

Deep Freeze – Digital Asset Management System for Postproduction and FX Facilities

Deep Freeze is a digital asset management (DAM) system designed specifically for post production and visual effects enterprises. **Deep Freeze** makes it easy to store, find and reuse digital assets.

Digital asset management saves both time and money. Research indicates that the return on investment (ROI) of DAM is from 8:1 to 14:1. Where do the savings come from? Through labor reduction, re-purposing, and workflow efficiency. DAM allows employees to spend less time locating assets and more time working on current projects. With the ability to find and research existing work, employees can reuse the valuable creative assets from previous projects. Taking advantage of work performed on prior projects reduces turnaround time. And DAM's enforcement of a consistent workflow contributes positively in workflow efficiency.

Startup Page

Deep Freeze application is started from web page by clicking on START image. All necessary libraries and executables will be automatically downloaded to the client machine. All consecutive starts will check for updates and force download of only updated components of the system. Such approach removes burden of software management from system administrator.

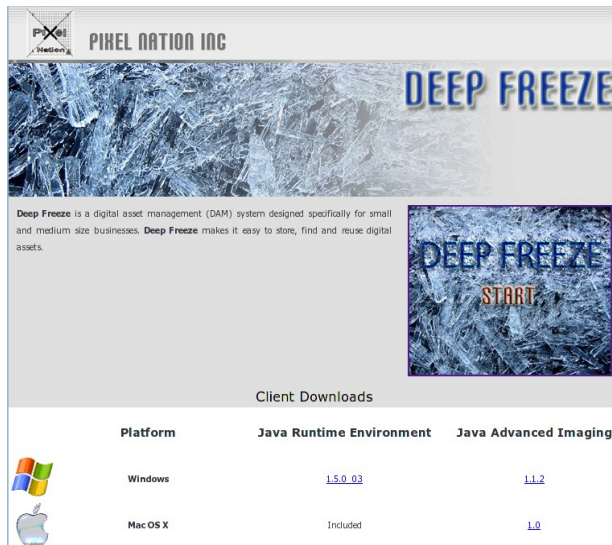


Figure 1

Login

After everything has been downloaded login screen will appear. User must enter its login name and password in order to start using the system.



Figure 2

Control Bar

If login has been successful startup bar will appear. Control bar is a gateway to a set of tools running as one application. All tools are accessible via *Tools* menu. If user is logged with administrative privileges *Config* menu will be available as well.

File Tools Config Help

Figure 3

Main Browser

Deep Freeze is a main application in the suite. It is invoked via “Tools->Deep Freeze” menu. Deep Freeze user interface is mimicking Windows Explorer to some extent. Main window is divided into two parts. Project tree/Search panels are available in the left pane. Asset/Search result views are on the right side. Deep Freeze features unlimited depth of the project tree.

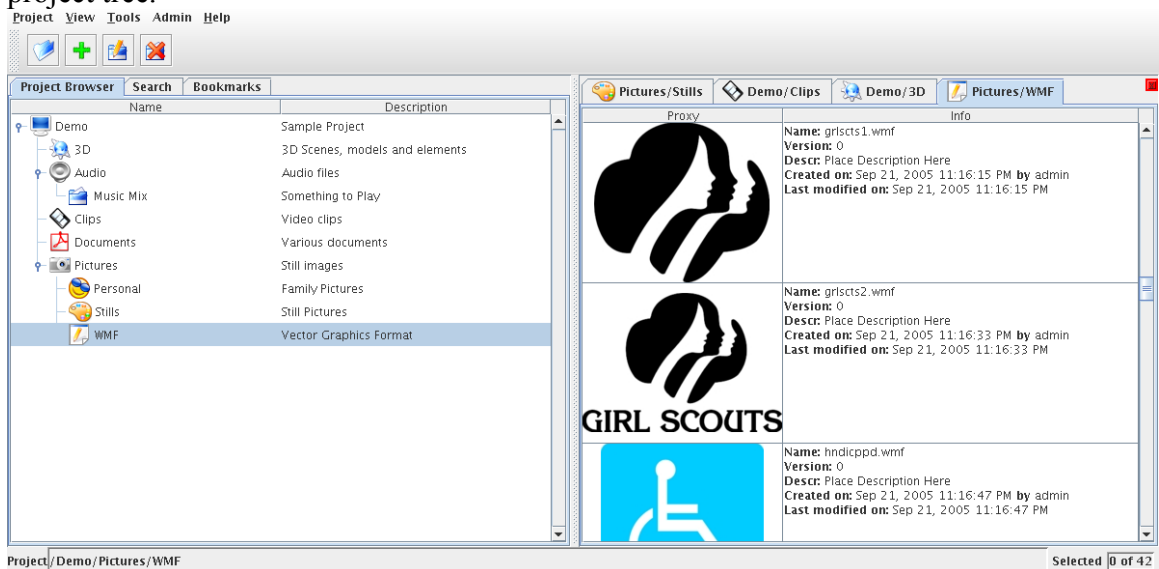


Figure 4

Deep Freeze provides support for number of generic asset types:

- Image
 - Bitmap
 - Vector (Figure 4)
- Video Clip
 - AVI
 - Quick Time
 - MPEG 2/4
- Image Clip (Figure 8)
- Document
 - PDF (Figure 5)
 - Word
 - Excel
 - CSV
- Audio
 - WAV (including Broadcast version)
 - AIFF
 - MP3
 - Ogg Vorbis
- 3D Models and Scenes (Figure 6)

Following screen shots display assets of various type visible in asset view pane.

