



KeyView

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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)
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 and .NET Components

Component	Compiler
Java components	Java 1.5
.NET components	Microsoft Visual J# 2005 Compiler 8.00.50727.42

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.
- Microsoft .NET Framework SDK version 2.0, Microsoft .NET Framework version 2.0 Redistributable Package is required if you are programming in a .NET environment.
- 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_11.6_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 19](#).

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, on the next page](#).

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 224](#)).
- 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
XXXXXXXX-XXXXXXXX-XXXXXXXX-XXXXXXXX
```

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 `/xmlxpt`.

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
<code>install\OS\bin</code>	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.

XML Export Installed Directory Structure, continued

Directory	Contents
<i>instal\javaapi\ini</i>	Contains the template files used with the Java API.
<i>instal\javaapi\javadoc</i>	Contains the Javadoc for the Java API.
<i>instal\javaapi\sample</i>	Contains the source files and sample programs for the Java API.
<i>instal\testdocs</i>	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.
<i>instal\XML Export\guide</i>	Contains the <i>XML Export C Programming Guide</i> and <i>XML Export Java Programming Guide</i> in HTML and PDF format.
<i>instal\XML Export\include</i>	Contains the header files (<i>adinfo.h</i> , <i>kvxml.h</i> , and <i>kvtypes.h</i>) for the C API.
<i>instal\XML Export\programs\bin</i>	Contains the executable files for the sample Visual Basic program called Export Demo.
<i>instal\XML Export\programs\cnv2xml</i>	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 <i>bin</i> directory.
<i>instal\XML Export\programs\cnv2xmlloop</i>	Contains the C source code for a sample program that creates a single XML file out of process.
<i>instal\XML Export\programs\ExportDemo</i>	Contains the source code for a sample Visual Basic program. The executable for this sample program is in the <i>bin</i> directory. Export Demo is available through the Start menu.
<i>instal\XML Export\programs\ini</i>	Contains the template files used to set the conversion options in the C API.
<i>instal\XML Export\programs\metadata</i>	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\XML Export\programs\pdfini</i>	Contains the template file used to extract custom metadata from PDF documents.
<i>instal\XML Export\programs\tempout</i>	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\XML Export\programs\tstxtract</i>	Contains the C source code and supporting files for a sample program that demonstrates the File Extraction interface.
<i>instal\XML Export\programs\xmlcallback</i>	Contains the C source code and supporting files for a sample program that demonstrates how user callbacks can dynamically

XML Export Installed Directory Structure, continued

Directory	Contents
	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 Export\programs\xmlmulti	Contains the C source code and supporting files for a sample 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><a xmlns:xlink= xlink href=> </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 Export Tokens, on page 198 .

Chapter 2: Getting Started

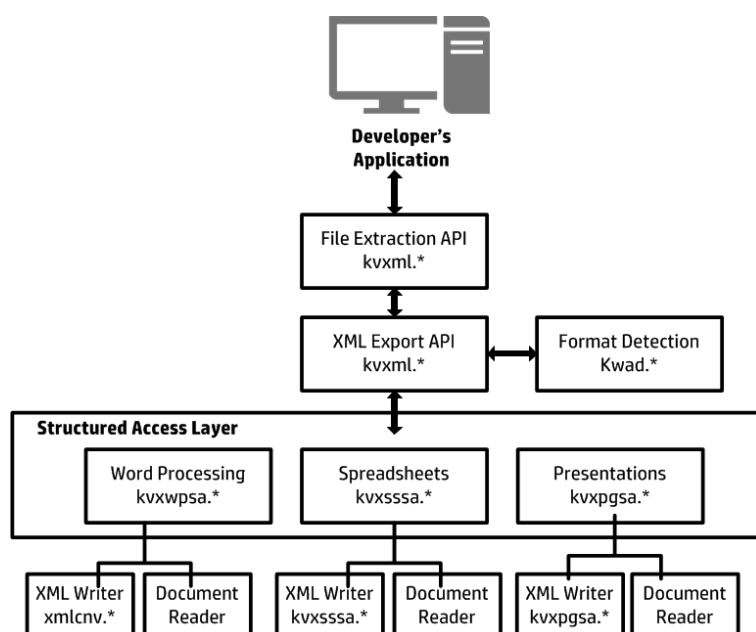
This section provides an overview of the XML Export SDK and describes how to use the Java implementation of the API. It contains the following topics:

• Architectural Overview	23
• Enhance Performance	24
• Convert Files Out of Process	25
• Convert Files	30
• Subfile Extraction	31
• Set Conversion Options	32
• Use the Export Demo Program	34
• Use the XML Export API	37
• Use the KeyView Document Type Definition (DTD)	44

Architectural Overview

The general architecture of the KeyView XML conversion technology is the same across all supported platforms and is illustrated in [Architectural Overview](#), above.

XML Export Architecture



Each component is described in [Architectural Components](#), on the next page.

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 Use the File Extraction API, on page 47 .
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 File Format Detection, on page 201 .
Structured Access Layer	<p>The structured access layer contains three modules: one for word processing, one for spreadsheets, and one for presentations and graphics. Information from the format detection module determines which access layer module operates at this stage of the conversion. The structured access layer performs the following:</p> <ol style="list-style-type: none">1. Loads the appropriate document reader.2. Processes the data stream from the document reader.3. Determines table of contents entries.4. Sends the stream to the appropriate XML writer.5. Accepts the XML stream from the XML writer.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.
Document Reader	Each document reader reads a specific file format and sends a text stream of the document to the structured access layer. Word processing readers return a <i>token stream</i> to the structured access layer. A token stream contains the document contents and messages (tokens) that precede the content and identify the type of information that follows them. Each reader is loaded as required by the structured access layer. See Document Readers and Writers, on page 226 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 Document Readers and Writers, on page 226 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:

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

ConnectRetryInterval=
ConnectRetry=
ServantName=
```

Each parameter is described in [Parameters for Out-of-Process Conversion, on the next page](#).

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 default = 0.1 range = 50000~500000	The length of time to wait after a Servant has failed to connect to the application before it retries the connection. A Servant might be unable to connect because the application is waiting for another Servant to send a process ID. To calculate the <i>total retry interval</i> , the value set here is added to the platform-specific TCP retry value (on Windows, this is 1 second).
ConnectRetry	The number of attempts the Servant makes to connect to the calling

Parameters for Out-of-Process Conversion, continued

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

Run Export Out of Process—Overview

To convert files out of process

1. If required, set parameters for the out-of-process conversion in the `formats_e.ini` file. See [Configure Out-of-Process Conversions, on page 26](#).
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 through 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 26](#).

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, on the next page](#).
- Setting conversion options to determine the content, structure, and appearance of the HTML output. See [Set Conversion Options, on page 32](#).
- 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 73](#).
- Extracting selected metadata (document properties) from a file. See [Extract Metadata, on page 68](#).
- Converting character sets to control the character set of both the input and the output text. See [Convert Character Sets, on page 74](#).
- 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 34](#).
- 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 103](#).

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 25](#).

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 105). 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 (xml1filecallback.ini)	<ul style="list-style-type: none">Based on the single file template (<code>xml1file.ini</code>).Implements a user callback named "UserCB_End_Block " at the bottom of the main XML file.
Single file with table of contents (xml1filetoc.ini)	<ul style="list-style-type: none">Creates a single XML file.Creates a table of contents at the top of the XML document.Uses the <code>Verity.dtd</code>.Uses an XSL style sheet (<code>wp.xsl</code>).Forces the output character set to UTF-8.Lists all metadata (Title, Subject, Author, Comments, Created, Modified, Last Saved By, and Revision Number).Uses the name of the worksheets for spreadsheets.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.
XML one file (xml1file.ini)	<ul style="list-style-type: none">Creates a single XML file.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 <code>wp.xsl</code> (for word processing documents), <code>ss.xsl</code> (for spreadsheets), <code>pg.xsl</code> (for presentations).

Template	Description
	<ul style="list-style-type: none">• Forces the output character set to UTF-8.• Maintains the source document's fonts and styles.• Does not create a table of contents.

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.

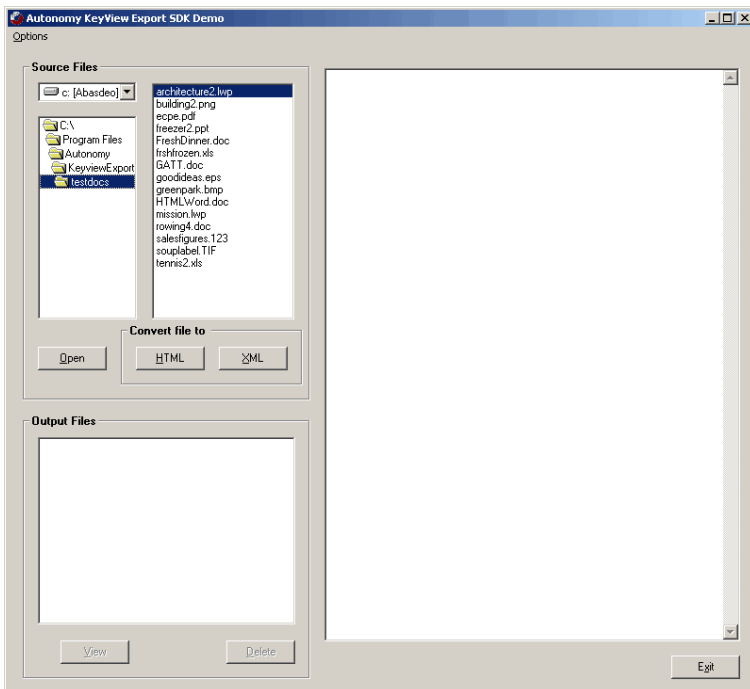
The source code for the program is in the directory `install\xmlexport\programs\ExportDemo`, where `install` is the path name of the Export installation directory.

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.

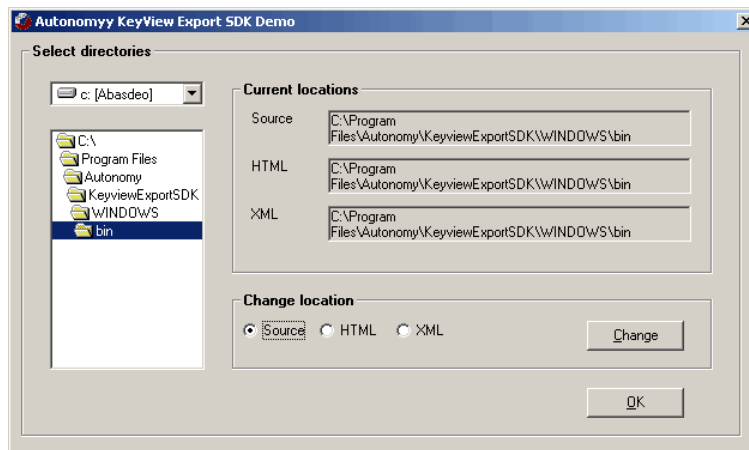
The default location for output files is the *install\xmlexport\programs\tempout* directory.

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

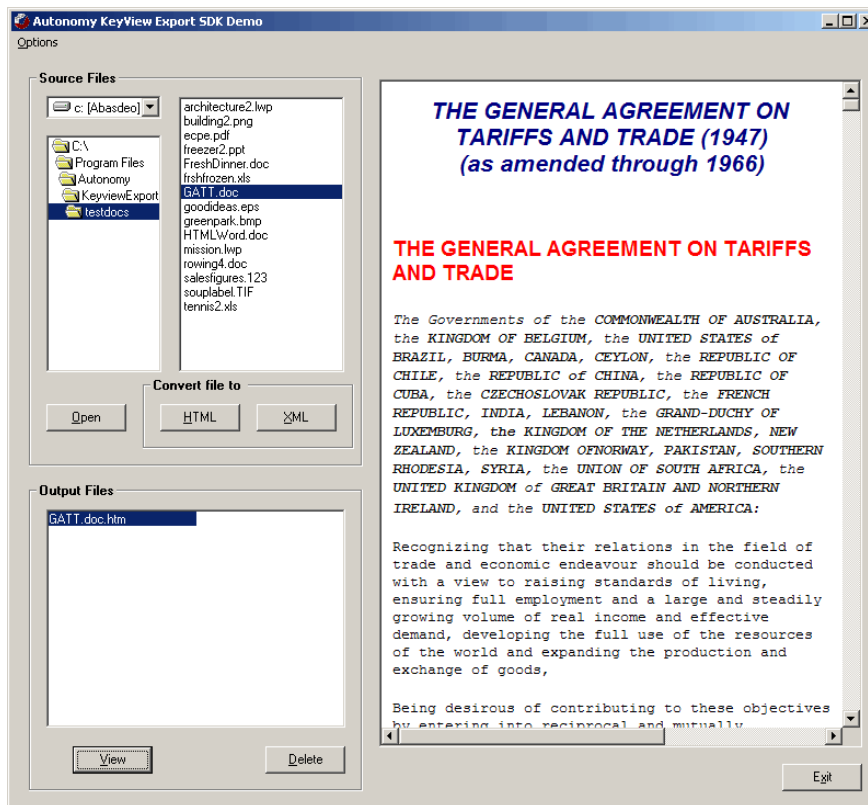
1. Select **Options > Convert > Single file**.
2. Select the document from the file list. Click **XML** in the **Convert file to** pane.

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 103](#).

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 32](#).

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 32](#).

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 32](#).

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 38](#), 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 198](#) 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 `libxmlexport.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 77](#) 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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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.

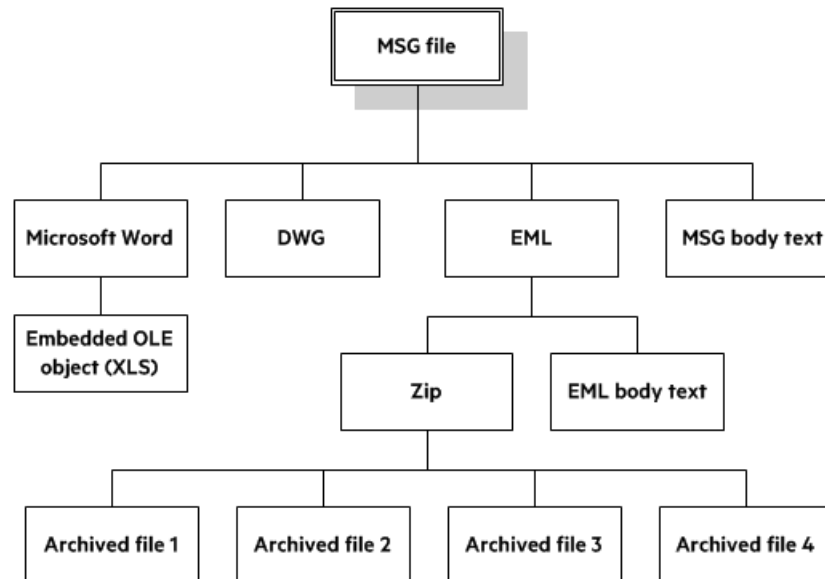
The following are examples of container files:

- 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 115 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.

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.

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.

