IDOL KeyView

Software Version 12.9

Filter SDK .NET Programming Guide

MICRO FOCUS

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Documentation updates

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- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
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Many areas of the portal require you to sign in. If you need an account, you can create one when prompted to sign in. To learn about the different access levels the portal uses, see the Access Levels descriptions.

Contents

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.

Chapter 1: Introducing Filter SDK

This section describes the Filter SDK package.

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

- 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

Platform	Architecture	Compiler Name	Compiler Version
Microsoft Windows	x86	cl	Microsoft 32-bit C/C++ Optimizing Compiler for x86 Version 17 (Visual Studio 2012) to Version 19 (Visual Studio 2019)
	x64	cl	Microsoft C/C++ Optimizing Compiler for x64 Version 17 (Visual Studio 2012) to Version 19 (Visual Studio 2019).
Sun Solaris	x86 64-bit	Sun Studio 12	Sun C 5.9 SunOS_i386 Patch 124868-01 2007/07/12
	SPARC 64-bit	Sun Studio 11	Sun C 5.8 Patch 121015-06 2007/10/03
Linux	x86	gcc / g++	4.1.0 to 4.9.2
	x64	gcc / g++	4.1.0 to 4.9.2
IBM AIX	Power	xlC_r / cc_r	IBM XL C/C++ Enterprise Edition V8.0
macOS	Apple-Intel	LLVM	Apple LLVM 5.1 (clang-503.0.40) (based on LLVM 3.4svn)

Platform	Architecture	Compiler Name	Compiler Version
	64-bit		
	Apple M1	LLVM	Apple LLVM 12.0.0 (clang 1200.0.32.28).

Supported Compilers for Java Components

Component	Compiler
Java components	Java 7

Software Dependencies

Some KeyView components require specific third-party software:

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

  > **NOTE:** You must install an edition of Microsoft Outlook (32-bit or 64-bit) that matches the KeyView software. For example, if you use 32-bit KeyView, install 32-bit Outlook. If you use 64-bit KeyView, install 64-bit Outlook.
  >
  > If the editions do not match, KeyView returns `Error 32: KVError_PSTAccessFailed` and an error message from Microsoft Office Outlook is displayed: `Either there is a no default mail client or the current mail client cannot fulfill the messaging request. Please run Microsoft Outlook and set it as the default mail client.`

- Lotus Notes or Lotus Domino is required for Lotus Notes database (NSF) file processing. The minimum requirement is 6.5.1, but version 8.5 is recommended.
- The Microsoft .NET Framework is required if you are using the .NET implementation of the API.
- Microsoft Visual C++ 2019 Redistributables (Windows only).

Windows Installation

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

To install the SDK

1. Run the installation program, `KeyView`*`ProductName`*`SDK_`*`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_12.9_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:

`adapi.h`	`kvfilter.h`
`adinfo.h`	`kvioobj.h`
`kvcfsr.h`	`kvtoken.h`
`kvcharset.h`	`kvtypes.h`
`kverrorcodes.h`	`kvxtract.h`
`kvfilt.h`	`kwautdef.h`
`kvfilt2.h`	

- 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 241.

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=eml` 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
   XXXXXXX-XXXXXXX-XXXXXXX-XXXXXXX
   ```

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

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

5. Save the file.

Directory Structure

The following table describes the 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
`OS``\bin`	Contains the libraries, the format detection file `formats.ini`, and other supporting files, as well as the C programs `filter` and `filtertest`, which you can use to test your custom document readers (see Develop a Custom Reader, on page 241).

Installed directory structure, continued

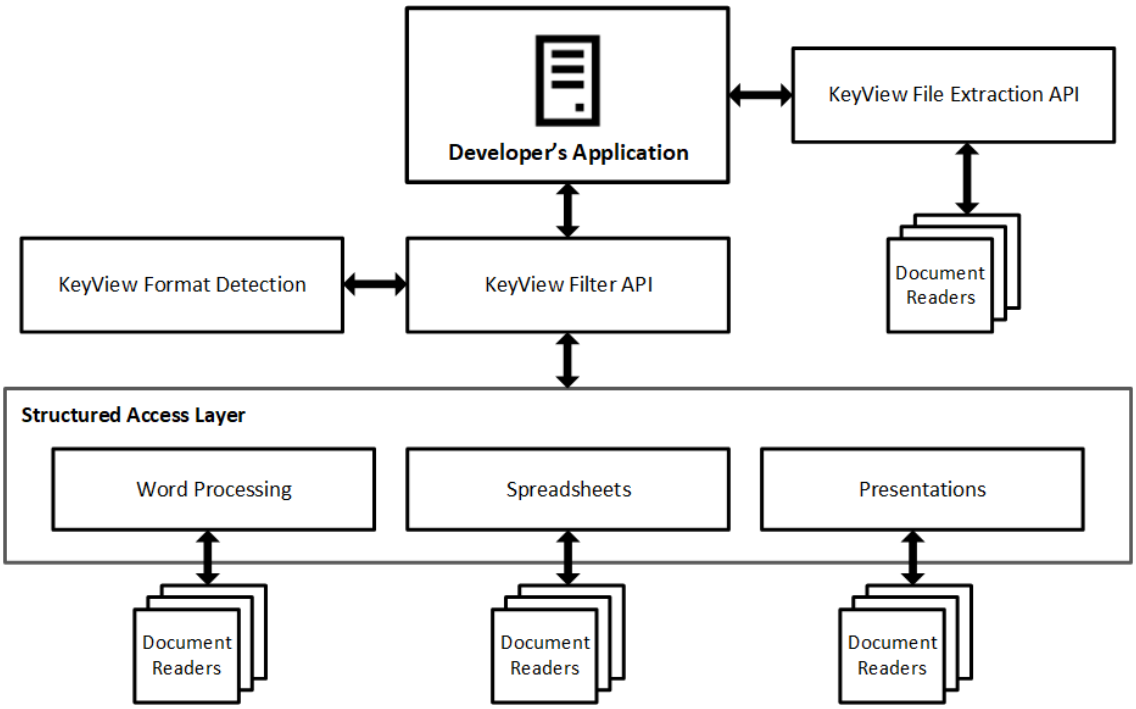
Directory	Description
OS\lib	(Solaris installations only) Contains the redistributable `libstlport.so.1` library, which is required to run KeyView on Solaris platforms.
dotnetapi	Contains the source files for the .NET API.
dotnetapi\dotnethelp	Contains the help for the .NET API.
dotnetapi\sample	Contains 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 *KeyView Filter SDK Release Notes* in PDF format.
samples\filter	Contains the source code for the `filter` 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\tstxtract	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

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 Use the File Extraction API, on page 31.
Filter API	The Filter API exposes the filtering functionality and controls all other modules during the filtering process. See Use the Filter API, on page 54.
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 File Format Detection, on page 224 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 Document Readers, on page 234 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 31.
- 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 224.
- 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 79 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, on the next

page.

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 `KVOOP_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 KVOOP_LOGS_DIR /tmp
```

On Windows, the variable is set as follows:

```
set KVOOP_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, on the next page). 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 `KVOOP_LOG_VERBOSITY` environment variable. For example:

```
set KVOOP_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 `autnhelper.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, by modifying the `formats.ini` file. 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, set the `streaming_method` parameter in the `[FilterSDK_Config]` section of the `formats.ini` file to **`pipe`**.

By default this parameter is set to **`temp`**, which uses temporary files during the filter process.

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 `fpFilterStream` does not return until the entire file has been processed. When using the `pipe` method, `fpFilterStream` 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.

Chapter 3: Use the File Extraction API

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

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:

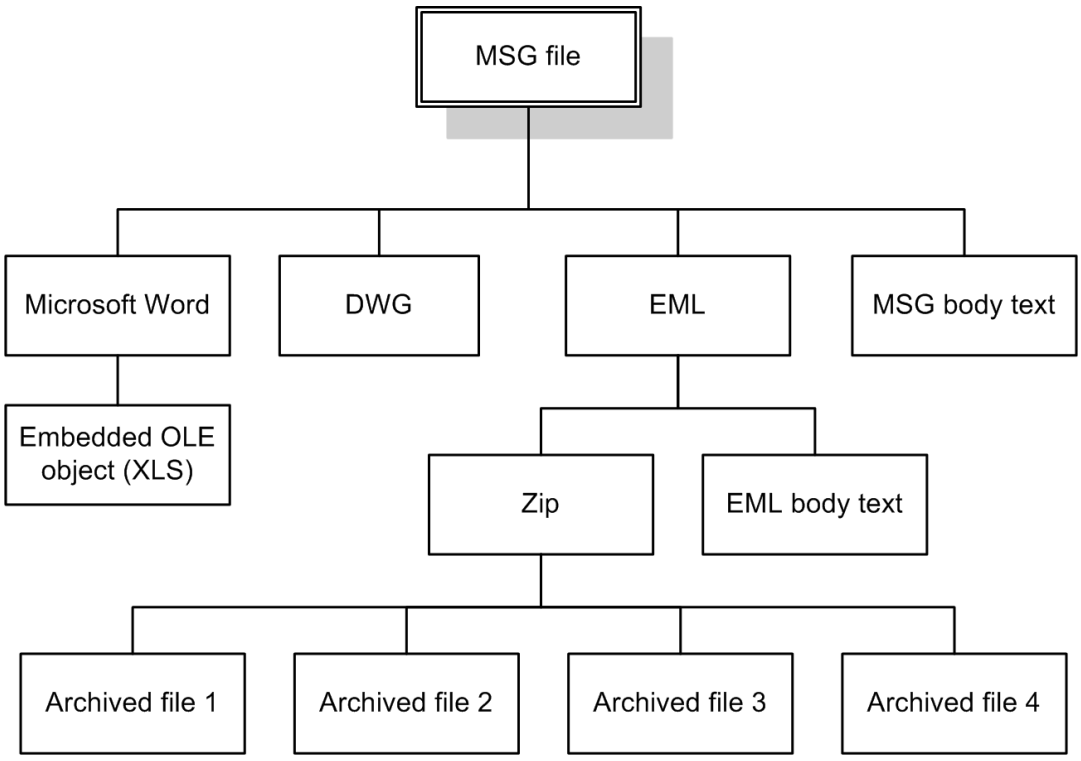
- Archive files such as ZIP, TAR, and RAR.
- Mail messages such as Outlook (MSG) and Outlook Express (EML).
- Mail stores such as Microsoft Outlook Personal Folders (PST), Mailbox (MBX), and Lotus Notes database (NSF).
- PDF files that contain file attachments.
- Compound documents with embedded OLE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

> **NOTE:** Document Readers, on page 165 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)
`file.txt`	*extractDir*`/file.txt`	*extractDir*`/file.txt`
`dir/file.txt`	*extractDir*`/dir/file.txt`	*extractDir*`/dir/file.txt`
`../file.txt`	*extractDir*`/file.txt`	*extractDir*`/file.txt`
`/dir/file.txt`	`/dir/file.txt`	*extractDir*`/dir/file.txt`

To sanitize absolute paths

- In the `ExtractSubFileExtractConfig` that you pass in to the `ExtractSubFile` method, set the property `SanitizeAbsolutePaths`. 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 the file by specifying the following in the `formats.ini` file:

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

If you set this option, 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.

This option can also be enabled by passing `KVFLT_EXTRACTIMAGES` to the `fpFilterConfig` function.

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

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

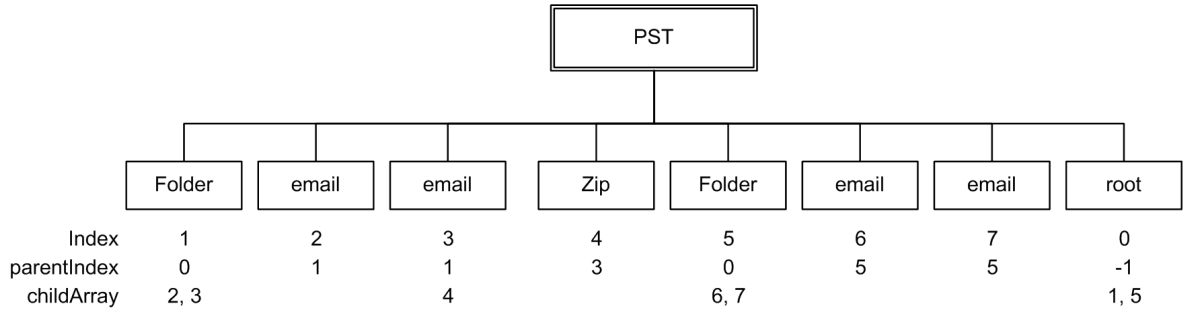
Because of their structure, some container files do not contain a subfile or folder which acts as a root directory on which the hierarchy can be based. For example, subfiles in a Zip archive can be extracted, but none of the subfiles represent the root of the hierarchy. In this case, an artificial *root 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` contructor, 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

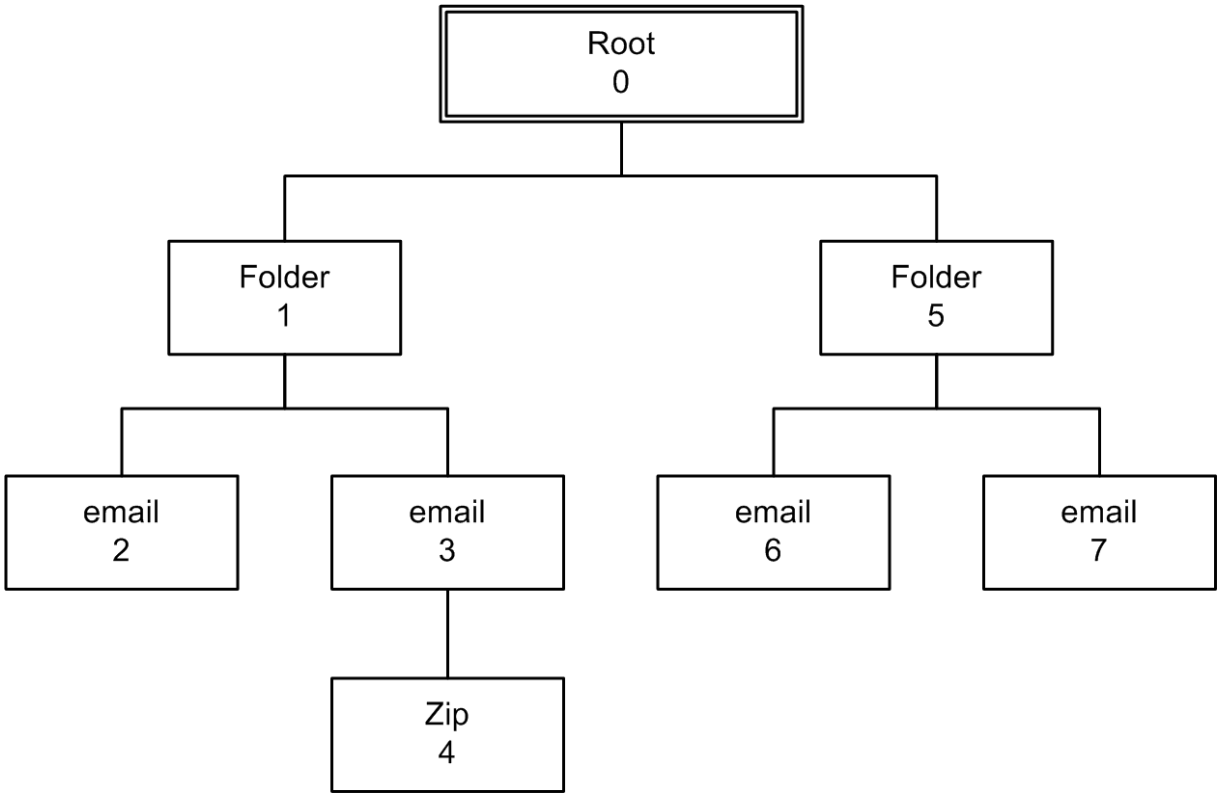
For example, you might extract a PST file that contains seven subfiles with a root node enabled. The call to `ExtractGetMainFileInfo()` returns the number of subfiles as 8 (seven subfiles and one root node). The following diagram shows the structure and the available hierarchy information after the subfiles 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 40.

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 **Sent** field in the message's **Properties** dialog in Outlook.
`InternetMessageID`	The identifier for messages that come in over the Internet. This is the MAPI property `PR_INTERNET_MESSAGE_ID`. This property is not in the MAPI headers or MAPI documentation.
`LastModificationTime`	The time the message or attachment was last modified. This value is displayed in the **Modified** field in the message's **Properties** dialog in Outlook.
`MessageID`	The message transfer system (MTS) identifier for the message transfer agent (MTA). This value is displayed on the **Message ID** tab in the message's **Properties** dialog in Outlook.
`Received`	The date and time a message was delivered. This value is displayed in the **Received** field in the message's **Properties** dialog in Outlook.
`Sender`	The name and email address of the message sender. This value is a concatenation of two MAPI properties in the following format: `"PR_SENDER_NAME" <PR_SENDER_EMAIL_ADDRESS>` The `Sender` value might be the same as or different than the default metadata `From` value (see Default Metadata Set, on page 36), 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 **Sensitivity** field in the message's **Properties** 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:

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

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

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

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

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

Extract PST-Specific Metadata

In the call to extract subfile metadata, you can pass either the MAPI tag number (such as `0x0070001e`) or one of the constants in the 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.MAPIConstant.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 (`emlsr`) is used.

Extract Subfiles from Mailbox Files

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

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

In Eudora MBX files, attachments are inserted as a link and are stored externally from the message. These attachments are not extracted, but the path to the attachment is returned in the call to the `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 15.

Choose the Reader to use for PST Files

KeyView provides several ways of processing PST files:

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

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

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

Feature	Native Reader (pstxsr)	Native Reader (pstnsr)	MAPI-based Reader (pstsr)
Platforms supported	Windows x86 and x64 Linux x64	All platforms not supported by `pstxsr`	Windows x86 and x64
Outlook required	No	No	Yes
MAPI properties supported	Yes. All properties defined in `mapitags.h`. Object properties are not supported.		
Password protection supported	Yes	Yes	Yes (using `KVCredential` 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: 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.`

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 261 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 (pstsr).

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 42.

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 42.)

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

System Requirements

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

KeyView supports the following Lotus Notes clients and Domino servers:

- Lotus Notes 6.5.1
- Lotus Domino 6.5.1

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

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

Installation and Configuration

Before KeyView can 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.

Solaris

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

   ```
   [Notes]
   ```

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

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

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

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

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

AIX 5.x

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

   ```
   [Notes]
   ```

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

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

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

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

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

Linux

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

   ```
   [Notes]
   ```

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

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

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

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

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

Open Secured NSF Files

KeyView enables you to specify credentials (user ID file and password), which are used to open a secured NSF file for extraction. See Password Protected Files, on page 261 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 211.

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 32). 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 261 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 `kv`*`ext`* 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 `_kv`*n*, where *n* is an integer incremented from 0 for each extracted item.
- One of the following extensions:

Type	File Extension
email message	`.mail` `.rtf` (NSF files)
calendar appointment	`.cal`
contact entry	`.cont`
task entry	`.task`
note	`.note`
journal entry	`.jrnl`
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 _kv*n*, 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.

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:

```
-KVOOPE 12 # Time: 11:14:32 # File Len = 68140
-KVOOPE 13 # Time: 11:23:05 # H:\files\WP\Word97\fnldmsa.doc
-KVOOPE  5 # Time: 12:15:54 # H:\files\SS\XL2000\corporate.xsl
-KVOOPE  5 # Time: 12:45:19 # H:\files\WP\WPerf5\wp501.doc
-KVOOPE 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, below.
- 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, below).

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 `KVOOPMT` environment variable, and set its value to **`1`**. To disable the memory trace system, do not set the `KVOOPMT` 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_SETOOPSRCFILE`.
   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_
SETOOPSRCFILE;
    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 (`LogFileSize`) is reached. If you set this option to **`1`**, the first entry of the log file is overwritten. If you set this option to **`0`**, 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 36.

> **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 165 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 81.

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_Bool`	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_Bool`, 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 165 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.

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_ORDER_RTL`	Logical reading order and right-to-left paragraph direction
`PDF_LOGICAL_ORDER_AUTO`	Logical reading order. The PDF reader determines the paragraph direction for each PDF page, and then sets the direction accordingly. 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=lpdf
   ```

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
`total_item_number`	The total number of metadata tags that are listed.
`metadata_tag_name`	The metadata tag name used in the PDF files.
`datatype`	The data type of the metadata element. The possible types are: • `KV_String` • `KV_Int4`

Parameter	Description
	• KV_DateTime • KV_ClipBoard • KV_Bool • KV_Unicode • KV_IEEE8 • KV_Other

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.

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

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

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

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

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

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

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

where *option* is one of the following:

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

If a function in a formula is not supported or is invalid, and option 1 or 2 is specified, only the calculated value is extracted. See Supported Microsoft Excel Functions, below for a list of supported functions.

When formula extraction is enabled, Filter can extract Microsoft Excel formulas that contain the functions listed in the following table:

Supported Microsoft Excel Functions

=ABS()	=ACOS()	=AND()	=AREAS()
=ASIN()	=ATAN2()	=ATAN2()	=AVERAGE()
=CELL()	=CHAR()	=CHOOSE()	=CLEAN()
=CODE()	=COLUMN()	=COLUMNS()	=CONCATENATE()
=COS()	=COUNT()	=COUNTA()	=DATE()
=DATEVALUE()	=DAVERAGE()	=DAY()	=DCOUNT()
=DDB()	=DMAX()	=DMIN()	=DOLLAR()
=DSTDEV()	=DSUM()	=DVAR()	=EXACT()
=EXP()	=FACT()	=FALSE()	=FIND()
=FIXED()	=FV()	=GROWTH()	=HLOOKUP()
=HOUR()	=ISBLANK()	=IF()	=INDEX()
=INDIRECT()	=INT()	=IPMT()	=IRR()
=ISERR()	=ISERROR()	=ISNA()	=ISNUMBER()
=ISREF()	=ISTEXT()	=LEFT()	=LEN()
=LINEST()	=LN()	=LOG()	=LOG10()
=LOGEST()	=LOOKUP()	=LOWER()	=MATCH()
=MAX()	=MDETERM()	=MID()	=MIN()
=MINUTE()	=MINVERSE()	=MIRR()	=MMULT()
=MOD()	=MONTH()	=N()	=NA()
=NOT()	=NOW()	=NPER()	=NPV()

=OFFSET()	=OR()	=PI()	=PMT()
=PPMT()	=PRODUCT()	=PROPER()	=PV()
=RATE()	=REPLACE()	=REPT()	=RIGHT()
=ROUND()	=ROUND()	=ROW()	=ROWS()
=SEARCH()	=SECOND()	=SIGN()	=SIN()
=SLN()	=SQRT()	=STDEV()	=SUBSTITUTE()
=SUM()	=SYD()	=T()	=TAN()
=TEXT()	=TIME()	=TIMEVALUE()	=TODAY()
=TRANSPOSE()	=TREND()	=TRIM()	=TRUE()
=TYPE()	=UPPER()	=VALUE()	=VAR()
=VLOOKUP()	=WEEKDAY()	=YEAR()	

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, on the next page). 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 224 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 File Format Detection, on page 224 for more information on format ID values. 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. To further qualify the element, specify its namespace. See Specify an Element's Namespace and Attribute, on the next page.
`szInMetaElement`	The elements extracted from the file as metadata. All other elements are extracted as text. Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, on the next page.
`szExMetaElement`	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.

Configuration Option	Description
	You cannot exclude any metadata elements from the output for StarOffice files. All metadata is extracted regardless of this setting. Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, below.
`szInContentElement`	The elements extracted from the file as content text. Enter an asterisk (*) to extract all elements including child elements. Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, below.
`szExContentElement`	The child elements in the included content elements that are not extracted from the file as content text. Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, below.
`szInAttribute`	The attribute values extracted from the file. If attributes are not defined here, attribute values are not extracted. Enter the namespace (if used), element name, and attribute name in the following format: *namespace:elementname@attributename* For example: `microfocus:division@name` Separate multiple entries with commas.

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 `[config`*N*`]`, 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) to tab-delimited form, by specifying the following option in the `formats.ini` file:

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

This option 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.

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

- Set `NoPhoneticGuides` to **`TRUE`** in the `formats.ini` file:

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

You can also enable this option programatically when filtering by passing `KVFLT_NOPHONETICGUIDES` to `fpFilterConfig`.

Source Code Identification

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

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

You can set source code identification to different levels.

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

For the complete list of source code formats supported for both options, see Supported Formats, on page 87.

