

AsterionDB Inc.

The AsterionDB Digital Bunker - A User's Guide

The AsterionDB Digital Bunker User's Guide

(or...Life Without the Traditional Hierarchical File System)

Title, Copyright Information & Trademark Notices

The AsterionDB Digital Bunker - Installation & User's Guide

Primary Author: Steve Guilford

This work and all derivatives are copyrighted by AsterionDB, Inc. - 2019.

This document is not warranted to be error-free and may be updated and/or enhanced at any time.
Current versions are available on-line.

'The AsterionDB Digital Bunker™', 'DbObscura®' and 'DbStreamer®' are trademarks of AsterionDB Inc.

Oracle® is a trademark of Oracle Corporation

Nginx® is a trademark of Nginx Inc.

PHP® is a copyright of The PHP Group.

All other trademarked terms are the property of their respective owners.

Table of Contents

Title, Copyright Information & Trademark Notices.....	2
1. Acknowledgments.....	5
Parents.....	5
Webb & Tulane.....	5
Glenn Barber.....	5
Friends.....	5
Oracle Corp.....	5
2. Introduction.....	6
What is the AsterionDB SecureObjects Server.....	6
How the AsterionDB SecureObjects Server Came to Be.....	6
I. The Early Days.....	6
II. The Transition.....	6
III. The Pivot.....	7
IV. The Revelation.....	7
V. A Focus, Target Defined.....	8
VI. The AsterionDB SecureObjects Server.....	8
3. Rationale.....	9
A New Paradigm Is Needed.....	9
Eliminate the Traditional Hierarchical File System.....	9
Keywords and Values Identify Assets – No More File Names.....	9
Implement an Architecture That Is More Secure and Reliable.....	10
4. Features.....	11
Modern Single Page Application Web Interface.....	11
Intelligent Keyword/Value Tagging.....	11
Path Parser.....	11
Object Query/Retrieval.....	11
File Based Access.....	11
Built-in Streaming.....	11
Object Versions.....	12
Object Immutability.....	12
Object Sharing.....	12
API Access.....	12
Callable API Client Component.....	12
5. Getting Started.....	13
The Button Bar.....	14
Uploading a File.....	15
Object Properties.....	16
Viewing an Object.....	17
6. Keywords, Keyword Groups & Suggested Values.....	19
Create a Keyword Group.....	19
Create & Associate Keywords with the Group.....	20
Adjust Keyword Value Handling.....	21

Creating Suggested Values.....	23
7. Cataloging Your Objects.....	24
Assigning Keywords.....	24
Setting Keyword Values.....	24
Setting Keywords for Multiple Objects.....	25
8. Retrieving Cataloged Objects.....	26
Selecting a Keyword.....	26
Selecting a Keyword Value.....	27
Adding Another Query Term.....	28
Matching Any or All.....	29
9. The File-System Gateway.....	30
Setting File Name Usability Limits.....	30
Generating a File Name.....	31
Using a Generated File Name.....	31
10. Secure Web Links.....	32
A Secure Web Link Use Case.....	32
Generating a Secure Web Link.....	32
Setting Parameters for a Secure Web Link.....	33
11. Object Sharing.....	34
12. Object Versions.....	35
Transforming an Object.....	35
Version History - New Versions.....	35
File System Gateway Support.....	36
Web Links for Versioned Objects.....	36
13. Streaming History.....	37
14. Gateway History.....	38
15. Deleted Objects.....	38
16. Shared Objects.....	39
Querying Shared Objects.....	39
Working with Shared Objects.....	39
17. Enrolling New Objects in the SecureObjects Server.....	41
18. Parsing Source Paths.....	43
19. Managing Your User Profile.....	47
Managing Your User Info.....	47
Changing Your Email Address.....	47
Changing Your Password.....	48
Setting Your Preferences.....	49
Viewing Your Login History.....	50
Streaming History.....	50
20. SecureObjects Server Tutorials.....	52
Insurance Claim Application.....	52

1. Acknowledgments

Parents

Where would I be without the support and inspiration of my parents. From my father, a Harvard trained lawyer that would have rather spent all of his free time flying old WWII fighters and Korean Era Jets than practicing law. To my mother who was an early trailblazer, business owner and real estate developer before it was fashionable for women to do so.

Webb & Tulane

Fortunately for me, I got a first-class education in life and scholastic curriculum at The Webb School of California. Truly one of the most significant events and periods in my life. I graduated in 1980.

