



Telestream



AXF Explorer

User Guide

Release: 2.0

Revision: 1.5

Copyrights and Trademark Notices

Specifications subject to change without notice. Copyright © 2022 Telestream, LLC and its Affiliates. Telestream, CaptionMaker, Cerify, DIVA, Episode, Flip4Mac, FlipFactory, Flip Player, Gameshow, GraphicsFactory, Kumulate, Lightspeed, MetaFlip, Post Producer, Prism, ScreenFlow, Split-and-Stitch, Switch, Tempo, TrafficManager, Vantage, VOD Producer, and Wirecast are registered trademarks and Aurora, ContentAgent, Cricket, e-Captioning, Inspector, iQ, iVMS, iVMS ASM, MacCaption, Pipeline, Sentry, Surveyor, Vantage Cloud Port, CaptureVU, Cerify, FlexVU, PRISM, Sentry, Stay Genlock, Aurora, and Vidchecker are trademarks of Telestream, LLC and its Affiliates. All other trademarks are the property of their respective owners.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

Contents

Telestream Contact Information 5

Preface 6

- Audience 7
- Documentation Accessibility 7
- Access to Telestream Support 7
- Related Documents 7
- Document Updates 7

Overview 8

- New and Enhanced Features and Functionality 9
- New Terminology 9
- Limitations, Precautions and Recommended Practices 10
 - Limitations 10
 - Usage Precautions 10
 - Recommended Practices 11
- Setting and Changing the Master Password 11
- AXF Disk and Tape Storage Format 11

Installation 12

Configuration 13

- General Configuration 14
- Simulated Tape Library Configuration 15
- Saving the Configuration 15

Operations 16

- Operations Overview 17
- Operational Restrictions 18

- AXF Explorer Icons **18**
- Informational Tooltips **20**
- Searching for AXF Virtual Objects **26**
 - AXF Virtual Object Search Controls **26**
 - Setting the Starting Block Position **26**
 - Searching to the Previous or Next AXF Virtual Object **26**
- File Tree Page Selection and Navigation **28**
 - File Tree Multiple Page Selection **28**
 - File Tree Page Navigation **28**
- Extracting Metadata **29**
- Performing Copy Operations **30**
 - Copying files and Folders **30**
 - Rebuilding Fragmented Files **30**
 - Extracting the Contents of an Entire AXF Virtual Object **31**
- Error Notifications **33**

Frequently Asked Questions 36

Glossary 37

Telestream Contact Information

To obtain product information, technical support, or provide comments on this guide, contact us using our web site, email, or phone number as listed below.

Resource	Contact Information
DIVA Core Technical Support	<p>Web Site: https://www.telestream.net/telestream-support/diva/support.htm</p> <p>Depending on the problem severity, we will respond to your request within 24 business hours. For P1, we will respond within 1 hour. Please see the Maintenance & Support Guide for these definitions.</p> <ul style="list-style-type: none"> • Support hours for customers are Monday - Friday, 7am - 6pm local time. • P1 issues for customers are 24/7.
Telestream, LLC	<p>Web Site: www.telestream.net</p> <p>Sales and Marketing Email: info@telestream.net</p> <p>Telestream, LLC 848 Gold Flat Road, Suite 1 Nevada City, CA USA 95959</p>
International Distributor Support	<p>Web Site: www.telestream.net</p> <p>See the Telestream Web site for your regional authorized Telestream distributor.</p>
Telestream Technical Writers	<p>Email: techwriter@telestream.net</p> <p>Share comments about this or other Telestream documents.</p>

Preface

Archive eXchange Format Explorer provides similar functionality to the Tape Reading Utility (TRU) supplied with earlier releases of DIVA Core and is for use with AXF formatted Virtual Objects.

Topics

- [Audience](#)
- [Documentation Accessibility](#)
- [Access to Telestream Support](#)
- [Related Documents](#)
- [Document Updates](#)

Audience

This document outlines installation, configuration and operations of AXF Explorer for installers, system administrators and users.

Documentation Accessibility

For information about Telestream's commitment to accessibility, visit the Telestream Support Portal located at:

<https://www.telestream.net/telestream-support/diva/support.htm>

Access to Telestream Support

Telestream customers that have purchased support have access to electronic support through the Telestream Support Portal located at:

<https://www.telestream.net/telestream-support/diva/support.htm>

Related Documents

For more information, see the DIVA Core documentation set for this release at:

<https://www.telestream.net/telestream-support/diva/support.htm>

Document Updates

The following table identifies updates made to this document.

Date	Update
April 2022	Updated Copyright information. Updated book for release 8.2. Updated terminology to new standards (see the Overview for updated terms)
June 2022	Migrated to Telestream template and formatting.
August 2022	Minor terminology update.
September 2022	Updating terminology and new title page graphic.

Overview

Archive eXchange Format Explorer provides similar functionality to the TRU (Tape Reading Utility) supplied with earlier releases of DIVA Core and is for use with AXF formatted Virtual Objects. With the introduction of complex Virtual Objects in DIVA Core 7.0, AXF Explorer offers an intuitive interface for parsing AXF files. The TRU utility is not compatible with complex Virtual Objects or AXF files and therefore AXF Explorer must be used in its place.

This chapter includes the following information:

Topics

- [New and Enhanced Features and Functionality](#)
- [New Terminology](#)
- [Limitations, Precautions and Recommended Practices](#)
- [Setting and Changing the Master Password](#)
- [AXF Disk and Tape Storage Format](#)

New and Enhanced Features and Functionality

AXF Explorer has a separate installation package named AXFExplorerInstaller.exe, even though it is included in the DIVA Core software download. You must run the installer executable to install AXF Explorer - it is not automatically installed during the DIVA Core installation.

The utility enables the ability to completely dump an AXF Virtual Object's metadata and contents to a local folder on a disk, and automatically merges fragments during file extraction or AXF dump.

New Terminology

The following terminology has been updated to reflect standardization efforts across all DIVA and Kumulate applications. There will be some variations in the documentation compared to the interface until everything is switched over to the new terminology; the documentation uses the new terms wherever possible.

- Running Requests are now called Jobs
- Request History is now called Job History
- Libraries are now called Managed Storage
- Datahub is now called Actor
- Proxyhub is now called Proxy Actor
- DIVA Core and DIVA Manager are now called DIVA Core / Core / Core Manager
- Category is now called Collection
- Source/Destination is now called Unmanaged Storage Repository
- Storage Repository is now called Managed Storage Repository
- Object is now called Virtual Object
- Group is now called Tape Group
- Link is now called Storage Link
- Storage Plan Manager is now called Storage Policy Manager
- Drop Folder Monitor (DFM) is now called Watch Folder Monitor (WFM)
- DIVA Command and Control Panel are now called System Management App
- DIVA Analytics and DIVAProtect are now called Analytics App

Limitations, Precautions and Recommended Practices

The limitations and precautions that must be observed when using AXF Explorer are discussed in the following sections.

