

DISC Blu-safe Manager

Administrator's Guide



DISC GmbH

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Contents

1	Introduction	7
2	Concept & Architecture	9
2.1	DISC Blu-safe Manager Modules.....	9
2.2	General Processing.....	10
2.3	Tiered Archive File System, "TAFS".....	11
3	DISC Blu-safe®	14
3.1	Connecting the DISC <i>Blu-safe®</i>	14
3.2	Operating the DISC <i>Blu-safe®</i>	15
4	Archive Agent	17
4.1	Archive Parameters.....	18
4.2	Image and Medium Format.....	18
4.3	Versioning.....	19
4.4	Database.....	19
4.5	Data Retrieval.....	20
4.6	Logging.....	20
4.7	Recovery.....	21
5	System Requirements	22
5.1	DISC Blu-safe Manager System Requirements.....	22
5.1.1	CPU.....	22
5.1.2	Operating System.....	22
5.1.3	Hard Disk.....	22
6	Installation	24
6.1	Product Packaging.....	24
6.2	Installing.....	24
6.3	Uninstall DISC Blu-safe Manager.....	25

7	Licensing	26
7.1	Set and View the License Key	26
8	Getting Started	27
9	Configuration	30
9.1	General	31
9.2	Setup Device	33
9.3	Service Settings	34
9.4	Organize System Recovery	35
10	Using DISC Blu-safe Manager	37
10.1	Creating a new WORM Archive	37
10.2	Importing an Archive from Media	43
10.3	Monitoring the Archiving Process	43
10.4	Controlling the DISC Blu-safe Device	46
10.4.1	Activating and Deactivating the DISC Blu-safe	46
10.4.2	Pausing the Device	47
10.4.3	Manage Media and Volumes in the DISC Blu-safe Manager	47
10.5	Data Retrieval	48
10.6	Export List of Archived Files	52
10.7	Search for Archived Files	54
10.8	Purge and Retrieve Files in TAFS Folders	56
10.9	Viewing Current Activity	57
10.10	Server Notification and Error Recovery	58
10.11	Viewing Log Files	59
11	Recovery	61
11.1	Database Restoration from Media	61
11.2	Manual Database Backup and Recovery	62
11.3	Support for Backup Programs	63
12	Index	65

About This Manual

Preface

The manual at hand provides an overview of DISC Blu-safe Manager, including system requirements, installation, and functions of the system. It is the objective of the manual both to explain and facilitate the processes involved.

Audience

This document addresses administrators, systems integrators, and users working with or installing DISC Blu-safe Manager.

Reference

For further reference material, please see the README file and the **DISC Blu-safe®** Quick Installation Guide.

1

Introduction

The **DISC Blu-safe®** 15pcs media changer is a simple, easy to use archiving system for the small office and home or commodity market whilst still having the same security benefits as with the larger high end data center archiving solutions.

The **DISC Blu-safe®** is the best fitting and most cost effective archive solution for medical offices, tax offices, lawyers, freelancers and photographers to give just some examples.

It is the professional and durable mini archive for everyone, including the home user who merely wants to save digital photos and films for his "family heirlooms" and therefore needs to ensure those important digital documents will never be lost.

The Archiving functionality is the main feature of the **DISC Blu-safe®**, but its integrated Blu-ray drive on top, offers the capability to playback high definition HD Blu-ray films and audio material or enables access to externally recorded files on all kind of 120mm bare media such as CD and DVD.

DISC Blu-safe Manager is a software product which is designed to fulfil data archiving requirements in combination with the **DISC Blu-safe®** device. The software together with the changer hardware and the Blu-ray Disc media provide a solution for automated and secure long term archiving of digital data.

DISC Blu-safe Manager monitors source directories and archives data based on the Archive parameters which can be specified by the administrator.

DISC Blu-safe Manager can monitor local hard disk drives including all directories and subdirectories.

Data which have been archived may also be deleted from the source directory and replaced by a link. The result is a reduction in used hard disk capacity and the minimization of backup and recovery times. Significant savings can be achieved without changing existing applications or workflows.

Retrieval of archived data is supported by an internal data base which allows you to search for archived files. The data base also maintains the information about different versions of the same file and knows which file is stored on which medium.

The graphical user interface (GUI) of the DISC Blu-safe Manager enables the administration of the DISC Blu-safe Manager device and the according media management.

The GUI displays the directory structure of all archived data including information about file versions. Additionally for data retrieval the names of required media are displayed. It is possible to retrieve a single file, versions of a file, specific directories or a complete archive set. In addition also transparent access to an archive file is possible depending on the archive type which has been specified.

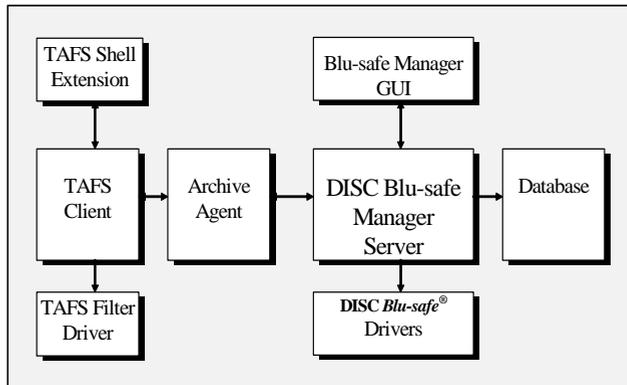
2

Concept & Architecture

This chapter describes the concept and architecture of the DISC Blu-safe Manager and provides an overview of the design and internal processing. It introduces the terms which are used in this manual and in the program. Users and system administrators will get an understanding of the functional modules of the product and how they work together.

2.1 DISC Blu-safe Manager Modules

DISC Blu-safe Manager consists of several software modules. The following figure shows these different modules and their relationship:



The purpose and function of the different modules is:

- **DISC Blu-safe Manager Server**
Core module of DISC Blu-safe Manager which controls the complete processing.
- **Archive Agent**
Service which is monitoring the specified source folders for files to be archived and which performs the migration process.
- **Blu-safe Manager GUI**
User Interface for all administrative purposes (e.g. setup DISC Blu-safe Manager, creating Archives, running retrieval jobs).

- TAFS (Tiered Archive File System) Shell Extension
Windows Explorer Shell Extension which provides commands to purge and retrieve files in a Tiered Archive File System.
- TAFS Client
Service which controls the communication between Explorer Extension, Archive Agent and Filter Driver.
- TAFS Filter Driver
Kernel component which replaces specified files by links and which redirect file accesses to the corresponding **DISC Blu-safe®**.
- Database
The database stores information about the configuration and all archived files.
- **DISC Blu-safe®** Device Drivers
Device Driver for the **DISC Blu-safe®** device incl. recording/formatting engine and robotic control.

2.2 General Processing

The central element in the concept of the DISC Blu-safe Manager is an **Archive** object. This object includes all archiving parameters and defines the complete archiving process. An Archive is mainly specified by the following elements:

- Data Sources
- **DISC Blu-safe®** device
- Migration Parameters

The DISC Blu-safe Manager supports a WORM (Write Once Read Multiple) Archive.

Section 10.1 explains the capabilities of this archive type in detail.

The **Data Source** contains the data to be archived and is specified by a path name (e.g. D:\mydata) pointing to a local folder. In the scope of the archiving process all files and subdirectories which are specified by the source folder will be monitored by the DISC Blu-safe Manager.

The monitoring process is performed by the **Archive Agent** (see 4) which executes and controls Job Cycles.

Based upon **Migration Parameters** (see 4.1) a Job Cycle migrates files from specified Source Folders to the **DISC Blu-safe®** device.

The flexible concept of DISC Blu-safe Manager allows you to create multiple Archives with definitions for different source folders and Migration Parameters.

A sophisticated logging and notification mechanism (see 10.10 and 10.11) informs the administrator about all archiving events.

2.3 Tiered Archive File System, “TAFS“

The Data Source monitored by a WORM Archive is called “TAFS Folder” (Tiered Archive File System). Depending on the specified TAFS options a TAFS Folder 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 TAFS options of the WORM Archive. The default setting is that files cannot be modified or deleted after they have been archived..

Among other options the write-once status of a file can also be controlled by the read-only attribute. The TAFS option “treat only files with ‘read-only’ attribute as write-once” allows applications and users to enforce the write-once status of a file manually and if required.

The WORM Archive type enables that archived files are still transparently accessible through the original path name and that modifications to files are prevented.

Multiple WORM Archives can be created with different settings. The corresponding TAFS Folder may be located on the same hard disk (or hard disk partition) but may not overlap.

Note: The TAFS Folder must be located on a local hard disk, but can be published as a network share.