Two years at Tulane University proved to be enough for me. After my sophomore year and two semesters of computer programming, I knew what I wanted to do. Coincidentally, I stopped playing with model airplanes around the same time I started playing with computers.

Glenn Barber

After Tulane, I spent two weeks at a computer software firm in Sherman Oaks, California, teaching myself Cobol on a Wang-VS. The head of the firm saw me hanging out and figured he'd give me something useful to do. I've never really gone for a job interview. I wouldn't be where I'm at today if not for Glenn.

Friends

All of my friends that I've collected over the years: you've all meant so much.

Oracle Corp.

What more can I say other than the fact that Larry Ellison and Co. have built the best platform for this kind of innovation.

2. Introduction

What is the AsterionDB Digital Bunker

The AsterionDB Digital Bunker is an integrated set of applications and framework components that enable a relational database to effectively store, work with and serve unstructured data. This removes one of the most troublesome and persistent limitations of the traditional relational database - managing unstructured data.

What we can effectively now do is move all of your data files out of directories and into the database. By doing so we eliminate the reliance on static file names. But, how do you find your data? We provide mechanisms that allow you to keyword tag your 'objects' and search based on how you've created your keyword/value pairs. Now that these files have been moved out of the directories and we've abandoned the static file names, they become 'objects'!

So, now that your objects are in the database and there are no more files in your directories, you have effectively eliminated the mechanisms that hackers, viruses and ransom ware rely upon. If there are no files in your directories how does a hacker steal your data? How does ransom ware propagate and infect files?

How the AsterionDB Digital Bunker Came to Be

I. The Early Days

Back in the days of floppy disks and 80Mb. hard drives (1992), a company called MingleWood Data Systems created and sold an IVR/ACD application – SQL*VOX. SQL*VOX was tightly integrated into the Oracle Database and made it extremely simple to write interactive voice response applications that interacted directly with data in the database.

SQL*VOX found a home at a number of companies and ran 24 hours a day, 7 days a week in a server environment. MingleWood Data Systems held support contracts with major companies for, in some instances, a decade or more.

II. The Transition

By 2007 SQL*VOX had become a legacy application. However, after entertaining a 'simple' modification request from a customer, a key discovery was made that ultimately led to the complete redesign of SQL*VOX. The thing that stood out was the ability to directly control the voice boards that talk on the phone from PL/SQL.

This was a key innovation because it then allowed all of the application logic that would otherwise exist in the middle tier to move to the data layer. In effect, we had made the database smarter by allowing it to do things it previously was precluded from doing.

But, it didn't help. The realization soon set in after all that work that even with an innovative architecture the ship had sailed on IVR/ACD systems.

III. The Pivot

Taking what was innovated from the modifications to SQL*VOX, a new product, the Database Plugin Server was created in 2011. With a new focus and direction Minglewood Data Systems morphed into a new company called Database Plugins.

The Database Plugin Server allows programmers to extend the logical capability of databases by plugging external foreign logic into the DB. This led to integrating an open source software package called FFMpeg, the Swiss Army Knife of multimedia toolkits, into the DB. Doing so gave the database the ability to recognize pretty much every multimedia format under the sun. Things like audio, video, images and even computer/video-game specific media formats were now easily recognized and understood by the DB.

This next led to storing the media data in the database - something we were already familiar with from our experience storing voice data for IVR applications. But now we're storing things like images, audio, video and so forth. Looking around for a web server that could stream directly from the database we were initially disappointed but eventually pleased to find that there were no web servers that provided the desired capabilities. So, another new product was born - DbStreamer - a software component that just streams content from the database over an HTTP/S connection. What good is it to store your videos in the database if you can't stream them out directly? Problem solved.

Great!!! We've got media in the database and a way to stream it out to a web page. What's next? Well, one of the things people do with media is trans-code and convert it from one format to another. That's when the big discovery took place. You see, it seems silly to export the data from the database, shove it through the converter, take the output and put it into the database and then clean up all of our file system artifacts. This, naturally, led to the creation of a file system gateway, DbObscura, that allows us to generate a file name on the fly for the object in the database. Generate a file name for input and a file name for output and just like magic we can make the converter read and write to and from the database without it even knowing the difference!