You can enable source code identification by setting the appropriate level in the `formats.ini` file. For example:

```
[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.

> **NOTE:** OCR is not available on Windows 32-bit platforms.

If your license includes OCR, it is enabled by default. You can enable or disable OCR by calling the `Ocr` property of the `Filter` class.

Chapter 5: Sample Programs

This section describes the sample programs provided with Filter SDK.

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 81.

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 Create a Root Node, on page 35.
`-c`	Specifies that the subfile directory structure is not created.
`-dr` *`binDir`*	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` *`idfile`*	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 Run Filter In Process, on page 25.
`-is`	Sets the input as a stream. The default is file.
`-l`	Sets the byte order for Unicode text to Little Endian.
`-lg` `outfile`	Sets the log file name.
`-m`	Extracts default mail metadata and writes it to the log file. See Extract Mail Metadata, on page 36.
`-nd`	Do not create the subfile directory structure.
`-nh`	Excludes mail header information from the extracted message body text file. See Exclude Metadata from the Extracted Text File, on page 42.
`-os`	Sets the output as a stream. The default is file.
`-p` *`password`*	Specifies the password used to open a protected PST file.
`-sc` *`charset`*	Sets the character set of the source file. *`charset`* is a character set defined in the Filter class. See Coded Character Sets, on page 205.
`-tc` *`charset`*	Sets the character set of the output file. *`charset`* is a character set defined in the Filter class. See Coded Character Sets, on page 205.
`-u` *`username`*	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` *`ooperrorlog`*	Enable error logging. See Enable or Disable Error Logging, on page 55. Error logs are not generated when in-process filtering is enabled.
`-cs` *`charset`*	Set the character set of the source file. *`charset`* is a character set defined in the Filter class. See Coded Character Sets, on page 205.
`-ct tempfile`	Specify a temporary directory where temporary files generated by the filtering process are stored. The default is the current working directory. 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 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 Filter XML Files, on page 72.
`-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. *filename* is the name of the file to which the metadata is written. See Extract Metadata, on page 58.
`-ia 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 Extract Deleted Text Marked by Tracked Changes, on page 63.
`-ip`	Run Filter in the same process as the calling application (in process). See Run Filter In Process, on page 25.
`-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. See Filter PDF Files, on page 63.
`-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 (?).
`-tc charset`	Set the character set of the output file. Use the `-getTargetCS` option to determine

Options for FilterTestDotNet -ft1, continued

Option	Description
	whether the target character set specified is used in the output file. *charset* is a character set defined in the Filter class. See Coded Character Sets, on page 205.
-um	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).
-ul	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).
-ulb	Generate LSBMSB output with byte order marker (Unicode text only).
-umb	Generate MSBLSB output with byte order marker (Unicode text only).
-embeddedfont	If you use this option, text that contains embedded fonts is not filtered from PDF documents. See Filter PDF Files, on page 63.

Appendixes

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

Appendix A: Supported Formats

This section lists the file formats that KeyView can detect.

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. • In the C API, these values are defined in the `ENdocFmt` enumeration in `adDocFmt.h`. • In the .NET API these values are defined in the `Autonomy.API.Filter.DocFormat` enumeration. • In the Java API these values are defined in the `com.verity.api.DocFormat` enumeration. • In the C++ API these values are defined in `keyview::Format`, used in `DetectionInfo` which is returned by `Session::detect()`.
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 `formats.ini` 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. **NOTE:** 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	The KeyView file class.

	• In the C API, these values are defined in the `ENdocClass` enumeration in `adinfo.h`. • In the .NET API these values are defined in the `Autonomy.API.Filter.DocClass` enumeration. • In the Java API these values are defined in the `com.verity.api.DocClass` enumeration. • In the C++ API these values are defined in `keyview::Category`, used in `DetectionInfo` which is returned by `Session::detect()`.

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	afsr
MSDOS_Batch_File_Fmt	3	2	MS-DOS Batch File	application/x-bat	BAT	adEXECUTABLE	afsr
Applix_Alis_Fmt	4	3	Applix Asterix		AX	adWORDPROCESSOR	axsr
BMP_Fmt	5	4	Windows Bitmap Image (BMP)	image/bmp	BMP	adRASTERIMAGE	bmpsr, kpbmprdr
CT_DEF_Fmt	6	5	Convergent Technologies DEF Comm. Format			adWORDPROCESSOR	cdsr
Corel_Draw_Fmt	7	6	CorelDRAW (up to version 13/X3)	application/coreldraw	CDR	adVECTORGRAPHIC	kpcdrrdr
CGM_ClearText_Fmt	8	8	Computer Graphics Metafile (CGM)		CGM	adVECTORGRAPHIC	kpcgmrdr
CGM_Binary_Fmt	9	8	Computer Graphics Metafile (CGM)	image/cgm	CGM	adVECTORGRAPHIC	kpcgmrdr
CGM_Character_Fmt	10	8	Computer Graphics Metafile (CGM)		CGM	adVECTORGRAPHIC	kpcgmrdr
Word_Connection_Fmt	11	9	Word Connection		CN	adWORDPROCESSOR	stringssr
COMET_TOP_Word_Fmt	12	10	Nixdorf COMET TOP Financial Accounting software			adWORDPROCESSOR	
CEOwrite_Fmt	13	11	CEOwrite		CW	adWORDPROCESSOR	stringssr
DSA101_Fmt	14	12	DSA101 (Honeywell Bull)			adWORDPROCESSOR	stringssr
DCA_RFT_Fmt	15	13	IBM DCA-RFT (Revisable Form)	application/dca-rft	RFT, DC	adWORDPROCESSOR	dcasr
CDA_DDIF_Fmt	16	14	CDA / DDIF		DDIF	adWORDPROCESSOR	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
DG_CDS_Fmt	17	16	DG Common Data Stream (CDS)		CDS	adWORDPROCESSOR	stringssr
Micrografx_Draw_Fmt	18	18	Windows Draw (Micrografx)	image/x-mgx-dsf	DRW	adVECTORGRAPHIC	
Data_Point_VistaWord_Fmt	19	19	Vistaword		DV	adWORDPROCESSOR	stringssr
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	stringssr
EPSF_Fmt	22	22	Encapsulated PostScript	application/postscript	EPS	adRASTERIMAGE, adVECTORGRAPHIC	kpepsrdr
Preview_EPSF_Fmt	23	22	Encapsulated PostScript	application/postscript		adRASTERIMAGE, adVECTORGRAPHIC	kpepsrdr
MS_Executable_Fmt	24	23	MSDOS/Windows executable	application/x-msdownload	EXE	adEXECUTABLE	exesr
G31D_Fmt	25	24	CCITT G3 1D			adRASTERIMAGE	
GIF_87a_Fmt	26	25	Graphics Interchange Format (GIF87a)	image/gif	GIF	adRASTERIMAGE	gifsr, kpgifrdr
GIF_89a_Fmt	27	25	Graphics Interchange Format (GIF89a)	image/gif	GIF	adRASTERIMAGE	gifsr, kpgifrdr
HP_Word_PC_Fmt	28	26	HP Word PC		HW	adWORDPROCESSOR	stringssr
IBM_1403_LinePrinter_Fmt	29	27	IBM 1403 Line Printer		I4	adWORDPROCESSOR	
IBM_DCF_Script_Fmt	30	28	DCF Script		IC	adWORDPROCESSOR	stringssr
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	dw4sr
Sun_Raster_Fmt	35	33	Sun Raster image	image/x-cmu-raster	RAS, RS, SUN	adRASTERIMAGE	kpsunrdr
Ami_Pro_Fmt	36	35	Lotus Ami Pro	application/x-lotus-amipro	SAM	adWORDPROCESSOR	lasr
Ami_Pro_StyleSheet_Fmt	37	35	Lotus Ami Pro Style Sheet			adWORDPROCESSOR	lasr
MORE_Fmt	38	36	MORE Database MAC			adOUTLINE	
Lyrix_Fmt	39	37	Lyrix Word Processing			adWORDPROCESSOR	stringssr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
MASS_11_Fmt	40	38	MASS-11	application/x-mass-11	M1	adWORDPROCESSOR	stringssr
MacPaint_Fmt	41	39	MacPaint	image/x-macpaint	MAC, PIC, PNTG	adRASTERIMAGE	kpmacrdr
MS_Word_Mac_Fmt	42	40	Microsoft Word for Macintosh (up to version 3)	application/msword	DOC	adWORDPROCESSOR	mbsr
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	misr
Multimate_Fmt	45	43	MultiMate	application/x-multimate	MM	adWORDPROCESSOR	stringssr
Multimate_Fnote_Fmt	46	43	MultiMate Footnote File	application/x-multimate-note	MMFN	adWORDPROCESSOR	stringssr
Multimate_Adv_Fmt	47	43	MultiMate Advantage			adWORDPROCESSOR	stringssr
Multimate_Adv_Fnote_ Fmt	48	43	MultiMate Advantage Footnote File			adWORDPROCESSOR	stringssr
Multimate_Adv_II_Fmt	49	43	MultiMate Advantage II			adWORDPROCESSOR	stringssr
Multimate_Adv_II_Fnote_ Fmt	50	43	MultiMate Advantage II Footnote File		FBX, FNX	adWORDPROCESSOR	stringssr
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	rtfsr
MS_Word_PC_Fmt	54	46	Microsoft Word for PC (up to version 6)	application/x-ms-wordpc	MW	adWORDPROCESSOR	mwsr
MS_Word_PC_ StyleSheet_Fmt	55	46	Microsoft Word for PC (up to version 6) Style Sheet			adWORDPROCESSOR	mwsr
MS_Word_PC_Glossary_ Fmt	56	46	Microsoft Word for PC (up to version 6) Glossary			adWORDPROCESSOR	mwsr
MS_Word_PC_Driver_ Fmt	57	46	Microsoft Word for PC (up to version 6) Driver			adWORDPROCESSOR	mwsr
MS_Word_PC_Misc_Fmt	58	46	Microsoft Word for PC (up to version 6) Miscellaneous File			adWORDPROCESSOR	mwsr
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	stringssr

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			(TIFF)			adFAXFORMAT	
Targon_Word_Fmt	84	72	Targon Word		TW	adWORDPROCESSOR	stringssr
Uniplex_Ucalc_Fmt	85	73	Uniplex Ucalc		SS	adSPREADSHEET	
Uniplex_WP_Fmt	86	74	Uniplex word processor		UP	adWORDPROCESSOR	stringssr
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	stringssr
WANG_WPS_Comm_ Fmt	90	78	WANG WPS		WF	adWORDPROCESSOR	stringssr
WordPerfect_Mac_Fmt	91	79	WordPerfect MAC	application/x-corel-wordperfect		adWORDPROCESSOR	wpmsr
WordPerfect_Fmt	92	86	WordPerfect version 4	application/x-corel-wordperfect	WP, WP4	adWORDPROCESSOR	stringssr
WordPerfect_VAX_Fmt	93	139	WordPerfect VAX	application/x-corel-wordperfect		adWORDPROCESSOR	
WordPerfect_Macro_Fmt	94	139	WordPerfect Macro	application/vnd.wordperfect	MRS	adWORDPROCESSOR	
WordPerfect_Dictionary_ Fmt	95	139	WordPerfect Spelling Dictionary	application/vnd.wordperfect	SPW	adWORDPROCESSOR	
WordPerfect_Thesaurus_ Fmt	96	139	WordPerfect Thesaurus	application/vnd.wordperfect		adWORDPROCESSOR	
WordPerfect_Resource_ Fmt	97	139	WordPerfect Resource File	application/vnd.wordperfect	WWK, PRS	adWORDPROCESSOR	
WordPerfect_Driver_Fmt	98	139	WordPerfect Driver	application/vnd.wordperfect	IRS, VRS	adWORDPROCESSOR	
WordPerfect_Cfg_Fmt	99	139	WordPerfect Configuration File	application/vnd.wordperfect	PFX	adWORDPROCESSOR	
WordPerfect_ Hyphenation_Fmt	100	139	WordPerfect Hyphenation Dictionary	application/vnd.wordperfect	HYC	adWORDPROCESSOR	
WordPerfect_Misc_Fmt	101	139	WordPerfect Miscellaneous File	application/vnd.wordperfect		adWORDPROCESSOR	
WordMARC_Fmt	102	82	WordMARC Composer	video/x-ms-wm	WM, PW	adWORDPROCESSOR	stringssr
Windows_Metafile_Fmt	103	83	Windows Metafile	image/wmf	WMF	adVECTORGRAPHIC, adRASTERIMAGE	kpwmfrdr
Windows_Metafile_ NoHdr_Fmt	104	83	Windows Metafile (no header)	image/wmf	WMF	adVECTORGRAPHIC	kpwmfrdr
SmartWare_II_DB_Fmt	105	84	Informix SmartWare II database	database/x-smartdata		adDATABASE	

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
MS_Works_DOS_DB_Fmt	128	108	Microsoft Works Database for DOS	application/x-msworks	WDB	adDATABASE	
MS_Works_DOS_SS_Fmt	129	109	Microsoft Works Spreadsheet for DOS	application/x-msworks		adSPREADSHEET	mwssr
MS_Works_Win_WP_Fmt	130	227	Microsoft Works Word Processor for Windows (up to 2000)	application/x-msworks	WPS, W40	adWORDPROCESSOR	msw6sr, mswsr
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	mwssr
PC_Library_Fmt	133	111	DOS/Windows Object Library	application/x-archive	LIB, A	adLIBRARY	
MacWrite_Fmt	134	112	MacWrite	application/macwriteii		adWORDPROCESSOR	stringssr
MacWrite_II_Fmt	135	113	MacWrite II	application/macwriteii		adWORDPROCESSOR	stringssr
Freehand_Fmt	136	114	Freehand MAC	image/x-freehand		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	mifsr
JPEG_File_Interchange_Fmt	143	118	JPEG Interchange Format	image/jpeg	JPG, JPEG	adRASTERIMAGE	jpgsr, kpjpgrdr
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	mwsr
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	application/x-quattro-win	WB1, WB2, WB3	adSPREADSHEET	qpssr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			Windows				
Persuasion_Fmt	151	126	Adobe Persuasion			adPRESENTATION	
Windows_Icon_Fmt	152	128	Windows Icon Format	image/vnd.microsoft.icoN	ICO	adRASTERIMAGE	kpicordr
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	unzip
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	mspubsr
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	MCI, riffsr
MIDI_Audio_Fmt	164	142	MIDI audio	audio/mid	MID, MIDI	adSOUND	MCI
AutoCAD_DXF_Binary_Fmt	165	143	Autodesk AutoCAD DXF binary format	image/x-dxf	DXF	adVECTORGRAPHIC	kpDXFrdr, kpODArdr
AutoCAD_DXF_Text_Fmt	166	143	Autodesk AutoCAD DXF text format	image/x-dxf	DXF	adVECTORGRAPHIC	kpDXFrdr, kpODArdr
dBase_Fmt	167	144	dBase Database III+/IV	application/x-dbf	DBF, VCX	adDATABASE	dbfsr
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	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Volkswriter_Fmt	173	150	Volkswriter word processor		VW4	adWORDPROCESSOR	stringssr
Ability_WP_Fmt	174	151	Ability Word Processor			adWORDPROCESSOR	
Ability_DB_Fmt	175	151	Ability Database			adDATABASE	
Ability_SS_Fmt	176	151	Ability Spreadsheet			adSPREADSHEET	
Ability_Comm_Fmt	177	151	Ability Presentation			adCOMMUNICATION	
Ability_Image_Fmt	178	151	Ability Image			adRASTERIMAGE	
XyWrite_Fmt	179	152	XYWrite / Nota Bene		XY4	adWORDPROCESSOR	xywsr
CSV_Fmt	180	153	CSV (Comma Separated Values)	text/csv	CSV	adSPREADSHEET	csvsr
IBM_Writing_Assistant_Fmt	181	154	IBM Writing Assistant		IWA	adWORDPROCESSOR	stringssr
WordStar_2000_Fmt	182	155	WordStar 2000		WS2	adWORDPROCESSOR	stringssr
HP_PCL_Fmt	183	157	HP Printer Control Language	application/pcl	PCL	adVECTORGRAPHIC	
UNIX_Exe_PreSysV_VAX_Fmt	184	158	UNIX executable (PDP-11/pre-System V VAX)	application/octet-stream		adEXECUTABLE	
UNIX_Exe_Basic_16_Fmt	185	158	UNIX executable (Basic-16)	application/octet-stream		adEXECUTABLE	
UNIX_Exe_x86_Fmt	186	158	UNIX executable (x86)	application/octet-stream		adEXECUTABLE	
UNIX_Exe_iAPX_286_Fmt	187	158	UNIX executable (iAPX 286)	application/octet-stream		adEXECUTABLE	
UNIX_Exe_MC68k_Fmt	188	158	UNIX executable (MC680x0)	application/octet-stream		adEXECUTABLE	
UNIX_Exe_3B20_Fmt	189	158	UNIX executable (3B20)	application/octet-stream		adEXECUTABLE	
UNIX_Exe_WE32000_Fmt	190	158	UNIX executable (WE32000)	application/octet-stream		adEXECUTABLE	
UNIX_Exe_VAX_Fmt	191	158	UNIX executable (VAX)	application/octet-stream		adEXECUTABLE	
UNIX_Exe_Bell_5_Fmt	192	158	UNIX executable (Bell 5.0)	application/octet-stream		adEXECUTABLE	
UNIX_Obj_VAX_Demand_Fmt	193	159	UNIX object module (VAX Demand)			adOBJECTMODULE	
UNIX_Obj_MS8086_Fmt	194	159	UNIX object module (old MS 8086)			adOBJECTMODULE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
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	MCI
NeWS_Font_Fmt	197	162	NeWS bitmap font			adFONT	
cpio_Archive_CRChdr_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	uudsr
WriteNow_Fmt	204	168	WriteNow MAC			adWORDPROCESSOR	stringssr
PC_Obj_Fmt	205	169	DOS/Windows Object Module	application/octet-stream	OBJ	adOBJECTMODULE	
Windows_Group_Fmt	206	170	Windows Group			adMISC	
TrueType_Font_Fmt	207	171	TrueType Font	application/x-font-ttf	TTF	adFONT	
Windows_PIF_Fmt	208	172	Program Information File (PIF)	application/octet-stream	PIF	adMISC	
MS_COM_Executable_Fmt	209	173	PC (.COM)	application/octet-stream	COM	adEXECUTABLE	
StuffIt_Fmt	210	175	StuffIt (MAC)	application/x-stuffit	HQX	adENCAPSULATION	
PeachCalc_Fmt	211	176	PeachCalc		CAL	adSPREADSHEET	
Wang_GDL_Fmt	212	177	WANG Office GDL Header			adENCAPSULATION	
Q_A_DOS_Fmt	213	179	Symantec Q&A for DOS	application/x-qa-write		adWORDPROCESSOR	stringssr
Q_A_Win_Fmt	214	180	Symantec Q&A for Windows	application/x-qa-write	JW	adWORDPROCESSOR	stringssr
WPS_PLUS_Fmt	215	181	WPS-PLUS	application/vnd.ms-wpl	WPL	adWORDPROCESSOR	stringssr
DCX_Fmt	216	182	DCX FAX Format(PCX images)	image/dcx	DCX	adFAXFORMAT	kpdcxrdr
OLE_Fmt	217	183	OLE Compound Document		OLE	adENCAPSULATION	olesr
EBCDIC_Fmt	218	186	EBCDIC Text	application/ebcdic		adWORDPROCESSOR	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
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	stringssr
Compress_Fmt	223	192	UNIX Compress archive	application/x-compress	Z	adENCAPSULATION	kvzee, kvzeesr
GZ_Compress_Fmt	224	198	GZ Compress archive	application/gzip	GZ	adENCAPSULATION	kvgz, kvgzsr
TAR_Fmt	225	194	TAR (tape archive)	application/tar	TAR	adENCAPSULATION	tarsr
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	kppdf2rdr, kppdfrdr, pdf2sr, pdfsr
BinHex_Fmt	231	206	BinHex	application/mac-binhex40	HQX	adENCAPSULATION	kvhqxsr
SMTP_Fmt	232	207	SMTP (Text Mail / Outlook Express)	message/rfc822	SMTP	adENCAPSULATION	emlsr
MIME_Fmt	233	208	MIME (EML / MBX email)[1]	message/rfc822	EML, MBX	adENCAPSULATION	mbxsr
USENET_Fmt	234	264	USENET	message/news		adWORDPROCESSOR	
SGML_Fmt	235	209	SGML	text/sgml	SGML	adWORDPROCESSOR	afsr
HTML_Fmt	236	210	HTML	text/html	HTM, HTML	adWORDPROCESSOR	htmsr
ACT_Fmt	237	211	ACT! CRM software		ACT	adWORDPROCESSOR	
PNG_Fmt	238	213	Portable Network Graphics (PNG)	image/png	PNG	adRASTERIMAGE	kppngrdr, pngsr
MS_Video_Fmt	239	214	Video for Windows (AVI)	video/avi	AVI	adMOVIE	MCI
Windows_Animated_Cursor_Fmt	240	215	Windows Animated Cursor		ANI	adRASTERIMAGE	kpanirdr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
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	MCI, mpeg4sr
AIFF_Fmt	248	223	Audio Interchange File Format (AIFF)	audio/aiff	AIF, AIFF, AIFC	adSOUND	MCI, aiffsr
Amiga_MOD_Fmt	249	224	Amiga MOD		MOD	adSOUND	
Amiga_IFF_8SVX_Fmt	250	225	Amiga IFF (8SVX) Sound	audio/x-8svx	IFF	adSOUND	
Creative_Voice_Audio_ Fmt	251	226	Creative Voice (VOC)		VOC	adSOUND	
AutoDesk_Animator_FLI_ Fmt	252	229	AutoDesk Animator FLIC	video/x-fli	FLI	adANIMATION	
AutoDesk_AnimatorPro_ FLC_Fmt	253	230	AutoDesk Animator Pro FLIC	video/x-flc	FLC	adANIMATION	
Compactor_Archive_Fmt	254	233	Compactor / Compact Pro	application/mac-compactpro		adENCAPSULATION	
VRML_Fmt	255	234	VRML	model/vrml	WRL	adVECTORGRAPHIC	
QuickDraw_3D_Metafile_ Fmt	256	235	QuickDraw 3D Metafile			adVECTORGRAPHIC	
PGP_Secret_Keyring_ Fmt	257	236	PGP Secret Keyring	application/pgp		adENCAPSULATION	
PGP_Public_Keyring_Fmt	258	237	PGP Public Keyring	application/pgp		adENCAPSULATION	
PGP_Encrypted_Data_ Fmt	259	238	PGP Encrypted Data	application/pgp		adENCAPSULATION	
PGP_Signed_Data_Fmt	260	239	PGP Signed Data	application/pgp		adENCAPSULATION	
PGP_SignedEncrypted_ Data_Fmt	261	240	PGP Signed and Encrypted Data	application/pgp		adENCAPSULATION	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
PGP_Sign_Certificate_Fmt	262	241	PGP Signature Certificate	application/pgp-signature	SIG	adENCAPSULATION	
PGP_Compressed_Data_Fmt	263	246	PGP Compressed Data	application/pgp		adENCAPSULATION	
PGP_ASCII_Public_Keyring_Fmt	264	242	ASCII-armored PGP Public Keyring	application/pgp	PGP	adENCAPSULATION	
PGP_ASCII_Encoded_Fmt	265	243	ASCII-armored PGP encoded	application/pgp		adENCAPSULATION	
PGP_ASCII_Signed_Fmt	266	244	ASCII-armored PGP signed	application/pgp		adENCAPSULATION	
OLE_DIB_Fmt	267	245	OLE DIB object			adRASTERIMAGE	
SGI_Image_Fmt	268	247	SGI RGB Image	image/sgi	RGB	adRASTERIMAGE	kpsgirdr
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	MCI, mp3sr
FTP_Software_Session_Fmt	271	250	FTP Session Data		STE	adCOMMUNICATION	
Netscape_Bookmark_File_Fmt	272	210	Netscape Bookmark File	text/html		adWORDPROCESSOR	htmsr
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	kpDWGrdr, kpODArdr
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	awsr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Applix_Graphics_Fmt	282	262	Applix Graphics		AG	adPRESENTATION	kpagrdr
MS_Access_Fmt	283	263	Microsoft Access (versions 1 and 2)	application/x-msaccess	MDB	adDATABASE	mdbsr
MS_Access_95_Fmt	284	263	Microsoft Access 95	application/msaccess	MDB	adDATABASE	mdbsr
MS_Access_97_Fmt	285	263	Microsoft Access 97	application/msaccess	MDB	adDATABASE	mdbsr
MacBinary_Fmt	286	265	MacBinary	application/x-macbinary	BIN	adENCAPSULATION	macbinsr
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	kpemfrdr
MS_Office_Drawing_Fmt	290	271	Microsoft Office Drawing			adVECTORGRAPHIC	kpmsordr
XML_Fmt	291	285	XML	text/xml	XML	adWORDPROCESSOR	xmlsr
DeVice_Independent_ Fmt	292	274	DeVice Independent file (DVI)	application/x-dvi	DVI	adVECTORGRAPHIC	
Unicode_Fmt	293	275	Unicode text file	text/plain	UNI	adWORDPROCESSOR	unisr
Lotus_123_Worksheet_ Fmt	294	81	Lotus 1-2-3	application/x-lotus-123	WKS, WK1, WK3, WK4	adSPREADSHEET	wkssr
Lotus_123_Format_Fmt	295	81	Lotus 1-2-3 Formatting	application/x-123	FM3	adSPREADSHEET	l123sr
Lotus_123_97_Fmt	296	81	Lotus 1-2-3 97	application/x-lotus-123	123	adSPREADSHEET	l123sr
Lotus_Word_Pro_96_Fmt	297	268	Lotus Word Pro 96	application/vnd.lotus-wordpro	LWP, MWP	adWORDPROCESSOR	lwpsr
Lotus_Word_Pro_97_Fmt	298	268	Lotus Word Pro 97	application/vnd.lotus-wordpro	LWP, MWP	adWORDPROCESSOR	lwpsr
Freelance_DOS_Fmt	299	140	Lotus Freelance for DOS	application/x-freelance	PRZ	adPRESENTATION	kpprzrdr
Freelance_Win_Fmt	300	140	Lotus Freelance for Windows	application/x-freelance	PRE, FLW	adPRESENTATION	kpprerdr
Freelance_OS2_Fmt	301	140	Lotus Freelance for OS/2	application/x-freelance	PRS	adPRESENTATION	kpprerdr
Freelance_96_Fmt	302	140	Lotus Freelance 96	application/x-freelance	PRZ	adPRESENTATION	kpprzrdr
Freelance_97_Fmt	303	140	Lotus Freelance 97	application/x-freelance	PRZ	adPRESENTATION	kpprzrdr
MS_Word_95_Fmt	304	189	Microsoft Word 95	application/msword	DOC	adWORDPROCESSOR	mw6sr
MS_Word_97_Fmt	305	269	Microsoft Word 97	application/msword	DOC, WPS, WBK	adWORDPROCESSOR	mw8sr
Excel_Fmt	306	90	Microsoft Excel (up to version 5)	application/x-ms-excel	XLS	adSPREADSHEET	xlssr
Excel_Chart_Fmt	307	90	Microsoft Excel (up to	application/x-ms-excel	XLC	adSPREADSHEET	xlssr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			version 5) chart				
Excel_Macro_Fmt	308	90	Microsoft Excel (up to version 5) macro	application/vnd.ms-excel	XLM	adSPREADSHEET	xlssr
Excel_95_Fmt	309	188	Microsoft Excel 95	application/x-ms-excel	XLS	adSPREADSHEET	xlssr
Excel_97_Fmt	310	188	Microsoft Excel 97	application/x-ms-excel	XLS, XLR	adSPREADSHEET	xlssr
Corel_Presentations_Fmt	311	127	Corel Presentations	application/x-corelpresentations	XFD, XFDL	adPRESENTATION	kpshwrdr
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	l123sr
Applix_Spreadsheets_ Fmt	318	278	Applix Spreadsheets	application/x-applix-spreadsheet	AS	adSPREADSHEET	assr
MS_Pocket_Word_Fmt	319	45	Microsoft Pocket Word		PWD	adWORDPROCESSOR	rtfsr
MS_DIB_Fmt	320	279	Microsoft Device Independent Bitmap	image/bmp	DIB	adRASTERIMAGE	
MS_Word_2000_Fmt	321	269	Microsoft Word 2000	application/msword	DOC	adWORDPROCESSOR	mw8sr
Excel_2000_Fmt	322	188	Microsoft Excel 2000	application/x-ms-excel	XLS	adSPREADSHEET	xlssr
PowerPoint_2000_Fmt	323	272	Microsoft PowerPoint 2000	application/x-ms-powerpoint	PPT	adPRESENTATION	kpp97rdr
MS_Access_2000_Fmt	324	263	Microsoft Access 2000	application/x-msaccess	MDB	adDATABASE	mdbsr
MS_Project_4_Fmt	325	281	Microsoft Project 4		MPP	adSCHEDULE	mppsr
MS_Project_41_Fmt	326	281	Microsoft Project 4.1		MPP	adSCHEDULE	mppsr
MS_Project_98_Fmt	327	281	Microsoft Project 98	application/vnd.ms-project	MPP	adSCHEDULE	mppsr
Folio_Flat_Fmt	328	282	Folio Flat File		FFF	adWORDPROCESSOR	foliosr
HWP_Fmt	329	283	Haansoft Hangul HWP (Arae-Ah Hangul)	application/x-hwp	HWP	adWORDPROCESSOR	hwposr, hwpsr
ICHITARO_Fmt	330	284	ICHITARO (v4-10)	application/x-ichitaro	JTD	adWORDPROCESSOR	jtdsr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
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	oa2sr
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 Bitmap format (XBM)	image/x-xbitmap	XBM	adRASTERIMAGE	
XPM_Fmt	340	291	X Pixmap format (XPM)	image/xpm	XPM	adRASTERIMAGE	
FPX_Fmt	341	292	Kodak FlashPix FPX Image format	image/fpx	FPX	adRASTERIMAGE	olesr
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	kpVSD2rdr, vsdsr
MS_Project_2000_Fmt	344	281	Microsoft Project 2000	application/vnd.ms-project	MPP	adSCHEDULE	mppsr
MS_Outlook_Fmt	345	295	Microsoft Outlook message	application/vnd.ms-outlook	MSG, OFT	adENCAPSULATION	msgsr
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	xmlsr
MS_Excel_XML_Fmt	350	285	Microsoft Excel 2003 XML	text/xml	XML	adWORDPROCESSOR	xmlsr
MS_Visio_XML_Fmt	351	285	Microsoft Visio 2003 XML	text/xml	VDX	adWORDPROCESSOR	xmlsr
SO_Text_XML_Fmt	352	314	OpenDocument format (OpenOffice 1/StarOffice 6,7) Text XML	application/vnd.sun.xml.writer	SXW	adWORDPROCESSOR	odfwpsr

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
MS_XPS_Fmt	371	312	Microsoft Open XML Paper Specification (XPS/OXPS)	application/vnd.ms-xpsdocument	XPS, OXPS	adWORDPROCESSOR	xpssr
Lotus_Domino_DXL_Fmt	372	313	IBM Domino Data in XML format (.dxl)	text/xml	DXL	adENCAPSULATION	dxlsr
ODF_Text_Fmt	373	314	ODF Text	application/vnd.oasis.opendocument.text	ODT	adWORDPROCESSOR	odfwpsr
ODF_Spreadsheet_Fmt	374	315	ODF Spreadsheet	application/vnd.oasis.opendocument.spreadsheet	ODS	adSPREADSHEET	odfsssr
ODF_Presentation_Fmt	375	316	ODF Presentation	application/vnd.oasis.opendocument.presentation	ODP	adPRESENTATION	kpodfrdr
Legato_Extender_ONM_Fmt	376	317	Legato Extender Native Message ONM	application/x-lotus-notes	ONM	adENCAPSULATION	onmsr
bin_Unknown_Fmt	377	318	Bin unknown format (.xxx)			adWORDPROCESSOR	
TNEF_Fmt	378	319	Transport Neutral Encapsulation Format (TNEF)	application/vnd.ms-tnef		adENCAPSULATION	tnefsr
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	asfsr
WMA_Fmt	384	325	Windows Media Audio Format (WMA)	audio/x-ms-wma	WMA	adSOUND	asfsr
