | adSOUND         |                       |
| Keepass_Fmt               | 687    | 628      | Keepass Password file                          |                                   | KDB, KDBX | adMISC          |                       |
| RPM_Fmt                   | 688    | 629      | RPM Package Manager file                       | application/x-rpm                 | RPM       | adENCAPSULATION |                       |
| Printer_Font_Metrics_Fmt  | 689    | 630      | Adobe Printer Font Metrics format              | application/x-font-printer-metric | PFM       | adFONT          |                       |
| Adobe_Font_Metrics_Fmt    | 690    | 631      | Adobe Font Metrics ASCII format                | application/x-font-adobe-metric   | AFM       | adFONT          | <a href="#">afmsr</a> |
| Printer_Font_ASCII_Fmt    | 691    | 632      | Adobe Printer Font ASCII format                | application/x-font-type1          | PFA       | adFONT          | <a href="#">pfasr</a> |

| Format Name                        | Number | Category | Description                                            | MIME Type                         | Extension          | File Class       | Readers |
|------------------------------------|--------|----------|--------------------------------------------------------|-----------------------------------|--------------------|------------------|---------|
| Netware_Loadable_Module_Fmt        | 692    | 633      | Netware Loadable Module format                         |                                   | NLM                | adMISC           |         |
| TCPdump_pcap_Fmt                   | 693    | 634      | TCPdump packet stream capture savefile format          | application/vnd.tcpdump.pcap      | PCAP               | adMISC           |         |
| Multiple_Master_Font_Fmt           | 694    | 635      | Adobe Multiple master font format                      |                                   | MMM                | adFONT           |         |
| TrueType_Font_Collection_Fmt       | 695    | 636      | TrueType font collection format                        | application/x-font-ttf            | TTC                | adFONT           |         |
| Shapefile_Spatial_Index_Fmt        | 696    | 637      | Shapefile binary spatial index format                  | application/x-shapefile           | SBX, SBN           | adGIS            |         |
| Java_Key_Store_Fmt                 | 697    | 638      | Java Key Store format                                  | application/x-java-keystore       | KS                 | adMISC           |         |
| Java_JCE_Key_Store_Fmt             | 698    | 639      | Java JCE Key Store format                              | application/x-java-jce-keystore   |                    | adMISC           |         |
| Quark_Xpress_Intel_Fmt             | 699    | 640      | QuarkXPress Intel format                               | application/vnd.quark.quarkxpress | QXB                | adDESKTOPPUBLISH |         |
| Windows_Imaging_Fmt                | 700    | 641      | Microsoft Windows Imaging Format WIM                   |                                   | WIM                | adENCAPSULATION  |         |
| VMware_Virtual_Disk_Fmt            | 701    | 642      | VMware Virtual Disk Format 5.0                         | application/x-vmrk                | VMDK               | adMISC           |         |
| XPConnect_Typelib_Fmt              | 702    | 643      | XPConnect Typelib Format                               |                                   | XPT                | adMISC           |         |
| MS_DOS_Compression_Fmt             | 703    | 644      | Microsoft MS-DOS installation compression (SZDD, KWAJ) | application/x-ms-compress         | EX_                | adENCAPSULATION  |         |
| DLS_Fmt                            | 704    | 645      | DLS Downloadable Sounds format                         |                                   | DLS                | adSOUND          |         |
| MS_Windows_Registry_Fmt            | 705    | 646      | Microsoft Windows Registry format                      |                                   |                    | adMISC           |         |
| Microsoft_Help_2_Fmt               | 706    | 647      | Microsoft Help 2.0 format                              | application/x-ms-reader           | HXD, HXW, HXH      | adENCAPSULATION  |         |
| Qt_Translation_Fmt                 | 707    | 648      | Qt binary translation file format                      |                                   | QM                 | adMISC           |         |
| PEM_SSL_Certificate_Fmt            | 708    | 649      | PEM-encoded SSL certificate                            | application/pkix-cert             | CRT, PEM, CER, KEY | adENCAPSULATION  |         |
| PostScript_Printer_Description_Fmt | 709    | 650      | Adobe PostScript Printer Description file              | application/vnd.cups-ppd          | PPD                | adMISC           |         |
| Speedo_Font_Fmt                    | 710    | 651      | Speedo Font format                                     |                                   | SPD                | adFONT           |         |

| Format Name                 | Number | Category | Description                                | MIME Type                    | Extension | File Class      | Readers |
|-----------------------------|--------|----------|--------------------------------------------|------------------------------|-----------|-----------------|---------|
| InstallShield_Cabinet_Fmt   | 711    | 652      | InstallShield Cabinet Archive format       |                              | CAB, HDR  | adENCAPSULATION |         |
| InstallShield_Uninstall_Fmt | 712    | 653      | InstallShield Uninstall format             |                              | ISU       | adENCAPSULATION |         |
| MS_OEDBX_Folder_Fmt         | 713    | 654      | Outlook Express DBX folder database format |                              | DBX       | adENCAPSULATION |         |
| LabVIEW_Fmt                 | 714    | 655      | National Instruments LabVIEW file format   |                              | VI        | adMISC          |         |
| SAP_Archive_SAR_Fmt         | 715    | 656      | SAP compression archive SAR format         |                              | SAR       | adENCAPSULATION |         |
| Netscape_Address_Book_Fmt   | 716    | 657      | Netscape Address Book format               |                              | NAB       | adMISC          |         |
| Universal_3D_Fmt            | 717    | 658      | Universal 3D file format                   |                              | U3D       | adVECTORGRAPHIC |         |
| Open_Inventor_ASCII_Fmt     | 718    | 659      | Open Inventor ASCII format                 |                              | IV        | adVECTORGRAPHIC |         |
| Open_Inventor_Binary_Fmt    | 719    | 660      | Open Inventor Binary format                |                              | IV        | adVECTORGRAPHIC |         |
| X_Window_Dump_Fmt           | 720    | 661      | X Window Dump image                        | image/x-xwindowdump          | XWD       | adRASTERIMAGE   |         |
| Git_Packfile_Fmt            | 721    | 662      | Git Packfile format                        |                              | PACK      | adENCAPSULATION |         |
| Xara_Xar_Fmt                | 722    | 663      | Xara X Xar image format                    | application/vnd.xara         | XAR       | adVECTORGRAPHIC |         |
| Internet_Archive_ARC_Fmt    | 723    | 664      | Internet Archive ARC format                | application/x-ia-arc         | ARC       | adENCAPSULATION |         |
| Applix_Builder_Fmt          | 724    | 665      | Applix Builder format                      |                              | AB        | adMISC          |         |
| Applix_Bitmap_Fmt           | 725    | 666      | Applix Bitmap image format                 |                              | IM        | adRASTERIMAGE   |         |
| PEM_RSA_Private_Key_Fmt     | 726    | 667      | PEM-encoded RSA private key                |                              | PEM       | adENCAPSULATION |         |
| MIFF_Fmt                    | 727    | 668      | Magick Image File Format                   |                              | MIF, MIFF | adRASTERIMAGE   |         |
| Subversion_Dump_Fmt         | 728    | 669      | Subversion Dump format                     |                              |           | adENCAPSULATION |         |
| Virtual_Hard_Disk_Fmt       | 729    | 670      | Microsoft Virtual Hard Disk format         | application/x-vhd            | VHD       | adENCAPSULATION |         |
| Direct_Access_Archive_Fmt   | 730    | 671      | PowerISO Direct Access Archive format      |                              | DAA       | adENCAPSULATION |         |
| Debian_Binary_Fmt           | 731    | 672      | Debian binary package                      | application/x-debian-package | DEB       | adENCAPSULATION |         |

| Format Name                       | Number | Category | Description                                 | MIME Type   | Extension | File Class   | Readers                |
|-----------------------------------|--------|----------|---------------------------------------------|-------------|-----------|--------------|------------------------|
|                                   |        |          | format                                      |             |           |              |                        |
| XUL_Fastload_Fmt                  | 732    | 673      | Mozilla XUL Fastload format                 |             | MFL       | adMISC       |                        |
| Nastran_OP2_Fmt                   | 733    | 674      | Nastran OP2 format                          |             | OP2       | adCAD        |                        |
| Binary_Logging_Fmt                | 734    | 675      | CAD Binary Logging Format                   |             | BLF       | adCAD        |                        |
| Measurement_Data_Fmt              | 735    | 676      | CAD Measurement Data Format                 |             | MDF       | adCAD        |                        |
| Abaqus_ODB_Fmt                    | 736    | 677      | Abaqus ODB Format                           |             | ODB       | adCAD        |                        |
| Open_Diagnostic_Data_Exchange_Fmt | 737    | 678      | Vector Open Diagnostic Data Exchange format |             | ODX       | adCAD        | <a href="#">xmlsr</a>  |
| Vector_ASCII_Fmt                  | 738    | 679      | Vector CAD ASCII ASC format                 |             | ASC       | adCAD        |                        |
| LSDYNA_State_Database_Fmt         | 739    | 680      | LS-DYNA State Database format               |             |           | adCAD        |                        |
| LSDYNA_Binary_Output_Fmt          | 740    | 681      | LS-DYNA binary output (binout) format       |             |           | adCAD        |                        |
| MS_Power_BI_Fmt                   | 741    | 682      | Microsoft Power BI Desktop format           |             | PBIX      | adANALYTICS  | <a href="#">pbixsr</a> |
| Tableau_Workbook_Fmt              | 742    | 683      | Tableau Workbook format                     |             | TWB       | adANALYTICS  | <a href="#">xmlsr</a>  |
| Tableau_Packaged_Workbook_Fmt     | 743    | 684      | Tableau Packaged Workbook format            |             | TWBX      | adANALYTICS  | <a href="#">unzip</a>  |
| Tableau_Extract_Fmt               | 744    | 685      | Tableau Extract format                      |             | TDE       | adANALYTICS  |                        |
| Tableau_Data_Source_Fmt           | 745    | 686      | Tableau Data Source format                  |             | TDS       | adANALYTICS  | <a href="#">xmlsr</a>  |
| Tableau_Packaged_Data_Source_Fmt  | 746    | 687      | Tableau Packaged Data Source format         |             | TDSX      | adANALYTICS  | <a href="#">unzip</a>  |
| Tableau_Preferences_Fmt           | 747    | 688      | Tableau Preferences format                  |             | TPS       | adANALYTICS  | <a href="#">xmlsr</a>  |
| Tableau_Map_Source_Fmt            | 748    | 689      | Tableau Map Source format                   |             | TMS       | adANALYTICS  | <a href="#">xmlsr</a>  |
| ABAP_Fmt                          | 749    | 690      | ABAP Source Code <sup>4</sup>               | text/x-abap | ABAP      | adSOURCECODE | <a href="#">afsr</a>   |
| AMPL_Fmt                          | 750    | 691      | AMPL Source Code <sup>4</sup>               |             | AMPL      | adSOURCECODE | <a href="#">afsr</a>   |
| APL_Fmt                           | 751    | 692      | APL Source Code <sup>4</sup>                |             | APL       | adSOURCECODE | <a href="#">afsr</a>   |

| Format Name          | Number | Category | Description                               | MIME Type               | Extension          | File Class   | Readers              |
|----------------------|--------|----------|-------------------------------------------|-------------------------|--------------------|--------------|----------------------|
| ASN1_Fmt             | 752    | 693      | ASN.1 Source Code <sup>4</sup>            |                         | ASN                | adSOURCECODE | <a href="#">afsr</a> |
| ATS_Fmt              | 753    | 694      | ATS Source Code <sup>4</sup>              |                         |                    | adSOURCECODE | <a href="#">afsr</a> |
| Agda_Fmt             | 754    | 695      | Agda Source Code <sup>4</sup>             | text/x-agda             | AGDA               | adSOURCECODE | <a href="#">afsr</a> |
| Alloy_Fmt            | 755    | 696      | Alloy Source Code <sup>4</sup>            | text/x-alloy            | ALS                | adSOURCECODE | <a href="#">afsr</a> |
| Apex_Fmt             | 756    | 697      | Apex Source Code <sup>4</sup>             |                         | CLS                | adSOURCECODE | <a href="#">afsr</a> |
| Arduino_Fmt          | 757    | 698      | Arduino Source Code <sup>4</sup>          | text/x-arduino          | INO                | adSOURCECODE | <a href="#">afsr</a> |
| AsciiDoc_Fmt         | 758    | 699      | AsciiDoc Source Code <sup>4</sup>         | text/x-asciidoc         | ASC                | adSOURCECODE | <a href="#">afsr</a> |
| AspectJ_Fmt          | 759    | 700      | AspectJ Source Code <sup>4</sup>          | text/x-aspectj          | AJ                 | adSOURCECODE | <a href="#">afsr</a> |
| Awk_Fmt              | 760    | 701      | Awk Source Code <sup>4</sup>              | text/x-awk              | AWK                | adSOURCECODE | <a href="#">afsr</a> |
| BlitzMax_Fmt         | 761    | 702      | BlitzMax Source Code <sup>4</sup>         | text/x-bmx              | BMX                | adSOURCECODE | <a href="#">afsr</a> |
| Bluespec_Fmt         | 762    | 703      | Bluespec Source Code <sup>4</sup>         |                         | BSV                | adSOURCECODE | <a href="#">afsr</a> |
| Brainfuck_Fmt        | 763    | 704      | Brainfuck Source Code <sup>4</sup>        | text/x-brainfuck        | B, BF              | adSOURCECODE | <a href="#">afsr</a> |
| Brightscript_Fmt     | 764    | 705      | Brightscript Source Code <sup>4</sup>     |                         | BRS                | adSOURCECODE | <a href="#">afsr</a> |
| CLIPS_Fmt            | 765    | 706      | CLIPS Source Code <sup>4</sup>            |                         | CLP                | adSOURCECODE | <a href="#">afsr</a> |
| CMake_Fmt            | 766    | 707      | CMake Source Code <sup>4</sup>            | text/x-cmake            | CMAKE              | adSOURCECODE | <a href="#">afsr</a> |
| COBOL_Fmt            | 767    | 708      | COBOL Source Code <sup>4</sup>            | text/x-cobol            | CBL, CCP, COB, CPY | adSOURCECODE | <a href="#">afsr</a> |
| CWeb_Fmt             | 768    | 709      | CWeb Source Code <sup>4</sup>             |                         | W                  | adSOURCECODE | <a href="#">afsr</a> |
| CartoCSS_Fmt         | 769    | 710      | CartoCSS Source Code <sup>4</sup>         |                         | MSS                | adSOURCECODE | <a href="#">afsr</a> |
| Ceylon_Fmt           | 770    | 711      | Ceylon Source Code <sup>4</sup>           | text/x-ceylon           | CEYLON             | adSOURCECODE | <a href="#">afsr</a> |
| Chapel_Fmt           | 771    | 712      | Chapel Source Code <sup>4</sup>           |                         | CHPL               | adSOURCECODE | <a href="#">afsr</a> |
| Clarion_Fmt          | 772    | 713      | Clarion Source Code <sup>4</sup>          |                         | CLW                | adSOURCECODE | <a href="#">afsr</a> |
| Clean_Fmt            | 773    | 714      | Clean Source Code <sup>4</sup>            |                         | DCL, ICL           | adSOURCECODE | <a href="#">afsr</a> |
| Component_Pascal_Fmt | 774    | 715      | Component Pascal Source Code <sup>4</sup> | text/x-component-pascal | CP                 | adSOURCECODE | <a href="#">afsr</a> |
| Cool_Fmt             | 775    | 716      | Cool Source Code <sup>4</sup>             |                         | CL                 | adSOURCECODE | <a href="#">afsr</a> |
| Coq_Fmt              | 776    | 717      | Coq Source Code <sup>4</sup>              | text/x-coq              | V                  | adSOURCECODE | <a href="#">afsr</a> |
| Creole_Fmt           | 777    | 718      | Creole Source Code <sup>4</sup>           |                         | CREOLE             | adSOURCECODE | <a href="#">afsr</a> |
| Crystal_Fmt          | 778    | 719      | Crystal Source Code <sup>4</sup>          |                         | CR                 | adSOURCECODE | <a href="#">afsr</a> |
| Csound_Fmt           | 779    | 720      | Csound Source Code <sup>4</sup>           |                         | ORC                | adSOURCECODE | <a href="#">afsr</a> |

| Format Name                  | Number | Category | Description                                       | MIME Type            | Extension  | File Class   | Readers              |
|------------------------------|--------|----------|---------------------------------------------------|----------------------|------------|--------------|----------------------|
| Csound_Document_Fmt          | 780    | 721      | Csound Document Source Code <sup>4</sup>          |                      | CSD        | adSOURCECODE | <a href="#">afsr</a> |
| Cuda_Fmt                     | 781    | 722      | Cuda Source Code <sup>4</sup>                     | text/x-cuda          | CU         | adSOURCECODE | <a href="#">afsr</a> |
| D_Fmt                        | 782    | 723      | D Source Code <sup>4</sup>                        | text/x-d             | DCL, ICL   | adSOURCECODE | <a href="#">afsr</a> |
| DIGITAL_Command_Language_Fmt | 783    | 724      | DIGITAL Command Language Source Code <sup>4</sup> |                      | COM        | adSOURCECODE | <a href="#">afsr</a> |
| DTrace_Fmt                   | 784    | 725      | DTrace Source Code <sup>4</sup>                   |                      | D          | adSOURCECODE | <a href="#">afsr</a> |
| Dart_Fmt                     | 785    | 726      | Dart Source Code <sup>4</sup>                     | text/x-dart          | DART       | adSOURCECODE | <a href="#">afsr</a> |
| E_Fmt                        | 786    | 727      | E Source Code <sup>4</sup>                        |                      | E          | adSOURCECODE | <a href="#">afsr</a> |
| ECL_Fmt                      | 787    | 728      | ECL Source Code <sup>4</sup>                      | application/x-ecl    | ECL        | adSOURCECODE | <a href="#">afsr</a> |
| Elm_Fmt                      | 788    | 729      | Elm Source Code <sup>4</sup>                      | text/x-elm           | ELM        | adSOURCECODE | <a href="#">afsr</a> |
| Emacs_Lisp_Fmt               | 789    | 730      | Emacs Lisp Source Code <sup>4</sup>               | text/x-emacs-lisp    | EL         | adSOURCECODE | <a href="#">afsr</a> |
| EmberScript_Fmt              | 790    | 731      | EmberScript Source Code <sup>4</sup>              |                      | EM         | adSOURCECODE | <a href="#">afsr</a> |
| Fantom_Fmt                   | 791    | 732      | Fantom Source Code <sup>4</sup>                   | application/x-fantom | FAN        | adSOURCECODE | <a href="#">afsr</a> |
| Forth_Fmt                    | 792    | 733      | Forth Source Code <sup>4</sup>                    | text/x-forth         | FOR, FORTH | adSOURCECODE | <a href="#">afsr</a> |
| FreeMarker_Fmt               | 793    | 734      | FreeMarker Source Code <sup>4</sup>               |                      | FTL        | adSOURCECODE | <a href="#">afsr</a> |
| Frege_Fmt                    | 794    | 735      | Frege Source Code <sup>4</sup>                    |                      | FR         | adSOURCECODE | <a href="#">afsr</a> |
| G_code_Fmt                   | 795    | 736      | G-code Source Code <sup>4</sup>                   |                      | G          | adSOURCECODE | <a href="#">afsr</a> |
| GAMS_Fmt                     | 796    | 737      | GAMS Source Code <sup>4</sup>                     |                      | GMS        | adSOURCECODE | <a href="#">afsr</a> |
| GAP_Fmt                      | 797    | 738      | GAP Source Code <sup>4</sup>                      |                      |            | adSOURCECODE | <a href="#">afsr</a> |
| GDScript_Fmt                 | 798    | 739      | GDScript Source Code <sup>4</sup>                 |                      | GD         | adSOURCECODE | <a href="#">afsr</a> |
| GLSL_Fmt                     | 799    | 740      | GLSL Source Code <sup>4</sup>                     | text/x-glslsrc       | GLSL       | adSOURCECODE | <a href="#">afsr</a> |
| Game_Maker_Language_Fmt      | 800    | 741      | Game Maker Language Source Code <sup>4</sup>      |                      | GML        | adSOURCECODE | <a href="#">afsr</a> |
| Gnuplot_Fmt                  | 801    | 742      | Gnuplot Source Code <sup>4</sup>                  | text/x-gnuplot       | GNU, GP    | adSOURCECODE | <a href="#">afsr</a> |
| Golo_Fmt                     | 802    | 743      | Golo Source Code <sup>4</sup>                     |                      | GOLO       | adSOURCECODE | <a href="#">afsr</a> |
| Gosu_Fmt                     | 803    | 744      | Gosu Source Code <sup>4</sup>                     | text/x-gosu          | GS         | adSOURCECODE | <a href="#">afsr</a> |
| Gradle_Fmt                   | 804    | 745      | Gradle Source Code <sup>4</sup>                   |                      | GRADLE     | adSOURCECODE | <a href="#">afsr</a> |
| GraphQL_Fmt                  | 805    | 746      | GraphQL Source Code <sup>4</sup>                  |                      | GRAPHQL    | adSOURCECODE | <a href="#">afsr</a> |
| Graphviz_DOT_Fmt             | 806    | 747      | Graphviz (DOT) Source                             |                      | DOT        | adSOURCECODE | <a href="#">afsr</a> |



| Format Name         | Number | Category | Description                              | MIME Type         | Extension  | File Class   | Readers              |
|---------------------|--------|----------|------------------------------------------|-------------------|------------|--------------|----------------------|
|                     |        |          | Code <sup>4</sup>                        |                   |            |              |                      |
| HLSL_Fmt            | 807    | 748      | HLSL Source Code <sup>4</sup>            |                   | HLSL       | adSOURCECODE | <a href="#">afsr</a> |
| Hack_Fmt            | 808    | 749      | Hack Source Code <sup>4</sup>            |                   |            | adSOURCECODE | <a href="#">afsr</a> |
| HamI_Fmt            | 809    | 750      | HamI Source Code <sup>4</sup>            | text/x-haml       | HAML       | adSOURCECODE | <a href="#">afsr</a> |
| Handlebars_Fmt      | 810    | 751      | Handlebars Source Code <sup>4</sup>      |                   | HBS        | adSOURCECODE | <a href="#">afsr</a> |
| Hy_Fmt              | 811    | 752      | Hy Source Code <sup>4</sup>              | text/x-hy         | HY         | adSOURCECODE | <a href="#">afsr</a> |
| IDL_Fmt             | 812    | 753      | IDL Source Code <sup>4</sup>             | text/x-idl        | PRO        | adSOURCECODE | <a href="#">afsr</a> |
| IGOR_Pro_Fmt        | 813    | 754      | IGOR Pro Source Code <sup>4</sup>        | text/ipf          | IPF        | adSOURCECODE | <a href="#">afsr</a> |
| Idris_Fmt           | 814    | 755      | Idris Source Code <sup>4</sup>           | text/x-idris      | IDR        | adSOURCECODE | <a href="#">afsr</a> |
| Inform_7_Fmt        | 815    | 756      | Inform 7 Source Code <sup>4</sup>        |                   | I7X        | adSOURCECODE | <a href="#">afsr</a> |
| Ioke_Fmt            | 816    | 757      | Ioke Source Code <sup>4</sup>            | text/x-iokesrc    | IK         | adSOURCECODE | <a href="#">afsr</a> |
| Isabelle_Fmt        | 817    | 758      | Isabelle Source Code <sup>4</sup>        | text/x-isabelle   |            | adSOURCECODE | <a href="#">afsr</a> |
| J_Fmt               | 818    | 759      | J Source Code <sup>4</sup>               | text/x-j          | IJS        | adSOURCECODE | <a href="#">afsr</a> |
| JSONiq_Fmt          | 819    | 760      | JSONiq Source Code <sup>4</sup>          |                   | JQ         | adSOURCECODE | <a href="#">afsr</a> |
| JSX_Fmt             | 820    | 761      | JSX Source Code <sup>4</sup>             |                   | JSX        | adSOURCECODE | <a href="#">afsr</a> |
| Jasmin_Fmt          | 821    | 762      | Jasmin Source Code <sup>4</sup>          |                   | J          | adSOURCECODE | <a href="#">afsr</a> |
| Jolie_Fmt           | 822    | 763      | Jolie Source Code <sup>4</sup>           |                   |            | adSOURCECODE | <a href="#">afsr</a> |
| Julia_Fmt           | 823    | 764      | Julia Source Code <sup>4</sup>           | text/x-julia      | JL         | adSOURCECODE | <a href="#">afsr</a> |
| KiCad_Layout_Fmt    | 824    | 765      | KiCad Layout Source Code <sup>4</sup>    |                   |            | adSOURCECODE | <a href="#">afsr</a> |
| KiCad_Schematic_Fmt | 825    | 766      | KiCad Schematic Source Code <sup>4</sup> |                   | SCH        | adSOURCECODE | <a href="#">afsr</a> |
| Kotlin_Fmt          | 826    | 767      | Kotlin Source Code <sup>4</sup>          |                   | KT         | adSOURCECODE | <a href="#">afsr</a> |
| LFE_Fmt             | 827    | 768      | LFE Source Code <sup>4</sup>             | text/x-kotlin     | LFE        | adSOURCECODE | <a href="#">afsr</a> |
| LOLCODE_Fmt         | 828    | 769      | LOLCODE Source Code <sup>4</sup>         |                   | LOL        | adSOURCECODE | <a href="#">afsr</a> |
| Lasso_Fmt           | 829    | 770      | Lasso Source Code <sup>4</sup>           | text/x-lasso      | LAS, LASSO | adSOURCECODE | <a href="#">afsr</a> |
| Limbo_Fmt           | 830    | 771      | Limbo Source Code <sup>4</sup>           | text/limbo        |            | adSOURCECODE | <a href="#">afsr</a> |
| LiveScript_Fmt      | 831    | 772      | LiveScript Source Code <sup>4</sup>      | text/x-livescript | LS         | adSOURCECODE | <a href="#">afsr</a> |
| M_Fmt               | 832    | 773      | M Source Code <sup>4</sup>               |                   | M          | adSOURCECODE | <a href="#">afsr</a> |
| MAXScript_Fmt       | 833    | 774      | MAXScript Source Code <sup>4</sup>       |                   | MS         | adSOURCECODE | <a href="#">afsr</a> |

| Format Name         | Number | Category | Description                              | MIME Type         | Extension | File Class   | Readers              |
|---------------------|--------|----------|------------------------------------------|-------------------|-----------|--------------|----------------------|
| Markdown_Fmt        | 834    | 775      | Markdown Source Code <sup>4</sup>        |                   | MD        | adSOURCECODE | <a href="#">afsr</a> |
| Matlab_Fmt          | 835    | 463      | Matlab Source Code <sup>4</sup>          | text/x-matlab     | M         | adSOURCECODE | <a href="#">afsr</a> |
| Max_Code_Fmt        | 836    | 776      | Max Source Code <sup>4</sup>             |                   | MXT       | adSOURCECODE | <a href="#">afsr</a> |
| Mercury_Fmt         | 837    | 777      | Mercury Source Code <sup>4</sup>         |                   |           | adSOURCECODE | <a href="#">afsr</a> |
| Modelica_Fmt        | 838    | 778      | Modelica Source Code <sup>4</sup>        | text/x-modelica   | MO        | adSOURCECODE | <a href="#">afsr</a> |
| Modula_2_Fmt        | 839    | 779      | Modula-2 Source Code <sup>4</sup>        | text/x-modula2    | MOD       | adSOURCECODE | <a href="#">afsr</a> |
| Monkey_Fmt          | 840    | 780      | Monkey Source Code <sup>4</sup>          | text/x-monkey     | MONKEY    | adSOURCECODE | <a href="#">afsr</a> |
| Moocode_Fmt         | 841    | 781      | Moocode Source Code <sup>4</sup>         | text/x-moocode    | MOO       | adSOURCECODE | <a href="#">afsr</a> |
| NL_Fmt              | 842    | 782      | NL Source Code <sup>4</sup>              |                   | NL        | adSOURCECODE | <a href="#">afsr</a> |
| NSIS_Fmt            | 843    | 783      | NSIS Source Code <sup>4</sup>            | text/x-nsis       | NSI       | adSOURCECODE | <a href="#">afsr</a> |
| NetLogo_Fmt         | 844    | 784      | NetLogo Source Code <sup>4</sup>         |                   | NLOGO     | adSOURCECODE | <a href="#">afsr</a> |
| NewLisp_Fmt         | 845    | 785      | NewLisp Source Code <sup>4</sup>         | text/x-newlisp    | NL        | adSOURCECODE | <a href="#">afsr</a> |
| Nginx_Fmt           | 846    | 786      | Nginx Source Code <sup>4</sup>           | text/x-nginx-conf | VHOST     | adSOURCECODE | <a href="#">afsr</a> |
| Nix_Fmt             | 847    | 787      | Nix Source Code <sup>4</sup>             | text/x-nix        | NIX       | adSOURCECODE | <a href="#">afsr</a> |
| Nu_Fmt              | 848    | 788      | Nu Source Code <sup>4</sup>              |                   | NU        | adSOURCECODE | <a href="#">afsr</a> |
| OCaml_Fmt           | 849    | 789      | OCaml Source Code <sup>4</sup>           | text/x-ocaml      |           | adSOURCECODE | <a href="#">afsr</a> |
| OpenCL_Fmt          | 850    | 790      | OpenCL Source Code <sup>4</sup>          |                   | CL        | adSOURCECODE | <a href="#">afsr</a> |
| OpenEdge_ABL_Fmt    | 851    | 791      | OpenEdge ABL Source Code <sup>4</sup>    | text/x-openedge   |           | adSOURCECODE | <a href="#">afsr</a> |
| OpenSCAD_Fmt        | 852    | 792      | OpenSCAD Source Code <sup>4</sup>        |                   | SCAD      | adSOURCECODE | <a href="#">afsr</a> |
| Ox_Fmt              | 853    | 793      | Ox Source Code <sup>4</sup>              |                   | OX        | adSOURCECODE | <a href="#">afsr</a> |
| Oxygene_Fmt         | 854    | 794      | Oxygene Source Code <sup>4</sup>         |                   | OXYGENE   | adSOURCECODE | <a href="#">afsr</a> |
| Oz_Fmt              | 855    | 795      | Oz Source Code <sup>4</sup>              |                   | OZ        | adSOURCECODE | <a href="#">afsr</a> |
| PAWN_Fmt            | 856    | 796      | PAWN Source Code <sup>4</sup>            | text/x-pawn       | PWN       | adSOURCECODE | <a href="#">afsr</a> |
| PLpgSQL_Fmt         | 857    | 797      | PLpgSQL Source Code <sup>4</sup>         | text/x-plpgsql    | PLSQL     | adSOURCECODE | <a href="#">afsr</a> |
| Pan_Fmt             | 858    | 798      | Pan Source Code <sup>4</sup>             |                   | PAN       | adSOURCECODE | <a href="#">afsr</a> |
| Parrot_Assembly_Fmt | 859    | 799      | Parrot Assembly Source Code <sup>4</sup> |                   | PASM      | adSOURCECODE | <a href="#">afsr</a> |
| PicoLisp_Fmt        | 860    | 800      | PicoLisp Source Code <sup>4</sup>        |                   |           | adSOURCECODE | <a href="#">afsr</a> |
| Pike_Fmt            | 861    | 801      | Pike Source Code <sup>4</sup>            | text/x-pike       | PIKE      | adSOURCECODE | <a href="#">afsr</a> |

| Format Name        | Number | Category | Description                             | MIME Type                | Extension  | File Class   | Readers              |
|--------------------|--------|----------|-----------------------------------------|--------------------------|------------|--------------|----------------------|
| Pony_Fmt           | 862    | 802      | Pony Source Code <sup>4</sup>           |                          | PONY       | adSOURCECODE | <a href="#">afsr</a> |
| Processing_Fmt     | 863    | 803      | Processing Source Code <sup>4</sup>     |                          | PDE        | adSOURCECODE | <a href="#">afsr</a> |
| PureBasic_Fmt      | 864    | 804      | PureBasic Source Code <sup>4</sup>      |                          | PB         | adSOURCECODE | <a href="#">afsr</a> |
| QMake_Fmt          | 865    | 805      | QMake File <sup>4</sup>                 |                          |            | adSOURCECODE | <a href="#">afsr</a> |
| RAML_Fmt           | 866    | 806      | RAML Source Code <sup>4</sup>           |                          | RAML       | adSOURCECODE | <a href="#">afsr</a> |
| RDoc_Fmt           | 867    | 807      | RDoc Source Code <sup>4</sup>           |                          | RDOC       | adSOURCECODE | <a href="#">afsr</a> |
| REXX_Fmt           | 868    | 808      | REXX Source Code <sup>4</sup>           | text/x-rexx              | REXX       | adSOURCECODE | <a href="#">afsr</a> |
| Racket_Fmt         | 869    | 809      | Racket Source Code <sup>4</sup>         | text/x-racket            |            | adSOURCECODE | <a href="#">afsr</a> |
| Ragel_Fmt          | 870    | 810      | Ragel Source Code <sup>4</sup>          |                          |            | adSOURCECODE | <a href="#">afsr</a> |
| Rascal_Fmt         | 871    | 811      | Rascal Source Code <sup>4</sup>         |                          | RSC        | adSOURCECODE | <a href="#">afsr</a> |
| Rebol_Fmt          | 872    | 812      | Rebol Source Code <sup>4</sup>          | text/x-rebol             | REB, REBOL | adSOURCECODE | <a href="#">afsr</a> |
| Red_Fmt            | 873    | 813      | Red Source Code <sup>4</sup>            | text/x-red               | RED        | adSOURCECODE | <a href="#">afsr</a> |
| RenPy_Fmt          | 874    | 814      | Ren'Py Source Code <sup>4</sup>         |                          | RPY        | adSOURCECODE | <a href="#">afsr</a> |
| RenderScript_Fmt   | 875    | 815      | RenderScript Source Code <sup>4</sup>   |                          | RS         | adSOURCECODE | <a href="#">afsr</a> |
| Ring_Fmt           | 876    | 816      | Ring Source Code <sup>4</sup>           |                          | RING       | adSOURCECODE | <a href="#">afsr</a> |
| RobotFramework_Fmt | 877    | 817      | RobotFramework Source Code <sup>4</sup> | text/x-robotframework    | ROBOT      | adSOURCECODE | <a href="#">afsr</a> |
| SAS_Fmt            | 878    | 818      | SAS Source Code <sup>4</sup>            |                          | SAS        | adSOURCECODE | <a href="#">afsr</a> |
| SPARQL_Fmt         | 879    | 819      | SPARQL format <sup>4</sup>              | application/sparql-query |            | adSOURCECODE | <a href="#">afsr</a> |
| SQL_Fmt            | 880    | 820      | SQL format <sup>4</sup>                 | text/x-sql               |            | adSOURCECODE | <a href="#">afsr</a> |
| SQLPL_Fmt          | 881    | 821      | SQLPL Source Code <sup>4</sup>          |                          |            | adSOURCECODE | <a href="#">afsr</a> |
| SaltStack_Fmt      | 882    | 822      | SaltStack Source Code <sup>4</sup>      |                          | SLS        | adSOURCECODE | <a href="#">afsr</a> |
| Scheme_Fmt         | 883    | 823      | Scheme Source Code <sup>4</sup>         | text/x-scheme            |            | adSOURCECODE | <a href="#">afsr</a> |
| Scilab_Fmt         | 884    | 824      | Scilab Source Code <sup>4</sup>         | text/scilab              | SCI        | adSOURCECODE | <a href="#">afsr</a> |
| Squirrel_Fmt       | 885    | 825      | Squirrel Source Code <sup>4</sup>       |                          | NUT        | adSOURCECODE | <a href="#">afsr</a> |
| Stan_Fmt           | 886    | 826      | Stan Source Code <sup>4</sup>           |                          | STAN       | adSOURCECODE | <a href="#">afsr</a> |
| Stata_Fmt          | 887    | 827      | Stata Source Code <sup>4</sup>          |                          |            | adSOURCECODE | <a href="#">afsr</a> |
| Stylus_Fmt         | 888    | 828      | Stylus Source Code <sup>4</sup>         |                          | STYL       | adSOURCECODE | <a href="#">afsr</a> |

| Format Name           | Number | Category | Description                               | MIME Type                 | Extension | File Class      | Readers               |
|-----------------------|--------|----------|-------------------------------------------|---------------------------|-----------|-----------------|-----------------------|
| SuperCollider_Fmt     | 889    | 829      | SuperCollider Source Code <sup>4</sup>    | text/supercollider        | SC        | adSOURCECODE    | <a href="#">afsr</a>  |
| SystemVerilog_Fmt     | 890    | 830      | SystemVerilog Source Code <sup>4</sup>    | text/x-systemverilog      | SV        | adSOURCECODE    | <a href="#">afsr</a>  |
| TXL_Fmt               | 891    | 831      | TXL Source Code <sup>4</sup>              |                           | TXL       | adSOURCECODE    | <a href="#">afsr</a>  |
| Turing_Fmt            | 892    | 832      | Turing Source Code <sup>4</sup>           |                           | T         | adSOURCECODE    | <a href="#">afsr</a>  |
| Turtle_Fmt            | 893    | 833      | Turtle Source Code <sup>4</sup>           | text/turtle               | TTL       | adSOURCECODE    | <a href="#">afsr</a>  |
| UrWeb_Fmt             | 894    | 834      | UrWeb Source Code <sup>4</sup>            |                           | UR, URS   | adSOURCECODE    | <a href="#">afsr</a>  |
| Vim_script_Fmt        | 895    | 835      | Vim script File <sup>4</sup>              | text/x-vim                | VIM       | adSOURCECODE    | <a href="#">afsr</a>  |
| Visual_Basic_Fmt      | 896    | 836      | Visual Basic Source Code <sup>4</sup>     | text/x-vbasic             | VB        | adSOURCECODE    | <a href="#">afsr</a>  |
| WebAssembly_Fmt       | 897    | 837      | WebAssembly Source Code <sup>4</sup>      |                           | WAT       | adSOURCECODE    | <a href="#">afsr</a>  |
| WebIDL_Fmt            | 898    | 838      | WebIDL Source Code <sup>4</sup>           |                           | WEBIDL    | adSOURCECODE    | <a href="#">afsr</a>  |
| X10_Fmt               | 899    | 839      | X10 Source Code <sup>4</sup>              | text/x-x10                | X10       | adSOURCECODE    | <a href="#">afsr</a>  |
| XQuery_Fmt            | 900    | 840      | XQuery Source Code <sup>4</sup>           | text/xquery               | XQM       | adSOURCECODE    | <a href="#">afsr</a>  |
| Xojo_Fmt              | 901    | 841      | Xojo Source Code <sup>4</sup>             |                           |           | adSOURCECODE    | <a href="#">afsr</a>  |
| Xtend_Fmt             | 902    | 842      | Xtend Source Code <sup>4</sup>            | text/x-xtend              | XTEND     | adSOURCECODE    | <a href="#">afsr</a>  |
| YANG_Fmt              | 903    | 843      | YANG Source Code <sup>4</sup>             |                           | YANG      | adSOURCECODE    | <a href="#">afsr</a>  |
| Zephir_Fmt            | 904    | 844      | Zephir Source Code <sup>4</sup>           |                           | ZEP       | adSOURCECODE    | <a href="#">afsr</a>  |
| eC_Fmt                | 905    | 845      | eC Source Code <sup>4</sup>               | text/x-ecsrc              | EC        | adSOURCECODE    | <a href="#">afsr</a>  |
| reStructuredText_Fmt  | 906    | 846      | reStructuredText Source Code <sup>4</sup> | text/x-rst                |           | adSOURCECODE    | <a href="#">afsr</a>  |
| xBase_Fmt             | 907    | 847      | xBase Source Code <sup>4</sup>            |                           |           | adSOURCECODE    | <a href="#">afsr</a>  |
| Windows_Installer_Fmt | 908    | 848      | MSI Windows Installer format              | application/x-ole-storage | MSI       | adENCAPSULATION | <a href="#">olesr</a> |
| Autodesk_3ds_Max_Fmt  | 909    | 849      | Autodesk 3ds Max format                   |                           | MAX       | adCAD           | <a href="#">olesr</a> |
| PhotoDraw_Mix_Fmt     | 910    | 850      | PhotoDraw MIX image                       | image/vnd.mix             | MIX       | adRASTERIMAGE   | <a href="#">olesr</a> |
| Softimage_SCN_Fmt     | 911    | 851      | Softimage Scene SCN format                |                           | SCN       | adCAD           |                       |
| Parasolid_XT_Fmt      | 912    | 852      | Parasolid ascii XT format                 |                           | X_T       | adCAD           |                       |
| Parasolid_XB_Fmt      | 913    | 853      | Parasolid binary XB format                |                           | X_B       | adCAD           |                       |