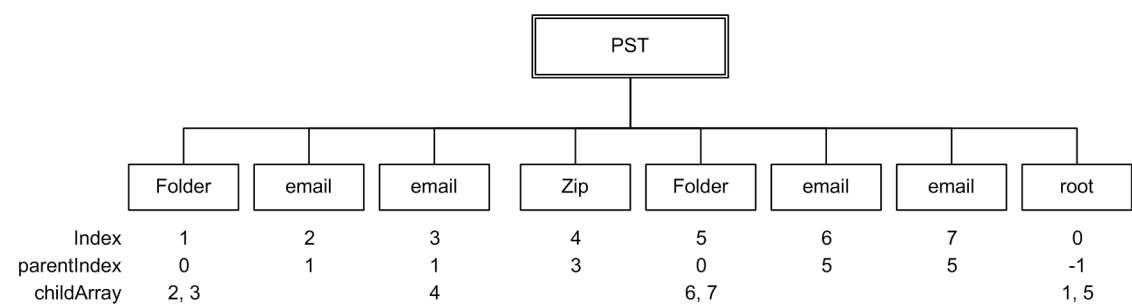
To create a root node, call the `setCreateNode` method in the `ExtOpenDocConfig` object, and pass `ExtOpenDocConfig` to the `extOpenDocument` method. When a root node is created, the value returned from the `getNumSubFiles` method in the `ExtMainFileInfo` object includes the root node. For example, when 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

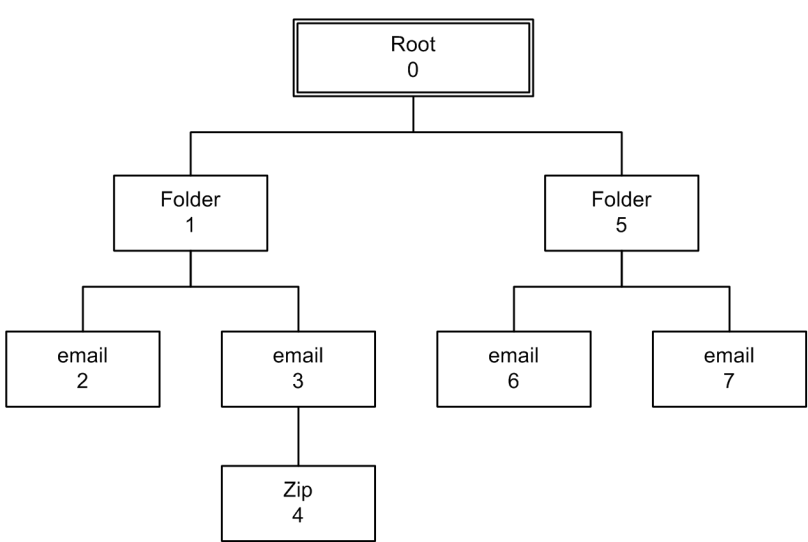
For example, you might extract a PST file that contains seven subfiles with a root node enabled. The call to `extGetMainFileInfo()` returns the number of subfiles as 8 (seven subfiles and one root node). The following diagram shows the structure and the available hierarchy information after the subfiles 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 54](#).

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 Sent field in the message's Properties dialog in Outlook.
InternetMessageID	The identifier for messages that come in over the Internet. This is the MAPI property <code>PR_INTERNET_MESSAGE_ID</code> . This property is not in the MAPI headers or MAPI documentation.
LastModificationTime	The time the message or attachment was last modified. This value is displayed in the Modified field in the message's Properties dialog in Outlook.
Location	The physical location of the event specified in the Outlook calendar entry.
MessageID	The message transfer system (MTS) identifier for the message transfer agent (MTA). This value is displayed on the Message ID tab in the message's Properties dialog in Outlook.
Received	The date and time a message was delivered. This value is displayed in the Received field in the message's Properties dialog in Outlook.
Sender	The name and email address of the message sender. This value is a concatenation of two MAPI properties in the following format:

MSG-Specific Metadata List, continued

Field Name (string to specify)	Description
	"PR_SENDER_NAME" <PR_SENDER_EMAIL_ADDRESS> The Sender value might be the same as or different than the default metadata From value (see Default Metadata Set, on page 51), depending on which MAPI properties exist in the MSG file.
Sensitivity	The value indicating the message sender's opinion of the sensitivity of a message, such as Personal, Private, or Confidential. This value is displayed in the Sensitivity field in the message's Properties dialog in Outlook.
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 (pstsrr)
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 (pstsrr)

The `pstsrr` 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 (`pstsrr`) 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 (pstr).

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

Extract Subfiles from Lotus Domino XML Language Files

When 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 56](#).

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]
LNParser=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 56](#).)

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 185](#).

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 `kvmmsg` for MSG, and `kvnsf` for NSF.

The following special characters are considered invalid and are ignored:

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

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

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

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

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

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

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

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

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

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

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

```
RE produ_kv0.mail
```

```
release_schedule.xls
```

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

Default File Name for Embedded OLE Objects

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

might include the following:

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

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

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

asterisk (*) forward slash (/)

back slash (\) pipe (|)

colon (:) question mark (?)

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

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

`sales_qu_kv0.xls`

`sales_qu_kv1.tmp`

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 51](#).

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 115](#) 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 105.

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">• <code>KV_String</code>• <code>KV_Int4</code>• <code>KV_DateTime</code>• <code>KV_ClipBoard</code>• <code>KV_Bool</code>• <code>KV_Unicode</code>• <code>KV_IEEE8</code>• <code>KV_Other</code> <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 201](#) 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 105](#).

Example

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

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

Convert Character Sets

Export 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 155](#) 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 115](#) 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.

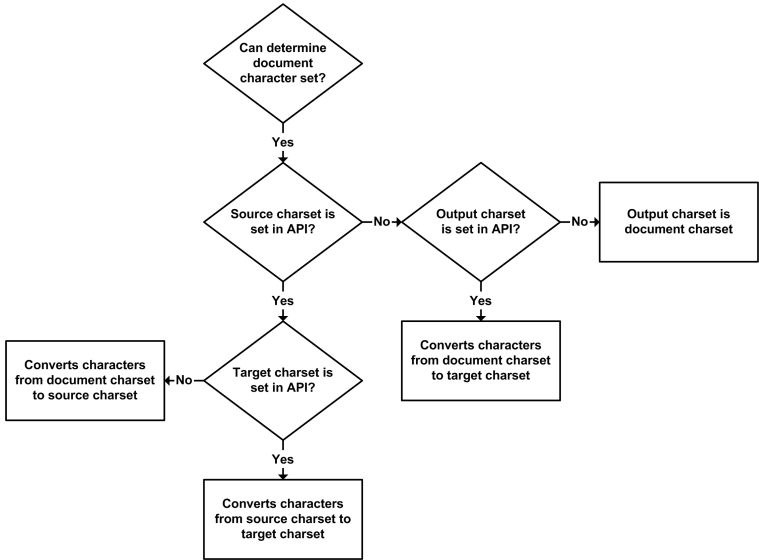
NOTE: To set the source character set, you must specify a character set *and* set the parameter `setForceSourceCharSet` to `TRUE`.

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

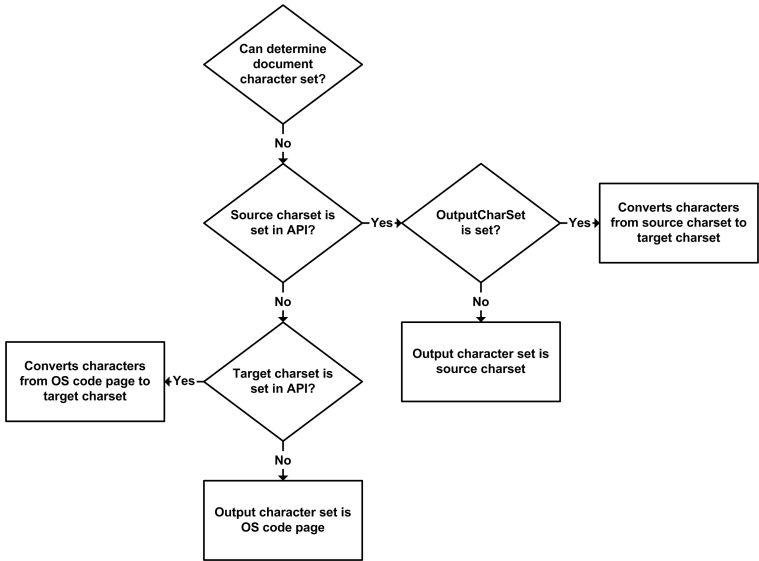
NOTE: To set the target character set, you must specify a character set *and* set the parameter `setForceOutputCharSet` to `TRUE`.

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 135](#) 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 135](#) 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 Converts OS code page to KVCS_1252. The output character set is the target character set specified in the API.

Document Character Set Cannot be Determined, continued

Source charset set	Target charset set	Output charset
--	--	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><pre></code> and <code></pre></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><h1></h1></code>, and so on, for heading levels 1 through 6. If you use style mappings, the default mapping is overridden. Therefore, you must supply markup for 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. Currently not implemented.
KVSTYLE_UNORDEREDLIST	The KVSTYLE_UNORDEREDLIST flag specifies that the style should be tagged as an unordered list. Currently not implemented.
KVSTYLE_DELETECONTENT	The KVSTYLE_DELETECONTENT flag specifies that the content associated with the style tag should be deleted from the output.
KVSTYLE_ONCONSECUTIVEPARAGRAPHS	The KVSTYLE_ONCONSECUTIVEPARAGRAPHS flag specifies that the style should be applied to consecutive paragraphs of the document. If this flag is used, and two or more paragraphs require the same style, the opening and closing tags that normally appear between each paragraph are not generated.
KVSTYLE_REDACT	The KVSTYLE_REDACT flag is used to hide sensitive or confidential information in the source document. It specifies that the text

Flags for Defining Styles, continued

Flag	Description
	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.
<code>KVSTYLE_DEFAULT</code>	The <code>KVSTYLE_DEFAULT</code> 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 `` tags and is displayed with strikethrough formatting.

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

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

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

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">• KV_String• KV_Int4• KV_DateTime• KV_ClipBoard• KV_Bool• KV_Unicode• KV_IEEE8• KV_Other

For example:

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

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 [Supported Microsoft Excel Functions, on the next page](#) for a list of supported functions.

When formula extraction is enabled, Export can extract Microsoft Excel formulas that contain the functions listed in [Supported Microsoft Excel Functions](#), below:

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 201](#) 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 File Format Detection, on page 201 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 Specify an Element's Namespace and Attribute, on the next page.</p>
szInMetaElement	<p>The elements extracted from the file as metadata. All other elements are extracted as text.</p> <p>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, on the next page.</p>
szExMetaElement	<p>The child elements in the included metadata elements that are not extracted from the file as metadata. For example, the default extraction settings for the Visio XML format extract the DocumentProperties element as metadata. This element includes child elements such as Title, Subject, Author, Description, and so on. However, the child element PreviewPicture is defined in szExMetaElement because it is binary data and should not be extracted.</p> <p>You cannot exclude any metadata elements from the output for StarOffice files. All metadata is extracted regardless of this setting.</p>

Configuration Option	Description
	Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute , below.
szInContentElement	<p>The elements extracted from the file as content text. Enter an asterisk (*) to extract all elements including child elements.</p> <p>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, below.</p>
szExContentElement	<p>The child elements in the included content elements that are not extracted from the file as content text.</p> <p>Separate multiple entries with commas. To further qualify the element, specify its namespace, its attributes, or both. See Specify an Element's Namespace and Attribute, below.</p>
szInAttribute	<p>The attribute values extracted from the file. If attributes are not defined here, attribute values are not extracted.</p> <p>Enter the namespace (if used), element name, and attribute name in the following format:</p> <pre>namespace:elementname@attributename</pre> <p>For example:</p> <pre>microfocus:division@name</pre> <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@s  
tyle="Heading 1"  
szExContentElement=  
szInAttribute=microfocus:division@name
```

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

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.

Exception	Description
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 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 FALSE and a subfile has the same name as a file in the target path, this error is generated.
KVERR_CreateTempFileFailed	Unable to create temporary file.
KVERR_ErrorWritingToOutputFile	Error writing to output file.
KVERR_CreateProcessFailed	Error creating a child process.
KVERR_WaitForChildFailed	Wait for child process failed.
KVERR_ChildTimeOut	Child process hung/timed out.
KVERR_ArchiveFileNotFound	Attempt to extract nonexistent file.
KVERR_ArchiveFatalError	Fatal error processing an archive file.
KVError_OpenStreamFailure = KVERR_ArchiveFatalError +1	Failed to open a stream during out-of-process filtering. This is used by KeyView Filter.
KVError_InterfaceFunctionNotFound	An interface function was not found during out-of-process filtering. This is used by KeyView Filter.
KVError_InputFileNotFound	Could not find the input file during out-of-process filtering. This is used by KeyView Filter.
KVError_OpenOutputFileFailed	Could not open the output file during out-of-process filtering. This is used by KeyView Filter.
KVError_MemoryLeak	Memory leak occurred during out-of-process filtering. This is used by KeyView Filter.

Exception	Description
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.
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"> • Microsoft Outlook client is not installed • Microsoft Outlook client is installed, but is not the default email client • Microsoft Outlook client is installed, but is not configured correctly • PST file is corrupt • PST file is read-only (PST files must allow read and write access) • MAPI call fails • The bit editions of Microsoft Outlook do not match the bit editions of the KeyView software. <p>For example, if 32-bit KeyView is used, 32-bit Outlook must be installed. If 64-bit KeyView is used, 64-bit Outlook must be installed.</p>
KVError_PasswordRequired	To open the file, credentials must be provided. This error might be returned when a call to <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	The current license key does not enable the document reader required to convert the file. This error might be returned when a call

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

Show Hidden Data

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

Hidden Data in Microsoft Documents

You can show several types of hidden data from Microsoft Word, Excel, and PowerPoint documents, each of which has a corresponding parameter in the `Export` class, which you can set to change the default behavior. [Hidden data settings, on the next page](#) 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		
Comments ¹	Shown ²	CFG_WP_NOCOMMENTS
Hidden text	Hidden	CFG_WP_SHOWHIDDENTEXT
Date field codes	Calculated date	CFG_WP_SHOWDATEFIELDPCODE
File name field codes	Document file name	CFG_WP_SHOWFILENAMEFIELDPCODE
Microsoft Excel		
Hidden information	Hidden	CFG_SS_SHOWHIDDENINFOR
Comments	Hidden	CFG_SS_SHOWCOMMENTS
Formulas	Calculated value	CFG_SS_SHOWFORMULA
Microsoft PowerPoint		
Hidden slides	Shown	CFG_PG_HIDEHIDDENSLIDE
Comments	Shown ³	CFG_PG_HIDECOMMENT
Comments slide	Hidden	CFG_PG_SHOWCOMMENTSSSLIDE ⁴
Slide notes ⁵	Hidden	CFG_PG_SHOWSLIDENOTES

To toggle the display of hidden data

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

For example:

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

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

¹You 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](#).

²Shown by default in Microsoft Word 97 to 2003 documents.

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

⁴This setting affects PowerPoint 2003 and 2007 only.

⁵You 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.

Chapter 5: Sample Programs

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

• Introduction	103
• ExtractExport	103
• XmlTest	105
• XmlConvFileToFile	107
• XmlConvStreamToStream	109
• XmlParseIt	110

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](#), below
- [XmlTest](#), on page 105
- [XmlConvFileToFile](#), on page 107
- [XmlConvStreamToStream](#), on page 109
- [XmlParseIt](#), on page 110

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 the next page](#)

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.
-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 Code Character Sets, on page 155 .
-target-cs	This option sets the character set of the output file.

Options for the ExtractExport Sample Program, continued

Option	Description
charset	charset is a character set defined as a constant in the Export class. See Code Character Sets, on page 155 .
-little-end	This option sets the byte order for Unicode text to little endian.
-is	This option sets the input as a stream. The default is file.
-os	This option sets the output as a stream. The default is file.
-open-user username	This option specifies the user name used to open a protected PST or NSF file.
-open-pass password	This option specifies the password used to open a protected PST or NSF file.
-open-idfile idfile	This option specifies the user ID file used to open a protected PST or NSF file.
-open-createroot	This option creates a root directory on which a hierarchy can be based. See Create a Root Node, on page 49 .
-ext-nodir	This option specifies that the subfile directory structure is not created.
-ext-noheader	This option excludes mail header information from extracted message body text file. See Exclude Metadata from the Extracted Text File, on page 56 .
-meta outfile	This option extracts default mail metadata and writes it to a file. See Extract Mail Metadata, on page 51 .
-oop	This option converts the files in a separate process. See Convert Files Out of Process, on page 25 .
-ip	This option runs file extraction in the same process as the calling application (in process). See Convert Files Out of Process, on page 25 .

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, on the next page](#).

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_directoryinfile  
inputfileoutputfile
```

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](#).
- `infile` 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 Convert Files Out of Process, on page 25 .
-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 directory and <code>OS</code> is the name of the operating system). See Convert Revision Tracking Information, on page 83 .
-z tempdirectory	This option specifies a temporary directory in which temporary files generated by the conversion process are stored. 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.
-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	This option extracts the file format information and writes it to a file. <code>formatfile</code> is the name of the file to which the format information is written.
-summary summaryfile	This option extracts the metadata and writes it to a file.