IV. The Revelation

Wow...so now we can store our media files in the database and work with them as if they were files on an as-needed basis. That sure seemed neat. If that was not enough we soon realized that if there are no

more files in your directories, how does a hacker steal information from the file system? How does a computer virus or ransomware carry out attacks and propagate? Seems as though they are now out of luck.

With this revelation Database Plugins, which was once Minglewood Data Systems, morphed again into AsterionDB - what we are today.

Certainly, even though one realizes that they could eliminate the traditional file system, that's a long way from actually doing so. When you think about it, it's a tall order to replace a pillar of computer science. To that end, a significant amount of time was spent exploring the limits of this technology. An open-source video editor was modified to work within this new paradigm and other exploratory projects were pursued.

V. A Focus, Target Defined

By 2016, AsterionDB started to pivot to producing a commercially viable product, based on the underlying streaming, plugin and obscure gateway technologies, that replaces the file system. In late 2016 a proof of concept system was running and the Oracle Cloud was becoming a more viable option for deployment.

Also of significance was the release of the 'React' libraries and adoption of Single Page Application technologies. These innovations allowed JavaScript programmers to create web applications that looked and felt much like a native desktop application.

In 2017 the Oracle Cloud Infrastructure (OCI) became a viable, capable platform. With a minimum of effort AsterionDB was able to verify product compatibility and support upon the OCI. We have been streaming content and supporting unstructured data within the database on the OCI since the summer of 2017.

VI. The AsterionDB Digital Bunker

The AsterionDB Digital Bunker was released for public availability in early 2019.

The Digital Bunker provides a comprehensive environment that allows users and applications to manage and integrate unstructured data directly within a database.

3. Rationale

A New Paradigm Is Needed

Have you ever stopped to consider that the technology that was invented back in the 60's to manage a half-megabyte of data on a floppy is still in use today, storing peta-bytes of information in the cloud? Yes, the traditional file system is the ultimate legacy technology.

But, here's the rub. Everybody knows how to interface to the traditional file system. When I say everybody, that includes your favorite virus and ransom ware. The file system forces us to conform to how it wants to store information. This ubiquity and prevalence has a direct bearing on many of the cyber-security incidents we hear of on a nearly daily basis.

Eliminate the Traditional Hierarchical File System

How can we eliminate the file system? There's a tremendous amount of infrastructure that has been built up to take advantage of the file system. Some how, we've got to find a way to take all of those existing applications and workflows and integrate them into a new paradigm. When you think about it, it's a very find needle one has to thread in order to bring about a paradigm shift such as this.

The AsterionDB Digital Bunker is the first product implemented that breaks away from the traditional file system! It does not rely upon the file system for any static storage of information. All of our data is in one place - the Oracle Database.

Now, since we don't have file names anymore, we can use file names on a dynamic, as needed basis. Together with the DbObscura File System Gateway technology, we can generate a file name on the fly, feed it to a program and go on with our lives.

Keywords and Values Identify Assets – No More File Names

I hear what you are saying, if we have no more file names, how do I find my assets. Well, if you think about it, your file name, with all of those directories and sub-directories is nothing more than a set of keyword/value pairs. You probably have a directory for client, project, etc. You can take that model and create keyword/value pairs that are used to tag and identify your assets. The Digital Bunker provides mechanisms that allow you to tag your assets. Query and searching facilities are also provided.

Implement an Architecture That Is More Secure and Reliable

So, now that we don't have a file system anymore, we can implement cohesive, simple, secure and resilient systems.

4. Features

Modern Single Page Application Web Interface

The AsterionDB Digital Bunker features a modern, Single Page Application style web app that provides desktop like functionality from within a browser. The features of this web app are available with all major browsers and platforms.

Intelligent Keyword/Value Tagging

Groups of keywords can be created. These groups of keywords can be global in nature, applying to all object types, or specific to a particular type of object.

Keyword values can be drawn from a static list, suggested from a dynamic list or entered in without consideration given to previous values.

Path Parser

Keywords can be derived from existing file path specifications by using the integrated path-parser functionality. This allows you to associate a specific path element (i.e. sub-directory) as a keyword/value pair. Using this feature allows you to quickly and easily capture the meta-data that you have already expressed in your existing files names and directory structures.

Object Query/Retrieval

The web application provides a mechanism that allows you to query for objects based on the assigned keyword and values. Column filtering is enabled allowing a further refinement of returned objects. Column sorting provides the means to quickly focus your returned sets on the most relevant objects.