| Format Name                       | Number | Category | Description                                      | MIME Type                                     | Extension | File Class      | Readers                 |
|-----------------------------------|--------|----------|--------------------------------------------------|-----------------------------------------------|-----------|-----------------|-------------------------|
| IGES_Fmt                          | 914    | 854      | Initial Graphics Exchange Specification format   | model/iges                                    | IGS       | adCAD           |                         |
| ACE_Archive_Fmt                   | 915    | 855      | ACE archive format                               | application/x-ace-compressed                  | ACE       | adENCAPSULATION |                         |
| Grasshopper_GHX_Fmt               | 916    | 856      | Grasshopper GHX format                           |                                               | GHX       | adCAD           | <a href="#">xmlsr</a>   |
| MS_FrontPage_Macro_Fmt            | 917    | 857      | Microsoft FrontPage macro file format            |                                               | FPM       | adWORDPROCESSOR |                         |
| MS_AtWork_Fax_Fmt                 | 918    | 858      | Microsoft AtWork Fax format                      |                                               | AWD       | adFAXFORMAT     | <a href="#">olesr</a>   |
| MS_Image_Composer_Fmt             | 919    | 859      | Microsoft Image Composer format                  |                                               | MIC       | adRASTERIMAGE   |                         |
| MS_Visual_InterDev_Fmt            | 920    | 860      | Microsoft Visual InterDev web project items file |                                               | WDM       | adSWDEV         |                         |
| Macromedia_Flash_FLA_OLE_Fmt      | 921    | 861      | Macromedia Flash FLA Project File OLE format     |                                               | FLA       | adWORDPROCESSOR |                         |
| Corel_Draw_X4_Fmt                 | 922    | 862      | CorelDRAW version X4 onwards                     | application/x-vnd.corel.zcf.draw.document+zip | CDRX      | adVECTORGRAPHIC |                         |
| Ogg_Daala_Fmt                     | 923    | 863      | Ogg Daala video format                           | video/daala                                   | OGV       | adMOVIE         |                         |
| Ogg_BBC_Dirac_Fmt                 | 924    | 864      | Ogg BBC Dirac video format                       | video/x-dirac                                 | OGV       | adMOVIE         |                         |
| PKCS_7_Fmt                        | 925    | 865      | PKCS #7 cryptographic format                     | application/pkcs7-signature                   | P7S       | adENCAPSULATION | <a href="#">pkcs7sr</a> |
| Time_Stamped_Data_Fmt             | 926    | 866      | Time-stamped data format                         | application/timestamped-data                  | TSD       | adENCAPSULATION |                         |
| Sereal_Fmt                        | 927    | 867      | Sereal data serialization format                 | application/sereal                            | SRL       | adMISC          |                         |
| Associated_Signature_Simple_Fmt   | 928    | 868      | Associated Signature Container Simple format     | application/vnd.etsi.asic-s+zip               | ASICS     | adENCAPSULATION |                         |
| Associated_Signature_Extended_Fmt | 929    | 869      | Associated Signature Container Extended format   | application/vnd.etsi.asic-e+zip               | ASICE     | adENCAPSULATION |                         |
| iBooks_Fmt                        | 930    | 870      | Apple iBooks format                              | application/x-ibooks+zip                      | IBOOKS    | adWORDPROCESSOR | <a href="#">epubsr</a>  |
| PDF_Forms_Data_Fmt                | 931    | 871      | PDF Forms Data Format                            | application/vnd.fdf                           | FDF       | adWORDPROCESSOR |                         |
| PDF_XML_Forms_Data_Fmt            | 932    | 872      | PDF XML Forms Data Format                        | application/vnd.adobe.xfdf                    | XFDF      | adWORDPROCESSOR | <a href="#">xmlsr</a>   |
| AxCrypt_Fmt                       | 933    | 873      | AxCrypt encrypted document                       | application/x-axcrypt                         | AXX       | adENCAPSULATION |                         |

| Format Name                 | Number | Category | Description                                                          | MIME Type                    | Extension  | File Class      | Readers |
|-----------------------------|--------|----------|----------------------------------------------------------------------|------------------------------|------------|-----------------|---------|
| Unix_Archive_Fmt            | 934    | 874      | Unix Archive ar format                                               | application/x-archive        | AR         | adENCAPSULATION |         |
| Berkeley_Btree_Database_Fmt | 935    | 875      | Berkeley DB btree database format                                    | application/x-berkeley-db    | DB         | adDATABASE      |         |
| Berkeley_Hash_Database_Fmt  | 936    | 876      | Berkeley DB hash database format                                     | application/x-berkeley-db    | DB         | adDATABASE      |         |
| Berkeley_Log_Database_Fmt   | 937    | 877      | Berkeley DB log database format                                      | application/x-berkeley-db    |            | adDATABASE      |         |
| Berkeley_Queue_Database_Fmt | 938    | 878      | Berkeley DB queue database format                                    | application/x-berkeley-db    |            | adDATABASE      |         |
| BitTorrent_Fmt              | 939    | 879      | BitTorrent file format                                               | application/x-bittorrent     | TORRENT    | adMISC          |         |
| Chrome_Extension_Fmt        | 940    | 880      | Google Chrome Extension format                                       | application/x-chrome-package | CRX        | adENCAPSULATION |         |
| Dalvik_Executable_Fmt       | 941    | 881      | Dalvik Executable dex format                                         | application/x-dex            | DEX        | adEXECUTABLE    |         |
| Foxmail_Fmt                 | 942    | 882      | Foxmail email format                                                 | application/x-foxmail        | BOX        | adWORDPROCESSOR |         |
| GRIB_Fmt                    | 943    | 883      | General Regularly-distributed Information in Binary form GRIB format | application/x-grib           | GRB, GRIB2 | adSCIENTIFIC    |         |
| Zstandard_Fmt               | 944    | 884      | Zstandard compression format                                         | application/zstd             | ZSTD       | adENCAPSULATION |         |
| LZ4_Fmt                     | 945    | 885      | LZ4 compressed file                                                  | application/x-lz4            | LZ4        | adENCAPSULATION |         |
| MS_Money_Fmt                | 946    | 886      | Microsoft Money format                                               | application/x-msmoney        | MNY        | adSPREADSHEET   |         |
| NetCDF_Fmt                  | 947    | 887      | Network Common Data Form NetCDF format                               | application/x-netcdf         | NC         | adMISC          |         |
| SAS6_Data_Fmt               | 948    | 888      | SAS 6 Data storage format                                            | application/x-sas-data-v6    | SD2        | adDATABASE      |         |
| SAS_Transport_Fmt           | 949    | 889      | SAS Transport File XPORT format                                      | application/x-sas-xport      | XPT, XPORT | adDATABASE      |         |
| Snappy_Framed_Fmt           | 950    | 890      | Snappy Framed compression format                                     | application/x-snappy-framed  | SZ         | adENCAPSULATION |         |
| Stata_Data_Fmt              | 951    | 891      | Stata Data Format                                                    | application/x-stata-dta      | DTA        | adDATABASE      |         |
| SPSS_SAV_Fmt                | 952    | 892      | SPSS Statistics Data File Format                                     |                              | SAV        | adDATABASE      |         |
| Zoo_Archive_Fmt             | 953    | 893      | Zoo Compressed Archive Format                                        | application/x-zoo            | ZOO        | adENCAPSULATION |         |

| Format Name                   | Number | Category | Description                                         | MIME Type                     | Extension     | File Class      | Readers               |
|-------------------------------|--------|----------|-----------------------------------------------------|-------------------------------|---------------|-----------------|-----------------------|
| CDX_Fmt                       | 954    | 894      | ChemDraw CDX format                                 | chemical/x-cdx                | CDX           | adSCIENTIFIC    |                       |
| CDXML_Fmt                     | 955    | 895      | ChemDraw CDXML format                               | application/vnd.chemdraw+xml  | CDXML         | adSCIENTIFIC    | <a href="#">xmlsr</a> |
| BPG_Fmt                       | 956    | 896      | Better Portable Graphics BPG format                 | image/x-bpg                   | BPG           | adRASTERIMAGE   |                       |
| Apple_Icon_Fmt                | 957    | 897      | Apple Icon image format                             | image/icns                    | ICNS          | adRASTERIMAGE   |                       |
| NITF_Fmt                      | 958    | 898      | National Imagery Transmission Format NITF image     | image/nitf                    | NTF, NITF     | adRASTERIMAGE   |                       |
| ERDAS_Imagine_Fmt             | 959    | 899      | ERDAS Imagine image format                          | application/x-erdas-hfa       | HFA, RRD, AUX | adRASTERIMAGE   |                       |
| MS_Office_Temporary_Owner_Fmt | 960    | 900      | Microsoft Office temporary owner file               | application/x-ms-owner        |               | adMISC          |                       |
| EAC3_Audio_Fmt                | 961    | 901      | Enhanced-AC3 (EAC3) Audio File format               | audio/eac3                    | AC3           | adSOUND         |                       |
| COFF_Relocatable_Fmt          | 962    | 902      | Common Object File Format (COFF) relocatable object | application/x-object-file     | O             | adOBJECTMODULE  |                       |
| COFF_Executable_Fmt           | 963    | 903      | Common Object File Format (COFF) executable         | application/x-executable-file |               | adEXECUTABLE    |                       |
| COFF_Dynamic_Lib_Fmt          | 964    | 904      | Common Object File Format (COFF) dynamic library    | application/x-library-file    |               | adLIBRARY       |                       |
| ELF_Core_Fmt                  | 965    | 905      | ELF Core file                                       | application/x-core dump       |               | adMISC          |                       |
| Purify_Fmt                    | 966    | 906      | Rational Purify data file                           |                               | PFY           | adMISC          |                       |
| Kryptel_Fmt                   | 967    | 907      | Kryptel encrypted file                              |                               | EDC           | adENCAPSULATION |                       |
| Windows_Core_Dump_Fmt         | 968    | 908      | Windows heap or mini core dump file                 | application/x-dmp             | DMP           | adMISC          |                       |
| Qt_Prerendered_Font_Fmt       | 969    | 909      | Qt Prerendered Font format                          |                               | QPF2          | adFONT          |                       |
| AIX_Relocatable_Fmt           | 970    | 910      | AIX/RISC COFF relocatable object                    | application/x-object-file     |               | adOBJECTMODULE  |                       |
| AIX_Executable_Fmt            | 971    | 911      | AIX/RISC COFF executable                            | application/x-executable-file |               | adEXECUTABLE    |                       |

| Format Name                 | Number | Category | Description                                           | MIME Type                     | Extension | File Class      | Readers                 |
|-----------------------------|--------|----------|-------------------------------------------------------|-------------------------------|-----------|-----------------|-------------------------|
| AIX_Dynamic_Lib_Fmt         | 972    | 912      | AIX/RISC COFF dynamic library                         | application/x-library-file    | A         | adLIBRARY       |                         |
| HPUX_Relocatable_Fmt        | 973    | 913      | HPUX/PA-RISC COFF relocatable object                  | application/x-object-file     |           | adOBJECTMODULE  |                         |
| HPUX_Executable_Fmt         | 974    | 914      | HPUX/PA-RISC COFF executable                          | application/x-executable-file |           | adEXECUTABLE    |                         |
| HPUX_Dynamic_Lib_Fmt        | 975    | 915      | HPUX/PA-RISC COFF dynamic library                     | application/x-library-file    | SL        | adLIBRARY       |                         |
| XML_EBCDIC_Fmt              | 976    | 916      | EBCDIC-encoded XML file                               | application/xml               | XML       | adWORDPROCESSOR |                         |
| MPEG_JVT_H264_Fmt           | 977    | 917      | MPEG JVT-NAL sequence H264 video                      | video/h264                    | 264       | adMOVIE         |                         |
| Material_Exchange_Fmt       | 978    | 918      | Material Exchange Format audio-video container format | application/mxf               | MXF       | adMOVIE         |                         |
| MS_Agent_Character_Fmt      | 979    | 919      | Microsoft Agent Character file                        |                               | ACS       | adMOVIE         |                         |
| Quicken_Fmt                 | 980    | 920      | Quicken data file                                     |                               | QDF       | adMISC          |                         |
| MS_Outlook_Address_Fmt      | 981    | 921      | Microsoft Outlook address file                        |                               | WAB       | adMISC          |                         |
| MS_Answer_Wizard_Fmt        | 982    | 922      | Microsoft Answer Wizard file                          |                               |           | adMISC          |                         |
| ADX_Fmt                     | 983    | 923      | ADX audio file                                        |                               | ADX       | adSOUND         |                         |
| System_Deployment_Image_Fmt | 984    | 924      | Microsoft System Deployment Image SDI format          |                               | SDI       | adMISC          |                         |
| Free_Lossless_Image_Fmt     | 985    | 925      | Free Lossless Image Format (FLIF)                     | image/flif                    | FLIF      | adRASTERIMAGE   |                         |
| DPX_Fmt                     | 986    | 926      | Digital Picture Exchange (DPX) image format           | image/dpx                     | DPX       | adRASTERIMAGE   |                         |
| Avro_Fmt                    | 987    | 927      | Apache Avro binary format                             |                               | AVRO      | adMISC          | <a href="#">avrosr</a>  |
| InstallShield_Archive_Fmt   | 988    | 928      | InstallShield archive (early versions) format         |                               | EX_       | adENCAPSULATION |                         |
| Mac_Executable_Fmt          | 989    | 929      | Mac OS-X (Mach-O) executable format                   |                               |           | adEXECUTABLE    |                         |
| GDSII_Fmt                   | 990    | 930      | GDSII data format                                     |                               | GDS, GDS2 | adCAD           | <a href="#">gdsiisr</a> |



| Format Name             | Number | Category | Description                                                    | MIME Type                                   | Extension | File Class       | Readers               |
|-------------------------|--------|----------|----------------------------------------------------------------|---------------------------------------------|-----------|------------------|-----------------------|
| ActiveMime_Fmt          | 991    | 931      | Microsoft ActiveMime (mso) documents                           | application/x-mso                           | MSO       | adMISC           |                       |
| SmartCharts_Fmt         | 992    | 932      | BizInt SmartCharts data format                                 |                                             | CHP, CHRR | adMISC           |                       |
| Webex_ARF_Fmt           | 993    | 933      | Webex advanced network ARF recordings                          |                                             | ARF       | adMOVIE          |                       |
| Webex_WRF_Fmt           | 994    | 934      | Webex local WRF recordings                                     |                                             | WRF       | adMOVIE          |                       |
| PGP_NetShare_Fmt        | 995    | 935      | Symantec PGP NetShare encrypted file                           |                                             |           | adENCAPSULATION  |                       |
| Ability_WP_OLE_Fmt      | 996    | 936      | Ability Write later versions format                            |                                             | AWW       | adWORDPROCESSOR  | <a href="#">olesr</a> |
| Ability_SS_OLE_Fmt      | 997    | 937      | Ability Spreadsheet later versions format                      |                                             | AWS       | adSPREADSHEET    |                       |
| InDesign_IDML_Fmt       | 998    | 938      | Adobe InDesign IDML format                                     | application/vnd.adobe.indesign-idml-package | IDML      | adDESKTOPPUBLISH |                       |
| Executable_JAR_Fmt      | 999    | 939      | Executable Java Archive (jar) file                             | application/java-archive                    | JAR       | adENCAPSULATION  | <a href="#">unzip</a> |
| IDOL_IDX_Fmt            | 1000   | 940      | IDOL Server IDX file                                           |                                             | IDX       | adENCAPSULATION  |                       |
| Android_Package_Kit_Fmt | 1001   | 941      | Android Package Kit (APK) format                               | application/vnd.android.package-archive     | APK       | adEXECUTABLE     |                       |
| Android_Binary_XML_Fmt  | 1002   | 942      | Android Binary XML (compressed by aapt) format                 | application/xml                             | XML       | adWORDPROCESSOR  |                       |
| Java_WAR_Fmt            | 1003   | 943      | Java WAR file format                                           |                                             | WAR       | adENCAPSULATION  |                       |
| Java_EAR_Fmt            | 1004   | 944      | Java EAR file format                                           |                                             | EAR       | adENCAPSULATION  |                       |
| Atom_Syndication_Fmt    | 1005   | 945      | Atom Syndication Format                                        | application/atom+xml                        | ATOM      | adWORDPROCESSOR  | <a href="#">xmlsr</a> |
| RSS_Fmt                 | 1006   | 946      | RSS syndication XML format                                     | application/rss+xml                         | RSS       | adWORDPROCESSOR  | <a href="#">xmlsr</a> |
| SMIL_Fmt                | 1007   | 947      | Synchronized Multimedia Integration Language (SMIL) XML format | application/smil+xml                        | SMIL      | adWORDPROCESSOR  | <a href="#">xmlsr</a> |
| XSLT_Fmt                | 1008   | 948      | Extensible Stylesheet Language Transformations (XSLT) format   | application/xslt+xml                        | XSL, XSLT | adWORDPROCESSOR  | <a href="#">xmlsr</a> |

| Format Name                 | Number | Category | Description                                                   | MIME Type                      | Extension | File Class      | Readers               |
|-----------------------------|--------|----------|---------------------------------------------------------------|--------------------------------|-----------|-----------------|-----------------------|
| XML_Shareable_Playlist_Fmt  | 1009   | 949      | XML Shareable Playlist Format (XSPF)                          | application/xspf+xml           | XSPF      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| FictionBook_Fmt             | 1010   | 950      | FictionBook e-book XML format                                 | application/x-fictionbook+xml  | FB2       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Adobe_Premiere_Project_Fmt  | 1011   | 951      | Adobe Premiere project format                                 | image/vnd.adobe.premiere       | PPJ       | adMISC          |                       |
| RDF_XML_Fmt                 | 1012   | 952      | RDF/XML format                                                | application/rdf+xml            | RDF       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Really_Simple_Discovery_Fmt | 1013   | 953      | Really Simple Discovery (RSD) XML format                      | application/rsd+xml            | RSD       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| SBML_Fmt                    | 1014   | 954      | Systems Biology Markup Language (SBML) XML format             | application/sbml+xml           | SBML      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| SRU_Fmt                     | 1015   | 955      | Search/Retrieve via URL (SRU) XML format                      | application/sru+xml            | SRU       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| SSML_Fmt                    | 1016   | 956      | Speech Synthesis Markup Language (SSML) XML format            | application/ssml+xml           | SSML      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| PLS_Fmt                     | 1017   | 957      | Pronunciation Lexicon Specification (PLS) XML format          | application/pls+xml            | PLS       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| TEI_Fmt                     | 1018   | 958      | Text Encoding Initiative (TEI) XML format                     | application/tei+xml            | TEI       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| METS_Fmt                    | 1019   | 959      | Metadata Encoding and Transmission Standard (METS) XML format | application/mets+xml           | METS      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| MODS_Fmt                    | 1020   | 960      | Metadata Object Description Schema (MODS) XML format          | application/mods+xml           | MODS      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Metalink_Fmt                | 1021   | 961      | Metalink XML format                                           | application/metalink4+xml      | METALINK  | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Open_eBook_Fmt              | 1022   | 962      | Open eBook (OEBPS) XML format                                 | application/oebps-package+xml  | OPF       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| SRGS_Fmt                    | 1023   | 963      | Speech Recognition Grammar Specification (SRGS) XML format    | application/srgs+xml           | SRGS      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| SPARQL_Results_Fmt          | 1024   | 964      | SPARQL Query Results XML format                               | application/sparql-results+xml | SRX       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Adobe_XML_Data_             | 1025   | 965      | Adobe XML Data Package                                        | application/vnd.adobe.xdp+xml  | XDP       | adWORDPROCESSOR | <a href="#">xmlsr</a> |

| Format Name                 | Number | Category | Description                                                | MIME Type                       | Extension | File Class      | Readers               |
|-----------------------------|--------|----------|------------------------------------------------------------|---------------------------------|-----------|-----------------|-----------------------|
| Package_Fmt                 |        |          | format                                                     |                                 |           |                 |                       |
| ESzigno_Fmt                 | 1026   | 966      | e-Szigno signed xml document                               | application/vnd.eszigno3+xml    | ES3       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Mozilla_XUL_Fmt             | 1027   | 967      | Mozilla XML User Interface Language (XUL) XML format       | application/vnd.mozilla.xul+xml | XUL       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| SyncML_Fmt                  | 1028   | 968      | Synchronization Markup Language (SyncML) XML format        | application/vnd.syncml+xml      | XML       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| VoiceXML_Fmt                | 1029   | 969      | VoiceXML (VXML) XML format                                 | application/voicexml+xml        | VXML      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| TI_Target_Configuration_Fmt | 1030   | 970      | Texas Instruments CCXML target configuration XML format    |                                 | CCXML     | adWORDPROCESSOR |                       |
| LZFSE_Fmt                   | 1031   | 971      | Lempel-Ziv Finite State Entropy (LZFSE) compression format |                                 | LZFSE     | adENCAPSULATION |                       |
| Kindle_eBook_Fmt            | 1032   | 972      | Amazon Kindle or Mobipocket eBook format                   | application/vnd.amazon.ebook    | AZW, PRC  | adWORDPROCESSOR |                       |
| Oasis_Stream_Fmt            | 1033   | 973      | Open Artwork System Interchange Standard (OASIS) format    |                                 | OAS       | adMISC          |                       |
| Amazon_KFX_Fmt              | 1034   | 974      | Amazon KFX eBook format                                    |                                 | KFX       | adWORDPROCESSOR |                       |
| KTX_Fmt                     | 1035   | 975      | KTX image format                                           | image/ktx                       | KTX       | adRASTERIMAGE   |                       |
| GMSH_Mesh_Fmt               | 1036   | 976      | GMSH Mesh polygon format                                   | model/mesh                      | MSH       | adCAD           |                       |
| Collada_DAE_Fmt             | 1037   | 977      | Collada Digital Asset Exchange (DAE) format                | model/vnd.collada+xml           | DAE       | adCAD           | <a href="#">xmlsr</a> |
| YIN_Fmt                     | 1038   | 978      | YIN XML format                                             | application/yin+xml             | YIN       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| MPEG_Playlist_Fmt           | 1039   | 979      | MPEG audio playlist format                                 | audio/mpegurl                   | M3U       | adSOUND         |                       |
| Windows_Audio_Playlist_Fmt  | 1040   | 980      | Windows Audio playlist format                              | audio/x-ms-wax                  | WAX       | adSOUND         | <a href="#">xmlsr</a> |
| DTS_Audio_Fmt               | 1041   | 981      | DTS Coherent Acoustics audio format                        | audio/vnd.dts                   | DTS       | adSOUND         |                       |

| Format Name                  | Number | Category | Description                                                                  | MIME Type                                           | Extension | File Class      | Readers                  |
|------------------------------|--------|----------|------------------------------------------------------------------------------|-----------------------------------------------------|-----------|-----------------|--------------------------|
| Chemical_Markup_Language_Fmt | 1042   | 982      | Chemical Markup Language (CML) XML format                                    | chemical/x-cml                                      | CML       | adWORDPROCESSOR | <a href="#">xmlsr</a>    |
| CrystalMaker_Fmt             | 1043   | 983      | CrystalMaker chemical format                                                 | chemical/x-cmdf                                     | CMDF      | adSCIENTIFIC    |                          |
| VTK_XML_Fmt                  | 1044   | 984      | Visualization Toolkit VTK XML format                                         | model/vnd.vtu                                       | VTU       | adVECTORGRAPHIC | <a href="#">xmlsr</a>    |
| IPFIX_Fmt                    | 1045   | 985      | IP Flow Information Export (IPFIX) format                                    | application/ipfix                                   | IPFIX     | adMISC          |                          |
| Portable_Font_Resource_Fmt   | 1046   | 986      | Portable Font Resource font format                                           | application/font-tdpfr                              | PFR       | adFONT          |                          |
| MARC_Fmt                     | 1047   | 987      | Machine-Readable Cataloging (MARC21) format                                  | application/marc                                    | MARC      | adDATABASE      |                          |
| MARC_XML_Fmt                 | 1048   | 988      | Machine-Readable Cataloging (MARC) XML format                                | application/marcxml+xml                             | XML       | adWORDPROCESSOR | <a href="#">xmlsr</a>    |
| XAR_Fmt                      | 1049   | 989      | Extensible Archive (XAR) format                                              |                                                     |           | adENCAPSULATION |                          |
| Symbian_Installer_Fmt        | 1050   | 990      | Symbian installer format                                                     | application/vnd.symbian.install                     | SIS       | adENCAPSULATION |                          |
| SO_Drawing_XML_Fmt           | 1051   | 316      | OpenDocument format (OpenOffice 1/StarOffice 6.7) Drawing XML                | application/vnd.sun.xml.draw                        | SXD       | adVECTORGRAPHIC | <a href="#">kpodfrdr</a> |
| SO_Text_Global_XML_Fmt       | 1052   | 991      | OpenDocument format (OpenOffice 1/StarOffice 6.7) Writer Master document XML | application/vnd.sun.xml.writer.global               | SXG       | adWORDPROCESSOR |                          |
| ODF_Chart_Fmt                | 1053   | 992      | ODF Chart                                                                    | application/vnd.oasis.opendocument.chart            | ODC       | adVECTORGRAPHIC |                          |
| ODF_Database_Fmt             | 1054   | 993      | ODF Database                                                                 | application/vnd.sun.xml.base                        | ODB       | adDATABASE      |                          |
| ODF_Image_Fmt                | 1055   | 994      | ODF Image                                                                    | application/vnd.oasis.opendocument.image            | ODI       | adRASTERIMAGE   |                          |
| ODF_Text_Master_Fmt          | 1056   | 995      | ODF Text Master                                                              | application/vnd.oasis.opendocument.text-master      | ODM       | adWORDPROCESSOR | <a href="#">odfwpsr</a>  |
| ODF_Text_Web_Fmt             | 1057   | 996      | ODF Text Web                                                                 | application/vnd.oasis.opendocument.text-web         | OTH       | adWORDPROCESSOR | <a href="#">odfwpsr</a>  |
| ODF_Chart_Template_Fmt       | 1058   | 997      | ODF Chart Template                                                           | application/vnd.oasis.opendocument.chart-template   | OTC       | adVECTORGRAPHIC |                          |
| ODF_Formula_Template_Fmt     | 1059   | 998      | ODF Formula Template                                                         | application/vnd.oasis.opendocument.formula-template | OTF       | adWORDPROCESSOR | <a href="#">unzip</a>    |

| Format Name                   | Number | Category | Description                                | MIME Type                                                | Extension | File Class      | Readers                  |
|-------------------------------|--------|----------|--------------------------------------------|----------------------------------------------------------|-----------|-----------------|--------------------------|
| ODF_Drawing_Template_Fmt      | 1060   | 316      | ODF Drawing/Graphics Template              | application/vnd.oasis.opendocument.graphics-template     | OTG       | adVECTORGRAPHIC | <a href="#">kpodfrdr</a> |
| ODF_Image_Template_Fmt        | 1061   | 999      | ODF Image Template                         | application/vnd.oasis.opendocument.image-template        | OTI       | adRASTERIMAGE   |                          |
| ODF_Presentation_Template_Fmt | 1062   | 316      | ODF Presentation Template                  | application/vnd.oasis.opendocument.presentation-template | OTP       | adPRESENTATION  | <a href="#">kpodfrdr</a> |
| ODF_Spreadsheet_Template_Fmt  | 1063   | 315      | ODF Spreadsheet Template                   | application/vnd.oasis.opendocument.spreadsheet-template  | OTS       | adSPREADSHEET   | <a href="#">odfsssr</a>  |
| ODF_Text_Template_Fmt         | 1064   | 314      | ODF Text Template                          | application/vnd.oasis.opendocument.text-template         | OTT       | adWORDPROCESSOR | <a href="#">odfwpsr</a>  |
| ODF_Chart_XML_Fmt             | 1065   | 1000     | ODF Chart flat XML format                  | application/vnd.oasis.opendocument.chart.xml             | FODC      | adVECTORGRAPHIC |                          |
| ODF_Drawing_XML_Fmt           | 1066   | 1001     | ODF Drawing/Graphics flat XML format       | application/vnd.oasis.opendocument.formula.xml           | FODG      | adWORDPROCESSOR |                          |
| ODF_Formula_XML_Fmt           | 1067   | 1002     | ODF Formula flat XML format                | application/vnd.oasis.opendocument.graphics.xml          | FODF      | adVECTORGRAPHIC |                          |
| ODF_Image_XML_Fmt             | 1068   | 1003     | ODF Image flat XML format                  | application/vnd.oasis.opendocument.image.xml             | FODI      | adRASTERIMAGE   |                          |
| ODF_Presentation_XML_Fmt      | 1069   | 1004     | ODF Presentation flat XML format           | application/vnd.oasis.opendocument.presentation.xml      | FODP      | adPRESENTATION  |                          |
| ODF_Spreadsheet_XML_Fmt       | 1070   | 1005     | ODF Spreadsheet flat XML format            | application/vnd.oasis.opendocument.spreadsheet.xml       | FODS      | adSPREADSHEET   |                          |
| ODF_Text_XML_Fmt              | 1071   | 1006     | ODF Text flat XML format                   | application/vnd.oasis.opendocument.text.xml              | FODT      | adWORDPROCESSOR |                          |
| ODF_Extension_Fmt             | 1072   | 1007     | ODF Extension format                       | application/vnd.openofficeorg.extension                  | OXT       | adMISC          |                          |
| StarView_Metafile_Fmt         | 1073   | 1008     | OpenOffice StarView MetaFile format        | image/x-svm                                              | SVM       | adRASTERIMAGE   |                          |
| BBeB_LRF_eBook_Fmt            | 1074   | 1009     | Broad Band eBook (BBeB) in LRF format      | application/x-ext-lrf                                    | LRF       | adWORDPROCESSOR |                          |
| GPG_Trust_DB_Fmt              | 1075   | 1010     | GPG trust database format                  |                                                          | GPG       | adMISC          |                          |
| VICE_Emulator_Fmt             | 1076   | 1011     | VICE (Versatile Commodore Emulator) format |                                                          | VSF       | adMISC          |                          |
| Portable_Game_Notation_Fmt    | 1077   | 1012     | Portable Game Notation chess format        | application/vnd.chess-pgn                                | PGN       | adWORDPROCESSOR |                          |
| Doom_WAD_Fmt                  | 1078   | 1013     | Doom IWAD/PWAD format                      | application/x-doom                                       | WAD       | adMISC          |                          |

| Format Name                  | Number | Category | Description                                                       | MIME Type                                                   | Extension | File Class      | Readers               |
|------------------------------|--------|----------|-------------------------------------------------------------------|-------------------------------------------------------------|-----------|-----------------|-----------------------|
| Device_Tree_Blob_Fmt         | 1079   | 1014     | Linux Device Tree Blob format                                     |                                                             | DTB       | adMISC          |                       |
| BDF_Font_Fmt                 | 1080   | 1015     | Glyph Bitmap Distribution Format                                  | application/x-font-bdf                                      | BDF       | adFONT          |                       |
| PC_Screen_Font_Fmt           | 1081   | 1016     | PC Screen Font format                                             | application/x-font-psf                                      | PSF       | adFONT          |                       |
| JNLP_Fmt                     | 1082   | 1017     | Java Network Launching Protocol                                   | application/x-java-jnlp-file                                | JNLP      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| XAML_Browser_Application_Fmt | 1083   | 1018     | XAML Browser Application (XBAP) format                            | application/x-ms-xbap                                       | XBAP      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| MS_Binder_Fmt                | 1084   | 1019     | Microsoft Office Binder format                                    | application/x-msbinder                                      | OBP       | adENCAPSULATION | <a href="#">olesr</a> |
| XAP_Fmt                      | 1085   | 1020     | Microsoft Silverlight application (XAP) format                    | application/x-silverlight-app                               | XAP       | adENCAPSULATION |                       |
| Stuftit_X_Fmt                | 1086   | 1021     | Stuftit X (SITX) archive format                                   | application/x-stuftitx                                      | SITX      | adENCAPSULATION |                       |
| FIG_Fmt                      | 1087   | 1022     | Facility for Interactive Generation of figures (FIG) image format | application/x-fig                                           | FIG       | adVECTORGRAPHIC |                       |
| XPIInstall_Fmt               | 1088   | 1023     | XPIInstall Cross-Platform Installer Module (XPI) format           | application/x-xpinstall                                     | XPI       | adENCAPSULATION |                       |
| XDF_Fmt                      | 1089   | 1024     | Extensible Data Format (XDF) XML format                           |                                                             | XDF       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| MXML_Fmt                     | 1090   | 1025     | MXML UI markup language XML format                                |                                                             | MXML      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| MusicXML_Fmt                 | 1091   | 1026     | MusicXML format                                                   | application/vnd.recordare.musicxml                          | MXL       | adENCAPSULATION | <a href="#">xmlsr</a> |
| Finale_Fmt                   | 1092   | 1027     | Finale audio format                                               |                                                             | MUS       | adSOUND         |                       |
| Spotfire_DXP_Fmt             | 1093   | 1028     | TIBCO Spotfire DXP data format                                    | application/vnd.spotfire.dxp                                | DXP       | adANALYTICS     |                       |
| MS_Office_Theme_2007_Fmt     | 1094   | 1029     | Microsoft Office theme format                                     | application/vnd.ms-officetheme                              | THMX      | adMISC          |                       |
| Adobe_AIR_Installer_Fmt      | 1095   | 1030     | Adobe AIR application installer package                           | application/vnd.adobe.air-application-installer-package+zip | AIR       | adENCAPSULATION |                       |
| Flex_Project_Fmt             | 1096   | 1031     | Adobe Flash Flex project file format                              | application/vnd.adobe.fxp                                   | FXP       | adENCAPSULATION |                       |

| Format Name           | Number | Category | Description                                        | MIME Type             | Extension               | File Class      | Readers                  |
|-----------------------|--------|----------|----------------------------------------------------|-----------------------|-------------------------|-----------------|--------------------------|
| FoxPro_Fmt            | 1097   | 1032     | FoxPro compiled source format                      |                       | FXP                     | adLIBRARY       |                          |
| VST_Preset_Fmt        | 1098   | 1033     | Virtual Studio Technology (VST) preset format      |                       | FXP                     | adSOUND         |                          |
| Mischief_Image_Fmt    | 1099   | 1034     | Mischief vector graphics image format              |                       | ART                     | adVECTORGRAPHIC |                          |
| FreeArc_Fmt           | 1100   | 1035     | FreeArc archive format                             | application/x-freearc | ARC                     | adENCAPSULATION |                          |
| Autodesk_3ds_Fmt      | 1101   | 1036     | Autodesk 3ds format                                | application/x-3ds     | 3DS                     | adCAD           |                          |
| Monkeys_Audio_Fmt     | 1102   | 1037     | Monkey's Audio format                              |                       | APE                     | adSOUND         |                          |
| CALS_Fmt              | 1103   | 1038     | CALS raster image format                           |                       | CAL                     | adRASTERIMAGE   |                          |
| Dr_Halo_PAL_Fmt       | 1104   | 1039     | Dr Halo raster image PAL file format               |                       | PAL                     | adRASTERIMAGE   |                          |
| DPG_Fmt               | 1105   | 1040     | Nintendo DS DPG video format                       |                       | DPG                     | adMOVIE         |                          |
| JPEG_XR_Fmt           | 1106   | 1041     | JPEG XR (extended range) image format              | image/vnd.ms-photo    | JXR, HDP                | adRASTERIMAGE   |                          |
| TCR_eBook_Fmt         | 1107   | 1042     | TCR/ZVR (Text Compression for Reader) eBook format |                       | TCR, ZVR                | adWORDPROCESSOR |                          |
| IHEX_Fmt              | 1108   | 1043     | Intel Hex format                                   |                       | IHEX                    | adENCAPSULATION |                          |
| QCOW_Fmt              | 1109   | 1044     | QEMU Copy On Write                                 |                       | QCOW                    | adENCAPSULATION |                          |
| VDI_Fmt               | 1110   | 1045     | VirtualBox Disk Image                              |                       | VDI                     | adENCAPSULATION |                          |
| OneNote_Alternate_Fmt | 1111   | 1046     | OneNote Alternative Packaging Format               |                       |                         | adWORDPROCESSOR | <a href="#">onealtsr</a> |
| RMS_Protected_Fmt     | 1112   | 1047     | Rights Management Services (RMS)-protected format  |                       | PFILE, PPDF, PJPG, PTXT | adWORDPROCESSOR | <a href="#">pfilesr</a>  |
| Portfolio_PDF_Fmt     | 1113   | 1048     | Portfolio PDF File                                 | application/pdf       | PDF                     | adWORDPROCESSOR | <a href="#">pdfsr</a>    |
| Crystal_Reports_Fmt   | 1114   | 1049     | SAP Crystal Reports format                         | application/x-rpt     | RPT                     | adANALYTICS     | <a href="#">olesr</a>    |
| Thumbs_db_Fmt         | 1115   | 1050     | Microsoft Windows thumbs.db format                 |                       | DB                      | adENCAPSULATION |                          |
| PagePlus_Fmt          | 1116   | 1051     | Serif PagePlus format                              |                       | PPP                     | adDESKTOPPUBLSH | <a href="#">olesr</a>    |
| MS_Project_Exchange_  | 1117   | 1052     | Microsoft Project                                  |                       | MPX                     | adSCHEDULE      |                          |

| Format Name                     | Number | Category | Description                                                                  | MIME Type                          | Extension | File Class      | Readers               |
|---------------------------------|--------|----------|------------------------------------------------------------------------------|------------------------------------|-----------|-----------------|-----------------------|
| Fmt                             |        |          | Exchange format                                                              |                                    |           |                 |                       |
| MS_Management_Pack_MPX_Fmt      | 1118   | 1053     | Microsoft Systems Center Operation Manager (SCOM) management pack MPX format |                                    | MPX       | adMISC          | <a href="#">xmlsr</a> |
| AutoCAD_VBA_Project_Fmt         | 1119   | 1054     | AutoCAD VBA project format                                                   |                                    | DVB       | adMISC          |                       |
| PLY_ASCII_Fmt                   | 1120   | 1055     | Polygon File Format (PLY) ASCII format                                       |                                    | PLY       | adCAD           |                       |
| PLY_Binary_Fmt                  | 1121   | 1056     | Polygon File Format (PLY) binary format                                      |                                    | PLY       | adCAD           |                       |
| JavaView_JVX_Fmt                | 1122   | 1057     | JavaView XML (JVX) format                                                    |                                    | JVX       | adCAD           | <a href="#">xmlsr</a> |
| X3D_Fmt                         | 1123   | 1058     | Extensible 3d Graphics (X3D) XML format                                      | model/x3d+xml                      | X3D       | adCAD           |                       |
| ZBrush_Project_Fmt              | 1124   | 1059     | ZBrush ZProject (ZPR) format                                                 |                                    | ZPR       | adCAD           |                       |
| ZBrush_Tool_Fmt                 | 1125   | 1060     | ZBrush ZTtool (ZTL) format                                                   |                                    | ZTL       | adCAD           |                       |
| Windows_Installer_Patch_Fmt     | 1126   | 1061     | Microsoft Windows Installer Patch Package (MSP) format                       |                                    | MSP       | adENCAPSULATION | <a href="#">olesr</a> |
| Windows_Installer_Transform_Fmt | 1127   | 1062     | Microsoft Windows Installer Transform (MST) format                           |                                    | MST       | adENCAPSULATION |                       |
| Lotus_Approach_Fmt              | 1128   | 1063     | Lotus Approach format                                                        | application/vnd.lotus-approach     | APR, MPR  | adDATABASE      |                       |
| Outlook_SendRcv_Settings_Fmt    | 1129   | 1064     | Microsoft Outlook 2002 Send-Receive Settings                                 |                                    | SRS       | adMISC          |                       |
| MS_Publisher_Scheme_Fmt         | 1130   | 1065     | Microsoft Publisher colour scheme                                            |                                    | SCM       | adMISC          |                       |
| SO_Chart_Fmt                    | 1131   | 1066     | Star Office 4,5 Chart                                                        | application/vnd.stardivision.chart | SDS       | adVECTORGRAPHIC | <a href="#">olesr</a> |
| SO_Database_Fmt                 | 1132   | 1067     | Star Office 4,5 Database                                                     | application/vnd.stardivision.base  | SDB       | adDATABASE      | <a href="#">olesr</a> |
| SO_Library_Fmt                  | 1133   | 1068     | Star Office 4,5 Library                                                      |                                    | SBL       | adLIBRARY       |                       |
| PageMaker_Document_Fmt          | 1134   | 1069     | Adobe PageMaker document                                                     | application/pagemaker              | PMD       | adDESKTOPPUBLSH |                       |