Options for the XMLTest Sample Program, continued

Option	Description
	<code>summaryfile</code> is the name of the file to which the metadata is written. See Extract Metadata, on page 68 .
<code>-listlistfile</code>	This option displays a list of the files that are automatically generated during the conversion. <code>listfile</code> is the name of the file to which the file list is written.
<code>-supim</code>	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.
<code>-enpos</code>	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.
<code>-disablezone</code>	This option disables the conversion of Microsoft Word bookmarks to zone elements (<code><zone name = "xxx"></code>) in the output XML.
<code>-suptocim</code>	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.
<code>-pdforder</code> <code>orderFlag</code>	This option specifies that PDF files are output in a logical reading order. The parameter <code>orderFlag</code> is one of the following: <ul style="list-style-type: none">• <code>ltr</code>—left-to-right paragraph direction.• <code>rtl</code>—right-to-left paragraph direction.• <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.• <code>raw</code>—Unstructured paragraph flow. See Convert PDF Files to a Logical Reading Order, on page 84 .
<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 Convert Revision Tracking Information, on page 83 .
<code>-dsh</code>	This option specifies that soft hyphens in PDF files are deleted from the converted output. See Control Hyphenation, on page 86 .

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 92.

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 `_sso126`.
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](#)
- [Character Sets](#)
- [File Formats and Extensions](#)
- [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 information about the file formats that can be detected and processed (either filtered, converted, or displayed) by the KeyView suite of products. The KeyView suite includes KeyView Filter SDK, KeyView Export SDK, and KeyView Viewing SDK.

- [Supported Formats](#) 115
- [Supported Formats \(Detected\)](#) 140

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.

The formats listed in this section can also be detected by the KeyView format detection module (kwad). The [Supported Formats \(Detected\)](#) section lists formats that can be detected, but cannot be filtered, converted, or displayed.

- 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

Key to Support Tables, continued

Symbol	Description
	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 ¹	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	n/a	emxsr	EMX	N	N	Y	Y	N	n/a	N

¹7zip is supported with the multiarcsr reader on some platforms for Extract.

Supported Archive Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Archive										
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
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
Tape Archive	n/a	tarsr	TAR	N	N	Y	Y	N	n/a	N
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

Supported Archive Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
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

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	kpODArdr kpDWGrdr ¹	DWG	Y	Y ²	Y ³	N	Y	Y	N

¹On Windows platforms, kpODArdr is used for all versions up to 2007 and graphic rendering is supported; for later versions, only text extraction is supported through the kpDWGrdr or kpDXFrdr reader.

²On non-Windows platforms, graphic rendering is supported through the kpDWGrdr reader for versions R13, R14, R15, and R18 (2004); for other versions, only text extraction is supported.

³On non-Windows platforms, graphic rendering is supported through the kpDWGrdr reader for versions R13, R14, R15, and R18 (2004); for other versions, only text extraction is supported.

Supported CAD Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
AutoCAD Drawing Exchange	R13, R14, R15/2000, 2004, 2007, 2010, 2013	kpODArdr kpDXFrdr ¹	DXF	Y	Y ²	Y ³	N	Y	Y	N
CATIA formats	5	kpCATrdr	CAT ⁴	Y	N	N	N	Y	N	N
Microsoft Visio	4, 5, 2000, 2002, 2003, 2007, 2010 ⁵	vsdsr	VSD	Y	Y	Y	Y ⁶	Y	Y	N
		kpVSD2rdr	VSD, VSS VST	Y	Y	Y	N	Y	Y	N
	2013	ActiveX components	VSDM VSSM VSTM VSDX VSSX VSTX	N	N	Y ⁷	N	Y	N	N
		kpVSDXrdr	VSDM	Y	Y	Y ⁴	Y	Y	Y	N

¹On Windows platforms, kpODArdr is used for all versions up to 2007 and graphic rendering is supported; for later versions, only text extraction is supported through the kpDWGrdr or kpDXFrdr reader.

²On non-Windows platforms, graphic rendering is supported through the kpDXFrdr reader for versions R13, R14, R15, and R18 (2004); for other versions, only text extraction is supported.

³On Windows platforms, kpODArdr is used for all versions up to 2007 and graphic rendering is supported; for later versions, only text extraction is supported through the kpDWGrdr or kpDXFrdr reader.

⁴All CAT file extensions, for example CATDrawing, CATProduct, CATPart, and so on.

⁵Viewing 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.

⁶Extraction of embedded OLE objects is supported for Filter on Windows platforms only.

⁷Visio 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 CAD Formats, continued

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

¹Charset is not supported for Microsoft Access 95 or 97.

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 ¹	Y	Y	N
		pdf2sr	PDF	N	Y	N	N	N	N	N
		kppdfldr	PDF	N	Y	Y	N	N	N	N
		kppdf2ldr ²	PDF	N	N	Y	N	N	N	N

¹Includes support for extraction of subfiles from PDF Portfolio documents.

²kppdf2ldr is an alternate graphic-based reader that produces high-fidelity output but does not support other features such as highlighting or text searching.

Graphic Formats

Supported Graphic Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Computer Graphics Metafile	n/a	kpcgmrdr ¹	CGM	Y	Y	Y	N	N	N	N
CorelDRAW ²	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 Medicine (DICOM)	n/a	dcmsr	DCM	M	N	N	N	Y	N	N
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
JBIG2	n/a	kpJBIG2rdr	JBIG2	N	Y	Y	N	N	N	N

¹Files with non-partitioned data are supported.

²CDR/CDR with TIFF header.

Supported Graphic Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
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
Lotus AMIDraw Graphics	n/a	kpsdwrdr	SDW	N	Y	Y	N	N	N	N
Lotus Pic	n/a	kppicdrdr	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	kpmsoendr	MSO	N	Y	Y	N	N	N	N
Omni Graffiti	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
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 ¹	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	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

¹The 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.

Mail Formats

Supported Mail Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Documentum EMCMP	n/a	msgsr	EMCMF	N	N	Y	Y	Y	Y	N
Domino XML Language ¹	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 ²	Thunderbird 1.0, Eudora 6.2	mbxsr ³	MBX	N	N	T	Y	Y	Y	N
Microsoft Entourage Database	2004	entsr	various	N	N	Y	Y	Y	Y	N

¹Supports non-encrypted embedded files only.

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

³This 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
Microsoft Outlook	97, 2000, 2002, 2003, 2007, 2010, 2013, 2016	msgsr ¹	MSG, OFT	Y	T	T	Y	Y	Y ²	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 ³	EML	Y	T	T	Y	Y	Y	N
		mbxsr ⁴	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 ⁵	OST	N	N	Y	Y	Y	Y	N

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

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

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

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

⁵The 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 ¹²	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 ³	various	Y	T	T	Y	Y	Y	N
		mbxsr ⁴	various	Y	T	T	Y	Y	Y	N
Transport Neutral Encapsulation Format	n/a	tnefsr	various	N	N	Y	Y	Y	Y	N

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.

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

²Uses Microsoft Messaging Application Programming Interface (MAPI). Note that the native PST reader (*pstsr*) works only on Windows, and requires that you have Microsoft Outlook installed. As an alternative, the MAPI 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.

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

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

Supported Multimedia Formats

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
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
		aiffr	AIFF	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
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
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-4 Audio	n/a	mpeg4sr	MP4 3GP	M	N	N	N	Y	N	N
NeXT/Sun Audio	n/a	MCI	AU	N	N	Y	N	N	N	N
QuickTime Movie	2, 3, 4	MCI	QT MOV	N	N	Y	N	N	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	kplWPG13rdr	KEY	Y	N	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
Macromedia Flash	through 8.0	swfsr	SWF	Y	Y	Y	N	N	Y ¹	N

¹The character set cannot be determined for versions 5.x and lower.

Supported Presentation Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
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 ¹
Microsoft PowerPoint Windows XML	2007, 2010, 2013, 2016	kpppxrdr	PPTX PPTM POTX POTM PPSX PPSM PPAM	Y	Y	Y	Y	Y	Y	Y
OASIS Open	1, 2 ²	kpodfrdr	SXD	Y	Y	Y	Y ³	Y	Y	N

¹Slide footers are supported for Microsoft PowerPoint 97 and 2003.²Generated by OpenOffice Impress 2.0, StarOffice 8 Impress, and IBM Lotus Symphony Presentation 3.0.³Supported using the olesr embedded objects reader.

Supported Presentation Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Document Format			SXI ODG ODP							
OpenOffice Impress, LibreOffice Impress	1 to 5	sosr	SXI SXP ODP	Y	T	T	N	Y	Y	N
StarOffice Impress	6, 7, 8, 9	sosr	SXI SXP ODP	Y	T	T	N	Y	Y	N

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	iwss13sr	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	n/a	difsr		Y	Y	Y	N	N	N	N

Supported Spreadsheet Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
Format										
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
Microsoft Excel Macintosh	98, 2001, v.X, 2004	xlssr	XLS	Y	Y	Y	Y ¹	Y	Y	N
Microsoft Excel Windows	2.2 through 2003	xlssr	XLS XLW XLT XLA	Y	Y	Y	Y ²	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

¹Supported using the embedded objects reader `olesr`.²Supported for versions 97 and higher using the embedded objects reader `olesr`.

Supported Spreadsheet Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
OASIS Open Document Format	1, 2 ¹	odfsssr	ODS SXC STC	Y	Y	Y	Y ²	Y	Y	N
OpenOffice Calc, LibreOffice Calc	1 to 5	sosr	SXC ODS OTS	Y	T	T	N	Y	Y	N
StarOffice Calc	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	Y	T	T	N	Y	Y	N

¹Generated by OpenOffice Calc 2.0, StarOffice 8 Calc, and IBM Lotus Symphony Spreadsheet 3.0.²Supported using the embedded objects reader `olesr`.

Supported Text and Markup Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
			VTX							
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
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
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
Apple iWork Pages	'08, '09	iwwpsr	GZ	Y	Y	Y	N	Y	Y	N
	'13, '16	iwwp13sr	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

Supported Word Processing Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
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 ¹	CEB	Y	N	N	N	N	N	N
Fujitsu Oasys	7	oa2sr	OA2	Y	Y	Y	N	P	N	N
Haansoft Hangul	97	hwpsr	HWP	Y	N	N	N	N	Y	N
	2002, 2005, 2007, 2010	hwposr	HWP	Y	T	T	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

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

Supported Word Processing Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
JustSystems Ichitaro	8 through 2013	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 ¹	Y	Y	N
Microsoft Word PC	4, 5, 5.5, 6	mwsr	DOC	Y	Y	Y	N	N	N	Y
Microsoft Word Windows	1.0 and 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 ²	Y	Y	Y
Microsoft Word Windows XML	2007, 2010, 2013, 2016	mwxsr	DOCM DOCX	Y	Y	Y	Y	Y	Y	Y

¹Supported using the embedded objects reader `olesr`.²Supported using the embedded objects reader `olesr`.

Supported Word Processing Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
			DOTX DOTM							
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
OASIS Open Document Format	1, 2 ¹	odfwpsr	ODT SXW STW	Y	Y	Y	Y ²	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	6, 7, 8, 9	sosr	SXW ODT	Y	T	T	N	Y	Y	N

¹Generated by OpenOffice Writer 2.0, StarOffice 8 Writer, and IBM Lotus Symphony Documents 3.0.²Supported using the embedded objects reader `olesr`.

Supported Word Processing Formats, continued

Format	Version	Reader	Extension	Filter	Export	View	Extract	Metadata	Charset	Header/Footer
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
Yahoo! Instant Messenger	n/a	yimsr ¹	DAT	Y	Y	Y	N	N	N	N

¹To 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.

Supported Formats (Detected)

The file formats listed in this section can be detected by the KeyView format detection module (`kwad`), but cannot be filtered, converted, or displayed. The detection module determines a file's format and reports the information to the developer's application.

The formats listed in [Supported Formats, on page 115](#) can be detected as well as filtered, exported, and viewed.

- 3D Systems STL format
- Ability Office (SS, DB, GR, WP, COM)
- AC3 audio
- ACT
- Adobe FrameMaker
- Adobe FrameMaker Markup Language
- AES Multiplus Comm
- Aldus Freehand (Macintosh)
- Aldus PageMaker (DOS)
- Aldus PageMaker (Macintosh)
- Amiga IFF-8SVX sound
- Amiga MOD sound
- Apple Binary Property List
- Apple Double
- Apple iWork
- Apple Photoshop Document
- Apple Single
- Apple XML Property List
- Appleworks
- Applix Alis
- Applix Asterix
- Applix Graphics
- ARC/PAK Archive
- ASCII-armored PGP encoded
- ASCII-armored PGP Public Keyring
- ASCII-armored PGP signed
- AutoDesk Animator FLIC Animation
- AutoDesk Animator Pro FLIC Animation
- AutoDesk WHIP
- AutoShade Rendering
- B1 Archive

- BlackBerry Activation File
- CADAM Drawing
- CADAM Drawing Overlay
- CCITT Group 3 1-Dimensional (G31D)
- COMET TOP Word
- Confifer Software WavPack
- Convergent Tech DEF Comm.
- Corel Draw CMX
- cpio Archive (UNIX/VAX/SUN)
- CPT Communication
- Creative Voice (VOC) sound
- Curses Screen Image (UNIX/VAX/SUN)
- Data Point VISTAWORD
- DCX Fax
- DEC WPS PLUS
- DECdx
- Desktop Color Separation (DCS)
- Device Independent file (DVI)
- DG CEOwrite
- DG Common Data Stream (CDS)
- DIF Spreadsheet
- Digital Document Interchange Format (DDIF)
- Digital Imaging and Communications in Medicine (DICOM)
- Disk Doubler Compression
- EBCDIC Text
- eFax
- ENABLE
- ENABLE Spreadsheet (SSF)
- Envoy (EVY)
- Executable UNIX/VAX/SUN
- FileMaker (Macintosh)
- FPX format
- Framework
- Framework II
- Freehand 11
- FTP Session Data
- GEM Bit Image
- Ghost Disk Image

- Google SketchUp
- Graphics Environment Manager (GEM VDI)
- Harvard Graphics
- Hewlett Packard
- Honey Bull DSA101
- HP Graphics Language (HP-GL)
- HP Graphics Language (Plotter)
- HP PCL and PJJ Languages
- HP Word PC
- IBM 1403 Line Printer
- IBM DCA-FFT
- IBM DCF Script
- Informix SmartWare II
- Informix SmartWare II Communication File
- Informix SmartWare II Database
- Informix SmartWare Spreadsheet
- Interleaf
- ISO 10303-21 STEP format
- Java Class file
- JPEG File Interchange Format (JFIF)
- Keyhole Markup Language
- KW ODA G4 (G4)
- KW ODA G31D (G31)
- KW ODA Internal G32D (G32)
- KW ODA Internal Raw Bitmap (RBM)
- Lasergraphics Language
- Link Library UNIX/VAX/SUN
- Lotus Notes Bitmap
- Lotus Notes CDF
- Lotus Screen Cam
- Lyrinx
- Macromedia Director
- MacWrite
- MacWrite II
- MASS-11
- MATLAB MAT Format
- Micrografx Designer
- Microsoft Access 2007

- Microsoft Access 2007 Template
- Microsoft Common Object File Format (COFF)
- Microsoft Compiled HTML Help
- Microsoft Device Independent Bitmap
- Microsoft Document Imaging (MDI)
- Microsoft Excel 2007 Macro-Enabled Spreadsheet Template
- Microsoft Excel 2007 Spreadsheet Template
- Microsoft Exchange Server Database File
- Microsoft Object File Library
- Microsoft Office Drawing
- Microsoft Office Groove
- Microsoft Outlook Restricted Permission Message File
- Microsoft Windows Cursor (CUR) Graphics
- Microsoft Windows Group File
- Microsoft Windows Help File
- Microsoft Windows Icon (ICO)
- Microsoft Windows NT Event Log
- Microsoft Windows OLE 2 Encapsulation
- Microsoft Windows Vista Event Log
- Microsoft Word (UNIX)
- Microsoft Works (Macintosh)
- Microsoft Works Communication (Macintosh)
- Microsoft Works Communication (Windows)
- Microsoft Works Database (Macintosh)
- Microsoft Works Database (PC)
- Microsoft Works Database (Windows)
- Microsoft Works Spreadsheet (Macintosh)
- Microstation
- Milestone Document
- MORE Database Outliner (Macintosh)
- MPEG4 (ISO IEC MPEG4)
- MPEG-PS container with CDXA stream
- MS DOS Batch File format
- MS DOS Device Driver
- MultiMate 4.0
- Multiplan Spreadsheet
- Navy DIF
- NBI Async Archive Format