WMV_Fmt	385	326	Windows Media Video Format (WMV)	video/x-ms-wmv	WMV	adMOVIE	asfsr
EMX_Fmt	386	327	Legato EMailXtender Archives Format (EMX)		EMX	adENCAPSULATION	emxsr
Z7Z_Fmt	387	328	7-Zip archive (7z)	application/7z	7Z	adENCAPSULATION, adEXECUTABLE	z7zsr
MS_Excel_Binary_2007_Fmt	388	329	Microsoft Excel Binary 2007	application/vnd.ms-excel.sheet.binary.macroenabled.12	XLSB	adSPREADSHEET	xlsbsr
CAB_Fmt	389	330	Microsoft Cabinet File (CAB)	application/vnd.ms-cab-compressed	CAB	adENCAPSULATION	cabsr
CATIA_Fmt	390	331	CATIA Formats (CAT*)		CATPART,	adVECTORGRAPHIC	kpCATrdr

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			format				
Apple_iChat_Fmt	411	351	Apple iChat format		ICHAT	adWORDPROCESSOR	ichatsr
OOUTLINE_Fmt	412	352	OOutliner File		OOUTLINE	adWORDPROCESSOR	oo3sr
BZIP2_Fmt	413	353	Bzip 2 Compressed File	application/x-bzip2	BZ2	adENCAPSULATION	bzip2sr
ISO_Fmt	414	354	ISO-9660 CD Disc Image Format	application/x-iso9660-image	ISO	adENCAPSULATION	isosr
DocuWorks_Fmt	415	355	DocuWorks Format	application/vnd.fujixerox.docuworks	XDW	adWORDPROCESSOR	
RealMedia_Fmt	416	356	RealMedia Streaming Media	application/vnd.rn-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, SLDDRT	adVECTORGRAPHIC	olesr
XFDL_Fmt	420	366	Extensible Forms Description Language	application/x-xfdl	XFDL, XFD	adPRESENTATION	kpXFDLrdr
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	onesr
IFilter_Fmt	423	369	iFilter			adWORDPROCESSOR	
Dicom_Fmt	424	370	Digital Imaging and Communications in Medicine (Dicom)	application/dicom	DCM	adRASTERIMAGE	dcmsr
EnCase_Fmt	425	371	Expert Witness Compression Format (EnCase)		E01, L01, Lx01	adENCAPSULATION	encase2sr, encasesr
Scrap_Fmt	426	372	Shell Scrap Object File		SHS	adENCAPSULATION	olesr
MS_Project_2007_Fmt	427	373	Microsoft Project 2007	application/vnd.ms-project	MPP	adSCHEDULE	mppsr
MS_Publisher_98_Fmt	428	374	Microsoft Publisher from version 98	application/x-mspublisher	PUB	adDESKTOPPUBLSH	mspubsr
Skype_Fmt	429	375	Skype Log File		DBB	adWORDPROCESSOR	skypesr
HI7_Fmt	430	377	Health level7 message		HL7	adWORDPROCESSOR	hl7sr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
MS_OutlookOST_Fmt	431	378	Microsoft Outlook Offline Folders File (OST)	application/vnd.ms-outlook-pst	OST	adENCAPSULATION	pffsr
Epub_Fmt	432	379	Open Publication Structure electronic publication	application/epub+zip	EPUB	adWORDPROCESSOR	epubsr
MS_OEDBX_Fmt	433	380	Microsoft Outlook Express DBX Message Database		DBX	adENCAPSULATION	dbxsr
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	pfasr
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	jp2000sr, kpjp2000rdr
Unicode_HTML_Fmt	441	388	Unicode HTML	text/html	HTM, HTML	adWORDPROCESSOR	unihtmsr
CHM_Fmt	442	389	Microsoft Compiled HTML Help	application/x-chm	CHM	adENCAPSULATION	chmsr
EMCMF_Fmt	443	390	Documentum EMCMF format		EMCMF	adENCAPSULATION	msgsr
MS_Access_2007_Tmpl_Fmt	444	391	Microsoft Access 2007 Template		ACCDT	adDATABASE	
Jungum_Fmt	445	392	Samsung Electronics Jungum Global document	application/jungum	GUL	adWORDPROCESSOR	
JBIG2_Fmt	446	393	JBIG2 File Format	image/jbig2	JB2, JBIG2	adRASTERIMAGE	kpJBIG2rdr
EFax_Fmt	447	394	eFax file		EFX	adRASTERIMAGE	
AD1_Fmt	448	395	AD1 Evidence file		AD1	adENCAPSULATION	ad1sr
SketchUp_Fmt	449	396	Google SketchUp		SKP	adVECTORGRAPHIC	
GWFS_Email_Fmt	450	397	GroupWise FileSurf email		GWFS	adENCAPSULATION	gwfssr
JNT_Fmt	451	398	Windows Journal format		JNT	adWORDPROCESSOR	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Yahoo_yChat_Fmt	452	399	Yahoo! Messenger chat log		YCHAT	adWORDPROCESSOR	
PaperPort_MAX_File_Fmt	453	400	PaperPort MAX image file	image/max	MAX	adRASTERIMAGE	
ARJ_Fmt	454	402	ARJ (Archive by Robert Jung) file format	application/arj	ARJ	adENCAPSULATION	multiarcsr
RPMSG_Fmt	455	403	Microsoft Outlook Restricted Permission Message	application/x-microsoft-rpmsg-message	RPMSG	adENCAPSULATION	
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	olmsr
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	vcfsr
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	icssr
MS_Visio_2013_Fmt	467	415	Microsoft Visio 2013	application/vnd.visio	VSDX, VSTX, VSSX	adPRESENTATION	ActiveX components, kpVSDXrdr
MS_Visio_2013_Macro_Fmt	468	415	Microsoft Visio 2013 macro	application/vnd.visio	VSDM, VSTM, VSSM	adPRESENTATION	kpVSDXrdr
ICHITARO_Compr_Fmt	469	417	ICHITARO Compressed format	application/x-js-taro	JTDC	adWORDPROCESSOR	jtdsr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
IWWP13_Fmt	470	418	Apple iWork 2013 Pages format		IWA, PAGES	adWORDPROCESSOR	iwwp13sr
IWSS13_Fmt	471	419	Apple iWork 2013 Numbers format		IWA, NUMBERS	adSPREADSHEET	iwss13sr
IWPG13_Fmt	472	420	Apple iWork 2013 Keynote format		IWA, KEY	adPRESENTATION	kpIWPG13rdr, kpIWPGrdr
XZ_Fmt	473	421	XZ archive format	application/x-xz	XZ	adENCAPSULATION	multiarcsr
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	kpVSDXrdr
MS_Visio_2013_Stencil_Macro_Fmt	478	415	MS Visio 2013 stencil Macro format	application/vnd.visio	VSSM	adPRESENTATION	kpVSDXrdr
MS_Visio_2013_Template_Fmt	479	415	MS Visio 2013 template format	application/vnd.visio	VSTX	adPRESENTATION	kpVSDXrdr
MS_Visio_2013_Template_Macro_Fmt	480	415	MS Visio 2013 template Macro format	application/vnd.visio	VSTM	adPRESENTATION	kpVSDXrdr
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	b1sr
ISO_IEC_MPEG_4_Fmt	484	428	ISO/IEC MPEG-4 (ISO 14496) format	video/mp4	MP4	adMOVIE	mpeg4sr
RAR5_Fmt	485	429	RAR5 Format	application/x-rar-compressed	RAR	adENCAPSULATION	multiarcsr
Unigraphics_NX_Fmt	486	362	Unigraphics (UG) NX CAD Format		PRT	adVECTORGRAPHIC	kpUGrdr
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	xmlsr
KMZ_Fmt	489	432	Zipped Keyhole Markup Language	application/vnd.google-earth.kmz	KMZ	adWORDPROCESSOR	unzip
WML_Fmt	490	433	Wireless Markup Language	text/vnd.wap.wml	WML	adWORDPROCESSOR	xmlsr
ODF_Formula_Fmt	491	434	ODF Formula	application/vnd.oasis.opendocument.formula	ODF	adWORDPROCESSOR	unzip

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

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

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

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

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
DVB_Fmt	610	551	Digital Video Broadcast format	video/vnd.dvb.file	DVB	adMOVIE	
Dirac_Wavelet_ Compression_Fmt	611	552	ISO-BMFF Dirac Wavelet compression			adMISC	
HEICS_Image_ Sequence_Fmt	612	553	High Efficiency Image Format HEVC image sequence	image/heic-sequence	HEICS	adRASTERIMAGE	
HEIC_Image_Fmt	613	554	High Efficiency Image Format HEVC image	image/heic	HEIC	adRASTERIMAGE	
HEIFS_Image_ Sequence_Fmt	614	555	High Efficiency Image Format image sequence	image/heif-sequence	HEIFS	adRASTERIMAGE	
HEIF_Image_Fmt	615	556	High Efficiency Image Format image	image/heif	HEIF	adRASTERIMAGE	
ISMACryp_Fmt	616	557	ISMACryp 2.0 Encrypted format			adENCAPSULATION	
ISO_3GPP2_Fmt	617	558	3GPP2 video file	video/3gpp2	3G2	adMOVIE	mpeg4sr
ISO_3GPP_Fmt	618	559	3GPP video file	video/3gpp	3GP	adMOVIE	mpeg4sr
ISO_JPEG2000_JP2_ Fmt	619	560	ISO-BMFF JPEG 2000 image	image/jp2	JP2	adRASTERIMAGE	jp2000sr, kpjp2000rdr
ISO_JPEG2000_JPM_ Fmt	620	561	ISO-BMFF JPEG 2000 compound image	image/jpm	JPM	adRASTERIMAGE	jp2000sr, kpjp2000rdr
ISO_JPEG2000_JPX_ Fmt	621	562	ISO-BMFF JPEG 2000 with extensions	image/jpx	JPX	adRASTERIMAGE	jp2000sr, kpjp2000rdr
ISO_QuickTime_Fmt	622	563	Apple ISO-BMFF QuickTime video	video/quicktime	QT, MOV	adMOVIE	MCI
KDDI_Video_Fmt	623	564	KDDI Video file	video/3gpp2		adMOVIE	mpeg4sr
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	mpeg4sr
MPEG4_M4A_Fmt	626	567	Apple MPEG-4 Part 14 audio	audio/x-m4a	M4A	adSOUND	mpeg4sr
MPEG4_M4B_Fmt	627	568	Apple MPEG-4 Part 14 audio book	audio/mp4	M4B	adSOUND	mpeg4sr
MPEG4_M4P_Fmt	628	569	Apple MPEG-4 Part 14 protected audio	audio/mp4	M4P	adSOUND	mpeg4sr

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

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

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

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

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			format				
XUL_Fastload_Fmt	732	673	Mozilla XUL Fastload format		MFL	adMISC	
Nastran_OP2_Fmt	733	674	Nastran OP2 format		OP2	adCAD	
Binary_Logging_Fmt	734	675	CAD Binary Logging Format		BLF	adCAD	
Measurement_Data_Fmt	735	676	CAD Measurement Data Format		MDF	adCAD	
Abaqus_ODB_Fmt	736	677	Abaqus ODB Format		ODB	adCAD	
Open_Diagnostic_Data_Exchange_Fmt	737	678	Vector Open Diagnostic Data Exchange format		ODX	adCAD	xmlsr
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	pbixsr
Tableau_Workbook_Fmt	742	683	Tableau Workbook format		TWB	adANALYTICS	xmlsr
Tableau_Packaged_Workbook_Fmt	743	684	Tableau Packaged Workbook format		TWBX	adANALYTICS	unzip
Tableau_Extract_Fmt	744	685	Tableau Extract format		TDE	adANALYTICS	
Tableau_Data_Source_Fmt	745	686	Tableau Data Source format		TDS	adANALYTICS	xmlsr
Tableau_Packaged_Data_Source_Fmt	746	687	Tableau Packaged Data Source format		TDSX	adANALYTICS	unzip
Tableau_Preferences_Fmt	747	688	Tableau Preferences format		TPS	adANALYTICS	xmlsr
Tableau_Map_Source_Fmt	748	689	Tableau Map Source format		TMS	adANALYTICS	xmlsr
ABAP_Fmt	749	690	ABAP Source Code[4]	text/x-abap	ABAP	adSOURCECODE	afsr
AMPL_Fmt	750	691	AMPL Source Code[4]		AMPL	adSOURCECODE	afsr
APL_Fmt	751	692	APL Source Code[4]		APL	adSOURCECODE	afsr

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

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

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

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

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

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
IGES_Fmt	914	854	Initial Graphics Exchange Specification format	model/iges	IGS	adCAD	
ACE_Archive_Fmt	915	855	ACE archive format	application/x-ace-compressed	ACE	adENCAPSULATION	
Grasshopper_GHX_Fmt	916	856	Grasshopper GHX format		GHX	adCAD	xmlsr
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	olesr
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	adMISC	
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	pkcs7sr
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	epubsr
PDF_Forms_Data_Fmt	931	871	PDF Forms Data Format	application/vnd.fdf	FDF	adWORDPROCESSOR	
PDF_XML_Forms_Data_Fmt	932	872	PDF XML Forms Data Format	application/vnd.adobe.xfdf	XFDF	adWORDPROCESSOR	xmlsr
AxCrypt_Fmt	933	873	AxCrypt encrypted document	application/x-axcrypt	AXX	adENCAPSULATION	

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

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

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
ActiveMime_Fmt	991	931	Microsoft ActiveMime (mso) documents	application/x-mso	MSO	adMISC	
SmartCharts_Fmt	992	932	BizInt SmartCharts data format		CHP, CHRR	adMISC	
Webex_ARF_Fmt	993	933	Webex advanced network ARF recordings		ARF	adMOVIE	
Webex_WRF_Fmt	994	934	Webex local WRF recordings		WRF	adMOVIE	
PGP_NetShare_Fmt	995	935	Symantec PGP NetShare encrypted file			adENCAPSULATION	
Ability_WP_OLE_Fmt	996	936	Ability Write later versions format		AWW	adWORDPROCESSOR	olesr
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	adDESKTOPPUBLSH	
Executable_JAR_Fmt	999	939	Executable Java Archive (jar) file	application/java-archive	JAR	adENCAPSULATION	unzip
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	xmlsr
RSS_Fmt	1006	946	RSS syndication XML format	application/rss+xml	RSS	adWORDPROCESSOR	xmlsr
SMIL_Fmt	1007	947	Synchonized Multimedia Integration Language (SMIL) XML format	application/smil+xml	SMIL	adWORDPROCESSOR	xmlsr
XSLT_Fmt	1008	948	Extensible Stylesheet Language Transformations (XSLT) format	application/xslt+xml	XSL, XSLT	adWORDPROCESSOR	xmlsr

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Package_Fmt			format				
ESzigno_Fmt	1026	966	e-Szigno signed xml document	application/vnd.eszigno3+xml	ES3	adWORDPROCESSOR	xmlsr
Mozilla_XUL_Fmt	1027	967	Mozilla XML User Interface Language (XUL) XML format	application/vnd.mozilla.xul+xml	XUL	adWORDPROCESSOR	xmlsr
SyncML_Fmt	1028	968	Synchronization Markup Language (SyncML) XML format	application/vnd.syncml+xml	XML	adWORDPROCESSOR	xmlsr
VoiceXML_Fmt	1029	969	VoiceXML (VXML) XML format	application/voicexml+xml	VXML	adWORDPROCESSOR	xmlsr
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	xmlsr
YIN_Fmt	1038	978	YIN XML format	application/yin+xml	YIN	adWORDPROCESSOR	xmlsr
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	xmlsr
DTS_Audio_Fmt	1041	981	DTS Coherent Acoustics audio format	audio/vnd.dts	DTS	adSOUND	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Chemical_Markup_Language_Fmt	1042	982	Chemical Markup Language (CML) XML format	chemical/x-cml	CML	adWORDPROCESSOR	xmlsr
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	xmlsr
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	xmlsr
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	kpodfrdr
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	odfwpsr
ODF_Text_Web_Fmt	1057	996	ODF Text Web	application/vnd.oasis.opendocument.text-web	OTH	adWORDPROCESSOR	odfwpsr
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	unzip

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

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Device_Tree_Blob_Fmt	1079	1014	Linux Device Tree Blob format		DTB	adMISC	
BDF_Font_Fmt	1080	1015	Glyph Bitmap Distribution Format	application/x-font-bdf	BDF	adFONT	
PC_Screen_Font_Fmt	1081	1016	PC Screen Font format	application/x-font-psf	PSF	adFONT	
JNLP_Fmt	1082	1017	Java Network Launching Protocol	application/x-java-jnlp-file	JNLP	adWORDPROCESSOR	xmlsr
XAML_Browser_Application_Fmt	1083	1018	XAML Browser Application (XBAP) format	application/x-ms-xbap	XBAP	adWORDPROCESSOR	xmlsr
MS_Binder_Fmt	1084	1019	Microsoft Office Binder format	application/x-msbinder	OBP	adENCAPSULATION	olesr
XAP_Fmt	1085	1020	Microsoft Silverlight application (XAP) format	application/x-silverlight-app	XAP	adENCAPSULATION	
StuffIt_X_Fmt	1086	1021	StuffIt X (SITX) archive format	application/x-stuffitx	SITX	adENCAPSULATION	
FIG_Fmt	1087	1022	Facility for Interactive Generation of figures (FIG) image format	application/x-xfig	FIG	adVECTORGRAPHIC	
XPInstall_Fmt	1088	1023	XPInstall Cross-Platform Installer Module (XPI) format	application/x-xpinstall	XPI	adENCAPSULATION	
XDF_Fmt	1089	1024	Extensible Data Format (XDF) XML format		XDF	adWORDPROCESSOR	xmlsr
MXML_Fmt	1090	1025	MXML UI markup language XML format		MXML	adWORDPROCESSOR	xmlsr
MusicXML_Fmt	1091	1026	MusicXML format	application/vnd.recordare.musicxml	MXL	adENCAPSULATION	xmlsr
Finale_Fmt	1092	1027	Finale audio format		MUS	adSOUND	
Spotfire_DXP_Fmt	1093	1028	TIBCO Spotfire DXP data format	application/vnd.spotfire.dxp	DXP	adANALYTICS	
MS_Office_Theme_2007_Fmt	1094	1029	Microsoft Office theme format	application/vnd.ms-officetheme	THMX	adMISC	
Adobe_AIR_Installer_Fmt	1095	1030	Adobe AIR application installer package	application/vnd.adobe.air-application-installer-package+zip	AIR	adENCAPSULATION	
Flex_Project_Fmt	1096	1031	Adobe Flash Flex project file format	application/vnd.adobe.fxp	FXP	adENCAPSULATION	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
FoxPro_Fmt	1097	1032	FoxPro compiled source format		FXP	adLIBRARY	
VST_Preset_Fmt	1098	1033	Virtual Studio Technology (VST) preset format		FXP	adSOUND	
Mischief_Image_Fmt	1099	1034	Mischief vector graphics image format		ART	adVECTORGRAPHIC	
FreeArc_Fmt	1100	1035	FreeArc archive format	application/x-freearc	ARC	adENCAPSULATION	
Autodesk_3ds_Fmt	1101	1036	Autodesk 3ds format	application/x-3ds	3DS	adCAD	
Monkeys_Audio_Fmt	1102	1037	Monkey's Audio format		APE	adSOUND	
CALS_Fmt	1103	1038	CALS raster image format		CAL	adRASTERIMAGE	
Dr_Halo_PAL_Fmt	1104	1039	Dr Halo raster image PAL file format		PAL	adRASTERIMAGE	
DPG_Fmt	1105	1040	Nintendo DS DPG video format		DPG	adMOVIE	
JPEG_XR_Fmt	1106	1041	JPEG XR (extended range) image format	image/vnd.ms-photo	JXR, HDP	adRASTERIMAGE	
TCR_eBook_Fmt	1107	1042	TCR/ZVR (Text Compression for Reader) eBook format		TCR, ZVR	adWORDPROCESSOR	
IHEX_Fmt	1108	1043	Intel Hex format		IHEX	adENCAPSULATION	
QCOW_Fmt	1109	1044	QEMU Copy On Write		QCOW	adENCAPSULATION	
VDI_Fmt	1110	1045	VirtualBox Disk Image		VDI	adENCAPSULATION	
OneNote_Alternate_Fmt	1111	1046	OneNote Alternative Packaging Format			adWORDPROCESSOR	onealtsr
RMS_Protected_Fmt	1112	1047	Rights Management Services (RMS)-protected format		PFILE, PPDF, PJPG, PTXT	adWORDPROCESSOR	pfilesr
Portfolio_PDF_Fmt	1113	1048	Portfolio PDF File	application/pdf	PDF	adWORDPROCESSOR	pdfsr
Crystal_Reports_Fmt	1114	1049	SAP Crystal Reports format	application/x-rpt	RPT	adANALYTICS	olesr
Thumbs_db_Fmt	1115	1050	Microsoft Windows thumbs.db format		DB	adENCAPSULATION	
PagePlus_Fmt	1116	1051	Serif PagePlus format		PPP	adDESKTOPPUBLSH	olesr
MS_Project_Exchange_	1117	1052	Microsoft Project		MPX	adSCHEDULE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Fmt			Exchange format				
MS_Management_Pack_MPX_Fmt	1118	1053	Microsoft Systems Center Operation Manager (SCOM) management pack MPX format		MPX	adMISC	xmlsr
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	xmlsr
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	olesr
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	olesr
SO_Database_Fmt	1132	1067	Star Office 4,5 Database	application/vnd.stardivision.base	SDB	adDATABASE	olesr
SO_Library_Fmt	1133	1068	Star Office 4,5 Library		SBL	adLIBRARY	
PageMaker_Document_Fmt	1134	1069	Adobe PageMaker document	application/pagemaker	PMD	adDESKTOPPUBLSH	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
MS_DTS_Fmt	1135	1070	Microsoft Data Transformation Services (DTS) package file		DTS	adMISC	
Cognos_PowerPlay_PPR_Fmt	1136	1071	Cognos PowerPlay up to version 7 (PPR) format		PPR	adANALYTICS	
Visual_Studio_SUO_Fmt	1137	1072	Microsoft Visual Studio solution user options (suo) file		SUO	adMISC	
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	mbsr
WordPerfect_5_Fmt	1144	80	WordPerfect (version 5)	application/x-corel-wordperfect	WOP, DOC	adWORDPROCESSOR	wosr
WordPerfect_6_Fmt	1145	178	Corel WordPerfect (version 6 and higher)	application/x-corel-wordperfect	WPD	adWORDPROCESSOR	wp6sr
WordPerfect_Graphics_1_Fmt	1146	85	WordPerfect Graphics (version 1)	application/vnd.wordperfect	WPG, QPG	adRASTERIMAGE, adVECTORGRAPHIC	
Organization_Chart_Fmt	1147	1078	OrgPlus Organization Chart	application/orgplus	OPX	adDATABASE	
Lotus_Organizer_Fmt	1148	1079	Lotus Organizer documents	application/vnd.lotus-organizer	OR2, OR3, OR4, OR5, OR6	adSCHEDULE	
MS_DBML_Fmt	1149	1080	Microsoft Database Markup Language XML document		DBML	adWORDPROCESSOR	
XMind_Fmt	1150	1081	XMind document	application/xmind	XMIND	adPRESENTATION	
MSI_Cerius_Fmt	1151	1082	MSI Cerius chemical formula document	chemical/x-cerius	MSI	adSCIENTIFIC	
GenBank_Fmt	1152	1083	GenBank DNA character sequence document	chemical/x-genbank	GB	adSCIENTIFIC	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
GIS_World_File_Fmt	1153	1084	ESRI GIS World file		BPW, GFW, JGW, J2W, PGW, SDW, TFW, WLD	adGIS	afsr
GIS_Projection_ Metadata_Fmt	1154	1085	ESRI Projection Metadata (PRJ) file		PRJ	adGIS	
PowerWorld_Binary_Fmt	1155	1086	PowerWorld Binary (PWB) file		PWB	adCAD	
PowerWorld_Display_ Fmt	1156	1087	PowerWorld Display (PWD) file		PWD	adCAD	
ArcXML_Fmt	1157	1088	ESRI ArcIMS project XML file (ArcXML)		AXL	adGIS	
GAMS_GDX_Fmt	1158	1089	General Algebraic Modeling System (GAMS) Data Exchange (GDX) format		GDX	adSCIENTIFIC	
ArcMap_MXD_Fmt	1159	1090	ArcMap Map Exchange Document project (MXD)		MXD	adGIS	
RRDtool_Fmt	1160	1091	RRDtool (Round Robin Database) data file		RRD	adDATABASE	
HWPX_Fmt	1161	1092	Hangul HWPX document	application/hwp+zip	HWPX	adWORDPROCESSOR	hwpxsr
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	
MS_Excel_HTML_Fmt	1165	1096	Microsoft Excel HTML format		XLS, HTM	adWORDPROCESSOR	
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	kppngrdr
Enhanced_Compressed_	1169	1100	Enhanced Compressed	image/ecw	ECW	adRASTERIMAGE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Wavelet_Fmt			Wavelet image				
Ensoniq_Waveset_Fmt	1170	1101	Ensoniq Waveset audio data file		ECW	adSOUND	
Corel_Photo_Paint_Fmt	1171	1102	Corel Photo Paint (version 7 and higher)	image/x-corelphotopaint	CPT	adRASTERIMAGE	
OpenRaster_Fmt	1172	1103	OpenRaster image	image/openraster	ORA	adRASTERIMAGE	
Krita_Fmt	1173	1104	Krita image	application/x-krita	KRA	adRASTERIMAGE	
Gerber_Fmt	1174	1105	Gerber image format	application/vnd.gerber	GBR	adVECTORGRAPHIC	
PGML_Fmt	1175	1106	Precision Graphics Markup Language		PGML	adVECTORGRAPHIC	xmlsr
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	xmlsr
C3D_Fmt	1179	1110	Coordinate 3D (C3D) format		C3D	adCAD	
CAD_3DSystems_BFF_Fmt	1180	1111	3D Sprint (3D Systems) SLA Build file		BFF	adCAD	
NRRD_Fmt	1181	1112	NRRD (nearly raw raster data) image format		NRRD	adRASTERIMAGE	
Cinema_4D_Fmt	1182	1113	Cinema 4D model		C4D	adCAD	
FBX_ASCII_Fmt	1183	1114	Kaydara FBX project (ASCII)		FBX	adCAD	
FBX_Binary_Fmt	1184	1115	Kaydara FBX project (binary)		FBX	adCAD	
Wavefront_OBJ_Fmt	1185	1116	Wavefront OBJ geometry definition file		OBJ	adCAD	
Wavefront_MTL_Fmt	1186	1117	Wavefront Material Template Library (MTL)		MTL	adCAD	
MS_Power_BI_Template_Fmt	1187	1118	Microsoft Power BI Desktop template format		PBIT	adANALYTICS	
Windows_Sticky_Notes_Fmt	1188	1119	Microsoft Windows Sticky Notes format		SNT	adWORDPROCESSOR	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
BlakHole_Fmt	1189	1120	BlakHole compression format		BH	adENCAPSULATION	
PowerArchiver_Fmt	1190	1121	PowerArchiver PA compression format		PA	adENCAPSULATION	
PageMagic_Fmt	1191	1122	NEBS PageMagic format		DTP	adDESKTOPPUBLSH	olesr
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	afsr
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	afsr, afsr
OpenStreetMap_XML_ Fmt	1202	1133	OpenStreetMap XML data		OSM	adGIS	
OpenStreetMap_PBF_ Fmt	1203	1134	OpenStreetMap Protocolbuffer Binary Format data file (.osm.pbf)		PBF	adGIS	
Nero_Audio_Compilation_ Fmt	1204	1135	Nero Audio-CD compilation file		NRA	adMISC	
Nero_ISO_Compilation_ Fmt	1205	1136	Nero ISO compilation file		NRI	adMISC	
WordStar_for_Windows_ Fmt	1206	1137	WordStar for Windows file		WSD	adWORDPROCESSOR	stringssr

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
MS_Outlook_PAB_Fmt	1207	1138	Microsoft Outlook Personal Address Book (PAB)		PAB	adMISC	
HLSL_FXO_Fmt	1208	1139	DirectX High-Level Shader Language (HLSL) pre-compiled shader		FXO	adCAD	
HLSL_CSO_Fmt	1209	1140	DirectX High-Level Shader Language (HLSL) compiled shader object		CSO	adCAD	
Oberon_Document_Fmt	1210	1141	Component Pascal / Oberon Document file		ODC	adSOURCECODE	
Oberon_Symbol_Fmt	1211	1142	Component Pascal / Oberon Symbol file		OSF	adOBJECTMODULE	
Oberon_Code_Fmt	1212	1143	Component Pascal / Oberon Code (executable and loadable object) file		OCF	adEXECUTABLE	
Python_Bytecode_Fmt	1213	1144	Python compiled bytecode	application/x-bytecode.python	PYC	adEXECUTABLE	
PCPaint_Fmt	1214	1145	PCPaint / Pictor Paint image format		PIC	adRASTERIMAGE	
PCRaster_Map_Fmt	1215	1146	PCRaster Map / Cross System Format geographical data		MAP, CSF	adGIS	
COM_Type_Library_Fmt	1216	1147	Microsoft Component Object Model (COM) Type library		TLB	adLIBRARY	
MS_Visual_C_Export_Fmt	1217	1148	Microsoft Visual C++ Export file		EXP	adLIBRARY	
Lotus_Organizer_Report_Fmt	1218	1149	Lotus Organizer report document		REP	adSCHEDULE	
Audible_Audiobook_AA_Fmt	1219	1150	Audible Audiobook (AA) file	audio/audible	AA	adSOUND	
DOS_RED_Fmt	1220	1151	MS-DOS RED installer library format		RED	adLIBRARY	
CA_ZIPXP_Fmt	1221	1152	CA Technologies ZIPXP compressed document		CAZ	adENCAPSULATION	
Kindle_Topaz_Fmt	1222	1153	Amazon Kindle Topaz eBook		AZW, AZW1, TPZ	adWORDPROCESSOR	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Windows_Shim_ Database_Fmt	1223	1154	Microsoft Windows Shim Database file		SDB	adDATABASE	
MS_Incremental_Linker_ Fmt	1224	1155	Microsoft Visual Studio incremental linker file		ILK	adMISC	
Lotus_Smart_Icon_Fmt	1225	1156	Lotus Smart Icon image file		SMI	adRASTERIMAGE	
Lotus_Organizer_Layout_ Fmt	1226	1157	Lotus Organizer print/paper layout file		PLT	adSCHEDULE	
CMZ_Fmt	1227	1158	CMZ compression format		CMZ	adENCAPSULATION	
RFFlow_Fmt	1228	1159	RFFlow flowchart document		FLO	adPRESENTATION	
InstallShield_Script_Fmt	1229	1160	InstallShield script document		INS	adENCAPSULATION	
InstallShield_Rules_Fmt	1230	1161	InstallShield Compiled Rules file		INX	adENCAPSULATION	
Windows_FTS_Fmt	1231	1162	Microsoft Windows 95/NT help full-text-search file		FTS	adDATABASE	
DVD_Info_Fmt	1232	1163	DVD Information (IFO) file	content/dvd	IFO	adDATABASE	
Emacs_Lisp_Bytecode_ Fmt	1233	1164	Byte-compiled Lisp (Emacs/XEmacs)	application/x-bytecode.elisp	ELC	adEXECUTABLE	
Windows_Resource_Fmt	1234	1165	Microsoft Windows binary resource file		RES	adMISC	
MS_Precompiled_ Header_Fmt	1235	1166	Microsoft Visual C/C++ binary pre-compiled header		PCH	adMISC	
Borland_Turbo_Project_ Fmt	1236	1167	Borland Turbo C project file		PRJ	adMISC	
PS_Font_Descriptor_Fmt	1237	1168	PostScript binary Font Descriptor file		NTF	adFONT	
MySQL_Index_Fmt	1238	1169	MySQL MyISAM Table index		MYI	adDATABASE	
MS_SQL_Fmt	1239	1170	Microsoft SQL Server primary database file		MDF	adDATABASE	
DNL_eBook_Fmt	1240	1171	DNAML DNL eBook		DNL	adWORDPROCESSOR	
GD_Image_Fmt	1241	1172	GD Library image		GD, GD2	adRASTERIMAGE	
ITunes_Library_Fmt	1242	1173	Apple iTunes music library		ITL	adDATABASE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
MS_SQM_Fmt	1243	1174	Microsoft Windows Live Messenger/Mail log file		SQM	adMISC	
VIFF_Fmt	1244	1175	Khoros Visualization Image File Format (VIFF)	image/x-viff	XV, VIF, VIFF	adRASTERIMAGE	
JBIG_Fmt	1245	1176	JBIG (JBIG1) image	image/jbig	JBG, JBIG, BIE	adRASTERIMAGE	
CodeWarrior_Project_Fmt	1246	1177	CodeWarrior C/C++ project		MCP	adMISC	