| Format Name                | Number | Category | Description                                               | MIME Type                       | Extension               | File Class                     | Readers               |
|----------------------------|--------|----------|-----------------------------------------------------------|---------------------------------|-------------------------|--------------------------------|-----------------------|
| MS_DTS_Fmt                 | 1135   | 1070     | Microsoft Data Transformation Services (DTS) package file |                                 | DTS                     | adMISC                         |                       |
| Cognos_PowerPlay_PPR_Fmt   | 1136   | 1071     | Cognos PowerPlay up to version 7 (PPR) format             |                                 | PPR                     | adANALYTICS                    |                       |
| Visual_Studio_SUO_Fmt      | 1137   | 1072     | Microsoft Visual Studio solution user options (suo) file  |                                 | SUO                     | adSWDEV                        |                       |
| MS_GraphEdit_Fmt           | 1138   | 1073     | Microsoft GraphEdit File format                           |                                 | GRF                     | adMISC                         |                       |
| ArcGIS_Graph_Fmt           | 1139   | 1074     | ArcGIS Graph format                                       |                                 | GRF                     | adGIS                          |                       |
| SID_Audio_Fmt              | 1140   | 1075     | SID Audio format                                          | audio/prs.sid                   | SID                     | adSOUND                        |                       |
| MrSID_Fmt                  | 1141   | 1076     | LizardTech MrSID image format                             | image/x-mrsid                   | SID                     | adRASTERIMAGE                  |                       |
| Cardfile_Fmt               | 1142   | 1077     | Microsoft Windows Cardfile address book format            | application/x-mscardfile        | CRD                     | adWORDPROCESSOR                |                       |
| MS_Word_Mac_4_Fmt          | 1143   | 205      | Microsoft Word for Macintosh (version 4,5)                | application/msword              | DOC                     | adWORDPROCESSOR                | <a href="#">mbsr</a>  |
| WordPerfect_5_Fmt          | 1144   | 80       | WordPerfect (version 5)                                   | application/x-corel-wordperfect | WOP, DOC                | adWORDPROCESSOR                | <a href="#">wosr</a>  |
| WordPerfect_6_Fmt          | 1145   | 178      | Corel WordPerfect (version 6 and higher)                  | application/x-corel-wordperfect | WPD                     | adWORDPROCESSOR                | <a href="#">wp6sr</a> |
| WordPerfect_Graphics_1_Fmt | 1146   | 85       | WordPerfect Graphics (version 1)                          | application/vnd.wordperfect     | WPG, QPG                | adRASTERIMAGE, adVECTORGRAPHIC |                       |
| Organization_Chart_Fmt     | 1147   | 1078     | OrgPlus Organization Chart                                | application/orgplus             | OPX                     | adDATABASE                     |                       |
| Lotus_Organizer_Fmt        | 1148   | 1079     | Lotus Organizer documents                                 | application/vnd.lotus-organizer | OR2, OR3, OR4, OR5, OR6 | adSCHEDULE                     |                       |
| MS_DBML_Fmt                | 1149   | 1080     | Microsoft Database Markup Language XML document           |                                 | DBML                    | adWORDPROCESSOR                |                       |
| XMind_Fmt                  | 1150   | 1081     | XMind document                                            | application/xmind               | XMIND                   | adPRESENTATION                 |                       |
| MSI_Cerius_Fmt             | 1151   | 1082     | MSI Cerius chemical formula document                      | chemical/x-cerius               | MSI                     | adSCIENTIFIC                   |                       |
| GenBank_Fmt                | 1152   | 1083     | GenBank DNA character sequence document                   | chemical/x-genbank              | GB                      | adSCIENTIFIC                   |                       |

| Format Name                 | Number | Category | Description                                                         | MIME Type                       | Extension                              | File Class      | Readers                  |
|-----------------------------|--------|----------|---------------------------------------------------------------------|---------------------------------|----------------------------------------|-----------------|--------------------------|
| GIS_World_File_Fmt          | 1153   | 1084     | ESRI GIS World file                                                 |                                 | BPW, GFW, JGW, J2W, PGW, SDW, TFW, WLD | adGIS           | <a href="#">afsr</a>     |
| GIS_Projection_Metadata_Fmt | 1154   | 1085     | ESRI Projection Metadata (PRJ) file                                 |                                 | PRJ                                    | adGIS           |                          |
| PowerWorld_Binary_Fmt       | 1155   | 1086     | PowerWorld Binary (PWB) file                                        |                                 | PWB                                    | adCAD           |                          |
| PowerWorld_Display_Fmt      | 1156   | 1087     | PowerWorld Display (PWD) file                                       |                                 | PWD                                    | adCAD           |                          |
| ArcXML_Fmt                  | 1157   | 1088     | ESRI ArcIMS project XML file (ArcXML)                               |                                 | AXL                                    | adGIS           |                          |
| GAMS_GDX_Fmt                | 1158   | 1089     | General Algebraic Modeling System (GAMS) Data Exchange (GDX) format |                                 | GDX                                    | adSCIENTIFIC    |                          |
| ArcMap_MXD_Fmt              | 1159   | 1090     | ArcMap Map Exchange Document project (MXD)                          |                                 | MXD                                    | adGIS           |                          |
| RRDtool_Fmt                 | 1160   | 1091     | RRDtool (Round Robin Database) data file                            |                                 | RRD                                    | adDATABASE      |                          |
| HWPX_Fmt                    | 1161   | 1092     | Hangul HWPX document                                                | application/hwp+zip             | HWPX                                   | adWORDPROCESSOR | <a href="#">hwpxsr</a>   |
| SolidWorks_2015_Fmt         | 1162   | 1093     | SolidWorks (2015 onwards) file                                      |                                 | SLDPRT, SLDDRW, SLDASM                 | adCAD           |                          |
| MS_Photo_Editor_Fmt         | 1163   | 1094     | Microsoft Photo Editor 'embedded GIF' file                          | application/vnd.ms-photo-editor |                                        | adRASTERIMAGE   |                          |
| MS_Word_HTML_Fmt            | 1164   | 1095     | Microsoft Word HTML format                                          |                                 | DOC, HTM                               | adWORDPROCESSOR | <a href="#">htmlsr</a>   |
| MS_Excel_HTML_Fmt           | 1165   | 1096     | Microsoft Excel HTML format                                         |                                 | XLS, HTM                               | adWORDPROCESSOR | <a href="#">htmlsr</a>   |
| Portable_FloatMap_Fmt       | 1166   | 1097     | Portable FloatMap (PFM) image                                       | image/x-portable-floatmap       | PFM                                    | adRASTERIMAGE   |                          |
| RGBE_Fmt                    | 1167   | 1098     | Radiance RGBE (HDR) image                                           | image/vnd.radiance              | HDR, PIC, RGBE, XYZE                   | adRASTERIMAGE   |                          |
| APNG_Fmt                    | 1168   | 1099     | Animated Portable Network Graphics (Animated-PNG)                   | image/apng                      | APNG, PNG                              | adANIMATION     | <a href="#">kppngrdr</a> |
| Enhanced_Compressed_        | 1169   | 1100     | Enhanced Compressed                                                 | image/ecw                       | ECW                                    | adRASTERIMAGE   |                          |

| Format Name              | Number | Category | Description                                       | MIME Type                                              | Extension | File Class      | Readers               |
|--------------------------|--------|----------|---------------------------------------------------|--------------------------------------------------------|-----------|-----------------|-----------------------|
| Wavelet_Fmt              |        |          | Wavelet image                                     |                                                        |           |                 |                       |
| Ensoniq_Waveset_Fmt      | 1170   | 1101     | Ensoniq Waveset audio data file                   |                                                        | ECW       | adSOUND         |                       |
| Corel_Photo_Paint_Fmt    | 1171   | 1102     | Corel Photo Paint (version 7 and higher)          | image/x-corelphotopaint                                | CPT       | adRASTERIMAGE   |                       |
| OpenRaster_Fmt           | 1172   | 1103     | OpenRaster image                                  | image/openraster                                       | ORA       | adRASTERIMAGE   |                       |
| Krita_Fmt                | 1173   | 1104     | Krita image                                       | application/x-krita                                    | KRA       | adRASTERIMAGE   |                       |
| Gerber_Fmt               | 1174   | 1105     | Gerber image format                               | application/vnd.gerber                                 | GBR       | adVECTORGRAPHIC |                       |
| PGML_Fmt                 | 1175   | 1106     | Precision Graphics Markup Language                |                                                        | PGML      | adVECTORGRAPHIC | <a href="#">xmlsr</a> |
| Away3D_Fmt               | 1176   | 1107     | Away3D scene file                                 |                                                        | AWD       | adCAD           |                       |
| CAD_3MF_Fmt              | 1177   | 1108     | 3D Manufacturing Format document                  | application/vnd.ms-package.3dmanufacturing-3dmodel+xml | 3MF       | adCAD           |                       |
| AMF_Fmt                  | 1178   | 1109     | Additive manufacturing file format (AMF) document | application/x-amf                                      | AMF       | adCAD           | <a href="#">xmlsr</a> |
| C3D_Fmt                  | 1179   | 1110     | Coordinate 3D (C3D) format                        |                                                        | C3D       | adCAD           |                       |
| CAD_3DSystems_BFF_Fmt    | 1180   | 1111     | 3D Sprint (3D Systems) SLA Build file             |                                                        | BFF       | adCAD           |                       |
| NRRD_Fmt                 | 1181   | 1112     | NRRD (nearly raw raster data) image format        |                                                        | NRRD      | adRASTERIMAGE   |                       |
| Cinema_4D_Fmt            | 1182   | 1113     | Cinema 4D model                                   |                                                        | C4D       | adCAD           |                       |
| FBX_ASCII_Fmt            | 1183   | 1114     | Kaydara FBX project (ASCII)                       |                                                        | FBX       | adCAD           |                       |
| FBX_Binary_Fmt           | 1184   | 1115     | Kaydara FBX project (binary)                      |                                                        | FBX       | adCAD           |                       |
| Wavefront_OBJ_Fmt        | 1185   | 1116     | Wavefront OBJ geometry definition file            |                                                        | OBJ       | adCAD           |                       |
| Wavefront_MTL_Fmt        | 1186   | 1117     | Wavefront Material Template Library (MTL)         |                                                        | MTL       | adCAD           |                       |
| MS_Power_BI_Template_Fmt | 1187   | 1118     | Microsoft Power BI Desktop template format        |                                                        | PBIT      | adANALYTICS     |                       |
| Windows_Sticky_Notes_Fmt | 1188   | 1119     | Microsoft Windows Sticky Notes format             |                                                        | SNT       | adWORDPROCESSOR |                       |

| Format Name                  | Number | Category | Description                                                     | MIME Type                 | Extension | File Class      | Readers                                     |
|------------------------------|--------|----------|-----------------------------------------------------------------|---------------------------|-----------|-----------------|---------------------------------------------|
| BlakHole_Fmt                 | 1189   | 1120     | BlakHole compression format                                     |                           | BH        | adENCAPSULATION |                                             |
| PowerArchiver_Fmt            | 1190   | 1121     | PowerArchiver PA compression format                             |                           | PA        | adENCAPSULATION |                                             |
| PageMagic_Fmt                | 1191   | 1122     | NEBS PageMagic format                                           |                           | DTP       | adDESKTOPPUBLSH | <a href="#">olesr</a>                       |
| PIM_Archiver_Fmt             | 1192   | 1123     | PIM Archiver format                                             |                           | PIM       | adENCAPSULATION |                                             |
| Softdisk_Text_Compressor_Fmt | 1193   | 1124     | Softdisk Text Compressor format                                 |                           | CTX       | adENCAPSULATION |                                             |
| Ability_PhotoPaint_Fmt       | 1194   | 1125     | Ability Office PhotoPaint image                                 |                           | APX       | adRASTERIMAGE   |                                             |
| Softlib_Fmt                  | 1195   | 1126     | Softdisk Softlib compression format                             |                           | SLB       | adENCAPSULATION |                                             |
| Timeworks_Publisher_Fmt      | 1196   | 1127     | Timeworks Publisher (Publish It) format                         |                           | DTP       | adDESKTOPPUBLSH |                                             |
| Scribe_Fmt                   | 1197   | 1128     | Scribe markup language and word processing system               |                           | MSS       | adWORDPROCESSOR | <a href="#">afsr</a>                        |
| SQLite_Write_Ahead_Log_Fmt   | 1198   | 1129     | SQLite Write-Ahead Log file                                     |                           | WAL       | adDATABASE      |                                             |
| SQLite_WAL_Index_Fmt         | 1199   | 1130     | SQLite WAL-index (shm) file                                     |                           | SHM       | adDATABASE      |                                             |
| AutoForm_Design_Fmt          | 1200   | 1131     | AutoForm Design file                                            |                           | AFD       | adCAD           |                                             |
| TSV_Fmt                      | 1201   | 1132     | Tab-separated values (TSV) file                                 | text/tab-separated-values | TSV, TAB  | adWORDPROCESSOR | <a href="#">afsr</a> , <a href="#">afsr</a> |
| OpenStreetMap_XML_Fmt        | 1202   | 1133     | OpenStreetMap XML data                                          |                           | OSM       | adGIS           |                                             |
| OpenStreetMap_PBF_Fmt        | 1203   | 1134     | OpenStreetMap Protocolbuffer Binary Format data file (.osm.pbf) |                           | PBF       | adGIS           |                                             |
| Nero_Audio_Compilation_Fmt   | 1204   | 1135     | Nero Audio-CD compilation file                                  |                           | NRA       | adMISC          |                                             |
| Nero_ISO_Compilation_Fmt     | 1205   | 1136     | Nero ISO compilation file                                       |                           | NRI       | adMISC          |                                             |
| WordStar_for_Windows_Fmt     | 1206   | 1137     | WordStar for Windows file                                       |                           | WSD       | adWORDPROCESSOR | <a href="#">stringssr</a>                   |

| Format Name                | Number | Category | Description                                                          | MIME Type                     | Extension      | File Class      | Readers |
|----------------------------|--------|----------|----------------------------------------------------------------------|-------------------------------|----------------|-----------------|---------|
| MS_Outlook_PAB_Fmt         | 1207   | 1138     | Microsoft Outlook Personal Address Book (PAB)                        |                               | PAB            | adMISC          |         |
| HLSL_FXO_Fmt               | 1208   | 1139     | DirectX High-Level Shader Language (HLSL) pre-compiled shader        |                               | FXO            | adCAD           |         |
| HLSL_CSO_Fmt               | 1209   | 1140     | DirectX High-Level Shader Language (HLSL) compiled shader object     |                               | CSO            | adCAD           |         |
| Oberon_Document_Fmt        | 1210   | 1141     | Component Pascal / Oberon Document file                              |                               | ODC            | adSOURCECODE    |         |
| Oberon_Symbol_Fmt          | 1211   | 1142     | Component Pascal / Oberon Symbol file                                |                               | OSF            | adOBJECTMODULE  |         |
| Oberon_Code_Fmt            | 1212   | 1143     | Component Pascal / Oberon Code (executable and loadable object) file |                               | OCF            | adEXECUTABLE    |         |
| Python_Bytecode_Fmt        | 1213   | 1144     | Python compiled bytecode                                             | application/x-bytecode.python | PYC            | adEXECUTABLE    |         |
| PCPaint_Fmt                | 1214   | 1145     | PCPaint / Pictor Paint image format                                  |                               | PIC            | adRASTERIMAGE   |         |
| PCRaster_Map_Fmt           | 1215   | 1146     | PCRaster Map / Cross System Format geographical data                 |                               | MAP, CSF       | adGIS           |         |
| COM_Type_Library_Fmt       | 1216   | 1147     | Microsoft Component Object Model (COM) Type library                  |                               | TLB            | adLIBRARY       |         |
| MS_Visual_C_Export_Fmt     | 1217   | 1148     | Microsoft Visual C++ Export file                                     |                               | EXP            | adLIBRARY       |         |
| Lotus_Organizer_Report_Fmt | 1218   | 1149     | Lotus Organizer report document                                      |                               | REP            | adSCHEDULE      |         |
| Audible_Audiobook_AA_Fmt   | 1219   | 1150     | Audible Audiobook (AA) file                                          | audio/audible                 | AA             | adSOUND         |         |
| DOS_RED_Fmt                | 1220   | 1151     | MS-DOS RED installer library format                                  |                               | RED            | adLIBRARY       |         |
| CA_ZIPXP_Fmt               | 1221   | 1152     | CA Technologies ZIPXP compressed document                            |                               | CAZ            | adENCAPSULATION |         |
| Kindle_Topaz_Fmt           | 1222   | 1153     | Amazon Kindle Topaz eBook                                            |                               | AZW, AZW1, TPZ | adWORDPROCESSOR |         |

| Format Name                | Number | Category | Description                                        | MIME Type                    | Extension | File Class      | Readers |
|----------------------------|--------|----------|----------------------------------------------------|------------------------------|-----------|-----------------|---------|
| Windows_Shim_Database_Fmt  | 1223   | 1154     | Microsoft Windows Shim Database file               |                              | SDB       | adDATABASE      |         |
| MS_Incremental_Linker_Fmt  | 1224   | 1155     | Microsoft Visual Studio incremental linker file    |                              | ILK       | adSWDEV         |         |
| Lotus_Smart_Icon_Fmt       | 1225   | 1156     | Lotus Smart Icon image file                        |                              | SMI       | adRASTERIMAGE   |         |
| Lotus_Organizer_Layout_Fmt | 1226   | 1157     | Lotus Organizer print/paper layout file            |                              | PLT       | adSCHEDULE      |         |
| CMZ_Fmt                    | 1227   | 1158     | CMZ compression format                             |                              | CMZ       | adENCAPSULATION |         |
| RFFlow_Fmt                 | 1228   | 1159     | RFFlow flowchart document                          |                              | FLO       | adPRESENTATION  |         |
| InstallShield_Script_Fmt   | 1229   | 1160     | InstallShield script document                      |                              | INS       | adENCAPSULATION |         |
| InstallShield_Rules_Fmt    | 1230   | 1161     | InstallShield Compiled Rules file                  |                              | INX       | adENCAPSULATION |         |
| Windows_FTS_Fmt            | 1231   | 1162     | Microsoft Windows 95/NT help full-text-search file |                              | FTS       | adDATABASE      |         |
| DVD_Info_Fmt               | 1232   | 1163     | DVD Information (IFO) file                         | content/dvd                  | IFO       | adDATABASE      |         |
| Emacs_Lisp_Bytecode_Fmt    | 1233   | 1164     | Byte-compiled Lisp (Emacs/XEmacs)                  | application/x-bytecode.elisp | ELC       | adEXECUTABLE    |         |
| Windows_Resource_Fmt       | 1234   | 1165     | Microsoft Windows binary resource file             |                              | RES       | adMISC          |         |
| MS_Precompiled_Header_Fmt  | 1235   | 1166     | Microsoft Visual C/C++ binary pre-compiled header  |                              | PCH       | adSWDEV         |         |
| Borland_Turbo_Project_Fmt  | 1236   | 1167     | Borland Turbo C project file                       |                              | PRJ       | adSWDEV         |         |
| PS_Font_Descriptor_Fmt     | 1237   | 1168     | PostScript binary Font Descriptor file             |                              | NTF       | adFONT          |         |
| MySQL_Index_Fmt            | 1238   | 1169     | MySQL MyISAM Table index                           |                              | MYI       | adDATABASE      |         |
| MS_SQL_Fmt                 | 1239   | 1170     | Microsoft SQL Server primary database file         |                              | MDF       | adDATABASE      |         |
| DNL_eBook_Fmt              | 1240   | 1171     | DNAML DNL eBook                                    |                              | DNL       | adWORDPROCESSOR |         |
| GD_Image_Fmt               | 1241   | 1172     | GD Library image                                   |                              | GD, GD2   | adRASTERIMAGE   |         |
| iTunes_Library_Fmt         | 1242   | 1173     | Apple iTunes music library                         |                              | ITL       | adDATABASE      |         |

| Format Name                  | Number | Category | Description                                             | MIME Type       | Extension      | File Class      | Readers |
|------------------------------|--------|----------|---------------------------------------------------------|-----------------|----------------|-----------------|---------|
| MS_SQM_Fmt                   | 1243   | 1174     | Microsoft Windows Live Messenger/Mail log file          |                 | SQM            | adMISC          |         |
| VIFF_Fmt                     | 1244   | 1175     | Khoros Visualization Image File Format (VIFF)           | image/x-viff    | XV, VIF, VIFF  | adRASTERIMAGE   |         |
| JBIG_Fmt                     | 1245   | 1176     | JBIG (JBIG1) image                                      | image/jbig      | JBG, JBIG, BIE | adRASTERIMAGE   |         |
| CodeWarrior_Project_Fmt      | 1246   | 1177     | CodeWarrior C/C++ project                               |                 | MCP            | adSWDEV         |         |
| PaintShop_Pro_JBF_Fmt        | 1247   | 1178     | PaintShop Pro JBF image cache file                      | image/jbf       | JBF            | adMISC          |         |
| Delphi_Diagram_Portfolio_Fmt | 1248   | 1179     | Delphi Diagram Portfolio file                           |                 | DDP            | adMISC          |         |
| Adobe_Swatch_Exchange_Fmt    | 1249   | 1180     | Adobe Swatch Exchange Format                            |                 | ASE, ASEF      | adRASTERIMAGE   |         |
| ASCII_Scene_Exporter_Fmt     | 1250   | 1181     | Autodesk 3ds Max ASCII Scene Exporter file              |                 | ASE            | adCAD           |         |
| AVR_Fmt                      | 1251   | 1182     | AVR (Audio Visual Research) format                      |                 | AVR            | adSOUND         |         |
| Winamp_AVS_Fmt               | 1252   | 1183     | Winamp AVS (Advanced Visualization Studio) plug-in file |                 | AVS            | adSOUND         |         |
| After_Effects_Project_Fmt    | 1253   | 1184     | Adobe After Effects project                             |                 | AEP            | adMOVIE         |         |
| Anfy_Applet_Generator_Fmt    | 1254   | 1185     | Anfy (Java) Applet Generator file                       |                 | AJP            | adMISC          |         |
| SmartCipher_Fmt              | 1255   | 1186     | SmartCipher encrypted file                              |                 |                | adENCAPSULATION |         |
| General_Exchange_Fmt         | 1256   | 1187     | General Exchange Format (GXF)                           | application/gxf | GXF            | adMOVIE         |         |
| Maxis_XA_Fmt                 | 1257   | 1188     | Maxis XA audio file                                     |                 | XA             | adSOUND         |         |
| NUT_Fmt                      | 1258   | 1189     | NUT Open Container Format                               |                 | NUT            | adMOVIE         |         |
| OpenMG_Audio_Fmt             | 1259   | 1190     | Sony OpenMG Audio (OMA) container file                  |                 | OMA, OMG       | adSOUND         |         |
| TXD_Fmt                      | 1260   | 1191     | Renderware Texture Dictionary (TXD) file                |                 | TXD            | adRASTERIMAGE   |         |
| DFA_Fmt                      | 1261   | 1192     | DreamForge DFA FMV format                               |                 | DFA            | adMOVIE         |         |

| Format Name               | Number | Category | Description                        | MIME Type | Extension     | File Class    | Readers |
|---------------------------|--------|----------|------------------------------------|-----------|---------------|---------------|---------|
| FunCom_ISS_Fmt            | 1262   | 1193     | FunCom ISS audio                   |           | ISS           | adSOUND       |         |
| Sony_MSV_Fmt              | 1263   | 1194     | Sony Compressed Audio (MSV/DVF)    |           | DVF, ICS, MSV | adSOUND       |         |
| THP_Fmt                   | 1264   | 1195     | GameCube THP Video                 |           | THP           | adMOVIE       |         |
| Smush_Animation_Fmt       | 1265   | 1196     | Smush Animation Format (SAN)       |           | SAN, NUT      | adANIMATION   |         |
| SIFF_Audio_Fmt            | 1266   | 1197     | Beam Software SIFF audio file      |           | SON           | adSOUND       |         |
| SNES_SPC_Fmt              | 1267   | 1198     | SNES SPC700 audio file             |           | SPC           | adSOUND       |         |
| Sierra_VMD_Fmt            | 1268   | 1199     | Sierra Video and Music Data format |           | VMD           | adMOVIE       |         |
| VTech_MJP_Fmt             | 1269   | 1200     | VTech MHP video format             |           | MJP           | adMOVIE       |         |
| Nullsoft_Video_Fmt        | 1270   | 1201     | Nullsoft Video format (NSV)        |           | NSV           | adMOVIE       |         |
| Shorten_Fmt               | 1271   | 1202     | Shorten audio file                 |           | SHN           | adSOUND       |         |
| Leitch_Video_Fmt          | 1272   | 1203     | Leitch Exchange Format video (LXF) |           | LXF           | adMOVIE       |         |
| ETV_Fmt                   | 1273   | 1204     | ETV video file                     |           | ETV           | adMOVIE       |         |
| TAK_Audio_Fmt             | 1274   | 1205     | TAK audio file                     |           | TAK           | adSOUND       |         |
| Maelstrom_ANM_Fmt         | 1275   | 1206     | Maelstrom ANM animation            |           | ANM           | adANIMATION   |         |
| SW_ANM_Fmt                | 1276   | 1207     | Savage Warriors ANM animation      |           | ANM           | adANIMATION   |         |
| DeluxePaint_Animation_Fmt | 1277   | 1208     | DeluxePaint animation              |           | ANM           | adANIMATION   |         |
| Crack_Art_Fmt             | 1278   | 1209     | Crack Art image                    |           | CA1           | adRASTERIMAGE |         |
| Time_Shift_Video_Fmt      | 1279   | 1210     | Time Shift Video (TSV) format      |           | TSV           | adMOVIE       |         |
| XBV_Fmt                   | 1280   | 1211     | XBV video                          |           | XBV           | adMOVIE       |         |
| HNM4_Fmt                  | 1281   | 1212     | CRYO HNM4 video                    |           | HNM           | adMOVIE       |         |
| HNM6_Fmt                  | 1282   | 1213     | CRYO HNM6 video                    |           | HNM, HNS      | adMOVIE       |         |
| NXV_Fmt                   | 1283   | 1214     | NXV video                          |           | NXV           | adMOVIE       |         |
| VP5_Fmt                   | 1284   | 1215     | On2 VP5 video                      |           | VP5           | adMOVIE       |         |



| Format Name                   | Number | Category | Description                                                         | MIME Type | Extension                         | File Class    | Readers |
|-------------------------------|--------|----------|---------------------------------------------------------------------|-----------|-----------------------------------|---------------|---------|
| FutureVision_FST_Fmt          | 1285   | 1216     | FutureVision FST video                                              |           | FST                               | adMOVIE       |         |
| Electronic_Arts_Audio_Fmt     | 1286   | 1217     | Electronic Arts audio file                                          |           | STR                               | adSOUND       |         |
| YOP_Fmt                       | 1287   | 1218     | Psygnosis YOP video                                                 |           | YOP                               | adMOVIE       |         |
| Matrox_Setup_Program_Fmt      | 1288   | 1219     | Matrox Setup Program Archive MVA file                               |           | MVA                               | adMISC        |         |
| Vivado_Design_Suite_Fmt       | 1289   | 1220     | Xilinx Vivado Design Suite file                                     |           | VDS                               | adMISC        |         |
| Meridian_Lossless_Packing_Fmt | 1290   | 1221     | Meridian Lossless Packing Audio file                                |           | MLP                               | adSOUND       |         |
| Electronic_Arts_SEAD_Fmt      | 1291   | 1222     | Electronic Arts SEAD audio                                          |           | TGV                               | adSOUND       |         |
| Electronic_Arts_MPC_Fmt       | 1292   | 1223     | Electronic Arts MPC video                                           |           | MPC                               | adMOVIE       |         |
| PMP_Fmt                       | 1293   | 1224     | PMP video                                                           |           | PMP                               | adMOVIE       |         |
| DEGAS_Fmt                     | 1294   | 1225     | DEGAS (Design & Entertainment Graphic Arts System) image            |           | PI1, PI2, PI3                     | adRASTERIMAGE |         |
| DEGAS_Compressed_Fmt          | 1295   | 1226     | DEGAS (Design & Entertainment Graphic Arts System) compressed image |           | PC1, PC2, PC3                     | adRASTERIMAGE |         |
| AutoCAD_Plotter_Fmt           | 1296   | 1227     | AutoCAD Plot Style and Configuration files                          |           | CTB, STB, PC3, PMP                | adCAD         |         |
| Tiny_Stuff_Fmt                | 1297   | 1228     | Tiny Stuff image                                                    |           | TNY, TN1, TN2, TN3, TN4, TN5, TN6 | adRASTERIMAGE |         |
| JV_Video_Fmt                  | 1298   | 1229     | Bitmap Brothers JV video                                            |           | JV                                | adMOVIE       |         |
| REDCode_Fmt                   | 1299   | 1230     | REDCode video format                                                |           | R3D                               | adMOVIE       |         |
| SIFF_Video_Fmt                | 1300   | 1231     | Beam Software SIFF video file                                       |           | VB                                | adMOVIE       |         |
| VP6_Fmt                       | 1301   | 1232     | On2 VP6 video                                                       |           | VP6                               | adMOVIE       |         |
| MTV_Fmt                       | 1302   | 1233     | Chinese MP4/MTV video                                               |           | MTV                               | adMOVIE       |         |
| RSO_Fmt                       | 1303   | 1234     | Mindstorm RSO audio                                                 |           | RSO                               | adSOUND       |         |
| Star3_Fmt                     | 1304   | 1235     | Creative Labs Star 3 audio                                          |           | ST3                               | adSOUND       |         |

| Format Name          | Number | Category | Description                                      | MIME Type             | Extension         | File Class      | Readers                   |
|----------------------|--------|----------|--------------------------------------------------|-----------------------|-------------------|-----------------|---------------------------|
| DXA_Fmt              | 1305   | 1236     | Runesoft DXA video                               |                       | DXA               | adMOVIE         |                           |
| MTH_Fmt              | 1306   | 1237     | Nintendo GameCube video file                     |                       | MTH               | adMOVIE         |                           |
| MAD_Fmt              | 1307   | 1238     | Electronic Arts MAD video file                   |                       | MAD               | adMOVIE         |                           |
| Bink2_Fmt            | 1308   | 1239     | Bink Video 2 audio-video container               |                       | BIK, BK2          | adMOVIE         |                           |
| PVA_Fmt              | 1309   | 1240     | TechnoTrend PVA video                            |                       | PVA               | adMOVIE         |                           |
| Interplay_ACMP_Fmt   | 1310   | 1241     | Interplay ACMP audio                             |                       |                   | adSOUND         |                           |
| Ipix_Fmt             | 1311   | 1242     | Ipix spherical image                             |                       | IPX               | adRASTERIMAGE   |                           |
| IVR_Fmt              | 1312   | 1243     | RealNetworks Internet Video Recording (IVR) file |                       | IVR               | adMOVIE         |                           |
| NuppelVideo_Fmt      | 1313   | 1244     | NuppelVideo file                                 |                       | NUV               | adMOVIE         |                           |
| VFlash_PTX_Fmt       | 1314   | 1245     | VTech V.Flash VTX image                          |                       | PTX               | adRASTERIMAGE   |                           |
| PMD_Ringtone_Fmt     | 1315   | 1246     | Polyphonic Ringtone PMD audio                    | application/x-pmd     | PMD               | adSOUND         |                           |
| RoQ_Fmt              | 1316   | 1247     | RoQ video                                        |                       | ROQ               | adMOVIE         |                           |
| CRYO_APC_Fmt         | 1317   | 1248     | CRYO Interactive APC audio                       |                       | APC, HNM, BF, ZIK | adSOUND         |                           |
| VGZ_Fmt              | 1318   | 1249     | VGZ video                                        |                       | VGZ               | adMOVIE         |                           |
| Novastorm_Video_Fmt  | 1319   | 1250     | Novastorm Media video file                       |                       | FA, FLM           | adMOVIE         |                           |
| UTalk_Fmt            | 1320   | 1251     | MicroTalk/UTalk audio                            |                       | UTK               | adSOUND         |                           |
| Xbox_XMV_Fmt         | 1321   | 1252     | Microsoft Xbox XMV video                         |                       | XMV               | adMOVIE         |                           |
| AbiWord_Fmt          | 1322   | 1253     | AbiWord document                                 | application/x-abiword | ABW               | adWORDPROCESSOR | <a href="#">xmlsr</a>     |
| AbiWord_Template_Fmt | 1323   | 1254     | AbiWord template                                 |                       | ABT               | adWORDPROCESSOR |                           |
| Psion_Word_Fmt       | 1324   | 1255     | Psion EPOC Word document                         |                       | PSI, PSITEXT      | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Psion_Sheet_Fmt      | 1325   | 1256     | Psion EPOC Sheet spreadsheet                     |                       | PSISHEET          | adSPREADSHEET   |                           |
| Psion_Sketch_Fmt     | 1326   | 1257     | Psion EPOC Sketch image                          |                       |                   | adRASTERIMAGE   |                           |
| Psion_Record_Fmt     | 1327   | 1258     | Psion EPOC Record audio                          |                       |                   | adSOUND         |                           |

| Format Name          | Number | Category | Description                                   | MIME Type                    | Extension | File Class      | Readers                   |
|----------------------|--------|----------|-----------------------------------------------|------------------------------|-----------|-----------------|---------------------------|
| Psion_MBM_Fmt        | 1328   | 1259     | Psion EPOC Multi-Bitmap (MBM) image           |                              | MBM       | adRASTERIMAGE   |                           |
| Psion_TextEd_Fmt     | 1329   | 1260     | Psion EPOC TextEd file                        |                              |           | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Psion_AIF_Fmt        | 1330   | 1261     | Psion EPOC Application Information File (AIF) |                              | AIF       | adRASTERIMAGE   |                           |
| Psion_PIC_Fmt        | 1331   | 1262     | Psion 3 PIC bitmap                            |                              | PIC       | adRASTERIMAGE   |                           |
| Psion_Object_Fmt     | 1332   | 1263     | Psion 3 OPL Object File                       |                              | OPA, OPO  | adENCAPSULATION |                           |
| Psion_Executable_Fmt | 1333   | 1264     | Psion 3 IMG/APP executable                    |                              | IMG, APP  | adEXECUTABLE    |                           |
| Psion_Sound_Fmt      | 1334   | 1265     | Psion 3 Sound file                            |                              | WVE       | adSOUND         |                           |
| Psion_Database_Fmt   | 1335   | 1266     | Psion EPOC Database                           |                              |           | adDATABASE      |                           |
| Psion_Word_3_Fmt     | 1336   | 1267     | Psion 3 Word document                         |                              | WRD       | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Psion_Sheet_3_Fmt    | 1337   | 1268     | Psion 3 Sheet spreadsheet                     |                              | SPR       | adSPREADSHEET   |                           |
| Zoner_Draw_Fmt       | 1338   | 1269     | Zoner Draw / Zoner Callisto Metafile (ZMF)    |                              | ZMF       | adVECTORGRAPHIC |                           |
| Zoner_BMI_Fmt        | 1339   | 1270     | Zoner BMI image                               |                              | BMI       | adRASTERIMAGE   |                           |
| TealDoc_Fmt          | 1340   | 1271     | TealDoc PalmOS eBook                          |                              | PDB       | adWORDPROCESSOR |                           |
| TealPaint_Fmt        | 1341   | 1272     | TealPaint PalmOS eBook                        |                              | PDB       | adWORDPROCESSOR |                           |
| PalmDOC_Fmt          | 1342   | 1273     | PalmDOC / Aportis DOC eBook                   | application/x-aporisdoc      | PRC, PDB  | adWORDPROCESSOR |                           |
| QiOO_Fmt             | 1343   | 1274     | QiOO mobile eBook                             |                              | JAR       | adWORDPROCESSOR |                           |
| Plucker_Fmt          | 1344   | 1275     | Plucker eBook                                 | application/prs.plucker      | PDB       | adWORDPROCESSOR |                           |
| eReader_Fmt          | 1345   | 1276     | eReader (Palm Reader/ Peanut Reader) eBook    |                              | PDB       | adWORDPROCESSOR |                           |
| Quickword_Fmt        | 1346   | 1277     | PalmOS Quickword document                     |                              | PRC       | adWORDPROCESSOR | <a href="#">stringssr</a> |
| Quicksheet_Fmt       | 1347   | 1278     | PalmOS Quicksheet document                    |                              | PRC       | adSPREADSHEET   |                           |
| Quickpoint_Fmt       | 1348   | 1279     | PalmOS Quickpoint document                    |                              | PRC       | adPRESENTATION  |                           |
| TealMeal_Fmt         | 1349   | 1280     | TealMeal PalmOS database                      |                              | PDB       | adDATABASE      |                           |
| zTXT_Fmt             | 1350   | 1281     | zTXT eBook                                    | application/x-pdb-ztxt-ebook | PDB       | adWORDPROCESSOR |                           |

| Format Name                     | Number | Category | Description                                    | MIME Type                                 | Extension | File Class      | Readers               |
|---------------------------------|--------|----------|------------------------------------------------|-------------------------------------------|-----------|-----------------|-----------------------|
| TomeRaider_Fmt                  | 1351   | 1282     | TomeRaider eBook                               |                                           | TR        | adWORDPROCESSOR |                       |
| TomeRaider_PDB_Fmt              | 1352   | 1283     | TomeRaider PDB eBook                           |                                           | TR2, TR3  | adWORDPROCESSOR |                       |
| WordSmith_Fmt                   | 1353   | 1284     | PalmOS Wordsmith document                      |                                           |           | adWORDPROCESSOR |                       |
| iSilo_Fmt                       | 1354   | 1285     | PalmOS iSilo document                          | application/x-pdb-isilo-ebook             | PDB       | adWORDPROCESSOR |                       |
| SuperMemo_Fmt                   | 1355   | 1286     | PalmOS SuperMemo document                      |                                           | KNO, PDB  | adWORDPROCESSOR |                       |
| BDicty_Fmt                      | 1356   | 1287     | PalmOS BDicty document                         |                                           | PDB       | adWORDPROCESSOR |                       |
| PalmOS_Executable_Fmt           | 1357   | 1288     | PalmOS executable                              | application/vnd.palm                      | PRC       | adEXECUTABLE    |                       |
| PalmOS_Library_Fmt              | 1358   | 1289     | PalmOS dynamic library                         |                                           | PRC       | adLIBRARY       |                       |
| Shanda_Bambook_Fmt              | 1359   | 1290     | Shanda Bambook eBook                           | application/x-snb-ebook                   | SNB       | adWORDPROCESSOR |                       |
| PMLZ_Fmt                        | 1360   | 1291     | Palm Markup Language (PMLZ) eBook              |                                           | PMLZ      | adWORDPROCESSOR |                       |
| Rocket_eBook_Fmt                | 1361   | 1292     | Rocket eBook                                   | application/x-rocketbook                  | RB        | adWORDPROCESSOR |                       |
| iBooks_Author_Fmt               | 1362   | 1293     | Apple iBooks Author eBook                      | application/vnd.apple.ibauthor            | IBA       | adWORDPROCESSOR |                       |
| Statistica_Spreadsheet_Fmt      | 1363   | 1294     | Statsoft Statistica Spreadsheet                |                                           | STA       | adSPREADSHEET   |                       |
| Statistica_Graph_Fmt            | 1364   | 1295     | Statsoft Statistica Graph File                 |                                           | STG       | adVECTORGRAPHIC |                       |
| Statistica_Scrollsheet_Fmt      | 1365   | 1296     | Statsoft Statistica Scrollsheet                |                                           | SCR       | adSPREADSHEET   |                       |
| Apple_Newton_Package_Fmt        | 1366   | 1297     | Apple Newton executable/installer/file         |                                           | PKG       | adEXECUTABLE    |                       |
| Adobe_Zip_Extension_Fmt         | 1367   | 1298     | Adobe Zip Format Extension Package (ZXP)       | application/vnd.adobe.air-ucf-package+zip | ZXP       | adENCAPSULATION |                       |
| Uniform_Office_Fmt              | 1368   | 1299     | Uniform Office Format document                 |                                           | UOF       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Uniform_Office_Text_Fmt         | 1369   | 1300     | Uniform Office Format word processing document | application/vnd.uof.text                  | UOF, UOT  | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Uniform_Office_Spreadsheet_Fmt  | 1370   | 1301     | Uniform Office Format spreadsheet              | application/vnd.uof.spreadsheet           | UOF, UOS  | adSPREADSHEET   |                       |
| Uniform_Office_Presentation_Fmt | 1371   | 1302     | Uniform Office Format presentation             | application/vnd.uof.presentation          | UOF, UOP  | adPRESENTATION  |                       |

