

PoINT Archiver

Manual



PoINT Software & Systems GmbH

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Attention

A functioning storage workflow requires a well configured system environment with devices working free of faults and, if applicable, flawless storage media. Therefore it is of the essence that the user does backup all data by functions offered by PoINT software and/or (if required) by supplementary software products at adequate intervals (i.e. in accordance with the scope and frequency of changes), and thereby to facilitate the reinstatement of these data even in exceptional situations (i.e. in case of hardware malfunction).

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1 Introduction

PoINT Archiver is a software product which is designed to fulfil traditional HSM (hierarchical storage management) and archiving requirements in combination with tape and optical storage devices for data which are stored on primary storage in a company's IT infrastructure.

PoINT Archiver supports a two layer hierarchical storage architecture consisting of a "Performance Tier" and an "Archive Tier".

Performance Tier

In the HSM concept implemented by PoINT Archiver already existing hard disk systems typically used as primary storage with standard NTFS interface are considered as Performance Tier. This tier is supported by PoINT Archiver for the following hard disks systems and interface technologies:

- local NTFS hard disk partitions connected as direct attached storage (DAS) which are under control of the server-based PoINT TAFS Agent (see section below),
- SAN LUNs formatted with NTFS controlled by the server-based PoINT TAFS Agent,
- remote NTFS hard disk volumes connected as network attached storage (NAS) controlled by the client-based PoINT TAFS Agent,
- NetApp FAS Volumes controlled by the PoINT NetApp FAS Agent (see section below)

According to the policies which are specified by the administrator, PoINT Archiver automatically archives data to the Ar-

chive Tier but preserves transparent file system access through the Performance Tier. The “Pass Through” mechanism of PoINT Archiver ensures that archived data is delivered directly to applications from the Archive Tier, which means that files are not re-stored again in the Performance Tier. The policies do also provide automatic retrieval of purged data into the Performance Tier, e.g. in cases where purged data is accessed again more frequently.

In addition to the interface technologies described above PoINT Archiver is also able to monitor standard NAS systems which provide a CIFS/NFS interface. For these types of systems PoINT Archiver provides policy based file copying (replication) to the Archive Tier. Optionally source files can be deleted after successful copying.

Archive Tier

As described, the Archive Tier implements the archive storage layer for long-term archiving in the HSM storage concept of PoINT Archiver. Based on administrator defined policies data is stored in this tier and protected against modifications (“WORM Mode”).

The following devices and connection types are supported:

- tape devices (single drives, autoloaders and libraries) direct attached (DAS),
- optical devices (single drives, autoloaders and jukeboxes) direct or network attached (DAS/NAS),

Archived data is stored in UDF formatted images files (“container files”) generated in the scope of an automatically scheduled PoINT Archiver archiving job. A file which is archived in the Archive Tier can also exist as copy and/or link in the Performance Tier and – depending on the settings – files accessed through the Performance Tier can also be protected in these tiers against unauthorized modifications. Depending on the policies it is possible to delete files in the Performance Tier, e.g. in case of missing data access for a specific

period of time. Either manually or policy-driven these files can be retrieved into the Performance Tier 1 to make them again available for transparent file system access.

To ensure and to check data integrity PoINT Archiver applies a sophisticated algorithm which generates encrypted hash codes (digital fingerprint) for every archived file. This implementation allows to detect manipulations of archived files.

The Encryption feature of PoINT Archiver performs encryption based on the Advanced Encryption Standard (AES 256). Media which have been recorded with enabled Encryption function can only be read in the same installation environment which has produced the media. The encryption mechanism uses a combination of a unique System Key and separate keys for different Storage Vaults. This allows individual encryption for different Storage Vaults and additionally ties media to the system which has created the media. In addition the advantages of exchangeable media are still available (e.g. storing media in a safe place).

PoINT Archiver provides integrated support for most tape and optical storage devices available in the market. This means that no third party software products are required for their integration.

1.1.1 PoINT Archiver Agents

PoINT Archiver implements transparent archiving of data stored in the Performance Tier by the following two mechanisms:

- **PoINT Tiered Archive File System Agent (PoINT TAFS Agent)**

In the Performance Tier which consists of e.g. performance optimized hard disk systems with Windows NTFS file systems, the PoINT TAFS Agent realizes transparent archiving by replacing files archived to the Archive Tier by links ("Windows reparse points"). Unchanged access is

retained for applications and users to all files originally stored in Performance Tier with unchanged path names, even if they are physically located on the Archive Tier.

- **PoINT NetApp FAS Agent**

The same functionality as offered by the PoINT TAFS Agent is also provided for NetApp FAS systems by the PoINT NetApp FAS Agent. This module performs transparent archiving of files according to configurable rules – without any need for changes in the application. Thereby, files purged from a NetApp FAS system are replaced by so called “Stubs” (references) and stored safely by PoINT Archiver on the Archive Tier.

In addition PoINT Archiver is also able to migrate data between devices configured within the Archive Tier. This functionality allows migration of data from an “old” device (intended to be replaced) to a “new” device without interruption of the operability of the Performance Tier.

2 System Requirements and Supported Devices

This chapter gives an overview of the system requirements and the supported devices of PoINT Archiver. Please also refer to the README document of your version.

2.1 System Requirements

2.1.1 CPU

Intel Pentium based system or a compatible processor with at least 2 GHz or a multi core processor.

If the optional Encryption function is used a system with an Intel Pentium 4 with 3.2 GHz or a faster processor is required.

2.1.2 Operating System

PoINT Archiver requires a Microsoft Windows operating system including the .NET runtime environment.

For details regarding the operating system requirements (including supported and required Windows Versions) refer to README file (section "System Requirements") which is available on the PoINT web page and also part of the online documentation.

2.1.3 **Hard Disk**

Program Installation

100 MB of free disk space is required for PoINT Archiver program files. PoINT Archiver can only be installed on NTFS formatted hard disk partitions.

Database

The database must be located on an NTFS formatted hard disk partition with sufficient space to store database entries for all archived files. The following formula is an estimation for the required space for the database:

$$\begin{aligned} \text{Database Size} = & 1024 \text{ Bytes} * \text{NumDirs} \\ & + 256 \text{ Bytes} * (\text{NumDirs} + \text{NumFiles}) \\ & + 36 \text{ Bytes} * \text{NumFiles} \end{aligned}$$

<NumDirs> and <NumFiles> are the total number of files and directories stored to be archived.

Examples:

- 6 million files and 10,000 directories will require about 600 MB hard disk space for the database.
- 10 million files and 100,000 directories will require about 3 GB of hard disk space for the database.

The database will automatically be increased in steps of 100 MByte. The initial size is 500 MByte.

Temporary Image Files

Stored data are first stored in a temporary image file on hard disk before the image is migrated to an Image or to a Disc. The hard disk space will be released after successful migration of the temporary image.

At least sufficient free hard disk space for one complete image file is required. For performance reasons it is recommended

that hard disk space for all images of a Job Cycle is available. If PoINT Archiver is configured so that multiple Job Cycles can run in parallel, hard disk space for all Job Cycles is required.

2.2 **Supported Devices**

For a detailed list of supported devices refer to the separate document titled "Supported Devices" which is available on the PoINT web page and also part of the online documentation.

The range of supported devices is continuously expanded. Please contact PoINT Software & Systems GmbH to obtain the up-to-date list.

3

Overview

This chapter provides an overview of terms and concepts which help to use PoINT Archiver.

3.1 **Terms**

The following section describes the terms and definitions which are used throughout the manual.

3.1.1 **Storage Vault**

The core element in the concept of PoINT Archiver is a **Storage Vault**. This object includes all parameters and defines a complete storage process. A Storage Vault is mainly specified by its Data Source, Archiving Policies, Storage Devices and additional configuration parameters.

3.1.2 **Policies**

Policies can be used to control archival of data on the Performance Tier. They consist of one or more conditions and one or more actions which will be executed if all conditions match for a file.

Conditions can be used to filter files by their names, their attributes, their current location and other options.

Actions can be used to copy, move or stub files to a specific tier or to remove them from a tier.

Chapter 5.6, *Working with Policies*, describes the usage of policies in detail.

3.1.3 **Job Cycles**

The term job cycle describes the process of executing a set of policies on a set of files. Job cycles can be executed regularly based on a defined schedule and they can be triggered manually. Refer to chapter 5.10, *Performing Job Cycles*, for more information about job cycles.

3.1.4 **Encryption**

The Encryption functionality optionally encrypts data in Archive Volumes. Refer to chapter 3.4.3, *Encryption*, for detailed information about Encryption.

3.1.5 **Archive Volumes**

Archive Volumes are used in the Archive Tier as container for files which have been archived. Each Job Cycle generates one or more Archive Volumes which are temporarily stored in the configured directory for **Temporary Image Volumes** (see 4.3.1, *Setup Directories*). After the job cycle has finished or an Archive Volume has been filled, the volumes will be migrated to the configured Archive Devices. The size for the Archive Volumes can be configured per Storage Vault. Refer to chapter 5.11, *Manage Media and Archive Volumes*, for more information.

3.1.6 **Archive Devices**

Archive Devices are used as target devices in the Archive Tier. Two different Archive Devices can be specified in the Archive Tier. The first will be used as Archive Devices which

receives the first copy of Archive Volumes and the second is the Replication Device which receives one or more additional copies. The same device can be used as Archive and Replication Device. Refer to chapter 5.4, *Working with Archive Devices*, for more information about Archive Devices types and how to use them.

3.2 **Modules**

This chapter describes the main modules of PoINT Archiver and how they interact with each other.

3.2.1 **PoINT Archiver Service**

The PoINT Archiver Service is the main component of PoINT Archiver. This service controls the Archive Devices and controls the connection between all other components and the user interface.

3.2.2 **PoINT Storage Agent**

The PoINT Storage Agent Service is a windows service which controls the execution of Job Cycles. It has a connection to the other Data Source dependent agents which are described below.

This service runs on the same computer where the PoINT Archiver Service is installed and running.

3.2.3 **PoINT TAFS Agent**

The PoINT TAFS Agent is also implemented as a windows service. It is required to control PoINT TAFS Data Sources. The service must be running on the computer where the hard disk which contains the source data is connected to. PoINT

Archiver provides a separate PoINT TAFS Client installation package which can be used to install the PoINT TAFS Agent and other required components on client computers.

3.2.4 **PoINT NetApp FAS Agent**

The PoINT NetApp FAS Agent controls data sources of type PoINT NetApp FAS. This agent is implemented as a part of the PoINT Storage Agent Service and therefore does not exist as separate executable.

3.2.5 **PoINT VFS Agent**

The PoINT VFS Agent is required for Storage Vaults with a PoINT VFS Data Source. This windows service can optionally be installed on the computer where the PoINT Archiver Service is installed and running.

3.2.6 **PoINT Archiver GUI**

The PoINT Archiver GUI is the user interface which is required to configure PoINT Archiver. The user interface can be running on the computer where the PoINT Archiver Service is running or on another computer in the network. It can be installed on client computers by performing a client or remote administration installation as described in chapter 4.1, Installation.

After installing it on a client computer it is necessary to select the computer where the PoINT Archiver Service is running because the user interface cannot directly connect to the other agents.

3.3 Performance Tier

The main parameter of a Performance Tier is its Data Source. Depending on the type of the Data Source there may be additional options which can be specified.

The following sections describe the different data source types which are supported by PoINT Archiver.

3.3.1 PoINT TAFS Data Source

The PoINT TAFS (Tiered Archive File System) Data Source defines a local or remote directory which is controlled by PoINT TAFS Agent. Depending on the specified Storage Vault parameters a PoINT TAFS directory provides write-once capabilities for files located in this folder. This means files with set write-once capability cannot be modified or deleted. The write-once capability is determined by the parameters of the corresponding Storage Vault. The write-once status of a file can also be controlled by applications utilizing the 'Read Only' file attribute.

The PoINT TAFS Data Source type should be selected if it is required that stored files are still transparently accessible through the original path name and if modifications to files should be prevented. Typically a PoINT TAFS Data Source is applied on file servers.

The following list summarizes the features of the PoINT TAFS Data Source:

- Based on the specified policies files are automatically substituted by a link ("Windows reparse point").
- Access to purged files is supported by a "pass through" mechanism which means the requested blocks of the file are directly delivery from the Storage Device to the application without first re-storing the complete file back into the NTFS file system.

- Besides transparent file system access, retrieval of files is also possible by the PoINT TAFS Shell Extension and by the PoINT Archiver retrieval function.
- Depending on the PoINT TAFS parameters, files cannot be modified or deleted (WORM functionality).
- Versioning, Authentication and Encryption is supported for files of a PoINT TAFS Data Source.
- The Data Source must be located on a local or remote Windows NTFS partition. (A remote NTFS partition requires a remote PoINT TAFS Agent installation.)
- Storage Devices for a PoINT TAFS Data Source should provide random access capabilities (e.g. hard disk systems).

Note: PoINT TAFS Data Sources may be located locally on the same computer on which PoINT Archiver is installed or remotely on computer in the LAN. A remote PoINT TAFS Data Source requires a PoINT TAFS Agent installation on the corresponding remote computer.

3.3.2 **PoINT VFS Data Source**

The PoINT VFS (PoINT Virtual File System) Data Source represents a native Windows file system created by PoINT Archiver if this type of Data Source is selected. This means a new "drive letter" will be visible on the PoINT Archiver server which can also be shared in the LAN.

Compared to the PoINT TAFS Data Source the PoINT VFS Data Source does not require an existing NTFS file system. Users and applications can directly store and access files in a PoINT VFS.

3.3.3 Standard File System

The Data Source type “Standard FS” specifies a directory which can be located locally or on a remote system in the LAN. Depending on the defined Storage Vault parameters, files to be stored will be copied or moved to the Storage Manager server and stored on the specified Storage Devices.

The underlying file system capabilities of a monitored Standard FS are not modified. Files can always be modified and deleted by the user or an application.

The following list summarizes the features of the Standard FS Data Source:

- The Standard FS can be located locally on the PoINT Archiver server and/or a remote system in the LAN accessible by an UNC path name (e.g. NFS share of a UNIX system).
- The underlying file system of a Standard FS is not affected (no filter driver installation).
- Files in the Standard FS can be modified and deleted by users and applications.
- Files located in a Standard FS which are stored by the PoINT Archiver can be automatically deleted, if specified in the Storage Vault parameters.
- Retrieval of stored files is supported by the integrated PoINT Archiver retrieval function.
- The Standard FS does not require random access support for the Storage Device. This means also optical autoloaders could be specified as Storage Devices.
- Versioning, Authentication and Encryption is supported for files of a Standard FS.