Caution: Data loss may (or will) occur if the limitations and precautions in the following sections are not followed exactly.

Limitations

The following limitations must be observed when using AXF Explorer. Data loss may (or will) occur if these warnings are not followed

- AXF Explorer must not be used on a live production system.
- All DIVA Core components must be stopped before initializing AXF Explorer.
- Only AXF Virtual Objects located on tapes and local disks are displayed.
 - Network locations are not displayed unless they are mapped drives.
- Only one extraction operations is performed at any given time.
- The utility only performs AXF tape read-only operations.
- Spanned Virtual Objects can be extracted, however there is (currently) no ability to join the spanned Virtual Objects together.

Usage Precautions

AXF Explorer was not originally designed for use in a live production system. As a support tool, all DIVA Core components must be stopped before using the tool.

When a tape drive icon is clicked, the utility initiates a full scan of the contents of the tape. Therefore, AXF Explorer is sending positioning and reading commands to the tape drives. If a running DIVA Core initiates a drive operation which causes Actor to use a tape drive, and AXF Explorer begins accessing the same drive simultaneously, there is a very high probability (99%) that the contents of the drive will be erased or corrupted resulting in total data loss.

The following recommendations are **strongly advised** to avoid data loss. Data loss may (or will) occur if these warnings are not followed.

- AXF Explorer must not be used on a live production system.
- All DIVA Core components must be stopped before using AXF Explorer.

Recommended Practices

Telestream recommends that you use a reasonable value for the number of files shown on each File Tree page. Up to approximately 500 files per page is a good reference point because higher values lead to slower performance, greater memory use, and possible adverse effects on the server when navigating AXF Virtual Objects containing many files.

Setting and Changing the Master Password

AXF Explorer uses a master password as a precautionary measure to prevent access to tape drives upon initial startup. You change the master password by clicking Management, and then Set Master Password. The current Master Password must be entered before it can be changed.

AXF Disk and Tape Storage Format

AXF (Archive eXchange Format) is an open source format supporting interoperability among disparate content storage systems and ensures the content's long-term availability no matter how storage or file system technology evolves.

An AXF Virtual Object is an IT-centric file container that can encapsulate any number, and any type, of files in a fully self-contained and self-describing package. The encapsulated package contains its own internal file system, which shields your data from the underlying operating system and storage technology. In essence, the file system within a file can store any type of data on any type of storage media.

Installation

AXF Explorer is a standalone utility and not installed during the DIVA Core installation process. The Microsoft.NET Framework 3.5 must be installed before installing AXF Explorer. This is included with the Windows Server package.

Use the following procedure to install AXF Explorer:

1. Open Windows File Explorer and navigate to the folder containing the DIVA Core installation package.
2. Unzip the AXF Explorer compressed file that was delivered with DIVA Core.
3. Start installation by double-clicking the *AXFExplorerInstaller.exe* installation file.
4. On the first screen (Choose Components), confirm that all check boxes are selected, and click Next.
5. On the Installation Location screen, confirm the installation folder name and path. Installing in the default folder is recommended.
6. Click Install to proceed with the installation.
7. When the final screen is displayed, click Close to complete the installation.

Configuration

Overall there is no configuration required for AXF Explorer. However there are several interface items that may be configured as desired.

This chapter includes the following information:

Topics

- [General Configuration](#)
- [Simulated Tape Library Configuration](#)
- [Saving the Configuration](#)

General Configuration

Click Management > Configuration. The Configuration Setting screen appears. The following table describes the different options available on the configuration screen.

Option	Definition
Number of files shown per page in the File Tree	Sets the maximum limit for the number of files to be displayed under the File Tree heading.
Show AXF Tape Virtual Object name as:	Configures how AXF Virtual Object names are displayed on the Tape Drives tab. AXF Virtual Object names are displayed using either a Virtual Object-collection name combination, or using the AXF Virtual Object UUID.
Show File Tree only and hide metadata	Select the check box to only display the file tree.
Include simulated drives and tapes	The Tape Drives tab will display simulated drives and tapes, and also physical drives. A simulated tape library is only used for engineering purposes and not for a live production system.
Location of Simulated data folder:	Clicking this button opens a Windows Explorer folder and file browsing dialog box, enabling you to identify the Simulation Data Folder (if required).
Previous Virtual Object Seek Method	<p>Selects the seek method used to locate the previous AXF Virtual Object. The methods are as follows:</p> <p>Use Previous Virtual Object Pointer from current AXF Virtual Object: this method searches to the previous Virtual Object based on the information found in the current Virtual Object. This seek method is fast.</p> <p>Backward Block Scan: this method locates a previous Virtual Object by performing a backward block scan without relying on information in the current Virtual Object. This method can be slow and is intended for tapes experiencing issues.</p>

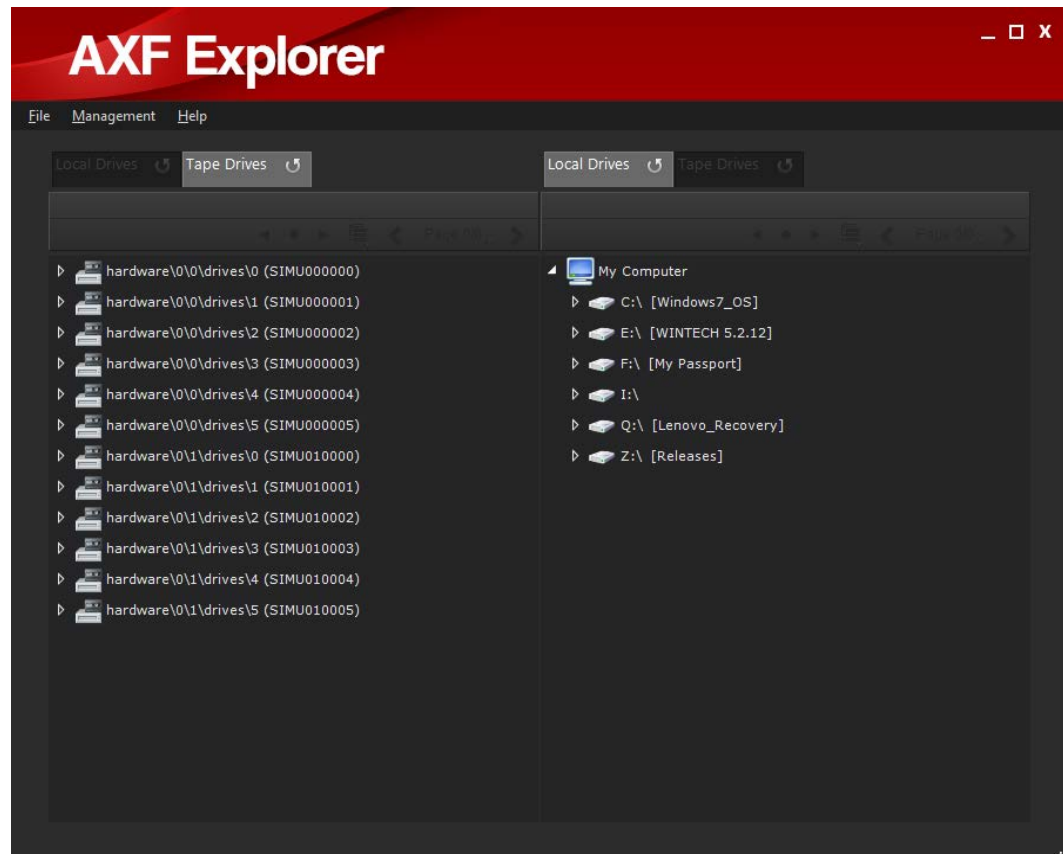
Simulated Tape Library Configuration

The simulation option and folder simulate a tape library. Typically these options are not in use at a live site. Use the following procedure to configure a simulated tape library:

1. Click Simulation Data Folder to open the folder selection dialog box.
2. When you locate the desired simulation data folder, select the folder.
3. Click *OK* to load the location into the Configuration dialog box.

Saving the Configuration

After all configuration settings have been confirmed, click *OK* in the Configuration screen to save the changes. Any configuration changes will cause AXF Explorer to reload the navigation trees for both the left and right viewing panes.



Operations

AXF Explorer operations are performed using drag-and-drop procedures similar to the Windows operating system. This chapter discusses the use of AXF Explorer and includes the following information:

Topics

- [Operations Overview](#)
- [Operational Restrictions](#)
- [AXF Explorer Icons](#)
- [Informational Tooltips](#)
- [Searching for AXF Virtual Objects](#)
- [File Tree Page Selection and Navigation](#)
- [Extracting Metadata](#)
- [Performing Copy Operations](#)
- [Error Notifications](#)

Operations Overview

On the main screen, clicking the Plus icon next to a local drive or a tape drive will expand the drive (or tape) folder and file tree, enabling viewing of the folders and files contained on that specific drive (or inserted tape). Clicking the Plus icon next to a specific AXF file will expand the file to display the contents and enable copying of files.

The two tabs located at the top of the right and left viewing panes are used for switching between Local Drives and Tape Drives views on either side of the display. Operations may be performed from either side of the display to the opposite side (right to left, or left to right) without concern of which side is displaying what drives. The Refresh button on each tab will refresh the current display. The button is active when the tab is active.

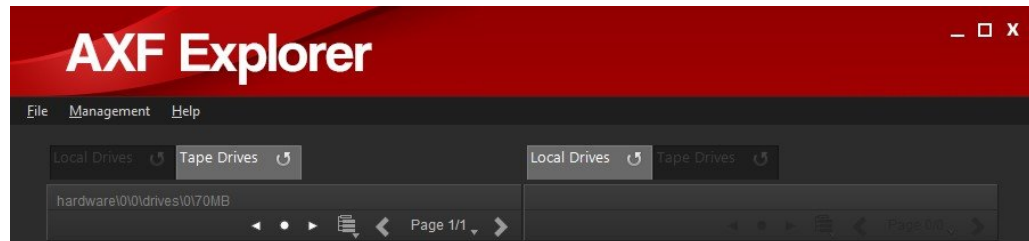


The number of file components displayed within the file navigation tree of an AXF Virtual Object is set to a fixed value per page. You modify this setting on the Configuration screen. Each page will only display a subset of files, keeping the file navigation tree easy to read.

The navigation arrows just under the Drive tabs (on both sides of the screen) enable changing pages when the file tree is selected (and the tree is expanded), or when a file or folder in the file tree is selected. The number of pages will be displayed between the two arrows. The number on the left indicates the current page and the number on the

right is the total number of pages. In addition, a slide control will also be active and can be used for navigating directly to a specific page.

The left arrow, circle, and right arrow icons to the left of the page navigation control how tape searching is performed.



Operational Restrictions




When AXF Explorer is first run, all tape drive accessible areas are restricted and only local drives are accessible. This prevents accidental operation of a tape drive while it is being used by another program.












To enable tape drive access, click Enable Tape Drive Access. A confirmation message appears warning you that tape scanning operations may possibly cause data corruption. Click OK to confirm the action and enable reading the tape drives.

After confirming the warning, AXF Explorer will prompt you for the master password. The correct password must be entered before tape drive access is allowed. Contact Telestream Support if you do not have the master password.

AXF Explorer Icons

The AXF Explorer GUI uses icons to identify different components as described in the following table:

Icon	Function	Description
	AXF Virtual Object Seek	Searches to the previous or next AXF Virtual Object from a particular block position on a tape.
	Disk Drive	Local disks in the system.
	Tape Drive	Tape drives in the library.

Icon	Function	Description
	Tape	Tapes found within a tape drive.
	Local Disk Folder	Standard folders on local disks.
	AXF File	AXF formatted files that AXF Explorer can read.
	AXF Metadata	References sections of the AXF Virtual Object containing metadata.
	File Tree	The AXF Virtual Object's file tree.
	AXF Folder	File tree folders located within and AXF Virtual Object.
	Inaccessible File	These files are inaccessible due to fragmentation. Operations cannot be performed on these files because they do not exist on the current tape.
	Fragmented File (first)	This identifies the first fragment of a file. Additional fragments will be on other tapes.
	Fragmented File (inner)	This identifies an inner fragment of a file. There may be one or more inner fragments. Additional fragments will be on other tapes.
	Fragmented File (last)	This is the last fragment of a file. All previous fragments will be on other tapes.
	Complete File	Complete files are not fragmented and can be fully extracted.

Informational Tooltips

Pausing your mouse over a component displays a tooltip containing information about the selected (hovered) component.

The Tape Drive tooltip displays the following information about the tape drive:

- Device Name
The name of the drive.
- Serial Number
The serial number of the drive.
- Firmware
The firmware release level of the drive.

The Tape Volume tooltip displays the following information about the tape within the drive:

- Identifier
The ISO or ANSI standard volume label.
- Volume ID
The unique identification code to identify the logical tape volume.
- Implementation ID
Indicates the format used by the tape (AXF or Legacy)
- Owner ID
The owner identifier of the tape volume.

The Medium tooltip displays the following information about the Medium Identifier Element in an AXF Virtual Object. It contains the AXF volume signature and specific information for the storage medium.

- Medium Label
The current volume serial number for the medium.
- Block Size
Identifies the block size for the current storage medium.
- Medium UUID
The universally unique identifier for the medium. This typically will not change when the medium is reformatted or reused.

The Medium Provenance holds the historical record for each storage medium. There may be one or more provenance records. The tooltip displays the following information:

- Medium Label
The current volume serial number for the medium.