PaintShop_Pro_JBF_Fmt	1247	1178	PaintShop Pro JBF image cache file	image/jbf	JBF	adMISC	
Delphi_Diagram_Portfolio_Fmt	1248	1179	Delphi Diagram Portfolio file		DDP	adMISC	
Adobe_Swatch_Exchange_Fmt	1249	1180	Adobe Swatch Exchange Format		ASE, ASEF	adRASTERIMAGE	
ASCII_Scene_Exporter_Fmt	1250	1181	Autodesk 3ds Max ASCII Scene Exporter file		ASE	adCAD	
AVR_Fmt	1251	1182	AVR (Audio Visual Research) format		AVR	adSOUND	
Winamp_AVS_Fmt	1252	1183	Winamp AVS (Advanced Visualization Studio) plug-in file		AVS	adSOUND	
After_Effects_Project_Fmt	1253	1184	Adobe After Effects project		AEP	adMOVIE	
Anfy_Applet_Generator_Fmt	1254	1185	Anfy (Java) Applet Generator file		AJP	adMISC	
SmartCipher_Fmt	1255	1186	SmartCipher encrypted file			adENCAPSULATION	
General_Exchange_Fmt	1256	1187	General Exchange Format (GXF)	application/gxf	GXF	adMOVIE	
Maxis_XA_Fmt	1257	1188	Maxis XA audio file		XA	adSOUND	
NUT_Fmt	1258	1189	NUT Open Container Format		NUT	adMOVIE	
OpenMG_Audio_Fmt	1259	1190	Sony OpenMG Audio (OMA) container file		OMA, OMG	adSOUND	
TXD_Fmt	1260	1191	Renderware Texture Dictionary (TXD) file		TXD	adRASTERIMAGE	
DFA_Fmt	1261	1192	DreamForge DFA FMV format		DFA	adMOVIE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
FunCom_ISS_Fmt	1262	1193	FunCom ISS audio		ISS	adSOUND	
Sony_MSV_Fmt	1263	1194	Sony Compressed Audio (MSV/DVF)		DVF, ICS, MSV	adSOUND	
THP_Fmt	1264	1195	GameCube THP Video		THP	adMOVIE	
Smush_Animation_Fmt	1265	1196	Smush Animation Format (SAN)		SAN, NUT	adANIMATION	
SIFF_Audio_Fmt	1266	1197	Beam Software SIFF audio file		SON	adSOUND	
SNES_SPC_Fmt	1267	1198	SNES SPC700 audio file		SPC	adSOUND	
Sierra_VMD_Fmt	1268	1199	Sierra Video and Music Data format		VMD	adMOVIE	
VTech_MJP_Fmt	1269	1200	VTech MHP video format		MJP	adMOVIE	
Nullsoft_Video_Fmt	1270	1201	Nullsoft Video format (NSV)		NSV	adMOVIE	
Shorten_Fmt	1271	1202	Shorten audio file		SHN	adSOUND	
Leitch_Video_Fmt	1272	1203	Leitch Exchange Format video (LXF)		LXF	adMOVIE	
ETV_Fmt	1273	1204	ETV video file		ETV	adMOVIE	
TAK_Audio_Fmt	1274	1205	TAK audio file		TAK	adSOUND	
Maelstrom_ANM_Fmt	1275	1206	Maelstrom ANM animation		ANM	adANIMATION	
SW_ANM_Fmt	1276	1207	Savage Warriors ANM animation		ANM	adANIMATION	
DeluxePaint_Animation_Fmt	1277	1208	DeluxePaint animation		ANM	adANIMATION	
Crack_Art_Fmt	1278	1209	Crack Art image		CA1	adRASTERIMAGE	
Time_Shift_Video_Fmt	1279	1210	Time Shift Video (TSV) format		TSV	adMOVIE	
XBV_Fmt	1280	1211	XBV video		XBV	adMOVIE	
HNM4_Fmt	1281	1212	CRYO HNM4 video		HNM	adMOVIE	
HNM6_Fmt	1282	1213	CRYO HNM6 video		HNM, HNS	adMOVIE	
NXV_Fmt	1283	1214	NXV video		NXV	adMOVIE	
VP5_Fmt	1284	1215	On2 VP5 video		VP5	adMOVIE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
FutureVision_FST_Fmt	1285	1216	FutureVision FST video		FST	adMOVIE	
Electronic_Arts_Audio_Fmt	1286	1217	Electronic Arts audio file		STR	adSOUND	
YOP_Fmt	1287	1218	Psygnosis YOP video		YOP	adMOVIE	
Matrox_Setup_Program_Fmt	1288	1219	Matrox Setup Program Archive MVA file		MVA	adMISC	
Vivado_Design_Suite_Fmt	1289	1220	Xilinx Vivado Design Suite file		VDS	adMISC	
Meridian_Lossless_Packing_Fmt	1290	1221	Meridian Lossless Packing Audio file		MLP	adSOUND	
Electronic_Arts_SEAD_Fmt	1291	1222	Electronic Arts SEAD audio		TGV	adSOUND	
Electronic_Arts_MPC_Fmt	1292	1223	Electronic Arts MPC video		MPC	adMOVIE	
PMP_Fmt	1293	1224	PMP video		PMP	adMOVIE	
DEGAS_Fmt	1294	1225	DEGAS (Design & Entertainment Graphic Arts System) image		PI1, PI2, PI3	adRASTERIMAGE	
DEGAS_Compressed_Fmt	1295	1226	DEGAS (Design & Entertainment Graphic Arts System) compressed image		PC1, PC2, PC3	adRASTERIMAGE	
AutoCAD_Plotter_Fmt	1296	1227	AutoCAD Plot Style and Configuration files		CTB, STB, PC3, PMP	adCAD	
Tiny_Stuff_Fmt	1297	1228	Tiny Stuff image		TNY, TN1, TN2, TN3.TN4.TN5.TN6	adRASTERIMAGE	
JV_Video_Fmt	1298	1229	Bitmap Brothers JV video		JV	adMOVIE	
REDCode_Fmt	1299	1230	REDCode video format		R3D	adMOVIE	
SIFF_Video_Fmt	1300	1231	Beam Software SIFF video file		VB	adMOVIE	
VP6_Fmt	1301	1232	On2 VP6 video		VP6	adMOVIE	
MTV_Fmt	1302	1233	Chinese MP4/MTV video		MTV	adMOVIE	
RSO_Fmt	1303	1234	Mindstorm RSO audio		RSO	adSOUND	
Star3_Fmt	1304	1235	Creative Labs Star 3 audio		ST3	adSOUND	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
DXA_Fmt	1305	1236	Runesoft DXA video		DXA	adMOVIE	
MTH_Fmt	1306	1237	Nintendo GameCube video file		MTH	adMOVIE	
MAD_Fmt	1307	1238	Electronic Arts MAD video file		MAD	adMOVIE	
Bink2_Fmt	1308	1239	Bink Video 2 audio-video container		BIK, BK2	adMOVIE	
PVA_Fmt	1309	1240	TechnoTrend PVA video		PVA	adMOVIE	
Interplay_ACMP_Fmt	1310	1241	Interplay ACMP audio			adSOUND	
Ipix_Fmt	1311	1242	Ipix spherical image		IPX	adRASTERIMAGE	
IVR_Fmt	1312	1243	RealNetworks Internet Video Recording (IVR) file		IVR	adMOVIE	
NuppelVideo_Fmt	1313	1244	NuppelVideo file		NUV	adMOVIE	
VFlash_PTX_Fmt	1314	1245	VTech V.Flash VTX image		PTX	adRASTERIMAGE	
PMD_Ringtone_Fmt	1315	1246	Polyphonic Ringtone PMD audio	application/x-pmd	PMD	adSOUND	
RoQ_Fmt	1316	1247	RoQ video		ROQ	adMOVIE	
CRYO_APC_Fmt	1317	1248	CRYO Interactive APC audio		APC, HNM, BF, ZIK	adSOUND	
VGZ_Fmt	1318	1249	VGZ video		VGZ	adMOVIE	
Novastorm_Video_Fmt	1319	1250	Novastorm Media video file		FA, FLM	adMOVIE	
UTalk_Fmt	1320	1251	MicroTalk/UTalk audio		UTK	adSOUND	
Xbox_XMV_Fmt	1321	1252	Microsoft Xbox XMV video		XMV	adMOVIE	
AbiWord_Fmt	1322	1253	AbiWord document	application/x-abiword	ABW	adWORDPROCESSOR	xmlsr
AbiWord_Template_Fmt	1323	1254	AbiWord template		ABT	adWORDPROCESSOR	
Psion_Word_Fmt	1324	1255	Psion EPOC Word document		PSI, PSITEXT	adWORDPROCESSOR	stringssr
Psion_Sheet_Fmt	1325	1256	Psion EPOC Sheet spreadsheet		PSISHEET	adSPREADSHEET	
Psion_Sketch_Fmt	1326	1257	Psion EPOC Sketch image			adRASTERIMAGE	
Psion_Record_Fmt	1327	1258	Psion EPOC Record audio			adSOUND	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Psion_MBM_Fmt	1328	1259	Psion EPOC Multi-Bitmap (MBM) image		MBM	adRASTERIMAGE	
Psion_TextEd_Fmt	1329	1260	Psion EPOC TextEd file			adWORDPROCESSOR	stringssr
Psion_AIF_Fmt	1330	1261	Psion EPOC Application Information File (AIF)		AIF	adRASTERIMAGE	
Psion_PIC_Fmt	1331	1262	Psion 3 PIC bitmap		PIC	adRASTERIMAGE	
Psion_Object_Fmt	1332	1263	Psion 3 OPL Object File		OPA, OPO	adENCAPSULATION	
Psion_Executable_Fmt	1333	1264	Psion 3 IMG/APP executable		IMG, APP	adEXECUTABLE	
Psion_Sound_Fmt	1334	1265	Psion 3 Sound file		WVE	adSOUND	
Psion_Database_Fmt	1335	1266	Psion EPOC Database			adDATABASE	
Psion_Word_3_Fmt	1336	1267	Psion 3 Word document		WRD	adWORDPROCESSOR	stringssr
Psion_Sheet_3_Fmt	1337	1268	Psion 3 Sheet spreadsheet		SPR	adSPREADSHEET	
Zoner_Draw_Fmt	1338	1269	Zoner Draw / Zoner Callisto Metafile (ZMF)		ZMF	adVECTORGRAPHIC	
Zoner_BMI_Fmt	1339	1270	Zoner BMI image		BMI	adRASTERIMAGE	
TealDoc_Fmt	1340	1271	TealDoc PalmOS eBook		PDB	adWORDPROCESSOR	
TealPaint_Fmt	1341	1272	TealPaint PalmOS eBook		PDB	adWORDPROCESSOR	
PalmDOC_Fmt	1342	1273	PalmDOC / Aportis DOC eBook	application/x-aportisdoc	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	stringssr
Quicksheet_Fmt	1347	1278	PalmOS Quicksheet document		PRC	adSPREADSHEET	
Quickpoint_Fmt	1348	1279	PalmOS Quickpoint document		PRC	adPRESENTATION	
TealMeal_Fmt	1349	1280	TealMeal PalmOS database		PDB	adDATABASE	
zTXT_Fmt	1350	1281	zTXT eBook	application/x-pdb-ztxt-ebook	PDB	adWORDPROCESSOR	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
TomeRaider_Fmt	1351	1282	TomeRaider eBook		TR	adWORDPROCESSOR	
TomeRaider_PDB_Fmt	1352	1283	TomeRaider PDB eBook		TR2, TR3	adWORDPROCESSOR	
WordSmith_Fmt	1353	1284	PalmOS Wordsmith document			adWORDPROCESSOR	
iSilo_Fmt	1354	1285	PalmOS iSilo document	application/x-pdb-isilo-ebook	PDB	adWORDPROCESSOR	
SuperMemo_Fmt	1355	1286	PalmOS SuperMemo document		KNO, PDB	adWORDPROCESSOR	
BDicty_Fmt	1356	1287	PalmOS BDicty document		PDB	adWORDPROCESSOR	
PalmOS_Executable_Fmt	1357	1288	PalmOS executable	application/vnd.palm	PRC	adEXECUTABLE	
PalmOS_Library_Fmt	1358	1289	PalmOS dynamic library		PRC	adLIBRARY	
Shanda_Bambook_Fmt	1359	1290	Shanda Bambook eBook	application/x-snb-ebook	SNB	adWORDPROCESSOR	
PMLZ_Fmt	1360	1291	Palm Markup Language (PMLZ) eBook		PMLZ	adWORDPROCESSOR	
Rocket_eBook_Fmt	1361	1292	Rocket eBook	application/x-rocketbook	RB	adWORDPROCESSOR	
iBooks_Author_Fmt	1362	1293	Apple iBooks Author eBook	application/vnd.apple.ibauthor	IBA	adWORDPROCESSOR	
Statistica_Spreadsheet_Fmt	1363	1294	Statsoft Statistica Spreadsheet		STA	adSPREADSHEET	
Statistica_Graph_Fmt	1364	1295	Statsoft Statistica Graph File		STG	adVECTORGRAPHIC	
Statistica_Scrollsheet_Fmt	1365	1296	Statsoft Statistica Scrollsheet		SCR	adSPREADSHEET	
Apple_Newton_Package_Fmt	1366	1297	Apple Newton executable/installer/file		PKG	adEXECUTABLE	
Adobe_Zip_Extension_Fmt	1367	1298	Adobe Zip Format Extension Package (ZXP)	application/vnd.adobe.air-ucf-package+zip	ZXP	adENCAPSULATION	
Uniform_Office_Fmt	1368	1299	Uniform Office Format document		UOF	adWORDPROCESSOR	xmlsr
Uniform_Office_Text_Fmt	1369	1300	Uniform Office Format word processing document	application/vnd.uof.text	UOF, UOT	adWORDPROCESSOR	xmlsr
Uniform_Office_Spreadsheet_Fmt	1370	1301	Uniform Office Format spreadsheet	application/vnd.uof.spreadsheet	UOF, UOS	adSPREADSHEET	
Uniform_Office_Presentation_Fmt	1371	1302	Uniform Office Format presentation	application/vnd.uof.presentation	UOF, UOP	adPRESENTATION	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Uniform_Office_Zip_Fmt	1372	1303	Uniform Office Format document, zip format		UOF	adWORDPROCESSOR	
Uniform_Office_Text_Zip_Fmt	1373	1304	Uniform Office Format word processing document, zip format	application/vnd.uof.text+zip	UOF, UOT	adWORDPROCESSOR	
Uniform_Office_Spreadsheet_Zip_Fmt	1374	1305	Uniform Office Format spreadsheet, zip format	application/vnd.uof.spreadsheet+zip	UOF, UOS	adSPREADSHEET	
Uniform_Office_Presentation_Zip_Fmt	1375	1306	Uniform Office Format presentation, zip format	application/vnd.uof.presentation+zip	UOF, UOP	adPRESENTATION	
MacDraft_Fmt	1376	1307	MacDraft drawing		DRW, MDD	adCAD	
RagTime_Fmt	1377	1308	RagTime document		RAG, RTD	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	stringssr
BeagleWorks_Database_Fmt	1382	1313	BeagleWorks (later WordPerfect Works) Database document		BW, WPW	adDATABASE	
BeagleWorks_Spreadsheet_Fmt	1383	1314	BeagleWorks (later WordPerfect Works) Spreadsheet document		BW, WPW	adSPREADSHEET	
BeagleWorks_Paint_Fmt	1384	1315	BeagleWorks (later WordPerfect Works) Paint document		BW, WPW	adRASTERIMAGE	
BeagleWorks_Draw_Fmt	1385	1316	BeagleWorks (later WordPerfect Works) Draw document		BW, WPW	adVECTORGRAPHIC	
GreatWorks_Word_Fmt	1386	1317	Symantec GreatWorks Word Processor document			adWORDPROCESSOR	stringssr
GreatWorks_Outline_Fmt	1387	1318	Symantec GreatWorks Outline document			adOUTLINE	
GreatWorks_Database_Fmt	1388	1319	Symantec GreatWorks Database document			adDATABASE	
GreatWorks_	1389	1320	Symantec GreatWorks			adSPREADSHEET	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Spreadsheet_Fmt			Spreadsheet document				
GreatWorks_Draw_Fmt	1390	1321	Symantec GreatWorks Draw document			adVECTORGRAPHIC	
GreatWorks_Chart_Fmt	1391	1322	Symantec GreatWorks Chart document			adVECTORGRAPHIC	
MS_Works_3_Mac_WP_Fmt	1392	1323	Microsoft Works for Mac, version 3 and 4, Word Processor document	application/x-msworks	MSW, WPS	adWORDPROCESSOR	
MS_Works_3_Mac_DB_Fmt	1393	1324	Microsoft Works for Mac, version 3 and 4, Database	application/x-msworks	WDB	adDATABASE	
MS_Works_3_Mac_SS_Fmt	1394	1325	Microsoft Works for Mac, version 3 and 4, Spreadsheet	application/x-msworks	WKS	adSPREADSHEET	
MS_Works_3_Mac_Comm_Fmt	1395	1326	Microsoft Works for Mac, version 3 and 4, Communications document	application/x-msworks		adCOMMUNICATION	
MS_Works_3_Mac_Draw_Fmt	1396	1327	Microsoft Works for Mac, version 3 and 4, Draw document	application/x-msworks	MSW	adVECTORGRAPHIC	
SAP_VDS_Fmt	1397	1328	SAP 3d Visual Enterprise VDS document		VDS	adCAD	
ZIPVFS_Fmt	1398	1329	ZIPVFS SQLite compressed read/write database		SQLITE	adDATABASE	
Right_Hemisphere_Material_Fmt	1399	1330	Right Hemisphere Material file		RH, RHM	adCAD	
RH_Thumbnails_Fmt	1400	1331	Right Hemisphere thumbnail collection file		$RH	adCAD	
Westwood_Studios_Audio_Fmt	1401	1332	Westwood Studios Audio file		AUD	adSOUND	
Shockwave_Stream_Fmt	1402	1333	Shockwave Stream audio-video file		STREAM	adMOVIE	
EGG_Video_Fmt	1403	1334	EGG video file		EGG	adMOVIE	
IRCAM_Fmt	1404	1335	IRCAM audio file		IRCAM	adSOUND	
Sierra_Audio_Fmt	1405	1336	Sierra Entertainment audio file		SOL	adSOUND	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
TiVo_Video_Fmt	1406	1337	TiVo video		TY+	adMOVIE	
OptimFROG_Fmt	1407	1338	OptimFROG audio		OFR, OFS	adSOUND	
LPAC_Fmt	1408	1339	Lossless Predictive Audio Compression file		PAC	adSOUND	
RK_Audio_Fmt	1409	1340	RK Audio lossless compressed audio		RKA	adSOUND	
Asylum_Music_Fmt	1410	1341	Asylum Music Format		AMF	adSOUND	
Novastorm_Audio_Fmt	1411	1342	Novastorm Media audio file		SMP	adSOUND	
HHE_Fmt	1412	1343	HHE video		HHE	adMOVIE	
Portable_Voice_Fmt	1413	1344	Portable Voice Format audio		PVF	adSOUND	
CNM_Video_Fmt	1414	1345	Arxel CNM audio-video format		CNM	adMOVIE	
Phantom_Cine_Fmt	1415	1346	Phantom Cine video file		CINE	adMOVIE	
MPEG2_Transport_ Stream_Fmt	1416	1347	MPEG-2 Transport Stream video		M2TS	adMOVIE	
Audacity_Project_Fmt	1417	1348	Audacity audio project file	application/x-audacity-project	AUP	adSOUND	
Voltage_VSF_Fmt	1418	1349	Micro Focus Voltage VSF encrypted file		VDF	adENCAPSULATION	
XLIFF_Fmt	1419	1350	XML Localization Interchange File Format (XLIFF)	application/xliff+xml	XLF	adWORDPROCESSOR	xmlsr
XBRL_Fmt	1420	1351	Extensible Business Reporting Language (XBRL)		XBRL	adWORDPROCESSOR	xmlsr
AuditXPressX_Fmt	1421	1352	AuditXPressX file		AXPX	adWORDPROCESSOR	
Box_Note_Fmt	1422	1353	Box Note document		BOXNOTE	adWORDPROCESSOR	
Hikvision_DVR_Fmt	1423	1354	Hikvision DVR video			adMOVIE	
Electronic_Arts_TGV_ Fmt	1424	1355	Electronic Arts TGV video		TGV	adMOVIE	
Electronic_Arts_TGQ_ Fmt	1425	1356	Electronic Arts TGQ video		TGQ	adMOVIE	
Reaper_Video_Fmt	1426	1357	Reaper Video		FMV	adMOVIE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Lightweight_Video_Fmt	1427	1358	Lightweight Video Format (LVF)		LVF	adMOVIE	
Liquid_Audio_Fmt	1428	1359	Liquid Audio		LQT	adSOUND	
Extended_Instrument_ Fmt	1429	1360	eXtended Instrument generic audio tracker		XI	adSOUND	
MAML_Fmt	1430	1361	Microsoft Assistance Markup Language		AML	adWORDPROCESSOR	xmlsr
MS_Chat_Character_Fmt	1431	1362	Microsoft Comic Chat Character		AVB	adRASTERIMAGE	
MS_Border_Fmt	1432	1363	Microsoft Office Border images		BDR	adRASTERIMAGE	
MS_Binary_Log_Fmt	1433	1364	Microsoft Binary Log file		BLG	adMISC	
MS_Reader_eBook_Fmt	1434	1365	Microsoft Reader eBook file		LIT	adWORDPROCESSOR	
MS_Reader_ Annotations_Fmt	1435	1366	Microsoft Reader annotation file		EBO	adWORDPROCESSOR	
Amazon_KFX_Aux_Fmt	1436	1367	Amazon KFX eBook auxiliary format (2015)		KFX, AZW	adWORDPROCESSOR	
Amazon_KFX_Ion_Fmt	1437	1368	Amazon KFX eBook Ion format (2015)		KFX, AZW, ION	adWORDPROCESSOR	
MS_DPAPI_Fmt	1438	1369	Microsoft Data Protection API (DPAPI) data			adMISC	
MS_Streets_Fmt	1439	1370	Microsoft Streets & Trips map		EST	adGIS	
MS_Fast_Find_Index_ Fmt	1440	1371	Microsoft Office Fast Find Index		FFX	adMISC	
MS_Fresh_Paint_Fmt	1441	1372	Microsoft Fresh Paint image		FPPX	adRASTERIMAGE	
MS_Mathematics_Fmt	1442	1373	Microsoft Mathematics worksheet		GCW	adSCIENTIFIC	
MS_Instrument_ Definition_Fmt	1443	1374	Microsoft MIDI Instrument Definition File		IDF	adSOUND	
MS_Pocket_Streets_Fmt	1444	1375	Microsoft Pocket Streets map		MPS	adGIS	
Obfuscated_OpenType_ Fmt	1445	1376	Obfuscated OpenType font (ODTTF)	application/vnd.ms-package.obfuscated-opentype	ODTTF	adFONT	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Pfaff_PCS_Fmt	1446	1377	Pfaff PCS embroidery image		PCS	adVECTORGRAPHIC	
Janome_JEF_Fmt	1447	1378	Janome JEF embroidery format		JEF	adVECTORGRAPHIC	
Husqvarna_HUS_Fmt	1448	1379	Husqvarna Viking HUS embroidery format		HUS	adVECTORGRAPHIC	
Husqvarna_VIP_Fmt	1449	1380	Husqvarna Viking-Pfaff VIP embroidery format		VIP	adVECTORGRAPHIC	
Brother_PEC_Fmt	1450	1381	Brother PEC embroidery format		PEC	adVECTORGRAPHIC	
Brother_PES_Fmt	1451	1382	Brother PEC embroidery format		PES	adVECTORGRAPHIC	
Viking_SHV_Fmt	1452	1383	Viking SHV embroidery format		SHV	adVECTORGRAPHIC	
VP3_Fmt	1453	1384	VP3 embroidery format		VP3	adVECTORGRAPHIC	
SEW_Fmt	1454	1385	SEW embroidery format		SEW	adVECTORGRAPHIC	
Data_Stitch_Tajima_Fmt	1455	1386	Data Stitch Tajima (DST) embroidery image		DST	adVECTORGRAPHIC	
Singer_XXX_Fmt	1456	1387	Singer XXX embroidery image		XXX	adVECTORGRAPHIC	
Bernina_ART_Fmt	1457	1388	Bernina ART embroidery image		ART	adVECTORGRAPHIC	
MS_Prefetch_Fmt	1458	1389	Microsoft Windows Prefetch (uncompressed) file		PF	adMISC	
MS_Prefetch_ Compressed_Fmt	1459	1390	Microsoft Windows Prefetch (compressed) file		PF	adMISC	
MS_MapPoint_Fmt	1460	1391	Microsoft MapPoint map		PTM	adGIS	
MS_Live_Meeting_Fmt	1461	1392	Microsoft Office Live Meeting Connection		RTC	adSCHEDULE	
MS_Speech_Definitions_ Fmt	1462	1393	Microsoft text-to-speech Speech Definitions File		SDF	adMISC	
MS_Speech_Data_Fmt	1463	1394	Microsoft text-to-speech Speech Data File		SPD	adDATABASE	
MS_SQL_CE_Fmt	1464	1395	Microsoft SQL Server		SDF	adDATABASE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			Compact (CE) edition database				
MS_ICE_Project_Fmt	1465	1396	Microsoft Image Composite Editor (ICE) Project		SPJ	adMISC	
MS_DVR_Fmt	1466	1397	Microsoft Digital Video Recording (DVR-MS)	video/x-ms-dvr	DVR-MS	adMOVIE	
Symbol_Dynamics_EXP_Fmt	1467	1398	Symbol Dynamics EXP document		WXP	adWORDPROCESSOR	stringssr
XNA_Compiled_Fmt	1468	1399	Microsoft XNA Compiled Format		XNB	adENCAPSULATION	
Outlook_Shortcut_Fmt	1469	1400	Microsoft Outlook or Exchange folder shortcut		XNK	adMISC	
ChiWriter_Fmt	1470	1401	ChiWriter document (up to version 3)		CHI	adWORDPROCESSOR	
ChiWriter4_Fmt	1471	1402	ChiWriter document (version 4)		CHI	adWORDPROCESSOR	
Lightning_Strike_Fmt	1472	1403	Lightning Strike image	image/cis-cod	COD	adRASTERIMAGE	
Blackberry_Executable_Fmt	1473	1404	Blackberry executable		COD	adEXECUTABLE	
EndNote_Library_Fmt	1474	1405	EndNote Library (up to version 9)	application/x-endnote-library	ENL	adDATABASE	
EndNote_Library_X_Fmt	1475	1406	EndNote Library (version X onwards)		ENL, ENLX	adDATABASE	
EndNote_Filter_Fmt	1476	1407	EndNote Filter	application/x-puid-fmt-327	ENF	adDATABASE	
EndNote_Style_Fmt	1477	1408	EndNote Style	application/x-endnote-style	ENS	adDATABASE	
EndNote_Connection_Fmt	1478	1409	EndNote Connection	application/x-endnote-connect	ENZ	adDATABASE	
Camtasia_Recording_Fmt	1479	1410	Camtasia Recording		CAMREC	adMOVIE	
Camtasia_Project_Fmt	1480	1411	Camtasia XML Project		CAMPROJ	adWORDPROCESSOR	
TechSmith_Project_Fmt	1481	1412	TechSmith JSON Project		TSCPROJ	adWORDPROCESSOR	
ABIF_Fmt	1482	1413	Applied Biosystems Inc. Format (ABIF)		AB1, FSA	adSCIENTIFIC	
CIF_Fmt	1483	1414	Crystallographic	chemical/x-cif	CIF	adSCIENTIFIC	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			Information File				
Sibelius_Fmt	1484	1415	Sibelius musical score		SIB	adSOUND	
Geogebra_Worksheet_Fmt	1485	1416	Geogebra worksheet	application/vnd.geogebra.file	GGB	adSCIENTIFIC	
Geogebra_Tool_Fmt	1486	1417	Geogebra tool		GGT	adSCIENTIFIC	
Polynomial_Texture_Map_Fmt	1487	1418	Polynomial Texture Map (PTM)		PTM	adRASTERIMAGE	
Poly_Tracker_Fmt	1488	1419	Poly Tracker audio		PTM	adSOUND	
PC_Outline_Fmt	1489	1420	PC-Outline document		PCO	adWORDPROCESSOR	
Spline_Font_Database_Fmt	1490	1421	Spline Font Database (SFD) font		SFD	adFONT	
QuickTime_Image_Fmt	1491	1422	QuickTime (QTIF) image	image/x-quicktime	QTIF, QIF, QTI	adRASTERIMAGE	
XBin_Image_Fmt	1492	1423	XBin image		XB	adRASTERIMAGE	
Segmented_Hypergraphics_Fmt	1493	1424	MS Segmented Hypergraphics image		SHG	adRASTERIMAGE	
LEADTools_CMP_Fmt	1494	1425	LEADTools CMP image		CMP	adRASTERIMAGE	
WBMP_Fmt	1495	1426	Wireless Bitmap image (WBMP)	image/vnd.wap.wbmp	WBMP	adRASTERIMAGE	
Blender_Fmt	1496	1427	Blender (v2) CAD file	application/x-blender	BLEND	adCAD	
Blender_v1_Fmt	1497	1428	Blender (v1) CAD file	application/x-blender	BLEND	adCAD	
Scribus_Fmt	1498	1429	Scribus document	application/vnd.scribus	SLA	adDESKTOPPUBLSH	
LyX_Fmt	1499	1430	LyX document	application/x-lyx	LYX	adWORDPROCESSOR	lyxsr
NZB_Fmt	1500	1431	NewzBin NZB format	application/x-nzb	NZB	adWORDPROCESSOR	
KWord_Fmt	1501	1432	KOffice KWord document	application/vnd.kde.kword	KWD	adWORDPROCESSOR	
KSpread_Fmt	1502	1433	KOffice KSpread document	application/vnd.kde.kspread	KSP	adSPREADSHEET	
KPresenter_Fmt	1503	1434	KOffice KPresenter document	application/vnd.kde.kpresenter	KPR	adPRESENTATION	
KWord_GZ_Fmt	1504	1435	KOffice (up to v1.1) kWord document	application/x-kword	KWD	adWORDPROCESSOR	
KSpread_GZ_Fmt	1505	1436	KOffice (up to v1.1) kSpread document	application/x-kspread	KSP	adSPREADSHEET	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
KPresenter_GZ_Fmt	1506	1437	KOffice (up to v1.1) kPresenter document	application/x-kpresenter	KPR	adPRESENTATION	
Karbon_Fmt	1507	1438	KOffice Karbon document	application/vnd.kde.karbon	KARBON	adVECTORGRAPHIC	
KChart_Fmt	1508	1439	KOffice KChart document	application/vnd.kde.kchart	CHRT	adSPREADSHEET	
KPlato_Fmt	1509	1440	KOffice KPlato document	application/x-vnd.kde.kplato	KPLATO	adSCHEDULE	
GIMP_Pattern_Fmt	1510	1441	GIMP Pattern file		PAT	adRASTERIMAGE	
GIMP_Brush_Fmt	1511	1442	GIMP Brush file		GBR	adRASTERIMAGE	
GIMP_Animated_Brush_Fmt	1512	1443	GIMP Animated Brush file		GIH	adRASTERIMAGE	
Git_Pack_Index_Fmt	1513	1444	Git Pack Index format		IDX	adENCAPSULATION	
Git_Index_Fmt	1514	1445	Git Index format		INDEX	adENCAPSULATION	
MS_Tape_Fmt	1515	1446	Microsoft Tape Format		MTF, BAK	adENCAPSULATION	
STL_Binary_Fmt	1516	1447	3D Systems Stereolithography STL Binary Format			adCAD	
Unix_Shadow_Fmt	1517	1448	Unix /etc/shadow password file			adMISC	
MS_SQL_Log_Fmt	1518	1449	Microsoft SQL Server log		LDF	adDATABASE	
DER_Certificate_Fmt	1519	1450	DER-encoded X509 certificate	application/x-x509-user-cert	DER, CER	adENCAPSULATION	
EDIFACT_Fmt	1520	1451	EDIFACT-encoded EDI document	application/edifact	EDI	adDATABASE	
X12_Fmt	1521	1452	X12-encoded EDI document	application/edi-x12	EDI	adDATABASE	
Mathcad_Fmt	1522	1453	Mathcad MCD document	application/vnd.mcd	MCD	adSCIENTIFIC	
Mathcad_XML_Fmt	1523	1454	Mathcad XMCD document	application/x-mathcad	XMCD	adSCIENTIFIC	xmlsr
EDrawings_Fmt	1524	1455	eDrawings Publisher document		EASM, EPRT, EDRW	adCAD	
First_Choice_DB_Fmt	1525	1456	PFS First Choice database	database/x-firstchoice	FOL	adDATABASE	
First_Choice_WP_Fmt	1526	1457	PFS First Choice word-processing document		DOC	adWORDPROCESSOR	
First_Choice_SS_Fmt	1527	1458	PFS First Choice spreadsheet	application/x-first-choice	SS	adSPREADSHEET	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Professional_Plan_Fmt	1528	1459	PFS Professional Plan spreadsheet	application/x-pfs-plan		adSPREADSHEET	
PFS_Write_Fmt	1529	1460	PFS Professional Write document	application/x-pfsprofessionalwrite	PFS	adWORDPROCESSOR	
Symantec_QA_Fmt	1530	1461	Symantec Q&A Database		DTF	adDATABASE	
Bitmap_Graphics_Array_Fmt	1531	1462	OS/2 Bitmap Graphics Array	image/bga	BGA, BMP, ICO	adRASTERIMAGE	
OS2_Help_Fmt	1532	1463	OS/2 Help/INF document		HLP, INF	adWORDPROCESSOR	
Frame_Vector_Fmt	1533	1464	Frame Vector Metafile		FMV	adVECTORGRAPHIC	
RBase_2_Fmt	1534	1465	R:Base database (v2-v4)		RBF	adDATABASE	
Harvard_Graphics_Symbol2_Fmt	1535	1466	Harvard Graphics Symbol File (v2)		SYM	adVECTORGRAPHIC	
Freelance_Graphics_Fmt	1536	1467	Lotus Freelance Graphics image		DRW	adRASTERIMAGE	
Snoop_Capture_Fmt	1537	1468	Snoop Packet Capture file		CAP, SNOOP	adENCAPSULATION	
Python_Pickle_Fmt	1538	1469	Python Pickle file		PICKLE, PKL, P	adEXECUTABLE	
Matlab_Pcode_Fmt	1539	1470	Matlab P-code file		P	adSOURCECODE	
Rhinoceros_3D_Fmt	1540	1471	Rhinoceros 3D Model		3DM	adCAD	
GL_Transmission_Binary_Fmt	1541	1472	Graphics Language (GL) Binary Transmission Format	model/gltf+binary	GLB	adCAD	
CAD_3DXML_Fmt	1542	1473	3DVIDIA 3DXML archive	application/x-3dxmlplugin	3DXML	adCAD	
CAD_3DXML_XML_Fmt	1543	1474	3DVIDIA 3DXML XML document		3DXML	adCAD	
Autodesk_Fusion_360_Fmt	1544	1475	Autodesk Fusion 360 model		F3D	adCAD	
DELFTship_Fmt	1545	1476	DELFTship or FREE!ship model		FBM	adCAD	
Autodesk_Inventor_Drawing_Fmt	1546	1477	Autodesk Inventor drawing		IDW	adCAD	
Autodesk_Inventor_Part_Fmt	1547	1478	Autodesk Inventor part		IPT	adCAD	
Autodesk_Inventor_Assembly_Fmt	1548	1479	Autodesk Inventor assembly		IAM	adCAD	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
Autodesk_Revit_Fmt	1549	1480	Autodesk Revit document		RVT, RFA, RTE, RFT	adCAD	
FreeCAD_Fmt	1550	1481	FreeCAD document		FCSTD	adCAD	
Solid_Edge_Part_Fmt	1551	1482	Solid Edge part		PAR	adCAD	
Solid_Edge_Assembly_Fmt	1552	1483	Solid Edge assembly		ASM	adCAD	
Solid_Edge_SheetMetal_Fmt	1553	1484	Solid Edge sheet metal		PSM	adCAD	
SolidWorks_Visualize_Project_Fmt	1554	1485	SolidWorks Visualize project		SVPJ	adCAD	
Apache_Parquet_Fmt	1555	1486	Apache Parquet document		PARQUET	adDATABASE	parquetsr
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	
AV1_Image_Fmt	1566	1497	AV1 Image Format (AVIF)	image/avif	AVIF	adRASTERIMAGE	
AV1_Image_Sequence_Fmt	1567	1498	AV1 Image Sequence Format (AVIFS)	image/avif-sequence	AVIFS	adANIMATION	
IVF_Fmt	1568	1499	IVF container document		IVF	adRASTERIMAGE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
AV1_Image_IVF_Fmt	1569	1500	AV1 Image (IVF container)	image/avif	AVIF, AVIFS	adRASTERIMAGE	
VP8_IVF_Fmt	1570	1501	VP8 Video (IVF container)		VP8	adMOVIE	
HPROF_Fmt	1571	1502	HPROF Java Profiler document	application/vnd.java.hprof	HPROF	adMISC	
XLIFF_Compressed_Fmt	1572	1503	XML Localization Interchange File Format compressed (XLIFF)	application/xliff+zip	XLZ	adWORDPROCESSOR	
Scenarist_Caption_Fmt	1573	1504	Scenarist Closed Caption document		SCC	adWORDPROCESSOR	
SubRip_Text_Fmt	1574	1505	SubRip Text (STT) subtitles document		SRT	adWORDPROCESSOR	