Note: A new version of a changed file will be stored when the Job Cycle is triggered. In case of multiple

changes between two Job Cycles only the last status of the file will be stored.

3.3.4 **PoINT NetApp FAS Data Source**

The PoINT NetApp FAS Data Source defines a file system ("NetApp FAS Volume") of a NetApp Storage System which is controlled by PoINT NetApp FAS Agent.

The PoINT NetApp FAS Agent allows purging of files stored on a NetApp FAS Volume to the configured target devices. Purged files are automatically replaced by so called "stubs" in the NetApp FAS file system. This means that stored files are still transparently accessible through the original path name to the NetApp FAS Volume.

The following list summarizes the general features of the PoINT NetApp FAS support:

- Based on the specified parameters files are automatically substituted by a link ("stubbing").
- Retrieval of files is possible transparently through the NetApp FAS file system and by the PoINT Archiver retrieval function.
- Access to purged files is supported by a "pass through" mechanism which means the requested blocks of the file are directly delivery from the Storage Device to the application without first re-storing the complete file back into the NetApp FAS Volume.

Multiple Storage Vaults with configured PoINT NetApp FAS Data Sources can be created for different NetApp FAS Volumes.

3.4 **Archive Tier**

Data can be archived (copied) to the Archive Tier controlled by policies. Data in the Archive Tier is managed in Archive Volumes which contain one or more archived files, depending on the size of the files and the volumes.

The Archive Tier consists of one or two Storage Devices. If two Storage Devices are specified, the second one will also be called Replication Device because data will be replicated to this device. The following sections provide an overview of Storage Device Types which are supported by PoINT Archiver. Chapter 5.11, Manage Media and Archive Volumes, provides more details about how data are stored on these devices.

3.4.1 **Tape Devices**

PoINT Archiver supports tape single drives, autoloaders and libraries with LTO-2, LTO-3, LTO-4 and LTO-5 technology.

Multiple single drives can be combined into one Virtual Device so that they can be used like one target device with multiple media.

Please refer to the README for a detailed list of the devices supported by your version of PoINT Archiver.

3.4.2 **Optical Devices**

Single Drives

PoINT Archiver supports CD, DVD, BD and UDO single drives. Multiple single drives can be combined into one Virtual Device so that they can be used like one target device with multiple media.

Autoloaders

In combination with optical autoloader with configured label printers (also called CD/DVD/BD production system), PoINT Archiver allows unattended archiving of data on CD, DVD or BD media including automated label printing.

The integrated PoINT Label Editor can be used to modify the template file or to create customized label print files. This allows you to use different print files for different Storage Vaults.

Multiple autoloader devices may be connected for the following purposes:

- parallel execution of multiple Recording Jobs,
- parallel production of original media and copies for one Recording Job.

For autoloader devices with multiple input/output bins PoINT Archiver allows individual configuration of bin usage. E.g. it is possible to configure one input bin for CD media and another for DVD media production. This bin configuration is called **Individual Mode**.

For maximum usage of the bin capacity for autoloaders with more than two bins the configuration can alternatively be set to the so called **Sequential Mode**. This means all bins are used with one media type and only one output bin is required when starting the Job Cycle. PoINT Archiver automatically uses an empty input bin as next output bin for continuous production.

Jukeboxes

PoINT Archiver supports optical jukeboxes for Blu-ray Disc, CD/DVD, as well as UDO and other older technologies. Please refer to the README for a detailed list of the devices supported by your version of PoINT Archiver.

3.4.3 Encryption

Encryption is an optional function of PoINT Archiver which provides a sophisticated data encryption algorithm to prevent external access to archived data. This function can be enabled for the Archive Tier of a Storage Vault. All Archive Volumes will be encrypted if this function has been enabled.

This approach is realized by an implementation which uses a combination of two encryption keys.

The first key is the System Key which is automatically generated after the installation. This key exists only once. The second key is an individual Storage Vault Key. It is possible to generate individual Storage Vault Keys for each Storage Vault. The Storage Vault Keys are generated based on a text phrase (Encryption Mode 1) or on a password (Encryption Mode 2) which is entered by the administrator.

The combination of both keys is used to encrypt the stored data. This mechanism allows that data stored by different Storage Vaults are encrypted by different keys. Depending on the Encryption Mode which is selected during creation of a Storage Vault, Storage Vault Keys will be stored (in encrypted form) in the Volume (Mode 1) or not (Mode 2). Both modes prevent access to stored data on other systems which are not configured with PoINT Archiver with the original System Key. Mode 2 additionally requires the password which has been used to create the Storage Vault Key to retrieve data from the Archive Volume.

In order to protect information, PoINT Archiver applies the encryption algorithm defined in the Advanced Encryption Standard (AES) published as Federal Information Processing Standard (FIPS PUB 197). This publication has been issued by the National Institute of Standards and Technology (NIST).

As described PoINT Archiver uses different keys and also different key lengths and modes for the different encryption tasks:

- **Encryption**
For encryption of user and meta-data in Archive Volumes, data is protected by an AES-128 encryption in block chaining mode on logical block level of the Volumes. Different logical blocks are encrypted by different keys, which are computed from the 256-bit System Key, the 128-bit Storage Vault Key which is Storage Vault specific, and a block specific seed.
- **Authentication Information**
The authentication information (see 3.4.4, Data Authentication) is protected by an AES-128 encryption, based on the System Key. The information is stored as part of the meta-data (see above).
- **Storage Vault Key**
The Storage Vault Key may optionally be stored on the media. When stored, it is protected by an AES-128 encryption, based on the System Key.

For data decryption both keys are always necessary and in addition access to a protected Volume (Image or Disc) is only possible in the same environment which has created the Volume.

Regarding the Storage Vault Key the administrator can decide to store it in the Archive Volumes (e.g. on created media) or not. If the Storage Vault Key is not stored in the Archive Volume, the Storage Vault Key password will be necessary for retrieving data. If the Storage Vault Key is stored in the Volume, decryption and retrieval will be performed automatically.

Note: If the System Key or the password for the Storage Vault Key is lost, access to protected archived data will not be possible anymore. Therefore it is important that the administrator carefully handles and stores the generated System Key and the passwords for the Storage Vault Keys. PoINT Archiver provides a function to export/import the System Key to/from a file.

3.4.4 **Data Authentication**

In addition to Encryption, PoINT Archiver provides a sophisticated function for checking the authentication of archived data and thus allows detecting manipulation of archived files. During the archiving process authentication information (digital fingerprint) of every file and of the complete Archive Volume is calculated and is stored on the volume in encoded form and additionally in the PoINT Archiver database. The data authentication check can be performed for all archived data in a Storage Vaults and also for specific Archive Volumes or selected files. PoINT Archiver checks the consistency of the stored files with the corresponding authentication information stored in the Archive Volume and stored in the database. The results of the check are recorded in a log file and this way deleted or changed files can be identified.

Note: The System Key is used to encrypt the authentication information which is stored on the media. Therefore the System Key is required to perform the data authentication check. Ensure that the System Key is carefully saved for recovery purposes.

4 Getting Started

This chapter provides hints related to installation and first configuration steps for PoINT Archiver.

4.1 Installation

4.1.1 Server Installation

The PoINT Archiver server installation has to be performed on the system that configures the storage devices by executing the following steps:

1. Log in as a member of the local administrator's group.
2. If the installation wizard does not start automatically, run the software installation by executing **SETUP.EXE** from the distribution medium. During the setup you will be prompted to enter a Configuration Key. This key is handed to you together with the installation. It is used to personalize your copy of PoINT Archiver. After providing the Configuration Key, the setup will prompt to select the components you want to install. You can uncheck the **PoINT TAFS Client Modules** or the **PoINT VFS Agent** if you do not plan to use these types of Data Sources. The setup program will guide you through the rest of the installation process and will copy program related files/directories to hard disk and installs and configures the required services and device drivers.

Please note that specific options of PoINT Archiver need to be enabled by the corresponding License Key. See chapter 4.2, Licensing, for more information.

Note: During installation, PoINT Archiver automatically generates the System Key which is required for several operations of PoINT Archiver. This key is essential for recovery purposes. Therefore it is highly recommended to save the generated System Key in a file on a separate storage medium.

4.1.2 PoINT TAFS Client

PoINT TAFS Clients must be installed on client computers in the LAN if you intend to locate PoINT TAFS Data Sources on these clients.

The PoINT TAFS Client installation comprises the following components which will be installed on the client computer:

- PoINT TAFS Agent Service
- PoINT TAFS Client Configuration Tool
- PoINT Archiver Administration GUI
- File System Profiler

The PoINT TAFS Client install package can be found on the installation CD or in the PoINT Archiver installation directory in the subdirectory 'PoINT TAFS Client Setup'.

To install the PoINT TAFS Client, copy the installation package to the client computer and execute SETUP.EXE with administrative privileges. After installation of the PoINT TAFS Client modules, you will be guided through the configuration of the PoINT TAFS Client installation. Refer to chapter 5.7.3, PoINT TAFS Client Configuration, for more information.

4.1.3 Remote Administration

If you want to administer the PoINT Archiver Server from a remote computer you can install the PoINT Archiver Client on the remote computer.

Start the file SETUP.EXE to install the PoINT Archiver. When the setup program prompts for the components to be installed, select only the **User Interface Components**. The setup program will guide you through the remaining installation process.

When you start the PoINT Archiver for the first time it prompts you to select the computer which you intend to use as PoINT Archiver Server.

Note: A PoINT TAFS Client installation includes also the User Interface Components which are required for remote administration. Therefore the User Interface Components cannot be installed on a remote system with already installed PoINT TAFS Client.

4.1.4 Uninstall PoINT Archiver

Retrieve Data in PoINT TAFS Data Sources

Data in the PoINT TAFS Data Sources will not be accessible after uninstalling PoINT Archiver, unless purged files have been retrieved and the PoINT TAFS Reparse Tags have been removed.

This can be achieved using the PoINT TAFS Shell Extension (see 5.7.4, Purge and Retrieve Files in PoINT TAFS Data Sources), by means of the command **Remove PoINT TAFS Tags** in the context menu of the PoINT TAFS Data Source in the Windows Explorer. Note that the related Storage Vault must be active and purged data must be present in one of the configured storage tiers.

Remove the Software

Before starting the un-installation of PoINT Archiver you should stop and deactivate all Storage Vaults. Now open the Add/Remove Software Control Panel applet, find the entry for PoINT Archiver and click **Change/Remove**. In the following dialogue select **Remove All** to uninstall PoINT Archiver from your system.

During the software removal you will be prompted to confirm remove of some directories. You can confirm this, if these directories have been solely used by PoINT Archiver.

4.2 **Licensing**

PoINT Archiver requires a License Key for operation. It is based on the PoINT Archiver Serial Number and the machine-dependent Product Key.

To obtain the License Key, contact your dealer and refer to the Serial Number, Product Key, and the connecting Target Device.

The License Key can be entered during installation or at a later time in the PoINT Archiver setup dialogue after selecting **Tasks → Setup PoINT Archiver → General → License**.

Note: The PoINT Archiver Product Key is machine-dependent and may change whenever the (hardware) configuration is modified.

4.2.1 **Device Licenses**

The License Key contains information about the devices which can be used as target devices. While it is possible to configure devices which have not been licensed, PoINT Archiver will not allow using these devices.

4.2.2 **PoINT TAFS Agent License**

Storage Vaults which use PoINT TAFS Data Sources which are located on the PoINT Archiver server do not need a separate PoINT TAFS Agent License. In contrast to that, each PoINT TAFS Client on a different computer has to be licensed by a PoINT TAFS Agent License. The number of available PoINT TAFS Agent Licenses is encoded in PoINT Archiver License Key.

A license will be counted after configuring a Storage Vault with a PoINT TAFS Data Source on a client computer. The license will then be bound to that client computer. To move a license from one client to another, first delete all Storage Vaults with PoINT TAFS Data Sources from this client and then stop and restart the PoINT Storage Agent Service on the PoINT Archiver server. You will then be able to create Storage Vaults with PoINT TAFS Folders on another PoINT TAFS Client installation.

4.3 **Configure PoINT Archiver**

4.3.1 **Setup Directories**

The working directories of PoINT Archiver can be configured by means of the installation wizard or at a later time in the setup dialog after selecting **Tasks → Setup PoINT Archiver → General → Directories**.

The **Database and PoINT VFS Write Buffer** directory stores the volume database of PoINT Archiver, the directory and read cache for PoINT VFS and contains the temporary buffer for files which are being written to a Storage Vault using a PoINT VFS Data Source. There must be sufficient space to store the volume database (see 2.1.3, Hard Disk) and store files which may be written to PoINT VFS at the same time.

The directory for **Temporary Image Volumes** is used to store temporary image files which are created during an archiving job cycle. These temporary image files serve as temporary storage for the migration process to the target devices. If you change this directory, new images will be stored there, while old ones remain in the previous directory and will be removed after they have been stored on the target devices. For optimal performance it is recommended to locate this directory on a different physical hard disk than the database and VFS write buffer.

4.3.2 **Storage Agent Account**

The Storage Agent Account is the account which will be used by the PoINT Storage Agent Service.

This account must be a member of the local Administrators group. Additionally, this account must have permission to access the data on the configured Data Sources.

You may need to create a new local user account or a domain account and grant access to the file and sharing permissions of the required directories.

Note: If your computers are part of a Workgroup (in contrast to a Domain), you are required to create this user account on all computers containing Standard File System Data Sources. The account name and the password must be the same on all machines.

After changing the account you must also change the account on all computers running the PoINT TAFS Agent using the PoINT TAFS Client Configuration tool (see 5.7.3, PoINT TAFS Client Configuration). Otherwise the PoINT Storage Agent will not be able to connect to these clients.

4.3.3 **Configure Archive Devices**

If you plan to configure an Archive Tier for your Storage Vaults, you should not configure the devices which shall be used as Archive Devices. Refer to chapter 5.3, *Configure Archive Devices* for detailed information how to configure Archive Devices.

4.3.4 **Configure Storage Vaults**

The last step is to configure one or more Storage Vaults. Storage Vaults define the storage tiers and the policies used for data migration. Chapter 5.5, *Configure a New Storage Vault*, describes how to create a new Storage Vault and how to configure its parameters.

5

Using PoINT Archiver

This chapter provides detailed information about the usage of PoINT Archiver.

5.1 **PoINT Archiver GUI**

The PoINT Archiver GUI (graphical user interface) is used to configure PoINT Archiver. It can be started by selecting the appropriate command from the Start Menu. Provided that the permissions have been granted, the user interface can be used to administer a PoINT Archiver Service which runs on the local computer or on another computer in the network. To connect to a different computer select **Tasks > Select Computer** from the menu.