- **Block Size**
 Identifies the block size for the current storage medium.
- **Prepared Time**
 The date and time when the application prepared this storage medium for use. This value is expressed in UTC (Universal Time Code) format.

The Application tooltip provides the following information related to the system that created the AXF storage medium:

- **Application Name**
 The name of the application that created the AXF storage medium.
- **Version**
 The application release level.
- **Description**
 A description of the application.
- **Serial Number**
 The application's serial number.

The Origin Environment tooltip provides the following information about the environment of the system or device that created the AXF storage medium:

- **Manufacturer**
 The manufacturer of the device.
- **Make**
 The make of the device.
- **Model**
 The model of the device.
- **Firmware**
 The firmware release level of the device.
- **Description**
 A description of the device.
- **Serial Number**
 The serial number of the device.
- **Medium UUID**
 The universally unique identifier for the medium.
- **Medium Label**
 The medium label (equivalent to the barcode)
- **Operating System**
 The operating system the device runs on.

- **Root Path**
Contains the parent or root path for the AXF Virtual Object contents.
- **Location**
Provides information regarding the location where the current AXF Virtual Object instance was created.

The Medium Preparer tooltip provides the following information about the owner (person) who created the AXF storage medium:

- **Name**
The name of the owner.
- **Facility**
The name of the facility.
- **Description**
The description of the owner.
- **Operator**
The name of the operator.

The Virtual Object Footer tooltip provides the following information about the AXF Virtual Object footer metadata:

- **Virtual Object Name**
The name of the Virtual Object.
- **Collection**
The collection the Virtual Object belongs to.
- **UUID**
The universally unique identifier for the AXF Virtual Object.
- **Instance Preparation Time**
The time at which the instance was created.
- **Collection Sequence**
A reference to a collection of Virtual Objects (currently set to 1)
- **Collection UUID**
The universally unique identifier for the collection.
- **Number of Files**
The number of files in the AXF Virtual Object's file tree.
- **Number of Directories**
The number of folders in the AXF Virtual Object's file tree.
- **Virtual Object Payload Size**
The size of the Virtual Object.

- **Header Position**
 The starting position of the Virtual Object header metadata in bytes or block number.
- **Footer Position**
 The starting position of the Virtual Object footer metadata in bytes or block number.
- **Previous Header Position**
 The position of the previous Virtual Object header metadata in bytes or block number.
- **Previous Footer Position**
 The position of the previous Virtual Object footer metadata in bytes or block number.
- **Virtual Object Index Position**
 The absolute block position pointing to the most recent Virtual Object index structure written to the medium.
- **File Footer Present**
 Indicates whether the file footer is present.
- **File Footer Checksum Type**
 Identifies the checksum type used in the file footer structure.

The Source Environment tooltip provides the following information about the environment of the system or device that created the AXF Virtual Object:

- **Manufacturer**
 The manufacturer of the device.
- **Make**
 The make of the device.
- **Model**
 The model of the device.
- **Firmware**
 The firmware release level of the device.
- **Description**
 A description of the device.
- **Serial Number**
 The serial number of the device.
- **Medium UUID**
 The universally unique identifier for the medium.
- **Medium Label**
 The medium label (equivalent to the barcode)

- Operating System
 The operating system the device runs on.
- Root Path
 Contains the parent or root path for the AXF Virtual Object contents.
- Location
 Provides information regarding the location where the current AXF Virtual Object instance was created.

The Destination Environment tooltip provides the following information about the environment of the system or device that holds the AXF Virtual Object:

- Manufacturer
 The manufacturer of the device.
- Make
 The make of the device.
- Model
 The model of the device.
- Firmware
 The firmware release level of the device.
- Description
 A description of the device.
- Serial Number
 The serial number of the device.
- Medium UUID
 The universally unique identifier for the medium.
- Medium Label
 The medium label (equivalent to the barcode)
- Operating System
 The operating system the device runs on.
- Root Path
 Contains the parent or root path for the AXF Virtual Object contents.
- Location
 Provides information regarding the location where the current AXF Virtual Object instance was created.

The Virtual Object Owner tooltip provides the following information about the owner (person) who created the AXF Virtual Object:

- Name
 The name of the owner.

- Facility
The name of the facility.
- Description
The description of the owner.
- Operator
The name of the operator.

The File Information tooltip provides the following information about a file stored within the AXF Virtual Object:

- Filename
The name of the file.
- File ID
The file identifier index.
- Size
The size of the file.
- Position
The block position within the AXF Virtual Object where the file is located.
- Checksum Type: Checksum
The checksum type and value calculated for the file.

The File Fragment tooltip provides the following information about a fragmented file stored within the AXF Virtual Object.

- Filename
The name of the file.
- File ID
The file identifier index.
- Fragment Number
The fragment number where the file fragment resides.
- Fragment Size
The size of the fragment.
- Fragment Position
The block position within the AXF Virtual Object where the fragment is located.
- Original Size
The original non-fragmented size of the file.

Searching for AXF Virtual Objects

AXF Explorer normally searches to the end of a tape and locates all AXF Virtual Objects on the tape by following each pointer to the previous Virtual Object. The seek operation may take an extended time to reach the end of tape. There may be instances where you may not want to wait that long to access an AXF Virtual Object. The seek time can be reduced by providing AXF Explorer with a starting block position on the tape to search. Using this method, you can seek to a previous or next AXF Virtual Object starting from the set block position one Virtual Object at a time.

AXF Virtual Object Search Controls

The control buttons for setting the starting tape block position and searching to the previous or next Virtual Object will appear when clicking a tape drive item in the tree.

The following three buttons are for seeking within an AXF Virtual Object:

- **Left Arrow**
The left arrow button searches to the previous AXF Virtual Object from the starting block position of the tape.
- **Center Button**
The center button (a filled in circle) sets the starting block position to search from and (or) view the current block position.
- **Right Arrow**
The right arrow button searches to the next AXF Virtual Object from the starting block position on the tape.

Setting the Starting Block Position

Clicking the center button will display the dialog box to set the starting block position where the search for an AXF Virtual Object will begin. The current start block position value will also be shown. The following two options are available for searching Virtual Objects:

- **Scan Entire Tape**
AXF Explorer performs the standard AXF scanning operation by searching to the end of the tape and locating all AXF Virtual Objects.
- **Start Scan at Block**
AXF Explorer starts scanning operations from the specified block position. Only the result of a single discovered AXF Virtual Object is displayed in the tree.

Searching to the Previous or Next AXF Virtual Object

After specifying a starting block position, click either Search Previous Virtual Object or Search Next Virtual Object. The drive will search to the specified starting block position and attempt to locate the AXF Virtual Object. If successful, the AXF Virtual Object will be

added to the file tree. Only one AXF Virtual Object will be discovered and added. After an AXF Virtual Object has been located, you can click Search Virtual Object again to locate the next previous or next Virtual Object.