EBU_Subtitling_Fmt	1575	1506	EBU Subtitling data exchange format		STL	adWORDPROCESSOR	
Apache_ORC_Fmt	1576	1507	Apache ORC (Optimized Row Columnar) data		ORC	adDATABASE	
NES_Sound_Fmt	1577	1508	NES Sound File		NSF	adSOUND	
IW13_IWA_Fmt	1578	1509	Apple iWork 2013 IWA document		IWA	adMISC	
BioRad_Image_Fmt	1579	1510	BioRad confocal image		PIC	adSCIENTIFIC	
NIfTI_Fmt	1580	1511	NIfTI (NII) neuroimaging document		NII	adSCIENTIFIC	
MRC_DV_Fmt	1581	1512	MRC Deltavision (DV) / Priism image		DV	adSCIENTIFIC	
MRC_CCP4_Fmt	1582	1513	MRC CCP4 2014 image		MRC	adSCIENTIFIC	
ECAT_PET_Fmt	1583	1514	ECAT medical PET image		V	adSCIENTIFIC	
OME_XML_Fmt	1584	1515	Open Microscopy Environment (OME) XML document		XML	adSCIENTIFIC	
Panasonic_RAW_Fmt	1585	1516	Panasonic RAW or Leica RWL image	image/x-panasonic-raw	RAW, RWL	adRASTERIMAGE	
Panasonic_RW2_Fmt	1586	1517	Panasonic RW2 image	image/x-panasonic-rw2	RW2	adRASTERIMAGE	
FujiFilm_RAF_Fmt	1587	1518	FujiFilm RAF image	image/x-fuji-raf	RAF	adRASTERIMAGE	
Olympus_ORF_Fmt	1588	1519	Olympus ORF image	image/x-olympus-orf	ORF	adRASTERIMAGE	
HEVC_Fmt	1589	1520	High Efficiency Video	video/h265	HEVC, H265	adMOVIE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			Coding (HEVC) MP4 document				
PAM_Fmt	1590	1521	Portable Arbitrary Map (PAM) image	image/x-portable-arbitrarymap	PAM	adRASTERIMAGE	
Paris_Audio_Fmt	1591	1522	Paris Audio Format		FAP, PAF	adSOUND	
Calendar_Creator_Fmt	1592	1523	Broderbund Calendar Creator document (v4+)		CC3, CE3, CC5, BCC	adSCHEDULE	
IWork_2013_Protected_Fmt	1593	1524	iWork 2013 password-protected document		PAGES, NUMBERS, KEY	adWORDPROCESSOR	
Corel_Wavelet_WVL_Fmt	1594	1525	Corel Wavelet WVL image		WVL	adRASTERIMAGE	
Corel_Wavelet_WI_Fmt	1595	1526	Corel Wavelet WI image		WI	adRASTERIMAGE	
Corel_Painter_RIF_Fmt	1596	1527	Corel Painter RIFF image		RIF	adRASTERIMAGE	
OmniPage_MET_Fmt	1597	1528	Caere OmniPage MET document		MET	adMISC	
OmniPage_OPD_Fmt	1598	1529	Caere OmniPage OPD document		OPD	adMISC	
GPS_Exchange_Fmt	1599	1530	GPS Exchange Format	application/gpx+xml	GPX	adGIS	
GL_Transmission_Fmt	1600	1531	GL Transmission Text Format	model/gltf+json	GLTF	adCAD	
CorelChart_Fmt	1601	1532	CorelChart document		CCH	adVECTORGRAPHIC	
LocoScript_PCW_Fmt	1602	1533	LocoScript document for Amstrad PCW			adWORDPROCESSOR	
LocoScript_DOS_Fmt	1603	1534	LocoScript document for MS-DOS			adWORDPROCESSOR	
IWork_2005_Protected_Fmt	1604	1535	iWork 2005-2009 password-protected document		PAGES, NUMBERS, KEY	adWORDPROCESSOR	
JAR_Pack_Fmt	1605	1536	Java Archive compressed with pack200	application/x-java-pack200	PACK	adENCAPSULATION	
GDIFF_Fmt	1606	1537	GDIFF (Generic Diff) document	application/gdiff		adMISC	
AFP_Fmt	1607	1538	IBM Advanced Function Presentation (AFP) image	application/vnd.ibm.modcap	AFP	adRASTERIMAGE	
NSIF_Fmt	1608	1539	NATO Secondary Image		NSF	adRASTERIMAGE	

Format Name	Number	Category	Description	MIME Type	Extension	File Class	Readers
			Format (NSIF) image				
XSL_FO_Fmt	1609	1540	XSL Formatting Object (XSL-FO)		FO, XSLFO	adWORDPROCESSOR	xmlsr
Consolidated_CDA_Fmt	1610	1541	Consolidated CDA document		XML	adWORDPROCESSOR	xmlsr
WebAssembly_Binary_Fmt	1611	1542	WebAssembly (WASM) binary-code	application/wasm	WASM	adEXECUTABLE	

[1]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.

[2]All CAT file extensions, for example CATDrawing, CATProduct, CATPart, and so on.

[3]This format is returned only if you enable source code identification. See Source Code Identification, on page 77.

[4]This format is returned only if you enable extended source code identification. See Source Code Identification, on page 77.

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

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 metdata (properties such as title, author, and subject).
Charset	Shows whether KeyView can detect and extract the character set. Even though a file format might be able to provide character set information, some documents might not contain character set information. Therefore, the document reader would not be able to determine the character set of the document.
H/F	Shows whether KeyView can extract headers and footers.
Associated File Formats	The file formats that are supported by the reader.

Key to Symbols

Symbol	Description
Y	The feature is supported.

Key to Symbols, continued

Symbol	Description
N	The feature is not supported.
P	Partial metadata is extracted from this format. Some non-standard fields are not extracted.
T	Only text is extracted from this format. Formatting information is not extracted.
M	Only metadata (title, subject, author, and so on) is extracted from this format. Text and formatting information are not extracted.

Document Readers

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
ActiveX components	Microsoft Visio (2013)	N	N	Y[1]	N	Y	N	N	MS_Visio_2013_Fmt
ad1sr	AD1 Evidence file	N	N	Y	Y	N	n/a	N	AD1_Fmt
afmsr	Adobe Font Metrics	Y	T	T	N	N	N	N	Adobe_Font_Metrics_Fmt
afsr	ASCII Text	Y	Y	Y	N	N	N	N	ABAP_Fmt, AMPL_Fmt, APL_Fmt, ASCII_Text_Fmt, ASN1_Fmt, ATS_Fmt, Agda_Fmt, Alloy_Fmt, Apex_Fmt, AppleScript_Fmt, Arduino_Fmt, AsciiDoc_Fmt, AspectJ_Fmt, Assembly_Fmt, Awk_Fmt, BlitzMax_Fmt, Bluespec_Fmt, Brainfuck_Fmt, Brightscript_Fmt, CLIPS_Fmt, CMake_Fmt, COBOL_Fmt, CPlusPlus_Fmt, CWeb_Fmt, C_Fmt, CartoCSS_Fmt,

[1]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
									Ceylon_Fmt, Chapel_Fmt, Clarion_Fmt, Clean_Fmt, Clojure_Fmt, CoffeeScript_Fmt, Component_Pascal_Fmt, Cool_Fmt, Coq_Fmt, Creole_Fmt, Crystal_Fmt, Csharp_Fmt, Csound_Document_Fmt, Csound_Fmt, Css_Fmt, Cuda_Fmt, DIGITAL_Command_Language_Fmt, DTrace_Fmt, D_Fmt, Dart_Fmt, Dockerfile_Fmt, ECL_Fmt, E_Fmt, Eiffel_Fmt, Elm_Fmt, Emacs_Lisp_Fmt, EmberScript_Fmt, Erlang_Fmt, Fantom_Fmt, Forth_Fmt, Fortran_Fmt, FreeMarker_Fmt, Frege_Fmt, Fsharp_Fmt, GAMS_Fmt, GAP_Fmt, GDScript_Fmt, GIS_World_File_Fmt, GLSL_Fmt, G_code_Fmt, Game_Maker_Language_Fmt, Gnuplot_Fmt, Go_Fmt, Golo_Fmt, Gosu_Fmt, Gradle_Fmt, GraphQL_Fmt, Graphviz_DOT_Fmt, Groovy_Fmt, HLSL_Fmt, Hack_Fmt, Haml_Fmt, Handlebars_Fmt, Haskell_Fmt, Hy_Fmt, IDL_Fmt, IGOR_Pro_Fmt, Idris_Fmt, Inform_7_Fmt, Ini_Fmt, Ioke_Fmt, Isabelle_Fmt, JSONiq_Fmt, JSX_Fmt, J_Fmt, Jasmin_Fmt, Java_Fmt, Javascript_Fmt, Jolie_Fmt, Julia_Fmt, KiCad_Layout_Fmt, KiCad_Schematic_Fmt, Kotlin_Fmt, LFE_Fmt, LOLCODE_Fmt, Lasso_Fmt, Limbo_Fmt, Lisp_Fmt, LiveScript_Fmt, Lua_Fmt, MAXScript_

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
									Fmt, ML_Fmt, MSDOS_Batch_File_Fmt, M_Fmt, Makefile_Fmt, Markdown_Fmt, Mathematica_Fmt, Matlab_Fmt, Max_Code_Fmt, Mercury_Fmt, Modelica_Fmt, Modula_2_Fmt, Monkey_Fmt, Moocode_Fmt, NL_Fmt, NSIS_Fmt, NetLogo_Fmt, NewLisp_Fmt, Nginx_Fmt, Nix_Fmt, Nu_Fmt, OCaml_Fmt, ObjC_Fmt, ObjCpp_Fmt, ObjJ_Fmt, OpenCL_Fmt, OpenEdge_ABL_Fmt, OpenSCAD_Fmt, Ox_Fmt, Oxygene_Fmt, Oz_Fmt, PAWN_Fmt, PHP_Fmt, PLSQL_Fmt, PLpgSQL_Fmt, Pan_Fmt, Parrot_Assembly_Fmt, Pascal_Fmt, Perl_Fmt, PicoLisp_Fmt, Pike_Fmt, Pony_Fmt, Powershell_Fmt, Processing_Fmt, Prolog_Fmt, Puppet_Fmt, PureBasic_Fmt, Python_Fmt, QMake_Fmt, RAML_Fmt, RDoc_Fmt, REXX_Fmt, R_Fmt, Racket_Fmt, Ragel_Fmt, Rascal_Fmt, Rebol_Fmt, Red_Fmt, RenPy_Fmt, RenderScript_Fmt, Ring_Fmt, RobotFramework_Fmt, Ruby_Fmt, Rust_Fmt, SAS_Fmt, SGML_Fmt, SPARQL_Fmt, SQLPL_Fmt, SQL_Fmt, SaltStack_Fmt, Scala_Fmt, Scheme_Fmt, Scilab_Fmt, Scribe_Fmt, Shell_Fmt, Smalltalk_Fmt, Squirrel_Fmt, Stan_Fmt, Stata_Fmt, Stylus_Fmt, SuperCollider_Fmt, Swift_Fmt, SystemVerilog_Fmt, TSV_Fmt, TSV_Fmt, TXL_Fmt, Tcl_Fmt, Tex_Fmt,

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
									Turing_Fmt, Turtle_Fmt, TypeScript_Fmt, UrWeb_Fmt, Verilog_Fmt, Vim_script_Fmt, Visual_Basic_Fmt, WebAssembly_Fmt, WebIDL_Fmt, Wiki_Fmt, X10_Fmt, XQuery_Fmt, Xojo_Fmt, Xtend_Fmt, YAML_Fmt, YANG_Fmt, Zephir_Fmt, eC_Fmt, reStructuredText_Fmt, xBase_Fmt
aiffsr	Audio Interchange File Format	M	N	N	N	Y	N	N	AIFF_Fmt
asfsr	Advanced Systems Format (1.2)	N	N	N	N	Y	N	N	ASF_Fmt, WMA_Fmt, WMV_Fmt
assr	Applix Spreadsheets (4.2, 4.3, 4.4)	Y	Y	Y	N	N	Y	N	Applix_Spreadsheets_Fmt
avrosr	Apache Avro binary format	Y	N	N	N	N	N	N	Avro_Fmt
awsr	Applix Words (3.11, 4, 4.1, 4.2, 4.3, 4.4)	Y	Y	Y	N	N	Y	Y	Applix_Words_Fmt
axsr	Applix Asterix	Y	T	T	N	N	N	N	Applix_Alis_Fmt
b1sr	B1	N	N	Y	Y	N	n/a	N	B1_Fmt
bkfsr	Microsoft Backup File	N	N	Y	Y	N	n/a	N	BKF_Fmt
bmpsr	Windows Bitmap	M	M	N	N	Y	N	N	BMP_Fmt

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
	Image								
bzip2sr	Bzip2 Compressed File	N	N	Y	Y	N	n/a	N	BZIP2_Fmt
cabsr	Microsoft Cabinet File (1.3)	N	N	Y	Y	N	n/a	N	CAB_Fmt
cdsr	Convergent Technologies DEF Comm. Format	Y	T	T	N	N	N	N	CT_DEF_Fmt
cebsr[1]	Founder Chinese E-paper Basic (3.2.1)	Y	N	N	N	N	N	N	Founder_CEB_Fmt
chmsr	Microsoft Compiled HTML Help (3)	N	N	Y	Y	N	n/a	N	CHM_Fmt
csvsr	CSV (Comma Separated Values)	Y	Y	Y	N	N	N	N	CSV_Fmt
dbfsr	dBase Database (III+, IV)	Y	Y	Y	N	N	N	N	dBase_Fmt
dbxsr	Microsoft Outlook Express DBX Message Database (5.0,	N	N	Y	Y	Y	Y	N	MS_OEDBX_Fmt

[1]This reader is only supported on Windows 32-bit platforms.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
	6.0)								
dcasr	IBM DCA/RFT (Revisable Form Text) (SC23-0758-1)	Y	Y	Y	N	N	Y	N	DCA_RFT_Fmt
dcmsr	Digital Imaging & Communications in Medicine (DICOM)	M	N	N	N	Y	N	N	Dicom_Fmt
difsr	Data Interchange Format	Y	Y	Y	N	N	N	N	DIF_SpreadSheet_Fmt
dmgsr	Mac Disk Copy Disk Image	N	N	Y	Y	N	n/a	N	DMG_Fmt
dw4sr	DisplayWrite (4)	Y	Y	Y	N	N	Y	N	IBM_Display_Write_Fmt
dxlsr	IBM Domino Data in XML format[1]	N	N	Y	Y	Y	N	N	Lotus_Domino_DXL_Fmt
emlsr[2]	Text Mail (MIME) / Microsoft Outlook Express (Windows 6, MacIntosh 5)	Y	T	T	Y	Y	Y	N	SMTP_Fmt

[1]Supports non-encrypted embedded files only.
[2]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
emxsr	Legato EMailXtender Archives	N	N	Y	Y	N	n/a	N	EMX_Fmt
encase2sr	Expert Witness Compression Format (EnCase) (7)	N	N	Y	Y	N	n/a	N	EnCase_Fmt
encasesr	Expert Witness Compression Format (EnCase) (6)	N	N	Y	Y	N	n/a	N	EnCase_Fmt
entsr	Microsoft Entourage Database (2004)	N	N	Y	Y	Y	Y	N	ENT_Fmt
epubsr	Open Publication Structure eBook (2.0, 3.0)	Y	Y	Y	N	Y	Y	N	Epub_Fmt, iBooks_Fmt
exesr	MSDOS/Windows Executable	N	N	Y	N	N	n/a	N	MS_Executable_Fmt
foliosr	Folio Flat File (3.1)	Y	Y	Y	N	Y	Y	Y	Folio_Flat_Fmt
gdsiisr	GDSII data format	Y	T	T	N	N	N	N	GDSII_Fmt
gifsr	GIF (87, 89)	M	M	N	N	Y	N	N	GIF_87a_Fmt, GIF_89a_Fmt
gwfssr	GroupWise FileSurf email	N	N	Y	Y	Y	N	N	GWFS_Email_Fmt
hl7sr	Health level7 message (2.0)	Y	Y	Y	N	Y	Y	N	Hl7_Fmt

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
htmsr	HTML/XHTML (3, 4)	Y	Y	Y	N	Y[1]	Y	N	HTML_Fmt, Netscape_Bookmark_File_Fmt
hwposr	Haansoft Hangul HWP (2002, 2005, 2007, 2010)	Y	Y	Y	Y	Y	Y	N	HWP_Fmt
hwpsr	Haansoft Hangul HWP (97)	Y	Y	Y	N	Y	Y	N	HWP_Fmt
hwpxsr	Haansoft Hangul HWPX	Y	T	T	N	N	Y	N	HWPX_Fmt
ichatsr	Apple iChat Log (1, AV 2, AV 2.1, AV 3)	Y	Y	Y	N	N	N	N	Apple_iChat_Fmt
icssr	Microsoft Outlook iCalendar (1.0, 2.0)	N	N	Y	Y	Y	Y	N	ICS_Fmt
isosr	ISO-9660 CD Disc Image	N	N	Y	Y	N	n/a	N	ISO_Fmt
iwss13sr[2]	Apple iWork Numbers ('13, '16, '18, iCloud 2018)	Y	T	T	N	N	Y	N	IWSS13_Fmt
iwsssr	Apple iWork Numbers ('08, '09)	Y	Y	Y	N	Y	Y	N	IWSS_Fmt

[1]HTML only supports partial metadata extraction
[2]This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
iwwp13sr[1]	Apple iWork Pages ('13, '16, '18, iCloud 2018)	Y	T	T	N	N	N	N	IWWP13_Fmt
iwwpsr	Apple iWork Pages ('08, '09)	Y	Y	Y	N	Y	Y	N	IWWP_Fmt
jp2000sr	JPEG (2000)	M	M	N	N	Y	N	N	ISO_JPEG2000_JP2_Fmt, ISO_JPEG2000_JPM_Fmt, ISO_JPEG2000_JPX_Fmt, JPEG_2000_JP2_File_Fmt, JPEG_2000_PGX_Fmt, Motion_JPEG_2000_Fmt
jpgsr	JPEG Interchange Format (JFIF)	M	M	N	N	Y	N	N	JPEG_File_Interchange_Fmt
jtdsr	JustSystems Ichitaro (8 to 2013, 2018)	Y	Y	Y	N	P	N	Y	ICHITARO_Compr_Fmt, ICHITARO_Fmt
kpagrdr	Applix Presents/Graphics (4.0, 4.2, 4.3, 4.4)	Y	Y	Y	N	N	N	N	Applix_Graphics_Fmt
kpanirdr	Windows Animated Cursor	N	Y	Y	N	N	N	N	Windows_Animated_Cursor_Fmt
kpbmprdr	Windows Bitmap Image	Y[2]	Y	Y	N	N	N	N	BMP_Fmt

[1]This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.
[2]Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
kpCATrdr	CATIA formats (5)	Y	N	N	N	Y	N	N	CATIA_Fmt
kpcdrrdr	CorelDRAW[1] (through 9.0, 10, 11, 12, X3)	N	Y	Y	N	N	N	N	Corel_Draw_Fmt
kpcgmrdr[2]	Computer Graphics Metafile	Y	Y	Y	N	N	N	N	CGM_Binary_Fmt, CGM_Character_Fmt, CGM_ClearText_Fmt
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	DCX_Fmt
kpDWGrdr[3]	Autodesk AutoCAD DWG Drawing (R13 onwards)	Y	Y	Y	N	Y	Y	N	AutoDesk_DWG_Fmt
kpDXFrdr[4]	Autodesk AutoCAD DXF Drawing (R13 onwards)	Y	Y	Y	N	Y	Y	N	AutoCAD_DXF_Binary_Fmt, AutoCAD_DXF_Text_Fmt
kpemfrdr	Enhanced Metafile	Y	Y	Y	N	Y	N	N	Enhanced_Metafile_Fmt

[1]CDR/CDR with TIFF header.

[2]Files with non-partitioned data are supported.

[3]The kpODArdr reader can filter, export, and view all versions but is supported only on Windows, Linux, and macOS. The kpDWGrdr reader is used on AIX, Solaris, and SPARC platforms, but does not support graphics for versions after 2004 or text for versions after 2013.

[4]The kpODArdr reader can filter, export, and view all versions but is supported only on Windows, Linux, and macOS. The kpDXFrdr reader is used on AIX, Solaris, and SPARC platforms, but does not support graphics for versions after 2004.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
kpepsrdr	Encapsulated PostScript (raster) (TIFF header)	N	Y	Y	N	N	N	N	EPSF_Fmt, Preview_EPSF_Fmt
kpGFLrdr	Omni Graffle	Y	N	N	N	Y	Y	N	Omni_Graffle_XML_Fmt
kpgifrdr	GIF (87, 89)	Y[1]	Y	Y	N	N	N	N	GIF_87a_Fmt, GIF_89a_Fmt
kpicordr	Windows Icon Cursor	N	Y	Y	N	N	N	N	Windows_Icon_Fmt
kpIWPG13rdr[2]	Apple iWork Keynote ('13, '16, '18, iCloud 2018)	Y	T	N	N	N	N	N	IWPG13_Fmt
kpIWPGrdr	Apple iWork Keynote (2, 3, '08, '09)	Y	Y	Y	N	Y	Y	N	IWPG13_Fmt, IWPG_Fmt
kpJBIG2rdr	JBIG2	Y[3]	Y	Y	N	N	N	N	JBIG2_Fmt
kpjp2000rdr	JPEG (2000)	Y[4]	Y	Y	N	N	N	N	ISO_JPEG2000_JP2_Fmt, ISO_JPEG2000_JPM_Fmt, ISO_JPEG2000_JPX_Fmt, JPEG_2000_JP2_File_Fmt, JPEG_2000_PGX_Fmt, Motion_JPEG_2000_Fmt

[1]Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.
[2]This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.
[3]Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.
[4]Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
kpjpgrdr	JPEG Interchange Format (JFIF)	Y[1]	Y	Y	N	N	N	N	JPEG_File_Interchange_Fmt
kpmacrdr	MacPaint	N	Y	Y	N	N	N	N	MacPaint_Fmt
kpmsordr	Microsoft Office Drawing	N	Y	Y	N	N	N	N	MS_Office_Drawing_Fmt
kpODArdr	ODA	Y	Y	Y	N	Y	Y	N	AutoCAD_DXF_Binary_Fmt, AutoCAD_DXF_Text_Fmt, AutoDesk_DWG_Fmt
kpodfrdr	OASIS Open Document Format (1, 2[2])	Y	Y	Y	Y[3]	Y	Y	N	ODF_Drawing_Fmt, ODF_Drawing_Template_Fmt, ODF_Presentation_Fmt, ODF_Presentation_Template_Fmt, SO_Drawing_XML_Fmt, SO_Presentation_XML_Fmt
kpp40rdr	Microsoft PowerPoint (98)	Y	Y	Y	N	P[4]	N	N	PowerPoint_Win_Fmt
kpp95rdr	Microsoft PowerPoint Windows (95)	Y	Y	Y	N	P	Y	N	PowerPoint_95_Fmt
kpp97rdr	Microsoft PowerPoint (97-	Y	Y	Y	N	P	Y	Y[5]	PowerPoint_2000_Fmt, PowerPoint_97_Fmt

[1]Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.
[2]Generated by OpenOffice Impress 2.0, StarOffice 8 Impress, and IBM Lotus Symphony Presentation 3.0.
[3]Supported using the olesr embedded objects reader.
[4]Microsoft PowerPoint Windows only
[5]Microsoft PowerPoint Windows only

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
	2004)								
kppctrdr	Macintosh Raster / QuickDraw (2)	N	Y	Y	N	N	N	N	Mac_PICT_Fmt
kppcxrdr	PC PaintBrush (3)	N	Y	Y	N	N	N	N	PC_Paintbrush_Fmt
kppdf2rdr[1]	Adobe PDF (1.1 to 1.7, 2.0)	N	N	Y	N	N	N	N	PDF_Fmt
kppdfrdr	Adobe PDF (1.1 to 1.7, 2.0)	N	Y	Y	N	N	N	N	PDF_Fmt
kppicrdr	Lotus PIC	Y	Y	Y	N	N	N	N	Lotus_PIC_Fmt
kppngrdr	Portable Network Graphics	Y[2]	Y	Y	N	N	N	N	APNG_Fmt, PNG_Fmt
kpppxrdr	Microsoft PowerPoint Windows XML (2007 onwards)	Y	Y	Y	Y	Y	Y	Y	MS_PPT_2007_Fmt, MS_PPT_Macro_2007_Fmt
kpprerdr	Lotus Freelance Graphics 2 (2)	Y	Y	Y	N	N	N	N	Freelance_OS2_Fmt, Freelance_Win_Fmt
kpprzrdr	Lotus Freelance Graphics (96, 97, 98, R9, 9.8)	Y	Y	Y	N	N	N	N	Freelance_96_Fmt, Freelance_97_Fmt, Freelance_DOS_Fmt

[1]kppdf2rdr is an alternate graphic-based reader that produces high-fidelity output but does not support other features such as highlighting or text searching.
[2]Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
kpsddrdr	StarOffice Impress (3, 4, 5)	Y	T	N	N	N	N	N	SO_Presentation_Fmt
kpsdwrdr	Lotus AMIDraw Graphics	N	Y	Y	N	N	N	N	Ami_Pro_Draw_Fmt, SO_Text_Fmt
kpsgirdr	SGI RGB Image	N	Y	Y	N	N	N	N	SGI_Image_Fmt
kpshwrdr	Corel Presentations (6, 7, 8, 9, 10, 11, 12, X3)	Y	Y	Y	N	N	N	N	Corel_Presentations_Fmt
kpsunrdr	Sun Raster Image	N	Y	Y	N	N	N	N	Sun_Raster_Fmt
kpTGArdr	Truevision Targa (2)	N	Y	Y	N	N	N	N	Targa_Fmt
kptifrdr	TIFF Tagged Image File (through 6.0[1])	Y[2]	Y	Y	N	N	N	N	TIFF_Fmt
kpUGrdr	Unigraphics (UG) NX	Y	N	N	N	N	N	N	Unigraphics_NX_Fmt
kpVSD2rdr	Microsoft Visio (4,	Y	Y	Y	N	Y	Y	N	MS_Visio_Fmt

[1]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.
[2]Filtering is supported through OCR, which is only available on Windows 64-bit and Linux 64-bit platforms, and is licensed separately.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
	5, 2000, 2002, 2003, 2007, 2010[1])								
kpVSDXrdr	Microsoft Visio (2013)	Y	Y	Y	Y	Y	Y	N	MS_Visio_2013_Fmt, MS_Visio_2013_Macro_Fmt, MS_Visio_2013_Stencil_Fmt, MS_Visio_2013_Stencil_Macro_Fmt, MS_Visio_2013_Template_Fmt, MS_Visio_2013_Template_Macro_Fmt
kpwg2rdr	WordPerfect Graphics 2 (2, 7)	N	Y	Y	N	N	N	N	WordPerfect_Graphics_Fmt
kpwmfrdr	Windows Metafile (3)	Y[2]	Y	Y	N	N	N	N	Windows_Metafile_Fmt, Windows_Metafile_NoHdr_Fmt
kpwpgrdr	WordPerfect Graphics 1 (1)	N	Y	Y	N	N	N	N	WordPerfect_Graphics_Fmt
kpXFDLrdr	Extensible Forms Description Language	Y	Y	Y	N	Y	Y	N	XFDL_Fmt
kvgz	GZIP archive (2)	N	N	Y	N	N	n/a	N	GZ_Compress_Fmt
kvgzsr	GZIP archive (2)	N	N	N	Y	N	n/a	N	GZ_Compress_Fmt

[1]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.
[2]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
kvhqxsr	BinHex	N	N	Y	Y	N	n/a	N	BinHex_Fmt
kvzee	UNIX Compress	N	N	Y	N	N	n/a	N	Compress_Fmt
kvzeesr	UNIX Compress	N	N	N	Y	N	n/a	N	Compress_Fmt
l123sr	Lotus 1-2-3 (96, 97, R9, 9.8)	Y	Y	Y	N	P	Y	N	Lotus_123_97_Fmt, Lotus_123_Format_Fmt, Lotus_123_R9_Fmt
lasr	Lotus AMI Pro and Write Plus (2, 3)	Y	Y	Y	N	P[1]	Y[2]	Y	Ami_Pro_Fmt, Ami_Pro_StyleSheet_Fmt
lwpsr[3]	Lotus Word Pro and SmartMaster (96, 97, R9)	Y	Y	Y	N	P[4]	N	Y[5]	Lotus_Word_Pro_96_Fmt, Lotus_Word_Pro_97_Fmt
lyxsr	LyX Word Processor	Y	T	T	N	N	N	N	LyX_Fmt
lzhsr	Microsoft LZH Compressed Folder	N	N	N	Y	N	n/a	N	LZH_Fmt
macbinsr	MacBinary	N	N	Y	Y	N	n/a	N	MacBinary_Fmt
mbsr	Microsoft Word Macintosh (4, 5, 6,	Y	Y	Y	N	Y	N	Y	MS_Word_Mac_4_Fmt, MS_Word_Mac_Fmt

[1]Lotus AMI Pro only
[2]Lotus AMI Pro only
[3]This reader is only available on Windows 32-bit
[4]Lotus Word Pro only
[5]Lotus Word Pro only

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
	98)								
mbxsr[1]	Text Mail (MIME), Microsoft Outlook Express (Windows 6, MacIntosh 5), Mailbox[2] (Thunderbird 1.0, Eudora 6.2)	Y[3]	N	T	Y	Y	Y	N	MIME_Fmt
MCI	Microsoft Media Control Interface	N	N	Y	N	N	N	N	AIFF_Fmt, AU_Audio_Fmt, ISO_QuickTime_Fmt, MIDI_Audio_Fmt, MPEG_Audio_Fmt, MS_Video_Fmt, MS_WAVE_Audio_Fmt, Mobile_QuickTime_Fmt, QuickTime_Fmt
mdbsr	Microsoft Access (95 onwards)	Y	T	T	N	N	Y[4]	N	MS_Access_2000_Fmt, MS_Access_2007_Fmt, MS_Access_95_Fmt, MS_Access_97_Fmt, MS_Access_Fmt
mhtsr	MIME HTML (MHTML)	Y	Y	Y	N	Y	Y	N	MHT_Fmt
mifsr	Adobe FrameMaker	Y	Y	Y	N	N	Y	N	Maker_Interchange_Fmt

[1]This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

[2]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.
[3]Text Mail only
[4]Charset is not supported for Microsoft Access 95 or 97.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
	Interchange Format (5, 5.5, 6, 7)								
misr	Microsoft Word Windows (1.0, 2.0)	Y	Y	Y	N	N	N	Y	MS_Word_Win_Fmt
mp3sr	MPEG-1 Audio layer3 (ID3 v1 and v2)	M	M	Y	N	Y	N	N	MPEG_Audio_Fmt
mpeg4sr	MPEG video	M	N	N	N	Y	N	N	Adobe_Flash_Audio_Book_Fmt, Adobe_Flash_Audio_Fmt, Adobe_Flash_Protected_Video_Fmt, Adobe_Flash_Video_Fmt, Audible_Audiobook_Fmt, ISO_3GPP2_Fmt, ISO_3GPP_Fmt, ISO_IEC_MPEG_4_Fmt, KDDI_Video_Fmt, MPEG4_AVC_Fmt, MPEG4_M4A_Fmt, MPEG4_M4B_Fmt, MPEG4_M4P_Fmt, MPEG4_M4V_Fmt, MPEG4_Sony_PSP_Fmt, MPEG_21_Fmt, NTT_MPEG4_Fmt, Nero_MPEG4_Audio_Fmt, QuickTime_Fmt, Sony_XAVC_Fmt
mppsr	Microsoft Project (2000 onwards)	Y	Y	Y	Y	Y	Y	N	MS_Project_2000_Fmt, MS_Project_2007_Fmt, MS_Project_41_Fmt, MS_Project_4_Fmt, MS_Project_98_Fmt

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
msgsr[1]	Microsoft Outlook (97 onwards), Documentum EMCMF	Y[2]	T[3]	Y[4]	Y	Y	Y[5]	N	EMCMF_Fmt, MS_Outlook_Fmt
mspubsr	Microsoft Publisher (98 to 2016)	Y	T	T	Y	Y	Y	N	MS_Publisher_98_Fmt, MS_Publisher_Fmt
msw6sr	Microsoft Works Word Processor for Windows (6, 2000)	Y	Y	Y	N	N	N	Y	MS_Works_Win_WP_Fmt
mswsr	Microsoft Works Word Processor for Windows (1, 2, 3, 4)	Y	Y	Y	N	N	N	Y	MS_Works_Win_WP_Fmt
multiarcsr[6]	Compressed formats	N	N	Y[7]	Y	N	n/a	N	ARJ_Fmt, RAR5_Fmt, XZ_Fmt
mw6sr	Microsoft Word for Windows (6, 7, 8,	Y	Y	Y	N	Y	Y	Y	MS_Word_95_Fmt

[1]This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

[2]Except Documentum EMCMF
[3]Except Documentum EMCMF
[4]For Outlook this is Text only
[5]Returns "Unicode" character set for Outlook version 2003 and up, and "Unknown" character set for previous versions.
[6]7zip is supported with the multiarcsr reader on some platforms for Extract.
[7]7-zip and SUN PEX archives only

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
	95)								
mw8sr	Microsoft Word (97-2004)	Y	Y	Y	Y[1]	Y	Y	Y[2]	MS_Word_2000_Fmt, MS_Word_97_Fmt
mwsr	Microsoft Word PC (4-6) and Windows Write (1-3)	Y	Y	Y	N	N	Y[3]	Y[4]	MS_Windows_Write_Fmt, MS_Word_PC_Driver_Fmt, MS_Word_PC_Fmt, MS_Word_PC_Glossary_Fmt, MS_Word_PC_Misc_Fmt, MS_Word_PC_StyleSheet_Fmt
mwssr	Microsoft Works Spreadsheet (2, 3, 4)	Y	Y	Y	N	N	Y	N	MS_Works_DOS_SS_Fmt, MS_Works_Mac_SS_Fmt, MS_Works_Win_SS_Fmt
mwxsr	Microsoft Word XML (2007 onwards)	Y	Y	Y	Y	Y	Y	Y	MS_Word_2007_Flat_XML_Fmt, MS_Word_2007_Fmt, MS_Word_Macro_2007_Fmt
nnsr	NBI OASys Net Archive	Y	T	T	N	N	N	N	NBI_Net_Archive_Fmt
nsfsr	IBM Lotus Notes database (4, 5, 6.0, 6.5, 7.0, 8.0)	N	N	Y	Y	Y	N	N	Lotus_Notes_NSF_Fmt
oa2sr	Fujitsu Oasys (7)	Y	Y	Y	N	P	N	N	Oasys_Fmt

[1]Supported using the embedded objects reader olesr.
[2]Microsoft Word for Windows only
[3]Microsoft Windows Write only
[4]Microsoft Word PC only

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
odfsssr	OASIS Open Document Format (1, 2[1])	Y	Y	Y	Y[2]	Y	Y	N	ODF_Spreadsheet_Fmt, ODF_Spreadsheet_Template_Fmt
odfwpsr	OASIS Open Document Format (1, 2[3])	Y	Y	Y	Y[4]	Y	Y	Y	ODF_Text_Fmt, ODF_Text_Master_Fmt, ODF_Text_Template_Fmt, ODF_Text_Web_Fmt, SO_Text_XML_Fmt
olesr	Windows Scrap File	N	N	N	Y	Y	n/a	N	Ability_WP_OLE_Fmt, Autodesk_3ds_Max_Fmt, Crystal_Reports_Fmt, FPX_Fmt, MS_AtWork_Fax_Fmt, MS_Binder_Fmt, MicroStation_V8_DGN_Fmt, OLE_Fmt, PageMagic_Fmt, PagePlus_Fmt, PhotoDraw_Mix_Fmt, PowerPoint_Mac_Fmt, SO_Chart_Fmt, SO_Database_Fmt, SO_Math_Fmt, Scrap_Fmt, SolidWorks_Fmt, Windows_Installer_Fmt, Windows_Installer_Patch_Fmt
olmsr	Microsoft Outlook for Macintosh (2011)	N	N	Y	Y	N	Y	N	MS_OutlookOLM_Fmt
onesr	Microsoft OneNote (2007, 2010, 2013, 2016)	Y	Y	Y	Y	N	Y	N	OneNote_Fmt

[1]Generated by OpenOffice Calc 2.0, StarOffice 8 Calc, and IBM Lotus Symphony Spreadsheet 3.0.
[2]Supported using the embedded objects reader olesr.
[3]Generated by OpenOffice Writer 2.0, StarOffice 8 Writer, and IBM Lotus Symphony Documents 3.0.
[4]Supported using the embedded objects reader olesr.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
onealtsr	Microsoft OneNote Alternative Packaging Format (2007 onwards)	Y	T	T	Y	N	N	N	OneNote_Alternate_Fmt
onmsr	Legato Extender	N	N	Y	Y	Y	N	N	Legato_Extender_ONM_Fmt
oo3sr	Omni Outliner (v3, OPML, OOutline)	Y	Y	Y	N	N	Y	N	OO3_Fmt, OOUTLINE_Fmt, OPML_Fmt
parquetsr	Apache Parquet Database Format	Y[1]	N	N	N	Y[2]	N	N	Apache_Parquet_Fmt
pbixsr	Microsoft Power BI Desktop (1.11)	Y	T	T	N	N	Y	N	MS_Power_BI_Fmt
pdf2sr	Adobe PDF (1.1 to 1.7, 2.0)	N	Y	N	N	N	N	N	PDF_Fmt
pdfsr	Adobe PDF (1.1 to 1.7, 2.0)	Y	Y	N	Y[3]	Y	Y	N	PDF_Fmt, Portfolio_PDF_Fmt
pfasr	ASCII Printer and PostScript fonts	Y	T	T	N	N	N	N	PostScript_Font_Fmt, Printer_Font_ASCII_Fmt
pffsr[4]	Microsoft Outlook Offline Storage File (97 onwards)	N	N	Y	Y	Y	Y	N	MS_OutlookOST_Fmt

[1]This reader is only supported on Windows 64-bit
[2]This reader is only supported on Windows 64-bit
[3]Includes support for extraction of subfiles from PDF Portfolio documents.
[4]The reader pffsr is available only on Windows and Linux.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
pfilesr	Rights Management Services (RMS)-protected format	Y[1]	T[2]	T[3]	N	Y	N	N	RMS_Protected_Fmt
pkcs7sr[4]	PKCS #7 cryptographic format	N	N	Y	Y	N	N	N	PKCS_7_Fmt
pngsr	Portable Network Graphics	M	M	N	N	Y	N	N	PNG_Fmt
psdsr	Adobe Photoshop	N	N	N	N	Y[5]	N	N	PSD_Fmt
pstnsr	Microsoft Outlook Personal Folder[6] (97 onwards)	N	N	Y	Y	Y	Y	N	MS_OutlookPST_Fmt

[1]KeyView filters only the internal redirection text. The underlying document text is not accessible without the decryption key.
[2]KeyView filters only the internal redirection text. The underlying document text is not accessible without the decryption key.
[3]KeyView filters only the internal redirection text. The underlying document text is not accessible without the decryption key.
[4]This reader supports PKCS #7 signed data only.
[5]Only XMP metadata is extracted for this format.
[6]KeyView provides several readers capable of processing PST files. The pstsr reader uses the Microsoft Messaging Application Programming Interface (MAPI), works only on Windows, and requires that you have Microsoft Outlook installed. The pstxsr reader is available for Windows (32-bit and 64-bit) and Linux (64-bit only) and does not require Microsoft Outlook. The pstnsr reader is an alternative reader that does not require Microsoft Outlook, for all platforms not supported by pstxsr. For more information about these readers, see "Extract Subfiles from Outlook Personal Folders Files" in Chapter 3.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