After installation PoINT Archiver allows only users with administrative privileges to connect to the service. Therefore on computers with enabled UAC (User Account Control) it is necessary to start the user interface with elevated rights (As Administrator). After connecting the first time, PoINT Archiver remembers the account and allows connecting even if the account does not have administrative privileges. You can configure the list of users in the setup dialogue (see 5.2, Setup User Accounts).

5.1.1 **Side Bar**

The Side Bar is on the left side of PoINT Archiver user interface. It is used to group commands which belong together.

The topic **Tasks** provides some global tasks which can be performed. A click on a command will start a wizard or dialogue which helps performing the task. After clicking on **Tasks** itself, the right pane displays the start screen of the user interface which provides global status information.

The topic **Storage Vaults** lists all configured Storage Vaults. After selecting one Storage Vault the right pane of the user interface opens the Storage Vault detail view which in turn provides status information and allows performing operations on the Storage Vault (see 5.1.2, Storage Vault Detail View)..

The topic **Devices** lists all configured Archive Devices. After selecting a device the right pane displays the device details view which provides status information about the selected device and allows performing operations on the device.

The topic **Current Activity** can only be selected while an Archiving Job Cycle is running or a migration of Archive Volumes is in progress. After selecting the topic, the right pane shows information about the current activity.

After a click on the topic **Log Files**, the right pane displays all available log files. They are grouped into global log files and log files which belong to a Storage Vault.

5.1.2 **Storage Vault Detail View**

The Storage Vault detail view can be opened by selecting the Storage Vault in the topic Storage Vaults in the Side bar. It provides one section for each of the configured tiers of the Storage Vault as described below.

The detail view also provides buttons to activate or deactivate the Storage Vault and to view or modify its configuration. While the Storage Vault is active you can click on the button **Deactivate Storage Vault** to deactivate it. Note that data which have been purged from the Performance Tier to one of the other tiers will not be accessible while the Storage Vault is

not active. Also, if you try to deactivate a Storage Vault while a Archiving Job Cycle is currently running, that job cycle will be cancelled.

The button **Configure Storage Vault** allows viewing and changing settings of the Storage Vault. Note that the Storage Vault will be deactivated while the settings dialog is open.

Performance Tier Section

The Performance Tier section provides an overview of the selected Data Source of the Storage Vault. A progress bar visualizes the capacity usage of the Data Source. This information is not available for PoINT VFS Data Sources, for Storage Vaults with multiple Data Source paths and while the Storage Vault is deactivated.

Archive Tier Section

The Archive Tier Section displays information about the Archive Tier settings of the Storage Vault.

The field **Volume Status** indicates if there are Archive Volumes which have not been migrated to the Archive Devices yet. This is the case while an Archiving Job Cycle is running. If the migration of Archive Volumes fails, PoINT Archiver will report the error (see chapter 6, Error Reporting) and the button **Retry Volume Migration** will be activated. Click this button to restart the migration of Archive Volumes after fixing the problem, which caused the failure.

The **Status** field indicates whether an Archiving Job Cycle is currently running and if and when the next cycle has been scheduled. An Archiving Job Cycle can be manually started by clicking on the button **Execute Archiving Policies**. See also chapter 5.10, Performing Job Cycles for more information about job cycles.

The button **Log Files** provides quick access to the log files which are related to the Archive Tier. This comprises the log files of the PoINT Archiver service, PoINT Storage Agent and

the job cycle log files. Refer to chapter 6, *Error Reporting*, for more information about logging and log files.

5.2 **Setup User Accounts**

By default, PoINT Archiver allows users with administrative privileges to administer the software. To allow other users the administration of PoINT Archiver, open the setup dialogue, select **General** and then click on **User Accounts**.

If this right is granted to a user, this user will be able to manage all configured Storage Vaults and change all configuration options of PoINT Archiver.

5.3 **Configure Archive Devices**

The steps which are required to configure a device are different depending on the type of the device. The following chapters describe how devices of specific types can be configured.

5.3.1 **Autoloaders, Libraries and Jukeboxes**

These devices require an explicit detection-step which forces PoINT Archiver to search for the device and add it to the list of configured devices. During installation, PoINT Archiver always performs a device detection and adds found devices. The list of detected devices is visible in the Side Bar under the topic **Devices**. If your device is not in the list, make sure it is correctly connected to the computer and not in use by other applications. Then open the PoINT Archiver Setup dialogue, select **Devices** → **Add/Remove Devices** and then click on **Detect**. A further dialogue occurs which permits to configure further parameters for the detection. Click on **OK** to start the detection.

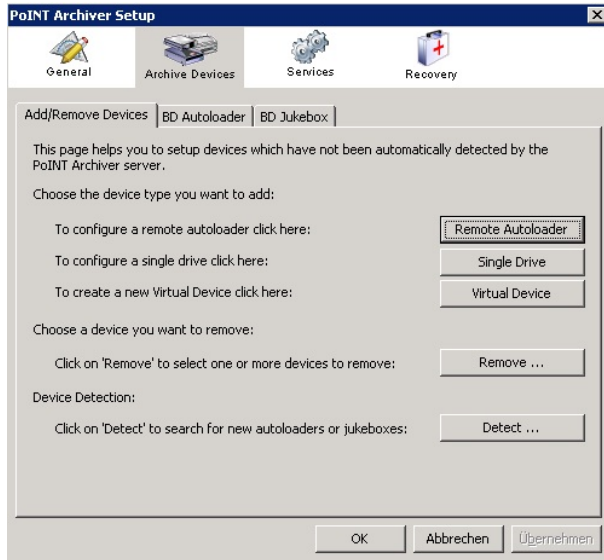
After successful device detection, the found devices will appear in the Side Bar and also as new tabs in the PoINT Archiver Setup dialogue in section Devices.

Once the device has been found, it is necessary to verify the drive assignment. Manual drive assignment is usually not necessary with most SCSI libraries. But it may be required if the library reports a wrong SCSI IDs for their drives or if the library is attached to an iSCSI or Fibre Channel port. That's why it is recommended to verify the drive assignment after the device has been detected for the first time. **Drive Assignment** can also be used if a drive of the library is defective and thus shall be set to **<not assigned>**. To perform the drive assignment, select the device in the setup dialogue and click on **Drive Assignment**.

For CD/DVD/BD Autoloaders it is also necessary to assign the printer device name, configure media types and select the operating mode. Refer to chapter 5.4.1, CD/DVD/BD Autoloaders for more information related to configuration and usage of CD/DVD/BD Autoloaders.

5.3.2 **Remote CD/DVD/BD Autoloader**

Autoloaders which will be controlled through a network interface (e.g. the Rimage API) must be configured in the **Add/Remove Devices** property page of the device dialog. After selecting **Add/Remove Devices** click on **Remote Autoloader** to configure the new device.



When configuring a new **Remote Autoloader**, you will first be prompted for the name of the computer where the autoloader is attached to. Also enter the port address which has been used when installing the autoloader software. Please note that PoINT Archiver does not support multiple connections to different computers. So, if you want to attach multiple remote autoloaders, they must all be connected to the same computer and thus you need only change the address when configuring the first autoloader. Click **Next** to continue.

PoINT Archiver now establishes a connection to the specified computer and queries the list of available devices. Select the new device from the list and click **Next** to continue.

If the configured autoloader is attached to another system, you will now be prompted for an account which has access to the shared image directory on that computer. The specified account must have access to the network share which will be used to transfer the image files. The account must be a domain account or it must exist on both involved systems. If the

device is protected by an additional device password you can specify this password here as well.

Click **Next** and on the last page click **Finish** to create the new device configuration.

5.3.3 **CD/DVD/BD and Tape Single Drives**

After selecting the **Add/Remove Devices** property page of the Setup Devices dialog, click on **Single Drive** to add a new optical or tape single drive to the configuration. The next dialog shows the available drives which can be configured as single drives. Select the drive from the list and click on **Finish** to add the drive to the configuration.

PoINT Archiver automatically assigns a unique name to the new configured device, but you can also change the name by selecting the new device in the **Device Setup** dialog and click on **Rename**.

If there are multiple single drives attached to your system you may now consider creating a Virtual Device which allows configuring multiple single drives as Target Devices for a Storage Vault. Refer to chapter 5.3.4, Virtual Devices, for more information about Virtual Devices.

5.3.4 **Virtual Devices**

Multiple single drives can be combined in one Virtual Device. This Virtual Device can then be selected whenever the selection of a device is required. For example, a Virtual Device can be selected as Storage or Replication Device for an Archive.

Before configuring a Virtual Device you need to configure all single drives which shall be assigned to the new Virtual Device. Refer to chapter 5.3.3, CD/DVD/BD and Tape Single Drives, for more information.

To create the Virtual Device open the **Setup Devices** dialog and select the **Add/Remove Devices** property page. Now click on Virtual Device. In the following dialog you will be prompted to enter a name for the Virtual Device. Click **Next** after entering a unique name. The next dialog shows the list of single drives which have been assigned to this Virtual Device. This list is initially empty. Click on **Add** to select a new single drive from the list of available single drives. Please note that this dialog does not display drives which have already been assigned to another Virtual Device.

5.4 Working with Archive Devices

Once an Archive Device has been configured its status can be viewed in the Device Detail View which can be opened by selecting the device in the topic **Archive Devices** in the Side Bar. Besides status information the Device Detail View provides buttons to activate, deactivate or pause a device. It is also possible to export or import media for devices which support this.

Once a device has been deactivated or paused it cannot process any volume migration operations.

5.4.1 CD/DVD/BD Autoloaders

Operating Mode

Depending on the characteristics of the device, one or more operating modes are possible. The operating mode can be selected by means of the PoINT Archiver setup dialogue after selecting the appropriate device in the topic Archive Devices.

The default operating mode is **Sequential Mode**. In this mode all input bins will be considered as one large input bin. At the start of the sequence all input bins are filled with the same type of media. During operation the media are moved from the input bins to the output bin. As soon as an input bin be-

comes empty it will be used as output bin and media will be taken from the next input bin. In this mode it is critical to understand that the sequence will be reset if you insert or remove media. This means you must remove all processed media and fill the input bins with new media according to the description in section **Insert/Remove Media** below. The sequence will then start from the beginning.

If there are multiple input bins, the device may also support the **Individual Mode**. In this mode, different media types can be selected for the input bins. This way it is possible to produce media of different types at the same time.

Order of Produced Media

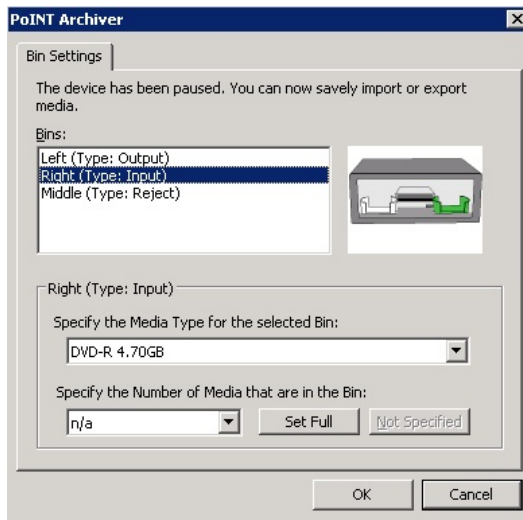
Because it is possible to define multiple Storage Vaults, multiple Job Cycles could also be active at the same time. In case of a configured CD/DVD/BD Autoloader as Archive Device or Replication Device, media are produced in the order of available Archive Volumes. This means that media of different jobs could be mixed if only one output bin is available or defined. Of course media are unequivocally identified by their print label and can therefore be assigned to the corresponding Storage Vault. Alternatively multiple autoloaders could be used to separate media production for different Storage Vaults or the bin configuration could be set to Individual Mode if multiple input and output bins are available.

To separate the media production of different Storage Vaults using one autoloader it is also possible to assign a distinct media type for each Storage Vault. For example "Storage Vault 1" uses "DVD-R 4.7 A1" and "Storage Vault 2" uses "DVD-R 4.7 A2". To allow production of media for Storage Vault 1, set the media type in the input bin to "DVD-R 4.7 A1". Setting the media type of the bin to "DVD-R 4.7 A2" allows production of media for Storage Vault 2 and blocks media production for Storage Vault 1. Please note that this requires suffi-

cient hard disk space to store all temporary images of the Storage Vault for which media production is blocked.

Insert/Remove Media

Before inserting or removing media it is necessary to open the Import/Export dialog using the **Import/Export** button. While this dialog is open, PoINT Archiver pauses the device so that media can safely be imported or exported. After changing media it is necessary to report your changes to PoINT Archiver as described below.



After inserting media into an input bin, select the bin and specify the number of inserted media or click on **Set Full** if you inserted the maximum number of media which is allowed for this bin.

After removing media from an output or reject bin, select the bin and click on **Empty** to mark the bin as empty.

Click on **Not Specified** if you do not know how many media are in the bin at the moment or if the autoloader can automatically detect the number of media.

You should also select the type and capacity of the media which has been inserted.

5.4.2 **Single Drives**

The Device Detail view of single drives shows the disc which is currently loaded in the drive and it shows a list of off-line media.

Before changing media in a single drive it is necessary to pause the device. To do this, click on the **Pause** button in the detail view. Once the device has been paused it is possible to exchange the media. After exchanging the media resume the device by clicking on the **Pause** button again. If the new media has not been recognized yet, right click on the slot and select **Scan/Repair** from the context menu.

Other operations on media in single drives can be performed the same way as on jukeboxes and libraries as described the next section.

5.4.3 **Jukeboxes and Libraries**

The Device Detail view of jukeboxes and libraries shows the media which are loaded in the slots and it shows a list of off-line media. You can toggle the option **Show empty slots** to either hide or show slots which do not contain media. Displaying empty slots can be useful if you want to import media into a specific slot.

The **Pause** button of a jukebox not only stops all operations on the device, but it also unloads all drives and unlocks the front panel if supported by the device. Therefore it is possible to use the front panel on the device to change magazines or media. After resuming the device – by pressing **Pause** again – you may need to select all changed slots and select **Scan/Repair** from the context menu.

The following table shows other commands which can be performed on media. To execute a command, select one or more media and right click to open the context menu:

- **Scan/Repair**
Use this command to detect media which have just been imported into the device or to repair media which are marked as **failed** due to a device failure.
- **Import / Export**
Import and export of single media are supported if the corresponding device supports an import/export element (magazine or slot) for this purpose. This command is not available for single drives.
- **Format**
This command prepares a new medium for use with PolNT Archiver. Please note that formatting of optical media may or may not be necessary, depending on the intended usage. Please refer to chapter 5.11, Manage Media and Archive Volumes, for more information.
- **Close**
This command is available for formatted optical media or tapes. It marks the medium as read-only so that it will not be used for further write requests.
- **Erase**
This command is available for tape and rewritable optical media. All data on the selected media will be destroyed and the media will then appear as unformatted media.
- **Remove from Database**
After selecting one or more media from the offline list, you can use this command to remove all information about the media from the database. The information will be rebuilt after re-importing the media
- **Volumes**
This button opens a list with all Archive Volumes which are stored on this medium.