When scanning for the previous AXF Virtual Object, the method used to locate the next Virtual Object in sequence is determined by the Previous Virtual Object Seek Method setting.

File Tree Page Selection and Navigation

Each folder in the file tree can only display a certain maximum number of files per page. When selecting either the file tree or a desired file or folder, the file tree navigation buttons will activate. The selected folder must be expanded in order for the navigation panel to become active.

File Tree Multiple Page Selection

For AXF Virtual Objects containing file trees that span many pages (especially for complex Virtual Objects), you can select every file without having to manually select them on a page-by-page basis. The name of the AXF Virtual Object is displayed above the multiple selection list button. The multiple selection list contains the following two submenus:

Select All Pages

Selects every file and folder entry that falls under the currently selected file tree.

Deselect All Pages

Deselects every file and folder entry that falls under the currently selected file tree.



File Tree Page Navigation

The current page and the total number of pages available will be visible as soon as the File Tree Navigation panel is active. Clicking the arrow buttons will take you to the previous or next page.

To jump to a specific page, click the Page link between the two arrows which will reveal a page selection control. Slide the control to the appropriate page and the file tree will then display it. The targeted page number will be visible to the left of the control.

Extracting Metadata

The Metadata for a tape instance or an AXF Virtual Object can be saved to the local drive. The metadata types that you can save for a tape instance are:

- Medium Identifier
- Provenance Collection
- Provenance
- Application
- Origin Environment
- Medium Preparer

The metadata types you can save for an AXF Virtual Object are:

- Virtual Object Footer
- Provenance Collection
- Provenance
- Application
- Source Environment
- Destination Environment
- Virtual Object Owner

To save the metadata, locate the desired metadata type using the navigation tree by expanding the tree of the tape instance or AXF Virtual Object. You can select multiple Virtual Objects by holding down the CTRL key (for individual Virtual Object selection) or the SHIFT key (to select a range of Virtual Objects) and then clicking the specific metadata types, or on the first and then the last metadata type in a range.

On the opposite panel (either right or left) locate the destination drive and folder (if applicable). Expand it as necessary using the Plus icon next to the drive and (or) folder.

After the source metadata type(s) and destination drive and folder have been selected, drag and drop the Virtual Object to the desired destination location. The Copy Status dialog box will be displayed indicating that the copy operation is being performed.

If the saved metadata belongs to a tape instance, the file will be stored using the following file name format:

```
[tape label]_[metadata type]_[provenance number]_[sub-provenance type].xml
```

If the saved metadata belongs to an AXF Virtual Object, the file will be stored using the following file name format:

```
[AXF Virtual Object UUID]_[metadata type]_[provenance number]_[sub-provenance type].xml
```

A provenance number and sub-provenance type will only exist in the file name if the Metadata Type is a provenance.

Performing Copy Operations

Complete files stored within an AXF Virtual Object can be individually extracted and saved to a local drive. Fragmented files located across multiple tapes can be extracted and combined real-time to recreate the original file. Additionally, the entire content (files and metadata) for an AXF Virtual Object can be saved.

Copying files and Folders

To copy a file (or multiple files) or folder from one drive to another, first locate the desired AXF file using the navigation tree. After you locate the desired file or folder, click the Plus icon to expand the AXF file to display the files it contains. Files or folders can be selected to be copied to the targeted destination. When selecting a folder, it indicates your intention is to copy all of its files and underlying sub-folders to the selected destination.

You select multiple Virtual Objects by holding down the CTRL key (for individual Virtual Object selection) or the SHIFT key (to select a range of Virtual Objects) and then clicking the mouse button on the specific Virtual Objects, or on the first and then the last Virtual Object in a range respectively.

On the opposite panel (either right or left) locate the destination drive, tape, and folder (if applicable) and expand it as necessary using the Plus icon next to it.

After the source Virtual Object(s) and destination drive and folder have been selected, click the Virtual Object, drag and drop it to the desired destination location. A Copy Status dialog box displays indicating that the copy operation is being performed.

Rebuilding Fragmented Files

Files split across multiple tapes result in AXF Virtual Objects that contain only partial fragments of the whole file. There are 3 types of fragmented files which depict their position in an AXF Virtual Object:

- First
- Inner
- Last

For a fragmented file there can only be a single first fragment and a single last fragment. However, there can be multiple inner fragments. Each of these fragments must be joined together to recreate the original file.

Fragmented files can be copied out of AXF Virtual Objects. Each fragment must then be written to the same location on the local drive. The order (or sequence) in which the fragments (first, inner, or last) are selected does not influence the way they are written when re-creating the file. Each fragment will be saved with the same name. However, they will not overwrite a previously extracted fragment. AXF Explorer will join them accordingly. After all fragments belonging to the file have been extracted, the file will be complete.

Fragment rebuilding is also possible when performing a full AXF Virtual Object dump containing more than one selected AXF Virtual Object (of the same UUID or Virtual Object Name-Collection) into the same folder.

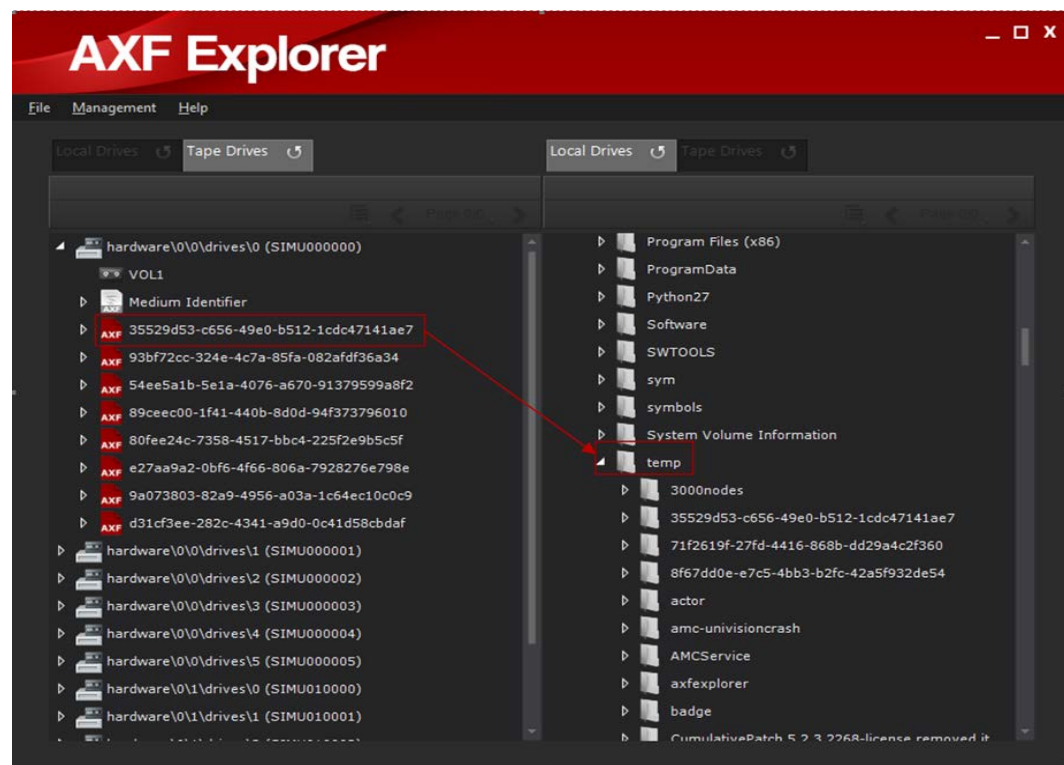
Extracting the Contents of an Entire AXF Virtual Object