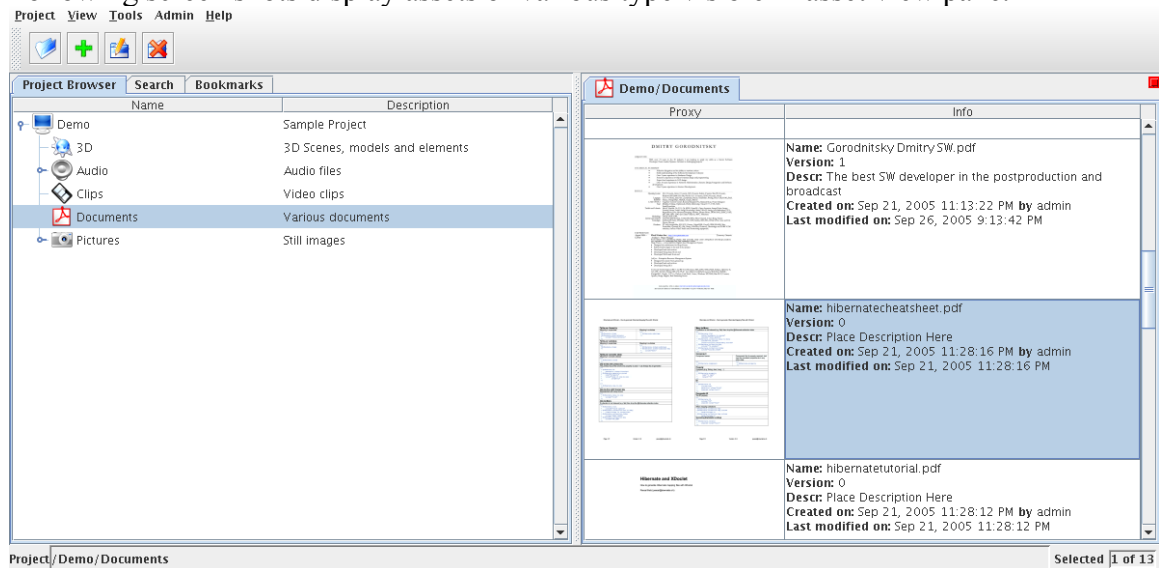


Figure 5

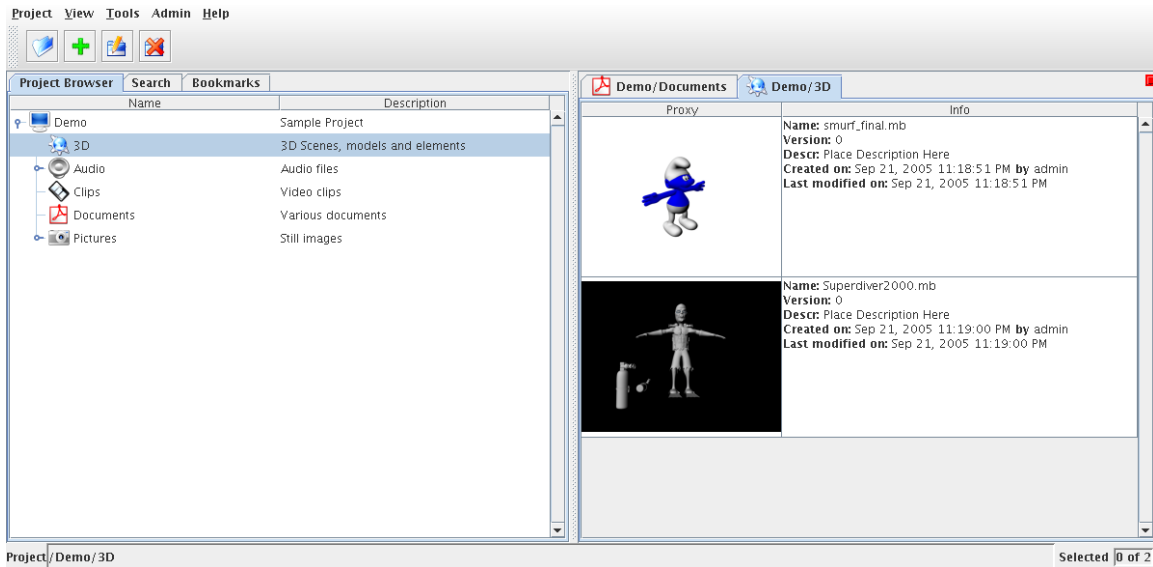


Figure 6

The following screen shot shows how sequence of images is ingested into Deep Freeze. The sequence of files is dragged into the asset view area. Deep Freeze will analyze the dropped files and will prompt user if naming convention of the files resembles sequence. User is required to provide frame rate and optional audio track for preview. After clip is ingested the MPEG4 preview is being generated for the clip.

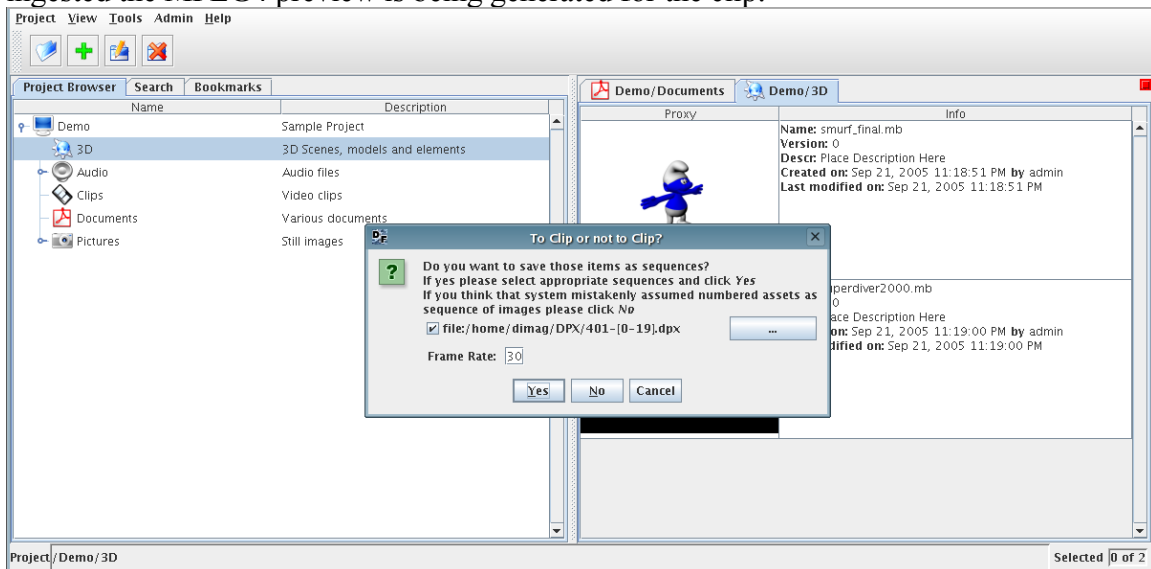


Figure 7

Clip can be previewed as sequence of assets.

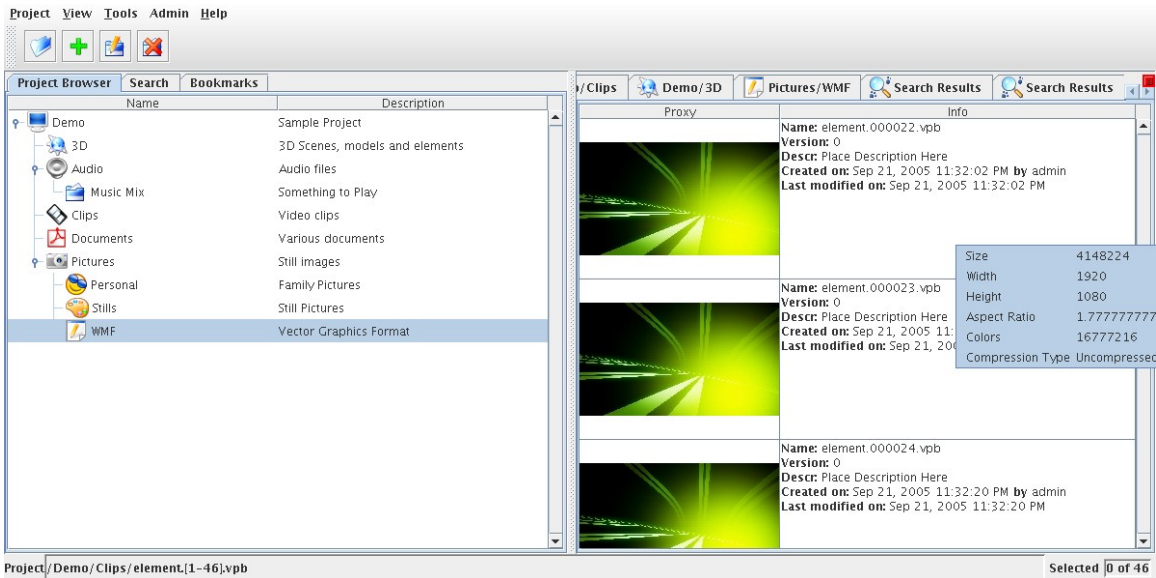


Figure 8

Deep Freeze is designed to support asset versioning. Following screen shows versions of the asset. If asset with the same name is dragged into the asset view pane the new version of this asset is created. User can open a version pane and drag any file into it and it will become a new version of this asset with no regards to original name or type.