- **Properties**

The properties dialogue allows changing the type of the Archive Volumes you want to store on the medium and to assign an informational text.

5.5

Configure a New Storage Vault

To start configuring a new Storage Vault select **Tasks** → **Create Storage Vault** from the **Side Bar** menu. A wizard will guide you through the mandatory settings for the new Storage Vault. You find a description of the wizard steps in the following chapters. Please note that the available options and settings vary depending on the selected Data Source Type.

You can directly jump to a topic by the means of the left navigation menu or by selecting an item in the pictogram on the top of the dialogue. However, the recommended method is to completely fill out the active view and then click on **Next** to step to the next view.

In the first step of the wizard you will be prompted to enter a name for new Storage Vault and to select the type of the Data Source that will be used. Please refer to chapter 3.3, *Performance Tier*, for a description of available Data Source Types.

The Storage Vault name can be any text which is a valid NTFS file name. The name must not start or end with a white space and it must not contain any of the following characters:
 \ / : " ' * ? > < | ,

The length is limited to 50 characters.

The Storage Vault name will be used to identify the Storage Vault in the user interface. That's why you should select unique names for your Storage Vaults, even though this is not enforced by PoINT Archiver. Internally PoINT Archiver uses a unique Storage Vault ID which will be automatically created and assigned.

Note: If you plan to configure an Archive Tier for the Storage Vault you need to configure the Archive Device first (see 5.3, Configure Archive Devices).

5.5.1 Performance Tier Settings

All Data Source Types except of the PoINT VFS Data Source require the specification of a Data Source directory. To add a Data Source directory click on **Add Directory**. To change a directory, first click on **Remove** and then add another directory.

In the case of PoINT TAFS Data Sources, you first need to select the computer where the PoINT TAFS Agent has been installed. This must be the computer where the hard disk which serves as Performance Tier is directly attached to.

Also, in the case of PoINT TAFS Data Sources it is possible to select one of the Write Protection Modes. Please refer to chapter 5.7, PoINT TAFS Data Source, for a detailed description.

5.5.2 Archive Policies

The Archive Policies will be used to configure when and which files will be archived to the Archive Tier. They can be executed regularly based on the specified schedule or they can be manually executed.

Please refer to chapter 5.6, Working with Policies, for more details related to policies.

5.5.3 Archive Tier

Two devices can be selected: The first device will be used as Archive Device. Each volume which will be created during

Archiving Job Cycles will be copied to this device. The second device will be used as Replication Device. This device will receive copies of all volumes. It is possible to specify the same device as Archive and as Replication Device. Two copies will be written to the same device in this case. When using an optical autoloader as Replication Device it is also possible to specify the number of additional copies which shall be created. Please refer to chapter 5.4, Working with Archive Devices, for other device type specific behavior.

Media Type

If a CD/DVD/BD Autoloader has been selected as Archive or Replication Device, it is necessary to select the media type which shall be used when creating media on this autoloader. The selected media type must also be configured for one of the bins of the CD/DVD/BD Autoloader. Also refer to chapter 5.4.1, CD/DVD/BD Autoloaders, for more information on using CD/DVD/BD Autoloaders as Archive Devices.

The type and capacity which has been selected for the Archive Device will also be used as Volume Capacity for the Archive Volumes.

Volume Capacity

This setting specifies the size of the Archive Volumes which will be used as container when copying files to the Archive Tier. The volume capacity cannot be changed if one of the Archive Devices is a CD/DVD/BD Autoloader because the capacity will then be set according to the media type selection for the autoloader.

The default setting (600 MByte) allows migration to all supported devices and media types. However, the file structure of the archived data will not be accessible to other applications, because the volumes will be written as container files to the target media.

If you want to create optical media which can be read as standard UDF media, you can select the desired media type and capacity here.

Please refer to chapter 5.11, Manage Media and Archive Volumes, for further discussion about Archive Volumes.

Use Media Exclusive

This option is only used if the Archive or Replication Device is a tape device or an optical single drive or jukebox. If enabled, the volumes of this Storage Vault will be written to designated media which will not be used by other Storage Vault. After selecting this option you must prepare one or more media as targets for this Storage Vault. Also, if the same device is specified as Storage and Replication Device you must prepare designated media for the original and the copy. Please refer to the chapter 5.11, Manage Media and Archive Volumes, for more information.

Enable Label Printing

When recording to a CD/DVD/BD Autoloader, you can enable this option to print a label on produced media. If label printing has been enabled you can use the **Arrow** button beneath the option to view a preview of the current print label. Click on '**Modify**' to select another label or to modify the selected label. Chapter 8, PoINT Label Editor, provides a detailed description of PoINT Label Editor.

Allow File Spanning

The option **Allow File Spanning** allows PoINT Archiver to split a file over more than one Archive Volume. This option must be enabled if you plan to archive files which are larger than the specified volume capacity.

Compare Files after Archiving

The option **Compare Files after Archiving** lets PoINT Archiver compare the files which have been copied by the Storage Agent with the source files. This option should be applied when source files are located on a remote system and data is copied over the network to detect possible network problems. This option will be ignored for PoINT VFS Data Sources.

Logging

During the execution of an Archiving Job Cycle, messages are written to one or several log files. You can choose the level of detail and whether all logging of the Storage Vault goes to a single file, or whether a separate log file is to be maintained for each Archiving Job Cycle of the Storage Vault.

Retention

This setting is only effective for target devices which support retention management.

If you select a retention time here, migrated volumes cannot be deleted from the target device before 00:01 on the specified date. Please note that neither PoINT Archiver nor the target device will automatically delete the volumes after the retention time has expired. For information how to remove volumes from a target device refer to chapter 5.4, Working with Archive Devices.

Enable Encryption

To protect the archived data against illegal use, you can instruct PoINT Archiver to encrypt the archived data. To do so, select **Enable Encryption**.

Encryption Mode 1:

If you select **Encryption Mode 1**, PoINT Archiver will create the Storage Vault Key based on a text phrase. This Storage Vault Key will be written to migrated volumes in encrypted

form. Data retrieval is then possible on the same system where the data were archived – or – more precisely speaking – on a system that is configured with the same System Key.

Encryption Mode 2:

If you select **Encryption Mode 2**, PoINT Archiver will create the Storage Vault Key based on a password which is entered. The Storage Vault Key is not written to the migrated volumes. When you retrieve data, PoINT Archiver will prompt you for the corresponding password. Without the password, it is not possible to retrieve the data. This means for retrieval this mode requires a system using the original System Key and also the password for the corresponding Storage Vault.

5.6 Working with Policies

5.6.1 Overview

PoINT Archiver uses user defined policies to control the archival of data in the Performance Tier. They can be used to archive files, to replace files by a stub or even to delete files from Performance Tier.

Policies always consist of one or more conditions and one or more actions. The conditions will be evaluated for each file until one condition does not match. The actions will be performed on a file if all conditions did match.

While it is possible to create policies with more than one action, it is recommended to use only one action per policy and create multiple policies if more actions are required. The policies should then be assigned in the correct order. For example, a policy which purges files from the Performance Tier shall be inserted after the policy which archives the files, i.e. copies it to the Archive Tier. Also, policies should always check the status of a file before performing an action. For example, the policy which purges a file must ensure that the file

has been archived and that the file has not already been purged. While executing actions for a file, PoINT Archiver does not perform prerequisite operations which are eventually required to successfully perform an action. For example, the policy which tries to purge a file from Performance Tier would fail if the file has not been archived yet.

5.6.2 Templates

PoINT Archiver automatically stores all policies which are assigned to a Storage Vault as global templates. These templates can be loaded and modified when creating or editing a policy. Because templates are identified by their names, new or modified policies will replace existing policy templates with the same name.

Existing templates can be modified and deleted in the PoINT Archiver setup dialogue after selecting **Tasks → Setup PoINT Archiver → General → Policies**.

Note: Changes of templates will not change policies which are already assigned to Storage Vaults.

5.6.3 Conditions

The following list shows all conditions which can be selected when creating Archive Policies.

File name matches pattern <param>

<param> is a list of patterns, e.g. *.txt; *.doc; temp\inbox'. The condition is met, if the file name matches at least one pattern. If a given pattern contains a path separator (backslash), then the pattern will be compared against the relative file path based on the root directory of the Storage Vault. Otherwise the pattern will be compared against the file name without its path.

Examples:

'*.txt' will match all files with extension 'txt'

'temp\inbox' matches only the file 'C:\Vault\temp\inbox', assuming that the Storage Vault Data Source is 'C:\Vault'.

'temp*' matches all files in the directory 'C:\Vault\temp' and its sub-directories (Storage Vault Data Source is 'C:\Vault').

Status of file is <param>

<param> is a combination of 'File is new', 'File is changed', 'File is archived' or 'File is purged'. That means, that the condition is fulfilled, if the file got one of the specified file states.

The file status 'new' is true for all files, which are not present in the Archive Tier yet. The status 'changed' is true for files, which are present, but are existent in a newer version in one of the lower tiers.

A file got status 'archived', in case the Archive Tier has the most recent version of the file.

The file status is set to 'purged' if the file has been replaced by a stub on the Performance Tier.

Note: By default PoINT Archiver compares time stamps and the file size to determine if a file has changed. But the user may additionally add a condition which compares the file content to determine if it has been modified. Due to the resulting processor load for checking content, such a policy should not be executed daily.

File is older than <param>

If file has not been modified since the time period specified, the condition is true.

File has not been accessed for <param>

In this condition <param> specifies a time period. In case the file has not been accessed within the time period, the condition is met. PoINT Archiver uses the most recent time stamp (creation, modification or access) of a file to evaluate this condition.

File has been accessed within <param>

<param> specifies a time interval. The condition evaluates to true, if one of the time stamps of the file is more recent than the specified time interval.

File attributes <param> are set

<param> is a combination of following file attributes: 'Archive bit', 'Read-only', 'System' and 'Hidden'. The condition is true, if all specified file attributes are set.

File attributes <param> are not set

Analogue to the condition above, <param> is one of 'Archive bit', 'Read-only', 'System' and 'Hidden'. This condition is met, if all of the specified file attributes are not set.

File content has changed

The condition is met in case the file content has changed. The file contents of the archived version and the current version in the Performance are compared.

File is larger than <param>

This condition checks the file size. In case file is larger than the specified amount, the condition is true.

File is smaller than <param>

In case the file is smaller than the specified amount, the condition is met.

5.6.4 **Actions**

The following list shows all actions which can be selected for Archive Policies.

Archive the file

This action copies the current version of the file to the Archive Tier.

Purge the file

This action replaces the file on the Performance Tier by a stub.

Delete the file

This action removes the file from the Performance Tier if it is there. Note that files with action Write Protection cannot be deleted by this action.

Reset 'Archive' file attribute

The 'Archive' attribute of the file on Performance Tier is cleared. Note that in case of a PolNT TAFS Data Source, the Write Protection Mode may prevent this operation.

Log a message

When you add this type of action to a policy, you must specify a message text. When this action is executed, the message is logged into the Job Cycle's log file. The message is composed of the file name and the specified message text.

Skip further policies

All further actions and policies will be skipped for this file.

5.7 **PoINT TAFS Data Source**

The PoINT TAFS Data Source allows using a NTFS formatted hard disk as Performance Tier. Files can be purged from the Performance Tier to the other tiers and are still accessible through their original path name. Additionally, the PoINT TAFS Data Source provides optional write protection for files on the Performance Tier.

5.7.1 **Write Protection**

PoINT TAFS Data Sources can optionally use a write protection option which enforces write protection on files based on the selected Write Protection Mode. Once write protection for a file has been applied, the file cannot be modified anymore on the Performance Tier.

One of the following Write Protection Modes can be activated for a Storage Vault using a PoINT TAFS Data Source:

No write protection.

All files in the PoINT TAFS Data Source got the permissions defined by the operating system, there are no additional restrictions added by the PoINT TAFS.

Write protect files after archiving.

Write protection will be activated for a file after archiving it. This mode is only effective if an Archive Tier is configured for the Storage Vault.

Write protect files after purging.

Write protection will be activated for a file if it has been archived and it has been purged by an Archiving Policy.

Write protect files after setting 'Read Only' attribute.

If this option is selected, the write once functionality of the PoINT TAFS is restricted to files which have the 'Read Only' attribute set. Other files can be modified and deleted without any restriction by the PoINT TAFS.

Write protect files until they have been archived.

Select this option to allow modification or deletion of files which have been archived. If this option has been selected, files can be modified, if the latest version has been archived. Note that a file can only be changed once, because it does not count as 'archived' any more after the first change.

All files in PoINT TAFS are write-protected.

All files in the PoINT TAFS Data Source are write-protected. Applications can create new files, but it is not possible any-more to modify the files. Please note that this mode requires applications which are aware of this behaviour. Applications which open/close or rename a file during a safe operation will not be able to store files.

5.7.2 **PoINT TAFS Agent**

The PoINT TAFS Agent is a Windows service which runs on the computer where the Performance Tier hard disk is directly attached to. This can be the computer running the PoINT Archiver server or another computer in the network where the PoINT TAFS Client has been installed (see 4.1.2, PoINT TAFS Client). This agent is responsible to enforce the write protection and it connects the Performance Tier to the other tiers used by the Storage Vault.

5.7.3 **PoINT TAFS Client Configuration**

If you have installed a PoINT TAFS Client on a client computer and intend to create PoINT TAFS Data Sources on that computer, you need to configure the PoINT TAFS Client so

that the Storage Agent which runs on the PoINT Archiver server can connect to the PoINT TAFS Client service on the client computer.

You can also select users which shall be allowed to use the PoINT TAFS Shell Extension on the client computer to purge or retrieve archived files.

The PoINT TAFS Client Configuration tool will automatically be executed after the installation of the PoINT TAFS Client on a client computer. It can also be executed from the Start Menu at a later time. You need administrative privileges to change the settings.

Storage Agent Account Setting

In the page **Storage Agent Account** you must specify the account, which the Storage Agent Service uses to connect to the PoINT TAFS Client computer. In case the Storage Agent uses a domain account, you must specify exactly this account to connect to PoINT TAFS Client. In case the Storage Agent does not use a domain account, you must choose a local account with the same user name and the same password. Please note that you need to change this account whenever you changed the Storage Agent account on the PoINT Archiver server.