Purging of Archived Files

Depending on the specified purge options archived files will be substituted by a link. This means the archived file is still transparently accessible through the file system, but the file content is located on the optical Blu-ray Disc (BD) media in the **DISC Blu-safe®**. Accesses to a purged file will be redirected to the **DISC Blu-safe®** and data will be retrieved from the BD media. This implementation provides transparent access to archived files and in addition hard disc space for archived files will be released. In Windows Explorer a purged file is identified by a small clock in the file icon. The properties of a purged file display the original size of the file and also the size on disk:



TAFS Shell Extension

For a TAFS Folder of a configured WORM Archive, DISC Blu-safe Manager provides a Windows Explorer Shell Extension. The functions are available in the context menu of a selected file or subdirectory in the TAFS Folder. Under the menu command "DISC TAFS" the following functions are provided:

- Purge Archived Files
- Retrieve Purged Files
- Delete TAFS Tags and Links.

These commands perform the following tasks:

The command '**Purge Archived Files**' replaces the content of a selected file or directory by a link which points to the location of the archived file content on the **DISC Blu-safe®**. The file content on the TAFS Folder is deleted. This operation will not be performed if the selected file or directory is not yet archived. For the user and for an application access to a purged file is transparent. In case of later requests to purged files, the file content will automatically be read from the **DISC Blu-safe®**.

The '**Retrieve Purged Files**' command retrieves the file content of an archived file or directory back to its original location in the TAFS Folder.

The **'Delete TAFS Tags and Links'** command copies the file content of the selected file or directory back to its original location if the file has been purged and deletes all TAFS specific meta data information ("Tags"). The file entry and the file content are set back to its last stored original NTFS status. If it is planned to de-install DISC Blu-safe Manager and access to files stored and archived in a TAFS Folder is required after the de-installation, this command must be performed prior to the de-installation

3

DISC Blu-safe®

The DISC Blu-safe Manager is designed to support the **DISC Blu-safe®** device.

The **DISC Blu-safe®** 15pcs media changer is a simple, easy to use archiving system for the small office and home or commodity market whilst still having the same security benefits as with the larger high end data center archiving solutions.

The Archiving functionality is the main feature of the **DISC Blu-safe®** but its integrated Blu-ray drive on top, offers the capability to playback high definition HD Blu-ray films and audio material or enables access to externally recorded files on all kind of 120mm bare media such as CD and DVD.

3.1

Connecting the DISC Blu-safe®

The **DISC Blu-safe®** is connected to an external PC or notebook via **USB 2.0**.

Note: The **DISC Blu-safe®** operates in conjunction with your external PC where the DISC Blu-safe Manager software including all hardware drivers and the archive database has to be installed.

Only 1 installation per PC + 1 DISC Blu-safe® is supported! It is not possible to install the DISC Blu-safe Manager software on several PCs and carry the **Blu-safe®** around or to connect multiple **Blu-safe®** devices to 1 PC!

To share the Archive device between multiple PCs you can publish the **DISC Blu-safe®** archive folders as network shares.

The maximum basic archive capacity is 1.5TB consisting of 15 online Blu-ray Disc (BD) media that are loaded within the **DISC Blu-safe®** changer plus 15 media that have been exported after recording.

For archiving purposes only 25GB or 50GB BD media may be used. The **DISC Blu-safe®** supports write once BD-R (WORM) media as well as write and erasable (rewritable) BD-RE media.

Note: Due to security and longevity reasons only professional high quality BD media shall be used for the archive.

Please ask your reseller or the DISC Hotline for the current list of qualified media.

The **DISC Blu-safe®**, like every standard Blu-ray player, is able to read standard media like BD-ROM.

To view HD content on a HD TV set or beamer the HDMI interface of the PC can be used.

The DISC Blu-safe® is configurable during first setup to offer either:

- a. 14 Archive slots where the DISC Blu-safe Manager writes data and/or reads data, plus 1 'Versatile Slot', separate from the Archive, to insert media like BD video discs in order to use the Blu-safe® as a HD A/V player
- b. All 15 slots are configured as Archive slots (no 'Versatile Slot')

3.2 Operating the DISC Blu-safe®

The **DISC Blu-safe®** operates by auto loading of up to 15 BD disc from their "parking place" (home slot) into a high quality Blu-ray drive and back.

The status of every media slot is indicated by the related LED at the **DISC Blu-safe®** front panel.

The LED shines constantly in blue if the related media slot is filled with a disc.

The LED flashes if the disc of the slot is in access (reading or writing) within the BD drive of the **DISC Blu-safe®**.

The **DISC Blu-safe®** is equipped with a "Mailslot", a tray to import and export media.

The Mailslot is framed by an array of blue LEDs. These LEDs will be on when the mailslot is occupied and start flashing when the Mailslot is released to open. They stop flashing when the Mailslot is pushed closed.

The Mailslot can be loaded and released for opening only through an according command within the DISC Blu-safe Manager GUI (Grafical User Interface).

Note: Due to security reason the Mailslot is not motor driven. Therefore the full opening and closing has to be done manually (like with a slim line notebook drive).

Please handle the Mailslot carefully.

Per BD medium only 1 logical Archive can be stored on 1 BD disc, but the logical archive maybe larger by grouping of several discs (max. 15) to a larger volume set.

File spanning (splitting of one file over more than 1 disc) is not supported.

Besides up to 15 media inside of the **DISC Blu-safe®** device, additionally up to 15 media external (offline) media maybe kept under the management of the DISC Blu-safe Manager.

The flexible configuration of the **DISC Blu-safe®** allows various usage and best adaptation to dedicated applications.

For example you may arrange 1 large archive consisting of up to 30 media or 15 smaller archives consisting of 2 media only.

4

Archive Agent

The Archive Agent is a service which monitors the Data Source for files to be archived based on the Migration Parameters defined for the Archive. As soon as the archiving conditions for a specified source directory become valid the Archive Agent executes a Job Cycle and copies all files which are identified to be archived to the DISC Blu-safe Manager server into a temporary image file on the server hard disk. This temporary image file serves as temporary storage for the migration process to the Target Device.

For one Job Cycle one or more temporary image files could be created. In parallel a separate process migrates 'closed' temporary files automatically to the defined Archive Device and, if configured, to a defined Replication Device. After successful migration to the Target Device the temporary image file will be deleted. Each Job Cycle creates a set of so called "Volumes". A new Job Cycle will start with a new temporary image file, which will result in a new Volume. The format and the structure of produced Volumes are described in section 4.2.

The complete status of a Job Cycle is displayed in the graphical user interface of DISC Blu-safe Manager. The administrator always has a complete overview of the progress of the Job Cycle and the migration process.

Note: Archived data is stored on hard disc as long as the temporary image file has not been migrated to the corresponding physical medium. Therefore it is highly recommended to set the parameter that triggers the archive run to not long waiting time periods and the size setting of the temporary image should not be too large. The recommended size is the size of the largest to be expected files (default value is 600MB). Also it is recommended to use a RAID system for more HDD security.

Handling of files which cannot be archived

Files which have been selected to be archived but which cannot be copied because they are e.g. locked or opened will be skipped and checked again at the end of the Job Cycle. If copying is again not possible, these files will be omitted for this Job Cycle and corresponding entries will be made into the log file. The next Job Cycle will again check these files for archiving.

Source Directory Changes

The Archive Agent monitors Source Directories. The agent cannot prevent files in the Source Directory being modified or deleted during a running Job Cycle. The user or the corresponding application should consider that during the archiving process files in the Source Directory should not be modified if possible. If a file or a directory is renamed the Archive Agent will consider this a new file/directory. If files or directories are deleted this "modification" will not be archived. This means if a deleted file has been archived previously it will exist in the Archive.

4.1 Archive Parameters

Archive parameters are definitions which belong to an Archive and which are specified when an Archive is created. The parameters determine which files will be archived under which conditions. Archive parameters are divided into the following categories.

- General Settings
- TAFS Settings
- Archiving Conditions
- Purge Conditions
- Scheduling

The chapter **10.1, Creating a new WORM Archive** describes in detail the meaning of all Archive parameters.

4.2 Image and Medium Format

The logical format of the created Volumes is UDF (Universal Disc Format). This format is supported by almost all operating systems. Therefore data retrieval is also possible without DISC Blu-safe Manager, e.g. with a standard single Blu-ray drive.

The directory structure in a Volume is identical to the structure of the original source directory. The source file is stored on the medium including the full source path name. E.g. if the source file is originally stored on a system named "PC1" under the path: "C:\DATA\MYFILE" the path name on the medium will be: "\PC1C\$\DATA\MYFILE".

In addition to the directory structure each Volume includes a description file in XML format which is stored in the root of the directory tree. This file contains (besides additional control parameter) the following information to identify the medium:

- Archive name / ID
- Job Cycle number
- Archiving date and time
- Media sequence number

Besides the above on all DISC Blu-safe Manager media a special DISC Blu-safe Manager Viewer is available to easily view and access files on another Windows PCs than the DISC Blu-safe Manager host PC and without the DISC Blu-safe Manager.