- NBI Net Archive Format
- Nero Encrypted File
- Netscape Bookmark file
- NeWS font file (SUN)
- NIOS TOP
- Nota Bene
- NURSTOR Drawing
- Object Module UNIX/VAX/SUN
- ODA/ODIF
- ODA/ODIF (FOD 26)
- Office Writer
- OLE DIB object
- OLIDIF
- Open PGP (new format packets)
- OS/2 PM Metafile Graphics
- PaperPort image file
- Paradox (PC) Database
- PC COM executable (detected in file mode only)
- PC Library Module
- PC Object Module
- PC True Type Font
- PCD Image
- PeachCalc Spreadsheet
- Persuasion Presentation
- PEX Binary Archive (SUN)
- PGP Compressed Data
- PGP Encrypted Data
- PGP Public Keyring
- PGP Secret Keyring
- PGP Signature Certificate
- PGP Signed and Encrypted Data
- PGP Signed Data
- Philips Script
- PKCS #12 (p12) Format
- Plan Perfect
- Portable Bitmap Utilities (PBM)
- Portable Greymap Utilities (PGM)
- Portable Pixmap Utilities (PPM)

- PostScript File
- PostScript Type 1 Font File
- PRIMEWORD
- Program Information File
- PTC Creo
- Q & A for DOS
- Q & A for Windows
- Quadratron Q-One (V1.93J)
- Quadratron Q-One (V2.0)
- Quark Xpress (Macintosh)
- QuickDraw 3D Metafile (3DMF)
- Real Audio
- RealLegal E-Transcript
- Reflex Database (R2D)
- RIFF Device Independent Bitmap
- RIFF MIDI
- RIFF Multimedia Movie
- SAMNA Word IV
- Samsung Electronics JungUm Global format
- SEG-Y Seismic Data format
- Serialized Object Format (SOF) Encapsulation
- SGML
- Simple Vector Format (SVF)
- SMTP document
- SolidWorks
- Sony WAVE64 format
- Star Office Calc Spreadsheet (versions 3-5)
- Star Office Impress Presentation (versions 3-5)
- Star Office Math (versions 3-5)
- Star Office Writer Text (versions 3-5)
- StuffIt Archive (Macintosh)
- SUN vfont definition
- SYLK Spreadsheet
- Symphony Spreadsheet
- Targon Word (V 2.0)
- Unigraphics NX
- Uniplex (V6.01)
- UNIX SHAR Encapsulation

- Usenet format
- Volkswriter
- Vorbis OGG format
- VRML
- VRML 2.0
- WANG PC
- Wang WITA
- WANG WPS Comm.
- Web ARChive (WARC)
- Windows C++ Object Storage
- Windows Journal
- Windows Micrografx Draw (DRW)
- Windows Palette
- Windows scrap file (SHS)
- Wireless Markup Language
- Word Connection
- WordMARC word processor
- WordPerfect General File
- WordStar
- WordStar 6.0
- WordStar 2000
- WriteNow
- Writing Assistant word processor
- X Bitmap (XBM)
- X Image
- X Pixmap (XPM)
- Xerox 860 Comm.
- Xerox DocuWorks
- Xerox Writer word processor
- Yahoo! Messenger chat log
- Zipped Keyhole Markup Language

Appendix B: 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](#) 147
- [Coded Character Sets](#) 155

Multibyte and Bidirectional Support

The KeyView SDKs can process files that contain multibyte characters. A multibyte character encoding represents a single character with consecutive bytes. KeyView can also process text from files that contain bidirectional text. Bidirectional text contains both Latin-based text which is read from left to right, and text that is read from right to left (Hebrew and Arabic).

The following table indicates which character encodings are supported by KeyView for each format.

Multibyte and bidirectional support

Format	Single-byte	Multibyte	Bidirectional
Archive			
7-Zip (7Z)	n/a	n/a	n/a
AD1 Evidence file	n/a	n/a	n/a
ADJ	n/a	n/a	n/a
B1	n/a	n/a	n/a
BinHex (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
Binary			
Executable (EXE)	n/a	n/a	n/a
Link Library (DLL)	n/a	n/a	n/a
Computer-aided Design			
AutoCAD Drawing (DWG)	Y	Y	Y
AutoCAD Drawing Exchange (DXF)	Y	Y	Y
CATIA formats (CAT)	Y	N	N
Microsoft Visio (VSD)	Y	Y	Y
Database			
dBase Database	Y	N	N
Microsoft Access (MDB)	Y	Y	N
Microsoft Project (MPP)	Y	Y	N
Desktop Publishing			
Microsoft Publisher	N	Y	N

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
Display			
Adobe Portable Document Format (PDF)	Y	Y ¹	Y
Graphics			
Computer Graphics Metafile (CGM)	Y	N	N
Corel DRAW (CDR)	n/a	n/a	n/a
DCX Fax System (DCX)	Y	N	N
DICOM – Digital Imaging and Communications in Medicine (DCM)	n/a	n/a	n/a
Encapsulated PostScript (EPS)	Y	N	N
Enhanced Metafile (EMF)	Y	Y	N
Graphic Interchange Format (GIF)	n/a	n/a	n/a
JBIG2	n/a	n/a	n/a
JPEG	n/a	n/a	n/a
JPEG 2000	n/a	n/a	n/a
Lotus AMIDraw Graphics (SDW)	n/a	n/a	n/a
Lotus Pic (PIC)	n/a	n/a	n/a
Macintosh Raster (PICT/PCT)	n/a	n/a	n/a
MacPaint (PNTG)	n/a	n/a	n/a
Microsoft Office Drawing (MSO)	n/a	n/a	n/a
Omni Graffle (GRAFFLE)	Y	N	N
PC PaintBrush (PCX)	n/a	n/a	n/a
Portable Network Graphics (PNG)	n/a	n/a	n/a
SGI RGB Image (RGB)	n/a	n/a	n/a
Sun Raster Image (RS)	n/a	n/a	n/a
Tagged Image File (TIFF)	Y	N	N
Truevision Targa (TGA)	n/a	n/a	n/a
Windows Animated Cursor (ANI)	n/a	n/a	n/a
Windows Bitmap (BMP)	n/a	n/a	n/a

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
Windows Icon Cursor (ICO)	n/a	n/a	n/a
Windows Metafile (WMF)	Y	Y	N
WordPerfect Graphics 1 (WPG)	Y	N	N
WordPerfect Graphics 2 (WPG)	Y	N	N
Mail			
Documentum EMCME Format	Y	Y	Y
Domino XML Language (DXL)	Y	Y	N
GroupWise FileSurf	Y	N	N
Legato Extender (ONM)	Y	Y	N
Lotus Notes database (NSF)	Y	Y	Y
Mailbox (MBX)	Y	Y	Y
Microsoft Entourage Database	Y	Y	Y
Microsoft Outlook (MSG)	Y	Y	Y
Microsoft Outlook Express (EML)	Y	Y	Y
Microsoft Outlook iCalendar	Y	Y	Y
Microsoft Outlook for Macintosh	Y	Y	Y
Microsoft Outlook Offline Storage File	Y	Y	Y
Microsoft Outlook Personal File Folders (PST)	Y	Y	Y
Microsoft Outlook vCard Contact	?	?	?
Text Mail (MIME)	Y	Y	Y
Transport Neutral Encapsulation Format	Y	Y	Y
Multimedia			
Advanced Systems Format (ASF)	n/a	n/a	n/a
Audio Interchange File Format (AIFF)	n/a	n/a	n/a
Microsoft Wave Sound (WAV)	n/a	n/a	n/a
MIDI (MID)	n/a	n/a	n/a

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
MPEG 1 Audio Layer 3 (MP3)	n/a	n/a	n/a
MPEG 1 Video (MPG)	n/a	n/a	n/a
MPEG 2 Audio (MPEGA)	n/a	n/a	n/a
MPEG 4 Audio (MP4)	n/a	n/a	n/a
NeXT/Sun Audio (AU)	n/a	n/a	n/a
QuickTime Movie (QT/MOV)	n/a	n/a	n/a
Windows Video (AVI)	n/a	n/a	n/a
Presentations			
Apple iWork Keynote (GZ)	Y	Y	N
Applix Presents (AG)	character set 1252 only	N	N
Corel Presentations (SHW)	character set 1252 only	N	N
Extensible Forms Description Language (XFD)	Y	Y	N
Lotus Freelance Graphics 2 (PRE)	character set 850 only	N	N
Lotus Freelance Graphics (PRZ)	Y	Japanese, Simple Chinese, Traditional Chinese, Thai only	N
Macromedia Flash (SWF)	Y	Y	N
Microsoft OneNote	Y	Y	N
Microsoft PowerPoint PC (PPT)	character set 1252 only	Traditional Chinese only	N
Microsoft PowerPoint Windows (PPT)	Y	Japanese, Simple Chinese, Traditional Chinese, Korean only	Hebrew only
Microsoft PowerPoint Macintosh (PPT)	Y	N	N
Microsoft PowerPoint Windows XML 2007 and 2010 (PPTX)	Y	Y	Y
OASIS Open Document (ODP)	Y	Y	N
OpenOffice Impress (ODP)	Y	Y	N

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
StarOffice Impress (ODP)	Y	Y	N
Spreadsheets			
Apple iWork Numbers (GZ)	Y	Y	N
Applix Spreadsheets (AS)	character set 1252 only	N	N
Comma Separated Values (CSV)	character set 1252 only	N	N
Corel Quattro Pro (QPW/WB3)	Y	N	N
Data Interchange Format (DIF)	Y	Y	Y ²
Lotus 1-2-3 (123)	Y	Y	Y
Lotus 1-2-3 (WK4)	Y	Y	N
Lotus 123 Charts (123)	Y	Y	N
Microsoft Excel Charts (XLS)	Y	Y	N
Microsoft Excel Macintosh (XLS)	Y	N	N
Microsoft Excel Windows (XLS)	Y	Y	Y ²
Microsoft Excel Windows XML 2007 (XLSX)	Y	Y	N
Microsoft Office Excel Binary Format (XLSB)	Y	Y	N
Microsoft Works Spreadsheet (S30/S40)	Y	N	N
OASIS Open Document (ODS)	Y	Y	N
OpenOffice Calc (ODS)	Y	Y	N
StarOffice Calc (ODS)	Y	Y	N
Text and Markup			
ANSI (TXT)	Y	Y	Y ²
ASCII (TXT)	Y	Y	Y ²
HTML (HTM)	Y	Y	Y ^{2, 3}
Microsoft Excel Windows XML 2003	Y	Y	Y
Microsoft Word for Windows XML 2003	Y	Y	Y

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
Microsoft Visio XML 2003	Y	Y	Y
Rich Text Format (RTF)	Y	Y	Y ³
Unicode HTML	Y	Y	Y ^{2,3}
Unicode Text (TXT)	Y	Y	Y ²
XHTML	Y	Y	Y ³
XML	Y	Y	Y
Word Processing			
Adobe Maker Interchange Format (MIF)	character set 1252 only	N	N
Apple iChat Log (ICHAT)	Y	Y	N
Apple iWork Pages (GZ)	Y	Y	N
Applix Words (AW)	character set 1252 only	N	N
DisplayWrite (IP)	character set 500, 1026 only	N	N
Folio Flat File (FFF)	character set 1252 only	N	N
Founder Chinese E-paper Basic (CEB)	Y	Y	N
Fujitsu Oasys (OA2)	Y	Y	N
Hangul (HWP)	Y	Y	N
Health level7 (HL7)	Y	Y	Y
IBM DCA/RTF (DC)	character sets 500, 1026 only	N	N
JustSystems Ichitaro (JTD)	Y	Y	N
Lotus AMI Pro (SAM)	Y	Simple Chinese, Traditional Chinese, Japanese, Thai only	Y
Lotus AMI Professional Write Plus (AMI)	Y	Simple Chinese, Traditional Chinese, Japanese, Thai only	N
Lotus Word Pro (LWP)	Y	Y	Y ³
Lotus SmartMaster (MWP)	Y	Y	N
Microsoft Word PC (DOC)	character set	N	N

Multibyte and bidirectional support, continued

Format	Single-byte	Multibyte	Bidirectional
	1252 only		
Microsoft Word Windows V1-2 (DOC)	Y	N	N
Microsoft Word Windows V6, 7, 8, 95 (DOC)	Y	Y	Hebrew only ³
Microsoft Word Windows V97 through 2003 (DOC)	Y	Y	Y ³
Microsoft Word Windows XML 2007 and 2010 (DOCX)	Y	Y	Y ³
Microsoft Word Macintosh (DOC)	Y	N	Y ³
Microsoft Works (WPS)	Y	Japanese only	N
Microsoft Write (WRI)	Y	Japanese only	N
OASIS Open Document (ODT)	Y	Y	N
Omni Outliner (OO3)	Y	Y	N
OpenOffice Writer (ODT)	Y	Y	N
Open Publication Structure eBook (EPUB)	Y	Y	Y
StarOffice Writer (ODT)	Y	Y	N
Skype Log (DBB)	Y	Y (null-terminated charsets)	N
WordPad (RTF)	Y	Y	Y
WordPerfect Linux (WPS)	Y	N	N
WordPerfect Macintosh (WPS)	Y	N	N
WordPerfect Windows (WO)	Y	N	N
XML Paper Specification (XPS)	Y	Y	N
XYWrite Windows (XY4)	character set 1252 only	N	N
Yahoo! Instant Messenger (DAT)	Y	Y (null-terminated charsets)	N

1

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.

2

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

3

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
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

Code Character Sets, continued

Coded Character Set	Description	Can be set as target charset?
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
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

Code Character Sets, continued

Coded Character Set	Description	Can be set as target charset?
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
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

Code Character Sets, continued

Coded Character Set	Description	Can be set as target charset?
KVCS_JIS0201	Japanese - contains ASCII character set (JIS-Roman)	N
KVCS_JIS0212	Japanese. Supplement to JIS0208.	Y
KVCS_EUC_JP	Japanese Extended UNIX Code	Y
KVCS_EUC_GB	Simplified Chinese Extended UNIX Code	Y
KVCS_EUC_BIG5	Traditional Chinese Extended UNIX Code	N
KVCS_EUC_KSC	Korean Extended UNIX Code	N
KVCS_424	EBCDIC Hebrew	N
KVCS_856	PC Hebrew (old)	N
KVCS_1006	IBM AIX Pakistan (Urdu)	N
KVCS_KOI8R	Cyrillic (Russian)	Y
KVCS_PDF_JAPAN1	Adobe-Japan1-2 character collection	N
KVCS_PDF_KOREA1	Adobe-Korea1-0 character collection	N
KVCS_PDF_GB1	Adobe-GB1-3 character collection	N
KVCS_PDF_CNS1	Adobe-CNS1-2 character collection	N
KVCS_2022_JP_8	ISO 2022-JP, Japanese mail and news safe encoding (JIS8)	N
KVCS_720	Arabic DOS-720	Y
KVCS_VISCII	Vietnamese VISCII	Y
KVCS_8859_10	ISO 8859-10 (Latin 6 Nordic)	Y ¹
KVCS_8859_13	ISO 8859-13 (Latin 7 Baltic)	Y ¹
KVCS_57002	ISCII Devanagari (x-iscii-de)	Y ¹
KVCS_57003	ISCII Bengali (x-iscii-be)	Y ¹
KVCS_57004	ISCII Tamil (x-iscii-ta)	Y ¹
KVCS_57005	ISCII Telugu (x-iscii-te)	Y ¹

Code Character Sets, continued

Coded Character Set	Description	Can be set as target charset?
KVCS_57006	ISCII Assamese (x-iscii-as)	Y ¹
KVCS_57007	ISCII Oriya (x-iscii-or)	Y ¹
KVCS_57008	ISCII Kannada (x-iscii-ka)	Y ¹
KVCS_57009	ISCII Malayalam (x-iscii-ma)	Y ¹
KVCS_57010	ISCII Gujarathi (x-iscii-gu)	Y ¹
KVCS_57011	ISCII Panjabi (x-iscii-pa)	Y ¹
KVCS_GB18030b2	Reserved for internal use	n/a
KVCS_GB18030	GB18030 (Chinese 4-byte character set)	Y
KVCS_8859_11	ISO 8859-11 (Thai)	Y
KVCS_8859_16	ISO 8859-16 (Latin-10 South-Eastern Europe)	Y
KVCS_ARABICMAC	Arabic Mac (x-mac-arabic)	Y
KVCS_KOI8U	Cyrillic (KOI8U Ukrainian)	Y
KVCS_HZGB2312	The 7-bit representation of GB 2312 / RFC 1842	n/a

1

The character set cannot be forced as output in Export SDK and Viewing SDK because the character set is not supported by the major browsers.