PoINT TAFS User Accounts

In the page **PoINT TAFS User** you have to specify the accounts of those users, which should be allowed to purge and retrieve files using the PoINT TAFS Shell Extension. Note that in case there are no accounts specified, all members of the local administrator's group are permitted to use the PoINT TAFS Shell Extension.

Remote PoINT TAFS Client Configuration

The PoINT TAFS Client Configuration tool will also be installed on the PoINT Archiver server. However, when you

start the tool from the Start Menu you will be prompted to select a computer in the network where the PoINT TAFS Client is installed. After connecting to that computer you can view and change the settings for this system. This way you will be able to change the settings for all clients without logging on to these systems.

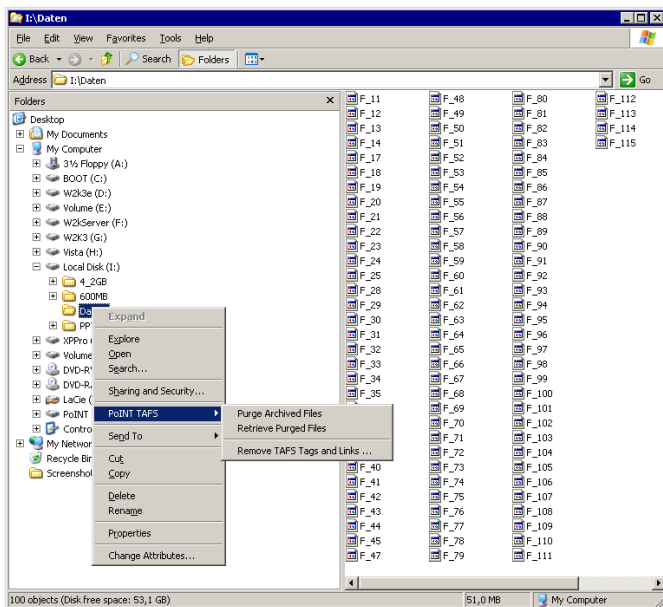
Note: Remote configuration requires that the Remote Registry Service is running on the client computer and that the Firewall on the client does not block File and printer sharing requests. Additionally, you need administrative privileges on that computer.

Securing the Data Transfer

Data will be transferred from the PoINT TAFS Client computer over the network to the PoINT Archiver server. If the data must be protected against eavesdropping on the network, you need to secure the data transfer between the two computers. One way to achieve this is to configure the Windows™ IPSEC services on both computers accordingly. Please refer to the operating system documentation for more information.

5.7.4 **Purge and Retrieve Files in PoINT TAFS Data Sources**

PoINT TAFS Data Sources can be configured to automatically purge files from the Data Source and to replace them by a link. However, these steps will only be performed whenever a Job Cycle is executed. Also, it may be useful to read purged files back to the hard disk (retrieve) to speed up access to these files. Please note that the Data Retrieval function (see 5.12, Data Retrieval) cannot be used to retrieve a purged file because this function always creates new file versions which will then be archived again.



The **PoINT TAFS Shell Extension**, which is available for PoINT TAFS Data Sources, allows manually controlling the status of archived files, i.e. purging specific files to free hard disk space or to retrieve purged files to speed up access to these files. Please note that these operations can only be performed for files whose current file version has been copied to another tier before. The status of files which have not been archived yet cannot be changed nor can the Shell Extension be used to force archiving of a file.

The PoINT TAFS Shell Extension adds the sub menu **PoINT TAFS** to the context menu of files and directories in a PoINT TAFS Folder.

Beside commands to purge and retrieve files, this menu provides the command **Remove PoINT TAFS Tags and Links** which must be executed for the whole PoINT TAFS Folder before uninstalling PoINT Archiver. This command retrieves all files and removes PoINT TAFS meta data (NTFS Reparse Tags).

When executing a command from the context menu of a directory, the command will be performed for all files in this directory and in all sub-directories. If the command cannot be performed for a file, either due to a failure or because the file has not been archived yet, an error messages appears and allows specifying whether you want to ignore this error if it occurs again. Note that error reporting will be enabled again, when you perform the command on another file or directory.

During processing of the command, the statistics shows the number of files which have been successfully processed (including files which are already in the desired state), the number of files which have not been processed because they have not been archived yet, and the number of files where the operation failed.

Access Rights

On the computer with installed PoINT Archiver Service, all users which are allowed to administer PoINT Archiver will also be allowed to use the commands of the PoINT TAFS Shell Extension.

In case of a PoINT TAFS Client installation, the list of allowed users must be explicitly configured using the PoINT TAFS Client Configuration tool. By default, all members of the local Administrators group will be allowed.

5.8 **PoINT NetApp FAS Data Source**

Regarding the PoINT NetApp FAS configuration please refer the separate document titled "PoINT Archiver – NetApp FAS Agent" which is available on the PoINT web page and also part of the online documentation.

5.9 **PoINT VFS Data Source**

The PoINT VFS Data Source provides native file system access to a Storage Vault. The following chapters describe the options and settings in more details.

5.9.1 **PoINT VFS Agent**

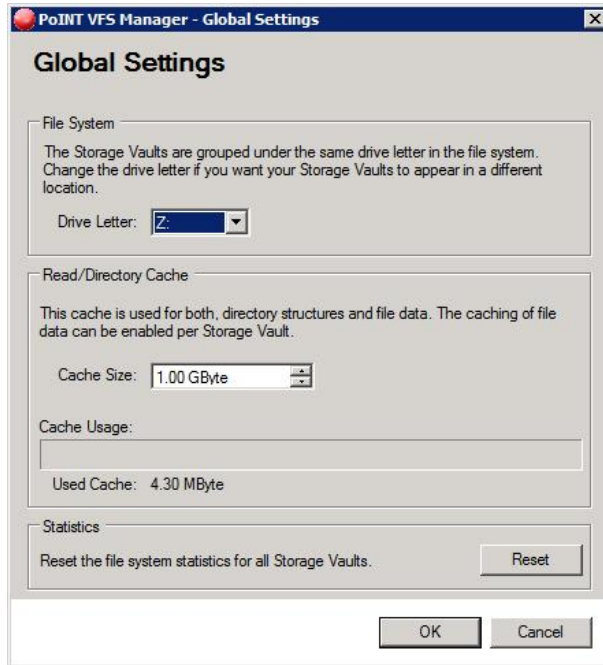
PoINT VFS is integrated in the PoINT VFS Agent which is implemented as a Windows service. This service will be automatically started and stopped by the PoINT Archiver Service. The PoINT VFS Agent is an optional component which can be selected during installation of PoINT Archiver. If it has been installed, it will automatically create a virtual drive letter. By default, it uses the last available drive letter, usually Z:. All configured Storage Vaults with PoINT VFS Data Sources will be accessible as sub-directories in the virtual drive letter.

5.9.2 **PoINT VFS Manager**

The PoINT VFS Manager is the user interface component of the PoINT VFS Agent. It can be started using the appropriate Start Menu entry or by means of the **Open PoINT VFS Manager** command in the detail view of the Storage Vault in the PoINT Archiver GUI.

PoINT VFS Manager displays the PoINT VFS settings of one Storage Vault. You can select the Storage Vault using the list box in the upper part of the window. Only Storage Vaults which have been configured using PoINT VFS as Data Source can be selected.

5.9.3 Global PoINT VFS Settings



The global PoINT VFS Settings can be viewed and changed using the command **PoINT VFS Manager > Global Settings**. The following settings are available:

Drive Letter

This setting specifies the virtual drive letter for the PoINT VFS. The combo box displays all available drive letters. Please note that drive letters of mapped network drives are displayed as available drive letters.

Read/Directory Cache Size

The read and directory cache is used to cache directory information of the virtual file system and cached data if read cache has been enabled for one or more Storage Vaults. Thus

the cache must be large enough to hold both, directory information and the cached data. This cache is located in the database directory of PoINT Archiver. This directory can be configured in the setup dialog in the PoINT Archiver GUI. The space required for the directory information can be calculated using the following formula:

$$\begin{aligned} \text{Database Size} = & 1024 \text{ Bytes} * \text{NumDirs} \\ & + 256 \text{ Bytes} * (\text{NumDirs} + \text{NumFiles}) \\ & + 36 \text{ Bytes} * \text{NumFiles} \end{aligned}$$

Please note that the size of the cache cannot be decreased. Lowering this value may discard data from the read cache, but it will not decrease the size allocated to the cache.

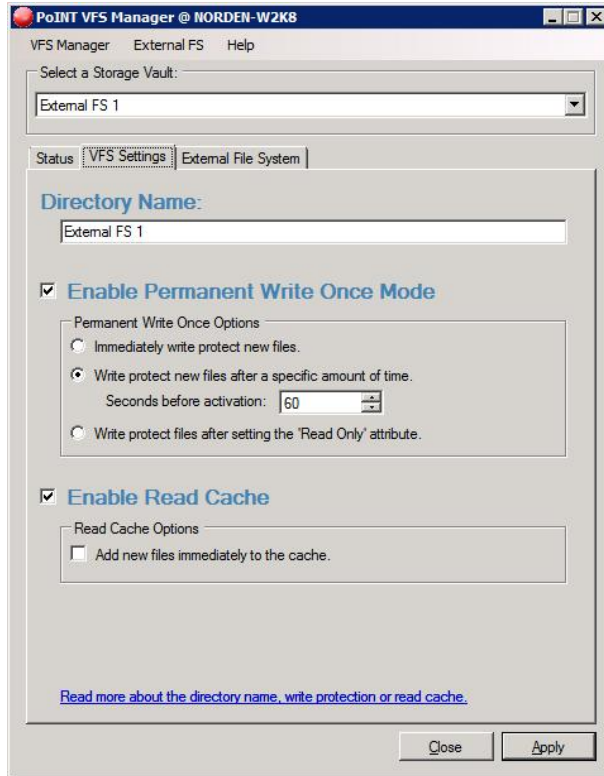
If the cache becomes too small to hold all directory information, PoINT VFS Agent will discard all cached file data and automatically expand the cache. Additionally, a message will be logged to the PoINT VFS Agent log file.

Reset Statistics

This command can be used to reset the file system statistic counters for all Storage Vaults. Particularly the number of reads and cache hits which are displayed in the Status property sheet of the Storage Vaults will be cleared.

5.9.4 **PoINT VFS Settings**

This property page can be used to modify file system options of the Storage Vault's PoINT VFS Data Source.



Directory Name

The directory name will be used to make the Storage Vault accessible under the virtual drive letter. You can provide any name which is valid NTFS file name. If the specified name contains a path separator (slash or back-slash) the name will be interpreted as a directory tree where the Storage Vault will be mounted to. For example, if you enter "Path\Vault 1", PoINT VFS Agent will create a directory "Path" and therein a directory "Vault 1" which contains the data of the Storage Vault. This function can be used to group multiple Storage Vaults in the sub-directory "Path".

Enable Permanent Write Once Mode

The 'Enable **Permanent Write Once Mode**' option ensures that stored file versions cannot be modified or replaced by new file versions. If this option is not checked, it is possible to replace files at any time so that PoINT Archiver cannot assure that each file version will be stored in the Storage Vault.

Note: Once this option has been enabled and applied, it will not be possible to disable it.

After enabling this option you can also select the condition which forces a file to become write protected:

Immediately archive and write protect new files

If this option is selected, files become write protected after closing the file handle which created the file. This option should only be selected if the application which creates the files is aware of this behaviour.

Archive and write protect files after specific time

This option allows specifying a time interval after which new files will be write protected. The write protection becomes active when the specified time has elapsed since closing the last file handle which modified the file. Files will not be migrated to the Storage Vault until the specified period of time has elapsed.

Archive and write protect files after setting 'Read Only' attribute

Select this option to enable write protection only for files which have the 'Read Only' file attribute set. Also this option requires that applications are aware of this behaviour.

Note: Files will not be archived to the target devices until the 'Read Only' attribute has been set. That is the reason why this option must only be selected if this

attribute will be set for all files unless there are files which shall intentionally not be archived.

Enable Read Cache

If the option **Enable Read Cache** has been checked, file data which have been read through the virtual file system will be stored in the read cache of the PoINT VFS Agent. This option is useful if the Storage Device of the Storage Vault is an optical or tape library, so that repeated read requests can be satisfied without loading the media. If the read cache has been enabled, you must adjust the size of the cache so that it can contain directory and read cache data (see chapter 5.9.3, Global PoINT VFS Settings).

By default the read cache stores files while reading them for the first time. New files will not be stored in the read cache. You can change this behaviour by checking the option **Add new files immediately to the cache**.

Note: Files which are larger than about half the specified cache size will not be cached.

5.9.5 **File System Functionality**

This chapter describes the file system functionality of the PoINT VFS. This information can help to adopt applications to utilize specific features of the PoINT VFS.

Archive Status of Files

An application can query the status of files by means of the Win32 function `GetFileAttributes()`. The file attribute `FILE_ATTRIBUTE_OFFLINE` indicates that the most recent version of the file has been archived and migrated to all target devices which have been configured for the related Storage Vault. Because there is no function to force the archival or to synchronously wait until a file has been archived, the application must poll the attributes if it needs to wait until the file

has been archived on the target devices. Note that it is not recommended to wait for single files unless the files are about the size of the volume capacity for the Storage Vault or larger. Also, the Archive Volumes containing new files will not be closed and migrated until the **Minimal Job Cycle Age** specified in the Advanced PoINT VFS Settings of the Storage Vault has elapsed (see 5.9.6, PoINT VFS Advanced Options).

Note: It is not possible to wait for FILE_ATTRIBUTE_OFFLINE using the Win32 functions FindFirst() and FindNext(). This flag will not be updated when using these functions due to the resulting performance penalties.

Creating new File Versions

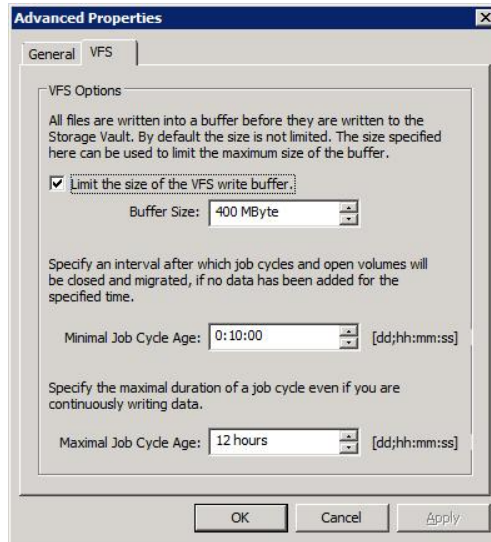
Creating a new file version, i.e. overwriting a file in the PoINT VFS, is not possible if the **Permanent Write Once** mode has been enabled. If this option has not been enabled, a file can be replaced at any time. However, it is only guaranteed that the old version remains in the Storage Vault if the interval specified for the **Maximal Job Cycle Age** has elapsed since the previous version has been created (see 5.9.6, PoINT VFS Advanced Options).

