

# IDOL KeyView

Software Version 12.12

## Filter SDK .NET Programming Guide



Document Release Date: June 2022  
Software Release Date: June 2022

## Legal notices

© Copyright 2016-2022 Micro Focus or one of its affiliates.

The only warranties for products and services of Micro Focus and its affiliates and licensors (“Micro Focus”) are as may be set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Micro Focus shall not be liable for technical or editorial errors or omissions contained herein. The information contained herein is subject to change without notice.

## Documentation updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for updated documentation, visit <https://www.microfocus.com/support-and-services/documentation/>.

## Support

Visit the [MySupport portal](#) to access contact information and details about the products, services, and support that Micro Focus offers.

This portal also provides customer self-solve capabilities. It gives you a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the MySupport portal to:

- View information about all services that Support offers
- Submit and track service requests
- Contact customer support
- Search for knowledge documents of interest
- View software vulnerability alerts
- Enter into discussions with other software customers
- Download software patches
- Manage software licenses, downloads, and support contracts

Many areas of the portal require you to sign in. If you need an account, you can create one when prompted to sign in.

# Contents

|  |    |
|--|----|
| Part I: Overview of Filter SDK .....               | 11 |
| Chapter 1: Introducing Filter SDK .....            | 12 |
| Overview .....                                     | 12 |
| Features .....                                     | 12 |
| Platforms, Compilers, and Dependencies .....       | 13 |
| Supported Platforms .....                          | 13 |
| Supported Compilers .....                          | 13 |
| Software Dependencies .....                        | 13 |
| Windows Installation .....                         | 15 |
| UNIX Installation .....                            | 15 |
| Package Contents .....                             | 16 |
| License Information .....                          | 17 |
| Enable Advanced Document Readers .....             | 17 |
| Pass License Information to KeyView .....          | 17 |
| Directory Structure .....                          | 18 |
| Chapter 2: Getting Started .....                   | 20 |
| Architectural Overview .....                       | 20 |
| File Caching .....                                 | 21 |
| Filtering .....                                    | 22 |
| Subfile Extraction .....                           | 22 |
| Use the .NET Implementation of the API .....       | 22 |
| Input/Output Operations .....                      | 23 |
| Filter in File or Stream Mode .....                | 23 |
| Multithreaded Filtering .....                      | 24 |
| The Filter Process Model .....                     | 25 |
| Persist the Child Process .....                    | 26 |
| Run Filter In Process .....                        | 27 |
| Run File Extraction Functions Out of Process ..... | 27 |
| Out-of-Process Logging .....                       | 28 |
| Enable Out-of-Process Logging .....                | 28 |
| Set the Verbosity Level .....                      | 28 |
| Enable Windows Minidump .....                      | 28 |
| Keep Log Files .....                               | 29 |

|  |           |
|--|-----------|
| Run Format Detection In or Out of Process .....                  | 29        |
| Stream Data to Filter .....                                      | 30        |
| <b>Part II: Use Filter SDK .....</b>                             | <b>32</b> |
| <b>Chapter 3: Use the File Extraction API .....</b>              | <b>33</b> |
| Introduction .....   | 33        |
| Extract Subfiles .....   | 34        |
| Sanitize Absolute Paths .....                                    | 35        |
| Extract Images .....   | 36        |
| Recreate a File's Hierarchy .....                                | 36        |
| Create a Root Node .....   | 37        |
| Example .....  | 37        |
| Extract Mail Metadata .....                                      | 38        |
| Default Metadata Set .....                                       | 38        |
| Extract the Default Metadata Set .....                           | 39        |
| Microsoft Outlook (MSG) Metadata .....                           | 40        |
| Extract MSG-Specific Metadata .....                              | 41        |
| Microsoft Outlook Express (EML) and Mailbox (MBX) Metadata ..... | 41        |
| Extract EML- or MBX-Specific Metadata .....                      | 41        |
| Lotus Notes Database (NSF) Metadata .....                        | 42        |
| Extract NSF-Specific Metadata .....                              | 42        |
| Microsoft Personal Folders File (PST) Metadata .....             | 42        |
| MAPI Properties .....  | 43        |
| Extract PST-Specific Metadata .....                              | 43        |
| Exclude Metadata from the Extracted Text File .....              | 44        |
| Extract Subfiles from Outlook Files .....                        | 44        |
| Extract Subfiles from Outlook Express Files .....                | 44        |
| Extract Subfiles from Mailbox Files .....                        | 45        |
| Extract Subfiles from Outlook Personal Folders Files .....       | 45        |
| Choose the Reader to use for PST Files .....                     | 46        |
| MAPI Attachment Methods .....                                    | 47        |
| Open Secured PST Files .....                                     | 48        |
| Detect PST Files While the Outlook Client is Running .....       | 48        |
| Extract Subfiles from Lotus Domino XML Language Files .....      | 48        |
| Extract Subfiles from Lotus Notes Database Files .....           | 49        |
| System Requirements .....  | 49        |
| Installation and Configuration .....                             | 50        |
| Windows .....  | 50        |

- Open Secured NSF Files ..... 50
- Format Note Subfiles ..... 50
- Extract Subfiles from PDF Files ..... 50
  - Improve Performance for PDFs with Many Small Images ..... 51
- Extract Embedded OLE Objects ..... 51
- Extract Subfiles from ZIP Files ..... 51
- Default File Names for Extracted Subfiles ..... 51
  - Default File Name for Mail Formats ..... 52
  - Default File Name for Embedded OLE Objects ..... 53
- Chapter 4: Use the Filter API ..... 54**
  - Generate an Error Log ..... 54
    - Enable or Disable Error Logging ..... 55
    - Change the Path and File Name of the Log File ..... 56
    - Report Memory Errors ..... 56
    - Specify a Memory Guard ..... 56
    - Report the File Name in Stream Mode ..... 57
    - Specify the Maximum Size of the Log File ..... 57
  - Extract Metadata ..... 58
    - Extract Metadata for File Filtering ..... 58
    - Extract Metadata for Stream Filtering ..... 58
    - Example ..... 58
  - Convert Character Sets ..... 60
    - Determine the Character Set of the Output Text ..... 60
      - Guidelines for Character Set Conversion ..... 60
    - Set the Character Set During Filtering ..... 61
    - Set the Character Set During Subfile Extraction ..... 62
    - Prevent the Default Conversion of a Character Set ..... 62
  - Extract Deleted Text Marked by Tracked Changes ..... 62
  - Filter PDF Files ..... 63
    - Use the pdf2sr Reader ..... 63
    - Filter PDF Files to a Logical Reading Order ..... 64
      - Enable Logical Reading Order ..... 65
      - Use the API ..... 65
      - Use the formats.ini File ..... 66
  - Rotated Text ..... 67
  - Extract Custom Metadata from PDF Files ..... 67
  - Skip Embedded Fonts ..... 68
    - Use the formats.ini File ..... 68
    - Use the .NET API ..... 68

|   |     |
|---|-----|
| Control Hyphenation .....   | 68  |
| Filter Portfolio PDF Files .....  | 69  |
| Table Detection for PDF Files .....                                       | 69  |
| Filter Spreadsheet Files .....  | 70  |
| Filter Worksheet Names .....  | 70  |
| Filter Hidden Text in Microsoft Excel Files .....                         | 70  |
| Specify Date and Time Format on UNIX Systems .....                        | 70  |
| Filter Very Large Numbers in Spreadsheet Cells to Precision Numbers ..... | 71  |
| Extract Microsoft Excel Formulas .....                                    | 71  |
| Standardize Cell Formats .....  | 72  |
| Filter HTML Files .....   | 73  |
| Filter XML Files .....  | 74  |
| Configure Element Extraction for XML Documents .....                      | 74  |
| Modify Element Extraction Settings .....                                  | 75  |
| Use an Initialization File .....  | 75  |
| Modify Element Extraction Settings in the kvxconfig.ini File .....        | 75  |
| Specify an Element's Namespace and Attribute .....                        | 76  |
| Add Configuration Settings for Custom XML Document Types .....            | 77  |
| Configure Headers and Footers .....                                       | 77  |
| Tab Delimited Output for Embedded Tables .....                            | 78  |
| Exclude Japanese Guide Text .....   | 78  |
| Source Code Identification .....  | 79  |
| Optical Character Recognition .....                                       | 79  |
| Document Restrictions .....   | 80  |
| <br>  |     |
| Chapter 5: Sample Programs .....  | 81  |
| FilterTestDotNet .....  | 81  |
| TestExtract .....   | 81  |
| TestFilter .....  | 83  |
| <br>  |     |
| Part III: Appendixes .....  | 86  |
| <br>  |     |
| Appendix A: Supported Formats .....                                       | 87  |
| Key to Supported Formats Table .....                                      | 87  |
| Supported Formats .....   | 89  |
| File Classes .....  | 155 |
| <br>  |     |
| Appendix B: Document Readers .....  | 157 |
| Key to Document Readers Table .....                                       | 157 |

|  |            |
|--|------------|
| Document Readers .....   | 159        |
| <b>Appendix C: Platform Differences .....</b>                      | <b>187</b> |
| Feature Differences .....  | 188        |
| Reader Differences .....   | 189        |
| <b>Appendix D: Character Sets .....</b>                            | <b>191</b> |
| Multibyte and Bidirectional Support .....                          | 191        |
| Coded Character Sets .....   | 199        |
| <b>Appendix E: Extract and Format Lotus Notes Subfiles .....</b>   | <b>205</b> |
| Overview .....   | 205        |
| Customize XML Templates .....                                      | 205        |
| Use Demo Templates .....   | 206        |
| Use Old Templates .....  | 206        |
| Disable XML Templates .....  | 206        |
| Template Elements and Attributes .....                             | 207        |
| Conditional Elements .....   | 207        |
| Control Elements .....   | 208        |
| Data Elements .....  | 209        |
| Date and Time Formats .....  | 212        |
| Lotus Notes Date and Time Formats .....                            | 212        |
| KeyView Date and Time Formats .....                                | 213        |
| <b>Appendix F: File Format Detection .....</b>                     | <b>218</b> |
| Introduction .....   | 218        |
| Extract Format Information .....                                   | 218        |
| Determine Format Support .....                                     | 218        |
| Example formats.ini file entries .....                             | 219        |
| Refine Detection of Text Files .....                               | 219        |
| Allow Consecutive NULL Bytes in a Text File .....                  | 220        |
| Translate Format Information .....                                 | 221        |
| Distinguish Between Formats .....                                  | 222        |
| Determine a Document Reader .....                                  | 222        |
| Additional Format Information .....                                | 222        |
| <b>Appendix G: List of Required Files for Redistribution .....</b> | <b>223</b> |
| Core Files .....   | 223        |
| Support Files .....  | 224        |

|   |            |
|---|------------|
| Document Readers .....  | 225        |
| <b>Appendix H: Develop a Custom Reader .....</b>                  | <b>233</b> |
| Introduction .....  | 233        |
| How to Write a Custom Reader .....                                | 234        |
| Naming Conventions .....  | 234        |
| Basic Steps .....   | 235        |
| Token Buffer .....  | 235        |
| Macros .....  | 237        |
| Reader Interface .....  | 237        |
| Function Flow .....   | 238        |
| Example Development of fffFillBuffer() .....                      | 238        |
| Implementation 1—fpFillBuffer() Function .....                    | 238        |
| Structure of Implementation 1 .....                               | 239        |
| Problems with Implementation 1 .....                              | 239        |
| Implementation 2—Processing a Large Token Stream .....            | 240        |
| Structure of Implementation 2 .....                               | 240        |
| Problems with Implementation 2 .....                              | 241        |
| Boundary Conditions .....   | 241        |
| Implementation 3—Interrupting Structured Access Layer Calls ..... | 242        |
| Structure of Implementation 3 .....                               | 244        |
| Development Tips .....  | 244        |
| Functions .....   | 245        |
| xxxsrAutoDet() .....  | 245        |
| xxxAllocateContext() .....  | 246        |
| xxxFreeContext() .....  | 247        |
| xxxInitDoc() .....  | 247        |
| xxxFillBuffer() .....   | 248        |
| xxxGetSummaryInfo() .....   | 249        |
| xxxOpenStream() .....   | 250        |
| xxxCloseStream() .....  | 251        |
| xxxCharSet() .....  | 251        |
| <b>Appendix I: Password Protected Files .....</b>                 | <b>253</b> |
| Supported Password Protected File Types .....                     | 253        |
| Open Password Protected Container Files .....                     | 254        |
| Filter Password Protected Files .....                             | 254        |
| <b>Appendix J: OCR Supported Languages .....</b>                  | <b>256</b> |



**Send documentation feedback .....258**



# Part I: Overview of Filter SDK

This section provides an overview of the Micro Focus KeyView Filter SDK and describes how to use the .NET implementation of the API.

- [Introducing Filter SDK](#)
- [Getting Started](#)

# Chapter 1: Introducing Filter SDK

This section describes the Filter SDK package.

|  |    |
|--|----|
| • <a href="#">Overview</a> .....                               | 12 |
| • <a href="#">Features</a> .....                               | 12 |
| • <a href="#">Platforms, Compilers, and Dependencies</a> ..... | 13 |
| • <a href="#">Windows Installation</a> .....                   | 15 |
| • <a href="#">UNIX Installation</a> .....                      | 15 |
| • <a href="#">Package Contents</a> .....                       | 16 |
| • <a href="#">License Information</a> .....                    | 17 |
| • <a href="#">Directory Structure</a> .....                    | 18 |

## Overview

Micro Focus KeyView Filter SDK enables you to incorporate text extraction functionality into your own applications. It extracts text and metadata from a wide variety of file formats on numerous platforms, and can automatically recognize over 1000 document types. It supports both file-based and stream-based I/O operations, and provides in-process or out-of-process filtering.

Filter 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

- Document readers are threadsafe. The benefit of a threadsafe technology is that you can successfully extract text from hundreds of documents simultaneously. Documents are not queued for sequential filtering, but are actually filtered at the same time.
- Filter supports popular word processing, spreadsheet, and presentation formats. Body text, endnotes, footnotes, and additional items such as document metadata are all included as part of the filtering process.
- Sample programs are provided to demonstrate the functionality of the APIs.
- You can extract files embedded within files, such as email attachments or embedded OLE objects, by using the File Extraction API.
- Filter allows for redirected input and output. You can provide an input stream that is not restricted to file system access.

- Filter automatically recognizes the file type being filtered and uses the appropriate filter. Your application does not need to rely on file name extensions to determine file types.
- You can filter documents to specific character encodings, such as Unicode or UTF-8.
- You can write custom document readers for formats not directly supported by KeyView.

## Platforms, Compilers, and Dependencies

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

### Supported Platforms

The .NET Filter SDK is supported on the following platforms.

- 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

### Supported Compilers

The following table lists the supported compilers for the .NET Filter SDK.

| Platform          | Architecture | Compiler Name | Compiler Version                         |
|-------------------|--------------|---------------|--|
| Microsoft Windows | x86          | csc           | Visual Studio 2012 to Visual Studio 2019 |
|                   | x64          | csc           | Visual Studio 2012 to Visual Studio 2019 |

### Software Dependencies

To run KeyView on Windows requires the Microsoft Visual C++ 2019 redistributables to be installed. The redistributables are provided in the `vc_redist` folder of the KeyView SDK but you can [download the latest installers from Microsoft](#) to get the latest security, reliability, and performance improvements.

To run KeyView OCR and RMS decryption on 64-bit Linux requires `libstdc++.so.6` and `libgcc_s.so.1` from GCC 5.4. For your convenience, these are provided in the `redist` folder of your KeyView installation.

**NOTE:** If you are running KeyView out-of-process then the `kloop` executable 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 4.8) then most features will continue to work, but Optical Character Recognition and RMS Decryption will not.

Some KeyView components require specific third-party software:

- Java Runtime Environment (JRE) or Java Development Kit (JDK) version 7 to 17 is required for the Filter and Export Java APIs and for graphics conversion in the 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.
- The Microsoft .NET Framework is required if you are using the .NET implementation of the API.

# 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:

```
KeyViewFilterSDK_12.12_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:

```
./KeyViewFilterSDK_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 Filter SDK installation contains:

- All the libraries and executables necessary for extracting text from a wide variety of formats.
- The include files that define the functions and structures used by the application to establish an interface with Filter:

|                             |                          |
|-----------------------------|--------------------------|
| <code>adapi.h</code>        | <code>kvfilter.h</code>  |
| <code>adinfo.h</code>       | <code>kvioobj.h</code>   |
| <code>kvcfsr.h</code>       | <code>kvtoken.h</code>   |
| <code>kvcharset.h</code>    | <code>kvtypes.h</code>   |
| <code>kverrorcodes.h</code> | <code>kvextract.h</code> |
| <code>kvfilt.h</code>       | <code>kwautdef.h</code>  |
| <code>kvfilt2.h</code>      |                          |

- The Java API implemented in the package `com.verity.api.filter` contained in the file `KeyView.jar`.
- The .NET API implemented in the namespace `Autonomy.API.Filter` in the library `FilterDotNet.dll`.
- The C++ SDK, which can be found in the `cppapi` folder.
- Sample programs that demonstrate File Extraction and Filter functionality using the APIs.



- The files necessary to create a custom document reader, and the source for a sample document reader for UTF-8. See [Develop a Custom Reader, on page 233](#).

## 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.
- Optical Character Recognition (OCR) to attempt to filter text that might be visible in raster image files.

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 Filter, in addition to updating the license key, change the parameter `208=em1` to `208=mbx` in the `formats.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 C++ API, provide license information when you start a new session (see the constructor for the `Session` class).
- In the .NET API, provide license information to KeyView when you instantiate the `Filter` object.
- In the Java API, provide license information to KeyView when you instantiate the `Filter` 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  
XXXXXXXX-XXXXXXXX-XXXXXXXX-XXXXXXXX
```

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 `XXXXXXXX-XXXXXXXX-XXXXXXXX-XXXXXXXX` 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 contents of the Filter SDK.

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 `KeyviewFilterSDK\WINDOWS\bin`.

### Installed directory structure

| Directory           | Description   |
|---------------------|---|
| <code>OS\bin</code> | Contains the libraries, the format detection file <code>formats.ini</code> , and other supporting files, as well as the C programs <code>filter</code> and <code>filtertest</code> , which you can use to test your custom document readers |

**Installed directory structure, continued**

| Directory            | Description  |
|----------------------|--|
|                      | (see <a href="#">Develop a Custom Reader</a> , on page 233).   |
| OS\lib               | (Solaris installations only) Contains the redistributable <code>libstlport.so.1</code> library, which is required to run KeyView on Solaris platforms. |
| dotnetapi            | Contains the source files for the .NET API.  |
| dotnetapi\dotnethelp | Contains the help for the .NET API.  |
| dotnetapi\sample     | Contains the sample programs for the .NET API.   |
| cppapi               | Contains the source files for the C++ API.   |
| cppapi\sample        | Contains the sample programs for the C++ API.  |
| guide                | Contains the KeyView Filter SDK programming guides in PDF and HTML format.   |
| include              | Contains the header files required for Filter.   |
| javaapi\javadoc      | Contains the Javadoc for the Java API.   |
| javaapi\sample       | Contains the source files and sample programs for the Java API.  |
| rel_notes            | Contains the <i>KeyView Filter SDK Release Notes</i> in PDF format.  |
| samples\filter       | Contains the source code for the <code>filter</code> sample program demonstrating the Filter interface for the C API.                                  |
| samples\pdfini       | Contains the initialization file used to extract custom metadata from PDF documents.   |
| samples\tstextract   | Contains a C sample program demonstrating the File Extraction interface.   |
| samples\utf8sr       | Contains the source for the sample document reader for UTF-8 files. You can use this to create your own custom document readers.                       |

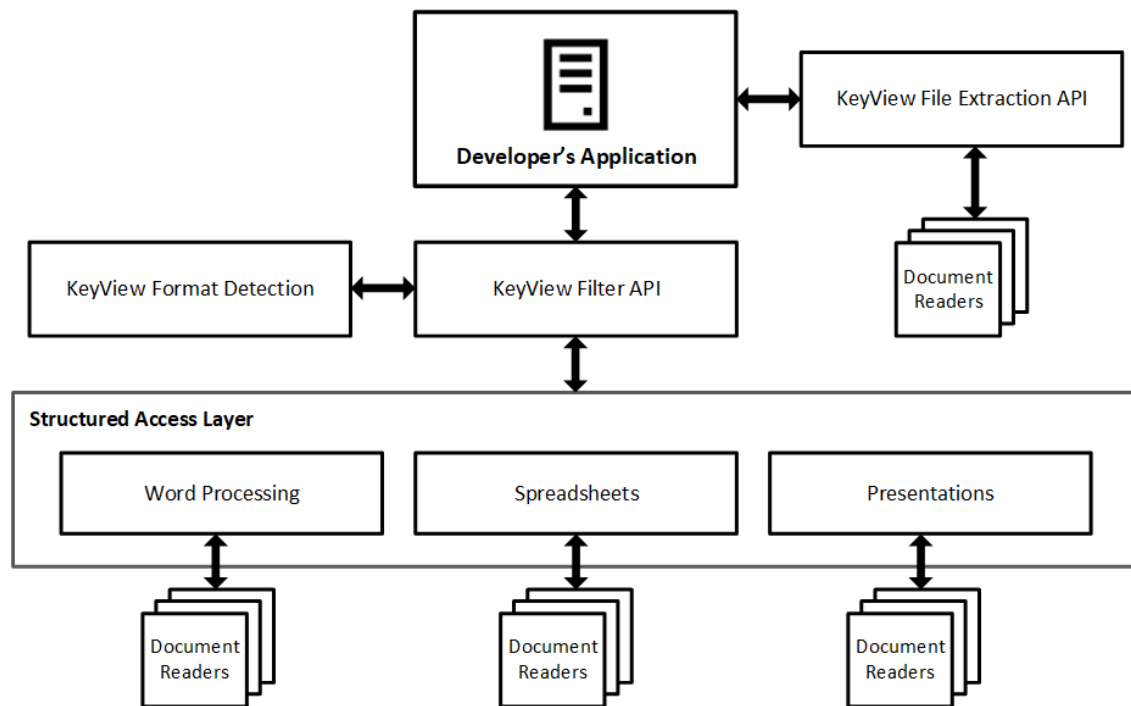
# Chapter 2: Getting Started

This section provides an overview of Filter SDK, and describes how to use the .NET implementation of the API.

- [Architectural Overview](#) .....20
- [File Caching](#) ..... 21
- [Filtering](#) .....22
- [Subfile Extraction](#) ..... 22
- [Use the .NET Implementation of the API](#) .....22
- [The Filter Process Model](#) .....25
- [Run Format Detection In or Out of Process](#) .....29
- [Stream Data to Filter](#) .....30

## Architectural Overview

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



Each component is described in the following table.

## Architectural Components

| Component               | Description  |
|-------------------------|--|
| Developer's Application | The developer's application interfaces directly with the Filter API through either a C-language, Java or .NET implementation.  |
| File Extraction API     | The File Extraction API opens a file and extracts the file's subfiles so they are exposed for filtering. See <a href="#">Use the File Extraction API, on page 33</a> .   |
| Filter API              | The Filter API exposes the filtering functionality and controls all other modules during the filtering process. See <a href="#">Use the Filter API, on page 54</a> .   |
| Format Detection        | This module determines the file type of the input stream, allowing the Filter API to return that information to the developer's application, or to load the appropriate structured access layer for further processing. See <a href="#">File Format Detection, on page 218</a> for more information format detection.  |
| Structured Access Layer | There are three modules that reside in the structured access layer—one each for word processing, spreadsheet, and presentation formats. The file detection result determines which structured access layer module is used during the filtering process. That module loads the appropriate document reader and proceeds with text extraction or metadata retrieval. |
| Document Readers        | Each document reader reads a specific file format and sends a text stream of the document to the structured access layer. Each filter is loaded as required by the structured access layer. See <a href="#">Document Readers, on page 225</a> for a complete list of document readers.   |

## 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.ini` file. Generally, when you increase the memory, performance will improve.

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

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 50MB of memory and have 10 threads, set the value to 5MB.

To modify the memory allocated for file caching, change the value for the following parameter in the `[DiskCache]` section of the `formats.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 64KB is used.

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

## Filtering

Filter SDK enables you to *filter* many different types of documents. Filtering is the process of extracting the text from a document without the application-specific markup. However, the filtering process can also include the following:

- Subfile extraction—exposes all subfiles for filtering. See [Use the File Extraction API, on page 33](#).
- File format extraction—detects a file's format, and reports the information to the API, which in turn reports the information to the developer's application. See [File Format Detection, on page 218](#).
- Metadata extraction—extracts selected metadata (document properties) from a file. See [Extract Metadata, on page 58](#).
- Character set conversion—controls the character set of both the input and the output text. See [Convert Character Sets, on page 60](#).

## Subfile Extraction

To filter 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. Archive 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 using the File Extraction interface. The extraction process is done repeatedly until all subfiles are extracted and exposed for filtering. Once a subfile is extracted, you can use the Filter API to filter the file.

If a file is not a container, you should pass it directly to the Filter API for filtering without extraction.

The `TestExtract` sample program demonstrates this logic for extracting and filtering files. See [TestExtract, on page 81](#) for more information.

## Use the .NET Implementation of the API

The .NET version of the Filter API provides an interface to the core functionality of the C API. It contains one primary class (`Filter`) that wraps the filter functionality of the C API. It is implemented in the namespace `Autonomy.API.Filter` contained in the file `FilterDotNet.dll`. The library is in the

directory `install\OS\bin`, where `install` is the path name of the Filter installation directory and `OS` is the name of the operating system.

For more information on the .NET API, see the .NET help file `FilterDotNetHelp.chm` in the directory `install\dotnetapi\dotnethelp`.

## Input/Output Operations

In the Filter .NET API, input and output can be either a physical file accessed through a file path, or a .NET stream. Depending on the method signature you use, you can create the following filtering processes:

- filter an input file to output file
- filter an input file to an output stream
- filter an input stream to an output stream
- filter an input stream to an output file
- filter an input file and return one chunk of data at a time
- filter an input stream and return one chunk of data at a time

Many methods in the .NET API have method signatures supporting one or more of these filtering processes. When you select a method, make sure that you use the correct signature for the desired input and output type.

The input source can be set by calling the `SetInputSource` method, or prior to using the `DoFilter`, `CanFilter`, `CanFilterEx`, `GetDocFormatInfo`, or `GetSummaryInfo` methods. The latter methods take the input source as one of their parameters.

**NOTE:** When the input source is from a .NET stream, Filter creates an internal buffer from the stream. If the input is a large file, Micro Focus recommends that you use a file as the input source.

## Filter in File or Stream Mode

### To filter a file or stream

1. Instantiate a `LicenseInfo` object to store your KeyView license.

```
LicenseInfo myLicense = new LicenseInfo("my_organization", "my_key");
```

2. Instantiate a `Filter` object, providing your `LicenseInfo` object.

- To instantiate the `Filter` object with the default output character set and filtering options:  

```
objFilter = new Filter(myLicense);
```
- To instantiate the `Filter` object with your chosen output character set and filtering options:

```
objFilter = new Filter(Charset.KVCS_UTF8,  
    FilterConstant.FilterFlagConstant.FILTERFLAG_OOPLOGON,  
    myLicense);
```

The filter flags provide instructions about how to process a file or stream. For example, you can specify whether to run filtering out-of-process (`FILTERFLAG_OUTOFPROCESS`), whether to log errors during filtering (`FILTERFLAG_OOPLOGON`), and whether to extract headers and footers from a document (`FILTERFLAG_HEADERFOOTERTAGS`).

**NOTE:** Filter runs out of process by default. See [The Filter Process Model, on the next page](#) for more information.

3. Set the location of the Filter libraries by setting the `FilterDirectory` property. These libraries are provided in the directory `PLATFORM\bin`, in the KeyView Filter SDK, where `PLATFORM` is the name of the platform. For example:

```
objFilter.FilterDirectory = "C:\\KeyviewFilterSDK\\WINDOWS_X86_64\\bin";
```

4. Set the input source as either a file or input stream by calling the `SetInputSource` method.

```
objFilter.SetInputSource(m_inFile);
```

5. Filter the file or stream by calling either the `FilterTo` or `DoFilterChunk` method. The `FilterTo` method extracts the data to a file or a stream. The `DoFilterChunk` method extracts one chunk of data from a file or a stream. It must be called repeatedly until the entire buffer is filtered.

If filtering in file mode, use the following code:

```
{  
    m_objFilter.filterTo(m_extractDir + filename + m_extension);  
}
```

If filtering in stream mode, use the following code:

```
{  
    outf = new File(m_extractDir + filename + m_extension);  
    fos = new FileOutputStream(outf);  
    m_objFilter.filterTo(fos);  
    fos.close();  
}
```

6. Terminate the filtering session and free allocated system resources by calling the `ShutdownFilter()` method. This must be called within a `Finally` block.