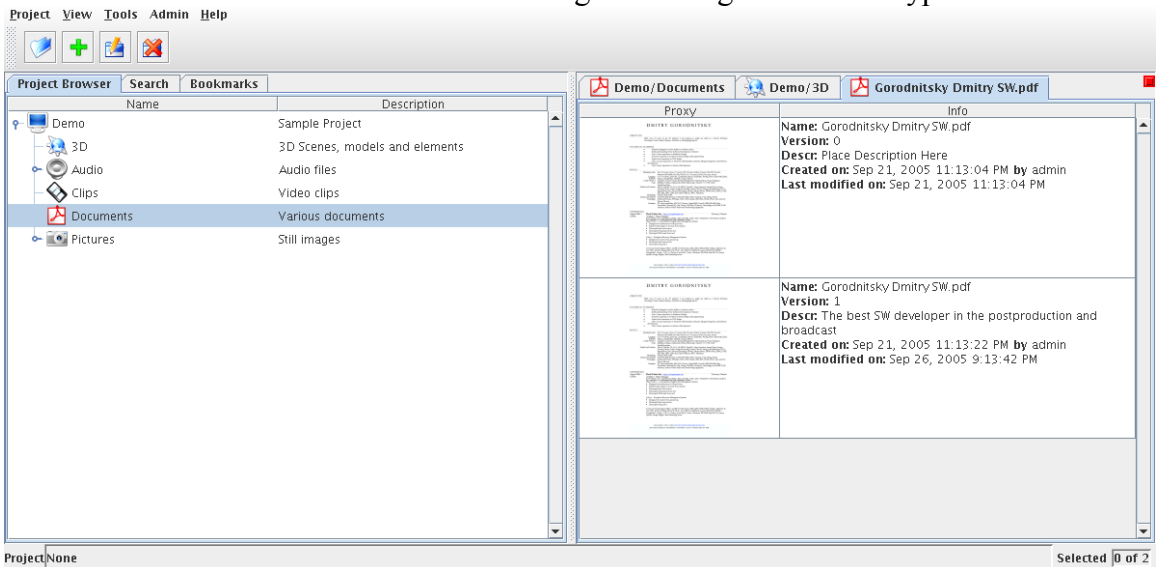


Figure 9

Search

Deep Freeze enables users to access assets by browsing project tree or by providing search criteria. Deep Freeze search is very robust tool. It allows searching by common asset attributes such as name, description, creation and modification dates, Etc. Also support for searching by custom defined asset attributes is available. Each asset type defines set of

custom attributes. For example image type defines width, height, aspect ratio, Etc. attributes. Deep Freeze allows searching by those attributes as well.

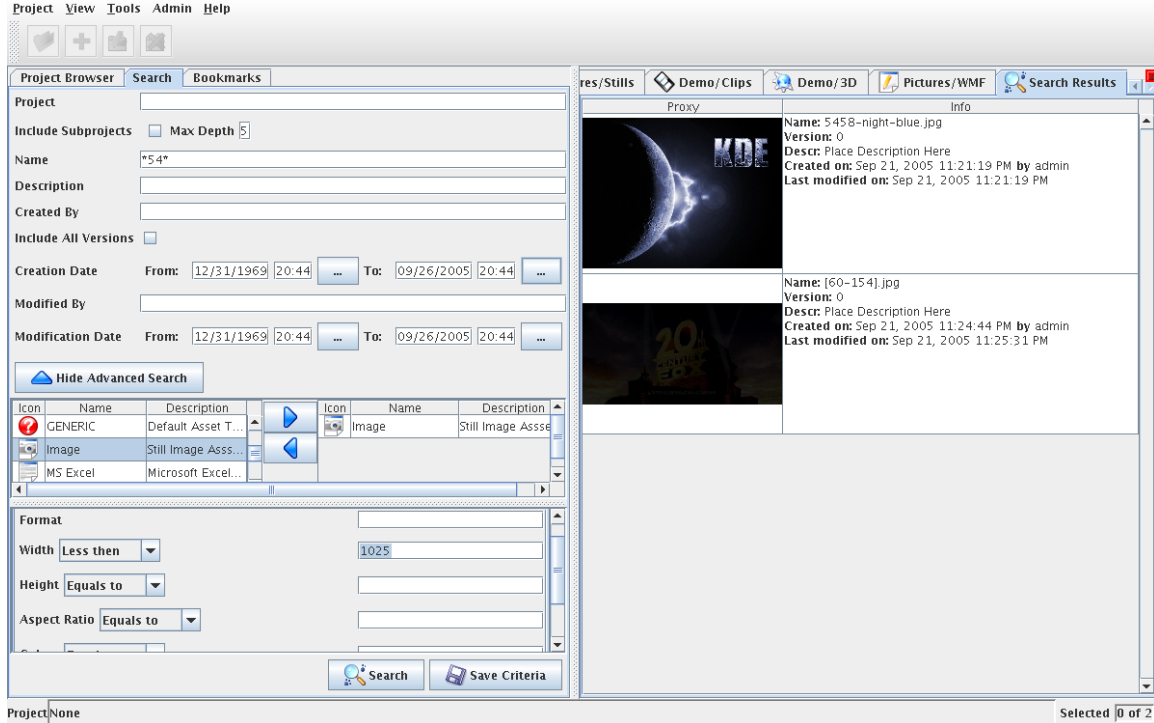


Figure 10

When same search criteria are used over and over again it could be saved as bookmark and invoked on the click of the button as shown on the next screen shot.

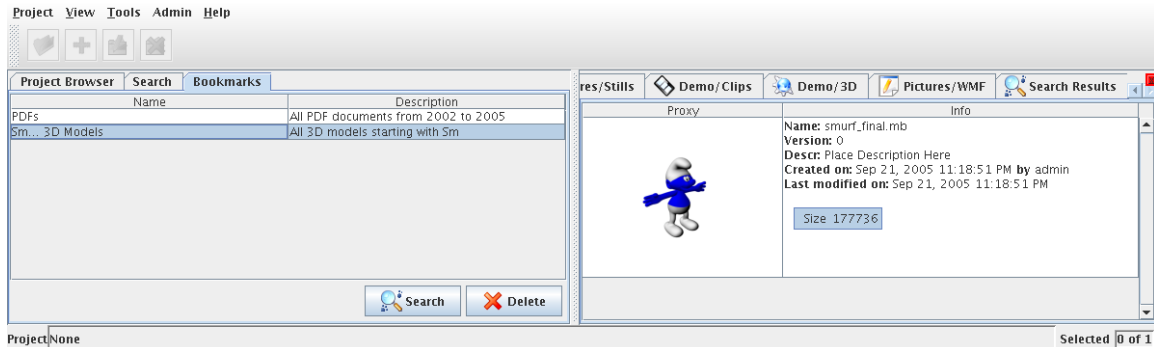


Figure 11

Asset Details

When asset is ingested the system tries to identify it and automatically extracts information contained in the asset itself. If configured system can query external sources for meta-information on the asset. Asset details window is displayed when user double clicks on asset in the main browser window. Depending on the asset type different viewer might be used to display asset preview. Bottom part of asset details panel contains number of tabs that group information on various aspects of the asset.