To overwrite a file, an application must first clear the attribute FILE_ATTRIBUTE_READONLY if it is set. Note that the application can only change this attribute. Changing any other attributes or time stamps will be prevented. Now the application can use the Win32 function CreateFile() and specify the option CREATE_ALWAYS as parameter for dwCreationDisposition. The returned handle can be used to access/create the new file version.

5.9.6 **PoINT VFS Advanced Options**

The PoINT VFS Advanced Options dialogue allows configuring more advanced Storage Vault options which are specific to PoINT VFS Data Sources. The dialogue can be opened in

the detail view of the Storage Vault by clicking the command **Actions** in the Archive Tier section and selecting command **Modify PoINT VFS Options** from the actions menu.



Limit the size of the PoINT VFS write buffer

This option can be used to specify a maximal size of the buffer used to buffer new files which have been written into the PoINT VFS. If this buffer is limited, it must be large enough to hold all files which may be written at the same time into the PoINT VFS.

If this setting is disabled, the buffer may fill up the whole hard disk partition if many data will be written.

The directory containing the PoINT VFS write buffer can be configured in the Global Settings dialogue of PoINT Archiver (see 4.3.1, Setup Directories).

Minimal Job Cycle Age

This value specifies the time after which the current job cycle and its Archive Volumes will be closed if the Storage Vault is idle, i.e. no data has been written for the specified time. Lowering this value will decrease the time files stay on the hard disk, but it also increases the overhead used on the target media because volumes will be migrated even if they contain very few data. Note that volumes will always be migrated after they have been filled.

Maximal Job Cycle Age

In contrary to the minimal job cycle age, the maximal age specifies the time after which the volumes and the current job cycle will be forcibly closed if you are continuously writing data into the Storage Vault. This setting can be used to ensure correct versioning of files because new file versions will overwrite file versions within the same job cycle. For example if files will be replaced after about 12 hours and you want to ensure that each version will be kept, you must set the maximal job age to a value less the 12 hours.

5.10 **Performing Job Cycles**

Job Cycles are used to execute defined policies on the files in the Storage Vault. They will usually be triggered using a defined schedule, but it is also possible to trigger them manually.

5.10.1 **Archiving Job Cycles**

Archiving Job Cycles are used to execute Archive Policies (see also 5.6, Working with Policies). These policies allow controlling the archival of files, i.e. the copying of files into the Archive Tier.

Archiving Job Cycles enumerate and process all files which are present on the Performance Tier – including files which have been replaced by a file stub.

To manually trigger an Archiving Job Cycle, click on the button **Execute Archiving Policies** (green arrow) in the section **Archive Tier** on the Storage Vault details view. A dialog appears which displays the list of policies which will be executed. Review the policies and click on **Execute Now** to start the cycle. To change the list of Archive Policies for the Storage Vault open the properties dialog and change the Archive Policies there.

After a job cycle has been triggered, either manually or by schedule, the progress and error information can be monitored using the generated job log files. Depending on the options which have been specified for the Storage Vault, either one log file which contains information about all job cycles will be created or one log file for each job cycle. The log files can be opened using the button **Log Files** in the section **Archive Tier** or by means of the **Log Files** view. The log file named **Next job log file** receives messages which will be logged while no job cycle is in progress or if PoINT Storage Agent fails to start a job cycle. This file will be renamed after starting the next job cycle.

Archiving Job Cycles consist of two steps: The first step executes the Archive Policies and copies files into Archive Volumes. In parallel, a second step migrates these volumes to the selected Archive Devices.

5.11 **Manage Media and Archive Volumes**

While executing Archiving Job Cycles, PoINT Storage Agent creates Archive Volumes which serve as container for individual files which have been copied to the Archive Tier. The generated Archive Volumes will then be copied to the configured Archive Devices. The actual procedure how they will be copied depends on the used technology as described in the next sections.

5.11.1 Media Format

Tape Media

The Archive Volumes will be stored on tape as standard UDF image files. The tape media will be formatted according to the Microsoft Tape Format (MTF).

Tape media must be formatted to store volumes of a specific capacity. To view the volumes which are stored on a tape, right click on the media in the device detail view and select the command **Show Volumes**.

CD/DVD and BD Media

Optical discs can be recorded in two different ways. The **incremental** method allows storing multiple Archive Volumes on one optical disc. For example, a BD-R 50 optical disc can be used to store volumes of type '600 MByte'. When using this method you must format new media using the capacity which has been selected in the Storage Vault properties dialogue. This is the recommended method, because only the amount of data which has been archived in an Archiving Job Cycle will be occupied on the optical disc. Of course, the volume capacity must be significantly smaller than the capacity of the optical disc. The Archive Volumes will be stored as standard UDF image files on the optical disc. The disc itself will also be formatted using standard UDF file system,

Alternatively, if the selected capacity of the Archive Volumes matches exactly the type and capacity of the optical media, PoINT Archiver records the image in so called **disc-at-once** mode. Unless the optional Encryption has been enabled for this Storage Vault, the file structure of the archived data will be visible as a standard UDF file system on the optical disc. For example, if the archived files shall be readable as a standard UDF file system on BD-R 50 media, the volume type and capacity for the Storage Vault must be set to BD-R 50 (47 GByte). However, each Job Cycle will produce at least one

optical disc regardless of the amount of data which has been archived.

5.11.2 Prepare Media for Archival

While tape media must always be formatted before they can be used for archival, optical media may not need formatting, depending on the intended usage. Please refer to chapter 5.11.1, *Media Format*, for more information. The following information only applies if you want to use optical media with the incremental method so that Archive Volumes of a smaller capacity can be stored. Note that optical media must not be formatted when using the disc-at-once mode.

Please note that PolNT Archiver automatically formats new media if they are required and if unformatted media are present. However, it is necessary to explicitly format at least one disc because PolNT Archiver selects new media for a Storage Vault based on the type of the media which have already been formatted.

To format media select the device which contains the media in the topic *Archive Devices* on the Side Bar. Then right click on the media in the slot list and select **Format** from the context menu.

During the formatting you specify the capacity of the Archive Volumes to store on the medium. The same capacity must be selected as volume capacity in the properties dialog of the Storage Vault which shall be migrated to the media.

Additionally, a medium can be prepared to store only volumes for a specific Storage Vault. To do this, first select the option **Use Media Exclusive** in the Archive Tier setting of the Storage Vault. Then go to the medium properties dialogue or format a new medium and select the capacity entry which contains the Storage Vault designation string.

Furthermore, when the Replication Device is the same as the Storage Device, you need to specify which media shall be used for original or copy: After selecting the appropriate options in the **Archive Tier** settings select the capacity entry which contains the 'Original' or the 'Copy' designation string, respectively.

Examples:

The Storage Vault named 'Inbox Folder' is configured for Archive Volumes of a maximal capacity of '600 MByte'. If the option **Use Media Exclusive** is enabled, the Storage Vault requires media which are configured to store volumes of type: 600 MByte for 'Inbox Folder'.

If the same device is configured as Storage and Replication Device, the following volume types must be selected:

600 MByte for 'Inbox Folder' (Original)

600 MByte for 'Inbox Folder' (Copy)

5.11.3 **Manual Volume Migration**

The volume migration function allows explicit replication of Archive Volumes to the Replication Device or restoration of volumes from the Replication Device to the Archive Device. This is necessary if original or replicated media have become defective. This function is also useful if you want to change the Replication Device from, for example, a CD/DVD/BD autoloader to a tape device and want to rewrite all Archive Volumes from the Storage Device to the tape device.

To start manual volume migration, open the detail view of the Storage Vault, click on the button **Actions** in the Archive Tier section to open the menu of available actions and select the command **Perform Volume Migration** from the menu. After starting the volume migration, a wizard appears which collects information about the migration operation you want to perform.

In the first step select if you want to migrate **all volumes** of the Storage Vault, all volumes of a specified **Archiving Job Cycle** or a **single volume**. After selecting the volumes to migrate, click next and select if you want to migrate volumes to the Replication Device or retrieve volumes from the Replication Device to the Archive Device. The device which has not been selected as target device will be used as source device for the migration. If the source device is a CD/DVD/BD autoloader you will also need to specify the input bin you want to insert the media to. If the target device is a CD/DVD/BD autoloader and label printing is enabled for the Storage Vault, you need to specify the **Copy Number** to print on the created media.

Click **Create Job** to start the volume migration. Once the migration is in progress you may be prompted to insert media into the input bin or remove created media from output bins. If the source device is a library or a single drive and the required media are not online available, you need to switch into the main window of PoINT Archiver and import the media into the device. Then click **Next** to continue volume migration.

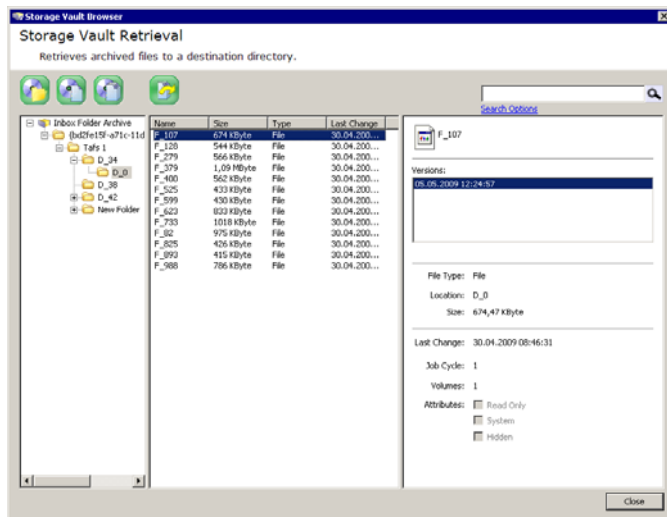
Notes: If the target device is a CD/DVD/BD autoloader, PoINT Archiver will create all media whose volumes have been selected for migration. For other devices, PoINT Archiver will only migrate volumes which are not already present in the target device or on offline media.

5.12 Data Retrieval

This chapter describes how to retrieve files which have been stored in the Archive Tier to an arbitrary location. This function can be used to access older versions of files or to recover files which have been deleted from the Performance Tier.

To start the Data Retrieval, open the detail view of the Storage Vault, click on the button **Actions** in the Archive Tier

section to open the menu of available actions and select the command **Retrieve Archived Data** from the menu. The following dialogue appears which allows selecting files and file versions for retrieval:



The **Storage Vault Retrieval** dialogue consists of three areas. In the left one, the directory tree of the Storage Vault is presented. Click the + button to expand the directories. The middle area shows the files contained in the selected directory. If you select a file, its details are presented at the right side. The file versions are identified by their archiving date and time. Below the list of versions, the file size and the time of last modification of the selected version is displayed.

There are three different possibilities to retrieve data:

- To retrieve the most recent versions of all files of a complete directory and its subdirectories, select a directory and click the **Retrieve Directory** button.



- To retrieve a version of a single file, select a file and a version and click the **Retrieve Selected**

File Version button.

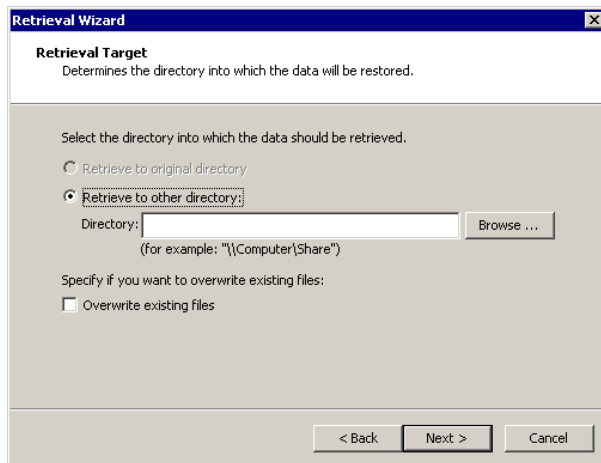


- To retrieve all versions of a single file, select a file and click the **Retrieve all File Versions** button.



The **Retrieval Wizard** will guide you through the following steps:

After an introductory dialogue, you can decide on the **Retrieval Target** page whether the files shall be stored at their original locations or at another directory and/or under the original name or a different one.



Retrieve to original directory

In the case that you select **Retrieve to original directory**, the original directory paths will be recreated, if they no longer exist. If all versions of a file are to be retrieved, they will be stored at their original location, but with different names: The names are composed of the original name and the date and time of the version.

The option **Retrieve to original directory** is not applicable for PoINT VFS Data Sources and it has some restrictions for PoINT TAFS Data Sources:

It can only be selected if the PoINT TAFS Folder is on the system where the PoINT Archiver Service is installed. This option is not available if the PoINT TAFS Folder of the Storage Vault is located on a remote computer with installed PoINT TAFS Client. However, if this function is required, please use the option to retrieve to another directory and select the PoINT TAFS Folder as target directory. In this case, please also read the notes below.

This function is not intended to retrieve purged files of a PoINT TAFS Folders. Instead, the appropriate command of the **PoINT TAFS Shell Extension** should be used. So, in case of PoINT TAFS, the option **Retrieve to original directory** should only be used to perform the following tasks:

- Retrieve a file which has been deleted from the PoINT TAFS Folder.
- Perform a rollback to an older version of an archived file.
- Rebuild the whole directory tree for recovery purposes.

In other situations, the retrieval may fail, because the PoINT TAFS settings prevent overwriting of file versions which have not been archived. If you replace an archived file by an older version of the file (rollback), this version becomes the current version and it will be archived again when the next Job Cycle runs. Depending on write protection settings PoINT TAFS may prevent replacing a file version which has not been archived yet.

Retrieve to other directory

If you select **Retrieve to other directory**, the retrieval is done according to the examples below.

If the GUI is running on a client computer, you must specify a network share (UNC path) as target directory, unless you have administrative privileges so that the GUI can create a

temporary network share that PolNT Archiver uses to copy the data to your local hard disk.