```
m_objFilter.ShutdownFilter();
```

## Multithreaded Filtering

To ensure multithreaded filter processes are thread-safe, you must create a unique `Filter` context for every thread by instantiating a `Filter` object. In addition, threads must not share context objects, and the same context object must be used 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 code should have the following logic in a thread:

```
objFilter = new Filter();  
objFilter.FilterDirectory = m_filterDirectory;  
objFilter.SetInputSource(infile);  
objFilter.GetDocFormatInfo();  
  
if (objFilter.CanFilter() == true)  
  
objFilter.FilterTo(outfile);  
  
objFilter.ShutdownFilter();
```

## The Filter Process Model

By default, Filter runs independently from the calling application process. This is called *out-of-process* filtering. Out-of-process filtering protects the stability of the calling application in the rare case when a malformed document causes Filter to fail. You can configure Filter to run in the same process as the calling application. This is called *in-process* filtering. However, it is strongly recommended you run Filter out of process whenever possible.

To monitor and debug filtering operations during out-of-process filtering, you can generate an error log at run time. See [Generate an Error Log, on page 54](#).

The following methods run in process or out of process:

### Filter API

- CanFilter
- CanFilterEx
- DoFilter
- DoFilterChunk
- GetSummaryInfo
- GetDocFormatInfo
- GetXmpInfo

### File Extraction API

- ExtractCloseDocument
- ExtractGetSubFileInfo
- ExtractGetSubFileMetadata
- ExtractSubFile

- ExtractGetMainFileInfo
- ExtractOpenDocument
- GetSummaryInfo

Other Filter API methods always run in process.

## Persist the Child Process

By default, in out-of-process filtering, the parent process maintains a persistent connection with the child server after each file is filtered. When the connection is preserved in this way, subsequent filtering requests are processed more quickly because the server is already prepared to receive data.

You can restart the server at regular intervals by using a method or a configuration setting.

### In the API

To force KeyView to restart, call the `refreshFilterKVOOP()` method.

```
public void refreshFilterKVOOP();
```

### In the `formats.ini` File

To control whether Filter persists the server, use the `kvoopRefresh` parameter in the `[FilterSDK_Config]` section of the `formats.ini` file:

`kvoopRefresh=0` When this is set to 0 (zero), the connection to the server is persisted for as long as the parent process is running or until the server fails. This is the default.

`kvoopRefresh=n` When this is set to *n*, the connection is persisted for *n* filter requests. After the *n*th request, the server is shutdown and restarted before processing the next request.

For example, if `kvooprefresh=5`, the connection to the server is persisted for 5 filter requests. For the 6th request, the server is shutdown and restarted.

To control whether the parent process attempts to filter a file after the file has caused the server to fail, use the `kvoopRetry` parameter in the `[FilterSDK_Config]` section of the `formats.ini` file:

`kvoopRetry=0` When this option is set to 0 and the server fails, the parent process does not resend the file to a new server.

`kvoopRetry=n` When this option is set to *n* (a positive number) and the server fails, the parent process resends the file to a new server *n* times. By default, the `kvoopRetry` is set to 1, and the file is resent to a server once.

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

**NOTE:** The `kvoopRefresh` and `kvoopRetry` parameters do not apply when running the File Extraction functions out of process. See [Run File Extraction Functions Out of Process, below](#).

## Run Filter In Process

By default, Filter runs out of process. However, you can enable in-process filtering through the API or in the `formats.ini` file. If the type of process is not specified in the `formats.ini` or in the API, then Filter is run out of process. If the type of process is specified in the `formats.ini` *and* in the API, the setting in the API takes precedence.

### In the API

To run Filter in process, instantiate the Filter object using the constructor `Filter(string OutputCharSet, UInt32 filterFlags)`, and set the `FilterFlags` argument to `FILTERFLAG_INPROCESS`.

```
objFilter = new Filter(outputCharSet, FilterConstant.FilterFlagsConstant.FILTERFLAG_INPROCESS);
```

### In the formats.ini File

To run Filter in process, set the following parameter in the `[FilterSDK_Config]` section of the `formats.ini` file to 1:

```
default_inprocess=1
```

By default this is set to 0 (zero), which enables out-of-process filtering.

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

## Run File Extraction Functions Out of Process

The out-of-process setting specified when you create the Filter object or in the `formats.ini` is automatically propagated to the File Extraction API. When you extract subfiles from container files and pass the files for filtering out of process, Filter generates a server called `kvoop.exe` for filtering and a duplicate server also called `kvoop.exe` for file extraction. These servers are independent, so if the filtering service stops responding, the file extraction service can continue extracting files uninterrupted.

### Restart the File Extraction Server

If the file extraction server fails on a file and throws the exception `KVError_InvalidOopDriverSignature` or `KVError_InvalidOopServiceSignature`, you must restart the server by recreating the Filter object, and process the source file again.

## Out-of-Process Logging

Logging is available for out-of-process filtering. The kvoop server can now create a log file that captures information on the files being processed, storing one entry per process. The generated log file is called `xxxx_kvoop.log`, where `xxxx` is a unique number identifying the process.

In the rare case when the kvoop server fails, you can use the log files to determine which file caused the failure. After processing is complete and the system shuts down, the logs are automatically deleted. To keep the log files after processing is successfully completed, see [Keep Log Files, on the next page](#).

### Enable Out-of-Process Logging

To enable out-of-process logging, set the `KV00P_LOGS_DIR` environment variable to the directory in which you want the log files to be stored. By default, logging is not enabled.

On UNIX, the variable is set as follows:

```
setenv KV00P_LOGS_DIR /tmp
```

On Windows, the variable is set as follows:

```
set KV00P_LOGS_DIR=c:\tmp
```

The following log file is created in the directory:

```
process_id_kvoop.log
```

where *process\_id* is a numeric value representing the logged process. New messages are appended to the file, and truncation is disabled by default.

If KeyView terminates unexpectedly and Windows minidump is enabled, a *process\_id\_crash\_info.txt* file is generated (see [Enable Windows Minidump, below](#)). If logging was not been enabled at the time of termination, this file contains instructions on how to enable logging.

### Set the Verbosity Level

You can control how much information is written to the file by setting the `KV00P_LOG_VERBOSITY` environment variable. For example:

```
set KV00P_LOG_VERBOSITY=1
```

The variable can be set to the following:

- 1 Include only error messages.
- 2 Include errors and warnings.
- 3 Include errors, warnings, and general information. This is the default.
- 4 Include all possible information. This setting is useful for debugging purposes.

### Enable Windows Minidump

KeyView can use the Windows minidump feature to provide additional logging information, which can be useful for debugging purposes.

The Windows minidump is disabled by default. To enable the Windows minidump, set `KVOOP_DUMP_ENABLE` to **1**. If an unexpected termination occurs after the minidump is enabled, three files are generated:

**`process_id_crash_info.txt`**. Contains KVOOP state and runtime information at the time of termination. If logging was not enabled at the time of termination, this file contains instructions on how to enable logging.

**`process_id_process_list.txt`**. Contains information from the DLLs that were loaded at the time of the termination.

**`process_id_report.dmp`**. This is the Windows dump file, which contains further information about the termination. You can open it with either a Windows debugger or `autnhe1per.exe` (this file must be copied to the same directory).

You can control the amount of information presented in the Windows dump file by creating the following files in the directory:

```
dumper.NORMAL  
dumper.WITHDATASEGS  
dumper.WITHFULLMEMORY  
dumper.WITHHANDLEDATA
```

## Keep Log Files

After processing is complete and the system is shut down, the log files are automatically deleted from the directory. To keep the log files after a successful run, set the `KVOOP_KEEP_LOGS` environment variable.

On UNIX, set the variable as follows:

```
setenv KVOOP_KEEP_LOGS 1
```

On Windows, set the variable as follows:

```
set KVOOP_KEEP_LOGS=1
```

# Run Format Detection In or Out of Process

By default, detection runs in out-of-process mode. However, you can enable in-process detection through the API or in the `formats.ini` file. If the type of process is not specified in the `formats.ini` or in the API, detection runs in out-of-process mode. If the type of process is specified in the `formats.ini` *and* in the API, the setting in the API takes precedence.

## Specify the Process Type In the `formats.ini` File

Add the `default_detect_inprocess` flag to a `[FilterSDK_Config]` section in the `formats.ini` file to control the default behavior for detection. Set the flag to **0** for out-of-process detection, and **1** for in-process detection. For example,

```
[FilterSDK Config]  
default_detect_inprocess=0
```

If this flag is not specified, the file detection behavior is determined by the `default_inprocess` flag for filtering. For example, if you set `default_inprocess` to `1`, filtering and file detection runs in in-process mode by default; if you set `default_inprocess` to `0`, filtering and file detection runs in out-of-process mode by default.

If you set both the `default_inprocess` and `default_detect_inprocess` flags, `default_inprocess` controls the default filtering behavior and `default_detect_inprocess` controls the default file detection behavior.

## Specify the Process Type In the API

To run format detection in-process, set the flag `FILTERFLAG_DETECTINPROCESS` when you instantiate the Filter object:

```
objFilter = new Filter(outputCharSet,  
    FilterConstant.FilterFlagsConstant.FILTERFLAG_DETECTINPROCESS,  
    license);
```

To run detection out-of-process, set the flag `FILTERFLAG_DETECTOUTOFPROCESS`.

## Stream Data to Filter

By default, when you run Filter out-of-process, and pass file streams to the API (instead of file names), Filter uses temporary files during communication.

When running out-of-process, you can configure KeyView to stream the file data while it processes it, rather than creating temporary files. This method is particularly beneficial if you do not want to process the whole file (for example, if you want to stop after filtering only some of the text, or extract only some of the subfiles).

**NOTE:** This option is disabled by default because for some files it might result in a longer processing time when you do need to process the whole file.

To turn on streaming mode, you can either:

- Set at least one of the following streaming parameters in the `[FilterSDK_Config]` section of the `formats.ini` to `pipe`:

|                                      |  |
|--------------------------------------|--|
| <code>streaming_method</code>        | Set this parameter to <code>pipe</code> to change the overall behavior for filtering and extraction to use streaming mode. By default this parameter is set to <code>temp</code> , which uses temporary files during the filter process. |
| <code>filter_streaming_method</code> | Set this parameter to <code>pipe</code> to configure filtering to use streaming mode. If you do not set this parameter, KeyView uses the value of <code>streaming_method</code> .  |

|                                       |  |
|---------------------------------------|--|
| <code>extract_streaming_method</code> | Set this parameter to <code>pipe</code> to configure extraction to use streaming mode. If you do not set this parameter, KeyView uses the value of <code>streaming_method</code> . |
|---------------------------------------|--|

- Set the filter streaming options in the API.

The streaming method has a number of advantages:

- It reduces the disk space used for temporary files.
- It improves the responsiveness for partial filtering. When using the `temp_file` method, your first call to `DoFilterChunk` does not return until the entire file has been processed. When using the `pipe` method, `DoFilterChunk` returns the first block of text as soon as it is available.
- It reduces the I/O for partial filtering. When you use the `pipe` method, it might not be necessary for KeyView to read the whole input file, especially if you choose to stop filtering before all the text has returned.
- For many formats, it reduces the amount of the input file that is read during extraction, especially if you extract only a subset of the files.

# Part II: Use Filter SDK

This section explains how to perform some basic tasks by using the File Extraction and Filter APIs, and describes the sample programs.

- [Use the File Extraction API](#)
- [Use the Filter 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.

|   |    |
|---|----|
| • <a href="#">Introduction</a> .....  | 33 |
| • <a href="#">Extract Subfiles</a> .....                                      | 34 |
| • <a href="#">Extract Images</a> .....  | 36 |
| • <a href="#">Recreate a File's Hierarchy</a> .....                           | 36 |
| • <a href="#">Extract Mail Metadata</a> .....                                 | 38 |
| • <a href="#">Extract Subfiles from Outlook Files</a> .....                   | 44 |
| • <a href="#">Extract Subfiles from Outlook Express Files</a> .....           | 44 |
| • <a href="#">Extract Subfiles from Mailbox Files</a> .....                   | 45 |
| • <a href="#">Extract Subfiles from Outlook Personal Folders Files</a> .....  | 45 |
| • <a href="#">Extract Subfiles from Lotus Domino XML Language Files</a> ..... | 48 |
| • <a href="#">Extract Subfiles from Lotus Notes Database Files</a> .....      | 49 |
| • <a href="#">Extract Subfiles from PDF Files</a> .....                       | 50 |
| • <a href="#">Extract Embedded OLE Objects</a> .....                          | 51 |
| • <a href="#">Extract Subfiles from ZIP Files</a> .....                       | 51 |
| • <a href="#">Default File Names for Extracted Subfiles</a> .....             | 51 |

## Introduction

To filter 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:

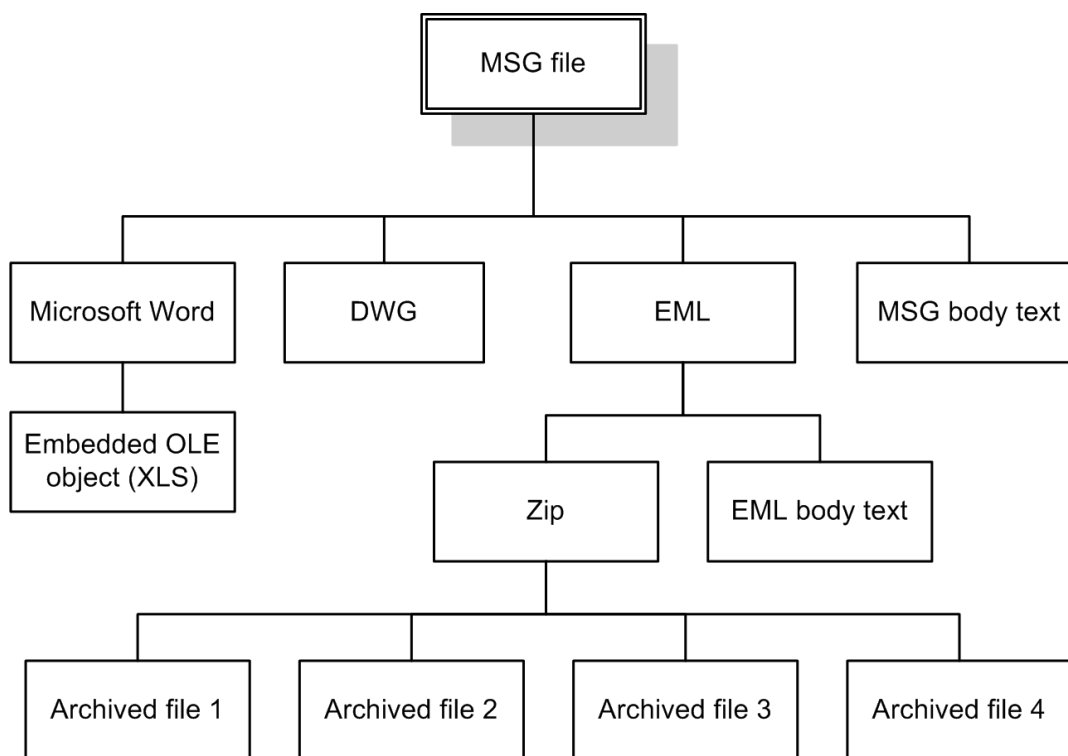
- Archive files such as ZIP, TAR, and RAR.
- Mail messages such as Outlook (MSG) and Outlook Express (EML).
- Mail stores such as Microsoft Outlook Personal Folders (PST), Mailbox (MBX), and Lotus Notes database (NSF).
- PDF files that contain file attachments.
- Compound documents with embedded OLE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

**NOTE:** [Document Readers, on page 157](#) indicates which formats are treated as container files and which are supported by the File Extraction API.

The subfiles might also be container files, creating a file hierarchy of multiple levels. For example, let us say an MSG file (the root parent) contains 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.

The following diagram shows the file's hierarchy.



**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 filter all files in a container file, you must open the container and extract its subfiles to either a file or a stream by using the *File Extraction API*. The extraction process is done repeatedly until all subfiles are extracted and exposed for filtering. After a subfile is extracted, you can call Filter API methods to filter the data.

If you want to filter a container file and its subfiles, to a single file, you must extract all files from the container, filter the files, and then append each filtered output file to its parent.

### To extract subfiles

1. Open the source file by calling the `ExtractOpenDocument` 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 `ExtractGetMainFileInfo()` method.
3. If the call to `ExtractGetMainFileInfo()` determined the source file is a container file, proceed to [step 4](#); otherwise, filter the file.
4. Determine whether the subfile is itself a container (contains subfiles) by calling the `ExtractGetSubFileInfo` method.
5. Extract the subfile by calling the `ExtractSubFile` method.
6. If the call to `ExtractGetSubFileInfo` 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, filter 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.ExtractGetSubFileInfo` 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

- In the `ExtractSubFileExtractConfig` that you pass in to the `ExtractSubFile` method, set the property `SanitizeAbsolutePath`. 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 set the property `CreateDirectory`. You can find the path that a file was actually extracted to from the `ExtractSubFileExtractInfo` object that is returned from the `ExtractSubFile` method.

### To sanitize absolute paths (through configuration)

- In the `formats.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.

**NOTE:** Turning on `ExtractImages` can reduce the speed of the filtering operation.

### To extract images

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

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

## Recreate a File's 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 `ExtractGetSubFileInfo`. Call this method to retrieve an object of `ExtractSubFileInfo`, then use the `ParentIndex` and `ChildArray()` properties 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 `ExtractGetSubFileInfo` repeatedly until information for the leaf-node children is extracted.

## Create a Root Node

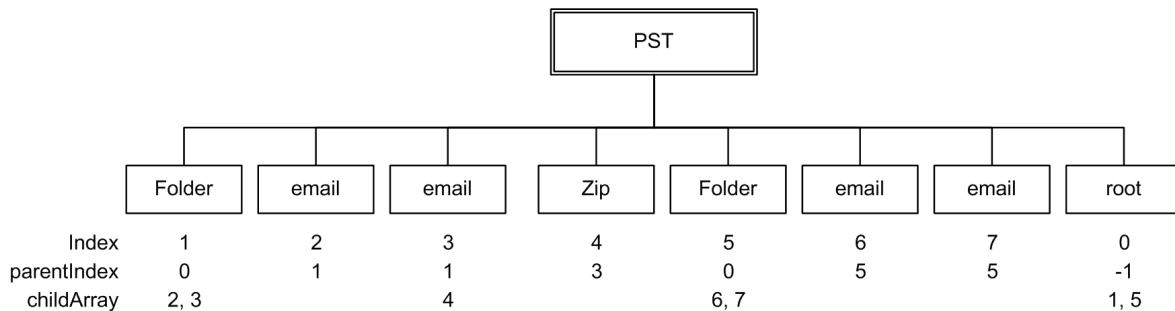
Because of their structure, some container files do not contain a subfile or folder which acts as a root directory on which the hierarchy can be based. For example, subfiles in a Zip archive can be extracted, but none of the subfiles represent the root of the hierarchy. In this case, an artificial *root 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, set the `CreateRootNode` property in the `ExtractOpenDocConfig` constructor, and pass `ExtractOpenDocConfig` to the `ExtractOpenDocument` method. When a root node is created, the value returned from the `NumSubFiles` property in the `ExtractMainFileInfo` constructor includes the root node. For example, when you call `ExtractGetMainFileInfo` 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

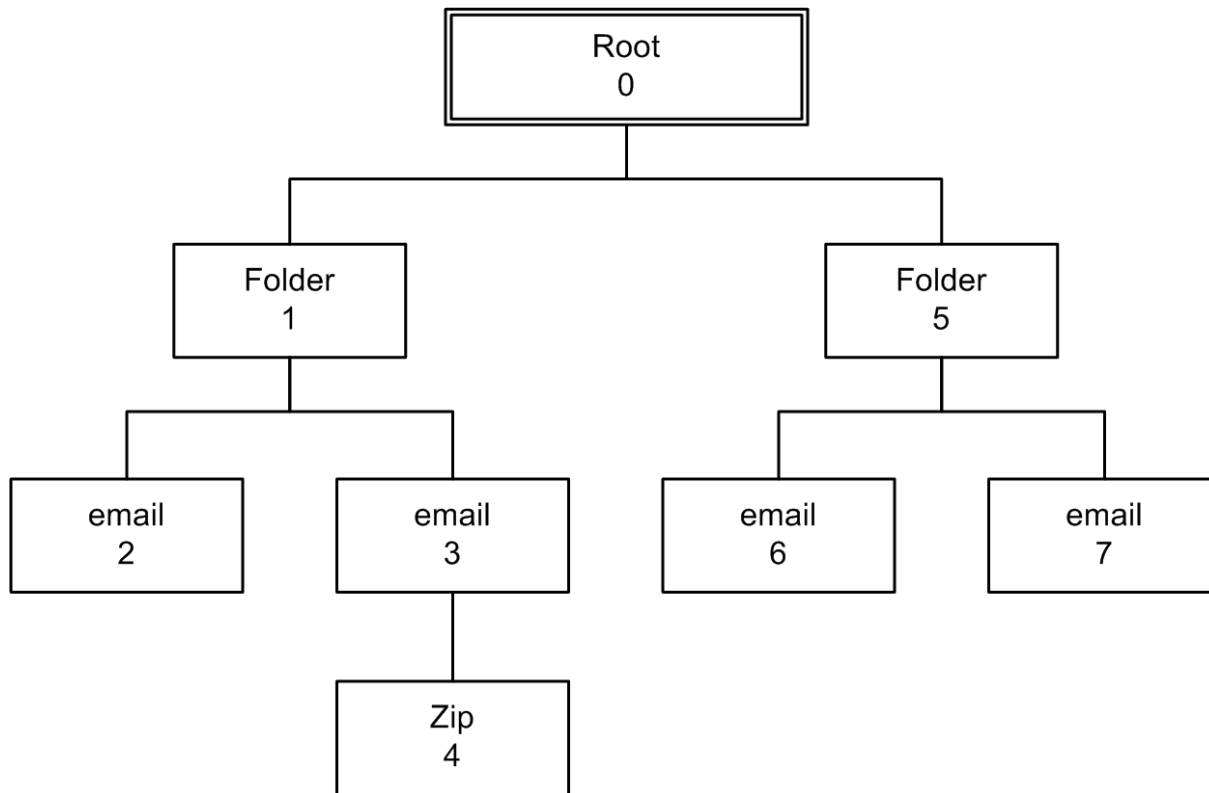
For example, you might extract a PST file that contains seven subfiles with a root node enabled. The call to `ExtractGetMainFileInfo()` returns the number of subfiles as 8 (seven subfiles and one root node). The following diagram shows the structure and the available hierarchy information after the subfiles 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 MSG, EML, MBX, PST, and NSF files by calling the `ExtractGetSubFileMetadata` method. You can extract a predefined set of metadata fields and/or individual fields that are unique to a file format.

### 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. When you retrieve all metadata for a file—that is, pass NULL for the array of metadata—the complete set of default metadata, not all available metadata in the file, is returned.

### Default mail metadata list

| Field Name (string to specify) | Description   |
|--------------------------------|---|
| From                           | The display name and email address of the sender.   |
| To                             | The display names and email addresses of the recipients.                                    |
| Sent                           | The time the message was sent.  |
| 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. |
| 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 the table individually for PST files. However, you can pass either the MAPI tag number or one of the constants in the Filter class as integers. See [Microsoft Personal Folders File \(PST\) Metadata, on page 42](#).

### Extract the Default Metadata Set

To extract the default metadata set, call the `ExtractGetSubFileMetadata(int extractFileId, int metadataID, string metaDataName)` method. For example:

```
int[] metaIDs = null;
string[] metaDataName = null;

m_objFilter.SetMetaConfig();

ExtractSubFileMetadata metadata;

metadata = m_objFilter.ExtractGetSubFileMetadata(extContextId, metaIDs,
metaDataName);
```

## Microsoft Outlook (MSG) Metadata

In addition to the default metadata set, for MSG files you can extract the metadata fields listed in the following table.

You must pass the field name to `metaNameArray` in the call to the `ExtractGetSubFileMetadata` method. You can also add specific string named properties to the `metaNameArray` to search for and extract those properties.

### 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 <b>Sent</b> field in the message's <b>Properties</b> 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 <b>Modified</b> field in the message's <b>Properties</b> dialog in Outlook.  |
| MessageID                      | The message transfer system (MTS) identifier for the message transfer agent (MTA). This value is displayed on the <b>Message ID</b> tab in the message's <b>Properties</b> dialog in Outlook.   |
| Received                       | The date and time a message was delivered. This value is displayed in the <b>Received</b> field in the message's <b>Properties</b> dialog in Outlook.   |
| Sender                         | The name and email address of the message sender. This value is a concatenation of two MAPI properties in the following format:<br><br>"PR_SENDER_NAME" <PR_SENDER_EMAIL_ADDRESS><br><br>The Sender value might be the same as or different than the default metadata From value (see <a href="#">Default Metadata Set, on page 38</a> ), depending on which MAPI properties exist in the MSG file. |
| 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 <b>Sensitivity</b> field in the message's <b>Properties</b> dialog in Outlook.  |



### MSG-specific metadata list, continued

| Field Name (string to specify) | Description   |
|--------------------------------|---|
| TransportMsgHeaders            | Contains transport-specific message envelope information. This value corresponds to the MAPI property PR_TRANSPORT_MESSAGE_HEADERS. |
| 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 `ExtractGetSubFileMetadata` (`int extractFileId`, `int metadataID`, `string metaDataName`) and pass the field name defined in the table to `metaNameArray` (the string is not case sensitive).

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

```
int[] metaIDs = null;
string[] metaDataName = new string[2] {"conversationtopic", "MessageID"};

m_objFilter.SetMetaConfig();

ExtractSubFileMetadata metadata;
metadata = m_objFilter.ExtractGetSubFileMetadata(extContextId, metaIDs,
metaDataName);
```

## 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 `ExtractGetSubFileMetadata` (`int extractFileId`, `int metadataID`, `string metaDataName`) 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:

```
int[] metaIDs = null;
string[] metaDataName = new string[2] {"Received", "Mime-version"};

m_objFilter.SetMetaConfig();

ExtractSubFileMetadata metadata;
metadata = m_objFilter.ExtractGetSubFileMetadata(extContextId, metaIDs,
metaDataName);
```

## 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 `ExtractGetSubFileMetadata` (`int extractFileId`, `int metadataID`, `string metaDataName`) 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:

```
int[] metaIDs = null;
string[] metaDataName = new string[2] {"description", "Categories"};

m_objFilter.SetMetaConfig();

ExtractSubFileMetadata metadata;
metadata = m_objFilter.ExtractGetSubFileMetadata(extContextId, metaIDs,
metaDataName);
```

## 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:

|                      |                   |
|----------------------|-------------------|
| <b>Property</b>      | PR_HASATTACH      |
| <b>Identifier</b>    | 0x0E1B            |
| <b>Property type</b> | PT_BOOLEAN (000B) |
| <b>Property tag</b>  | 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 Filter 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 Filter class, you must pass the MAPI tag number.

To extract specific MAPI properties from a PST file, use the method `ExtractGetSubFileMetadata` (`int extractFileId`, `int metadataID`, `string metaDataName`) and pass the tag number or constant to `metaNameArray`.

For example, the following code extracts the MAPI properties PR\_SUBJECT and PR\_ALTERNATE\_RECIPIENT:

```
int[] metaIDs = new int[2] { Filter.Constant.MAPICConstant.KVPR_SUBJECT, 0x3A010102 }  
;  
string[] metaDataName = null ;  
  
m_objFilter.SetMetaConfig();
```

```
ExtractSubFileMetadata metadata;  
metadata = m_objFilter.ExtractGetSubFileMetadata(extContextId, metaIDs,  
metaDataName);
```

## 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 extracted to a text file. You can prevent the header information from appearing in the text file.

To exclude the header information, call the `ExcludeMailHeader` property of the `ExtractSubFileExtractConfig` object, and pass `ExtractSubFileExtractConfig` to the `ExtractSubFile` method. For example:

```
m_excludeMailHeader = true;  
extconfig = new ExtractSubFileExtractConfig();  
  
extconfig.ExcludeMailHeader = m_excludeMailHeader;  
extinfo = m_objFilter.ExtractSubFile(extContextID, i, extconfig);
```

## Extract Subfiles from Outlook Files

When an Outlook file (MSG) is extracted to disk, its message text and header information (To, From, Sent, and so on) are 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, above](#).) If the Outlook file contains a non-mail attachment, the attachment is extracted in its native format to a sub directory. If the Outlook file contains a mail attachment, the attachment's message text and attachment(s) are extracted to a sub directory.

## Extract Subfiles from Outlook Express Files

When an Outlook Express (EML) file is extracted to disk, its message text and header information (To, From, Sent, and so on) are 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, above](#).) 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 non-mail attachment(s) 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 (`eml1sr`) 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 `ExtractGetSubFileInfo` 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 are 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.](#))

You can also extract messages from PST files as MSG files, including all their attachments, using the `SaveAsMSG` property in the `ExtractSubFileExtractConfig` class.

If an Outlook item contains a non-mail attachment, the attachment is extracted in its native format to a sub directory. If an Outlook item contains an Outlook attachment, the attached item's body text and attachment(s) are extracted to a sub directory.

**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 17.](#)

## 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 only on certain platforms (see [pstxsr](#) in the platform differences section). 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 non-Windows platforms, only one of the native readers is available.

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

| Feature                           | Native Reader (pstxsr)  | Native Reader (pstnsr)                             | MAPI-based Reader (pstsr)                       |
|-----------------------------------|---|--|---|
| Platforms supported               | Windows x86 and x64<br>Linux x64 and<br>AArch64   | All platforms not supported by <code>pstxsr</code> | 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.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 (`pstsr`) 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, `pstsr`, 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 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 Filter API methods to filter 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. See [Password Protected Files, on page 253](#) for more information.

## 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.ini` file.

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

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

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

**NOTE:** To prevent header information from being extracted, see [Exclude Metadata from the Extracted Text File, on page 44](#).

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.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. Refer to the following webpage for more information.

<http://msdn.microsoft.com/en-us/library/fe06s4ak%28VS.71%29.aspx>

## 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 are 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 44.](#))

**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 Lotus Notes Database (NSF) reader is available only on certain platforms (see [nsfsr](#) in the platform differences section).

KeyView accesses NSF files indirectly by using the Lotus Notes API. Because the NSF reader relies on functionality in Lotus Notes, a Notes client or Domino server must be installed and configured on the same machine as KeyView. For information about the supported versions of Notes or Domino, see [Software Dependencies, on page 13.](#)

## Installation and Configuration

Before KeyView can filter 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 filtering.

### 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 `install\lotus\notes` 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` and the KeyView `bin` directory to the PATH environment variable. 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 credentials (user ID file and password), which are used to open a secured NSF file for extraction. See [Password Protected Files, on page 253](#) for more information.

## Format Note Subfiles

The KeyView NSF reader uses XML templates to format note sub-files. You can customize the templates as required 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 205](#).

## 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.ini file:

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

## Extract Embedded OLE Objects

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

- Microsoft Excel
- Microsoft Word
- Microsoft PowerPoint
- Microsoft Outlook
- Microsoft Visio
- Rich Text Format (RTF)

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

## Extract Subfiles from ZIP Files

ZIP files that are not password-protected can be extracted using the general method (see [Extract Subfiles, on page 34](#)). However, some ZIP files use password protection, in which case you must use a different method to enter the required credentials. See [Password Protected Files, on page 253](#) for more information.

## Default File Names for Extracted Subfiles

When a file name is not specified in the call to ExtractSubFile, 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 `ExtractSubFile`. 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 (`<>`)
- asterisk (`*`)
- back slash (`\`)
- colon (`:`)
- double quote (`"`)
- forward slash (`/`)
- pipe (`|`)
- 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        | .mail<br>.rtf (NSF files) |
| calendar appointment | .cal                      |
| contact entry        | .cont                     |
| task entry           | .task                     |
| note                 | .note                     |
| journal entry        | .jrn1                     |
| distribution list    | .dist                     |

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 `ExtractSubFile`. 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 (`<>`)
  - asterisk (`*`)
  - back slash (`\`)
  - colon (`:`)
  - double quote (`"`)
  - forward slash (`/`)
  - pipe (`|`)
  - 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 Filter API

This section describes how to perform some basic filtering tasks by using the Filter API.

|  |    |
|--|----|
| • <a href="#">Generate an Error Log</a> .....                          | 54 |
| • <a href="#">Extract Metadata</a> .....                               | 58 |
| • <a href="#">Convert Character Sets</a> .....                         | 60 |
| • <a href="#">Extract Deleted Text Marked by Tracked Changes</a> ..... | 62 |
| • <a href="#">Filter PDF Files</a> .....                               | 63 |
| • <a href="#">Filter Spreadsheet Files</a> .....                       | 70 |
| • <a href="#">Filter HTML Files</a> .....                              | 73 |
| • <a href="#">Filter XML Files</a> .....                               | 74 |
| • <a href="#">Configure Headers and Footers</a> .....                  | 77 |
| • <a href="#">Tab Delimited Output for Embedded Tables</a> .....       | 78 |
| • <a href="#">Exclude Japanese Guide Text</a> .....                    | 78 |
| • <a href="#">Source Code Identification</a> .....                     | 79 |
| • <a href="#">Optical Character Recognition</a> .....                  | 79 |
| • <a href="#">Document Restrictions</a> .....                          | 80 |

## Generate an Error Log

You can monitor and debug filtering operations by enabling a detailed error log. This allows you to see errors that are generated at run time and to track problem files in stream or file mode.

**NOTE:** Error logs are not generated when in-process filtering is enabled.

The error log might include the following information:

- Generated error messages.
- Time stamp.
- Path and file name of the file in which the error occurred.
- Length of the file in which the error occurred. If the name of the original file or the name of the temporary file are not obtained in stream mode, the file length is reported.

The following is a sample log file:

```
-KV00PE 12 # Time: 11:14:32 # File Len = 68140
-KV00PE 13 # Time: 11:23:05 # H:\files\WP\Word97\fnldmsa.doc
-KV00PE 5 # Time: 12:15:54 # H:\files\SS\XL2000\corporate.xsl
-KV00PE 5 # Time: 12:45:19 # H:\files\WP\WPerf5\wp501.doc
-KV00PE 12 # Time: 14:25:33 # H:\files\PG\PPoint95\95.ppt
```

```
-KVOOPE 26 # Time: 16:26:04 # File Len = 19117568  
-KVOOPE 10 # Time: 20:27:40 # File Len = 19117568
```

You can specify the information that is written to the log file using either the API or environment variables. To configure a log file for a single filtering session, use environment variables. To configure a log file for all filtering sessions, use the API. Configuring the log file using the API overrides the same settings in the environment variables. You can also specify additional settings in the `formats.ini` file

You can configure the following features of the log file:

- Enable or disable logging. See [Enable or Disable Error Logging, below](#).
- Change the default path and file name of the log file. See [Change the Path and File Name of the Log File, on the next page](#).
- Include memory errors in the log file. See [Report Memory Errors, on the next page](#).
- Specify a memory guard that is used to generate memory overwrite errors in the log. See [Specify a Memory Guard, on the next page](#).
- Include the input file name in the log file when filtering a stream. See [Report the File Name in Stream Mode, on page 57](#).
- Specify the maximum size of the log file. See [Specify the Maximum Size of the Log File, on page 57](#).

## Enable or Disable Error Logging

You can enable or disable error logging using either the API or environment variables. By default, a file called `kvoop.log` is created in the system temporary directory; however, you can change the path and file name of this file (see [Change the Path and File Name of the Log File, on the next page](#)).

### Use the API

To enable logging through the API, set the flag `FILTERFLAG_OOPLOGON` when you instantiate the Filter object:

```
objFilter = new Filter(outputCharSet,  
    FilterConstant.FilterFlagsConstant.FILTERFLAG_OOPLOGON,  
    license);
```

To disable logging, set the flag `FILTERFLAG_OOPLOGOFF`.

### Use Environment Variables

To enable logging, add the environment variable `KVOOPLOGON`, and set the variable value to 1. To disable logging, do not set the environment variable `KVOOPLOGON`.

## Change the Path and File Name of the Log File

You can change the default path and file name of the log file. The default is `C:\temp\kvoop.log` on Windows and `/tmp/kvoop.log` on UNIX.

To change the path and file name of the log file, add the following to the `formats.ini` file:

```
[kvooplog]
KvoopLogName=filepath
```

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

## Report Memory Errors

You can report memory leaks and memory overwrites in the log file by enabling the memory trace system, either by using the API or environment variables. If the memory trace system is enabled, the error messages for memory leaks and memory overwrites (`KVError_MemoryLeak` and `KVError_MemoryOverwrite`, respectively) are reported in the log file when they are generated.

**NOTE:** To report memory overwrites, you must also set a memory guard. See [Specify a Memory Guard](#), below.

### Use the API

To enable or disable the memory trace system in the API, instantiate the Filter object using the constructor `Filter(String outputCharSet, UInt32 filterFlags)`, and set the `FilterConstant.FilterFlagConstant` argument to either `FILTERFLAG_OOPMEMTRACEON` or `FILTERFLAG_OOPMEMTRACEOFF`. For example:

```
objFilter = new Filter(outputCharSet, FilterConstant.FilterFlagConstant.FILTERFLAG_
OOPMEMTRACE);
```

### Use Environment Variables

To enable the memory trace system, add the `KV00PMT` environment variable, and set its value to `1`. To disable the memory trace system, do not set the `KV00PMT` environment variable.

## Specify a Memory Guard

To report memory overwrites in the log file, you must set a memory guard that protects against memory overwrites. Normally, this is set in the range of 100-200 bytes. For example, if a memory guard of 100 is set and 20 bytes of memory are specified, a total of 120 bytes of memory are allocated. The additional memory is used to monitor and identify memory overwrites.

To configure the memory guard, add the following section to the `formats.ini` file:

```
[Kvooplog]
mg=100
```



## Report the File Name in Stream Mode

When you run Filter in file mode the file name is always reported in the log file. To report the file name in stream mode, you must extract it through the API.

### To add the input file name to the log

1. Create an instance of `ConfigOption` with the following properties:
  - a. Set the `ConfigOptionType` to `CFG_SET00PSRCFILE`.
  - b. Set the `ConfigOptionValue` to `0`.
  - c. Set `ConfigOptionData` to the `input_filename`.
2. Call the `SetConfigOption` method, and pass in the `ConfigOption` instance.

### Example

```
ConfigOption configs = new ConfigOption();  
    configs.ConfigOptionData = input_filename;  
    configs.ConfigOptionType = FilterConstant.ConfigOptionConstant.CFG_  
SET00PSRCFILE;  
    configs.ConfigOptionValue = 0;  
    objFilter.SetConfigOption(configs);
```

## Specify the Maximum Size of the Log File

You can specify the maximum size of the log file. When this size is reached and new entries are logged, either the first entry in the file is overwritten or the new entries are not reported.

To configure the maximum log size and whether old entries are overwritten, add the following section to the `formats.ini` file:

```
[Kvooplog]  
LogFileSize=10  
OverWriteLog=1
```

| Option       | Description  |
|--------------|--|
| LogFileSize  | This option specifies the maximum size of the log file in KB. The minimum is 1 K. If a size is not specified, the default 2 MB is used.  |
| OverWriteLog | This option determines whether the log file is overwritten when the maximum log file size ( <code>LogFileSize</code> ) is reached. If you set this option to <b>1</b> , the first entry of the log file is overwritten. If you set this option to <b>0</b> , new entries are not reported in the log file. |

## 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 38](#).

**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 157](#) lists the file formats for which metadata can be extracted. KeyView does not generate metadata automatically from the document contents.

The sample code `TestFilter` demonstrates how to extract metadata. See [TestFilter, on page 83](#).

## Extract Metadata for File Filtering

### To extract metadata for file filtering

1. Optionally, set the input source using the `SetInputSource(String inFile)` method of the `Filter` object.
2. If the input source was set in step 1, call the `GetSummaryInfo()` method of the `Filter` object to retrieve an object of the `SummaryInfo` class. Otherwise, call the `GetSummaryInfo(String inFile)` method.
3. Use the methods of the `SummaryInfo` object to retrieve the metadata information.

## Extract Metadata for Stream Filtering

### To extract metadata for stream filtering

1. Optionally, set the input source using the `SetInputSource(System.IO.Stream input)` method of the `Filter` object.
2. If the input source was set in step 1, call the `GetSummaryInfo()` method of the `Filter` object to retrieve an object of the `SummaryInfo` class. Otherwise, call the `GetSummaryInfo(System.IO.Stream in)` method.
3. Use the methods of the `SummaryInfo` object to retrieve the metadata information.

## Example

Below is an example of a call to `GetSummaryInfo()`:

If the get summary flag `-i` is set:

```
List<SummaryInfoElement> sinfo sinfo = objFilter.GetSummaryInfo();
if(sinfo != null)
{
    FileStream fs = new FileStream(m_summaryFile, FileMode.OpenOrCreate,
    FileAccess.Write);
    StreamWriter sw = new StreamWriter(fs);
    //In case the ANSI is not 1252, using following to get byte array and then
    convert to correct information.
    // BinaryWriter bw = new BinaryWriter(fs);
    string charSet = objFilter.TargetCharSet;
    foreach (SummaryInfoElement item in sinfo)
    {
        Console.WriteLine( item.ElementName + ". data: " + item.Data );
        if (item.ElementName != null)
        {
            //bw.Write(item.ElementNameByteArray);
            sw.WriteLine(" name: " + item.ElementName );
        }
        if (item.Data != null)
        {
            //bw.Write(item.DataByteArray);
            sw.WriteLine(" data: " + item.Data );
        }
        sw.Flush();
    }
    sw.Close();
    fs.Close();
}
sinfo=null;
```

The SummaryInfo class stores the metadata extraction results. After calling the Filter.GetSummaryInfo() method, call the properties provided by each instance of this class to extract metadata. The following describes each property:

- IsValid. Specifies whether the element data is present.
- SumInfoType. Sets or gets the summary element's data type. The possible types are:

|              |  |
|--------------|--|
| KV_String    | The value in the metadata field is a string.               |
| KV_Int4      | The value in the metadata field is an integer.             |
| KV_DateTime  | The value in the metadata field is a date and time.        |
| KV_ClipBoard | Currently not supported.                                   |
| KV_Boolean   | The value in the metadata field is a boolean.              |
| KV_Unicode   | The value in the metadata field is a Unicode string.       |
| KV_IEEE8     | The value in the metadata field is an IEEE 8-byte integer. |
| KV_Other     | The value in the metadata field is user-defined.           |

- **Data.** Sets or gets the summary element's content.

If `type` is `KV_Int4` or `KV_Boo1`, then `data` contains the actual value. Otherwise, `Data` is a pointer to the actual value.

`KV_IEEE8` point to an 8-byte value.

`KV_DateTime`, `KV_String` and `KV_Unicode` point to the beginning of the string that contains the text. `KV_Unicode` is replaced with `KV_String` when the UNICODE value has been character mapped to the desired output character set.

- **ElementName.** Sets or gets the summary element's name.
- **ElementNameByteArray.** Sets or gets the summary element's name using a byte array in case the character set is not known.
- **DataByteArray.** Gets the summary element's content using a byte array.

If the `SumInfoType` is `KV_DateTime`, the value in the `DataByteArray` is a 64-bit value representing the number of 100-nanosecond intervals since January 1, 1601 (Windows FILETIME EPOCH). You might need to convert this value into another format.

## Convert Character Sets

Filter can convert the character set of a source document to an arbitrary character set specified in the API, or to the character set of the operating system on which the output text is viewed. For this conversion to occur, a source character set *must* be identified. The source character set can either be determined by the document reader, or can be set in the API. The section [Document Readers, on page 157](#) lists file formats for which character set information can be determined by the document reader. The character sets are defined as constants in the Filter class.

## Determine the Character Set of the Output Text

To determine the output character set of a filtered document, Filter considers the following:

- Whether the document reader can determine the character set of the file format. If the document reader cannot determine the character set information for the document type, set the source character set in the API.
- Whether the *source* character set is specified in the API.
- Whether the *target* character set is specified in the API.

## Guidelines for Character Set Conversion

Below are some rules for the determination of character set mapping:

- If the source is not determined by the document reader or configured in the API, then the character set of the output text is always unknown, regardless of the target character set configuration. The document cannot be converted to a target character set or the operating system's code page unless the source character set is known.

- If the target character set is *not* specified in the API, and the source character set is identified, then the operating system's code page is used for the output text.
- If the source character set is identified, and the target character set is specified in the API, then the target character set specified in the API is used for the output text.
- For documents that contain multiple character sets, Micro Focus recommends that the target character set be forced to UNICODE or UTF-8.

The following table illustrates how Filter determines the character set of the output text.

#### Determining the Output Character Set—Example

| Source charset read by Filter | Source charset specified in API | Target charset specified in API | Output charset |
|-------------------------------|---------------------------------|---------------------------------|----------------|
| No                            | No                              | No                              | no conversion  |
| No                            | KVCS_936                        | No                              | OS code page   |
| No                            | No                              | UNICODE                         | no conversion  |
| No                            | KVCS_936                        | UNICODE                         | UNICODE        |
| Yes                           | No                              | No                              | OS code page   |
| Yes                           | KVCS_936                        | No                              | OS code page   |
| Yes                           | No                              | UNICODE                         | UNICODE        |
| Yes                           | KVCS_936                        | UNICODE                         | UNICODE        |

## Set the Character Set During Filtering

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

To specify the source character set, use the SourceCharSet property. For example:

```
objFilter.SourceCharSet=sourceCharSet;
```

To specify the target character set, instantiate the Filter object using the constructor Filter(String outputCharSet, UInt32 filterFlags). For example:

```
objFilter = new Filter(outputCharSet, filterFlags);
```

## Set the Character Set During Subfile Extraction

You can convert the character set of a subfile at the time the subfile is extracted from the container. This is most often used to set the character set of a mail message's body text. See [Filter PDF Files, on the next page](#) for more information.

### To specify the source and target character set of a subfile

1. Use the methods of the `ExtractSubFileExtractConfig` object to set the source and target character set.
2. Call the `ExtractSubFile` method of the `Filter` object and pass in the `ExtractSubFileExtractConfig` object. For example:

```
subFileConfig.FilePath = subInfo.SubFileName;  
subFileConfig.ExtractDirectory = m_extractDir;  
subFileConfig.CreateDirectory = m_createDir;  
subFileConfig.OverWrite = true;  
subFileConfig.ExcludeMailHeader = m_excludeMailHeader;  
subFileConfig.GetFormattedBody = m_getFormattedBody;  
subFileConfig.SourceCharset = m_sourceCharSet;  
subFileConfig.TargetCharset = m_outputCharSet;  
subFileConfig.LittleEndian = m_isLittleEnd == 1 ? true : false;
```

## Prevent the Default Conversion of a Character Set

You can prevent the default conversion of text to the operating system code page, and specify that Filter retain the original character encoding of the document when it is available. Any document identified as containing more than one character encoding is converted to the first encoding encountered in the file.

To prevent the default conversion, set the flag `FILTERFLAG_NODEFAULTCHARSETCONVERT` when you instantiate the `Filter` object. For example:

```
objFilter = new Filter(outputCharSet,  
    FilterConstant.FilterFlagsConstant.FILTERFLAG_NODEFAULTCHARSETCONVERT,  
    license);
```

This setting overrides the source or target character set specified in the API.

## Extract Deleted Text Marked by Tracked Changes

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 text was deleted from a source document, you can configure Filter to extract the deleted text. Filter does not

extract the reviewer name and revision date. Deleted text is excluded from the filtered output by default.

To extract deleted text from a document and include it in the filtered output, use the `IncludeRevisionMark` property. For example:

```
if(inclRevisionMark == true)
{
    objFilter.IncludeRevisionMark();
}
```

To reset the flag and exclude deleted text from the filtered output, call the `ExcludeRevisionMark` method. For example:

```
if(inclRevisionMark == false)
{
    objFilter.ExcludeRevisionMark();
}
```

## Filter PDF Files

Filter has special configuration options that allow greater control over the conversion of Adobe Acrobat PDF files.

### Use the pdf2sr Reader

The `pdf2sr` reader is an alternative that can be used instead of `pdfsr` for filtering PDF files. It uses a different parsing technology and may yield better results for some files.

The `pdf2sr` reader has the following features:

- supports standard and custom metadata (non-XMP)
- supports basic text extraction
- supports password protected PDFs
- supports table detection (see [Table Detection for PDF Files, on page 69](#))

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)
- does not filter text from XFA-based PDF forms
- does not report document restrictions (see [Document Restrictions, on page 80](#))

### To use the pdf2sr reader

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

```
200=pdf2
```

## Filter 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 filter 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 output 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.

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 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 filter determines the paragraph direction for each PDF page, and then sets the direction accordingly. Filter uses this option when a paragraph direction is not specified. |

**NOTE:** Filtering 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, a PDF file might contain English paragraphs in three columns that read from left to right, but 80% of the second paragraph might contain 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 filter, 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.ini` file. Setting the paragraph direction in the API overrides the setting in the `formats.ini` file.

### Use the API

To enable PDF logical reading order in the API, use the `PDFLogicalOrder` property, 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_          | Logical reading order and right-to-left paragraph direction |

| Flag                   | Description   |
|------------------------|---|
| ORDER_RTL              |   |
| PDF_LOGICAL_ORDER_AUTO | Logical reading order. The PDF reader determines the paragraph direction for each PDF page, and then sets the direction accordingly. Filter uses this option when a paragraph direction is not specified. |
| PDF_LOGICAL_ORDER_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.                                  |

For example:

```
objFilter.PDFLogicalOrder=FilterConstant.PDFFileConstant.PDF_LOGICAL_ORDER_LTR;
```

### Use the formats.ini File

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

#### To enable logical reading order by using the formats.ini file

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

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

2. Optionally, add the following section to the end of the `formats.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 filter determines the paragraph direction for each PDF page, and then sets the direction accordingly. Filter uses this option when a paragraph direction is not specified. |
| 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.           |

## Rotated Text

When a PDF that contains rotated text is filtered, the rotated text is extracted after the text at the end of the PDF page on which the rotated text appears. If the PDF is filtered with logical order enabled, and the amount of rotated text on a page surpasses a predefined threshold, the page is automatically output as an unstructured text stream. You cannot configure this threshold.

## 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   |
|--------------------------|---|
| <i>total_item_number</i> | The total number of metadata tags that are listed.  |
| <i>metadata_tag_name</i> | The metadata tag name used in the PDF files.  |
| <i>datatype</i>          | The data type of the metadata element. The possible types are: <ul style="list-style-type: none"><li>• KV_String</li><li>• KV_Int4</li><li>• KV_DateTime</li><li>• KV_ClipBoard</li><li>• KV_Boolean</li><li>• KV_Unicode</li><li>• KV_IEEE8</li><li>• KV_Other</li></ul> |

For example:

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

## Skip Embedded Fonts

Text in PDF files sometimes contain embedded fonts. If you experience difficulties filtering embedded fonts, there are options in the API, the `formats.ini` file, and the `FilterTestDotNet` sample program that you can set to skip this type of text.

**NOTE:** If you choose to skip embedded fonts, none of the content that contains embedded fonts is included in the output.

### Use the `formats.ini` File

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

When you use `formats.ini` to skip embedded fonts, you can also specify an *embedded font threshold*, which is an arbitrary percentage probability that the glyph in the embedded text maps to a character value in the output character set (ASCII, UTF-8, and so on).

For example, if you specify a threshold of **75**, embedded text glyphs that have a 75% or greater probability of correctly matching the character in the output character set are included in the output; glyphs that have a probability of less than 75% of matching the output character set are omitted from the output.

#### To skip embedded fonts using the `formats.ini` file

- Set the following parameters:

```
[pdf_flags]
skipembeddedfont=TRUE
embedded_font_threshold=threshold
```

where *threshold* is a value between **0** and **100**. A threshold of **100** skips all embedded font text; a threshold of **0** retains all embedded font text. Set `skipembeddedfont` to **TRUE** to enable the `embedded_font_threshold` parameter.

The default value of `embedded_font_threshold` is **100**. If you set `skipembeddedfont` to **TRUE** and do not specify the `embedded_font_threshold` parameter, Filter skips all embedded text.

### Use the .NET API

To skip embedded fonts using the .NET API, set the `SkipEmbeddedFont` property. For example:

```
objFilter.SkipEmbeddedFont;
```

## 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 and/or word usage. For example, compound words (such as *three-week vacation* and *self-confident*) contain hard hyphens.

By default, KeyView skips the source document's soft hyphens in the Filter output to provide more searchable text content. However, if you want to maintain the document layout, you can keep soft hyphens in the Filter output. To keep soft hyphens, you must enable the soft hyphen flag in `formats.ini` or in the API.

## Use the `formats.ini` File

To keep soft hyphens using the `formats.ini` file, set the following parameter:

```
[pdf_flags]
keepsofthyphen=TRUE
```

## Use the .NET API

To keep soft hyphens using the Java API, set the `KeepSoftHyphen` property to `TRUE`. For example:

```
objFilter.KeepSoftHyphen = TRUE;
```

## Filter Portfolio PDF Files

Portfolio PDF files contain subfiles and an `ActionScript` interface for navigating between them. You can use the extraction API to extract the subfiles. See [Extract Subfiles from PDF Files, on page 50](#).

## Table Detection for PDF Files

PDF files often contain data presented in a tabular form. However, there is no information about the table stored within the PDF itself – the text is simply placed in an arrangement that looks like a table to the human eye. When this data is filtered, it can be very difficult to reconstruct the table.

If table detection is enabled, KeyView attempts to recognize tables within PDF pages, and to reconstruct them before they are output. For each page of the document, KeyView outputs the contents of each table first, and then outputs all remaining text on the page.

Micro Focus recommends that tab delimited output is also enabled when using table detection. This means that any tables detected appear in the output text in tab delimited format.

### To enable table detection and tab delimited output

- In `formats.ini`, set the following parameters.

```
[Options]
TableDetection=TRUE
TabDelimited=TRUE
```

**NOTE:** Table detection is only available with the pdf2sr reader. To enable this reader, set the following configuration parameter in `formats.ini`:

```
[Formats]
200=pdf2
```

## Filter Spreadsheet Files

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

### Filter Worksheet Names

Normally, Filter does not extract worksheet names from a spreadsheet because it is assumed the text should not be exposed. You can change this default behavior, and extract worksheet names by adding the following lines to the `formats.ini` file:

```
[Options]
getsheetnames=1
```

### Filter Hidden Text in Microsoft Excel Files

Normally, Filter does not filter hidden text from a Microsoft Excel spreadsheet because it is assumed the text should not be exposed. You can change this default behavior, and extract text from hidden rows, columns, and sheets from Excel spreadsheets by adding the following lines to the `formats.ini` file:

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

## Specify Date and Time Format on UNIX Systems

In Microsoft Excel you can choose to format dates and times according to the system locale. On Windows, KeyView uses the system locale settings to determine how these dates and times should be formatted. In other operating systems, KeyView uses the U.S. short date format (*mm/dd/yyyy*). You can change this by specifying the formats you wish to use in the `formats.ini` file.

### 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 webpage for more information.

<http://linux.die.net/man/3/strftime>

## Filter Very Large Numbers in Spreadsheet Cells to Precision Numbers

Numbers in Microsoft Excel files can now be extracted and written to the output without formatting. By default, numbers are extracted 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 extract numbers without formatting, add the following options in the `formats.ini` file:

```
[Options]
```

```
ignoredefnumformats=1
```

## Extract Microsoft Excel Formulas

When you filter a Microsoft Excel spreadsheet, KeyView extracts the value of each cell. The value of a cell might be calculated from a formula, but the formula is not included in the output unless you configure KeyView to include it. You can extract the cell value, the formula, or both. For example, if you choose to extract both the cell value and the formula, the output might look like this:

```
245 = SUM(B21:B26)
```

In this example, 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 extract formulas

- You can extract formulas by adding the following parameter to `formats.ini`:

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

where *option* is one of the following:

| Option | Description                                       |
|--------|---|
| 0      | Extract the cell value only. This is the default. |
| 1      | Extract the formula only.                         |
| 2      | Extract the formula and the cell value.           |

If a function in a formula is invalid, and option 1 or 2 is specified, only the calculated value is extracted.

## Standardize Cell Formats

In Microsoft Excel you can format cell values. For example, the date "15/09/2021" could be formatted as "15 September 2021" or "2021-09-15". By default, KeyView extracts cell values with formatting, as they would appear in Excel. If you prefer, you can configure KeyView to standardize cell values.

### To standardize cell formats

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

```
[Options]  
StandardizeCellFormats=TRUE
```

When this feature is enabled, KeyView formats any cell where a number has been entered according to the following rules.

## Numbers

Numbers are printed to the maximum length entered—that is, the full number put into the cell, without any rounding. Negative numbers are printed with a dash in front of them (as opposed to, for example, bracket form).

The following table provides some examples.

| Example             | Formatted value | KeyView (standardized) output |
|---------------------|-----------------|-------------------------------|
| Rounded number      | 600             | 600.1                         |
| Scientific notation | 1.56E+04        | 15600                         |
| Fraction            | 17/20           | 0.85                          |
| Percentage          | 46%             | 0.46                          |



## Text

All text that is part of the format string is stripped, including currency symbols.

## Dates

All dates are printed in full ISO-8601 format (that is YYYY-MM-DDTHH:MM:SS). There are two exceptions to this rule:

- Cases where the date format contains a time delta (that is, "[h]", "[m]", or "[s]"). In this case, the time is displayed as an interval, which is the number of days (where a day is defined as a period of 24 hours). The time is printed in the ISO-8601 time interval form, for example P1.234D.
- Cases where the absolute value of the cell is less than 1.0, and the date format contains only time components. In Excel, values between 0.0 and 1.0 correspond to the fictional date 1900-01-00, and are used to express times without an associated date. For example:

| Value | Date format | KeyView output      |
|-------|-------------|---------------------|
| 0.5   | hh:mm:ss    | 12:00:00            |
| 0.5   | dd hh       | 1900-01-00 12:00:00 |
| 1.5   | hh:mm:ss    | 1900-01-01 12:00:00 |
| 1.5   | dd hh       | 1900-01-01 12:00:00 |

## Filter HTML Files

KeyView can filter comments from HTML documents. To enable comment filtering, you must set a flag in the `formats.ini` file.

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

### To enable filtering of comments from HTML files

1. Open the `formats.ini` file in a text editor.
2. Under `[Options]`, set the following flag.