pstsr[1]	Microsoft Outlook Personal Folder[2] (97 onwards)	N	N	Y	Y	Y	N	N	MS_OutlookPST_Fmt
pstxsr	Microsoft Outlook Personal Folder[3] (97 onwards)	N	N	Y	Y	Y	Y	N	MS_OutlookPST_Fmt
pwsr	PRIMEWORD	Y	T	T	N	N	N	N	PRIMEWORD_Fmt
qpssr	Corel Quattro Pro (5, 6, 7, 8)	Y	Y	Y	N	P	Y	N	Quattro_Pro_Win_Fmt
qpwsr	Corel Quattro Pro (X4)	Y	N	Y	N	P	Y	N	QPW_Fmt
rarsr	RAR archive (2.0 through 3.5)	N	N	N	Y	N	n/a	N	RAR_Fmt
riffsr	Microsoft Wave Sound	M	N	N	N	Y	N	N	MS_WAVE_Audio_Fmt

[1]This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

[2]KeyView provides several readers capable of processing PST files. The pstsr reader uses the Microsoft Messaging Application Programming Interface (MAPI), works only on Windows, and requires that you have Microsoft Outlook installed. The pstxsr reader is available for Windows (32-bit and 64-bit) and Linux (64-bit only) and does not require Microsoft Outlook. The pstnsr reader is an alternative reader that does not require Microsoft Outlook, for all platforms not supported by pstxsr. For more information about these readers, see "Extract Subfiles from Outlook Personal Folders Files" in Chapter 3.

[3]KeyView provides several readers capable of processing PST files. The pstsr reader uses the Microsoft Messaging Application Programming Interface (MAPI), works only on Windows, and requires that you have Microsoft Outlook installed. The pstxsr reader is available for Windows (32-bit and 64-bit) and Linux (64-bit only) and does not require Microsoft Outlook. The pstnsr reader is an alternative reader that does not require Microsoft Outlook, for all platforms not supported by pstxsr. For more information about these readers, see "Extract Subfiles from Outlook Personal Folders Files" in Chapter 3.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
rtfsr	Rich Text Format (1 through 1.7)	Y	Y	Y	N	P	Y	Y	MS_Pocket_Word_Fmt, MS_RTF_Fmt
sassr	SAS7BDAT reader	Y	T	T	N	N	N	N	SAS7BDAT_Fmt
skypesr	Skype Log (3)	Y	Y	Y	N	N	N	N	Skype_Fmt
sosr	OpenOffice, LibreOffice(1-5), StarOffice (6-9)	Y	T	T	N	Y	Y	N	SO_Spreadsheet_XML_Fmt
starcsr	StarOffice Calc (3, 4, 5)	Y	T	T	N	N	N	N	SO_Spreadsheet_Fmt
starwsr	StarOffice Writer (3, 4, 5)	Y	T	T	N	N	N	N	SO_Text_Fmt
stringssr	Generic 'strings' reader	Y	T	T	N	N	N	N	BeagleWorks_Word_Fmt, CEOwrite_Fmt, CPT_Comm_Fmt, CWK_Fmt, DG_CDS_Fmt, DSA101_Fmt, Data_Point_VistaWord_Fmt, Enable_WP_Fmt, GreatWorks_Word_Fmt, HP_Word_PC_Fmt, IBM_DCF_Script_Fmt, IBM_Writing_Assistant_Fmt, Lotus_Notes_CDF_Fmt, Lyrix_Fmt, MASS_11_Fmt, MS_Works_DOS_WP_Fmt, MS_Works_Mac_WP_Fmt, MacWrite_Fmt, MacWrite_II_Fmt, Multimate_Adv_Fmt, Multimate_Adv_Fnote_Fmt, Multimate_Adv_II_Fmt, Multimate_Adv_II_Fnote_Fmt, Multimate_Fmt, Multimate_Fnote_Fmt, Navy_DIF_Fmt, ODA_Q1_11_Fmt,

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
									ODA_Q1_12_Fmt, Office_Writer_Fmt, Psion_TextEd_Fmt, Psion_Word_3_Fmt, Psion_Word_Fmt, Q_A_DOS_Fmt, Q_A_Win_Fmt, Quadratron_Q_One_v1_Fmt, Quadratron_Q_One_v2_Fmt, Quickword_Fmt, SAMNA_Word_IV_Fmt, Symbol_Dynamics_EXP_Fmt, Targon_Word_Fmt, Uniplex_WP_Fmt, Volkswriter_Fmt, WANG_WITA_Fmt, WANG_WPS_Comm_Fmt, WPS_PLUS_Fmt, WordERA_Fmt, WordMARC_Fmt, WordPerfect_Fmt, WordStar_2000_Fmt, WordStar_Fmt, WordStar_for_Windows_Fmt, Word_Connection_Fmt, WriteNow_Fmt, Xerox_860_Comm_Fmt, Xerox_Writer_Fmt
swfsr	Macromedia Flash (through 8.0)	Y	Y	Y	N	N	Y[1]	N	Macromedia_Flash_Fmt
swsr	Informix SmartWare II Word Processor	Y	T	T	N	N	N	N	SmartWare_II_WP_Fmt
tarsr	TAR Tape Archive	N	N	Y	Y	N	n/a	N	TAR_Fmt
tifsr	TIFF Tagged Image File	M	M	N	N	Y	N	N	TIFF_Fmt

[1]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
	(through 6.0[1])								
tnefsr	Transport Neutral Encapsulation Format	N	N	Y	Y	Y	Y	N	TNEF_Fmt
unihtmsr	Unicode HTML	Y	Y	Y	N	Y	Y	N	Unicode_HTML_Fmt
unisr	Unicode Text (3, 4)	Y	Y	Y	N	N	Y	N	Unicode_Fmt
unzip	PKZIP/Zip Compression	N	N	Y[2]	Y	N	n/a	N	Executable_JAR_Fmt, KMZ_Fmt, ODF_Formula_Fmt, ODF_Formula_Template_Fmt, PKZIP_Fmt, Tableau_Packaged_Data_Source_Fmt, Tableau_Packaged_Workbook_Fmt
uudsr	UU-Encoding (all versions)	N	N	Y	Y	N	n/a	N	UUEncoded_Fmt
vcfsr	Microsoft Outlook vCard Contact (2.1, 3.0, 4.0)	Y	Y	T	N	Y	N	N	VCF_Fmt
vsdsr	Microsoft Visio (4, 5, 2000, 2002,	Y	Y	Y	Y[4]	Y	Y	N	MS_Visio_Fmt

[1]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.
[2]PKZIP, WinZip, and Java Archive only
[4]Extraction of embedded OLE objects is supported for Filter on Windows platforms only.

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
	2003, 2007, 2010[1])								
wkssr	Lotus 1-2-3 (2, 3, 4, 5)	Y	Y	Y	N	N	Y	N	Lotus_123_Worksheet_Fmt
wosr	Corel WordPerfect Windows (5, 5.1)	Y	Y	Y	N	P	Y	Y	WordPerfect_5_Fmt
wp6sr	Corel WordPerfect (6 onwards)	Y	Y	Y	N	P	Y	N	WordPerfect_6_Fmt
wpmsr	Corel WordPerfect Macintosh (1.02, 2, 2.1, 2.2, 3, 3.1)	Y	Y	Y	N	N	Y	N	WordPerfect_Mac_Fmt
xlsbsr	Microsoft Excel Binary Format (2007 onwards)	Y	Y	Y	N	Y	N	N	MS_Excel_Binary_2007_Fmt
xlssr	Microsoft Excel (2.2 to 2004)	Y	Y	Y	Y[2]	Y	Y	Y[3]	Excel_2000_Fmt, Excel_95_Fmt, Excel_97_Fmt, Excel_Chart_Fmt, Excel_Fmt, Excel_Macro_Fmt
xlsxsr	Microsoft Excel Windows XML (2007 onwards)	Y	Y	Y	Y	Y	Y	Y	MS_Excel_2007_Fmt, MS_Excel_Macro_2007_Fmt

[1]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.
[2]Supported using the embedded objects reader olesr.
[3]Microsoft Excel for Windows only

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
xmlsr	XML	Y	T	T	N	Y	Y	N	AMF_Fmt, AbiWord_Fmt, Adobe_XML_Data_Package_Fmt, Atom_Syndication_Fmt, CDXML_Fmt, Chemical_Markup_Language_Fmt, Collada_DAE_Fmt, Consolidated_CDA_Fmt, ESzigno_Fmt, FictionBook_Fmt, Grasshopper_GHX_Fmt, JNLP_Fmt, JavaView_JVX_Fmt, KML_Fmt, MAML_Fmt, MARC_XML_Fmt, METS_Fmt, MODS_Fmt, MS_Excel_XML_Fmt, MS_Management_Pack_MPX_Fmt, MS_Visio_XML_Fmt, MS_Word_XML_Fmt, MXML_Fmt, Mathcad_XML_Fmt, Metalink_Fmt, Mozilla_XUL_Fmt, MusicXML_Fmt, Open_Diagnostic_Data_Exchange_Fmt, Open_eBook_Fmt, PDF_XML_Forms_Data_Fmt, PGML_Fmt, PLS_Fmt, RDF_XML_Fmt, RSS_Fmt, Really_Simple_Discovery_Fmt, SBML_Fmt, SMIL_Fmt, SPARQL_Results_Fmt, SRGS_Fmt, SRU_Fmt, SSML_Fmt, SVG_Fmt, SyncML_Fmt, TEI_Fmt, Tableau_Data_Source_Fmt, Tableau_Map_Source_Fmt, Tableau_Preferences_Fmt, Tableau_Workbook_Fmt, Uniform_Office_Fmt, Uniform_Office_Text_Fmt, VTK_XML_Fmt, VoiceXML_Fmt, WML_Fmt, Windows_Audio_Playlist_Fmt, XAML_Browser_Application_Fmt, XBRL_Fmt, XDF_Fmt, XLIFF_Fmt, XML_Fmt, XML_Shareable_Playlist_Fmt, XSLT_Fmt, XSL_FO_Fmt, YIN_Fmt

Reader	Description	Filter	Export	View	Extract	Metadata	Charset	H/F	Associated File Formats
xpssr	Microsoft XML Paper Specification	Y	T	T	N	N	N	N	MS_XPS_Fmt
xywsr	XyWrite / Nota Bene (4.12)	Y	Y	Y	N	N	N	N	XyWrite_Fmt
yimsr[1]	Yahoo! Instant Messenger	Y	Y	Y	N	N	N	N	YIM_Fmt
z7zsr	7-Zip archive (4.57)	N	N	Y	Y	N	n/a	N	Z7Z_Fmt

[1]To successfully use this reader, you must set the KV_YAHOO_ID environment variable to the Yahoo user ID. You can optionally set the KV_OTHER_YAHOO_ID environment variable to the other Yahoo user ID. If you do not set it, "Other" is used by default. If you enter incorrect values for the environment variables, erroneous data is generated.

Appendix C: Character Sets

This section provides information on the handling of character sets in the KeyView suite of products, which includes KeyView Filter SDK, KeyView Export SDK, and KeyView Viewing SDK.

Multibyte and Bidirectional Support

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
Archive			
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 (HQX)	n/a	n/a	n/a
Bzip2 (BZ2)	n/a	n/a	n/a
EnCase – Expert Witness Compression Format (E01)	n/a	n/a	n/a
GZIP (GZ)	n/a	n/a	n/a
ISO (ISO)	n/a	n/a	n/a
Java Archive (JAR)	n/a	n/a	n/a
Legato EMailXtender Archive (EMX)	n/a	n/a	n/a
MacBinary (BIN)	n/a	n/a	n/a

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
Mac Disk Copy Disk Image (DMG)	n/a	n/a	n/a
Microsoft Backup File (BKF)	n/a	n/a	n/a
Microsoft Cabinet format (CAB)	n/a	n/a	n/a
Microsoft Compiled HTML Help (CHM)	n/a	n/a	n/a
Microsoft Compressed Folder (LZH)	n/a	n/a	n/a
PKZip (ZIP)	n/a	n/a	n/a
Microsoft Outlook DBX (DBX)	Y	Y	Y
Microsoft Outlook Offline Storage File (OST)	Y	Y	Y
RAR Archive (RAR)	n/a	n/a	n/a
Tape Archive (TAR)	n/a	n/a	n/a
UNIX Compress (Z)	n/a	n/a	n/a
UUEncoding (UUE)	n/a	n/a	n/a
Windows Scrap File (SHS)	n/a	n/a	n/a
WinZip (ZIP)	n/a	n/a	n/a
Binary			
Executable (EXE)	n/a	n/a	n/a
Link Library (DLL)	n/a	n/a	n/a
Computer-aided Design			
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
Database			
dBase Database	Y	N	N
Microsoft Access (MDB)	Y	Y	N
Microsoft Project (MPP)	Y	Y	N

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
Desktop Publishing			
Microsoft Publisher	N	Y	N
Display			
Adobe Portable Document Format (PDF)	Y	Y[1]	Y
Graphics			
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

1 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

Format	Single-byte	Multibyte	Bidirectional
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
Mail			
Documentum EMCMF 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

Format	Single-byte	Multibyte	Bidirectional
Microsoft Outlook vCard Contact			
Text Mail (MIME)	Y	Y	Y
Transport Neutral Encapsulation Format	Y	Y	Y
Multimedia			
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
Presentations			
Apple iWork Keynote (GZ)	Y	Y	N
Applix Presents (AG)	character set 1252 only	N	N
Corel Presentations (SHW)	character set 1252 only	N	N
Extensible Forms Description Language (XFD)	Y	Y	N
Lotus Freelance Graphics 2 (PRE)	character set 850 only	N	N
Lotus Freelance Graphics (PRZ)	Y	Japanese, Simple Chinese, Traditional Chinese, Thai only	N
Macromedia Flash (SWF)	Y	Y	N
Microsoft OneNote	Y	Y	N

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
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
Spreadsheets			
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[1]
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 [2]
Microsoft Excel Windows XML 2007 (XLSX)	Y	Y	N
Microsoft Office Excel Binary Format (XLSB)	Y	Y	N
Microsoft Works Spreadsheet (S30/S40)	Y	N	N

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
OASIS Open Document (ODS)	Y	Y	N
OpenOffice Calc (ODS)	Y	Y	N
StarOffice Calc (ODS)	Y	Y	N
Text and Markup			
ANSI (TXT)	Y	Y	Y[2]
ASCII (TXT)	Y	Y	Y[2]
HTML (HTM)	Y	Y	Y[2], [2]
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 [3]
Unicode HTML	Y	Y	Y [2,3]
Unicode Text (TXT)	Y	Y	Y[2]
XHTML	Y	Y	Y[3]
XML	Y	Y	Y
Word Processing			
Adobe Maker Interchange Format (MIF)	character set 1252 only	N	N
Apple iChat Log (ICHAT)	Y	Y	N
Apple iWork Pages (GZ)	Y	Y	N
Applix Words (AW)	character set 1252 only	N	N
DisplayWrite (IP)	character set 500, 1026 only	N	N
Folio Flat File (FFF)	character set 1252 only	N	N
Founder Chinese E-paper Basic (CEB)	Y	Y	N
Fujitsu Oasys (OA2)	Y	Y	N

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
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[3]
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[3]
Microsoft Word Windows V97 through 2003 (DOC)	Y	Y	Y[3]
Microsoft Word Windows XML 2007 and 2010 (DOCX)	Y	Y	Y[3]
Microsoft Word Macintosh (DOC)	Y	N	Y[3]
Microsoft Works (WPS)	Y	Japanese only	N
Microsoft Write (WRI)	Y	Japanese only	N
OASIS Open Document (ODT)	Y	Y	N
Omni Outliner (OO3)	Y	Y	N
OpenOffice Writer (ODT)	Y	Y	N
Open Publication Structure eBook (EPUB)	Y	Y	Y
StarOffice Writer (ODT)	Y	Y	N
Skype Log (DBB)	Y	Y (null-terminated charsets)	N

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
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

[1]The text direction in the output file might not be correct.

[2]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
KVCS_KSC	Korean, cp949	Y
KVCS_1250	Windows Latin 2 (Central Europe)	Y
KVCS_1251	Windows Cyrillic (Slavic)	Y

Code Character Sets, continued

Coded Character Set	Description	Can be set as target charset?
KVCS_1252	Windows Latin 1 (ANSI)	Y
KVCS_1253	Windows Greek	Y
KVCS_1254	Windows Latin 5 (Turkish)	Y
KVCS_1255	Windows Hebrew	Y
KVCS_1256	Windows Arabic	Y
KVCS_1257	Windows Baltic Rim	Y
KVCS_1258	Windows Vietnamese	Y
KVCS_8859_1	ISO 8859-1 Latin 1 (Western Europe, Latin America)	Y
KVCS_8859_2	ISO 8859-2 Latin 2 (Central Eastern Europe)	Y
KVCS_8859_3	ISO 8859-3 Latin 3 (S.E. Europe)	Y
KVCS_8859_4	ISO 8859-4 Latin 4 (Scandinavia/Baltic)	Y
KVCS_8859_5	ISO 8859-5 Latin/Cyrillic	Y
KVCS_8859_6	ISO 8859-6 Latin/Arabic	Y
KVCS_8859_7	ISO 8859-7 Latin/Greek	Y
KVCS_8859_8	ISO 8859-8 Latin/Hebrew	Y
KVCS_8859_9	ISO 8859-9 Latin/Turkish	Y
KVCS_8859_14	ISO 8859-14	Y
KVCS_8859_15	ISO 8859-15	Y
KVCS_437	DOS Latin US	Y
KVCS_737	DOS Greek	Y
KVCS_775	DOS Baltic Rim	Y
KVCS_850	DOS Latin 1	Y
KVCS_851	DOS Greek	Y
KVCS_852	DOS Latin 2	Y
KVCS_855	DOS Cyrillic	Y

Code Character Sets, continued

Coded Character Set	Description	Can be set as target charset?
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
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

Code Character Sets, continued

Coded Character Set	Description	Can be set as target charset?
KVCS_2022_CN	ISO 2022-CN, Chinese mail and news safe encoding	N
KVCS_2022_KR	ISO 2022-KR, Korean mail and news safe encoding	N
KVCS_WP6X	Word Perfect 6.x and higher character mapping	N
KVCS_10000	Western European (Macintosh)	Y
KVCS_KSC5601	Unified Hangul	Y
KVCS_GB2312	Simplified Chinese (China, Singapore, Hong Kong)	Y
KVCS_GB12345	Traditional Chinese (China) - analogue of GB2312	Y
KVCS_CNS11643	Traditional Chinese - Taiwan. Supplement to Big5	Y
KVCS_JIS0201	Japanese - contains ASCII character set (JIS-Roman)	N
KVCS_JIS0212	Japanese. Supplement to JIS0208.	Y
KVCS_EUC_JP	Japanese Extended UNIX Code	Y
KVCS_EUC_GB	Simplified Chinese Extended UNIX Code	Y
KVCS_EUC_ BIG5	Traditional Chinese Extended UNIX Code	N
KVCS_EUC_KSC	Korean Extended UNIX Code	N
KVCS_424	EBCDIC Hebrew	N
KVCS_856	PC Hebrew (old)	N
KVCS_1006	IBM AIX Pakistan (Urdu)	N
KVCS_KOI8R	Cyrillic (Russian)	Y
KVCS_PDF_ JAPAN1	Adobe-Japan1-2 character collection	N
KVCS_PDF_ KOREA1	Adobe-Korea1-0 character collection	N
KVCS_PDF_GB1	Adobe-GB1-3 character collection	N
KVCS_PDF_ CNS1	Adobe-CNS1-2 character collection	N

Code Character Sets, continued

Coded Character Set	Description	Can be set as target charset?
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[1]
KVCS_8859_13	ISO 8859-13 (Latin 7 Baltic)	Y [1]
KVCS_57002	ISCII Devanagari (x-iscii-de)	Y [1]
KVCS_57003	ISCII Bengali (x-iscii-be)	Y [1]
KVCS_57004	ISCII Tamil (x-iscii-ta)	Y[1]
KVCS_57005	ISCII Telugu (x-iscii-te)	Y[1]
KVCS_57006	ISCII Assamese (x-iscii-as)	Y[1]
KVCS_57007	ISCII Oriya (x-iscii-or)	Y[1]
KVCS_57008	ISCII Kannada (x-iscii-ka)	Y[1]
KVCS_57009	ISCII Malayalam (x-iscii-ma)	Y[1]
KVCS_57010	ISCII Gujarathi (x-iscii-gu)	Y[1]
KVCS_57011	ISCII Panjabi (x-iscii-pa)	Y [1]
KVCS_GB18030b2	Reserved for internal use	n/a
KVCS_GB18030	GB18030 (Chinese 4-byte character set)	Y
KVCS_8859_11	ISO 8859-11 (Thai)	Y
KVCS_8859_16	ISO 8859-16 (Latin-10 South-Eastern Europe)	Y
KVCS_ARABICMAC	Arabic Mac (x-mac-arabic)	Y
KVCS_KOI8U	Cyrillic (KOI8U Ukrainian)	Y
KVCS_HZGB2312	The 7-bit representation of GB 2312 / RFC 1842	n/a
KVCS_UTF32	32-bit Unicode transformation format	Y

[1]The character set cannot be forced as output in Export SDK and Viewing SDK because the character

set is not supported by the major browsers.

Appendix D: Extract and Format Lotus Notes Subfiles

This section describes how to create XML templates to alter the appearance of extracted Lotus mail note subfiles so that they maintain the look and feel of the original notes.

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 213.

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*>`	If the condition from the comparison is true, process the XML. Conditions can be nested up to 25 levels deep. **Attributes** • `name`. (Required) The name of the main item to compare to `item` or `text`. • `item`. (Required if no `text`) The name of the item to compare to the item specified by `name`. • `text`. (Required if no `item`) The text to compare to the item specified by `name`.
`<ifex>, <ifnx>`	If `name` item exists and has a `text` value or not. The Notes item might have a value that cannot be converted to text, such as an image.
`<ifeq>, <ifne>, <iflt>, <ifle>, <ifgt>, <ifge>`	Respectively, if `text` ==, !=, <, >, <=, >, >=. Text comparison uses a case-insensitive string compare.
`<iftdeq>, <iftdne>, <iftdlt>, <iftdle>, <iftdgt>, <iftdge>`	Respectively, if time/date ==, !=, <, >, <=, >, >=. Time/date comparison converts dates to text in local time using the Notes default, `TZFMT_NEVER`, because Notes also sometimes converts fields to text internally. For example:

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. **Attributes** • `name`. (Required) The name of the main item to compare in `<case>` subelements.
`<case>`	If the comparison condition is true, process XML, then stop processing the rest of `<switch>`. **Attributes** • `text`. (Required) The text to compare to the `name` item of `<switch>`.
`<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. **Attributes** • `name`. (Required) The name of the main item. • `max`. (Optional) The maximum index to process. By default, all are processed.
`<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>`	Call another XML template. You can nest templates up to 10 levels deep. **Attributes** • `file`. (Required) The template file name. This name must be unique.
`<log>`	Log message to the NSF log file. **Attributes** • `text`. (Required) The text to log. • `type`. (Optional) The type of log message. The following values are valid: ◦ `ERROR` ◦ `WARN` ◦ `INFO` ◦ `DIAG` (the default option) ◦ `DEBUG` ◦ `DUMP`
`<quit>`	Stop processing the template. Exits without error. **Attributes** • `text`. (Optional) The text to log. • `type`. (Optional) The type of log message. See <log>, above.
`<stop>`	Stop processing the template. Exits with an `ERROR` log message. **Attributes** • `text`. (Required) The text to log.

Data Elements

The following table lists the valid data elements.

Data elements

Element	Description
`<text>`	Output text. **Attributes** • `name`. (Required if there is no parent) The name of the item to output.

Data elements, continued

Element	Description
<rich>	Output rich text (MHTML). Images are output in the next part or parts of the MHTML, after the first <HTML> part. **Attributes** • name. (Required if there is no parent) The name of the item to output.
<body>	Output the message body in rich text (MHTML). As with <rich>, above, images are output in the next part or parts of the MHTML.
<form>	Output the message form (usually $Body field) in rich text (MHTML). **Attributes** • name. (Required if there is no parent) The name of the item to output.
<addr>	Output an address. **Attributes** • name. (Required if there is no parent) The name of the item to output. • type. (Optional) The type of address to output. Set this attribute to **CN** (Common Name), which is the only supported type.
<name>	Output the name of the last name item, or in other words the current main item. The item must exist.
<format>	Set the default format for <date> and <date_kv>. This element does not set the <text> format. See Date and Time Formats, on page 218 for a list of all Notes and KeyView date and time formats and integer values. **Attributes** • format. (Optional. Omit to reset to defaults) The Notes and KeyView date and time format. You can set the following formats: ◦ TD=int. The Time Date format (TDFMT_*) ◦ TS=int. The Time Show format (TSFMT_*) ◦ TT=int. The Time Time format (TTFMT_*) ◦ TZ=int. The Time Zone format (TZFMT_*) ◦ KV=int. The KeyView date and time format where int is an integer value that corresponds to the desired format. Separate multiple formats with commas. For example: format="TD=0,TS=2,TT=1,TZ=1,KV=55"
<date>	Output a Notes date.

Data elements, continued

Element	Description
	Attributes • `name`. (Required if there is no parent) The name of the item to output. • `format`. (Optional) See <format>, on the previous page. You can set the following values: ◦ `TD` ◦ `TS` ◦ `TT` ◦ `TZ`
`<date_kv>`	Output a KeyView date. **Attributes** • `name`. (Required if there is no parent) The name of the item to output. • `format`. (Optional) See <format>, on the previous page. You can set the following values: ◦ `TZ` ◦ `KV`
`<time>`	Output a time range, for example 1 hour, 30 minutes. **Attributes** • `name`. (Required if there is no parent) The item name of the start date or time. • `item`. (Required) The item name of the end date or time.
`<zone>`	Output a Notes time zone mnemonic, for example `MST`. **Attributes** • `name`. (Required if there is no parent) The name of date item to output.
`<zone_utc>`	Output a time zone as UTC, for example `(UTC-06:00)`.
`<logo>`	Output the mail header logo. The image link is included in the output; the actual image is output to a different part of the MHTML subfile.
`<image>`	Output an image. The image link is included in the output; the actual image is output to the MHTML next part, as with <rich>, on the previous page and <body>, on the previous page.
`<image_`	Output an image URI, in quotation marks. The actual image is output to a different part of

Data elements, continued

Element	Description
`uri>`	the MHTML subfile. **Attributes** • `link`. (Required if there is no `file`) The image link, such as a form or title name. For example: • `link="StdNotesLtr0"` • `file`. (Required if there is no `link`) The name of the image file. The file must exist in the `../../templates/images` directory. For example: • `file="boxcheck.gif"`

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
TZFMT_NEVER	0	(Notes default) All time zones are converted to the current time zone
TZFMT_ SOMETIMES	1	Show only when outside the current time zone
TZFMT_ALWAYS	2	Show for all time zones
TSFMT_DATE	0	Date
TSFMT_TIME	1	Time
TSFMT_DATETIME	2	(The Notes default) Date and time
TSFMT_ CDATETIME	4	Date and time, or time today or time yesterday

KeyView Date and Time Formats

This section lists KeyView date and time formats. The KeyView formats use the following syntax:

Month	`Month` = full month name
	`Mon` = abbreviated month name
	`m` = month (number)
	`mm` = two-digit month (leading 0)
Weekday	`Weekday` = full weekday name
	`Wday` = abbreviated weekday name
Year	`yy` = two-digit year
	`yyyy` = four-digit year
>Day	`d` = day (number)
	`dd` = two-digit day (leading 0)
Time	`h` = 12-hour
	`H` = 24-hour

m = minutes

s = seconds

P = AM/PM

p = am/pm

Separators _ = space

c = comma

s = slash

a = dash

o = dot

KeyView date and time formats

Format	Output	Integer Value
12-Hour and 24-Hour Time Formats		
KVDTF_P	P	1
KVDTF_P_hmm	P h:mm	2
KVDTF_hmm_P	h:mm P	3
KVDTF_P_hhmm	P hh:mm	4
KVDTF_hhmm_P	hh:mm P	5
KVDTF_P_hmmss	P h:mm:ss	6
KVDTF_hmmss_P	h:mm:ss P	7
KVDTF_P_hhmmss	P hh:mm:ss	8
KVDTF_hhmmss_P	hh:mm:ss P	9
KVDTF_Hmm	H:mm	10
KVDTF_HHmm	HH:mm	11
KVDTF_mmss	mm:ss	12
KVDTF_Hmmss	H:mm:ss	13
KVDTF_HHmmss	HH:mm:ss	14
Numerical Date Formats with Slashes		
KVDTF_mmsdd	mm/dd	15
KVDTF_msdsyy	m/d/yy	16

KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_mmsddsyy	mm/dd/yy	17
KVDTF_mmsddsyyyy	mm/dd/yyyy	18
KVDTF_ddsmm	dd/mm	19
KVDTF_ddsmmsyy	dd/mm/yy	20
KVDTF_ddsmmsyy_Hmm	dd/mm/yy H:mm	21
KVDTF_ddsmm_P_hmm	dd/mm P h:mm	22
KVDTF_ddsmm_hmm_P	dd/mm h:mm P	23
KVDTF_ddsmm_P_hhmm	dd/mm P hh:mm	24
KVDTF_ddsmm_hhmm_P	dd/mm hh:mm P	25
KVDTF_ddsmmsyy_P_hmm	dd/mm/yy P h:mm	26
KVDTF_ddsmmsyy_hmm_P	dd/mm/yy h:mm P	27
KVDTF_ddsmmsyy_P_hmmss	dd/mm/yy P h:mm:ss	28
KVDTF_ddsmmsyy_hmmss_P	dd/mm/yy h:mm:ss P	29
KVDTF_ddsmmsyy_P_hhmmss	dd/mm/yy P hh:mm:ss	30
KVDTF_ddsmmsyy_hhmmss_P	dd/mm/yy hh:mm:ss P	31
KVDTF_yysmmsdd_P_hhmmss	yy/mm/dd P hh:mm:ss	32
KVDTF_yysmmsdd_hhmmss_P	yy/mm/dd hh:mm:ss P	33
KVDTF_msdsyy_Hmm	m/d/yy H:mm	34
KVDTF_mmsddsyy_Hmm	mm/dd/yy H:mm	35
KVDTF_msdsyy_P_hmm	m/d/yy P h:mm	36
KVDTF_msdsyy_hmm_P	m/d/yy h:mm P	37
KVDTF_mmsddsyy_hmm_P	mm/dd/yy h:mm P	38
KVDTF_mmsdd_P_hhmm	mm/dd P hh:mm	39
KVDTF_mmsdd_hhmm_P	mm/dd hh:mm P	40
KVDTF_mmsddsyy_P_hhmmss	mm/dd/yy P hh:mm:ss	41
KVDTF_mmsddsyy_hhmmss_P	mm/dd/yy hh:mm:ss P	42

KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_msd	m/d	43
KVDTF_yysm	yy/m	44
KVDTF_yysmm	yy/mm	45
KVDTF_yysmsd	yy/m/d	46
KVDTF_yysmmsdd	yy/mm/dd	47
KVDTF_yyyysmmsdd	yyyy/mm/dd	48
Numerical Date Formats with Dashes		
KVDTF_ddammayy	dd-mm-yy	49
KVDTF_mmadd	mm-dd	50
KVDTF_mmayy	mm-yy	51
KVDTF_yyammadd	yy-mm-dd	52
KVDTF_yyyyammadd	yyyy-mm-dd	53
KVDTF_yyyyammaddaHHmmss	yyyy-mm-dd-HH:mm:ss	54
Numerical Date Formats with Dots		
KVDTF_yyomod	yy.m.d	55
KVDTF_yyommodd	yy.mm.dd	56
KVDTF_mod	m.d	57
KVDTF_mmodd	mm.dd	58
Numerical and String Date Formats with Dashes, Commas, and Spaces		
KVDTF_ddaMon	dd-Mon	59
KVDTF_daMonayy	d-Mon-yy	60
KVDTF_ddaMonayy	dd-Mon-yy	61
KVDTF_ddaMonayyyy	dd-Mon-yyyy	62
KVDTF_Mon	Mon	63
KVDTF_Monayy	Mon-yy	64
KVDTF_Monayyyy	Mon-yyyy	65

KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_Monaddayy	Mon-dd-yy	66
KVDTF_yyammadd_P_hhmmss	yy-mm-dd P hh:mm:ss	67
KVDTF_mmadd_P_hhmm	mm-dd P hh:mm	68
KVDTF_Mon_yy	Mon yy	69
KVDTF_Monc_yy	Mon, yy	70
KVDTF_Month	Month	71
KVDTF_Monthayy	Month-yy	72
KVDTF_Month_yy	Month yy	73
KVDTF_Monthc_yy	Month, yy	74
KVDTF_Monthayyyy	Month-yyyy	75
KVDTF_Month_yyyy	Month yyyy	76
KVDTF_Monthc_yyyy	Month, yyyy	77
KVDTF_Mon_dc_yyyy	Mon d, yyyy	78
KVDTF_d_Monc_yyyy	d Mon, yyyy	79
KVDTF_yyyy_Mon_d	yyyy Mon d	80
KVDTF_Month_dc_yyyy	Month d, yyyy	81
KVDTF_d_Monthc_yyyy	d Month, yyyy	82
KVDTF_yyyy_Month_d	yyyy Month d	83
Weekday Date Formats		
KVDTF_Wday	Wday	84
KVDTF_Weekday	Weekday	85
KVDTF_Wdayc_Mon_dc_yyyy	Wday, Mon d, yyyy	86
KVDTF_Weekdayc_Month_dc_yyyy	Weekday, Month d, yyyy	87
KVDTF_Weekdayc_d_Monthc_yyyy	Weekday, d Month, yyyy	88

Appendix E: File Format Detection

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

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 165.

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 227.

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 227.

- The reader associated with each format. See Determine a Document Reader, on page 228.
- 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, l123sr:

```
81.2.0.9.0=l123
```

List of Required Files for Redistribution, on page 232 lists the readers provided with KeyView.

Category Values in formats.ini

The Supported Formats section lists all of the file formats that can be detected by KeyView, with associated category values for use in the formats.ini file. The following tables provide the list of possible file classes and minor formats.

- File Classes
- Minor Formats

File Classes

Attribute Number	Description	File class
0	No file class	AutoDetNoFormat
01	Word processor	adWORDPROCESSOR
02	Spreadsheet	adSPREADSHEET

File Classes, continued

Attribute Number	Description	File class
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
24	BI and analysis tools	adANALYTICS
25	Scientific data	adSCIENTIFIC
26	Geographic Info System	adGIS

Minor Formats

Attribute Number	Minor Format
00	Minor format not defined
01	Standard
02	Book
03	Chart
04	Macro
05	Text
06	Binary
07	PC
08	Windows
09	DOS
10	Macintosh
11	RGB
12	TIFF
13	IFF
14	Experimental
15	Format Information
16	RLE
17	Symbol
18	Old
19	Footnote
20	Style
21	Palette
22	Configuration
23	Activity
24	Resource
25	Calculation

Minor Formats, continued

Attribute Number	Minor Format
26	Glossary
27	Spelling
28	Thesaurus
29	Hyphenation
30	Miscellaneous
31	UNIX
32	VAX
33	Driver
34	Archive

Appendix F: 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 Determine Format Support, on page 224.
FilterDotNet.dll	The .NET API.
filterfordotnet.dll	Required by the .NET API.
KeyView.jar	The Java API. **NOTE:** This file can be found at the path *install*/javaapi/KeyView.jar where *install* 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 The Filter Process Model, on page 23.
kvxtract.*	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.
kvxsssa.*	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. **NOTE:** This folder can be found in the Filter SDK installation directory.

Support Files

The following support files can be redistributed with your application.

File	Description
datafiles*	(Folder) Required by kvlangdetect
NSFtemplates*	(Folder) Templates used by nsfsr to format Lotus mail notes
7z.*	Required by z7zsr and multiarcsr
bentofio.*	Required by l123sr and kpprzrdr.
cbmap.map	Character mappings for Adobe Portable Document Format (PDF).
CEBDLL.dll	Required by cebsr.
chartbls.ux	Character mappings.
chmdll.*	Required by chmsr.
codeidentifierplugin.*	Required for source code identification
cpstsdk.*	Required by pstxsr.
DFECore.dll	Required by cebsr.
Filter.dll	Required by cebsr.

File	Description
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.
langdetectext.	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 *install/OS*/lib.
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
asfsr.*	Advanced Systems Format reader
assr.*	Applix Spreadsheet reader

File	Description
awsr.*	Applix Word reader
b1sr.*	B1 archive reader
bkfsr.*	Microsoft Backup File reader
bmpsr.*	Windows bitmap (BMP) reader
bzip2sr.*	Bzip2 reader
cabsr.*	Microsoft Cabinet format reader
cebsr.*	Founder Chinese E-paper Basic reader
chmsr.*	Microsoft Compiled HTML Help reader
csvsr.*	Comma-Separated Values reader
dbfsr.*	dBase Database reader
dbxsr.*	Microsoft Outlook Express DBX reader
dcasr.*	Document Content Architecture/Revisable Form Text (DCA/RFT) reader
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
dxlsr.*	Domino XML Language reader
emlsr.*	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
gifsr.*	Graphics Interchange Format (GIF) reader
gwfssr.*	GroupWise FileSurf reader

File	Description
hl7sr.*	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
kpdxfrdr.*	AutoCAD Drawing Exchange format reader
kpemfrdr.*	Enhanced Metafile reader
kpgflrdr.*	Omni Graffle reader
kpgifrdr.*	Graphic Interchange Format (GIF) reader
kpiwpg13rdr.*	iWork 13 keynote reader
kpiwpgrdr.*	Apple iWork Keynote reader
kpjbig2rdr.*	JBIG2 reader
kpjp2000rdr.*	JPEG 2000 reader
kpmsordr.*	Microsoft Office Drawing Objects (office 97, 2000, and XP) reader

File	Description
kpnbmprdr.*	Notes Bitmap reader (for embedded images in DXL files)
kpodardr.*	AutoCAD reader (Windows only)
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
kpxfdlrdr.*	Extensible Forms Description Language reader
kvgzsr.*	GZIP reader
kvhqxsr.*	BinHex reader
kvzeesr.*	UNIX Compress reader
l123sr.*	Lotus 123 v96/97/98 reader

File	Description
lasr.*	Lotus AMI Pro reader
ltbenn30.dll	Lotus Word Pro support (supported on Windows x86 platform only)
ltscsn10.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwpapin.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwppann.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwpsr.dll	Lotus Word Pro reader (supported on Windows x86 platform only)
lzhsr.*	Microsoft Compression Folder reader
macbinsr.*	MacBinary reader
mbsr.*	Microsoft Word Macintosh reader
mbxsr.*	Mailbox (MBX) and Microsoft Outlook Express (EML) reader[1]
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
mppsr.*	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
mwsr.*	Microsoft Word for DOS and Microsoft Write reader
mwssr.*	Microsoft Works Spreadsheet reader

[1]This reader is an advanced feature and is sold and licensed separately from KeyView Filter SDK. See License Information, on page 15

File	Description
mwxsr.*	Microsoft Word 2007 XML reader
nsfsr.*	Lotus Notes database reader 1
oa2sr.*	Fujitsu Oasys reader
odfsssr.*	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)1
pstnsr.*	Microsoft Outlook Personal Folders file native reader1
pstxsr.*	Microsoft Outlook Personal Folders file native reader1
qpssr.*	Corel Quattro Pro spreadsheet reader
qpwsr.*	Corel Quattro Pro version X4 spreadsheet reader
rarsr.*	RAR Archive reader
riffsr.*	Microsoft WAVE reader
rtfsr.*	Microsoft Rich Text reader

File	Description
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
unisr.*	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
xpssr.*	XML Paper Specification reader
xywsr.*	XYWrite reader
yimsr.*	Yahoo! Instant Messenger reader
z7zsr.*	7-Zip reader

Appendix G: Develop a Custom Reader

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

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 18.

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 253. 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, KVTSIZE_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, offsetY,\
             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 253

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
`pCFContext`	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 `pCFContext` 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 `fffProcessBuffer()` is unable to process the entire input source file buffer, it sets the value for `pContext->nResidualBytes`. When the next call to `fffReadSourceFile()` 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:   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 )
{
    double dTotalBytesProcessed, dFileSize;
    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);
         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.

xxxsrAutoDet()

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 224.

Syntax