As the DISC Blu-safe Manager and the DISC Blu-safe Manager Viewer are Windows applications, it is possible to export the files of the DISC Blu-safe Manager media into single standard UDF files in order to get them accessible under other operation systems, e.g. Linux.

4.3 Versioning

Depending on the specified Archive parameters (see 4.1) DISC Blu-safe Manager stores a modified file or an unmodified file which is archived again as a new file version. The DISC Blu-safe Manager database keeps track of all archived versions of a file and allows fast browsing through archived files including access to all archived file versions. Because the name of different versions of an archived file is always the same, versions are identified by their archiving time stamp. Retrieval of a specific version of an archived file is supported.

4.4 Database

All archived files are maintained in the DISC Blu-safe Manager database. A database entry includes (besides additional control parameters) the following fields per archived file:

- File Name
- File Size
- Source Directory
- Hash Code
- Archiving Date and Time
- Job ID
- Medium Identification

The database is used for multiple purposes and is a key component in the concept of DISC Blu-safe Manager. It stores and provides information for the following processes:

- determining modifications of source files in comparison to already archived files;
- performing data retrieval;
- displaying the directory structure of archived files;
- checking data authentication.

Besides the described database for archives files DISC Blu-safe Manager also maintains separate databases for configuration and job information.

Database Maintenance

For backup and restore purposes DISC Blu-safe Manager supports exporting/importing the databases to specified files. In addition it is possible that third party backup applications include the database in their backup process.

A lost or corrupted archive database can be rebuilt based on the data of the produced media.

4.5 Data Retrieval

Besides transparent data retrieval through the file system, DISC Blu-safe Manager supports an optional integrated function for data retrieval of archived data in combination with the **DISC Blu-safe®** device. This functionality provides a very effective way to restore archived files to the original location or to an alternative location.

Restoring of archived data which are stored on multiple media will be performed automatically without additional administrator interaction. Archived data are displayed in a view similar to the Windows Explorer. The administrator can individually specify the data to be restored. This can be a specific file version, a directory, or a complete Archive. DISC Blu-safe Manager determines the required media and (if some media have been exported, after the administrator has re-imported the media to the **DISC Blu-safe®**) the data retrieval process works unattended in the background. Only the requested files are automatically copied into the selected target directory.

4.6 Logging

DISC Blu-safe Manager supports a flexible and extended logging mechanism which differentiates between global logs and Archive specific log files. The following two global log files are maintained:

- **Archiver Service Log File**
This log contains entries related to all operations of the DISC Blu-safe Manager Archiving Service which comprises in particular all hardware operations. In case of a problem this log has to be checked first to determine the reason for the problem.
- **Archive Agent Log File**
This log contains general entries related to the Archive Agent (e.g. start/stop of the service, Job Cycle start/stop)

Besides global log files DISC Blu-safe Manager also maintains Archive specific log files. Per Archive the administrator can specify to generate one log for all Job Cycles of an Archiving Job or to create separate logs for each cycle. For support and information purposes the administrator can select between different log levels. The Archive specific logs contain entries related to the operations of a Job Cycle. The log files include entries for each archived file including information on which Volume it is recorded on. In addition, at the end of a Job Cycle a statistic is generated and written to the log.

4.7 Recovery

DISC Blu-safe Manager supports multiple mechanisms for system recovery (see also section 11, Recovery). During configuration and operation of DISC Blu-safe Manager the software stores dynamically generated information. This information is stored in the database files. For recovery purposes the administrator has to understand which information is stored and how to backup and restore this information for system recovery (e.g. after a system crash). DISC Blu-safe Manager supports the following three mechanisms for database backup and restore which are explained in detail in section 11:

- Data restoration from media
- Manual database backup and restore
- Support for standard backup programs

5

System Requirements

5.1 DISC Blu-safe Manager System Requirements

5.1.1 CPU and RAM

Intel Pentium or a compatible processor with at least 2 GHz or a multi core CPU. On Windows Vista systems 2 GB RAM is required. For all other supported Windows operating systems the minimum requirement is 1 GB RAM.

5.1.2 Operating System

Supported operating systems are:

- Windows Vista (Ultimate, Business, Enterprise)
- Windows Server 2003 SP1 or R2
- Windows XP Professional SP2

Additionally, the .NET 2.0 runtime environment is required.

5.1.3 Hard Disk

For installation and usage of the DISC Blu-safe Manager hard disk space of at least 2GB is required. Also, the installation disk must be formatted using the NTFS file system.

For calculation of your requirements according to your environment and application please consider the following values:

Program Installation

110 MB of free disk space is required for DISC Blu-safe Manager program files and the DISC Blu-safe device drivers.

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:

- 1 million files and 10,000 directories will require about 315 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.

Temporary Image Files

Archived data are first stored in a temporary image file on hard disk before the image is migrated to an Archive Image or to an optical disc. The hard disk space will be released after successful migration of the temporary image. The image files have the same size as the corresponding capacity of the Archive Image or the optical disc.

Note: The DISC Blu-safe Manager supports as max. image file size the capacity of one BD medium. The BD image size is about 23GB (for 25GB media) or 45 GB (for 50GB media).

Default size setting for the image files is 600MB.

Note: The capacity of the temporary image is equal the maximal size of a to-be archived file. Means by default the maximal file size is restricted to 600MB. If you need to archive larger files you have to extend the image capacity at least to the size of the largest file.

The image size can be specified during the Installation (see section 6.2) and later at any time the DISC Blu-safe Manager GUI.

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 the DISC Blu-safe Manager is configured so that multiple Job Cycles can run in parallel, hard disk space for all Job Cycles is required.

6

Installation

6.1 Product Packaging

The **DISC Blu-safe®** is shipped securely packed together with all attachments within specially designed, shock absorbing cartonnage.

Please follow the instructions in the **DISC Blu-safe® Quick Installation Guide** for the unpacking procedure.

Caution: The **DISC Blu-safe®** is secured for transport by a special transportation fixing (bolt at the bottom side) that has to be removed before connecting the device to power.

The DISC Blu-safe Manager is shipped as attachment to the **DISC Blu-safe®** device on a CD-ROM in the ISO 9660 / Joliet format as an installable file.

6.2 Installing DISC Blu-safe Manager

The DISC Blu-safe Manager installation has to be performed on the system that configures the **DISC Blu-safe®** device by executing the following steps:

1. Log on as a member of the local administrator's group.
2. Connect the DISC Blu-safe Manager device to power and to a free USB2.0 port at your PC (please see also the **DISC Blu-safe® Quick Installation Guide for Unpacking, Placing and Connecting the DISC Blu-safe®**).
3. Insert the DISC Blu-safe Manager CD.
4. If the installation wizard does not start automatically, run the software installation by executing **BluSafeSetup.exe** from the distribution medium. During the setup you will be prompted to select the components you want to install. 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 DISC Blu-safe Manager need to be enabled by the corresponding License Key. Section 9.1 explains how to enter a License Key.

Note: The DISC *Blu-safe®* device operates in conjunction with your external PC where the DISC Blu-safe Manager software including all hardware drivers and the archive database has to be installed.

Only 1 installation per PC + 1 DISC *Blu-safe®* is supported! It is not possible to install the DISC *Blu-safe®* software on several PCs and carry the DISC *Blu-safe®* around or to connect multiple DISC *Blu-safe®* devices to 1 PC.

For installation of the DISC Blu-safe Manager and all hardware drivers you need to have at least 2GB free hard disk space. (Please see also chapter "System requirements")

6.3 Uninstall DISC Blu-safe Manager

Restore Data in TAFS Folders

Data in the TAFS Folder of a WORM Archive will not be accessible after uninstalling DISC Blu-safe Manager, unless purged files have been restored and the DISC TAFS Reparse Tags have been removed.

This can be achieved using the TAFS Shell Extension (see also 10.7), by means of the command **Remove TAFS Tags** in the context menu of the TAFS Folder in the Windows Explorer. Note that the related WORM Archive must be active and purged data must be present in the DISC *Blu-safe®* device.

Remove the Software

Before starting the uninstallation of DISC Blu-safe Manager you should stop and deactivate all Archives. Now open the Add/Remove Software Control Panel applet, find the entry for DISC Blu-safe Manager and click **Change/Remove**. In the following dialogue select **Remove All** to uninstall DISC Blu-safe Manager 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 DISC Blu-safe Manager.

7

Licensing

To become able to use the Blu-safe with all functions and to enable best support by DISC, the DISC Blu-safe Manager requires a License Key.

It is based on the DISC Blu-safe Manager Serial Number and the machine-dependent Product Key.

Without a License Key the software runs in a restricted demonstration mode (see README file).

To obtain the License Key, please follow the link that is given in the Installation Wizard Window "License Settings" or contact your dealer and refer to the Serial Number, Product Key.

Note: The DISC Blu-safe Manager Product Key is machine-dependent and may change whenever the (hardware) configuration is modified.