```
GetHTMLHiddenInfo=1
```

## Filter XML Files

Filter SDK enables you to extract all or selected content from source XML files. You can specify the elements and attributes extracted from a document using the API or an INI file (see [Configure Element Extraction for XML Documents, below](#)). Filter 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 218](#) for more information on format detection.

## Configure Element Extraction for XML Documents

When filtering 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 filtering 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.

Filter SDK 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 filtering 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 through either the API or the `kvxconfig.ini` file.

### Use an Initialization File

To modify the settings for the standard XML document types, or add configuration settings for your own XML document types, follow these steps:

1. Modify the `kvxconfig.ini` file.
2. Use the initialization file when processing the XML file. See [Modify Element Extraction Settings in the kvxconfig.ini File, below](#).

### 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 Filter 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            | The format ID as detected by the KeyView detection module. This determines the file type to which these extraction settings apply. See <a href="#">File Format Detection, on page 218</a> for more information on format ID values.<br><br>If you are adding configuration settings for a custom XML document type, this is not defined. |
| szRoot               | 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.<br><br>To further qualify the element, specify its namespace. See <a href="#">Specify an Element's Namespace and Attribute, on the next page</a> .  |

| Configuration Option | Description  |
|----------------------|--|
| szInMetaElement      | <p>The elements extracted from the file as metadata. All other elements are extracted as text.</p> <p>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See <a href="#">Specify an Element's Namespace and Attribute, below</a>.</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>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See <a href="#">Specify an Element's Namespace and Attribute, below</a>.</p> |
| szInContentElement   | <p>The elements extracted from the file as content text. Enter an asterisk (*) to extract all elements including child elements.</p> <p>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See <a href="#">Specify an Element's Namespace and Attribute, below</a>.</p>  |
| szExContentElement   | <p>The child elements in the included content elements that are not extracted from the file as content text.</p> <p>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See <a href="#">Specify an Element's Namespace and Attribute, below</a>.</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>microfocus: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 exist in a certain namespace and/or contain a specific attribute. To define the namespace *and* attribute of an element, enter the following:

*ns\_prefix:elemname@attribname=attribvalue*

**NOTE:** Attribute values that contain spaces must be enclosed in quotation marks.

For example, the 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 that contain the root element `microfocusxml`, we could add the following section to the end of the initialization file:

```
[config101]  
eKVFormat=  
szRoot=microfocusxml  
szInMetaElement=dc:title,dc:meta@title,dc:meta@name=title  
szExMetaElement=  
  
szInContentElement=microfocus:division@name=keyview,microfocus:division@name=idol,p@  
style="Heading 1"  
szExContentElement=  
szInAttribute=microfocus:division@name
```

The custom extraction settings must be preceded by a section heading named `[configN]`, where `N` is an integer starting at 100 and increasing by 1 for each additional file type, as in `[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.

Since 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, then the default extraction settings for a generic XML document are used.

## Configure Headers and Footers

You can configure custom header and footer tags for word processing and spreadsheet documents by editing the `formats.ini` file.

### To configure headers and footers

1. Open the `formats.ini` file.
2. In the `[Options]` section, add the following items:

```
header_start_tag=HeaderStart  
header_end_tag=HeaderEnd  
footer_start_tag=FooterStart  
footer_end_tag=FooterEnd
```

For example:

```
header_start_tag=<myHeaderTag>  
header_end_tag=</myHeaderTag>  
footer_start_tag=<myFooterTag>  
footer_end_tag=</myFooterTag>
```

**NOTE:** You must encode custom tags in UTF-8.

## Tab Delimited Output for Embedded Tables

You can use KeyView to convert embedded tables in Word Processing documents (for example, Microsoft Word documents), and tables detected by Optical Character Recognition (OCR), to tab-delimited form.

This inserts a tab character between each cell, and a line break between each row. Tab and line break characters in the cells are replaced with spaces.

### To enable tab delimited output for embedded tables

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

```
[Options]  
TabDelimited=TRUE
```

## 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.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.

When you do not enable source code identification, files containing source code may be identified as ASCII text files, causing the application to treat them in the same way as ordinary text. However, in many instances, it can be useful to route these files elsewhere or filter them out. For example, indexing source code into an IDOL index has minimal value and could bloat the engine with terms that are of no use in retrieval. You can use source code identification to identify files containing a particular programming language as a more specific format.

**NOTE:** Source code identification is available only on certain platforms (see [source code identification](#) in the platform differences section).

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 89](#).

### To configure source code identification

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

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

## Optical Character Recognition

When processing raster image files, KeyView can perform Optical Character Recognition (OCR) to attempt to filter text that might be visible in the image. If text is detected to form part of a table, it will be filtered in the same way as tables in Word Processing documents.

**NOTE:** KeyView performs OCR only on standalone raster files, not on images embedded inside other documents. For embedded images, you must first extract the images by using the Extract Images option.

**NOTE:** OCR is available only on certain platforms (see [Optical Character Recognition](#) in the platform differences section).

If your license includes OCR, it is enabled by default.

#### To enable or disable OCR

- Set the `Ocr` property of the `Filter` class.

## Document Restrictions

Some applications, and corresponding file formats, allow users to restrict the ways in which a document can be used. For example, you might be able to read a document but additional credentials (such as a password) could be required to modify the document content, add comments, or print the document. The restrictions might not be enforced by encryption, but instead rely on any software that accesses the file to respect the restrictions that have been set.

**TIP:** These restrictions are not file system permissions (for example, making a file read-only). They are restrictions applied by the software package that created the file.

KeyView can report whether a document is protected by write restrictions, for the following file formats. A write restriction is defined as any restriction, enforced by a password, that prevents a user from editing the document content.

- Adobe Portable Document Format (.PDF)
- Microsoft Word (.DOCX)
- Microsoft Excel (.XLSX)
- Microsoft PowerPoint (.PPTX)

#### To determine whether a document is protected by restrictions

- In the .NET API, use the method `GetRestrictions` on the `filter` object.



# Chapter 5: Sample Programs

This section describes the sample programs provided with Filter SDK.

- [FilterTestDotNet](#) .....81

## FilterTestDotNet

The `FilterTestDotNet` sample program calls the following sample code:

- [TestExtract](#)—demonstrates the File Extraction interface
- [TestFilter](#)—demonstrates the Filtering methods

The source code is in the directory `install\dotnetapi\sample`, where `install` is the path name of the Filter installation directory.

## TestExtract

The `TestExtract` code demonstrates the File Extraction interface. The `TestExtract` sample code demonstrates the functionality of the Filtering interface. See [TestFilter](#), on page 83.

The `TestExtract` code demonstrates the following functionality:

- opens a document
- extracts subfiles from a document
- repeats subfile extraction until all subfiles are extracted
- enables you to specify the command-line options listed in [Options for TestExtract, on the next page](#)

To run `TestExtract`, type the following at the command line:

```
FilterTestDotNet -ex [options] input_file output_file
```

where:

`options` is one or more of the options listed in [Options for TestExtract, on the next page](#).

`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 TestExtract

| Option                | Description  |
|-----------------------|--|
| -cr                   | Creates a root directory on which a hierarchy can be based. See <a href="#">Create a Root Node, on page 37</a> .   |
| -c                    | Specifies that the subfile directory structure is not created.   |
| -dr<br><i>binDir</i>  | Specifies the filter working directory where KeyView binaries are stored. Typically, this is the bin directory.  |
| -e                    | Extracts the subfiles from a source file but does not filter the files after extraction.   |
| -ed                   | Sets the directory to which the subfiles are extracted.  |
| -f                    | Extracts the formatted version of the message body (HTML or RTF) from mail files when possible.  |
| -id<br><i>idfile</i>  | Specifies the user ID file used to open a protected PST file.  |
| -ip                   | Runs file extraction in the same process as the calling application (in process). See <a href="#">Run Filter In Process, on page 27</a> .                            |
| -is                   | Sets the input as a stream. The default is file.   |
| -l                    | Sets the byte order for Unicode text to Little Endian.   |
| -lg<br><i>outfile</i> | Sets the log file name.  |
| -m                    | Extracts default mail metadata and writes it to the log file. See <a href="#">Extract Mail Metadata, on page 38</a> .  |
| -nd                   | Do not create the subfile directory structure.   |
| -nh                   | Excludes mail header information from the extracted message body text file. See <a href="#">Exclude Metadata from the Extracted Text File, on page 44</a> .          |
| -os                   | Sets the output as a stream. The default is file.  |
| -p<br><i>password</i> | Specifies the password used to open a protected PST file.  |
| -sc<br><i>charset</i> | Sets the character set of the source file.<br><i>charset</i> is a character set defined in the Filter class. See <a href="#">Coded Character Sets, on page 199</a> . |
| -tc<br><i>charset</i> | Sets the character set of the output file.<br><i>charset</i> is a character set defined in the Filter class. See <a href="#">Coded Character Sets, on page 199</a> . |
| -u<br><i>username</i> | Specifies the user name used to open a protected PST file.   |

## TestFilter

The `TestFilter` code demonstrates most of the Filtering methods available in the .NET API. The command-line options are listed in [Options for FilterTestDotNet -ft1](#), below.

To run `TestFilter`, type the following at the command line:

```
FilterTestDotNet filtermode [options] input_file output_file
```

where:

*filtermode* is one of the options listed in [Filter modes](#), below

*options* is one or more of the options listed in [Options for FilterTestDotNet -ft1](#), below. Options are available for the `-ft1` filter mode only.

*input\_file* is the path and file name of the source file.

*output\_file* is the path and file name of the generated file. If you do not specify a path, the file is output to the current directory.

### Filter modes

| Mode | Description                                  |
|------|--|
| -ft1 | Filters an input file to an output file.     |
| -ft2 | Filters an input stream to an output file.   |
| -ft3 | Filters an input file to an output stream.   |
| -ft4 | Filters an input stream to an output stream. |

### Options for FilterTestDotNet -ft1

| Option                    | Description   |
|---------------------------|---|
| -co<br><i>ooperrorLog</i> | Enable error logging. See <a href="#">Enable or Disable Error Logging, on page 55</a> . Error logs are not generated when in-process filtering is enabled.  |
| -cs <i>charset</i>        | Set the character set of the source file.<br><br><i>charset</i> is a character set defined in the Filter class. See <a href="#">Coded Character Sets, on page 199</a> .   |
| -ct <i>tempfile</i>       | Specify a temporary directory where temporary files generated by the filtering process are stored. The default is the current working directory.<br><br>On Windows systems, there is a 64 K size limit to the temporary directory. When 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. |

**Options for FilterTestDotNet -ft1, continued**

| Option               | Description  |
|----------------------|--|
| -cx<br>xmlconfigfile | Filter an XML file by using customized extraction settings defined in the kvxconfig.ini file. If you do not enter the full path to the INI file, the program looks for the file in the current working directory. See <a href="#">Filter XML Files, on page 74</a> . |
| -d                   | Extract the file format information.   |
| -dr binDir           | Specify the filter working directory where KeyView binaries are stored. Typically, this is the bin directory.  |
| -fto timeout         | Specifies a Filter timeout value in seconds.   |
| -h                   | Extract headers and footers, as well as the body text.   |
| -ht                  | Put tags around header and footer data.  |
| -i filename          | Extract the metadata (summary information) and write it to a file.<br><i>filename</i> is the name of the file to which the metadata is written. See <a href="#">Extract Metadata, on page 58</a> .   |
| -ia<br>summaryfile   | Extract the document summary information and write it to a summary file, including all metadata for the pdfsr reader.  |
| -im                  | If you set this option, text that was deleted from a document with revision tracking enabled is extracted from the document and included in the filtered output. See <a href="#">Extract Deleted Text Marked by Tracked Changes, on page 62</a> .                    |
| -ip                  | Run Filter in the same process as the calling application (in process). See <a href="#">Run Filter In Process, on page 27</a> .  |
| -lo                  | Specify that PowerPoint PPT97 and PPTX file text data is output in a logical reading order.  |
| -ne                  | Exclude embedded objects in Microsoft Word files.  |
| -pdfauto             | The PDF filter determines the paragraph direction (left-to-right or right-to-left) for each PDF page, and then sets the direction accordingly.<br>See <a href="#">Filter PDF Files, on page 63</a> .   |
| -pdfltr              | Specify that PDF files are output in a logical reading order in left-to-right paragraph direction.   |
| -pdfrtl              | Specify that PDF files are output in a logical reading order in right-to-left paragraph direction.   |
| -rc character        | Set a replacement character for characters that cannot be mapped. The default is a question mark (?).  |

**Options for FilterTestDotNet -ft1, continued**

| Option                          | Description  |
|---------------------------------|--|
| <code>-tc <i>charset</i></code> | Set the character set of the output file. Use the <code>-getTargetCS</code> option to determine whether the target character set specified is used in the output file.<br><br><i>charset</i> is a character set defined in the Filter class. See <a href="#">Coded Character Sets, on page 199</a> . |
| <code>-um</code>                | Use MSBLSB byte order. MSBLSB is the "Most Significant Byte Least Significant Byte," or in other words, the byte order for Big Endian systems (Unicode text only).   |
| <code>-ul</code>                | Use LSBMSB byte order. LSBMSB is the "Least Significant Byte Most Significant Byte," or in other words, the byte order for Little Endian systems (Unicode text only).  |
| <code>-ulb</code>               | Generate LSBMSB output with byte order marker (Unicode text only).   |
| <code>-umb</code>               | Generate MSBLSB output with byte order marker (Unicode text only).   |
| <code>-embeddedfont</code>      | If you use this option, text that contains embedded fonts is not filtered from PDF documents. See <a href="#">Filter PDF Files, on page 63</a> .   |

# Part III: Appendixes

This section lists supported formats, supported character sets, and redistributed files, and provides information on format detection and developing a custom document reader.

- [Supported Formats](#)
- [Document Readers](#)
- [Platform Differences](#)
- [Character Sets](#)
- [Extract and Format Lotus Notes Subfiles](#)
- [File Format Detection](#)
- [List of Required Files for Redistribution](#)
- [Develop a Custom Reader](#)
- [Password Protected Files](#)
- [OCR Supported Languages](#)

# Appendix A: Supported Formats

This section lists the file formats that KeyView can detect.

- [Key to Supported Formats Table](#) ..... 87
- [Supported Formats](#) ..... 89
- [File Classes](#) ..... 155

## 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.Filter.DocFormat</code> enumeration.</li><li>• In the Java API these values are defined in the <code>com.verity.api.DocFormat</code> enumeration.</li><li>• In the C++ API these values are defined in <code>keyview::Format</code>, used in <code>DetectionInfo</code> which is returned by <code>Session::detect()</code>.</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.<br><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.   |

|            |  |
|------------|--|
| File Class | <p>The KeyView file class.</p> <ul style="list-style-type: none"><li>• In the C API, these values are defined in the <code>ENdocClass</code> enumeration in <code>adinfo.h</code>.</li><li>• In the .NET API these values are defined in the <code>Autonomy.API.Filter.DocClass</code> enumeration.</li><li>• In the Java API these values are defined in the <code>com.verity.api.DocClass</code> enumeration.</li><li>• In the C++ API these values are defined in <code>keyview::Category</code>, used in <code>DetectionInfo</code> which is returned by <code>Session::detect()</code>.</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="#">bmspr</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 |   |
| 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,  | <a href="#">kpepsrdr</a>                            |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name              | Number | Category | Description                                    | MIME Type                    | Extension      | File Class                        | Readers  |
|--------------------------|--------|----------|--|------------------------------|----------------|-----------------------------------|--|
|                          |        |          |  |                              |                | adVECTORGRAPHIC                   |  |
| 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="#">kpgjfrdr</a> |
| GIF_89a_Fmt              | 27     | 25       | Graphics Interchange Format (GIF89a)           | image/gif                    | GIF            | adRASTERIMAGE                     | <a href="#">gifsr</a> , <a href="#">kpgjfrdr</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>                        |
| MASS_11_Fmt              | 40     | 38       | MASS-11  | application/x-mass-11        | M1, M11        | 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>                        |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                | Number | Category | Description  | MIME Type                  | Extension | File Class                        | Readers                   |
|----------------------------|--------|----------|--|----------------------------|-----------|-----------------------------------|---------------------------|
| 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> |
| 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="#">kppcxldr</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="#">kppicldr</a>  |
| Mac_PICT_Fmt               | 71     | 59       | Macintosh Raster / QuickDraw Picture                       | image/x-pict               | PCT       | adRASTERIMAGE,<br>adVECTORGRAPHIC | <a href="#">kppctrdr</a>  |
| Philips_Script_Word_Fmt    | 72     | 60       | Philips Script   |                            |           | adWORDPROCESSOR                   |                           |
| PostScript_Fmt             | 73     | 61       | PostScript   | application/postscript     | PS        | adVECTORGRAPHIC                   |                           |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                 | Number | Category | Description                          | MIME Type                       | Extension  | File Class                        | Readers   |
|-----------------------------|--------|----------|--------------------------------------|---------------------------------|------------|-----------------------------------|---|
| 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,<br>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 (TIFF)      | image/tiff                      | TIF, TIFF  | adRASTERIMAGE,<br>adFAXFORMAT     | <a href="#">kptifdr</a> , <a href="#">tifsr</a> |
| 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 (Word Processing System)    |                                 | 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                   |   |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                | Number | Category | Description                                 | MIME Type                          | Extension | File Class                        | Readers   |
|----------------------------|--------|----------|---|------------------------------------|-----------|-----------------------------------|---|
| 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_Metafile_Fmt       | 103    | 83       | Windows Metafile                            | image/wmf                          | WMF       | adVECTORGRAPHIC,<br>adRASTERIMAGE | <a href="#">kpwmmfrdr</a>                               |
| Windows_Metafile_NoHdr_Fmt | 104    | 83       | Windows Metafile (no header)                | image/wmf                          | WMF       | adVECTORGRAPHIC                   | <a href="#">kpwmmfrdr</a>                               |
| SmartWare_II_DB_Fmt        | 105    | 84       | Informix SmartWare II database              | database/x-smartdata               |           | adDATABASE                        |   |
| WordPerfect_Graphics_Fmt   | 106    | 195      | WordPerfect Graphics (version 2 and higher) | application/vnd.wordperfect        | WPG, QPG  | adRASTERIMAGE,<br>adVECTORGRAPHIC | <a href="#">kpwg2rdr</a> ,<br><a href="#">kpwpgdrdr</a> |
| WordStar_Fmt               | 107    | 87       | WordStar                                    | application/vnd.wordstar           | WS, WSD   | adWORDPROCESSOR                   | <a href="#">stringssr</a>                               |
| WANG_WITA_Fmt              | 108    | 88       | WANG WITA                                   |                                    | WT        | adWORDPROCESSOR                   | <a href="#">stringssr</a>                               |
| Xerox_860_Comm_Fmt         | 109    | 89       | Xerox 860                                   |                                    |           | adWORDPROCESSOR                   | <a href="#">stringssr</a>                               |
| Xerox_Writer_Fmt           | 110    | 91       | Xerox Writer                                |                                    |           | adWORDPROCESSOR                   | <a href="#">stringssr</a>                               |
| DIF_SpreadSheet_Fmt        | 111    | 92       | Data Interchange Format (DIF)               | application/dif+xml                | DIF       | adSPREADSHEET                     | <a href="#">difsr</a>                                   |
| 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                    | <a href="#">kpp40rdr</a>                                |
| PowerPoint_Mac_Fmt         | 118    | 99       | Microsoft PowerPoint MAC (up to version 4)  | application/x-ms-powerpoint        | PPT       | adPRESENTATION                    | <a href="#">olesr</a>                                   |
| PowerPoint_95_Fmt          | 119    | 212      | Microsoft PowerPoint 95                     | application/x-ms-powerpoint        | PPT       | adPRESENTATION                    | <a href="#">kpp95rdr</a>                                |
| PowerPoint_97_Fmt          | 120    | 272      | Microsoft PowerPoint 97                     | application/x-ms-powerpoint        | PPT       | adPRESENTATION                    | <a href="#">kpp97rdr</a>                                |
| 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                   | <a href="#">stringssr</a>                               |
| 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                     | <a href="#">mwssr</a>                                   |
| MS_Works_Mac_Comm_Fmt      | 126    | 106      | Microsoft Works Communication for MAC       | application/x-msworks              |           | adCOMMUNICATION                   |   |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name               | Number | Category | Description   | MIME Type                  | Extension                                | File Class      | Readers  |
|---------------------------|--------|----------|---|----------------------------|--|-----------------|--|
| MS_Works_DOS_WP_Fmt       | 127    | 107      | Microsoft Works Word Processor for DOS                  | application/x-msworks      | WPS                                      | adWORDPROCESSOR | <a href="#">stringssr</a>                        |
| 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> , <a href="#">mswsr</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                                  | adDESKTOPPUBLSH |  |
| FrameMaker_Book_Fmt       | 140    | 136      | FrameMaker Book   | application/vnd.framemaker | BOOK                                     | adDESKTOPPUBLSH |  |
| Maker_Markup_Language_Fmt | 141    | 174      | Maker Markup Language                                   | application/vnd.mif        |  | adDESKTOPPUBLSH |  |
| 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 File Interchange Format                            | image/jpeg                 | JPG, JPEG, JFIF, JFI                     | adRASTERIMAGE   | <a href="#">jpgsr</a> , <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   |  |
| 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  |  |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                | Number | Category | Description                                       | MIME Type                 | Extension | File Class                    | Readers   |
|----------------------------|--------|----------|---|---------------------------|-----------|-------------------------------|---|
| 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_Metafile_Fmt       | 168    | 145      | OS/2 PM Metafile                                  |                           | 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 Metafile image                            |                           | GEM, GDI  | adVECTORGRAPHIC               |   |
| Windows_Help_Fmt           | 172    | 149      | Windows Help File                                 | application/winhlp        | 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               |   |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name               | Number | Category | Description                               | MIME Type                | Extension | File Class      | Readers                  |
|---------------------------|--------|----------|---|--------------------------|-----------|-----------------|--------------------------|
| 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="#">stringsr</a> |
| WordStar_2000_Fmt         | 182    | 155      | WordStar 2000                             |                          | WS2       | adWORDPROCESSOR | <a href="#">stringsr</a> |
| HP_PCL_Fmt                | 183    | 157      | HP Printer Command Language (PCL)         | application/pcl          | PCL, PRN  | 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 MS 8086)          |                          |           | adOBJECTMODULE  |                          |
| 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-uuencode          | UUE       | adENCAPSULATION | <a href="#">uudsr</a>    |
| WriteNow_Fmt              | 204    | 168      | WriteNow MAC                              |                          |           | adWORDPROCESSOR | <a href="#">stringsr</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          |                          |



Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name            | Number | Category | Description                                   | MIME Type                | Extension | File Class      | Readers  |
|------------------------|--------|----------|---|--------------------------|-----------|-----------------|--|
| 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-stuftit    | 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>  |
| 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> , <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="#">kppdfdrdr</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 |  |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description                          | MIME Type                  | Extension       | File Class      | Readers  |
|------------------------------|--------|----------|--------------------------------------|----------------------------|-----------------|-----------------|--|
| 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> , <a href="#">pngsr</a> |
| MS_Video_Fmt                 | 239    | 214      | Video for Windows (AVI)              | video/avi                  | AVI             | adMOVIE         | <a href="#">MCI</a>                              |
| Windows_Animated_Cursor_Fmt  | 240    | 215      | Windows Animated Cursor              |                            | ANI             | adRASTERIMAGE   | <a href="#">kpanirdr</a>                         |
| 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="#">aifsr</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 key                       | application/pgp            |                 | adENCAPSULATION |  |
| PGP_Public_Keyring_Fmt       | 258    | 237      | PGP public key                       | 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 |  |
| 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 key         | application/pgp            | PGP             | adENCAPSULATION |  |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                | Number | Category | Description                         | MIME Type                       | Extension       | File Class      | Readers                            |
|----------------------------|--------|----------|-------------------------------------|---------------------------------|-----------------|-----------------|------------------------------------|
| PGP_ASCII_Encoded_Fmt      | 265    | 243      | ASCII-armored PGP-encoded message   | 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, 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, 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>               |
| 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="#">xmISR</a>              |
| DeVice_Independent_Fmt     | 292    | 274      | DeVice Independent file (DVI)       | application/x-dvi               | DVI             | adVECTORGRAPHIC |                                    |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description                             | MIME Type                        | Extension          | File Class      | Readers                  |
|------------------------------|--------|----------|---|----------------------------------|--------------------|-----------------|--------------------------|
| 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 version 5) chart | application/x-ms-excel           | XLC                | adSPREADSHEET   | <a href="#">xlssr</a>    |
| 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 | SHW, PRC           | adPRESENTATION  | <a href="#">kpsrwrdr</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            | image/bmp                        | DIB                | adRASTERIMAGE   |                          |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name         | Number | Category | Description                                    | MIME Type                     | Extension     | File Class      | Readers  |
|---------------------|--------|----------|--|-------------------------------|---------------|-----------------|--|
|                     |        |          | Bitmap   |                               |               |                 |  |
| 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="#">mppsrs</a>                               |
| MS_Project_41_Fmt   | 326    | 281      | Microsoft Project 4.1                          |                               | MPP           | adSCHEDULE      | <a href="#">mppsrs</a>                               |
| MS_Project_98_Fmt   | 327    | 281      | Microsoft Project 98                           | application/vnd.ms-project    | MPP           | adSCHEDULE      | <a href="#">mppsrs</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> , <a href="#">hwpsr</a>       |
| 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 ASCII format (PBM)   | image/pbm                     | PBM, PNM      | adRASTERIMAGE   |  |
| PBM_BIN_Fmt         | 334    | 287      | Portable Bitmap Utilities BINARY format (PBM)  | image/pbm                     | PBM, PNM      | adRASTERIMAGE   |  |
| PGM_ASC_Fmt         | 335    | 288      | Portable Greymap Utilities ASCII format (PGM)  | image/x-pgm                   | PGM, PNM      | adRASTERIMAGE   |  |
| PGM_BIN_Fmt         | 336    | 288      | Portable Greymap Utilities BINARY format (PGM) | image/x-pgm                   | PGM, PNM      | adRASTERIMAGE   |  |
| PPM_ASC_Fmt         | 337    | 289      | Portable Pixmap Utilities ASCII format (PPM)   | image/x-portable-pixmap       | PPM, PNM      | adRASTERIMAGE   |  |
| PPM_BIN_Fmt         | 338    | 289      | Portable Pixmap Utilities BINARY format (PPM)  | image/x-portable-pixmap       | PPM, PNM      | adRASTERIMAGE   |  |
| XBM_Fmt             | 339    | 290      | X-Window X Bitmap format (XBM)                 | image/x-xbitmap               | XBM           | adRASTERIMAGE   |  |
| XPM_Fmt             | 340    | 291      | X-Window X Pixmap format (XPM)                 | image/xpm                     | XPM           | adRASTERIMAGE   |  |
| FPX_Fmt             | 341    | 292      | Kodak FlashPix FPX 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 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>                               |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name             | Number | Category | Description  | MIME Type                       | Extension              | File Class                    | Readers   |
|-------------------------|--------|----------|--|---------------------------------|------------------------|-------------------------------|---|
| MS_Outlook_Fmt          | 345    | 295      | Microsoft Outlook 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 (OpenOffice 1/StarOffice 6,7) Text XML         | application/vnd.sun.xml.writer  | SXW                    | adWORDPROCESSOR               | <a href="#">odfwpsr</a>   |
| 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="#">pstsr</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/GPG Message Format (with new packet format)                | application/pgp-encrypted       | GPG, 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>   |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name               | Number | Category | Description  | MIME Type   | Extension                        | File Class                    | Readers                  |
|---------------------------|--------|----------|--|---|----------------------------------|-------------------------------|--------------------------|
| Office_2007_Fmt           | 370    | 311      | Office 2007 document that cannot be further classified (often RMS-encrypted) |   | DOCX, XLSX, PPTX, XLSB           | adMISC                        |                          |
| 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)   | application/x-dxlfile                                 | 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, CATPRODUCT <sup>2</sup> | adVECTORGRAPHIC               | <a href="#">kpCATrdr</a> |
| 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  | application/ceb                                       | CEB                              | adWORDPROCESSOR               | <a href="#">cebsr</a>    |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name             | Number | Category | Description                               | MIME Type                           | Extension                      | File Class      | Readers                   |
|-------------------------|--------|----------|---|-------------------------------------|--------------------------------|-----------------|---------------------------|
|                         |        |          | (ceb)                                     |                                     |                                |                 |                           |
| 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="#">kplWPGrdr</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="#">kpGFLrdr</a>  |
| PSD_Fmt                 | 409    | 349      | Adobe Photoshop Document                  | image/vnd.adobe.photoshop           | PSD, PSB                       | adRASTERIMAGE   | <a href="#">psdsr</a>     |
| Apple_Binary_PLList_Fmt | 410    | 350      | Apple Binary Property List format         | application/x-bplist                | PLIST                          | adMISC          |                           |
| Apple_iChat_Fmt         | 411    | 351      | Apple iChat format                        |                                     | ICHAT                          | adWORDPROCESSOR | <a href="#">ichatsr</a>   |
| OOUTLINE_Fmt            | 412    | 352      | OOutliner File                            |                                     | OOUTLINE                       | 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.m-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, SLDPRT, SLDDRW, SLDVRT | adVECTORGRAPHIC | <a href="#">olesr</a>     |
| XFDL_Fmt                | 420    | 366      | Extensible Forms Description Language     | application/x-xfdl                  | XFDL, XFD                      | adPRESENTATION  | <a href="#">kpXFDLrdr</a> |



Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name             | Number | Category | Description  | MIME Type                      | Extension                                   | File Class       | Readers  |
|-------------------------|--------|----------|--|--------------------------------|---|------------------|--|
| 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>                                    |
| 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="#">unihtmsr</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                             | application/jungum             | GUL   | adWORDPROCESSOR  |  |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name             | Number | Category | Description                                     | MIME Type                             | Extension        | File Class      | Readers                                       |
|-------------------------|--------|----------|---|---------------------------------------|------------------|-----------------|---|
|                         |        |          | Global document                                 |                                       |                  |                 |   |
| 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 |   |
| 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>                         |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| 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> ,<br><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>                                      |
| 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    |  |               | adCAD           |  |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name      | Number | Category | Description                                  | MIME Type           | Extension    | File Class   | Readers              |
|------------------|--------|----------|--|---------------------|--------------|--------------|----------------------|
|                  |        |          | ASCII format                                 |                     |              |              |                      |
| 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, GVY     | 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> |
| 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> |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name               | Number | Category | Description  | MIME Type                     | Extension   | File Class      | Readers               |
|---------------------------|--------|----------|--|-------------------------------|-------------|-----------------|-----------------------|
| 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>  |
| 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 <sup>3</sup>                          | 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/audio File                            | video/x-matroska              | MKV, MKA    | 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    |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name              | Number | Category | Description                               | MIME Type                  | Extension     | File Class      | Readers |
|--------------------------|--------|----------|---|----------------------------|---------------|-----------------|---------|
| 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   |         |
| 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   |         |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                     | Number | Category | Description                                      | MIME Type              | Extension | File Class      | Readers                 |
|---------------------------------|--------|----------|--|------------------------|-----------|-----------------|-------------------------|
| 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   |                         |
| 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          |                         |
| 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   |                         |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name              | Number | Category | Description                                 | MIME Type           | Extension | File Class      | Readers   |
|--------------------------|--------|----------|---|---------------------|-----------|-----------------|---|
| 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="#">kjp2000rdr</a> |
| ISO_JPEG2000_JPM_Fmt     | 620    | 561      | ISO-BMFF JPEG 2000 compound image           | image/jpm           | JPM       | adRASTERIMAGE   | <a href="#">jp2000sr,</a><br><a href="#">kjp2000rdr</a> |
| ISO_JPEG2000_JPX_Fmt     | 621    | 562      | ISO-BMFF JPEG 2000 with extensions          | image/jpx           | JPX       | adRASTERIMAGE   | <a href="#">jp2000sr,</a><br><a href="#">kjp2000rdr</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>                                 |
| 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="#">kjp2000rdr</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         |   |



Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                      | Number | Category | Description                                 | MIME Type            | Extension            | File Class    | Readers  |
|----------------------------------|--------|----------|---|----------------------|----------------------|---------------|--|
| 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="#">kjp2000rdr</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, MAP, VIC, VICAR | 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        |  |
| 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          | application/vnd.smaf | MMF                  | adSOUND       |  |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name               | Number | Category | Description  | MIME Type              | Extension | File Class      | Readers |
|---------------------------|--------|----------|--|------------------------|-----------|-----------------|---------|
|                           |        |          | Format   |                        |           |                 |         |
| 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 Format                             |                        | NOFF      | adVECTORGRAPHIC |         |
| 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 |         |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                        | Number | Category | Description  | MIME Type                         | Extension          | File Class       | Readers               |
|------------------------------------|--------|----------|--|-----------------------------------|--------------------|------------------|-----------------------|
| 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> |
| 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           |                       |
| XPCConnect_Typelib_Fmt             | 702    | 643      | XPCConnect 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           |                       |
| 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           |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                       | Number | Category | Description                                 | MIME Type                    | Extension | File Class      | Readers                   |
|-----------------------------------|--------|----------|---|------------------------------|-----------|-----------------|---------------------------|
| 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      | adWORDPROCESSOR | <a href="#">gitpacksr</a> |
| 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 format                | application/x-debian-package | DEB       | adENCAPSULATION |                           |
| 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>     |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                      | Number | Category | Description                           | MIME Type        | Extension          | File Class   | Readers               |
|----------------------------------|--------|----------|---------------------------------------|------------------|--------------------|--------------|-----------------------|
| 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>  |
| 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>  |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description                                       | MIME Type               | Extension  | File Class   | Readers              |
|------------------------------|--------|----------|---|-------------------------|------------|--------------|----------------------|
| 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> |
| 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                        |                         | GML        | adSOURCECODE | <a href="#">afsr</a> |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name         | Number | Category | Description                              | MIME Type       | Extension  | File Class   | Readers              |
|---------------------|--------|----------|--|-----------------|------------|--------------|----------------------|
|                     |        |          | Code <sup>4</sup>                        |                 |            |              |                      |
| 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 Code <sup>4</sup>  |                 | DOT        | adSOURCECODE | <a href="#">afsr</a> |
| 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> |
| Haml_Fmt            | 809    | 750      | Haml 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> |
| loke_Fmt            | 816    | 757      | loke 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> |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name         | Number | Category | Description                              | MIME Type         | Extension | File Class   | Readers              |
|---------------------|--------|----------|--|-------------------|-----------|--------------|----------------------|
| 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> |
| 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> |



Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name        | Number | Category | Description                             | MIME Type                | Extension  | File Class   | Readers              |
|--------------------|--------|----------|---|--------------------------|------------|--------------|----------------------|
| 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> |
| 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> |
| SuperCollider_Fmt  | 889    | 829      | SuperCollider Source Code <sup>4</sup>  | text/supercollider       | SC         | adSOURCECODE | <a href="#">afsr</a> |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name            | Number | Category | Description                                    | MIME Type                    | Extension | File Class      | Readers               |
|------------------------|--------|----------|--|------------------------------|-----------|-----------------|-----------------------|
| 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           |                       |
| 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> |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                       | Number | Category | Description  | MIME Type                                     | Extension  | File Class      | Readers                 |
|-----------------------------------|--------|----------|--|---|------------|-----------------|-------------------------|
| 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                    | XPDF       | adWORDPROCESSOR | <a href="#">xmlsr</a>   |
| AxCrypt_Fmt                       | 933    | 873      | AxCrypt encrypted document   | application/x-axcrypt                         | AXX        | adENCAPSULATION |                         |
| 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 | <a href="#">zstdsr</a>  |
| LZ4_Fmt                           | 945    | 885      | LZ4 compressed file  | application/x-lz4                             | LZ4        | adENCAPSULATION |                         |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                   | Number | Category | Description  | MIME Type                     | Extension     | File Class      | Readers               |
|-------------------------------|--------|----------|--|-------------------------------|---------------|-----------------|-----------------------|
| MS_Money_Fmt                  | 946    | 886      | Microsoft Money format                                 | application/x-msmoney         | MNY           | adSPREADSHEET   |                       |
| NetCDF_Fmt                    | 947    | 887      | Network Common Data Form<br>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 |                       |
| 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<br>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<br>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<br>file               | application/x-ms-owner        |               | adMISC          |                       |
| EAC3_Audio_Fmt                | 961    | 901      | Enhanced-AC3 (EAC3) Audio File<br>format               | audio/eac3                    | AC3           | adSOUND         |                       |
| COFF_Relocatable_Fmt          | 962    | 902      | Common Object File Format (COFF)<br>relocatable object | application/x-object-file     | O             | adOBJECTMODULE  |                       |
| COFF_Executable_Fmt           | 963    | 903      | Common Object File Format (COFF)<br>executable         | application/x-executable-file |               | adEXECUTABLE    |                       |
| COFF_Dynamic_Lib_Fmt          | 964    | 904      | Common Object File Format (COFF)<br>dynamic library    | application/x-library-file    |               | adLIBRARY       |                       |
| ELF_Core_Fmt                  | 965    | 905      | ELF Core file  | application/x-coredump        |               | 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<br>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  |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                 | Number | Category | Description   | MIME Type                     | Extension | File Class      | Readers                 |
|-----------------------------|--------|----------|---|-------------------------------|-----------|-----------------|-------------------------|
| AIX_Executable_Fmt          | 971    | 911      | AIX/RISC COFF executable                              | application/x-executable-file |           | adEXECUTABLE    |                         |
| 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> |
| 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         |                         |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                 | Number | Category | Description  | MIME Type                                   | Extension | File Class       | Readers               |
|-----------------------------|--------|----------|--|---|-----------|------------------|-----------------------|
| 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> |
| 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                             | application/tei+xml                         | TEI       | adWORDPROCESSOR  | <a href="#">xmlsr</a> |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                 | Number | Category | Description   | MIME Type                       | Extension | File Class      | Readers               |
|-----------------------------|--------|----------|---|---------------------------------|-----------|-----------------|-----------------------|
|                             |        |          | format  |                                 |           |                 |                       |
| 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_Package_Fmt  | 1025   | 965      | Adobe XML Data Package format                                 | application/vnd.adobe.xdp+xml   | XDP       | adWORDPROCESSOR | <a href="#">xmlsr</a> |
| 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                                  | audio/vnd.dts                   | DTS       | adSOUND         |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                   | Number | Category | Description  | MIME Type  | Extension | File Class      | Readers                  |
|-------------------------------|--------|----------|--|--|-----------|-----------------|--------------------------|
|                               |        |          | format   |  |           |                 |                          |
| 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>    |
| 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>  |



Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description   | MIME Type   | Extension | File Class      | Readers               |
|------------------------------|--------|----------|---|---|-----------|-----------------|-----------------------|
| 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          |                       |
| 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 |                       |
| Stuftt_X_Fmt                 | 1086   | 1021     | Stuftt X (SITX) archive format                                    | application/x-stufttx                               | 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                                  |   | XDF       | adWORDPROCESSOR | <a href="#">xmlsr</a> |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name              | Number | Category | Description  | MIME Type   | Extension                | File Class      | Readers                  |
|--------------------------|--------|----------|--|---|--------------------------|-----------------|--------------------------|
|                          |        |          | format   |   |                          |                 |                          |
| 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 |                          |
| 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, PJPNG, PTXT | adWORDPROCESSOR | <a href="#">pfilesr</a>  |
| Portfolio_PDF_Fmt        | 1113   | 1048     | Portfolio PDF File                                 | application/pdf   | PDF                      | adWORDPROCESSOR | <a href="#">pdfsr</a>    |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                     | Number | Category | Description  | MIME Type                          | Extension | File Class      | Readers               |
|---------------------------------|--------|----------|--|------------------------------------|-----------|-----------------|-----------------------|
| 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_Fmt         | 1117   | 1052     | Microsoft Project Exchange format  |                                    | MPX       | adSCHEDULE      |                       |
| 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 |                       |
| 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  |                                    | SUO       | adSWDEV         |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                 | Number | Category | Description   | MIME Type                       | Extension                                    | File Class                        | Readers               |
|-----------------------------|--------|----------|---|---------------------------------|--|-----------------------------------|-----------------------|
|                             |        |          | options (suo) file  |                                 |  |                                   |                       |
| 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,<br>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,<br>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                      |                       |
| GIS_World_File_Fmt          | 1153   | 1084     | ESRI GIS World file   |                                 | BPW, GFW, JGW,<br>J2W, PGW, SDW,<br>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                      |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                     | Number | Category | Description                                       | MIME Type  | Extension              | File Class      | Readers                  |
|---------------------------------|--------|----------|---|--|------------------------|-----------------|--------------------------|
| 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_Wavelet_Fmt | 1169   | 1100     | Enhanced Compressed Wavelet image                 | image/ecw  | ECW                    | adRASTERIMAGE   |                          |
| 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)                     |  | NRRD                   | adRASTERIMAGE   |                          |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description   | MIME Type                 | Extension | File Class      | Readers                                     |
|------------------------------|--------|----------|---|---------------------------|-----------|-----------------|---|
|                              |        |          | image format  |                           |           |                 |   |
| 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 |   |
| 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          |   |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                | Number | Category | Description  | MIME Type                     | Extension      | File Class      | Readers                   |
|----------------------------|--------|----------|--|-------------------------------|----------------|-----------------|---------------------------|
| WordStar_for_Windows_Fmt   | 1206   | 1137     | WordStar for Windows file  |                               | WSD            | adWORDPROCESSOR | <a href="#">stringssr</a> |
| 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 |                           |
| 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 |                           |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description   | MIME Type                    | Extension      | File Class      | Readers |
|------------------------------|--------|----------|---|------------------------------|----------------|-----------------|---------|
| 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      |         |
| 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         |         |



Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name               | Number | Category | Description                              | MIME Type       | Extension     | File Class      | Readers |
|---------------------------|--------|----------|--|-----------------|---------------|-----------------|---------|
| 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         |         |
| 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     | LucasArts Smush SAN Animation Format     |                 | 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, CA2, CA3 | adRASTERIMAGE   |         |
| Time_Shift_Video_Fmt      | 1279   | 1210     | Time Shift Video (TSV) format            |                 | TSV           | adMOVIE         |         |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                   | Number | Category | Description   | MIME Type | Extension                      | File Class    | Readers |
|-------------------------------|--------|----------|---|-----------|--------------------------------|---------------|---------|
| 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       |         |
| 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       |         |
| DXA_Fmt                       | 1305   | 1236     | Runesoft DXA video  |           | DXA                            | adMOVIE       |         |
| MTH_Fmt                       | 1306   | 1237     | Nintendo GameCube video file  |           | MTH                            | adMOVIE       |         |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name          | Number | Category | Description                                      | MIME Type             | Extension         | File Class      | Readers                   |
|----------------------|--------|----------|--|-----------------------|-------------------|-----------------|---------------------------|
| 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         |                           |
| 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         |                           |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name           | Number | Category | Description   | MIME Type                      | Extension | File Class      | Readers                   |
|-----------------------|--------|----------|---|--------------------------------|-----------|-----------------|---------------------------|
| 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) version 4+ |                                | 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 |                           |
| 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 |                           |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                         | Number | Category | Description   | MIME Type                                 | Extension | File Class      | Readers                   |
|-------------------------------------|--------|----------|---|---|-----------|-----------------|---------------------------|
| 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  |                           |
| 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  | adDESKTOPPUBLSH |                           |
| 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 |                           |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                   | Number | Category | Description   | MIME Type             | Extension | File Class      | Readers                  |
|-------------------------------|--------|----------|---|-----------------------|-----------|-----------------|--------------------------|
| GreatWorks_Word_Fmt           | 1386   | 1317     | Symantec GreatWorks Word Processor document                       |                       |           | adWORDPROCESSOR | <a href="#">stringsr</a> |
| GreatWorks_Outline_Fmt        | 1387   | 1318     | Symantec GreatWorks Outline document                              |                       |           | adOUTLINE       |                          |
| GreatWorks_Database_Fmt       | 1388   | 1319     | Symantec GreatWorks Database document                             |                       |           | adDATABASE      |                          |
| GreatWorks_Spreadsheet_Fmt    | 1389   | 1320     | Symantec GreatWorks Spreadsheet document                          |                       |           | adSPREADSHEET   |                          |
| 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         |                          |
| TiVo_Video_Fmt                | 1406   | 1337     | TiVo video  |                       | TY+       | adMOVIE         |                          |
| OptimFROG_Fmt                 | 1407   | 1338     | OptimFROG audio   |                       | OFR, OFS  | adSOUND         |                          |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                | Number | Category | Description                                      | MIME Type                      | Extension | File Class      | Readers               |
|----------------------------|--------|----------|--|--------------------------------|-----------|-----------------|-----------------------|
| 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          | XLF       | 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         |                       |
| 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          |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description                                    | MIME Type                                      | Extension     | File Class      | Readers |
|------------------------------|--------|----------|--|--|---------------|-----------------|---------|
| 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          |         |
| 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          |         |



Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                | Number | Category | Description  | MIME Type                     | Extension | File Class      | Readers                   |
|----------------------------|--------|----------|--|-------------------------------|-----------|-----------------|---------------------------|
| 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 Compact (CE) edition database |                               | SDF       | adDATABASE      |                           |
| 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 v1-4 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                     |                               | AB1, FSA  | adSCIENTIFIC    |                           |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                 | Number | Category | Description                              | MIME Type                      | Extension      | File Class      | Readers               |
|-----------------------------|--------|----------|--|--------------------------------|----------------|-----------------|-----------------------|
|                             |        |          | (ABIF)                                   |                                |                |                 |                       |
| CIF_Fmt                     | 1483   | 1414     | Crystallographic Information File        | chemical/x-cif                 | CIF            | adSCIENTIFIC    |                       |
| 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            | adDESKTOPPUBLSH |                       |
| 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   |                       |
| 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      |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description                                    | MIME Type                          | Extension         | File Class      | Readers               |
|------------------------------|--------|----------|--|------------------------------------|-------------------|-----------------|-----------------------|
| 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   |                       |
| 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 |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                      | Number | Category | Description  | MIME Type                     | Extension          | File Class      | Readers                   |
|----------------------------------|--------|----------|--|-------------------------------|--------------------|-----------------|---------------------------|
| Python_Pickle_Fmt                | 1538   | 1469     | Python Pickle file   |                               | PICKLE, PKL, P     | adEXECUTABLE    |                           |
| Matlab_Pcode_Fmt                 | 1539   | 1470     | Matlab P-code file   |                               | 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           |                           |
| 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           | <a href="#">olesr</a>     |
| Solid_Edge_Assembly_Fmt          | 1552   | 1483     | Solid Edge assembly  |                               | ASM                | adCAD           | <a href="#">olesr</a>     |
| Solid_Edge_SheetMetal_Fmt        | 1553   | 1484     | Solid Edge sheet metal                                     |                               | PSM                | adCAD           | <a href="#">olesr</a>     |
| SolidWorks_Visualize_Project_Fmt | 1554   | 1485     | SolidWorks Visualize project                               |                               | SVPJ               | adCAD           |                           |
| Apache_Parquet_Fmt               | 1555   | 1486     | Apache Parquet document                                    |                               | PARQUET            | adDATABASE      | <a href="#">parquetsr</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        | MML, 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      |                           |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name            | Number | Category | Description   | MIME Type                     | Extension   | File Class      | Readers                |
|------------------------|--------|----------|---|-------------------------------|-------------|-----------------|------------------------|
| 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   |                        |
| 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="#">orcscr</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) / Prism 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 Coding (HEVC) MP4 document            | video/h265                    | HEVC, H265  | adMOVIE         |                        |
| PAM_Fmt                | 1590   | 1521     | Portable Arbitrary Map (PAM) image                          | image/x-portable-arbitrarymap | PAM         | adRASTERIMAGE   |                        |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                 | Number | Category | Description  | MIME Type                  | Extension           | File Class      | Readers               |
|-----------------------------|--------|----------|--|----------------------------|---------------------|-----------------|-----------------------|
| 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 Format (NSIF) image             |                            | NSF                 | adRASTERIMAGE   |                       |
| 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 |                       |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name                  | Number | Category | Description  | MIME Type            | Extension  | File Class      | Readers              |
|------------------------------|--------|----------|--|----------------------|------------|-----------------|----------------------|
| 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   | 1567     | 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   |                      |
| 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 | <a href="#">afsr</a> |
| JSON_Fmt                     | 1635   | 1565     | JSON document  | application/json     | JSON       | adWORDPROCESSOR |                      |
| DesignPro_Fmt                | 1636   | 1566     | Avery DesignPro document   |                      | ZDL, ZDP   | adPRESENTATION  |                      |
| Edraw_Max_Fmt                | 1637   | 1568     | Edraw Max document   |                      | EDDX       | adPRESENTATION  |                      |
| ActivInspire_Fmt             | 1638   | 1569     | ActivInspire flipchart document  |                      | FLIPCHART  | adPRESENTATION  |                      |
| ActivStudio_Fmt              | 1639   | 1570     | ActivStudio and ActivPrimary document  |                      | FLP        | adPRESENTATION  |                      |

Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name               | Number | Category | Description  | MIME Type                  | Extension                            | File Class      | Readers                  |
|---------------------------|--------|----------|--|----------------------------|--------------------------------------|-----------------|--------------------------|
| Gravit_Designer_Fmt       | 1640   | 1571     | Gravit Designer document                               |                            | GVDESIGN                             | adVECTORGRAPHIC |                          |
| SANM_Fmt                  | 1641   | 1572     | LucasArts Smush SANM animation                         |                            | SNM, ZNM                             | adANIMATION     |                          |
| ICEDraw_Fmt               | 1642   | 1573     | iCEDraw character graphics image                       |                            | IDF                                  | adRASTERIMAGE   |                          |
| MS_Equation_Fmt           | 1643   | 1574     | Microsoft Equation Editor object                       |                            |                                      | adWORDPROCESSOR |                          |
| Affinity_Fmt              | 1644   | 1575     | Affinity Photo/Publisher/Designer document             |                            | AFPHOTO, AFPUB, AFDESIGN, AFTEMPLATE | adRASTERIMAGE   |                          |
| IOS_App_Store_Package_Fmt | 1645   | 1576     | iOS App Store Package                                  |                            | IPA                                  | adENCAPSULATION |                          |
| Minitab_Worksheet_Fmt     | 1646   | 1577     | Minitab worksheet v5-6                                 |                            | MTW                                  | adSCIENTIFIC    |                          |
| Minitab_Worksheet_12_Fmt  | 1647   | 1578     | Minitab worksheet v12-13                               |                            | MTW                                  | adSCIENTIFIC    |                          |
| Minitab_Worksheet_14_Fmt  | 1648   | 1579     | Minitab worksheet v14-18                               |                            | MTW                                  | adSCIENTIFIC    |                          |
| Minitab_Worksheet_19_Fmt  | 1649   | 1580     | Minitab worksheet v19-                                 |                            | MWX                                  | adSCIENTIFIC    |                          |
| Minitab_Project_Fmt       | 1650   | 1581     | Minitab project up to v18                              |                            | MPJ                                  | adSCIENTIFIC    |                          |
| Minitab_Project_19_Fmt    | 1651   | 1582     | Minitab project v19-                                   |                            | MPX                                  | adSCIENTIFIC    |                          |
| NIST_ITL_Fmt              | 1652   | 1583     | NIST-ITL standard data                                 |                            | XML                                  | adSCIENTIFIC    |                          |
| Silo_SIA_Fmt              | 1653   | 1584     | Nevercenter Silo 3D ASCII model                        |                            | SIA                                  | adCAD           |                          |
| Silo_SIB_Fmt              | 1654   | 1585     | Nevercenter Silo 3D binary model                       |                            | SIB                                  | adCAD           |                          |
| XCBF_Fmt                  | 1655   | 1586     | XML Common Biometric Format                            |                            | XML                                  | adSCIENTIFIC    |                          |
| Zoner_Draw_OLE_Fmt        | 1656   | 1587     | Zoner Draw / Zoner Callisto Metafile (ZMF) version 2-3 |                            | ZMF                                  | adVECTORGRAPHIC |                          |
| Zoner_Photo_Studio_Fmt    | 1657   | 1588     | Zoner Photo Studio document                            |                            | ZPS                                  | adRASTERIMAGE   |                          |
| Calligra_Plan_Fmt         | 1658   | 1589     | Calligra Plan document                                 | application/x-vnd.kde.plan | PLAN                                 | adSCHEDULE      |                          |
| Symbol_Dynamics_EXP5_Fmt  | 1659   | 1590     | Symbol Dynamics EXP v5+ document                       |                            | WXP                                  | adWORDPROCESSOR | <a href="#">stringsr</a> |
| REX2_Fmt                  | 1660   | 1591     | REX2 audio file  |                            | RX2                                  | adSOUND         |                          |
| WPS_Office_WP_Fmt         | 1661   | 1592     | Kingsoft WPS Office Writer                             | application/wps-office.wps | WPS, DOC                             | adWORDPROCESSOR | <a href="#">mw8sr</a>    |
| WPS_Office_PG_Fmt         | 1662   | 1593     | Kingsoft WPS Office Presentation                       | application/wps-office.dps | DPS, PPT                             | adPRESENTATION  | <a href="#">kpp97rdr</a> |
| WPS_Office_SS_Fmt         | 1663   | 1594     | Kingsoft WPS Office Spreadsheet                        | application/wps-office.et  | ET, XLS                              | adSPREADSHEET   | <a href="#">xlssr</a>    |
| MS_InfoPath_Fmt           | 1664   | 1595     | Microsoft InfoPath document                            |                            | XSN                                  | adENCAPSULATION |                          |
| MS_InfoPath_XSF_Fmt       | 1665   | 1596     | Microsoft InfoPath form definition                     |                            | XSF                                  | adWORDPROCESSOR |                          |
| PerfectWorks_Fmt          | 1666   | 1597     | Novell PerfectWorks document                           |                            | WPW                                  | adWORDPROCESSOR |                          |
| CAJ_Fmt                   | 1667   | 1598     | Chinese Academic Journal CAJ                           |                            | CAJ                                  | adWORDPROCESSOR |                          |



Filter SDK .NET Programming Guide  
Appendix A: Supported Formats

| Format Name               | Number | Category | Description  | MIME Type                | Extension     | File Class      | Readers               |
|---------------------------|--------|----------|--|--------------------------|---------------|-----------------|-----------------------|
|                           |        |          | document (2010-)   |                          |               |                 |                       |
| CAJ2_Fmt                  | 1668   | 1599     | Chinese Academic Journal CAJ document (2005-2010)                  |                          | CAJ           | adWORDPROCESSOR |                       |
| KDH_Fmt                   | 1669   | 1600     | Chinese Academic Journal KDH document (2000-2005)                  |                          | KDH, CAJ      | adWORDPROCESSOR |                       |
| MS_DLL_Fmt                | 1670   | 1601     | Microsoft Dynamic Link Library (DLL)                               |                          | DLL, PYD      | adLIBRARY       |                       |
| Hancom_Cell_2010_Fmt      | 1671   | 1602     | Hancom Office Cell 2010 document                                   |                          | CELL          | adSPREADSHEET   |                       |
| ESRI_Layer_Fmt            | 1672   | 1603     | ESRI Layer file  | application/x-esri-layer | LYR           | adGIS           |                       |
| JPEG_XL_Fmt               | 1673   | 1604     | JPEG XL image  | image/jxl                | JXL           | adRASTERIMAGE   |                       |
| NES_ROM_Fmt               | 1674   | 1605     | Nintendo Entertainment System (NES) ROM                            | application/x-nesrom     | NES           | adMISC          |                       |
| Base64_ASCII_Fmt          | 1675   | 1606     | Base64-encoded ASCII text file                                     |                          |               | adENCAPSULATION |                       |
| InDesign1_Fmt             | 1676   | 1607     | Adobe InDesign v1 document   | application/x-indesign   | INDD          | adDESKTOPPUBLSH |                       |
| HP_PCL_XL_Fmt             | 1677   | 1608     | HP Printer Control Language XL (PCL XL)                            | application/vnd.hp-pclxl | PXL, PRN      | adVECTORGRAPHIC | <a href="#">pxlsr</a> |
| SubStation_Alpha_Fmt      | 1678   | 1609     | SubStation Alpha subtitle document                                 |                          | SSA, ASS      | adWORDPROCESSOR |                       |
| SAMI_Fmt                  | 1679   | 1610     | Synchronized Accessible Media Interchange (SAMI) subtitle document |                          | SMI, SAMI     | adWORDPROCESSOR |                       |
| Advanced_Authoring_Fmt    | 1680   | 1611     | Advanced Authoring Format (AAF) for data interchange               |                          | AAF           | adMOVIE         |                       |
| MF_COBOL_Library_Fmt      | 1681   | 1612     | Micro Focus COBOL library  |                          | LBR           | adLIBRARY       |                       |
| MF_COBOL_Intermediate_Fmt | 1682   | 1613     | Micro Focus Net Express intermediate file                          |                          | INT           | adLIBRARY       |                       |
| MF_COBOL_Generated_Fmt    | 1683   | 1614     | Micro Focus COBOL generated code file                              |                          | GNT           | adLIBRARY       |                       |
| Autodesk_EAGLE_Fmt        | 1684   | 1615     | Autodesk EAGLE library   |                          | LBR           | adCAD           |                       |
| Autodesk_EAGLE_XML_Fmt    | 1685   | 1616     | Autodesk EAGLE XML library   |                          | LBR           | adCAD           |                       |
| Omnis_Studio_Fmt          | 1686   | 1617     | Omnis Studio file  |                          | DF1, LBR, LBS | adDATABASE      |                       |
| Seclore_Fmt               | 1687   | 1618     | a Seclore-encrypted document whose format cannot be determined     |                          |               | adENCAPSULATION |                       |
| Acorn_Draw_Fmt            | 1688   | 1619     | Acorn Draw image   |                          |               | adVECTORGRAPHIC |                       |
| Hadoop_Sequence_File_Fmt  | 1689   | 1620     | Apache Hadoop sequence file  |                          | SEQUENCEFILE  | adDATABASE      |                       |
| Archicad_GSM_Fmt          | 1690   | 1621     | Archicad library part (GSM) file                                   | model/vnd.gdl            | GSM           | adCAD           |                       |

| Format Name                          | Number | Category | Description                            | MIME Type                    | Extension     | File Class      | Readers |
|--------------------------------------|--------|----------|--|------------------------------|---------------|-----------------|---------|
| Autodesk_Point_Cloud_Fmt             | 1691   | 1622     | Autodesk Indexed Point Cloud           |                              | PCG           | adCAD           |         |
| Autodesk_ReCap_Scan_Fmt              | 1692   | 1623     | Autodesk ReCap Scan                    |                              | RCS           | adCAD           |         |
| Autodesk_ReCap_Project_Fmt           | 1693   | 1624     | Autodesk ReCap Project                 |                              | RCP           | adCAD           |         |
| BRL_CAD_Binary_Fmt                   | 1694   | 1625     | BRL-CAD binary database (v5)           |                              | G             | adCAD           |         |
| Cartesian_Perceptual_Compression_Fmt | 1695   | 1626     | Cartesian Perceptual Compression image | image/cpi                    | CPC, CPI      | adRASTERIMAGE   |         |
| Clarion_Database_Fmt                 | 1696   | 1627     | Clarion database                       |                              | DAT           | adDATABASE      |         |
| ColorIX_Fmt                          | 1697   | 1628     | ColorIX image                          |                              | RIX, SCX, SCI | adRASTERIMAGE   |         |
| Compressed_ISO_Fmt                   | 1698   | 1629     | Compressed ISO CD image (CISO)         | application/x-compressed-iso | CSO           | adENCAPSULATION |         |
| Corel_RAVE_Fmt                       | 1699   | 1630     | Corel R.A.V.E. animation               |                              | CLK           | adANIMATION     |         |
| Clicker_eBook_Fmt                    | 1700   | 1631     | Crick Clicker eBook                    |                              | CLK           | 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 79](#).

<sup>4</sup>This format is returned only if you enable extended source code identification. See [Source Code Identification, on page 79](#).

# 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           |

| <b>Attribute Number</b> | <b>Description</b>     | <b>File class</b> |
|-------------------------|------------------------|-------------------|
| 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](#) ..... 157
- [Document Readers](#) ..... 159

## 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**

| <b>Symbol</b> | <b>Description</b>  |
|---------------|---|
| 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> , <a href="#">Ceylon_Fmt</a> , <a href="#">Chapel_Fmt</a> , <a href="#">Clarion_Fmt</a> , <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_</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="#">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="#">Ildris_Fmt</a> , <a href="#">Inform_7_Fmt</a> , <a href="#">Ini_Fmt</a> , <a href="#">Io_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="#">KV_Mail_Subfile_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> , <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> , |



| Reader | Description                   | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats   |
|--------|-------------------------------|--------|--------|------|---------|----------|---------|-----|---|
|        |                               |        |        |      |         |          |         |     | <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> , <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> |
| aiffr  | 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           | Y      | Y      | Y    | N       | N        | Y       | N   | <a href="#">Applix_Spreadsheets_Fmt</a>   |

| Reader              | Description                                | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats          |
|---------------------|--|--------|--------|------|---------|----------|---------|-----|----------------------------------|
|                     | (4.2, 4.3, 4.4)                            |        |        |      |         |          |         |     |                                  |
| avrosr <sup>1</sup> | Apache Avro binary format                  | Y      | 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>           |
| bkfsr               | Microsoft Backup File                      | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">BKF_Fmt</a>          |
| bmsr                | 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>2</sup>  | Founder Chinese E-paper Basic (3.2.1)      | Y      | N      | N    | N       | N        | N       | N   | <a href="#">Founder_CEB_Fmt</a>  |

<sup>1</sup>The avrosr reader is only available on certain platforms (see [avrosr](#) in the platform differences section).

<sup>2</sup>The cebsr reader is only available on certain platforms (see [cebsr](#) in the platform differences section). Because of known security vulnerabilities in the third party library used for this format, cebsr is disabled in formats.ini and needs to be explicitly enabled if you wish to use it.

| Reader | Description   | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats               |
|--------|---|--------|--------|------|---------|----------|---------|-----|---------------------------------------|
| 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>             |
| dbxsr  | Microsoft Outlook Express DBX Message Database (5.0, 6.0) | N      | N      | Y    | Y       | Y        | Y       | N   | <a href="#">MS_OEDBX_Fmt</a>          |
| dcastr | 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>  |

<sup>1</sup>Supports non-encrypted embedded files only.

| Reader             | Description   | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                   |
|--------------------|---|--------|--------|------|---------|----------|---------|-----|---|
| emlsr <sup>1</sup> | Text Mail (MIME) / Microsoft Outlook Express (Windows 6, Macintosh 5) | Y      | T      | T    | Y       | Y        | Y       | N   | <a href="#">SMTP_Fmt</a>                                  |
| emxsr              | Legato EMailXtender Archives  | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">EMX_Fmt</a>                                   |
| encase2sr          | Expert Witness Compression Format (EnCase) (7)                        | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">EnCase_Fmt</a>                                |
| encasesr           | Expert Witness Compression Format (EnCase) (6)                        | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">EnCase_Fmt</a>                                |
| entsr              | Microsoft Entourage Database (2004)                                   | N      | N      | Y    | Y       | Y        | Y       | N   | <a href="#">ENT_Fmt</a>                                   |
| epubsr             | Open Publication Structure eBook (2.0, 3.0)                           | Y      | Y      | Y    | N       | Y        | Y       | N   | <a href="#">Epub_Fmt</a> , <a href="#">iBooks_Fmt</a>     |
| exesr              | MSDOS/Windows 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> |

<sup>1</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   |
|---------------------|--|--------|--------|------|---------|----------------|---------|-----|---|
| gitpacksr           | Git Packfile                                 | N      | N      | Y    | Y       | N              | n/a     | N   | <a href="#">Git_Packfile_Fmt</a>                                      |
| gwfssr              | GroupWise FileSurf email                     | N      | N      | Y    | Y       | Y              | N       | N   | <a href="#">GWFS_Email_Fmt</a>  |
| hl7sr               | Health level7 message (2.0)                  | Y      | Y      | Y    | N       | Y              | Y       | N   | <a href="#">HL7_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 Image                       | N      | N      | Y    | Y       | N              | n/a     | N   | <a href="#">ISO_Fmt</a>   |

<sup>1</sup>The htmlsr reader is only available on certain platforms (see [htmlsr](#) in the platform differences section).

<sup>2</sup>HTML only supports partial metadata extraction

| Reader                | Description                                      | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats   |
|-----------------------|--|--------|--------|------|---------|----------|---------|-----|---|
| 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_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 Presents/Graphics (4.0, 4.2, 4.3, 4.4)    | Y      | Y      | Y    | N       | N        | N       | N   | <a href="#">Applix_Graphics_Fmt</a>   |

<sup>1</sup>The iwss13sr reader is only available on certain platforms (see [iwss13sr](#) in the platform differences section).

<sup>2</sup>The iwwp13sr reader is only available on certain platforms (see [iwwp13sr](#) in the platform differences section).

| Reader                | Description   | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats  |
|-----------------------|---|----------------|--------|------|---------|----------|---------|-----|--|
| 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><br>(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 onwards)              | Y              | Y      | Y    | N       | Y        | Y       | N   | <a href="#">AutoDesk_DWG_Fmt</a>   |
| kpDXFrdr <sup>5</sup> | Autodesk AutoCAD  | Y              | Y      | Y    | N       | Y        | Y       | N   | <a href="#">AutoCAD_DXF_Binary_Fmt</a> , <a href="#">AutoCAD_</a>                                      |

<sup>1</sup>Filtering is supported through OCR, which is only available on certain platforms (see [Optical Character Recognition](#) in the platform differences section), 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 reader exists to provide DWG support on platforms where kpODArdr is not available (see [kpDWGrdr](#) in the platform differences section), but does not support graphics for versions after 2004 or text for versions after 2013.

<sup>5</sup>The kpDXFrdr reader exists to provide DXF support on platforms where kpODArdr is not available (see [kpDXFrdr](#) in the platform differences section), but does not support graphics for versions after 2004.

| Reader                   | Description                                      | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats                                     |
|--------------------------|--|----------------|--------|------|---------|----------|---------|-----|---|
|                          | DXF Drawing (R13 onwards)                        |                |        |      |         |          |         |     | <a href="#">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>1</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>2</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>       |
| kpJBIG2rdr               | JBIG2  | Y <sup>3</sup> | Y      | Y    | N       | N        | N       | N   | <a href="#">JBIG2_Fmt</a>                                   |
| kpjp2000rdr              | JPEG (2000)                                      | Y <sup>4</sup> | Y      | Y    | N       | N        | N       | N   | <a href="#">ISO_JPEG2000_JP2_Fmt</a> , <a href="#">ISO_</a> |

<sup>1</sup>Filtering is supported through OCR, which is only available on certain platforms (see [Optical Character Recognition](#) in the platform differences section), and is licensed separately.

<sup>2</sup>The kpIWPG13rdr reader is only available on certain platforms (see [kpIWPG13rdr](#) in the platform differences section).

<sup>3</sup>Filtering is supported through OCR, which is only available on certain platforms (see [Optical Character Recognition](#) in the platform differences section), and is licensed separately.

<sup>4</sup>Filtering is supported through OCR, which is only available on certain platforms (see [Optical Character Recognition](#) in the platform differences section), and is licensed separately.



| Reader                | Description                                     | Filter         | Export | View | Extract        | Metadata       | Charset | H/F | Associated File Formats  |
|-----------------------|---|----------------|--------|------|----------------|----------------|---------|-----|--|
|                       |   |                |        |      |                |                |         |     | <a href="#">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>1</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>2</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>3</sup> ) | Y              | Y      | Y    | Y <sup>4</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> |
| kpp40rdr              | Microsoft PowerPoint (98)                       | Y              | Y      | Y    | N              | P <sup>5</sup> | N       | N   | <a href="#">PowerPoint_Win_Fmt</a>   |
| kpp95rdr              | Microsoft PowerPoint                            | Y              | Y      | Y    | N              | P              | Y       | N   | <a href="#">PowerPoint_95_Fmt</a>  |

<sup>1</sup>Filtering is supported through OCR, which is only available on certain platforms (see [Optical Character Recognition](#) in the platform differences section), and is licensed separately.

<sup>2</sup>The kpODArdr reader is only available on certain platforms (see [kpODArdr](#) in the platform differences section).

<sup>3</sup>Generated by OpenOffice Impress 2.0, StarOffice 8 Impress, and IBM Lotus Symphony Presentation 3.0.

<sup>4</sup>Supported using the olesr embedded objects reader.

<sup>5</sup>Microsoft PowerPoint Windows only

| Reader                 | Description                                     | Filter         | Export | View | Extract | Metadata | Charset | H/F            | Associated File Formats   |
|------------------------|---|----------------|--------|------|---------|----------|---------|----------------|---|
|                        | Windows (95)                                    |                |        |      |         |          |         |                |   |
| kpp97rdr               | Microsoft PowerPoint (97-2004)                  | Y              | Y      | Y    | N       | P        | Y       | Y <sup>1</sup> | <a href="#">PowerPoint_2000_Fmt</a> , <a href="#">PowerPoint_97_Fmt</a> , <a href="#">WPS_Office_PG_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>2</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>3</sup> | Y      | Y    | N       | N        | N       | N              | <a href="#">APNG_Fmt</a> , <a href="#">PNG_Fmt</a>  |
| 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>                                       |

<sup>1</sup>Microsoft PowerPoint Windows only

<sup>2</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. The kppdf2rdr reader is only available on certain platforms (see [kppdf2rdr](#) in the platform differences section).

<sup>3</sup>Filtering is supported through OCR, which is only available on certain platforms (see [Optical Character Recognition](#) in the platform differences section), and is licensed separately.

| Reader    | Description  | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats   |
|-----------|--|----------------|--------|------|---------|----------|---------|-----|---|
| kppzrdr   | 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>   |
| kpshwrdr  | 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>   |
| 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,                             | Y              | Y      | Y    | N       | Y        | Y       | N   | <a href="#">MS_Visio_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 certain platforms (see [Optical Character Recognition](#) in the platform differences section), and is licensed separately.

| Reader    | Description                                 | Filter         | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats   |
|-----------|---|----------------|--------|------|---------|----------|---------|-----|---|
|           | 2000, 2002, 2003, 2007, 2010 <sup>1</sup> ) |                |        |      |         |          |         |     |   |
| 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>2</sup> | Y      | Y    | N       | N        | N       | N   | <a href="#">Windows_Metafile_Fmt</a> , <a href="#">Windows_Metafile_NoHdr_Fmt</a>   |
| 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>   |
| kvhqxsr   | 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>  |

<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>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  |
|--------------------|---|----------------|--------|------|---------|----------------|----------------|----------------|--|
| 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>                              |
| 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>6</sup> | Text Mail (MIME),                           | Y <sup>8</sup> | N      | T    | Y       | Y              | Y              | N              | <a href="#">MIME_Fmt</a>   |

<sup>1</sup>Lotus AMI Pro only

<sup>2</sup>Lotus AMI Pro only

<sup>3</sup>The lwpsr reader is only available on certain platforms (see [lwpsr](#) in the platform differences section).

<sup>4</sup>Lotus Word Pro only

<sup>5</sup>Lotus Word Pro only

<sup>6</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

<sup>8</sup>Text Mail only

| Reader | Description  | Filter | Export | View | Extract | Metadata | Charset        | H/F | Associated File Formats   |
|--------|--|--------|--------|------|---------|----------|----------------|-----|---|
|        | Microsoft Outlook Express (Windows 6, Macintosh 5), Mailbox <sup>1</sup> (Thunderbird 1.0, Eudora 6.2) |        |        |      |         |          |                |     |   |
| 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> |
| mdbsr  | Microsoft Access (95 onwards)  | Y      | T      | T    | N       | N        | Y <sup>2</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>  |

<sup>1</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>2</sup>Charset is not supported for Microsoft Access 95 or 97.

| Reader             | Description  | Filter         | Export         | View           | Extract | Metadata | Charset        | H/F | Associated File Formats   |
|--------------------|--|----------------|----------------|----------------|---------|----------|----------------|-----|---|
| 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_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 EMC MF    | 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>   |

<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 EMC MF

<sup>3</sup>Except Documentum EMC MF

<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   |
|-------------------------|---|--------|--------|----------------|----------------|----------|----------------|----------------|---|
| mwsr                    | 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>   |
| 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> , <a href="#">WPS_Office_WP_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>   |

<sup>1</sup>The multiarcsr reader is only available on certain platforms (see [multiarcsr](#) in the platform differences section). 7zip 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  |
|--------------------|---|--------|--------|------|----------------|----------|---------|-----|--|
| nnsr               | NBI OASys Net Archive                               | Y      | T      | T    | N              | N        | N       | N   | <a href="#">NBI_Net_Archive_Fmt</a>  |
| nsfsr <sup>1</sup> | 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>2</sup> )     | Y      | Y      | Y    | Y <sup>3</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>4</sup> )     | Y      | Y      | Y    | Y <sup>5</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="#">Solid_Edge_Assembly_Fmt</a> , <a href="#">Solid_Edge_Part_Fmt</a> , <a href="#">Solid_Edge_SheetMetal_Fmt</a> , <a href="#">Windows_Installer_Fmt</a> , <a href="#">Windows_</a> |

<sup>1</sup>The nsfsr reader is only available on certain platforms (see [nsfsr](#) in the platform differences section).

<sup>2</sup>Generated by OpenOffice Calc 2.0, StarOffice 8 Calc, and IBM Lotus Symphony Spreadsheet 3.0.

<sup>3</sup>Supported using the embedded objects reader olesr.

<sup>4</sup>Generated by OpenOffice Writer 2.0, StarOffice 8 Writer, and IBM Lotus Symphony Documents 3.0.

<sup>5</sup>Supported using the embedded objects reader olesr.

| Reader                 | Description   | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats   |
|------------------------|---|--------|--------|------|---------|----------|---------|-----|---|
|                        |   |        |        |      |         |          |         |     | <a href="#">Installer_Patch_Fmt</a>   |
| olmsr                  | Microsoft Outlook for Macintosh (2011)                        | N      | N      | Y    | Y       | N        | Y       | N   | <a href="#">MS_OutlookOLM_Fmt</a>   |
| 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 <sup>1</sup>     | Apache ORC (Optimized Row Columnar) data                      | Y      | 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>The orcsr reader is only available on certain platforms (see [orcsr](#) in the platform differences section).

<sup>2</sup>The parquetsr reader is only available on certain platforms (see [parquetsr](#) in the platform differences section).

<sup>3</sup>The pdf2sr reader is only available on certain platforms (see [pdf2sr](#) in the platform differences section).

| 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>  |
| pstnsr               | Microsoft Outlook                                   | N              | N              | Y              | Y              | Y              | Y       | N   | <a href="#">MS_OutlookPST_Fmt</a>  |

<sup>1</sup>Includes support for extraction of subfiles from PDF Portfolio documents.

<sup>2</sup>The pffsr reader is only available on certain platforms (see [pffsr](#) in the platform differences section).

<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             |
|--------------------|---|--------|--------|------|---------|----------|---------|-----|-------------------------------------|
|                    | Personal Folder <sup>1</sup><br>(97 onwards)                      |        |        |      |         |          |         |     |                                     |
| pstsr <sup>2</sup> | Microsoft Outlook<br>Personal Folder <sup>3</sup><br>(97 onwards) | N      | N      | Y    | Y       | Y        | N       | N   | <a href="#">MS_OutlookPST_Fmt</a>   |
| pstxsr             | Microsoft Outlook<br>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>       |
| pxlsr              | HP PCL XL (PCL 6)   | Y      | T      | T    | N       | N        | N       | N   | <a href="#">HP_PCL_XL_Fmt</a>       |
| qpssr              | Corel Quattro Pro (5,<br>6, 7, 8)                                 | Y      | Y      | Y    | N       | P        | Y       | N   | <a href="#">Quattro_Pro_Win_Fmt</a> |
| qpwsr              | Corel Quattro Pro<br>(X4)   | Y      | N      | Y    | N       | P        | Y       | N   | <a href="#">QPW_Fmt</a>             |
| rarsr              | RAR archive (2.0)   | N      | N      | N    | Y       | N        | n/a     | N   | <a href="#">RAR_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 Microsoft Outlook is installed. The pstxsr reader is available only on certain platforms (see [pstxsr](#) in the platform differences section) 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 Microsoft Outlook is installed. The pstxsr reader is available only on certain platforms (see [pstxsr](#) in the platform differences section) 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 Microsoft Outlook is installed. The pstxsr reader is available only on certain platforms (see [pstxsr](#) in the platform differences section) 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   |
|----------------------|---|--------|--------|------|----------------|----------|---------|-----|---|
|                      | through 3.5)                                    |        |        |      |                |          |         |     |   |
| riffsr               | 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>   |
| stringsr             | Generic 'strings' reader                        | Y      | T      | T    | N              | N        | N       | N   | <a href="#">BeagleWorks_Word_Fmt</a> , <a href="#">CEOwrite_Fmt</a> , <a href="#">CPT_Comm_Fmt</a> , <a href="#">CWK_Fmt</a> , <a href="#">DG_CDS_Fmt</a> , <a href="#">DSA101_Fmt</a> , <a href="#">Data_Point_VistaWord_Fmt</a> , <a href="#">Enable_WP_Fmt</a> , <a href="#">GreatWorks_Word_Fmt</a> , <a href="#">HP_Word_PC_</a> |

<sup>1</sup>The rpmsgsr reader is only available on certain platforms (see [rpmsgsr](#) in the platform differences section).

<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  |
|--------|--------------------------------------|--------|--------|------|---------|----------|----------------|-----|--|
|        |                                      |        |        |      |         |          |                |     | <a href="#">Fmt</a> , <a href="#">IBM_DCF_Script_Fmt</a> , <a href="#">IBM_Writing_Assistant_Fmt</a> , <a href="#">Lotus_Notes_CDF_Fmt</a> , <a href="#">Lyrix_Fmt</a> , <a href="#">MASS_11_Fmt</a> , <a href="#">MS_Works_DOS_WP_Fmt</a> , <a href="#">MS_Works_Mac_WP_Fmt</a> , <a href="#">MacWrite_Fmt</a> , <a href="#">MacWrite_II_Fmt</a> , <a href="#">Multimate_Adv_Fmt</a> , <a href="#">Multimate_Adv_Fnote_Fmt</a> , <a href="#">Multimate_Adv_II_Fmt</a> , <a href="#">Multimate_Adv_II_Fnote_Fmt</a> , <a href="#">Multimate_Fmt</a> , <a href="#">Multimate_Fnote_Fmt</a> , <a href="#">Navy_DIF_Fmt</a> , <a href="#">ODA_Q1_11_Fmt</a> , <a href="#">ODA_Q1_12_Fmt</a> , <a href="#">Office_Writer_Fmt</a> , <a href="#">Psion_TextEd_Fmt</a> , <a href="#">Psion_Word_3_Fmt</a> , <a href="#">Psion_Word_Fmt</a> , <a href="#">Q_A_DOS_Fmt</a> , <a href="#">Q_A_Win_Fmt</a> , <a href="#">Quadratron_Q_One_v1_Fmt</a> , <a href="#">Quadratron_Q_One_v2_Fmt</a> , <a href="#">Quickword_Fmt</a> , <a href="#">SAMNA_Word_IV_Fmt</a> , <a href="#">Symbol_Dynamics_EXP5_Fmt</a> , <a href="#">Symbol_Dynamics_EXP_Fmt</a> , <a href="#">Targon_Word_Fmt</a> , <a href="#">Uniplex_WP_Fmt</a> , <a href="#">Volkswriter_Fmt</a> , <a href="#">WANG_WITA_Fmt</a> , <a href="#">WANG_WPS_Comm_Fmt</a> , <a href="#">WPS_PLUS_Fmt</a> , <a href="#">WordERA_Fmt</a> , <a href="#">WordMARC_Fmt</a> , <a href="#">WordPerfect_Fmt</a> , <a href="#">WordStar_2000_Fmt</a> , <a href="#">WordStar_Fmt</a> , <a href="#">WordStar_for_Windows_Fmt</a> , <a href="#">Word_Connection_Fmt</a> , <a href="#">WriteNow_Fmt</a> , <a href="#">Xerox_860_Comm_Fmt</a> , <a href="#">Xerox_Writer_Fmt</a> |
| 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>  |

<sup>1</sup>The character set cannot be determined for versions 5.x and lower.

| Reader   | Description  | Filter | Export | View           | Extract | Metadata | Charset | H/F | Associated File Formats  |
|----------|--|--------|--------|----------------|---------|----------|---------|-----|--|
| tifsr    | TIFF Tagged Image File (through 6.0 <sup>1</sup> )                 | M      | M      | N              | N       | Y        | N       | N   | <a href="#">TIFF_Fmt</a>   |
| tnefsr   | Transport Neutral Encapsulation Format                             | N      | N      | Y              | Y       | Y        | Y       | N   | <a href="#">TNEF_Fmt</a>   |
| unihtmsr | 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>2</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 versions)   | N      | N      | Y              | Y       | N        | n/a     | N   | <a href="#">UUEncoded_Fmt</a>  |
| 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>3</sup> ) | Y      | Y      | Y              | Y       | Y        | Y       | N   | <a href="#">MS_Visio_Fmt</a>   |
| wkssr    | Lotus 1-2-3 (2, 3, 4,  | Y      | Y      | Y              | N       | N        | Y       | N   | <a href="#">Lotus_123_Worksheet_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>PKZIP, WinZip, and Java Archive only

<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.

| Reader | Description   | Filter | Export | View | Extract        | Metadata | Charset | H/F            | Associated File Formats   |
|--------|---|--------|--------|------|----------------|----------|---------|----------------|---|
|        | 5)  |        |        |      |                |          |         |                |   |
| 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>   |
| wpmr   | 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>  |
| xlsr   | 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> , <a href="#">WPS_Office_SS_Fmt</a>  |
| xlsxsr | 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_</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="#">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> , <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>   |

<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.

| Reader | Description           | Filter | Export | View | Extract | Metadata | Charset | H/F | Associated File Formats       |
|--------|-----------------------|--------|--------|------|---------|----------|---------|-----|-------------------------------|
| z7zsr  | 7-Zip archive (4.57)  | N      | N      | Y    | Y       | N        | n/a     | N   | <a href="#">Z7Z_Fmt</a>       |
| zstdsr | Zstandard compression | N      | N      | N    | Y       | N        | n/a     | N   | <a href="#">Zstandard_Fmt</a> |

# Appendix C: Platform Differences

Most KeyView features and document readers are available across all platforms. This section describes the supported platforms for certain features that are not available on every platform.

- [Feature Differences](#) ..... 188
- [Reader Differences](#) ..... 189

# Feature Differences

| Feature  | Windows |     | Linux |     |         | macOS |     | Solaris |     |         |       | AIX   |       |
|--|---------|-----|-------|-----|---------|-------|-----|---------|-----|---------|-------|-------|-------|
|  | x64     | x86 | x64   | x86 | AArch64 | M1    | x64 | x64     | x86 | SPARC64 | SPARC | ppc64 | ppc32 |
| Filter C++ API                                   | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | -       | -   | -       | -     | -     | -     |
| Filter .NET API                                  | ✓       | ✓   | -     | -   | -       | -     | -   | -       | -   | -       | -     | -     | -     |
| RMS Decryption                                   | ✓       | -   | ✓     | -   | -       | -     | -   | ✓       | -   | ✓       | -     | -     | -     |
| XMP extraction <sup>1</sup>                      | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | -       | -   | -       | -     | ✓     | ✓     |
| XMP extraction - HTML (HTML_Fmt)                 | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | -       | -   | -       | -     | -     | -     |
| XMP extraction - additional formats <sup>2</sup> | ✓       | ✓   | ✓     | ✓   | -       | ✓     | ✓   | -       | -   | -       | -     | -     | -     |
| Advanced character set detection                 | ✓       | ✓   | ✓     | ✓   | ✓       | -     | -   | ✓       | -   | ✓       | -     | ✓     | -     |
| Source code identification                       | ✓       | -   | ✓     | -   | ✓       | ✓     | ✓   | -       | -   | -       | -     | -     | -     |
| Optical Character Recognition                    | ✓       | -   | ✓     | -   | -       | -     | -   | -       | -   | -       | -     | -     | -     |
| KVOOP privilege reduction                        | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | -       | -   | -       | -     | -     | -     |
| Out-of-process logging                           | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | ✓       | ✓   | ✓       | ✓     | -     | -     |

<sup>1</sup>This refers to formats PDF (PDF\_Fmt), PNG (PNG\_Fmt), PSD (PSD\_Fmt), JPG (JPEG\_File\_Interchange\_Fmt), TIFF (TIFF\_Fmt), XML (XML\_Fmt) and pFile (RMS\_Protected\_Fmt)

<sup>2</sup>This refers to formats GIF (GIF\_87a\_Fmt / GIF\_89a\_Fmt), jpeg2000 (JPEG\_2000\_JP2\_File\_Fmt), SVG (SVG\_Fmt), MOV (QuickTime\_Fmt), AIFF (AIFF\_Fmt), FLV (Flash\_Video\_Fmt), SWF (Macromedia\_Flash\_Fmt), MP3 (MPEG\_Audio\_Fmt), MPEG4 (ISO\_IEC\_MPEG\_4\_Fmt), WAV (MS\_WAVE\_Audio\_Fmt), AVI (MS\_Video\_Fmt), EPS (EPSF\_Fmt, Preview\_EPSF\_Fmt), INDD (InDesign\_Fmt), WMA (WMA\_Fmt) and WMV (WMV\_Fmt)

# Reader Differences

| Reader  | Windows |     | Linux |     |         | macOS |     | Solaris |     |         |       | AIX   |       |
|---|---------|-----|-------|-----|---------|-------|-----|---------|-----|---------|-------|-------|-------|
|   | x64     | x86 | x64   | x86 | AArch64 | M1    | x64 | x64     | x86 | SPARC64 | SPARC | ppc64 | ppc32 |
| avrosr (Apache Avro reader)   | ✓       | -   | ✓     | -   | -       | -     | -   | -       | -   | -       | -     | -     | -     |
| cebsr (Founder Chinese E-paper Basic reader)                              | -       | ✓   | -     | -   | -       | -     | -   | -       | -   | -       | -     | -     | -     |
| htmlsr (HTML reader for XMP extraction)                                   | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | -       | -   | -       | -     | -     | -     |
| iwss13sr (Apple iWork 2013 Numbers reader)                                | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | ✓       | -   | -       | -     | -     | -     |
| iwwp13sr (Apple iWork 2013 Pages reader)                                  | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | ✓       | -   | -       | -     | -     | -     |
| kpDWGrdr (Autodesk AutoCAD Drawing reader for platforms without kpODArdr) | -       | -   | -     | -   | -       | -     | -   | ✓       | ✓   | ✓       | ✓     | ✓     | ✓     |
| kpDXFrdr (Autodesk AutoCAD DXF reader for platforms without kpODArdr)     | -       | -   | -     | -   | -       | -     | -   | ✓       | ✓   | ✓       | ✓     | ✓     | ✓     |
| kpIWPG13rdr (Apple iWork 2013 Keynote reader)                             | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | ✓       | -   | -       | -     | -     | -     |
| kpODArdr (Autodesk AutoCAD reader)  | ✓       | ✓   | ✓     | ✓   | -       | ✓     | ✓   | -       | -   | -       | -     | -     | -     |
| kppdf2rdr (alternative graphic-based PDF reader)                          | ✓       | ✓   | ✓     | ✓   | -       | -     | -   | -       | -   | -       | -     | -     | -     |

| Reader   | Windows |     | Linux |     |         | macOS |     | Solaris |     |         |       | AIX   |       |
|--|---------|-----|-------|-----|---------|-------|-----|---------|-----|---------|-------|-------|-------|
|  | x64     | x86 | x64   | x86 | AArch64 | M1    | x64 | x64     | x86 | SPARC64 | SPARC | ppc64 | ppc32 |
| lwpsr (Lotus Word Pro reader)                                    | -       | ✓   | -     | -   | -       | -     | -   | -       | -   | -       | -     | -     | -     |
| multiarcsr (multiple archive formats reader)                     | ✓       | ✓   | ✓     | ✓   | ✓       | ✓     | ✓   | ✓       | ✓   | ✓       | ✓     | -     | -     |
| nsfsr (Lotus Notes database reader)                              | ✓       | ✓   | -     | ✓   | -       | -     | -   | -       | -   | -       | -     | -     | ✓     |
| orcsr (Apache ORC reader)  | ✓       | -   | ✓     | -   | ✓       | ✓     | ✓   | -       | -   | -       | -     | -     | -     |
| parquetsr (Apache Parquet reader)                                | ✓       | -   | ✓     | -   | -       | -     | -   | -       | -   | -       | -     | -     | -     |
| pdf2sr (alternative PDF reader)                                  | ✓       | ✓   | ✓     | ✓   | -       | -     | -   | -       | -   | -       | -     | -     | -     |
| pffsr (Microsoft Outlook Offline Folders File reader)            | ✓       | ✓   | ✓     | ✓   | ✓       | -     | -   | -       | -   | -       | -     | -     | -     |
| pstsr (MAPI-based PST reader)                                    | ✓       | ✓   | -     | -   | -       | -     | -   | -       | -   | -       | -     | -     | -     |
| pstnsr (native PST reader for platforms without pstxsr)          | -       | -   | -     | ✓   | -       | ✓     | ✓   | ✓       | ✓   | ✓       | ✓     | ✓     | ✓     |
| pstxsr (native PST reader)                                       | ✓       | ✓   | ✓     | -   | ✓       | -     | -   | -       | -   | -       | -     | -     | -     |
| rpmsgsr (Microsoft Outlook Restricted Permission Message reader) | ✓       | -   | ✓     | -   | -       | -     | -   | ✓       | -   | ✓       | -     | -     | -     |

This topic shows only those readers that are unavailable on at least one platform. For a complete list of a readers, see [Document Readers, on page 159](#).

# Appendix D: 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](#) ..... 191
- [Coded Character Sets](#) ..... 199

## 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           |
| Mac Disk Copy Disk Image                         | n/a         | n/a       | n/a           |

**Multibyte and bidirectional support, continued**

| <b>Format</b>                                | <b>Single-byte</b> | <b>Multibyte</b> | <b>Bidirectional</b> |
|--|--------------------|------------------|----------------------|
| (DMG)  |                    |                  |                      |
| 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**

| <b>Format</b>  | <b>Single-byte</b> | <b>Multibyte</b> | <b>Bidirectional</b> |
|--|--------------------|------------------|----------------------|
| <b>Desktop Publishing</b>                                    |                    |                  |                      |
| Microsoft Publisher  | N                  | Y                | N                    |
| <b>Display</b>   |                    |                  |                      |
| Adobe Portable Document Format (PDF)                         | 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                  |
| Microsoft Office Drawing (MSO)                               | 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> |
|---|--------------------|------------------|----------------------|
| 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 EMC MF 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 Folders (PST) | Y                  | Y                | Y                    |

**Multibyte and bidirectional support, continued**

| <b>Format</b>                               | <b>Single-byte</b>      | <b>Multibyte</b>   | <b>Bidirectional</b> |
|---|-------------------------|--|----------------------|
| 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                    |

**Multibyte and bidirectional support, continued**

| <b>Format</b>   | <b>Single-byte</b>      | <b>Multibyte</b>   | <b>Bidirectional</b> |
|---|-------------------------|--|----------------------|
| Macromedia Flash (SWF)                                | Y                       | Y  | N                    |
| 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                    |

**Multibyte and bidirectional support, continued**

| <b>Format</b>                         | <b>Single-byte</b>           | <b>Multibyte</b> | <b>Bidirectional</b> |
|---------------------------------------|------------------------------|------------------|----------------------|
| Microsoft Works Spreadsheet (S30/S40) | Y                            | N                | N                    |
| 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                    |

**Multibyte and bidirectional support, continued**

| <b>Format</b>                                   | <b>Single-byte</b>            | <b>Multibyte</b>   | <b>Bidirectional</b>     |
|---|-------------------------------|--|--------------------------|
| Founder Chinese E-paper Basic (CEB)             | Y                             | Y  | N                        |
| Fujitsu Oasys (OA2)                             | Y                             | Y  | N                        |
| Hangul (HWP)                                    | Y                             | Y  | N                        |
| Health level7 (HL7)                             | Y                             | Y  | Y                        |
| IBM DCA/RTF (DC)                                | character sets 500, 1026 only | N  | N                        |
| JustSystems Ichitaro (JTD)                      | Y                             | Y  | N                        |
| Lotus AMI Pro (SAM)                             | Y                             | Simple Chinese, Traditional Chinese, Japanese, Thai only | Y                        |
| Lotus AMI Professional Write Plus (AMI)         | Y                             | Simple Chinese, Traditional 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 1252 only       | N  | N                        |
| Microsoft Word Windows V1-2 (DOC)               | Y                             | N  | N                        |
| Microsoft Word Windows V6, 7, 8, 95 (DOC)       | Y                             | Y  | Hebrew only <sup>3</sup> |
| Microsoft Word Windows V97 through 2003 (DOC)   | Y                             | Y  | Y <sup>3</sup>           |
| Microsoft Word Windows XML 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                        |

### Multibyte and bidirectional support, continued

| Format                                  | Single-byte             | Multibyte                    | Bidirectional |
|---|-------------------------|------------------------------|---------------|
| Open Publication Structure eBook (EPUB) | Y                       | Y                            | Y             |
| StarOffice Writer (ODT)                 | Y                       | Y                            | N             |
| 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 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 Filter 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) cp936 | Y                             |
| KVCS_BIG5           | Traditional Chinese (Taiwan, Hong Kong, Macaw) cp950  | Y                             |

**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                                 | <b>Can be set as target charset?</b> |
|----------------------------|--|--------------------------------------|
| KVCS_KSC                   | Korean, cp949                                      | Y                                    |
| KVCS_1250                  | Windows Latin 2 (Central Europe)                   | Y                                    |
| 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                                    |



**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                                | <b>Can be set as target charset?</b> |
|----------------------------|---|--------------------------------------|
| KVCS_851                   | DOS Greek   | Y                                    |
| KVCS_852                   | DOS Latin 2                                       | Y                                    |
| 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                                    | Y                                    |
| KVCS_UTF16                 | 16-bit Unicode transformation format              | Y                                    |

**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>  | <b>Can be set as target charset?</b> |
|----------------------------|---|--------------------------------------|
| 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 encoding (JIS-7) | N                                    |
| 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                                    |

**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                                       | <b>Can be set as target charset?</b> |
|----------------------------|--|--------------------------------------|
| 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                                    |
| 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                                    |

**Code Character Sets, continued**

| <b>Coded Character Set</b> | <b>Description</b>                             | <b>Can be set as target charset?</b> |
|----------------------------|--|--------------------------------------|
| 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                                  |
| KVCS_UTF32                 | 32-bit Unicode transformation format           | Y                                    |

<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 E: 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.

- [Overview](#) .....205
- [Customize XML Templates](#) .....205
- [Template Elements and Attributes](#) .....207
- [Date and Time Formats](#) .....212

## 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 207](#).
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"/>
  <quit/>
</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">
  <quit>
</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 name.</li> <li>• <code>text</code>. (Required if no <code>item</code>) The text to compare to the item specified by name.</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> ==, !=, &lt;, &gt;, &lt;=, &gt;, &gt;=.</p> <p>Text comparison uses a case-insensitive string compare.</p>  |
| <iftdq>, <iftdne>, <iftdlt>, <iftdle>, <iftdgt>, <iftdge> | <p>Respectively, if time/date ==, !=, &lt;, &gt;, &lt;=, &gt;, &gt;=.</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>           | If a name value exists, process XML.<br><b>Attributes</b> <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>             | If the comparison condition is true, process XML, then stop processing the rest of <switch>.<br><b>Attributes</b> <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>              | If a name value exists, process XML. Process for each part of the name item.<br><b>Attributes</b> <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 &lt;log&gt;, 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 &lt;rich&gt;, above, 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 212</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   |
|------------|---|
|            | <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>• 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>  | <p>Output a KeyView date.</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>• 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>     | <p>Output a time range, for example 1 hour, 30 minutes.</p> <p><b>Attributes</b></p> <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>     | <p>Output a Notes time zone mnemonic, for example MST.</p> <p><b>Attributes</b></p> <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> | <p>Output a time zone as UTC, for example (UTC-06:00).</p>  |
| <logo>     | <p>Output the mail header logo.</p> <p>The image link is included in the output; the actual image is output to a different part of the MHTML subfile.</p>   |
| <image>    | <p>Output an image.</p> <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_>   | <p>Output an image URI, in quotation marks. The actual image is output to a different</p>   |

**Data elements, continued**

| Element | Description   |
|---------|---|
| uri>    | part of the MHTML subfile.<br><b>Attributes</b> <ul style="list-style-type: none"> <li>link. (Required if there is no file) The image link, such as a form or title name. For example:                             <ul style="list-style-type: none"> <li>link="StdNotesLtr0"</li> </ul> </li> <li>file. (Required if there is no link) The name of the image file. The file must exist in the ../../templates/images directory. For example:                             <ul style="list-style-type: none"> <li>file="checkbox.gif"</li> </ul> </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
- / = slash
- = dash
- . = 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_HHmss                                | 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**

| <b>Format</b>           | <b>Output</b>       | <b>Integer Value</b> |
|-------------------------|---------------------|----------------------|
| KVDTF_mmsddsyy          | mm/dd/yy            | 17                   |
| KVDTF_mmsddsyyyy        | mm/dd/yyyy          | 18                   |
| KVDTF_ddsmm             | dd/mm               | 19                   |
| KVDTF_ddsmsyy           | dd/mm/yy            | 20                   |
| KVDTF_ddsmsyy_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_ddsmsyy_P_hmm     | dd/mm/yy P h:mm     | 26                   |
| KVDTF_ddsmsyy_hmm_P     | dd/mm/yy h:mm P     | 27                   |
| KVDTF_ddsmsyy_P_hmmss   | dd/mm/yy P h:mm:ss  | 28                   |
| KVDTF_ddsmsyy_hmmss_P   | dd/mm/yy h:mm:ss P  | 29                   |
| KVDTF_ddsmsyy_P_hhmmss  | dd/mm/yy P hh:mm:ss | 30                   |
| KVDTF_ddsmsyy_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**

| <b>Format</b>  | <b>Output</b>       | <b>Integer Value</b> |
|--|---------------------|----------------------|
| 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**

| <b>Format</b>                | <b>Output</b>          | <b>Integer Value</b> |
|------------------------------|------------------------|----------------------|
| 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 F: File Format Detection

This section describes how file formats are detected in Filter SDK.

- [Introduction](#) ..... 218
- [Extract Format Information](#) ..... 218
- [Determine Format Support](#) ..... 218
- [Translate Format Information](#) ..... 221
- [Determine a Document Reader](#) ..... 222
- [Additional Format Information](#) ..... 222

## 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 157](#).

## Extract Format Information

You can extract format information from a document by using the `GetDocFormatInfo` method. This method extracts the major format, file class, version, and document attributes, and populates the `DocFormatInfo` class. It returns the format information as a string. The format information that you can extract is listed in the header file `adinfo.h`.

For information on how to translate the extracted format information, see [Translate Format Information, on page 221](#).

## Determine Format Support

After the file format is extracted, the detection module uses the `formats.ini` file to determine whether the format is supported by KeyView, and the appropriate structured access layer and reader to load.

The `formats.ini` file is in the directory `install\OS\bin`, where `install` is the path name of the Filter 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 221](#).
- The reader associated with each format. See [Determine a Document Reader, on page 222](#).
- Configuration parameters.
- Locale settings for internal use.

## Example `formats.ini` file entries

