

# KeyView

Software Version 12.1

## XML Export SDK Java Programming Guide



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# Part I: Overview of XML Export

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

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



# Chapter 1: Introducing XML Export

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

This section describes the KeyView Export SDK package.

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## Overview

XML Export is part of the KeyView Export SDK. It enables you to convert virtually any document, spreadsheet, presentation, or graphic into well-formed, valid XML which is validated against a predefined Document Type Definition (DTD). With XML Export, you control the content, structure, and format of the XML output using either easily customized templates, or the flexible and robust APIs.

The main purpose of XML Export is to apply an XML vocabulary to the data structures in a document so that content and metadata can be indexed and subsequently searched in context.

Data structures in a source document can be:

- metadata (title, author, subject, and so on)
- document components (headers, footers, footnotes, endnotes, captions, bookmarks, and so on)
- tagged text (chapters, sections, bulleted lists, and so on)
- table components (sheet names, rows, columns, cell ranges, and so on)
- presentation components (notes, slide titles, slide descriptions, and so on)

Although viewing is not the main purpose of XML Export, Extensible Stylesheet Language (XSL) style sheets or Cascading Style Sheets (CSS) can be used to display the XML data.

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

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

## Features

- Dynamically convert word processing, spreadsheet, presentation, and graphics files into well-formed, valid, and 1.0-compliant XML. The XML output is validated against a predefined DTD named the "Verity.dtd."
- Export supports over 300 formats in 70 languages.
- Convert files either in-process or out of process. Out-of-process conversion ensures the stability and robustness of the calling application if a corrupt document causes an exception or causes the conversion process to fail.
- You can extract files embedded within files by using the File Extraction API, and then convert them by using the Export API.
- Use redirected input/output. You can provide an input stream that is not restricted to file system access.
- Export automatically recognizes the file format being converted and uses the appropriate reader. Your application does not need to rely on file name extensions to determine the file format.
- Create heading levels in the output file either by using the structure in the source document or by allowing Export to automatically generate a structure based on document properties, such as font or font attributes.
- Use callbacks to control aspects of the conversion process, such as file naming and the insertion of scripts.
- Manage memory allocation to optimize speed and performance of application.
- Insert predefined XML markup at specific points in the output stream.
- Apply XSL or Cascading Style Sheets (CSS) to improve the fidelity of the output.
- Map paragraph and character styles in word processing documents to any markup that you specify in the output.
- Control the resolution of rasterized vector graphics to optimize storage requirements or image quality.
- Select the target format for converted graphics, including GIF, JPEG, CGM, PNG, WMF, and Java on Windows, and Java and JPEG on Unix and Linux.

## Platforms, Compilers, and Dependencies

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

## Supported Platforms

- CentOS 7
- FreeBSD 8.1 x86
- IBM AIX L6.1 PowerPC 32-bit and 64-bit
- IBM AIX L7.1 PowerPC 32-bit and 64-bit
- Mac OS X Mountain Lion 10.8 or higher on 32- and 64-bit Apple-Intel architecture
- Microsoft Windows Vista Business Edition x86 and x64. Other editions of Vista have not been tested, but are likely supported.
- Microsoft Windows 2008 Server Enterprise Edition x86 and x64
- Microsoft Windows 2008 Server R2
- Microsoft Windows 7 x86 and x64
- Microsoft Windows 8 x86 and x64
- Oracle Solaris 10 SPARC
- Oracle Solaris 10 x86 and x64
- Red Hat Enterprise Linux 5.0 x86 and x64
- Red Hat Enterprise Linux 6.0 x86 and x64
- SuSE Linux Enterprise Server 10, 10.1, 11, x86 and x64

## Supported Compilers

Platform	Architecture	Compiler Name	Compiler Version
Microsoft Windows	x86	cl	Microsoft 32-bit C/C++ Optimizing Compiler Version 16.00.30319.01 for x86
	x64	cl	Microsoft C/C++ Optimizing Compiler Version 16.00.30319.01 for x64
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++	3.4.3 (Redhat 4), 4.1.0 (SuSE Linux 10)
	x64	gcc / g++	4.1.0 (Redhat 4), 4.1.0 (SuSE Linux 10)

Platform	Architecture	Compiler Name	Compiler Version
IBM AIX	Power	xLC_r / cc_r	IBM XL C/C++ Enterprise Edition V8.0
Mac OSX	Apple-Intel 32-bit and 64-bit	LLVM	Apple LLVM 5.1 (clang-503.0.40) (based on LLVM 3.4svn)
FreeBSD	BSD x86	gcc / g++	4.2.1 [FreeBSD] 20070719

#### Supported Compilers for Java Components

Component	Compiler
Java components	Java 1.5

## C++ Filter SDK

The C++ Filter SDK is supported on:

- Linux using GCC 5 or later
- Windows using Visual Studio 2015 or later

## Software Dependencies

Some KeyView components require specific third-party software:

- Java Runtime Environment (JRE) or Java Software Developer Kit (JDK) version 1.5 is required for Java API and graphics conversion in Export SDK.
- Outlook 2002 client or later versions is required when processing Microsoft Outlook Personal Folders (PST) files using the MAPI-based reader (*pstsr*). The native PST reader (*pstnsr*) does not require an Outlook client.

#### NOTE:

If you are using 32-bit KeyView, you must install 32-bit Outlook. If you are using 64-bit KeyView, you must install 64-bit Outlook.

If the bit editions do not match, 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.

Additionally, KeyView displays the following return code:

Error 32: KVErrors\_PSTAccessFailed.

- 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++ 2013 and Microsoft Visual C++ 2010 Redistributables (Windows only).

## Windows Installation

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

### To install the SDK

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

For example:

`KeyViewExportSDK_12.1_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 License Key page opens.

5. Type the company name and license key that were provided when you purchased KeyView, and then click **Next**.
  - The company name is case sensitive.
  - The license key is a string that contains 31 characters.

#### NOTE:

The installation program validates the company name and license key and generates the file `install\OS\bin\kv.lic` (where *install* is your chosen installation folder and *OS* is the name of the operating system platform). The license information is validated when the KeyView API is used. If you do not enter a license key at this step, or if you enter invalid information, the KeyView SDK is installed, but the API does not function. When you obtain a valid license key, you can either re-install the KeyView SDK, or manually update the license key file (`kv.lic`) with the new information. For more information, see [License Information, on page 17](#).

The Pre-Installation Summary dialog box opens.

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

The SDK is installed.

7. Click **Finish**.

## UNIX Installation

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

### To install the SDK from the graphical interface

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

### To install the SDK from the console

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

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

where:

*VersionNumber* is the product version.

*Platform* is the name of the platform.

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

The first page of the license agreement is displayed.

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

You are asked to choose an installation folder.

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

You are asked for license information.

5. At the **Company Name** prompt, type the company name that was provided when you purchased KeyView, and then press `Enter`. The company name is case sensitive.
6. At the **License Key** prompt, type the license key that was provided when you purchased KeyView, and then press `Enter`. The license key is a string that contains 31 characters.

#### NOTE:

The installation program generates the file `install\OS\bin\kv.lic` (where `install` is your chosen installation folder and `OS` is the name of the operating system platform). The license information is validated when the KeyView API is used. If you do not enter a license key at this step, or if you enter invalid information, the KeyView SDK is installed



but the API does not function. When you obtain a valid license key, you can either re-install the KeyView SDK, or manually update the license key file (`kv.lic`) with the new information. For more information, see [License Information, below](#).

The Pre-Installation summary is displayed.

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

The SDK is installed.

## Package Contents

The Export installation contains:

- Libraries and executable files necessary for converting source documents into high-quality, well-formed XML (see [Files Required for Redistribution, on page 287](#)).
- The include files that define the functions and structures used by the application to establish an interface with Export:  
`adinfo.h`  
`kvxml.h`  
`kvtypes.h`  
`kvxtract.h`
- The Java API implemented in the `com.verity.api.export` package contained in the `KeyView.jar` file.
- Several sample programs that demonstrate Export's functionality.
- Sample images that can be used as navigation buttons and background textures in your output.
- Template files that enable you to set conversion options without modifying at the API level. They can be used to generate a wide range of output, from highly-stylized user-defined XML to stripped-down, text-only output suitable for use with an indexing engine.
- The predefined DTD, `Verity.dtd`, used to validate all XML output.
- Sample style sheets: `wp.xml` (for word processing documents), `ss.xml` (for spreadsheets), and `pg.xml` (for presentation graphics).

## License Information

During installation, the installation program validates the organization name and license key that you enter, and generates the `install/OS/bin/kv.lic` file, where `install` is the directory in which you installed KeyView, and `OS` is the operating system. This file is opened and validated when the KeyView API is used.

The `kv.lic` file contains the organization name and the 31-digit license key you specified during installation. The contents of a `kv.lic` file looks similar to the following:

Company Name  
XXXXXXX-XXXXXXX-XXXXXXX-XXXXXXX

The license key controls whether the following are enabled:

- the full version of the KeyView SDK
- the trial version of the KeyView SDK
- language detection and advanced document readers—The following components are considered advanced features, and are licensed separately:
  - Microsoft Outlook Personal Folders (PST) reader (`pstsr` and `pstnsr`)
  - Lotus Notes database (NSF) reader (`nsfsr`)
  - Mailbox (MBX) reader (`mbxsr`)
  - Character set detection library (`kvlangdetect`)

If you change the license key at any time, you must update the licensing information in the `kv.lic` file. See [Update License Information](#).

## Enable Advanced Document Readers

To enable advanced readers in one of the KeyView SDKs, you must obtain an appropriate license key from Micro Focus and update the installed license key with the new information as described in [Update License Information](#).

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

## Update License Information

If you currently have an evaluation version of KeyView and have purchased 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 was installed with the original version of the KeyView SDK.

If you installed a full version of KeyView, but did not enter licensing information at the time of installation, you must also update the license information.

To update the information, do one of the following:

- Manually update the license information that is stored in the text file named `kv.lic`.
- Re-install the product and enter the new license information when prompted.

### To update the KeyView license information

1. Open the license key file, `kv.lic`, in a text editor. The file is in the `install\OS\bin` directory, where `install` is the directory in which you installed KeyView, and `OS` is the operating system. The file contains the following text:

```
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 `kv.lic` file.

## Directory Structure

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

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

### XML Export Installed Directory Structure

Directory	Contents
<i>install</i> \OS\bin	Contains the libraries, executables for the sample programs Export Demo and <code>cnv2xml</code> , the Java program ( <code>kvraster.class</code> ), the Java applet ( <code>kvvector.jar</code> ), the format detection file, <code>formats_e.ini</code> , the license key file ( <code>kv.lic</code> ), and a number of other supporting files.
<i>install</i> \javaapi\ini	Contains the template files used with the Java API.
<i>install</i> \javaapi\javadoc	Contains the Javadoc for the Java API.
<i>install</i> \javaapi\sample	Contains the source files and sample programs for the Java API.
<i>install</i> \testdocs	Contains sample word processing, spreadsheet, and presentation graphics files that can be used to test XML Export's options. You might also find this directory useful when testing your own applications.

### XML Export Installed Directory Structure, continued

Directory	Contents
<i>instal</i> \XML Export\guide	Contains the <i>XML Export C Programming Guide</i> and <i>XML Export Java Programming Guide</i> in HTML and PDF format.
<i>instal</i> \XML Export\include	Contains the header files ( <code>adinfo.h</code> , <code>kvxml.h</code> , and <code>kvtypes.h</code> ) for the C API.
<i>instal</i> \XML Export\programs\bin	Contains the executable files for the sample Visual Basic program called Export Demo.
<i>instal</i> \XML Export\programs\cnv2xml	Contains the C source code files for a sample program that creates a single XML file. The executable for this sample program is in the <code>bin</code> directory.
<i>instal</i> \XML Export\programs\cnv2xmloop	Contains the C source code for a sample program that creates a single XML file out of process.
<i>instal</i> \XML Export\programs\ExportDemo	Contains the source code for a sample Visual Basic program. The executable for this sample program is in the <code>bin</code> directory. Export Demo is available through the <b>Start</b> menu.
<i>instal</i> \XML Export\programs\ini	Contains the template files used to set the conversion options in the C API.
<i>instal</i> \XML Export\programs\metadata	Contains the C source code and supporting files for a sample program that creates a valid XML file containing only the document's metadata.
<i>instal</i> \XML Export\programs\pdfini	Contains the template file used to extract custom metadata from PDF documents.
<i>instal</i> \XML Export\programs\tempout	The default output directory for converted files. Contains the KeyView DTD, sample style sheets, and character entity files. These files are required for viewing the converted XML files.
<i>instal</i> \XML Export\programs\tstxtract	Contains the C source code and supporting files for a sample program that demonstrates the File Extraction interface.
<i>instal</i> \XML Export\programs\xmlcallback	Contains the C source code and supporting files for a sample program that demonstrates how user callbacks can dynamically shape the XML conversion.
<i>instal</i> \XML Export\programs\xmlindex	Contains the C source code and supporting files for a sample program that produces text-only XML.
<i>instal</i> \XML Export\programs\xmlini	Contains the C source code and supporting files for a sample program that uses template files to set the conversion options.
<i>instal</i> \XML	Contains the C source code and supporting files for a sample

### XML Export Installed Directory Structure, continued

Directory	Contents
	program that creates multiple XML files from a source document. The main file contains the table of contents. Each H1 heading is contained within its own file.
<i>instal</i> \XML Export\programs\xmlonefile	Contains the C source code and supporting files for a sample program that converts a source document into a single, formatted XML file.
<i>instal</i> \XML Export\rel_notes	Contains the <i>XML Export Release Notes</i> in HTML and PDF format.

## Definition of Terms

The following are specialized terms used throughout the guide.

anchor	XML markup that defines both anchors and hyperlinks. An anchor is a named place in a document to which other documents can form a link. Anchors use the XML anchor tags ( <code>&lt;a xmlns:xlink= xlink href=&gt; &lt;/a&gt;</code> ) to facilitate navigation within a document.  The major browsers do not currently support linking in XML documents.
block	All source document content (including subheadings) associated with Heading Level 1. Export identifies and/or generates blocks from the input stream for the implementation of the your XML markup.
block chunk or chunk	All source document content associated with Heading Levels 2 through 6. Chunks are subdivisions of blocks. You can supply specific XML markup for the different levels of block chunks.
callback	A function optionally supplied by your application and called from the Export API. For example, callbacks allow your application to monitor the progress of the conversion process dynamically.
stream	Transmission of a file's content between memory and disk in a continuous flow.
token	The vehicle for conveying specific types of information to and from the API during the conversion process. Tokens are placeholders for markup that appears in the output. See <a href="#">Export Tokens, on page 236</a> .

# Chapter 2: Getting Started

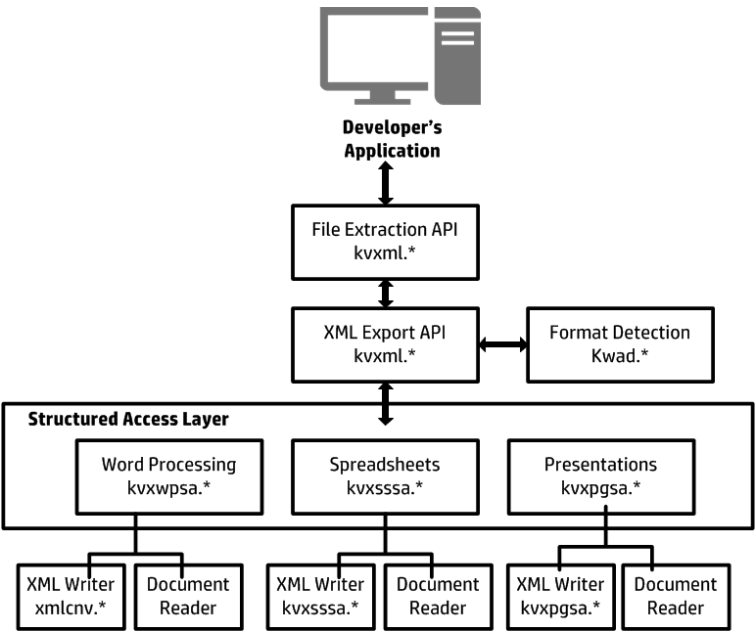
This section provides an overview of the XML Export SDK and describes how to use the Java implementation of the API. It contains the following topics:

- [Architectural Overview](#) ..... 22
- [Enhance Performance](#) ..... 24
- [Convert Files Out of Process](#) ..... 24
- [Convert Files](#) ..... 29
- [Subfile Extraction](#) ..... 30
- [Set Conversion Options](#) ..... 31
- [Use the Export Demo Program](#) ..... 33
- [Use the XML Export API](#) ..... 37
- [Use the KeyView Document Type Definition \(DTD\)](#) ..... 43

## Architectural Overview

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

XML Export Architecture



Each component is described in the following table.

## Architectural Components

Component	Description
Developer's Application	The developer's application interfaces directly with the XML Export API through either a C, Java, or COM implementation.
File Extraction API	The File Extraction API opens a file and extracts the file's subfiles so that they are available for conversion. See <a href="#">Use the File Extraction API, on page 47</a> .
XML Export API	The XML Export API exposes the functionality of XML Export and controls all other XML Export modules during the conversion process.
Format Detection Module	The format detection module determines the file type of the source file, which enables the XML Export interface to load the appropriate structured access layer module and document reader. See <a href="#">File Format Detection, on page 239</a> .
Structured Access Layer	<p>The structured access layer contains three modules: one for word processing, one for spreadsheets, and one for presentations and graphics. Information from the format detection module determines which access layer module operates at this stage of the conversion. The structured access layer performs the following:</p> <ol style="list-style-type: none"><li>1. Loads the appropriate document reader.</li><li>2. Processes the data stream from the document reader.</li><li>3. Determines table of contents entries.</li><li>4. Sends the stream to the appropriate XML writer.</li><li>5. Accepts the XML stream from the XML writer.</li><li>6. Generates the XML output file with a table of contents, metadata, and the document's contents, and sends it to the XML Export interface.</li></ol>
Document Reader	Each document reader reads a specific file format and sends a text stream of the document to the structured access layer. Word processing readers return a <i>token stream</i> to the structured access layer. A token stream contains the document contents and messages (tokens) that precede the content and identify the type of information that follows them. Each reader is loaded as required by the structured access layer. See <a href="#">Document Readers and Writers, on page 290</a> for a complete list of document readers.
XMLWriters	Each XML writer accepts a text stream or token stream from the structured access layer and generates an equivalent XML stream that is sent back to the structured access layer. The structured access layer then generates the output file. See <a href="#">Document Readers and Writers, on page 290</a> for a list of format writers.

## Enhance Performance

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

### File Caching

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

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

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

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

```
DiskCacheSize=1024
```

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

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

## Convert Files Out of Process

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

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

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



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

**NOTE:**

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

The following are requirements for running Export out of process:

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

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

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

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

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

## Configure Out-of-Process Conversions

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

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

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

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

```
[KVExport00POptions]
TempFileSizeMark=
TempFilePath=
WaitForConvert=
WaitForConnectionTime=
ListenerPortList=

ConnectRetryInterval=
ConnectRetry=
ServantName=
```

Each parameter is described in the following table.

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

#### Parameters for Out-of-Process Conversion

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

### Parameters for Out-of-Process Conversion, continued

Parameter	Description
default = 0.1 range = 50000~500000	connect because the application is waiting for another Servant to send a process ID.  To calculate the <i>total retry interval</i> , the value set here is added to the platform-specific TCP retry value (on Windows, this is 1 second).
ConnectRetry type = integer default = 120 range = 30~600	The number of attempts the Servant makes to connect to the calling application. This value and the total retry interval determine the total delay time. The total delay is calculated as follows:  $\text{ConnectRetryInterval} + \text{platform-specific\_TCP\_retry\_value} * \text{ConnectRetry}$  For example, if the <code>ConnectRetryInterval</code> is set to 2 seconds, and the Export process is running on Windows (the default TCP retry value on Windows is 1 second), the total delay would be:  $2 + 1 * 120 = 360$  The Servant would attempt to connect to the application every 3 seconds for 120 attempts for a total of 360 seconds.
ServantName type = string default = servant	The name of the Servant process. To move the Servant to another location, enter a fully qualified path.

## Run Export Out of Process—Overview

### To convert files out of process

1. If required, set parameters for the out-of-process conversion in the `formats_e.ini` file. See [Configure Out-of-Process Conversions, on page 25](#).
2. Instantiate an `XmlExport` object.
3. Define the conversion options.
4. Initialize an out-of-process session.
5. Convert the input and/or call other methods that can run out of process.
6. Shutdown the out-of-process session.
7. Repeat [Step 3](#) to [Step 6](#) for additional files.
8. Terminate the out-of-process session and the Servant process.
9. Shutdown the Export session.

## Recommendations

- To ensure multithreaded conversions are thread-safe, you must create a unique context pointer for every thread by instantiating an `XmlExport` object. In addition, threads must not share context pointers, and the same context pointer must be used for all API calls in the same thread. Creating a context pointer for every thread does not affect performance because the context pointer uses minimal resources.
- All methods that can run out of process must be called within the out-of-process session, that is, after the call to initialize the out-of-process session and before the call to end the out-of-process session.
- When terminating an out-of-process session, persist the Servant process by setting the Boolean flag `bKeepServantAlive` in the `endOOPSession` method. If the Servant process remains active, subsequent conversion requests are processed more quickly because the Servant process is already prepared to receive data. Only terminate the Servant when there are no more out-of-process requests.
- To recover from a failure in the Servant process, start a new out-of-process session. This creates a new Servant process for the next conversion.

## Run Export Out of Process

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

### To convert files out of process in the Java API

1. If required, set parameters for the out-of-process conversion in the `formats_e.ini` file. See [Configure Out-of-Process Conversions, on page 25](#).
2. Create an instance of the `XmlExport` class.  

```
XmlExport objXmlExport = new XmlExport();
```
3. If you are using a template file to set the conversion options, call the `setIniFileName` method.  

```
objXmlExport.setIniFileName(iniFile);
```
4. If you are using the API to set the conversion options, create instances of the following classes:  

```
XmlTemplateInfo  
XmlOptionInfo  
XmlTOCOptionInfo  
StyleMapping  
XmlHeadingInfo
```

Set the classes to the current `XmlExport` object using the appropriate set methods. If you do not set the classes before calling the `startOOPSession` method, default values are used.
5. Set the location of the Export libraries by calling the `setExportDirectory` method. These are

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

```
objXmlExport.setExportDirectory(exportDir);
```

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

```
//set the input source as file
```

```
objXmlExport.setInputSource(inFile);
```

```
//set the input source as stream
```

```
inf = new File(inFile);
```

```
fis = new FileInputStream(inf);
```

```
objXmlExport.setInputSource(fis);
```

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

```
objXmlExport.startOOPSession();
```

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

```
objXmlExport.convertTo(outFile);
```

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

```
objXmlExport.endOOPSession(TRUE);
```

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

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

```
objXmlExport.endOOPSession(FALSE);
```

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

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

## Convert Files

KeyView Export SDK enables you to *convert* many different types of documents to XML.

Converting is the process of extracting the text from a document without the application-specific markup, and applying XML markup. The conversion process can also include the following:

- Extracting subfiles to expose all subfiles for conversion. See [Subfile Extraction, below](#).
- Setting conversion options to determine the content, structure, and appearance of the HTML output. See [Set Conversion Options, on the next page](#).
- Extracting the file's format to detect a file's format and report the information to the API, which in turn reports the information to the developer's application. See [Extract File Format Information, on page 75](#).
- Extracting selected metadata (document properties) from a file. See [Extract Metadata, on page 70](#).
- Converting character sets to control the character set of both the input and the output text. See [Convert Character Sets, on page 76](#).
- Implementing callbacks to control the conversion while it is in progress. See [Use Callbacks, on page 42](#).

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

- Use the Export Demo sample program. This Visual Basic program demonstrates most Export API functionality and is the easiest way to get started. See [Use the Export Demo Program, on page 33](#).
- Use the Java implementation of the API. See [Use the XML Export API, on page 37](#) and the Javadoc in the directory `install\javaapi\javadoc`, where `install` is the path name of the Export installation directory.
- Use the Java sample programs. See [Sample Programs, on page 106](#).

**NOTE:**

Micro Focus strongly recommends that you convert documents *out of process*. During out-of-process conversion, Export runs independently from the calling application. Out-of-process conversions protect the stability of the calling application in the rare case when a malformed document causes Export to fail. [Convert Files Out of Process, on page 24](#).

## Subfile Extraction

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

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

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

See [Use the File Extraction API, on page 47](#) for more information.

## Convert Outlook Email without Using the Extraction API

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

**NOTE:**

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

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

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

## Set Conversion Options

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

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

You can set the conversion options either in the API or in the template files. Regardless of the method used to set the options, the values are ultimately passed to the API and used to populate the following classes:

- `XmlHeadingInfo`
- `XmlOptionInfo`
- `XmlTemplateInfo`
- `XmlTOCOptionInfo`

## Set Conversion Options by Using the API

Use the following classes to set conversion options:

- `XmlHeadingInfo`
- `XmlOptionInfo`
- `XmlTemplateInfo`
- `XmlTOCOptionInfo`

There are methods to get or set the corresponding objects in the `XmlExport` instance. In the `XmlExport` class, the following methods are available:

- `getOptionInfo/setOptionInfo`
- `getTemplateInfo/setTemplateInfo`
- `getTOCOptionInfo/setTOCOptionInfo`

In the `XmlTOCOptionInfo` class, the following methods are available:

- `getXmlHeadingInfo`
- `setXmlHeadingInfo`

## Set Conversion Options by Using the Template Files

XML Export includes templates in the form of initialization files (`.ini`). The templates provide a quick and easy way to modify the conversion options without programming at the API level. However, the template files do not give you complete control of the conversion process. To control some features, you must use the API directly.

You can use a text editor to fully customize the template files. For example, to change the output character set from the default `KVCS_UNKNOWN` to `KVCS_SJIS` in the `default.ini` template, make the change shown in bold below:

```
[KVXMLOptions]
OutputCharSet=KVCS_SJIS
bUseDocumentColors=TRUE
```

To create valid XML, a template file *must* contain two sections: `KVXMLTemplateEx` and `KVXMLOptionsEx`.

**NOTE:**

If you enter markup in the template files that is not compliant with XML standards, XML Export inserts the markup into the output file unchanged. This might result in a malformed XML file.

An application must then read the template file and write the data to the appropriate Export class. In the sample program `XmlTest`, a template file is supplied as a command-line argument (see [XmlTest, on page 109](#)). In a Java application, the template file is passed using the `setIniFileName` method.

```
objXmlExport.setIniFileName(iniFile);
```

## Templates

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

The following templates are provided for the Java implementation.

Template	Description
Callback ( <code>xml1filecallback.ini</code> )	<ul style="list-style-type: none"><li>• Based on the single file template (<code>xml1file.ini</code>).</li></ul>



Template	Description
)	<ul style="list-style-type: none"> <li>• Implements a user callback named "UserCB_End_Block " at the bottom of the main XML file.</li> </ul>
Single file with table of contents (xml1filetoc.ini)	<ul style="list-style-type: none"> <li>• Creates a single XML file.</li> <li>• Creates a table of contents at the top of the XML document.</li> <li>• Uses the Verity.dtd.</li> <li>• Uses an XSL style sheet (wp.xsl).</li> <li>• Forces the output character set to UTF-8.</li> <li>• Lists all metadata (Title, Subject, Author, Comments, Created, Modified, Last Saved By, and Revision Number).</li> <li>• Uses the name of the worksheets for spreadsheets.</li> <li>• Uses the slide titles for presentations. If no titles are available in the source document, it uses "slide 1," "slide 2," "slide 3," and so on.</li> </ul>
XML one file (xml1file.ini)	<ul style="list-style-type: none"> <li>• Creates a single XML file.</li> <li>• Does not define an XSL style sheet. A default XSL style sheet that is appropriate to the source document type is used. The defaults supplied are wp.xsl (for word processing documents), ss.xsl (for spreadsheets), pg.xsl (for presentations).</li> <li>• Forces the output character set to UTF-8.</li> <li>• Maintains the source document's fonts and styles.</li> <li>• Does not create a table of contents.</li> </ul>

## Use the Export Demo Program

The easiest way to get started with Export is to become familiar with its capabilities through the Visual Basic sample program, Export Demo.

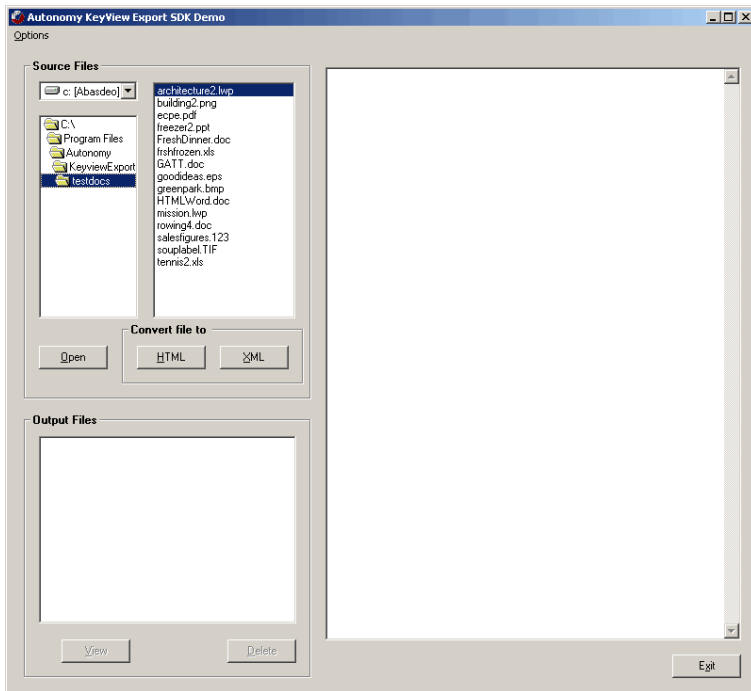
The source code for the program is in the directory *install\xmlexport\programs\ExportDemo*, where *install* is the path name of the Export installation directory.

Export Demo is for Windows only, and requires Internet Explorer 4.01 with Service Pack 1 or higher.

The output options that control the look of the output files are predefined in Export Demo and cannot be changed in the user interface. Export Demo uses a small sample of the options available in the Export API. The Template Wizard sample program is an example of a Visual Basic program that does allow the user to control some of the output options by using template files. You can use the sample documents in the directory *install\testdocs* to experiment with converting different file formats.

To launch the sample program, select **Export Demo** from **Start > Programs > Autonomy > Export SDK > XML Export**. The following dialog box appears:

### Export Demo: Launching



**NOTE:**

HTML conversion using HTML Export is available in Export Demo if you have HTML Export installed. If you do not have HTML Export installed, the **HTML** button is unavailable.

## Change Input/Output Directories

If XML Export is installed in the default directory, the output and input directories are automatically set.

The default location for source files is the *install\testdocs* directory.

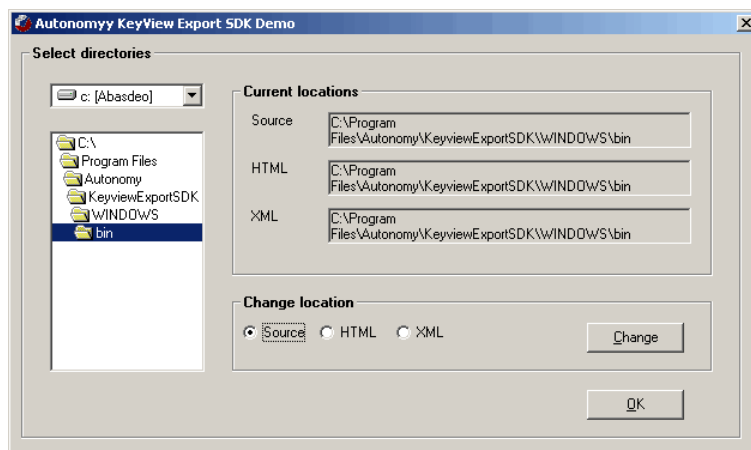
The default location for output files is the *install\xmlexport\programs\tempout* directory.

If XML Export is installed in a directory other than the default, you are prompted to select an output and input directory when you first start Export Demo.

### To change the default directories for the source and output files

1. Select **Options > Set Directories**.

#### Export Demo: Setting Directories



2. From the tree view, select the drive letter and directory for the source or output files.
3. In **Change Location**, select which files are stored in the directory, either **Source** or **XML**.
4. Click **Change**. The **Current Locations** fields are updated with the new selection.
5. Follow the same procedure for the other file types. When you are finished, click **OK**.

## Set Configuration Options

With XML Export, you can configure options prior to the document conversion. Export Demo demonstrates this functionality, and enables you to:

- Generate output with verbose markup and without images
- Include position information in the markup generated for a PDF document

## Suppress Images

Export Demo provides an option to generate output with verbose markup and without images.

To specify that images are suppressed in the XML output, select **Options>XML Config> Suppress Images**.

## Using PDF Position Information

Export Demo provides an option to include position information in the markup generated for a PDF document.

To specify that PDF position information be included in the XML output, select **Options>XML Config> Enable Position Token**.

## Convert Files

### To convert a single file

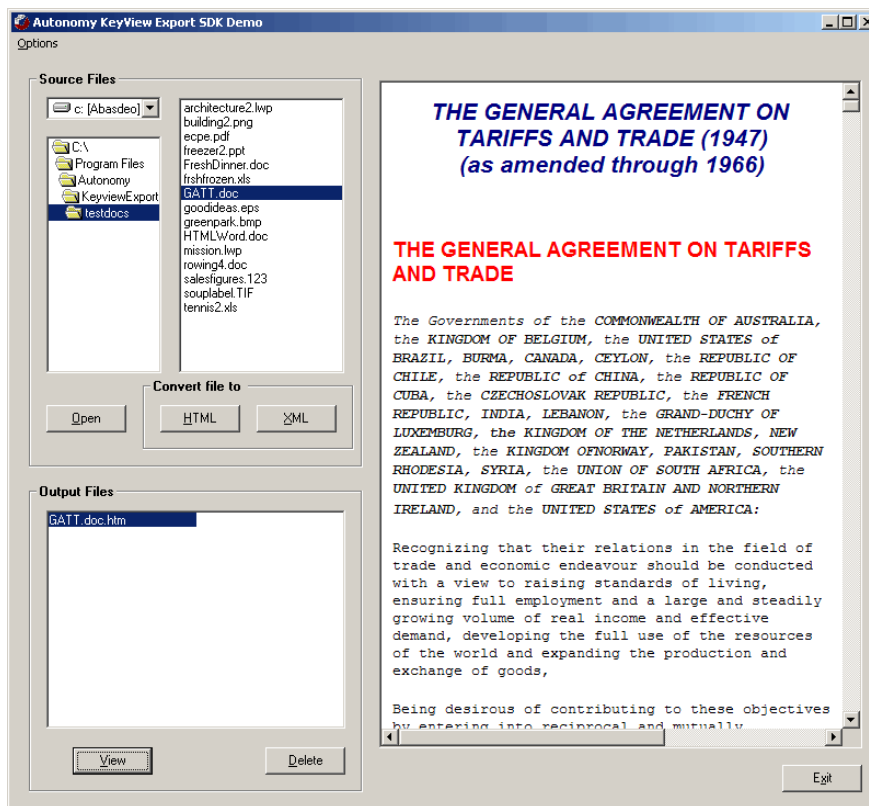
1. Select **Options > Convert > Single file**.
2. Select the document from the file list. Click **XML** in the **Convert file to** pane.

### To convert files in a directory

1. Select **Options > Convert > Entire directory**.
2. Click **HTML** in the **Convert directory to** pane.

To view a converted file, double-click the output file in the **Output Files** pane, or select the output file, and then click **View**. The converted file is displayed in the view pane:

### Export Demo: Converting Files



To view the original document, select the document from the file list, and then click **Open**. If you have an application on your system associated with the file, the file is displayed in that application.

To delete output files, select the file in the **Output Files** pane and click **Delete**.

## Use the XML Export API

The Java version of the API provides an interface to the core functionality of the C API. It provides two primary classes (`XmlExport` and `XmlExportReader`) that wrap the conversion functionality of the C API. The `XmlExport` class provides access to a family of methods called `convert`. The `XmlExportReader` class is a convenience class to help create SAX2-compliant applications.

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

For a full description of the Java API classes, see the Javadoc in the directory `install\javaapi\javadoc`. Sample programs are provided to demonstrate the Java API. See [Sample Programs, on page 106](#).

You can access the Java API directly or by setting conversion options in template files, which are then passed to the API. For more information on template files, see [Set Conversion Options, on page 31](#).

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

## Input/Output Operations

In the Export Java API, input and output can be either a physical file accessed through a file path, or a Java stream. Depending on the `convert` method signature that you use, you can create the following conversion processes:

- convert an input file to output file
- convert an input file to an output stream
- convert an input stream to an output stream
- convert an input stream to an output file

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

### NOTE:

When the input source is from a Java stream, Export 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.

## Convert Files

### To convert files using the methods in the `XmlExport` class

1. Instantiate an `XmlExport` object.

```
m_objExport = new XmlExport();
```

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

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

Conversion options are parameters that determine the content, structure, and appearance of the XML output. See [Set Conversion Options, on page 31](#).

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

- `XmlOptionInfo`
- `XmlTemplateInfo`
- `XmlTOCOptionInfo`
- `StyleMapping`
- `XmlHeadingInfo`

Conversion options are parameters that determine the content, structure, and appearance of the XML output. [Set Conversion Options, on page 31](#).

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

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

and the following method available in the `XmlTOCOptionInfo` class:

- `setXmlHeadingInfo`

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

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

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

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

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

the `extGetMainFileInfo()` method.

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

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

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

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

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

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

10. If the call to `extGetSubFileInfo` determined that the subfile is a container file, repeat [Step 5](#) through [Step 9](#) until all subfiles are extracted; otherwise, proceed to [Step 11](#).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## Multithreaded Conversions

To ensure that multithreaded conversions are thread-safe, you must create a unique Export context for every thread by instantiating an `XmlExport` object. In addition, threads must not share context objects,



and you must use the same context object for all API calls in the same thread. Creating a context object for every thread does not affect performance because the context object uses minimal resources.

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

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

## Use Methods in the XmlExportReader Class

### To use the methods in the XmlExportReader class

1. Ensure that you have a SAX2-compatible XML parser installed on your Java class path. Refer to <http://www.saxproject.org>.
2. Create the XmlExportReader object. If you use the default constructor, set the `org.xml.sax.driver` system property. See `org.xml.sax.helpers.XMLReaderFactory.createXMLReader()` for details.
3. Create the XmlExport object. Configure it as described in [Convert Files, on page 37](#), and pass it to XmlExportReader.
4. Set the ContentHandler using `setContentHandler`, and ErrorHandler using `setErrorHandler` of your XmlExportReader to either the default or your own setting.

5. Set the location of the `Verity.dtd` by using `setDtdLocation`. This must be an absolute URI (Uniform Resource Identifier). If you do not set this, the `parse()` method will not work.
6. Call the methods that suits your needs.

## Example

```
XmlExport objXmlExport = new XmlExport();
XmlExportReader objXmlExportReader = new XmlExportReader();
//use the customized handler "TestHandler"
TestHandler handler = new TestHandler();
objXmlExportReader.setContentHandler(handler);
objXmlExportReader.setErrorHandler(handler);
objXmlExport.setIniFileName(iniFile);
objXmlExport.setExportDirectory(exportDir);
objXmlExportReader.setXmlExport(objXmlExport);
objXmlExportReader.setDtdLocation(dtdLocation);
objXmlExportReader.parse(inpSr);
```

For sample code, see the directory `install\javaapi\sample`, where `install` is the path name of the Export installation directory.

## Use Callbacks

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

### To use callbacks

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

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

The `callback.ini` template file provides an example of how to use callback tokens. The file is in the `install\javaapi\ini` directory. See [Export Tokens, on page 236](#) for more information on tokens.

2. Implement the callback interfaces. The callback interfaces are:
  - `CallbackConstants`
  - `CallingContext`
  - `ContinueCallback`
  - `GetAnchorCallback`

- `GetAuxOutputCallback`
- `UserCBCallback`

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

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

### Example

```
ContinueCallback cci = new ContinueCallbackImpl();
GetAnchorCallback gaci = new GetAnchorCallbackImpl();
GetAuxOutputCallback gaoci = new GetAuxOutputCallbackImpl();
UserCBCallback ucbi = new UserCBCallbackImpl();
CallingContext cContext = new CallingContextImpl();
objXmlExport.setCallingContext(cContext);
objXmlExport.setContinueCallback(cci);
objXmlExport.setGetAnchorCallback(gaci);
objXmlExport.setGetAuxOutputCallback(gaoci);
objXmlExport.setUserCBCallback(ucbi);
```

## Before Running Your Application

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

- On Windows, add the location of `xmllexport.dll` to the `PATH` environment variable.
- On Solaris, Linux, and HP-UX IA-64, add the location of `libxmllexport.so` to the `LD_LIBRARY_PATH` environment variable.
- On HP-UX PA-RISC, add the location of `libxmllexport.sl` to the `SHLIB_PATH` environment variable.
- On AIX, add the location of `libxmllexport.a` to the `LIBPATH` environment variable. You can also specify the library path as a system property as follows:

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

## Use the KeyView Document Type Definition (DTD)

XML Export produces well-formed, valid XML documents. Document validity is based on a Document Type Definition (DTD) called the `Verity.dtd`. The `Verity.dtd` is in the default output directory `tempout`. If the DTD is in a different directory, the full path must be specified in `pszVerityDTDPath`.

The elements in the `Verity.dtd` are based on those defined in the W3C XHTML 1.0 specification and the attributes are based on those defined in the W3C CSS 2 specification.

The root element of each document is "VerityXMLExport." Character entities are imported by using the three XHTML DTDs defined at the beginning of the `Verity.dtd`.