To follow the link from the Wizard window you need to be connected to the Internet.

The link will bring you to the **DISC Blu-safe®** Registration web page where you are asked to enter a User Name and a Password. The necessary information therefore is displayed within your PC window (the same License Settings window where the link to the Registration page is placed). After logging into the **DISC Blu-safe®** Registration web page you are prompted to fill in some data including the Serial Number of the your DISC Blu-safe Manager and a "Product Key". All is displayed also within the same wizard window on your PC screen.

After you have filled all requested fields a "Licence Key" will be generated which you please copy and paste into the according field of the License Settings Wizard screen.

7.1 Set and View the License Key

The License Key can be also set in the **License Settings** dialogue box of the **DISC Blu-safe Manager GUI** after the initial installation or after a system recovery by selecting **Tasks → Setup → Specify Global Setting → License Settings**.

8

Getting Started

The DISC Blu-safe Manager GUI is the graphical interface of DISC Blu-safe Manager and is the central component for configuring the DISC Blu-safe Manager. This includes the hardware setup, the definition of archives, data retrieval operations, etc.

Select **Start ->Program Files ->DISC -> Blu-safe Manager -> DISC Blu-safe Manager** to begin.

When you start it for the first time, the **Start-up Wizard** appears at the top of the main window. It helps you configure the hardware and software settings. You will be guided through the following steps:

- Software Installation
- License Settings
- Hardware Configuration and Initialization
- Configure the 1st Archive

Most settings will be done automatically based on default values, but can be changed later at every time within the DISC Blu-safe Manager Graphical User Interface.

Please refer to chapter 9 for an explanation of the other steps of the configuration process.

After you have completed the configuration setup, you will see the main window of the DISC Blu-safe Manager GUI.

It contains the "classic" menu bar, a **Side Bar** menu near the left edge of the window and a large area for various views. When you click on one of the menu items, the corresponding view is displayed. Most menu commands can be selected from the classic menu as well as from the Side Bar menu.

You can configure new Archives now or change the settings for the Archive which has been configured during setup. Section 10.1 explains in detail how to create a new Archive. After an Archive is setup, DISC Blu-safe Manager immediately begins monitoring the Archive's Data Sources. You can view the

status of the Archives, the current activity of DISC Blu-safe Manager, and the log file. See sections 10.3, 10.9 and 10.11.

How to retrieve archived files is described in section 10.5.

8.1 Hardware Configuration and Initialization

During the start-up the DISC Blu-safe device can be configured in one of two modes:

1. DISC Blu-safe Manager uses 14 media slots for archiving. Media slot 15 will be configured as 'Versatile Slot' and can be used similar to a single drive, e.g. to use the DISC Blu-safe as a HD A/V player.
2. All 15 media slots are configured as Archive slots where the DISC Blu-safe writes and/or reads data (up to 750 GByte online archive).

If you choose to configure slot 15 as 'Versatile Slot' you can use the menu **Devices > Blu-safe** to load and unload the disc in the 'Versatile Slot'.

After selecting the configuration mode for the DISC Blu-safe, DISC Blu-safe Manager will perform a check of all slots in the device. If no blank Blu-ray disc is present, you will be prompted to insert one or more blank media. Follow the instructions on the screen to import media and finally close the mail slot tray without inserting a disc if you don't want to import more media.

If DISC Blu-safe Manager detected media which cannot be used with DISC Blu-safe, these media will be exported now.

8.2 Configure the 1st Archive

When starting the software for the first time, DISC Blu-safe Manager will configure the first Archive for you. You will be prompted to enter a name for the Archive and to select the directory which shall be archived. The name of the Archive can be up to 50 characters long and may contain any characters except of those characters which are not allowed for file names:

`\ / * ? " < > |`

The directory to be archived must be located on a local NTFS formatted hard disk. If you specify an empty directory, the new Archive will be configured with the following settings:

- All files will be archived and immediately replaced by a link into the **DISC Blu-safe** device.

If the specified directory already contains data, the new Archive will be configured with these settings:

- All files will be archived and files which have not been modified for 30 days will be replaced by a link into the **DISC Blu-safe** device.

In both cases, the schedule will be set to execute daily at noon 12:00PM. The size for the Archive Images will be set to 600 MByte. This means the maximal file size which can be archived is also limited to 600 MByte. See section see Temporary Image Files in chapter 5.1.3 and chapter 10.1. You can easily change the settings in the properties dialog for the Archive (see section 10.1).

9 Configuration

When you start the DISC Blu-safe Manager for the first time, the **Setup Wizard** will lead you through the mandatory and most important configurations steps. Most settings will be done based on default values.



If you have already connected the DISC *Blu-safe* Manager to the computer, the wizard will also let you configure the device. If you did not, and when you add devices later, you should then stop the Archiver Service, and start it again after the hardware is connected. See **Service Settings** below for how to start and stop services. After the restart of the service, the **Device Detection Wizard** will help you to configure the newly connected DISC *Blu-safe* Manager.

The **Setup DISC Blu-safe Manager** command from the **Tasks** menu grants you access to all configuration pages; these are described in this chapter.

The **Setup DISC Blu-safe Manager** dialog provides the following sub-dialogs which are described in more detailed in the following sections:

- **General**
Here you find settings that have key significance for the operation of DISC Blu-safe Manager.

- **Device**
This dialog allows to manage and administer the DISC *Blu-safe* Manager device.
- **Services**
You can start and stop the Archiver Service and the Archive Agent Service.
- **Recovery**
Here you can import and export the application database and the System Key.

9.1 General

The dialog **General** comprises the following tabs which are explained below:

- **License**
- **Directory Settings**
- **Alert Notifications**
- **Recording Speed**
- **User Accounts**
- **Advanced Settings**

License

The License Settings dialogue shows the serial number of the software and the product key. Both are required to obtain a valid license key from your dealer. Enter the license key here to activate DISC Blu-safe Manager and the licensed options.

Directories Settings

The DISC Blu-safe Manager database files are stored in the Database Directory. If you change it, you must restart DISC Blu-safe Manager Service.

The Image Directory is used to store temporary image files which are created when the Archive Agent executes a Job Cycle. These temporary image files serve as temporary storage for the migration process to the Blu-ray Discs in the DISC Blu-safe Manager. If you change the Image Directory, the new Image Files will be stored there, while old ones remain in the previous direc-

tory and will not be removed until they are migrated (recorded on archive media).

Alert Notification

You can instruct DISC Blu-safe Manager to send 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.

- **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 DISC Blu-safe Manager. 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 DISC Blu-safe Manager; 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.

Recording Speed

In this dialogue, you can select different recording speeds for different media types. Select a media type and choose a speed from the Recording Speed list. Since not all recorders support the same speeds, the speed actually taken will be the highest speed being less or equal to the selected one that the recorder supports.

User Accounts

The listed user accounts are allowed to use the DISC Blu-safe Manager. To add an account, click **Add** and select a user from the standard Windows™ user management dialogs.

Advanced Settings

This dialogue provides a way to modify some default settings. Please note that it is usually not necessary to changes these settings.

First select a category in the left pane and then select the option to modify in the right pane. Click into the right column of the table to change the current value for the selected option. The bottom of the dialogue shows a detailed description of the selected option.

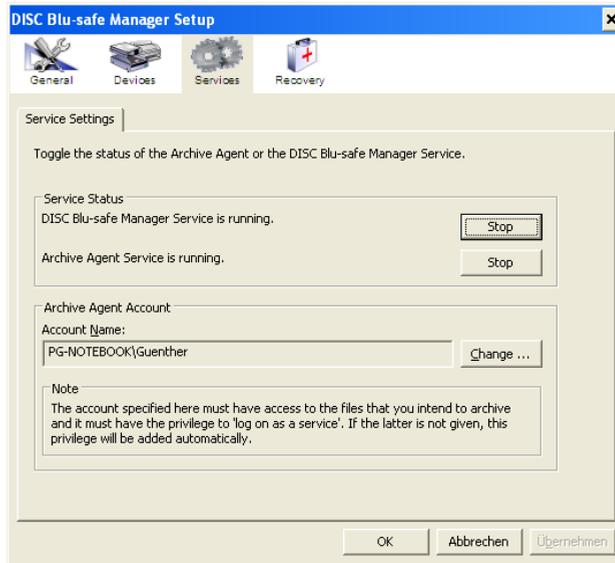
9.2 Setup Device

The only existing and supported device is the DISC *Blu-safe Manager*.

All settings according to the DISC *Blu-safe* Manager device are done automatically, but you maybe willing to change the shown Name of the DISC *Blu-safe* Manager device which is possible here.

9.3 Service Settings

In order to simplify working with DISC Blu-safe Manager, the status of its services, i.e. the DISC Blu-safe Manager Archiver Service and the Archive Agent Service can be viewed and controlled with this dialogue.