Example:

Supposing you specified the path "C:\Dir1\Dir2\XYZ" and you selected:

- Folder "D" to retrieve:
The contents of "D" will be stored in the directory "C:\Dir1\Dir2\XYZ"; the directories of the path will be created if they do not yet exist.
- File F and a single version to retrieve:
If "C:\Dir1\Dir2\XYZ" exists and is a directory, F is stored in "C:\Dir1\Dir2\XYZ".
If "C:\Dir1\Dir2\XYZ" exists and is a file, "F" is stored in "C:\Dir1\Dir2" and is named "XYZ", i.e. it replaces "XYZ".
If C:\Dir1\Dir2\XYZ does not exist, the directories "C:\Dir1" and "C:\Dir1\Dir2" are created if required and "F" is stored as "XYZ" in "C:\Dir1\Dir2".
- File "F" and all versions to retrieve:
If "C:\Dir1\Dir2\XYZ" exists and is a directory, the files go to "C:\Dir1\Dir2\XYZ"; the date and time is appended to the original file name.
If "C:\Dir1\Dir2\XYZ" is a file or does not exist, the files are stored in "C:\Dir1\Dir2" and their names are composed of "XYZ" and the date and time of their versions. The directories of the path "C:\Dir1\Dir2" are created as necessary.

If a file being retrieved already exists at the target location, the file of the Storage Vault will not replace it, unless you have checked **Overwrite existing files**.

Click **Next** to continue.

If the target directory is not on the computer where the PolNT Archiver server is installed, the **Remote Directory Account** page appears. You should enter an account that has read and write permissions to the specified target directory and its contained files and subdirectories so that PolNT Ar-

chiver will be able to store the retrieved files there. Usually, you can specify your own account here.

Now, the **Device Selection** dialogue page gives you the opportunity to select the device and the bin that you intend to put the required media or there the Archive Volumes are located. Usually, you select the Storage Device of the Storage Vault here.

Click **Next** to proceed.

PoINT Archiver then determines the media that are required for the retrieval job. If the selected device is a CD/DVD/BD autoloader it then displays the list of media that you should put into the input bin. The order of media is not important. Click **Next** to start the job.

The subsequent dialogue informs you about the progress. Empty media or media that do not belong to the required set are ignored and put into the output bin. If media are missing, you will be prompted to put them into the input bin. You may abort the retrieval by clicking **Cancel**.

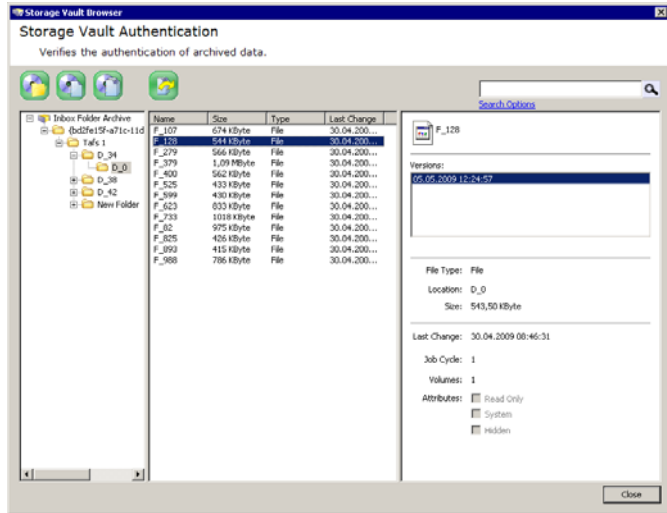
The activities during the retrieval are logged in a log file. When the retrieval finished, you can view the file by pressing the **View** button on the final dialogue of the wizard. Check **Keep Log File** if you want to store the log file permanently. You can find it in the log files list of the Storage Vault.

5.13 **Data Authentication**

This chapter describes how to perform a verification of data which have been stored in the Archive Tier. During this operation PoINT Archiver verifies that the data on the archive media have not been tampered and compares a hash value against the value stored in the database.

To start the Data Authentication, open the detail view of the Storage Vault, click on the button **Actions** in the Archive Tier section to open the menu of available actions and select the command **Authenticate Archived Data** from the menu. The

following dialogue appears which allows selecting files and file versions for data authentication:



As in the Storage Vault Retrieval dialogue, the **Storage Vault Authentication** dialogue consists of three areas. In the left one, the directory tree of the Storage Vault is presented. Click the + button to expand the directories. The middle area shows the files contained in the selected directory. If you select a file, its details are presented on the right side. The file versions are identified by their archiving date and time. Below the list of versions, the file size and the time of last modification of the selected version is displayed.

There are three different possibilities to check the authentication of data:

- To authenticate the most recent versions of all files of a complete directory and its subdirectories, select a directory and click the **Authenticate directory** button.



- To authenticate a version of a single file, select a file and a version and click the **Authenticate selected file version** button.



- To authenticate all versions of a single file, select a file and click the **Authenticate all file versions** button.



The **Authentication Wizard** will guide you through the following steps:

After an introductory dialogue, the **Device Selection** dialogue page gives you the opportunity to select the device and in case of an CD/DVD/BD autoloader the bin that you intend to put the required media in.

Click **Next** to proceed.

PoINT Archiver then determines the media that are required for the operation. If the selected device is a CD/DVD/BD autoloader it then displays the list of media that you should put into the input bin. The order of media is not important. Click **Next** to start the job.

The progress of the authentication job is shown on the next dialogue page. When done, you can view the log file by clicking the **View Log** button on the final dialogue. Select **Keep Log File after Closing**, if the file should not be deleted. You will find this file in the set of log files of the Archive. It is named "Media authentication check (<date> <time>)"

5.14 Export List of Archived Files

PoINT Archiver can export the list of files which have been stored in the Archive Tier into a comma separated text file ('csv'). Such files can be imported into database applications for further analysis. The exported file contains the list of all versions of all files which have been archived into a specific Storage Vault. Please note that this function must be enabled by the License Key.

To export the list, first open the **Storage Vault Retrieval** dialogue as described in chapter 5.12, Data Retrieval. In the **Storage Vault Retrieval** dialogue click the button to export the list of files:



Now the following dialogue appears which allows entering a file name, changing the columns of the exported table, to select a delimiter character and to select whether a table header should be added as first line:

If you want to change the format of the table, e.g. you want to specify the columns of the table first clear the current text in the text field **Columns** and then add the desired columns

by selecting the appropriate tokens from the list of available tokens.

The following columns are available:

- **Name**
The name of the file, e.g. file.dat
- **Path**
The path where the file is stored in the archive. This is the absolute path name starting with the name of the computer.
- **FullName**
This is the concatenation of 'Path' and 'Name', i.e. the full file name.
- **VolumeNo**
The number of the Volume this file has been written to. The same number is printed on the disc, if a disc has been produced.
- **VersionNo**
This number uniquely identifies this version of the file. Recent versions have a higher number than older versions. However, the numbers are not necessarily continuous.
- **FileSize**
The size of this version of the file in Byte.
- **ArchiveTime (unformatted)**
This is the time when the file version has been archived. The time is specified in Windows file time format, i.e. 100 ns intervals since January 1, 1601 (UTC).
- **ArchiveTime (formatted)**
This is the time when the file version has been archived. The time is formatted as a string in the current locales time format.
- **Offset**
If the file version is spanned over multiple media, this value is the file offset which is stored on the disc 'VolumeNo'. Otherwise this value is 0.
- **Length**
If the file version is spanned over multiple media, this value is the length of the file part which is stored on the disc 'VolumeNo'.

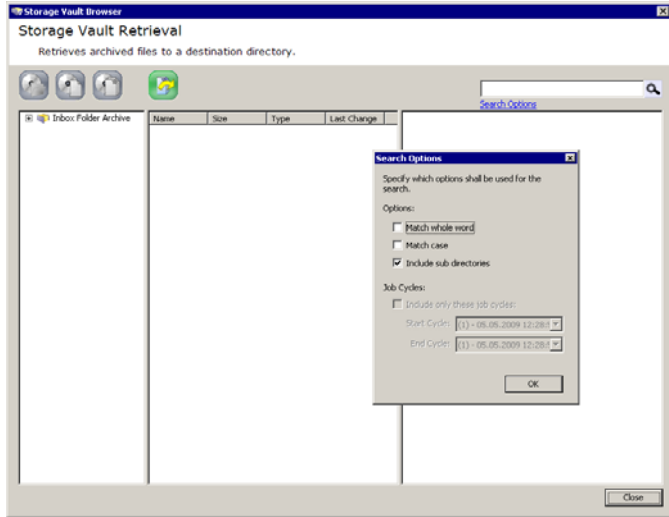
Each version of a file will be written to one line of the table. An exception is if files have been spanned over multiple Archive Volumes: One line exists for each file part. The lines belonging together can be identified by the version number which is the same for each file part. In this case, the value in column **Offset** contains the starting offset of the file part and the value **Length** contains the length of the part.

5.15 **Viewing or Searching for Archived Files**

This chapter describes how to view the list of files which have been stored in the Archive Tier and how to search for specific files and file revisions.

To view archived files, open the **Storage Vault Retrieval** dialogue as described in chapter 5.12, Data Retrieval. This dialog shows all files which have been archived. After selecting a file in the middle pane, the right pane displays the list of file revisions which are present in the Archive Tier.

To search for archived files, select the directory which shall be searched and enter the file name in the search field and then click on the **search** button:



The following wildcards with the following meaning are allowed:

- "*" An asterisk matches any number of characters in a filename, including none.
- "?" The question mark matches any single character.
- "[]" Brackets enclose a set of characters, any one of which may match a single character at that position.
- "-" A hyphen used within [] denotes a range of characters.

The **Search Option** dialogue provides additional options for a sophisticated search.

Click on the button on the right side of the search field to start the search.

Note: Retrieval or authentication of files listed as search result is only possible file by file.

5.16 Import Archive Volumes

You can import Archive Volumes from a target device where the volumes have been migrated before. This is necessary, for example, if you want to import a Storage Vault which has been created on another system or after you have reinstalled PoINT Archiver. Before importing the volumes you must make sure that PoINT Archiver uses the System Key which has been used when archiving the data. Also, if the Storage Vault has been protected by a password (Encryption Mode 2), you will need to enter the password during the import.

If you plan to continue archiving using this Storage Vault, you need to reconfigure the Storage Vault after importing the contents from the media. To do so, open the settings dialogue for the Storage Vault and specify the Data Source, media and device settings and all other parameters after the Storage Vault import has been performed. You do not need to reconfigure the Storage Vault if you want to retrieve data on the media or perform data authentication.

To start the import process select **Tasks → Import Archive Volumes** from the **Side Bar**. Now a wizard appears which first allows selecting the device and in case of a CD/DVD/BD autoloader the input bin you want to use for the import. When specifying a device other than a CD/DVD/BD autoloader, PoINT Archiver will import information from all volumes in this device, which are not in the database yet. In this case you must make sure that all Storage Vaults which use this device as target device have been deactivated. Otherwise the import stops when PoINT Archiver encounters a volume which belongs to a Storage Vault that is currently active. Click **Next** to proceed.

If a CD/DVD/BD autoloader has been selected, PoINT Archiver now prompts to insert the media you want to import. After inserting the media click **Next** to start the import.

The progress import is shown on the next dialogue page. When the input bin becomes empty, you will be prompted to insert more media or to stop the import.

When done, you can view the log file by clicking the **View Log** button on the final dialogue. Select **Keep Log File after Closing**, if the file should not be deleted. You will find this file in the section **Global Log Files** in the view **Log Files**. It is named "Import Storage Vault (<date> <time>)".

Note: If the import has been interrupted due to a system failure, it is recommended to delete the partially imported Storage Vault and perform the import again. This ensures that all volumes have been correctly imported.

6 Error Reporting

The following chapter provides information about logging and error notification mechanisms of PoINT Archiver.

6.1 Log Files

PoINT Archiver creates several log files which contain informational, warning or error messages. Severe error messages will also be written to the Windows Application Event Log.

The PoINT Archiver log files can be viewed after selecting the topic **Log Files** in the Side Bar of the PoINT Archiver user interface. The log files view on the right side now shows a list of all log files. You can double click on an entry to view the related log file. It is also possible to clear or permanently remove log files here.

The list begins with the **Global Log Files**, which contains log files of each of the services belonging to PoINT Archiver.

Under that, for every Storage Vault one or more log files are displayed. Depending on the configuration of the Storage Vault, the list may contain a migration log file and one or more archiving job log files. Log files created by other operations like Data Retrieval or Data Authentication will also be listed here if you chose to keep the log files.

6.2 Server Notifications

While the PoINT Archiver user interface is running, the PoINT Archiver service reports conditions which require user interaction as so called server notifications. These notifica-

tions pop-up in a small window which is only visible while notifications are present. Double click on a message to receive more information about the condition. If possible PoINT Archiver also suggests actions which help to resolve the condition.

6.3 E-Mail Notifications

You can instruct PoINT Archiver to send E-Mail notifications about certain events to computers and/or users that you specify in this dialogue.

Two different message types are supported:

- **NetSend**
This function utilizes the Windows 'net send' command, which allows you to send messages to computers or users in a LAN. To use this function, the Messenger Service must be running on both the local and the remote computer. Please note that this function is not supported on Windows Vista, Server 2008 and later operating systems.
- **SMTP**
This protocol allows you to send messages to internet e-mail addresses. To use SMTP, an SMTP host and a sender address must be specified. The SMTP host should be configured to accept SMTP connections from the computer running PoINT Archiver. Also, it must not require an SMTP-after-POP authentication. The sender address will be added to the generated e-mail so that the recipient knows where the e-mail originates from. It is not necessary to create a special e-mail account for PoINT Archiver; you may also use your own account.

You can choose to be notified if one or both of the following events occur:

- A hardware failure occurs
- An input bin is empty, or the required media type is not available.

Use the **Add**, **Edit**, and **Delete** buttons to modify the list of users. If the list is empty, no notifications will be sent.

Use the **Test** button to ensure that messages can be sent to a specific user or computer.

7 Recovery

7.1 **Recover PoINT Archiver Database**

The operation of PoINT Archiver is based on a database and several configuration files. If these files get lost or have been damaged, you can recover them provided that you had saved certain data before.

There are three ways to recover. Which of these methods can be used depends on the backup measures you have taken, and whether PoINT Archiver can be recovered on the same computer, or whether it must be completely setup on a different one.

The three methods are:

- **Restoration from Archive Volumes**
This method can only be used if an Archive Tier is present. You need the System Key, the Storage Vault passwords if applied, and the media the Archive Volumes have been migrated to. You can apply this method to do the recovery on the current computer or on a new one.
- **Recovery by importing the database files**
You need the System Key and the database files that you exported earlier. You can apply this method to do the recovery on the current computer or on a new one.
- **Recovery by a third party backup program**
You need the saved files. This method **cannot** be applied to install PoINT Archiver on another computer. Recovery is possible only on the current computer.

Note: Besides a secure depository for your media, it is absolutely necessary that the System Key and the Storage Vault passwords be stored in a safe place in order not to lose the archived data. Use the System Key Export function to save the System Key.