| Format Name                         | Number | Category | Description                                                   | MIME Type                            | Extension | File Class       | Readers                   |
|-------------------------------------|--------|----------|---------------------------------------------------------------|--------------------------------------|-----------|------------------|---------------------------|
| Uniform_Office_Zip_Fmt              | 1372   | 1303     | Uniform Office Format document, zip format                    |                                      | UOF       | adWORDPROCESSOR  |                           |
| Uniform_Office_Text_Zip_Fmt         | 1373   | 1304     | Uniform Office Format word processing document, zip format    | application/vnd.uof.text+zip         | UOF, UOT  | adWORDPROCESSOR  |                           |
| Uniform_Office_Spreadsheet_Zip_Fmt  | 1374   | 1305     | Uniform Office Format spreadsheet, zip format                 | application/vnd.uof.spreadsheet+zip  | UOF, UOS  | adSPREADSHEET    |                           |
| Uniform_Office_Presentation_Zip_Fmt | 1375   | 1306     | Uniform Office Format presentation, zip format                | application/vnd.uof.presentation+zip | UOF, UOP  | adPRESENTATION   |                           |
| MacDraft_Fmt                        | 1376   | 1307     | MacDraft drawing                                              |                                      | DRW, MDD  | adCAD            |                           |
| RagTime_Fmt                         | 1377   | 1308     | RagTime document                                              |                                      | RAG, RTD  | adDESKTOPPUBLISH |                           |
| MacDraw_Fmt                         | 1378   | 1309     | MacDraw drawing                                               |                                      |           | adVECTORGRAPHIC  |                           |
| Wingz_Fmt                           | 1379   | 1310     | Wingz spreadsheet                                             |                                      | WKZ       | adSPREADSHEET    |                           |
| Claris_Draw_Fmt                     | 1380   | 1311     | Claris Draw document                                          |                                      |           | adVECTORGRAPHIC  |                           |
| BeagleWorks_Word_Fmt                | 1381   | 1312     | BeagleWorks (later WordPerfect Works) Word Processor document |                                      | BW, WPW   | adWORDPROCESSOR  | <a href="#">stringssr</a> |
| BeagleWorks_Database_Fmt            | 1382   | 1313     | BeagleWorks (later WordPerfect Works) Database document       |                                      | BW, WPW   | adDATABASE       |                           |
| BeagleWorks_Spreadsheet_Fmt         | 1383   | 1314     | BeagleWorks (later WordPerfect Works) Spreadsheet document    |                                      | BW, WPW   | adSPREADSHEET    |                           |
| BeagleWorks_Paint_Fmt               | 1384   | 1315     | BeagleWorks (later WordPerfect Works) Paint document          |                                      | BW, WPW   | adRASTERIMAGE    |                           |
| BeagleWorks_Draw_Fmt                | 1385   | 1316     | BeagleWorks (later WordPerfect Works) Draw document           |                                      | BW, WPW   | adVECTORGRAPHIC  |                           |
| GreatWorks_Word_Fmt                 | 1386   | 1317     | Symantec GreatWorks Word Processor document                   |                                      |           | adWORDPROCESSOR  | <a href="#">stringssr</a> |
| GreatWorks_Outline_Fmt              | 1387   | 1318     | Symantec GreatWorks Outline document                          |                                      |           | adOUTLINE        |                           |
| GreatWorks_Database_Fmt             | 1388   | 1319     | Symantec GreatWorks Database document                         |                                      |           | adDATABASE       |                           |
| GreatWorks_                         | 1389   | 1320     | Symantec GreatWorks                                           |                                      |           | adSPREADSHEET    |                           |

| Format Name                   | Number | Category | Description                                                       | MIME Type             | Extension | File Class      | Readers |
|-------------------------------|--------|----------|-------------------------------------------------------------------|-----------------------|-----------|-----------------|---------|
| Spreadsheet_Fmt               |        |          | Spreadsheet document                                              |                       |           |                 |         |
| GreatWorks_Draw_Fmt           | 1390   | 1321     | Symantec GreatWorks Draw document                                 |                       |           | adVECTORGRAPHIC |         |
| GreatWorks_Chart_Fmt          | 1391   | 1322     | Symantec GreatWorks Chart document                                |                       |           | adVECTORGRAPHIC |         |
| MS_Works_3_Mac_WP_Fmt         | 1392   | 1323     | Microsoft Works for Mac, version 3 and 4, Word Processor document | application/x-msworks | MSW, WPS  | adWORDPROCESSOR |         |
| MS_Works_3_Mac_DB_Fmt         | 1393   | 1324     | Microsoft Works for Mac, version 3 and 4, Database                | application/x-msworks | WDB       | adDATABASE      |         |
| MS_Works_3_Mac_SS_Fmt         | 1394   | 1325     | Microsoft Works for Mac, version 3 and 4, Spreadsheet             | application/x-msworks | WKS       | adSPREADSHEET   |         |
| MS_Works_3_Mac_Comm_Fmt       | 1395   | 1326     | Microsoft Works for Mac, version 3 and 4, Communications document | application/x-msworks |           | adCOMMUNICATION |         |
| MS_Works_3_Mac_Draw_Fmt       | 1396   | 1327     | Microsoft Works for Mac, version 3 and 4, Draw document           | application/x-msworks | MSW       | adVECTORGRAPHIC |         |
| SAP_VDS_Fmt                   | 1397   | 1328     | SAP 3d Visual Enterprise VDS document                             |                       | VDS       | adCAD           |         |
| ZIPVFS_Fmt                    | 1398   | 1329     | ZIPVFS SQLite compressed read/write database                      |                       | SQLITE    | adDATABASE      |         |
| Right_Hemisphere_Material_Fmt | 1399   | 1330     | Right Hemisphere Material file                                    |                       | RH, RHM   | adCAD           |         |
| RH_Thumbnails_Fmt             | 1400   | 1331     | Right Hemisphere thumbnail collection file                        |                       | \$RH      | adCAD           |         |
| Westwood_Studios_Audio_Fmt    | 1401   | 1332     | Westwood Studios Audio file                                       |                       | AUD       | adSOUND         |         |
| Shockwave_Stream_Fmt          | 1402   | 1333     | Shockwave Stream audio-video file                                 |                       | STREAM    | adMOVIE         |         |
| EGG_Video_Fmt                 | 1403   | 1334     | EGG video file                                                    |                       | EGG       | adMOVIE         |         |
| IRCAM_Fmt                     | 1404   | 1335     | IRCAM audio file                                                  |                       | IRCAM     | adSOUND         |         |
| Sierra_Audio_Fmt              | 1405   | 1336     | Sierra Entertainment audio file                                   |                       | SOL       | adSOUND         |         |

| Format Name                | Number | Category | Description                                      | MIME Type                      | Extension | File Class      | Readers               |
|----------------------------|--------|----------|--------------------------------------------------|--------------------------------|-----------|-----------------|-----------------------|
| TiVo_Video_Fmt             | 1406   | 1337     | TiVo video                                       |                                | TY+       | adMOVIE         |                       |
| OptimFROG_Fmt              | 1407   | 1338     | OptimFROG audio                                  |                                | OFR, OFS  | adSOUND         |                       |
| LPAC_Fmt                   | 1408   | 1339     | Lossless Predictive Audio Compression file       |                                | PAC       | adSOUND         |                       |
| RK_Audio_Fmt               | 1409   | 1340     | RK Audio lossless compressed audio               |                                | RKA       | adSOUND         |                       |
| Asylum_Music_Fmt           | 1410   | 1341     | Asylum Music Format                              |                                | AMF       | adSOUND         |                       |
| Novastorm_Audio_Fmt        | 1411   | 1342     | Novastorm Media audio file                       |                                | SMP       | adSOUND         |                       |
| HHE_Fmt                    | 1412   | 1343     | HHE video                                        |                                | HHE       | adMOVIE         |                       |
| Portable_Voice_Fmt         | 1413   | 1344     | Portable Voice Format audio                      |                                | PVF       | adSOUND         |                       |
| CNM_Video_Fmt              | 1414   | 1345     | Arxel CNM audio-video format                     |                                | CNM       | adMOVIE         |                       |
| Phantom_Cine_Fmt           | 1415   | 1346     | Phantom Cine video file                          |                                | CINE      | adMOVIE         |                       |
| MPEG2_Transport_Stream_Fmt | 1416   | 1347     | MPEG-2 Transport Stream video                    |                                | M2TS      | adMOVIE         |                       |
| Audacity_Project_Fmt       | 1417   | 1348     | Audacity audio project file                      | application/x-audacity-project | AUP       | adSOUND         |                       |
| Voltage_VSF_Fmt            | 1418   | 1349     | Micro Focus Voltage VSF encrypted file           |                                | VDF       | adENCAPSULATION |                       |
| XLIFF_Fmt                  | 1419   | 1350     | XML Localization Interchange File Format (XLIFF) | application/xliff+xml          | XLIF      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| XBRL_Fmt                   | 1420   | 1351     | Extensible Business Reporting Language (XBRL)    |                                | XBRL      | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| AuditXPRESSX_Fmt           | 1421   | 1352     | AuditXPRESSX file                                |                                | AXPX      | adWORDPROCESSOR |                       |
| Box_Note_Fmt               | 1422   | 1353     | Box Note document                                |                                | BOXNOTE   | adWORDPROCESSOR |                       |
| Hikvision_DVR_Fmt          | 1423   | 1354     | Hikvision DVR video                              |                                |           | adMOVIE         |                       |
| Electronic_Arts_TGV_Fmt    | 1424   | 1355     | Electronic Arts TGV video                        |                                | TGV       | adMOVIE         |                       |
| Electronic_Arts_TGQ_Fmt    | 1425   | 1356     | Electronic Arts TGQ video                        |                                | TGQ       | adMOVIE         |                       |
| Reaper_Video_Fmt           | 1426   | 1357     | Reaper Video                                     |                                | FMV       | adMOVIE         |                       |

| Format Name                  | Number | Category | Description                                | MIME Type                                      | Extension     | File Class      | Readers               |
|------------------------------|--------|----------|--------------------------------------------|------------------------------------------------|---------------|-----------------|-----------------------|
| Lightweight_Video_Fmt        | 1427   | 1358     | Lightweight Video Format (LVF)             |                                                | LVF           | adMOVIE         |                       |
| Liquid_Audio_Fmt             | 1428   | 1359     | Liquid Audio                               |                                                | LQT           | adSOUND         |                       |
| Extended_Instrument_Fmt      | 1429   | 1360     | eXtended Instrument generic audio tracker  |                                                | XI            | adSOUND         |                       |
| MAML_Fmt                     | 1430   | 1361     | Microsoft Assistance Markup Language       |                                                | AML           | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| MS_Chat_Character_Fmt        | 1431   | 1362     | Microsoft Comic Chat Character             |                                                | AVB           | adRASTERIMAGE   |                       |
| MS_Border_Fmt                | 1432   | 1363     | Microsoft Office Border images             |                                                | BDR           | adRASTERIMAGE   |                       |
| MS_Binary_Log_Fmt            | 1433   | 1364     | Microsoft Binary Log file                  |                                                | BLG           | adMISC          |                       |
| MS_Reader_eBook_Fmt          | 1434   | 1365     | Microsoft Reader eBook file                |                                                | LIT           | adWORDPROCESSOR |                       |
| MS_Reader_Annotations_Fmt    | 1435   | 1366     | Microsoft Reader annotation file           |                                                | EBO           | adWORDPROCESSOR |                       |
| Amazon_KFX_Aux_Fmt           | 1436   | 1367     | Amazon KFX eBook auxiliary format (2015)   |                                                | KFX, AZW      | adWORDPROCESSOR |                       |
| Amazon_KFX_Ion_Fmt           | 1437   | 1368     | Amazon KFX eBook Ion format (2015)         |                                                | KFX, AZW, ION | adWORDPROCESSOR |                       |
| MS_DPAPI_Fmt                 | 1438   | 1369     | Microsoft Data Protection API (DPAPI) data |                                                |               | adMISC          |                       |
| MS_Streets_Fmt               | 1439   | 1370     | Microsoft Streets & Trips map              |                                                | EST           | adGIS           |                       |
| MS_Fast_Find_Index_Fmt       | 1440   | 1371     | Microsoft Office Fast Find Index           |                                                | FFX           | adMISC          |                       |
| MS_Fresh_Paint_Fmt           | 1441   | 1372     | Microsoft Fresh Paint image                |                                                | FPPX          | adRASTERIMAGE   |                       |
| MS_Mathematics_Fmt           | 1442   | 1373     | Microsoft Mathematics worksheet            |                                                | GCW           | adSCIENTIFIC    |                       |
| MS_Instrument_Definition_Fmt | 1443   | 1374     | Microsoft MIDI Instrument Definition File  |                                                | IDF           | adSOUND         |                       |
| MS_Pocket_Streets_Fmt        | 1444   | 1375     | Microsoft Pocket Streets map               |                                                | MPS           | adGIS           |                       |
| Obfuscated_OpenType_Fmt      | 1445   | 1376     | Obfuscated OpenType font (ODTTF)           | application/vnd.ms-package.obfuscated-opentype | ODTTF         | adFONT          |                       |



| Format Name                | Number | Category | Description                                      | MIME Type | Extension | File Class      | Readers |
|----------------------------|--------|----------|--------------------------------------------------|-----------|-----------|-----------------|---------|
| Pfaff_PCS_Fmt              | 1446   | 1377     | Pfaff PCS embroidery image                       |           | PCS       | adVECTORGRAPHIC |         |
| Janome_JEF_Fmt             | 1447   | 1378     | Janome JEF embroidery format                     |           | JEF       | adVECTORGRAPHIC |         |
| Husqvarna_HUS_Fmt          | 1448   | 1379     | Husqvarna Viking HUS embroidery format           |           | HUS       | adVECTORGRAPHIC |         |
| Husqvarna_VIP_Fmt          | 1449   | 1380     | Husqvarna Viking-Pfaff VIP embroidery format     |           | VIP       | adVECTORGRAPHIC |         |
| Brother_PEC_Fmt            | 1450   | 1381     | Brother PEC embroidery format                    |           | PEC       | adVECTORGRAPHIC |         |
| Brother_PES_Fmt            | 1451   | 1382     | Brother PEC embroidery format                    |           | PES       | adVECTORGRAPHIC |         |
| Viking_SHV_Fmt             | 1452   | 1383     | Viking SHV embroidery format                     |           | SHV       | adVECTORGRAPHIC |         |
| VP3_Fmt                    | 1453   | 1384     | VP3 embroidery format                            |           | VP3       | adVECTORGRAPHIC |         |
| SEW_Fmt                    | 1454   | 1385     | SEW embroidery format                            |           | SEW       | adVECTORGRAPHIC |         |
| Data_Stitch_Tajima_Fmt     | 1455   | 1386     | Data Stitch Tajima (DST) embroidery image        |           | DST       | adVECTORGRAPHIC |         |
| Singer_XXX_Fmt             | 1456   | 1387     | Singer XXX embroidery image                      |           | XXX       | adVECTORGRAPHIC |         |
| Bernina_ART_Fmt            | 1457   | 1388     | Bernina ART embroidery image                     |           | ART       | adVECTORGRAPHIC |         |
| MS_Prefetch_Fmt            | 1458   | 1389     | Microsoft Windows Prefetch (uncompressed) file   |           | PF        | adMISC          |         |
| MS_Prefetch_Compressed_Fmt | 1459   | 1390     | Microsoft Windows Prefetch (compressed) file     |           | PF        | adMISC          |         |
| MS_MapPoint_Fmt            | 1460   | 1391     | Microsoft MapPoint map                           |           | PTM       | adGIS           |         |
| MS_Live_Meeting_Fmt        | 1461   | 1392     | Microsoft Office Live Meeting Connection         |           | RTC       | adSCHEDULE      |         |
| MS_Speech_Definitions_Fmt  | 1462   | 1393     | Microsoft text-to-speech Speech Definitions File |           | SDF       | adMISC          |         |
| MS_Speech_Data_Fmt         | 1463   | 1394     | Microsoft text-to-speech Speech Data File        |           | SPD       | adDATABASE      |         |
| MS_SQL_CE_Fmt              | 1464   | 1395     | Microsoft SQL Server                             |           | SDF       | adDATABASE      |         |

| Format Name               | Number | Category | Description                                    | MIME Type                     | Extension | File Class      | Readers                   |
|---------------------------|--------|----------|------------------------------------------------|-------------------------------|-----------|-----------------|---------------------------|
|                           |        |          | Compact (CE) edition database                  |                               |           |                 |                           |
| MS_ICE_Project_Fmt        | 1465   | 1396     | Microsoft Image Composite Editor (ICE) Project |                               | SPJ       | adMISC          |                           |
| MS_DVR_Fmt                | 1466   | 1397     | Microsoft Digital Video Recording (DVR-MS)     | video/x-ms-dvr                | DVR-MS    | adMOVIE         |                           |
| Symbol_Dynamics_EXP_Fmt   | 1467   | 1398     | Symbol Dynamics EXP document                   |                               | WXP       | adWORDPROCESSOR | <a href="#">stringssr</a> |
| XNA_Compiled_Fmt          | 1468   | 1399     | Microsoft XNA Compiled Format                  |                               | XNB       | adENCAPSULATION |                           |
| Outlook_Shortcut_Fmt      | 1469   | 1400     | Microsoft Outlook or Exchange folder shortcut  |                               | XNK       | adMISC          |                           |
| ChiWriter_Fmt             | 1470   | 1401     | ChiWriter document (up to version 3)           |                               | CHI       | adWORDPROCESSOR |                           |
| ChiWriter4_Fmt            | 1471   | 1402     | ChiWriter document (version 4)                 |                               | CHI       | adWORDPROCESSOR |                           |
| Lightning_Strike_Fmt      | 1472   | 1403     | Lightning Strike image                         | image/cis-cod                 | COD       | adRASTERIMAGE   |                           |
| Blackberry_Executable_Fmt | 1473   | 1404     | Blackberry executable                          |                               | COD       | adEXECUTABLE    |                           |
| EndNote_Library_Fmt       | 1474   | 1405     | EndNote Library (up to version 9)              | application/x-endnote-library | ENL       | adDATABASE      |                           |
| EndNote_Library_X_Fmt     | 1475   | 1406     | EndNote Library (version X onwards)            |                               | ENL, ENLX | adDATABASE      |                           |
| EndNote_Filter_Fmt        | 1476   | 1407     | EndNote Filter                                 | application/x-puid-fmt-327    | ENF       | adDATABASE      |                           |
| EndNote_Style_Fmt         | 1477   | 1408     | EndNote Style                                  | application/x-endnote-style   | ENS       | adDATABASE      |                           |
| EndNote_Connection_Fmt    | 1478   | 1409     | EndNote Connection                             | application/x-endnote-connect | ENZ       | adDATABASE      |                           |
| Camtasia_Recording_Fmt    | 1479   | 1410     | Camtasia Recording                             |                               | CAMREC    | adMOVIE         |                           |
| Camtasia_Project_Fmt      | 1480   | 1411     | Camtasia XML Project                           |                               | CAMPROJ   | adWORDPROCESSOR |                           |
| TechSmith_Project_Fmt     | 1481   | 1412     | TechSmith JSON Project                         |                               | TSCPROJ   | adWORDPROCESSOR |                           |
| ABIF_Fmt                  | 1482   | 1413     | Applied Biosystems Inc. Format (ABIF)          |                               | AB1, FSA  | adSCIENTIFIC    |                           |
| CIF_Fmt                   | 1483   | 1414     | Crystallographic                               | chemical/x-cif                | CIF       | adSCIENTIFIC    |                           |

| Format Name                 | Number | Category | Description                           | MIME Type                      | Extension      | File Class       | Readers               |
|-----------------------------|--------|----------|---------------------------------------|--------------------------------|----------------|------------------|-----------------------|
|                             |        |          | Information File                      |                                |                |                  |                       |
| Sibelius_Fmt                | 1484   | 1415     | Sibelius musical score                |                                | SIB            | adSOUND          |                       |
| Geogebra_Worksheet_Fmt      | 1485   | 1416     | Geogebra worksheet                    | application/vnd.geogebra.file  | GGB            | adSCIENTIFIC     |                       |
| Geogebra_Tool_Fmt           | 1486   | 1417     | Geogebra tool                         |                                | GGT            | adSCIENTIFIC     |                       |
| Polynomial_Texture_Map_Fmt  | 1487   | 1418     | Polynomial Texture Map (PTM)          |                                | PTM            | adRASTERIMAGE    |                       |
| Poly_Tracker_Fmt            | 1488   | 1419     | Poly Tracker audio                    |                                | PTM            | adSOUND          |                       |
| PC_Outline_Fmt              | 1489   | 1420     | PC-Outline document                   |                                | PCO            | adWORDPROCESSOR  |                       |
| Spline_Font_Database_Fmt    | 1490   | 1421     | Spline Font Database (SFD) font       |                                | SFD            | adFONT           |                       |
| QuickTime_Image_Fmt         | 1491   | 1422     | QuickTime (QTIF) image                | image/x-quicktime              | QTIF, QIF, QTI | adRASTERIMAGE    |                       |
| XBin_Image_Fmt              | 1492   | 1423     | XBin image                            |                                | XB             | adRASTERIMAGE    |                       |
| Segmented_Hypergraphics_Fmt | 1493   | 1424     | MS Segmented Hypergraphics image      |                                | SHG            | adRASTERIMAGE    |                       |
| LEADTools_CMP_Fmt           | 1494   | 1425     | LEADTools CMP image                   |                                | CMP            | adRASTERIMAGE    |                       |
| WBMP_Fmt                    | 1495   | 1426     | Wireless Bitmap image (WBMP)          | image/vnd.wap.wbmp             | WBMP           | adRASTERIMAGE    |                       |
| Blender_Fmt                 | 1496   | 1427     | Blender (v2) CAD file                 | application/x-blender          | BLEND          | adCAD            |                       |
| Blender_v1_Fmt              | 1497   | 1428     | Blender (v1) CAD file                 | application/x-blender          | BLEND          | adCAD            |                       |
| Scribus_Fmt                 | 1498   | 1429     | Scribus document                      | application/vnd.scribus        | SLA            | adDESKTOPPUBLISH |                       |
| LyX_Fmt                     | 1499   | 1430     | LyX document                          | application/x-lyx              | LYX            | adWORDPROCESSOR  | <a href="#">lyxsr</a> |
| NZB_Fmt                     | 1500   | 1431     | NewzBin NZB format                    | application/x-nzb              | NZB            | adWORDPROCESSOR  |                       |
| KWord_Fmt                   | 1501   | 1432     | KOffice KWord document                | application/vnd.kde.kword      | KWD            | adWORDPROCESSOR  |                       |
| KSpread_Fmt                 | 1502   | 1433     | KOffice KSpread document              | application/vnd.kde.kspread    | KSP            | adSPREADSHEET    |                       |
| KPresenter_Fmt              | 1503   | 1434     | KOffice KPresenter document           | application/vnd.kde.kpresenter | KPR            | adPRESENTATION   |                       |
| KWord_GZ_Fmt                | 1504   | 1435     | KOffice (up to v1.1) kWord document   | application/x-kword            | KWD            | adWORDPROCESSOR  |                       |
| KSpread_GZ_Fmt              | 1505   | 1436     | KOffice (up to v1.1) kSpread document | application/x-kspread          | KSP            | adSPREADSHEET    |                       |

| Format Name             | Number | Category | Description                                    | MIME Type                    | Extension         | File Class      | Readers               |
|-------------------------|--------|----------|------------------------------------------------|------------------------------|-------------------|-----------------|-----------------------|
| KPresenter_GZ_Fmt       | 1506   | 1437     | KOffice (up to v1.1) kPresenter document       | application/x-kpresenter     | KPR               | adPRESENTATION  |                       |
| Karbon_Fmt              | 1507   | 1438     | KOffice Karbon document                        | application/vnd.kde.karbon   | KARBON            | adVECTORGRAPHIC |                       |
| KChart_Fmt              | 1508   | 1439     | KOffice KChart document                        | application/vnd.kde.kchart   | CHRT              | adSPREADSHEET   |                       |
| KPlato_Fmt              | 1509   | 1440     | KOffice KPlato document                        | application/x-vnd.kde.kplato | KPLATO            | adSCHEDULE      |                       |
| GIMP_Pattern_Fmt        | 1510   | 1441     | GIMP Pattern file                              |                              | PAT               | adRASTERIMAGE   |                       |
| GIMP_Brush_Fmt          | 1511   | 1442     | GIMP Brush file                                |                              | GBR               | adRASTERIMAGE   |                       |
| GIMP_Animated_Brush_Fmt | 1512   | 1443     | GIMP Animated Brush file                       |                              | GIH               | adRASTERIMAGE   |                       |
| Git_Pack_Index_Fmt      | 1513   | 1444     | Git Pack Index format                          |                              | IDX               | adENCAPSULATION |                       |
| Git_Index_Fmt           | 1514   | 1445     | Git Index format                               |                              | INDEX             | adENCAPSULATION |                       |
| MS_Tape_Fmt             | 1515   | 1446     | Microsoft Tape Format                          |                              | MTF, BAK          | adENCAPSULATION |                       |
| STL_Binary_Fmt          | 1516   | 1447     | 3D Systems Stereolithography STL Binary Format |                              |                   | adCAD           |                       |
| Unix_Shadow_Fmt         | 1517   | 1448     | Unix /etc/shadow password file                 |                              |                   | adMISC          |                       |
| MS_SQL_Log_Fmt          | 1518   | 1449     | Microsoft SQL Server log                       |                              | LDF               | adDATABASE      |                       |
| DER_Certificate_Fmt     | 1519   | 1450     | DER-encoded X509 certificate                   | application/x-x509-user-cert | DER, CER          | adENCAPSULATION |                       |
| EDIFACT_Fmt             | 1520   | 1451     | EDIFACT-encoded EDI document                   | application/edifact          | EDI               | adDATABASE      |                       |
| X12_Fmt                 | 1521   | 1452     | X12-encoded EDI document                       | application/edi-x12          | EDI               | adDATABASE      |                       |
| Mathcad_Fmt             | 1522   | 1453     | Mathcad MCD document                           | application/vnd.mcd          | MCD               | adSCIENTIFIC    |                       |
| Mathcad_XML_Fmt         | 1523   | 1454     | Mathcad XMCD document                          | application/x-mathcad        | XMCD              | adSCIENTIFIC    | <a href="#">xmlsr</a> |
| EDrawings_Fmt           | 1524   | 1455     | eDrawings Publisher document                   |                              | EASM, EPRT, EDRAW | adCAD           |                       |
| First_Choice_DB_Fmt     | 1525   | 1456     | PFS First Choice database                      | database/x-firstchoice       | FOL               | adDATABASE      |                       |
| First_Choice_WP_Fmt     | 1526   | 1457     | PFS First Choice word-processing document      |                              | DOC               | adWORDPROCESSOR |                       |
| First_Choice_SS_Fmt     | 1527   | 1458     | PFS First Choice spreadsheet                   | application/x-first-choice   | SS                | adSPREADSHEET   |                       |

| Format Name                    | Number | Category | Description                                       | MIME Type                          | Extension      | File Class      | Readers |
|--------------------------------|--------|----------|---------------------------------------------------|------------------------------------|----------------|-----------------|---------|
| Professional_Plan_Fmt          | 1528   | 1459     | PFS Professional Plan spreadsheet                 | application/x-pfs-plan             |                | adSPREADSHEET   |         |
| PFS_Write_Fmt                  | 1529   | 1460     | PFS Professional Write document                   | application/x-pfsprofessionalwrite | PFS            | adWORDPROCESSOR |         |
| Symantec_QA_Fmt                | 1530   | 1461     | Symantec Q&A Database                             |                                    | DTF            | adDATABASE      |         |
| Bitmap_Graphics_Array_Fmt      | 1531   | 1462     | OS/2 Bitmap Graphics Array                        | image/bga                          | BGA, BMP, ICO  | adRASTERIMAGE   |         |
| OS2_Help_Fmt                   | 1532   | 1463     | OS/2 Help/INF document                            |                                    | HLP, INF       | adWORDPROCESSOR |         |
| Frame_Vector_Fmt               | 1533   | 1464     | Frame Vector Metafile                             |                                    | FMV            | adVECTORGRAPHIC |         |
| RBase_2_Fmt                    | 1534   | 1465     | R:Base database (v2-v4)                           |                                    | RBF            | adDATABASE      |         |
| Harvard_Graphics_Symbol2_Fmt   | 1535   | 1466     | Harvard Graphics Symbol File (v2)                 |                                    | SYM            | adVECTORGRAPHIC |         |
| Freelance_Graphics_Fmt         | 1536   | 1467     | Lotus Freelance Graphics image                    |                                    | DRW            | adRASTERIMAGE   |         |
| Snoop_Capture_Fmt              | 1537   | 1468     | Snoop Packet Capture file                         |                                    | CAP, SNOOP     | adENCAPSULATION |         |
| Python_Pickle_Fmt              | 1538   | 1469     | Python Pickle file                                |                                    | PICKLE, PKL, P | adEXECUTABLE    |         |
| Matlab_Pcode_Fmt               | 1539   | 1470     | Matlab P-code file <sup>4</sup>                   |                                    | P              | adSOURCECODE    |         |
| Rhinoceros_3D_Fmt              | 1540   | 1471     | Rhinoceros 3D Model                               |                                    | 3DM            | adCAD           |         |
| GL_Transmission_Binary_Fmt     | 1541   | 1472     | Graphics Language (GL) Binary Transmission Format | model/gltf+binary                  | GLB            | adCAD           |         |
| CAD_3DXML_Fmt                  | 1542   | 1473     | 3DVIDIA 3DXML archive                             | application/x-3dxmlplugin          | 3DXML          | adCAD           |         |
| CAD_3DXML_XML_Fmt              | 1543   | 1474     | 3DVIDIA 3DXML XML document                        |                                    | 3DXML          | adCAD           |         |
| Autodesk_Fusion_360_Fmt        | 1544   | 1475     | Autodesk Fusion 360 model                         |                                    | F3D            | adCAD           |         |
| DELFTship_Fmt                  | 1545   | 1476     | DELFTship or FREE!ship model                      |                                    | FBM            | adCAD           |         |
| Autodesk_Inventor_Drawing_Fmt  | 1546   | 1477     | Autodesk Inventor drawing                         |                                    | IDW            | adCAD           |         |
| Autodesk_Inventor_Part_Fmt     | 1547   | 1478     | Autodesk Inventor part                            |                                    | IPT            | adCAD           |         |
| Autodesk_Inventor_Assembly_Fmt | 1548   | 1479     | Autodesk Inventor assembly                        |                                    | IAM            | adCAD           |         |

| Format Name                      | Number | Category | Description                                                | MIME Type                     | Extension          | File Class      | Readers                 |
|----------------------------------|--------|----------|------------------------------------------------------------|-------------------------------|--------------------|-----------------|-------------------------|
| Autodesk_Revit_Fmt               | 1549   | 1480     | Autodesk Revit document                                    |                               | RVT, RFA, RTE, RFT | adCAD           |                         |
| FreeCAD_Fmt                      | 1550   | 1481     | FreeCAD document                                           |                               | FCSTD              | adCAD           |                         |
| Solid_Edge_Part_Fmt              | 1551   | 1482     | Solid Edge part                                            |                               | PAR                | adCAD           |                         |
| Solid_Edge_Assembly_Fmt          | 1552   | 1483     | Solid Edge assembly                                        |                               | ASM                | adCAD           |                         |
| Solid_Edge_SheetMetal_Fmt        | 1553   | 1484     | Solid Edge sheet metal                                     |                               | PSM                | adCAD           |                         |
| SolidWorks_Visualize_Project_Fmt | 1554   | 1485     | SolidWorks Visualize project                               |                               | SVPJ               | adCAD           |                         |
| Apache_Parquet_Fmt               | 1555   | 1486     | Apache Parquet document                                    |                               | PARQUET            | adDATABASE      | <a href="#">parquet</a> |
| AES_Crypt_Fmt                    | 1556   | 1487     | AES Crypt document                                         |                               | AES                | adENCAPSULATION |                         |
| SO_Math_XML_Fmt                  | 1557   | 1488     | OpenDocument format (OpenOffice 1/StarOffice 6,7) Math XML | application-vnd.sun.xml.math  | SXM                | adMISC          |                         |
| MathML_Fmt                       | 1558   | 1489     | MathML document                                            | application/mathml+xml        | MMML, MATHML       | adMISC          |                         |
| Photoshop_Brush_Fmt              | 1559   | 1490     | Adobe Photoshop Brush document                             | image/x-adobe-photoshop-brush | ABR                | adMISC          |                         |
| Photoshop_Color_Book_Fmt         | 1560   | 1491     | Adobe Photoshop Color Book                                 |                               | ACB                | adMISC          |                         |
| Premiere_Project_Fmt             | 1561   | 1492     | Adobe Premiere Elements/Pro project                        |                               | PRPROJ, PREL       | adMISC          |                         |
| Premiere_Title_Fmt               | 1562   | 1493     | Adobe Premiere title document                              |                               | PTL                | adMISC          |                         |
| Premiere_Pro_Title_Fmt           | 1563   | 1494     | Adobe Premiere Pro title document                          |                               | PRTL               | adMISC          |                         |
| Memgraph_Fmt                     | 1564   | 1495     | Memgraph database plist format                             | application/x-bplist-memgraph | MEMGRAPH           | adDATABASE      |                         |
| Memgraph_XML_Fmt                 | 1565   | 1496     | Memgraph database XML format                               |                               | MEMGRAPH           | adDATABASE      |                         |
| AV1_Image_Fmt                    | 1566   | 1497     | AV1 Image Format (AVIF)                                    | image/avif                    | AVIF               | adRASTERIMAGE   |                         |
| AV1_Image_Sequence_Fmt           | 1567   | 1498     | AV1 Image Sequence Format (AVIFS)                          | image/avif-sequence           | AVIFS              | adANIMATION     |                         |
| IVF_Fmt                          | 1568   | 1499     | IVF container document                                     |                               | IVF                | adRASTERIMAGE   |                         |

| Format Name           | Number | Category | Description                                                 | MIME Type                  | Extension   | File Class      | Readers               |
|-----------------------|--------|----------|-------------------------------------------------------------|----------------------------|-------------|-----------------|-----------------------|
| AV1_Image_IVF_Fmt     | 1569   | 1500     | AV1 Image (IVF container)                                   | image/avif                 | AVIF, AVIFS | adRASTERIMAGE   |                       |
| VP8_IVF_Fmt           | 1570   | 1501     | VP8 Video (IVF container)                                   |                            | VP8         | adMOVIE         |                       |
| HPROF_Fmt             | 1571   | 1502     | HPROF Java Profiler document                                | application/vnd.java.hprof | HPROF       | adMISC          |                       |
| XLIFF_Compressed_Fmt  | 1572   | 1503     | XML Localization Interchange File Format compressed (XLIFF) | application/xliff+zip      | XLZ         | adWORDPROCESSOR |                       |
| Scenarist_Caption_Fmt | 1573   | 1504     | Scenarist Closed Caption document                           |                            | SCC         | adWORDPROCESSOR |                       |
| SubRip_Text_Fmt       | 1574   | 1505     | SubRip Text (STT) subtitles document                        |                            | SRT         | adWORDPROCESSOR |                       |
| EBU_Subtitling_Fmt    | 1575   | 1506     | EBU Subtitling data exchange format                         |                            | STL         | adWORDPROCESSOR |                       |
| Apache_ORC_Fmt        | 1576   | 1507     | Apache ORC (Optimized Row Columnar) data                    |                            | ORC         | adDATABASE      | <a href="#">orcsr</a> |
| NES_Sound_Fmt         | 1577   | 1508     | NES Sound File                                              |                            | NSF         | adSOUND         |                       |
| IW13_IWA_Fmt          | 1578   | 1509     | Apple iWork 2013 IWA document                               |                            | IWA         | adMISC          |                       |
| BioRad_Image_Fmt      | 1579   | 1510     | BioRad confocal image                                       |                            | PIC         | adSCIENTIFIC    |                       |
| NIFTI_Fmt             | 1580   | 1511     | NIFTI (NII) neuroimaging document                           |                            | NII         | adSCIENTIFIC    |                       |
| MRC_DV_Fmt            | 1581   | 1512     | MRC Deltavision (DV) / Priism image                         |                            | DV          | adSCIENTIFIC    |                       |
| MRC_CCP4_Fmt          | 1582   | 1513     | MRC CCP4 2014 image                                         |                            | MRC         | adSCIENTIFIC    |                       |
| ECAT_PET_Fmt          | 1583   | 1514     | ECAT medical PET image                                      |                            | V           | adSCIENTIFIC    |                       |
| OME_XML_Fmt           | 1584   | 1515     | Open Microscopy Environment (OME) XML document              |                            | XML         | adSCIENTIFIC    |                       |
| Panasonic_RAW_Fmt     | 1585   | 1516     | Panasonic RAW or Leica RWL image                            | image/x-panasonic-raw      | RAW, RWL    | adRASTERIMAGE   |                       |
| Panasonic_RW2_Fmt     | 1586   | 1517     | Panasonic RW2 image                                         | image/x-panasonic-rw2      | RW2         | adRASTERIMAGE   |                       |
| FujiFilm_RAF_Fmt      | 1587   | 1518     | FujiFilm RAF image                                          | image/x-fuji-raf           | RAF         | adRASTERIMAGE   |                       |
| Olympus_ORF_Fmt       | 1588   | 1519     | Olympus ORF image                                           | image/x-olympus-orf        | ORF         | adRASTERIMAGE   |                       |
| HEVC_Fmt              | 1589   | 1520     | High Efficiency Video                                       | video/h265                 | HEVC, H265  | adMOVIE         |                       |

| Format Name              | Number | Category | Description                                    | MIME Type                     | Extension           | File Class      | Readers |
|--------------------------|--------|----------|------------------------------------------------|-------------------------------|---------------------|-----------------|---------|
|                          |        |          | Coding (HEVC) MP4 document                     |                               |                     |                 |         |
| PAM_Fmt                  | 1590   | 1521     | Portable Arbitrary Map (PAM) image             | image/x-portable-arbitrarymap | PAM                 | adRASTERIMAGE   |         |
| Paris_Audio_Fmt          | 1591   | 1522     | Paris Audio Format                             |                               | FAP, PAF            | adSOUND         |         |
| Calendar_Creator_Fmt     | 1592   | 1523     | Broderbund Calendar Creator document (v4+)     |                               | CC3, CE3, CC5, BCC  | adSCHEDULE      |         |
| IWork_2013_Protected_Fmt | 1593   | 1524     | iWork 2013 password-protected document         |                               | PAGES, NUMBERS, KEY | adWORDPROCESSOR |         |
| Corel_Wavelet_WVL_Fmt    | 1594   | 1525     | Corel Wavelet WVL image                        |                               | WVL                 | adRASTERIMAGE   |         |
| Corel_Wavelet_WI_Fmt     | 1595   | 1526     | Corel Wavelet WI image                         |                               | WI                  | adRASTERIMAGE   |         |
| Corel_Painter_RIF_Fmt    | 1596   | 1527     | Corel Painter RIFF image                       |                               | RIF                 | adRASTERIMAGE   |         |
| OmniPage_MET_Fmt         | 1597   | 1528     | Caere OmniPage MET document                    |                               | MET                 | adMISC          |         |
| OmniPage_OPD_Fmt         | 1598   | 1529     | Caere OmniPage OPD document                    |                               | OPD                 | adMISC          |         |
| GPS_Exchange_Fmt         | 1599   | 1530     | GPS Exchange Format                            | application/gpx+xml           | GPX                 | adGIS           |         |
| GL_Transmission_Fmt      | 1600   | 1531     | GL Transmission Text Format                    | model/gltf+json               | GLTF                | adCAD           |         |
| CorelChart_Fmt           | 1601   | 1532     | CorelChart document                            |                               | CCH                 | adVECTORGRAPHIC |         |
| LocoScript_PCW_Fmt       | 1602   | 1533     | LocoScript document for Amstrad PCW            |                               |                     | adWORDPROCESSOR |         |
| LocoScript_DOS_Fmt       | 1603   | 1534     | LocoScript document for MS-DOS                 |                               |                     | adWORDPROCESSOR |         |
| IWork_2005_Protected_Fmt | 1604   | 1535     | iWork 2005-2009 password-protected document    |                               | PAGES, NUMBERS, KEY | adWORDPROCESSOR |         |
| JAR_Pack_Fmt             | 1605   | 1536     | Java Archive compressed with pack200           | application/x-java-pack200    | PACK                | adENCAPSULATION |         |
| GDIFF_Fmt                | 1606   | 1537     | GDIFF (Generic Diff) document                  | application/gdiff             |                     | adMISC          |         |
| AFP_Fmt                  | 1607   | 1538     | IBM Advanced Function Presentation (AFP) image | application/vnd.ibm.modcap    | AFP                 | adRASTERIMAGE   |         |
| NSIF_Fmt                 | 1608   | 1539     | NATO Secondary Image                           |                               | NSF                 | adRASTERIMAGE   |         |



| Format Name                  | Number | Category | Description                                                | MIME Type        | Extension | File Class      | Readers               |
|------------------------------|--------|----------|------------------------------------------------------------|------------------|-----------|-----------------|-----------------------|
|                              |        |          | Format (NSIF) image                                        |                  |           |                 |                       |
| XSL_FO_Fmt                   | 1609   | 1540     | XSL Formatting Object (XSL-FO)                             |                  | FO, XSLFO | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| Consolidated_CDA_Fmt         | 1610   | 1541     | Consolidated CDA document                                  |                  | XML       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| WebAssembly_Binary_Fmt       | 1611   | 1542     | WebAssembly (WASM) binary-code                             | application/wasm | WASM      | adEXECUTABLE    |                       |
| Visual_Studio_SDF_Fmt        | 1612   | 1543     | Microsoft Visual Studio browsing database (sdf) file       |                  | SDF       | adSWDEV         |                       |
| MS_Pocket_Word_PocketPC_Fmt  | 1613   | 1544     | Microsoft Pocket Word for Pocket PC                        |                  | PSW, PWI  | adWORDPROCESSOR |                       |
| PEA_Fmt                      | 1614   | 1545     | PEA (Pack, Encrypt, Authenticate) archive                  |                  | PEA       | adENCAPSULATION |                       |
| MS_Pocket_Excel_PocketPC_Fmt | 1615   | 1546     | Microsoft Pocket Excel for Pocket PC                       |                  | PXL       | adSPREADSHEET   |                       |
| TTML_Fmt                     | 1616   | 1547     | Timed Text Markup Language (TTML) document                 |                  | TTML      | adWORDPROCESSOR |                       |
| Visual_SourceSafe_SCC_Fmt    | 1617   | 1504     | Microsoft Visual SourceSafe SCC (Source Code Control) file |                  | SCC       | adMISC          |                       |
| NetBeans_Profiler_Fmt        | 1618   | 1548     | Java NetBeans Profiler snapshot                            |                  | NPS       | adSWDEV         |                       |
| Mac_Alias_Fmt                | 1619   | 1549     | Mac OS alias file                                          |                  |           | adMISC          |                       |
| Firebird_DB_Fmt              | 1620   | 1550     | Firebird database                                          |                  | FDB       | adDATABASE      |                       |
| InterBase_DB_Fmt             | 1621   | 1551     | InterBase database                                         |                  | GDB       | adDATABASE      |                       |
| LZip_Fmt                     | 1622   | 1552     | Lzip compressed archive                                    | application/lzip | LZ        | adENCAPSULATION |                       |
| UltraCompressor_Fmt          | 1623   | 1553     | UltraCompressor II archive                                 |                  | UC2       | adENCAPSULATION |                       |
| PostgreSQL_Filenode_Fmt      | 1624   | 1554     | PostgreSQL mapped relation file (pg_filenode.map)          |                  | MAP       | adDATABASE      |                       |
| Zebra_Metafile_Fmt           | 1625   | 1555     | Zoner Zebra Metafile image                                 |                  | ZBR       | adVECTORGRAPHIC |                       |
| Kodak_Cineon_Fmt             | 1626   | 1556     | Kodak Cineon image                                         |                  | CIN       | adRASTERIMAGE   |                       |

| Format Name         | Number | Category | Description                                                                    | MIME Type            | Extension  | File Class      | Readers |
|---------------------|--------|----------|--------------------------------------------------------------------------------|----------------------|------------|-----------------|---------|
| Apple_Image2_Fmt    | 1627   | 1557     | Apple iOS Image2 document                                                      |                      | IMG2       | adOS            |         |
| Apple_Image3_Fmt    | 1628   | 1558     | Apple iOS Image3 document                                                      |                      | IMG3       | adOS            |         |
| Apple_Image4_Fmt    | 1629   | 1559     | Apple iOS Image4 document                                                      |                      | IMG4, IM4M | adOS            |         |
| Apple_EFI_Image_Fmt | 1630   | 1560     | Apple EFI Image                                                                |                      | EFIRES     | adOS            |         |
| Secure_Capsule_Fmt  | 1631   | 1561     | MacOS Secure Capsule firmware update                                           |                      | SCAP       | adOS            |         |
| Compact_Font_Fmt    | 1632   | 1562     | Adobe Compact Font Format (CFF)                                                | application/font-cff | CFF        | adFONT          |         |
| QML_Cached_Fmt      | 1633   | 1563     | QML Cached document                                                            |                      | QMLC       | adSWDEV         |         |
| KV_Mail_Subfile_Fmt | 1634   | 1564     | Internal mail file produced by KeyView extraction from a mail container format |                      | MAIL       | adWORDPROCESSOR |         |

<sup>1</sup>MHT, EML, and MBX files might return either format 2, 233, or 395, depending on the text in the file. In general, files that contain fields such as **To**, **From**, **Date**, or **Subject** are considered to be email messages; files that contain fields such as **content-type** and **mime-version** are considered to be MHT files; and files that do not contain any of those fields are considered to be text files.