Appendix C: File Formats and Extensions

This section lists the KeyView file format numbers and their associated file extensions.

- [File Format and Extension Table](#) 160

File Format and Extension Table

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 format numbers.

KeyView file formats and extensions

Format Name	Format Number	Format Description	Associated 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	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 ¹
CGM_Binary_Fmt	9	Computer Graphics Metafile (CGM)	CGM ¹
CGM_Character_Fmt	10	Computer Graphics Metafile (CGM)	CGM ¹
Word_Connection_Fmt	11	Word Connection	CN
COMET_TOP_Word_Fmt	12	COMET TOP	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
CEOwrite_Fmt	13	CEOwrite	CW
DSA101_Fmt	14	DSA101 (Honeywell Bull)	
DCA_RFT_Fmt	15	DCA-RFT (IBM Revisable Form)	RFT
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 ¹
Preview_EPSF_Fmt	23	Encapsulated PostScript	EPS ¹
MS_Executable_Fmt	24	MSDOS/Windows Program	EXE
G31D_Fmt	25	CCITT G3 1D	
GIF_87a_Fmt	26	Graphics Interchange Format (GIF87a)	GIF ¹
GIF_89a_Fmt	27	Graphics Interchange Format (GIF89a)	GIF ¹
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
Interleaf_Fmt	32	Interleaf	
GEM_Image_Fmt	33	GEM Bit Image	IMG
IBM_Display_Write_Fmt	34	Display Write	IP

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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 ¹
SmartWare_II_Comm_Fmt	43	SmartWare II	
MS_Word_Win_Fmt	44	Microsoft Word for Windows	DOC ¹
Multimate_Fmt	45	MultiMate	MM ¹
Multimate_Fnote_Fmt	46	MultiMate Footnote File	FNX ¹
Multimate_Adv_Fmt	47	MultiMate Advantage	
Multimate_Adv_Fnote_Fmt	48	MultiMate Advantage Footnote File	
Multimate_Adv_II_Fmt	49	MultiMate Advantage II	MM ¹
Multimate_Adv_II_Fnote_Fmt	50	MultiMate Advantage II Footnote File	FNX ¹
Multiplan_PC_Fmt	51	Multiplan (PC)	
Multiplan_Mac_Fmt	52	Multiplan (Mac)	
MS_RTF_Fmt	53	Rich Text Format (RTF)	RTF
MS_Word_PC_Fmt	54	Microsoft Word for PC	DOC ¹
MS_Word_PC_StyleSheet_Fmt	55	Microsoft Word for PC Style Sheet	DOC ¹
MS_Word_PC_Glossary_Fmt	56	Microsoft Word for PC Glossary	DOC ¹

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
MS_Word_PC_Driver_Fmt	57	Microsoft Word for PC Driver	DOC ¹
MS_Word_PC_Misc_Fmt	58	Microsoft Word for PC Miscellaneous File	DOC ¹
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	OD ¹
ODA_Q1_12_Fmt	65	ODA / ODIF	OD ¹
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
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	Q1 ¹ , QX ¹
Quadratron_Q_One_v2_Fmt	76	Q-One V2.0	Q1 ¹ , QX ¹
SAMNA_Word_IV_Fmt	77	SAMNA Word	SAM

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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	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	DOC ¹
WANG_PC_Fmt	88	WANG PC	
WordERA_Fmt	89	WordERA	
WANG_WPS_Comm_Fmt	90	WANG WPS	WF
WordPerfect_Mac_Fmt	91	WordPerfect MAC	WPM, WPD ¹
WordPerfect_Fmt	92	WordPerfect	WO, WPD ¹
WordPerfect_VAX_Fmt	93	WordPerfect VAX	WPD ¹
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	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
Fmt			
WordPerfect_Cfg_Fmt	99	WordPerfect Configuration File	
WordPerfect_Hyphenation_Fmt	100	WordPerfect Hyphenation Dictionary	
WordPerfect_Misc_Fmt	101	WordPerfect Miscellaneous File	WPD ¹
WordMARC_Fmt	102	WordMARC	WM, PW
Windows_Metafile_Fmt	103	Windows Metafile	WMF ¹
Windows_Metafile_NoHdr_Fmt	104	Windows Metafile (no header)	WMF ¹
SmartWare_II_DB_Fmt	105	SmartWare II	
WordPerfect_Graphics_Fmt	106	WordPerfect Graphics	WPG, QPG
WordStar_Fmt	107	WordStar	WS
WANG_WITA_Fmt	108	WANG WITA	WT
Xerox_860_Comm_Fmt	109	Xerox 860	
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

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
PowerPoint_Win_Fmt	117	PowerPoint PC	PPT ¹
PowerPoint_Mac_Fmt	118	PowerPoint MAC	PPT ¹
PowerPoint_95_Fmt	119	PowerPoint 95	PPT ¹
PowerPoint_97_Fmt	120	PowerPoint 97	PPT ¹
PageMaker_Mac_Fmt	121	PageMaker for Macintosh	
PageMaker_Win_Fmt	122	PageMaker for Windows	
MS_Works_Mac_WP_Fmt	123	Microsoft Works for MAC	
MS_Works_Mac_DB_Fmt	124	Microsoft Works for MAC	
MS_Works_Mac_SS_Fmt	125	Microsoft Works for MAC	
MS_Works_Mac_Comm_Fmt	126	Microsoft Works for MAC	
MS_Works_DOS_WP_Fmt	127	Microsoft Works for DOS	WPS ¹
MS_Works_DOS_DB_Fmt	128	Microsoft Works for DOS	WDB ¹
MS_Works_DOS_SS_Fmt	129	Microsoft Works for DOS	
MS_Works_Win_WP_Fmt	130	Microsoft Works for Windows	WPS ¹
MS_Works_Win_DB_Fmt	131	Microsoft Works for Windows	WDB ¹
MS_Works_Win_SS_Fmt	132	Microsoft Works for Windows	S30, S40
PC_Library_Fmt	133	DOS/Windows Object Library	
MacWrite_Fmt	134	MacWrite	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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	Interchange Format	JPG, JPEG
Reflex_Fmt	144	Reflex	
Framework_Fmt	145	Framework	
Framework_II_Fmt	146	Framework II	FW3
Paradox_Fmt	147	Paradox	DB
MS_Windows_Write_Fmt	148	Windows Write	WRI
Quattro_Pro_DOS_Fmt	149	Quattro Pro for DOS	
Quattro_Pro_Win_Fmt	150	Quattro Pro for Windows	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	MPP ¹
MS_Project_Resource_Fmt	155	Microsoft Project	MPP ¹

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
MS_Project_Calc_Fmt	156	Microsoft Project	MPP ¹
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 ¹
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 ¹
AutoCAD_DXF_Text_Fmt	166	AutoCAD DXF	DXF ¹
dBase_Fmt	167	dBase	DBF
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	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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)	
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)	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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	
PC_Obj_Fmt	205	DOS/Windows Object Module	
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
StuftIt_Fmt	210	StuftIt (MAC)	HQX
PeachCalc_Fmt	211	PeachCalc	
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	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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
GZ_Compress_Fmt	224	GZ Compress	GZ ¹
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 ²	EML, MBX
USENET_Fmt	234	USENET	
SGML_Fmt	235	SGML	SGML
HTML_Fmt	236	HTML	HTM ¹ , HTML ¹
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
RIFF_DIB_Fmt	243	RIFF Device Independent Bitmap	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
RIFF_MIDI_Fmt	244	RIFF MIDI	RMI
RIFF_Multimedia_Movie_Fmt	245	RIFF Multimedia Movie	
MPEG_Fmt	246	MPEG Movie	MPG, MPEG ¹
QuickTime_Fmt	247	QuickTime Movie, MPEG-4 Audio	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	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
PGP_Sign_Certificate_Fmt	262	PGP Signature Certificate	
PGP_Compressed_Data_Fmt	263	PGP Compressed Data	
PGP_ASCII_Public_Keyring_Fmt	264	ASCII-armored PGP Public Keyring	
PGP_ASCII_Encoded_Fmt	265	ASCII-armored PGP encoded	PGP ¹
PGP_ASCII_Signed_Fmt	266	ASCII-armored PGP encoded	PGP ¹
OLE_DIB_Fmt	267	OLE DIB object	
SGI_Image_Fmt	268	SGI Image	RGB
Lotus_ScreenCam_Fmt	269	Lotus ScreenCam	
MPEG_Audio_Fmt	270	MPEG Audio	MPEGA
FTP_Software_Session_Fmt	271	FTP Session Data	STE
Netscape_Bookmark_File_Fmt	272	Netscape Bookmark File	HTM ¹
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
MSDOS_Device_Driver_Fmt	278	MSDOS Device Driver	SYS
Micrografx_Designer_Fmt	279	Micrografx Designer	DSF

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
SVF_Fmt	280	Simple Vector Format (SVF)	SVF
Applix_Words_Fmt	281	Applix Words	AW
Applix_Graphics_Fmt	282	Applix Graphics	AG
MS_Access_Fmt	283	Microsoft Access	MDB ¹
MS_Access_95_Fmt	284	Microsoft Access 95	MDB ¹
MS_Access_97_Fmt	285	Microsoft Access 97	MDB ¹
MacBinary_Fmt	286	MacBinary	BIN
Apple_Single_Fmt	287	Apple Single	
Apple_Double_Fmt	288	Apple Double	
Enhanced_Metafile_Fmt	289	Enhanced Metafile	EMF
MS_Office_Drawing_Fmt	290	Microsoft Office Drawing	
XML_Fmt	291	XML	XML ¹
DeVice_Independent_Fmt	292	DeVice Independent file (DVI)	DVI
Unicode_Fmt	293	Unicode	UNI
Lotus_123_Worksheet_Fmt	294	Lotus 1-2-3	WK1 ¹
Lotus_123_Format_Fmt	295	Lotus 1-2-3 Formatting	FM3
Lotus_123_97_Fmt	296	Lotus 1-2-3 97	WK1 ¹
Lotus_Word_Pro_96_Fmt	297	Lotus Word Pro 96	LWP ¹
Lotus_Word_Pro_97_Fmt	298	Lotus Word Pro 97	LWP ¹
Freelance_DOS_Fmt	299	Lotus Freelance for DOS	
Freelance_Win_Fmt	300	Lotus Freelance for Windows	PRE

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
Freelance_OS2_Fmt	301	Lotus Freelance for OS/2	PRS
Freelance_96_Fmt	302	Lotus Freelance 96	PRZ ¹
Freelance_97_Fmt	303	Lotus Freelance 97	PRZ ¹
MS_Word_95_Fmt	304	Microsoft Word 95	DOC ¹
MS_Word_97_Fmt	305	Microsoft Word 97	DOC ¹
Excel_Fmt	306	Microsoft Excel	XLS ¹
Excel_Chart_Fmt	307	Microsoft Excel	XLS ¹
Excel_Macro_Fmt	308	Microsoft Excel	XLS ¹
Excel_95_Fmt	309	Microsoft Excel 95	XLS ¹
Excel_97_Fmt	310	Microsoft Excel 97	XLS ¹
Corel_Presentations_Fmt	311	Corel Presentations	XFD, XFDL
Harvard_Graphics_Fmt	312	Harvard Graphics	
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	
Applix_Spreadsheets_Fmt	318	Applix Spreadsheets	AS
MS_Pocket_Word_Fmt	319	Microsoft Pocket Word	PWD, DOC ¹
MS_DIB_Fmt	320	MS Windows Device Independent Bitmap	
MS_Word_2000_Fmt	321	Microsoft Word 2000	DOC ¹

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
Excel_2000_Fmt	322	Microsoft Excel 2000	XLS ¹
PowerPoint_2000_Fmt	323	Microsoft PowerPoint 2000	PPT
MS_Access_2000_Fmt	324	Microsoft Access 2000	MDB ¹ , MPP ¹
MS_Project_4_Fmt	325	Microsoft Project 4	MPP ¹
MS_Project_41_Fmt	326	Microsoft Project 4.1	MPP ¹
MS_Project_98_Fmt	327	Microsoft Project 98	MPP ¹
Folio_Flat_Fmt	328	Folio Flat File	FFF
HWP_Fmt	329	HWP(Arae-Ah Hangul)	HWP
ICHITARO_Fmt	330	ICHITARO V4-10	
IS_XML_Fmt	331	Extended or Custom XML	XML ¹
Oasys_Fmt	332	Oasys format	OA2, OA3
PBM_ASC_Fmt	333	Portable Bitmap Utilities ASCII Format	
PBM_BIN_Fmt	334	Portable Bitmap Utilities Binary Format	
PGM_ASC_Fmt	335	Portable Greymap Utilities ASCII Format	
PGM_BIN_Fmt	336	Portable Greymap Utilities Binary Format	PGM
PPM_ASC_Fmt	337	Portable Pixmap Utilities ASCII Format	
PPM_BIN_Fmt	338	Portable Pixmap Utilities Binary Format	
XBM_Fmt	339	X Bitmap Format	XBM
XPM_Fmt	340	X Pixmap Format	XPM
FPX_Fmt	341	FPX Format	FPX
PCD_Fmt	342	PCD Format	PCD

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
MS_Visio_Fmt	343	Microsoft Visio	VSD
MS_Project_2000_Fmt	344	Microsoft Project 2000	MPP ¹
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 ¹
MS_Excel_XML_Fmt	350	Microsoft Excel 2003 XML	XML ¹
MS_Visio_XML_Fmt	351	Microsoft Visio 2003 XML	VDX
SO_Text_XML_Fmt	352	StarOffice Text XML	SXW ¹ , ODT ¹
SO_Spreadsheet_XML_Fmt	353	StarOffice Spreadsheet XML	SXC ¹ , ODS ¹
SO_Presentation_XML_Fmt	354	StarOffice Presentation XML	SXI ¹ , SXP ¹ , ODP ¹
XHTML_Fmt	355	XHTML	XML ¹
MS_OutlookPST_Fmt	356	Microsoft Outlook PST	PST
RAR_Fmt	357	RAR	RAR
Lotus_Notes_NSF_Fmt	358	IBM Lotus Notes Database NSF/NTF	NSF
Macromedia_Flash_Fmt	359	SWF	SWF
MS_Word_2007_Fmt	360	Microsoft Word 2007 XML	DOCX, DOTX
MS_Excel_2007_Fmt	361	Microsoft Excel 2007 XML	XLSX, XLTX
MS_PPT_2007_Fmt	362	Microsoft PPT 2007 XML	PPTX, POTX, PPSX
OpenPGP_Fmt	363	OpenPGP Message Format (with new	PGP

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
		packet format)	
Intergraph_V7_DGN_Fmt	364	Intergraph Standard File Format (ISFF) V7 DGN (non-OLE)	DGN ¹
MicroStation_V8_DGN_Fmt	365	MicroStation V8 DGN (OLE)	DGN ¹
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	LHA 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 Lotus representation of Domino design elements in XML format	DXL
ODF_Text_Fmt	373	ODF Text	ODT ¹ , SXW ¹ , STW
ODF_Spreadsheet_Fmt	374	ODF Spreadsheet	ODS ¹ , SXC ¹ , STC
ODF_Presentation_Fmt	375	ODF Presentation	SXD ¹ , SXI ¹ , ODG ¹ , , ODP ¹
Legato_Extender_ONM_Fmt	376	Legato Extender Native Message ONM	ONM
bin_Unknown_Fmt	377	n/a	
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_	381	NURSTOR Drawing	NUR