Common

Common tab displays information that is common between any asset types. It contains name, description, parent project and physical location of the asset. For the physical location $\${parent}$ macro is used to indicate that asset is physically resides under it's parent.

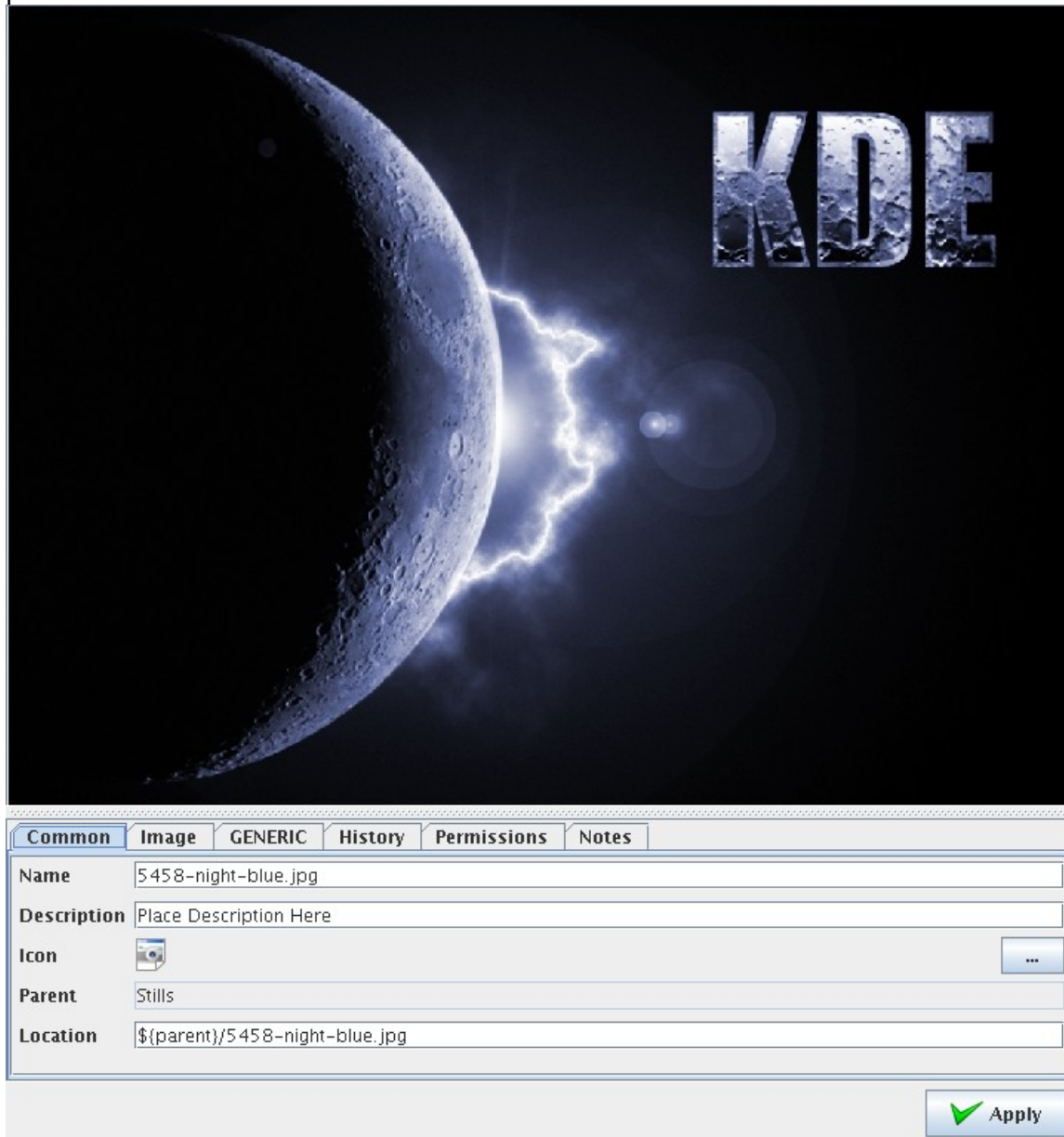


Figure 12

Asset Type Specific

When asset has been identified it is assigned an asset type. Each asset type defines properties (configurable by the system administrator). Identification process will populate values of those properties for the asset. And property-value pairs are displayed in the tab named after the type of the asset. In the picture below it is *Image*. User can edit those properties.