<sup>2</sup>All CAT file extensions, for example CATDrawing, CATProduct, CATPart, and so on.

<sup>3</sup>This format is returned only if you enable source code identification. See [Source Code Identification, on page 101](#).

<sup>4</sup>This format is returned only if you enable extended source code identification. See [Source Code Identification, on page 101](#).

# File Classes

| Attribute Number | Description           | File class      |
|------------------|-----------------------|-----------------|
| 0                | No file class         | AutoDetNoFormat |
| 01               | Word processor        | adWORDPROCESSOR |
| 02               | Spreadsheet           | adSPREADSHEET   |
| 03               | Database              | adDATABASE      |
| 04               | Raster image          | adRASTERIMAGE   |
| 05               | Vector graphic        | adVECTORGRAPHIC |
| 06               | Presentation          | adPRESENTATION  |
| 07               | Executable            | adEXECUTABLE    |
| 08               | Encapsulation         | adENCAPSULATION |
| 09               | Sound                 | adSOUND         |
| 10               | Desktop publishing    | adDESKTOPPUBLSH |
| 11               | Outline/planning      | adOUTLINE       |
| 12               | Miscellaneous         | adMISC          |
| 13               | Mixed format          | adMIXED         |
| 14               | Font                  | adFONT          |
| 15               | Time scheduling       | adSCHEDULE      |
| 16               | Communications        | adCOMMUNICATION |
| 17               | Object module         | adOBJECTMODULE  |
| 18               | Library module        | adLIBRARY       |
| 19               | Fax                   | adFAXFORMAT     |
| 20               | Movie                 | adMOVIE         |
| 21               | Animation             | adANIMATION     |
| 22               | Source Code           | adSOURCECODE    |
| 23               | Computer-Aided Design | adCAD           |

| Attribute Number | Description            | File class   |
|------------------|------------------------|--------------|
| 24               | BI and analysis tools  | adANALYTICS  |
| 25               | Scientific data        | adSCIENTIFIC |
| 26               | Geographic Info System | adGIS        |
| 27               | Software Development   | adSWDEV      |
| 28               | Operating System       | adOS         |

# Appendix B: Document Readers

This section lists the KeyView document readers that are available to filter, export, and view supported file formats.

- [Key to Document Readers Table](#) ..... 197
- [Document Readers](#) ..... 199

## Key to Document Readers Table

The document readers table includes the following information.

| Column                  | Description                                                                                                                                                                                                                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reader                  | The name of the reader.                                                                                                                                                                                                                                                                                    |
| Description             | A description of the reader.                                                                                                                                                                                                                                                                               |
| Filter                  | Shows whether KeyView can filter text from the main content of the file.                                                                                                                                                                                                                                   |
| Export                  | Shows whether KeyView supports export to HTML, XML, and PDF.                                                                                                                                                                                                                                               |
| View                    | Shows whether KeyView provides viewing capability.                                                                                                                                                                                                                                                         |
| Extract                 | Shows whether KeyView can extract sub-files.                                                                                                                                                                                                                                                               |
| Metadata                | Shows whether KeyView can extract metadata (properties such as title, author, and subject).                                                                                                                                                                                                                |
| Charset                 | Shows whether KeyView can detect and extract the character set. Even though a file format might be able to provide character set information, some documents might not contain character set information. Therefore, the document reader would not be able to determine the character set of the document. |
| H/F                     | Shows whether KeyView can extract headers and footers.                                                                                                                                                                                                                                                     |
| Associated File Formats | The file formats that are supported by the reader.                                                                                                                                                                                                                                                         |

### Key to Symbols

| Symbol | Description               |
|--------|---------------------------|
| Y      | The feature is supported. |

**Key to Symbols, continued**

| Symbol | Description                                                                                                                         |
|--------|-------------------------------------------------------------------------------------------------------------------------------------|
| N      | The feature is not supported.                                                                                                       |
| P      | Partial metadata is extracted from this format. Some non-standard fields are not extracted.                                         |
| T      | Only text is extracted from this format. Formatting information is not extracted.                                                   |
| M      | Only metadata (title, subject, author, and so on) is extracted from this format. Text and formatting information are not extracted. |

# Document Readers

| Reader             | Description            | Filter | Export | View           | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------|------------------------|--------|--------|----------------|---------|----------|---------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ActiveX components | Microsoft Visio (2013) | N      | N      | Y <sup>1</sup> | N       | Y        | N       | N   | <a href="#">MS_Visio_2013_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ad1sr              | AD1 Evidence file      | N      | N      | Y              | Y       | N        | n/a     | N   | <a href="#">AD1_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| afmsr              | Adobe Font Metrics     | Y      | T      | T              | N       | N        | N       | N   | <a href="#">Adobe_Font_Metrics_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| afsr               | ASCII Text             | Y      | Y      | Y              | N       | N        | N       | N   | <a href="#">ABAP_Fmt</a> , <a href="#">AMPL_Fmt</a> , <a href="#">APL_Fmt</a> , <a href="#">ASCII_Text_Fmt</a> , <a href="#">ASN1_Fmt</a> , <a href="#">ATS_Fmt</a> , <a href="#">Agda_Fmt</a> , <a href="#">Alloy_Fmt</a> , <a href="#">Apex_Fmt</a> , <a href="#">AppleScript_Fmt</a> , <a href="#">Arduino_Fmt</a> , <a href="#">AsciiDoc_Fmt</a> , <a href="#">AspectJ_Fmt</a> , <a href="#">Assembly_Fmt</a> , <a href="#">Awk_Fmt</a> , <a href="#">BlitzMax_Fmt</a> , <a href="#">Bluespec_Fmt</a> , <a href="#">Brainfuck_Fmt</a> , <a href="#">Brightscript_Fmt</a> , <a href="#">CLIPS_Fmt</a> , <a href="#">CMake_Fmt</a> , <a href="#">COBOL_Fmt</a> , <a href="#">CPlusPlus_Fmt</a> , <a href="#">CWeb_Fmt</a> , <a href="#">C_Fmt</a> , <a href="#">CartoCSS_Fmt</a> , |

<sup>1</sup>Visio 2013 is supported in Viewing only, with the support of ActiveX components from the Microsoft Visio 2013 Viewer. Image fidelity is supported but other features, such as highlighting, are not.

| Reader | Description | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------|-------------|--------|--------|------|---------|----------|---------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |             |        |        |      |         |          |         |     | <a href="#">Ceylon_Fmt</a> , <a href="#">Chapel_Fmt</a> , <a href="#">Clarion_Fmt</a> ,<br><a href="#">Clean_Fmt</a> , <a href="#">Clojure_Fmt</a> , <a href="#">CoffeeScript_Fmt</a> , <a href="#">Component_Pascal_Fmt</a> , <a href="#">Cool_Fmt</a> , <a href="#">Coq_Fmt</a> , <a href="#">Creole_Fmt</a> , <a href="#">Crystal_Fmt</a> , <a href="#">Csharp_Fmt</a> , <a href="#">Csound_Document_Fmt</a> , <a href="#">Csound_Fmt</a> , <a href="#">Css_Fmt</a> , <a href="#">Cuda_Fmt</a> , <a href="#">DIGITAL_Command_Language_Fmt</a> , <a href="#">DTrace_Fmt</a> , <a href="#">D_Fmt</a> , <a href="#">Dart_Fmt</a> , <a href="#">Dockerfile_Fmt</a> , <a href="#">ECL_Fmt</a> , <a href="#">E_Fmt</a> , <a href="#">Eiffel_Fmt</a> , <a href="#">Elm_Fmt</a> , <a href="#">Emacs_Lisp_Fmt</a> , <a href="#">EmberScript_Fmt</a> , <a href="#">Erlang_Fmt</a> , <a href="#">Fantom_Fmt</a> , <a href="#">Forth_Fmt</a> , <a href="#">Fortran_Fmt</a> , <a href="#">FreeMarker_Fmt</a> , <a href="#">Frege_Fmt</a> , <a href="#">Fsharp_Fmt</a> , <a href="#">GAMS_Fmt</a> , <a href="#">GAP_Fmt</a> , <a href="#">GDScript_Fmt</a> , <a href="#">GIS_World_File_Fmt</a> , <a href="#">GLSL_Fmt</a> , <a href="#">G_code_Fmt</a> , <a href="#">Game_Maker_Language_Fmt</a> , <a href="#">Gnuplot_Fmt</a> , <a href="#">Go_Fmt</a> , <a href="#">Golo_Fmt</a> , <a href="#">Gosu_Fmt</a> , <a href="#">Gradle_Fmt</a> , <a href="#">GraphQL_Fmt</a> , <a href="#">Graphviz_DOT_Fmt</a> , <a href="#">Groovy_Fmt</a> , <a href="#">HLSL_Fmt</a> , <a href="#">Hack_Fmt</a> , <a href="#">Haml_Fmt</a> , <a href="#">Handlebars_Fmt</a> , <a href="#">Haskell_Fmt</a> , <a href="#">Hy_Fmt</a> , <a href="#">IDL_Fmt</a> , <a href="#">IGOR_Pro_Fmt</a> , <a href="#">Idris_Fmt</a> , <a href="#">Inform_7_Fmt</a> , <a href="#">Ini_Fmt</a> , <a href="#">Ioke_Fmt</a> , <a href="#">Isabelle_Fmt</a> , <a href="#">JSONiq_Fmt</a> , <a href="#">JSX_Fmt</a> , <a href="#">J_Fmt</a> , <a href="#">Jasmin_Fmt</a> , <a href="#">Java_Fmt</a> , <a href="#">Javascript_Fmt</a> , <a href="#">Jolie_Fmt</a> , <a href="#">Julia_Fmt</a> , <a href="#">KiCad_Layout_Fmt</a> , <a href="#">KiCad_Schematic_Fmt</a> , <a href="#">Kotlin_Fmt</a> , <a href="#">LFE_Fmt</a> , <a href="#">LOLCODE_Fmt</a> , <a href="#">Lasso_Fmt</a> , <a href="#">Limbo_Fmt</a> , <a href="#">Lisp_Fmt</a> , <a href="#">LiveScript_Fmt</a> , <a href="#">Lua_Fmt</a> , <a href="#">MAXScript_Fmt</a> |



| Reader | Description | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------|-------------|--------|--------|------|---------|----------|---------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |             |        |        |      |         |          |         |     | <a href="#">Fmt</a> , <a href="#">ML_Fmt</a> , <a href="#">MSDOS_Batch_File_Fmt</a> , <a href="#">M_Fmt</a> , <a href="#">Makefile_Fmt</a> , <a href="#">Markdown_Fmt</a> , <a href="#">Mathematica_Fmt</a> , <a href="#">Matlab_Fmt</a> , <a href="#">Max_Code_Fmt</a> , <a href="#">Mercury_Fmt</a> , <a href="#">Modelica_Fmt</a> , <a href="#">Modula_2_Fmt</a> , <a href="#">Monkey_Fmt</a> , <a href="#">Moocode_Fmt</a> , <a href="#">NL_Fmt</a> , <a href="#">NSIS_Fmt</a> , <a href="#">NetLogo_Fmt</a> , <a href="#">NewLisp_Fmt</a> , <a href="#">Nginx_Fmt</a> , <a href="#">Nix_Fmt</a> , <a href="#">Nu_Fmt</a> , <a href="#">OCaml_Fmt</a> , <a href="#">ObjC_Fmt</a> , <a href="#">ObjCpp_Fmt</a> , <a href="#">ObjJ_Fmt</a> , <a href="#">OpenCL_Fmt</a> , <a href="#">OpenEdge_ABL_Fmt</a> , <a href="#">OpenSCAD_Fmt</a> , <a href="#">Ox_Fmt</a> , <a href="#">Oxygene_Fmt</a> , <a href="#">Oz_Fmt</a> , <a href="#">PAWN_Fmt</a> , <a href="#">PHP_Fmt</a> , <a href="#">PLSQL_Fmt</a> , <a href="#">PLpgSQL_Fmt</a> , <a href="#">Pan_Fmt</a> , <a href="#">Parrot_Assembly_Fmt</a> , <a href="#">Pascal_Fmt</a> , <a href="#">Perl_Fmt</a> , <a href="#">PicoLisp_Fmt</a> , <a href="#">Pike_Fmt</a> , <a href="#">Pony_Fmt</a> , <a href="#">Powershell_Fmt</a> , <a href="#">Processing_Fmt</a> , <a href="#">Prolog_Fmt</a> , <a href="#">Puppet_Fmt</a> , <a href="#">PureBasic_Fmt</a> , <a href="#">Python_Fmt</a> , <a href="#">QMake_Fmt</a> , <a href="#">RAML_Fmt</a> , <a href="#">RDoc_Fmt</a> , <a href="#">REXX_Fmt</a> , <a href="#">R_Fmt</a> , <a href="#">Racket_Fmt</a> , <a href="#">Ragel_Fmt</a> , <a href="#">Rascal_Fmt</a> , <a href="#">Rebol_Fmt</a> , <a href="#">Red_Fmt</a> , <a href="#">RenPy_Fmt</a> , <a href="#">RenderScript_Fmt</a> , <a href="#">Ring_Fmt</a> , <a href="#">RobotFramework_Fmt</a> , <a href="#">Ruby_Fmt</a> , <a href="#">Rust_Fmt</a> , <a href="#">SAS_Fmt</a> , <a href="#">SGML_Fmt</a> , <a href="#">SPARQL_Fmt</a> , <a href="#">SQLPL_Fmt</a> , <a href="#">SQL_Fmt</a> , <a href="#">SaltStack_Fmt</a> , <a href="#">Scala_Fmt</a> , <a href="#">Scheme_Fmt</a> , <a href="#">Scilab_Fmt</a> , <a href="#">Scribe_Fmt</a> , <a href="#">Shell_Fmt</a> , <a href="#">Smalltalk_Fmt</a> , <a href="#">Squirrel_Fmt</a> , <a href="#">Stan_Fmt</a> , <a href="#">Stata_Fmt</a> , <a href="#">Stylus_Fmt</a> , <a href="#">SuperCollider_Fmt</a> , <a href="#">Swift_Fmt</a> , <a href="#">SystemVerilog_Fmt</a> , <a href="#">TSV_Fmt</a> , <a href="#">TSV_Fmt</a> , <a href="#">TXL_Fmt</a> , <a href="#">Tcl_Fmt</a> , <a href="#">Tex_Fmt</a> , |

| Reader | Description                                | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------|--------------------------------------------|----------------|--------|------|---------|----------|---------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |                                            |                |        |      |         |          |         |     | <a href="#">Turing_Fmt</a> , <a href="#">Turtle_Fmt</a> , <a href="#">TypeScript_Fmt</a> , <a href="#">UrWeb_Fmt</a> , <a href="#">Verilog_Fmt</a> , <a href="#">Vim_script_Fmt</a> , <a href="#">Visual_Basic_Fmt</a> , <a href="#">WebAssembly_Fmt</a> , <a href="#">WebIDL_Fmt</a> , <a href="#">Wiki_Fmt</a> , <a href="#">X10_Fmt</a> , <a href="#">XQuery_Fmt</a> , <a href="#">Xojo_Fmt</a> , <a href="#">Xtend_Fmt</a> , <a href="#">YAML_Fmt</a> , <a href="#">YANG_Fmt</a> , <a href="#">Zephir_Fmt</a> , <a href="#">eC_Fmt</a> , <a href="#">reStructuredText_Fmt</a> , <a href="#">xBase_Fmt</a> |
| aiffsr | Audio Interchange File Format              | M              | N      | N    | N       | Y        | N       | N   | <a href="#">AIFF_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| asfsr  | Advanced Systems Format (1.2)              | N              | N      | N    | N       | Y        | N       | N   | <a href="#">ASF_Fmt</a> , <a href="#">WMA_Fmt</a> , <a href="#">WMV_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| assr   | Applix Spreadsheets (4.2, 4.3, 4.4)        | Y              | Y      | Y    | N       | N        | Y       | N   | <a href="#">Applix_Spreadsheets_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| avrosr | Apache Avro binary format                  | Y <sup>1</sup> | N      | N    | N       | N        | N       | N   | <a href="#">Avro_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| awsr   | Applix Words (3.11, 4, 4.1, 4.2, 4.3, 4.4) | Y              | Y      | Y    | N       | N        | Y       | Y   | <a href="#">Applix_Words_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| axsr   | Applix Asterix                             | Y              | T      | T    | N       | N        | N       | N   | <a href="#">Applix_Alis_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| b1sr   | B1                                         | N              | N      | Y    | Y       | N        | n/a     | N   | <a href="#">B1_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

<sup>1</sup>This reader is only supported on Windows x86\_64 and Linux x86\_64

| Reader             | Description                              | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats         |
|--------------------|------------------------------------------|--------|--------|------|---------|----------|---------|-----|---------------------------------|
| bkfsr              | Microsoft Backup File                    | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">BKF_Fmt</a>         |
| bmpsr              | Windows Bitmap Image                     | M      | M      | N    | N       | Y        | N       | N   | <a href="#">BMP_Fmt</a>         |
| bzip2sr            | Bzip2 Compressed File                    | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">BZIP2_Fmt</a>       |
| cabsr              | Microsoft Cabinet File (1.3)             | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">CAB_Fmt</a>         |
| cdsr               | Convergent Technologies DEF Comm. Format | Y      | T      | T    | N       | N        | N       | N   | <a href="#">CT_DEF_Fmt</a>      |
| cebsr <sup>1</sup> | Founder Chinese E-paper Basic (3.2.1)    | Y      | N      | N    | N       | N        | N       | N   | <a href="#">Founder_CEB_Fmt</a> |
| chmsr              | Microsoft Compiled HTML Help (3)         | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">CHM_Fmt</a>         |
| csvsr              | CSV (Comma Separated Values)             | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">CSV_Fmt</a>         |
| dbfsr              | dBase Database (III+, IV)                | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">dBase_Fmt</a>       |

<sup>1</sup>This reader is only supported on Windows 32-bit platforms.

| Reader             | Description                                               | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats               |
|--------------------|-----------------------------------------------------------|--------|--------|------|---------|----------|---------|-----|---------------------------------------|
| dbxsr              | Microsoft Outlook Express DBX Message Database (5.0, 6.0) | N      | N      | Y    | Y       | Y        | Y       | N   | <a href="#">MS_OEDBX_Fmt</a>          |
| dcasr              | IBM DCA/RFT (Revisable Form Text) (SC23-0758-1)           | Y      | Y      | Y    | N       | N        | Y       | N   | <a href="#">DCA_RFT_Fmt</a>           |
| dcmsr              | Digital Imaging & Communications in Medicine (DICOM)      | M      | N      | N    | N       | Y        | N       | N   | <a href="#">Dicom_Fmt</a>             |
| difsr              | Data Interchange Format                                   | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">DIF_SpreadSheet_Fmt</a>   |
| dmgsr              | Mac Disk Copy Disk Image                                  | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">DMG_Fmt</a>               |
| dw4sr              | DisplayWrite (4)                                          | Y      | Y      | Y    | N       | N        | Y       | N   | <a href="#">IBM_Display_Write_Fmt</a> |
| dxlsr              | IBM Domino Data in XML format <sup>1</sup>                | N      | N      | Y    | Y       | Y        | N       | N   | <a href="#">Lotus_Domino_DXL_Fmt</a>  |
| emlsr <sup>2</sup> | Text Mail (MIME) / Microsoft Outlook                      | Y      | T      | T    | Y       | Y        | Y       | N   | <a href="#">SMTP_Fmt</a>              |

<sup>1</sup>Supports non-encrypted embedded files only.

<sup>2</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

| Reader    | Description                                             | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                   |
|-----------|---------------------------------------------------------|--------|--------|------|---------|----------|---------|-----|-----------------------------------------------------------|
|           | Express<br>(Windows 6,<br>MacIntosh 5)                  |        |        |      |         |          |         |     |                                                           |
| emxsr     | Legato<br>EMailXtender<br>Archives                      | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">EMX_Fmt</a>                                   |
| encase2sr | Expert Witness<br>Compression<br>Format (EnCase)<br>(7) | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">EnCase_Fmt</a>                                |
| encasesr  | Expert Witness<br>Compression<br>Format (EnCase)<br>(6) | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">EnCase_Fmt</a>                                |
| entsr     | Microsoft<br>Entourage<br>Database (2004)               | N      | N      | Y    | Y       | Y        | Y       | N   | <a href="#">ENT_Fmt</a>                                   |
| epubsr    | Open Publication<br>Structure eBook<br>(2.0, 3.0)       | Y      | Y      | Y    | N       | Y        | Y       | N   | <a href="#">Epub_Fmt</a> , <a href="#">iBooks_Fmt</a>     |
| exesr     | MSDOS/Windows<br>Executable                             | N      | N      | Y    | N       | N        | n/a     | N   | <a href="#">MS_Executable_Fmt</a>                         |
| foliosr   | Folio Flat File (3.1)                                   | Y      | Y      | Y    | N       | Y        | Y       | Y   | <a href="#">Folio_Flat_Fmt</a>                            |
| gdsiisr   | GDSII data format                                       | Y      | T      | T    | N       | N        | N       | N   | <a href="#">GDSII_Fmt</a>                                 |
| gifsr     | GIF (87, 89)                                            | M      | M      | N    | N       | Y        | N       | N   | <a href="#">GIF_87a_Fmt</a> , <a href="#">GIF_89a_Fmt</a> |
| gwfssr    | GroupWise                                               | N      | N      | Y    | Y       | Y        | N       | N   | <a href="#">GWFS_Email_Fmt</a>                            |

| Reader              | Description                                  | Filter | Export | View | Extract | Metadata       | Charset | H/F | Associated File Formats                                               |
|---------------------|----------------------------------------------|--------|--------|------|---------|----------------|---------|-----|-----------------------------------------------------------------------|
|                     | FileSurf email                               |        |        |      |         |                |         |     |                                                                       |
| hl7sr               | Health level7 message (2.0)                  | Y      | Y      | Y    | N       | Y              | Y       | N   | <a href="#">HI7_Fmt</a>                                               |
| htmlsr <sup>1</sup> | HTML                                         | N      | N      | N    | N       | Y              | N       | N   | <a href="#">MS_Excel_HTML_Fmt</a> , <a href="#">MS_Word_HTML_Fmt</a>  |
| htmsr               | HTML/XHTML (3, 4)                            | Y      | Y      | Y    | N       | Y <sup>2</sup> | Y       | N   | <a href="#">HTML_Fmt</a> , <a href="#">Netscape_Bookmark_File_Fmt</a> |
| hwposr              | Haansoft Hangul HWP (2002, 2005, 2007, 2010) | Y      | Y      | Y    | Y       | Y              | Y       | N   | <a href="#">HWP_Fmt</a>                                               |
| hwpsr               | Haansoft Hangul HWP (97)                     | Y      | Y      | Y    | N       | Y              | Y       | N   | <a href="#">HWP_Fmt</a>                                               |
| hwpxsr              | Haansoft Hangul HWPX                         | Y      | T      | T    | N       | N              | Y       | N   | <a href="#">HWPX_Fmt</a>                                              |
| ichatsr             | Apple iChat Log (1, AV 2, AV 2.1, AV 3)      | Y      | Y      | Y    | N       | N              | N       | N   | <a href="#">Apple_iChat_Fmt</a>                                       |
| icssr               | Microsoft Outlook iCalendar (1.0, 2.0)       | N      | N      | Y    | Y       | Y              | Y       | N   | <a href="#">ICS_Fmt</a>                                               |
| isosr               | ISO-9660 CD Disc                             | N      | N      | Y    | Y       | N              | n/a     | N   | <a href="#">ISO_Fmt</a>                                               |

<sup>1</sup>This reader is not available for Solaris.

<sup>2</sup>HTML only supports partial metadata extraction

| Reader                | Description                                      | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                |
|-----------------------|--------------------------------------------------|--------|--------|------|---------|----------|---------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | Image                                            |        |        |      |         |          |         |     |                                                                                                                                                                                                                                        |
| iwss13sr <sup>1</sup> | Apple iWork Numbers ('13, '16, '18, iCloud 2018) | Y      | T      | T    | N       | N        | Y       | N   | <a href="#">IWSS13_Fmt</a>                                                                                                                                                                                                             |
| iwsssr                | Apple iWork Numbers ('08, '09)                   | Y      | Y      | Y    | N       | Y        | Y       | N   | <a href="#">IWSS_Fmt</a>                                                                                                                                                                                                               |
| iwwp13sr <sup>2</sup> | Apple iWork Pages ('13, '16, '18, iCloud 2018)   | Y      | T      | T    | N       | N        | N       | N   | <a href="#">IWWP13_Fmt</a>                                                                                                                                                                                                             |
| iwwpsr                | Apple iWork Pages ('08, '09)                     | Y      | Y      | Y    | N       | Y        | Y       | N   | <a href="#">IWWP_Fmt</a>                                                                                                                                                                                                               |
| jp2000sr              | JPEG (2000)                                      | M      | M      | N    | N       | Y        | N       | N   | <a href="#">ISO_JPEG2000_JP2_Fmt</a> , <a href="#">ISO_JPEG2000_JPM_Fmt</a> , <a href="#">ISO_JPEG2000_JPX_Fmt</a> , <a href="#">JPEG_2000_JP2_File_Fmt</a> , <a href="#">JPEG_2000_PGX_Fmt</a> , <a href="#">Motion_JPEG_2000_Fmt</a> |
| jpgsr                 | JPEG Interchange Format (JFIF)                   | M      | M      | N    | N       | Y        | N       | N   | <a href="#">JPEG_File_Interchange_Fmt</a>                                                                                                                                                                                              |
| jtdsr                 | JustSystems Ichitaro (8 to 2013, 2018)           | Y      | Y      | Y    | N       | P        | N       | Y   | <a href="#">ICHITARO_Compr_Fmt</a> , <a href="#">ICHITARO_Fmt</a>                                                                                                                                                                      |
| kpagrdr               | Applix                                           | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">Applix_Graphics_Fmt</a>                                                                                                                                                                                                    |

<sup>1</sup>This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.

<sup>2</sup>This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.

| Reader                | Description                                          | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                |
|-----------------------|------------------------------------------------------|----------------|--------|------|---------|----------|---------|-----|--------------------------------------------------------------------------------------------------------|
|                       | Presents/Graphics (4.0, 4.2, 4.3, 4.4)               |                |        |      |         |          |         |     |                                                                                                        |
| kpanirdr              | Windows Animated Cursor                              | N              | Y      | Y    | N       | N        | N       | N   | <a href="#">Windows_Animated_Cursor_Fmt</a>                                                            |
| kpbmprdr              | Windows Bitmap Image                                 | Y <sup>1</sup> | Y      | Y    | N       | N        | N       | N   | <a href="#">BMP_Fmt</a>                                                                                |
| kpCATrdr              | CATIA formats (5)                                    | Y              | N      | N    | N       | Y        | N       | N   | <a href="#">CATIA_Fmt</a>                                                                              |
| kpcdrdr               | CorelDRAW <sup>2</sup> (through 9.0, 10, 11, 12, X3) | N              | Y      | Y    | N       | N        | N       | N   | <a href="#">Corel_Draw_Fmt</a>                                                                         |
| kpcgmrdr <sup>3</sup> | Computer Graphics Metafile                           | Y              | Y      | Y    | N       | N        | N       | N   | <a href="#">CGM_Binary_Fmt</a> , <a href="#">CGM_Character_Fmt</a> , <a href="#">CGM_ClearText_Fmt</a> |
| kpchtrdr              | Microsoft Excel (2-7) and Lotus 1-2-3 Charts (2-5)   | N              | Y      | Y    | N       | N        | N       | N   |                                                                                                        |
| kpdcxrdr              | DCX Fax System                                       | N              | Y      | Y    | N       | N        | N       | N   | <a href="#">DCX_Fmt</a>                                                                                |
| kpDWGrdr <sup>4</sup> | Autodesk AutoCAD DWG Drawing (R13                    | Y              | Y      | Y    | N       | Y        | Y       | N   | <a href="#">AutoDesk_DWG_Fmt</a>                                                                       |

<sup>1</sup>Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

<sup>2</sup>CDR/CDR with TIFF header.

<sup>3</sup>Files with non-partitioned data are supported.

<sup>4</sup>The kpDWGrdr exists to provide DWG support on platforms where kpODArdr is not available. It is used on AIX, Solaris, and SPARC platforms, but does not support graphics for versions after 2004 or text for versions after 2013.



| Reader                   | Description                                      | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                       |
|--------------------------|--------------------------------------------------|----------------|--------|------|---------|----------|---------|-----|-------------------------------------------------------------------------------|
|                          | onwards)                                         |                |        |      |         |          |         |     |                                                                               |
| kpDXFrdr <sup>1</sup>    | Autodesk AutoCAD DXF Drawing (R13 onwards)       | Y              | Y      | Y    | N       | Y        | Y       | N   | <a href="#">AutoCAD_DXF_Binary_Fmt</a> , <a href="#">AutoCAD_DXF_Text_Fmt</a> |
| kpemfrdr                 | Enhanced Metafile                                | Y              | Y      | Y    | N       | Y        | N       | N   | <a href="#">Enhanced_Metafile_Fmt</a>                                         |
| kpepsrdr                 | Encapsulated PostScript (raster) (TIFF header)   | N              | Y      | Y    | N       | N        | N       | N   | <a href="#">EPSF_Fmt</a> , <a href="#">Preview_EPSF_Fmt</a>                   |
| kpGFLrdr                 | Omni Graffle                                     | Y              | N      | N    | N       | Y        | Y       | N   | <a href="#">Omni_Graffle_XML_Fmt</a>                                          |
| kpgifrdr                 | GIF (87, 89)                                     | Y <sup>2</sup> | Y      | Y    | N       | N        | N       | N   | <a href="#">GIF_87a_Fmt</a> , <a href="#">GIF_89a_Fmt</a>                     |
| kpicordr                 | Windows Icon Cursor                              | N              | Y      | Y    | N       | N        | N       | N   | <a href="#">Windows_Icon_Fmt</a>                                              |
| kpIWPG13rdr <sup>3</sup> | Apple iWork Keynote ('13, '16, '18, iCloud 2018) | Y              | T      | N    | N       | N        | N       | N   | <a href="#">IWPG13_Fmt</a>                                                    |
| kpIWPGrdr                | Apple iWork Keynote (2, 3, '08, '09)             | Y              | Y      | Y    | N       | Y        | Y       | N   | <a href="#">IWPG13_Fmt</a> , <a href="#">IWPG_Fmt</a>                         |

<sup>1</sup>The kpDXFrdr exists to provide DXF support on platforms where kpODArdr is not available. It is used on AIX, Solaris, and SPARC platforms, but does not support graphics for versions after 2004.

<sup>2</sup>Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

<sup>3</sup>This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.

| Reader                | Description                                     | Filter         | Export | View | Extract        | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                          |
|-----------------------|-------------------------------------------------|----------------|--------|------|----------------|----------|---------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| kpJBIG2rdr            | JBIG2                                           | Y <sup>1</sup> | Y      | Y    | N              | N        | N       | N   | <a href="#">JBIG2_Fmt</a>                                                                                                                                                                                                                        |
| kpjp2000rdr           | JPEG (2000)                                     | Y <sup>2</sup> | Y      | Y    | N              | N        | N       | N   | <a href="#">ISO_JPEG2000_JP2_Fmt</a> , <a href="#">ISO_JPEG2000_JPEG2000_JPM_Fmt</a> , <a href="#">ISO_JPEG2000_JPX_Fmt</a> , <a href="#">JPEG_2000_JP2_File_Fmt</a> , <a href="#">JPEG_2000_PGX_Fmt</a> , <a href="#">Motion_JPEG_2000_Fmt</a>  |
| kpjpgdr               | JPEG Interchange Format (JFIF)                  | Y <sup>3</sup> | Y      | Y    | N              | N        | N       | N   | <a href="#">JPEG_File_Interchange_Fmt</a>                                                                                                                                                                                                        |
| kpmacrdr              | MacPaint                                        | N              | Y      | Y    | N              | N        | N       | N   | <a href="#">MacPaint_Fmt</a>                                                                                                                                                                                                                     |
| kpmsordr              | Microsoft Office Drawing                        | N              | Y      | Y    | N              | N        | N       | N   | <a href="#">MS_Office_Drawing_Fmt</a>                                                                                                                                                                                                            |
| kpODArdr <sup>4</sup> | ODA                                             | Y              | Y      | Y    | N              | Y        | Y       | N   | <a href="#">AutoCAD_DXF_Binary_Fmt</a> , <a href="#">AutoCAD_DXF_Text_Fmt</a> , <a href="#">AutoDesk_DWG_Fmt</a>                                                                                                                                 |
| kpodfrdr              | OASIS Open Document Format (1, 2 <sup>5</sup> ) | Y              | Y      | Y    | Y <sup>6</sup> | Y        | Y       | N   | <a href="#">ODF_Drawing_Fmt</a> , <a href="#">ODF_Drawing_Template_Fmt</a> , <a href="#">ODF_Presentation_Fmt</a> , <a href="#">ODF_Presentation_Template_Fmt</a> , <a href="#">SO_Drawing_XML_Fmt</a> , <a href="#">SO_Presentation_XML_Fmt</a> |

<sup>1</sup>Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

<sup>2</sup>Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

<sup>3</sup>Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

<sup>4</sup>This reader is only supported on Windows (x86 and x86\_64), Linux (x86 and x86\_64) and macOS (x86\_64 and M1).

<sup>5</sup>Generated by OpenOffice Impress 2.0, StarOffice 8 Impress, and IBM Lotus Symphony Presentation 3.0.

<sup>6</sup>Supported using the olesr embedded objects reader.

| Reader                 | Description                       | Filter         | Export | View | Extract | Metadata       | Charset | H/F            | Associated File Formats                                                 |
|------------------------|-----------------------------------|----------------|--------|------|---------|----------------|---------|----------------|-------------------------------------------------------------------------|
| kpp40rdr               | Microsoft PowerPoint (98)         | Y              | Y      | Y    | N       | P <sup>1</sup> | N       | N              | <a href="#">PowerPoint_Win_Fmt</a>                                      |
| kpp95rdr               | Microsoft PowerPoint Windows (95) | Y              | Y      | Y    | N       | P              | Y       | N              | <a href="#">PowerPoint_95_Fmt</a>                                       |
| kpp97rdr               | Microsoft PowerPoint (97-2004)    | Y              | Y      | Y    | N       | P              | Y       | Y <sup>2</sup> | <a href="#">PowerPoint_2000_Fmt</a> , <a href="#">PowerPoint_97_Fmt</a> |
| kppctrdr               | Macintosh Raster / QuickDraw (2)  | N              | Y      | Y    | N       | N              | N       | N              | <a href="#">Mac_PICT_Fmt</a>                                            |
| kppcxrdr               | PC PaintBrush (3)                 | N              | Y      | Y    | N       | N              | N       | N              | <a href="#">PC_Paintbrush_Fmt</a>                                       |
| kppdf2rdr <sup>3</sup> | Adobe PDF (1.1 to 1.7, 2.0)       | N              | N      | Y    | N       | N              | N       | N              | <a href="#">PDF_Fmt</a>                                                 |
| kppdfdrdr              | Adobe PDF (1.1 to 1.7, 2.0)       | N              | Y      | Y    | N       | N              | N       | N              | <a href="#">PDF_Fmt</a>                                                 |
| kppicrdr               | Lotus PIC                         | Y              | Y      | Y    | N       | N              | N       | N              | <a href="#">Lotus_PIC_Fmt</a>                                           |
| kppngrdr               | Portable Network Graphics         | Y <sup>4</sup> | Y      | Y    | N       | N              | N       | N              | <a href="#">APNG_Fmt</a> , <a href="#">PNG_Fmt</a>                      |

<sup>1</sup>Microsoft PowerPoint Windows only

<sup>2</sup>Microsoft PowerPoint Windows only

<sup>3</sup>kppdf2rdr is an alternate graphic-based reader that produces high-fidelity output but does not support other features such as highlighting or text searching.