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
Drawing_Fmt			
HP_GLP_Fmt	382	HP Graphics Language (Plotter)	HPG
ASF_Fmt	383	Advanced Systems Format (ASF)	ASF
WMA_Fmt	384	Window Media Audio Format (WMA)	WMA
WMV_Fmt	385	Window 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*)	CAT ³
YIM_Fmt	391	Yahoo Instant Messenger History	DAT ¹
ODF_Drawing_Fmt	392	ODF Drawing	SXD ¹ , SX ¹ , ODG ¹
Founder_CEB_Fmt	393	Founder Chinese E-paper Basic (ceb)	CEB
QPW_Fmt	394	Quattro Pro 9+ for Windows	QPW
MHT_Fmt	395	MHT format ²	MHT
MDI_Fmt	396	Microsoft Document Imaging Format	MDI
GRV_Fmt	397	Microsoft Office Groove Format	GRV
IWWP_Fmt	398	Apple iWork Pages format	PAGES, GZ ¹
IWSS_Fmt	399	Apple iWork Numbers format	NUMBERS, GZ ¹
IWPG_Fmt	400	Apple iWork Keynote format	KEY, GZ ¹
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	

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
CWK_Fmt	405	AppleWorks File	
OO3_Fmt	406	Omni Outliner File	OO3
OPML_Fmt	407	Omni Outliner File	OPML
Omni_Graffle_XML_Fmt	408	Omni Graffle XML File	GRAFFLE
PSD_Fmt	409	Photoshop Document	PSD
Apple_Binary_PList_Fmt	410	Apple Binary Property List format	
Apple_iChat_Fmt	411	Apple iChat format	
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
XFDL_Fmt	420	Extensible Forms Description Language	XFDL, XFD
Apple_XML_PList_Fmt	421	Apple XML Property List format	
OneNote_Fmt	422	OneNote Note Format	ONE
Dicom_Fmt	424	Digital Imaging and Communications in Medicine	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 ¹

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
MS_Publisher_98_Fmt	428	Microsoft Publisher 98/2000/2002/2003/2007/	PUB ¹
Skype_Fmt	429	Skype Log File	DBB
HL7_Fmt	430	Health level7 message	HL7
MS_OutlookOST_Fmt	431	Microsoft Outlook 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 ¹
DiskImage_Fmt	435	Disk Image	
Milestone_Fmt	436	Milestone Document	MLS, ML3, ML4, ML5, ML6, ML7, ML8, ML9
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 ¹ , HTML ¹
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
AD1_Fmt	448	AD1 Evidence file	AD1
SketchUp_Fmt	449	Google SketchUp	SKP

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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 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, SEGY
CDXA_MPEG_PS_Fmt	458	MPEG-PS container with CDXA stream	MPG ¹
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
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

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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 format	MP4
RAR5_Fmt	485	RAR5 Format	RAR5
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

KeyView file formats and extensions, continued

Format Name	Format Number	Format Description	Associated File Extension
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	STEP
STL_Fmt	497	3D Systems STL format	STL
MS_Word_2007_Flat_XML_Fmt	546	Microsoft Word 2007 Flat XML	XML

1

This file extension can return more than one format number.

2

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.

3

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

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](#) 185
- [Customize XML Templates](#) 185
- [Template Elements and Attributes](#) 187
- [Date and Time Formats](#) 191

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 187](#).
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>Attributes</p> <ul style="list-style-type: none"> • <code>name</code>. (Required) The name of the main item to compare to <code>item</code> or <code>text</code>. • <code>item</code>. (Required if no <code>text</code>) The name of the item to compare to the item specified by <code>name</code>. • <code>text</code>. (Required if no <code>item</code>) The text to compare to the item specified by <code>name</code>.
<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> ==, !=, <, >, <=, >, >=.</p> <p>Text comparison uses a case-insensitive string compare.</p>
<iftdeq>, <iftdne>, <iftdlt>, <iftdle>, <iftdgt>, <iftdge>	<p>Respectively, if time/date ==, !=, <, >, <=, >, >=.</p> <p>Time/date comparison converts dates to text in local time using the Notes default, TZFMT_NEVER, because Notes also sometimes converts fields to text internally. For example:</p> <pre>text="06/30/2005 02:52:04 PM"</pre>
<iftzeq>, <iftzne>	<p>Respectively, if the time zone equals or does not equal the comparison text, for example CDT, EST, and so on.</p>

Conditional elements, continued

Element	Description
<ifini>	If the value of the INI option specified in <code>name</code> equals the <code>text</code> value.
<else>	If the condition from the last <if> or <switch> was false, process XML.
<switch>	<p>If a <code>name</code> value exists, process XML.</p> <p>Attributes</p> <ul style="list-style-type: none"><code>name</code>. (Required) The name of the main item to compare in <case> subelements.
<case>	<p>If the comparison condition is true, process XML, then stop processing the rest of <switch>.</p> <p>Attributes</p> <ul style="list-style-type: none"><code>text</code>. (Required) The text to compare to the <code>name</code> item of <switch>.
<default>	If all <case> conditions were false, process XML. This element must be the last element in <switch>, after all the <case> elements. Any <case> elements after the <default> element are ignored.
<for>	<p>If a <code>name</code> value exists, process XML. Process for each part of the <code>name</code> item.</p> <p>Attributes</p> <ul style="list-style-type: none"><code>name</code>. (Required) The name of the main item.<code>max</code>. (Optional) The maximum index to process. By default, all are processed.
<index>	Output <for> loop index (1-based). <index> is only valid within a <for> element.

Control Elements

The following table lists the valid control elements.

Control Elements

Element	Description
<call>	<p>Call another XML template. You can nest templates up to 10 levels deep.</p> <p>Attributes</p> <ul style="list-style-type: none"><code>file</code>. (Required) The template file name. This name must be unique.
<log>	<p>Log message to the NSF log file.</p> <p>Attributes</p> <ul style="list-style-type: none"><code>text</code>. (Required) The text to log.

Control Elements, continued

Element	Description
	<ul style="list-style-type: none">type. (Optional) The type of log message. The following values are valid:<ul style="list-style-type: none">ERRORWARNINFODIAG (the default option)DEBUGDUMP
<quit>	<p>Stop processing the template. Exits without error.</p> <p>Attributes</p> <ul style="list-style-type: none">text. (Optional) The text to log.type. (Optional) The type of log message. See <log>, on the previous page.
<stop>	<p>Stop processing the template. Exits with an ERROR log message.</p> <p>Attributes</p> <ul style="list-style-type: none">text. (Required) The text to log.

Data Elements

The following table lists the valid data elements.

Data elements

Element	Description
<text>	<p>Output text.</p> <p>Attributes</p> <ul style="list-style-type: none">name. (Required if there is no parent) The name of the item to output.
<rich>	<p>Output rich text (MHTML). Images are output in the next part or parts of the MHTML, after the first <HTML> part.</p> <p>Attributes</p> <ul style="list-style-type: none">name. (Required if there is no parent) The name of the item to output.
<body>	<p>Output the message body in rich text (MHTML). As with <rich>, above, images are output in the next part or parts of the MHTML.</p>
<form>	<p>Output the message form (usually \$Body field) in rich text (MHTML).</p> <p>Attributes</p> <ul style="list-style-type: none">name. (Required if there is no parent) The name of the item to output.

Data elements, continued

Element	Description
<addr>	<p>Output an address.</p> <p>Attributes</p> <ul style="list-style-type: none"> name. (Required if there is no parent) The name of the item to output. type. (Optional) The type of address to output. Set this attribute to CN (Common Name), which is the only supported type.
<name>	<p>Output the name of the last name item, or in other words the current main item. The item must exist.</p>
<format>	<p>Set the default format for <date> and <date_kv>. This element does not set the <text> format. See Date and Time Formats, on the next page for a list of all Notes and KeyView date and time formats and integer values.</p> <p>Attributes</p> <ul style="list-style-type: none"> 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"> TD=int. The Time Date format (TDFMT_*) TS=int. The Time Show format (TSFMT_*) TT=int. The Time Time format (TTFMT_*) TZ=int. The Time Zone format (TZFMT_*) KV=int. The KeyView date and time format <p>where int is an integer value that corresponds to the desired format.</p> <p>Separate multiple formats with commas. For example:</p> <p>format="TD=0,TS=2,TT=1,TZ=1,KV=55"</p>
<date>	<p>Output a Notes date.</p> <p>Attributes</p> <ul style="list-style-type: none"> name. (Required if there is no parent) The name of the item to output. format. (Optional) See <format>, above. You can set the following values: <ul style="list-style-type: none"> TD TS TT TZ
<date_kv>	<p>Output a KeyView date.</p> <p>Attributes</p> <ul style="list-style-type: none"> name. (Required if there is no parent) The name of the item to output. format. (Optional) See <format>, above. You can set the following values: <ul style="list-style-type: none"> TZ

Data elements, continued

Element	Description
	<ul style="list-style-type: none">◦ KV
<time>	<p>Output a time range, for example 1 hour, 30 minutes.</p> <p>Attributes</p> <ul style="list-style-type: none">• name. (Required if there is no parent) The item name of the start date or time.• item. (Required) The item name of the end date or time.
<zone>	<p>Output a Notes time zone mnemonic, for example MST.</p> <p>Attributes</p> <ul style="list-style-type: none">• name. (Required if there is no parent) The name of date item to output.
<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 <rich>, on page 189 and <body>, on page 189.</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>Attributes</p> <ul style="list-style-type: none">• link. (Required if there is no file) The image link, such as a form or title name. For example:• link="StdNotesLtr0"• file. (Required if there is no link) The name of the image file. The file must exist in the ../../templates/images directory. For example:• file="boxcheck.gif"

Date and Time Formats

This section lists the supported Notes and KeyView date and time formats for use with <format>, <date>, and <date_kv>.

Lotus Notes Date and Time Formats

This section lists supported Lotus Notes date and time formats, and the integer values that specify each one.

Lotus Notes date and time formats

Format	Integer Value	Description
TDFMT_FULL	0	(The Notes default) Year, month, and day
TDFMT_CPARTIAL	1	Month and day, year if not this year
TDFMT_PARTIAL	2	Month and day
TDFMT_DPARTIAL	3	Year and month
TDFMT_FULL4	4	Four-digit year, month, and day
TDFMT_CPARTIAL4	5	Month and day, four-digit year if not this year
TDFMT_DPARTIAL4	6	Four-digit year and month
TTFMT_FULL	0	(Notes default) Hour, minute, and second
TTFMT_PARTIAL	1	Hour and minute
TTFMT_HOUR	2	Hour
TZGMT_NEVER	0	(Notes default) All time zones are converted to the current time zone
TZGMT_SOMETIMES	1	Show only when outside the current time zone
TZGMT_ALWAYS	2	Show for all time zones
TSFMT_DATE	0	Date
TSFMT_TIME	1	Time
TSFMT_DATETIME	2	(The Notes default) Date and time
TSFMT_CDATETIME	4	Date and time, or time today or time yesterday

KeyView Date and Time Formats

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

Month Month = full month name
 Mon = abbreviated month name
 m = month (number)
 mm = two-digit month (leading 0)

Weekday	Weekday = full weekday name
	Wday = abbreviated weekday name
Year	yy = two-digit year
	yyyy = four-digit year
Day	d = day (number)
	dd = two-digit day (leading 0)
Time	h = 12-hour
	H = 24-hour
	m = minutes
	s = seconds
	P = AM/PM
	p = am/pm
Separators	_ = space
	c = comma
	s = slash
	a = dash
	o = dot

KeyView date and time formats

Format	Output	Integer Value
12-Hour and 24-Hour Time Formats		
KVDTF_P	P	1
KVDTF_P_hmm	P h:mm	2
KVDTF_hmm_P	h:mm P	3
KVDTF_P_hhmm	P hh:mm	4
KVDTF_hhmm_P	hh:mm P	5
KVDTF_P_hmmss	P h:mm:ss	6
KVDTF_hmmss_P	h:mm:ss P	7
KVDTF_P_hhmmss	P hh:mm:ss	8
KVDTF_hhmmss_P	hh:mm:ss P	9
KVDTF_Hmm	H:mm	10
KVDTF_HHmm	HH:mm	11

KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_mmss	mm:ss	12
KVDTF_Hmmss	H:mm:ss	13
KVDTF_HH:mmss	HH:mm:ss	14
Numerical Date Formats with Slashes		
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
KVDTF_ddsmmsyy	dd/mm/yy	20
KVDTF_ddsmmsyy_Hmm	dd/mm/yy H:mm	21
KVDTF_ddsmm_P_hmm	dd/mm P h:mm	22
KVDTF_ddsmm_hmm_P	dd/mm h:mm P	23
KVDTF_ddsmm_P_hhmm	dd/mm P hh:mm	24
KVDTF_ddsmm_hhmm_P	dd/mm hh:mm P	25
KVDTF_ddsmmsyy_P_hmm	dd/mm/yy P h:mm	26
KVDTF_ddsmmsyy_hmm_P	dd/mm/yy h:mm P	27
KVDTF_ddsmmsyy_P_hmmss	dd/mm/yy P h:mm:ss	28
KVDTF_ddsmmsyy_hmmss_P	dd/mm/yy h:mm:ss P	29
KVDTF_ddsmmsyy_P_hhmmss	dd/mm/yy P hh:mm:ss	30
KVDTF_ddsmmsyy_hhmmss_P	dd/mm/yy hh:mm:ss P	31
KVDTF_yysmmsdd_P_hhmmss	yy/mm/dd P hh:mm:ss	32
KVDTF_yysmmsdd_hhmmss_P	yy/mm/dd hh:mm:ss P	33
KVDTF_msdsyy_Hmm	m/d/yy H:mm	34
KVDTF_mmsddsyy_Hmm	mm/dd/yy H:mm	35
KVDTF_msdsyy_P_hmm	m/d/yy P h:mm	36
KVDTF_msdsyy_hmm_P	m/d/yy h:mm P	37

KeyView date and time formats, continued

Format	Output	Integer Value
KVDTF_mmsddsy_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_mmsddsy_P_hhmmss	mm/dd/yy P hh:mm:ss	41
KVDTF_mmsddsy_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
KVDTF_yysmsd	yy/m/d	46
KVDTF_yysmmsdd	yy/mm/dd	47
KVDTF_yyyysmmsdd	yyyy/mm/dd	48
Numerical Date Formats with Dashes		
KVDTF_ddammayy	dd-mm-yy	49
KVDTF_mmadd	mm-dd	50
KVDTF_mmayy	mm-yy	51
KVDTF_yyammadd	yy-mm-dd	52
KVDTF_yyyymmadd	yyyy-mm-dd	53
KVDTF_yyyymmaddaHHmmss	yyyy-mm-dd-HH:mm:ss	54
Numerical Date Formats with Dots		
KVDTF_yyomod	yy.m.d	55
KVDTF_yyommodd	yy.mm.dd	56
KVDTF_mod	m.d	57
KVDTF_mmodd	mm.dd	58
Numerical and String Date Formats with Dashes, Commas, and Spaces		
KVDTF_ddaMon	dd-Mon	59
KVDTF_daMonayy	d-Mon-yy	60
KVDTF_ddaMonayy	dd-Mon-yy	61

KeyView date and time formats, continued

Format	Output	Integer Value
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
KVDTF_Mon_yy	Mon yy	69
KVDTF_Monc_yy	Mon, yy	70
KVDTF_Month	Month	71
KVDTF_Monthayy	Month-yy	72
KVDTF_Month_yy	Month yy	73
KVDTF_Monthc_yy	Month, yy	74
KVDTF_Monthayyyy	Month-yyyy	75
KVDTF_Month_yyyy	Month yyyy	76
KVDTF_Monthc_yyyy	Month, yyyy	77
KVDTF_Mon_dc_yyyy	Mon d, yyyy	78
KVDTF_d_Monc_yyyy	d Mon, yyyy	79
KVDTF_yyyy_Mon_d	yyyy Mon d	80
KVDTF_Month_dc_yyyy	Month d, yyyy	81
KVDTF_d_Monthc_yyyy	d Month, yyyy	82
KVDTF_yyyy_Month_d	yyyy Month d	83
Weekday Date Formats		
KVDTF_wday	wday	84
KVDTF_Weekday	Weekday	85
KVDTF_wdayc_Mon_dc_yyyy	wday, Mon d, yyyy	86
KVDTF_Weekdayc_Month_dc_yyyy	Weekday, Month d, yyyy	87

KeyView date and time formats, continued

Format	Output	Integer Value
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><base href=xx></code> tag.
<code>\$CHARSET</code>	Inserts the character set of the source document, if that information is ascertainable. Supported Formats, on page 115 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=<MetaData name="\$NAME" content="\$CONTENT"></code> Supported Formats, on page 115 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.
<code>\$MAINURL</code>	Inserts the URL to the file containing the start of the generated XML, that is,

Export Tokens, continued

Token	Description
	output stream.
\$NAME	<p>Inserts the name of a metadata field. This token is used in conjunction with the \$SUMMARY, below, \$USERSUMMARY, on the next page, and \$CONTENT, on the previous page tokens to insert source document metadata into the XML output. An example of this token's use is:</p> <pre>pszUserSummary=<MetaData name="\$NAME" content="\$CONTENT"></pre> <p>The section Supported Formats, on page 115 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 <code>pszUserSummary</code> member of the structure <code>KVXMLTemplate</code>. Standard fields are enumerated from 0 to 33 in <code>KVSumType</code> in <code>kvtypes.h</code>. See the tokens \$USERSUMMARY, on the next page, \$NAME, above, and \$CONTENT, on the previous page.</p> <p>The section Supported Formats, on page 115 lists file formats that support metadata.</p>
\$SUMMARY <i>NN</i>	<p>Inserts the data from a <i>specified</i> metadata field. <i>NN</i> is a number from 0 through 33 enumerated in the <code>KVSumType</code> structure in <code>kvtypes.h</code>. An example of this token's use is:</p> <pre>pszMainTop= <title> \$SUMMARY01 </head> <body></pre> <p>The section Supported Formats, on page 115 lists file formats that support metadata.</p>
\$SPLITBLOCKNUMBER	Inserts the page number for each block generated as a result of <code>bHardPageMakesNewBlock</code> or <code>lcbBlockSize</code> .
\$TOC	Inserts the table of contents at this point in the current output stream. This token is typically embedded in <code>pszMainTop</code> .
\$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.
\$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

Export Tokens, continued

Token	Description
	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 <i>every</i> 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 \$SUMMARY, on the previous page, \$NAME, on the previous page, and \$CONTENT, on page 198.</p> <p>The section Supported Formats, on page 115 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.