```
<!-- Character entities -->
<!ENTITY % HTMLlat1x SYSTEM "HTMLlat1x.ent">
%HTMLlat1x;
<!ENTITY % HTMLspecialx SYSTEM "HTMLspecialx.ent">
%HTMLspecialx;
<!ENTITY % HTMLsymbolx SYSTEM "HTMLsymbolx.ent">
%HTMLsymbolx;
```

## Use XML Style Language Transformation (XSLT)

XML Export is designed to generate XML documents based on the `Verity.dtd`. You can convert the XML produced by XML Export to other XML vocabularies, such as Wireless Markup Language (WML), using XSLT.

## Add Elements and Attributes to the DTD

XML Export can only generate XML that conforms to the `Verity.dtd`. You can create your own DTD based on the `Verity.dtd`. You cannot rename the `Verity.dtd`, so make sure that you back up the original `Verity.dtd` to another name before making changes.

If you create your own DTD and add elements or attributes that are not defined in the original `Verity.dtd`, you must ensure that the new markup is defined in the XML Export API classes. You can define the markup by entering the markup directly in the styles, or by populating the styles using the template files. See [Map Styles, on page 79](#) for more information on mapping styles to user-defined markup.

## Move the DTD

The default output directory for the `Verity.dtd` is `programs\tempout`. If you move the `Verity.dtd` to another output directory, you must set the string value of `setVerityDTDPath` to the new location. This path is added to the document type declaration in the XML file.

# Part II: Use the Export API

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

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



# Chapter 3: Use the File Extraction API

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

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- [Extract Images](#) .....50
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- [Extract Subfiles from Outlook Files](#) .....57
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## Introduction

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

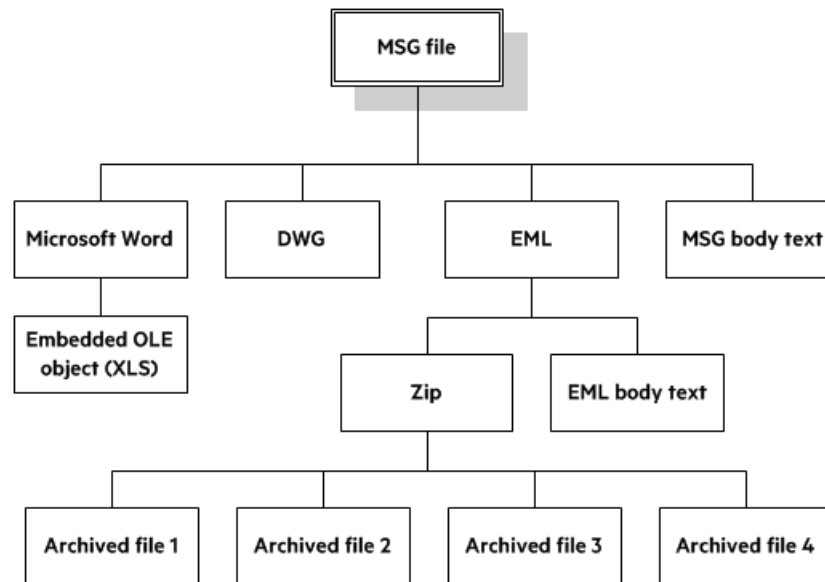
The following are examples of container files:

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

**NOTE:** [Supported Formats](#), on page 119 indicates which formats are treated as container files and are supported by the File Extraction API.

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

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



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

## Extract Subfiles

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

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

### To extract subfiles, follow this general procedure

1. Open the source file by calling the `extOpenDocument` method. This call defines the parameters necessary to open a file for extraction.
2. Determine whether the main file is a container file (contains subfiles) by calling the `extGetMainFileInfo()` method.
3. If the call to `extGetMainFileInfo()` determined the source file is a container file, proceed to [Step 4](#); otherwise, convert the file.



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

## Sanitize Absolute Paths

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

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

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

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

The following table shows the effect on some example paths.

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

### To sanitize absolute paths

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

### To sanitize absolute paths (through configuration)

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

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

## Extract Images

You can use the File Extraction API to extract images within 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 Hierarchy

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

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

### Create a Root Node

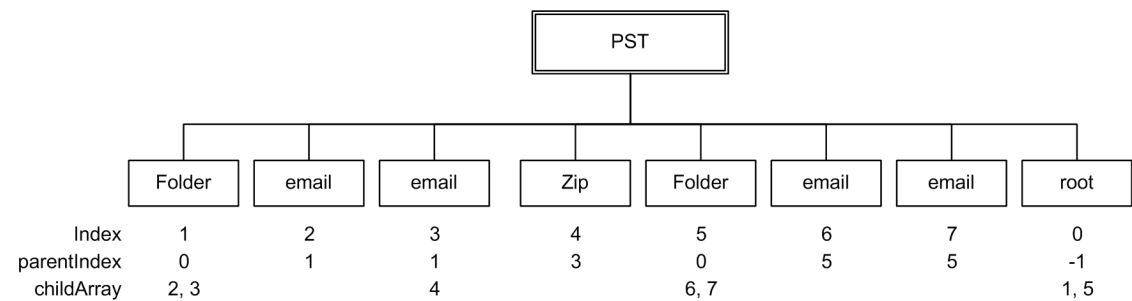
Because of their structure, some container files do not contain a subfile or folder which acts as a root directory on which the hierarchy can be based. For example, subfiles in a Zip archive can be extracted, but none of the subfiles represent the root of the hierarchy. In this case, an artificial *root node* must be created at the top of the file hierarchy as a point of reference for each child, and ultimately to recreate the relationships. This artificial root node is an internal object, and is extracted to disk as a directory called `root`. Its index number is 0.

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

## Example

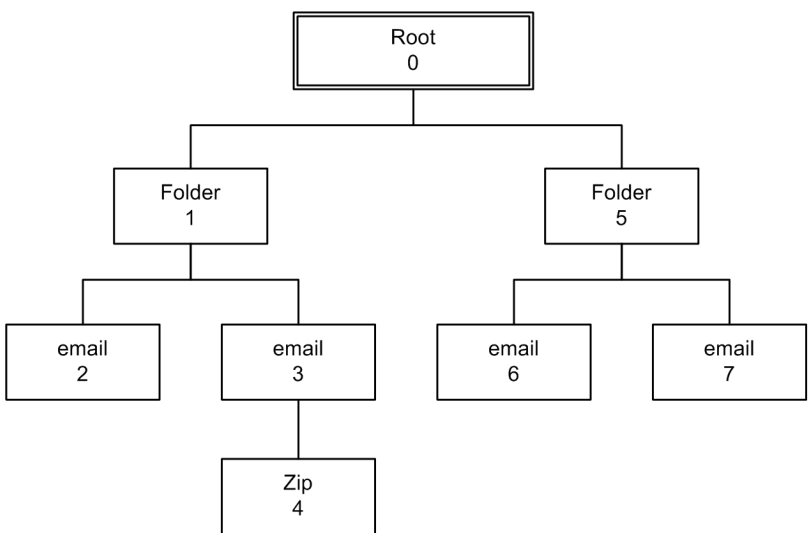
For example, you might extract a PST file that contains seven subfiles with a root node enabled. The call to `extGetMainFileInfo()` returns the number of subfiles as 8 (seven subfiles and one root node). The following diagram shows the structure and the available hierarchy information after the subfiles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

### Extracted PST File



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

### Recreated File Hierarchy



## Extract Mail Metadata

You can extract metadata such as subject, sender, and recipient from MSG, EML, MBX, PST, and NSF files by calling the `extGetSubFileMetadata()` method. You can extract a predefined set of metadata fields, individual fields, or both, 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.
Sent	The time the message was sent.
To	The display names and email addresses of the recipients.
Cc	The display names and email addresses of recipients who receive copies of the email.
Bcc	The display names and email addresses of recipients who received blind copies of the email.
Subject	The text in the subject line of the message.
Priority	The priority applied to the message.

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

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

**NOTE:** You cannot pass the field names listed in [MSG-Specific Metadata List, on the next page](#) individually for PST files. However, you can pass either the MAPI tag number or one of the constants in the Export class as integers. See [Microsoft Personal Folders File \(PST\) Metadata, on page 55](#).

## Extract the Default Metadata Set

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

For example:

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

## Microsoft Outlook (MSG) Metadata

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

### MSG-Specific Metadata List

Field Name (string to specify)	Description
AttachFileName	An attachment's long file name and extension, excluding path.
ConversationTopic	The topic of the first message in a conversation thread. A conversation thread is a series of messages and replies. This is the first message's subject with any prefix removed.
CreationTime	The time the message or attachment was created. This value is displayed in the <b>Sent</b> field in the message's <b>Properties</b> dialog in Outlook.
InternetMessageID	The identifier for messages that come in over the Internet. This is the MAPI property <code>PR_INTERNET_MESSAGE_ID</code> . This property is not in the MAPI headers or MAPI documentation.
LastModificationTime	The time the message or attachment was last modified. This value is displayed in the <b>Modified</b> field in the message's <b>Properties</b> dialog in Outlook.
Location	The physical location of the event specified in the Outlook calendar entry.
MessageID	The message transfer system (MTS) identifier for the message transfer agent (MTA). This value is displayed on the <b>Message ID</b> tab in the message's <b>Properties</b> dialog in Outlook.
Received	The date and time a message was delivered. This value is displayed in the <b>Received</b> field in the message's <b>Properties</b> dialog in Outlook.
Sender	The name and email address of the message sender. This value is a

#### MSG-Specific Metadata List, continued

Field Name (string to specify)	Description
	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 <a href="#">Default Metadata Set, on page 52</a> ), depending on which MAPI properties exist in the MSG file.
Sensitivity	The value indicating the message sender's opinion of the sensitivity of a message, such as Personal, Private, or Confidential. This value is displayed in the <b>Sensitivity</b> field in the message's <b>Properties</b> dialog in Outlook.
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 `extGetSubFileMetadata(long docContextID, int nSubFileIndex, java.lang.String[] metaNameArray, ExtSubFileMetaConfig config)` and pass the field name defined in [MSG-Specific Metadata List, on the previous page](#) to `metaNameArray` (the string is not case sensitive).

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

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

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

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

## Extract EML- or MBX-Specific Metadata

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

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

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

## Lotus Notes Database (NSF) Metadata

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

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

## Extract NSF-Specific Metadata

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

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

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

## Microsoft Personal Folders File (PST) Metadata

In addition to the default metadata set, you can extract Messaging Application Programming Interface (MAPI) properties from a PST file. These properties describe elements (subject, sender, recipient, and so on) of Outlook items within the PST file. Since the properties are stored in the PST file itself, they can be retrieved before the contents of the PST are extracted. This enables you to determine whether

an Outlook item should be extracted based on a subfile's attributes. MAPI properties are also stored for Outlook attachments that are not mail messages (such as an attached Microsoft Word document or Lotus 1-2-3 file).

## MAPI Properties

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

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

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

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

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

**NOTE:** Properties with a PT\_TSTRING type have the property type recompiled to either a Unicode string (PT\_UNICODE) or to an ANSI string (PT\_STRING8) depending on the operating system's character set. To retrieve the Unicode property, pass in the Unicode version of the tag. For example, the property tag for PR\_SUBJECT is either 0x0037001E for an ANSI string, or 0x0037001F for a Unicode string.

## Extract PST-Specific Metadata

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

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

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

```
ExtSubFileMetaConfig metaConfig = new ExtSubFileMetaConfig();
```



```
ExtSubFileMetadata subfilemeta = null;

int[] metaNameArray = {Export.KVPR_SUBJECT, 0x3A010102};

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

## Exclude Metadata from the Extracted Text File

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

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

```
m_excludeMailHeader = true;

extconfig = new ExtSubFileExtractConfig();

extconfig.setExcludeMailHeader(m_excludeMailHeader);

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

## Extract Subfiles from Outlook Files

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

## Extract Subfiles from Outlook Express Files

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

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

## Extract Subfiles from Mailbox Files

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

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

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

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

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

## Extract Subfiles from Outlook Personal Folders Files

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

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

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

**NOTE:** The Microsoft Outlook Personal Folders (PST) 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.

## Use the Native or MAPI-based Reader

KeyView accesses PST files in one of two ways:

- indirectly using the Microsoft Messaging Application Programming Interface (MAPI) reader named `pstsr`.
- directly using the native PST reader named `pstnsr`.

On UNIX platforms, the native reader is always used to process PST files because the MAPI-based reader runs only on Windows x86 and x64. On Windows, you can specify either reader; however, the MAPI-based reader is used by default.

The differences between the two readers are summarized in the following table:

Feature/Requirement	Native Reader (pstnsr)	MAPI-based Reader (pstsr)
All platforms supported	Yes	Windows x86 and x64 only
Outlook client required	No	Yes
MAPI properties supported	Yes All properties defined in <code>mapitags.h</code> . Object properties are not supported.	Yes Extracts properties defined in <code>mapitags.h</code> . Object properties are not supported.
Password protection supported	Yes	Yes (using the <code>setPassword</code> method)
Compressible encryption supported	Yes	Yes
High encryption supported	No	Yes

To use the MAPI-based reader for PST files, change the PST entry in the `formats_e.ini` file as follows:

```
297=pst
```

To use the native reader for PST files, change the PST entry in the `formats_e.ini` file as follows:

```
297=pstn
```

**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.

## Use the Native PST Reader (pstnsr)

The native PST reader accesses PST files directly without relying on the Microsoft interface to the PST format. It runs on both Windows and UNIX, and does not require an Outlook client on the system processing the PST files. However, the native reader does not support password-protected PST files that use high encryption.

## Use the MAPI Reader (pstsr)

The `pstsr` reader accesses PST files indirectly by using Microsoft's Messaging Application Programming Interface (MAPI). MAPI is a standard Windows message interface that enables different

mail programs and other mail-aware applications (such as word processors and spreadsheets) to exchange messages and attachments with each other. MAPI allows KeyView to open a PST file, traverse the folders and Outlook items, and extract the items inside the PST file.

**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 (pstr) only.

## System Requirements

MAPI is supported on Windows platforms only, so you can convert PST files on Windows only. Because MAPI relies on functionality in Microsoft Outlook, a Microsoft Outlook client must be installed on the same machine as the application converting PST files, and must be the default email application. KeyView supports the following PST formats and Outlook clients:

- Outlook 97 or higher PST files
- Outlook 2002 or Outlook 2003 clients

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

**NOTE:** The bit edition of Microsoft Outlook must match that of the KeyView software. For example, if 32-bit KeyView is used, 32-bit Outlook must be installed. If 64-bit KeyView is used, 64-bit Outlook must be installed.

If the bit editions do not match, 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.
```

Additionally, KeyView displays the following return code:

```
Error 32: KVErrror_PSTAccessFailed.
```

## MAPI Attachment Methods

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

`ATTACH_BY_VALUE`

`ATTACH_EMBEDDED_MSG`

`ATTACH_OLE`

`ATTACH_BY_REFERENCE`

`ATTACH_BY_REF_ONLY`

`ATTACH_BY_REF_RESOLVE`

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

### To extract "attach by reference" attachments

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

## Open Secured PST Files

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

## Detect PST Files While the Outlook Client is Running

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

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

```
[container_flags]
```

```
detectPSTbyExtension=1
```

**NOTE:** The `detectPSTbyExtension` option only applies when you are using the MAPI reader (`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 you extract a Lotus Domino XML Language (`.DXL`) file, the message text and header information (*To*, *From*, *Sent*, and so on) is extracted to a text file.

**NOTE:** To prevent header information from being extracted, see [Exclude Metadata from the Extracted Text File, on page 57](#).

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

#### To extract custom date/time formats

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

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

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

*02/11/2003 11:36:09 AM*

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

## Extract .DXL Files to HTML

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

#### To extract .DXL files to HTML

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

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

## Extract Subfiles from Lotus Notes Database Files

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

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

When a mail message in an NSF file is extracted to disk, the body text and header information (such as the values from the `SendTo`, `From`, and `DeliveredDate` fields) in each message is extracted to a text

file. (If you do not want the header information to appear in the message text file, see [Exclude Metadata from the Extracted Text File, on page 57.](#))

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

## System Requirements

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

KeyView supports the following Lotus Notes clients and Domino servers:

- Lotus Notes 6.5.1
- Lotus Domino 6.5.1

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

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

## Installation and Configuration

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

### Windows

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

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

[Notes]

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

## Solaris

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

[Notes]

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

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

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

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

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

## AIX 5.x

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

[Notes]

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

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

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

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

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



## Linux

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

```
[Notes]
```

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

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

4. Add the `install/lotus/notes/latest/linux` and the KeyView bin directory to the LD\_LIBRARY\_PATH environment variable:

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

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

## Open Secured NSF Files

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

## Format Note Subfiles

The KeyView NSF reader uses XML templates to format note subfiles. You can customize the templates to approximate the look and feel of the original notes as closely as possible. For more information, see [Extract and Format Lotus Notes Subfiles, on page 223](#).

## 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.

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

## Improve Performance for PDFs with Many Small Images

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

For example, to ignore images that are less than 16 pixels wide or less than 16 pixels in height, add the following to the [pdf\_flags] section of the formats\_e.ini file:

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

## Extract Embedded OLE Objects

Embedded OLE objects can be converted in two ways:

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

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

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

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

## Extract Subfiles from ZIP Files

You can extract ZIP files that are not password-protected by using the general method (see [Extract Subfiles, on page 48](#)). However, some ZIP files use password protection, in which case you must use a different method to enter the required credentials.

## Default File Names for Extracted Subfiles

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

### Default File Name for Mail Formats

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

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

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

The following special characters are considered invalid and are ignored:

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

angle brackets (< >)	double quotation mark (")
asterisk (*)	forward slash (/)
back slash (\)	pipe ( )
colon (:)	question mark (?)

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

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

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

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

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

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

```
RE produ_kv0.mail  
release_schedule.xls
```

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

## Default File Name for Embedded OLE Objects

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

- The first valid eight characters of the main file. The following special characters are considered invalid and are ignored:
  - any non-printing character with a value less than `0x1F`
  - angle brackets (`<` `>`)
  - double quotation mark (`"`)
  - asterisk (`*`)
  - forward slash (`/`)
  - back slash (`\`)
  - pipe (`|`)
  - colon (`:`)
  - question mark (`?`)
- The characters `_kv#`, where `#` 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
```

## 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\_e.ini file:

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

You can also enable this option programatically when filtering by passing KVFLT\_NOPHONETICGUIDES to fpFilterConfig.

## Chapter 4: Use the XML Export API

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

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### 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 52](#).

**NOTE:** KeyView can extract metadata from a document only if metadata is defined in the document, and the document reader can extract metadata for the file format. The section [Supported Formats, on page 119](#) lists the file formats for which metadata can be extracted. KeyView does not generate metadata automatically from the document contents.

### Extract Metadata Using the API

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

### To extract metadata using the Java API

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

The `XmlTest` sample program demonstrates how to extract metadata through the Java API. See [XmlTest](#), on page 109.

### Example

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

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

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

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

                    if(data != null)
                    {
                        dos_sum.writeBytes("Element data: ");
                        dos_sum.write(data);
                    }
                }
            }
            dos_sum.writeBytes("\n\n");
        }
    }
}
```

```
        dos_sum.close();
        fos_sum.close();
    }
    sinfo = null;
```

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

The following describes each get method:

<code>getElementName()</code>	This method gets the name of the metadata element.
<code>getSumInfoType()</code>	<p>This method specifies the data type of the metadata element. The possible types are:</p> <ul style="list-style-type: none"><li>• <code>KV_String</code></li><li>• <code>KV_Int4</code></li><li>• <code>KV_DateTime</code></li><li>• <code>KV_ClipBoard</code></li><li>• <code>KV_Bool</code></li><li>• <code>KV_Unicode</code></li><li>• <code>KV_IEEE8</code></li><li>• <code>KV_Other</code></li></ul> <p>If type is <code>KV_Bool</code>, data contains either <code>TRUE</code> or <code>FALSE</code>.</p> <p><code>KV_DateTime</code> and <code>KV_IEEE8</code> point to an 8-byte value.</p>
<code>getIsValid()</code>	This method specifies whether the data value is present in the document. <code>TRUE</code> specifies that the value is valid. For example, if the "Title" element was not populated in the document, <code>getIsValid</code> would return <code>FALSE</code> .
<code>isDateTimeType()</code>	This method determines whether the metadata element is of date/time type.
<code>getDateTime()</code>	This method gets the date and time in the form of a string. If the metadata element is of date/time type, call this method to get the date and time in the form of a string, for example "Wed Jun 30 21:49:08 1993" or "135 Minutes".
<code>getData()</code>	<p>This method gets the content of the element.</p> <p>If the metadata field is a date and time, the type is a 64-bit value representing the number of 100-nanosecond intervals since January 1, 1601.</p> <p>You can also use the <code>isDateTimeType()</code> method to determine whether a metadata element is of date/time type, and then use the <code>getDateTime()</code> method to obtain the date/time in the form of a string.</p>



## Extract Metadata Using a Template File

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

### To extract metadata using a template file

1. Insert metadata tokens in a member of the `KVXMLTemplate` section of the template file. This defines the point at which the metadata appears in the HTML output.
2. If you are using the `$USERSUMMARY` or `$SUMMARY` token, define the `szUserSummary` member of the `KVXMLTemplate` section of the template file. This determines the markup and tokens generated when these metadata tokens are processed.

You can use the following metadata tokens in the template files:

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

## Examples

### `$SUMMARYNN`

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

```
szMainTop=$SUMMARY01
```

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

### `$SUMMARY`

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

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

This example extracts the field name (\$NAME) and field content (\$CONTENT) for standard metadata from a document, and includes it at the beginning of the first heading level 1 XML block. The generated XML might look like this:

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

## **\$USERSUMMARY**

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

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

This example extracts the field name (\$NAME) and field content (\$CONTENT) for non-standard metadata from a document, and includes it at the bottom of the main XML file. The generated XML might look like this:

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

## Extract File Format Information

Export can detect a file's format, and report the information to the API, which in turn reports the information to the developer's application. This feature enables you to apply customized conversion settings based on a file's format. See [File Format Detection, on page 239](#) for more information on format detection.

### To extract file format information

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

The `XmlTest` sample program demonstrates how to extract format information through the Java API. See [XmlTest, on page 109](#).

## Example

```
AutoDetectInfo adinfo = objHtmlExport.getAutoDetectInfo();
if(adinfo != null)
{
    outf_format = new File(docFormatOutFile);
    fos_format = new FileOutputStream(outf_format);
    DataOutputStream dos_format = new DataOutputStream(fos_format);
    dos_format.writeBytes("Auto-detection result: \n");
    dos_format.writeBytes("\nCharacter set:  " + adinfo.getCharacterSet());
    dos_format.writeBytes("\nDocument class: " + adinfo.getDocumentClass());
    dos_format.writeBytes("\nDocument format: " + adinfo.getDocumentFormat());
    dos_format.writeBytes("\nFormat version: " + adinfo.getVersion());
    dos_format.writeBytes("\nOther attributes:");
    if(adinfo.isAppleDoubleEncoded())
    {
        dos_format.writeBytes("\nApple double encoded.");
    }
    if(adinfo.isAppleSingleEncoded())
    {
        dos_format.writeBytes("\nApple single encoded.");
    }
    if(adinfo.isEncrypted())
    {
        dos_format.writeBytes("\nEncrypted.");
    }
    if(adinfo.isMacBinaryEncoded())
    {
        dos_format.writeBytes("\nMac binary encoded.");
    }
}
```

```
}  
if(adinfo.isWangGDLencoded())  
{  
    dos_format.writeBytes("\nWang GDL encoded.");  
}  
dos_format.close();  
fos_format.close();  
adinfo = null;
```

## Convert Character Sets

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

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

The character sets are defined as constants in the Export class. Not all character sets can be used to specify the target character set. See [Coded Character Sets, on page 217](#) for a list of character sets that can be used as a target character set.

## Determine the Character Set of the Output Text

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

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

The section [Supported Formats, on page 119](#) indicates the file formats for which character set information can be extracted. If character set information cannot be determined for your document type, you must set the source, the target character set, or both in the API.

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

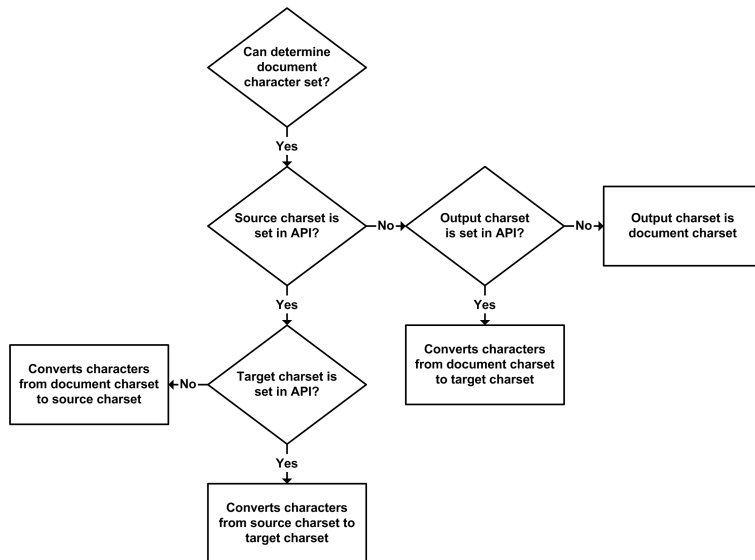
**NOTE:** To set the source character set, you must specify a character set *and* set the parameter `setForceSourceCharSet` to `TRUE`.

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

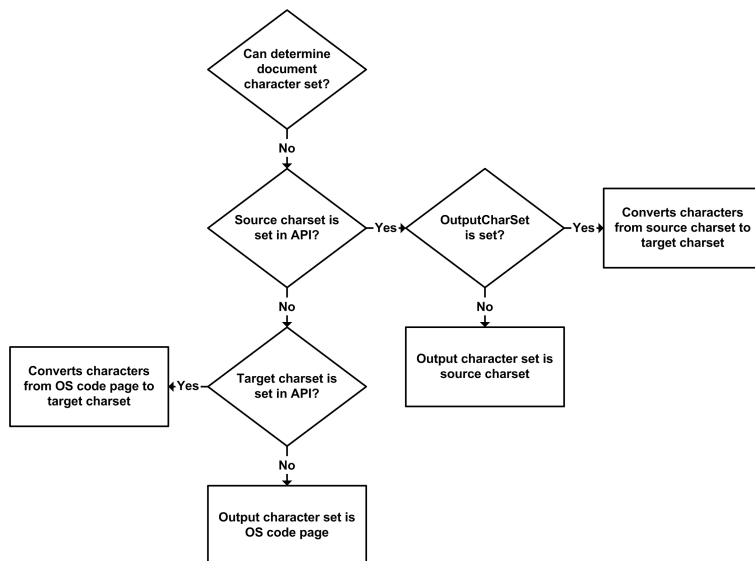
**NOTE:** To set the target character set, you must specify a character set *and* set the parameter `setForceOutputCharSet` to `TRUE`.

## Guidelines for Character Set Conversion

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



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



## Examples of Character Set Conversion

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

### Document Character Set Can be Determined

For the example in the following table, the document is an RTF file. The section [Word Processing Formats, on page 142](#) indicates that the document character set *can* be obtained from this file type. The document character set is Traditional Chinese (BIG5).

#### Document Character Set Can be Determined

Source charset set	Target charset set	Output charset
KVCS_GB	KVCS_UTF8	KVCS_UTF8 Converts GB (Simplified Chinese) to UTF-8. The output character set is the target character set specified in the API.
KVCS_GB	--	KVCS_GB Converts BIG5 to GB (Simplified Chinese). The output character set is the source character set specified in the API.
--	KVCS_UTF8	KVCS_UTF8 Converts BIG5 to UTF-8. The output character set is the target character set specified in the API.
--	--	KVCS_BIG5 The output character set is the document character set. No conversion.

#### Document Character Set Cannot be Determined

For the example in the following table, the document is an ASCII file. The section [Word Processing Formats, on page 142](#) indicates that the document character set *cannot* be obtained from this file type. The document's source character set is KVCS\_1251.

#### Document Character Set Cannot be Determined

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

#### Document Character Set Cannot be Determined, continued

Source charset set	Target charset set	Output charset
		Converts OS code page to KVCS_1252. The output character set is the target character set specified in the API.
--	--	The output character set is OS code page. No conversion.

## Set the Character Set During Conversion

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

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

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

## Set the Character Set During File Extraction from a Container

You can convert the character set of a container subfile at the time the subfile is extracted from the container and before it is converted to HTML. This is most often used to set the character set of a mail message's body text. See [Use the File Extraction API, on page 47](#).

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

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

## Map Styles

Export can map paragraph and character styles in any word processing format that contains styles (such as Microsoft Word, RTF, or Folio Flat File) to user-defined markup. With this feature, you can redact (hide) text in the source document, delete content, or change the overall structure of the output. You can also embed style sheet styles in the output defined in the XML.

To enable style mapping, you must indicate which paragraph and/or character styles are to be mapped, and define the starting and ending markup to be included in the XML output. For example, if the source Microsoft Word document contains the character style "Recipe," and the content of the style in Microsoft Word is "Brownies," you can specify that the starting markup be `<recipe>` and the ending markup `</recipe>`. This would result in the output XML containing: `<recipe>Brownies</recipe>`.

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

If you map styles to elements or attributes that are not defined in the DTD, you must add the new elements or attributes to the DTD. You must also ensure that the new markup is defined in the API, either by entering the markup directly in the classes, or populating the classes using the template files.

## Use the Java API

### To map styles using the Java API

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

## Use a Template file

### To map styles using a template file

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

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

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

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

3. For each style, define the flag that applies. Flags define instructions on how to process the content associated with a paragraph or character style. They are defined as constants in the `Export` class and listed in [Flags for Defining Styles, on the next page](#).



Flags=KVSTYLE\_HEADING3

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

```
[KVStyle]
NumStyles=3

[Style1]
StyleName=Colorful
MarkupStart=<div class="Colorful">
MarkupEnd=<!-- End of Colorful --></div>
Flags=KVSTYLE_HEADING1

[Style2]
StyleName=RedactPara
MarkupStart=<div class="RedactPara">
MarkupEnd=<!-- End of RedactPara --></div>
Flags=KVSTYLE_REDACT

[Style3]
StyleName=Code
MarkupStart=<pre>
MarkupEnd=<!-- End of Code --></pre>
Flags=KVSTYLE_PRE
```

#### Flags for Defining Styles

Flag	Description
KVSTYLE_PRE	The KVSTYLE_PRE flag specifies that white space should be preserved (treated as characters, not word separators), and that mode changes, such as changes in font size within a paragraph, should be ignored. This allows the tags <code>&lt;pre&gt;</code> and <code>&lt;/pre&gt;</code> to be used.
KVSTYLE_HEADING[1-6]	<p>The KVSTYLE_HEADING[1-6] flags specify that a specific style is to be detected and processed as a heading. Heading flags are exclusive. This means that a style cannot be processed as both h1 and h2.</p> <p>By default, Export maps the heading style "Heading 1" to <code>&lt;h1&gt;&lt;/h1&gt;</code>, and so on, for heading levels 1 through 6. If you use style mappings, the default mapping is overridden. Therefore, you must supply markup for all heading levels. XML Export uses heading levels to define the overall structure of the XML output.</p>
KVSTYLE_ORDERLIST	The KVSTYLE_ORDERLIST flag specifies that the style should be tagged as an ordered list. <b>Currently not implemented.</b>
KVSTYLE_UNORDEREDLIST	The KVSTYLE_UNORDEREDLIST flag specifies that the style should be tagged as an unordered list. <b>Currently not implemented.</b>

#### Flags for Defining Styles, continued

Flag	Description
KVSTYLE_DELETECONTENT	The KVSTYLE_DELETECONTENT flag specifies that the content associated with the style tag should be deleted from the output.
KVSTYLE_ONCONSECUTIVEPARAGRAPHS	The KVSTYLE_ONCONSECUTIVEPARAGRAPHS flag specifies that the style should be applied to consecutive paragraphs of the document. If this flag is used, and two or more paragraphs require the same style, the opening and closing tags that normally appear between each paragraph are not generated.
KVSTYLE_REDACT	The KVSTYLE_REDACT flag is used to hide sensitive or confidential information in the source document. It specifies that the text associated with the style tag should be replaced in the XML output with a selected character. The default replacement character is "X", but you can specify a different replacement character by using the <code>setRedact(java.lang.Byte b)</code> method of the <code>OptionInfo</code> class.
KVSTYLE_DEFAULT	The KVSTYLE_DEFAULT flag specifies that special processing should not be applied to the content.

## Use Style Sheets

XML is a content-based metalanguage designed to structure data. XML does not include information about how a document should be displayed in a browser. To view an XML document in a browser, information about how it is displayed must be provided by style sheets. These are coded using either Cascading Style Sheets (CSS) or Extensible Stylesheet Language (XSL).

## Use Extensible Style Sheet Language (XSL)

You can use XSL style sheets to specify how XML data is displayed in a browser. You can use existing XSL style sheets, but unlike CSS, style sheet information cannot be written to an external XSL file during the conversion.

Both CSS and XSL style sheets can be used to format XML documents. However, XSL can also transform XML documents. For example, list items can be transformed to display in alphabetical order, words can be replaced by other words, or empty elements can be replaced by text.

### To use an existing XSL style sheet

1. Set the style sheet type to XSL by using one of the following methods:
  - Use the `setStyleSheetType` method of the `XmlOptionInfo` class to set the option to `XmlExport.STYLESHEET_XML_XSL`.

- Set the `eStyleSheetType` parameter in a template file to `XML_XSL`.
2. Apply a pre-existing style sheet to the XML document by using one of the following methods:
    - Set the `setUseExistingStyleSheet` method of the `XmlOptionInfo` class to `TRUE`.
    - Set the `bUseExistingStyleSheet` parameter in a template file to `TRUE`.

**NOTE:** Pre-existing style sheets are not validated.

3. Specify the path and file name of the external style sheet by using one of the following methods:
  - Use the `setExternalStyleFile(String)` method of the `Export` object.  
[[Or do you use the `setStyleSheet()` method of the `XmlOptionInfo` class.]]
  - Set the `pszStyleSheet` parameter in a template file.

The external file style sheet is referenced in the XML output by a processing instruction of the form:

```
<xml-stylesheet href="style_file" type="text/xsl"?>
```

If the location of the style sheet is not specified, a default XSL style sheet that is appropriate for the source document type is used. The following are default XSL style sheets:

- `wp.xsl` (for word processing documents)
- `ss.xsl` (for spreadsheets)
- `pg.xsl` (for presentation graphics)

## Use Cascading Style Sheets (CSS)

In addition to XSL style sheets, XML Export can write style sheet information to an external CSS file.

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

### To enable CSS mapping and output the resulting formatting data in an external file

1. Set the style sheet type to CSS by using one of the following methods:
  - Use the `setStyleSheetType` method of the `XmlOptionInfo` class to set the option to `XmlExport.STYLESHEET_XML_CSS`.
  - Set the `eStyleSheetType` parameter in a template file to `XML_CSS`.
2. Specify the path and file name of the external style sheet by using one of the following methods:
  - Use the `setExternalStyleFile(String)` method of the `Export` object.
  - Set the `pszStyleSheet` parameter in a template file.

[[Or do you use the `setStyleSheet()` method of the `XmlOptionInfo` class.]]

### To enable CSS mapping and use an existing CSS file

1. Set the style sheet type to CSS by using one of the following methods:
  - Use the `setStyleSheetType` method of the `XmlOptionInfo` class to set the option to `XmlExport.STYLESHEET_XML_CSS`.
  - Set the `eStyleSheetType` parameter in a template file to `XML_CSS`.
2. To apply a pre-existing style sheet to an XML document, use one of the following methods:
  - Set the `setUseExistingStyleSheet` method of the `XmlOptionInfo` class to `TRUE`.
  - Set the `bUseExistingStyleSheet` parameter in a template file to `TRUE`.

**NOTE:** Pre-existing style sheets are not validated.

3. Specify the path and file name of the external style sheet by using one of the following methods:
  - Use the `setExternalStyleFile(String)` method of the `Export` object.
  - Set the `pszStyleSheet` parameter in a template file.

[[Or do you use the `setStyleSheet()` method of the `XmlOptionInfo` class.]]

The external file style sheet is referenced in the XML output by a processing instruction of the form:

```
<xml-stylesheet href="style_file" type="text/css"?>
```

If `bUseExistingStyleSheet` or `setUseExistingStyleSheet` is `TRUE`, but the location of the style sheet is not specified, a CSS style sheet is created.

## Display Vector Graphics on UNIX and Linux

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

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

To display vector graphics in presentation, word processing, and spreadsheet files on UNIX and Linux, Export can convert the files directly to JPEG by using a Java program named `kvraster.class`. This program uses the Java Abstract Windowing Toolkit (AWT). The AWT requires access to an X Server.

**NOTE:** If you are using KeyView 10.5.0.0 or Java 1.6, you do not have to set up an X Server; however, if you are using a version of KeyView lower than 10.4 with a version of Java lower than 1.6, you must set up an X Server.

### To set up an X Server, do one of the following:

- Run a virtual X Server, such as the `Xvfb` utility. This utility is included in the X11R6 distribution or can be downloaded from the following site:

<http://www.x.org/Downloads.html>

For example, to run the Xvfb utility on a 512 Mb, Solaris 2.8 platform, follow these steps:

1. Start Xvfb at root:

```
/usr/X11R6/bin/Xvfb :1 -screen 0 1152x900x8 &
```

2. Set the display environment variable:

```
setenv DISPLAY:1.0
```

- Make an X display available to the Java runtime using the `DISPLAY` environment variable. No windows appear on the display. For example, set the `DISPLAY` environment variable as follows:

```
setenv DISPLAY computername:0.0
```

or

```
setenv DISPLAY ipaddress:0.0
```

**After the X Server is set up, convert the file by following these steps:**

1. Add the location of the JRE to the `PATH` environment variable.
2. Use one of the following methods to set the graphic type to JPEG:
  - Use the `setOutputVectorGraphicType` method of the `OptionInfo` class to set the type to `Export.GRAPHIC_TYPE_JPEG`.
  - Set the `OutputVectorGraphicType` parameter of the `defunix.ini` template file to `KVGFX_JPEG`.
3. Convert the document to XML. The graphics in the document are converted to JPEG and stored in the output directory.

## Convert Revision Tracking Information

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

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

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

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

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

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

The following markup is generated for deleted text:

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

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

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

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

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

## Convert PDF Files

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

### Convert PDF Files to a Logical Reading Order

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

KeyView can convert a PDF file either by using the file's internal unstructured paragraph flow, or by applying a structure to the paragraphs to reproduce the logical reading order of the visual page. Logical reading order enables KeyView to 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 capitals, callouts that cross column boundaries, and significant changes in font size might disrupt the logical flow of the output text.

## Logical Reading Order and Paragraph Direction

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

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

The following paragraph direction options are available.

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

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

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

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

## Enable Logical Reading Order

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

## Use the Java API

### To enable PDF logical reading order in the Java API

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

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

For example,

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

### Use the `formats_e.ini` File

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

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

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

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

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

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

where `paragraph_direction` is one of the following.



Flag	Description
LPDF_ LTR	Left-to-right paragraph direction
LPDF_ RTL	Right-to-left paragraph direction
LPDF_ AUTO	The PDF reader determines the paragraph direction for each PDF page, and then sets the direction accordingly. This option is used when a paragraph direction is not specified.
LPDF_ RAW	Unstructured paragraph flow. This is the default behavior. Set this flag if logical reading order is enabled, and you want to return to an unstructured paragraph flow.

## 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, word usage or both. For example, compound words, such as "three-week vacation" and "self-confident" contain hard hyphens.

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

**NOTE:** If the soft hyphen flag is enabled, *every* hyphen at the end of a line is considered a soft hyphen and removed from the XML output. Hard hyphens at the end of a line are also removed. This might result in an intentionally hyphenated word being extracted without a hyphen.

### To remove soft hyphens from the XML output

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

## Extract Custom Metadata from PDF Files

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

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

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

Parameter	Description
total item number	The total number of metadata tags that are listed.
metadata_tag_name	The metadata tag name used in the PDF files.
datatype	The data type of the metadata field. The possible types are: <ul style="list-style-type: none"><li>• KV_String</li><li>• KV_Int4</li><li>• KV_DateTime</li><li>• KV_ClipBoard</li><li>• KV_Bool</li><li>• KV_Unicode</li><li>• KV_IEEE8</li><li>• KV_Other</li></ul>

For example:

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

## Configure the Size of Exported Images

When you use the `pdf2sr` reader to export images of the pages in a PDF file, you can configure the size of the images produced by KeyView.

### NOTE:

When a page in a PDF document consists of a single embedded image (such as when the PDF is a scanned document), the page image is output at the original size of the embedded image and the following settings have no effect.

### To configure the size of images produced by pdf2sr

1. Open the configuration file `formats_e.ini`.
2. Find the section `[pdf2sr]`, or create the section if it does not exist.
3. Set the configuration parameters `XMLXRes` and `XMLYRes`. `XMLXRes` specifies the width of the output image and `XMLYRes` specifies the height.
  - To specify an absolute size, in pixels, use positive values. The aspect ratio is always maintained, so you can set one of the dimensions and set the other parameter to 0. For example, to output images of PDF pages where the height of each image is 400 pixels, use the following configuration:

```
[pdf2sr]
XMLXRes=0
XMLYRes=400
```

If you set both `XMLXRes` and `XMLYRes` to positive values, KeyView produces the largest image that fits within the specified dimensions (the width or height will be as requested, and the other dimension is smaller than requested if required to preserve the aspect ratio).

- To specify a relative size, set `XMLXRes` to a negative value and `XMLYRes` to 0 (a negative value for `XMLYRes` is ignored). The aspect ratio is always maintained. For example, to output images of PDF pages where the size of each image is 150% of the original size, use the following configuration.

```
[pdf2sr]
XMLXRes=-150
XMLYRes=0
```

#### NOTE:

The default values for `XMLXRes` and `XMLYRes` are shown below. These values produce an image at 113% of the original page size:

```
[pdf2sr]
XMLXRes=-113
XMLYRes=0
```

## Convert Spreadsheet Files

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

### Convert Hidden Text in Microsoft Excel Files

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

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

## Convert Headers and Footers in Microsoft Excel 2003 Files

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

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

## Specify Date and Time Format on UNIX Systems

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

### To specify the system date and time format on UNIX systems

- In the `formats.ini` file, specify the following options:

```
SysDateTime
SysLongDate
SysShortDate
SysTime
```

**NOTE:**  
These values cannot contain spaces.

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

`28/02/2008`

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

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

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

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

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

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

## Extract Microsoft Excel Formulas

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

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

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

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

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

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

where *option* is one of the following.

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

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

When formula extraction is enabled, Export can extract Microsoft Excel formulas 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()	

## Convert XML Files

Export enables you to extract all content or selected content from source XML files. It detects the following XML formats:

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

See [File Format Detection, on page 239](#) for more information on format detection.

## Configure Element Extraction for XML Documents

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

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

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

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

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

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

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

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

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

## Modify Element Extraction Settings

You can modify configuration settings for XML documents through either the API or the `kvxconfig.ini` file.

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

### Use the Java API

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

#### To modify settings

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

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

### Use an Initialization File

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

#### To modify settings

1. Modify the `kvxconfig.ini` file.
2. Use the template file when processing the XML file.

The Java sample program (`HtmlConvFileToFile`) demonstrates how to use a template file during the conversion process.

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



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

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

The following options are available.

Configuration Option	Description
eKVFormat	<p>The format ID as detected by the KeyView detection module. This option determines the file type to which these extraction settings apply. See <a href="#">File Format Detection, on page 239</a> for more information on format ID values.</p> <p>If you are adding configuration settings for a custom XML document type, this option is not defined.</p>
szRoot	<p>The file's root element. When the format ID is not defined, the root element is used to determine the file type to which these settings apply.</p> <p>To further qualify the element, specify its namespace. See <a href="#">Specify an Element's Namespace and Attribute, on the next page</a>.</p>
szInMetaElement	<p>The elements extracted from the file as metadata. All other elements are extracted as text.</p> <p>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See <a href="#">Specify an Element's Namespace and Attribute, on the next page</a>.</p>
szExMetaElement	<p>The child elements in the included metadata elements that are not extracted from the file as metadata. For example, the default extraction settings for the Visio XML format extract the <code>DocumentProperties</code> element as metadata. This element includes child elements such as <code>Title</code>, <code>Subject</code>, <code>Author</code>, <code>Description</code>, and so on. However, the child element <code>PreviewPicture</code> is defined in <code>szExMetaElement</code> because it is binary data and should not be extracted.</p> <p>You cannot exclude any metadata elements from the output for StarOffice files. All metadata is extracted regardless of this setting.</p> <p>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See <a href="#">Specify an Element's Namespace and Attribute, on the next page</a>.</p>
szInContentElement	<p>The elements extracted from the file as content text. Enter an asterisk (*) to extract all elements including child elements.</p>

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

## Specify an Element's Namespace and Attribute

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

*ns\_prefix:elemname@attribname=attribvalue*

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

For example, the following entry:

*bg:language@id=xml*

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

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

but does not extract:

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

or

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

## Add Configuration Settings for Custom XML Document Types

You can define element extraction settings for custom XML document types by adding the settings to the `kvxconfig.ini` file. For example, for files containing the root element `microfocusxml`, you 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=dev,microfocus:division@name=export,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.

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

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

## Error Messages

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

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

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

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

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

## Show Hidden Data

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

## Hidden Data in Microsoft Documents

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

### Hidden data settings

Hidden Data Type	Default Behavior	Configuration API Parameter
Microsoft Word		

### Hidden data settings, continued

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

### To toggle the display of hidden data

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

For example:

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

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

<sup>1</sup>You can also toggle Word comment settings with a configuration parameter in the `formats_e.ini` file. See [Toggle Word Comment Settings in the formats\\_e.ini File, on the next page](#).

<sup>2</sup>Shown by default in Microsoft Word 97 to 2003 documents.

<sup>3</sup>Shown by default in Microsoft PowerPoint 97 to 2000 documents.

<sup>4</sup>This setting affects PowerPoint 2003 and 2007 only.

<sup>5</sup>You can also toggle PowerPoint slide note settings with a configuration parameter in the `formats_e.ini` file. See [Toggle PowerPoint Slide Note Settings in the formats\\_e.ini File, on the next page](#).

## Toggle Word Comment Settings in the formats\_e.ini File

You can also control Microsoft Word 97 to 2003 comment settings through a parameter in the `formats_e.ini` file.