```
Bool pascal _export xxxsrAutoDet(
    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`:

`adClass`	Must be set to **`1`**.
`adFormat`	A numerical value assigned to this reader in the `[Formats]` section of the `formats.ini` file.
`descStr`	A string describing the file format.
`mMnmemStr`	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

`pSALContext`	A pointer to the global data context structure of the structured access layer.
`fp`	A pointer to a structure of callback functions supported by the structured access layer.

`pbOpenDoc`	You must set this `BOOL` value to **`TRUE`** if the allocation of memory for the global data context structure is successful.
`pVapi`	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

`pCFContext`	A pointer to the global context structure for the custom reader.
`pcBuf`	A pointer to a memory buffer to which the tokens are written.
`pnBufOut`	A pointer to a variable that specifies the actual number of bytes written to the token buffer.
`pnPercentDone`	A pointer to a variable that specifies the percentage completed of the file parsing.
`cbBufOutMax`	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

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

`pInfo`	A pointer to a `KVSummaryInfoEx` structure defined in `kvtypes.h`.
`bFreeInfo`	A `BOOL` 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    *pCFContext,
    int      type,
    int      nOrdinal)
```

Arguments

`pCFContext`	A pointer to the global context structure for the custom reader.
`type`	An integer identifying a specific header, footer, footnote, or endnote. Options are defined in `kvcfsr.h`.
`nOrdinal`	An integer identifying a specific header, footer, footnote, or endnote. See the associated macros in `kvtoken.h`.

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

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

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 H: Password Protected Files

This section lists supported password-protected container and non-container files and describes how to open them.

Supported Password Protected File Types

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)[1]	n/a	N	N	Y	S	N
ZIP	n/a	N	N	Y	S	P
7-Zip	n/a	N	N	Y	S	P

[1]The native PST readers, `pstxsr` and `pstnsr`, do not require credentials to open password-protected PST files that use compressible encryption.

Supported password-protected file types, continued

File Type	Version	Filter	Export	Extract	View	Credentials
RAR	n/a	N	N	Y	S	P
SMIME in MSG, EML, MBX	n/a	N	N	Y	N	C
Lotus Notes NSF	n/a	N	N	Y	N	C
Adobe PDF	n/a	Y	Y	Y	V	P
Microsoft Office	97-2003 2007 2010	Y	Y	Y	V	P

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.

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