• Introduction	201
• Extract Format Information	201
• Determine Format Support	201
• Translate Format Information	203
• Determine a Document Reader	205
• Category Values in formats_e.ini	205

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 115](#).

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 203](#).

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 203](#).
- The reader associated with each format. See [Determine a Document Reader, on page 205](#).

- 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 `functiongetAutoDetectInfo()` 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 `structuregetAutoDetectInfo()` 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 224](#) 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	AES Multiplus Comm Format	Word processor
2	ASCII File word processor/MS DOS Batch File format	Word processor
3	Applix Asterix	Word processor
4	Microsoft Windows Bitmap image (BMP)	Raster image
5	Convergent Tech DEF Comm. format	Word processor
6	Corel Draw (CDR)	Vector graphic
7	Keyword COM.FILE (KSIF)	
8	Computer Graphics Metafile (CGM)	Vector graphic
9	Word Connection	Word processor
10	COMET TOP Word	Word processor
11	DG CEOwrite	Word processor

Major Formats, continued

Number	Format	File Class
12	Honey Bull DSA101	Word processor
13	IBM DCA-RFT	Word processor
14	DDIF	Word processor
15	Dummy File (Internal)	
16	DG Common Data Stream (CDS)	Word processor
17	Dummy Print File (Internal)	
18	Windows Micrografx Draw (DRW)	Vector graphic
19	Data Point VISTAWORD	Word processor
20	DECdx	Word processor
21	Enable	Word processor
22	Encapsulated PostScript (EPS)	Raster image
23	DOS/Windows Executable (EXE, DLL)	Executable
24	CCITT Group 3 1-Dimensional (G31D)	Raster image
25	Graphics Interchange format (GIF)	Raster image
26	Hewlett Packard	Word processor
27	IBM 1403 Line Printer	Word processor
28	IBM DCF Script	Word processor
29	IBM DCA-FFT	Word processor
30	Interleaf	Word processor
31	GEM Bit Image	Raster image
32	IBM Display Write 4	Word processor
33	Raster Graphics	Raster image
34	Keywords PICL	
35	Lotus AMI Pro	Word processor
36	MORE Database Outliner (Mac)	Outline/planning
37	Lyrix	Word processor
38	MASS-11	Word processor

Major Formats, continued

Number	Format	File Class
39	MacPaint	Raster image
40	Microsoft Word Mac	Word processor
41	Informix SmartWare II Communication File	Communications
42	Microsoft Word for Windows	Word processor
43	MultiMate 4.0	Word processor
44	Multiplan Spreadsheet	Spreadsheet
45	Microsoft Rich Text Format (RTF)	Word processor
46	Microsoft Word 5.0 (PC)	Word processor
47	NBI Async Archive Format	Word processor
48	Navy DIF	Word processor
49	NBI Net Archive Format	Word processor
50	NIOS TOP	Word processor
51	FileMaker (Mac)	Database
52	ODA/ODIF	Word processor
53	OLIDIF	Word processor
54	Keyword OSM	
55	Office Writer	Word processor
56	PC Paint Brush Graphics (PCX)	Raster image
57	CPT Communication Format	Word processor
58	Lotus PIC	Vector graphic
59	Macintosh Quick Draw Picture Format (PICT)	Raster image
60	Philips Script	Word processor
61	PostScript File	Vector graphic
62	PRIMEWORD	Word processor
63	Quadratron Q-One (V1.93J)	Word processor
64	Quadratron Q-One (V2.0)	Word processor
65	SAMNA Word IV	Word processor

Major Formats, continued

Number	Format	File Class
66	Lotus AMI Pro Draw (SDW)	Raster image
67	SYLK Spreadsheet	Spreadsheet
68	Informix SmartWare II	Word processor
69	Symphony Spreadsheet	Spreadsheet
70	Truevision Targa	Raster image
71	Tagged Image File (TIFF)	Raster image
72	Targon Word (V 2.0)	Word processor
73	Uniplex Ucalc Spreadsheet	Spreadsheet
74	Uniplex (V6.01)	Word processor
75	Microsoft Word (UNIX)	Word processor
76	WANG PC	Word processor
77	WordERA (V 1.0)	Word processor
78	WANG WPS Comm. format	Word processor
79	WordPerfect Mac	Word processor
80	WordPerfect 5.2	Word processor
81	Lotus 1-2-3 Spreadsheet	Spreadsheet
82	WordMARC word processor	Word processor
83	Microsoft Windows Metafile (WMF) Graphics	Raster image
84	Informix SmartWare II Database	Database
85	WordPerfect Graphics V1.0 (WPG)	Raster image
86	WordPerfect	Word processor
87	WordStar	Word processor
88	Wang WITA	Word processor
89	Xerox 860 Comm. format	Word processor
90	Microsoft Excel Spreadsheet	Spreadsheet
91	Xerox Writer word processor	Word processor
92	DIF Spreadsheet	Spreadsheet

Major Formats, continued

Number	Format	File Class
93	ENABLE Spreadsheet	Spreadsheet
94	Supercalc Spreadsheet	Spreadsheet
95	Ultracalc Spreadsheet	Spreadsheet
96	Informix SmartWare Spreadsheet	Spreadsheet
97	Serialized Object Format (SOF) Encapsulation format	Encapsulation
98	Microsoft PowerPoint (PC)	Presentation
99	Microsoft PowerPoint (Mac)	Presentation
100	Aldus PageMaker (Mac)	Desktop Publishing
101	Aldus PageMaker (DOS)	Desktop Publishing
103	Microsoft Works (Mac)	Word processor
104	Microsoft Works Database (Mac)	Database
105	Microsoft Works Spreadsheet (Mac)	Spreadsheet
106	Microsoft Works Communication (Mac)	Communications
107	Microsoft Works (PC)	Word processor
108	Microsoft Works Database (PC)	Database
109	Microsoft Works Spreadsheet (PC)	Spreadsheet
111	PC Library Module	Library module
112	MacWrite	Word processor
113	MacWrite II	Word processor
114	Aldus Freehand Mac	Vector graphic
115	Disk Doubler Compression format	Encapsulation
116	HP Graphics Language (HP-GL)	Vector graphic
117	Adobe Maker Interchange Format (MIF)	Desktop Publishing
118	JPEG File Interchange Format (JFIF)	Raster image
119	Reflex Database	Database
120	Framework II	Mixed format
121	Paradox (PC) Database	Database

Major Formats, continued

Number	Format	File Class
123	Microsoft Windows Write	Word processor
124	Quattro Pro Spreadsheet (DOS)	Spreadsheet
126	Persuasion Presentation	Presentation
127	Corel Presentation	Presentation
128	Microsoft Windows Icon Format (ICO) Graphics	Raster image
129	Microsoft Project	Time scheduling
131	Harvard Graphics	Desktop publishing
132	Zip Archive Format	Encapsulation
133	Microsoft Windows Cursor (CUR) Graphics	Raster image
134	Quark Express (Mac)	Desktop publishing
135	ARC/PAK Archive format	Encapsulation
136	Adobe FrameMaker	Desktop publishing
137	Microsoft Publisher	Desktop publishing
138	Plan Perfect	Time scheduling
139	WordPerfect General File Format	Miscellaneous
140	Lotus Freelance	Presentation
141	Microsoft Wave Sound File	Sound
142	MIDI Sound File	Sound
143	AutoCAD DXF Graphics	Vector graphic
144	dBase Database	Database
145	OS/2 PM Metafile Graphics	Vector graphic
146	Lasergraphics Language	Vector graphic
147	AutoShade Rendering File Format	Vector graphic
148	Graphics Environment Manager (GEM VDI)	Vector graphic
149	Microsoft Windows Help File	Miscellaneous
150	Volkswriter	Word processor
151	Ability Office (SS, DB, GR, WP, COM)	

Major Formats, continued

Number	Format	File Class
152	XyWrite/Nota Bene	Word processor
153	Comma Separated Values (CSV)	Spreadsheet
154	Writing Assistant word processor	Word processor
155	WordStar 2000	Word processor
156	WordStar 6.0	Word processor
157	HP Printer Control Language (PCL)	Vector graphic
158	(UNIX/VAX/SUN) Executable	Executable
159	(UNIX/VAX/SUN) Object Module	Object module
160	(UNIX/VAX/SUN) Link Library	Library module
161	NeXT SUN Audio Data	Sound
162	NeWS font file (SUN)	Font
163	cpio Archive Format (UNIX/VAX/SUN)	Encapsulation
164	PEX Binary Archive (SUN)	Encapsulation
165	SUN vfont definition	Font
166	Curses Screen Image (UNIX/VAX/SUN)	Raster image
167	UU Encoded Encryption File	Encapsulation
168	WriteNow	Word processor
169	PC Object Module	Object module
170	Microsoft Windows Group File	Miscellaneous
171	PC True Type Font	Font
172	Program Information File	Miscellaneous
173	PC COM executable file	Executable
174	Adobe FrameMaker Markup Language	Desktop publishing
175	Stuff It Archive (Mac)	Encapsulation
176	PeachCalc Spreadsheet	Spreadsheet
177	Wang Office GDL Header Encapsulation	Encapsulation
178	WordPerfect 6.0	Word processor

Major Formats, continued

Number	Format	File Class
179	Q & A for DOS	Word processor
180	Q & A for Windows	Word processor
181	DEC WPS PLUS	Word processor
182	DCX Fax format	Fax
183	Microsoft Windows OLE 2 Encapsulation	Encapsulation
184	Quattro Pro for Windows	Spreadsheet
185	Keyword Viewer Markup Format	
186	EBCDIC Text	Word processor
187	DCS	Word processor
188	Microsoft Excel Spreadsheet 95, 2000	Spreadsheet
189	Microsoft Word for Windows 95	Word processor
190	UNIX SHAR Encapsulation	Encapsulation
191	Lotus Notes Bitmap	Raster image
192	UNIX Compress Encapsulation	Encapsulation
193	Lotus Notes CDF	Word processor
194	UNIX TAR Encapsulation	Encapsulation
195	WordPerfect Graphics V2.0 (WPG2)	Raster image Vector graphic
196	ODA/ODIF (FOD 26)	Word processor
197	ALIS	Word processor
198	GZ Compress Encapsulation	Encapsulation
199	Envoy (EVY)	Word processor
200	Adobe Portable Document Format (PDF)	Word processor
201	KW ODA Internal Raw Bitmap (RBM)	Raster image
202	KW ODA G4 (G4)	Raster image
203	KW ODA G31D (G31)	Raster image
204	KW ODA Internal G32D (G32)	Raster image

Major Formats, continued

Number	Format	File Class
205	Microsoft Word for Mac V 4.x/5.x	Word processor
206	BinHex 4.0 encoded file	Encapsulation
207	SMTP document	Encapsulation
208	MIME format - Microsoft Outlook Express (EML)/Mailbox (MBX)	Encapsulation
209	SGML document	Word processor
210	HTML document XHTML ¹	Word processor
211	ACT Format	Word processor
212	Microsoft PowerPoint 95	Presentation
213	Portable Network Graphics (PNG)	Raster image
214	Video for Windows	Movie
215	Windows Animated Cursor	Raster image
216	Windows C++ Object Storage	Mixed format
217	Windows Palette	Raster image
218	RIFF Device Independent Bitmap	Raster image
219	RIFF MIDI	Sound
220	RIFF Multimedia Movie	Movie
221	MPEG Movie	Movie
222	QuickTime Movie	Movie
223	Audio Interchange File Format (AIFF) Sound	Sound
224	Amiga MOD Sound	Sound
225	Amiga IFF (8SVX) Sound	Sound
226	Creative Voice (VOC) Sound	Sound
227	Microsoft Works (Windows)	Word processor
228	Microsoft Works Spreadsheet (Windows)	Spreadsheet
229	AutoDesk Animator FLIC Animation	Animation
230	AutoDesk Animator Pro FLIC Animation	Animation

Major Formats, continued

Number	Format	File Class
231	Microsoft Works Database (Windows)	Database
232	Microsoft Works Communication (Windows)	Communications
233	Compactor / Compact Pro Archive	Encapsulation
234	VRML	Vector graphic
235	QuickDraw 3D Metafile (3DMF)	Vector graphic
236	PGP Secret Keyring	Encapsulation
237	PGP Public Keyring	Encapsulation
238	PGP Encrypted Data	Encapsulation
239	PGP Signed Data	Encapsulation
240	PGP Signed and Encrypted Data	Encapsulation
241	PGP Signature Certificate	Encapsulation
242	ASCII-armored PGP Public Keyring	Encapsulation
243	ASCII-armored PGP encoded	Encapsulation
244	ASCII-armored PGP signed	Encapsulation
245	OLE DIB object	Raster image
246	PGP Compressed Data	Encapsulation
247	SGI Image	Raster image
248	Lotus Screen Cam	Animation
249	MPEG Audio	Sound
250	FTP Session Data	Communications
251	Netscape Bookmark file	Word processor
252	Corel Draw CMX	Vector image
253	AutoCAD Drawing (DWG)	Vector graphic
254	AutoDesk WHIP	Vector graphic
255	Macromedia Director	Animation
256	Real Audio	Sound
257	MS DOS Device Driver	Executable

Major Formats, continued

Number	Format	File Class
258	Micrografx Designer	Vector graphic
259	Simple Vector format (SVF)	Vector graphic
260	WordPerfect Office document (WPD)	
261	Applix Words	Word processor
262	Applix Graphics	Presentation
263	Microsoft Access	Database
264	Usenet format	Word processor
265	MacBinary	Encapsulation
266	Apple Single	Encapsulation
267	Apple Double	Encapsulation
268	Lotus Word Pro	Word processor
269	Microsoft Word 97, 2000	Word processor
270	Enhanced Window Metafile	Vector graphic
271	Microsoft Office Drawing	Vector graphic
272	Microsoft PowerPoint 97, 2000	Presentation
273	Extended or Custom XML	Word processor
274	Device Independent file (DVI)	Vector graphic
275	Unicode	Word processor
276	Framework	Mixed
277	KPIF Chart Stream	
278	Applix Spreadsheet	Spreadsheet
279	Microsoft Device Independent Bitmap	Raster image
280	KeyView GPF Filter	
281	Microsoft Project 98, 2000, 2002	Time scheduling
282	Folio Flat file	Word processor
283	HWP (Arae-Ah Hangul)	Word processor
284	JustSystems Ichitaro	Word processor