<sup>4</sup>Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

| Reader   | Description                                      | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                 |
|----------|--------------------------------------------------|--------|--------|------|---------|----------|---------|-----|---------------------------------------------------------------------------------------------------------|
| kpppxrdr | Microsoft PowerPoint Windows XML (2007 onwards)  | Y      | Y      | Y    | Y       | Y        | Y       | Y   | <a href="#">MS_PPT_2007_Fmt</a> , <a href="#">MS_PPT_Macro_2007_Fmt</a>                                 |
| kpprerdr | Lotus Freelance Graphics 2 (2)                   | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">Freelance_OS2_Fmt</a> , <a href="#">Freelance_Win_Fmt</a>                                   |
| kpprzrdr | Lotus Freelance Graphics (96, 97, 98, R9, 9.8)   | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">Freelance_96_Fmt</a> , <a href="#">Freelance_97_Fmt</a> , <a href="#">Freelance_DOS_Fmt</a> |
| kpsddrdr | StarOffice Impress (3, 4, 5)                     | Y      | T      | N    | N       | N        | N       | N   | <a href="#">SO_Presentation_Fmt</a>                                                                     |
| kpsdwrdr | Lotus AMIDraw Graphics                           | N      | Y      | Y    | N       | N        | N       | N   | <a href="#">Ami_Pro_Draw_Fmt</a> , <a href="#">SO_Text_Fmt</a>                                          |
| kpsgirdr | SGI RGB Image                                    | N      | Y      | Y    | N       | N        | N       | N   | <a href="#">SGI_Image_Fmt</a>                                                                           |
| kpsshrdr | Corel Presentations (6, 7, 8, 9, 10, 11, 12, X3) | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">Corel_Presentations_Fmt</a>                                                                 |
| kpsunrdr | Sun Raster Image                                 | N      | Y      | Y    | N       | N        | N       | N   | <a href="#">Sun_Raster_Fmt</a>                                                                          |
| kpTGArdr | Truevision Targa (2)                             | N      | Y      | Y    | N       | N        | N       | N   | <a href="#">Targa_Fmt</a>                                                                               |

| Reader    | Description                                                        | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                   |
|-----------|--------------------------------------------------------------------|----------------|--------|------|---------|----------|---------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| kptifdr   | TIFF Tagged Image File (through 6.0 <sup>1</sup> )                 | Y <sup>2</sup> | Y      | Y    | N       | N        | N       | N   | <a href="#">TIFF_Fmt</a>                                                                                                                                                                                                                                                  |
| kpUGrdr   | Unigraphics (UG) NX                                                | Y              | N      | N    | N       | N        | N       | N   | <a href="#">Unigraphics_NX_Fmt</a>                                                                                                                                                                                                                                        |
| kpVSD2rdr | Microsoft Visio (4, 5, 2000, 2002, 2003, 2007, 2010 <sup>3</sup> ) | Y              | Y      | Y    | N       | Y        | Y       | N   | <a href="#">MS_Visio_Fmt</a>                                                                                                                                                                                                                                              |
| kpVSDXrdr | Microsoft Visio (2013)                                             | Y              | Y      | Y    | Y       | Y        | Y       | N   | <a href="#">MS_Visio_2013_Fmt</a> , <a href="#">MS_Visio_2013_Macro_Fmt</a> , <a href="#">MS_Visio_2013_Stencil_Fmt</a> , <a href="#">MS_Visio_2013_Stencil_Macro_Fmt</a> , <a href="#">MS_Visio_2013_Template_Fmt</a> , <a href="#">MS_Visio_2013_Template_Macro_Fmt</a> |
| kpwg2rdr  | WordPerfect Graphics 2 (2, 7)                                      | N              | Y      | Y    | N       | N        | N       | N   | <a href="#">WordPerfect_Graphics_Fmt</a>                                                                                                                                                                                                                                  |
| kpwmfrdr  | Windows Metafile (3)                                               | Y <sup>4</sup> | Y      | Y    | N       | N        | N       | N   | <a href="#">Windows_Metafile_Fmt</a> , <a href="#">Windows_Metafile_NoHdr_Fmt</a>                                                                                                                                                                                         |

<sup>1</sup>The following compression types are supported: no compression, CCITT Group 3 1-Dimensional Modified Huffman, CCITT Group 3 T4 1-Dimensional, CCITT Group 4 T6, LZW, JPEG (only Gray, RGB and CMYK color space are supported), and PackBits.

<sup>2</sup>Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

<sup>3</sup>Viewing and Export use the graphic reader, kpVSD2rdr for Microsoft Visio 2003, 2007, and 2010, and vsdsr for all earlier versions. Image fidelity in Viewing and Export is therefore only supported for versions 2003 and above. Filter uses the graphic reader kpVSD2rdr for Microsoft Visio 2003, 2007, and 2010, and vsdsr for all earlier versions.

<sup>4</sup>Windows Metafiles can contain both raster images (KeyView file class 4) and vector graphics (KeyView file class 5). Filtering is supported only for vector graphics (class 5).

| Reader             | Description                                 | Filter | Export | View | Extract | Metadata       | Charset        | H/F            | Associated File Formats                                                                                    |
|--------------------|---------------------------------------------|--------|--------|------|---------|----------------|----------------|----------------|------------------------------------------------------------------------------------------------------------|
| kpwpgrdr           | WordPerfect Graphics 1 (1)                  | N      | Y      | Y    | N       | N              | N              | N              | <a href="#">WordPerfect_Graphics_Fmt</a>                                                                   |
| kpXFDLrdr          | Extensible Forms Description Language       | Y      | Y      | Y    | N       | Y              | Y              | N              | <a href="#">XFDL_Fmt</a>                                                                                   |
| kvgz               | GZIP archive (2)                            | N      | N      | Y    | N       | N              | n/a            | N              | <a href="#">GZ_Compress_Fmt</a>                                                                            |
| kvgzsr             | GZIP archive (2)                            | N      | N      | N    | Y       | N              | n/a            | N              | <a href="#">GZ_Compress_Fmt</a>                                                                            |
| kvhqsr             | BinHex                                      | N      | N      | Y    | Y       | N              | n/a            | N              | <a href="#">BinHex_Fmt</a>                                                                                 |
| kvzee              | UNIX Compress                               | N      | N      | Y    | N       | N              | n/a            | N              | <a href="#">Compress_Fmt</a>                                                                               |
| kvzeesr            | UNIX Compress                               | N      | N      | N    | Y       | N              | n/a            | N              | <a href="#">Compress_Fmt</a>                                                                               |
| l123sr             | Lotus 1-2-3 (96, 97, R9, 9.8)               | Y      | Y      | Y    | N       | P              | Y              | N              | <a href="#">Lotus_123_97_Fmt</a> , <a href="#">Lotus_123_Format_Fmt</a> , <a href="#">Lotus_123_R9_Fmt</a> |
| lasr               | Lotus AMI Pro and Write Plus (2, 3)         | Y      | Y      | Y    | N       | P <sup>1</sup> | Y <sup>2</sup> | Y              | <a href="#">Ami_Pro_Fmt</a> , <a href="#">Ami_Pro_StyleSheet_Fmt</a>                                       |
| lwpsr <sup>3</sup> | Lotus Word Pro and SmartMaster (96, 97, R9) | Y      | Y      | Y    | N       | P <sup>4</sup> | N              | Y <sup>5</sup> | <a href="#">Lotus_Word_Pro_96_Fmt</a> , <a href="#">Lotus_Word_Pro_97_Fmt</a>                              |

<sup>1</sup>Lotus AMI Pro only

<sup>2</sup>Lotus AMI Pro only

<sup>3</sup>This reader is only available on Windows 32-bit

<sup>4</sup>Lotus Word Pro only

<sup>5</sup>Lotus Word Pro only

| Reader             | Description                                                                                                              | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                                                 |
|--------------------|--------------------------------------------------------------------------------------------------------------------------|----------------|--------|------|---------|----------|---------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lyxsr              | LyX Word Processor                                                                                                       | Y              | T      | T    | N       | N        | N       | N   | <a href="#">LyX_Fmt</a>                                                                                                                                                                                                                                                                                 |
| lzhsr              | Microsoft LZH Compressed Folder                                                                                          | N              | N      | N    | Y       | N        | n/a     | N   | <a href="#">LZH_Fmt</a>                                                                                                                                                                                                                                                                                 |
| macbinsr           | MacBinary                                                                                                                | N              | N      | Y    | Y       | N        | n/a     | N   | <a href="#">MacBinary_Fmt</a>                                                                                                                                                                                                                                                                           |
| mbsr               | Microsoft Word Macintosh (4, 5, 6, 98)                                                                                   | Y              | Y      | Y    | N       | Y        | N       | Y   | <a href="#">MS_Word_Mac_4_Fmt</a> , <a href="#">MS_Word_Mac_Fmt</a>                                                                                                                                                                                                                                     |
| mbxsr <sup>1</sup> | Text Mail (MIME), Microsoft Outlook Express (Windows 6, MacIntosh 5), Mailbox <sup>2</sup> (Thunderbird 1.0, Eudora 6.2) | Y <sup>3</sup> | N      | T    | Y       | Y        | Y       | N   | <a href="#">MIME_Fmt</a>                                                                                                                                                                                                                                                                                |
| MCI                | Microsoft Media Control Interface                                                                                        | N              | N      | Y    | N       | N        | N       | N   | <a href="#">AIFF_Fmt</a> , <a href="#">AU_Audio_Fmt</a> , <a href="#">ISO_QuickTime_Fmt</a> , <a href="#">MIDI_Audio_Fmt</a> , <a href="#">MPEG_Audio_Fmt</a> , <a href="#">MS_Video_Fmt</a> , <a href="#">MS_WAVE_Audio_Fmt</a> , <a href="#">Mobile_QuickTime_Fmt</a> , <a href="#">QuickTime_Fmt</a> |

<sup>1</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

<sup>2</sup>KeyView supports MBX files created by Eudora Email and Mozilla Thunderbird. MBX files created by other common mail applications are typically filtered, converted, and displayed.

<sup>3</sup>Text Mail only

| Reader  | Description                                        | Filter | Export | View | Extract | Metadata | Charset        | H/F | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|----------------------------------------------------|--------|--------|------|---------|----------|----------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| mdbsr   | Microsoft Access (95 onwards)                      | Y      | T      | T    | N       | N        | Y <sup>1</sup> | N   | <a href="#">MS_Access_2000_Fmt</a> , <a href="#">MS_Access_2007_Fmt</a> , <a href="#">MS_Access_95_Fmt</a> , <a href="#">MS_Access_97_Fmt</a> , <a href="#">MS_Access_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| mhtsr   | MIME HTML (MHTML)                                  | Y      | Y      | Y    | N       | Y        | Y              | N   | <a href="#">MHT_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| mifsr   | Adobe FrameMaker Interchange Format (5, 5.5, 6, 7) | Y      | Y      | Y    | N       | N        | Y              | N   | <a href="#">Maker_Interchange_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| misr    | Microsoft Word Windows (1.0, 2.0)                  | Y      | Y      | Y    | N       | N        | N              | Y   | <a href="#">MS_Word_Win_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| mp3sr   | MPEG-1 Audio layer3 (ID3 v1 and v2)                | M      | M      | Y    | N       | Y        | N              | N   | <a href="#">MPEG_Audio_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| mpeg4sr | MPEG video                                         | M      | N      | N    | N       | Y        | N              | N   | <a href="#">Adobe_Flash_Audio_Book_Fmt</a> , <a href="#">Adobe_Flash_Audio_Fmt</a> , <a href="#">Adobe_Flash_Protected_Video_Fmt</a> , <a href="#">Adobe_Flash_Video_Fmt</a> , <a href="#">Audible_Audiobook_Fmt</a> , <a href="#">ISO_3GPP2_Fmt</a> , <a href="#">ISO_3GPP_Fmt</a> , <a href="#">ISO_IEC_MPEG_4_Fmt</a> , <a href="#">KDDI_Video_Fmt</a> , <a href="#">MPEG4_AVC_Fmt</a> , <a href="#">MPEG4_M4A_Fmt</a> , <a href="#">MPEG4_M4B_Fmt</a> , <a href="#">MPEG4_M4P_Fmt</a> , <a href="#">MPEG4_M4V_Fmt</a> , <a href="#">MPEG4_Sony_PSP_Fmt</a> , <a href="#">MPEG_21_Fmt</a> , <a href="#">NTT_</a> |

<sup>1</sup>Charset is not supported for Microsoft Access 95 or 97.



| Reader             | Description                                             | Filter         | Export         | View           | Extract | Metadata | Charset        | H/F | Associated File Formats                                                                                                                                                              |
|--------------------|---------------------------------------------------------|----------------|----------------|----------------|---------|----------|----------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    |                                                         |                |                |                |         |          |                |     | <a href="#">MPEG4_Fmt</a> , <a href="#">Nero_MPEG4_Audio_Fmt</a> , <a href="#">QuickTime_Fmt</a> , <a href="#">Sony_XAVC_Fmt</a>                                                     |
| mppsr              | Microsoft Project (2000 onwards)                        | Y              | Y              | Y              | Y       | Y        | Y              | N   | <a href="#">MS_Project_2000_Fmt</a> , <a href="#">MS_Project_2007_Fmt</a> , <a href="#">MS_Project_41_Fmt</a> , <a href="#">MS_Project_4_Fmt</a> , <a href="#">MS_Project_98_Fmt</a> |
| msgsr <sup>1</sup> | Microsoft Outlook (97 onwards), Documentum EMCMF        | Y <sup>2</sup> | T <sup>3</sup> | Y <sup>4</sup> | Y       | Y        | Y <sup>5</sup> | N   | <a href="#">EMCMF_Fmt</a> , <a href="#">MS_Outlook_Fmt</a>                                                                                                                           |
| mspubsr            | Microsoft Publisher (98 to 2016)                        | Y              | T              | T              | Y       | Y        | Y              | N   | <a href="#">MS_Publisher_98_Fmt</a> , <a href="#">MS_Publisher_Fmt</a>                                                                                                               |
| msw6sr             | Microsoft Works Word Processor for Windows (6, 2000)    | Y              | Y              | Y              | N       | N        | N              | Y   | <a href="#">MS_Works_Win_WP_Fmt</a>                                                                                                                                                  |
| mswsr              | Microsoft Works Word Processor for Windows (1, 2, 3, 4) | Y              | Y              | Y              | N       | N        | N              | Y   | <a href="#">MS_Works_Win_WP_Fmt</a>                                                                                                                                                  |

<sup>1</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

<sup>2</sup>Except Documentum EMCMF

<sup>3</sup>Except Documentum EMCMF

<sup>4</sup>For Outlook this is Text only

<sup>5</sup>Returns "Unicode" character set for Outlook version 2003 and up, and "Unknown" character set for previous versions.

| Reader                  | Description                                     | Filter | Export | View           | Extract        | Metadata | Charset        | H/F            | Associated File Formats                                                                                                                                                                                                                   |
|-------------------------|-------------------------------------------------|--------|--------|----------------|----------------|----------|----------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| multiarcsr <sup>1</sup> | Compressed formats                              | N      | N      | Y <sup>2</sup> | Y              | N        | n/a            | N              | <a href="#">ARJ_Fmt</a> , <a href="#">RAR5_Fmt</a> , <a href="#">XZ_Fmt</a>                                                                                                                                                               |
| mw6sr                   | Microsoft Word for Windows (6, 7, 8, 95)        | Y      | Y      | Y              | N              | Y        | Y              | Y              | <a href="#">MS_Word_95_Fmt</a>                                                                                                                                                                                                            |
| mw8sr                   | Microsoft Word (97-2004)                        | Y      | Y      | Y              | Y <sup>3</sup> | Y        | Y              | Y <sup>4</sup> | <a href="#">MS_Word_2000_Fmt</a> , <a href="#">MS_Word_97_Fmt</a>                                                                                                                                                                         |
| mwsr                    | Microsoft Word PC (4-6) and Windows Write (1-3) | Y      | Y      | Y              | N              | N        | Y <sup>5</sup> | Y <sup>6</sup> | <a href="#">MS_Windows_Write_Fmt</a> , <a href="#">MS_Word_PC_Driver_Fmt</a> , <a href="#">MS_Word_PC_Fmt</a> , <a href="#">MS_Word_PC_Glossary_Fmt</a> , <a href="#">MS_Word_PC_Misc_Fmt</a> , <a href="#">MS_Word_PC_StyleSheet_Fmt</a> |
| mwssr                   | Microsoft Works Spreadsheet (2, 3, 4)           | Y      | Y      | Y              | N              | N        | Y              | N              | <a href="#">MS_Works_DOS_SS_Fmt</a> , <a href="#">MS_Works_Mac_SS_Fmt</a> , <a href="#">MS_Works_Win_SS_Fmt</a>                                                                                                                           |
| mwxsr                   | Microsoft Word XML (2007 onwards)               | Y      | Y      | Y              | Y              | Y        | Y              | Y              | <a href="#">MS_Word_2007_Flat_XML_Fmt</a> , <a href="#">MS_Word_2007_Fmt</a> , <a href="#">MS_Word_Macro_2007_Fmt</a>                                                                                                                     |
| nnsr                    | NBI OASys Net Archive                           | Y      | T      | T              | N              | N        | N              | N              | <a href="#">NBI_Net_Archive_Fmt</a>                                                                                                                                                                                                       |

<sup>1</sup>Zip is supported with the multiarcsr reader on some platforms for Extract.

<sup>2</sup>7-zip and SUN PEX archives only

<sup>3</sup>Supported using the embedded objects reader olesr.

<sup>4</sup>Microsoft Word for Windows only

<sup>5</sup>Microsoft Windows Write only

<sup>6</sup>Microsoft Word PC only

| Reader  | Description                                         | Filter | Export | View | Extract        | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|-----------------------------------------------------|--------|--------|------|----------------|----------|---------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| nsfsr   | IBM Lotus Notes database (4, 5, 6.0, 6.5, 7.0, 8.0) | N      | N      | Y    | Y              | Y        | N       | N   | <a href="#">Lotus_Notes_NSF_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| oa2sr   | Fujitsu Oasys (7)                                   | Y      | Y      | Y    | N              | P        | N       | N   | <a href="#">Oasys_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| odfsssr | OASIS Open Document Format (1, 2 <sup>1</sup> )     | Y      | Y      | Y    | Y <sup>2</sup> | Y        | Y       | N   | <a href="#">ODF_Spreadsheet_Fmt</a> , <a href="#">ODF_Spreadsheet_Template_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| odfwpsr | OASIS Open Document Format (1, 2 <sup>3</sup> )     | Y      | Y      | Y    | Y <sup>4</sup> | Y        | Y       | Y   | <a href="#">ODF_Text_Fmt</a> , <a href="#">ODF_Text_Master_Fmt</a> , <a href="#">ODF_Text_Template_Fmt</a> , <a href="#">ODF_Text_Web_Fmt</a> , <a href="#">SO_Text_XML_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| olesr   | Windows Scrap File                                  | N      | N      | N    | Y              | Y        | n/a     | N   | <a href="#">Ability_WP_OLE_Fmt</a> , <a href="#">Autodesk_3ds_Max_Fmt</a> , <a href="#">Crystal_Reports_Fmt</a> , <a href="#">FPX_Fmt</a> , <a href="#">MS_AtWork_Fax_Fmt</a> , <a href="#">MS_Binder_Fmt</a> , <a href="#">MicroStation_V8_DGN_Fmt</a> , <a href="#">OLE_Fmt</a> , <a href="#">PageMagic_Fmt</a> , <a href="#">PagePlus_Fmt</a> , <a href="#">PhotoDraw_Mix_Fmt</a> , <a href="#">PowerPoint_Mac_Fmt</a> , <a href="#">SO_Chart_Fmt</a> , <a href="#">SO_Database_Fmt</a> , <a href="#">SO_Math_Fmt</a> , <a href="#">Scrap_Fmt</a> , <a href="#">SolidWorks_Fmt</a> , <a href="#">Windows_Installer_Fmt</a> , <a href="#">Windows_Installer_Patch_Fmt</a> |
| olmsr   | Microsoft Outlook for Macintosh                     | N      | N      | Y    | Y              | N        | Y       | N   | <a href="#">MS_OutlookOLM_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

<sup>1</sup>Generated by OpenOffice Calc 2.0, StarOffice 8 Calc, and IBM Lotus Symphony Spreadsheet 3.0.

<sup>2</sup>Supported using the embedded objects reader olesr.

<sup>3</sup>Generated by OpenOffice Writer 2.0, StarOffice 8 Writer, and IBM Lotus Symphony Documents 3.0.

<sup>4</sup>Supported using the embedded objects reader olesr.

| Reader                 | Description                                                   | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                           |
|------------------------|---------------------------------------------------------------|----------------|--------|------|---------|----------|---------|-----|-----------------------------------------------------------------------------------|
|                        | (2011)                                                        |                |        |      |         |          |         |     |                                                                                   |
| onesr                  | Microsoft OneNote (2007, 2010, 2013, 2016)                    | Y              | Y      | Y    | Y       | N        | Y       | N   | <a href="#">OneNote_Fmt</a>                                                       |
| onealtsr               | Microsoft OneNote Alternative Packaging Format (2007 onwards) | Y              | T      | T    | Y       | N        | N       | N   | <a href="#">OneNote_Alternate_Fmt</a>                                             |
| onmsr                  | Legato Extender                                               | N              | N      | Y    | Y       | Y        | N       | N   | <a href="#">Legato_Extender_ONM_Fmt</a>                                           |
| oo3sr                  | Omni Outliner (v3, OPML, OOutline)                            | Y              | Y      | Y    | N       | N        | Y       | N   | <a href="#">OO3_Fmt</a> , <a href="#">OOUTLINE_Fmt</a> , <a href="#">OPML_Fmt</a> |
| orcsr                  | Apache ORC (Optimized Row Columnar) data                      | Y <sup>1</sup> | N      | N    | N       | N        | N       | N   | <a href="#">Apache_ORC_Fmt</a>                                                    |
| parquetsr <sup>2</sup> | Apache Parquet Database Format                                | Y              | N      | N    | N       | Y        | N       | N   | <a href="#">Apache_Parquet_Fmt</a>                                                |
| pbixsr                 | Microsoft Power BI Desktop (1.11)                             | Y              | T      | T    | N       | N        | Y       | N   | <a href="#">MS_Power_BI_Fmt</a>                                                   |
| pdf2sr <sup>3</sup>    | Adobe PDF (1.1 to 1.7, 2.0)                                   | Y              | Y      | N    | Y       | Y        | N       | N   | <a href="#">PDF_Fmt</a>                                                           |

<sup>1</sup>This reader is only supported on Windows (x86\_64), Linux (x86\_64 and AArch64) and macOS (M1)

<sup>2</sup>This reader is only supported on Windows x86\_64 and Linux x86\_64. On Linux it requires at least glibc 2.17 (for example, RHEL 7 or later).

<sup>3</sup>This reader is only available on x86 and x86\_64 Linux and Windows

| Reader               | Description                                         | Filter         | Export         | View           | Extract        | Metadata       | Charset | H/F | Associated File Formats                                                      |
|----------------------|-----------------------------------------------------|----------------|----------------|----------------|----------------|----------------|---------|-----|------------------------------------------------------------------------------|
| pdfsr                | Adobe PDF (1.1 to 1.7, 2.0)                         | Y              | Y              | N              | Y <sup>1</sup> | Y              | Y       | N   | <a href="#">PDF_Fmt</a> , <a href="#">Portfolio_PDF_Fmt</a>                  |
| pfasr                | ASCII Printer and PostScript fonts                  | Y              | T              | T              | N              | N              | N       | N   | <a href="#">PostScript_Font_Fmt</a> , <a href="#">Printer_Font_ASCII_Fmt</a> |
| pffsr <sup>2</sup>   | Microsoft Outlook Offline Storage File (97 onwards) | N              | N              | Y              | Y              | Y              | Y       | N   | <a href="#">MS_OutlookOST_Fmt</a>                                            |
| pfilesr              | Rights Management Services (RMS)-protected format   | Y <sup>3</sup> | T <sup>4</sup> | T <sup>5</sup> | N              | Y              | N       | N   | <a href="#">RMS_Protected_Fmt</a>                                            |
| pkcs7sr <sup>6</sup> | PKCS #7 cryptographic format                        | N              | N              | Y              | Y              | N              | N       | N   | <a href="#">PKCS_7_Fmt</a>                                                   |
| pngsr                | Portable Network Graphics                           | M              | M              | N              | N              | Y              | N       | N   | <a href="#">PNG_Fmt</a>                                                      |
| psdsr                | Adobe Photoshop                                     | N              | N              | N              | N              | Y <sup>7</sup> | N       | N   | <a href="#">PSD_Fmt</a>                                                      |

<sup>1</sup>Includes support for extraction of subfiles from PDF Portfolio documents.

<sup>2</sup>The reader pffsr is available only on Windows and Linux.

<sup>3</sup>KeyView filters only the internal redirection text. The underlying document text is not accessible without the decryption key.

<sup>4</sup>KeyView filters only the internal redirection text. The underlying document text is not accessible without the decryption key.

<sup>5</sup>KeyView filters only the internal redirection text. The underlying document text is not accessible without the decryption key.

<sup>6</sup>This reader supports PKCS #7 signed-data encapsulating PKCS #7 data only.

<sup>7</sup>Only XMP metadata is extracted for this format.

| Reader             | Description                                                    | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats             |
|--------------------|----------------------------------------------------------------|--------|--------|------|---------|----------|---------|-----|-------------------------------------|
| pstnsr             | Microsoft Outlook Personal Folder <sup>1</sup><br>(97 onwards) | N      | N      | Y    | Y       | Y        | Y       | N   | <a href="#">MS_OutlookPST_Fmt</a>   |
| pstsr <sup>2</sup> | Microsoft Outlook Personal Folder <sup>3</sup><br>(97 onwards) | N      | N      | Y    | Y       | Y        | N       | N   | <a href="#">MS_OutlookPST_Fmt</a>   |
| pstxsr             | Microsoft Outlook Personal Folder <sup>4</sup><br>(97 onwards) | N      | N      | Y    | Y       | Y        | Y       | N   | <a href="#">MS_OutlookPST_Fmt</a>   |
| pwsr               | PRIMEWORD                                                      | Y      | T      | T    | N       | N        | N       | N   | <a href="#">PRIMEWORD_Fmt</a>       |
| qpssr              | Corel Quattro Pro<br>(5, 6, 7, 8)                              | Y      | Y      | Y    | N       | P        | Y       | N   | <a href="#">Quattro_Pro_Win_Fmt</a> |

<sup>1</sup>KeyView provides several readers capable of processing PST files. The pstsr reader uses the Microsoft Messaging Application Programming Interface (MAPI), works only on Windows, and requires that you have Microsoft Outlook installed. The pstxsr reader is available for Windows (32-bit and 64-bit) and Linux (64-bit only) and does not require Microsoft Outlook. The pstnsr reader is an alternative reader that does not require Microsoft Outlook, for all platforms not supported by pstxsr. For more information about these readers, see "Extract Subfiles from Outlook Personal Folders Files" in Chapter 3.

<sup>2</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

<sup>3</sup>KeyView provides several readers capable of processing PST files. The pstsr reader uses the Microsoft Messaging Application Programming Interface (MAPI), works only on Windows, and requires that you have Microsoft Outlook installed. The pstxsr reader is available for Windows (32-bit and 64-bit) and Linux (64-bit only) and does not require Microsoft Outlook. The pstnsr reader is an alternative reader that does not require Microsoft Outlook, for all platforms not supported by pstxsr. For more information about these readers, see "Extract Subfiles from Outlook Personal Folders Files" in Chapter 3.

<sup>4</sup>KeyView provides several readers capable of processing PST files. The pstsr reader uses the Microsoft Messaging Application Programming Interface (MAPI), works only on Windows, and requires that you have Microsoft Outlook installed. The pstxsr reader is available for Windows (32-bit and 64-bit) and Linux (64-bit only) and does not require Microsoft Outlook. The pstnsr reader is an alternative reader that does not require Microsoft Outlook, for all platforms not supported by pstxsr. For more information about these readers, see "Extract Subfiles from Outlook Personal Folders Files" in Chapter 3.

| Reader               | Description                                     | Filter | Export | View | Extract        | Metadata | Charset | H/F | Associated File Formats                                         |
|----------------------|-------------------------------------------------|--------|--------|------|----------------|----------|---------|-----|-----------------------------------------------------------------|
| qpwsr                | Corel Quattro Pro (X4)                          | Y      | N      | Y    | N              | P        | Y       | N   | <a href="#">QPW_Fmt</a>                                         |
| rarsr                | RAR archive (2.0 through 3.5)                   | N      | N      | N    | Y              | N        | n/a     | N   | <a href="#">RAR_Fmt</a>                                         |
| rifsr                | Microsoft Wave Sound                            | M      | N      | N    | N              | Y        | N       | N   | <a href="#">MS_WAVE_Audio_Fmt</a>                               |
| rpmsgsr <sup>1</sup> | Microsoft Outlook Restricted Permission Message | N      | N      | N    | Y <sup>2</sup> | N        | Y       | N   | <a href="#">RPMSG_Fmt</a>                                       |
| rtfsr                | Rich Text Format (1 through 1.7)                | Y      | Y      | Y    | N              | P        | Y       | Y   | <a href="#">MS_Pocket_Word_Fmt</a> , <a href="#">MS_RTF_Fmt</a> |
| sassr                | SAS7BDAT reader                                 | Y      | T      | T    | N              | N        | N       | N   | <a href="#">SAS7BDAT_Fmt</a>                                    |
| skypesr              | Skype Log (3)                                   | Y      | Y      | Y    | N              | N        | N       | N   | <a href="#">Skype_Fmt</a>                                       |
| sosr                 | OpenOffice, LibreOffice(1-5), StarOffice (6-9)  | Y      | T      | T    | N              | Y        | Y       | N   | <a href="#">SO_Spreadsheet_XML_Fmt</a>                          |
| starcsr              | StarOffice Calc (3, 4, 5)                       | Y      | T      | T    | N              | N        | N       | N   | <a href="#">SO_Spreadsheet_Fmt</a>                              |
| starwsr              | StarOffice Writer (3, 4, 5)                     | Y      | T      | T    | N              | N        | N       | N   | <a href="#">SO_Text_Fmt</a>                                     |

<sup>1</sup>This reader is only supported on Windows (x86\_64), Linux (x86\_64), Solaris (SPARC and x86\_64).

<sup>2</sup>Extraction of embedded email messages is not currently supported.

| Reader    | Description              | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|--------------------------|--------|--------|------|---------|----------|---------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| stringssr | Generic 'strings' reader | Y      | T      | T    | N       | N        | N       | N   | BeagleWorks_Word_Fmt, CEOwrite_Fmt, CPT_Comm_Fmt, CWK_Fmt, DG_CDS_Fmt, DSA101_Fmt, Data_Point_VistaWord_Fmt, Enable_WP_Fmt, GreatWorks_Word_Fmt, HP_Word_PC_Fmt, IBM_DCF_Script_Fmt, IBM_Writing_Assistant_Fmt, Lotus_Notes_CDF_Fmt, Lyrix_Fmt, MASS_11_Fmt, MS_Works_DOS_WP_Fmt, MS_Works_Mac_WP_Fmt, MacWrite_Fmt, MacWrite_II_Fmt, Multimate_Adv_Fmt, Multimate_Adv_Fnote_Fmt, Multimate_Adv_II_Fmt, Multimate_Adv_II_Fnote_Fmt, Multimate_Fmt, Multimate_Fnote_Fmt, Navy_DIF_Fmt, ODA_Q1_11_Fmt, ODA_Q1_12_Fmt, Office_Writer_Fmt, Psion_TextEd_Fmt, Psion_Word_3_Fmt, Psion_Word_Fmt, Q_A_DOS_Fmt, Q_A_Win_Fmt, Quadratron_Q_One_v1_Fmt, Quadratron_Q_One_v2_Fmt, Quickword_Fmt, SAMNA_Word_IV_Fmt, Symbol_Dynamics_EXP_Fmt, Targon_Word_Fmt, Uniplex_WP_Fmt, Volkswriter_Fmt, WANG_WITA_Fmt, WANG_WPS_Comm_Fmt, WPS_PLUS_Fmt, WordERA_Fmt, WordMARC_Fmt, WordPerfect_Fmt, WordStar_2000_Fmt, WordStar_Fmt, WordStar_for_Windows_Fmt, Word_Connection_Fmt, WriteNow_Fmt, Xerox_860_Comm_Fmt, Xerox_Writer_Fmt |



| Reader  | Description                                        | Filter | Export | View           | Extract | Metadata | Charset        | H/F | Associated File Formats                                                                                                                                                                                                                                                  |
|---------|----------------------------------------------------|--------|--------|----------------|---------|----------|----------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| swfsr   | Macromedia Flash (through 8.0)                     | Y      | Y      | Y              | N       | N        | Y <sup>1</sup> | N   | <a href="#">Macromedia_Flash_Fmt</a>                                                                                                                                                                                                                                     |
| swsr    | Informix SmartWare II Word Processor               | Y      | T      | T              | N       | N        | N              | N   | <a href="#">SmartWare_II_WP_Fmt</a>                                                                                                                                                                                                                                      |
| tarsr   | TAR Tape Archive                                   | N      | N      | Y              | Y       | N        | n/a            | N   | <a href="#">TAR_Fmt</a>                                                                                                                                                                                                                                                  |
| tifsr   | TIFF Tagged Image File (through 6.0 <sup>2</sup> ) | M      | M      | N              | N       | Y        | N              | N   | <a href="#">TIFF_Fmt</a>                                                                                                                                                                                                                                                 |
| tnfsr   | Transport Neutral Encapsulation Format             | N      | N      | Y              | Y       | Y        | Y              | N   | <a href="#">TNEF_Fmt</a>                                                                                                                                                                                                                                                 |
| unihmsr | Unicode HTML                                       | Y      | Y      | Y              | N       | Y        | Y              | N   | <a href="#">Unicode_HTML_Fmt</a>                                                                                                                                                                                                                                         |
| unisr   | Unicode Text (3, 4)                                | Y      | Y      | Y              | N       | N        | Y              | N   | <a href="#">Unicode_Fmt</a>                                                                                                                                                                                                                                              |
| unzip   | PKZIP/Zip Compression                              | N      | N      | Y <sup>3</sup> | Y       | N        | n/a            | N   | <a href="#">Executable_JAR_Fmt</a> , <a href="#">KMZ_Fmt</a> , <a href="#">ODF_Formula_Fmt</a> , <a href="#">ODF_Formula_Template_Fmt</a> , <a href="#">PKZIP_Fmt</a> , <a href="#">Tableau_Packaged_Data_Source_Fmt</a> , <a href="#">Tableau_Packaged_Workbook_Fmt</a> |
| uudsr   | UU-Encoding (all)                                  | N      | N      | Y              | Y       | N        | n/a            | N   | <a href="#">UUEncoded_Fmt</a>                                                                                                                                                                                                                                            |

<sup>1</sup>The character set cannot be determined for versions 5.x and lower.

<sup>2</sup>The following compression types are supported: no compression, CCITT Group 3 1-Dimensional Modified Huffman, CCITT Group 3 T4 1-Dimensional, CCITT Group 4 T6, LZW, JPEG (only Gray, RGB and CMYK color space are supported), and PackBits.

<sup>3</sup>PKZIP, WinZip, and Java Archive only

| Reader | Description                                                        | Filter | Export | View | Extract        | Metadata | Charset | H/F | Associated File Formats                  |
|--------|--------------------------------------------------------------------|--------|--------|------|----------------|----------|---------|-----|------------------------------------------|
|        | versions)                                                          |        |        |      |                |          |         |     |                                          |
| vcfsr  | Microsoft Outlook vCard Contact (2.1, 3.0, 4.0)                    | Y      | Y      | T    | N              | Y        | N       | N   | <a href="#">VCF_Fmt</a>                  |
| vsdsr  | Microsoft Visio (4, 5, 2000, 2002, 2003, 2007, 2010 <sup>1</sup> ) | Y      | Y      | Y    | Y <sup>2</sup> | Y        | Y       | N   | <a href="#">MS_Visio_Fmt</a>             |
| wkssr  | Lotus 1-2-3 (2, 3, 4, 5)                                           | Y      | Y      | Y    | N              | N        | Y       | N   | <a href="#">Lotus_123_Worksheet_Fmt</a>  |
| wosr   | Corel WordPerfect Windows (5, 5.1)                                 | Y      | Y      | Y    | N              | P        | Y       | Y   | <a href="#">WordPerfect_5_Fmt</a>        |
| wp6sr  | Corel WordPerfect (6 onwards)                                      | Y      | Y      | Y    | N              | P        | Y       | N   | <a href="#">WordPerfect_6_Fmt</a>        |
| wpmsr  | Corel WordPerfect Macintosh (1.02, 2, 2.1, 2.2, 3, 3.1)            | Y      | Y      | Y    | N              | N        | Y       | N   | <a href="#">WordPerfect_Mac_Fmt</a>      |
| xlsbsr | Microsoft Excel Binary Format (2007 onwards)                       | Y      | Y      | Y    | N              | Y        | N       | N   | <a href="#">MS_Excel_Binary_2007_Fmt</a> |

<sup>1</sup>Viewing and Export use the graphic reader, kpVSD2rdr for Microsoft Visio 2003, 2007, and 2010, and vsdsr for all earlier versions. Image fidelity in Viewing and Export is therefore only supported for versions 2003 and above. Filter uses the graphic reader kpVSD2rdr for Microsoft Visio 2003, 2007, and 2010, and vsdsr for all earlier versions.

<sup>2</sup>Extraction of embedded OLE objects is supported for Filter on Windows platforms only.

| Reader | Description                                | Filter | Export | View | Extract        | Metadata | Charset | H/F            | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------|--------------------------------------------|--------|--------|------|----------------|----------|---------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| xlssr  | Microsoft Excel (2.2 to 2004)              | Y      | Y      | Y    | Y <sup>1</sup> | Y        | Y       | Y <sup>2</sup> | <a href="#">Excel_2000_Fmt</a> , <a href="#">Excel_95_Fmt</a> , <a href="#">Excel_97_Fmt</a> , <a href="#">Excel_Chart_Fmt</a> , <a href="#">Excel_Fmt</a> , <a href="#">Excel_Macro_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| xlxsxr | Microsoft Excel Windows XML (2007 onwards) | Y      | Y      | Y    | Y              | Y        | Y       | Y              | <a href="#">MS_Excel_2007_Fmt</a> , <a href="#">MS_Excel_Macro_2007_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| xmlsr  | XML                                        | Y      | T      | T    | N              | Y        | Y       | N              | <a href="#">AMF_Fmt</a> , <a href="#">AbiWord_Fmt</a> , <a href="#">Adobe_XML_Data_Package_Fmt</a> , <a href="#">Atom_Syndication_Fmt</a> , <a href="#">CDXML_Fmt</a> , <a href="#">Chemical_Markup_Language_Fmt</a> , <a href="#">Collada_DAE_Fmt</a> , <a href="#">Consolidated_CDA_Fmt</a> , <a href="#">ESzigno_Fmt</a> , <a href="#">FictionBook_Fmt</a> , <a href="#">Grasshopper_GHX_Fmt</a> , <a href="#">JNLP_Fmt</a> , <a href="#">JavaView_JVX_Fmt</a> , <a href="#">KML_Fmt</a> , <a href="#">MAML_Fmt</a> , <a href="#">MARC_XML_Fmt</a> , <a href="#">METS_Fmt</a> , <a href="#">MODS_Fmt</a> , <a href="#">MS_Excel_XML_Fmt</a> , <a href="#">MS_Management_Pack_MPX_Fmt</a> , <a href="#">MS_Visio_XML_Fmt</a> , <a href="#">MS_Word_XML_Fmt</a> , <a href="#">MXML_Fmt</a> , <a href="#">Mathcad_XML_Fmt</a> , <a href="#">Metalink_Fmt</a> , <a href="#">Mozilla_XUL_Fmt</a> , <a href="#">MusicXML_Fmt</a> , <a href="#">Open_Diagnostic_Data_Exchange_Fmt</a> , <a href="#">Open_eBook_Fmt</a> , <a href="#">PDF_XML_Forms_Data_Fmt</a> , <a href="#">PGML_Fmt</a> , <a href="#">PLS_Fmt</a> , <a href="#">RDF_XML_Fmt</a> , <a href="#">RSS_Fmt</a> , <a href="#">Really_Simple_Discovery_Fmt</a> , <a href="#">SBML_Fmt</a> , <a href="#">SMIL_Fmt</a> , <a href="#">SPARQL_Results_Fmt</a> , <a href="#">SRGS_Fmt</a> , <a href="#">SRU_Fmt</a> , <a href="#">SSML_Fmt</a> , <a href="#">SVG_Fmt</a> , |

<sup>1</sup>Supported using the embedded objects reader olesr.