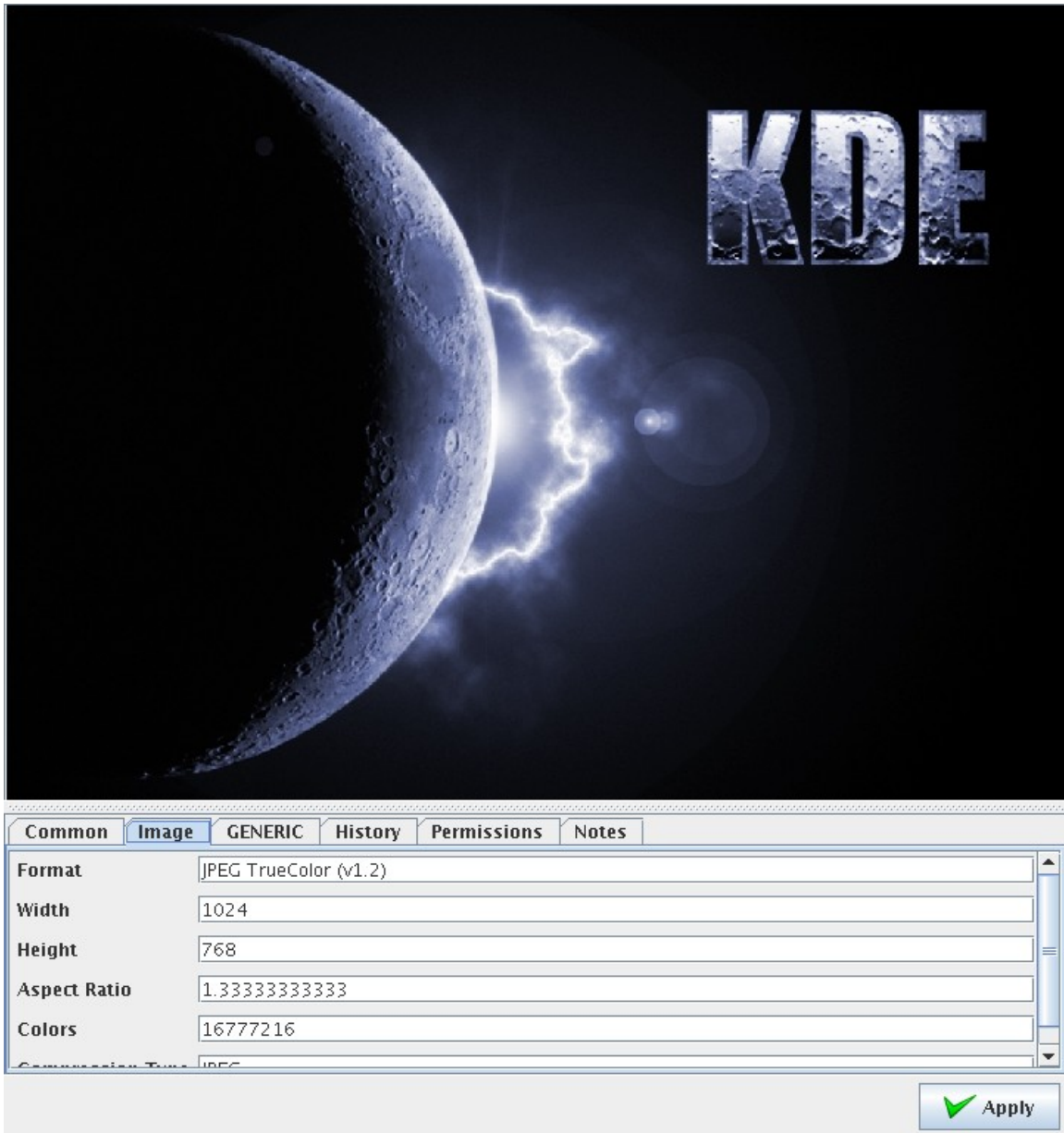


Figure 13

History

Each asset holds history of modifications. Following tab displays this history. This information is read only and updated by the system when asset is saved or modified.



Figure 14

Access Permissions

Permissions are assigned to every asset in the system. Permissions are applied on group bases. Group of users can have READ/CREATE/UPDATE/DELETE permissions to each individual asset.

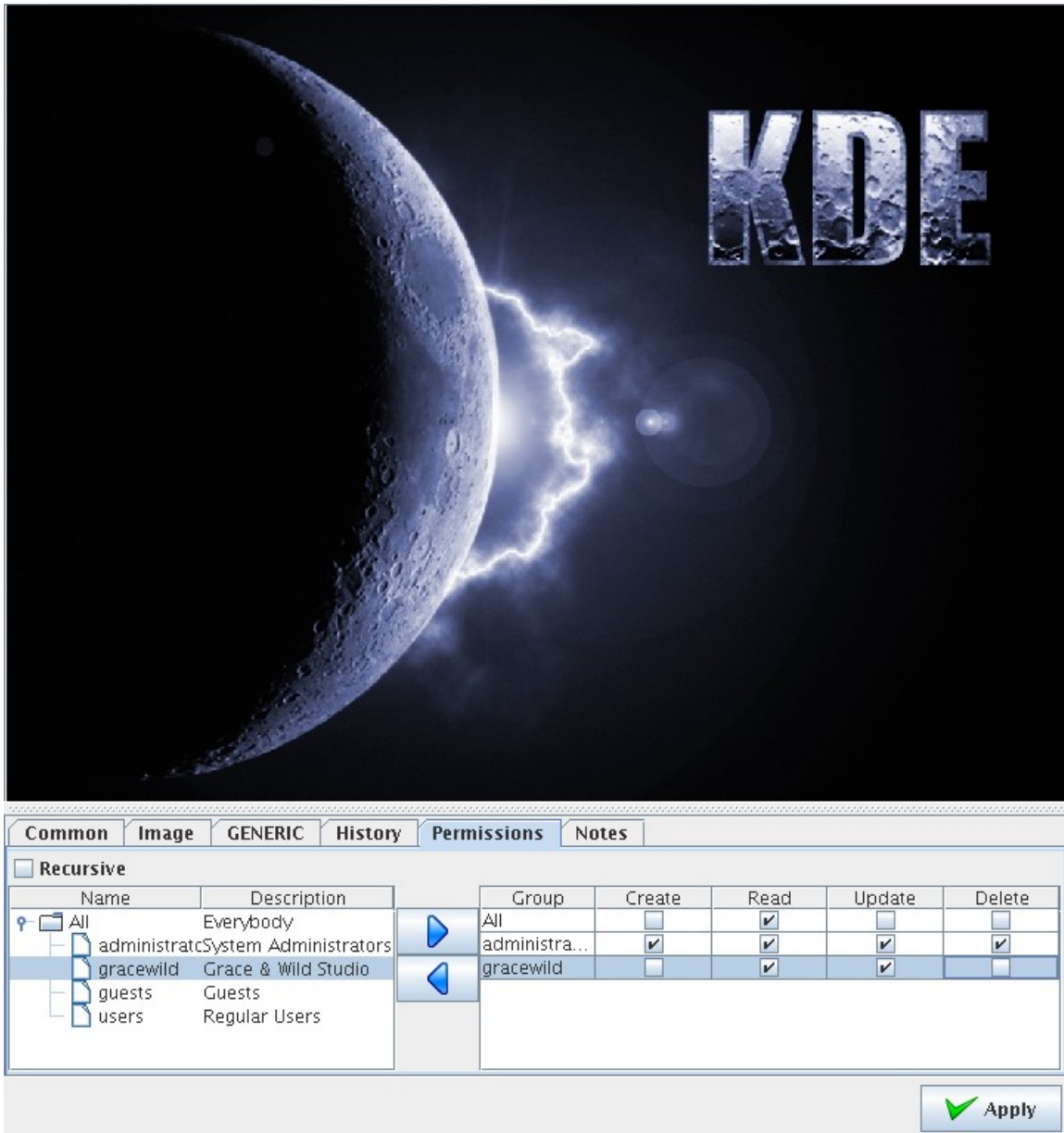


Figure 15

Note Attachments

Messages/Notes could be attached to the asset. Next chapter will elaborate more on the collaborative features of the Deep Freeze.



Figure 16

Message Management

Deep Freeze is intended to be a collaborative tool where people can share not only assets but notes and messages as well. Notes could be generic or attached to specific asset. If note is created in the asset details pane it will be attached to the asset.

Note could be directed to the list of users and/or groups.

Like in asset it is possible to define list of properties to be associated with every note and make user populate those properties. It could be *Time Spent*, *Software Used*, Etc. This information could be used later on in the reports.

It is possible to drag and drop another asset into the attachments area. So the note will have references to other assets that could be mentioned in the message body.