Major Formats, continued

Number	Format	File Class
285	Generic XML format Microsoft Office 2003 XML format ²	Word processor
286	Fujitsu Oasys	Word processor
287	Portable Bitmap Utilities (PBM)	Raster image
288	Portable Greymap Utilities (PGM)	Raster image
289	Portable Pixmap Utilities (PPM)	Raster image
290	X Bitmap (XBM)	Raster image
291	X Pixmap (XPM)	Raster image
292	X Image	Raster image
293	PCD Image	Raster image
294	Microsoft Visio	Presentation
295	Microsoft Outlook (MSG)	Encapsulation
296	XHTML document	Word processor
297	Microsoft Outlook Personal Folders file (PST)	Encapsulation
298	WinRAR Compressed Archive format (RAR)	Encapsulation
299	Lotus Notes Database (NSF) Legato Extender ONM	Encapsulation
300	Macromedia Flash	Word processor
301	Microsoft Word 2007 (XML format)	Word processor
302	Microsoft Excel 2007 (XML format)	Spreadsheet
303	Microsoft PowerPoint 2007 (XML format)	Presentation
304	Open PGP (new format packets only)	Encapsulation
305	Intergraph version 7 DGN	Vector graphic
306	Microstation version 8 DGN	Vector graphic
307	Microsoft Word 2007 Macro	Word processor
308	Microsoft Excel 2007 Macro	Spreadsheet
309	Microsoft PowerPoint Macro	Presentation

Major Formats, continued

Number	Format	File Class
310	Microsoft Compression folder (LZH)	Encapsulation
311	Office 2007 Document	Miscellaneous
312	XML Paper Specification	Word processor
313	Lotus Domino Extensible Language	Encapsulation
314	OASIS Open Document (ODT)	Word processor
315	OASIS Open Document (ODS)	Spreadsheet
316	OASIS Open Document (ODP)	Presentation
317	Legato EMailXtender Native Message	Word Processor
319	Transfer Neutral Encapsulation Format (TNEF)	Encapsulation
320	CADAM Drawing	Vector graphic
321	CADAM Drawing Overlay	Vector graphic
322	NURSTOR Drawing	Vector graphic
323	HP Graphics Language (Plotter)	Vector graphic
324	Advanced Systems Format	Miscellaneous
325	Windows Media Audio Format	Sound
326	Windows Media Video Format	Movie
327	Legato EMailXtender Archive	Encapsulation
328	7-Zip	Encapsulation
329	Microsoft Office 2007 Excel Binary Format	Spreadsheet
330	Microsoft Cabinet File	Encapsulation
331	CATIA formats	Vector graphic
332	Yahoo! Instant Messenger	Word processor
333	Founder Chinese E-paper Basic	Word processor
334	Corel Quattro Pro X4	Spreadsheet
335	MIME HTML	Word processor
336	Microsoft Document Imaging Format	Raster image
337	Microsoft Office Groove File Format	Word processor

Major Formats, continued

Number	Format	File Class
338	Apple iWorks Pages	Word processor
339	Apple iWorks Numbers	Spreadsheet
340	Apple iWorks Keynote	Presentation
341	Microsoft Backup File	Encapsulation
342	Microsoft Access 2007	Database
343	Microsoft Entourage Database	Encapsulation
344	Mac Disk Copy Disk Image File	Encapsulation
345	Appleworks File	Word processor
346	Omni Outliner (OO3) File	Word processor
347	Omni Outliner (OPML) File	Word processor
348	Omni Graffle XML File	Vector graphic
349	Apple Photoshop Document	Raster image
350	Apple Binary Property List	Miscellaneous
351	Apple iChat Format	Word processor
352	Omni Outliner (OOOUTLINE) File	Word processor
353	Bzip 2 Compressed File	Encapsulation
354	ISO-9660 CD Disc Image Format	Encapsulation
355	Xerox DocuWorks	Word processor
356	RealMedia Streaming Media	Movie
357	AC3 Audio File Format	Sound
358	Nero Encrypted File	Encapsulation
359	SolidWorks	Vector graphic
362	UniGraphics NX	Vector graphic
364	3D Systems STL format	Vector graphic
366	Extensible Forms Description Language	Presentation
367	Apple XML Property List	Miscellaneous
368	OneNote Note Format	Presentation

Major Formats, continued

Number	Format	File Class
370	Digital Imaging and Communications in Medicine (DICOM)	Raster image
371	Expert Witness Compression Format	Encapsulation
372	Shell Scrap Object File	Encapsulation
373	Microsoft Project 2007	Time scheduling
374	Microsoft Publisher 98–	Desktop publishing
375	Skype Log File	Word processor
376	Lotus Notes Bitmap Format (DXL embedded images)	Raster image
377	Health level7 message	Word processor
378	Microsoft Outlook Offline Storage File	Encapsulation
379	Open Publication Structure eBook	Word processor
380	Microsoft Outlook Express DBX	Encapsulation
381	BlackBerry Activation File	Word processor
382	Disk Image	Encapsulation
383	Milestone	Raster Image
384	RealLegal E-Transcript File	Word processor
385	PostScript Type 1 Font	Font
386	Ghost Disk Image File	Encapsulation
387	JPEG-2000 JP2 File Format Syntax (ISO/IEC 15444-1)	Raster Image
388	Unicode HTML	Word processor
389	Microsoft Compiled HTML Help	Encapsulation
390	Documentum EMC MF	Encapsulation
393	JBIG2 File	Raster image
395	AD1 Evidence file	Encapsulation
397	Group Wise File Surf email	Encapsulation
402	ARJ	Encapsulation
409	Microsoft Outlook for Macintosh	Encapsulation
412	Microsoft Outlook vCard Contact	Word processor

Major Formats, continued

Number	Format	File Class
414	Microsoft Outlook iCalendar	Encapsulation
418	Apple iWork 2013 Pages	Word processor
419	Apple iWork 2013 Numbers	Spreadsheet
420	Apple iWork 2013 Keynote	Presentation
421	XZ	Encapsulation
427	B1	Encapsulation
428	MP4	Movie
429	Rar5	Encapsulation
430	PTC Creo	Vector graphic
431	Keyhole Markup Language	
432	Zipped Keyhole Markup Language	
433	Wireless Markup Language	
435	Star Office Writer Text	
436	Star Office Calc Spreadsheet	
437	Star Office Impress Presentation	
438	Star Office Math	
439	ISO 10303-21 STEP format	Vector graphic

1 If the major version is 100, the file format is XHTML.

2 The major version determines whether the Microsoft Office XML file is a Word, Excel or Visio document. The major version for each format is as follows:

Word: 100

Excel: 101

Visio: 110

File Classes

Attribute Number	File Class
0	No file class
01	Word processor
02	Spreadsheet
03	Database

File Classes, continued

Attribute Number	File Class
04	Raster image
05	Vector graphic
06	Presentation
07	Executable
08	Encapsulation
09	Sound
10	Desktop publishing
11	Outline/planning
12	Miscellaneous
13	Mixed format
14	Font
15	Time scheduling
16	Communications
17	Object module
18	Library module
19	Fax
20	Movie
21	Animation

Minor Formats

Attribute Number	Minor Format
00	Minor format not defined
01	Standard
02	Book
03	Chart
04	Macro
05	Text

Minor Formats, continued

Attribute Number	Minor Format
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
28	Thesaurus
29	Hyphenation
30	Miscellaneous
31	UNIX
32	VAX

Minor Formats, continued

Attribute Number	Minor Format
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. These files are 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.

• Core Files	224
• Support Files	225
• Document Readers and Writers	226
• Document Type Definition Files	232

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 Determine Format Support, on page 201 .
htmllexport.*	Required by the Java API.
xmlcnv.*	XML converter for the document token stream.
kpifcnvt.*	Graphic conversion routines.
kpifutil.*	Graphic utility routines.
kvxtract.*	File Extraction interface.
kvxml.*	XML Export C API.
kvexport.*	Export C API. Interface to the HTML and XML Export C APIs.
kvolefio.*	Embedded OLE object writer.
kvutil.*	Internal KeyView utility functions.
kvxpgsa.*	Interface between presentations or graphic readers and the Export API.
kvxssa.*	Interface between spreadsheet readers and the Export API.
kvxwpsa.*	Interface between word processing readers and the Export API.
kwad.*	File auto-recognition module.

File	Description
regsvr32.exe	A Microsoft Windows program used to register in-process COM objects.
txtcnv.*	Converter for document token stream.
xmlexport.*	Required by the Java API.
\vcredist	Microsoft Visual C++ 2010 and Microsoft Visual Studio C++ 2005 Redistributables. NOTE: On Windows platforms, the Microsoft Visual C++ 2010 and Microsoft Visual Studio C++ 2005 Redistributables need to be deployed and installed for KeyView to run.

Support Files

The following support files can be redistributed with your application.

File	Description
bentofio.*	Required by l123sr.* and kpprzrdr.*.
cbmap.map	Character mappings for Adobe Portable Document Format (PDF).
chartbls.ux	Character mapping tables.
chmdll.*	Required by chmsr.
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.
kvxconfig.ini	Contains element extraction settings for source XML files.
kvgraph.*	Required for all spreadsheets (chart support).
kvpie.*	Required for all spreadsheets (chart support).
kvradar.*	Required for all spreadsheets (chart support).
kv.lic	Contains license information for KeyView products. This file is opened and validated when a KeyView API is used.
kvraster.class	Java program used to convert vector graphics on UNIX and Linux.

File	Description
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.
mscomctl.ocx	Microsoft Common Control (for example, labels, dialog boxes). Required for Visual Basic programs and COM objects.
msvbvm60.*	Microsoft Visual Basic Runtime library V6.0.
MSVCP60.*	Microsoft Visual C++ Runtime Library V6.0.
msvcrt.*	Microsoft Visual C Runtime library.
oleaut32.*	Microsoft OLE Automation Controls.
olepro32.*	Microsoft OLE property support library.
servant.exe	Executable required for out-of-process conversions.
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
bzip2sr.*	Bzip2 reader
cabsr.*	Microsoft Cabinet format reader
cebsr.*	Founder Chinese E-paper Basic reader
chmsr.*	Microsoft Compiled HTML Help reader

File	Description
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
dxlsr.*	Domino XML Language reader
emlsr.*	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
foliosr.*	Folio Flat File reader
gwfssr.*	GroupWise FileSurf reader
h17sr.*	Health level7 reader (metadata only)
htmsr.*	HTML and XHTML reader
hwposr.*	Hangul 2002, 2005, 2007 reader
ichatsr.*	Apple iChat Log reader
icssr.*	Microsoft Outlook iCalendar reader
isosr.*	ISO-9660 CD Disc Image Format reader
iwsssr.*	Apple iWork Numbers reader
iwwpsr.*	Apple iWork Pages reader
jp2000sr.*	JPEG 2000 metadata reader
jtdsr.*	JustSystems Ichitaro reader
kpagrdr.*	Applix Presents reader

File	Description
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
kpemfrdr.*	Enhanced Metafile reader
kpepsrdr.*	Encapsulated PostScript (EPS) reader
kpgifrdr.*	Graphic Interchange Format (GIF) reader
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
kpmsockrdr.*	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
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

File	Description
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
kppngrdr.*	Portable Network Graphics (PNG) reader
kppngwrt.*	Portable Network Graphics (PNG) writer
kpppxrdr.*	Microsoft PowerPoint XML reader 2007
kpprerdr.*	Lotus Freelance Graphics for Windows V2.0 reader
kpprzrdr.*	Lotus Freelance Graphics 96/97/98 reader
kpsdwrdr.*	Lotus Ami Pro Graphics reader
kpsgirdr.*	SGI RGB reader
kpshrdr.*	Corel Presentations reader
kpsunrdr.*	Sun Raster reader
kptgardr.*	Truevision Targa reader
kptifdr.*	Tagged Image File Format (TIFF) reader
kpvsdrdr.dll	Microsoft Visio reader
kpVSDXrdr.dll	Microsoft Visio 2013 reader
kpwg2rdr.*	WordPerfect Graphics 2 reader
kpwmfrdr.*	Windows Metafile reader
kpwmfwrt.*	Windows Metafile writer
kpwpgrdr.*	WordPerfect Graphics 1 reader
kpxfdlrdr.*	Extensible Forms Description Language reader
kvgzsr.*	GZIP reader
kvhqxsr.*	BinHex reader
kvzeesr.*	UNIX Compress reader
l123sr.*	Lotus 123 v96/97/98 reader
lasr.*	Lotus AMI Pro reader

File	Description
ltbenn30.dll	Lotus Word Pro support (supported on Windows x86 platform only)
ltscsn10.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwpapin.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwppann.dll	Lotus Word Pro support (supported on Windows x86 platform only)
lwpsr.dll	Lotus Word Pro reader (supported on Windows x86 platform only)
macbinsr.*	MacBinary reader
mbsr.*	Microsoft Word Macintosh reader
mbxsr.*	Mailbox (MBX) ¹ and Microsoft Outlook Express (EML) reader
mdbsr.*	Microsoft Access reader.
mifsr.*	Adobe Maker Interchange Format reader
misr.*	Microsoft Word 2 reader
mp3sr.*	MP3 reader for metadata extraction
mppsр.*	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
nsfsr.*	IBM Notes Database reader ²
oa2sr.*	Fujitsu Oasys reader

¹This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

²This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

File	Description
odfssr.*	Oasis Open Document Format spreadsheets (ODS) reader
odfwpsr.*	Oasis Open Document Format word processing (ODT) reader
olesr.*	Embedded OLE object reader.
olmsr.*	Microsoft Outlook for Macintosh reader
oo3sr.*	Omni Outliner reader
pdfsr.*	Adobe Portable Document File (PDF) reader
pffsr.*	Microsoft Outlook Offline Storage File reader
pstsr.dll	Microsoft Outlook Personal Folders file MAPI-based reader (supported on Windows platform only) ¹
pstnsr.*	Microsoft Outlook Personal Folders file native reader ²
qpssr.*	Quattro Pro spreadsheet reader
rarsr.*	RAR Archive reader
rtfsr.*	Microsoft Rich Text Format reader
skypesr.*	Skype log file reader
sosr.*	StarOffice/OpenOffice reader
swfsr.*	Macromedia Flash reader
tarsr.*	Tape archive reader
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

¹This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

²This reader is an advanced feature and is sold and licensed separately from KeyView Export SDK.

File	Description
wp6sr.*	WordPerfect 6.0 through 10.0 reader
wpmr.*	WordPerfect for Macintosh reader
xlsbsr.*	Microsoft Office 2007 Excel Binary Format reader
xlsr.*	Microsoft Excel reader
xlsxr.*	Microsoft Excel 2007 XML reader
xmlr.*	Generic XML reader
xpsr.*	XML Paper Specification reader
xywsr.*	XYWrite reader
yimr.*	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.
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.

- [Supported Password Protected File Types](#)233
- [Export Password Protected Files](#) 234
- [Open Password Protected Container Files](#)234

Supported Password Protected File Types

The following table lists the password-protected file types that KeyView supports.

Key to support table

Symbol	Description
Y	Format is supported.
N	Format is not supported.
S	Support for viewing subfiles.
V	Support for viewing content.
P	Password required.
C	Password and certificate or User ID file required.

Supported password-protected file types

File Type	Version	Filter	Export	Extract	View	Credentials
PST (Windows)	n/a	N	N	Y	S	P
PST (non-Windows) ¹	n/a	N	N	Y	S	N
ZIP	n/a	N	N	Y	S	P
7-Zip	n/a	N	N	Y	S	P
RAR	n/a	N	N	Y	S	P
SMIME in MSG, EML, MBX	n/a	N	N	Y	N	C
Lotus Notes NSF	n/a	N	N	Y	N	C

¹The 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
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);
```

Send documentation feedback

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

Feedback on XML Export SDK Java Programming Guide (Micro Focus KeyView 11.6)

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

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

We appreciate your feedback!