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

### To toggle comment output in formats\_e.ini

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

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

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

## Toggle PowerPoint Slide Note Settings in the formats\_e.ini File

You can also control Microsoft PowerPoint slide note settings through a parameter in the `formats_e.ini` file.

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

### To toggle slide note output in formats\_e.ini

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

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

**NOTE:** The `KVCFG_PG_SHOWSLIDENOTES` configuration API flag overrides the setting in `formats_e.ini`.

## Exclude Japanese Guide Text

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



**To prevent output of Japanese phonetic guide text**

- Set NoPhoneticGuides to TRUE in the formats\_e.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 a new, experimental feature in KeyView 12.0. It is available only on Windows 64-bit and Linux 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 [Detected Formats, on page 149](#).

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

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

## Chapter 5: Sample Programs

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

• <a href="#">Introduction</a> .....	106
• <a href="#">ExtractExport</a> .....	107
• <a href="#">XmlTest</a> .....	109
• <a href="#">XmlConvFileToFile</a> .....	111
• <a href="#">XmlConvStreamToStream</a> .....	113
• <a href="#">XmlParseIt</a> .....	114

### Introduction

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

The following Java sample programs are provided:

- [ExtractExport](#), on the next page
- [XmlTest](#), on page 109
- [XmlConvFileToFile](#), on page 111
- [XmlConvStreamToStream](#), on page 113
- [XmlParseIt](#), on page 114

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

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

Sample configuration files:

- *XmlSampleConfig\_nt.txt* (Windows)
- *XmlSampleConfig\_unix.txt* (UNIX)

Batch and C shell files that run each program:

- *XmlConvFileToFile.bat* (.csh)
- *XmlConvStreamToStream.bat* (.csh)
- *XmlParseIt.bat* (.csh).

These files are used by the *XmlConvFileToFile*, *XmlConvStreamToStream*, and *XmlParseIt* programs.

# ExtractExport

This program demonstrates the File Extraction interface and basic functionality of the Export interface. The `HtmlTest` sample program demonstrates more advanced functionality of the Export interface. See [XmlTest, on page 109](#)

The `ExtractExport` program demonstrates the following functionality:

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

## To run ExtractExport

1. For the Java version of the program, add the location of the `javaapi\KeyView.jar` file, the `javaapi\sample` directory, and the `Export bin` directory to the `CLASSPATH` environment variable. (Not required for .NET version of the program.)
2. For the Java version of the program, type the following:

```
java -Djava.library.path=bin_directory ExtractExport [options] bin_
directoryinifileinput_fileoutput_file
```

where:

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

## Options for the ExtractExport Sample Program

Option	Description
-extonly	This option extracts the subfiles from a source file, but does not convert the files after extraction.
-extdir directory	This option sets the suggested directory to which the subfiles are extracted.

#### Options for the ExtractExport Sample Program, continued

Option	Description
-ext-fbody	This option extracts the formatted version of the message body (HTML or RTF) from mail files when possible.
-xml	This option converts the files to XML. The default is HTML. To use this option, XML Export must be installed.
-source-cs charset	This option sets the character set of the source file. charset is a character set defined as a constant in the Export class. See <a href="#">Code Character Sets, on page 217</a> .
-target-cs charset	This option sets the character set of the output file. charset is a character set defined as a constant in the Export class. See <a href="#">Code Character Sets, on page 217</a> .
-little-end	This option sets the byte order for Unicode text to little endian.
-is	This option sets the input as a stream. The default is file.
-os	This option sets the output as a stream. The default is file.
-open-user username	This option specifies the user name used to open a protected PST or NSF file.
-open-pass password	This option specifies the password used to open a protected PST or NSF file.
-open-idfile idfile	This option specifies the user ID file used to open a protected PST or NSF file.
-open-createroot	This option creates a root directory on which a hierarchy can be based. See <a href="#">Create a Root Node, on page 50</a> .
-ext-nodir	This option specifies that the subfile directory structure is not created.
-ext-noheader	This option excludes mail header information from extracted message body text file. See <a href="#">Exclude Metadata from the Extracted Text File, on page 57</a> .
-meta outfile	This option extracts default mail metadata and writes it to a file. See <a href="#">Extract Mail Metadata, on page 52</a> .
-oop	This option converts the files in a separate process. See <a href="#">Convert Files Out of Process, on page 24</a> .
-ip	This option runs file extraction in the same process as the calling application (in process). See <a href="#">Convert Files Out of Process, on page 24</a> .

# XmlTest

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

## To run XmlTest

1. Add the location of the `javaapi\KeyView.jar` file, and the Export `bin` directory to the `CLASSPATH` environment variable.
2. Type the following:

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

where:

- `bin_directory` is the path to the Export `bin` directory.
- `options` is one or more of the options listed in [Options for the XMLTest Sample Program, below](#).
- `inifile` is the full path and file name of a template file. See [Set Conversion Options by Using the Template Files, on page 32](#).
- `inputfile` is the path and file name of the source file.
- `outputfile` is the path and file name of the generated file. If a path is not specified, the file is output to the current directory.

## Options for the XMLTest Sample Program

Option	Description
-is	This option sets the input as a stream. The default is file.
-os	This option sets the output as a stream. The default is file.
-oop	This option runs Export as a separate process. See <a href="#">Convert Files Out of Process, on page 24</a> .
-oopksa	This option keeps a Servant process active after the Export out-of-process session is terminated. If the Servant remains active, subsequent conversion requests are processed more quickly because the Servant is already prepared to receive data.
-x xmlconfigfile	This option converts an XML file using customized extraction settings defined in the <code>kvxconfig.ini</code> file. If you do not enter the full path to the template file, the program looks for the file in the current working directory ( <code>install\OS\bin</code> , where <code>install</code> is the path name of the Export installation

#### Options for the XMLTest Sample Program, continued

Option	Description
	directory and <i>OS</i> is the name of the operating system). See <a href="#">Convert Revision Tracking Information, on page 85</a> .
-z tempdirectory	<p>This option specifies a temporary directory in which temporary files generated by the conversion process are stored.</p> <p>On Windows systems, there is a 64 K size limit to the temp directory. After the limit is reached, you must either create a new directory or delete the contents of the existing directory; otherwise, you might receive an error message.</p>
-style stylefile	This option reads style sheet information from an existing style sheet file, or writes the information to an external CSS file.
-docformat formatfile	<p>This option extracts the file format information and writes it to a file.</p> <p><i>formatfile</i> is the name of the file to which the format information is written.</p>
-summary summaryfile	<p>This option extracts the metadata and writes it to a file.</p> <p><i>summaryfile</i> is the name of the file to which the metadata is written. See <a href="#">Extract Metadata, on page 70</a>.</p>
-listlistfile	<p>This option displays a list of the files that are automatically generated during the conversion.</p> <p><i>listfile</i> is the name of the file to which the file list is written.</p>
-supim	This option specifies that XML output includes verbose markup, but no images. If you do not set this option, embedded images in a document are regenerated as separate files and in the output directory.
-enpos	This option specifies that a position element is included in the markup for PDF documents. The position element defines the absolute position of the text relative to the bottom left corner of the page, and includes additional information such as font and color.
-disablezone	This option disables the conversion of Microsoft Word bookmarks to zone elements (<zone name = "xxx">) in the output XML.
-suptocim	If you set this option, bookmarks in a PDF file are <i>not</i> converted to simple XLinks in the XML output. By default, PDF bookmarks are converted to source and destination anchors.
-pdforder orderFlag	<p>This option specifies that PDF files are output in a logical reading order. The parameter <i>orderFlag</i> is one of the following:</p> <ul style="list-style-type: none"><li>ltr—left-to-right paragraph direction.</li></ul>

#### Options for the XMLTest Sample Program, continued

Option	Description
	<ul style="list-style-type: none"><li>• <code>rtl</code>—right-to-left paragraph direction.</li><li>• <code>auto</code>—The PDF reader determines the paragraph direction (left-to-right or right-to-left) for each PDF page, and then sets the direction accordingly.</li><li>• <code>raw</code>—Unstructured paragraph flow.</li></ul> See <a href="#">Convert PDF Files to a Logical Reading Order, on page 86</a> .
<code>-rm</code>	If you set this option, text and graphics that were deleted from a document with a revision tracking feature enabled are converted, and revision tracking information is included in the XML output. See <a href="#">Convert Revision Tracking Information, on page 85</a> .
<code>-dsh</code>	This option specifies that soft hyphens in PDF files are deleted from the converted output. See <a href="#">Control Hyphenation, on page 89</a> .

## XmlConvFileToFile

This program converts an input file to an output file using Java API calls in XML Export, and a template file. See [Set Conversion Options by Using the Template Files, on page 32](#) for more information on templates.

It demonstrates the following functions:

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

**NOTE:** Although the program extracts all the metadata in the document, it only displays the first element of metadata.

- Displays a list of the files that are automatically generated during the conversion.
- Specifies the directory in which temporary files created during conversion processes are stored. To specify the temporary directory, remove the comment from the following line in the `XmlConvFileToFile.java` file:

```
objXmlExport.setConfigOption(new ConfigOption(Export.CFG_SETTEMPDIRECTORY, 0, "C:\\tmp"));
```

**NOTE:** On Windows systems, there is a 64 K size limit to the temporary directory. After the limit is reached, you must either create a new directory or delete the contents of the existing directory; otherwise, you might receive an error message.

- Extracts elements from a source XML file based on the extraction settings in the `kvxconfig.ini` file. See [Configure Element Extraction for XML Documents, on page 95](#).

## Run XmlConvFileToFile on Windows

### To run XmlConvFileToFile on Windows

1. In the `XmlConvFileToFile.bat` file, set `INSTALL_DIR` to the Export SDK installation directory.
2. In the first line of the `XmlSampleConfig_nt.txt` file, specify the path to the template file used in the conversion. You can use any of the template files in the `install\xmlexport\programs\ini` directory, where `install` is the path name of the Export installation directory. If you are processing XML files, specify the location of the `kvxconfig.ini` file. This is in the `bin` directory.
3. In the second line of the `XmlSampleConfig_nt.txt` file, specify the path to the `Export SDK\bin` directory.
4. Copy `XmlSampleConfig_nt.txt` to `XmlSampleConfig.txt`.
5. Run the batch file in the `install\javaapi\sample` directory. Type the following:

```
XmlConvFileToFileinputfileoutputfile
```

where:

`inputfile` is the path and file name of the source file.

`outputfile` is the path and file name of the generated XML file. If you do not specify a path, the XML file is output to the current directory.

To view the XML file in a browser, the `Verity.dtd` and other support files (`.xsl` and `.ent`) must be in the same directory as the XML file. These files are in the `install\javaapi\sample` directory.

## Run XmlConvFileToFile on UNIX

### To run XmlConvFileToFile on UNIX

1. In the `XmlConvFileToFile.csh` file, set `MKENV` to the platform on which you are running, either `_hpux11`, `_ilnx21`, `_rs6k43`, or `_ssol26`.
2. In the `XmlConvFileToFile.csh` file, set `INSTALL_DIR` to the Export SDK installation directory.
3. In the first line of the `XmlSampleConfig_unix.txt` file, specify the path to the template file used in the conversion. You can use any of the template files in the `install/xmlexport/programs/ini` directory, where `install` is the path name of the Export installation directory. If you are processing XML files, specify the location of the `kvxconfig.ini` file. This is in the `bin` directory.
4. In the second line of the `XmlSampleConfig_unix.txt` file, specify the path to the directory `Export SDK/bin`.

**NOTE:** If you have copied the `XmlSampleConfig_unix.txt` and C shell file from a Windows system or edited the files on a Windows system, remove the carriage returns from these files. You can use a utility such as the ColdFusion function `stripcr()`



(<http://www.macromedia.com>) to do this. This step is not required if the files are taken from the UNIX installation.

5. Copy `XmlSampleConfig_unix.txt` to `XmlSampleConfig.txt`.
6. Run the C shell file in the `install/javaapi/sample` directory. Type the following:

```
./XmlConvFileToFile.cshinputfileoutputfile
```

where,

`inputfile` is the path and file name of the source file.

`outputfile` is the path and file name of the generated XML file. If a path is not specified, the XML file is output to the current directory.

## XmlConvStreamToStream

This program converts an input stream to an output stream using Java API calls in XML Export, and a template file. See [Set Conversion Options by Using the Template Files, on page 32](#) for more information on templates.

## Run XmlConvStreamToStream on Windows

### To run XmlConvStreamToStream on Windows

1. In the `XmlConvStreamToStream.bat` file, set `INSTALL_DIR` to the Export SDK installation directory.
2. In the first line of the `XmlSampleConfig_nt.txt` file, specify the path to the template file used in the conversion. You can use the template files in the `install\xmlexport\programs\ini` directory, where `install` is the path name of the Export installation directory.
3. In the second line of the `XmlSampleConfig_nt.txt` file, specify the path to the directory `Export SDK\bin`.
4. Copy `XmlSampleConfig_nt.txt` to `XmlSampleConfig.txt`.
5. Run the batch file in the directory `install/javaapi/sample`. Type the following:

```
XmlConvStreamToStream inputfile
```

where:

`inputfile` is the path and file name of the source file.

The generated XML is output to the current DOS prompt.

## Run XmlConvStreamToStream on UNIX

### To run XmlConvStreamToStream on UNIX

1. In the `XmlConvStreamToStream.csh` file, set `MKENV` to the platform on which you are running, either `_hpux11`, `_ilnx21`, `_rs6k43`, or `_sso126`.
2. In the `XmlConvStreamToStream.csh` file, set `INSTALL_DIR` to the Export SDK installation directory.
3. In the first line of the `XmlSampleConfig_unix.txt` file, specify the path to the template file used in the conversion. You can use the template files in the `install/xmlexport/programs/ini` directory, where `install` is the path name of the Export installation directory.
4. In the second line of the `XmlSampleConfig_unix.txt` file, specify the path to the directory `Export SDK/bin`.

**NOTE:** If you have copied the `XmlSampleConfig_unix.txt` and C shell file from a Windows system or edited the files on a Windows system, remove the carriage returns from these files. You can use a utility such as the ColdFusion function `stripcr()` (<http://www.macromedia.com>) to do this. This step is not required if the files are taken from the UNIX installation.

5. Copy `XmlSampleConfig_unix.txt` to `XmlSampleConfig.txt`.
6. Run the C shell file in the `install/javaapi/sample` directory. Type the following:

```
./XmlConvStreamToStream.csh inputfile
```

where:

`inputfile` is the path and file name of the source file.

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

## XmlParseIt

This program converts an input file and sends out SAX events based on the generated XML, and a template file. See [Set Conversion Options by Using the Template Files, on page 32](#) for more information on template files.

**NOTE:** Ensure that the `JAVA_HOME` system variable is set and points to your JDK installation directory. This variable is used in the `XmlParseIt.bat` and `XmlParseIt.csh` files.

## Run XmlParseIt on Windows

### To run XmlParseIt on Windows

1. In the `XmlParseIt.bat` file, set `INSTALL_DIR` to the Export SDK installation directory.
2. In the first line of the `XmlSampleConfig_nt.txt` file, specify the path to the template file used in the conversion. You can use any of the template files in the `install\xmlexport\programs\ini` directory, where `install` is the path name of the Export installation directory.
3. In the second line of the `XmlSampleConfig_nt.txt` file, specify the path to the directory `Export SDK\bin`.
4. In the third line of the `XmlSampleConfig_nt.txt` file, specify the absolute URL pointing to the directory in which the `Verity.dtd` is located. You must include the ending slash.
5. Copy `XmlSampleConfig_nt.txt` to `XmlSampleConfig.txt`.
6. Run the batch file in the `install\javaapi\sample` directory. Type the following:

```
XmlParseIt inputfile
```

where:

`inputfile` is the path and file name of the source file.

The SAX events from the generated XML is output to the current DOS prompt.

## Run XmlParseIt on UNIX

### To run XmlParseIt on UNIX

1. In the `XmlParseIt.csh` file, set `MKENV` to the platform on which you are running, either `_hpux11`, `_ilnx21`, `_rs6k43`, or `_sso126`.
2. In the `XmlParseIt.csh` file, set `INSTALL_DIR` to the Export SDK installation directory.
3. In the first line of the `XmlSampleConfig_unix.txt` file, specify the path to the template file used in the conversion. You can use any of the template files in the `install/xmlexport/programs/ini` directory, where `install` is the path name of the Export installation directory.
4. In the second line of the `XmlSampleConfig_unix.txt` file, specify the path to the `Export SDK/bin` directory.
5. In the third line of the `XmlSampleConfig_unix.txt` file, specify the absolute URL pointing to the directory in which the `Verity.dtd` is located. You must include the ending slash.

**NOTE:** If you have copied the `XmlSampleConfig_unix.txt` and C shell file from a Windows system or edited the files on a Windows system, remove the carriage returns from these files. You can use a utility such as the ColdFusion function `stripcr()` (<http://www.macromedia.com>) to do this. This step is not required if the files are taken from the UNIX installation.

6. Copy `XmlSampleConfig_unix.txt` to `XmlSampleConfig.txt`.
7. Run the C shell file in the `install/javaapi/sample` directory. Type the following:

```
./XmlParseIt.csh inputfile
```

where:

`inputfile` is the path and file name of the source file.

The SAX events from the generated XML is output to the current console (standard out).

# Part III: Appendixes

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

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



# Appendix A: Supported Formats

This section lists the file formats that KeyView can process (either filter, convert, or display).

- [Supported Formats](#) ..... 119

## Supported Formats

The tables in this section provide the following information:

- The file formats supported by the Filter API, Export API, Viewing API, and File Extraction API. The supported versions and the format's extension are also listed. All of the formats listed in this section can be detected by the KeyView format detection module (*kwad*). For a complete list of formats that can be detected, see [Detected Formats, on page 148](#).
- The file formats for which KeyView can detect and extract the character set and metadata information (properties such as title, author, and subject).

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. In this case, either the operating system code page or the character set specified in the API is used.

- The document reader used to filter each format.

### Key to Support Tables

Symbol	Description
Y	The format is supported. You can extract metadata for this format. You can determine the character set for this format.
N	The format is not supported. You cannot extract metadata for this format. You cannot determine the character set for this format.
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.

## Archive Formats

### Supported Archive Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
7-Zip	4.57	z7zsr, multiarcsr <sup>1</sup>	7Z	N	N	Y	Y	N	n/a	N
AD1	n/a	ad1sr	AD1	N	N	Y	Y	N	n/a	N
ARJ	n/a	multiarcsr	ARJ	N	N	N	Y	N	n/a	N
B1	n/a	b1sr	B1	N	N	Y	Y	N	n/a	N
BinHex	n/a	kvhqxsr	HQX	N	N	Y	Y	N	n/a	N
Bzip2	n/a	bzip2sr	BZ2	N	N	Y	Y	N	n/a	N
Expert Witness Compression Format (EnCase)	6	encasesr	E01, L01	N	N	Y	Y	N	n/a	N
	7	encase2sr	Lx01	N	N	Y	Y	N	n/a	N
GZIP	2	kvgzsr	GZ	N	N	N	Y	N	n/a	N
		kvgz	GZ	N	N	Y	N	N	n/a	N
ISO	n/a	isosr	ISO	N	N	Y	Y	N	n/a	N
Java Archive	n/a	unzip	JAR	N	N	Y	Y	N	n/a	N
Legato EMailXtender Archive	n/a	emxsr	EMX	N	N	Y	Y	N	n/a	N

<sup>1</sup>7zip is supported with the multiarcsr reader on some platforms for Extract.



**Supported Archive Formats, continued**

<b>Format</b>	<b>Version</b>	<b>Reader</b>	<b>Extension</b>	<b>Filter</b>	<b>Export</b>	<b>View</b>	<b>Extract</b>	<b>Metadata</b>	<b>Charset</b>	<b>Header/Footer</b>
MacBinary	n/a	macbinsr	BIN	N	N	Y	Y	N	n/a	N
Mac Disk Copy Disk Image	n/a	dmgsr	DMG	N	N	Y	Y	N	n/a	N
Microsoft Backup File	n/a	bkfsr	BKF	N	N	Y	Y	N	n/a	N
Microsoft Cabinet format	1.3	cabsr	CAB	N	N	Y	Y	N	n/a	N
Microsoft Compiled HTML Help	3	chmsr	CHM	N	N	Y	Y	N	n/a	N
Microsoft Compressed Folder	n/a	lzhsr	LZH LHA	N	N	N	Y	N	n/a	N
Microsoft Power BI Desktop format	n/a	unzip	PBIX	N	N	N	Y	N	n/a	N
PKZIP	through 9.0	unzip	ZIP	N	N	Y	Y	N	n/a	N
RAR archive	2.0 through 3.5	rarsr	RAR	N	N	N	Y	N	n/a	N
RAR5 archive	5	multiarcsr	RAR5	N	N	N	Y	N	n/a	N
Tableau Packaged Data Source format	n/a	unzip	TDSX	N	N	N	Y	N	n/a	N
Tableau Packaged Workbook format	n/a	unzip	TWBX	N	N	N	Y	N	n/a	N
Tape Archive	n/a	tarsr	TAR	N	N	Y	Y	N	n/a	N

**Supported Archive Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
UNIX Compress	n/a	kvzeesr	Z	N	N	N	Y	N	n/a	N
		kvzee	Z	N	N	Y	N	N	n/a	N
UUEncoding	all versions	uudsr	UUE	N	N	Y	Y	N	n/a	N
XZ	n/a	multiarcsr	XZ	N	N	N	Y	N	n/a	N
Windows Scrap File	n/a	olesr	SHS	N	N	N	Y	N	n/a	N
WinZip	through 10	unzip	ZIP	N	N	Y	Y	N	n/a	N
Zipped Keyhole Markup Language	n/a	unzip	ZIP	N	N	N	Y	N	n/a	N

**Binary Format****Supported Binary Formats**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Executable	n/a	exesr	EXE	N	N	Y	N	N	n/a	N
Link Library	n/a	exesr	DLL	N	N	Y	N	N	n/a	N

## Computer-Aided Design Formats

### Supported CAD Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
AutoCAD Drawing	R13, R14, R15/2000, 2004, 2007, 2010, 2013, 2018	kpODArdr kpDWGrdr <sup>1</sup>	DWG	Y	Y	Y	N	Y	Y	N
AutoCAD Drawing Exchange	R13, R14, R15/2000, 2004, 2007, 2010, 2013	kpODArdr kpDXFrdr <sup>2</sup>	DXF	Y	Y	Y	N	Y	Y	N
CATIA formats	5	kpCATrdr	CAT <sup>3</sup>	Y	N	N	N	Y	N	N
Microsoft Visio	4, 5, 2000, 2002, 2003, 2007, 2010 <sup>4</sup>	vsdsr	VSD	Y	Y	Y	Y <sup>5</sup>	Y	Y	N
		kpVSD2rdr	VSD, VSS VST	Y	Y	Y	N	Y	Y	N

<sup>1</sup>The kpODArdr reader can filter, export, and view all versions but is supported only on Windows, Linux, and OSX. The kpDWGrdr reader is used on AIX, FreeBSD, Solaris, and SPARC platforms, but does not support graphics for versions after 2004 or text for versions after 2013.

<sup>2</sup>The kpODArdr reader can filter, export, and view all versions but is supported only on Windows, Linux, and OSX. The kpDXFrdr reader is used on AIX, FreeBSD, Solaris, and SPARC platforms, but does not support graphics for versions after 2004.

<sup>3</sup>All CAT file extensions, for example CATDrawing, CATProduct, CATPart, and so on.

<sup>4</sup>Viewing and Export use the graphic reader, kpVSD2rdr for Microsoft Visio 2003, 2007, and 2010, and vsdsr for all earlier versions. Image fidelity in Viewing and Export is therefore only supported for versions 2003 and above. Filter uses the graphic reader kpVSD2rdr for Microsoft Visio 2003, 2007, and 2010, and vsdsr for all earlier versions.

<sup>5</sup>Extraction of embedded OLE objects is supported for Filter on Windows platforms only.

**Supported CAD Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
	2013	ActiveX components	VSDM VSSM VSTM VSDX VSSX VSTX	N	N	Y <sup>1</sup>	N	Y	N	N
		kpVSDXrdr	VSDM VSSM VSTM VSDX VSSX VSTX	Y	Y	Y	Y	Y	Y	N
Unigraphics (UG) NX		kpUGrdr	PRT	Y	N	N	N	N	N	N

**Database Formats****Supported Database Formats**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
dBase Database	III+, IV	dbfsr	DBF	Y	Y	Y	N	N	N	N

<sup>1</sup>Visio 2013 is supported in Viewing only, with the support of ActiveX components from the Microsoft Visio 2013 Viewer. Image fidelity is supported but other features, such as highlighting, are not.

**Supported Database Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Microsoft Access	95, 97, 2000, 2002, 2003, 2007, 2010, 2013, 2016	mdbsr	MDB, ACCDB	Y	T	T	N	N	Y <sup>1</sup>	N
Microsoft Project	2000, 2002, 2003, 2007, 2010, 2013, 2016	mppsrs	MPP	Y	Y	Y	Y	Y	Y	N

## Desktop Publishing

**Supported Desktop Publishing Formats**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Microsoft Publisher	98 to 2016	mspubsr	PUB	Y	T	T	Y	Y	Y	N

## Display Formats

**Supported Display Formats**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Adobe PDF	1.1 to 1.7	pdfsr	PDF	Y	Y	N	Y <sup>2</sup>	Y	Y	N
		pdf2sr	PDF	N	Y	N	N	N	N	N

<sup>1</sup>Charset is not supported for Microsoft Access 95 or 97.<sup>2</sup>Includes support for extraction of subfiles from PDF Portfolio documents.

**Supported Display Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
		kppdfrdr	PDF	N	Y	Y	N	N	N	N
		kppdf2rdr <sup>1</sup>	PDF	N	N	Y	N	N	N	N

**Graphic Formats****Supported Graphic Formats**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Computer Graphics Metafile	n/a	kpcgmrdr <sup>2</sup>	CGM	Y	Y	Y	N	N	N	N
CorelDRAW <sup>3</sup>	through 9.0 10, 11, 12, X3	kpcdrdr	CDR	N	Y	Y	N	N	N	N
DCX Fax System	n/a	kpcdxrdr	DCX	N	Y	Y	N	N	N	N
Digital Imaging & Communications in	n/a	dcmsr	DCM	M	N	N	N	Y	N	N

<sup>1</sup>kppdf2rdr is an alternate graphic-based reader that produces high-fidelity output but does not support other features such as highlighting or text searching.

<sup>2</sup>Files with non-partitioned data are supported.

<sup>3</sup>CDR/CDR with TIFF header.

**Supported Graphic Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Medicine (DICOM)										
Encapsulated PostScript (raster)	TIFF header	kpepsrdr	EPS	N	Y	Y	N	N	N	N
Enhanced Metafile	n/a	kpemfrdr	EMF	Y	Y	Y	N	Y	N	N
GIF	87, 89	kpgifrdr	GIF	N	Y	Y	N	N	N	N
		gifsr		M	M	N	N	Y	N	N
ISO-BMFF JPEG 2000 compound image	n/a	kpjp2000rdr	JPM	N	Y	Y	N	N	N	N
		jp2000sr		M	M	N	N	Y	N	N
ISO-BMFF JPEG 2000 image	n/a	kpjp2000rdr	JP2	N	Y	Y	N	N	N	N
		jp2000sr		M	M	N	N	Y	N	N
ISO-BMFF JPEG 2000 with extensions	n/a	kpjp2000rdr	JPX	N	Y	Y	N	N	N	N
		jp2000sr		M	M	N	N	Y	N	N
JBIG2	n/a	kpJBIG2rdr	JBIG2	N	Y	Y	N	N	N	N
JPEG	n/a	kpjpgdrdr	JPEG	N	Y	Y	N	N	N	N
		jpgsr		M	M	N	N	Y	N	N
JPEG 2000	n/a	kpjp2000rdr	JP2, JPF, J2K, JPWL, JPX, PGX	N	Y	Y	N	N	N	N
		jp2000sr		M	M	N	N	Y	N	N

**Supported Graphic Formats, continued**

<b>Format</b>	<b>Version</b>	<b>Reader</b>	<b>Extension</b>	<b>Filter</b>	<b>Export</b>	<b>View</b>	<b>Extract</b>	<b>Metadata</b>	<b>Charset</b>	<b>Header/Footer</b>
JPEG 2000 PGX Verification Model image	n/a	kjpg2000rdr	PGX	N	Y	Y	N	N	N	N
		jp2000sr		M	M	N	N	Y	N	N
Lotus AMIDraw Graphics	n/a	kpsdwrdr	SDW	N	Y	Y	N	N	N	N
Lotus Pic	n/a	kppicrdr	PIC	Y	Y	Y	N	N	N	N
Macintosh Raster	2	kppctrdr	PIC PCT	N	Y	Y	N	N	N	N
MacPaint	n/a	kpmacrdr	PNTG	N	Y	Y	N	N	N	N
Microsoft Office Drawing	n/a	kpmsohdr	MSO	N	Y	Y	N	N	N	N
Omni Graffle	n/a	kpGFLrdr	GRAFFLE	Y	N	N	N	Y	Y	N
PC PaintBrush	3	kppcxrdr	PCX	N	Y	Y	N	N	N	N
Portable Network Graphics	n/a	kppngrdr	PNG	N	Y	Y	N	N	N	N
		pngsr	PNG	M	M	N	N	Y	N	N
Scalable Vector Graphics	n/a	xmlsr	SVG	Y	T	T	N	Y	Y	N
SGI RGB Image	n/a	kpsgirdr	RGB	N	Y	Y	N	N	N	N
Sun Raster Image	n/a	kpsunrdr	RS	N	Y	Y	N	N	N	N



**Supported Graphic Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Tagged Image File	through 6.0 <sup>1</sup>	tifsr	TIFF	M	M	N	N	Y	N	N
		kptifdr	TIFF	N	Y	Y	N	N	N	N
Truevision Targa	2	kpTGArdr	TGA	N	Y	Y	N	N	N	N
Windows Animated Cursor	n/a	kpanirdr	ANI	N	Y	Y	N	N	N	N
Windows Bitmap	n/a	kpbmprdr	BMP	N	Y	Y	N	N	N	N
		bmpsr	BMP	M	M	N	N	Y	N	N
Windows Icon Cursor	n/a	kpicordr	ICO	N	Y	Y	N	N	N	N
Windows Metafile	3	kpwmfrdr	WMF	Y <sup>2</sup>	Y	Y	N	N	N	N
WordPerfect Graphics 1	1	kpwpgrdr	WPG	N	Y	Y	N	N	N	N
WordPerfect Graphics 2	2, 7	kpwg2rdr	WPG	N	Y	Y	N	N	N	N

<sup>1</sup>The following compression types are supported: no compression, CCITT Group 3 1-Dimensional Modified Huffman, CCITT Group 3 T4 1-Dimensional, CCITT Group 4 T6, LZW, JPEG (only Gray, RGB and CMYK color space are supported), and PackBits.

<sup>2</sup>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).

## Mail Formats

### Supported Mail Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Documentum EMCMF	n/a	msgsr	EMCMF	N	N	Y	Y	Y	Y	N
Domino XML Language <sup>1</sup>	n/a	dxlsr	DXL	N	N	Y	Y	Y	N	N
GroupWise FileSurf	n/a	gwfssr	GWFS	N	N	Y	Y	Y	N	N
Legato Extender	n/a	onmsr	ONM	N	N	Y	Y	Y	N	N
Lotus Notes database	4, 5, 6.0, 6.5, 7.0, 8.0	nsfsr	NSF	N	N	Y	Y	Y	N	N
Mailbox <sup>2</sup>	Thunderbird 1.0, Eudora 6.2	mbxsr <sup>3</sup>	MBX	N	N	T	Y	Y	Y	N
Microsoft Entourage	2004	entsr	various	N	N	Y	Y	Y	Y	N

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

<sup>2</sup>KeyView supports MBX files created by Eudora Email and Mozilla Thunderbird. MBX files created by other common mail applications are typically filtered, converted, and displayed.

<sup>3</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

**Supported Mail Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Database										
Microsoft Outlook	97, 2000, 2002, 2003, 2007, 2010, 2013, 2016	msgsr <sup>1</sup>	MSG, OFT	Y	T	T	Y	Y	Y <sup>2</sup>	N
Microsoft Outlook DBX	5.0, 6.0	dbxsr	DBX	N	N	Y	Y	Y	Y	N
Microsoft Outlook Express	Windows 6 Macintosh 5	emlsr <sup>3</sup>	EML	Y	T	T	Y	Y	Y	N
		mbxsr <sup>4</sup>	EML	N	N	T	Y	Y	Y	N
Microsoft Outlook iCalendar	1.0, 2.0	icssr	ICS, VCS	N	N	Y	Y	Y	Y	N
Microsoft Outlook for Macintosh	2011	olmsr	OLM	N	N	Y	Y	N	Y	N
Microsoft Outlook Offline Storage File	97, 2000, 2002, 2003, 2007, 2010, 2013	pffsr <sup>5</sup>	OST	N	N	Y	Y	Y	Y	N

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

<sup>2</sup>Returns "Unicode" character set for version 2003 and up, and "Unknown" character set for previous versions.

<sup>3</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

<sup>4</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

<sup>5</sup>The reader pffsr is available only on Windows and Linux.

**Supported Mail Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Microsoft Outlook Personal Folder	97, 2000, 2002, 2003, 2007, 2010, 2013, 2016	pstsr <sup>12</sup>	PST	N	N	Y	Y	Y	N	N
	97, 2000, 2002, 2003, 2007, 2010, 2013	pstnsr	PST	N	N	Y	Y	Y	Y	N
Microsoft Outlook vCard Contact	2.1, 3.0, 4.0	vcfsr	VCF	Y	Y	T	N	Y	N	N
Text Mail (MIME)	n/a	emlsr <sup>3</sup>	various	Y	T	T	Y	Y	Y	N
		mbxsr <sup>4</sup>	various	Y	T	T	Y	Y	Y	N
Transport Neutral Encapsulation Format	n/a	tnfsr	various	N	N	Y	Y	Y	Y	N

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

<sup>2</sup>Uses Microsoft Messaging Application Programming Interface (MAPI). The MAPI reader (*pstsr*) works only on Windows, and requires that you have Microsoft Outlook installed. As an alternative, the native PST reader (*pstnsr*) runs on all platforms, and does not require Microsoft Outlook. For more information on using the native PST reader or the MAPI reader, see the sections 'Use the Native PST Reader (*pstnsr*)' and 'Use the MAPI Reader (*pstsr*)' in Chapter 3.

<sup>3</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

<sup>4</sup>This reader supports both clear signed and encrypted S/MIME. KeyView supports S/MIME for PST, EML, MBX, and MSG files.

## Multimedia Formats

Viewing SDK plays some multimedia files using the Windows Media Control Interface (MCI). MCI is a set of Windows APIs that communicate with multimedia devices.

### Supported Multimedia Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
3GPP video file	n/a	mpeg4sr	3GP	M	N	N	N	Y	N	N
3GPP2 video file	n/a	mpeg4sr	3G2	M	N	N	N	Y	N	N
Adobe Flash Player audio	n/a	mpeg4sr	F4A	M	N	N	N	Y	N	N
Adobe Flash Player audio book	n/a	mpeg4sr	F4B	M	N	N	N	Y	N	N
Adobe Flash Player protected video	n/a	mpeg4sr	F4P	M	N	N	N	Y	N	N
Adobe Flash Player video	n/a	mpeg4sr	F4V	M	N	N	N	Y	N	N
Apple ISO-BMFF QuickTime video	n/a	MCI	QT MOV	N	N	Y	N	N	N	N
Apple MPEG-4 Part 14 audio	n/a	mpeg4sr	M4A	M	N	N	N	Y	N	N
Apple MPEG-4 Part 14 audio book	n/a	mpeg4sr	M4B	M	N	N	N	Y	N	N
Apple MPEG-4 Part 14 protected audio	n/a	mpeg4sr	M4P	M	N	N	N	Y	N	N
Apple MPEG-4 Part 14	n/a	mpeg4sr	M4V	M	N	N	N	Y	N	N

**Supported Multimedia Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
video										
Audible Enhanced Audiobook	n/a	mpeg4sr	AAX	M	N	N	N	Y	N	N
KDDI video file	n/a	MCI		N	N	Y	N	N	N	N
Advanced Systems Format	1.2	asfsr	ASF WMA WMV	N	N	N	N	Y	N	N
Audio Interchange File Format	n/a	MCI	AIFF	N	N	Y	N	N	N	N
		aiffsr	AIFF	M	N	N	N	Y	N	N
ISO-BMFF MPEG-4 with AVC extension	n/a	mpeg4sr		M	N	N	N	Y	N	N
Microsoft Wave Sound	n/a	MCI	WAV	N	N	Y	N	N	N	N
		riffr	WAV	M	N	N	N	Y	N	N
MIDI	n/a	MCI	MID	N	N	Y	N	N	N	N
Mobile QuickTime video	n/a	mpeg4sr	MQV	M	N	N	N	Y	N	N
Motion JPEG 2000	n/a	kpjp2000rdr	MJ2 MJP2	N	Y	Y	N	N	N	N
		jp2000sr		M	M	N	N	Y	N	N
MPEG-1 Audio layer 3	ID3 v1 and v2	MCI	MP3	N	N	Y	N	N	N	N
		mp3sr	MP3	M	M	Y	N	Y	N	N

**Supported Multimedia Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
MPEG-1 Video	2, 3	MCI	MPG	N	N	Y	N	N	N	N
MPEG-2 Audio	n/a	MCI	MPEGA	N	N	Y	N	N	N	N
MPEG-21	n/a	mpeg4sr		M	N	N	N	Y	N	N
MPEG-4 Audio	n/a	mpeg4sr	MP4 3GP	M	N	N	N	Y	N	N
Nero AAC audio	n/a	mpeg4sr		M	N	N	N	Y	N	N
Nero MPEG-4 profile	n/a	mpeg4sr		M	N	N	N	Y	N	N
Nero MPEG-4 profile with AVC extension	n/a	mpeg4sr		M	N	N	N	Y	N	N
NeXT/Sun Audio	n/a	MCI	AU	N	N	Y	N	N	N	N
NTT MPEG-4	n/a	mpeg4sr		M	N	N	N	Y	N	N
QuickTime Movie	2, 3, 4	MCI	QT MOV	N	N	Y	N	N	N	N
Sony PSP MPEG-4	n/a	mpeg4sr	MP4	M	N	N	N	Y	N	N
Sony XAVC video	n/a	mpeg4sr		M	N	N	N	Y	N	N
Windows Video	2.1	MCI	AVI	N	N	Y	N	N	N	N

**NOTE:**

Depending on the default multimedia player installed on your computer, the View API might not be able to play some supported multimedia formats. To play multimedia files, the View API uses the Windows Media Control Interface (MCI) to communicate with the multimedia player installed on your computer. If the player does not play a multimedia file that is supported by the Viewing SDK, the View API cannot

play the file.

If you cannot play a supported multimedia file by using the View API, install a different multimedia player or compressor/decompressor (codec) component.

## Presentation Formats

### Supported Presentation Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Apple iWork Keynote	2, 3, '08, '09	kplWPGGrdr	GZ	Y	Y	Y	N	Y	Y	N
	'13, '16 iCloud 2018	kplWPG13rdr <sup>1</sup>	KEY	Y	T	N	N	N	N	N
Applix Presents	4.0, 4.2, 4.3, 4.4	kpagrdr	AG	Y	Y	Y	N	N	N	N
Corel Presentations	6, 7, 8, 9, 10, 11, 12, X3	kpshwrdr	SHW	Y	Y	Y	N	N	N	N
Extensible Forms Description Language	n/a	kpXFDLrdr	XFD XFDL	Y	Y	Y	N	Y	Y	N
Lotus Freelance Graphics	96, 97, 98, R9, 9.8	kpprzrdr	PRZ	Y	Y	Y	N	N	N	N
Lotus Freelance Graphics 2	2	kpprerdr	PRE	Y	Y	Y	N	N	N	N

<sup>1</sup>This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.



**Supported Presentation Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Macromedia Flash	through 8.0	swfsr	SWF	Y	Y	Y	N	N	Y <sup>1</sup>	N
Microsoft OneNote	2007, 2010, 2013, 2016	kpONErdr	ONE ONETOC2	Y	Y	Y	Y	N	Y	N
Microsoft PowerPoint Macintosh	98	kpp40rdr	PPT	Y	Y	Y	N	N	N	N
	2001, v.X, 2004	kpp97rdr	PPT PPS POT	Y	Y	Y	N	P	Y	N
Microsoft PowerPoint PC	4	kpp40rdr	PPT	Y	Y	Y	N	P	N	N
Microsoft PowerPoint Windows	95	kpp95rdr	PPT	Y	Y	Y	N	P	Y	N
Microsoft PowerPoint Windows	97, 2000, 2002, 2003	kpp97rdr	PPT PPS POT	Y	Y	Y	Y	P	Y	Y <sup>2</sup>
Microsoft PowerPoint Windows XML	2007, 2010, 2013, 2016	kpppxrdr	PPTX PPTM POTX POTM PPSX PPSM	Y	Y	Y	Y	Y	Y	Y

<sup>1</sup>The character set cannot be determined for versions 5.x and lower.<sup>2</sup>Slide footers are supported for Microsoft PowerPoint 97 and 2003.

**Supported Presentation Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
			PPAM							
OASIS Open Document Format	1, 2 <sup>1</sup>	kpodfrdr	SXD SXI ODG ODP	Y	Y	Y	Y <sup>2</sup>	Y	Y	N
OpenOffice Impress, LibreOffice Impress	1 to 5	sosr	SXI SXP ODP	Y	T	T	N	Y	Y	N
StarOffice Impress	3, 4, 5	kpsddrdr	SDA SDD	Y	T	N	N	N	N	N
	6, 7, 8, 9	sosr	SXI SXP ODP	Y	T	T	N	Y	Y	N

<sup>1</sup>Generated by OpenOffice Impress 2.0, StarOffice 8 Impress, and IBM Lotus Symphony Presentation 3.0.

<sup>2</sup>Supported using the olesr embedded objects reader.

## Spreadsheet Formats

### Supported Spreadsheet Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Apple iWork Numbers	'08, '09	iwsssr	GZ	Y	Y	Y	N	Y	Y	N
	'13, '16 iCloud 2018	iwss13sr 1	NUMBERS	Y	T	T	N	N	Y	N
Applix Spreadsheets	4.2, 4.3, 4.4	assr	AS	Y	Y	Y	N	N	Y	N
Comma Separated Values	n/a	csvsr	CSV	Y	Y	Y	N	N	N	N
Corel Quattro Pro	5, 6, 7, 8	qpssr	WB2 WB3	Y	Y	Y	N	P	Y	N
	X4	qpwsr	QPW	Y	N	Y	N	P	Y	N
Data Interchange Format	n/a	difsr		Y	Y	Y	N	N	N	N
Lotus 1-2-3	96, 97, R9, 9.8	l123sr	123	Y	Y	Y	N	P	Y	N
Lotus 1-2-3	2, 3, 4, 5	wkssr	WK4	Y	Y	Y	N	N	Y	N
Lotus 1-2-3 Charts	2, 3, 4, 5	kpchtrdr	123	N	Y	Y	N	N	N	N
Microsoft Excel Charts	2, 3, 4, 5, 6, 7	kpchtrdr	XLS	N	Y	Y	N	N	N	N

<sup>1</sup>This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.

**Supported Spreadsheet Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Microsoft Excel Macintosh	98, 2001, v.X, 2004	xlssr	XLS	Y	Y	Y	Y <sup>1</sup>	Y	Y	N
Microsoft Excel Windows	2.2 through 2003	xlssr	XLS XLW XLT XLA	Y	Y	Y	Y <sup>2</sup>	Y	Y	Y
Microsoft Excel Windows XML	2007, 2010, 2013, 2016	xlxsxr	XLSX XLTX XLSM XLTM XLAM	Y	Y	Y	Y	Y	Y	Y
Microsoft Excel Binary Format	2007, 2010, 2013, 2016	xlsbsr	XLSB	Y	Y	Y	N	N	N	N
Microsoft Works Spreadsheet	2, 3, 4	mwssr	S30 S40	Y	Y	Y	N	N	Y	N
OASIS Open Document Format	1, 2 <sup>3</sup>	odfsssr	ODS SXC STC	Y	Y	Y	Y <sup>4</sup>	Y	Y	N
OpenOffice Calc, LibreOffice Calc	1 to 5	sosr	SXC ODS	Y	T	T	N	Y	Y	N

<sup>1</sup>Supported using the embedded objects reader `olesr`.<sup>2</sup>Supported for versions 97 and higher using the embedded objects reader `olesr`.<sup>3</sup>Generated by OpenOffice Calc 2.0, StarOffice 8 Calc, and IBM Lotus Symphony Spreadsheet 3.0.<sup>4</sup>Supported using the embedded objects reader `olesr`.