Of course, you can also use the Services dialogue of the Computer Administration of your operating system. However, you are required to specify the user account here and not in the Services dialogue of the Computer Administration.

Since the Archive Agent monitors and copies, and may even remove the files of the Archive's Data Sources, it needs access to all Source Directories and contained files of all Archives. Therefore you need to enter the name and password of an account that has the required access. You may need to create a new local user account (Workgroup) or domain account and add it to the Source Directories with 'full control' as permissions.

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 that will contain files to archive. The account name and the password must be the same on all machines.

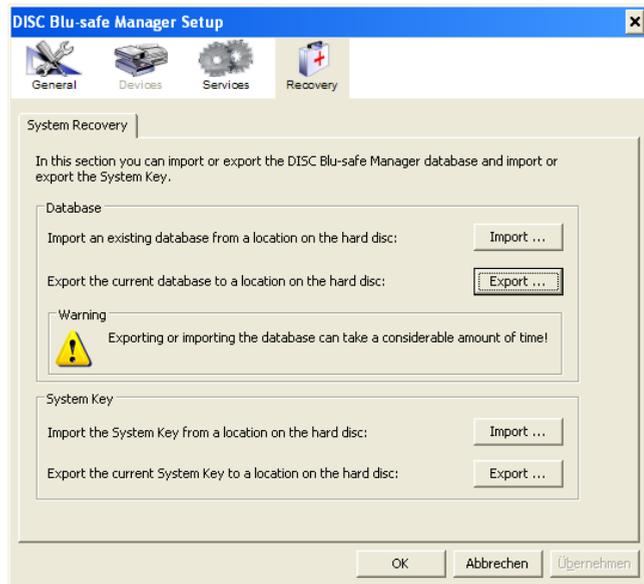
The Archiver Service runs under the local system account.

Both services, i.e. the respective user accounts, must have read and write permissions to the directories 'config' and 'Logs' and the files they contain. These directories reside in the installation directory of DISC Blu-safe Manager, usually at "C:\Program Files\DISC\DISC Blu-safe Manager".

9.4 Organize System Recovery

Database Import/Export

The integrity of the DISC Blu-safe Manager database is "vital" for the operation of the software. You can store the current database in a directory. This directory can be included in the set of files saved by a backup program. If the database must be repaired, you can import the files from the specified directory.



To export, click the **Export** button and specify the path for the export directory. It must be on a local drive of the server. DISC Blu-safe Manager will stop the Archive Agent during the exporting, so that no Job Cycles will be executed.

Depending on the number of Archives and the number of archived files and the performance of the computer, exporting the database may take a long time, up to several hours.

To import a database, click the **Import** button and specify the path of the import directory. It must be on a local drive of the server. Again, DISC Blu-safe Manager will stop the Archive Agent service during this operation.

Note: Only that information is imported from the database that is not yet in the current database. So, if you want to return to an earlier state, you must delete the archives concerned before the import.

10 Using DISC Blu-safe Manager

10.1 Creating a new WORM Archive

To create a new WORM Archive select **Tasks** → **Create WORM Archive** from the **Side Bar**. The **Archive Wizard** will pop up and guide you through the settings necessary to configure the new WORM Archive. Please note that you must be logged on the system where the DISC Blu-safe Manager service is running.

The first page of the wizard shows an overview of the steps which are necessary to create the new WORM Archive.

Click **Next** to start configuring the new WORM Archive.

General Settings

On the **General Settings** page, you enter a name for the new WORM Archive.

Archive Wizard

General Settings
Determines the display name of the Archive and the detail level used for logging.

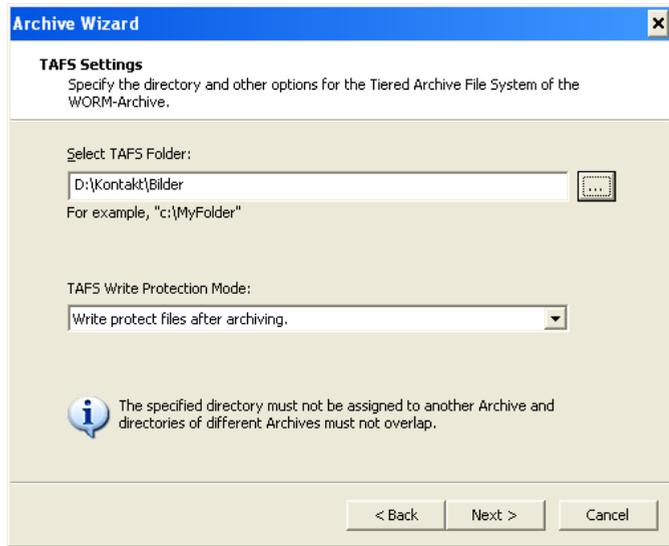
Archive Name:

 For example, "Inbox Folder Archive"

< Back Next > Cancel

Click **Next** to continue.

Settings for the monitored TAFS (Tiered Archive File System) folder



In this step you specify the hard disk directory which will be used as Tiered Archive File System (TAFS). You can also modify settings which control the 'write once' functionality of the TAFS. In the most restricted mode, the TAFS does not allow changes to files which have been stored in the TAFS Folder. The following options can be used to specify what files can be modified or deleted.

Write protect files after archiving

Write protect files after purging

Write protect files after setting the 'Read-Only' attribute

Write protect files until they have been archived

All files in TAFS are write protected

Execution Time

Archive Wizard [X]

Execution time
Determine the time when the archiving job shall be executed.

Execution Mode

- Daily
- Weekly
- Monthly
- Yearly
- Manual

Execution Parameters

Every Monday Tuesday Wednesday
 Thursday Friday Saturday
 Sunday

at 12:00:00

< Back Next > Cancel

On this page you can set the scheduled time when the archiving of the files within the TAFS folder shall happen.

Archiving Conditions

Archive Wizard [X]

Archiving Conditions
The Archiving Conditions specify how files will be selected for archiving.

Consider only the following files in an job cycle:

Do NOT consider the following files in an job cycle:

Archive only files whose content has changed and which ...

- have not been modified for: 0:30:00
- and have the ARCHIVE attribute set.

< Back Next > Cancel

In this dialogue you can specify the conditions DISC Blu-safe Manager uses to decide whether a file will be archived or not.

It is possible to specify dedicated file types to be included or excluded from the archiving.

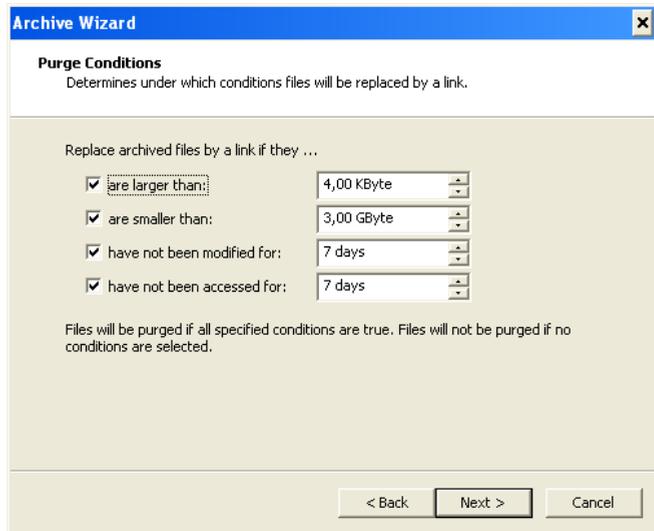
By default, DISC Blu-safe Manager archives all files which have not been archived yet or whose content has changed since last archival.

Furthermore you can restrict the files to be archived using the following criteria:

- Archive only files which have not been modified for a specified amount of time.
- Archive only files which have the Archive attribute set.

Please note that only files which meet all selected criteria will be archived.

Purge Conditions



In this dialogue you specify whether archived files will be purged from the TAFS Folder. Purged files will be replaced by a link which automatically redirects all read requests into the Archive. Please note that such a link uses at least 4096 Byte on NTFS partitions. That's why it is recommended to specify that only files larger than 4096 Byte (4 KByte) should be purged.

Beside the minimal and maximal sizes you can specify that only files should be purged which have not been modified or which have not been accessed for a specified time interval.

Whereas the setting **'have not modified for'** is checked against modification time attribute. The setting **'have not been accessed for'** is checked against the modification, creation, and last access time stamp. The time stamp which is closest to the current date is considered.