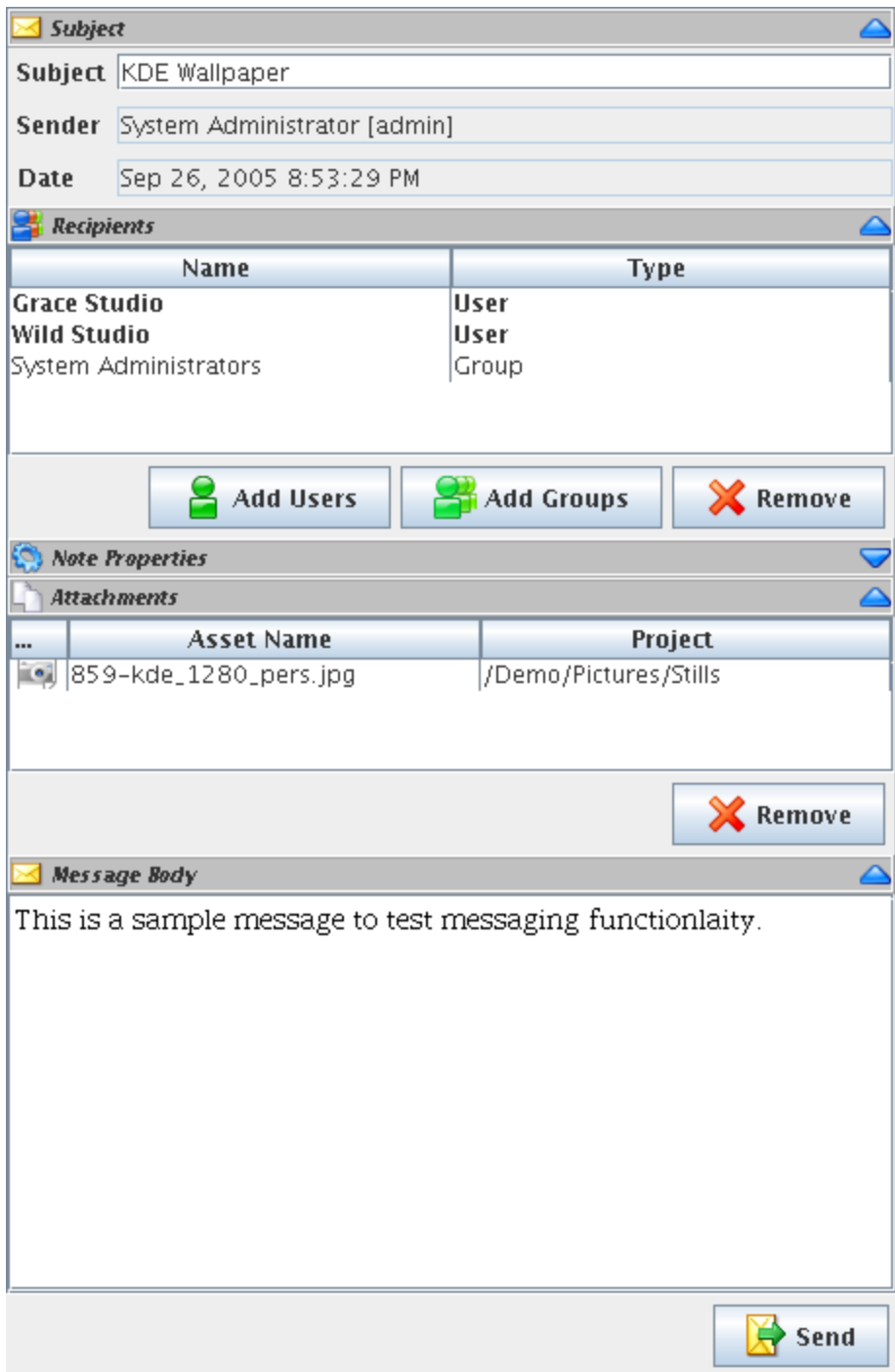


Figure 17

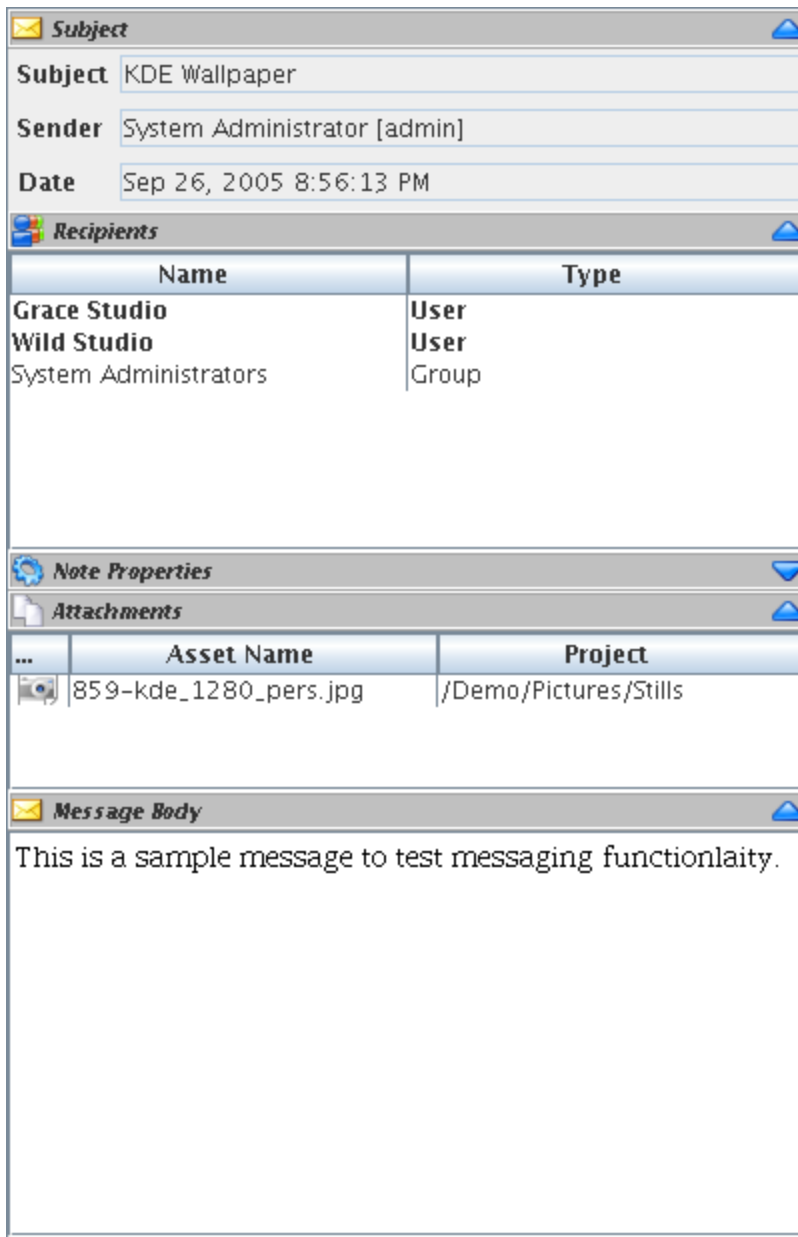


Figure 18

User can view notes through Messaging interface.

| General | | Asset Notes | | | |
|----------------------------|------------------|--------------------------|-----------------------|------------------|-------------------|
| From: 06/24/2005 20:58 ... | | To: 09/27/2005 20:58 ... | | Refresh | |
| ... | Asset | Project | Date | Sender | Subject |
| | 5458-night-bl... | /Demo/Picture... | Sep 26, 2005 8:56 ... | admin (System... | KDE Wallpaper |
| | smurf_final.mb | /Demo/3D | Sep 22, 2005 4:43 ... | admin (System... | Change bg |
| | DSC00768.JPG | /Demo | Sep 18, 2005 7:16 ... | admin (System... | About Blue |
| | DSC00768.JPG | /Demo | Sep 18, 2005 6:41 ... | admin (System... | Bluish color |
| | Demo | / | Sep 17, 2005 1:47 ... | admin (System... | Some variety |
| | 3D | /Demo | Sep 13, 2005 1:10 ... | admin (System... | Screw-up test |
| | 3D | /Demo | Sep 12, 2005 9:47 ... | admin (System... | TECT 3 |
| | 3D | /Demo | Sep 12, 2005 9:42 ... | admin (System... | TECT 2 |
| | 3D | /Demo | Sep 12, 2005 9:38 ... | admin (System... | TECT |
| | 3D | /Demo | Sep 12, 2005 7:11 ... | admin (System... | tart |
| | 3D | /Demo | Sep 11, 2005 11:3... | admin (System... | Yet another no... |
| | 3D | /Demo | Sep 11, 2005 6:51 ... | admin (System... | reply to reply |
| | 3D | /Demo | Sep 11, 2005 6:50 ... | admin (System... | Eply from GUI |
| | 3D | /Demo | Sep 11, 2005 6:47 ... | admin (System... | note from GUI |

Open Note
 Show Asset

Figure 19

Configuration

Deep Freeze is a highly configurable system. User interface is designed to simplify system's configuration and administration.