**Supported Spreadsheet Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
			OTS							
StarOffice Calc	3, 4, 5	starcsr	SDC	Y	T	T	N	N	N	N
	6, 7, 8, 9	sosr	SXC ODS	Y	T	T	N	Y	Y	N

**Text and Markup Formats****Supported Text and Markup Formats**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
ANSI	n/a	afsr	TXT	Y	Y	Y	N	N	N	N
ASCII	n/a	afsr	TXT	Y	Y	Y	N	N	N	N
HTML	3, 4	htmsr	HTM	Y	Y	Y	N	P	Y	N
Microsoft Excel Windows XML	2003	xmlsr	XML	Y	T	T	N	Y	Y	N
Microsoft Word Windows XML	2003	xmlsr	XML	Y	T	T	N	Y	Y	N
Microsoft Visio XML	2003	xmlsr	VDX VTX	Y	T	T	N	Y	Y	N
MIME HTML	n/a	mhtsr	MHT	Y	Y	Y	N	Y	Y	N
Rich Text Format	1 through 1.7	rtfsr	RTF	Y	Y	Y	N	P	Y	Y

**Supported Text and Markup Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Tableau Data Source format	n/a	xmlsr	TDS	Y	T	T	N	Y	Y	N
Tableau Map Source format	n/a	xmlsr	TMS	Y	T	T	N	Y	Y	N
Tableau Preferences format	n/a	xmlsr	TPS	Y	T	T	N	Y	Y	N
Tableau Workbook format	n/a	xmlsr	TWB	Y	T	T	N	Y	Y	N
Unicode HTML	n/a	unihtmsr	HTM	Y	Y	Y	N	Y	Y	N
Unicode Text	3, 4	unisr	TXT	Y	Y	Y	N	N	Y	N
Vector Open Diagnostic Data Exchange Format	n/a	xmlsr	ODX	Y	T	T	N	Y	Y	N
XHTML	1.0	htmsr	HTM	Y	Y	Y	N	Y	Y	N
XML (generic)	1.0	xmlsr	XML	Y	T	T	N	Y	Y	N

**Word Processing Formats****Supported Word Processing Formats**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Adobe FrameMaker Interchange Format	5, 5.5, 6, 7	mifsr	MIF	Y	Y	Y	N	N	Y	N
Apple iChat Log	1, AV 2 AV 2.1, AV 3	ichatsr	ICHAT	Y	Y	Y	N	N	N	N

**Supported Word Processing Formats, continued**

<b>Format</b>	<b>Version</b>	<b>Reader</b>	<b>Extension</b>	<b>Filter</b>	<b>Export</b>	<b>View</b>	<b>Extract</b>	<b>Metadata</b>	<b>Charset</b>	<b>Header/Footer</b>
Apple iWork Pages	'08, '09	iwwpsr	GZ	Y	Y	Y	N	Y	Y	N
	'13, '16 iCloud 2018	iwwp13sr 1	PAGES	Y	T	T	N	N	N	N
Applix Words	3.11, 4, 4.1, 4.2, 4.3, 4.4	awsr	AW	Y	Y	Y	N	N	Y	Y
Corel WordPerfect Linux	6.0, 8.1	wp6sr	WPS	Y	Y	Y	N	P	Y	N
Corel WordPerfect Macintosh	1.02, 2, 2.1, 2.2, 3, 3.1	wpmsr	WPM	Y	Y	Y	N	N	Y	N
Corel WordPerfect Windows	5, 5.1	wosr	WO	Y	Y	Y	N	P	Y	Y
Corel WordPerfect Windows	6, 7, 8, 9, 10, 11, 12, X3	wp6sr	WPD	Y	Y	Y	N	P	Y	Y
DisplayWrite	4	dw4sr	IP	Y	Y	Y	N	N	Y	N
Folio Flat File	3.1	foliosr	FFF	Y	Y	Y	N	Y	Y	Y
Founder Chinese E- paper Basic	3.2.1	cebsr <sup>2</sup>	CEB	Y	N	N	N	N	N	N

<sup>1</sup>This reader is available only on Windows (32-bit and 64-bit), Linux (32-bit and 64-bit), and Solaris x86-64.<sup>2</sup>This reader is only supported on Windows 32-bit platforms.

**Supported Word Processing Formats, continued**

<b>Format</b>	<b>Version</b>	<b>Reader</b>	<b>Extension</b>	<b>Filter</b>	<b>Export</b>	<b>View</b>	<b>Extract</b>	<b>Metadata</b>	<b>Charset</b>	<b>Header/Footer</b>
Fujitsu Oasys	7	oa2sr	OA2	Y	Y	Y	N	P	N	N
Haansoft Hangul	97	hwpsr	HWP	Y	Y	Y	N	Y	Y	N
	2002, 2005, 2007, 2010	hwposr	HWP	Y	Y	Y	Y	Y	Y	N
Health level7	2.0	hl7sr	HL7	Y	Y	Y	N	Y	Y	N
IBM DCA/RFT (Revisable Form Text)	SC23-0758-1	dcasr	DC	Y	Y	Y	N	N	Y	N
JustSystems Ichitaro	8 to 2013, 2018	jtdsr	JTD	Y	Y	Y	N	P	N	Y
Lotus AMI Pro	2, 3	lasr	SAM	Y	Y	Y	N	P	Y	Y
Lotus AMI Professional Write Plus	2.1	lasr	AMI	Y	Y	Y	N	N	N	Y
Lotus Word Pro	96, 97, R9	lwpsr	LWP	Y	Y	Y	N	P	N	Y
Lotus SmartMaster	96, 97	lwpsr	MWP	Y	Y	Y	N	N	N	N
Microsoft Word Macintosh	4, 5, 6, 98	mbsr	DOC	Y	Y	Y	N	Y	N	Y
	2001, v.X, 2004	mw8sr	DOC DOT	Y	Y	Y	Y <sup>1</sup>	Y	Y	N

<sup>1</sup>Supported using the embedded objects reader olesr.



**Supported Word Processing Formats, continued**

<b>Format</b>	<b>Version</b>	<b>Reader</b>	<b>Extension</b>	<b>Filter</b>	<b>Export</b>	<b>View</b>	<b>Extract</b>	<b>Metadata</b>	<b>Charset</b>	<b>Header/Footer</b>
Microsoft Word PC	4, 5, 5.5, 6	mwsr	DOC	Y	Y	Y	N	N	N	Y
Microsoft Word Windows	1.0, 2.0	misr	DOC	Y	Y	Y	N	N	N	Y
Microsoft Word Windows	6, 7, 8, 95	mw6sr	DOC	Y	Y	Y	N	Y	Y	Y
Microsoft Word Windows	97, 2000, 2002, 2003	mw8sr	DOC DOT	Y	Y	Y	Y <sup>1</sup>	Y	Y	Y
Microsoft Word Windows XML	2007, 2010, 2013, 2016	mwxsr	DOCM DOCX DOTX DOTM	Y	Y	Y	Y	Y	Y	Y
Microsoft Word Windows Flat XML	2007, 2010, 2013, 2016	mwxsr	XML	Y	Y	Y	Y	Y	Y	Y
Microsoft Works	1, 2, 3, 4	mswsr	WPS	Y	Y	Y	N	N	N	Y
Microsoft Works	6, 2000	msw6sr	WPS	Y	Y	Y	N	N	N	Y
Microsoft Windows Write	1, 2, 3	mwsr	WRI	Y	Y	Y	N	N	Y	N

<sup>1</sup>Supported using the embedded objects reader olesr.

**Supported Word Processing Formats, continued**

<b>Format</b>	<b>Version</b>	<b>Reader</b>	<b>Extension</b>	<b>Filter</b>	<b>Export</b>	<b>View</b>	<b>Extract</b>	<b>Metadata</b>	<b>Charset</b>	<b>Header/Footer</b>
OASIS Open Document Format	1, 2 <sup>1</sup>	odfwpsr	ODT SXW STW	Y	Y	Y	Y <sup>2</sup>	Y	Y	Y
Omni Outliner	v3, OPML, OOutline	oo3sr	OO3 OPML OOUTLINE	Y	Y	Y	N	N	Y	N
OpenOffice Writer, LibreOffice Writer	1 to 5	sosr	SXW ODT	Y	T	T	N	Y	Y	N
Open Publication Structure eBook	2.0, 3.0	epubsr	EPUB	Y	Y	Y	N	Y	Y	N
StarOffice Writer	3, 4, 5	starwsr	SDW	Y	T	T	N	N	N	N
	6, 7, 8, 9	sosr	SXW ODT	Y	T	T	N	Y	Y	N
Skype Log	3	skypesr	DBB	Y	Y	Y	N	N	N	N
WordPad	through 2003	rtfsr	RTF	Y	Y	Y	N	P	Y	N
XML Paper Specification	n/a	xpssr	XPS	Y	T	T	N	N	N	N
XyWrite	4.12	xywsr	XY4	Y	Y	Y	N	N	N	N

<sup>1</sup>Generated by OpenOffice Writer 2.0, StarOffice 8 Writer, and IBM Lotus Symphony Documents 3.0.<sup>2</sup>Supported using the embedded objects reader olesr.

**Supported Word Processing Formats, continued**

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Yahoo! Instant Messenger	n/a	yimsr <sup>1</sup>	DAT	Y	Y	Y	N	N	N	N

<sup>1</sup>To successfully use this reader, you must set the KV\_YAHOO\_ID environment variable to the Yahoo user ID. You can optionally set the KV\_OTHER\_YAHOO\_ID environment variable to the other Yahoo user ID. If you do not set it, "Other" is used by default. If you enter incorrect values for the environment variables, erroneous data is generated.

# Appendix B: Detected Formats

This section lists the file formats that KeyView can detect.

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## Detected Formats

This section lists the KeyView file format codes and the file extensions that they are most commonly associated with.

**NOTE:** This is not a complete list of file extensions. KeyView returns format codes based on file content, which cannot always be predicted from the file extension. Some file extensions might also be associated with multiple formats.

Format Name	Number	Format Description	File Extension
AES_Multiplus_Comm_Fmt	1	Multiplus (AES)	PTF
ASCII_Text_Fmt	2	Text	
MSDOS_Batch_File_Fmt	3	MS-DOS Batch File	BAT
Applix_Alis_Fmt	4	APPLIX ASTERIX	AX
BMP_Fmt	5	Windows Bitmap Image (BMP)	BMP
CT_DEF_Fmt	6	Convergent Technologies DEF Comm. Format	
Corel_Draw_Fmt	7	Corel Draw	CDR
CGM_ClearText_Fmt	8	Computer Graphics Metafile (CGM)	CGM
CGM_Binary_Fmt	9	Computer Graphics Metafile (CGM)	CGM
CGM_Character_Fmt	10	Computer Graphics Metafile (CGM)	CGM
Word_Connection_Fmt	11	Word Connection	CN
COMET_TOP_Word_Fmt	12	COMET TOP	
CEOwrite_Fmt	13	CEOwrite	CW
DSA101_Fmt	14	DSA101 (Honeywell Bull)	

Format Name	Number	Format Description	File Extension
DCA_RFT_Fmt	15	DCA-RFT (IBM Revisable Form)	RFT, DC
CDA_DDIF_Fmt	16	CDA / DDIF	
DG_CDS_Fmt	17	DG Common Data Stream (CDS)	CDS
Micrografx_Draw_Fmt	18	Windows Draw (Micrografx)	DRW
Data_Point_VistaWord_Fmt	19	Vistaword	
DECdx_Fmt	20	DECdx	DX
Enable_WP_Fmt	21	Enable Word Processing	WPF
EPSF_Fmt	22	Encapsulated PostScript	EPS
Preview_EPSF_Fmt	23	Encapsulated PostScript	
MS_Executable_Fmt	24	MSDOS/Windows Program	EXE
G31D_Fmt	25	CCITT G3 1D	
GIF_87a_Fmt	26	Graphics Interchange Format (GIF87a)	GIF
GIF_89a_Fmt	27	Graphics Interchange Format (GIF89a)	GIF
HP_Word_PC_Fmt	28	HP Word PC	HW
IBM_1403_LinePrinter_Fmt	29	IBM 1403 Line Printer	I4
IBM_DCF_Script_Fmt	30	DCF Script	IC
IBM_DCA_FFT_Fmt	31	DCA-FFT (IBM Final Form)	IF, FFT
Interleaf_Fmt	32	Interleaf	
GEM_Image_Fmt	33	GEM Bit Image	IMG

Format Name	Number	Format Description	File Extension
IBM_Display_Write_Fmt	34	Display Write	IP
Sun_Raster_Fmt	35	Sun Raster	RAS
Ami_Pro_Fmt	36	Lotus Ami Pro	SAM
Ami_Pro_StyleSheet_Fmt	37	Lotus Ami Pro Style Sheet	
MORE_Fmt	38	MORE Database MAC	
Lyrix_Fmt	39	Lyrix Word Processing	
MASS_11_Fmt	40	MASS-11	M1
MacPaint_Fmt	41	MacPaint	PNTG
MS_Word_Mac_Fmt	42	Microsoft Word for Macintosh	DOC
SmartWare_II_Comm_Fmt	43	SmartWare II	
MS_Word_Win_Fmt	44	Microsoft Word for Windows	DOC, WPS
Multimate_Fmt	45	MultiMate	
Multimate_Fnote_Fmt	46	MultiMate Footnote File	
Multimate_Adv_Fmt	47	MultiMate Advantage	
Multimate_Adv_Fnote_Fmt	48	MultiMate Advantage Footnote File	
Multimate_Adv_II_Fmt	49	MultiMate Advantage II	
Multimate_Adv_II_Fnote_Fmt	50	MultiMate Advantage II Footnote File	
Multiplan_PC_Fmt	51	Multiplan (PC)	
Multiplan_Mac_Fmt	52	Multiplan (Mac)	

Format Name	Number	Format Description	File Extension
MS_RTF_Fmt	53	Rich Text Format (RTF)	RTF
MS_Word_PC_Fmt	54	Microsoft Word for PC	MW
MS_Word_PC_StyleSheet_Fmt	55	Microsoft Word for PC Style Sheet	
MS_Word_PC_Glossary_Fmt	56	Microsoft Word for PC Glossary	
MS_Word_PC_Driver_Fmt	57	Microsoft Word for PC Driver	
MS_Word_PC_Misc_Fmt	58	Microsoft Word for PC Miscellaneous File	
NBI_Async_Archive_Fmt	59	NBI Async Archive Format	
Navy_DIF_Fmt	60	Navy DIF	ND
NBI_Net_Archive_Fmt	61	NBI Net Archive Format	NN
NIOS_TOP_Fmt	62	NIOS TOP	
FileMaker_Mac_Fmt	63	Filemaker MAC	FP5, FP7
ODA_Q1_11_Fmt	64	ODA / ODIF	
ODA_Q1_12_Fmt	65	ODA / ODIF	
OLIDIF_Fmt	66	OLIDIF (Olivetti)	
Office_Writer_Fmt	67	Office Writer	OW
PC_Paintbrush_Fmt	68	PC Paintbrush Graphics (PCX)	PCX
CPT_Comm_Fmt	69	CPT	
Lotus_PIC_Fmt	70	Lotus PIC	PIC
Mac_PICT_Fmt	71	QuickDraw Picture	PCT



Format Name	Number	Format Description	File Extension
Philips_Script_Word_Fmt	72	Philips Script	
PostScript_Fmt	73	PostScript	PS
PRIMEWORD_Fmt	74	PRIMEWORD	
Quadratron_Q_One_v1_Fmt	75	Q-One V1.93J	
Quadratron_Q_One_v2_Fmt	76	Q-One V2.0	
SAMNA_Word_IV_Fmt	77	SAMNA Word	SAM
Ami_Pro_Draw_Fmt	78	Lotus Ami Pro Draw	SDW
SYLK_Spreadsheet_Fmt	79	SYLK	
SmartWare_II_WP_Fmt	80	SmartWare II	
Symphony_Fmt	81	Symphony	WR1
Targa_Fmt	82	Targa	TGA
TIFF_Fmt	83	Tag Image File Format (TIFF)	TIF, TIFF
Targon_Word_Fmt	84	Targon Word	TW
Uniplex_Ucalc_Fmt	85	Uniplex Ucalc	SS
Uniplex_WP_Fmt	86	Uniplex	UP
MS_Word_UNIX_Fmt	87	Microsoft Word UNIX	
WANG_PC_Fmt	88	WANG PC	
WordERA_Fmt	89	WordERA	
WANG_WPS_Comm_Fmt	90	WANG WPS	WF

Format Name	Number	Format Description	File Extension
WordPerfect_Mac_Fmt	91	WordPerfect MAC	
WordPerfect_Fmt	92	WordPerfect	WP, WP4, WPD, WOP
WordPerfect_VAX_Fmt	93	WordPerfect VAX	
WordPerfect_Macro_Fmt	94	WordPerfect Macro	
WordPerfect_Dictionary_Fmt	95	WordPerfect Spelling Dictionary	
WordPerfect_Thesaurus_Fmt	96	WordPerfect Thesaurus	
WordPerfect_Resource_Fmt	97	WordPerfect Resource File	
WordPerfect_Driver_Fmt	98	WordPerfect Driver	
WordPerfect_Cfg_Fmt	99	WordPerfect Configuration File	
WordPerfect_Hyphenation_Fmt	100	WordPerfect Hyphenation Dictionary	
WordPerfect_Misc_Fmt	101	WordPerfect Miscellaneous File	
WordMARC_Fmt	102	WordMARC	WM, PW
Windows_Metafile_Fmt	103	Windows Metafile	WMF
Windows_Metafile_NoHdr_Fmt	104	Windows Metafile (no header)	WMF
SmartWare_II_DB_Fmt	105	SmartWare II	
WordPerfect_Graphics_Fmt	106	WordPerfect Graphics	WPG, QPG
WordStar_Fmt	107	WordStar	WS, WSD
WANG_WITA_Fmt	108	WANG WITA	WT
Xerox_860_Comm_Fmt	109	Xerox 860	

Format Name	Number	Format Description	File Extension
Xerox_Writer_Fmt	110	Xerox Writer	
DIF_SpreadSheet_Fmt	111	Data Interchange Format (DIF)	DIF
Enable_Spreadsheet_Fmt	112	Enable Spreadsheet	SSF
SuperCalc_Fmt	113	Supercalc	CAL
UltraCalc_Fmt	114	UltraCalc	
SmartWare_II_SS_Fmt	115	SmartWare II	
SOF_Encapsulation_Fmt	116	Serialized Object Format (SOF)	SOF
PowerPoint_Win_Fmt	117	Microsoft PowerPoint PC	
PowerPoint_Mac_Fmt	118	Microsoft PowerPoint MAC	
PowerPoint_95_Fmt	119	Microsoft PowerPoint 95	
PowerPoint_97_Fmt	120	Microsoft PowerPoint 97	
PageMaker_Mac_Fmt	121	PageMaker for Macintosh	
PageMaker_Win_Fmt	122	PageMaker for Windows	
MS_Works_Mac_WP_Fmt	123	Microsoft Works Word Processor for MAC	MWK
MS_Works_Mac_DB_Fmt	124	Microsoft Works Database for MAC	
MS_Works_Mac_SS_Fmt	125	Microsoft Works Spreadsheet for MAC	
MS_Works_Mac_Comm_Fmt	126	Microsoft Works Communication for MAC	
MS_Works_DOS_WP_Fmt	127	Microsoft Works Word Processor for DOS	WPS
MS_Works_DOS_DB_Fmt	128	Microsoft Works Database for DOS	WDB

Format Name	Number	Format Description	File Extension
MS_Works_DOS_SS_Fmt	129	Microsoft Works Spreadsheet for DOS	
MS_Works_Win_WP_Fmt	130	Microsoft Works Word Processor for Windows	WPS, W40
MS_Works_Win_DB_Fmt	131	Microsoft Works Database for Windows	
MS_Works_Win_SS_Fmt	132	Microsoft Works Spreadsheet for Windows	S30, S40
PC_Library_Fmt	133	DOS/Windows Object Library	LIB, A
MacWrite_Fmt	134	MacWrite	
MacWrite_II_Fmt	135	MacWrite II	
Freehand_Fmt	136	Freehand MAC	
Disk_Doubler_Fmt	137	Disk Doubler	
HP_GL_Fmt	138	HP Graphics Language	HPGL
FrameMaker_Fmt	139	FrameMaker	FM, FRM
FrameMaker_Book_Fmt	140	FrameMaker	BOOK
Maker_Markup_Language_Fmt	141	Maker Markup Language	
Maker_Interchange_Fmt	142	Maker Interchange Format (MIF)	MIF
JPEG_File_Interchange_Fmt	143	JPEG Interchange Format	JPG, JPEG
Reflex_Fmt	144	Reflex	
Framework_Fmt	145	Framework	
Framework_II_Fmt	146	Framework II	FW3
Paradox_Fmt	147	Paradox	DB

Format Name	Number	Format Description	File Extension
MS_Windows_Write_Fmt	148	Microsoft Windows Write	WRI
Quattro_Pro_DOS_Fmt	149	Quattro Pro for DOS	WQ1
Quattro_Pro_Win_Fmt	150	Quattro Pro for Windows	WB1, WB2, WB3
Persuasion_Fmt	151	Persuasion	
Windows_Icon_Fmt	152	Windows Icon Format	ICO
Windows_Cursor_Fmt	153	Windows Cursor	CUR
MS_Project_Activity_Fmt	154	Microsoft Project	
MS_Project_Resource_Fmt	155	Microsoft Project	
MS_Project_Calc_Fmt	156	Microsoft Project	
PKZIP_Fmt	157	ZIP Archive	ZIP
Quark_Xpress_Fmt	158	Quark Xpress MAC	
ARC_PAK_Archive_Fmt	159	PAK/ARC Archive	ARC, PAK
MS_Publisher_Fmt	160	Microsoft Publisher	PUB
PlanPerfect_Fmt	161	PlanPerfect	
WordPerfect_Auxiliary_Fmt	162	WordPerfect auxiliary file	WPW
MS_WAVE_Audio_Fmt	163	Microsoft Wave	WAV
MIDI_Audio_Fmt	164	MIDI	MID, MIDI
AutoCAD_DXF_Binary_Fmt	165	AutoCAD DXF	DXF
AutoCAD_DXF_Text_Fmt	166	AutoCAD DXF	DXF

Format Name	Number	Format Description	File Extension
dBase_Fmt	167	dBase	DBF, VCX
OS_2_PM_Metafile_Fmt	168	OS/2 PM Metafile	MET
Lasergraphics_Language_Fmt	169	Lasergraphics Language	
AutoShade_Rendering_Fmt	170	AutoShade Rendering	
GEM_VDI_Fmt	171	GEM VDI	VDI
Windows_Help_Fmt	172	Windows Help File	HLP
Volkswriter_Fmt	173	Volkswriter	VW4
Ability_WP_Fmt	174	Ability	
Ability_DB_Fmt	175	Ability	
Ability_SS_Fmt	176	Ability	
Ability_Comm_Fmt	177	Ability	
Ability_Image_Fmt	178	Ability	
XyWrite_Fmt	179	XYWrite / Nota Bene	XY4
CSV_Fmt	180	CSV (Comma Separated Values)	CSV
IBM_Writing_Assistant_Fmt	181	IBM Writing Assistant	IWA
WordStar_2000_Fmt	182	WordStar 2000	WS2
HP_PCL_Fmt	183	HP Printer Control Language	PCL
UNIX_Exe_PreSysV_VAX_Fmt	184	Unix Executable (PDP-11/pre-System V VAX)	
UNIX_Exe_Basic_16_Fmt	185	Unix Executable (Basic-16)	

Format Name	Number	Format Description	File Extension
UNIX_Exe_x86_Fmt	186	Unix Executable (x86)	
UNIX_Exe_iAPX_286_Fmt	187	Unix Executable (iAPX 286)	
UNIX_Exe_MC68k_Fmt	188	Unix Executable (MC680x0)	
UNIX_Exe_3B20_Fmt	189	Unix Executable (3B20)	
UNIX_Exe_WE32000_Fmt	190	Unix Executable (WE32000)	
UNIX_Exe_VAX_Fmt	191	Unix Executable (VAX)	
UNIX_Exe_Bell_5_Fmt	192	Unix Executable (Bell 5.0)	
UNIX_Obj_VAX_Demand_Fmt	193	Unix Object Module (VAX Demand)	
UNIX_Obj_MS8086_Fmt	194	Unix Object Module (old MS 8086)	
UNIX_Obj_Z8000_Fmt	195	Unix Object Module (Z8000)	
AU_Audio_Fmt	196	NeXT/Sun Audio Data	AU
NeWS_Font_Fmt	197	NeWS bitmap font	
cpio_Archive_CRChdr_Fmt	198	cpio archive (CRC Header)	
cpio_Archive_CHRhdr_Fmt	199	cpio archive (CHR Header)	
PEX_Binary_Archive_Fmt	200	SUN PEX Binary Archive	
Sun_vfont_Fmt	201	SUN vfont Definition	
Curses_Screen_Fmt	202	Curses Screen Image	
UUEncoded_Fmt	203	UU encoded	UUE
WriteNow_Fmt	204	WriteNow MAC	

Format Name	Number	Format Description	File Extension
PC_Obj_Fmt	205	DOS/Windows Object Module	OBJ
Windows_Group_Fmt	206	Windows Group	
TrueType_Font_Fmt	207	TrueType Font	TTF
Windows_PIF_Fmt	208	Program Information File (PIF)	PIF
MS_COM_Executable_Fmt	209	PC (.COM)	COM
StuffIt_Fmt	210	StuffIt (MAC)	HQX
PeachCalc_Fmt	211	PeachCalc	CAL
Wang_GDL_Fmt	212	WANG Office GDL Header	
Q_A_DOS_Fmt	213	Q & A for DOS	
Q_A_Win_Fmt	214	Q & A for Windows	JW
WPS_PLUS_Fmt	215	WPS-PLUS	WPL
DCX_Fmt	216	DCX FAX Format(PCX images)	DCX
OLE_Fmt	217	OLE Compound Document	OLE
EBCDIC_Fmt	218	EBCDIC Text	
DCS_Fmt	219	DCS	
UNIX_SHAR_Fmt	220	SHAR	SHAR
Lotus_Notes_BitMap_Fmt	221	Lotus Notes Bitmap	
Lotus_Notes_CDF_Fmt	222	Lotus Notes CDF	CDF
Compress_Fmt	223	Unix Compress	Z



Format Name	Number	Format Description	File Extension
GZ_Compress_Fmt	224	GZ Compress	GZ
TAR_Fmt	225	TAR	TAR
ODIF_FOD26_Fmt	226	ODA / ODIF	F26
ODIF_FOD36_Fmt	227	ODA / ODIF	F36
ALIS_Fmt	228	ALIS	
Envoy_Fmt	229	Envoy	EVY
PDF_Fmt	230	Portable Document Format	PDF
BinHex_Fmt	231	BinHex	HQX
SMTP_Fmt	232	SMTP	SMTP
MIME_Fmt	233	MIME <sup>1</sup>	EML, MBX
USENET_Fmt	234	USENET	
SGML_Fmt	235	SGML	SGML
HTML_Fmt	236	HTML	HTM, HTML
ACT_Fmt	237	ACT	ACT
PNG_Fmt	238	Portable Network Graphics (PNG)	PNG
MS_Video_Fmt	239	Video for Windows (AVI)	AVI
Windows_Animated_Cursor_Fmt	240	Windows Animated Cursor	ANI
Windows_CPP_Obj_Storage_Fmt	241	Windows C++ Object Storage	
Windows_Palette_Fmt	242	Windows Palette	PAL

Format Name	Number	Format Description	File Extension
RIFF_DIB_Fmt	243	RIFF Device Independent Bitmap	
RIFF_MIDI_Fmt	244	RIFF MIDI	RMI
RIFF_Multimedia_Movie_Fmt	245	RIFF Multimedia Movie	
MPEG_Fmt	246	MPEG Movie	
QuickTime_Fmt	247	QuickTime Movie	MOV, QT, MP4
AIFF_Fmt	248	Audio Interchange File Format (AIFF)	AIF, AIFF
Amiga_MOD_Fmt	249	Amiga MOD	MOD
Amiga_IFF_8SVX_Fmt	250	Amiga IFF (8SVX) Sound	IFF
Creative_Voice_Audio_Fmt	251	Creative Voice (VOC)	VOC
AutoDesk_Animator_FLI_Fmt	252	AutoDesk Animator FLIC	FLI
AutoDesk_AnimatorPro_FLC_Fmt	253	AutoDesk Animator Pro FLIC	FLC
Compactor_Archive_Fmt	254	Compactor / Compact Pro	
VRML_Fmt	255	VRML	WRL
QuickDraw_3D_Metafile_Fmt	256	QuickDraw 3D Metafile	
PGP_Secret_Keyring_Fmt	257	PGP Secret Keyring	
PGP_Public_Keyring_Fmt	258	PGP Public Keyring	
PGP_Encrypted_Data_Fmt	259	PGP Encrypted Data	
PGP_Signed_Data_Fmt	260	PGP Signed Data	
PGP_SignedEncrypted_Data_Fmt	261	PGP Signed and Encrypted Data	

Format Name	Number	Format Description	File Extension
PGP_Sign_Certificate_Fmt	262	PGP Signature Certificate	SIG
PGP_Compressed_Data_Fmt	263	PGP Compressed Data	
PGP_ASCII_Public_Keyring_Fmt	264	ASCII-armored PGP Public Keyring	PGP
PGP_ASCII_Encoded_Fmt	265	ASCII-armored PGP encoded	
PGP_ASCII_Signed_Fmt	266	ASCII-armored PGP signed	
OLE_DIB_Fmt	267	OLE DIB object	
SGL_Image_Fmt	268	SGL Image	RGB
Lotus_ScreenCam_Fmt	269	Lotus ScreenCam	SCM
MPEG_Audio_Fmt	270	MPEG Audio	MPEGA, MPG, MP3
FTP_Software_Session_Fmt	271	FTP Session Data	STE
Netscape_Bookmark_File_Fmt	272	Netscape Bookmark File	
Corel_Draw_CMX_Fmt	273	Corel CMX	CMX
AutoDesk_DWG_Fmt	274	AutoDesk Drawing (DWG)	DWG
AutoDesk_WHIP_Fmt	275	AutoDesk WHIP	WHP
Macromedia_Director_Fmt	276	Macromedia Director	DCR
Real_Audio_Fmt	277	Real Audio	RM, RA
MSDOS_Device_Driver_Fmt	278	MSDOS Device Driver	SYS
Micrografx_Designer_Fmt	279	Micrografx Designer	DSF
SVF_Fmt	280	Simple Vector Format (SVF)	SVF

Format Name	Number	Format Description	File Extension
Applix_Words_Fmt	281	Applix Words	AW
Applix_Graphics_Fmt	282	Applix Graphics	AG
MS_Access_Fmt	283	Microsoft Access	MDB
MS_Access_95_Fmt	284	Microsoft Access 95	MDB
MS_Access_97_Fmt	285	Microsoft Access 97	MDB
MacBinary_Fmt	286	MacBinary	BIN
Apple_Single_Fmt	287	Apple Single	
Apple_Double_Fmt	288	Apple Double	AD
Enhanced_Metafile_Fmt	289	Enhanced Metafile	EMF
MS_Office_Drawing_Fmt	290	Microsoft Office Drawing	
XML_Fmt	291	XML	XML
DeVice_Independent_Fmt	292	DeVice Independent file (DVI)	DVI
Unicode_Fmt	293	Unicode	UNI
Lotus_123_Worksheet_Fmt	294	Lotus 1-2-3	WKS, WK1, WK3, WK4
Lotus_123_Format_Fmt	295	Lotus 1-2-3 Formatting	FM3
Lotus_123_97_Fmt	296	Lotus 1-2-3 97	123
Lotus_Word_Pro_96_Fmt	297	Lotus Word Pro 96	
Lotus_Word_Pro_97_Fmt	298	Lotus Word Pro 97	LWP, MWP
Freelance_DOS_Fmt	299	Lotus Freelance for DOS	

Format Name	Number	Format Description	File Extension
Freelance_Win_Fmt	300	Lotus Freelance for Windows	PRE
Freelance_OS2_Fmt	301	Lotus Freelance for OS/2	PRS
Freelance_96_Fmt	302	Lotus Freelance 96	PRZ
Freelance_97_Fmt	303	Lotus Freelance 97	
MS_Word_95_Fmt	304	Microsoft Word 95	DOC
MS_Word_97_Fmt	305	Microsoft Word 97	DOC, WPS
Excel_Fmt	306	Microsoft Excel	XLS
Excel_Chart_Fmt	307	Microsoft Excel	XLC
Excel_Macro_Fmt	308	Microsoft Excel	XLM
Excel_95_Fmt	309	Microsoft Excel 95	
Excel_97_Fmt	310	Microsoft Excel 97	
Corel_Presentations_Fmt	311	Corel Presentations	XFD, XFDL
Harvard_Graphics_Fmt	312	Harvard Graphics	PR4
Harvard_Graphics_Chart_Fmt	313	Harvard Graphics Chart	CH3, CHT
Harvard_Graphics_Symbol_Fmt	314	Harvard Graphics Symbol File	SY3
Harvard_Graphics_Cfg_Fmt	315	Harvard Graphics Configuration File	
Harvard_Graphics_Palette_Fmt	316	Harvard Graphics Palette	
Lotus_123_R9_Fmt	317	Lotus 1-2-3 Release 9	123
Applix_Spreadsheets_Fmt	318	Applix Spreadsheets	AS

Format Name	Number	Format Description	File Extension
MS_Pocket_Word_Fmt	319	Microsoft Pocket Word	PWD
MS_DIB_Fmt	320	Microsoft Device Independent Bitmap	DIB
MS_Word_2000_Fmt	321	Microsoft Word 2000	DOC
Excel_2000_Fmt	322	Microsoft Excel 2000	XLS
PowerPoint_2000_Fmt	323	Microsoft PowerPoint 2000	PPT
MS_Access_2000_Fmt	324	Microsoft Access 2000	MDB
MS_Project_4_Fmt	325	Microsoft Project 4	
MS_Project_41_Fmt	326	Microsoft Project 4.1	MPP
MS_Project_98_Fmt	327	Microsoft Project 98	MPP
Folio_Flat_Fmt	328	Folio Flat File	FFF
HWP_Fmt	329	HWP(Arae-Ah Hangul)	HWP
ICHITARO_Fmt	330	ICHITARO	JTD
IS_XML_Fmt	331	Extended or Custom XML	XML
Oasys_Fmt	332	Oasys	OAS, OA2, OA3
PBM_ASC_Fmt	333	Portable Bitmap Utilities ASCII format (PBM)	PBM
PBM_BIN_Fmt	334	Portable Bitmap Utilities BINARY format (PBM)	PBM
PGM_ASC_Fmt	335	Portable Greymap Utilities ASCII format (PGM)	PGM
PGM_BIN_Fmt	336	Portable Greymap Utilities BINARY format (PGM)	PGM
PPM_ASC_Fmt	337	Portable Pixmap Utilities ASCII format (PPM)	PPM

Format Name	Number	Format Description	File Extension
PPM_BIN_Fmt	338	Portable Pixmap Utilities BINARY format (PPM)	PPM
XBM_Fmt	339	X Bitmap format (XBM)	XBM
XPM_Fmt	340	X Pixmap format (XPM)	XPM
FPX_Fmt	341	FlashPix FPX Image format	FPX
PCD_Fmt	342	PCD Image format	PCD
MS_Visio_Fmt	343	Microsoft Visio	VSD
MS_Project_2000_Fmt	344	Microsoft Project 2000	MPP
MS_Outlook_Fmt	345	Microsoft Outlook	MSG, OFT
ELF_Relocatable_Fmt	346	ELF Relocatable	O
ELF_Executable_Fmt	347	ELF Executable	
ELF_Dynamic_Lib_Fmt	348	ELF Dynamic Library	SO
MS_Word_XML_Fmt	349	Microsoft Word 2003 XML	XML
MS_Excel_XML_Fmt	350	Microsoft Excel 2003 XML	XML
MS_Visio_XML_Fmt	351	Microsoft Visio 2003 XML	VDX
SO_Text_XML_Fmt	352	StarOffice Text XML	SXW
SO_Spreadsheet_XML_Fmt	353	StarOffice Spreadsheet XML	SXC, STC
SO_Presentation_XML_Fmt	354	StarOffice Presentation XML	SXD, SXI
XHTML_Fmt	355	XHTML	XML, ASP
MS_OutlookPST_Fmt	356	Microsoft Outlook Personal Folders File (.pst)	PST

Format Name	Number	Format Description	File Extension
RAR_Fmt	357	RAR	RAR
Lotus_Notes_NSF_Fmt	358	IBM Lotus Notes Database NSF/NTF	NSF
Macromedia_Flash_Fmt	359	Macromedia Flash (.swf)	SWF
MS_Word_2007_Fmt	360	Microsoft Word 2007 XML - Docx	DOCX, DOTX
MS_Excel_2007_Fmt	361	Microsoft Excel 2007 XML	XLSX, XLTX
MS_PPT_2007_Fmt	362	Microsoft PowerPoint 2007 XML	PPTX, POTX, PPSX
OpenPGP_Fmt	363	OpenPGP Message Format (with new packet format)	PGP
Intergraph_V7_DGN_Fmt	364	Intergraph Standard File Format (ISFF) V7 DGN (non-OLE)	
MicroStation_V8_DGN_Fmt	365	MicroStation V8 DGN (OLE)	DGN
MS_Word_Macro_2007_Fmt	366	Microsoft Word Macro 2007 XML	DOCM, DOTM
MS_Excel_Macro_2007_Fmt	367	Microsoft Excel Macro 2007 XML	XLSM, XLTM, XLAM
MS_PPT_Macro_2007_Fmt	368	Microsoft PPT Macro 2007 XML	PPTM, POTM, PPSM, PPAM
LZH_Fmt	369	LZH Archive	LZH, LHA
Office_2007_Fmt	370	Office 2007 document	XLSB
MS_XPS_Fmt	371	Microsoft XML Paper Specification (XPS)	XPS
Lotus_Domino_DXL_Fmt	372	IBM Domino Data in XML format (.dxl)	DXL
ODF_Text_Fmt	373	ODF Text	ODT
ODF_Spreadsheet_Fmt	374	ODF Spreadsheet	ODS



Format Name	Number	Format Description	File Extension
ODF_Presentation_Fmt	375	ODF Presentation	ODP
Legato_Extender_ONM_Fmt	376	Legato Extender Native Message ONM	ONM
bin_Unknown_Fmt	377	Bin unknown format (.xxx)	
TNEF_Fmt	378	Transport Neutral Encapsulation Format (TNEF)	various
CADAM_Drawing_Fmt	379	CADAM Drawing	CDD
CADAM_Drawing_Overlay_Fmt	380	CADAM Drawing Overlay	CDO
NURSTOR_Drawing_Fmt	381	NURSTOR Drawing	NUR
HP_GLP_Fmt	382	HP Graphics Language (Plotter)	HPG
ASF_Fmt	383	Advanced Systems Format (ASF)	ASF
WMA_Fmt	384	Windows Media Audio Format (WMA)	WMA
WMV_Fmt	385	Windows Media Video Format (WMV)	WMV
EMX_Fmt	386	Legato EMailXtender Archives Format (EMX)	EMX
Z7Z_Fmt	387	7 Zip Format (7z)	7Z
MS_Excel_Binary_2007_Fmt	388	Microsoft Excel Binary 2007	XLSB
CAB_Fmt	389	Microsoft Cabinet File (CAB)	CAB
CATIA_Fmt	390	CATIA Formats (CAT*)	CATPART, CATPRODUCT <sup>2</sup>
YIM_Fmt	391	Yahoo Instant Messenger History	DAT
ODF_Drawing_Fmt	392	ODF Drawing	ODG

Format Name	Number	Format Description	File Extension
Founder_CEB_Fmt	393	Founder Chinese E-paper Basic (ceb)	CEB
QPW_Fmt	394	Corel Quattro Pro 9+ for Windows	QPW
MHT_Fmt	395	MHTML format (MHT) <sup>1</sup>	MHT, MHTML
MDI_Fmt	396	Microsoft Document Imaging Format	MDI
GRV_Fmt	397	Microsoft Office Groove Format	GRV
IWWP_Fmt	398	Apple iWork Pages format	PAGES
IWSS_Fmt	399	Apple iWork Numbers format	NUMBERS
IWPG_Fmt	400	Apple iWork Keynote format	KEY
BKF_Fmt	401	Windows Backup File	BKF
MS_Access_2007_Fmt	402	Microsoft Access 2007	ACCDB
ENT_Fmt	403	Microsoft Entourage Database Format	
DMG_Fmt	404	Mac Disk Copy Disk Image File	DMG
CWK_Fmt	405	AppleWorks File	CWK
OO3_Fmt	406	Omni Outliner V3 File	OO3
OPML_Fmt	407	Omni Outliner OPML File	OPML
Omni_Graffle_XML_Fmt	408	Omni Graffle XML File	GRAFFLE
PSD_Fmt	409	Photoshop Document	PSD, PSB
Apple_Binary_PList_Fmt	410	Apple Binary Property List format	PLIST
Apple_iChat_Fmt	411	Apple iChat format	ICHAT

Format Name	Number	Format Description	File Extension
OOUTLINE_Fmt	412	OOutliner File	OOUTLINE
BZIP2_Fmt	413	Bzip 2 Compressed File	BZ2
ISO_Fmt	414	ISO-9660 CD Disc Image Format	ISO
DocuWorks_Fmt	415	DocuWorks Format	XDW
RealMedia_Fmt	416	RealMedia Streaming Media	RM, RA
AC3Audio_Fmt	417	AC3 Audio File Format	AC3
NEF_Fmt	418	Nero Encrypted File	NEF
SolidWorks_Fmt	419	SolidWorks Format Files	SLDASM, SLDPRT, SLDDRW, SLDDRT
XFDL_Fmt	420	Extensible Forms Description Language	XFDL, XFD
Apple_XML_PList_Fmt	421	Apple XML Property List format	PLIST
OneNote_Fmt	422	OneNote Note Format	ONE
Dicom_Fmt	424	Digital Imaging and Communications in Medicine (Dicom)	DCM
EnCase_Fmt	425	Expert Witness Compression Format (EnCase)	E01, L01, Lx01
Scrap_Fmt	426	Shell Scrap Object File	SHS
MS_Project_2007_Fmt	427	Microsoft Project 2007	MPP
MS_Publisher_98_Fmt	428	Microsoft Publisher from version 98	PUB
Skype_Fmt	429	Skype Log File	DBB
HL7_Fmt	430	Health level7 message	HL7

Format Name	Number	Format Description	File Extension
MS_OutlookOST_Fmt	431	Microsoft Outlook Offline Folders File (OST)	OST
Epub_Fmt	432	Electronic Publication	EPUB
MS_OEDBX_Fmt	433	Microsoft Outlook Express DBX	DBX
BB_Activ_Fmt	434	BlackBerry Activation File	DAT
DiskImage_Fmt	435	Disk Image	DMG
Milestone_Fmt	436	Milestone Document	MLS, ML3, ML4, ML5, ML6, ML7, ML8, ML9, MLA
E_Transcript_Fmt	437	RealLegal E-Transcript File	PTX
PostScript_Font_Fmt	438	PostScript Type 1 Font	PFB
Ghost_DiskImage_Fmt	439	Ghost Disk Image File	GHO, GHS
JPEG_2000_JP2_File_Fmt	440	JPEG-2000 JP2 File Format Syntax (ISO/IEC 15444-1)	JP2, JPF, J2K, JPWL, JPX, PGX
Unicode_HTML_Fmt	441	Unicode HTML	HTM, HTML
CHM_Fmt	442	Microsoft Compiled HTML Help	CHM
EMCMF_Fmt	443	Documentum EMCMF format	EMCMF
MS_Access_2007_Tmpl_Fmt	444	Microsoft Access 2007 Template	ACCDT
Jungum_Fmt	445	Samsung Electronics Jungum Global document	GUL
JBIG2_Fmt	446	JBIG2 File Format	JB2, JBIG2
EFax_Fmt	447	eFax file	EFX