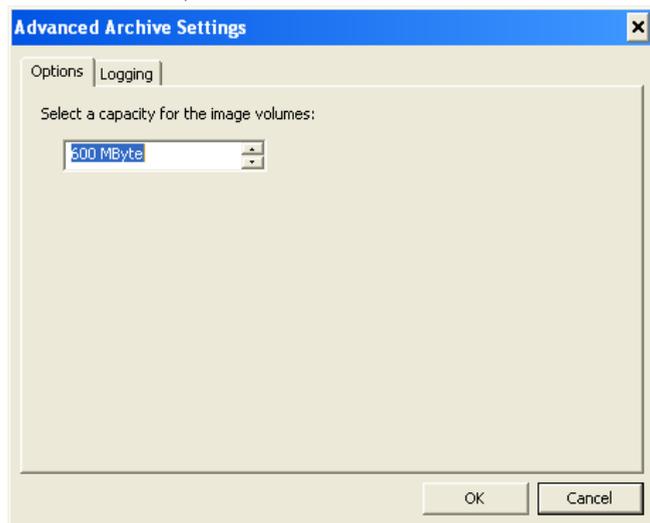
Note: The update of the 'last access' time stamp can be globally disabled on a system, though it is enabled by default. That's why DISC Blu-safe Manager evaluates all available time stamps and uses which ever is more recent. Thus if 'last access' is not up to date it will usually use the modification time.

The purge conditions will only be evaluated when a Job Cycle is executed.

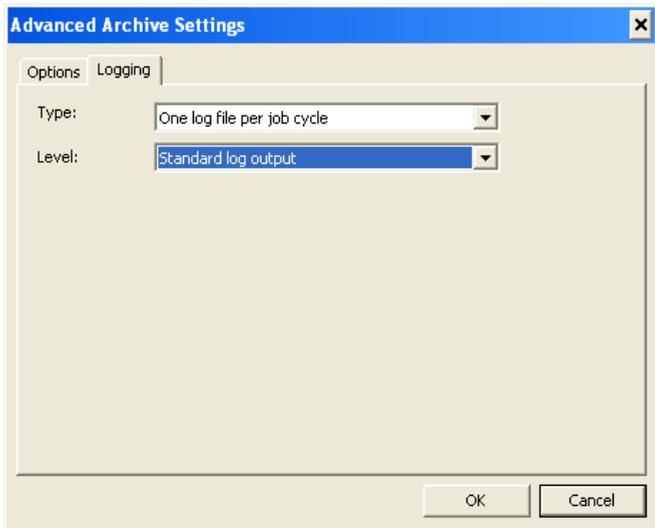
Finalization

The final dialogue page of the wizard confirms the settings you have chosen.

Before finishing the creation of the new archive you may set under advanced the size of the to-be created temporary image files (see Temporary Image Files in section 5.1.3)



Also it is possible to specify the way of event logging. (see section 4.6, Logging)



Click **Finish** to proceed.



The new Archive automatically becomes active. As soon as the trigger conditions are met, a Job Cycle will be created and processed.

10.2 Importing an Archive from Media

You can import an Archive from the media which have been created for the Archive or directly from DISC Blu-safe Manager Device. This is necessary, for example, if you want to import an Archive which has been created on another system or after you have reinstalled DISC Blu-safe Manager

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

To start the import select **Tasks** → **Import Archive** from the **Side Bar**. Now a wizard appears which now prompts to insert the media into the DISC Blu-safe Manager you want to import. Note that DISC Blu-safe Manager ignores media which are already known. However, even if a disc is already known in the database, the related Archive must not be active during the import. After inserting the media click **Next** to start the import.

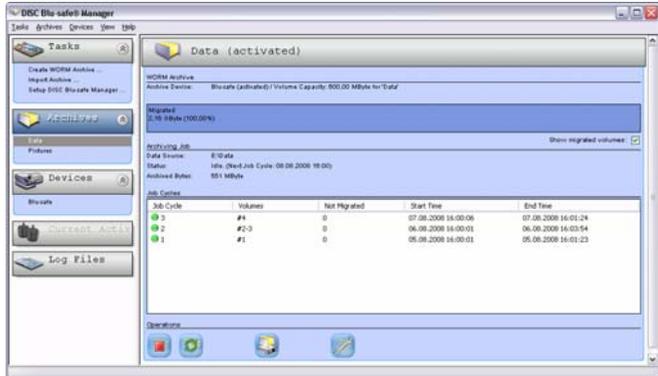
When done, you can view the log file by clicking the **View Log** button on the final dialogue. Select **Keep Log File after Closing**, if the file should not be deleted. You will find this file in the section **Global Log Files** in the view **Log Files**. It is named "Import Archive (<date> <time>)".

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

10.3 Monitoring the Archiving Process

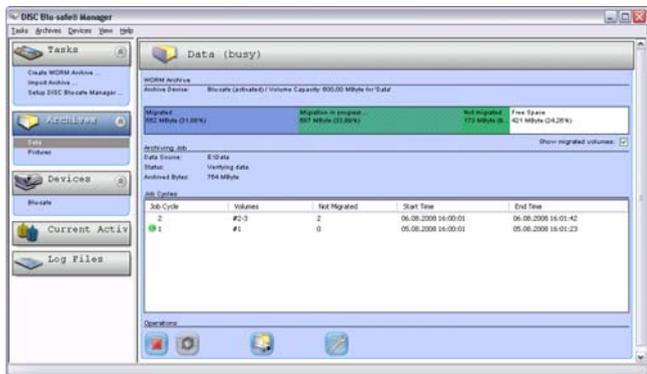
The list of Archives is displayed when you click the **Archives** button of the **Side Bar** menu. For every Archive, its name, the data source, the media type, and the status of the current or last job are shown. A coloured bar presents the status of the Archive. If you point to the path name near **Data Source**, the list of source directories will appear.

To view details of the status of an Archive, select its name from the **Side Bar** menu or double-click anywhere in the information area of the Archive.



Besides the items mentioned above, the target media used for the Archive and the list of executed Job Cycles is displayed.

Depending on the current activities and the status of the Archive, the Archive Status Bar contains up to five differently coloured areas:



The blue one represents the amount of archived data which has already been **recorded** to the DISC Blu-safe Manager.

The dark green part comprises the amount of archived data which has been copied to the temporary image files, but has not been recorded to the DISC Blu-safe Manager yet.

A red area indicates that image files could not be recorded, e.g. because the DISC Blu-safe Manager is inoperable.

The light green part represents the image files whose recording is currently in progress.

A white area indicates the space in image files which has already been allocated and will be filled during archiving.

As the archiving proceeds, the green part becomes larger and the white part decreases until the temporary image file is full. The image will then be recorded (light green) and eventually a new image will be allocated (white).

A small button near the right end of the bar permits to switch between two presentation modes of the bar. One comprises all areas described above, the other one concentrates on the non-migrated parts.

In the list of **Jobs Cycles**, the column titled **Volumes** shows the number of media allocated for a Job Cycle. **'Not Recorded'** shows the number of media where not all requested copies have been created yet. When you double-click a job in the list, the corresponding log file is displayed. The status of a Job Cycle is indicated by one of the following icons:



The meanings of these icons are

- Green: Okay.
- Yellow: Not yet all images recorded.
- Red with "X": Manually cancelled.
- Red with "-": Errors occurred.

Sometimes, you may want to control archiving manually or you would like to change the settings. The buttons near the bottom edge of the window permit to:



Trigger a Job Cycle.

Note that the Archiving Conditions may prevent that any data are archived when a job is triggered.



Start monitoring.



Stop monitoring.

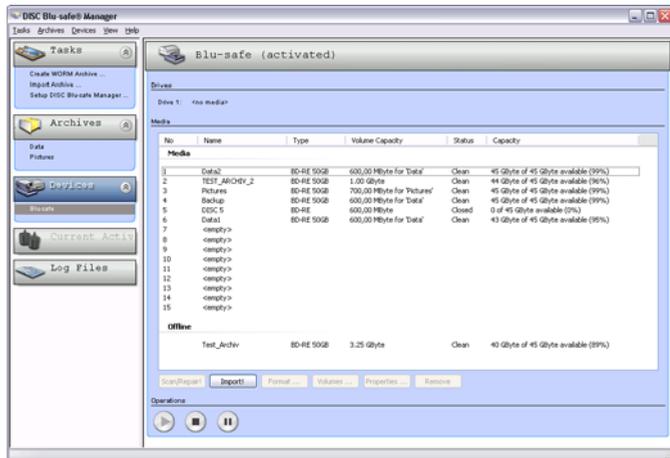


View and change the settings.

If you want to prevent DISC Blu-safe Manager from starting any Job Cycles, you can stop the Archive Agent. Please refer to **Manage Service Settings** in section 9.1. When you restart it, only those Archives become active that were not explicitly stopped before. Note that the Archive Agent will be restarted after a system reboot, unless it has been disabled in the Windows Control Panel.

10.4 Controlling the DISC Blu-safe Manager Device

As you click **Devices** on the **Side Bar** menu, the configured DISC Blu-safe Manager is shown.



You can get a more detailed view of the status DISC Blu-safe Manager device by clicking its name on the **Side Bar** menu, or by double-clicking the list entry itself. There, media Slots, the Types and Names of the media, the Status (e.g. progress of recording) and the Capacities of the Temporary Images and the Media is indicated.