```
123=mw
152=xyw
178=wp6
189=mw6
2=af
200=pdf
205=mb
210=htm
251=htm
```

**NOTE:** The `formats.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 analyses 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 enable 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.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 that 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.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.

### 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 that 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).

### 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).

## 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)

This example applies to the `formats.ini` file. When extracting format information using the `GetDocFormatInfo` method, the same format is represented as 294.2.9.0.

**NOTE:** The format values returned from `GetDocFormatInfo` differ from those in `formats.ini` because the former defines a unique ID for each major format, while the latter uses a major version, minor version, and minor format to distinguish between formats.

## Distinguish Between Formats

The `DocFormatInfo` class provides a unique ID for each major format. For example, a call to `GetDocFormatInfo` would return `351.1.0` for a Microsoft Word XML format. The major format 351 is unique to this format.

Unlike `DocFormatInfo`, the `formats.ini` file distinguishes between formats by using the major version number. For example, in the `formats.ini` file, 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 to specify the following formats:

- Microsoft Office 2003 XML. This 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.ini` file to determine whether a format is supported, and to determine the reader to use to parse a format. The entries in the `formats.ini` file list each format's coded value, and an abbreviation for the format's reader.

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. For example, this example entry specifies that a Lotus 1-2-3 Spreadsheet file version 9.0 is parsed by the Lotus 1-2-3 filter, 1123sr:

```
81.2.0.9.0=1123
```

[List of Required Files for Redistribution, on page 223](#) lists the readers provided with KeyView.

## Additional Format Information

The `ADDDOCINFO` class returns basic information about a document's format, but sometimes it can be useful to have additional information. The file `format_descriptions.tsv`, which can be found in the `bin` directory, provides a mapping between file format ID, human-readable format description, and the format's MIME type (if one exists). This file is in tab-delimited format, and the tab character will only appear as a delimiter. This information is available in the documentation (see the section [Supported Formats, on page 89](#)), but the TSV file provides it in a machine-readable format.

# Appendix G: List of Required Files for Redistribution

This section lists the Filter 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 Filter installation directory and *OS* is the operating system platform.

**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.ini         | Initialization file. For more information on this file, see <a href="#">Determine Format Support, on page 218</a> .  |
| FilterDotNet.dll    | The .NET API.  |
| filterfordotnet.dll | Required by the .NET API.  |
| KeyView.jar         | The Java API.<br><b>NOTE:</b> This file can be found at the path <i>install/javaapi/KeyView.jar</i> where <i>install</i> is the Filter SDK installation directory.       |
| *KeyViewFilter.*    | Required by the Java API.  |
| kpifcnvt.*          | For presentation graphics, converts from one picture format to another.  |
| kpifutil.*          | Utility for handling the internal picture interchange format for presentation graphics.  |
| kvfilter_nsl.a      | (AIX platforms only.) Alternative Filter API implementation using POSIX standards for starting new processes. See <a href="#">The Filter Process Model, on page 25</a> . |
| kvextract.*         | File Extraction API.   |
| kvfilter.*          | Filter API.  |
| kvolefio.*          | Embedded OLE object writer.  |

| File       | Description  |
|------------|--|
| kvutil.*   | Internal KeyView utility functions.  |
| kvxpgsa.*  | Interface between presentation readers and kvfilter. Required to extract metadata from AutoCAD files.  |
| kvxssa.*   | Interface between spreadsheet readers and kvfilter.  |
| kvxwpsa.*  | Interface between word processing readers and kvfilter.  |
| kvzip.*    | Zip writer.  |
| kwad.*     | File auto-recognition module.  |
| txtcnv.*   | Converter for document token stream.   |
| vcredist\* | (Windows platforms only) Microsoft Visual C++ Redistributable Packages. For more information about these files, see <a href="#">Software Dependencies, on page 13</a> .<br><br><b>NOTE:</b> The vcredist folder is located at the root of the SDK, and not in the bin 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.   |
| chartb1s.ux            | Character mappings.  |
| chmdll.*               | Required by chmsr.   |
| codeidentifierplugin.* | Required for source code identification                      |
| cpstsdk.*              | Required by pstxsr.  |
| DFECore.dll            | Required by cebsr.   |



| File              | Description  |
|-------------------|--|
| Filter.dll        | Required by cebsr.   |
| kpbmpwrt.*        | Required for processing bmp files.   |
| kppng.*           | Required for ZLIB decompression.   |
| kvdecrypt.*       | Decryption utility functions.  |
| kvlangdetect.*    | Utility functions for language and character set detection.  |
| kvxconfig.ini     | Contains element extraction settings for XML files.  |
| kvoop.*           | Required for out-of-process filtering.   |
| kvthread.*        | Required for multithreaded out-of-process filtering.   |
| kv.lic            | Contains license information for KeyView products. This file is opened and validated when a KeyView API is used. |
| *langdetecttext.* | Required by kvlangdetect.*.  |
| libpff.*          | Required by pffsr.   |
| libcrypto*        | SSL utility functions used by KeyView mail format readers.   |
| libstlport.so.1   | (Solaris platforms only) Solaris Studio Redistributable. This file is located in <i>install/OS/lib</i> .         |
| tabledata.dat     | Required for table detection.  |
| 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

The following readers can be redistributed with your application.

| File     | Description                                 |
|----------|---|
| ad1sr.*  | AD1 Evidence file reader                    |
| afsr.*   | ASCII reader                                |
| aiffsr.* | Audio Interchange Format File (AIFF) reader |

| File        | Description   |
|-------------|---|
| asfsr.*     | Advanced Systems Format reader  |
| assr.*      | Applix Spreadsheet reader   |
| awsr.*      | Applix Word reader  |
| b1sr.*      | B1 archive reader   |
| bkfsr.*     | Microsoft Backup File reader  |
| bmsr.*      | 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  |
| dcmsr.*     | Digital Imaging and Communications in Medicine (DICOM) reader   |
| difsr.*     | Data Interchange Format reader  |
| dmgsr.*     | Mac Disk Copy Disk Image File reader  |
| dw4sr.*     | DisplayWrite reader   |
| dx1sr.*     | Domino XML Language reader  |
| em1sr.*     | Microsoft Outlook Express (EML) reader. This is used to filter EML files when the MBX reader is not licensed. |
| emxsr.*     | Legato EMailXtender (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  |

| File          | Description                              |
|---------------|--|
| gifsr.*       | Graphics Interchange Format (GIF) reader |
| gwfssr.*      | GroupWise FileSurf reader                |
| h17sr.*       | Health level7 reader (metadata only)     |
| htmsr.*       | HTML and XHTML reader                    |
| hwpsr.*       | Hangul 97 reader                         |
| hwposr.*      | Hangul 2002, 2005, 2007 reader           |
| ichatsr.*     | Apple iChat Log reader                   |
| icssr.*       | Microsoft Outlook iCalendar reader       |
| isosr.*       | ISO-9660 CD Disc Image Format reader     |
| iwss13sr.*    | iWork 13 Numbers reader                  |
| iwwp13sr.*    | iWork 13 Pages reader                    |
| iwwpsr.*      | Apple iWork Pages reader                 |
| iwsssr.*      | Apple iWork Numbers reader               |
| jp2000sr.*    | JPEG 2000 metadata reader                |
| jpgsr.*       | JPEG metadata reader                     |
| jtdsr.*       | JustSystems Ichitaro reader              |
| kpagrdr.*     | Applix Presentations reader              |
| kpcatrdr.*    | CATIA format reader                      |
| kpcgmrdr.*    | Computer Graphics Metafile reader        |
| kpdwgrdr.*    | AutoCAD Drawing format reader            |
| kpdxfdrdr.*   | AutoCAD Drawing Exchange format reader   |
| kpemfrdr.*    | Enhanced Metafile reader                 |
| kpgflrdr.*    | Omni Graffle reader                      |
| kpgifrdr.*    | Graphic Interchange Format (GIF) reader  |
| kpiwpg13rdr.* | iWork 13 keynote reader                  |
| kpiwpgdrdr.*  | Apple iWork Keynote reader               |
| kpjbig2rdr.*  | JBIG2 reader                             |

| File          | Description   |
|---------------|---|
| kpjp2000rdr.* | JPEG 2000 reader  |
| kpmsordr.*    | Microsoft Office Drawing Objects (office 97, 2000, and XP) reader |
| kpnbmpdr.*    | Notes Bitmap reader (for embedded images in DXL files)            |
| kpodandr.*    | AutoCAD reader  |
| kpodfrdr.*    | Oasis Open Document Format presentation (ODP) 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                         |
| kppctrdr.*    | Macintosh Quick Draw Picture (PICT) reader                        |
| kppicrdr.*    | Pictor PC Paint (PIC) reader                                      |
| kppngwrt.*    | Portable Network Graphics (PNG) reader                            |
| kpppxrdr.*    | Microsoft PowerPoint XML reader 2007                              |
| kpprerdr.*    | Lotus Freelance Graphics for Windows V2.0 reader                  |
| kpprzrdr.*    | Lotus Freelance Graphics 96/97/98 reader                          |
| kpsddrdr.*    | StarOffice Impress reader   |
| kpsdwrdr.*    | Lotus Ami Pro Graphics reader                                     |
| kpshwrdr.*    | Corel Presentations reader  |
| kptifrdr.*    | Tagged Image File (TIF) reader                                    |
| kpugrdr.*     | Unigraphics (UG) NX reader  |
| kpvsd2rdr.*   | Microsoft Visio reader  |
| kpvsdxrdr.*   | Microsoft Visio 2013 reader                                       |
| kpwg2rdr.*    | WordPerfect Graphics 2 reader                                     |
| kpwmfrdr.*    | Windows Metafile reader   |
| kpwpgrdr.*    | WordPerfect Graphics 1 reader                                     |
| kpxfd1rdr.*   | Extensible Forms Description Language reader                      |
| kvgzsr.*      | GZIP reader   |
| kvhqxsr.*     | BinHex reader   |

| File          | Description   |
|---------------|---|
| kvzeesr.*     | UNIX Compress reader  |
| l123sr.*      | Lotus 123 v96/97/98 reader  |
| lasr.*        | Lotus AMI Pro reader  |
| l1tbenn30.dll | Lotus Word Pro support (supported on Windows x86 platform only)       |
| l1tscsn10.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) and Microsoft Outlook Express (EML) reader <sup>1</sup> |
| mdbsr.*       | Microsoft Access reader   |
| mhtsr.*       | MIME HTML reader  |
| mifsr.*       | Adobe Maker Interchange reader  |
| misr.*        | Microsoft Word 2 reader   |
| mp3sr.*       | MP3 reader for metadata extraction reader                             |
| mpeg4sr.*     | MPEG-4 Audio file reader  |
| 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  |
| mw8sr.*       | Microsoft Word 97, 2000, and XP reader                                |

<sup>1</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Filter SDK. See [License Information, on page 17](#)

| File       | Description  |
|------------|--|
| mwsr.*     | Microsoft Word for DOS and Microsoft Write reader  |
| mwsr.*     | Microsoft Works Spreadsheet reader   |
| mwxsr.*    | Microsoft Word 2007 XML reader   |
| nsfsr.*    | Lotus Notes database reader <a href="#">1</a>  |
| oa2sr.*    | Fujitsu Oasys reader   |
| odfssr.*   | Oasis Open Document Format spreadsheets (ODS) reader   |
| odfwpsr.*  | Oasis Open Document Format word processing (ODS) reader  |
| olesr.*    | Embedded OLE object reader   |
| olmsr.*    | Microsoft Outlook for Macintosh reader   |
| onealtsr.* | Microsoft OneNote Alternate Format reader  |
| onesr.*    | Microsoft OneNote Format reader  |
| pmesr.*    | Plazmic Media Engine data file 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 Format file (PDF) reader   |
| pfilesr.*  | Microsoft Rights Management System encryption file reader  |
| pffsr.*    | Microsoft Outlook Offline Storage File reader  |
| pngsr.*    | Portable Network Graphics (PNG) reader   |
| psdsr.*    | Adobe Photoshop Document (PSD) reader  |
| pstsr.dll  | Microsoft Outlook Personal Folders file MAPI-based reader (supported on Windows platform only) <a href="#">1</a> |
| pstnsr.*   | Microsoft Outlook Personal Folders file native reader <a href="#">1</a>  |
| pstxsr.*   | Microsoft Outlook Personal Folders file native reader <a href="#">1</a>  |
| qpssr.*    | Corel Quattro Pro spreadsheet reader   |
| qpwsr.*    | Corel Quattro Pro version X4 spreadsheet reader  |
| rarsr.*    | RAR Archive reader   |

| File       | Description                                      |
|------------|--|
| riffsr.*   | Microsoft WAVE reader                            |
| rtfsr.*    | Microsoft Rich Text reader                       |
| skypesr.*  | Skype log file reader                            |
| sosr.*     | StarOffice/OpenOffice reader                     |
| starcsr.*  | StarOffice Calc reader                           |
| starwsr.*  | StarOffice Writer reader                         |
| sunadsr.*  | Sun Audio Data reader                            |
| swfsr.*    | Macromedia Flash reader                          |
| tarsr.*    | Tape archive reader                              |
| tifsr.*    | TIFF reader (metadata only)                      |
| tnefsr.*   | Transfer Neutral Encapsulation Format            |
| unihtmsr.* | Unicode HTML reader                              |
| unizr.*    | Unicode reader                                   |
| unzip.*    | Zip file reader                                  |
| utf8sr.*   | UTF-8 reader                                     |
| uudsr.*    | UUEncoding reader                                |
| vcfsr.*    | Microsoft Outlook vCard Contact reader           |
| vsdsr.*    | Microsoft Visio reader                           |
| wkssr.*    | Lotus 123 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                           |
| xlsxsr.*   | Microsoft Excel 2007 XML reader                  |
| xmlsr.*    | Generic XML reader                               |
| xpsr.*     | XML Paper Specification reader                   |
| xywsr.*    | XYWrite reader                                   |

| File    | Description                     |
|---------|---------------------------------|
| yimsr.* | Yahoo! Instant Messenger reader |
| z7zsr.* | 7-Zip reader                    |



# Appendix H: Develop a Custom Reader

This section describes how to develop a reader for a format not supported by KeyView.

|  |     |
|--|-----|
| • <a href="#">Introduction</a> .....                 | 233 |
| • <a href="#">How to Write a Custom Reader</a> ..... | 234 |
| • <a href="#">Development Tips</a> .....             | 244 |
| • <a href="#">Functions</a> .....                    | 245 |

## Introduction

The Filter SDK enables you to write custom readers for formats not directly supported by KeyView. A reader is required to parse the file format and generate a KeyView token stream, which represents the content and format of the document. Filter can then use this token stream to generate a text version of the original document. The readers interact with a structured access layer and a writer to generate a text file in Filter, an HTML file in HTML Export, an XML file in XML Export, and a near-to-original view of the document in the Viewing SDK.

The complexity of a custom reader depends on the file format used by the source document type. A simple reader extracts only the textual content, but ignores formatting and all other non-textual content. Readers of increasing complexity must address one or more of the following:

- formatting (including fonts, foreground and background colors, paragraph borders and shading, character and paragraph styles)
- tables
- lists
- headers
- footers
- footnotes
- endnotes
- graphics
- bookmarks to internal links
- hyperlinks to external documents or webpages
- other structures, such as a table of contents or index

Even a simple reader might have to parse the following components of a document:

- word processing commands or tags
- encrypted or encoded text

- multiple character sets
- text modified, but retained within the file
- text displayed in an order other than its physical occurrence within the source file

It is very important to fully understand the file specification for the file format used by the document. This is essential in determining how to parse the source file and generate a token stream that accurately and effectively represents the original document.

Within Filter, the custom reader must interact with a structured access layer and the format detection API, which in turn interacts with the top-level API. For a description of the Filter architecture, see [Architectural Overview, on page 20](#).

The custom reader must have a module definition file (\*.def) that defines the exported API function calls. In addition, the `formats.ini` file must be modified to identify the custom reader and its associated format detection function.

See the source code for the sample custom reader (`utf8sr`), which parses plain text files encoded in UTF-8. The source code is in the directory `install/samples/utf8sr`, where `install` is the path name of the Filter installation directory.

## How to Write a Custom Reader

Two include files define the requirements for a custom reader: `kvcfsr.h` and `kvtoken.h`. The definitions of the KeyView tokens are in `kvtoken.h`. For more information on tokens, see [Token Buffer, on the next page](#). The file `kvcfsr.h` defines two structures: `TPReaderInterface` and `adTPDocInfo`.

The `TPReaderInterface` structure defines the API functions implemented by the custom reader. For basic readers, only the first four functions must be implemented. These functions are called by the structured access layer to parse the source file and generate the token stream.

All readers must be threadsafe. This means that global variables must not be used. To pass information between functions, it is necessary to define a "global" context structure that stores all information required throughout the life of the DLL. The initial parameter of all but one of the `TPReaderInterface` functions is a pointer to a global context structure defined for the custom reader.

The `adTPDocInfo` structure defines the information required for the format detection API, which associates the custom reader with the required file format.

## Naming Conventions

Use the following naming conventions for functions and files:

- The initial letters of the custom reader file name should identify the file format being parsed. For example, `pdf` for Adobe PDF files, `rtf` for RTF files, and `xls` for Microsoft Excel files. In the examples in this appendix, this is represented by `xxx`.
- The name of the shared library must end with the letters `sr`.

- The name of the exported functions in the module definition file must be xxxGetReaderInterface and xxxsrAutoDet.

**NOTE:** The letters sr are excluded from xxxGetReaderInterface, but are included in xxxsrAutoDet.

## Basic Steps

The basic steps for developing a custom reader are as follows.

### To develop a custom reader

1. Design the global context structure.
2. Write the basic API functions:

- `xxxAllocateContext()`
- `xxxInitDoc()`
- `xxxFillBuffer()`
- `xxxFreeContext()`
- `xxxCharSet()`
- `xxxsrAutoDet()`

From within the `xxxFillBuffer()` function, it is necessary to call other functions that repeatedly read a chunk of a source file, parse the chunk, and generate a token stream until the entire source file is processed.

3. Map all but the last function to the `TPReaderInterface` structure.
4. Write the module definition file (`*.def`), exporting the reader interface and format detection functions.
5. Modify the `formats.ini` file to identify the custom reader and its associated format detection function. See `xxxsrAutoDet()`, on page 245. For example, the following lines would be added to the `[Formats]` section of the `formats.ini` file for the UTF-8 reader:

```
456.1.0.0=utf8
[CustomFilters]
1=utf8sr
```

## Token Buffer

Filter technology parses the native file structure to generate an intermediate stream called a *token buffer*. The token buffer consists of multiple sequences of tokens, which are defined in `kvtoken.h` and listed below.

```
#define KVT_TEXT          0x00 /* PutText() */
#define KVT_PARAINFO     0x01 /* SetParaInfo() */
#define KVT_SETTABS      0x02 /* SetTabs() */
```

```
#define KVT_TAB          0x03 /* Tab() */
#define KVT_MODE        0x04 /* SetMode() */
#define KVT_PARASPACE  0x05 /* SetParaSpace() */
#define KVT_ROWDEFN    0x06 /* DefineRow(), EndTable() */
#define KVT_COLUMNS    0x07 /* StartColumns(), etc. */
#define KVT_CELLSTART  0x08 /* NextCell() */
#define KVT_BITMAP     0x09 /* Reserved for annotations. */
#define KVT_PAGEOBJ    0x0A /* PutHeader(), PrintPage(), etc.*/
#define KVT_NOOP       0x0B /* Just skip a BYTE. */
#define KVT_PAGE_BREAK 0x0C /* PageBreak() */
#define KVT_PARA_BREAK 0x0D /* ParaEnd() */
#define KVT_LINE_BREAK 0x0E /* LineBreak() */
#define KVT_SET_FONT   0x0F /* SetFont() */
#define KVT_PAGE       0x10 /* SetPageInfo() */
#define KVT_HOTSPOT    0x11 /* StartHotSpot() */
#define KVT_LINESPACE  0x12 /* SetLineSpacing() */
#define KVT_COLOR      0x13 /* VESetTextColor(),VESetBkColor()*/
#define KVT_PICTURE    0x14 /* PutPicture() */
#define KVT_CELLMERGE  0x15 /* MergeCells() */
#define KVT_RULE       0x16 /* HorzRule() */
#define KVT_PATTERN    0x17 /* StartPattern(), etc. */
#define KVT_BORDER     0x18 /* StartParaBorder(), etc. */
#define KVT_HEADING    0x19 /* PutParaHeading() */
#define KVT_LISTING    0x1A /* StartList(), etc. */
#define KVT_CHARSET    0x1B /* SetCharSet() */
#define KVT_STYLE      0x1C /* PutCharStyle(), PutParaStyle()*/
#define KVT_BIDI       0x1D /* Set Bidirectional text */
#define KVT_LOCALE     0x1E /* Set locale of a document */
#define KVT_ZONE       0x1F /* StartZone(), EndZone() */
#define KVT_POSITION   0x20 /* SetPosition(), etc. */
#define KVT_AUTOREC    0x21 /* Reserved for Internal Use */
#define KVT_METADATA   0x22 /* Rsserved for Internal Use */
#define KVT_BYTEORDER  0x23 /* SetByteOrder() */
#define KVT_PARASPACEAUTO 0x24 /* SetParaSpaceAuto() */
#define KVT_ATTACH     0x25 /* PutAttachment() */
#define KVT_TOCPRINTIMAGE 0x26 /* StartTOCPrintImage(), etc. */
#define KVT_STREAM     0x27 /* PutStream(),Reserved */
#define KVT_REVISIONMARK 0x28 /* StartRevisionMark(),
EndRevisionMark(), SetRMAuthor(), SetRMDateTime() */
#define KVT_DOCXTRINFO 0x29 /* SetDocXtrInfo() */
#define KVT_PCTEMDFT   0x30 /* SetPctEmdFt() */
```

A token is a single-byte identifier that corresponds to attributes in a document. Each token has one or more associated macros that provide detailed information about an attribute. Many of these tokens define components of the document, such as page margins, line indentation, and foreground and background color. Collectively, these are referred to as the *state* of the document. This state changes as the document is parsed.

## Macros

Some of the macros are simple while others are complicated. An example of a simple macro is `ParaEnd` (`pcBuf`) which terminates the current paragraph.