Format Name	Number	Format Description	File Extension
AD1_Fmt	448	AD1 Evidence file	AD1
SketchUp_Fmt	449	Google SketchUp	SKP
GWFS_Email_Fmt	450	Group Wise File Surf email	GWFS
JNT_Fmt	451	Windows Journal format	JNT
Yahoo_yChat_Fmt	452	Yahoo! Messenger chat log	YCHAT
PaperPort_MAX_File_Fmt	453	PaperPort MAX image file	MAX
ARJ_Fmt	454	ARJ (Archive by Robert Jung) file format	ARJ
RPMSG_Fmt	455	Microsoft Outlook Restricted Permission Message	RPMSG
MAT_Fmt	456	MATLAB file format	MAT, FIG
SGY_Fmt	457	SEG-Y Seismic Data format	SGY, SEG Y
CDXA_MPEG_PS_Fmt	458	MPEG-PS container with CDXA stream	MPG
EVT_Fmt	459	Microsoft Windows NT Event Log	EVT
EVTX_Fmt	460	Microsoft Windows Vista Event Log	EVTX
MS_OutlookOLM_Fmt	461	Microsoft Outlook for Macintosh format	OLM
WARC_Fmt	462	Web ARChive	WARC
JAVACLASS_Fmt	463	Java Class format	CLASS
VCF_Fmt	464	Microsoft Outlook vCard file format	VCF
EDB_Fmt	465	Microsoft Exchange Server Database file format	EDB
ICS_Fmt	466	Microsoft Outlook iCalendar file format	ICS, VCS

Format Name	Number	Format Description	File Extension
MS_Visio_2013_Fmt	467	Microsoft Visio 2013	VSDX, VSTX, VSSX
MS_Visio_2013_Macro_Fmt	468	Microsoft Visio 2013 macro	VSDM, VSTM, VSSM
ICHITARO_Compr_Fmt	469	ICHITARO Compressed format	JTDC
IWWP13_Fmt	470	Apple iWork 2013 Pages format	IWA
IWSS13_Fmt	471	Apple iWork 2013 Numbers format	IWA
IWPG13_Fmt	472	Apple iWork 2013 Keynote format	IWA
XZ_Fmt	473	XZ archive format	XZ
Sony_WAVE64_Fmt	474	Sony Wave64 format	W64
Conifer_WAVPACK_Fmt	475	Conifer Wavpack format	WV
Xiph_OGG_VORBIS_Fmt	476	Xiph Ogg Vorbis format	OGG
MS_Visio_2013_Stencil_Fmt	477	MS Visio 2013 stencil format	VSSX
MS_Visio_2013_Stencil_Macro_Fmt	478	MS Visio 2013 stencil Macro format	VSSM
MS_Visio_2013_Template_Fmt	479	MS Visio 2013 template format	VSTX
MS_Visio_2013_Template_Macro_Fmt	480	MS Visio 2013 template Macro format	VSTM
Borland_Reflex_2_Fmt	481	Borland Reflex 2 format	R2D
PKCS_12_Fmt	482	PKCS #12 (p12) format	P12, PFX
B1_Fmt	483	B1 format	B1
ISO_IEC_MPEG_4_Fmt	484	ISO/IEC MPEG-4 (ISO 14496) format	MP4
RAR5_Fmt	485	RAR5 Format	RAR

Format Name	Number	Format Description	File Extension
Unigraphics_NX_Fmt	486	Unigraphics (UG) NX CAD Format	PRT
PTC_Creo_Fmt	487	PTC Creo CAD Format	ASM, PRT
KML_Fmt	488	Keyhole Markup Language	KML
KMZ_Fmt	489	Zipped Keyhole Markup Language	KMZ
WML_Fmt	490	Wireless Markup Language	WML
ODF_Formula_Fmt	491	ODF Formula	ODF
SO_Text_Fmt	492	Star Office Writer Text	SDW, SGL, VOR
SO_Spreadsheet_Fmt	493	Star Office Calc Spreadsheet	SDC
SO_Presentation_Fmt	494	Star Office Impress Presentation	SDD, SDA
SO_Math_Fmt	495	Star Office Math	SMF
STEP_Fmt	496	ISO 10303-21 STEP format	
STL_Fmt	497	3D Systems STL ASCII format	
AppleScript_Fmt	498	AppleScript Source Code <sup>3</sup>	APPLESCRIPT
Assembly_Fmt	499	Assembly Code <sup>3</sup>	
C_Fmt	500	C Source Code <sup>3</sup>	C, H
Csharp_Fmt	501	C# Source Code <sup>3</sup>	CS
CPlusPlus_Fmt	502	C++ Source Code <sup>3</sup>	CPP, HPP
Css_Fmt	503	Cascading Style Sheet <sup>3</sup>	CSS
Clojure_Fmt	504	Clojure Source Code <sup>3</sup>	CLJ, CL2

Format Name	Number	Format Description	File Extension
CoffeeScript_Fmt	505	CoffeeScript Source Code <sup>3</sup>	COFFEE, CAKE
Lisp_Fmt	506	Common Lisp Source Code <sup>3</sup>	EL
Dockerfile_Fmt	507	Dockerfile <sup>3</sup>	
Eiffel_Fmt	508	Eiffel Source Code <sup>3</sup>	E
Erlang_Fmt	509	Erlang Source Code <sup>3</sup>	ERL, ES
Fsharp_Fmt	510	F# Source Code <sup>3</sup>	FS
Fortran_Fmt	511	Fortran Source Code <sup>3</sup>	F
Go_Fmt	512	Go Source Code <sup>3</sup>	GO
Groovy_Fmt	513	Groovy Source Code <sup>3</sup>	GRT, GVV
Haskell_Fmt	514	Haskell Source Code <sup>3</sup>	HS
Ini_Fmt	515	Initialization (INI) file <sup>3</sup>	
Java_Fmt	516	Java Source Code <sup>3</sup>	JAVA
Javascript_Fmt	517	Javascript Source Code <sup>3</sup>	JS
Lua_Fmt	518	Lua Source Code <sup>3</sup>	LUA
Makefile_Fmt	519	Makefile <sup>3</sup>	MAKE
Mathematica_Fmt	520	Wolfram Mathematica Source Code <sup>3</sup>	M
ObjC_Fmt	521	Objective-C Source Code <sup>3</sup>	
ObjCpp_Fmt	522	Objective-C++ Source Code <sup>3</sup>	
ObjJ_Fmt	523	Objective-J Source Code <sup>3</sup>	J



Format Name	Number	Format Description	File Extension
PHP_Fmt	524	PHP Source Code <sup>3</sup>	PHP
PLSQL_Fmt	525	PLSQL Source Code <sup>3</sup>	
Pascal_Fmt	526	Pascal Source Code <sup>3</sup>	PASCAL
Perl_Fmt	527	Perl Source Code <sup>3</sup>	PL
Powershell_Fmt	528	PowerShell Source Code <sup>3</sup>	PS1
Prolog_Fmt	529	Prolog Source Code <sup>3</sup>	PRO, PROLOG
Puppet_Fmt	530	Puppet Source Code <sup>3</sup>	PP
Python_Fmt	531	Python Source Code <sup>3</sup>	PY
R_Fmt	532	R Source Code <sup>3</sup>	R
Ruby_Fmt	533	Ruby Source Code <sup>3</sup>	RB
Rust_Fmt	534	Rust Source Code <sup>3</sup>	RS
Scala_Fmt	535	Scala Source Code <sup>3</sup>	SC
Shell_Fmt	536	Shell Script <sup>3</sup>	SH
Smalltalk_Fmt	537	Smalltalk Source Code <sup>3</sup>	ST
ML_Fmt	538	Standard ML Source Code <sup>3</sup>	ML
Swift_Fmt	539	Swift Source Code <sup>3</sup>	SWIFT
Tcl_Fmt	540	Tool Command Language (Tcl) Source Code <sup>3</sup>	TM
Tex_Fmt	541	TeX Typesetting File <sup>3</sup>	
TypeScript_Fmt	542	TypeScript Source Code <sup>3</sup>	TS

Format Name	Number	Format Description	File Extension
Verilog_Fmt	543	Verilog Source Code <sup>3</sup>	V
YAML_Fmt	544	YAML File <sup>3</sup>	YML
Wiki_Fmt	545	MediaWiki File	
MS_Word_2007_Flat_XML_Fmt	546	Microsoft Word 2007 XML - Flat xml	XML
Matroska_Fmt	547	Matroska video File	MKV
SVG_Fmt	548	Scalable Vector Graphics image	SVG
Shapefile_Fmt	549	Shapefile	SHP, SHX
Flash_Video_Fmt	550	Flash video File	FLV
Embedded_OpenType_Fmt	551	Embedded OpenType font	EOT
Web_Open_Font_Fmt	552	Web Open Font Format	WOFF, WOFF2
OpenType_Fmt	553	OpenType Font	OTF
MNG_Fmt	554	Multiple-image Network Graphics	MNG
JNG_Fmt	555	JPEG Network Graphics	JNG
AppleScript_Binary_Fmt	556	AppleScript Binary Source Code	SCPT
Maya_Binary_Fmt	557	Autodesk Maya binary file	MB
Jupiter_Tessellation_Fmt	558	UGS Jupiter Tessellation file	JT
OGV_Fmt	559	Ogg Theora Video format	OGV
OGG_Container_Fmt	560	General Ogg Container format	OGG
GNU_Message_Catalog_Fmt	561	GNU Message Catalog format	MO

Format Name	Number	Format Description	File Extension
Windows_Shortcut_Fmt	562	Windows shortcut file	LNK
Apple_Typedstream_Fmt	563	Apple/NeXT typedstream data format	
XCF_Fmt	564	GIMP XCF image	XCF
PaintShop_Pro_Fmt	565	PaintShop Pro image	PSP, PSPIMAGE
SQLite_Database_Fmt	566	SQLite database format	QHC
MySQL_Table_Fmt	567	MySQL table definition file	FRM
Microsoft_Program_DB_Fmt	568	Microsoft Program Database format	PDB
OpenEXR_Fmt	569	OpenEXR image format	EXR
XMV_Fmt	570	4X Movie File	
AMV_Fmt	571	AMV video file	AMV
NIFF_Fmt	572	Notation Interchange File Format	NIF
CuBase_Fmt	573	Steinberg CuBase file	
SoundFont_Fmt	574	SoundFont file	
WebP_Fmt	575	WebP image	WEBP
ICC_Fmt	576	International Color Consortium files	ICC, ICM
PCF_Fmt	577	X11 Portable Compiled Font file	PCF
WebM_Fmt	578	WebM video file	WEBM
AMFF_Fmt	579	Amiga Metafile	AMF
ANBM_Fmt	580	IFF Animated Bitmap	

Format Name	Number	Format Description	File Extension
ANIM_Fmt	581	IFF Amiga animated raster graphics format	
DEEP_Fmt	582	IFF-DEEP TVPaint image	DEEP
FAXX_Fmt	583	IFF-FAXX Facsimile image	
ICON_Fmt	584	IFF Glow Icon image	
ILBM_Fmt	585	Interleaved BitMap image	IFF
LWOB_Fmt	586	LightWave Object format	LWOB
MAUD_Fmt	587	IFF-MAUD MacroSystem audio format	
PBM_Fmt	588	IFF Planar BitMap	
TDDD_Fmt	589	IFF TDDD and Imagine Object animation format	TDD
DjVu_Fmt	590	AT&T DjVu format	DJVU
InDesign_Fmt	591	Adobe InDesign document	
Calamus_Fmt	592	Calamus Desktop Publishing	
Adaptive_MultiRate_Fmt	593	Adaptive Multi-Rate audio format	AMR
FLAC_Fmt	594	Free Lossless Audio Codec format	FLAC
Ogg_FLAC_Fmt	595	Ogg Container FLAC audio format	OGG
SAS7BDAT_Fmt	596	SAS7BDAT database storage format	SAS7BDAT
Design_Web_Format_Fmt	597	Autodesk Design Web Format	DWF
Adobe_Flash_Audio_Book_Fmt	598	Adobe Flash Player audio book	F4B
Adobe_Flash_Audio_Fmt	599	Adobe Flash Player audio	F4A

Format Name	Number	Format Description	File Extension
Adobe_Flash_Protected_Video_Fmt	600	Adobe Flash Player protected video	F4P
Adobe_Flash_Video_Fmt	601	Adobe Flash Player video	F4V
Audible_Audiobook_Fmt	602	Audible Enhanced Audiobook	AAX
Canon_Camera_Fmt	603	Canon Digital Camera image	
Canon_Raw_Fmt	604	Canon Raw image	CR3
Casio_Camera_Fmt	605	Casio Digital Camera image	
Convergent_Design_Fmt	606	Convergent Design file	
DMB_MAF_Audio_Fmt	607	DMB MAF audio	
DMB_MAF_Video_Fmt	608	DMB MAF video	
DMP_Content_Fmt	609	Digital Media Project Content Format	
DVB_Fmt	610	Digital Video Broadcast format	DVB
Dirac_Wavelet_Compression_Fmt	611	ISO-BMFF Dirac Wavelet compression	
HEICS_Image_Sequence_Fmt	612	High Efficiency Image Format HEVC image sequence	HEICS
HEIC_Image_Fmt	613	High Efficiency Image Format HEVC image	HEIC
HEIFS_Image_Sequence_Fmt	614	High Efficiency Image Format image sequence	HEIFS
HEIF_Image_Fmt	615	High Efficiency Image Format image	HEIF
ISMACryp_Fmt	616	ISMACryp 2.0 Encrypted format	
ISO_3GPP2_Fmt	617	3GPP2 video file	3G2
ISO_3GPP_Fmt	618	3GPP video file	3GP

Format Name	Number	Format Description	File Extension
ISO_JPEG2000_JP2_Fmt	619	ISO-BMFF JPEG 2000 image	JP2
ISO_JPEG2000_JPM_Fmt	620	ISO-BMFF JPEG 2000 compound image	JPM
ISO_JPEG2000_JPX_Fmt	621	ISO-BMFF JPEG 2000 with extensions	JPX
ISO_QuickTime_Fmt	622	Apple ISO-BMFF QuickTime video	QT, MOV
KDDI_Video_Fmt	623	KDDI Video file	
MAF_Photo_Player_Fmt	624	MAF Photo Player	
MPEG4_AVC_Fmt	625	ISO-BMFF MPEG-4 with AVC extension	
MPEG4_M4A_Fmt	626	Apple MPEG-4 Part 14 audio	M4A
MPEG4_M4B_Fmt	627	Apple MPEG-4 Part 14 audio book	M4B
MPEG4_M4P_Fmt	628	Apple MPEG-4 Part 14 protected audio	M4P
MPEG4_M4V_Fmt	629	Apple MPEG-4 Part 14 video	M4V
MPEG4_Sony_PSP_Fmt	630	Sony PSP MPEG-4	MP4
MPEG_21_Fmt	631	MPEG-21	
Mobile_QuickTime_Fmt	632	Mobile QuickTime video	MQV
Motion_JPEG_2000_Fmt	633	Motion JPEG 2000	MJ2, MJP2
NTT_MPEG4_Fmt	634	NTT MPEG-4	
Nero_MPEG4_AVC_Profile	635	Nero MPEG-4 profile with AVC extension	
Nero_MPEG4_Audio_Fmt	636	Nero AAC audio	
Nero_MPEG4_Profile	637	Nero MPEG-4 profile	

Format Name	Number	Format Description	File Extension
OMA_DRM_Fmt	638	OMA DRM Format	
Panasonic_Camera_Fmt	639	Panasonic Digital Camera image	
Ross_Video_Fmt	640	Ross video	
SDA_Video_Fmt	641	SDA SD Memory Card video	
Samsung_Stereoscopic_Fmt	642	Samsung stereoscopic stream	
Sony_XAVC_Fmt	643	Sony XAVC video	
JPEG_2000_PGX_Fmt	644	JPEG 2000 PGX Verification Model image	PGX
Apple_Desktop_Services_Store_Fmt	645	Apple Desktop Services Store file	DS_Store
Core_Audio_Fmt	646	Apple Core Audio Format	CAF
VICAR_Fmt	647	VICAR image format	IMG
FITS_Fmt	648	Flexible Image Transport System FITS image	FIT
DIF_Fmt	649	Digital Interface Format (DIF) DV video	DV
MPEG_Transport_Stream_Fmt	650	MPEG Transport Stream data	TS
MPEG_Sequence_Fmt	651	MPEG Sequence format	
Ogg_OGM_Fmt	652	Ogg OGM video format	OGM
Ogg_Speex_Fmt	653	Ogg Speex audio format	SPX
Ogg_Opus_Fmt	654	Ogg Opus audio format	OGG
Musepack_Audio_Fmt	655	Musepack audio format	MPC
ART_Image_Fmt	656	ART image format	ART

Format Name	Number	Format Description	File Extension
Vivo_Fmt	657	Vivo audio-video format	VIV
QCP_Fmt	658	Qualcomm QCP audio	QCP
CSP_Codec_Fmt	659	Creative Signal Processor codec	CSP
TwinVQ_Fmt	660	NTT TwinVQ audio format	VQF
Interplay_MVE_Fmt	661	Interplay MVE video format	MVE
IRIX_Moviemaker_Fmt	662	IRIX Silicon Graphics moviemaker video file	MV, MOVIE
Sega_FILM_Fmt	663	Sega FILM video format	CPK, CAK
SMAF_Fmt	664	Synthetic music Mobile Application Format	MMF
NIST_SPHERE_Fmt	665	NIST SPeech HEader Resources format	NIST
Chinese_AVS_Fmt	666	Chinese AVS video format	
VQA_Fmt	667	Westwood Studios Vector Quantized Animation video file	VQA
YAFA_Fmt	668	Wildfire YAFA animation	YAFA
Origin_MVE_Fmt	669	Origin Wing Commander III MVE movie format	MVE
BBC_Dirac_Fmt	670	BBC Dirac video format	DRC
Maya_ASCII_Fmt	671	Autodesk Maya ASCII file format	MA
RenderMan_Fmt	672	Pixar RenderMan Interface Bytestream file	RIB
NOFF_Binary_Fmt	673	NOFF 3D Object File Format	NOFF
VTK_ASCII_Fmt	674	Visualization Toolkit VTK ASCII format	VTK



Format Name	Number	Format Description	File Extension
VTK_Binary_Fmt	675	Visualization Toolkit VTK Binary format	VTK
Wolfram_CDF_Fmt	676	Wolfram Mathematica Computable Document Format	CDF
Wolfram_Notebook_Fmt	677	Wolfram Mathematica Notebook Format	NB
HDF4_Fmt	678	Hierarchical Data Format HDF4	HDF, H4
HDF5_Fmt	679	Hierarchical Data Format HDF5	HDF, H5
ARMovie_Fmt	680	Acom RISC ARMovie video format	RPL
Windows_TV_DVR_Fmt	681	Windows Television DVR format	WTV
InstallShield_Z_Fmt	682	InstallShield Z archive format	Z
MS_DirectDraw_Surface_Fmt	683	Microsoft DirectDraw Surface container format	DDS
Bink_Fmt	684	Bink audio-video container format	BIK, BK2
LZMA_Fmt	685	LZMA compressed data format	LZMA
True_Audio_Fmt	686	True Audio format	TTA
Keepass_Fmt	687	Keepass Password file	KDB, KDBX
RPM_Fmt	688	RPM Package Manager file	RPM
Printer_Font_Metrics_Fmt	689	Adobe Printer Font Metrics format	PFM
Adobe_Font_Metrics_Fmt	690	Adobe Font Metrics ASCII format	AFM
Printer_Font_ASCII_Fmt	691	Adobe Printer Font ASCII format	PFA
Netware_Loadable_Module_Fmt	692	Netware Loadable Module format	NLM
TCPdump_pcap_Fmt	693	TCPdump packet stream capture savefile format	PCAP

Format Name	Number	Format Description	File Extension
Multiple_Master_Font_Fmt	694	Adobe Multiple master font format	MMM
TrueType_Font_Collection_Fmt	695	TrueType font collection format	TTC
Shapefile_Spatial_Index_Fmt	696	Shapefile binary spatial index format	SBX, SBN
Java_Key_Store_Fmt	697	Java Key Store format	KS
Java_JCE_Key_Store_Fmt	698	Java JCE Key Store format	
Quark_Xpress_Intel_Fmt	699	QuarkXPress Intel format	QXB
Windows_Imaging_Fmt	700	Microsoft Windows Imaging Format WIM	WIM
VMware_Virtual_Disk_Fmt	701	VMware Virtual Disk Format 5.0	VMDK
XPCConnect_Typelib_Fmt	702	XPCConnect Typelib Format	XPT
MS_DOS_Compression_Fmt	703	Microsoft MS-DOS installation compression	EX_
DLS_Fmt	704	DLS Downloadable Sounds format	DLS
MS_Windows_Registry_Fmt	705	Microsoft Windows Registry format	
Microsoft_Help_2_Fmt	706	Microsoft Help 2.0 format	HXD, HXW, HXH
Qt_Translation_Fmt	707	Qt binary translation file format	QM
PEM_SSL_Certificate_Fmt	708	PEM-encoded SSL certificate	CRT, PEM, CER, KEY
PostScript_Printer_Description_Fmt	709	Adobe PostScript Printer Description file	PPD
Speedo_Font_Fmt	710	Speedo Font format	SPD
InstallShield_Cabinet_Fmt	711	InstallShield Cabinet Archive format	CAB, HDR
InstallShield_Uninstall_Fmt	712	InstallShield Uninstall format	ISU

Format Name	Number	Format Description	File Extension
MS_OEDBX_Folder_Fmt	713	Outlook Express DBX folder database format	DBX
LabVIEW_Fmt	714	National Instruments LabVIEW file format	VI
SAP_Archive_SAR_Fmt	715	SAP compression archive SAR format	SAR
Netscape_Address_Book_Fmt	716	Netscape Address Book format	NAB
Universal_3D_Fmt	717	Universal 3D file format	U3D
Open_Inventor_ASCII_Fmt	718	Open Inventor ASCII format	IV
Open_Inventor_Binary_Fmt	719	Open Inventor Binary format	IV
X_Window_Dump_Fmt	720	X Window Dump image	XWD
Git_Packfile_Fmt	721	Git Packfile format	PACK
Xara_Xar_Fmt	722	Xara X Xar image format	XAR
Internet_Archive_ARC_Fmt	723	Internet Archive ARC format	ARC
Applix_Builder_Fmt	724	Applix Builder format	AB
Applix_Bitmap_Fmt	725	Applix Bitmap image format	IM
PEM_RSA_Private_Key_Fmt	726	PEM-encoded RSA private key	PEM
MIFF_Fmt	727	Magick Image File Format	MIFF
Subversion_Dump_Fmt	728	Subversion Dump format	
Virtual_Hard_Disk_Fmt	729	Microsoft Virtual Hard Disk format	VHD
Direct_Access_Archive_Fmt	730	PowerISO Direct Access Archive format	DAA
Debian_Binary_Fmt	731	Debian binary package format	DEB

Format Name	Number	Format Description	File Extension
XUL_Fastload_Fmt	732	Mozilla XUL Fastload format	MFL
Nastran_OP2_Fmt	733	Nastran OP2 format	OP2
Binary_Logging_Fmt	734	CAD Binary Logging Format	BLF
Measurement_Data_Fmt	735	CAD Measurement Data Format	MDF
Abaqus_ODB_Fmt	736	Abaqus ODB Format	ODB
Open_Diagnostic_Data_Exchange_Fmt	737	Vector Open Diagnostic Data Exchange format	ODX
Vector_ASCII_Fmt	738	Vector CAD ASCII ASC format	ASC
LSDYNA_State_Database_Fmt	739	LS-DYNA State Database format	
LSDYNA_Binary_Output_Fmt	740	LS-DYNA binary output (binout) format	
MS_Power_BI_Fmt	741	Microsoft Power BI Desktop format	PBIX
Tableau_Workbook_Fmt	742	Tableau Workbook format	TWB
Tableau_Packaged_Workbook_Fmt	743	Tableau Packaged Workbook format	TWBX
Tableau_Extract_Fmt	744	Tableau Extract format	TDE
Tableau_Data_Source_Fmt	745	Tableau Data Source format	TDS
Tableau_Packaged_Data_Source_Fmt	746	Tableau Packaged Data Source format	TDSX
Tableau_Preferences_Fmt	747	Tableau Preferences format	TPS
Tableau_Map_Source_Fmt	748	Tableau Map Source format	TMS
ABAP_Fmt	749	ABAP Source Code <sup>4</sup>	ABAP
AMPL_Fmt	750	AMPL Source Code <sup>4</sup>	AMPL

Format Name	Number	Format Description	File Extension
APL_Fmt	751	APL Source Code <sup>4</sup>	APL
ASN1_Fmt	752	ASN.1 Source Code <sup>4</sup>	ASN
ATS_Fmt	753	ATS Source Code <sup>4</sup>	
Agda_Fmt	754	Agda Source Code <sup>4</sup>	AGDA
Alloy_Fmt	755	Alloy Source Code <sup>4</sup>	ALS
Apex_Fmt	756	Apex Source Code <sup>4</sup>	CLS
Arduino_Fmt	757	Arduino Source Code <sup>4</sup>	INO
AsciiDoc_Fmt	758	AsciiDoc Source Code <sup>4</sup>	ASC
AspectJ_Fmt	759	AspectJ Source Code <sup>4</sup>	AJ
Awk_Fmt	760	Awk Source Code <sup>4</sup>	AWK
BlitzMax_Fmt	761	BlitzMax Source Code <sup>4</sup>	BMX
Bluespec_Fmt	762	Bluespec Source Code <sup>4</sup>	BSV
Brainfuck_Fmt	763	Brainfuck Source Code <sup>4</sup>	B, BF
Brightscript_Fmt	764	Brightscript Source Code <sup>4</sup>	BRS
CLIPS_Fmt	765	CLIPS Source Code <sup>4</sup>	CLP
CMake_Fmt	766	CMake Source Code <sup>4</sup>	CMAKE
COBOL_Fmt	767	COBOL Source Code <sup>4</sup>	CBL, CCP, COB, CPY
CWeb_Fmt	768	CWeb Source Code <sup>4</sup>	W
CartoCSS_Fmt	769	CartoCSS Source Code <sup>4</sup>	MSS

Format Name	Number	Format Description	File Extension
Ceylon_Fmt	770	Ceylon Source Code <sup>4</sup>	CEYLON
Chapel_Fmt	771	Chapel Source Code <sup>4</sup>	CHPL
Clarion_Fmt	772	Clarion Source Code <sup>4</sup>	CLW
Clean_Fmt	773	Clean Source Code <sup>4</sup>	DCL, ICL
Component_Pascal_Fmt	774	Component Pascal Source Code <sup>4</sup>	CP
Cool_Fmt	775	Cool Source Code <sup>4</sup>	CL
Coq_Fmt	776	Coq Source Code <sup>4</sup>	V
Creole_Fmt	777	Creole Source Code <sup>4</sup>	CREOLE
Crystal_Fmt	778	Crystal Source Code <sup>4</sup>	CR
Csound_Fmt	779	Csound Source Code <sup>4</sup>	ORC
Csound_Document_Fmt	780	Csound Document Source Code <sup>4</sup>	CSD
Cuda_Fmt	781	Cuda Source Code <sup>4</sup>	CU
D_Fmt	782	D Source Code <sup>4</sup>	DCL, ICL
DIGITAL_Command_Language_Fmt	783	DIGITAL Command Language Source Code <sup>4</sup>	COM
DTrace_Fmt	784	DTrace Source Code <sup>4</sup>	D
Dart_Fmt	785	Dart Source Code <sup>4</sup>	DART
E_Fmt	786	E Source Code <sup>4</sup>	E
ECL_Fmt	787	ECL Source Code <sup>4</sup>	ECL
Elm_Fmt	788	Elm Source Code <sup>4</sup>	ELM

Format Name	Number	Format Description	File Extension
Emacs_Lisp_Fmt	789	Emacs Lisp Source Code <sup>4</sup>	EL
EmberScript_Fmt	790	EmberScript Source Code <sup>4</sup>	EM
Fantom_Fmt	791	Fantom Source Code <sup>4</sup>	FAN
Forth_Fmt	792	Forth Source Code <sup>4</sup>	FOR, FORTH
FreeMarker_Fmt	793	FreeMarker Source Code <sup>4</sup>	FTL
Frege_Fmt	794	Frege Source Code <sup>4</sup>	FR
G_code_Fmt	795	G-code Source Code <sup>4</sup>	G
GAMS_Fmt	796	GAMS Source Code <sup>4</sup>	GMS
GAP_Fmt	797	GAP Source Code <sup>4</sup>	
GDScript_Fmt	798	GDScript Source Code <sup>4</sup>	GD
GLSL_Fmt	799	GLSL Source Code <sup>4</sup>	GLSL
Game_Maker_Language_Fmt	800	Game Maker Language Source Code <sup>4</sup>	GML
Gnuplot_Fmt	801	Gnuplot Source Code <sup>4</sup>	GNU, GP
Golo_Fmt	802	Golo Source Code <sup>4</sup>	GOLO
Gosu_Fmt	803	Gosu Source Code <sup>4</sup>	GS
Gradle_Fmt	804	Gradle Source Code <sup>4</sup>	GRADLE
GraphQL_Fmt	805	GraphQL Source Code <sup>4</sup>	GRAPHQL
Graphviz_DOT_Fmt	806	Graphviz (DOT) Source Code <sup>4</sup>	DOT
HLSL_Fmt	807	HLSL Source Code <sup>4</sup>	HLSL

Format Name	Number	Format Description	File Extension
Hack_Fmt	808	Hack Source Code <sup>4</sup>	
Haml_Fmt	809	Haml Source Code <sup>4</sup>	HAML
Handlebars_Fmt	810	Handlebars Source Code <sup>4</sup>	HBS
Hy_Fmt	811	Hy Source Code <sup>4</sup>	HY
IDL_Fmt	812	IDL Source Code <sup>4</sup>	PRO
IGOR_Pro_Fmt	813	IGOR Pro Source Code <sup>4</sup>	IPF
Idris_Fmt	814	Idris Source Code <sup>4</sup>	IDR
Inform_7_Fmt	815	Inform 7 Source Code <sup>4</sup>	I7X
Ioke_Fmt	816	Ioke Source Code <sup>4</sup>	IK
Isabelle_Fmt	817	Isabelle Source Code <sup>4</sup>	
J_Fmt	818	J Source Code <sup>4</sup>	IJS
JSONiq_Fmt	819	JSONiq Source Code <sup>4</sup>	JQ
JSX_Fmt	820	JSX Source Code <sup>4</sup>	JSX
Jasmin_Fmt	821	Jasmin Source Code <sup>4</sup>	J
Jolie_Fmt	822	Jolie Source Code <sup>4</sup>	
Julia_Fmt	823	Julia Source Code <sup>4</sup>	JL
KiCad_Layout_Fmt	824	KiCad Layout Source Code <sup>4</sup>	
KiCad_Schematic_Fmt	825	KiCad Schematic Source Code <sup>4</sup>	SCH
Kotlin_Fmt	826	Kotlin Source Code <sup>4</sup>	KT



Format Name	Number	Format Description	File Extension
LFE_Fmt	827	LFE Source Code <sup>4</sup>	LFE
LOLCODE_Fmt	828	LOLCODE Source Code <sup>4</sup>	LOL
Lasso_Fmt	829	Lasso Source Code <sup>4</sup>	LAS, LASSO
Limbo_Fmt	830	Limbo Source Code <sup>4</sup>	
LiveScript_Fmt	831	LiveScript Source Code <sup>4</sup>	LS
M_Fmt	832	M Source Code <sup>4</sup>	M
MAXScript_Fmt	833	MAXScript Source Code <sup>4</sup>	MS
Markdown_Fmt	834	Markdown Source Code <sup>4</sup>	MD
Matlab_Fmt	835	Matlab Source Code <sup>4</sup>	M
Max_Code_Fmt	836	Max Source Code <sup>4</sup>	MXT
Mercury_Fmt	837	Mercury Source Code <sup>4</sup>	
Modelica_Fmt	838	Modelica Source Code <sup>4</sup>	MO
Modula_2_Fmt	839	Modula-2 Source Code <sup>4</sup>	MOD
Monkey_Fmt	840	Monkey Source Code <sup>4</sup>	MONKEY
Moocode_Fmt	841	Moocode Source Code <sup>4</sup>	MOO
NL_Fmt	842	NL Source Code <sup>4</sup>	NL
NSIS_Fmt	843	NSIS Source Code <sup>4</sup>	NSI
NetLogo_Fmt	844	NetLogo Source Code <sup>4</sup>	NLOGO
NewLisp_Fmt	845	NewLisp Source Code <sup>4</sup>	NL

Format Name	Number	Format Description	File Extension
Nginx_Fmt	846	Nginx Source Code <sup>4</sup>	VHOST
Nix_Fmt	847	Nix Source Code <sup>4</sup>	NIX
Nu_Fmt	848	Nu Source Code <sup>4</sup>	NU
OCaml_Fmt	849	OCaml Source Code <sup>4</sup>	
OpenCL_Fmt	850	OpenCL Source Code <sup>4</sup>	CL
OpenEdge_ABL_Fmt	851	OpenEdge ABL Source Code <sup>4</sup>	
OpenSCAD_Fmt	852	OpenSCAD Source Code <sup>4</sup>	SCAD
Ox_Fmt	853	Ox Source Code <sup>4</sup>	OX
Oxygene_Fmt	854	Oxygene Source Code <sup>4</sup>	OXYGENE
Oz_Fmt	855	Oz Source Code <sup>4</sup>	OZ
PAWN_Fmt	856	PAWN Source Code <sup>4</sup>	PWN
PLpgSQL_Fmt	857	PLpgSQL Source Code <sup>4</sup>	PLSQL
Pan_Fmt	858	Pan Source Code <sup>4</sup>	PAN
Parrot_Assembly_Fmt	859	Parrot Assembly Source Code <sup>4</sup>	PASM
PicoLisp_Fmt	860	PicoLisp Source Code <sup>4</sup>	
Pike_Fmt	861	Pike Source Code <sup>4</sup>	PIKE
Pony_Fmt	862	Pony Source Code <sup>4</sup>	PONY
Processing_Fmt	863	Processing Source Code <sup>4</sup>	PDE
PureBasic_Fmt	864	PureBasic Source Code <sup>4</sup>	PB

Format Name	Number	Format Description	File Extension
QMake_Fmt	865	QMake File <sup>4</sup>	
RAML_Fmt	866	RAML Source Code <sup>4</sup>	RAML
RDoc_Fmt	867	RDoc Source Code <sup>4</sup>	RDOC
REXX_Fmt	868	REXX Source Code <sup>4</sup>	REXX
Racket_Fmt	869	Racket Source Code <sup>4</sup>	
Ragel_Fmt	870	Ragel Source Code <sup>4</sup>	
Rascal_Fmt	871	Rascal Source Code <sup>4</sup>	RSC
Rebol_Fmt	872	Rebol Source Code <sup>4</sup>	REB, REBOL
Red_Fmt	873	Red Source Code <sup>4</sup>	RED
RenPy_Fmt	874	Ren'Py Source Code <sup>4</sup>	RPY
RenderScript_Fmt	875	RenderScript Source Code <sup>4</sup>	RS
Ring_Fmt	876	Ring Source Code <sup>4</sup>	RING
RobotFramework_Fmt	877	RobotFramework Source Code <sup>4</sup>	ROBOT
SAS_Fmt	878	SAS Source Code <sup>4</sup>	SAS
SPARQL_Fmt	879	SPARQL Source Code <sup>4</sup>	
SQL_Fmt	880	SQL Source Code <sup>4</sup>	
SQLPL_Fmt	881	SQLPL Source Code <sup>4</sup>	
SaltStack_Fmt	882	SaltStack Source Code <sup>4</sup>	SLS
Scheme_Fmt	883	Scheme Source Code <sup>4</sup>	

Format Name	Number	Format Description	File Extension
Scilab_Fmt	884	Scilab Source Code <sup>4</sup>	SCI
Squirrel_Fmt	885	Squirrel Source Code <sup>4</sup>	NUT
Stan_Fmt	886	Stan Source Code <sup>4</sup>	STAN
Stata_Fmt	887	Stata Source Code <sup>4</sup>	
Stylus_Fmt	888	Stylus Source Code <sup>4</sup>	STYL
SuperCollider_Fmt	889	SuperCollider Source Code <sup>4</sup>	SC
SystemVerilog_Fmt	890	SystemVerilog Source Code <sup>4</sup>	SV
TXL_Fmt	891	TXL Source Code <sup>4</sup>	TXL
Turing_Fmt	892	Turing Source Code <sup>4</sup>	T
Turtle_Fmt	893	Turtle Source Code <sup>4</sup>	TTL
UrWeb_Fmt	894	UrWeb Source Code <sup>4</sup>	UR, URS
Vim_script_Fmt	895	Vim script File <sup>4</sup>	VIM
Visual_Basic_Fmt	896	Visual Basic Source Code <sup>4</sup>	VB
WebAssembly_Fmt	897	WebAssembly Source Code <sup>4</sup>	WAT
WebIDL_Fmt	898	WebIDL Source Code <sup>4</sup>	WEBIDL
X10_Fmt	899	X10 Source Code <sup>4</sup>	X10
XQuery_Fmt	900	XQuery Source Code <sup>4</sup>	XQM
Xojo_Fmt	901	Xojo Source Code <sup>4</sup>	
Xtend_Fmt	902	Xtend Source Code <sup>4</sup>	XTEND

Format Name	Number	Format Description	File Extension
YANG_Fmt	903	YANG Source Code <sup>4</sup>	YANG
Zephir_Fmt	904	Zephir Source Code <sup>4</sup>	ZEP
eC_Fmt	905	eC Source Code <sup>4</sup>	EC
reStructuredText_Fmt	906	reStructuredText Source Code <sup>4</sup>	
xBASE_Fmt	907	xBASE Source Code <sup>4</sup>	
Windows_Installer_Fmt	908	MSI Windows Installer format	MSI
Autodesk_3ds_Max_Fmt	909	Autodesk 3ds Max format	MAX
PhotoDraw_Mix_Fmt	910	PhotoDraw MIX image	MIX
Softimage_SCN_Fmt	911	Softimage Scene SCN format	SCN
Parasolid_XT_Fmt	912	Parasolid ascii XT format	X_T
Parasolid_XB_Fmt	913	Parasolid binary XB format	X_B
IGES_Fmt	914	Initial Graphics Exchange Specification format	IGS
ACE_Archive_Fmt	915	ACE archive format	ACE
Grasshopper_GHX_Fmt	916	Grasshopper GHX format	GHX
MS_FrontPage_Macro_Fmt	917	Microsoft FrontPage macro file format	FPM
MS_AtWork_Fax_Fmt	918	Microsoft AtWork Fax format	AWD
MS_Image_Composer_Fmt	919	Microsoft Image Composer format	MIC
MS_Visual_InterDev_Fmt	920	Microsoft Visual InterDev web project items file	WDM
Macromedia_Flash_FLA_OLE_Fmt	921	Macromedia Flash FLA Project File OLE format	FLA

Format Name	Number	Format Description	File Extension
Corel_Draw_X4_Fmt	922	CorelDRAW version X4 onwards	CDRX
Ogg_Daala_Fmt	923	Ogg Daala video format	OGV
Ogg_BBC_Dirac_Fmt	924	Ogg BBC Dirac video format	OGV
PKCS_7_Fmt	925	PKCS #7 cryptographic format	P7S
Time_Stamped_Data_Fmt	926	Time-stamped data format	TSD
Sereal_Fmt	927	Sereal data serialization format	SRL
Associated_Signature_Simple_Fmt	928	Associated Signature Container Simple format	ASICS
Associated_Signature_Extended_Fmt	929	Associated Signature Container Extended format	ASICE
iBooks_Fmt	930	Apple iBooks format	IBOOKS
PDF_Forms_Data_Fmt	931	PDF Forms Data Format	FDF
PDF_XML_Forms_Data_Fmt	932	PDF XML Forms Data Format	XFDF
AxCrypt_Fmt	933	AxCrypt encrypted document	AXX
Unix_Archive_Fmt	934	Unix Archive ar format	AR
Berkeley_Btree_Database_Fmt	935	Berkeley DB btree database format	DB
Berkeley_Hash_Database_Fmt	936	Berkeley DB hash database format	DB
Berkeley_Log_Database_Fmt	937	Berkeley DB log database format	
Berkeley_Queue_Database_Fmt	938	Berkeley DB queue database format	
BitTorrent_Fmt	939	BitTorrent file format	TORRENT
Chrome_Extension_Fmt	940	Google Chrome Extension format	CRX

Format Name	Number	Format Description	File Extension
Dalvik_Executable_Fmt	941	Dalvik Executable dex format	DEX
Foxmail_Fmt	942	Foxmail email format	BOX
GRIB_Fmt	943	General Regularly-distributed Information in Binary form GRIB format	GRB, GRIB2
Zstandard_Fmt	944	Zstandard compression format	ZSTD
LZ4_Fmt	945	LZ4 compressed file	LZ4
MS_Money_Fmt	946	Microsoft Money format	MNY
NetCDF_Fmt	947	Network Common Data Form NetCDF format	NC
SAS6_Data_Fmt	948	SAS 6 Data storage format	SD2
SAS_Transport_Fmt	949	SAS Transport File XPORT format	XPT, XPORT
Snappy_Framed_Fmt	950	Snappy Framed compression format	SZ
Stata_Data_Fmt	951	Stata Data Format	DTA
SPSS_SAV_Fmt	952	SPSS Statistics Data File Format	SAV
Zoo_Archive_Fmt	953	Zoo Compressed Archive Format	ZOO
CDX_Fmt	954	ChemDraw CDX format	CDX
CDXML_Fmt	955	ChemDraw CDXML format	CDXML
BPG_Fmt	956	Better Portable Graphics BPG format	BPG
Apple_Icon_Fmt	957	Apple Icon image format	ICNS
NITF_Fmt	958	National Imagery Transmission Format NITF image	NTF, NITF

Format Name	Number	Format Description	File Extension
ERDAS_Imagine_Fmt	959	ERDAS Imagine image format	HFA
MS_Office_Temporary_Owner_Fmt	960	Microsoft Office temporary owner file	
EAC3_Audio_Fmt	961	Enhanced-AC3 (EAC3) Audio File format	AC3
COFF_Relocatable_Fmt	962	Common Object File Format (COFF) relocatable object	O
COFF_Executable_Fmt	963	Common Object File Format (COFF) executable	
COFF_Dynamic_Lib_Fmt	964	Common Object File Format (COFF) dynamic library	
ELF_Core_Fmt	965	ELF Core file	
Purify_Fmt	966	Rational Purify data file	PFY
Kryptel_Fmt	967	Kryptel encrypted file	EDC
Windows_Core_Dump_Fmt	968	Windows heap or mini core dump file	DMP
Qt_Prerendered_Font_Fmt	969	Qt Prerendered Font format	QPF2
AIX_Relocatable_Fmt	970	AIX/RISC COFF relocatable object	
AIX_Executable_Fmt	971	AIX/RISC COFF executable	
AIX_Dynamic_Lib_Fmt	972	AIX/RISC COFF dynamic library	A
HPUX_Relocatable_Fmt	973	HPUX/PA-RISC COFF relocatable object	
HPUX_Executable_Fmt	974	HPUX/PA-RISC COFF executable	
HPUX_Dynamic_Lib_Fmt	975	HPUX/PA-RISC COFF dynamic library	SL
XML_EBCDIC_Fmt	976	EBCDIC-encoded XML file	XML
MPEG_JVT_H264_Fmt	977	MPEG JVT-NAL sequence H264 video	264