7.1.1 Database Restoration from Archive Volumes

In the worst case, if your system running PoINT Archiver gets lost and you only have your migrated volumes or the media they have been migrated to, you must proceed as follows:

- Install the operating system and PoINT Archiver on the (new) computer.
- Import the System Key of the old installation during setup of PoINT Archiver.
- Configure at least one device which can be used to import the volumes from.
- Reconstruct the PoINT Archiver database by importing all Archive Volumes. Use the **Import Archive Volumes**

command from the **Storage Vaults** menu (see 5.16, Import Archive Volumes).

After these steps, you will see the list of Storage Vaults in the **Storage Vaults** menu, and you will be able to read the data.

However, in order to get the system working as before the failure, you need to configure the Storage Vaults again. This can be performed by opening the properties dialog of the Storage Vault.

Note: Opening the Storage Vault Browser for retrieval or authentication may take a while, since the volume information has to be reconstructed at this time.

7.1.2 **Manual Database Backup and Recovery**

Database Backup

You can save the database and configuration files of PoINT Archiver by means of the **Database Backup** function, which you can find in the **System Recovery** dialogue of **PoINT Archiver Setup**.

It is recommended to backup the database at a time where no archival or migration process is busy, because data of Archive Volumes which have not been migrated yet are not included in the exported database file and cannot be retrieved later. Also make sure that you store the System Key on a safe place, because it is required to successfully import the database later.

Database Import

If you had saved the database and configuration files of PoINT Archiver by means of the **Database Backup** function, you can proceed as follows:

- Install the operating system and PoINT Archiver.
- Import the System Key of the old installation during setup of PoINT Archiver.
- Import the database and configuration files by means of the **Database Import** function.
- Rescan all optical and tape media in libraries or single drives which were not closed when exporting the database.
- If volumes have been migrated after the backup of the database has been performed, you must import these volumes now using the Import Archive Volumes function.

After importing all volumes you can activate the Storage Vault and access the data. You can now perform the fore mentioned rescan of modified optical and tape media while the Storage Vault is already fully accessible.

After these steps, PoINT Archiver is in the state as before the failure except the data that were not yet written to target devices at the time of the database export are lost. Also, any changes made to the settings of the Storage Vaults and device configurations export are lost. It is strongly recommended to review all settings before continuing to work with PoINT Archiver.

Any data that were not written to target devices are lost.

Note: The Storage Agent is stopped during database import. Therefore, no Job Cycles are executed at this time. Database import and export can take a long time, up to several hours.

7.1.3 **Support for Backup Programs**

In contrast to the scenarios above, this method can only be used on the system where the backup was done.

Backup and restore should be done only if the PoINT Archiver Service has been stopped. It can be stopped and started in the Services applet of the operating system or by the command line

"net stop PntArchiverService" or

"net start PntArchiverService", respectively.

Note that it is not possible to stop the service while media are being recorded. Also, the service should not be stopped when Job Cycles are being executed; they would be aborted.

Backup

All of the following files must be saved – and also restored later - at the same time. The files to include in the backup are:

- **conf_db.sys, database.sys**
located in the installation directory of PoINT Archiver
- **vol_db.sys, dirCache.sys**
located in the Database Directory. Refer to the **Working Directories** dialogue of the **Global Settings**.
- All files in the Image Directory. Refer to the **Working Directories** dialogue of the **Global Settings**.
- All files in the directory **config**
which is located in the installation directory of PoINT Archiver
- All files in the directory **logs**
which is located in the installation directory of PoINT Archiver
- The system registry
- The program files of PoINT Archiver

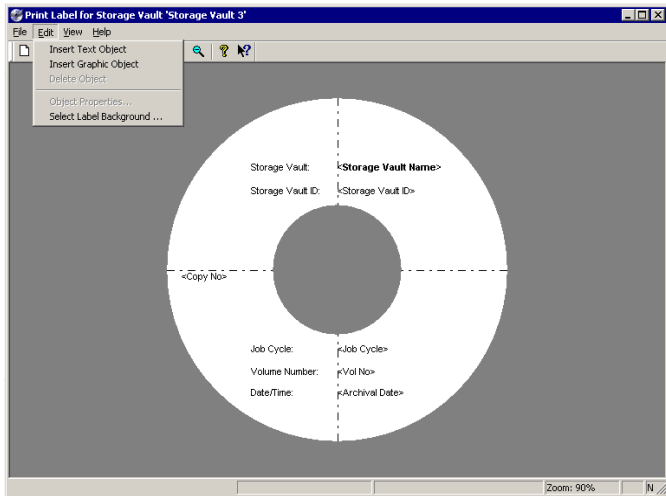
Restore

In order to reset the system to a specific state, all files in the Image Directory and directories "config" and "logs" must be

deleted and then restored from the backup. If the total system is to recover, all the backed up files including the program files and the registry must be restored.

8 PoINT Label Editor

PoINT Label Editor offers an easy way to edit printable labels for your archive media. When you are creating a new Archive and you press the Edit Label button of the Media and Device Specification dialog, PoINT Label Editor starts with a default label layout.



You may change the label to adapt it to your needs and store it with the Storage Vault. For more information about the default label refer to section 8.4 Working with Different Labels.

The content of a label is defined by placing an arbitrary number of Text Objects and Graphic Objects in the label area, over a Label Background. Special kinds of text objects dynamically derive their text from properties of the Storage Vault.

8.1 **Label Design Objects**

Label Design Objects are inserted by the commands **Insert Text Object**, **Insert Graphic Object**, or **Select Label Background** from the **Edit** command.

8.1.1 **Text Objects**

When you select **Edit**→**Insert Text Object** from the menu, the mouse pointer changes to an arrow with the capital letter **T**. Move the mouse pointer over the label; the position on the status bar indicates where the upper left corner of the text object will be placed. Click in the label area to place the text object. A dialogue will pop up that has three tabs titled **Text**, **Format**, and **Position**.

Text Properties

In this dialogue, you determine the type of text object, its font, background colour, and the paragraph formatting.

The following text types are supported:

- **Static text**
Static text objects are printed as they appear on the screen. One or more lines of text can be entered. Empty lines at the beginning or the end of the text are automatically removed when the properties dialogue is closed.

PoINT Archiver supplies values for the items below.

- **Storage Vault Name**
The name of the Storage Vault is printed.
- **Storage Vault ID**
The unique ID of the Storage Vault is printed.
- **Job Cycle Number**
The number of the Job Cycle that produced this disc is printed.
- **Archiving Date and Time**
Date and time of the beginning of the archiving process is printed. This is the same as the column Start Time in the Storage Vault's job list.
- **Volume Number**
If the amount of data to archive does not fit on a single medium, several media are written. These media are numbered starting at volume number 1.
- **Copy Number**
Either "Original" is printed or else "Copy" followed by the number of the copy.

The font, its style and size, as well as other font settings can be selected in a standard font dialogue that is displayed when you click the **Choose** button.

The text background can be transparent or it can have a basic or custom colour.

When a text object consists of more than one text line, the Paragraph Formatting option permits to adjust the lines relative to each other in horizontal direction.

Format

The **Rectangle Size** determines the region, in which the object text is presented. Its width and height is adjustable from a value which depends on the smallest font height and width of the chosen font, up to 100 cm. Invalid values are automatically corrected to meet these limits. All parts of the text object that are out of the label are clipped.

The **Horizontal Alignment** determines the text block alignment within the rectangle in horizontal direction.

You can control how the text is adapted to the given size of the rectangle by the options **Automatic** and **Manual** **Text Adaptation to Rectangle**.

If **Automatic** is chosen, the font height and width will be automatically changed to adapt the text to the rectangle. In case of **Manual** adaptation, the font height will be automatically changed to adapt the text to the rectangle, but only within the limits given by the minimum and maximum values for the font size.

The minimum font size determines the smallest font height allowed. If, for a chosen font size, the text extends beyond the rectangle size, all parts of the text that are out of the rectangle will be clipped. The maximum font size determines the largest font height used for text adaptation.

Position

The object position determines the horizontal and vertical position of the object.

Instead of dragging the object in the label area, the horizontal and vertical position of the label object can also be determined by entering values for its coordinates. If the entered values put the object completely beyond the label boundaries, perhaps to an invisible area, they will be automatically corrected, so that the object touches the label and thus is in the visible area of the label editor's window.

The object alignment with respect to its position can be chosen for the horizontal and vertical direction.

8.1.2 **Graphic Objects**

When you select **Edit→Insert Graphic Object** from the menu, the mouse pointer changes to an arrow with a small

picture. Move the mouse pointer over the label; the position on the status bar indicates where the upper left corner of the graphic object will be placed. Click in the label area to place the graphic. From the appearing dialogue select the file that contains the graphic. The supported formats are

- Bitmap (*.bmp),
- JPEG (*.jpg),
- TIF (*.tif),
- Graphics Interchange Format (*.gif), and
- Portable Network Graphics (*.png).

Click **Open**. A further dialogue will pop up that has the tabs titled **Graphic** and **Position**.

The Graphic Tab

Click the **Browse** button to select a different graphic file.

You can choose between several presentation forms:

- **Original Size**
The graphic will be shown with its original dimensions. The width or height of the graphic cannot be changed.
- **Percentage of Original Size**
The graphic width and height can be changed. You specify the size as a percentage of the original size. If 'Maintain ratio of sides' is activated, the changing of one value will automatically modify the other one accordingly.
- **Adaptation to Rectangle**
The width and height of the graphic can be changed here. It is adjustable from 0.10 cm to 100 cm. If 'Maintain ratio of sides' is activated, changing one value will automatically change the other one accordingly, but so that no value exceeds the value range allowed.
- **Maintain Ratio of Sides**
The ratio of the sides is constant. If you change one dimension, the other one will change accordingly.

If the entered values are outside of the range between 0.10 cm and 100 cm, they are automatically set to the respective limits. All parts of the graphic object, which are out of the label, will be clipped.

The Position Tab

The object position determines the horizontal and vertical position of the object.

Instead of dragging the object in the label area, the horizontal and vertical position of the label object can also be determined by entering values for its coordinates. If the entered values put the object completely beyond the label boundaries, perhaps to an invisible area, they will be automatically corrected, so that the object touches the label and, thus, is in the visible area of the label editor's window.

The object alignment with respect to its position can be chosen for the horizontal and vertical direction.

8.1.3 **Label Background**

Click the **Select Label Background** command from the **Edit** menu to open the **Label Background** dialogue.

The background can be either transparent or it can have a colour, or you can choose a graphic file for the background. Supported formats of graphic files are

- Bitmap (*.bmp),
- JPEG (*.jpg),
- TIF (*.tif),
- Graphics Interchange Format (*.gif), and
- Portable Network Graphics (*.png).

If you want to use a file, press **Browse** to select a file. The graphic will be placed centred on the label. Changing the values **Height** and **Width** can scale a graphic. The setting range for the graphic height and width is adjustable from 0.10 cm to 100 cm. Invalid values are automatically corrected. All parts of the graphic, which are outside the label, will be clipped.

8.2 **Label Properties**

Select **File**→**Label Properties** to view or change the overall dimensions of the label.

The outside diameter of the printable area of the label is adjustable in the range from 3.50 cm to 12 cm. The diameter of the inner unprintable area of the disc is adjustable in the range from 1.50 cm to (label diameter - 2 cm).

Those parts of the objects on the label including a background graphic that are outside of the outside diameter or inside of the diameter of the hole are not printed.

8.3 Drawing Aids

While you are placing text or graphic objects on the label, a previously chosen background colour or background graphic may be inconvenient. So you may like to switch the background presentation off using the **Label Background** command of the **View** menu.

In the same menu there are the commands **Label Axes** and **Label Bounds**. The label axes divide the label in four quadrants. The position of a selected object is shown on the status bar of the Label Editor's main window. These coordinates are relative to the origin of the coordinate axes. The label bounds limit the view of label objects to the label area. All parts of label objects which are beyond the limits are clipped.

8.4 Working with Different Labels

When a new Storage Vault is created and label printing is enabled, PoINT Archiver assigns a label with the default layout to the Storage Vault.

When PoINT Label Editor starts, it presents the label of the Storage Vault. You may change the label to adapt it to your needs and store it with the Storage Vault by selecting the **Save** command from the **File** menu.

After having designed a label, you may wish to use it for several Storage Vault. To do so, store the label as a file with a name you choose by selecting the **Export** command from the **File** menu. With other Storage Vault, you may **Import** this label file and save it with these Storage Vaults.

The default label is contained in the file 'default.plf', which resides in the installation directory of PoINT Archiver (usually C:\Program Files\PoINT\PoINT Archiver\default.plf).

If you want PoINT Archiver to always take another layout as default when you create a new Storage Vault, export the modified layout to this file.

8.5 **Menu Commands**

8.5.1 **File Menu**

- **New**
Select this command to begin the label design with an empty label.
- **Import**
If you want to use a previously designed label, you can load it from a label file. You need to select **Save** in order to assign it to the Storage Vault you are creating or modifying.
- **Save**
This command stores the label with the actual Storage Vault.
- **Export**
The current label is stored in a file.

During the actual production process of Storage Vault media, PolNT Archiver automatically selects the appropriate disc printer and printer settings. The print functions of the File menu are meant for testing purposes only.

- **Print, Print Preview, Print Settings**
These commands are meant for manually printing a label layout for testing purposes. Usually, you will direct printing to a paper printer. Please note that these commands use the current default printer. If you want to print to the printer in your autoloader, you must first select the correct device in the Print Settings dialogue.
- **Convert Label to Image**
Select this command to convert a label to an image and to store it in a file. Supported image formats are Bitmap (*.bmp), JPEG (*.jpg), TIF (*.tif), GIF (*.gif) and PNG (*.png).
- **Label Properties**
View or change the overall dimensions of the label.

8.5.2 **Edit Menu**

- **Insert Text Object**
Refer to section 8.1.1 about how to insert text objects.
- **Insert Graphic Object**
Refer to section 8.1.2 about how to insert graphic objects.
- **Delete Object**
The selected text or graphic object is deleted.
- **Object Properties**
Select this command to view or change the properties of the selected object. Instead of using this menu function, you can also double-click the object itself to get the properties dialogue.
Details about the settings in the properties dialogue are described in sections 8.1.1 and 8.1.2.
- **Select Label Background**
Refer to section 8.1.3 about how to select a label background.

8.5.3 **View Menu**

- **Toolbar**
Show or hide the toolbar.
- **Status Bar**
Show or hide the status bar.
- **Label Background**
If a background for the label was selected, this command is enabled. You can hide or show the label background.
- **Label Axes**
Show or hide the label axes.
- **Label Bounds**
If this menu command is not checked, the parts of the label objects that are beyond the label bounds are displayed. However, they are never printed.

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