Groups

Groups are very important in Deep Freeze. All permissions are assigned to groups and not individual users. This will greatly simplify permission management when users are added or removed from the system.

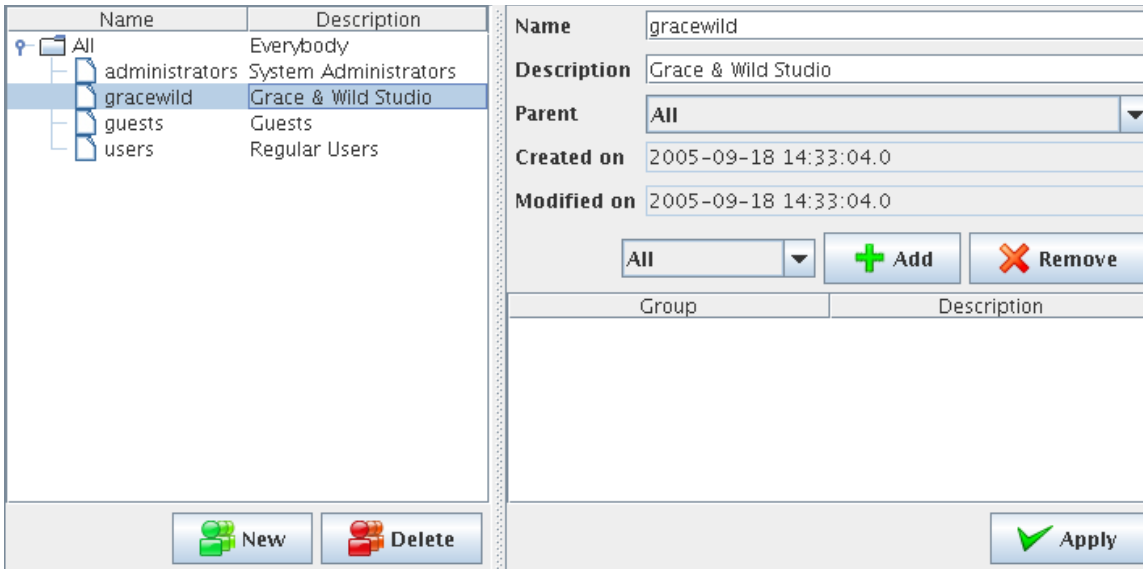


Figure 20

Users

Users are configured via simple to use GUI. Each user must have primary group assigned and can have multiple roles. Note that Administrator role allows user to modify any system configuration.

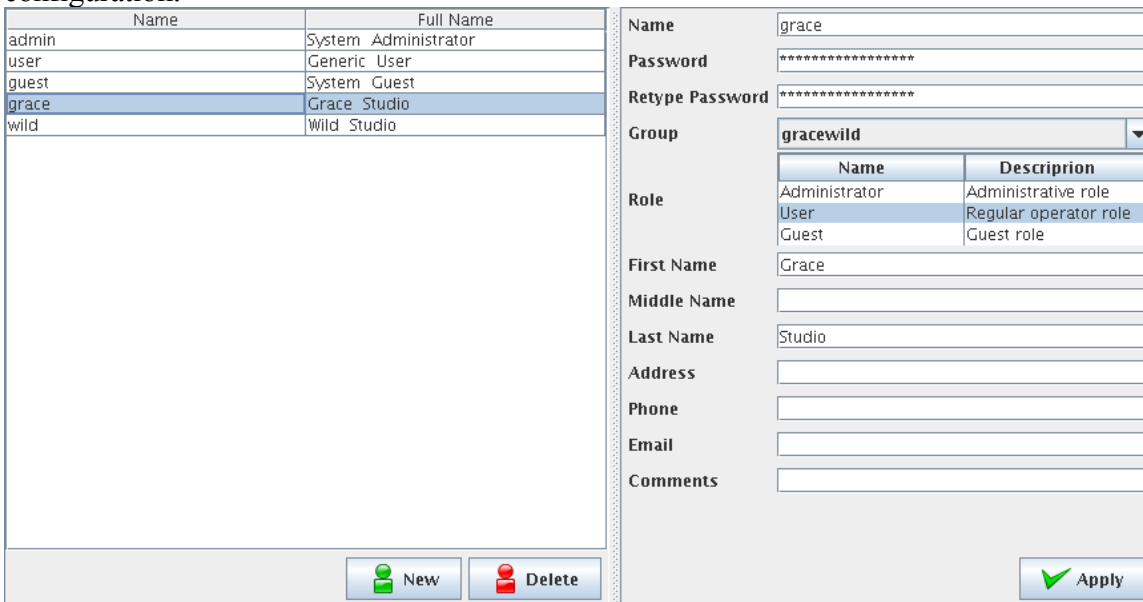


Figure 21

Asset Types

One of the core Deep Freeze concepts is an Asset Type. System has number of predefined asset types. Following screen shows predefined types. System administrator can configure unlimited number of custom asset types. If, for instance, the vendor does not know asset type customer can create a custom type. Identification process will automatically assign proper type to newly ingested assets.

If system has no knowledge of the asset type being ingested it will assign *GENERIC* asset type to it. No preview/proxy will be generated and no metadata will be extracted.

The screenshot shows an asset management interface. On the left is a list of asset types with icons and descriptions. The 'CLIP' type is selected. On the right, the details for the 'CLIP' asset are shown, including its name, description, icon, and parent type. Below this is a table of metadata fields.

| Icon | Name | Description |
|------|----------|-----------------|
| | 3D | Three Dim... |
| | Audio | Audio Asss... |
| | CLIP | Clip Asset ... |
| | GENERIC | Default Ass... |
| | Image | Still Image ... |
| | MS Excel | Microsoft E... |
| | MS Word | Microsoft W... |
| | PDF | Adobe Acr... |
| | PROJECT | Project Ass... |
| | Video | Video Asss... |

| Name | | CLIP | |
|--------------------|-------------|---|-------------------------|
| Description | | Clip Asset Type. DO NOT DELETE!!! | |
| Icon | | | |
| Parent | | GENERIC <i>Default Asset Type. DO NOT DELETE!!!</i> | |
| Up | | Down | |
| Add | | Remove | |
| Add metadata field | | | |
| Name | Label | Type | Description |
| is_broken | Broken | STRING | Sequence contains g... |
| framecount | Frame Count | INTEGER | Number of frames in... |
| timecode | Timecode | STRING | Start timecode |
| framerate | Frame Rate | STRING | Clip frame rate |
| scan_type | Scan Type | STRING | Scan Type: Progressi... |
| sound_track | Sound Track | STRING | Sound track associat... |

Figure 22

Server

The screenshot shows a server configuration interface. On the left is a tree view of the system structure. The 'Deep Freeze' plugin is selected. On the right, the configuration for the 'Deep Freeze' plugin is shown, including its name and a table of tool mappings.

| Name | | Deep Freeze | |
|-------------------|--|-------------|--|
| Add | | Remove | |
| Name | Value | | |
| Tools->qFreeze | com.pixelnation.deepfreeze.plugins.... | | |
| Tools->Stonehenge | com.pixelnation.deepfreeze.plugins.... | | |