The entire contents (consisting of metadata, files, and folders) of an AXF Virtual Object can be extracted and saved to local disk. When an AXF Virtual Object dump is performed, a separate folder is first created and designated with either the UUID or Virtual Object Name-Collection. The folder name depends on the configuration setting for the Show AXF Tape Virtual Object Name As parameter. A data subfolder is created to hold the extracted file contents and a metadata subfolder is created to hold the AXF Virtual Object metadata.

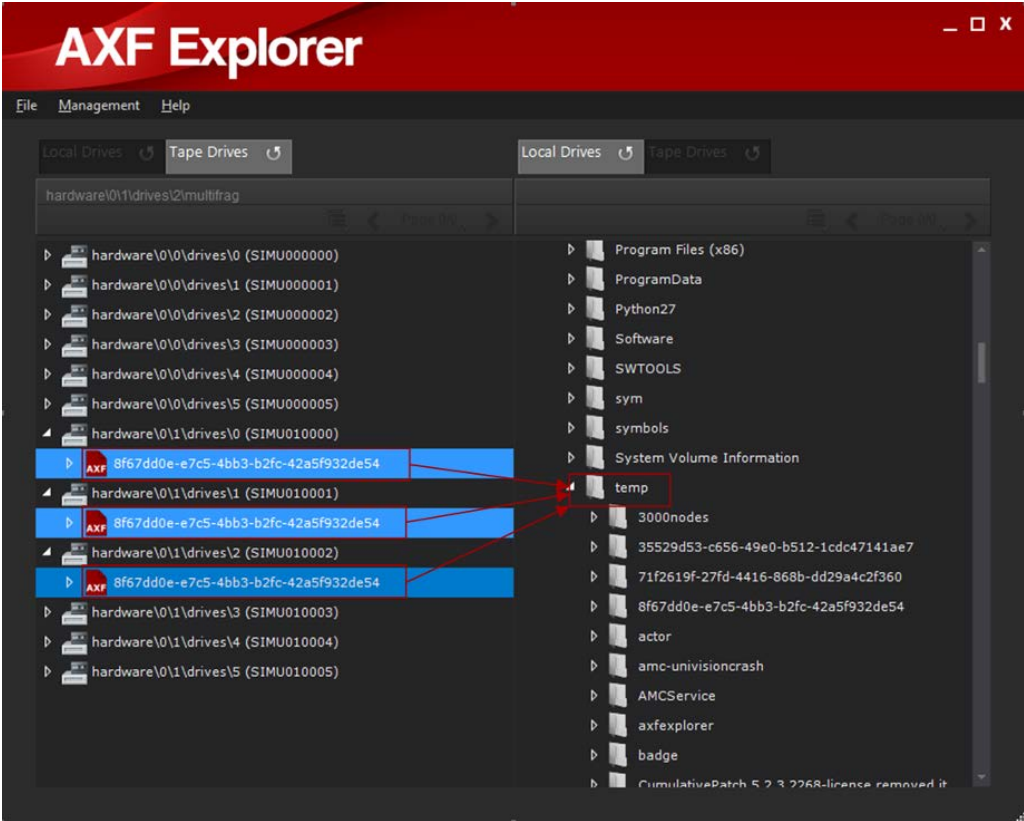
To dump the entire AXF Virtual Object to local disk, first locate the desired AXF Virtual Object using the navigation tree. You select multiple Virtual Objects by holding down the CTRL key (for individual Virtual Object selection) or the SHIFT key (to select a range of Virtual Objects) and then clicking the mouse button on the specific Virtual Objects, or on the first and then the last Virtual Object in a range respectively.

On the opposite panel (either right or left) locate the destination drive, tape, and folder (if applicable) and expand it as necessary using the Plus icon next to it.

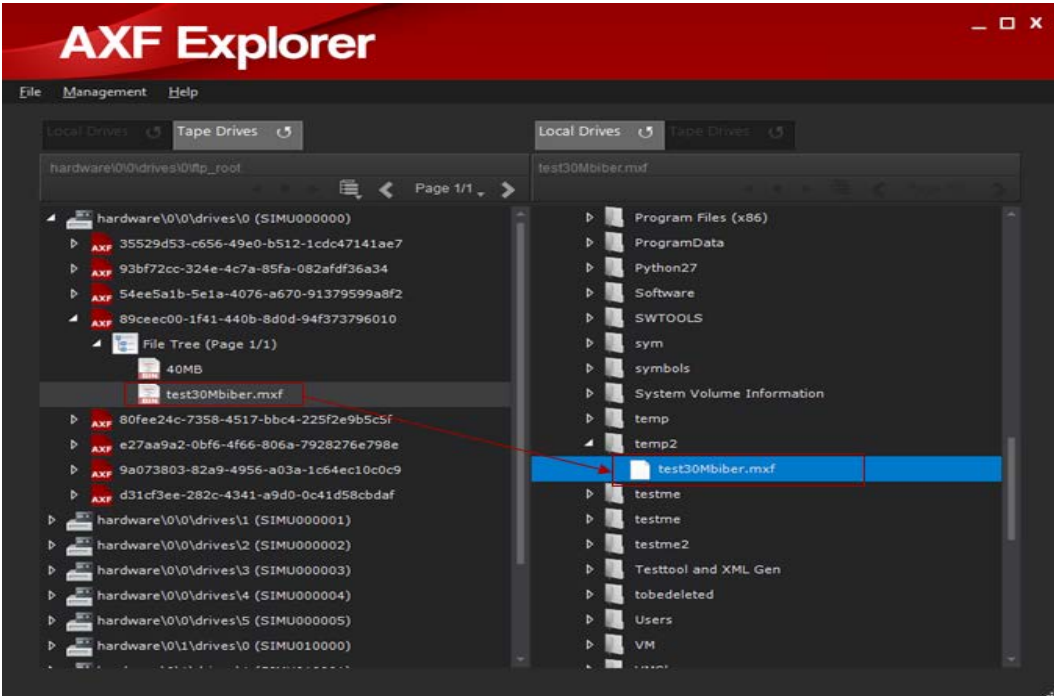
After the source Virtual Object(s) and destination drive and folder have been selected, click the Virtual Object, drag and drop it to the desired destination location. A Copy Status dialog box displays indicating that the copy operation is being performed.