10.4.1 Activating and Deactivating the DISC Blu-safe

If there are problems with the DISC Blu-safe Manager or the loaded media, you may want to prevent DISC Blu-safe Manager from using it until the hardware has been repaired. Press the **Stop Device** button to deactivate it.

10.4.2 Pausing the Device

Click on the button **Pause** to temporarily halt the DISC Blu-safe Manager. This can be useful e.g. if you want to stop the changer robotic for some reason. Click on the button **Activate Device** to restart the DISC Blu-safe Manager. The pause function halts any migration processes into the DISC Blu-safe Manager.

10.4.3 Manage Media and Volumes in the DISC Blu-safe Manager

A list of imported media and a possible list of offline media are displayed. The check box '**Show empty slot**' allows showing all slots of the library, which may be useful if you want to explicitly select an empty slot for media import.

The dialog provides the following commands to manage the media in the DISC Blu-safe Manager:

- **Scan/Repair**
Use this command to check and inventory the media again or to repair media which are marked as '**failed**' due to a device failure.
- **Import / Export**
Import and export of single media is processed via the Mailslot
- **Format**
This command prepares a new Blu-ray Disc for use with DISC Blu-safe Manager. The selected BD will be prepared with the UDF filesystem.

Note: If the medium concerned is a BD-RE (rewritable BD) that is not empty, this command destroys all data currently stored on this disc!

- **Volume List**
This button opens a list with all volumes which are stored on this BD.
- **Properties**
The properties dialog allows changing the type of the volumes you want to store on the BD and to assign an informational text to the BD.

- Remove

After selecting a BD from the offline list; you can use this button to remove all information about the BD from the database.

Select type of volumes to store on a BD

Each BD must be formatted before it can be used to store Archive Images. During the formatting you specify the capacity of the volumes to store on the BD. The same capacity must be selected as image capacity in the properties dialog of the Archives which shall be migrated to the BD.

Importing / exporting BDs from the DISC Blu-safe device

To export a BD, select the BD from the list and click on **Export**. The BD will be moved to the Mailslot and the Mailslot will be released (it opens few millimeters) You will be prompted to remove the BD by manually opening Mailslot on the DISC Blu-safe Manager. To import media, either select an empty slot or ensure no slot is selected and then click on **Import**. The Mailslot will be released and you will then be prompted to insert a BD into the Mailslot.

Note: Open and close the Mailslot carefully and take care that the media are correctly placed into the disc frame. Don't push the disc hardly onto the Mailslot tray.

Only single sided 120mm media such as BD must be imported into the DISC Blu-safe Manager. The usage of smaller discs together with an adapter device will damage the DISC Blu-safe Manager and is therefore not allowed!

Take care to import only clean and perfect media. Polluted, scratched, broken or else wise affected/damaged media will cause reading and writing problems and may damage the DISC Blu-safe Manager! Handle the discs only by touching the outmost edge or the middle hole.

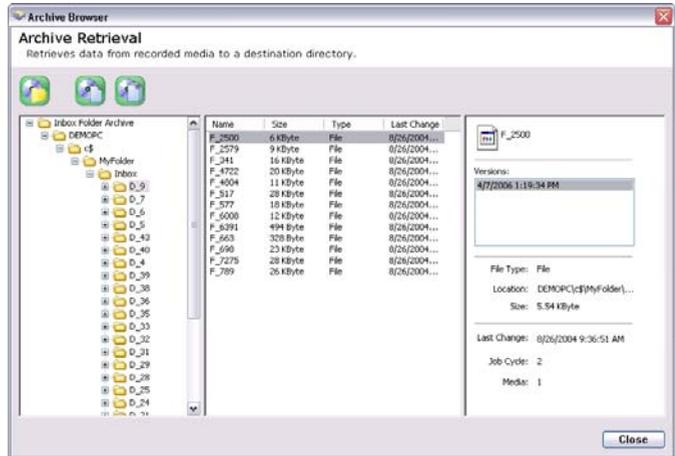
After inserting the BD it will be automatically scanned to inventory and afterwards moved to the selected slot or to the first empty slot. The disc then is available for further operations.

10.5 Data Retrieval

Select the Archive that you want to retrieve files from and click the **Archive Retrieval** button.



Retrieval is only possible if the Archive is deactivated. In case of an active Archive it will be automatically de-activated before the Archive Retrieval dialogue appears.



The **Archive Retrieval** dialogue consists of three areas. In the left one, the directory tree of the Archive 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.

The screenshot shows a window titled "Retrieval Wizard" with a close button in the top right corner. The main content area is titled "Retrieval Target" and contains the following text: "Determines the directory into which the data will be restored." Below this, it says "Select the directory into which the data should be retrieved." There are two radio button options: "Retrieve to Original Directory:" (which is selected) and "Retrieve to other Directory:". The "Retrieve to other Directory:" option has a text input field labeled "Directory:" with a "Browse ..." button to its right. Below the input field is a hint: "(for example, 'C:\MyFolder')". At the bottom of the main area, there is a checkbox labeled "Overwrite existing files." which is currently unchecked. At the very bottom of the window, there are three buttons: "< Back", "Next >", and "Cancel".

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.

Please note that this function is not intended to retrieve purged files of a **WORM Archive** (files that have been replaced by a link). Instead, the appropriate command of the TAFS Shell Extension should be used. So the option '**Retrieve to original directory**' should only be used to perform the following tasks:

- Restore a file which has been deleted from the 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 TAFS prevents 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. Please note that TAFS does not allow to replace 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 example below.

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 Archive will not replace it, unless you have checked **Overwrite existing files**.

Click **Next** to continue.

If the target directory is remote, the **Remote Directory Account** page appears. You should enter an account that has read and write access permissions to the specified target directory and its contained files and subdirectories for DISC Blu-safe Manager to be able to store the retrieved files there.

DISC Blu-safe Manager then determines the media that are required for the retrieval job. It displays a list of media and asks to import maybe offline media.

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. If media are missing, you will be prompted to import them into the DISC *Blu-safe* Manager.

You may abort the retrieval by clicking **Cancel**.

The activities during the retrieval are logged in a file. When the retrieval terminates, 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 Archive.

10.6 Export List of Archived Files

DISC Blu-safe Manager can export the list of archived files 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 Archive. Please note that this function must be enabled by the License Key.

To export the list, first select the Archive and then click on the button **Data Retrieval** to open the Archive Browser:



In the Archive Browser click the button to export the list of archived files:



Now the following dialogue appears which allows to enter a file name, to change 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, i.e. 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.

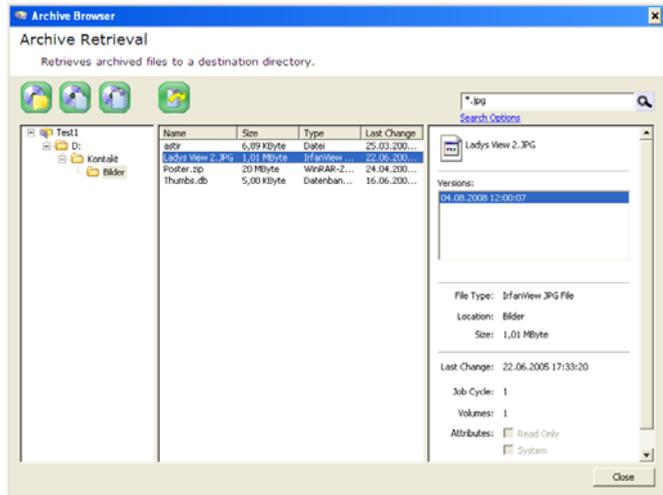
- **FullName**
This is the concatenation of 'Path' and 'Name', i.e. the full file name.
- **VolumeNo**
The number of the Volume this file has been written to. The same number is printed on the disc, if a disc has been produced.
- **VersionNo**
This number uniquely identifies this version of the file. 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.

Each version of a file will be written to one line of the table. The lines belonging together can be identified by the version number.

10.7 Search for Archived Files

DISC Blu-safe Manager offers a function to search for archived files. This function is part of the '**Archive Retrieval**' dialog.

To search for archived files, first select the Archive and then click on the button **Archive Retrieval** to open the Archive Browser:



In the Archive Browser you can select the root of the Archive or any sub-directory which will be searched for files entered in the corresponding search field. 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.

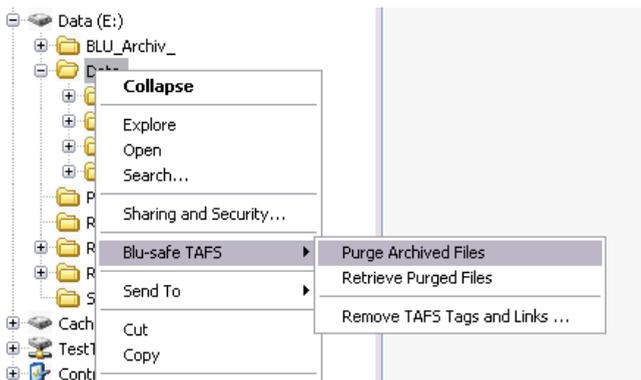
The 'Search Option' dialog provides additional options for a sophisticated search.