<sup>2</sup>Microsoft Excel for Windows only

| Reader             | Description                       | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------|-----------------------------------|--------|--------|------|---------|----------|---------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    |                                   |        |        |      |         |          |         |     | <a href="#">SyncML_Fmt</a> , <a href="#">TEI_Fmt</a> , <a href="#">Tableau_Data_Source_Fmt</a> , <a href="#">Tableau_Map_Source_Fmt</a> , <a href="#">Tableau_Preferences_Fmt</a> , <a href="#">Tableau_Workbook_Fmt</a> , <a href="#">Uniform_Office_Fmt</a> , <a href="#">Uniform_Office_Text_Fmt</a> , <a href="#">VTK_XML_Fmt</a> , <a href="#">VoiceXML_Fmt</a> , <a href="#">WML_Fmt</a> , <a href="#">Windows_Audio_Playlist_Fmt</a> , <a href="#">XAML_Browser_Application_Fmt</a> , <a href="#">XBRL_Fmt</a> , <a href="#">XDF_Fmt</a> , <a href="#">XLIFF_Fmt</a> , <a href="#">XML_Fmt</a> , <a href="#">XML_Shareable_Playlist_Fmt</a> , <a href="#">XSLT_Fmt</a> , <a href="#">XSL_FO_Fmt</a> , <a href="#">YIN_Fmt</a> |
| xpssr              | Microsoft XML Paper Specification | Y      | T      | T    | N       | N        | N       | N   | <a href="#">MS_XPS_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| xywsr              | XyWrite / Nota Bene (4.12)        | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">XyWrite_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| yimsr <sup>1</sup> | Yahoo! Instant Messenger          | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">YIM_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| z7zsr              | 7-Zip archive (4.57)              | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">Z7Z_Fmt</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

<sup>1</sup>To successfully use this reader, you must set the KV\_YAHOO\_ID environment variable to the Yahoo user ID. You can optionally set the KV\_OTHER\_YAHOO\_ID environment variable to the other Yahoo user ID. If you do not set it, "Other" is used by default. If you enter incorrect values for the environment variables, erroneous data is generated.

# Appendix C: Character Sets

This section provides information on the handling of character sets in the KeyView suite of products, which includes KeyView Filter SDK, KeyView Export SDK, and KeyView Viewing SDK.

- [Multibyte and Bidirectional Support](#) ..... 229
- [Coded Character Sets](#) ..... 237

## Multibyte and Bidirectional Support

The KeyView SDKs can process files that contain multibyte characters. A multibyte character encoding represents a single character with consecutive bytes. KeyView can also process text from files that contain bidirectional text. Bidirectional text contains both Latin-based text which is read from left to right, and text that is read from right to left (Hebrew and Arabic).

The following table indicates which character encodings are supported by KeyView for each format.

### Multibyte and bidirectional support

| Format                                           | Single-byte | Multibyte | Bidirectional |
|--------------------------------------------------|-------------|-----------|---------------|
| <b>Archive</b>                                   |             |           |               |
| 7-Zip (7Z)                                       | n/a         | n/a       | n/a           |
| AD1 Evidence file                                | n/a         | n/a       | n/a           |
| ADJ                                              | n/a         | n/a       | n/a           |
| B1                                               | n/a         | n/a       | n/a           |
| BinHex (HGX)                                     | n/a         | n/a       | n/a           |
| Bzip2 (BZ2)                                      | n/a         | n/a       | n/a           |
| EnCase – Expert Witness Compression Format (E01) | n/a         | n/a       | n/a           |
| GZIP (GZ)                                        | n/a         | n/a       | n/a           |
| ISO (ISO)                                        | n/a         | n/a       | n/a           |
| Java Archive (JAR)                               | n/a         | n/a       | n/a           |
| Legato EMailXtender Archive (EMX)                | n/a         | n/a       | n/a           |
| MacBinary (BIN)                                  | n/a         | n/a       | n/a           |

**Multibyte and bidirectional support, continued**

| <b>Format</b>                                | <b>Single-byte</b> | <b>Multibyte</b> | <b>Bidirectional</b> |
|----------------------------------------------|--------------------|------------------|----------------------|
| Mac Disk Copy Disk Image (DMG)               | n/a                | n/a              | n/a                  |
| Microsoft Backup File (BKF)                  | n/a                | n/a              | n/a                  |
| Microsoft Cabinet format (CAB)               | n/a                | n/a              | n/a                  |
| Microsoft Compiled HTML Help (CHM)           | n/a                | n/a              | n/a                  |
| Microsoft Compressed Folder (LZH)            | n/a                | n/a              | n/a                  |
| PKZip (ZIP)                                  | n/a                | n/a              | n/a                  |
| Microsoft Outlook DBX (DBX)                  | Y                  | Y                | Y                    |
| Microsoft Outlook Offline Storage File (OST) | Y                  | Y                | Y                    |
| RAR Archive (RAR)                            | n/a                | n/a              | n/a                  |
| Tape Archive (TAR)                           | n/a                | n/a              | n/a                  |
| UNIX Compress (Z)                            | n/a                | n/a              | n/a                  |
| UUEncoding (UUE)                             | n/a                | n/a              | n/a                  |
| Windows Scrap File (SHS)                     | n/a                | n/a              | n/a                  |
| WinZip (ZIP)                                 | n/a                | n/a              | n/a                  |
| <b>Binary</b>                                |                    |                  |                      |
| Executable (EXE)                             | n/a                | n/a              | n/a                  |
| Link Library (DLL)                           | n/a                | n/a              | n/a                  |
| <b>Computer-aided Design</b>                 |                    |                  |                      |
| AutoCAD Drawing (DWG)                        | Y                  | Y                | Y                    |
| AutoCAD Drawing Exchange (DXF)               | Y                  | Y                | Y                    |
| CATIA formats (CAT)                          | Y                  | N                | N                    |
| Microsoft Visio (VSD)                        | Y                  | Y                | Y                    |
| <b>Database</b>                              |                    |                  |                      |
| dBase Database                               | Y                  | N                | N                    |
| Microsoft Access (MDB)                       | Y                  | Y                | N                    |
| Microsoft Project (MPP)                      | Y                  | Y                | N                    |

### Multibyte and bidirectional support, continued

| Format                                                       | Single-byte | Multibyte      | Bidirectional |
|--------------------------------------------------------------|-------------|----------------|---------------|
| <b>Desktop Publishing</b>                                    |             |                |               |
| Microsoft Publisher                                          | N           | Y              | N             |
| <b>Display</b>                                               |             |                |               |
| Adobe Portable Document Format (PDF) (basic reader)          | Y           | Y <sup>1</sup> | Y             |
| Adobe Portable Document Format (PDF) (graphic-based reader)  | Y           | Y <sup>1</sup> | Y             |
| <b>Graphics</b>                                              |             |                |               |
| Computer Graphics Metafile (CGM)                             | Y           | N              | N             |
| Corel DRAW (CDR)                                             | n/a         | n/a            | n/a           |
| DCX Fax System (DCX)                                         | Y           | N              | N             |
| DICOM – Digital Imaging and Communications in Medicine (DCM) | n/a         | n/a            | n/a           |
| Encapsulated PostScript (EPS)                                | Y           | N              | N             |
| Enhanced Metafile (EMF)                                      | Y           | Y              | N             |
| Graphic Interchange Format (GIF)                             | n/a         | n/a            | n/a           |
| JBIG2                                                        | n/a         | n/a            | n/a           |
| JPEG                                                         | n/a         | n/a            | n/a           |
| JPEG 2000                                                    | n/a         | n/a            | n/a           |
| Lotus AMIDraw Graphics (SDW)                                 | n/a         | n/a            | n/a           |
| Lotus Pic (PIC)                                              | n/a         | n/a            | n/a           |
| Macintosh Raster (PICT/PCT)                                  | n/a         | n/a            | n/a           |
| MacPaint (PNTG)                                              | n/a         | n/a            | n/a           |

<sup>1</sup> Multibyte PDFs are supported, provided the PDF document is created by using either Character ID-keyed (CID) fonts, predefined CJK CMap files, or ToUnicode font encodings, and does not contain embedded fonts. See the Adobe website and the Adobe Acrobat documentation for more information. Any multibyte characters that are not supported are displayed using the replacement character. By default, the replacement character is a question mark (?).

To determine the type of font encodings that are used in a PDF, open the PDF in Adobe Acrobat, and select File > Document Info > Fonts. If the Encoding column lists Custom or Embedded encodings, you might encounter problems converting the PDF.

**Multibyte and bidirectional support, continued**

| <b>Format</b>                          | <b>Single-byte</b> | <b>Multibyte</b> | <b>Bidirectional</b> |
|----------------------------------------|--------------------|------------------|----------------------|
| Microsoft Office Drawing (MSO)         | n/a                | n/a              | n/a                  |
| Omni Graffle (GRAFFLE)                 | Y                  | N                | N                    |
| PC PaintBrush (PCX)                    | n/a                | n/a              | n/a                  |
| Portable Network Graphics (PNG)        | n/a                | n/a              | n/a                  |
| SGI RGB Image (RGB)                    | n/a                | n/a              | n/a                  |
| Sun Raster Image (RS)                  | n/a                | n/a              | n/a                  |
| Tagged Image File (TIFF)               | Y                  | N                | N                    |
| Truevision Targa (TGA)                 | n/a                | n/a              | n/a                  |
| Windows Animated Cursor (ANI)          | n/a                | n/a              | n/a                  |
| Windows Bitmap (BMP)                   | n/a                | n/a              | n/a                  |
| Windows Icon Cursor (ICO)              | n/a                | n/a              | n/a                  |
| Windows Metafile (WMF)                 | Y                  | Y                | N                    |
| WordPerfect Graphics 1 (WPG)           | Y                  | N                | N                    |
| WordPerfect Graphics 2 (WPG)           | Y                  | N                | N                    |
| <b>Mail</b>                            |                    |                  |                      |
| Documentum EMCME Format                | Y                  | Y                | Y                    |
| Domino XML Language (DXL)              | Y                  | Y                | N                    |
| GroupWise FileSurf                     | Y                  | N                | N                    |
| Legato Extender (ONM)                  | Y                  | Y                | N                    |
| Lotus Notes database (NSF)             | Y                  | Y                | Y                    |
| Mailbox (MBX)                          | Y                  | Y                | Y                    |
| Microsoft Entourage Database           | Y                  | Y                | Y                    |
| Microsoft Outlook (MSG)                | Y                  | Y                | Y                    |
| Microsoft Outlook Express (EML)        | Y                  | Y                | Y                    |
| Microsoft Outlook iCalendar            | Y                  | Y                | Y                    |
| Microsoft Outlook for Macintosh        | Y                  | Y                | Y                    |
| Microsoft Outlook Offline Storage File | Y                  | Y                | Y                    |
| Microsoft Outlook Personal File        | Y                  | Y                | Y                    |



**Multibyte and bidirectional support, continued**

| <b>Format</b>                               | <b>Single-byte</b>      | <b>Multibyte</b>                                         | <b>Bidirectional</b> |
|---------------------------------------------|-------------------------|----------------------------------------------------------|----------------------|
| Folders (PST)                               |                         |                                                          |                      |
| Microsoft Outlook vCard Contact             |                         |                                                          |                      |
| Text Mail (MIME)                            | Y                       | Y                                                        | Y                    |
| Transport Neutral Encapsulation Format      | Y                       | Y                                                        | Y                    |
| <b>Multimedia</b>                           |                         |                                                          |                      |
| Advanced Systems Format (ASF)               | n/a                     | n/a                                                      | n/a                  |
| Audio Interchange File Format (AIFF)        | n/a                     | n/a                                                      | n/a                  |
| Microsoft Wave Sound (WAV)                  | n/a                     | n/a                                                      | n/a                  |
| MIDI (MID)                                  | n/a                     | n/a                                                      | n/a                  |
| MPEG 1 Audio Layer 3 (MP3)                  | n/a                     | n/a                                                      | n/a                  |
| MPEG 1 Video (MPG)                          | n/a                     | n/a                                                      | n/a                  |
| MPEG 2 Audio (MPEGA)                        | n/a                     | n/a                                                      | n/a                  |
| MPEG 4 Audio (MP4)                          | n/a                     | n/a                                                      | n/a                  |
| NeXT/Sun Audio (AU)                         | n/a                     | n/a                                                      | n/a                  |
| QuickTime Movie (QT/MOV)                    | n/a                     | n/a                                                      | n/a                  |
| Windows Video (AVI)                         | n/a                     | n/a                                                      | n/a                  |
| <b>Presentations</b>                        |                         |                                                          |                      |
| Apple iWork Keynote (GZ)                    | Y                       | Y                                                        | N                    |
| Applix Presents (AG)                        | character set 1252 only | N                                                        | N                    |
| Corel Presentations (SHW)                   | character set 1252 only | N                                                        | N                    |
| Extensible Forms Description Language (XFD) | Y                       | Y                                                        | N                    |
| Lotus Freelance Graphics 2 (PRE)            | character set 850 only  | N                                                        | N                    |
| Lotus Freelance Graphics (PRZ)              | Y                       | Japanese, Simple Chinese, Traditional Chinese, Thai only | N                    |
| Macromedia Flash (SWF)                      | Y                       | Y                                                        | N                    |

**Multibyte and bidirectional support, continued**

| <b>Format</b>                                         | <b>Single-byte</b>      | <b>Multibyte</b>                                           | <b>Bidirectional</b> |
|-------------------------------------------------------|-------------------------|------------------------------------------------------------|----------------------|
| Microsoft OneNote                                     | Y                       | Y                                                          | N                    |
| Microsoft PowerPoint PC (PPT)                         | character set 1252 only | Traditional Chinese only                                   | N                    |
| Microsoft PowerPoint Windows (PPT)                    | Y                       | Japanese, Simple Chinese, Traditional Chinese, Korean only | Hebrew only          |
| Microsoft PowerPoint Macintosh (PPT)                  | Y                       | N                                                          | N                    |
| Microsoft PowerPoint Windows XML 2007 and 2010 (PPTX) | Y                       | Y                                                          | Y                    |
| OASIS Open Document (ODP)                             | Y                       | Y                                                          | N                    |
| OpenOffice Impress (ODP)                              | Y                       | Y                                                          | N                    |
| StarOffice Impress (ODP)                              | Y                       | Y                                                          | N                    |
| <b>Spreadsheets</b>                                   |                         |                                                            |                      |
| Apple iWork Numbers (GZ)                              | Y                       | Y                                                          | N                    |
| Applix Spreadsheets (AS)                              | character set 1252 only | N                                                          | N                    |
| Comma Separated Values (CSV)                          | character set 1252 only | N                                                          | N                    |
| Corel Quattro Pro (QPW/WB3)                           | Y                       | N                                                          | N                    |
| Data Interchange Format (DIF)                         | Y                       | Y                                                          | Y <sup>1</sup>       |
| Lotus 1-2-3 (123)                                     | Y                       | Y                                                          | Y                    |
| Lotus 1-2-3 (WK4)                                     | Y                       | Y                                                          | N                    |
| Lotus 123 Charts (123)                                | Y                       | Y                                                          | N                    |
| Microsoft Excel Charts (XLS)                          | Y                       | Y                                                          | N                    |
| Microsoft Excel Macintosh (XLS)                       | Y                       | N                                                          | N                    |
| Microsoft Excel Windows (XLS)                         | Y                       | Y                                                          | Y <sup>2</sup>       |
| Microsoft Excel Windows XML 2007 (XLSX)               | Y                       | Y                                                          | N                    |
| Microsoft Office Excel Binary Format (XLSB)           | Y                       | Y                                                          | N                    |
| Microsoft Works Spreadsheet                           | Y                       | N                                                          | N                    |

**Multibyte and bidirectional support, continued**

| Format                               | Single-byte                  | Multibyte | Bidirectional     |
|--------------------------------------|------------------------------|-----------|-------------------|
| (S30/S40)                            |                              |           |                   |
| OASIS Open Document (ODS)            | Y                            | Y         | N                 |
| OpenOffice Calc (ODS)                | Y                            | Y         | N                 |
| StarOffice Calc (ODS)                | Y                            | Y         | N                 |
| <b>Text and Markup</b>               |                              |           |                   |
| ANSI (TXT)                           | Y                            | Y         | Y <sup>2</sup>    |
| ASCII (TXT)                          | Y                            | Y         | Y <sup>2</sup>    |
| HTML (HTM)                           | Y                            | Y         | Y <sup>2, 2</sup> |
| Microsoft Excel Windows XML 2003     | Y                            | Y         | Y                 |
| Microsoft Word for Windows XML 2003  | Y                            | Y         | Y                 |
| Microsoft Visio XML 2003             | Y                            | Y         | Y                 |
| Rich Text Format (RTF)               | Y                            | Y         | Y <sup>3</sup>    |
| Unicode HTML                         | Y                            | Y         | Y <sup>2, 3</sup> |
| Unicode Text (TXT)                   | Y                            | Y         | Y <sup>2</sup>    |
| XHTML                                | Y                            | Y         | Y <sup>3</sup>    |
| XML                                  | Y                            | Y         | Y                 |
| <b>Word Processing</b>               |                              |           |                   |
| Adobe Maker Interchange Format (MIF) | character set 1252 only      | N         | N                 |
| Apple iChat Log (ICHAT)              | Y                            | Y         | N                 |
| Apple iWork Pages (GZ)               | Y                            | Y         | N                 |
| Applix Words (AW)                    | character set 1252 only      | N         | N                 |
| DisplayWrite (IP)                    | character set 500, 1026 only | N         | N                 |
| Folio Flat File (FFF)                | character set 1252 only      | N         | N                 |
| Founder Chinese E-paper Basic (CEB)  | Y                            | Y         | N                 |

**Multibyte and bidirectional support, continued**

| <b>Format</b>                                      | <b>Single-byte</b>               | <b>Multibyte</b>                                            | <b>Bidirectional</b>     |
|----------------------------------------------------|----------------------------------|-------------------------------------------------------------|--------------------------|
| Fujitsu Oasys (OA2)                                | Y                                | Y                                                           | N                        |
| Hangul (HWP)                                       | Y                                | Y                                                           | N                        |
| Health level7 (HL7)                                | Y                                | Y                                                           | Y                        |
| IBM DCA/RTF (DC)                                   | character sets<br>500, 1026 only | N                                                           | N                        |
| JustSystems Ichitaro (JTD)                         | Y                                | Y                                                           | N                        |
| Lotus AMI Pro (SAM)                                | Y                                | Simple Chinese, Traditional<br>Chinese, Japanese, Thai only | Y                        |
| Lotus AMI Professional Write Plus<br>(AMI)         | Y                                | Simple Chinese, Traditional<br>Chinese, Japanese, Thai only | N                        |
| Lotus Word Pro (LWP)                               | Y                                | Y                                                           | Y <sup>3</sup>           |
| Lotus SmartMaster (MWP)                            | Y                                | Y                                                           | N                        |
| Microsoft Word PC (DOC)                            | character set<br>1252 only       | N                                                           | N                        |
| Microsoft Word Windows V1-2<br>(DOC)               | Y                                | N                                                           | N                        |
| Microsoft Word Windows V6, 7, 8,<br>95 (DOC)       | Y                                | Y                                                           | Hebrew only <sup>3</sup> |
| Microsoft Word Windows V97<br>through 2003 (DOC)   | Y                                | Y                                                           | Y <sup>3</sup>           |
| Microsoft Word Windows XML<br>2007 and 2010 (DOCX) | Y                                | Y                                                           | Y <sup>3</sup>           |
| Microsoft Word Macintosh (DOC)                     | Y                                | N                                                           | Y <sup>3</sup>           |
| Microsoft Works (WPS)                              | Y                                | Japanese only                                               | N                        |
| Microsoft Write (WRI)                              | Y                                | Japanese only                                               | N                        |
| OASIS Open Document (ODT)                          | Y                                | Y                                                           | N                        |
| Omni Outliner (OO3)                                | Y                                | Y                                                           | N                        |
| OpenOffice Writer (ODT)                            | Y                                | Y                                                           | N                        |
| Open Publication Structure eBook<br>(EPUB)         | Y                                | Y                                                           | Y                        |
| StarOffice Writer (ODT)                            | Y                                | Y                                                           | N                        |

#### Multibyte and bidirectional support, continued

| Format                         | Single-byte                | Multibyte                    | Bidirectional |
|--------------------------------|----------------------------|------------------------------|---------------|
| Skype Log (DBB)                | Y                          | Y (null-terminated charsets) | N             |
| WordPad (RTF)                  | Y                          | Y                            | Y             |
| WordPerfect Linux (WPS)        | Y                          | N                            | N             |
| WordPerfect Macintosh (WPS)    | Y                          | N                            | N             |
| WordPerfect Windows (WO)       | Y                          | N                            | N             |
| XML Paper Specification (XPS)  | Y                          | Y                            | N             |
| XYWrite Windows (XY4)          | character set<br>1252 only | N                            | N             |
| Yahoo! Instant Messenger (DAT) | Y                          | Y (null-terminated charsets) | N             |

<sup>1</sup>The text direction in the output file might not be correct.

<sup>2</sup>In Export SDK, a bidirectional right-to-left (RTL) tag is extracted from this format and included in the direction element (<dir=RTL>) of the output.

## Coded Character Sets

This section lists which character set you can use to specify the target character set. The coded character sets are enumerated in `kvcharset.h` and defined in the Export class.

#### Code Character Sets

| Coded Character Set | Description                                              | Can be set as target charset? |
|---------------------|----------------------------------------------------------|-------------------------------|
| KVCS_UNKNOWN        | Unknown character set                                    | N                             |
| KVCS_SJIS           | Japanese (uses multibyte encoding), cp932                | Y                             |
| KVCS_GB             | Simplified Chinese (China, Singapore, Malaysia)<br>cp936 | Y                             |
| KVCS_BIG5           | Traditional Chinese (Taiwan, Hong Kong, Macaw)<br>cp950  | Y                             |
| KVCS_KSC            | Korean, cp949                                            | Y                             |
| KVCS_1250           | Windows Latin 2 (Central Europe)                         | Y                             |

**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                                 | <b>Can be set as target charset?</b> |
|----------------------------|----------------------------------------------------|--------------------------------------|
| KVCS_1251                  | Windows Cyrillic (Slavic)                          | Y                                    |
| KVCS_1252                  | Windows Latin 1 (ANSI)                             | Y                                    |
| KVCS_1253                  | Windows Greek                                      | Y                                    |
| KVCS_1254                  | Windows Latin 5 (Turkish)                          | Y                                    |
| KVCS_1255                  | Windows Hebrew                                     | Y                                    |
| KVCS_1256                  | Windows Arabic                                     | Y                                    |
| KVCS_1257                  | Windows Baltic Rim                                 | Y                                    |
| KVCS_1258                  | Windows Vietnamese                                 | Y                                    |
| KVCS_8859_1                | ISO 8859-1 Latin 1 (Western Europe, Latin America) | Y                                    |
| KVCS_8859_2                | ISO 8859-2 Latin 2 (Central Eastern Europe)        | Y                                    |
| KVCS_8859_3                | ISO 8859-3 Latin 3 (S.E. Europe)                   | Y                                    |
| KVCS_8859_4                | ISO 8859-4 Latin 4 (Scandinavia/Baltic)            | Y                                    |
| KVCS_8859_5                | ISO 8859-5 Latin/Cyrillic                          | Y                                    |
| KVCS_8859_6                | ISO 8859-6 Latin/Arabic                            | Y                                    |
| KVCS_8859_7                | ISO 8859-7 Latin/Greek                             | Y                                    |
| KVCS_8859_8                | ISO 8859-8 Latin/Hebrew                            | Y                                    |
| KVCS_8859_9                | ISO 8859-9 Latin/Turkish                           | Y                                    |
| KVCS_8859_14               | ISO 8859-14                                        | Y                                    |
| KVCS_8859_15               | ISO 8859-15                                        | Y                                    |
| KVCS_437                   | DOS Latin US                                       | Y                                    |
| KVCS_737                   | DOS Greek                                          | Y                                    |
| KVCS_775                   | DOS Baltic Rim                                     | Y                                    |
| KVCS_850                   | DOS Latin 1                                        | Y                                    |
| KVCS_851                   | DOS Greek                                          | Y                                    |
| KVCS_852                   | DOS Latin 2                                        | Y                                    |

**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                                | <b>Can be set as target charset?</b> |
|----------------------------|---------------------------------------------------|--------------------------------------|
| KVCS_855                   | DOS Cyrillic                                      | Y                                    |
| KVCS_857                   | DOS Turkish                                       | Y                                    |
| KVCS_860                   | DOS Portuguese                                    | Y                                    |
| KVCS_861                   | DOS Icelandic                                     | Y                                    |
| KVCS_862                   | DOS Hebrew                                        | Y                                    |
| KVCS_863                   | DOS Canadian French                               | Y                                    |
| KVCS_864                   | DOS Arabic                                        | Y                                    |
| KVCS_865                   | DOS Nordic                                        | Y                                    |
| KVCS_866                   | DOS Cyrillic Russian                              | Y                                    |
| KVCS_869                   | DOS Greek 2                                       | Y                                    |
| KVCS_874                   | Thai                                              | Y                                    |
| KVCS_PDFMACDOC             | PDF MAC DOC                                       | N                                    |
| KVCS_PDFWINDOC             | PDF WIN DOC                                       | N                                    |
| KVCS_STDENC                | Adobe Standard Encoding                           | N                                    |
| KVCS_PDFDOC                | Adobe standard PDF character set                  | N                                    |
| KVCS_037                   | EBCDIC code page 037                              | Y                                    |
| KVCS_1026                  | EBCDIC code page 1026                             | Y                                    |
| KVCS_500                   | EBCDIC code page 500                              | Y                                    |
| KVCS_875                   | EBCDIC code page 875                              | Y                                    |
| KVCS_LMBCS                 | Lotus multibyte character set Group 1 and Group 2 | N                                    |
| KVCS_UNICODE               | Unicode, UCS-2                                    | N                                    |
| KVCS_UTF16                 | 16-bit Unicode transformation format              | N                                    |
| KVCS_UTF8                  | 8-bit Unicode transformation format               | Y                                    |
| KVCS_UTF7                  | 7-bit Unicode transformation format               | Y                                    |
| KVCS_2022_JP               | ISO 2022-JP, Japanese mail and news safe          | N                                    |

**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                                  | <b>Can be set as target charset?</b> |
|----------------------------|-----------------------------------------------------|--------------------------------------|
|                            | encoding (JIS-7)                                    |                                      |
| KVCS_2022_CN               | ISO 2022-CN, Chinese mail and news safe encoding    | N                                    |
| KVCS_2022_KR               | ISO 2022-KR, Korean mail and news safe encoding     | N                                    |
| KVCS_WP6X                  | Word Perfect 6.x and higher character mapping       | N                                    |
| KVCS_10000                 | Western European (Macintosh)                        | Y                                    |
| KVCS_KSC5601               | Unified Hangul                                      | Y                                    |
| KVCS_GB2312                | Simplified Chinese (China, Singapore, Hong Kong)    | Y                                    |
| KVCS_GB12345               | Traditional Chinese (China) - analogue of GB2312    | Y                                    |
| KVCS_CNS11643              | Traditional Chinese - Taiwan. Supplement to Big5    | Y                                    |
| KVCS_JIS0201               | Japanese - contains ASCII character set (JIS-Roman) | N                                    |
| KVCS_JIS0212               | Japanese. Supplement to JIS0208.                    | Y                                    |
| KVCS_EUC_JP                | Japanese Extended UNIX Code                         | Y                                    |
| KVCS_EUC_GB                | Simplified Chinese Extended UNIX Code               | Y                                    |
| KVCS_EUC_BIG5              | Traditional Chinese Extended UNIX Code              | N                                    |
| KVCS_EUC_KSC               | Korean Extended UNIX Code                           | N                                    |
| KVCS_424                   | EBCDIC Hebrew                                       | N                                    |
| KVCS_856                   | PC Hebrew (old)                                     | N                                    |
| KVCS_1006                  | IBM AIX Pakistan (Urdu)                             | N                                    |
| KVCS_KOI8R                 | Cyrillic (Russian)                                  | Y                                    |
| KVCS_PDF_JAPAN1            | Adobe-Japan1-2 character collection                 | N                                    |
| KVCS_PDF_KOREA1            | Adobe-Korea1-0 character collection                 | N                                    |
| KVCS_PDF_GB1               | Adobe-GB1-3 character collection                    | N                                    |



**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                                       | <b>Can be set as target charset?</b> |
|----------------------------|----------------------------------------------------------|--------------------------------------|
| KVCS_PDF_CNS1              | Adobe-CNS1-2 character collection                        | N                                    |
| KVCS_2022_JP_8             | ISO 2022-JP, Japanese mail and news safe encoding (JIS8) | N                                    |
| KVCS_720                   | Arabic DOS-720                                           | Y                                    |
| KVCS_VISCII                | Vietnamese VISCII                                        | Y                                    |
| KVCS_8859_10               | ISO 8859-10 (Latin 6 Nordic)                             | Y <sup>1</sup>                       |
| KVCS_8859_13               | ISO 8859-13 (Latin 7 Baltic)                             | Y <sup>1</sup>                       |
| KVCS_57002                 | ISCII Devanagari (x-iscii-de)                            | Y <sup>1</sup>                       |
| KVCS_57003                 | ISCII Bengali (x-iscii-be)                               | Y <sup>1</sup>                       |
| KVCS_57004                 | ISCII Tamil (x-iscii-ta)                                 | Y <sup>1</sup>                       |
| KVCS_57005                 | ISCII Telugu (x-iscii-te)                                | Y <sup>1</sup>                       |
| KVCS_57006                 | ISCII Assamese (x-iscii-as)                              | Y <sup>1</sup>                       |
| KVCS_57007                 | ISCII Oriya (x-iscii-or)                                 | Y <sup>1</sup>                       |
| KVCS_57008                 | ISCII Kannada (x-iscii-ka)                               | Y <sup>1</sup>                       |
| KVCS_57009                 | ISCII Malayalam (x-iscii-ma)                             | Y <sup>1</sup>                       |
| KVCS_57010                 | ISCII Gujarathi (x-iscii-gu)                             | Y <sup>1</sup>                       |
| KVCS_57011                 | ISCII Panjabi (x-iscii-pa)                               | Y <sup>1</sup>                       |
| KVCS_GB18030b2             | Reserved for internal use                                | n/a                                  |
| KVCS_GB18030               | GB18030 (Chinese 4-byte character set)                   | Y                                    |
| KVCS_8859_11               | ISO 8859-11 (Thai)                                       | Y                                    |
| KVCS_8859_16               | ISO 8859-16 (Latin-10 South-Eastern Europe)              | Y                                    |
| KVCS_ARABICMAC             | Arabic Mac (x-mac-arabic)                                | Y                                    |
| KVCS_KOI8U                 | Cyrillic (KOI8U Ukrainian)                               | Y                                    |
| KVCS_HZGB2312              | The 7-bit representation of GB 2312 / RFC 1842           | n/a                                  |

**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                   | <b>Can be set as target charset?</b> |
|----------------------------|--------------------------------------|--------------------------------------|
| KVCS_UTF32                 | 32-bit Unicode transformation format | N                                    |

<sup>1</sup>The character set cannot be forced as output in Export SDK and Viewing SDK because the character set is not supported by the major browsers.

# Appendix D: Extract and Format Lotus Notes Subfiles

This section describes how to create XML templates to alter the appearance of extracted Lotus mail note subfiles so that they maintain the look and feel of the original notes.

|                                                          |     |
|----------------------------------------------------------|-----|
| • <a href="#">Overview</a> .....                         | 243 |
| • <a href="#">Customize XML Templates</a> .....          | 243 |
| • <a href="#">Template Elements and Attributes</a> ..... | 245 |
| • <a href="#">Date and Time Formats</a> .....            | 250 |

## Overview

KeyView uses the NSF reader, `nsfsr`, to extract Lotus database files, and places Lotus mail notes in subfiles. The NSF reader uses a set of default XML templates to extract the notes and apply formatting, thereby approximating the look and feel of the original notes.

In some cases, you might need to customize the XML templates, for instance if your notes contain custom data. In such cases, you can modify the existing XML templates or create your own.

During extraction, the NSF reader loads all XML files in the `NSFtemplates` directory and its subdirectories (except for the `NSFtemplates\images` directory, which is reserved for images). During initialization, the KeyView XML parser verifies the XML templates. If the templates contain any invalid XML, elements, or attributes, initialization fails and errors are recorded in the `nsfsr.log` file.

## Customize XML Templates

XML templates are enabled by default. In most cases, the default templates should be sufficient; however, you can customize them or create your own as required.

### To customize XML templates for Lotus note extraction

1. Modify the template files in the following directory.

`install\OS\bin\NSFtemplates`

The `main.xml` file must exist in the `NSFtemplates` directory. It is the top-level template file that extracts all subfiles, usually by calling other templates.

2. Make sure that any modifications or additional XML files conform to the supported elements and attributes described in [Template Elements and Attributes](#), on page 245.
3. Extract the Lotus database file.

## Use Demo Templates

For testing purposes, you can extract notes by using a set of demo templates, which are provided to demonstrate the proper usage of all the XML elements and attributes, because the default templates do not use all the XML elements.

The demo templates are available at:

*install\OS\bin\NSFtemplates*

### To use the demo XML templates

1. In the `formats.ini` file, set the following parameter.

```
[nsfsr]
UseDemoTemplate=1
```

2. In the `main.xml` file, uncomment the following section.

```
<ifini name="UseDemoTemplate" text="1">
 <call file="demo.xml"/>
</ifini>
```

## Use Old Templates

For testing purposes, you can extract notes by using legacy templates, which produce MHTML output. You can generate similar output by disabling the XML templates, but using the old templates enables you to see the XML code and compare it to the standard and demo templates.

### To use the old XML templates

1. In the `formats.ini` file, set the following parameter.

```
[nsfsr]
UseOldTemplate=1
```

2. In the `main.xml` file, uncomment the following section.

```
<ifini name="UseOldTemplate" text="1">
 <call file="default_old.xml">
 </call>
</ifini>
```

## Disable XML Templates

For testing purposes, you can disable XML templates; KeyView extracts the notes in MHTML format. You can compare the MHTML output directly by the NSF reader with the MHTML output indirectly by the NSF reader through the XML templates.

**To disable XML templates**

1. In the `formats.ini` file, set the following parameter.

```
[nsfsr]
ExtractByTemplate=0
```

# Template Elements and Attributes

This section lists the valid XML elements and attributes that you can use when creating or modifying templates. See the demo templates for examples.

## Conditional Elements

The following table lists the valid conditional elements.

**Conditional elements**

Element	Description
<keyview>	The KeyView XML template container ("root") element
<if*>	<p>If the condition from the comparison is true, process the XML. Conditions can be nested up to 25 levels deep.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"><li>• <code>name</code>. (Required) The name of the main item to compare to <code>item</code> or <code>text</code>.</li><li>• <code>item</code>. (Required if no <code>text</code>) The name of the item to compare to the item specified by <code>name</code>.</li><li>• <code>text</code>. (Required if no <code>item</code>) The text to compare to the item specified by <code>name</code>.</li></ul>
<ifex>, <ifnx>	<p>If <code>name</code> item exists and has a <code>text</code> value or not.</p> <p>The Notes item might have a value that cannot be converted to text, such as an image.</p>
<ifeq>, <ifne>, <iflt>, <ifle>, <ifgt>, <ifge>	<p>Respectively, if <code>text</code> <code>==</code>, <code>!=</code>, <code>&lt;</code>, <code>&gt;</code>, <code>&lt;=</code>, <code>&gt;</code>, <code>&gt;=</code>.</p> <p>Text comparison uses a case-insensitive string compare.</p>
<iftdeq>, <iftdne>, <iftdlt>, <iftdle>, <iftdgt>, <iftdge>	<p>Respectively, if <code>time/date</code> <code>==</code>, <code>!=</code>, <code>&lt;</code>, <code>&gt;</code>, <code>&lt;=</code>, <code>&gt;</code>, <code>&gt;=</code>.</p> <p>Time/date comparison converts dates to text in local time using the Notes default, <code>TZFMT_NEVER</code>, because Notes also sometimes converts fields to text internally. For example:</p>

### Conditional elements, continued

Element	Description
	text="06/30/2005 02:52:04 PM"
<iftzeq>, <iftzne>	Respectively, if the time zone equals or does not equal the comparison text, for example CDT, EST, and so on.
<ifini>	If the value of the INI option specified in name equals the text value.
<else>	If the condition from the last <if> or <switch> was false, process XML.
<switch>	<p>If a name value exists, process XML.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required) The name of the main item to compare in &lt;case&gt; subelements.</li> </ul>
<case>	<p>If the comparison condition is true, process XML, then stop processing the rest of &lt;switch&gt;.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>text. (Required) The text to compare to the name item of &lt;switch&gt;.</li> </ul>
<default>	If all <case> conditions were false, process XML. This element must be the last element in <switch>, after all the <case> elements. Any <case> elements after the <default> element are ignored.
<for>	<p>If a name value exists, process XML. Process for each part of the name item.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required) The name of the main item.</li> <li>max. (Optional) The maximum index to process. By default, all are processed.</li> </ul>
<index>	Output <for> loop index (1-based). <index> is only valid within a <for> element.

## Control Elements

The following table lists the valid control elements.

## Control Elements

Element	Description
<call>	<p>Call another XML template. You can nest templates up to 10 levels deep.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"><li>• file. (Required) The template file name. This name must be unique.</li></ul>
<log>	<p>Log message to the NSF log file.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"><li>• text. (Required) The text to log.</li><li>• type. (Optional) The type of log message. The following values are valid:<ul style="list-style-type: none"><li>◦ ERROR</li><li>◦ WARN</li><li>◦ INFO</li><li>◦ DIAG (the default option)</li><li>◦ DEBUG</li><li>◦ DUMP</li></ul></li></ul>
<quit>	<p>Stop processing the template. Exits without error.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"><li>• text. (Optional) The text to log.</li><li>• type. (Optional) The type of log message. See <a href="#">&lt;log&gt;</a>, above.</li></ul>
<stop>	<p>Stop processing the template. Exits with an ERROR log message.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"><li>• text. (Required) The text to log.</li></ul>

## Data Elements

The following table lists the valid data elements.

### Data elements

Element	Description
<text>	<p>Output text.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"><li>• name. (Required if there is no parent) The name of the item to output.</li></ul>

### Data elements, continued

Element	Description
<rich>	<p>Output rich text (MHTML). Images are output in the next part or parts of the MHTML, after the first &lt;HTML&gt; part.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> </ul>
<body>	<p>Output the message body in rich text (MHTML). As with <a href="#">&lt;rich&gt;</a>, <a href="#">above</a>, images are output in the next part or parts of the MHTML.</p>
<form>	<p>Output the message form (usually \$Body field) in rich text (MHTML).</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> </ul>
<addr>	<p>Output an address.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> <li>type. (Optional) The type of address to output. Set this attribute to <b>CN</b> (Common Name), which is the only supported type.</li> </ul>
<name>	<p>Output the name of the last name item, or in other words the current main item. The item must exist.</p>
<format>	<p>Set the default format for &lt;date&gt; and &lt;date_kv&gt;. This element does not set the &lt;text&gt; format. See <a href="#">Date and Time Formats, on page 250</a> for a list of all Notes and KeyView date and time formats and integer values.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>format. (Optional. Omit to reset to defaults) The Notes and KeyView date and time format. You can set the following formats: <ul style="list-style-type: none"> <li>TD=int. The Time Date format (TDFMT_*)</li> <li>TS=int. The Time Show format (TSFMT_*)</li> <li>TT=int. The Time Time format (TTFMT_*)</li> <li>TZ=int. The Time Zone format (TZFMT_*)</li> <li>KV=int. The KeyView date and time format</li> </ul> </li> </ul> <p>where int is an integer value that corresponds to the desired format.</p> <p>Separate multiple formats with commas. For example:</p> <p>format="TD=0,TS=2,TT=1,TZ=1,KV=55"</p>
<date>	<p>Output a Notes date.</p>



## Data elements, continued

Element	Description
	<b>Attributes</b> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> <li>format. (Optional) See <a href="#">&lt;format&gt;, on the previous page</a>. You can set the following values: <ul style="list-style-type: none"> <li>TD</li> <li>TS</li> <li>TT</li> <li>TZ</li> </ul> </li> </ul>
<date_kv>	Output a KeyView date. <b>Attributes</b> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> <li>format. (Optional) See <a href="#">&lt;format&gt;, on the previous page</a>. You can set the following values: <ul style="list-style-type: none"> <li>TZ</li> <li>KV</li> </ul> </li> </ul>
<time>	Output a time range, for example 1 hour, 30 minutes. <b>Attributes</b> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The item name of the start date or time.</li> <li>item. (Required) The item name of the end date or time.</li> </ul>
<zone>	Output a Notes time zone mnemonic, for example MST. <b>Attributes</b> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of date item to output.</li> </ul>
<zone_utc>	Output a time zone as UTC, for example (UTC-06:00).
<logo>	Output the mail header logo. <p>The image link is included in the output; the actual image is output to a different part of the MHTML subfile.</p>
<image>	Output an image. <p>The image link is included in the output; the actual image is output to the MHTML next part, as with <a href="#">&lt;rich&gt;, on the previous page</a> and <a href="#">&lt;body&gt;, on the previous page</a>.</p>
<image_	Output an image URI, in quotation marks. The actual image is output to a different part of

#### Data elements, continued

Element	Description
uri>	<p>the MHTML subfile.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"><li>• <code>link</code>. (Required if there is no <code>file</code>) The image link, such as a form or title name. For example:</li><li>• <code>link="StdNotesLtr0"</code></li><li>• <code>file</code>. (Required if there is no <code>link</code>) The name of the image file. The file must exist in the <code>../../templates/images</code> directory. For example:</li><li>• <code>file="boxcheck.gif"</code></li></ul>

## Date and Time Formats

This section lists the supported Notes and KeyView date and time formats for use with `<format>`, `<date>`, and `<date_kv>`.