Format Name	Number	Format Description	File Extension
Material_Exchange_Fmt	978	Material Exchange Format audio-video container format	MXF
MS_Agent_Character_Fmt	979	Microsoft Agent Character file	ACS
Quicken_Fmt	980	Quicken data file	QDF
MS_Outlook_Address_Fmt	981	Microsoft Outlook address file	WAB
MS_Answer_Wizard_Fmt	982	Microsoft Answer Wizard file	
ADX_Fmt	983	ADX audio file	ADX
System_Deployment_Image_Fmt	984	Microsoft System Deployment Image SDI format	SDI
Free_Lossless_Image_Fmt	985	Free Lossless Image Format (FLIF)	FLIF
DPX_Fmt	986	Digital Picture Exchange (DPX) image format	DPX
Avro_Fmt	987	Apache Avro binary format	AVRO
InstallShield_Archive_Fmt	988	InstallShield archive (early versions) format	EX_
Mac_Executable_Fmt	989	Mac OS-X (Mach-O) executable format	
GDSII_Fmt	990	GDSII data format	GDS
ActiveMime_Fmt	991	Microsoft ActiveMime (mso) documents	MSO
SmartCharts_Fmt	992	BizInt SmartCharts data format	CHP, CHRR
Webex_ARF_Fmt	993	Webex advanced network ARF recordings	ARF
Webex_WRF_Fmt	994	Webex local WRF recordings	WRF
PGP_NetShare_Fmt	995	Symantec PGP NetShare encrypted file	
Ability_WP_OLE_Fmt	996	Ability Write later versions format	AWW

Format Name	Number	Format Description	File Extension
Ability_SS_OLE_Fmt	997	Ability Spreadsheet later versions format	AWS
InDesign_IDML_Fmt	998	Adobe InDesign IDML format	IDML
Executable_JAR_Fmt	999	Executable Java Archive (jar) file	JAR
IDOL_IDX_Fmt	1000	IDOL Server IDX file	IDX
Android_Package_Kit_Fmt	1001	Android Package Kit (APK) format	APK
Android_Binary_XML_Fmt	1002	Android Binary XML (compressed by aapt) format	XML
Java_WAR_Fmt	1003	Java WAR file format	WAR
Java_EAR_Fmt	1004	Java EAR file format	EAR
Atom_Syndication_Fmt	1005	Atom Syndication Format	ATOM
RSS_Fmt	1006	RSS syndication XML format	RSS
SMIL_Fmt	1007	Synchronized Multimedia Integration Language (SMIL) XML format	SMIL
XSLT_Fmt	1008	Extensible Stylesheet Language Transformations (XSLT) format	XSL, XSLT
XML_Shareable_Playlist_Fmt	1009	XML Shareable Playlist Format (XSPF)	XSPF
FictionBook_Fmt	1010	FictionBook e-book XML format	FB2
Adobe_Premiere_Project_Fmt	1011	Adobe Premiere project format	PPJ
RDF_XML_Fmt	1012	RDF/XML format	RDF
Really_Simple_Discovery_Fmt	1013	Really Simple Discovery (RSD) XML format	RSD
SBML_Fmt	1014	Systems Biology Markul Language (SBML) XML format	SBML

Format Name	Number	Format Description	File Extension
SRU_Fmt	1015	Search/Retrieve via URL (SRU) XML format	SRU
SSML_Fmt	1016	Speech Synthesis Markup Language (SSML) XML format	SSML
PLS_Fmt	1017	Pronunciation Lexicon Specification (PLS) XML format	PLS
TEI_Fmt	1018	Text Encoding Initiative (TEI) XML format	TEI
METS_Fmt	1019	Metadata Encoding and Transmission Standard (METS) XML format	METS
MODS_Fmt	1020	Metadata Object Description Schema (MODS) XML format	MODS
Metalink_Fmt	1021	Metalink XML format	METALINK
Open_eBook_Fmt	1022	Open eBook (OEBPS) XML format	OPF
SRGS_Fmt	1023	Speech Recognition Grammar Specification (SRGS) XML format	SRGS
SPARQL_Results_Fmt	1024	SPARQL Query Results XML format	SRX
Adobe_XML_Data_Package_Fmt	1025	Adobe XML Data Package format	XDP
ESzigno_Fmt	1026	e-Szigno signed xml document	ES3
Mozilla_XUL_Fmt	1027	Mozilla XML User Interface Language (XUL) XML format	XUL
SyncML_Fmt	1028	Synchronization Markup Language (SyncML) XML format	XML
VoiceXML_Fmt	1029	VoiceXML (VXML) XML format	VXML
TI_Target_Configuration_Fmt	1030	Texas Instruments CCXML target configuration XML format	CCXML

Format Name	Number	Format Description	File Extension
LZFSE_Fmt	1031	Lempel-Ziv Finite State Entropy (LZFSE) compression format	LZFSE
Kindle_eBook_Fmt	1032	Amazon Kindle or Mobipocket eBook format	AZW, PRC
Oasis_Stream_Fmt	1033	Open Artwork System Interchange Standard (OASIS) format	OAS
Amazon_KFX_Fmt	1034	Amazon KFX eBook format	KFX
KTX_Fmt	1035	KTX image format	KTX
GMSH_Mesh_Fmt	1036	GMSH Mesh polygon format	MSH
Collada_DAE_Fmt	1037	Collada Digital Asset Exchange (DAE) format	DAE
YIN_Fmt	1038	YIN XML format	YIN
MPEG_Playlist_Fmt	1039	MPEG audio playlist format	M3U
Windows_Audio_Playlist_Fmt	1040	Windows Audio playlist format	WAX
DTS_Audio_Fmt	1041	DTS Coherent Acoustics audio format	DTS
Chemical_Markup_Language_Fmt	1042	Chemical Markup Language (CML) XML format	CML
CrystalMaker_Fmt	1043	CrystalMaker chemical format	CMDF
VTK_XML_Fmt	1044	Visualization Toolkit VTK XML format	VTU
IPFIX_Fmt	1045	IP Flow Information Export (IPFIX) format	IPFIX
Portable_Font_Resource_Fmt	1046	Portable Font Resource font format	PFR
MARC_Fmt	1047	Machine-Readable Cataloging (MARC21) format	MARC
MARC_XML_Fmt	1048	Machine-Readable Cataloging (MARC) XML format	XML

Format Name	Number	Format Description	File Extension
XAR_Fmt	1049	Extensible Archive (XAR) format	
Symbian_Installer_Fmt	1050	Symbian installer format	SIS
SO_Drawing_XML_Fmt	1051	OpenDocument format (OpenOffice 1/StarOffice 6.7) Drawing XML	SXD
SO_Text_Global_XML_Fmt	1052	OpenDocument format (OpenOffice 1/StarOffice 6.7) Writer Master document XML	SXG
ODF_Chart_Fmt	1053	ODF Chart	ODC
ODF_Database_Fmt	1054	ODF Database	ODB
ODF_Image_Fmt	1055	ODF Image	ODI
ODF_Text_Master_Fmt	1056	ODF Text Master	ODM
ODF_Text_Web_Fmt	1057	ODF Text Web	OTH
ODF_Chart_Template_Fmt	1058	ODF Chart Template	OTC
ODF_Formula_Template_Fmt	1059	ODF Formula Template	OTF
ODF_Drawing_Template_Fmt	1060	ODF Drawing/Graphics Template	OTG
ODF_Image_Template_Fmt	1061	ODF Image Template	OTI
ODF_Presentation_Template_Fmt	1062	ODF Presentation Template	OTP
ODF_Spreadsheet_Template_Fmt	1063	ODF Spreadsheet Template	OTS
ODF_Text_Template_Fmt	1064	ODF Text Template	OTT
ODF_Chart_XML_Fmt	1065	ODF Chart flat XML format	FODC
ODF_Drawing_XML_Fmt	1066	ODF Drawing/Graphics flat XML format	FODG

Format Name	Number	Format Description	File Extension
ODF_Formula_XML_Fmt	1067	ODF Formula flat XML format	FODF
ODF_Image_XML_Fmt	1068	ODF Image flat XML format	FODI
ODF_Presentation_XML_Fmt	1069	ODF Presentation flat XML format	FODP
ODF_Spreadsheet_XML_Fmt	1070	ODF Spreadsheet flat XML format	FODS
ODF_Text_XML_Fmt	1071	ODF Text flat XML format	FODT
ODF_Extension_Fmt	1072	ODF Extension format	OXT
StarView_Metafile_Fmt	1073	OpenOffice StarView MetaFile format	SVM
BBeB_LRF_eBook_Fmt	1074	Broad Band eBook (BBeB) in LRF format	LRF
GPG_Trust_DB_Fmt	1075	GPG trust database format	GPG
VICE_Emulator_Fmt	1076	VICE (Versatile Commodore Emulator) format	VSF
Portable_Game_Notation_Fmt	1077	Portable Game Notation chess format	PGN
Doom_WAD_Fmt	1078	Doom IWAD/PWAD format	WAD
Device_Tree_Blob_Fmt	1079	Linux Device Tree Blob format	DTB
BDF_Font_Fmt	1080	Glyph Bitmap Distribution Format	BDF
PC_Screen_Font_Fmt	1081	PC Screen Font format	PSF
JNLP_Fmt	1082	Java Network Launching Protocol	JNLP
XAML_Browser_Application_Fmt	1083	XAML Browser Application (XBAP) format	XBAP
MS_Binder_Fmt	1084	Microsoft Office Binder format	OBP
XAP_Fmt	1085	Microsoft Silverlight application (XAP) format	XAP

Format Name	Number	Format Description	File Extension
StuffIt_X_Fmt	1086	StuffIt X (SITX) archive format	SITX
FIG_Fmt	1087	Facility for Interactive Generation of figures (FIG) image format	FIG
XPIInstall_Fmt	1088	XPIInstall Cross-Platform Installer Module (XPI) format	XPI
XDF_Fmt	1089	Extensible Data Format (XDF) XML format	XDF
MXML_Fmt	1090	MXML UI markup language XML format	MXML
MusicXML_Fmt	1091	MusicXML format	MXL
Finale_Fmt	1092	Finale audio format	MUS
Spotfire_DXP_Fmt	1093	TIBCO Spotfire DXP data format	DXP
MS_Office_Theme_2007_Fmt	1094	Microsoft Office theme format	THMX
Adobe_AIR_Installer_Fmt	1095	Adobe AIR application installer package	AIR
Flex_Project_Fmt	1096	Adobe Flash Flex project file format	FXP
FoxPro_Fmt	1097	FoxPro compiled source format	FXP
VST_Preset_Fmt	1098	Virtual Studio Technology (VST) preset format	FXP
Mischief_Image_Fmt	1099	Mischief vector graphics image format	ART
FreeArc_Fmt	1100	FreeArc archive format	ARC
Autodesk_3ds_Fmt	1101	Autodesk 3ds format	3DS
Monkeys_Audio_Fmt	1102	Monkey's Audio format	APE
CALS_Fmt	1103	CALS raster image format	CAL

Format Name	Number	Format Description	File Extension
Dr_Halo_PAL_Fmt	1104	Dr Halo raster image PAL file format	PAL
DPG_Fmt	1105	Nintendo DS DPG video format	DPG
JPEG_XR_Fmt	1106	JPEG XR (extended range) image format	JXR, HDP
TCR_eBook_Fmt	1107	TCR (Text Compression for Reader) eBook format	TCR

<sup>1</sup>MHT, EML, and MBX files might return either format 2, 233, or 395, depending on the text in the file. In general, files that contain fields such as **To**, **From**, **Date**, or **Subject** are considered to be email messages; files that contain fields such as **content-type** and **mime-version** are considered to be MHT files; and files that do not contain any of those fields are considered to be text files.

<sup>2</sup>All CAT file extensions, for example CATDrawing, CATProduct, CATPart, and so on.

<sup>3</sup>This format is returned only if you enable source code identification. See [Source Code Identification, on page 105](#).

<sup>4</sup>This format is returned only if you enable extended source code identification. See [Source Code Identification, on page 105](#).



## 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](#) ..... 209
- [Coded Character Sets](#) ..... 217

### Multibyte and Bidirectional Support

The KeyView SDKs can process files that contain multibyte characters. A multibyte character encoding represents a single character with consecutive bytes. KeyView can also process text from files that contain bidirectional text. Bidirectional text contains both Latin-based text which is read from left to right, and text that is read from right to left (Hebrew and Arabic).

The following table indicates which character encodings are supported by KeyView for each format.

#### Multibyte and bidirectional support

Format	Single-byte	Multibyte	Bidirectional
<b>Archive</b>			
7-Zip (7Z)	n/a	n/a	n/a
AD1 Evidence file	n/a	n/a	n/a
ADJ	n/a	n/a	n/a
B1	n/a	n/a	n/a
BinHex (HGX)	n/a	n/a	n/a
Bzip2 (BZ2)	n/a	n/a	n/a
EnCase – Expert Witness Compression Format (E01)	n/a	n/a	n/a
GZIP (GZ)	n/a	n/a	n/a
ISO (ISO)	n/a	n/a	n/a
Java Archive (JAR)	n/a	n/a	n/a
Legato EMailXtender Archive (EMX)	n/a	n/a	n/a
MacBinary (BIN)	n/a	n/a	n/a
Mac Disk Copy Disk Image (DMG)	n/a	n/a	n/a
Microsoft Backup File (BKF)	n/a	n/a	n/a

### Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
Microsoft Cabinet format (CAB)	n/a	n/a	n/a
Microsoft Compiled HTML Help (CHM)	n/a	n/a	n/a
Microsoft Compressed Folder (LZH)	n/a	n/a	n/a
PKZip (ZIP)	n/a	n/a	n/a
Microsoft Outlook DBX (DBX)	Y	Y	Y
Microsoft Outlook Offline Storage File (OST)	Y	Y	Y
RAR Archive (RAR)	n/a	n/a	n/a
Tape Archive (TAR)	n/a	n/a	n/a
UNIX Compress (Z)	n/a	n/a	n/a
UUEncoding (UUE)	n/a	n/a	n/a
Windows Scrap File (SHS)	n/a	n/a	n/a
WinZip (ZIP)	n/a	n/a	n/a
<b>Binary</b>			
Executable (EXE)	n/a	n/a	n/a
Link Library (DLL)	n/a	n/a	n/a
<b>Computer-aided Design</b>			
AutoCAD Drawing (DWG)	Y	Y	Y
AutoCAD Drawing Exchange (DXF)	Y	Y	Y
CATIA formats (CAT)	Y	N	N
Microsoft Visio (VSD)	Y	Y	Y
<b>Database</b>			
dBase Database	Y	N	N
Microsoft Access (MDB)	Y	Y	N
Microsoft Project (MPP)	Y	Y	N
<b>Desktop Publishing</b>			
Microsoft Publisher	N	Y	N

### Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
<b>Display</b>			
Adobe Portable Document Format (PDF)	Y	Y <sup>1</sup>	Y
<b>Graphics</b>			
Computer Graphics Metafile (CGM)	Y	N	N
Corel DRAW (CDR)	n/a	n/a	n/a
DCX Fax System (DCX)	Y	N	N
DICOM – Digital Imaging and Communications in Medicine (DCM)	n/a	n/a	n/a
Encapsulated PostScript (EPS)	Y	N	N
Enhanced Metafile (EMF)	Y	Y	N
Graphic Interchange Format (GIF)	n/a	n/a	n/a
JBIG2	n/a	n/a	n/a
JPEG	n/a	n/a	n/a
JPEG 2000	n/a	n/a	n/a
Lotus AMIDraw Graphics (SDW)	n/a	n/a	n/a
Lotus Pic (PIC)	n/a	n/a	n/a
Macintosh Raster (PICT/PCT)	n/a	n/a	n/a
MacPaint (PNTG)	n/a	n/a	n/a
Microsoft Office Drawing (MSO)	n/a	n/a	n/a
Omni Graffle (GRAFFLE)	Y	N	N
PC PaintBrush (PCX)	n/a	n/a	n/a

<sup>1</sup>Multibyte PDFs are supported, provided the PDF document is created by using either Character ID-keyed (CID) fonts, predefined CJK CMap files, or ToUnicode font encodings, and does not contain embedded fonts. See the Adobe website and the Adobe Acrobat documentation for more information. Any multibyte characters that are not supported are displayed using the replacement character. By default, the replacement character is a question mark (?).

To determine the type of font encodings that are used in a PDF, open the PDF in Adobe Acrobat, and select File > Document Info > Fonts. If the Encoding column lists Custom or Embedded encodings, you might encounter problems converting the PDF.

**Multibyte and bidirectional support, continued**

<b>Format</b>	<b>Single-byte</b>	<b>Multibyte</b>	<b>Bidirectional</b>
Portable Network Graphics (PNG)	n/a	n/a	n/a
SGI RGB Image (RGB)	n/a	n/a	n/a
Sun Raster Image (RS)	n/a	n/a	n/a
Tagged Image File (TIFF)	Y	N	N
Truevision Targa (TGA)	n/a	n/a	n/a
Windows Animated Cursor (ANI)	n/a	n/a	n/a
Windows Bitmap (BMP)	n/a	n/a	n/a
Windows Icon Cursor (ICO)	n/a	n/a	n/a
Windows Metafile (WMF)	Y	Y	N
WordPerfect Graphics 1 (WPG)	Y	N	N
WordPerfect Graphics 2 (WPG)	Y	N	N
<b>Mail</b>			
Documentum EMCMP 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
Microsoft Outlook vCard Contact			
Text Mail (MIME)	Y	Y	Y

**Multibyte and bidirectional support, continued**

<b>Format</b>	<b>Single-byte</b>	<b>Multibyte</b>	<b>Bidirectional</b>
Transport Neutral Encapsulation Format	Y	Y	Y
<b>Multimedia</b>			
Advanced Systems Format (ASF)	n/a	n/a	n/a
Audio Interchange File Format (AIFF)	n/a	n/a	n/a
Microsoft Wave Sound (WAV)	n/a	n/a	n/a
MIDI (MID)	n/a	n/a	n/a
MPEG 1 Audio Layer 3 (MP3)	n/a	n/a	n/a
MPEG 1 Video (MPG)	n/a	n/a	n/a
MPEG 2 Audio (MPEGA)	n/a	n/a	n/a
MPEG 4 Audio (MP4)	n/a	n/a	n/a
NeXT/Sun Audio (AU)	n/a	n/a	n/a
QuickTime Movie (QT/MOV)	n/a	n/a	n/a
Windows Video (AVI)	n/a	n/a	n/a
<b>Presentations</b>			
Apple iWork Keynote (GZ)	Y	Y	N
Applix Presents (AG)	character set 1252 only	N	N
Corel Presentations (SHW)	character set 1252 only	N	N
Extensible Forms Description Language (XFD)	Y	Y	N
Lotus Freelance Graphics 2 (PRE)	character set 850 only	N	N
Lotus Freelance Graphics (PRZ)	Y	Japanese, Simple Chinese, Traditional Chinese, Thai only	N
Macromedia Flash (SWF)	Y	Y	N
Microsoft OneNote	Y	Y	N
Microsoft PowerPoint PC (PPT)	character set 1252 only	Traditional Chinese only	N

**Multibyte and bidirectional support, continued**

<b>Format</b>	<b>Single-byte</b>	<b>Multibyte</b>	<b>Bidirectional</b>
Microsoft PowerPoint Windows (PPT)	Y	Japanese, Simple Chinese, Traditional Chinese, Korean only	Hebrew only
Microsoft PowerPoint Macintosh (PPT)	Y	N	N
Microsoft PowerPoint Windows XML 2007 and 2010 (PPTX)	Y	Y	Y
OASIS Open Document (ODP)	Y	Y	N
OpenOffice Impress (ODP)	Y	Y	N
StarOffice Impress (ODP)	Y	Y	N
<b>Spreadsheets</b>			
Apple iWork Numbers (GZ)	Y	Y	N
Applix Spreadsheets (AS)	character set 1252 only	N	N
Comma Separated Values (CSV)	character set 1252 only	N	N
Corel Quattro Pro (QPW/WB3)	Y	N	N
Data Interchange Format (DIF)	Y	Y	Y <sup>1</sup>
Lotus 1-2-3 (123)	Y	Y	Y
Lotus 1-2-3 (WK4)	Y	Y	N
Lotus 123 Charts (123)	Y	Y	N
Microsoft Excel Charts (XLS)	Y	Y	N
Microsoft Excel Macintosh (XLS)	Y	N	N
Microsoft Excel Windows (XLS)	Y	Y	Y <sup>2</sup>
Microsoft Excel Windows XML 2007 (XLSX)	Y	Y	N
Microsoft Office Excel Binary Format (XLSB)	Y	Y	N
Microsoft Works Spreadsheet (S30/S40)	Y	N	N
OASIS Open Document (ODS)	Y	Y	N

**Multibyte and bidirectional support, continued**

<b>Format</b>	<b>Single-byte</b>	<b>Multibyte</b>	<b>Bidirectional</b>
OpenOffice Calc (ODS)	Y	Y	N
StarOffice Calc (ODS)	Y	Y	N
<b>Text and Markup</b>			
ANSI (TXT)	Y	Y	Y <sup>2</sup>
ASCII (TXT)	Y	Y	Y <sup>2</sup>
HTML (HTM)	Y	Y	Y <sup>2, 2</sup>
Microsoft Excel Windows XML 2003	Y	Y	Y
Microsoft Word for Windows XML 2003	Y	Y	Y
Microsoft Visio XML 2003	Y	Y	Y
Rich Text Format (RTF)	Y	Y	Y <sup>3</sup>
Unicode HTML	Y	Y	Y <sup>2, 3</sup>
Unicode Text (TXT)	Y	Y	Y <sup>2</sup>
XHTML	Y	Y	Y <sup>3</sup>
XML	Y	Y	Y
<b>Word Processing</b>			
Adobe Maker Interchange Format (MIF)	character set 1252 only	N	N
Apple iChat Log (ICHAT)	Y	Y	N
Apple iWork Pages (GZ)	Y	Y	N
Applix Words (AW)	character set 1252 only	N	N
DisplayWrite (IP)	character set 500, 1026 only	N	N
Folio Flat File (FFF)	character set 1252 only	N	N
Founder Chinese E-paper Basic (CEB)	Y	Y	N
Fujitsu Oasys (OA2)	Y	Y	N

**Multibyte and bidirectional support, continued**

<b>Format</b>	<b>Single-byte</b>	<b>Multibyte</b>	<b>Bidirectional</b>
Hangul (HWP)	Y	Y	N
Health level7 (HL7)	Y	Y	Y
IBM DCA/RTF (DC)	character sets 500, 1026 only	N	N
JustSystems Ichitaro (JTD)	Y	Y	N
Lotus AMI Pro (SAM)	Y	Simple Chinese, Traditional Chinese, Japanese, Thai only	Y
Lotus AMI Professional Write Plus (AMI)	Y	Simple Chinese, Traditional Chinese, Japanese, Thai only	N
Lotus Word Pro (LWP)	Y	Y	Y <sup>3</sup>
Lotus SmartMaster (MWP)	Y	Y	N
Microsoft Word PC (DOC)	character set 1252 only	N	N
Microsoft Word Windows V1-2 (DOC)	Y	N	N
Microsoft Word Windows V6, 7, 8, 95 (DOC)	Y	Y	Hebrew only <sup>3</sup>
Microsoft Word Windows V97 through 2003 (DOC)	Y	Y	Y <sup>3</sup>
Microsoft Word Windows XML 2007 and 2010 (DOCX)	Y	Y	Y <sup>3</sup>
Microsoft Word Macintosh (DOC)	Y	N	Y <sup>3</sup>
Microsoft Works (WPS)	Y	Japanese only	N
Microsoft Write (WRI)	Y	Japanese only	N
OASIS Open Document (ODT)	Y	Y	N
Omni Outliner (OO3)	Y	Y	N
OpenOffice Writer (ODT)	Y	Y	N
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

<sup>1</sup>The text direction in the output file might not be correct.

<sup>2</sup>In Export SDK, a bidirectional right-to-left (RTL) tag is extracted from this format and included in the direction element (`<dir=RTL>`) of the output.

## Coded Character Sets

This section lists which character set you can use to specify the target character set. The coded character sets are enumerated in `kvtypes.h` and defined in the Export class.

#### Code Character Sets

Coded Character Set	Description	Can be set as target charset?
KVCS_UNKNOWN	Unknown character set	N
KVCS_SJIS	Japanese (uses multibyte encoding), cp932	Y
KVCS_GB	Simplified Chinese (China, Singapore, Malaysia) 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**

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

<b>Coded Character Set</b>	<b>Description</b>	<b>Can be set as target charset?</b>
KVCS_857	DOS Turkish	Y
KVCS_860	DOS Portuguese	Y
KVCS_861	DOS Icelandic	Y
KVCS_862	DOS Hebrew	Y
KVCS_863	DOS Canadian French	Y
KVCS_864	DOS Arabic	Y
KVCS_865	DOS Nordic	Y
KVCS_866	DOS Cyrillic Russian	Y
KVCS_869	DOS Greek 2	Y
KVCS_874	Thai	Y
KVCS_PDFMACDOC	PDF MAC DOC	N
KVCS_PDFWINDOC	PDF WIN DOC	N
KVCS_STDENC	Adobe Standard Encoding	N
KVCS_PDFDOC	Adobe standard PDF character set	N
KVCS_037	EBCDIC code page 037	Y
KVCS_1026	EBCDIC code page 1026	Y
KVCS_500	EBCDIC code page 500	Y
KVCS_875	EBCDIC code page 875	Y
KVCS_LMBCS	Lotus multibyte character set Group 1 and Group 2	N
KVCS_UNICODE	Unicode, UCS-2	N
KVCS_UTF16	16-bit Unicode transformation format	N
KVCS_UTF8	8-bit Unicode transformation format	Y
KVCS_UTF7	7-bit Unicode transformation format	Y
KVCS_2022_JP	ISO 2022-JP, Japanese mail and news safe encoding (JIS-7)	N

**Code Character Sets, continued**

<b>Coded Character Set</b>	<b>Description</b>	<b>Can be set as target charset?</b>
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_	Adobe-CNS1-2 character collection	N

**Code Character Sets, continued**

<b>Coded Character Set</b>	<b>Description</b>	<b>Can be set as target charset?</b>
CNS1		
KVCS_2022_JP_8	ISO 2022-JP, Japanese mail and news safe encoding (JIS8)	N
KVCS_720	Arabic DOS-720	Y
KVCS_VISCII	Vietnamese VISCII	Y
KVCS_8859_10	ISO 8859-10 (Latin 6 Nordic)	Y <sup>1</sup>
KVCS_8859_13	ISO 8859-13 (Latin 7 Baltic)	Y 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)	Y1
KVCS_57005	ISCII Telugu (x-iscii-te)	Y1
KVCS_57006	ISCII Assamese (x-iscii-as)	Y1
KVCS_57007	ISCII Oriya (x-iscii-or)	Y1
KVCS_57008	ISCII Kannada (x-iscii-ka)	Y1
KVCS_57009	ISCII Malayalam (x-iscii-ma)	Y1
KVCS_57010	ISCII Gujarathi (x-iscii-gu)	Y1
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

<sup>1</sup>The character set cannot be forced as output in Export SDK and Viewing SDK because the character

set is not supported by the major browsers.

# Appendix D: Extract and Format Lotus Notes Subfiles

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

- [Overview](#) .....223
- [Customize XML Templates](#) .....223
- [Template Elements and Attributes](#) .....225
- [Date and Time Formats](#) .....230

## 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 225](#).
3. Extract the Lotus database file.

## Use Demo Templates

For testing purposes, you can extract notes by using a set of demo templates, which are provided to demonstrate the proper usage of all the XML elements and attributes, because the default templates do not use all the XML elements.

The demo templates are available at:

*install\OS\bin\NSFtemplates*

### To use the demo XML templates

1. In the `formats.ini` file, set the following parameter.

```
[nsfsr]
UseDemoTemplate=1
```

2. In the `main.xml` file, uncomment the following section.

```
<ifini name="UseDemoTemplate" text="1">
  <call file="demo.xml"/>
  <quit/>
</ifini>
```

## Use Old Templates

For testing purposes, you can extract notes by using legacy templates, which produce MHTML output. You can generate similar output by disabling the XML templates, but using the old templates enables you to see the XML code and compare it to the standard and demo templates.

### To use the old XML templates

1. In the `formats.ini` file, set the following parameter.

```
[nsfsr]
UseOldTemplate=1
```

2. In the `main.xml` file, uncomment the following section.

```
<ifini name="UseOldTemplate" text="1">
  <call file="default_old.xml">
  <quit>
</ifini>
```

## Disable XML Templates

For testing purposes, you can disable XML templates; KeyView extracts the notes in MHTML format. You can compare the MHTML output directly by the NSF reader with the MHTML output indirectly by the NSF reader through the XML templates.



**To disable XML templates**

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

```
[nsfsr]  
ExtractByTemplate=0
```

**Template Elements and Attributes**

This section lists the valid XML elements and attributes that you can use when creating or modifying templates. See the demo templates for examples.

**Conditional Elements**

The following table lists the valid conditional elements.

**Conditional elements**

Element	Description
<keyview>	The KeyView XML template container ("root") element
<if*>	<p>If the condition from the comparison is true, process the XML. Conditions can be nested up to 25 levels deep.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"><li>• <code>name</code>. (Required) The name of the main item to compare to <code>item</code> or <code>text</code>.</li><li>• <code>item</code>. (Required if no <code>text</code>) The name of the item to compare to the item specified by <code>name</code>.</li><li>• <code>text</code>. (Required if no <code>item</code>) The text to compare to the item specified by <code>name</code>.</li></ul>
<ifex>, <ifnx>	<p>If <code>name</code> item exists and has a <code>text</code> value or not.</p> <p>The Notes item might have a value that cannot be converted to text, such as an image.</p>
<ifeq>, <ifne>, <iflt>, <ifle>, <ifgt>, <ifge>	<p>Respectively, if <code>text</code> ==, !=, &lt;, &gt;, &lt;=, &gt;, &gt;=.</p> <p>Text comparison uses a case-insensitive string compare.</p>
<iftdeq>, <iftdne>, <iftdlt>, <iftdle>, <iftdgt>, <iftdge>	<p>Respectively, if time/date ==, !=, &lt;, &gt;, &lt;=, &gt;, &gt;=.</p> <p>Time/date comparison converts dates to text in local time using the Notes default, <code>TZFMT_NEVER</code>, because Notes also sometimes converts fields to text internally. For example:</p> <p><code>text="06/30/2005 02:52:04 PM"</code></p>

### Conditional elements, continued

Element	Description
<iftzeq>, <iftzne>	Respectively, if the time zone equals or does not equal the comparison text, for example CDT, EST, and so on.
<ifini>	If the value of the INI option specified in name equals the text value.
<else>	If the condition from the last <if> or <switch> was false, process XML.
<switch>	<p>If a name value exists, process XML.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required) The name of the main item to compare in &lt;case&gt; subelements.</li> </ul>
<case>	<p>If the comparison condition is true, process XML, then stop processing the rest of &lt;switch&gt;.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>text. (Required) The text to compare to the name item of &lt;switch&gt;.</li> </ul>
<default>	If all <case> conditions were false, process XML. This element must be the last element in <switch>, after all the <case> elements. Any <case> elements after the <default> element are ignored.
<for>	<p>If a name value exists, process XML. Process for each part of the name item.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required) The name of the main item.</li> <li>max. (Optional) The maximum index to process. By default, all are processed.</li> </ul>
<index>	Output <for> loop index (1-based). <index> is only valid within a <for> element.

## Control Elements

The following table lists the valid control elements.

### Control Elements

Element	Description
<call>	<p>Call another XML template. You can nest templates up to 10 levels deep.</p> <p><b>Attributes</b></p>

### Control Elements, continued

Element	Description
	<ul style="list-style-type: none"> <li>file. (Required) The template file name. This name must be unique.</li> </ul>
<log>	<p>Log message to the NSF log file.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>text. (Required) The text to log.</li> <li>type. (Optional) The type of log message. The following values are valid: <ul style="list-style-type: none"> <li>ERROR</li> <li>WARN</li> <li>INFO</li> <li>DIAG (the default option)</li> <li>DEBUG</li> <li>DUMP</li> </ul> </li> </ul>
<quit>	<p>Stop processing the template. Exits without error.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>text. (Optional) The text to log.</li> <li>type. (Optional) The type of log message. See <a href="#">&lt;log&gt;</a>, above.</li> </ul>
<stop>	<p>Stop processing the template. Exits with an ERROR log message.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>text. (Required) The text to log.</li> </ul>

## Data Elements

The following table lists the valid data elements.

### Data elements

Element	Description
<text>	<p>Output text.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> </ul>
<rich>	<p>Output rich text (MHTML). Images are output in the next part or parts of the MHTML, after the first &lt;HTML&gt; part.</p>

### Data elements, continued

Element	Description
	<b>Attributes</b> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> </ul>
<body>	Output the message body in rich text (MHTML). As with <a href="#">&lt;rich&gt;</a> , on the previous page, images are output in the next part or parts of the MHTML.
<form>	Output the message form (usually \$Body field) in rich text (MHTML). <b>Attributes</b> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> </ul>
<addr>	Output an address. <b>Attributes</b> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> <li>type. (Optional) The type of address to output. Set this attribute to CN (Common Name), which is the only supported type.</li> </ul>
<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 <a href="#">Date and Time Formats, on page 230</a> for a list of all Notes and KeyView date and time formats and integer values. <b>Attributes</b> <ul style="list-style-type: none"> <li>format. (Optional. Omit to reset to defaults) The Notes and KeyView date and time format. You can set the following formats:               <ul style="list-style-type: none"> <li>TD=int. The Time Date format (TDFMT_*)</li> <li>TS=int. The Time Show format (TSFMT_*)</li> <li>TT=int. The Time Time format (TTFMT_*)</li> <li>TZ=int. The Time Zone format (TZFMT_*)</li> <li>KV=int. The KeyView date and time format</li> </ul> </li> </ul> <p>where int is an integer value that corresponds to the desired format.</p> <p>Separate multiple formats with commas. For example:</p> <p>format="TD=0,TS=2,TT=1,TZ=1,KV=55"</p>
<date>	Output a Notes date. <b>Attributes</b> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> </ul>

### Data elements, continued

Element	Description
	<ul style="list-style-type: none"> <li>format. (Optional) See <a href="#">&lt;format&gt;, on the previous page</a>. You can set the following values: <ul style="list-style-type: none"> <li>TD</li> <li>TS</li> <li>TT</li> <li>TZ</li> </ul> </li> </ul>
<date_kv>	<p>Output a KeyView date.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of the item to output.</li> <li>format. (Optional) See <a href="#">&lt;format&gt;, on the previous page</a>. You can set the following values: <ul style="list-style-type: none"> <li>TZ</li> <li>KV</li> </ul> </li> </ul>
<time>	<p>Output a time range, for example 1 hour, 30 minutes.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The item name of the start date or time.</li> <li>item. (Required) The item name of the end date or time.</li> </ul>
<zone>	<p>Output a Notes time zone mnemonic, for example MST.</p> <p><b>Attributes</b></p> <ul style="list-style-type: none"> <li>name. (Required if there is no parent) The name of date item to output.</li> </ul>
<zone_utc>	<p>Output a time zone as UTC, for example (UTC-06:00).</p>
<logo>	<p>Output the mail header logo.</p> <p>The image link is included in the output; the actual image is output to a different part of the MHTML subfile.</p>
<image>	<p>Output an image.</p> <p>The image link is included in the output; the actual image is output to the MHTML next part, as with <a href="#">&lt;rich&gt;, on page 227</a> and <a href="#">&lt;body&gt;, on the previous page</a>.</p>
<image_uri>	<p>Output an image URI, in quotation marks. The actual image is output to a different part of the MHTML subfile.</p> <p><b>Attributes</b></p>

### Data elements, continued

Element	Description
	<ul style="list-style-type: none"><li>• <code>link</code>. (Required if there is no <code>file</code>) The image link, such as a form or title name. For example:<ul style="list-style-type: none"><li>• <code>link="StdNotesLtr0"</code></li></ul></li><li>• <code>file</code>. (Required if there is no <code>link</code>) The name of the image file. The file must exist in the <code>.././templates/images</code> directory. For example:<ul style="list-style-type: none"><li>• <code>file="boxcheck.gif"</code></li></ul></li></ul>

## Date and Time Formats

This section lists the supported Notes and KeyView date and time formats for use with `<format>`, `<date>`, and `<date_kv>`.

### Lotus Notes Date and Time Formats

This section lists supported Lotus Notes date and time formats, and the integer values that specify each one.

#### Lotus Notes date and time formats

Format	Integer Value	Description
TDFMT_FULL	0	(The Notes default) Year, month, and day
TDFMT_CPARTIAL	1	Month and day, year if not this year
TDFMT_PARTIAL	2	Month and day
TDFMT_DPARTIAL	3	Year and month
TDFMT_FULL4	4	Four-digit year, month, and day
TDFMT_CPARTIAL4	5	Month and day, four-digit year if not this year
TDFMT_DPARTIAL4	6	Four-digit year and month
TTFMT_FULL	0	(Notes default) Hour, minute, and second
TTFMT_PARTIAL	1	Hour and minute
TTFMT_HOUR	2	Hour

#### Lotus Notes date and time formats, continued

Format	Integer Value	Description
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
<b>12-Hour and 24-Hour Time Formats</b>		
KVDTF_P	P	1
KVDTF_P_hmm	P h:mm	2
KVDTF_hmm_P	h:mm P	3
KVDTF_P_hhmm	P hh:mm	4
KVDTF_hhmm_P	hh:mm P	5
KVDTF_P_hmmss	P h:mm:ss	6
KVDTF_hmmss_P	h:mm:ss P	7
KVDTF_P_hhmmss	P hh:mm:ss	8
KVDTF_hhmmss_P	hh:mm:ss P	9
KVDTF_Hmm	H:mm	10
KVDTF_HHmm	HH:mm	11
KVDTF_mmss	mm:ss	12
KVDTF_Hmmss	H:mm:ss	13
KVDTF_HHmmss	HH:mm:ss	14
<b>Numerical Date Formats with Slashes</b>		
KVDTF_mmsdd	mm/dd	15
KVDTF_msdsyy	m/d/yy	16
KVDTF_mmsddsyy	mm/dd/yy	17
KVDTF_mmsddsyyyy	mm/dd/yyyy	18
KVDTF_ddsmm	dd/mm	19



### KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_ddsmsyy	dd/mm/yy	20
KVDTF_ddsmsyy_Hmm	dd/mm/yy H:mm	21
KVDTF_ddsmm_P_hmm	dd/mm P h:mm	22
KVDTF_ddsmm_hmm_P	dd/mm h:mm P	23
KVDTF_ddsmm_P_hhmm	dd/mm P hh:mm	24
KVDTF_ddsmm_hhmm_P	dd/mm hh:mm P	25
KVDTF_ddsmsyy_P_hmm	dd/mm/yy P h:mm	26
KVDTF_ddsmsyy_hmm_P	dd/mm/yy h:mm P	27
KVDTF_ddsmsyy_P_hmmss	dd/mm/yy P h:mm:ss	28
KVDTF_ddsmsyy_hmmss_P	dd/mm/yy h:mm:ss P	29
KVDTF_ddsmsyy_P_hhmmss	dd/mm/yy P hh:mm:ss	30
KVDTF_ddsmsyy_hhmmss_P	dd/mm/yy hh:mm:ss P	31
KVDTF_yysmmsdd_P_hhmmss	yy/mm/dd P hh:mm:ss	32
KVDTF_yysmmsdd_hhmmss_P	yy/mm/dd hh:mm:ss P	33
KVDTF_msdsyy_Hmm	m/d/yy H:mm	34
KVDTF_mmsddsyy_Hmm	mm/dd/yy H:mm	35
KVDTF_msdsyy_P_hmm	m/d/yy P h:mm	36
KVDTF_msdsyy_hmm_P	m/d/yy h:mm P	37
KVDTF_mmsddsyy_hmm_P	mm/dd/yy h:mm P	38
KVDTF_mmsdd_P_hhmm	mm/dd P hh:mm	39
KVDTF_mmsdd_hhmm_P	mm/dd hh:mm P	40
KVDTF_mmsddsyy_P_hhmmss	mm/dd/yy P hh:mm:ss	41
KVDTF_mmsddsyy_hhmmss_P	mm/dd/yy hh:mm:ss P	42
KVDTF_msd	m/d	43
KVDTF_yysm	yy/m	44
KVDTF_yysmm	yy/mm	45

### KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_ysmsd	yy/m/d	46
KVDTF_ysmmsdd	yy/mm/dd	47
KVDTF_yysmmsdd	yyyy/mm/dd	48
<b>Numerical Date Formats with Dashes</b>		
KVDTF_ddammayy	dd-mm-yy	49
KVDTF_mmadd	mm-dd	50
KVDTF_mmayy	mm-yy	51
KVDTF_yyammadd	yy-mm-dd	52
KVDTF_yyyymmadd	yyyy-mm-dd	53
KVDTF_yyyymmaddaHHmmss	yyyy-mm-dd-HH:mm:ss	54
<b>Numerical Date Formats with Dots</b>		
KVDTF_yyomod	yy.m.d	55
KVDTF_yyommodd	yy.mm.dd	56
KVDTF_mod	m.d	57
KVDTF_mmodd	mm.dd	58
<b>Numerical and String Date Formats with Dashes, Commas, and Spaces</b>		
KVDTF_ddaMon	dd-Mon	59
KVDTF_daMonayy	d-Mon-yy	60
KVDTF_ddaMonayy	dd-Mon-yy	61
KVDTF_ddaMonayyyy	dd-Mon-yyyy	62
KVDTF_Mon	Mon	63
KVDTF_Monayy	Mon-yy	64
KVDTF_Monayyyy	Mon-yyyy	65
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

### KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_Mon_yy	Mon yy	69
KVDTF_Monc_yy	Mon, yy	70
KVDTF_Month	Month	71
KVDTF_Monthayy	Month-yy	72
KVDTF_Month_yy	Month yy	73
KVDTF_Monthc_yy	Month, yy	74
KVDTF_Monthayyyy	Month-yyyy	75
KVDTF_Month_yyyy	Month yyyy	76
KVDTF_Monthc_yyyy	Month, yyyy	77
KVDTF_Mon_dc_yyyy	Mon d, yyyy	78
KVDTF_d_Monc_yyyy	d Mon, yyyy	79
KVDTF_yyyy_Mon_d	yyyy Mon d	80
KVDTF_Month_dc_yyyy	Month d, yyyy	81
KVDTF_d_Monthc_yyyy	d Month, yyyy	82
KVDTF_yyyy_Month_d	yyyy Month d	83
<b>Weekday Date Formats</b>		
KVDTF_wday	wday	84
KVDTF_Weekday	Weekday	85
KVDTF_wdayc_Mon_dc_yyyy	wday, Mon d, yyyy	86
KVDTF_Weekdayc_Month_dc_yyyy	Weekday, Month d, yyyy	87
KVDTF_Weekdayc_d_Monthc_yyyy	Weekday, d Month, yyyy	88

## Appendix E: Export Tokens

This section contains an alphabetized list of the Export tokens.

Tokens are special strings inserted into the `KVXMLTemplate` structure, `XmlTemplateInfo` class, and template files. They are placeholders for markup that appears in the XML output. For example, the `$CHARSET` token marks the place in the XML output where the name of the source document's character set is inserted. It would be used in the tag `< charset=$CHARSET>`.

Word documents are split into blocks by heading level. By default, each section of text between Heading Level 1 headings will be a single block.

See the template files for examples of how to use tokens.