The file fragments spanned across multiple disks will be rebuilt during the copy.



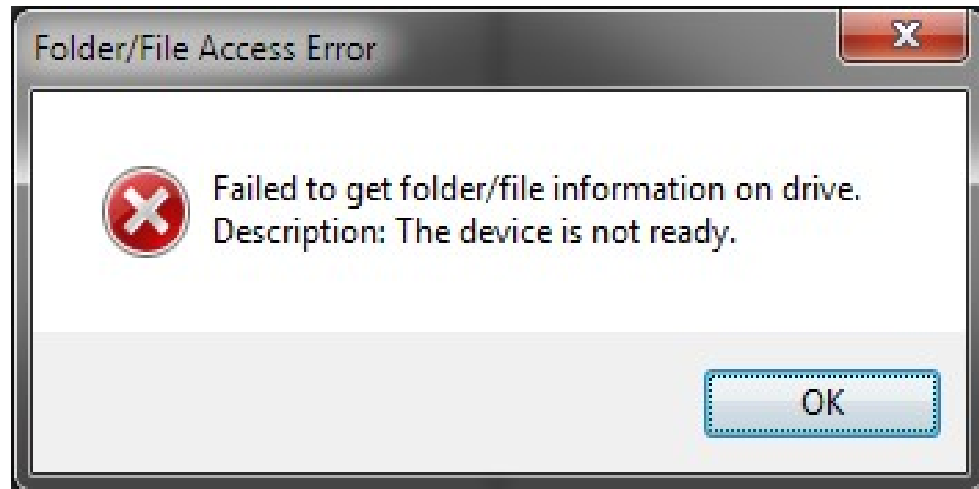
When the copy operation has completed successfully, the Copy Status dialog box will disappear and the Virtual Object will be shown in the new location.



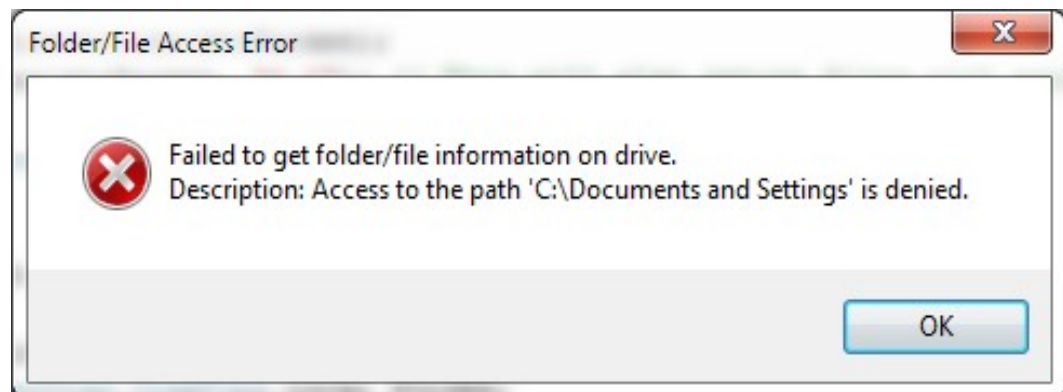
Error Notifications

A dialog box displays when an error is encountered. The following list describes possible errors and their meanings:

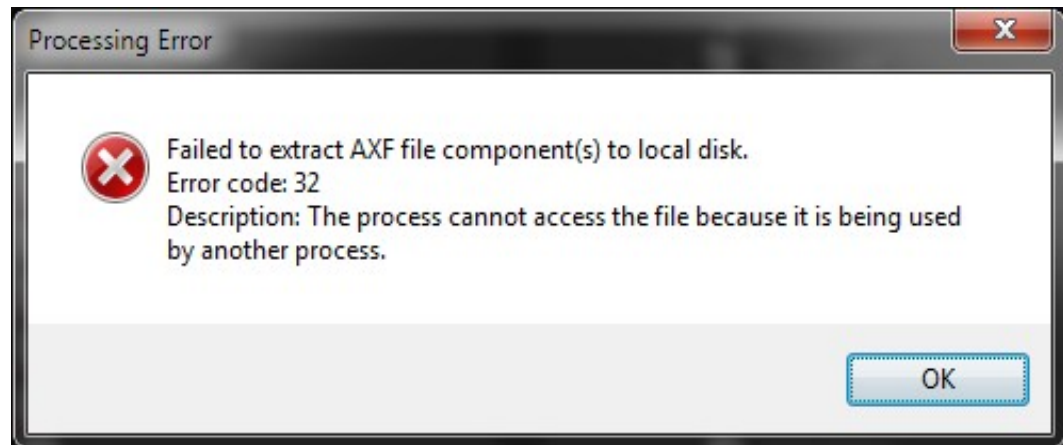
- The selected drive cannot be accessed to retrieve the drive's contents.



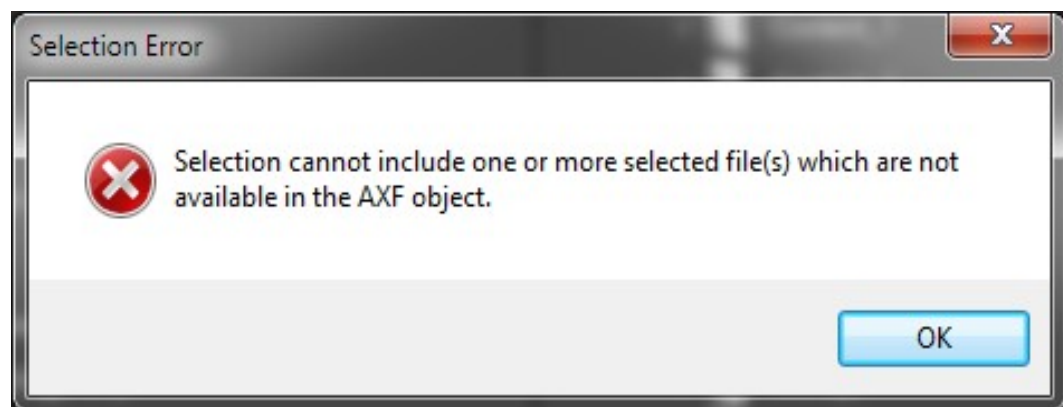
- A particular folder cannot be accessed while attempting to retrieve its file contents. A possible cause of this error is insufficient file permissions.