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

Note: Retrieval of files listed as search result is only possible separately (i.e. as single files).

10.8 Purge and Retrieve Files in TAFS Folders

WORM Archives can be configured to automatically purge files from the Tiered Archive File System (TAFS) and to replace them by a link (see 10.6). 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 cannot be used to change the status of an archived and purged file. This function always creates new file versions which will then be archived again.



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

Note: The commands provided by the TAFS Shell Extension can only be used by users which are allowed to administer **DISC Blu-safe Manager** . Also, the Shell Ex-

ension is not available when accessing the TAFS Folder through a network share.

Beside commands to purge and retrieve files, this menu provides the command **Remove TAFS Tags and Links** which must be executed for the whole TAFS Folder before uninstalling DISC Blu-safe Manager. This command retrieves all files and removes 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.

10.9 Viewing Current Activity

The term "current activity" in this context means everything that the DISC Archive Agent, the DISC Blu-safe Manager Service, or the devices are doing from the moment that archiving begins until the migration is done. The term also includes any processing for retrieving data.

For each Archive, the status of either the Archive Agent or the DISC Blu-safe Manager Service is displayed. As soon as a device becomes active, its status is shown, too.

You may double-click the Archive or device to view its details. Press the



button, if you want to abort the current archiving or retrieval for the Archive.

10.10 Server Notification and Error Recovery

If an error occurs or administrator interaction is necessary DISC Blu-safe Manager opens a separate Server Notification Window. By double clicking the message the administrator can solve the problem.

The following notifications could occur (<name>_ means the name of the corresponding device)."

"The DISC *Blu-safe* Manager device has been stopped after an error"

The device has been disabled after an hardware error. The Administrator should check the Archive Service Log File to solve the problem. Double click will then re-start the DISC *Blu-safe* Manager.

"The DISC *Blu-safe*[®] device has been paused"

The device has been paused by the administrator. But it is currently requested by a Job Cycle. Double click to resume the DISC Blu-safe.

"DISC *Blu-safe*[®] Media is missing"

During execution of a Job Cycle the DISC *Blu-safe*[®] has run out of media or no media are loaded at all. To resolve this situation you need to import and format blank media.

"DISC *Blu-safe*[®] Media is offline"

During execution of an Archive Retrieval the DISC Blu-safe Manager has not found the media where the file was recorded to within the DISC *Blu-safe*[®] but in the list of offline media. To resolve this problem you need to import the requested media.

Note: If all media slots are filled with media you have to export other media in order to free at least one slot for the import.

"DISC *Blu-safe*[®] Device is deactivated"

The DISC *Blu-safe*[®] has been deactivated, plugged of or powered down, or was not operable at start of DISC Blu-safe Manager. This message occurs if Job Cycles have been interrupted. After activating the DISC *Blu-safe*[®] these Jobs have to be started again. If the DISC *Blu-safe*[®] has not been detected during start of the DISC Blu-safe Manager Service, the service should be re-started now.

"Recording of some Volumes in Archive <name> failed"

The recording of at least one disc failed and the recording will not be automatically retried. You should first figure out why the recording

failed and fix this problem. Then double click this line to restart the recording operations.

"New errors have been written to the 'Log file for DISC Blu-safe Manager Service'"

Double click this line to open the mentioned log file.

"A media access job has finished"

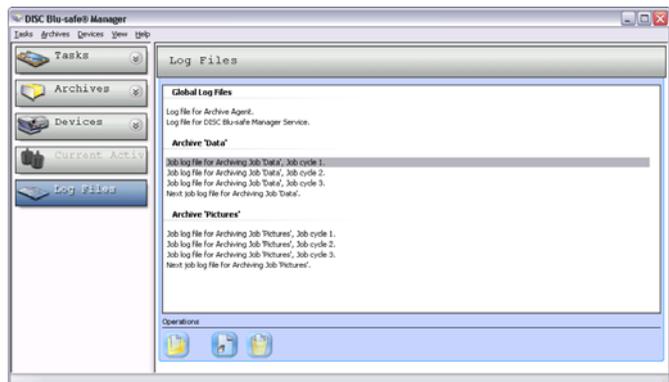
This message should only appear if a user has performed a retrieval or an Archive import and closed the user interface before the operation finished. Double click this message to remove this job from the list.

10.11 Viewing Log Files

The purpose of the various log files is explained in section 4.6

From the menu bar select **View→Views→Log Files** or select **Log Files** from the **Side Bar** menu to view the list of log files. The list begins with the **Global Log Files**, which contain information about the DISC Blu-safe Manager Service and about the DISC Archive Agent Service (**Log file for DISC Blu-safe Manager** and **Log File for DISC Archive Agent**).

Under that, for every Archive one more log file name is displayed. Whether there are a single or multiple files depends on the logging type you selected in the **General Settings** of the Archive properties (see section 4).



In case of separate log files for each Job Cycle a new empty log file for the next following Job Cycle will automatically be created in

advance. This log file is used to log error messages before the cycle is started (e.g. error during scanning of the Data Source). It will be renamed with the correct cycle number as soon as the Job Cycle is finished.

To view a log file, double-click the entry in the list.

Alternatively, you can open the global log file by selecting a command from the **View→Log Files** menu.

11

Recovery

The operation of DISC Blu-safe Manager is based on an archive database and several configuration files. If these files get lost or should be damaged, you can recover them provided that you had saved certain data before.

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

The three methods are:

- **Restoration from media**
You need the archive media. 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 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 DISC Blu-safe Manager on another computer. Recovery is possible only on the current computer.

Note: You always should use a save depository for your archive media if they are external to the DISC Blu-safe Manager.

11.1 Database Restoration from Media

In the worst case, if your system running DISC Blu-safe Manager gets lost and you only have your archive media you must proceed as follows:

- Install the operating system and DISC Blu-safe Manager on the (new) computer.
- Reconstruct the DISC Blu-safe Manager database by importing all archive media. Use the **Import Archive** command from the **Archives** menu (see 10.2 Importing an Archive from Media).

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

However, in order to get the system working as before the failure, you must set the settings of

- the DISC *Blu-safe Manager* if changed from default before
- all Archives

manually.

Note: Opening an Archive Data view for retrieval may take a while, since the media information has to be reconstructed at this time.

You can also reconstruct single Archives from media. To do so, you have to delete the Archives concerned before the media are imported.

11.2 Manual Database Backup and Recovery

Database Export

You can save the database and configuration files of DISC Blu-safe Manager by means of the **Database Export** function, which you can find in the **System Recovery** dialogue of **DISC Blu-safe Manager Setup**.

In order to save a useful state, you should start the export when archiving can be suspended for a while and if all Archive Images have been written to the archive media. Data in Archive Images are not included in the exported database file and cannot be restored later.

Database Import

If you had saved the database and configuration files of DISC Blu-safe Manager by means of the **Database Export** function, you can proceed as follows:

- Install the operating system and DISC Blu-safe Manager, if necessary.
- If archive media were produced and exported out of the **DISC Blu-safe**[®] device after the last database export, you should import these media now. Note that the media are ignored unless the Archive concerned is not yet in the current database. If necessary, delete the Archive before the media import. (see 10.2 Importing an Archive from Media)
- Import the database and configuration files by the **Database Import** function.

After these steps, DISC Blu-safe Manager is in the state as before the failure except the data that were not yet written to archive media at the time of the database export are lost. Also, any changes made to the settings of the Archives, the DISC Blu-safe Manager configuration since the last export are lost.

Any data that were not yet written to archive media are lost.

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

11.3 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 DISC Blu-safe Manager Service is 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**
located in the installation directory of DISC Blu-safe Manager
- **vol_db.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 DISC Blu-safe Manager
- All files in the directory **logs** which is located in the installation directory of DISC Blu-safe Manager
- The system registry
- The program files of DISC Blu-safe Manager

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.

12 Index

A

Archive Agent 18
Archive Agent Log File 23
Archive Parameter 19
Archive Types 11
Archiver Service Log File 23

C

Configuration 34

D

Data Retrieval 22
Database 21, 23
DISC Blu-safe® 15

G

Global Log Files 23

I

Image Format 20
Installation 27

L

License Key 30
Licensing 30
Logging 22

M

Medium Format 20

P

Packaging 27
Product Key 30

R

README 6
Recovery 39, 66, 70, 72

S

Serial Number 30
Service Settings 38
Set the License Key 31
Setup Devices 38
System Recovery 23
System Requirements 24

T

TAFS Shell Extension 13, 64
Target Device 15

U

Uninstall DISC Blu-safe Manager 28

V

Versioning 21

W

WORM Archive 11, 41