### Export Tokens

Token	Description
<code>\$ANCHOR</code>	Inserts an anchor for a heading level (h2-h6) for the current block.
<code>\$BASE</code>	Inserts the base URL for the XML file. Use in the <code>&lt;base href=xx&gt;</code> tag.
<code>\$CHARSET</code>	Inserts the character set of the source document, if that information is ascertainable. <a href="#">Supported Formats, on page 119</a> lists the file formats for which character set information can be determined.
<code>\$CONTENT</code>	Inserts the content of the metadata field specified by the <code>\$NAME</code> token. This token is used in conjunction with the <code>\$SUMMARY</code> , <code>\$USERSUMMARY</code> , and <code>\$NAME</code> tokens to insert source document metadata into the XML output. An example of this token's use is:  <code>pszUserSummary=&lt;MetaData name="\$NAME" content="\$CONTENT"&gt;</code>  <a href="#">Supported Formats, on page 119</a> lists file formats that support metadata.
<code>\$ENDNOTE</code>	Inserts endnotes from the current block at this point in the output stream. Currently implemented for Microsoft Word documents only.
<code>\$ENDNOTEALL</code>	Inserts all endnotes at this point in the output stream. Currently implemented for Microsoft Word documents only.
<code>\$FOOTER</code>	Inserts the footer from the current block at this point in the output stream.
<code>\$FOOTNOTE</code>	Inserts footnotes from the current block at this point in the output stream. Currently implemented for Microsoft Word documents only.
<code>\$FOOTNOTEALL</code>	Inserts all footnotes at this point in the output stream. Currently implemented for Microsoft Word documents only.
<code>\$HEADER</code>	Inserts the header from the current block at this point in the output stream.

## Export Tokens, continued

Token	Description
\$MAINURL	Inserts the URL to the file containing the start of the generated XML, that is, the main output stream.
\$NAME	<p>Inserts the name of a metadata field. This token is used in conjunction with the <a href="#">\$SUMMARY, below</a>, <a href="#">\$USERSUMMARY, on the next page</a>, and <a href="#">\$CONTENT, on the previous page</a> tokens to insert source document metadata into the XML output. An example of this token's use is:</p> <pre>pszUserSummary=&lt;MetaData name="\$NAME" content="\$CONTENT"&gt;</pre> <p>The section <a href="#">Supported Formats, on page 119</a> lists file formats that support metadata.</p>
\$NEXT	Inserts the anchor to the next block. If this is the last block, a link to the first block is inserted.
\$PREV	Inserts the anchor to the previous block. If the current block is the first block, a link to the last block is inserted.
\$STYLESHEET	Inserts the path to the style sheet.
\$SUMMARY	<p>Inserts the data from standard metadata fields using the markup provided in the pszUserSummary member of the structure KVXMLTemplate. Standard fields are enumerated from 0 to 33 in KVSumType in kvtypes.h. See the tokens <a href="#">\$USERSUMMARY, on the next page</a>, <a href="#">\$NAME, above</a>, and <a href="#">\$CONTENT, on the previous page</a>.</p> <p>The section <a href="#">Supported Formats, on page 119</a> lists file formats that support metadata.</p>
\$SUMMARYNN	<p>Inserts the data from a <i>specified</i> metadata field. <i>NN</i> is a number from 0 through 33 enumerated in the KVSumType structure in kvtypes.h. An example of this token's use is:</p> <pre>pszMainTop= &lt;title&gt; \$SUMMARY01 &lt;/head&gt; &lt;body&gt;</pre> <p>The section <a href="#">Supported Formats, on page 119</a> lists file formats that support metadata.</p>
\$SPLITBLOCKNUMBER	Inserts the page number for each block generated as a result of bHardPageMakesNewBlock or lcbBlockSize.
\$TOC	Inserts the table of contents at this point in the current output stream. This token is typically embedded in pszMainTop.
\$TOCB	Inserts the table of contents at this point for the current block.
\$TOCBE	Inserts the beginning entry for the table of contents at this point in the current output stream.

### Export Tokens, continued

Token	Description
\$TOCE	Inserts a table of contents entry at this point in the current output stream.
\$TOCTE	Inserts a text entry without XML markup at this point in the current output stream.
\$TOCPE	Inserts a partial table of contents entry at this point in the current output stream. XML tags are removed; however, character entities are retained. This enables angle brackets to appear in the table of contents entries (for example, <text>). Without this token, <text> would be interpreted as a non-valid XML tag and would be ignored by the browser.
\$TOPANCHOR	Inserts the anchor for the top heading level (h1) for the current block.
\$USERCB	Triggers the callback function <code>UserCB()</code> and identifies the callback used in the function.
\$USERSUMMARY	<p>Inserts the data from every valid non-standard metadata field using the markup provided in the <code>pszUserSummary</code> member of the <code>KVXMLTemplate</code> structure. Non-standard metadata are any fields not listed from 0 to 33 in <code>KVSumType</code>, such as user-defined fields (for example, custom property fields in Word documents), or fields that are unique to a particular file type (for example, "Artist" or "Genre" fields in MP3 files). See the tokens <a href="#">\$SUMMARY</a>, on the previous page, <a href="#">\$NAME</a>, on the previous page, and <a href="#">\$CONTENT</a>, on page 236.</p> <p>The section <a href="#">Supported Formats</a>, on page 119 lists file formats that support metadata.</p>
\$XANCHOR	<p>Inserts the anchor to an extra file into the XML output.</p> <p>The contents of the extra file is defined by <code>pszXFile</code>, and the block generated by this token is defined by <code>pszXStartBlock</code> and <code>pszXEndBlock</code>.</p>

# Appendix F: File Format Detection

This section describes how file formats are detected in the KeyView Export SDK.

• <a href="#">Introduction</a> .....	239
• <a href="#">Extract Format Information</a> .....	239
• <a href="#">Determine Format Support</a> .....	239
• <a href="#">Translate Format Information</a> .....	241
• <a href="#">Determine a Document Reader</a> .....	243
• <a href="#">Category Values in formats_e.ini</a> .....	243

## 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 [Supported Formats, on page 119](#).

## Extract Format Information

You can extract format information from a document by using the `getAutoDetectInfo()` method. This method extracts the major format, file class, version, and document attributes, and populates the `AutoDetectInfo` class. It returns the same format information as the `fpGetStreamInfo()` function, but as a string not an integer. The format information that can be extracted is listed in the `adinfo.h` header file.

For information on how to translate the extracted format information, see [Translate Format Information, on page 241](#).

## Determine Format Support

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

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

- Coded format information. To translate this information, see [Translate Format Information, on page 241](#).

- The reader associated with each format. See [Determine a Document Reader, on page 243](#).
- Configuration parameters for out-of-process conversions.
- Locale settings for internal use.

Below are some entries from the `formats_e.ini` file:

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

**NOTE:** The `formats_e.ini` file applies to all formats except graphics. Detection of graphics formats is handled by an internal module named KeyView Picture Interchange Format (KPIF).

## Refine Detection of Text Files

During text detection, KeyView analyzes the first 1 kB and last 1 kB of data in a document; if less than 10% of that data consists of non-ASCII characters, KeyView detects the document as a text file.

However, depending on the type of documents you are working with, the default settings might not provide the desired level of accuracy. Configuration flags allow you to change the amount of data to read at the end of a file, the percentage of non-ASCII characters permitted in a text file, and whether to use or ignore the file extension to determine the document format.

## Change the Amount of File Data to Read

During file detection, KeyView reads characters from the beginning and end of a file—by default, it reads the first and last 1,024 bytes of data. Large text files might contain many irrelevant characters at the end of a file, so KeyView might not accurately detect the file format. You can set a configuration flag to increase the amount of data to read from the end of a file during detection.

### To change the amount of data to read during detection

- In the `formats_e.ini` file, set the following flag in the `detection_flags` section:

```
[detection_flags]
non_ascii_chars_end_block_size=kB
```

where *kB* is the number of kilobytes to read from the end of the file, from 0 to 10. The default value is 1.

**NOTE:** The file size must be greater than the value specified in the flag. If the flag value is greater than the file size, KeyView does not use the flag.



## Change the Percentage of Allowed Non-ASCII Characters

By default, if less than 10% of the analyzed data in a document consists of non-ASCII characters, it is detected as a text file. Depending on the type of files you are working with, changing the default percentage might increase detection accuracy.

### To change the percentage of non-ASCII characters allowed in text files

- In the `formats_e.ini` file, set the following flag in the `detection_flags` section:

```
[detection_flags]
non_ascii_chars_in_text=N
```

where *N* is the percentage of non-ASCII characters to allow in text files. Files that contain a lower percentage of non-ASCII characters than *N* are detected as text files. The default value is 10.

## Use the File Extension for Detection

Sometimes KeyView detects certain file formats (such as CSV) as ASCII because of the content of the documents. In such cases, you can configure KeyView to use the file extension to determine the document format. Using the file extension can improve detection of formats such as CSV, but might not detect text files successfully if they have incorrect file extensions.

### To use the file extension for ASCII files during detection

- In the `formats.ini` file, set the following flag in the `detection_flags` section:

```
[detection_flags]
use_extension_for_ascii=1
```

The default is 0 (do not use the file extension).

## Allow Consecutive NULL Bytes in a Text File

By default, if a document contains consecutive NULL bytes, it is not detected as text. Depending on the type of files you are working with, changing the default might increase detection accuracy.

### To allow consecutive NULL bytes of ASCII characters in text files

In the `formats.ini` file, set the following flag in the `detection_flags` section:

```
[detection_flags]
ascii_allow_null_bytes=1
```

The default value is 0 (do not allow consecutive NULL bytes).

## Translate Format Information

Format information can include file attributes in the following categories:

- Major format
- File class
- Minor format
- Major version
- Minor version

Not all categories are required. Many formats only include major format and file class, or major format only.

The format information has the following structure:

```
MajorFormat.FileClass.MinorFormat.MajorVersion.MinorVersion
```

For example:

```
81.2.0.9.0
```

Each number in the format information represents a file attribute. The entry `81.2.0.9.0` represents a Lotus 1-2-3 Spreadsheet file version 9.0, where:

81 = Lotus 1-2-3 Spreadsheet (major format)

2 = Spreadsheet (file class)

0 = not defined (minor format)

9 = 9 (major version)

0 = 0 (minor version)

The example above applies to `formats_e.ini` file. When extracting format information by using the function `getAutoDetectInfo()` method, the same format information is represented as `294.2.0.9`.

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

## Distinguish Between Formats

The structure `getAutoDetectInfo()` method provides a unique ID for each major format. For example, a call to `getAutoDetectInfo()` returns `351.1.0` for a Microsoft Word 2003 XML format. The major format 351 is unique to this format.

Unlike `getAutoDetectInfo()`, the `formats_e.ini` file distinguishes between formats by using the major version number. For example, in `formats_e.ini`, a Microsoft Word 2003 XML format is defined as `285.1.0.100.0`. The major format 285 and file class 1 are the same values for generic XML. The major version 100 distinguishes the format as Microsoft Word 2003 XML.

The major version is used in `formats_e.ini` to specify the following formats:

- The Microsoft Office 2003 XML format has the same major format and file class as generic XML (285.1). It is distinguished from generic XML by using the following major versions:

- Word: 100
- Excel: 101
- Visio: 110
- The XHTML format has the same major format and file class as HTML (210.1). It is distinguished from HTML by using the major version 100.

## Determine a Document Reader

The format detection module uses the `formats_e.ini` file to determine whether a format is supported and which reader should be used to parse a format. The entries in the `formats_e.ini` file lists each format's coded value, and an abbreviation for the format's reader. For example:

81.2.0.9.0=1123

The reader abbreviation is a truncated version of the reader's library name. Adding "sr" to the end of an abbreviation creates the name of the reader. The example entry above specifies that a Lotus 1-2-3 Spreadsheet file version 9.0 is parsed by the Lotus 1-2-3 reader, 1123sr.

[Files Required for Redistribution, on page 287](#) lists the document readers provided with KeyView.

## Category Values in `formats_e.ini`

This section lists the possible category values for format information in the `formats_e.ini` file. The corresponding values for the format information extracted from a call to `getAutoDetectInfo()` are listed in the `adinfo.h` header file.

- [Major Formats](#)
- [File Classes](#)
- [Minor Formats](#)

### Major Formats

Number	Format	File Class
1	Multiplus (AES)	adWORDPROCESSOR
2	MS-DOS Batch File	adEXECUTABLE
3	APPLIX ASTERIX	adWORDPROCESSOR
4	Windows Bitmap Image (BMP)	adRASTERIMAGE
5	Convergent Technologies DEF Comm. Format	adWORDPROCESSOR
6	Corel Draw	adVECTORGRAPHIC
7	Keyword COM.FILE (KSIF)	

### Major Formats, continued

Number	Format	File Class
8	Computer Graphics Metafile (CGM)	adVECTORGRAPHIC
9	Word Connection	adWORDPROCESSOR
10	COMET TOP	adWORDPROCESSOR
11	CEOwrite	adWORDPROCESSOR
12	DSA101 (Honeywell Bull)	adWORDPROCESSOR
13	DCA-RFT (IBM Revisable Form)	adWORDPROCESSOR
14	CDA / DDIF	adWORDPROCESSOR
15	Dummy File (Internal)	
16	DG Common Data Stream (CDS)	adWORDPROCESSOR
17	Dummy Print File (Internal)	
18	Windows Draw (Micrografx)	adVECTORGRAPHIC
19	Vistaword	adWORDPROCESSOR
20	DECdx	adWORDPROCESSOR
21	Enable Word Processing	adWORDPROCESSOR
22	Encapsulated PostScript	AutoDetNoFormat
23	MSDOS/Windows Program	adEXECUTABLE
24	CCITT G3 1D	adRASTERIMAGE
25	Graphics Interchange Format (GIF89a)	adRASTERIMAGE
26	HP Word PC	adWORDPROCESSOR
27	IBM 1403 Line Printer	adWORDPROCESSOR
28	DCF Script	adWORDPROCESSOR
29	DCA-FFT (IBM Final Form)	adWORDPROCESSOR
30	Interleaf	adWORDPROCESSOR
31	GEM Bit Image	adRASTERIMAGE
32	Display Write	adWORDPROCESSOR
33	Sun Raster	adRASTERIMAGE

### Major Formats, continued

Number	Format	File Class
34	Keywords PICL	
35	Lotus Ami Pro Style Sheet	adWORDPROCESSOR
36	MORE Database MAC	adOUTLINE
37	Lyrix Word Processing	adWORDPROCESSOR
38	MASS-11	adWORDPROCESSOR
39	MacPaint	adRASTERIMAGE
40	Microsoft Word Mac	adWORDPROCESSOR
41	SmartWare II	adCOMMUNICATION
42	Microsoft Word for Windows	adWORDPROCESSOR
43	MultiMate Advantage II Footnote File	adWORDPROCESSOR
44	Multiplan (Mac)	adSPREADSHEET
45	Microsoft Pocket Word	adWORDPROCESSOR
46	Microsoft Word for PC Miscellaneous File	adWORDPROCESSOR
47	NBI Async Archive Format	adWORDPROCESSOR
48	Navy DIF	adWORDPROCESSOR
49	NBI Net Archive Format	adWORDPROCESSOR
50	NIOS TOP	adWORDPROCESSOR
51	Filemaker MAC	adDATABASE
52	ODA / ODIF	adWORDPROCESSOR
53	OLIDIF (Olivetti)	adWORDPROCESSOR
54	Keyword OSM	
55	Office Writer	adWORDPROCESSOR
56	PC Paintbrush Graphics (PCX)	adRASTERIMAGE
57	CPT	adWORDPROCESSOR
58	Lotus PIC	adVECTORGRAPHIC
59	QuickDraw Picture	AutoDetNoFormat

**Major Formats, continued**

Number	Format	File Class
60	Philips Script	adWORDPROCESSOR
61	PostScript	adVECTORGRAPHIC
62	PRIMEWORD	adWORDPROCESSOR
63	Q-One V1.93J	adWORDPROCESSOR
64	Q-One V2.0	adWORDPROCESSOR
65	SAMNA Word	adWORDPROCESSOR
66	Lotus Ami Pro Draw	adVECTORGRAPHIC
67	SYLK	adSPREADSHEET
68	SmartWare II	adWORDPROCESSOR
69	Symphony	adSPREADSHEET
70	Targa	adRASTERIMAGE
71	Tag Image File Format (TIFF)	AutoDetNoFormat
72	Targon Word	adWORDPROCESSOR
73	Uniplex Ucalc	adSPREADSHEET
74	Uniplex	adWORDPROCESSOR
75	Microsoft Word UNIX	adWORDPROCESSOR
76	WANG PC	adWORDPROCESSOR
77	WordERA	adWORDPROCESSOR
78	WANG WPS	adWORDPROCESSOR
79	WordPerfect MAC	adWORDPROCESSOR
80	WordPerfect 5.2	adWORDPROCESSOR
81	Lotus 1-2-3 Release 9	adSPREADSHEET
82	WordMARC	adWORDPROCESSOR
83	Windows Metafile (no header)	adVECTORGRAPHIC
84	SmartWare II	adDATABASE
85	WordPerfect Graphics V1.0 (WPG)	adRASTERIMAGE

**Major Formats, continued**

Number	Format	File Class
86	WordPerfect	adWORDPROCESSOR
87	WordStar	adWORDPROCESSOR
88	WANG WITA	adWORDPROCESSOR
89	Xerox 860	adWORDPROCESSOR
90	Microsoft Excel	adSPREADSHEET
91	Xerox Writer	adWORDPROCESSOR
92	Data Interchange Format (DIF)	adSPREADSHEET
93	Enable Spreadsheet	adSPREADSHEET
94	Supercalc	adSPREADSHEET
95	UltraCalc	adSPREADSHEET
96	SmartWare II	adSPREADSHEET
97	Serialized Object Format (SOF)	adENCAPSULATION
98	Microsoft PowerPoint PC	adPRESENTATION
99	Microsoft PowerPoint MAC	adPRESENTATION
100	PageMaker for Macintosh	adDESKTOPPUBLSH
101	PageMaker for Windows	adDESKTOPPUBLSH
103	Microsoft Works Word Processor for MAC	adWORDPROCESSOR
104	Microsoft Works Database for MAC	adDATABASE
105	Microsoft Works Spreadsheet for MAC	adSPREADSHEET
106	Microsoft Works Communication for MAC	adCOMMUNICATION
107	Microsoft Works Word Processor for DOS	adWORDPROCESSOR
108	Microsoft Works Database for DOS	adDATABASE
109	Microsoft Works Spreadsheet for DOS	adSPREADSHEET
111	DOS/Windows Object Library	adLIBRARY
112	MacWrite	adWORDPROCESSOR
113	MacWrite II	adWORDPROCESSOR

**Major Formats, continued**

Number	Format	File Class
114	Freehand MAC	adVECTORGRAPHIC
115	Disk Doubler	adENCAPSULATION
116	HP Graphics Language	adVECTORGRAPHIC
117	Maker Interchange Format (MIF)	adWORDPROCESSOR
118	JPEG Interchange Format	adRASTERIMAGE
119	Reflex	adDATABASE
120	Framework II	adMIXED
121	Paradox	adDATABASE
123	Microsoft Windows Write	adWORDPROCESSOR
124	Quattro Pro for DOS	adSPREADSHEET
126	Persuasion	adPRESENTATION
127	Corel Presentations	adPRESENTATION
128	Windows Icon Format	adRASTERIMAGE
129	Microsoft Project	adSCHEDULE
131	Harvard Graphics Palette	adVECTORGRAPHIC
132	ZIP Archive	AutoDetNoFormat
133	Windows Cursor	adRASTERIMAGE
134	Quark Xpress MAC	adDESKTOPPUBLSH
135	PAK/ARC Archive	adENCAPSULATION
136	FrameMaker	adDESKTOPPUBLSH
137	Microsoft Publisher	adDESKTOPPUBLSH
138	PlanPerfect	adSCHEDULE
139	WordPerfect auxiliary file	adMISC
140	Lotus Freelance 97	adPRESENTATION
141	Microsoft Wave	adSOUND
142	MIDI	adSOUND



### Major Formats, continued

Number	Format	File Class
143	AutoCAD DXF	adVECTORGRAPHIC
144	dBase	adDATABASE
145	OS/2 PM Metafile	adVECTORGRAPHIC
146	Lasergraphics Language	adVECTORGRAPHIC
147	AutoShade Rendering	adVECTORGRAPHIC
148	GEM VDI	adVECTORGRAPHIC
149	Windows Help File	adMISC
150	Volkswriter	adWORDPROCESSOR
151	Ability	adRASTERIMAGE
152	XYWrite / Nota Bene	adWORDPROCESSOR
153	CSV (Comma Separated Values)	adSPREADSHEET
154	IBM Writing Assistant	adWORDPROCESSOR
155	WordStar 2000	adWORDPROCESSOR
156	WordStar 6.0	adWORDPROCESSOR
157	HP Printer Control Language	adVECTORGRAPHIC
158	ELF Executable	adEXECUTABLE
159	ELF Relocatable	adOBJECTMODULE
160	ELF Dynamic Library	adLIBRARY
161	NeXT/Sun Audio Data	adSOUND
162	NeWS bitmap font	adFONT
163	cpio archive (CHR Header)	adENCAPSULATION
164	SUN PEX Binary Archive	adENCAPSULATION
165	SUN vfont Definition	adFONT
166	Curses Screen Image	adRASTERIMAGE
167	UU encoded	adENCAPSULATION
168	WriteNow MAC	adWORDPROCESSOR

**Major Formats, continued**

Number	Format	File Class
169	DOS/Windows Object Module	adOBJECTMODULE
170	Windows Group	adMISC
171	TrueType Font	adFONT
172	Program Information File (PIF)	adMISC
173	PC (.COM)	adEXECUTABLE
174	Maker Markup Language	adDESKTOPPUBLSH
175	StuffIt (MAC)	adENCAPSULATION
176	PeachCalc	adSPREADSHEET
177	WANG Office GDL Header	adENCAPSULATION
178	WordPerfect 6.0	adWORDPROCESSOR
179	Q & A for DOS	adWORDPROCESSOR
180	Q & A for Windows	adWORDPROCESSOR
181	WPS-PLUS	adWORDPROCESSOR
182	DCX FAX Format(PCX images)	adFAXFORMAT
183	OLE Compound Document	adENCAPSULATION
184	Quattro Pro for Windows	adSPREADSHEET
185	Keyword Viewer Markup Format	
186	EBCDIC Text	adWORDPROCESSOR
187	DCS	adWORDPROCESSOR
188	Microsoft Excel 2000	adSPREADSHEET
189	Microsoft Word 95	adWORDPROCESSOR
190	SHAR	adENCAPSULATION
191	Lotus Notes Bitmap	adRASTERIMAGE
192	Unix Compress	adENCAPSULATION
193	Lotus Notes CDF	adWORDPROCESSOR
194	TAR	adENCAPSULATION

**Major Formats, continued**

Number	Format	File Class
195	WordPerfect Graphics V2.0 (WPG2)	adWORDPROCESSOR
196	ODA / ODIF	adWORDPROCESSOR
197	ALIS	adWORDPROCESSOR
198	GZ Compress	adENCAPSULATION
199	Envoy	adWORDPROCESSOR
200	Portable Document Format	adWORDPROCESSOR
201	KW ODA Internal Raw Bitmap (RBM)	adRASTERIMAGE
202	KW ODA G4 (G4)	adRASTERIMAGE
203	KW ODA G31D (G31)	adRASTERIMAGE
204	KW ODA Internal G32D (G32)	adRASTERIMAGE
205	Microsoft Word for Mac V 4.x/5.x	adWORDPROCESSOR
206	BinHex	adENCAPSULATION
207	SMTP	adENCAPSULATION
208	MIME	adENCAPSULATION
209	SGML	adWORDPROCESSOR
210	Netscape Bookmark File	adWORDPROCESSOR
211	ACT	adWORDPROCESSOR
212	Microsoft PowerPoint 95	adPRESENTATION
213	Portable Network Graphics (PNG)	adRASTERIMAGE
214	Video for Windows (AVI)	adMOVIE
215	Windows Animated Cursor	adRASTERIMAGE
216	Windows C++ Object Storage	adMIXED
217	Windows Palette	adRASTERIMAGE
218	RIFF Device Independent Bitmap	adRASTERIMAGE
219	RIFF MIDI	adSOUND
220	RIFF Multimedia Movie	adMOVIE

### Major Formats, continued

Number	Format	File Class
221	MPEG Movie	adMOVIE
222	QuickTime Movie	adMOVIE
223	Audio Interchange File Format (AIFF)	adSOUND
224	Amiga MOD	adSOUND
225	Amiga IFF (8SVX) Sound	adSOUND
226	Creative Voice (VOC)	adSOUND
227	Microsoft Works Word Processor for Windows	adWORDPROCESSOR
228	Microsoft Works Spreadsheet for Windows	adSPREADSHEET
229	AutoDesk Animator FLIC	adANIMATION
230	AutoDesk Animator Pro FLIC	adANIMATION
231	Microsoft Works Database for Windows	adDATABASE
232	Microsoft Works Communication (Windows)	adCOMMUNICATION
233	Compactor / Compact Pro	adENCAPSULATION
234	VRML	adVECTORGRAPHIC
235	QuickDraw 3D Metafile	adVECTORGRAPHIC
236	PGP Secret Keyring	adENCAPSULATION
237	PGP Public Keyring	adENCAPSULATION
238	PGP Encrypted Data	adENCAPSULATION
239	PGP Signed Data	adENCAPSULATION
240	PGP Signed and Encrypted Data	adENCAPSULATION
241	PGP Signature Certificate	adENCAPSULATION
242	ASCII-armored PGP Public Keyring	adENCAPSULATION
243	ASCII-armored PGP encoded	adENCAPSULATION
244	ASCII-armored PGP signed	adENCAPSULATION
245	OLE DIB object	adRASTERIMAGE
246	PGP Compressed Data	adENCAPSULATION

**Major Formats, continued**

Number	Format	File Class
247	SGI Image	adRASTERIMAGE
248	Lotus ScreenCam	adANIMATION
249	MPEG Audio	adSOUND
250	FTP Session Data	adCOMMUNICATION
251	Netscape Bookmark file	adWORDPROCESSOR
252	Corel CMX	adVECTORGRAPHIC
253	AutoDesk Drawing (DWG)	adVECTORGRAPHIC
254	AutoDesk WHIP	adVECTORGRAPHIC
255	Macromedia Director	adANIMATION
256	Real Audio	adSOUND
257	MSDOS Device Driver	adEXECUTABLE
258	Micrografx Designer	adVECTORGRAPHIC
259	Simple Vector Format (SVF)	adVECTORGRAPHIC
260	WordPerfect Office document (WPD)	
261	Applix Words	adWORDPROCESSOR
262	Applix Graphics	adPRESENTATION
263	Microsoft Access 2000	adDATABASE
264	USENET	adWORDPROCESSOR
265	MacBinary	adENCAPSULATION
266	Apple Single	adENCAPSULATION
267	Apple Double	adENCAPSULATION
268	Lotus Word Pro 97	adWORDPROCESSOR
269	Microsoft Word 2000	adWORDPROCESSOR
270	Enhanced Metafile	adVECTORGRAPHIC
271	Microsoft Office Drawing	adVECTORGRAPHIC
272	Microsoft PowerPoint 2000	adPRESENTATION

### Major Formats, continued

Number	Format	File Class
273	Extended or Custom XML	adWORDPROCESSOR
274	DeVice Independent file (DVI)	adVECTORGRAPHIC
275	Unicode	adWORDPROCESSOR
276	Framework	adMIXED
277	KPIF Chart Stream	
278	Applix Spreadsheets	adSPREADSHEET
279	Microsoft Device Independent Bitmap	adRASTERIMAGE
280	KeyView GPF Filter	
281	Microsoft Project 2000	adSCHEDULE
282	Folio Flat File	adWORDPROCESSOR
283	HWP(Arae-Ah Hangul)	adWORDPROCESSOR
284	ICHITARO	adWORDPROCESSOR
285	Microsoft Visio 2003 XML	adWORDPROCESSOR
286	Oasys	adWORDPROCESSOR
287	Portable Bitmap Utilities BINARY format (PBM)	adRASTERIMAGE
288	Portable Greymap Utilities BINARY format (PGM)	adRASTERIMAGE
289	Portable Pixmap Utilities BINARY format (PPM)	adRASTERIMAGE
290	X Bitmap format (XBM)	adRASTERIMAGE
291	X Pixmap format (XPM)	adRASTERIMAGE
292	FlashPix FPX Image format	adRASTERIMAGE
293	PCD Image format	adRASTERIMAGE
294	Microsoft Visio	adPRESENTATION
295	Microsoft Outlook	adENCAPSULATION
296	XHTML	adWORDPROCESSOR
297	Microsoft Outlook Personal Folders File (.pst)	adENCAPSULATION
298	RAR	adENCAPSULATION

**Major Formats, continued**

Number	Format	File Class
299	IBM Lotus Notes Database NSF/NTF	adENCAPSULATION
300	Macromedia Flash (.swf)	adWORDPROCESSOR
301	Microsoft Word 2007 XML - Flat xml	adWORDPROCESSOR
302	Microsoft Excel 2007 XML	adSPREADSHEET
303	Microsoft PowerPoint 2007 XML	adPRESENTATION
304	OpenPGP Message Format (with new packet format)	adENCAPSULATION
305	Intergraph Standard File Format (ISFF) V7 DGN (non-OLE)	adVECTORGRAPHIC
306	MicroStation V8 DGN (OLE)	adVECTORGRAPHIC
307	Microsoft Word Macro 2007 XML	adWORDPROCESSOR
308	Microsoft Excel Macro 2007 XML	adSPREADSHEET
309	Microsoft PPT Macro 2007 XML	adPRESENTATION
310	LZH Archive	adENCAPSULATION
311	Office 2007 document	adMISC
312	Microsoft XML Paper Specification (XPS)	adWORDPROCESSOR
313	IBM Domino Data in XML format (.dxi)	adENCAPSULATION
314	ODF Text Template	adWORDPROCESSOR
315	ODF Spreadsheet Template	adSPREADSHEET
316	ODF Presentation Template	adPRESENTATION
317	Legato Extender Native Message ONM	adENCAPSULATION
318	Bin unknown format (.xxx)	adWORDPROCESSOR
319	Transport Neutral Encapsulation Format (TNEF)	adENCAPSULATION
320	CADAM Drawing	adVECTORGRAPHIC
321	CADAM Drawing Overlay	adVECTORGRAPHIC
322	NURSTOR Drawing	adVECTORGRAPHIC
323	HP Graphics Language (Plotter)	adVECTORGRAPHIC
324	Advanced Systems Format (ASF)	adMISC

### Major Formats, continued

Number	Format	File Class
325	Windows Media Audio Format (WMA)	adSOUND
326	Windows Media Video Format (WMV)	adMOVIE
327	Legato EMailXtender Archives Format (EMX)	adENCAPSULATION
328	7 Zip Format (7z)	adENCAPSULATION
329	Microsoft Excel Binary 2007	adSPREADSHEET
330	Microsoft Cabinet File (CAB)	adENCAPSULATION
331	CATIA Formats (CAT*)	adVECTORGRAPHIC
332	Yahoo Instant Messenger History	adWORDPROCESSOR
333	Founder Chinese E-paper Basic (ceb)	adWORDPROCESSOR
334	Corel Quattro Pro 9+ for Windows	adSPREADSHEET
335	MHTML format (MHT)	adWORDPROCESSOR
336	Microsoft Document Imaging Format	adRASTERIMAGE
337	Microsoft Office Groove Format	adWORDPROCESSOR
338	Apple iWork Pages format	adWORDPROCESSOR
339	Apple iWork Numbers format	adSPREADSHEET
340	Apple iWork Keynote format	adPRESENTATION
341	Windows Backup File	adENCAPSULATION
342	Microsoft Access 2007	adDATABASE
343	Microsoft Entourage Database Format	adENCAPSULATION
344	Mac Disk Copy Disk Image File	adENCAPSULATION
345	AppleWorks File	adWORDPROCESSOR
346	Omni Outliner V3 File	adWORDPROCESSOR
347	Omni Outliner OPML File	adWORDPROCESSOR
348	Omni Graffle XML File	adVECTORGRAPHIC
349	Photoshop Document	adRASTERIMAGE
350	Apple Binary Property List format	adMISC



### Major Formats, continued

Number	Format	File Class
351	Apple iChat format	adWORDPROCESSOR
352	OOutliner File	adWORDPROCESSOR
353	Bzip 2 Compressed File	adENCAPSULATION
354	ISO-9660 CD Disc Image Format	adENCAPSULATION
355	DocuWorks Format	adWORDPROCESSOR
356	RealMedia Streaming Media	adMOVIE
357	AC3 Audio File Format	adSOUND
358	Nero Encrypted File	adENCAPSULATION
359	SolidWorks Format Files	adVECTORGRAPHIC
360	I-DEAS Format	adVECTORGRAPHIC
361	I-DEAS Drawing Format	adVECTORGRAPHIC
362	Unigraphics (UG) NX CAD Format	adVECTORGRAPHIC
363	UGS Jupiter Tessellation file	adCAD
364	3D Systems STL ASCII format	adMISC
365	Parasolid XT	adVECTORGRAPHIC
366	Extensible Forms Description Language	adPRESENTATION
367	Apple XML Property List format	adMISC
368	OneNote Note Format	adPRESENTATION
369	iFilter	adWORDPROCESSOR
370	Digital Imaging and Communications in Medicine (Dicom)	adRASTERIMAGE
371	Expert Witness Compression Format (EnCase)	adENCAPSULATION
372	Shell Scrap Object File	adENCAPSULATION
373	Microsoft Project 2007	adSCHEDULE
374	Microsoft Publisher from version 98	adDESKTOPPUBLSH
375	Skype Log File	adWORDPROCESSOR
376	Lotus Notes Bitmap Format (DXL embedded images)	adRASTERIMAGE

**Major Formats, continued**

Number	Format	File Class
377	Health level7 message	adWORDPROCESSOR
378	Microsoft Outlook Offline Folders File (OST)	adENCAPSULATION
379	Electronic Publication	adWORDPROCESSOR
380	Microsoft Outlook Express DBX Message Database	adENCAPSULATION
381	BlackBerry Activation File	adWORDPROCESSOR
382	Disk Image	adENCAPSULATION
383	Milestone Document	adRASTERIMAGE
384	RealLegal E-Transcript File	adWORDPROCESSOR
385	PostScript Type 1 Font	adFONT
386	Ghost Disk Image File	adENCAPSULATION
387	JPEG-2000 JP2 File Format Syntax (ISO/IEC 15444-1)	adRASTERIMAGE
388	Unicode HTML	adWORDPROCESSOR
389	Microsoft Compiled HTML Help	adENCAPSULATION
390	Documentum EMCDF format	adENCAPSULATION
391	Microsoft Access 2007 Template	adDATABASE
392	Samsung Electronics Jungum Global document	adWORDPROCESSOR
393	JBIG2 File Format	adRASTERIMAGE
394	eFax file	adRASTERIMAGE
395	AD1 Evidence file	adENCAPSULATION
396	Google SketchUp	adVECTORGRAPHIC
397	Group Wise File Surf email	adENCAPSULATION
398	Windows Journal format	adWORDPROCESSOR
399	Yahoo! Messenger chat log	adWORDPROCESSOR
400	PaperPort MAX image file	adRASTERIMAGE
402	ARJ (Archive by Robert Jung) file format	adENCAPSULATION
403	Microsoft Outlook Restricted Permission Message	adENCAPSULATION

### Major Formats, continued

Number	Format	File Class
404	MATLAB file format	adWORDPROCESSOR
405	SEG-Y Seismic Data format	adWORDPROCESSOR
406	MPEG-PS container with CDXA stream	adMOVIE
407	Microsoft Windows NT Event Log	adMISC
408	Microsoft Windows Vista Event Log	adMISC
409	Microsoft Outlook for Macintosh format	adENCAPSULATION
410	Web ARChive	adENCAPSULATION
411	Java Class format	adWORDPROCESSOR
412	Microsoft Outlook vCard file format	adWORDPROCESSOR
413	Microsoft Exchange Server Database file format	adENCAPSULATION
414	Microsoft Outlook iCalendar file format	adENCAPSULATION
415	MS Visio 2013 template Macro format	adPRESENTATION
417	ICHITARO Compressed format	adWORDPROCESSOR
418	Apple iWork 2013 Pages format	adWORDPROCESSOR
419	Apple iWork 2013 Numbers format	adSPREADSHEET
420	Apple iWork 2013 Keynote format	adPRESENTATION
421	XZ archive format	adENCAPSULATION
422	Sony Wave64 format	adSOUND
423	Conifer Wavpack format	adSOUND
424	Xiph Ogg Vorbis format	adSOUND
425	Borland Reflex 2 format	adDATABASE
426	PKCS #12 (p12) format	adWORDPROCESSOR
427	B1 format	adENCAPSULATION
428	ISO/IEC MPEG-4 (ISO 14496) format	adMOVIE
429	RAR5 Format	adENCAPSULATION
430	PTC Creo CAD Format	adVECTORGRAPHIC

### Major Formats, continued

Number	Format	File Class
431	Keyhole Markup Language	adWORDPROCESSOR
432	Zipped Keyhole Markup Language	adWORDPROCESSOR
433	Wireless Markup Language	adWORDPROCESSOR
434	ODF Formula	adWORDPROCESSOR
435	Star Office Writer Text	adWORDPROCESSOR
436	Star Office Calc Spreadsheet	adSPREADSHEET
437	Star Office Impress Presentation	adPRESENTATION
438	Star Office Math	adMISC
439	ISO 10303-21 STEP format	adMISC
440	AppleScript Source Code	adSOURCECODE
441	Assembly Code	adSOURCECODE
442	C Source Code	adSOURCECODE
443	C# Source Code	adSOURCECODE
444	C++ Source Code	adSOURCECODE
445	Cascading Style Sheet	adSOURCECODE
446	Clojure Source Code	adSOURCECODE
447	CoffeeScript Source Code	adSOURCECODE
448	Common Lisp Source Code	adSOURCECODE
449	Dockerfile	adSOURCECODE
450	Eiffel Source Code	adSOURCECODE
451	Erlang Source Code	adSOURCECODE
452	F# Source Code	adSOURCECODE
453	Fortran Source Code	adSOURCECODE
454	Go Source Code	adSOURCECODE
455	Groovy Source Code	adSOURCECODE
456	Haskell Source Code	adSOURCECODE

**Major Formats, continued**

Number	Format	File Class
457	Initialization (INI) file	adSOURCECODE
458	Java Source Code	adSOURCECODE
459	Javascript Source Code	adSOURCECODE
460	Lua Source Code	adSOURCECODE
461	Makefile	adSOURCECODE
462	Wolfram Mathematica Source Code	adSOURCECODE
463	Matlab Source Code	adSOURCECODE
464	Objective-C Source Code	adSOURCECODE
465	Objective-C++ Source Code	adSOURCECODE
466	Objective-J Source Code	adSOURCECODE
467	PHP Source Code	adSOURCECODE
468	PLSQL Source Code	adSOURCECODE
469	Pascal Source Code	adSOURCECODE
470	Perl Source Code	adSOURCECODE
471	PowerShell Source Code	adSOURCECODE
472	Prolog Source Code	adSOURCECODE
473	Puppet Source Code	adSOURCECODE
474	Python Source Code	adSOURCECODE
475	R Source Code	adSOURCECODE
476	Ruby Source Code	adSOURCECODE
477	Rust Source Code	adSOURCECODE
478	Scala Source Code	adSOURCECODE
479	Shell Script	adSOURCECODE
480	Smalltalk Source Code	adSOURCECODE
481	Standard ML Source Code	adSOURCECODE
482	Swift Source Code	adSOURCECODE

**Major Formats, continued**

Number	Format	File Class
483	Tool Command Language (Tcl) Source Code	adSOURCECODE
484	TeX Typesetting File	adSOURCECODE
485	TypeScript Source Code	adSOURCECODE
486	Verilog Source Code	adSOURCECODE
487	YAML File	adSOURCECODE
488	MediaWiki File	adWORDPROCESSOR
489	Matroska video File	adMOVIE
490	Scalable Vector Graphics image	adVECTORGRAPHIC
491	Shapefile	adMISC
492	Flash video File	adMOVIE
493	Embedded OpenType font	adFONT
494	Web Open Font Format	adFONT
495	OpenType Font	adFONT
496	Multiple-image Network Graphics	adANIMATION
497	JPEG Network Graphics	adRASTERIMAGE
498	AppleScript Binary Source Code	adSOURCECODE
499	Autodesk Maya binary file	adCAD
500	Ogg Theora Video format	adMOVIE
501	General Ogg Container format	adMISC
502	GNU Message Catalog format	adMISC
503	Windows shortcut file	adMISC
504	Apple/NeXT typedstream data format	adMISC
505	GIMP XCF image	adRASTERIMAGE
506	PaintShop Pro image	adRASTERIMAGE
507	SQLite database format	adDATABASE
508	MySQL table definition file	adDATABASE

### Major Formats, continued

Number	Format	File Class
509	Microsoft Program Database format	adDATABASE
510	OpenEXR image format	adRASTERIMAGE
511	4X Movie File	adMOVIE
512	AMV video file	adMOVIE
513	Notation Interchange File Format	adSOUND
514	Steinberg CuBase file	adSOUND
515	SoundFont file	adSOUND
516	WebP image	adRASTERIMAGE
517	International Color Consortium files	adMISC
518	X11 Portable Compiled Font file	adFONT
519	WebM video file	adMOVIE
520	Amiga Metafile	adVECTORGRAPHIC
521	IFF Animated Bitmap	adRASTERIMAGE
522	IFF Amiga animated raster graphics format	adRASTERIMAGE
523	IFF-DEEP TVPaint image	adRASTERIMAGE
524	IFF-FAXX Facsimile image	adRASTERIMAGE
525	IFF Glow Icon image	adRASTERIMAGE
526	Interleaved BitMap image	adRASTERIMAGE
527	LightWave Object format	adMISC
528	IFF-MAUD MacroSystem audio format	adSOUND
529	IFF Planar BitMap	adRASTERIMAGE
530	IFF TDDD and Imagine Object animation format	adRASTERIMAGE
531	AT&T DjVu format	adWORDPROCESSOR
532	Adobe InDesign document	adDESKTOPPUBLSH
533	Calamus Desktop Publishing	adDESKTOPPUBLSH
534	Adaptive Multi-Rate audio format	adSOUND

### Major Formats, continued

Number	Format	File Class
535	Free Lossless Audio Codec format	adSOUND
536	Ogg Container FLAC audio format	adSOUND
537	SAS7BDAT database storage format	adDATABASE
538	Autodesk Design Web Format	adCAD
539	Adobe Flash Player audio book	adSOUND
540	Adobe Flash Player audio	adSOUND
541	Adobe Flash Player protected video	adMOVIE
542	Adobe Flash Player video	adMOVIE
543	Audible Enhanced Audiobook	adSOUND
544	Canon Digital Camera image	adRASTERIMAGE
545	Canon Raw image	adRASTERIMAGE
546	Casio Digital Camera image	adRASTERIMAGE
547	Convergent Design file	adRASTERIMAGE
548	DMB MAF audio	adSOUND
549	DMB MAF video	adMOVIE
550	Digital Media Project Content Format	adMISC
551	Digital Video Broadcast format	adMOVIE
552	ISO-BMFF Dirac Wavelet compression	adMISC
553	High Efficiency Image Format HEVC image sequence	adRASTERIMAGE
554	High Efficiency Image Format HEVC image	adRASTERIMAGE
555	High Efficiency Image Format image sequence	adRASTERIMAGE
556	High Efficiency Image Format image	adRASTERIMAGE
557	ISMACryp 2.0 Encrypted format	adENCAPSULATION
558	3GPP2 video file	adMOVIE
559	3GPP video file	adMOVIE
560	ISO-BMFF JPEG 2000 image	adRASTERIMAGE



**Major Formats, continued**

Number	Format	File Class
561	ISO-BMFF JPEG 2000 compound image	adRASTERIMAGE
562	ISO-BMFF JPEG 2000 with extensions	adRASTERIMAGE
563	Apple ISO-BMFF QuickTime video	adMOVIE
564	KDDI Video file	adMOVIE
565	MAF Photo Player	adMISC
566	ISO-BMFF MPEG-4 with AVC extension	adMOVIE
567	Apple MPEG-4 Part 14 audio	adSOUND
568	Apple MPEG-4 Part 14 audio book	adSOUND
569	Apple MPEG-4 Part 14 protected audio	adSOUND
570	Apple MPEG-4 Part 14 video	adMOVIE
571	Sony PSP MPEG-4	adSOUND
572	MPEG-21	adMISC
573	Mobile QuickTime video	adMOVIE
574	Motion JPEG 2000	adMOVIE
575	NTT MPEG-4	adMOVIE
576	Nero MPEG-4 profile with AVC extension	adMOVIE
577	Nero AAC audio	adSOUND
578	Nero MPEG-4 profile	adMOVIE
579	OMA DRM Format	adMISC
580	Panasonic Digital Camera image	adRASTERIMAGE
581	Ross video	adMOVIE
582	SDA SD Memory Card video	adMOVIE
583	Samsung stereoscopic stream	adMISC
584	Sony XAVC video	adMOVIE
585	JPEG 2000 PGX Verification Model image	adRASTERIMAGE
586	Apple Desktop Services Store file	adMISC