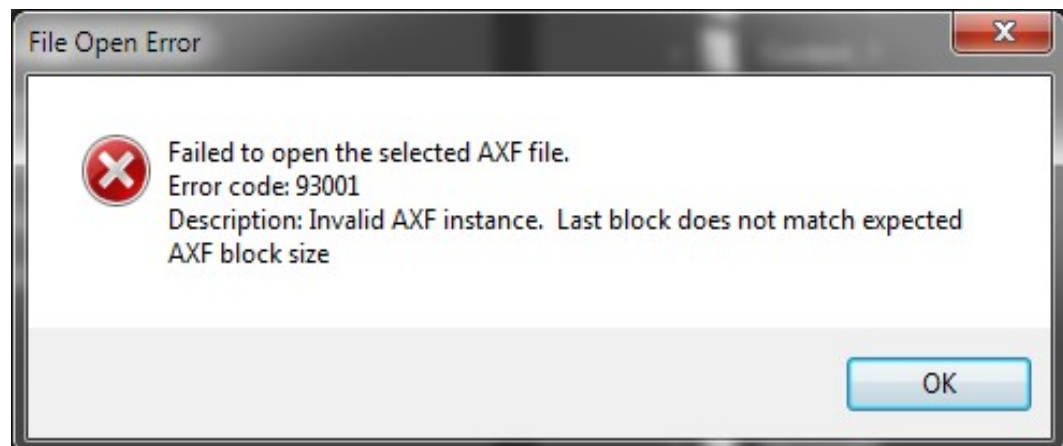
- The source file or destination file cannot be opened because it has been locked or is in use by another process.



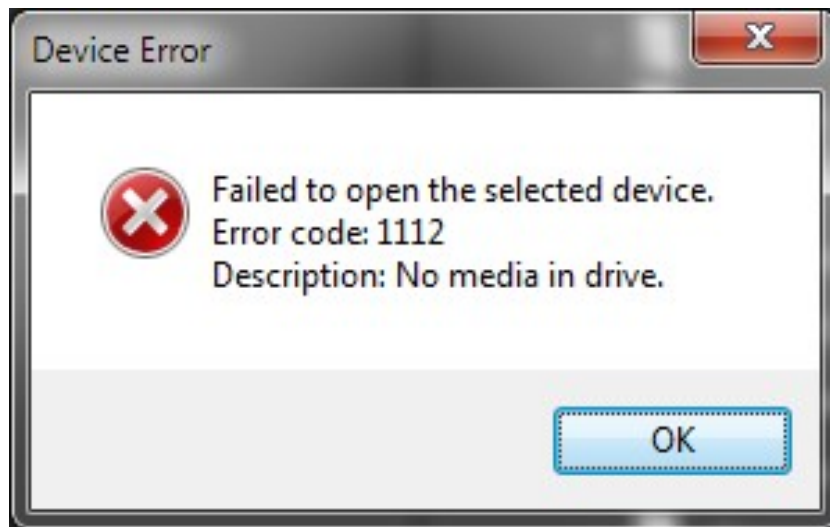
- AXF Explorer cannot extract the selected file component(s) because they are not available within the fragmented AXF Virtual Object.



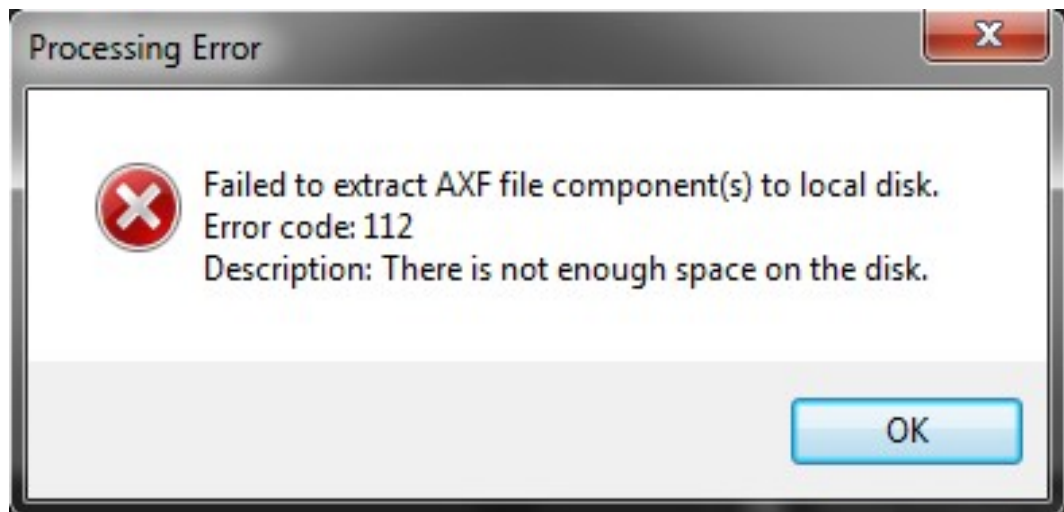
- The selected AXF file is corrupt or invalid.



- There is no media inserted in the tape drive.



- A write error occurred because no space remains on the target drive.



Frequently Asked Questions

The following are some questions frequently asked by Telestream customers:

- Why are the navigation arrows inaccessible?
The navigation arrows are only enabled when more than one page of drives, folders, or Virtual Objects requires display. Either the file navigation tree, or a file or folder which falls under the file tree must be selected for the navigation panel to become active, and the selected item must be expanded and not in collapsed state.
- I selected my destination tape, and it is inserted into the library, so why can I not copy anything over to it?
AXF Explorer will only allow you to read from tapes. You cannot drag and drop files from a local drive to tape.
- If I drag and drop a file, does AXF Explorer move it or make a copy of it?
AXF Explorer will not move a file. It extracts the selected file(s) from the AXF Virtual Object and copies them to the selected destination.
- Why can I not perform an operation on a file?
Fragmented files that are not located on the disk or tape being viewed will appear with a red X in the icon. Operations cannot be performed on these Virtual Objects. Also, a file may be locked by another process and temporarily inaccessible until the process completes and releases the file.
- Why does AXF Explorer give me an error saying the disk is full when there does not appear to be much on there, or it appears that there is space remaining?
AXF Explorer will generate a disk full error when you run out of available space during the extraction process. To continue, additional space on the target drive must be freed and the partially written file must be deleted.
- Why has all of the data on my tape been wiped out?
AXF Explorer must not be used on live production systems. As a support tool all DIVA Core components should be stopped before using AXF Explorer. See [Usage Precautions](#) for details on why this occurred.

Glossary

Archive Exchange Format (AXF)

The Archive Exchange Format (AXF) is based on a file and storage media encapsulation approach which abstracts the underlying file system, operating system, and storage technology. AXF helps ensure long-term accessibility to valued assets, and keeps up with evolving storage technologies.

Complex Virtual Object

A Virtual Object is defined as being complex when it contains more than 1,000 (configurable) components. Complex Virtual Object handling may differ from non-complex Virtual Objects as noted throughout this document.

Tape Reading Utility (TRU)

Used in DIVA Core releases 6.5 and earlier to read tapes.

Universally Unique Identifier (UUID)

Used to uniquely identify each Virtual Object created in DIVA Core across all sites, except for Virtual Objects created using Copy As requests. A Virtual Object created through a Copy As request will contain the same UUID as the source Virtual Object.