### Lotus Notes Date and Time Formats

This section lists supported Lotus Notes date and time formats, and the integer values that specify each one.

#### Lotus Notes date and time formats

Format	Integer Value	Description
TDFMT_FULL	0	(The Notes default) Year, month, and day
TDFMT_CPARTIAL	1	Month and day, year if not this year
TDFMT_PARTIAL	2	Month and day
TDFMT_DPARTIAL	3	Year and month
TDFMT_FULL4	4	Four-digit year, month, and day
TDFMT_CPARTIAL4	5	Month and day, four-digit year if not this year
TDFMT_DPARTIAL4	6	Four-digit year and month

#### Lotus Notes date and time formats, continued

Format	Integer Value	Description
TTFMT_FULL	0	(Notes default) Hour, minute, and second
TTFMT_PARTIAL	1	Hour and minute
TTFMT_HOUR	2	Hour
TZGMT_NEVER	0	(Notes default) All time zones are converted to the current time zone
TZGMT_SOMETIMES	1	Show only when outside the current time zone
TZGMT_ALWAYS	2	Show for all time zones
TSFMT_DATE	0	Date
TSFMT_TIME	1	Time
TSFMT_DATETIME	2	(The Notes default) Date and time
TSFMT_CDATETIME	4	Date and time, or time today or time yesterday

## KeyView Date and Time Formats

This section lists KeyView date and time formats. The KeyView formats use the following syntax:

Month	Month = full month name Mon = abbreviated month name m = month (number) mm = two-digit month (leading 0)
Weekday	Weekday = full weekday name Wday = abbreviated weekday name
Year	yy = two-digit year yyyy = four-digit year
>Day	d = day (number) dd = two-digit day (leading 0)
Time	h = 12-hour H = 24-hour

m = minutes

s = seconds

P = AM/PM

p = am/pm

Separators \_ = space

c = comma

s = slash

a = dash

o = dot

### KeyView date and time formats

Format	Output	Integer Value
<b>12-Hour and 24-Hour Time Formats</b>		
KVDTF_P	P	1
KVDTF_P_hmm	P h:mm	2
KVDTF_hmm_P	h:mm P	3
KVDTF_P_hhmm	P hh:mm	4
KVDTF_hhmm_P	hh:mm P	5
KVDTF_P_hmmss	P h:mm:ss	6
KVDTF_hmmss_P	h:mm:ss P	7
KVDTF_P_hhmmss	P hh:mm:ss	8
KVDTF_hhmmss_P	hh:mm:ss P	9
KVDTF_Hmm	H:mm	10
KVDTF_HHmm	HH:mm	11
KVDTF_mmss	mm:ss	12
KVDTF_Hmmss	H:mm:ss	13
KVDTF_HHmmss	HH:mm:ss	14
<b>Numerical Date Formats with Slashes</b>		
KVDTF_mmsdd	mm/dd	15
KVDTF_msdsyy	m/d/yy	16

### KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_mmsddsyy	mm/dd/yy	17
KVDTF_mmsddsyyyy	mm/dd/yyyy	18
KVDTF_ddsmm	dd/mm	19
KVDTF_ddsmmsyy	dd/mm/yy	20
KVDTF_ddsmmsyy_Hmm	dd/mm/yy H:mm	21
KVDTF_ddsmm_P_hmm	dd/mm P h:mm	22
KVDTF_ddsmm_hmm_P	dd/mm h:mm P	23
KVDTF_ddsmm_P_hhmm	dd/mm P hh:mm	24
KVDTF_ddsmm_hhmm_P	dd/mm hh:mm P	25
KVDTF_ddsmmsyy_P_hmm	dd/mm/yy P h:mm	26
KVDTF_ddsmmsyy_hmm_P	dd/mm/yy h:mm P	27
KVDTF_ddsmmsyy_P_hmmss	dd/mm/yy P h:mm:ss	28
KVDTF_ddsmmsyy_hmmss_P	dd/mm/yy h:mm:ss P	29
KVDTF_ddsmmsyy_P_hhmmss	dd/mm/yy P hh:mm:ss	30
KVDTF_ddsmmsyy_hhmmss_P	dd/mm/yy hh:mm:ss P	31
KVDTF_yysmmsdd_P_hhmmss	yy/mm/dd P hh:mm:ss	32
KVDTF_yysmmsdd_hhmmss_P	yy/mm/dd hh:mm:ss P	33
KVDTF_msdsyy_Hmm	m/d/yy H:mm	34
KVDTF_mmsddsyy_Hmm	mm/dd/yy H:mm	35
KVDTF_msdsyy_P_hmm	m/d/yy P h:mm	36
KVDTF_msdsyy_hmm_P	m/d/yy h:mm P	37
KVDTF_mmsddsyy_hmm_P	mm/dd/yy h:mm P	38
KVDTF_mmsdd_P_hhmm	mm/dd P hh:mm	39
KVDTF_mmsdd_hhmm_P	mm/dd hh:mm P	40
KVDTF_mmsddsyy_P_hhmmss	mm/dd/yy P hh:mm:ss	41
KVDTF_mmsddsyy_hhmmss_P	mm/dd/yy hh:mm:ss P	42

### KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_msd	m/d	43
KVDTF_yysm	yy/m	44
KVDTF_yysmm	yy/mm	45
KVDTF_yysmsd	yy/m/d	46
KVDTF_yysmmsdd	yy/mm/dd	47
KVDTF_yyyysmmsdd	yyyy/mm/dd	48
<b>Numerical Date Formats with Dashes</b>		
KVDTF_ddammayy	dd-mm-yy	49
KVDTF_mmadd	mm-dd	50
KVDTF_mmayy	mm-yy	51
KVDTF_yyammadd	yy-mm-dd	52
KVDTF_yyyymmadd	yyyy-mm-dd	53
KVDTF_yyyymmaddaHHmmss	yyyy-mm-dd-HH:mm:ss	54
<b>Numerical Date Formats with Dots</b>		
KVDTF_yyomod	yy.m.d	55
KVDTF_yyommodd	yy.mm.dd	56
KVDTF_mod	m.d	57
KVDTF_mmodd	mm.dd	58
<b>Numerical and String Date Formats with Dashes, Commas, and Spaces</b>		
KVDTF_ddaMon	dd-Mon	59
KVDTF_daMonayy	d-Mon-yy	60
KVDTF_ddaMonayy	dd-Mon-yy	61
KVDTF_ddaMonayyyy	dd-Mon-yyyy	62
KVDTF_Mon	Mon	63
KVDTF_Monayy	Mon-yy	64
KVDTF_Monayyyy	Mon-yyyy	65

### KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_Monaddayy	Mon-dd-yy	66
KVDTF_yyammadd_P_hhmmss	yy-mm-dd P hh:mm:ss	67
KVDTF_mmadd_P_hhmm	mm-dd P hh:mm	68
KVDTF_Mon_yy	Mon yy	69
KVDTF_Monc_yy	Mon, yy	70
KVDTF_Month	Month	71
KVDTF_Monthayy	Month-yy	72
KVDTF_Month_yy	Month yy	73
KVDTF_Monthc_yy	Month, yy	74
KVDTF_Monthayyyy	Month-yyyy	75
KVDTF_Month_yyyy	Month yyyy	76
KVDTF_Monthc_yyyy	Month, yyyy	77
KVDTF_Mon_dc_yyyy	Mon d, yyyy	78
KVDTF_d_Monc_yyyy	d Mon, yyyy	79
KVDTF_yyyy_Mon_d	yyyy Mon d	80
KVDTF_Month_dc_yyyy	Month d, yyyy	81
KVDTF_d_Monthc_yyyy	d Month, yyyy	82
KVDTF_yyyy_Month_d	yyyy Month d	83
<b>Weekday Date Formats</b>		
KVDTF_wday	wday	84
KVDTF_Weekday	Weekday	85
KVDTF_wdayc_Mon_dc_yyyy	wday, Mon d, yyyy	86
KVDTF_Weekdayc_Month_dc_yyyy	Weekday, Month d, yyyy	87
KVDTF_Weekdayc_d_Monthc_yyyy	Weekday, d Month, yyyy	88

# Appendix E: Export Tokens

This section contains an alphabetized list of the Export tokens.

Tokens are special strings inserted into the KVHTMLTemplateEx structure, HtmlTemplateInfo class, and template files. They are placeholders for markup that appears in the HTML output. For example, the \$CHARSET token marks the place in the HTML output where the name of the source document's character set is inserted. It would be used in the tag `< charset=$CHARSET>`.

Word documents are split into blocks by heading level. By default, each section of text between Heading Level 1 headings will be a single block.

See the template files for examples of how to use tokens.

## Export Tokens

Token	Description
\$ANCHOR	Inserts an anchor for a heading level (h2-h6) for the current block.
\$BASE	Inserts the base URL for the HTML file. Use in the <code>&lt;base href=xx&gt;</code> tag.
\$CHARSET	Inserts the character set of the source document, if that information is ascertainable. <a href="#">Document Readers, on page 197</a> lists the file formats for which character set information can be determined.
\$CONTENT	Inserts the content of the metadata field specified by the \$NAME token. This token is used in conjunction with the \$SUMMARY, \$USERSUMMARY, and \$NAME tokens to insert source document metadata into the HTML output. An example of this token's use is:  <code>pszUserSummary=&lt;meta name="\$NAME" content="\$CONTENT"&gt;</code>  <a href="#">Document Readers, on page 197</a> lists file formats that support metadata.
\$ENDNOTE	Inserts endnotes from the current block at this point in the output stream. Currently implemented for Microsoft Word documents only.
\$ENDNOTEALL	Inserts all endnotes at this point in the output stream. Currently implemented for Microsoft Word documents only.
\$FOOTER	Inserts the footer from the current block at this point in the output stream.
\$FOOTNOTE	Inserts footnotes from the current block at this point in the output stream. Currently implemented for Microsoft Word documents only.
\$FOOTNOTEALL	Inserts all footnotes at this point in the output stream. Currently implemented for Microsoft Word documents only.
\$HEADER	Inserts the header from the current block at this point in the output stream.



## Export Tokens, continued

Token	Description
\$MAINURL	Inserts the URL to the file containing the start of the generated HTML, that is, the main output stream.
\$NAME	<p>Inserts the name of a metadata field. This token is used in conjunction with the <a href="#">\$SUMMARY</a>, below, <a href="#">\$USERSUMMARY</a>, on the next page, and <a href="#">\$CONTENT</a>, on the previous page tokens to insert source document metadata into the HTML output. An example of this token's use is:</p> <pre>pszUserSummary=&lt;meta name="\$NAME" content="\$CONTENT"&gt;</pre> <p>The section <a href="#">Document Readers</a>, on page 197 lists file formats that support metadata.</p>
\$NEXT	Inserts the anchor to the next block. If this is the last block, a link to the first block is inserted.
\$PREV	Inserts the anchor to the previous block. If the current block is the first block, a link to the last block is inserted.
\$STYLESHEET	Inserts the path to the style sheet. Only available in KVHTMLOptionsEx.
\$SUMMARY	<p>Inserts the data from standard metadata fields using the markup provided in the pszUserSummary member of the structure KVHTMLTemplateEx. Standard fields are enumerated from 0 to 33 in KVSumType in kvtypes.h. See the tokens <a href="#">\$USERSUMMARY</a>, on the next page, <a href="#">\$NAME</a>, above, and <a href="#">\$CONTENT</a>, on the previous page.</p> <p>The section <a href="#">Document Readers</a>, on page 197 lists file formats that support metadata.</p>
\$SUMMARY <i>NN</i>	<p>Inserts the data from a <i>specified</i> metadata field. <i>NN</i> is a number from 0 through 33 enumerated in the KVSumType structure in kvtypes.h. An example of this token's use is:</p> <pre>pszMainTop=&lt;head&gt; &lt;title&gt; \$SUMMARY01 &lt;/title&gt; &lt;/head&gt; &lt;body&gt;</pre> <p>The section <a href="#">Document Readers</a>, on page 197 lists file formats that support metadata.</p>
\$SPLITBLOCKNUMBER	Inserts the page number for each block generated as a result of bHardPageMakesNewBlock or lcbBlockSize.
\$TOC	Inserts the table of contents at this point in the current output stream. This token is typically embedded in pszMainTop.
\$TOCB	Inserts the table of contents at this point for the current block.
\$TOCBE	Inserts the beginning entry for the table of contents at this point in the current output stream.

### Export Tokens, continued

Token	Description
\$TOCE	Inserts a table of contents entry at this point in the current output stream.
\$TOCTE	Inserts a text entry without HTML markup at this point in the current output stream.
\$TOCPE	Inserts a partial table of contents entry at this point in the current output stream. HTML tags are removed; however, character entities are retained. This enables angle brackets to appear in the table of contents entries (for example, <text>). Without this token, <text> would be interpreted as a non-valid HTML tag and would be ignored by the browser.
\$TOPANCHOR	Inserts the anchor for the top heading level (h1) for the current block.
\$USERCB	Triggers the callback function <code>UserCB()</code> and identifies the callback used in the function.
\$USERSUMMARY	<p>Inserts the data from every valid non-standard metadata field using the markup provided in the <code>pszUserSummary</code> member of the <code>KVHTMLTemplateEx</code> structure. Non-standard metadata are any fields not listed from 0 to 33 in <code>KVSumType</code>, such as user-defined fields (for example, custom property fields in Word documents), or fields that are unique to a particular file type (for example, "Artist" or "Genre" fields in MP3 files). See the tokens <a href="#">\$SUMMARY</a>, <a href="#">on the previous page</a>, <a href="#">\$NAME</a>, <a href="#">on the previous page</a>, and <a href="#">\$CONTENT</a>, <a href="#">on page 256</a>.</p> <p>The section <a href="#">Document Readers, on page 197</a> lists file formats that support metadata.</p>
\$XANCHOR	<p>Inserts the anchor to an extra file into the HTML output. An example of this token's use is:</p> <pre>&lt;frame src="\$XANCHOR" name="Left" scrolling="auto" target="right"&gt;</pre> <p>The contents of the extra file is defined by <code>pszXFile</code>, and the block generated by this token is defined by <code>pszXStartBlock</code> and <code>pszXEndBlock</code>.</p>

# Appendix F: File Format Detection

This section describes how file formats are detected in the KeyView Export SDK.

• <a href="#">Introduction</a> .....	259
• <a href="#">Extract Format Information</a> .....	259
• <a href="#">Determine Format Support</a> .....	259
• <a href="#">Translate Format Information</a> .....	262
• <a href="#">Determine a Document Reader</a> .....	263

## Introduction

The KeyView format detection module (kwad) detects a file's format, and reports the information to the API, which in turn reports the information to the developer's application. If the detected format is supported by the KeyView SDK, the detection module also loads the appropriate structured access layer and document reader for further processing.

For a list of supported formats, see [Document Readers, on page 197](#).

## Extract Format Information

You can extract format information from a document by using the `getAutoDetectInfo()` method. This method extracts the major format, file class, version, and document attributes, and populates the `AutoDetectInfo` class. It returns the same format information as the `fpGetStreamInfo()` function, but as a string not an integer. The format information that can be extracted is listed in the `adinfo.h` header file.

For information on how to translate the extracted format information, see [Translate Format Information, on page 262](#).

## Determine Format Support

After the file format is extracted, the detection module uses the `formats_e.ini` file to determine whether the format is supported by KeyView, and the appropriate structured access layer and reader to load.

The `formats_e.ini` file is in the directory `install\OS\bin`, where `install` is the path name of the Export installation directory and `OS` is the name of the operating system. It contains the following information:

- Coded format information. To translate this information, see [Translate Format Information, on page 262](#).
- The reader associated with each format. See [Determine a Document Reader, on page 263](#).
- Configuration parameters for out-of-process conversions.
- Locale settings for internal use.

Below are some entries from the `formats_e.ini` file:

```
123=mw
152=xyw
178=wp6
189=mw6
2=af
200=pdf
205=mb
210=htm
251=htm
```

**NOTE:** The `formats_e.ini` file applies to all formats except graphics. Detection of graphics formats is handled by an internal module named KeyView Picture Interchange Format (KPIF).

## Refine Detection of Text Files

During text detection, KeyView analyzes the first 1 kB and last 1 kB of data in a document; if less than 10% of that data consists of non-ASCII characters, KeyView detects the document as a text file.

However, depending on the type of documents you are working with, the default settings might not provide the desired level of accuracy. Configuration flags allow you to change the amount of data to read at the end of a file, the percentage of non-ASCII characters permitted in a text file, and whether to use or ignore the file extension to determine the document format.

### Change the Amount of File Data to Read

During file detection, KeyView reads characters from the beginning and end of a file—by default, it reads the first and last 1,024 bytes of data. Large text files might contain many irrelevant characters at the end of a file, so KeyView might not accurately detect the file format. You can set a configuration flag to increase the amount of data to read from the end of a file during detection.

#### To change the amount of data to read during detection

- In the `formats_e.ini` file, set the following flag in the `detection_flags` section:

```
[detection_flags]
non_ascii_chars_end_block_size=kB
```

where *kB* is the number of kilobytes to read from the end of the file, from 0 to 10. The default value is 1.

**NOTE:** The file size must be greater than the value specified in the flag. If the flag value is greater than the file size, KeyView does not use the flag.

## Change the Percentage of Allowed Non-ASCII Characters

By default, if less than 10% of the analyzed data in a document consists of non-ASCII characters, it is detected as a text file. Depending on the type of files you are working with, changing the default percentage might increase detection accuracy.

### To change the percentage of non-ASCII characters allowed in text files

- In the `formats_e.ini` file, set the following flag in the `detection_flags` section:

```
[detection_flags]
non_ascii_chars_in_text=N
```

where *N* is the percentage of non-ASCII characters to allow in text files. Files that contain a lower percentage of non-ASCII characters than *N* are detected as text files. The default value is 10.

## Use the File Extension for Detection

Sometimes KeyView detects certain file formats (such as CSV) as ASCII because of the content of the documents. In such cases, you can configure KeyView to use the file extension to determine the document format. Using the file extension can improve detection of formats such as CSV, but might not detect text files successfully if they have incorrect file extensions.

### To use the file extension for ASCII files during detection

- In the `formats.ini` file, set the following flag in the `detection_flags` section:

```
[detection_flags]
use_extension_for_ascii=1
```

The default is 0 (do not use the file extension).

## Allow Consecutive NULL Bytes in a Text File

By default, if a document contains consecutive NULL bytes, it is not detected as text. Depending on the type of files you are working with, changing the default might increase detection accuracy.

### To allow consecutive NULL bytes of ASCII characters in text files

In the `formats.ini` file, set the following flag in the `detection_flags` section:

```
[detection_flags]
ascii_allow_null_bytes=1
```

The default value is 0 (do not allow consecutive NULL bytes).

## Translate Format Information

Format information can include file attributes in the following categories:

- Major format
- File class
- Minor format
- Major version
- Minor version

Not all categories are required. Many formats only include major format and file class, or major format only.

The format information has the following structure:

`MajorFormat.FileClass.MinorFormat.MajorVersion.MinorVersion`

For example:

`81.2.0.9.0`

Each number in the format information represents a file attribute. The entry `81.2.0.9.0` represents a Lotus 1-2-3 Spreadsheet file version 9.0, where:

`81` = Lotus 1-2-3 Spreadsheet (major format)

`2` = Spreadsheet (file class)

`0` = not defined (minor format)

`9` = 9 (major version)

`0` = 0 (minor version)

The example above applies to `formats_e.ini` file. When extracting format information by using the `getAutoDetectInfo()` method, the same format information is represented as `294.2.0.9.`

**NOTE:** The format values returned by `getAutoDetectInfo()` differ from those in `formats_e.ini` because the former defines a unique ID for each major format, whereas the latter uses a major version, minor version, and minor format to distinguish between formats.

## Distinguish Between Formats

The `getAutoDetectInfo()` method provides a unique ID for each major format. For example, a call to `getAutoDetectInfo()` returns `351.1.0` for a Microsoft Word 2003 XML format. The major format `351` is unique to this format.

Unlike `getAutoDetectInfo()`, the `formats_e.ini` file distinguishes between formats by using the major version number. For example, in `formats_e.ini`, a Microsoft Word 2003 XML format is defined

as 285.1.0.100.0. The major format 285 and file class 1 are the same values for generic XML. The major version 100 distinguishes the format as Microsoft Word 2003 XML.

The major version is used in `formats_e.ini` to specify the following formats:

- The Microsoft Office 2003 XML format has the same major format and file class as generic XML (285.1). It is distinguished from generic XML by using the following major versions:
  - Word: 100
  - Excel: 101
  - Visio: 110
- The XHTML format has the same major format and file class as HTML (210.1). It is distinguished from HTML by using the major version 100.

## Determine a Document Reader

The format detection module uses the `formats_e.ini` file to determine whether a format is supported and which reader should be used to parse a format. The entries in the `formats_e.ini` file lists each format's coded value, and an abbreviation for the format's reader. For example:

81.2.0.9.0=1123

The reader abbreviation is a truncated version of the reader's library name. Adding "sr" to the end of an abbreviation creates the name of the reader. The example entry above specifies that a Lotus 1-2-3 Spreadsheet file version 9.0 is parsed by the Lotus 1-2-3 reader, 1123sr.

[Files Required for Redistribution, on page 264](#) lists the document readers provided with KeyView.

# Appendix G: Files Required for Redistribution

This section lists the Export files that can be redistributed in your applications under the licensing agreement. Unless noted, these files are in the directory *install\OS\bin*, where *install* is the path of the Export installation directory and *OS* is the operating system platform.

- [Core Files](#) .....264
- [Support Files](#) .....265
- [Document Readers and Writers](#) .....267

**NOTE:** On Windows systems, the libraries are .dll files. On UNIX systems, the libraries are .so, .a, or .sl files.

## Core Files

The following core files can be redistributed with your application.

File	Description
formats_e.ini	Initialization file. For more information on this file, see <a href="#">Determine Format Support, on page 259</a> .
*htmlexport.*	Required by the Java API.
htmserv.dll	The in-process version of the HTML Export COM interface.
htmserv.exe	The out-of-process version of the HTML Export COM interface.
htmcnv.*	HTML converter for the document token stream.
KeyView.jar	Interface for Java support. <b>NOTE:</b> This file can be found at the path <i>install/javaapi/KeyView.jar</i> where <i>install</i> is the Export SDK installation directory.
kpifcnvt.*	Graphic conversion routines.
kpifutil.*	Graphic utility routines.
kvdecrypt.*	Decryption utility functions
kvxtract.*	File Extraction interface.
kvhtml.*	HTML Export C API.



File	Description
kvexport.*	Export C API. Interface to the HTML and XML Export C APIs.
kvexportdotnet.*	Interface for .NET support.
kvolefio.*	Embedded OLE object writer.
kvutil.*	Internal KeyView utility functions.
kvxpgsa.*	Interface between presentations or graphic readers and the Export API.
kvxssa.*	Interface between spreadsheet readers and the Export API.
kvxwpsa.*	Interface between word processing readers and the Export API.
kvzip.*	Zip writer
kwad.*	File auto-recognition module.
regsvr32.exe	A Microsoft Windows program used to register in-process COM objects.
txtcnv.*	Converter for document token stream.
*xmlexport.*	Required by the Java API.
vcredist\*	(Windows platforms only) Microsoft Visual C++ Redistributable Packages. <b>NOTE:</b> This folder can be found in the Export SDK installation directory.

## Support Files

The following support files can be redistributed with your application.

File	Description
datafiles\*	(Folder) Required by kvlangdetect.
NSFtemplates\*	(Folder) Templates used by nsfsr to format Lotus mail notes.
7z.*	Required by z7zsr and multiarcsr.
bentofio.*	Required by 1123sr.* and kpprzrdr.*.
cbmap.map	Character mappings for Adobe Portable Document Format (PDF).
CEBDLL.dll	Required by cebsr.
chartbls.ux	Character mapping tables.
chmdll.*	Required by chmsr.

File	Description
codeidentifierplugin.*	Required for source code identification.
cpstdk*	Required by pstxsr.
DFECore.dll	Required by cebstr.
Filter.dll	Required by cebstr.
kp3dwrld.*	Required for 3D charts.
kpchtrdr.*	Required for all spreadsheets (chart support).
kpjavwrt.*	Java utility routines.
kpjpeg.*	JPEG file interchange format shared routines.
kppng.*	Portable Network Graphics (PNG) utilities.
kvlangdetect.*	Utility functions for language and character set detection.
kvxconfig.ini	Contains element extraction settings for source XML files.
kvgraph.*	Required for all spreadsheets (chart support).
kvpie.*	Required for all spreadsheets (chart support).
kvradar.*	Required for all spreadsheets (chart support).
kv.lic	Contains license information for KeyView products. This file is opened and validated when a KeyView API is used.
kvraster.class	Java program used to convert vector graphics on UNIX and Linux.
kvthread.*	Required for multithreaded out-of-process functionality.
kvVector.class	Java applet used to convert vector graphics on UNIX and Linux.
kvvector.jar	Java applet used to convert vector graphics on UNIX and Linux. This must reside in the output directory.
*langdetecttext.*	Required by kvlangdetect.*
libcrypto*	SSL utility functions used by KeyView mail format readers.
libpff.*	Required by pffsr.
libstlport.so.1	(Solaris platforms only) Solaris Studio Redistributable. This file is located in <i>install/OS/lib</i> .
oleaut32.*	Microsoft OLE Automation Controls.
olepro32.*	Microsoft OLE property support library.
servant.*	Executable required for out-of-process conversions.

File	Description
unzipjpg.*	Required for JPEG decompression.
wpmap.*	Extended character mapping for WordPerfect and Corel Presentation.
xmlsh.*	Contains a library of content handlers for each XML file type. Required by the Expat XML parser.

## Document Readers and Writers

The following readers and writers can be redistributed with your application.

File	Description
ad1sr.*	AD1 Evidence file reader
afsr.*	ASCII reader
assr.*	Applix spreadsheet reader
awsr.*	Applix Words reader
bkfsr.*	Microsoft Backup File reader
bmpsr.*	Windows bitmap (BMP) reader
bzip2sr.*	Bzip2 reader
cabsr.*	Microsoft Cabinet format reader
cebsr.*	Founder Chinese E-paper Basic reader
chmsr.*	Microsoft Compiled HTML Help reader
csvsr.*	Comma-Separated Values reader
dbfsr.*	dBase Database reader
dbxsr.*	Microsoft Outlook Express DBX reader
dcasr.*	Document Content Architecture/Revisable Form Text (DCA/RFT) reader
difsr.*	Data Interchange Format reader
dmgsr.*	Mac Disk Copy Disk Image File reader
dw4sr.*	DisplayWrite 4 reader
dx1sr.*	Domino XML Language reader
em1sr.*	Microsoft Outlook Express (EML) reader. This is used to convert EML files when

File	Description
	the MBX reader is not licensed.
emxsr.*	Legato EMailXtender archive (EMX) reader
encasesr.*	Expert Witness Compression Format (EnCase) v6 reader
encase2sr.*	Expert Witness Compression Format (EnCase) v7 reader
entsr.*	Microsoft Entourage Database Format reader
epubsr.*	Open Publication Structure eBook reader
foliosr.*	Folio Flat File reader
gdsiisr.*	Graphic Database System (GDSII) reader
gifsr.*	Graphics Interchange Format (GIF) reader
gwfssr.*	GroupWise FileSurf reader
h17sr.*	Health level7 reader (metadata only)
htmsr.*	HTML and XHTML reader
hwposr.*	Hangul 2002, 2005, 2007 reader
hwpsr.*	Hangul 97 reader
ichatsr.*	Apple iChat Log reader
icssr.*	Microsoft Outlook iCalendar reader
isosr.*	ISO-9660 CD Disc Image Format reader
iwss13sr.*	iWork 13 Numbers reader
iwsssr.*	Apple iWork Numbers reader
iwwp13sr.*	iWork 13 Pages reader
iwwpsr.*	Apple iWork Pages reader
jp2000sr.*	JPEG 2000 metadata reader
jpgsr.*	JPEG metadata reader
jtdsr.*	JustSystems Ichitaro reader
kpagrdr.*	Applix Presents reader
kpanirdr.*	Animated cursor reader
kpbmprdr.*	Windows Bitmap reader
kpbmpwrt.*	Windows Bitmap writer

File	Description
kpcdrdr.*	Corel Draw
kpcgmrdr.*	Computer Graphics Metafile reader
kpcgmwrt.*	Computer Graphics Metafile writer
kpdcxrdr.*	DCX (fax) reader
kpdwgrdr.*	AutoCAD Drawing format reader
kpdxfdrdr.*	AutoCAD Drawing Exchange format reader
kpemfrdr.*	Enhanced Metafile reader
kpemfwrt.*	Enhanced Metafile writer
kpepsrdr.*	Encapsulated PostScript (EPS) reader
kpgflrdr.*	OmniGraffle Picture reader
kpgifrdr.*	Graphic Interchange Format (GIF) reader
kpgifwrt.*	Graphic Interchange Format (GIF) writer
kpicordr.*	Windows Icon reader
kpiwpgdrdr.*	Apple iWork Keynote reader
kpiwpg13rdr.*	Apple iWork Keynote 13 reader
kpjbig2rdr.*	JBIG2 reader
kpjp2000rdr.*	JPEG 2000 reader
kpjpgdrdr.*	JPEG file interchange format reader
kpjpgwrt.*	JPEG file interchange format writer
kpmacrdr.*	MacPaint reader
kpsmordr.*	Microsoft Office Drawing Objects (office 97, 2000, and XP) reader
kpnbmprdr.*	IBM Notes Bitmap reader (for embedded images in DXL files)
kpodfrdr.*	Oasis Open Document Format presentation (ODP) reader
kpodardr.*	AutoCAD reader
kpoxdrdr.*	Open Office XML Diagram Graphics reader
kpp40rdr.*	Microsoft PowerPoint PC 4.0 and PowerPoint Mac reader
kpp95rdr.*	Microsoft PowerPoint 95 reader
kpp97rdr.*	Microsoft PowerPoint 97 and higher reader

File	Description
kppctrdr.*	Macintosh Quick Draw Picture (PICT) reader
kppcxrdr.*	PC Paintbrush (PCX) reader
kppdfdrdr.*	Adobe Portable Document File (PDF) graphic-based reader
kppdf2rdr.*	High-fidelity Adobe Portable Document File (PDF) graphic-based reader
kppicrdr.*	Pictor PC Paint format (PIC) reader
kppngrdr.*	Portable Network Graphics (PNG) reader
kppngwrt.*	Portable Network Graphics (PNG) writer
kpppxrdr.*	Microsoft PowerPoint XML reader 2007
kpprerdr.*	Lotus Freelance Graphics for Windows V2.0 reader
kpprzrdr.*	Lotus Freelance Graphics 96/97/98 reader
kprawrdr.*	ODA Internal Raster (RAW) Picture reader
kpsddrdr.*	StarOffice Draw / Impress reader
kpsdwrdr.*	Lotus Ami Pro Graphics reader
kpsgirdr.*	SGI RGB reader
kpshrdr.*	Corel Presentations reader
kpsprdr.*	Shape Stream reader
kpsvgwrt.*	Scalable Vector Graphics (SVG) writer
kpsunrdr.*	Sun Raster reader
kptgardr.*	Truevision Targa reader
kptifdrdr.*	Tagged Image File Format (TIFF) reader
kpvsd2rdr.*	Microsoft Visio reader
kpvsdxrdr.*	Microsoft Visio 2013 reader
kpwg2rdr.*	WordPerfect Graphics 2 reader
kpwmfrdr.*	Windows Metafile reader
kpwmfwrt.*	Windows Metafile writer
kwpgrdr.*	WordPerfect Graphics 1 reader
kpxfd1rdr.*	Extensible Forms Description Language reader
kvgzsr.*	GZIP reader

File	Description
kvhqxsr.*	BinHex reader
kvzeesr.*	UNIX Compress reader
l123sr.*	Lotus 123 v96/97/98 reader
lasr.*	Lotus AMI Pro reader
ltbenn30.dll	Lotus Word Pro support (supported on Windows x86 platform only)
ltscsn10.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwpapin.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwppann.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwpsr.dll	Lotus Word Pro reader (supported on Windows x86 platform only)
lzhsr.*	Microsoft Compression Folder reader
macbinsr.*	MacBinary reader
mbsr.*	Microsoft Word Macintosh reader
mbxsr.*	Mailbox (MBX) <sup>1</sup> and Microsoft Outlook Express (EML) reader
mdbsr.*	Microsoft Access reader.
mhtsr.*	MIME HTML reader
mifsr.*	Adobe Maker Interchange Format reader
misr.*	Microsoft Word 2 reader
mp3sr.*	MP3 reader for metadata extraction
mppsрr.*	Microsoft Project reader
msgsr.*	Microsoft Outlook (MSG) reader
mspubsr.*	Microsoft Publisher reader
msw6sr.*	Microsoft Works 6 and 2000 reader
mswsr.*	Microsoft Works V1 and 2 reader
multiarcsr.*	ARJ reader
mw6sr.*	Microsoft Word 95 reader

<sup>1</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

File	Description
mw8sr.*	Microsoft Word 97, 2000, and XP reader
mwsr.*	Microsoft Word for DOS and Microsoft Write reader
mwssr.*	Microsoft Works Spreadsheet reader
mwxsr.*	Microsoft Word 2007 XML reader
nsfsr.*	IBM Notes Database reader <sup>1</sup>
oa2sr.*	Fujitsu Oasys reader
odfssr.*	Oasis Open Document Format spreadsheets (ODS) reader
odfwpsr.*	Oasis Open Document Format word processing (ODT) reader
olesr.*	Embedded OLE object reader.
olmsr.*	Microsoft Outlook for Macintosh reader
onealtsr.*	Microsoft OneNote Alternate Format reader
onesr.*	Microsoft OneNote Format reader
onmsr.*	Legato EMailXtender Native Message reader
oo3sr.*	Omni Outliner reader
pbixsr.*	Microsoft Power BI file (PBIX) reader
pdf2sr.*	Alternative Adobe Portable Document Format file (PDF) reader
pdfsr.*	Adobe Portable Document File (PDF) reader
pffsr.*	Microsoft Outlook Offline Storage File reader
pfilesr.*	Microsoft Rights Management System encryption file reader
pngsr.*	Portable Network Graphics (PNG) reader
pstsr.dll	Microsoft Outlook Personal Folders file MAPI-based reader (supported on Windows platform only) <sup>2</sup>
pstnsr.*	Microsoft Outlook Personal Folders file native reader <sup>3</sup>
pstxsr.*	Microsoft Outlook Personal Folders file native reader <sup>4</sup>

<sup>1</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

<sup>2</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

<sup>3</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

<sup>4</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.



File	Description
qpssr.*	Quattro Pro spreadsheet reader
rarsr.*	RAR Archive reader
rtfsr.*	Microsoft Rich Text Format reader
skypesr.*	Skype log file reader
sosr.*	StarOffice/OpenOffice reader
starcsr.*	StarOffice Calc reader
starwsr.*	StarOffice Writer reader
swfsr.*	Macromedia Flash reader
tarsr.*	Tape archive reader
tifsr.*	TIFF reader (metadata only)
tnefsr.*	Transfer Neutral Encapsulation Format reader
unihtmsr.*	Unicode HTML reader
unisr.*	Unicode reader
unzip.*	Zip file reader
uudsr.*	UUEncoding reader
vsdsr.*	Microsoft Visio reader
vcfsr.*	Microsoft Outlook vCard Contact reader
wkssr.*	Lotus 1-2-3 v2.0 through 5.0 reader
wosr.*	WordPerfect 5.x reader
wp6sr.*	WordPerfect 6.0 through 10.0 reader
wpmsr.*	WordPerfect for Macintosh reader
xlsbsr.*	Microsoft Office 2007 Excel Binary Format reader
xlssr.*	Microsoft Excel reader
xlxsxr.*	Microsoft Excel 2007 XML reader
xmlsr.*	Generic XML reader
xpssr.*	XML Paper Specification reader
xywsr.*	XYWrite reader
yimsr.*	Yahoo! Instant Messenger reader

File	Description
z7zsr.*	7-Zip reader

# Appendix H: Password Protected Files

This section lists supported password-protected container and non-container files and describes how to open them.

- [Supported Password Protected File Types](#) ..... 275
- [Export Password Protected Files](#) ..... 276
- [Open Password Protected Container Files](#) ..... 276

## Supported Password Protected File Types

The following table lists the password-protected file types that KeyView supports.

### Key to support table

Symbol	Description
Y	Format is supported.
N	Format is not supported.
S	Support for viewing subfiles.
V	Support for viewing content.
P	Password required.
C	Password and certificate or User ID file required.

### Supported password-protected file types

File Type	Version	Filter	Export	Extract	View	Credentials
PST (Windows)	n/a	N	N	Y	S	P
PST (non-Windows) <sup>1</sup>	n/a	N	N	Y	S	N
ZIP	n/a	N	N	Y	S	P
7-Zip	n/a	N	N	Y	S	P

<sup>1</sup>The native PST readers, pstxsr and pstnsr, do not require credentials to open password-protected PST files that use compressible encryption.

#### Supported password-protected file types, continued

File Type	Version	Filter	Export	Extract	View	Credentials
RAR	n/a	N	N	Y	S	P
SMIME in MSG, EML, MBX	n/a	N	N	Y	N	C
Lotus Notes NSF	n/a	N	N	Y	N	C
Adobe PDF	n/a	Y	Y	Y	V	P
Microsoft Office	97-2003 2007 2010	Y	Y	Y	V	P

## Export Password Protected Files

This section describes how to export password-protected non-container files with the Java API.

#### To export password-protected files

1. Create an instance of the `ConfigOption` class, and set the `OptionType` argument to `CFG_SETPASSWORD`, the `OptionValue` argument to `TRUE`, and the `OptionData` argument to the source file password. The password is a null-terminated string of 255 or fewer characters (the final byte is null).
2. Call the `setConfigOption` method and pass the `ConfigOption` object.
3. Call a convert method. See the Javadoc in the directory `install\javaapi\javadoc`, where `install` is the path name of the Export installation directory.

## Open Password Protected Container Files

This section describes how to extract password-protected container files by using the Java API. The following guidelines apply to specific file types.

- **Notes NSF files.** If you are running a Notes client with an active user connected to a Domino server, you must specify the user's password as a credential regardless of whether the NSF files you are opening are protected. This enables KeyView to access the Notes client and the IBM Notes API. If the Notes client is not running with an active user, KeyView does not require credentials to access the client.
- **PST files.** To open password-protected PST files that use high encryption (Microsoft Outlook 2003 only), you must use the MAPI-based PST reader (`pstsr`). The native PST readers (`pstxsr` and `pstnsr`) do not support files that use high encryption and return the error message `KVERR_PasswordProtected` if a PST file is encrypted with high encryption.

### **To open container files**

- Set the credential information to an ExtOpenDocConfig object, and pass it to the extOpenDocument method.

For example:

```
dconfig = new ExtOpenDocConfig();
odconfig.setPassword(m_password);
extContextID = m_objExportFilter.extOpenDocument(inFile, odconfig);
```

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