**Major Formats, continued**

Number	Format	File Class
587	Apple Core Audio Format	adSOUND
588	VICAR image format	adRASTERIMAGE
589	Flexible Image Transport System FITS image	adRASTERIMAGE
590	Digital Interface Format (DIF) DV video	adMOVIE
591	MPEG Transport Stream data	adMISC
592	MPEG Sequence format	adMISC
593	Ogg OGM video format	adMOVIE
594	Ogg Speex audio format	adSOUND
595	Ogg Opus audio format	adSOUND
596	Musepack audio format	adSOUND
597	ART image format	adRASTERIMAGE
598	Vivo audio-video format	adMOVIE
599	Qualcomm QCP audio	adSOUND
600	Creative Signal Processor codec	adMISC
601	NTT TwinVQ audio format	adSOUND
602	Interplay MVE video format	adMOVIE
603	IRIX Silicon Graphics moviemaker video file	adMOVIE
604	Sega FILM video format	adMOVIE
605	Synthetic music Mobile Application Format	adSOUND
606	NIST SPeech HEader Resources format	adSOUND
607	Chinese AVS video format	adMOVIE
608	Westwood Studios Vector Quantized Animation video file	adANIMATION
609	Wildfire YAFA animation	adANIMATION
610	Origin Wing Commander III MVE movie format	adMOVIE
611	BBC Dirac video format	adMOVIE
612	Autodesk Maya ASCII file format	adCAD

### Major Formats, continued

Number	Format	File Class
613	Pixar RenderMan Interface Bytestream file	adVECTORGRAPHIC
614	NOFF 3D Object File Format	adVECTORGRAPHIC
615	Visualization Toolkit VTK ASCII format	adVECTORGRAPHIC
616	Visualization Toolkit VTK Binary format	adVECTORGRAPHIC
617	Wolfram Mathematica Computable Document Format	adMISC
618	Wolfram Mathematica Notebook Format	adMISC
619	Hierarchical Data Format HDF4	adMISC
620	Hierarchical Data Format HDF5	adMISC
621	Acom RISC ARMovie video format	adMOVIE
622	Windows Television DVR format	adMOVIE
623	InstallShield Z archive format	adENCAPSULATION
624	Microsoft DirectDraw Surface container format	adENCAPSULATION
625	Bink audio-video container format	adMOVIE
626	LZMA compressed data format	adENCAPSULATION
627	True Audio format	adSOUND
628	Keepass Password file	adMISC
629	RPM Package Manager file	adENCAPSULATION
630	Adobe Printer Font Metrics format	adFONT
631	Adobe Font Metrics ASCII format	adFONT
632	Adobe Printer Font ASCII format	adFONT
633	Netware Loadable Module format	adMISC
634	TCPdump packet stream capture savefile format	adMISC
635	Adobe Multiple master font format	adFONT
636	TrueType font collection format	adFONT
637	Shapefile binary spatial index format	adMISC
638	Java Key Store format	adMISC

### Major Formats, continued

Number	Format	File Class
639	Java JCE Key Store format	adMISC
640	QuarkXPress Intel format	adDESKTOPPUBLISH
641	Microsoft Windows Imaging Format WIM	adMISC
642	VMware Virtual Disk Format 5.0	adMISC
643	XPCConnect Typelib Format	adMISC
644	Microsoft MS-DOS installation compression	adENCAPSULATION
645	DLS Downloadable Sounds format	adSOUND
646	Microsoft Windows Registry format	adMISC
647	Microsoft Help 2.0 format	adENCAPSULATION
648	Qt binary translation file format	adMISC
649	PEM-encoded SSL certificate	adENCAPSULATION
650	Adobe PostScript Printer Description file	adMISC
651	Speedo Font format	adFONT
652	InstallShield Cabinet Archive format	adENCAPSULATION
653	InstallShield Uninstall format	adENCAPSULATION
654	Outlook Express DBX folder database format	adENCAPSULATION
655	National Instruments LabVIEW file format	adMISC
656	SAP compression archive SAR format	adENCAPSULATION
657	Netscape Address Book format	adMISC
658	Universal 3D file format	adVECTORGRAPHIC
659	Open Inventor ASCII format	adVECTORGRAPHIC
660	Open Inventor Binary format	adVECTORGRAPHIC
661	X Window Dump image	adRASTERIMAGE
662	Git Packfile format	adENCAPSULATION
663	Xara X Xar image format	adVECTORGRAPHIC
664	Internet Archive ARC format	adENCAPSULATION

### Major Formats, continued

Number	Format	File Class
665	Applix Builder format	adMISC
666	Applix Bitmap image format	adRASTERIMAGE
667	PEM-encoded RSA private key	adENCAPSULATION
668	Magick Image File Format	adRASTERIMAGE
669	Subversion Dump format	adENCAPSULATION
670	Microsoft Virtual Hard Disk format	adENCAPSULATION
671	PowerISO Direct Access Archive format	adENCAPSULATION
672	Debian binary package format	adENCAPSULATION
673	Mozilla XUL Fastload format	adMISC
674	Nastran OP2 format	adCAD
675	CAD Binary Logging Format	adCAD
676	CAD Measurement Data Format	adCAD
677	Abaqus ODB Format	adCAD
678	Vector Open Diagnostic Data Exchange format	adCAD
679	Vector CAD ASCII ASC format	adCAD
680	LS-DYNA State Database format	adCAD
681	LS-DYNA binary output (binout) format	adCAD
682	Microsoft Power BI Desktop format	adANALYTICS
683	Tableau Workbook format	adANALYTICS
684	Tableau Packaged Workbook format	adANALYTICS
685	Tableau Extract format	adANALYTICS
686	Tableau Data Source format	adANALYTICS
687	Tableau Packaged Data Source format	adANALYTICS
688	Tableau Preferences format	adANALYTICS
689	Tableau Map Source format	adANALYTICS
690	ABAP Source Code	adSOURCECODE

**Major Formats, continued**

Number	Format	File Class
691	AMPL Source Code	adSOURCECODE
692	APL Source Code	adSOURCECODE
693	ASN.1 Source Code	adSOURCECODE
694	ATS Source Code	adSOURCECODE
695	Agda Source Code	adSOURCECODE
696	Alloy Source Code	adSOURCECODE
697	Apex Source Code	adSOURCECODE
698	Arduino Source Code	adSOURCECODE
699	AsciiDoc Source Code	adSOURCECODE
700	AspectJ Source Code	adSOURCECODE
701	Awk Source Code	adSOURCECODE
702	BlitzMax Source Code	adSOURCECODE
703	Bluespec Source Code	adSOURCECODE
704	Brainfuck Source Code	adSOURCECODE
705	Brightscript Source Code	adSOURCECODE
706	CLIPS Source Code	adSOURCECODE
707	CMake Source Code	adSOURCECODE
708	COBOL Source Code	adSOURCECODE
709	CWeb Source Code	adSOURCECODE
710	CartoCSS Source Code	adSOURCECODE
711	Ceylon Source Code	adSOURCECODE
712	Chapel Source Code	adSOURCECODE
713	Clarion Source Code	adSOURCECODE
714	Clean Source Code	adSOURCECODE
715	Component Pascal Source Code	adSOURCECODE
716	Cool Source Code	adSOURCECODE

**Major Formats, continued**

Number	Format	File Class
717	Coq Source Code	adSOURCECODE
718	Creole Source Code	adSOURCECODE
719	Crystal Source Code	adSOURCECODE
720	Csound Source Code	adSOURCECODE
721	Csound Document Source Code	adSOURCECODE
722	Cuda Source Code	adSOURCECODE
723	D Source Code	adSOURCECODE
724	DIGITAL Command Language Source Code	adSOURCECODE
725	DTrace Source Code	adSOURCECODE
726	Dart Source Code	adSOURCECODE
727	E Source Code	adSOURCECODE
728	ECL Source Code	adSOURCECODE
729	Elm Source Code	adSOURCECODE
730	Emacs Lisp Source Code	adSOURCECODE
731	EmberScript Source Code	adSOURCECODE
732	Fantom Source Code	adSOURCECODE
733	Forth Source Code	adSOURCECODE
734	FreeMarker Source Code	adSOURCECODE
735	Frege Source Code	adSOURCECODE
736	G-code Source Code	adSOURCECODE
737	GAMS Source Code	adSOURCECODE
738	GAP Source Code	adSOURCECODE
739	GDScript Source Code	adSOURCECODE
740	GLSL Source Code	adSOURCECODE
741	Game Maker Language Source Code	adSOURCECODE
742	Gnuplot Source Code	adSOURCECODE

### Major Formats, continued

Number	Format	File Class
743	Golo Source Code	adSOURCECODE
744	Gosu Source Code	adSOURCECODE
745	Gradle Source Code	adSOURCECODE
746	GraphQL Source Code	adSOURCECODE
747	Graphviz (DOT) Source Code	adSOURCECODE
748	HLSL Source Code	adSOURCECODE
749	Hack Source Code	adSOURCECODE
750	Haml Source Code	adSOURCECODE
751	Handlebars Source Code	adSOURCECODE
752	Hy Source Code	adSOURCECODE
753	IDL Source Code	adSOURCECODE
754	IGOR Pro Source Code	adSOURCECODE
755	Idris Source Code	adSOURCECODE
756	Inform 7 Source Code	adSOURCECODE
757	Ioke Source Code	adSOURCECODE
758	Isabelle Source Code	adSOURCECODE
759	J Source Code	adSOURCECODE
760	JSONiq Source Code	adSOURCECODE
761	JSX Source Code	adSOURCECODE
762	Jasmin Source Code	adSOURCECODE
763	Jolie Source Code	adSOURCECODE
764	Julia Source Code	adSOURCECODE
765	KiCad Layout Source Code	adSOURCECODE
766	KiCad Schematic Source Code	adSOURCECODE
767	Kotlin Source Code	adSOURCECODE
768	LFE Source Code	adSOURCECODE



**Major Formats, continued**

Number	Format	File Class
769	LOLCODE Source Code	adSOURCECODE
770	Lasso Source Code	adSOURCECODE
771	Limbo Source Code	adSOURCECODE
772	LiveScript Source Code	adSOURCECODE
773	M Source Code	adSOURCECODE
774	MAXScript Source Code	adSOURCECODE
775	Markdown Source Code	adSOURCECODE
776	Max Source Code	adSOURCECODE
777	Mercury Source Code	adSOURCECODE
778	Modelica Source Code	adSOURCECODE
779	Modula-2 Source Code	adSOURCECODE
780	Monkey Source Code	adSOURCECODE
781	Moocode Source Code	adSOURCECODE
782	NL Source Code	adSOURCECODE
783	NSIS Source Code	adSOURCECODE
784	NetLogo Source Code	adSOURCECODE
785	NewLisp Source Code	adSOURCECODE
786	Nginx Source Code	adSOURCECODE
787	Nix Source Code	adSOURCECODE
788	Nu Source Code	adSOURCECODE
789	OCaml Source Code	adSOURCECODE
790	OpenCL Source Code	adSOURCECODE
791	OpenEdge ABL Source Code	adSOURCECODE
792	OpenSCAD Source Code	adSOURCECODE
793	Ox Source Code	adSOURCECODE
794	Oxygene Source Code	adSOURCECODE

**Major Formats, continued**

Number	Format	File Class
795	Oz Source Code	adSOURCECODE
796	PAWN Source Code	adSOURCECODE
797	PLpgSQL Source Code	adSOURCECODE
798	Pan Source Code	adSOURCECODE
799	Parrot Assembly Source Code	adSOURCECODE
800	PicoLisp Source Code	adSOURCECODE
801	Pike Source Code	adSOURCECODE
802	Pony Source Code	adSOURCECODE
803	Processing Source Code	adSOURCECODE
804	PureBasic Source Code	adSOURCECODE
805	QMake File	adSOURCECODE
806	RAML Source Code	adSOURCECODE
807	RDoc Source Code	adSOURCECODE
808	REXX Source Code	adSOURCECODE
809	Racket Source Code	adSOURCECODE
810	Ragel Source Code	adSOURCECODE
811	Rascal Source Code	adSOURCECODE
812	Rebol Source Code	adSOURCECODE
813	Red Source Code	adSOURCECODE
814	Ren'Py Source Code	adSOURCECODE
815	RenderScript Source Code	adSOURCECODE
816	Ring Source Code	adSOURCECODE
817	RobotFramework Source Code	adSOURCECODE
818	SAS Source Code	adSOURCECODE
819	SPARQL Source Code	adSOURCECODE
820	SQL Source Code	adSOURCECODE

**Major Formats, continued**

Number	Format	File Class
821	SQLPL Source Code	adSOURCECODE
822	SaltStack Source Code	adSOURCECODE
823	Scheme Source Code	adSOURCECODE
824	Scilab Source Code	adSOURCECODE
825	Squirrel Source Code	adSOURCECODE
826	Stan Source Code	adSOURCECODE
827	Stata Source Code	adSOURCECODE
828	Stylus Source Code	adSOURCECODE
829	SuperCollider Source Code	adSOURCECODE
830	SystemVerilog Source Code	adSOURCECODE
831	TXL Source Code	adSOURCECODE
832	Turing Source Code	adSOURCECODE
833	Turtle Source Code	adSOURCECODE
834	UrWeb Source Code	adSOURCECODE
835	Vim script File	adSOURCECODE
836	Visual Basic Source Code	adSOURCECODE
837	WebAssembly Source Code	adSOURCECODE
838	WebIDL Source Code	adSOURCECODE
839	X10 Source Code	adSOURCECODE
840	XQuery Source Code	adSOURCECODE
841	Xojo Source Code	adSOURCECODE
842	Xtend Source Code	adSOURCECODE
843	YANG Source Code	adSOURCECODE
844	Zephir Source Code	adSOURCECODE
845	eC Source Code	adSOURCECODE
846	reStructuredText Source Code	adSOURCECODE

### Major Formats, continued

Number	Format	File Class
847	xBase Source Code	adSOURCECODE
848	MSI Windows Installer format	adENCAPSULATION
849	Autodesk 3ds Max format	adCAD
850	PhotoDraw MIX image	adRASTERIMAGE
851	Softimage Scene SCN format	adCAD
852	Parasolid ascii XT format	adCAD
853	Parasolid binary XB format	adCAD
854	Initial Graphics Exchange Specification format	adCAD
855	ACE archive format	adENCAPSULATION
856	Grasshopper GHX format	adCAD
857	Microsoft FrontPage macro file format	adWORDPROCESSOR
858	Microsoft AtWork Fax format	adFAXFORMAT
859	Microsoft Image Composer format	adRASTERIMAGE
860	Microsoft Visual InterDev web project items file	adMISC
861	Macromedia Flash FLA Project File OLE format	adWORDPROCESSOR
862	CorelDRAW version X4 onwards	adVECTORGRAPHIC
863	Ogg Daala video format	adMOVIE
864	Ogg BBC Dirac video format	adMOVIE
865	PKCS #7 cryptographic format	adWORDPROCESSOR
866	Time-stamped data format	adENCAPSULATION
867	Sereal data serialization format	adMISC
868	Associated Signature Container Simple format	adENCAPSULATION
869	Associated Signature Container Extended format	adENCAPSULATION
870	Apple iBooks format	adWORDPROCESSOR
871	PDF Forms Data Format	adWORDPROCESSOR
872	PDF XML Forms Data Format	adWORDPROCESSOR

### Major Formats, continued

Number	Format	File Class
873	AxCrypt encrypted document	adENCAPSULATION
874	Unix Archive ar format	adENCAPSULATION
875	Berkeley DB btree database format	adDATABASE
876	Berkeley DB hash database format	adDATABASE
877	Berkeley DB log database format	adDATABASE
878	Berkeley DB queue database format	adDATABASE
879	BitTorrent file format	adMISC
880	Google Chrome Extension format	adENCAPSULATION
881	Dalvik Executable dex format	adEXECUTABLE
882	Foxmail email format	adWORDPROCESSOR
883	General Regularly-distributed Information in Binary form GRIB format	adMISC
884	Zstandard compression format	adENCAPSULATION
885	LZ4 compressed file	adENCAPSULATION
886	Microsoft Money format	adSPREADSHEET
887	Network Common Data Form NetCDF format	adMISC
888	SAS 6 Data storage format	adDATABASE
889	SAS Transport File XPORT format	adDATABASE
890	Snappy Framed compression format	adENCAPSULATION
891	Stata Data Format	adDATABASE
892	SPSS Statistics Data File Format	adDATABASE
893	Zoo Compressed Archive Format	adENCAPSULATION
894	ChemDraw CDX format	adMISC
895	ChemDraw CDXML format	adMISC
896	Better Portable Graphics BPG format	adRASTERIMAGE
897	Apple Icon image format	adRASTERIMAGE

**Major Formats, continued**

Number	Format	File Class
898	National Imagery Transmission Format NITF image	adRASTERIMAGE
899	ERDAS Imagine image format	adRASTERIMAGE
900	Microsoft Office temporary owner file	adMISC
901	Enhanced-AC3 (EAC3) Audio File format	adSOUND
902	Common Object File Format (COFF) relocatable object	adOBJECTMODULE
903	Common Object File Format (COFF) executable	adEXECUTABLE
904	Common Object File Format (COFF) dynamic library	adLIBRARY
905	ELF Core file	adMISC
906	Rational Purify data file	adMISC
907	Kryptel encrypted file	adENCAPSULATION
908	Windows heap or mini core dump file	adMISC
909	Qt Prerendered Font format	adFONT
910	AIX/RISC COFF relocatable object	adOBJECTMODULE
911	AIX/RISC COFF executable	adEXECUTABLE
912	AIX/RISC COFF dynamic library	adLIBRARY
913	HPUX/PA-RISC COFF relocatable object	adOBJECTMODULE
914	HPUX/PA-RISC COFF executable	adEXECUTABLE
915	HPUX/PA-RISC COFF dynamic library	adLIBRARY
916	EBCDIC-encoded XML file	adWORDPROCESSOR
917	MPEG JVT-NAL sequence H264 video	adMOVIE
918	Material Exchange Format audio-video container format	adMOVIE
919	Microsoft Agent Character file	adMOVIE
920	Quicken data file	adMISC
921	Microsoft Outlook address file	adMISC
922	Microsoft Answer Wizard file	adMISC
923	ADX audio file	adSOUND

### Major Formats, continued

Number	Format	File Class
924	Microsoft System Deployment Image SDI format	adMISC
925	Free Lossless Image Format (FLIF)	adRASTERIMAGE
926	Digital Picture Exchange (DPX) image format	adRASTERIMAGE
927	Apache Avro binary format	adMISC
928	InstallShield archive (early versions) format	adENCAPSULATION
929	Mac OS-X (Mach-O) executable format	adEXECUTABLE
930	GDSII data format	adMISC
931	Microsoft ActiveMime (mso) documents	adMISC
932	BizInt SmartCharts data format	adMISC
933	Webex advanced network ARF recordings	adMOVIE
934	Webex local WRF recordings	adMOVIE
935	Symantec PGP NetShare encrypted file	adENCAPSULATION
936	Ability Write later versions format	adWORDPROCESSOR
937	Ability Spreadsheet later versions format	adSPREADSHEET
938	Adobe InDesign IDML format	adDESKTOPPUBLSH
939	Executable Java Archive (jar) file	adENCAPSULATION
940	IDOL Server IDX file	adENCAPSULATION
941	Android Package Kit (APK) format	adEXECUTABLE
942	Android Binary XML (compressed by aapt) format	adWORDPROCESSOR
943	Java WAR file format	adENCAPSULATION
944	Java EAR file format	adENCAPSULATION
945	Atom Syndication Format	adWORDPROCESSOR
946	RSS syndication XML format	adWORDPROCESSOR
947	Synchronized Multimedia Integration Language (SMIL) XML format	adWORDPROCESSOR
948	Extensible Stylesheet Language Transformations (XSLT) format	adWORDPROCESSOR

### Major Formats, continued

Number	Format	File Class
949	XML Shareable Playlist Format (XSPF)	adWORDPROCESSOR
950	FictionBook e-book XML format	adWORDPROCESSOR
951	Adobe Premiere project format	adMISC
952	RDF/XML format	adWORDPROCESSOR
953	Really Simple Discovery (RSD) XML format	adWORDPROCESSOR
954	Systems Biology Markup Language (SBML) XML format	adWORDPROCESSOR
955	Search/Retrieve via URL (SRU) XML format	adWORDPROCESSOR
956	Speech Synthesis Markup Language (SSML) XML format	adWORDPROCESSOR
957	Pronunciation Lexicon Specification (PLS) XML format	adWORDPROCESSOR
958	Text Encoding Initiative (TEI) XML format	adWORDPROCESSOR
959	Metadata Encoding and Transmission Standard (METS) XML format	adWORDPROCESSOR
960	Metadata Object Description Schema (MODS) XML format	adWORDPROCESSOR
961	Metalink XML format	adWORDPROCESSOR
962	Open eBook (OEBPS) XML format	adWORDPROCESSOR
963	Speech Recognition Grammar Specification (SRGS) XML format	adWORDPROCESSOR
964	SPARQL Query Results XML format	adWORDPROCESSOR
965	Adobe XML Data Package format	adWORDPROCESSOR
966	e-Szigno signed xml document	adWORDPROCESSOR
967	Mozilla XML User Interface Language (XUL) XML format	adWORDPROCESSOR
968	Synchronization Markup Language (SyncML) XML format	adWORDPROCESSOR
969	VoiceXML (VXML) XML format	adWORDPROCESSOR
970	Texas Instruments CCXML target configuration XML format	adWORDPROCESSOR
971	Lempel-Ziv Finite State Entropy (LZFSE) compression format	adENCAPSULATION
972	Amazon Kindle or Mobipocket eBook format	adWORDPROCESSOR
973	Open Artwork System Interchange Standard (OASIS) format	adMISC



### Major Formats, continued

Number	Format	File Class
974	Amazon KFX eBook format	adWORDPROCESSOR
975	KTX image format	adRASTERIMAGE
976	GMSH Mesh polygon format	adCAD
977	Collada Digital Asset Exchange (DAE) format	adCAD
978	YIN XML format	adWORDPROCESSOR
979	MPEG audio playlist format	adSOUND
980	Windows Audio playlist format	adSOUND
981	DTS Coherent Acoustics audio format	adSOUND
982	Chemical Markup Language (CML) XML format	adWORDPROCESSOR
983	CrystalMaker chemical format	adMISC
984	Visualization Toolkit VTK XML format	adVECTORGRAPHIC
985	IP Flow Information Export (IPFIX) format	adMISC
986	Portable Font Resource font format	adFONT
987	Machine-Readable Cataloging (MARC21) format	adDATABASE
988	Machine-Readable Cataloging (MARC) XML format	adWORDPROCESSOR
989	Extensible Archive (XAR) format	adENCAPSULATION
990	Symbian installer format	adENCAPSULATION
991	OpenDocument format (OpenOffice 1/StarOffice 6.7) Writer Master document XML	adWORDPROCESSOR
992	ODF Chart	adVECTORGRAPHIC
993	ODF Database	adDATABASE
994	ODF Image	adRASTERIMAGE
995	ODF Text Master	adWORDPROCESSOR
996	ODF Text Web	adWORDPROCESSOR
997	ODF Chart Template	adVECTORGRAPHIC
998	ODF Formula Template	adWORDPROCESSOR

### Major Formats, continued

Number	Format	File Class
999	ODF Image Template	adRASTERIMAGE
1000	ODF Chart flat XML format	adVECTORGRAPHIC
1001	ODF Drawing/Graphics flat XML format	adWORDPROCESSOR
1002	ODF Formula flat XML format	adVECTORGRAPHIC
1003	ODF Image flat XML format	adRASTERIMAGE
1004	ODF Presentation flat XML format	adPRESENTATION
1005	ODF Spreadsheet flat XML format	adSPREADSHEET
1006	ODF Text flat XML format	adWORDPROCESSOR
1007	ODF Extension format	adMISC
1008	OpenOffice StarView MetaFile format	adRASTERIMAGE
1009	Broad Band eBook (BBEB) in LRF format	adWORDPROCESSOR
1010	GPG trust database format	adMISC
1011	VICE (Versatile Commodore Emulator) format	adMISC
1012	Portable Game Notation chess format	adWORDPROCESSOR
1013	Doom IWAD/PWAD format	adMISC
1014	Linux Device Tree Blob format	adMISC
1015	Glyph Bitmap Distribution Format	adFONT
1016	PC Screen Font format	adFONT
1017	Java Network Launching Protocol	adWORDPROCESSOR
1018	XAML Browser Application (XBAP) format	adWORDPROCESSOR
1019	Microsoft Office Binder format	adENCAPSULATION
1020	Microsoft Silverlight application (XAP) format	adENCAPSULATION
1021	StuffIt X (SITX) archive format	adENCAPSULATION
1022	Facility for Interactive Generation of figures (FIG) image format	adVECTORGRAPHIC
1023	XPIInstall Cross-Platform Installer Module (XPI) format	adENCAPSULATION

### Major Formats, continued

Number	Format	File Class
1024	Extensible Data Format (XDF) XML format	adWORDPROCESSOR
1025	MXML UI markup language XML format	adWORDPROCESSOR
1026	MusicXML format	adENCAPSULATION
1027	Finale audio format	adSOUND
1028	TIBCO Spotfire DXP data format	adANALYTICS
1029	Microsoft Office theme format	adMISC
1030	Adobe AIR application installer package	adENCAPSULATION
1031	Adobe Flash Flex project file format	adENCAPSULATION
1032	FoxPro compiled source format	adLIBRARY
1033	Virtual Studio Technology (VST) preset format	adSOUND
1034	Mischief vector graphics image format	adVECTORGRAPHIC
1035	FreeArc archive format	adENCAPSULATION
1036	Autodesk 3ds format	adCAD
1037	Monkey's Audio format	adSOUND
1038	CALS raster image format	adRASTERIMAGE
1039	Dr Halo raster image PAL file format	adRASTERIMAGE
1040	Nintendo DS DPG video format	adMOVIE
1041	JPEG XR (extended range) image format	adRASTERIMAGE
1042	TCR (Text Compression for Reader) eBook format	adWORDPROCESSOR

### File Classes

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

#### File Classes, continued

Attribute Number	Description	File class
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

#### Minor Formats

Attribute Number	Minor Format
00	Minor format not defined
01	Standard

**Minor Formats, continued**

Attribute Number	Minor Format
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
26	Glossary
27	Spelling

**Minor Formats, continued**

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

# Appendix G: Files Required for Redistribution

This section lists the Export files that can be redistributed in your applications under the licensing agreement. Unless noted, these files are in the directory *install\OS\bin*, where *install* is the path of the Export installation directory and *OS* is the operating system platform.

- [Core Files](#) .....287
- [Support Files](#) .....288
- [Document Readers and Writers](#) .....290
- [Document Type Definition Files](#) .....296

**NOTE:** On Windows systems, the libraries are .dll files. On UNIX systems, the libraries are .so, .a, or .sl files.

## Core Files

The following core files can be redistributed with your application.

File	Description
formats_e.ini	Initialization file. For more information on this file, see <a href="#">Determine Format Support, on page 239</a> .
*htmlexport.*	Required by the Java API.
KeyView.jar	Interface for Java support. <b>NOTE:</b> This file can be found at the path <i>install/javaapi/KeyView.jar</i> where <i>install</i> is the Export SDK installation directory.
kpifcnvt.*	Graphic conversion routines.
kpifutil.*	Graphic utility routines.
kvdecrypt.*	Decryption utility functions
kvxtract.*	File Extraction interface.
kvexport.*	Export C API. Interface to the HTML and XML Export C APIs.
kvexportdotnet.*	Interface for .NET support.
kvolefio.*	Embedded OLE object writer.
kvutil.*	Internal KeyView utility functions.

File	Description
kvxpgsa.*	Interface between presentations or graphic readers and the Export API.
kvxml.*	XML Export C API.
kvxssa.*	Interface between spreadsheet readers and the Export API.
kvxwpsa.*	Interface between word processing readers and the Export API.
kvzip.*	Zip writer
kwad.*	File auto-recognition module.
regsvr32.exe	A Microsoft Windows program used to register in-process COM objects.
txtcnv.*	Converter for document token stream.
xmlcnv.*	XML converter for the document token stream.
*xmlexport.*	Required by the Java API.
*\vcredist\*	(Windows platforms only) Microsoft Visual C++ Redistributable Packages.  <b>NOTE:</b> This folder can be found in the Export SDK installation directory.

## Support Files

The following support files can be redistributed with your application.

File	Description
datafiles\	(Folder) Required by kvlangdetect.
NSFtemplates\	(Folder) Templates used by nsfsr to format Lotus mail notes.
7z.*	Required by z7zsr and multiarcsr.
bentofio.*	Required by 1123sr.* and kpprzrdr.*.
cbmap.map	Character mappings for Adobe Portable Document Format (PDF).
CEBDLL.*	Required by cebssr.
chartb1s.ux	Character mapping tables.
chmdll.*	Required by chmsr.
*codeidentifierplugin*	Required for source code identification.
DFECore.*	Required by cebssr.



File	Description
Filter.*	Required by cbsr.
kp3dwrld.*	Required for 3D charts.
kpchtrdr.*	Required for all spreadsheets (chart support).
kpjavwrt.*	Java utility routines.
kpjpeg.*	JPEG file interchange format shared routines.
kppng.*	Portable Network Graphics (PNG) utilities.
kvlangdetect.*	Utility functions for language and character set detection.
kvxconfig.ini	Contains element extraction settings for source XML files.
kvgraph.*	Required for all spreadsheets (chart support).
kvpie.*	Required for all spreadsheets (chart support).
kvradar.*	Required for all spreadsheets (chart support).
kv.lic	Contains license information for KeyView products. This file is opened and validated when a KeyView API is used.
kv raster.class	Java program used to convert vector graphics on UNIX and Linux.
kvVector.class	Java applet used to convert vector graphics on UNIX and Linux.
kvvector.jar	Java applet used to convert vector graphics on UNIX and Linux. This must reside in the output directory.
langdetectext.*	Required by kvlangdetect.*
libey32.dll	(Windows platforms only) SSL utility functions used by KeyView mail format readers.
libpff.*	Required by pffsr.
libstlport.so.1	(Solaris platforms only) Solaris Studio Redistributable.
oleaut32.*	Microsoft OLE Automation Controls.
olepro32.*	Microsoft OLE property support library.
servant.exe	Executable required for out-of-process conversions.
unzipjpg.*	Required for JPEG decompression.
wpmap.*	Extended character mapping for WordPerfect and Corel Presentation.
xmlsh.*	Contains a library of content handlers for each XML file type. Required by the Expat XML parser.

## Document Readers and Writers

The following readers and writers can be redistributed with your application.

File	Description
ad1sr.*	AD1 Evidence file reader
afsr.*	ASCII reader
assr.*	Applix spreadsheet reader
awsr.*	Applix Words reader
bkfsr.*	Microsoft Backup File reader
bmpsr.*	Windows bitmap (BMP) reader
bzip2sr.*	Bzip2 reader
cabsr.*	Microsoft Cabinet format reader
cebsr.*	Founder Chinese E-paper Basic reader
chmsr.*	Microsoft Compiled HTML Help reader
csvsr.*	Comma-Separated Values reader
dbfsr.*	dBase Database reader
dbxsr.*	Microsoft Outlook Express DBX reader
dcasr.*	Document Content Architecture/Revisable Form Text (DCA/RFT) reader
difsr.*	Data Interchange Format reader
dmgsr.*	Mac Disk Copy Disk Image File reader
dw4sr.*	DisplayWrite 4 reader
dx1sr.*	Domino XML Language reader
em1sr.*	Microsoft Outlook Express (EML) reader. This is used to convert EML files when the MBX reader is not licensed.
emxsr.*	Legato EMailXtender archive (EMX) reader
encasesr.*	Expert Witness Compression Format (EnCase) v6 reader
encase2sr.*	Expert Witness Compression Format (EnCase) v7 reader
entsr.*	Microsoft Entourage Database Format reader
epubsr.*	Open Publication Structure eBook reader

File	Description
foliosr.*	Folio Flat File reader
gifsr.*	Graphics Interchange Format (GIF) reader
gwfssr.*	GroupWise FileSurf reader
hl7sr.*	Health level7 reader (metadata only)
htmsr.*	HTML and XHTML reader
hwposr.*	Hangul 2002, 2005, 2007 reader
hwpsr.*	Hangul 97 reader
ichatsr.*	Apple iChat Log reader
icssr.*	Microsoft Outlook iCalendar reader
isosr.*	ISO-9660 CD Disc Image Format reader
iwss13sr.*	iWork 13 Numbers reader
iwsssr.*	Apple iWork Numbers reader
iwwp13sr.*	iWork 13 Pages reader
iwwpsr.*	Apple iWork Pages reader
jp2000sr.*	JPEG 2000 metadata reader
jpgsr.*	JPEG metadata reader
jtdsr.*	JustSystems Ichitaro reader
kpagrdr.*	Applix Presents reader
kpanirdr.*	Animated cursor reader
kpbmprdr.*	Windows Bitmap reader
kpbmpwrt.*	Windows Bitmap writer
kpcdrdr.*	Corel Draw
kpcgmrdr.*	Computer Graphics Metafile reader
kpcgmwrt.*	Computer Graphics Metafile writer
kpdcxrdr.*	DCX (fax) reader
kpDWGrdr.*	AutoCAD Drawing format reader
kpDXFrdr.*	AutoCAD Drawing Exchange format reader

File	Description
kpemfrdr.*	Enhanced Metafile reader
kpemfwrt.*	Enhanced Metafile writer
kpepsrdr.*	Encapsulated PostScript (EPS) reader
kpgflrdr.*	OmniGraffle Picture reader
kpgifrdr.*	Graphic Interchange Format (GIF) reader
kpgifwrt.*	Graphic Interchange Format (GIF) writer
kpicordr.*	Windows Icon reader
kpiwpgdrdr.*	Apple iWork Keynote reader
kpjbig2rdr.*	JBIG2 reader
kpjp2000rdr.*	JPEG 2000 reader
kpjpgdrdr.*	JPEG file interchange format reader
kpjpgwrt.*	JPEG file interchange format writer
kpnbmprdr.*	IBM Notes Bitmap reader (for embedded images in DXL files)
kpmacrdr.*	MacPaint reader
kpsmordr.*	Microsoft Office Drawing Objects (office 97, 2000, and XP) reader
kpodfrdr.*	Oasis Open Document Format presentation (ODP) reader
kpODArdr.*	AutoCAD reader (Windows only)
kpONErdr.*	Microsoft OneNote reader
kpoxdrdr.*	Open Office XML Diagram Graphics reader
kppdfrdr.*	Adobe Portable Document File (PDF) graphic-based reader
kppdf2rdr.*	High-fidelity Adobe Portable Document File (PDF) graphic-based 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
kppcxrdr.*	PC Paintbrush (PCX) reader
kppicrdr.*	Pictor PC Paint format (PIC) reader

File	Description
kppngrdr.*	Portable Network Graphics (PNG) reader
kppngwrt.*	Portable Network Graphics (PNG) writer
kpppxrdr.*	Microsoft PowerPoint XML reader 2007
kpprendr.*	Lotus Freelance Graphics for Windows V2.0 reader
kpprzrdr.*	Lotus Freelance Graphics 96/97/98 reader
kprawdr.*	ODA Internal Raster (RAW) Picture reader
kpsddrdr.*	StarOffice Draw / Impress reader
kpsdwrdr.*	Lotus Ami Pro Graphics reader
kpsgirdr.*	SGI RGB reader
kpshwrdr.*	Corel Presentations reader
kpsprdr.*	Shape Stream reader
kpsunrdr.*	Sun Raster reader
kptgardr.*	Truevision Targa reader
kptifdr.*	Tagged Image File Format (TIFF) reader
kpvsd2rdr.*	Microsoft Visio reader
kpvsdxrdr.*	Microsoft Visio 2013 reader
kpwg2rdr.*	WordPerfect Graphics 2 reader
kpwmfrdr.*	Windows Metafile reader
kpwmfwrt.*	Windows Metafile writer
kwpgrdr.*	WordPerfect Graphics 1 reader
kpxfd1rdr.*	Extensible Forms Description Language reader
kvgzsr.*	GZIP reader
kvhqxsr.*	BinHex reader
kvzeesr.*	UNIX Compress reader
l123sr.*	Lotus 123 v96/97/98 reader
lasr.*	Lotus AMI Pro reader
1tbenn30.dll	Lotus Word Pro support (supported on Windows x86 platform only)

File	Description
ltscsn10.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwpapin.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwppann.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwpsr.dll	Lotus Word Pro reader (supported on Windows x86 platform only)
lzhsr.*	Microsoft Compression Folder reader
macbinsr.*	MacBinary reader
mbsr.*	Microsoft Word Macintosh reader
mbxsr.*	Mailbox (MBX) <sup>1</sup> and Microsoft Outlook Express (EML) reader
mdbsr.*	Microsoft Access reader.
mhtsr.*	MIME HTML reader
mifsr.*	Adobe Maker Interchange Format reader
misr.*	Microsoft Word 2 reader
mp3sr.*	MP3 reader for metadata extraction
mppsрr.*	Microsoft Project reader
msgsr.*	Microsoft Outlook (MSG) reader
mspubsr.*	Microsoft Publisher reader
msw6sr.*	Microsoft Works 6 and 2000 reader
mswsr.*	Microsoft Works V1 and 2 reader
multiarcsr	ARJ reader
mw6sr.*	Microsoft Word 95 reader
mw8sr.*	Microsoft Word 97, 2000, and XP reader
mwsr.*	Microsoft Word for DOS and Microsoft Write reader
mwssr.*	Microsoft Works Spreadsheet reader
mwxsr.*	Microsoft Word 2007 XML reader

<sup>1</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

File	Description
nsfsrc.*	IBM Notes Database reader <sup>1</sup>
oa2src.*	Fujitsu Oasys reader
odfsssrc.*	Oasis Open Document Format spreadsheets (ODS) reader
odfwpsrc.*	Oasis Open Document Format word processing (ODT) reader
olesrc.*	Embedded OLE object reader.
olmsrc.*	Microsoft Outlook for Macintosh reader
onmsrc.*	Legato EMailXtender Native Message reader
oo3src.*	Omni Outliner reader
pdf2src.*	Alternative Adobe Portable Document Format file (PDF) reader
pdfsrc.*	Adobe Portable Document File (PDF) reader
pfsrc.*	Microsoft Outlook Offline Storage File reader
pngsrc.*	Portable Network Graphics (PNG) reader
pstsrc.dll	Microsoft Outlook Personal Folders file MAPI-based reader (supported on Windows platform only) <sup>2</sup>
pstnsrc.*	Microsoft Outlook Personal Folders file native reader <sup>3</sup>
qpssrc.*	Quattro Pro spreadsheet reader
rarsrc.*	RAR Archive reader
rtfsrc.*	Microsoft Rich Text Format reader
skypesrc.*	Skype log file reader
sosrc.*	StarOffice/OpenOffice reader
starcsrc.*	StarOffice Calc reader
starwsr.*	StarOffice Writer reader
swfsrc.*	Macromedia Flash reader
tarsrc.*	Tape archive reader

<sup>1</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

<sup>2</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

<sup>3</sup>This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

File	Description
tifsr.*	TIFF reader (metadata only)
tnefsr.*	Transfer Neutral Encapsulation Format reader
unihtmsr.*	Unicode HTML reader
unisr.*	Unicode reader
unzip.*	Zip file reader
uudsr.*	UUEncoding reader
vsdsr.*	Microsoft Visio reader
vcfsr.*	Microsoft Outlook vCard Contact reader
wkssr.*	Lotus 1-2-3 v2.0 through 5.0 reader
wosr.*	WordPerfect 5.x reader
wp6sr.*	WordPerfect 6.0 through 10.0 reader
wpmsr.*	WordPerfect for Macintosh reader
xlsbsr.*	Microsoft Office 2007 Excel Binary Format reader
xlssr.*	Microsoft Excel reader
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

## Document Type Definition Files

The following files related to the `verity.dtd` can be redistributed with your application.

File	Description
Verity.dtd	The document type definition file that defines the structure of an XML document. XML document validity is based on the <code>Verity.dtd</code> . The <code>Verity.dtd</code> is required and must be in the same directory as the output XML file.



File	Description
HTMLlat1x.ent	The file defining Latin characters. This file is referenced in the <code>verity.dtd</code> . This file is required and must be in the same directory as the <code>Verity.dtd</code> .
HTMLspecialx.ent	The file defining special characters. This file is referenced in the <code>verity.dtd</code> . This file is required and must be in the same directory as the <code>Verity.dtd</code> .
HTMLsymbolx.ent	The file defining symbols. This file is referenced in the <code>verity.dtd</code> . This file is required and must be in the same directory as the <code>Verity.dtd</code> .
wp.xsl	The default style sheet for word processing documents. This file is optional and must be in the same directory as the output XML file.
pg.xsl	The default style sheet for presentation graphics. This file is optional and must be in the same directory as the output XML file.
ss.xsl	The default style sheet for spreadsheets. This file is optional and must be in the same directory as the output XML file.

## Appendix H: Password Protected Files

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

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- [Export Password Protected Files](#) ..... 299
- [Open Password Protected Container Files](#) .....299

### Supported Password Protected File Types

The following table lists the password-protected file types that KeyView supports.

#### Key to support table

Symbol	Description
Y	Format is supported.
N	Format is not supported.
S	Support for viewing subfiles.
V	Support for viewing content.
P	Password required.
C	Password and certificate or User ID file required.

#### Supported password-protected file types

File Type	Version	Filter	Export	Extract	View	Credentials
PST (Windows)	n/a	N	N	Y	S	P
PST (non-Windows) <sup>1</sup>	n/a	N	N	Y	S	N
ZIP	n/a	N	N	Y	S	P
7-Zip	n/a	N	N	Y	S	P
RAR	n/a	N	N	Y	S	P
SMIME in MSG, EML, MBX	n/a	N	N	Y	N	C

<sup>1</sup>The native PST reader, `pstnsr`, does 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
Lotus Notes NSF	n/a	N	N	Y	N	C
Adobe PDF	n/a	Y	Y	Y	V	P
Microsoft Office	97-2003 2007 2010	Y	Y	Y	V	P

## Export Password Protected Files

This section describes how to export password-protected non-container files with the Java API.

#### To export password-protected files

1. Create an instance of the `ConfigOption` class, and set the `OptionType` argument to `CFG_SETPASSWORD`, the `OptionValue` argument to `TRUE`, and the `OptionData` argument to the source file password. The password is a null-terminated string of 255 or fewer characters (the final byte is null).
2. Call the `setConfigOption` method and pass the `ConfigOption` object.
3. Call a `convert` method. See the Javadoc in the directory `install\javaapi\javadoc`, where `install` is the path name of the Export installation directory.

## Open Password Protected Container Files

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

- **IBM Notes NSF files.** If you are running a Notes client with an active user connected to a Domino server, you must specify the user's password as a credential regardless of whether the NSF files you are opening are protected. This enables KeyView to access the Notes client and the IBM Notes API. If the Notes client is not running with an active user, KeyView does not require credentials to access the client.
- **PST files.** To open password-protected PST files that use High Encryption (Microsoft Outlook 2003 only), you must use the MAPI-based PST reader (`pstsr`). The native PST reader (`pstnsr`) returns the error message `KVERR_PasswordProtected` if a PST is encrypted with High Encryption.

#### To open container files

- Set the credential information to an `ExtOpenDocConfig` object, and pass it to the `extOpenDocument` method.

For example:

```
dconfig = new ExtOpenDocConfig();  
odconfig.setPassword(m_password);  
extContextID = m_objExportFilter.extOpenDocument(inFile, odconfig);
```

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