```
#define ParaEnd(pcBuf)           \  
    {                           \  
        *pcBuf++ = KVT_PARA_BREAK;    \  
        KVT_PUTINT(pcBuf, KVT_SIZE_PARA_BREAK);    \  
    }
```

In Filter SDK, this generates an `0x0d, 0x0a` pair of bytes on a Windows machine. In HTML Export this can generate a `<p style="...">` element, depending on the value of other paragraph attributes.

One of the more complicated macros is `PutPictureEx`().

```
#define PutPictureEx(pcBuf, lpszKey, cx, cy, flags,           \  
    scaleHeight, scaleWidth,                               \  
    cropFromL, cropFromT, cropFromR, cropFromB,           \  
    anchorHorizontal, anchorVertical, offsetX, offsetY)\ \  
    {                                                       \  
        PutPic(pcBuf, lpszKey, cx, cy, flags,             \  
            scaleHeight, scaleWidth,                     \  
            cropFromL, cropFromT, cropFromR, cropFromB,   \  
            anchorHorizontal, anchorVertical, offsetX,    \  
            180, 0, 180, 0, -1, 0, 0, 0, 0)               \  
    }
```

You can generate a representation of the token stream by running `filtertest.exe` with the `-d` command-line option. This stream does not include the tokens generated for headers or footers. The `filtertest.exe` is in the directory `install\samples\utf8\bin`, where `install` is the path name of the Filter installation directory.

## Reader Interface

All custom readers use the reader interface defined in `kvcfsr.h`. The members of this structure are:

```
fpAllocateContext()  
fpInitDoc()  
fpFillBuffer()  
fpFreeContext()  
fpHotSpothit()  
fpGetSummaryInfo()  
fpOpenStream()  
fpCloseStream()  
fpGetURL()  
fpGetCharSet()
```

**NOTE:** `fpHotSpothit()` and `fpGetURL()` are currently reserved and must be `NULL`.

## Function Flow

The structured access layer calls the functions as follows:

1. `fpAllocateContext()` is called and returns a pointer to the global context structure.
2. After further processing within the structured access layer, `fpInitDoc()` is called. This function performs all required initialization for the global context structure and then returns control to the structured access layer.
3. After further processing within the structured access layer, the `fpFillBuffer()` function is called repeatedly until the document is completely parsed.
4. Finally, `fpFreeContext()` is called. This function frees all memory allocated within the custom reader and then returns control to the structured access layer.

## Related Topics

- [Functions, on page 245](#)

## Example Development of `fffFillBuffer()`

The following is an example of how the `fpFillBuffer()` function in `foliosr` could be developed. The example demonstrates how the code changes as limitations of the implementation are identified. With each implementation, code revisions are shown in bold.

### Implementation 1—`fpFillBuffer()` Function

```
/******  
*Function: fffFillBuffer()  
*Summary: Read fff input from stream and parse into kvtoken.h codes  
*****/  
int pascal _export fffFillBuffer(  
    void    *pCFContext,  
    BYTE    *pcBuf,  
    UINT    *pnBufOut,  
    int     *pnPercentDone,  
    UINT    cbBufOutMax )  
{  
    BOOL bRetVal;  
    TPfffGlobals *pContext = (TPfffGlobals *)pCFContext;  
    pContext->pcBufOut = pcBuf;  
    fffReadSourceFile(pContext);  
    bRetVal = fffProcessBuffer(pContext, pcBuf);  
    *pnPercentDone = (int)(pContext->unTotalBytesProcessed *  
        (UINT)100 / pContext->unFileSize);  
    *pnBufOut = (UINT)(pContext->pcBufOut - pcBuf);  
    return (bRetVal ? KVERR_Success : KVERR_General);  
}
```

The parameters in `fffFillBuffer()` are as follows:

| Parameter     | In/Out | Description  |
|---------------|--------|--|
| pCFCContext   | In     | A pointer to the context structure of the custom reader.           |
| pcBuf         | In/Out | A pointer to the token output buffer.                              |
| pnBufOut      | Out    | A pointer to the number of bytes written to the output buffer.     |
| pnPercentDone | Out    | A pointer to the percentage complete.                              |
| cbBufOutMax   | In     | The maximum number of bytes that the token output buffer can hold. |

### Structure of Implementation 1

1. The local variable pContext is set to the address of the pCFCContext void pointer, cast to a pointer to the global context structure for the reader. This provides access to all members of this structure.
2. After setting the pContext variable, a call is made to read the source file.
3. Next, a call is made to fffProcessBuffer(). The second parameter in the call is a pointer to the token output buffer. If this call fails, usually because of memory allocation errors, it returns FALSE.
4. The percentage complete is calculated.
5. The number of BYTES written to the token output buffer is calculated. This is based on the value of pContext->pcBufOut, which is increased each time a token is written to the buffer.
6. The function returns to the structured access layer.
7. Subsequent calls to fffFillBuffer() are made by the structured access layer until the percentage complete is 100.

### Problems with Implementation 1

- There is a limit to the size of the token output buffer, typically 4 KB. If fffProcessBuffer() generates a token stream larger than this, there is a memory overflow. If fffProcessBuffer() generates a small token stream and the entire file has not been read, the output token buffer is underutilized.
- It might not be possible to process the entire input buffer from the source file because of boundary conditions. An example of a "boundary condition" is when the input buffer terminates part way through a control sequence in the original document. Another file read operation is required before the complete control sequence can be parsed.
- This function might be interrupted by other calls from the structured access layer to process headers, footers, footnotes, and endnotes, or to retrieve the document summary information. This can cause values of variables in the global context to change, and the source file to be repositioned.

## Implementation 2—Processing a Large Token Stream

Implementation 2 addresses the problem of processing a token stream that is larger than the output buffer size limit.

```
/******  
* Function:   fffFillBuffer()  
* Summary:   Read fff input from stream and parse into kvtoken.h codes  
*****/  
int pascal _export fffFillBuffer(  
    void    *pCFContext,  
    BYTE    *pcBuf,  
    UINT    *pnBufOut,  
    int     *pnPercentDone,  
    UINT    cbBufOutMax )  
{  
    BOOL bRetVal = TRUE;  
    TPfffGlobals *pContext = (TPfffGlobals *)pCFContext;  
    pContext->pcBufOut      = pcBuf;  
    pContext->cbBufOutMax  = 9 * cbBufOutMax / 10; /* Process the portion of the  
    fff file that is in the input buffer but do * not return from the fffFillBuffer()  
    function unless the output buffer is * at least 90% full. If any of the memory  
    allocations fail during the * execution of fffProcessBuffer(), bRetVal will be set  
    to FALSE, resulting * in this conversion failing "gracefully".  
    */  
    do  
  
    {  
        if( pContext->bBufOutFull )  
  
    {  
        pContext->bBufOutFull = FALSE;  
    }  
    else  
  
    {  
        fffReadSourceFile(pContext);  
    }  
    bRetVal = fffProcessBuffer(pContext, pcBuf);  
    *pnPercentDone = (int)(pContext->unTotalBytesProcessed *  
    (UINT)100 / pContext->unFileSize);  
}while( bRetVal && !pContext->bBufOutFull && *pnPercentDone < 100 );  
*pnBufOut = (UINT)(pContext->pcBufOut - pcBuf);  
return (bRetVal ? KVERR_Success : KVERR_General);  
}
```

### Structure of Implementation 2

1. cbBufOutMax is used to set pContext->cbBufOutMax. This is used in fffProcessBuffer() to monitor how full the token output buffer becomes as the source file is processed.



2. When the source file input buffer has been processed, `fffProcessBuffer()` returns, and the percentage complete is calculated.
3. If the token output buffer is not filled to a value greater than `pContext->cbBufOutMax`, `pContext->bBufOutFull` remains set to **FALSE**, and if the percentage complete is less than 100, the `do-while` loop is re-entered without returning from this function to the structured access layer. There is another call to `fffReadSourceFile()`, followed by `fffProcessBuffer()`.
4. When the token output buffer is filled to a value greater than `pContext->cbBufOutMax`, `pContext->bBufOutFull` is set to **TRUE**. In this case, the `do-while` loop ends, the number of bytes written to the token output buffer is calculated, and control returns to the structured access layer.
5. The structured access layer continues to make calls to `fffFillBuffer()` until the entire source file is processed.
6. Each time the structured access layer calls `fffFillBuffer()`, another empty token output buffer is provided for the custom reader to use.
7. If the previous call to `fffFillBuffer()` exited because the previous token output buffer exceeded allowable capacity, `pContext->bBufOutFull` is reset to **FALSE** and no call is made to read the next buffer from the input source file.

## Problems with Implementation 2

- It might not be possible to process the entire input buffer from the source file because of boundary conditions.
- This function might be interrupted by other calls from the structured access layer to process headers, footers, footnotes, or endnotes, or to retrieve the document summary information. This can cause values of variables in the global context to change, and the source file to be repositioned.

## Boundary Conditions

A boundary condition can result from many situations arising from input file processing. For example, the input buffer might end with an incomplete command. In Folio flat files, this could be an incomplete element. In other word processing documents, a boundary condition might result from an incomplete control sequence, a split double-byte character, or a partial UTF-7 or UTF-8 sequence. These can be handled jointly by `fffProcessBuffer()`, which must detect the boundary condition, and `fffReadSourceFile()`.

The following example shows partial code used in `fffReadSourceFile()`:

```
/******  
*  
* Function:    fffReadSourceFile()  
*  
*****/  
int pascal fffReadSourceFile(TPfffGlobals *pContext)  
{  
    int nBytes;  
    /* Transfer remaining data to beginning of buffer prior to next read */
```

```

if( pContext->nResidualBytes )
{
    memcpy(pContext->cInputBuf, pContext->pcBufIn, pContext->nResidualBytes);
}
/* Read from file, without over-writing any text from the previous buffer */
nBytes = (*pContext->pIO->kwReadFunc)(pContext->pIO,
    pContext->cInputBuf + pContext->nResidualBytes,
    BUFFERSIZE - pContext->nResidualBytes);
/* Update input buffer control parameters */
pContext->unTotalBytesRead += (UINT)nBytes;
pContext->pcBufIn = pContext->cInputBuf;
pContext->pcBufInMax = pContext->pcBufIn + pContext->nResidualBytes + nBytes;
pContext->nResidualBytes = 0;
return nBytes;
}

```

If `ffffProcessBuffer()` is unable to process the entire input source file buffer, it sets the value for `pContext->nResidualBytes`. When the next call to `ffffReadSourceFile()` is made, any residual bytes are copied to the beginning of the input source file buffer, and the number of bytes to be read is reduced to make sure that this buffer does not overflow.

A good way to test the code for boundary conditions is to vary the size of `BUFFERSIZE` and make sure that the results remain consistent.

**NOTE:** With `ReadSourceFile()`, the source file can be read by calls to retrieve header or footer information. If this occurs, the value for `pContext->unTotalBytesRead` is incorrect.

### Implementation 3—Interrupting Structured Access Layer Calls

Implementation 3 addresses the problem of boundary conditions and interrupting calls from the structured access layer.

```

/*****
* Function:    ffffFillBuffer()
* Summary:    Read fff input from stream and parse into kvtoken.h codes
*****/
int pascal _export ffffFillBuffer(
    void    *pCFContext,
    BYTE    *pcBuf,
    UINT    *pnBufOut,
    int     *pnPercentDone,
    UINT    cbBufOutMax )
{
    double dTotalBytesProcessed, dFileSize;
    BOOL bRetVal = TRUE;
    TPffffGlobals *pContext = (TPffffGlobals *)pCFContext;
    pContext->pcBufOut = pcBuf;
    pContext->cbBufOutMax = 9 * cbBufOutMax / 10;
    /* Process the portion of the fff file that is in the input buffer but do
    * not return from the ffffFillBuffer() function unless the output buffer is
    * at least 90% full. If any of the memory allocations fail during the

```

```
* execution of fffProcessBuffer(), bRetVal will be set to FALSE, resulting
* in this conversion failing "gracefully". */
do
{
    if( pContext->bBufOutFull )
    {
        pContext->bBufOutFull = FALSE;
    }
    else
    {
        fffReadSourceFile(pContext);
    }
    bRetVal = fffProcessBuffer(pContext, pcBuf);
    if( pContext->bHeaderCompleted )

{
    *pnPercentDone = 100;
    pContext->bHeaderCompleted = FALSE;
}
    else if( pContext->bFooterCompleted )

{
    *pnPercentDone = 100;
    pContext->bFooterCompleted = FALSE;
}
    else

{
        if( pContext->unTotalBytesProcessed >= pContext->unFileSize )
        {
            *pnPercentDone = 100;
        }
        else if( pContext->unFileSize < FFF_MAX_ULONG )
        {
            *pnPercentDone = (int)(pContext->unTotalBytesProcessed *
(UINT)100 / pContext->unFileSize);
        }
        else

{
            dTotalBytesProcessed = pContext->unTotalBytesProcessed;
            dFileSize = pContext->unFileSize;
            *pnPercentDone = (int)(dTotalBytesProcessed * 100 / dFileSize);
        }
    }
}while( bRetVal && !pContext->bBufOutFull && *pnPercentDone < 100 );
*pnBufOut = (UINT)(pContext->pcBufOut - pcBuf);
return (bRetVal ? KVERR_Success : KVERR_General);
}
```

## Structure of Implementation 3

- The most significant change in Implementation 3 is the addition of the code that checks whether the processing of the header or footer is complete. The variables for `pContext->bHeaderCompleted` and `pContext->bFooterCompleted` are set to **TRUE** in `fffProcessBuffer()` when a header or footer is processed and the end of that portion of the document is reached.
- The other piece of code added in Implementation 3 is unique to `foliosr`. Folio files can be 50 MB or larger. Therefore, an unsigned integer is too small to accurately calculate the percentage complete. If the file size exceeds `FFF_MAX_ULONG`, which is defined as `(UINT)(0xFFFFFFFF / 0x64)`, the doubles are used for that calculation.
- Prior to returning, the token output buffer is as full as possible and never overflows. The minimum number of calls is made.

## Development Tips

- Avoid unnecessary initialization.

The context variable is allocated in `fpAllocateContext()`. This structure must be immediately `memset()` to zero. This sets all **BOOL** values to **FALSE**, all pointers to **NULL**, and all integers to **0**. Only non-zero, non-NULL and **BOOL**s that must be **TRUE** need to be initialized. This is best done in `fpInitDoc()`.

- Know where you are in the input source file.

If you are processing headers, footers, notes, or (in the case of `rtfsr`) tables, you must be able to reposition the file pointer as required.

- Check buffer boundaries continuously.

Whenever you advance through the buffer, you need to know whether there is enough of the input stream to completely process the current command. If not, you need to append the next section of the input file before continuing.

- Strive for a "clean" token stream.

Use `filtertest` with the `-d` command-line option to generate a *token* version of the document. If there are redundant tokens, the reader is producing an inefficient token stream. You can keep the token stream free from redundancies by storing the state of the document and then applying the changes only when content is encountered. Content can be text, tabs, or picture objects. The `filtertest.exe` is in the directory `install\samples\utf8\bin`, where `install` is the path name of the Filter installation directory.

- Avoid large `switch()` statements whenever possible. They make both development and debugging more complicated than necessary. If there is a fixed set of commands, consider using a hash table that enables you to quickly identify a pointer to the function that handles that command.

- Filtering document metadata is a separate process.

Remember that `fpGetSummaryInfo()` is a completely separate process from the rest of your code. It creates its own context variable structure. It does not have to call `fpFillBuffer()`.

- Use caution when processing headers, footers, and notes.

If you need to process these items, the structured access layer calls `fpOpenStream()` and `fpCloseStream()`. It is critical that you save the state of your document and the file pointer position prior to returning from `fpOpenStream()`. Prior to returning from `fpCloseStream()`, you must restore the file pointer and the previous state of your document.

- Test your code.

The structured access layer for each SDK is unique. Test your code in Filter SDK, Export SDK, and Viewing SDK.

## Functions

This section describes the functions used by custom readers to manage the source file and generate token streams required to convert a document.

### **xxxxsrAutoDet()**

This function analyzes the source document and determines whether the detected file format requires the custom reader. It is called only when the `[CustomFilters]` section of the `formats.ini` file contains an entry identifying the complete file name of the custom reader. For more information on the `formats.ini` file, see [File Format Detection, on page 218](#).

#### **Syntax**

```
Bool pascal _export xxxxsrAutoDet(  
    adTPDocInfo    *pTPDocInfo,  
    KPTPIOobj      *pIO)
```

#### **Arguments**

`pTPDocInfo`     A pointer to the `adTPDocInfo` structure provided by the structured access layer.  
`pIO`             A pointer to the I/O stream object for the document processed.

#### **Returns**

- TRUE if the file format matches that of the custom reader.
- FALSE if the file format does not match that of the custom reader.

#### **Discussion**

- Typically, only the first 1 KB of the file is read into a buffer and analyzed to determine if it matches the file format of the custom reader. If a match is determined, the following four

members of the `adTPDocInfo` structure must be assigned before returning `TRUE`:

|                       |   |
|-----------------------|---|
| <code>adClass</code>  | Must be set to 1.   |
| <code>adFormat</code> | A numerical value assigned to this reader in the <code>[Formats]</code> section of the <code>formats.ini</code> file. |
| <code>descStr</code>  | A string describing the file format.  |
| <code>mMnemStr</code> | The initial part of the custom reader file name with the "sr" excluded.   |

- If the return value is `TRUE`, the custom reader is used to parse the file and generate the token stream.
- If the return value is `FALSE`, all other readers in the `[CustomFilters]` section of the `formats.ini` file are tried. If no match is found, the file detection process continues checking for the formats supported by Filter SDK.
- The entry in the `[Formats]` section of the `formats.ini` file should be of the form `aaa.bbb.ccc.ddd`, where `aaa` is the value used for the `adFormat` parameter, `bbb` is the value of the file class, `ccc` is the value of the minor format, and `ddd` is the value of the major version.

## xxxAllocateContext()

This function allocates a global memory block for a data context. A handle to this memory is returned to the structured access layer. The structured access layer passes this handle back to all reader entry points.

### Syntax

```
void * pascal _export xxxAllocateContext(  
    void *pSALContext,  
    LPARAM (pascal *fp)(void *,  
    UINT LPARAM),  
    Bool *pbOpenDoc,  
    TPVAPIServices *pVapi,  
    DWORD dwFlags)
```

### Arguments

|                          |  |
|--------------------------|--|
| <code>pSALContext</code> | A pointer to the global data context structure of the structured access layer.   |
| <code>fp</code>          | A pointer to a structure of callback functions supported by the structured access layer.   |
| <code>pbOpenDoc</code>   | You must set this <code>BOOL</code> value to <code>TRUE</code> if the allocation of memory for the global data context structure is successful.    |
| <code>pVapi</code>       | A pointer to a structure providing memory management and character conversion functions. Because this functionality is proprietary to Micro Focus, |

TPVAPIServices is redefined as void in kvcfsr.h.

dwFlags Run-time flags controlled by the structured access layer.

## Returns

- Upon success, a pointer to the global data context structure for the custom reader. This pointer is passed back to all other custom reader entry points.
- Upon error, a NULL pointer. This causes the structured access layer to shut down the process.

## Discussion

The global context structure should be `memset()` to zero in this function.

## xxxFreeContext()

This function terminates an instance of the custom reader.

## Syntax

```
int pascal _export xxxFreeContext(void *pCFContext)
```

## Arguments

pCFContext A pointer to the global context structure for the custom reader.

## Returns

- Upon success, `KVERR_Success`.
- Upon error, a non-zero error code.

## Discussion

All memory that still remains allocated within the custom reader must be freed within this function.

## xxxInitDoc()

This function initializes non-zero, non-null members of pContext.

## Syntax

```
int pascal _export xxxInitDoc(  
    void *pCFContext,
```

```
adDocDesc      *pAutoInfo,  
long           lcbFileSize,  
KPTPIOobj     *pIO )
```

## Arguments

**pCFContext**     A pointer to the global context structure for the custom reader.

**pAutoInfo**     A pointer to an `adDocDesc` structure defined in `kwautdef`.

**lcbFileSize**    The length of the source file in bytes.

**pIo**            A pointer to a `KPTPIOobj` structure defined in `kvioobj.h`.

## Returns

- Upon success, `KVERR_Success`.
- Upon error, a non-zero error code. This causes the structured access layer to shut down the process.

## Discussion

- For custom readers, the `pAutoInfo` variable can be ignored.
- If the structured access layer has determined the length of the source file, that value is provided by the `lcbFileSize` parameter. If it is zero, the file size must be determined in this function.
- The pointer `pIO` provides access to file management functions defined in `kvioobj.h`.
- In this function, all non-zero, non-NULL members of the global context structure should be initialized.

## xxxFillBuffer()

This function controls parsing of the source file and generation of tokens defined in `kvtoken.h`.

## Syntax

```
int pascal _export xxxFillBuffer(  
void *pCFContext,  
BYTE *pcBuf,  
UINT *pnBufOut,  
int *pnPercentDone,  
UINT cbBufOutMax)
```



## Arguments

|                            |   |
|----------------------------|---|
| <code>pCfContext</code>    | A pointer to the global context structure for the custom reader.                                |
| <code>pcBuf</code>         | A pointer to a memory buffer to which the tokens are written.                                   |
| <code>pnBufOut</code>      | A pointer to a variable that specifies the actual number of bytes written to the token buffer.  |
| <code>pnPercentDone</code> | A pointer to a variable that specifies the percentage completed of the file parsing.            |
| <code>cbBufOutMax</code>   | A pointer to a variable that specifies the maximum number of bytes written to the token buffer. |

## Returns

- Upon success, `KVERR_Success`.
- Upon error, a non-zero error code. This causes the structured access layer to shut down the process.

## Discussion

- Calls are made to read and parse the source file within this function.
- This function is called repeatedly by the structured access layer until either the return value is `FALSE` or the percentage complete is 100.
- The actual number of bytes written to the token buffer must not exceed the value of `cbBufOutMax`.

## `xxxGetSummaryInfo()`

This function is required to extract document summary information.

## Syntax

```
int pascal _export xxxGetSummaryInfo(  
    void *pCfContext,  
    KVSummaryInfoEx *pInfo,  
    BOOL bFreeInfo)
```

## Arguments

|                         |  |
|-------------------------|--|
| <code>pCfContext</code> | A pointer to the global context structure for the custom reader.                               |
| <code>pInfo</code>      | A pointer to a <code>KVSummaryInfoEx</code> structure defined in <code>kvtypes.h</code> .      |
| <code>bFreeInfo</code>  | A <code>BOOL</code> value indicating whether to free memory allocated for summary information. |

## Returns

- Upon success, `KVERR_Success`.
- Upon error, a non-zero error code.

## Discussion

This function uses an instance of the global context structure that is different from the one used by all other reader interface functions.

This function can call the same functions used by `xxxFillBuffer()` or can be completely independent.

For more information, see [Extract Metadata, on page 58](#).

## xxxOpenStream()

This function is required when initiating processing of peripheral elements such as document headers, footers, footnotes, and endnotes.

## Syntax

```
int pascal _export xxxOpenStream(  
    void *pCFCContext,  
    int type,  
    int nOrdinal)
```

## Arguments

|                          |   |
|--------------------------|---|
| <code>pCFCContext</code> | A pointer to the global context structure for the custom reader.  |
| <code>type</code>        | An integer identifying a specific header, footer, footnote, or endnote. Options are defined in <code>kvcfsr.h</code> .        |
| <code>nOrdinal</code>    | An integer identifying a specific header, footer, footnote, or endnote. See the associated macros in <code>kvtoken.h</code> . |

## Returns

- Upon success, `KVERR_Success`.
- Upon error, a non-zero error code.

## Discussion

A call to this function results in a call to `xxxFillBuffer()`. The function `xxxFillBuffer()` provides a new empty output buffer and a new token stream input buffer to process the alternate stream for peripheral elements. In this alternate stream, paragraph and character style properties are likely different from the main body. Therefore, as the document is parsed, the existing values from the main

body must be saved. When the processing of the alternate stream is completed and processing of the main body resumes, these values must be restored in `xxxCloseStream()`.

## xxxCloseStream()

This function is required when terminating processing for document headers, footers, footnotes, and endnotes.

### Syntax

```
int pascal _export xxxCloseStream(  
    void *pCFContext,  
    int type)
```

### Arguments

- |                         |  |
|-------------------------|--|
| <code>pCFContext</code> | A pointer to the global context structure for the custom reader.   |
| <code>type</code>       | An integer identifying a specific header, footer, footnote, or endnote. Options are defined in <code>kvcfsr.h</code> . |

### Returns

- Upon success, `KVERR_Success`.
- Upon error, a non-zero error code.

### Discussion

Prior to exiting this function, the previously saved values in the global context structure must be restored. This ensures that processing of the main body resumes with the correct document state.

## xxxCharSet()

This function identifies the character encoding used within the source document.

### Syntax

```
KVCharSet pascal _export xxxCharSet(  
    void *pCFContext,  
    BOOL *bMSBLSB)
```

## Arguments

- `pCFContext` A pointer to the global context structure for the custom reader.
- `bMSBLSB` The `BOOL` value required for Unicode text. Set this argument to `TRUE` for Big Endian and `FALSE` for Little Endian.

## Returns

One of the enumerated values defined in the `KVCharSet` structure in `kvcharset.h`.

## Discussion

If the custom reader can determine the character encoding of the document, the corresponding enumerated value is returned. If the character encoding cannot be determined, `KVCS_UNKNOWN` is returned.

# Appendix I: 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](#) ..... 253
- [Open Password Protected Container Files](#) ..... 254
- [Filter Password Protected Files](#) ..... 254

## 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<br>2007<br>2010 | Y      | Y      | Y       | V    | P           |

## Open Password Protected Container Files

This section describes how to extract password-protected container files by using the .NET API. The following guidelines apply to specific file types.

- **Lotus 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 Lotus 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 `ExtractOpenDocConfig` object, and pass it to the `ExtractOpenDocument` method. For example:

```
odconfig = new ExtractOpenDocConfig();  
odconfig.Password = m_password;  
extContextID = m_objFilter.ExtractOpenDocument(inFile, odconfig);
```

## Filter Password Protected Files

This section describes how to filter password-protected non-container files with the .NET API.

### To filter password-protected files

- Use the Password property of the Filter class. Use the default Filter() constructor. For example:

```
objFilter = new Filter();  
objFilter.Password = pwd;
```

where *pwd* is a password of 255 or fewer characters.

# Appendix J: OCR Supported Languages

KeyView OCR supports the following languages. In parentheses following each language name is the corresponding ISO 639-1 language code.

## Latin Alphabet

|                |                |                 |                |
|----------------|----------------|-----------------|----------------|
| Afrikaans (af) | Esperanto (eo) | Irish (ga)      | Romanian (ro)  |
| Basque (eu)    | Estonian (et)  | Latin (la)      | Slovak (sk)    |
| Catalan (ca)   | Finnish (fi)   | Latvian (lv)    | Slovenian (sl) |
| Croatian (hr)  | French (fr)    | Lithuanian (lt) | Spanish (es)   |
| Czech (cs)     | German (de)    | Maltese (mt)    | Swedish (sv)   |
| Danish (da)    | Hungarian (hu) | Norwegian (no)  | Turkish (tr)   |
| Dutch (nl)     | Icelandic (is) | Polish (pl)     | Welsh (cy)     |
| English (en)   | Italian (it)   | Portuguese (pt) |                |

## Arabic Alphabet

|              |           |
|--------------|-----------|
| Arabic (ar)  | Urdu (ur) |
| Persian (fa) |           |

## Chinese Alphabet

|                          |                           |
|--------------------------|---------------------------|
| Simplified Chinese (zhs) | Traditional Chinese (zht) |
|--------------------------|---------------------------|

## Cyrillic Alphabet

|                |              |
|----------------|--------------|
| Bulgarian (bg) | Serbian (sr) |
|----------------|--------------|



Macedonian (mk)

Ukrainian (uk)

Russian (ru)

## Other Alphabets

Greek (el)

Hebrew (he)

Japanese (ja)

Korean (ko)

Thai (th)

# Send documentation feedback

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on Micro Focus IDOL KeyView 12.12 Filter SDK .NET Programming Guide**

Add your feedback to the email and click **Send**.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to [swpdl.idoldocsfeedback@microfocus.com](mailto:swpdl.idoldocsfeedback@microfocus.com).

We appreciate your feedback!