Figure 23

Client Repository Mapping

Each client system must be connected to the repository. Various

| <ul style="list-style-type: none"> [-] User [-] System <ul style="list-style-type: none"> [-] Deep Freeze <ul style="list-style-type: none"> [-] Client [-] Common [-] Collaboration [-] Extensions [-] Help [-] Messaging <li style="background-color: #e0e0e0;">[-] Repository [-] Server | <table border="1"> <thead> <tr> <th>Key</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>data</td> <td>file:///DATA/repository</td> </tr> <tr> <td>preview</td> <td>file:///DATA/preview</td> </tr> <tr> <td>proxy</td> <td>file:///DATA/proxy</td> </tr> <tr> <td>trash</td> <td>file:///DATA/Trash</td> </tr> </tbody> </table> | Key | Value | data | file:///DATA/repository | preview | file:///DATA/preview | proxy | file:///DATA/proxy | trash | file:///DATA/Trash |
|--|--|-----|-------|------|-------------------------|---------|----------------------|-------|--------------------|-------|--------------------|
| Key | Value | | | | | | | | | | |
| data | file:///DATA/repository | | | | | | | | | | |
| preview | file:///DATA/preview | | | | | | | | | | |
| proxy | file:///DATA/proxy | | | | | | | | | | |
| trash | file:///DATA/Trash | | | | | | | | | | |

Figure 24

Web Interface

As it was mentioned in the beginning of this document Deep Freeze supports number of interfaces. One of them is web based. It is custom built for individual customers according to their unique requirements.

Following screen shots present an example of such custom interface.

Main Browser

The screenshot shows a web browser interface for the Deep Freeze system. On the left is a navigation tree for a user named 'user (Generic User)'. The tree includes a 'Demo' folder with sub-folders 'Audio', 'Clips', 'Documents', and 'Video'. Below 'Demo' are 'Royalty Free' and 'Graphic Art' folders, and under 'Graphic Art' is a 'Pictures' folder containing sub-folders for 'Africa', 'Animals', 'Auto Race', 'Roses', and 'Space'. The main content area is titled 'Project Info: /Demo/Video' and contains a table with the following data:

| Date | From | Subject |
|---------------------|--------------------|---------|
| ISCI | GMRD-0400 | |
| Title | Sample video clips | |
| Created Date | 2005/01/10 | |
| Producer | Dmitry Gorodnitsky | |
| Job No. | 980897 | |
| Product | Deep Freeze | |
| Production Facility | Pixel Nation Inc. | |

Below the project info, there are three video thumbnails with their respective metadata:


- Thumbnail 1: **Name:** space_history.mov, **Version:** 0, **Description:** Some other SF clip
- Thumbnail 2: **Name:** Star Wars Clean Sequence.avi, **Version:** 0, **Description:** Place Description Here
- Thumbnail 3: A video thumbnail with a large 'DEEP FREEZE' watermark.


At the bottom left, there is a 'Logout' button. At the bottom center, the text 'Pixel Nation Inc' is displayed. At the bottom right, the text 'DEEP FREEZE' is displayed in a large, semi-transparent font.

Figure 25

Asset Details


/Demo/Clips ▲



Download 

General Info ▲

| Asset Info | | Project Info | |
|-------------|--------------------------------|---------------------|--------------------|
| Name | element.000001.vpb | ISCI | GMRD-0398 |
| Description | <u>Place Description Here</u> | Title | Sample clips |
| Project | /Demo/Clips/element.[1-46].vpb | Created Date | 2005/01/19 |
| Version | 0 | Producer | Dmitry Gorodnitsky |
| | | Job No. | 54323455 |
| | | Product | Deep Freeze |
| | | Production Facility | Pixel Nation Inc. |

 Update


Notes ▼


Figure 26

Messaging Interface

Subject ▲
Subject Supported Document Formats

Recipients ▲

 **Users**
admin
campbell
guest
user

 **Groups**
private

Mandatory Properties ▲

| Property | Value |
|-------------|-------------|
| Application | <u>KPDF</u> |
| Time | <u>1</u> |

Message Body ▲

Following document formats supported or could be made available on request

- PDF
- MS Word
- MS Excel
- CSV
- RTF
- XML


 **Send**

Figure 27

Receiving Message

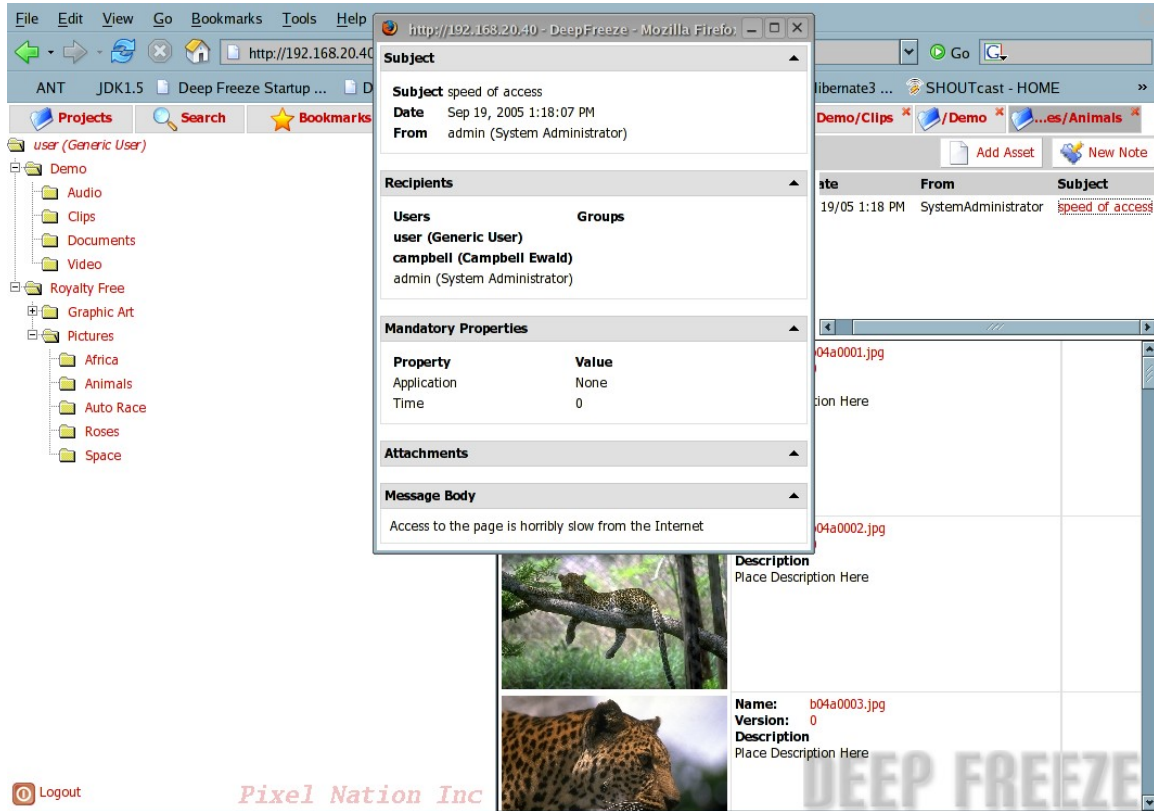


Figure 28