File Based Access

The integrated services of the DbObscura File System Gateway allows applications to access objects in the database as if they were a file. Unlike other object storage systems, the Digital Bunker allows you to work directly with the data without the clumsy overhead of downloading and uploading content from the object store.

Built-in Streaming

The integrated services of the DbStreamer Streaming Component allows for the seamless streaming of content from the database. Content streaming covers a lot more than simply viewing videos and

images. Any object, when downloaded for example, can be streamed. Features are built in that allow you to generate web links that stream or download content as appropriate.

Object Versions

The Digital Bunker can track object versions. This feature allows you, for instance, to generate one link that will always return the most recent version of the object. In addition, the system automatically generates a new version of an object when it is accessed as a file for modification.

Object Immutability

Objects can be marked as immutable. This prevents any changes to content or associated meta-data.

Object Sharing

For those installations of the Digital Bunker that are restricted to a particular domain, objects can be shared among all registered users of the Object Vault.

API Access

The AsterionDB Digital Bunker provides a callable REST based API making it easy to integrate into existing applications.

Callable API Client Component

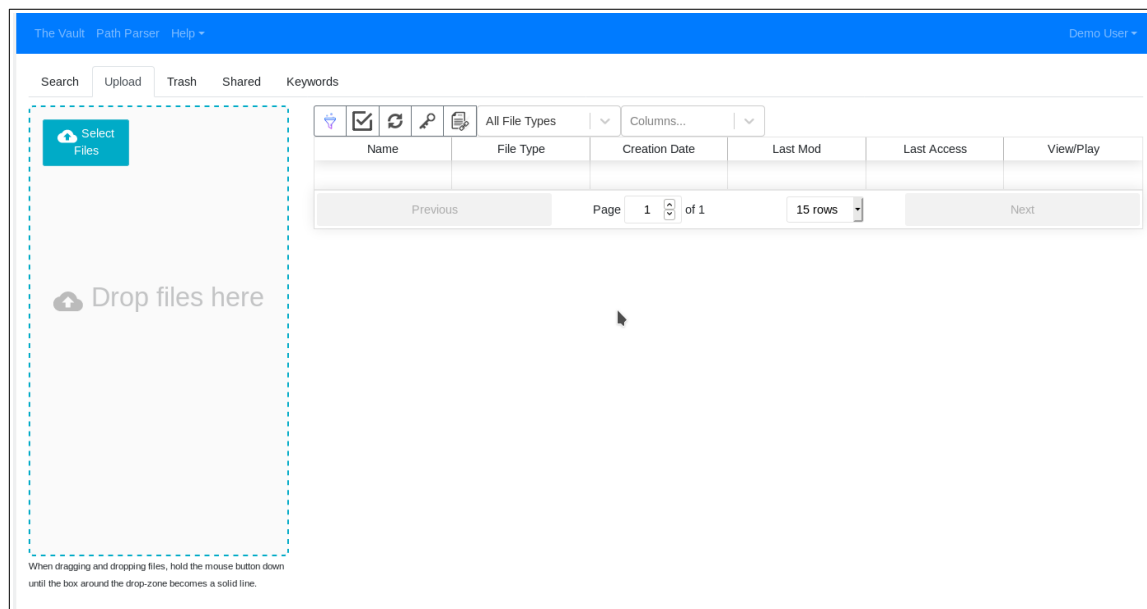
A callable client component that interfaces with the REST based API is also provided. This makes it a snap to integrate the API into non HTTP aware applications.

5. Getting Started

Most of your interaction with the Digital Bunker will take place in the main Vault screen/page. This page allows you to search, view and share objects and maintain your groups of keywords. The main Vault screen uses a tabbed interface to minimize the amount of page switching and reduce screen clutter. There are tabs for:

- **Search** - You can search for objects that you have tagged with keyword/value pairs from this tab
- **Upload** - You can upload new objects into the Digital Bunker on this tab. Objects stay on this tab until you assign one or more keyword/value pairs. Once you have assigned some keyword/value pairs the objects can be found on the 'Search' tab.
- **Trash** - Restore or purge objects from this tab.
- **Shared** - If object sharing has been enabled you will be able to access objects that have been shared with you from this tab. This tab only appears if object sharing has been enabled.
- **Keywords** - You can maintain your keyword groups from this tab. Keyword groups give you the ability to easily catalog and group related objects together.

This chapter is presented to you as if you were a new user looking to upload, catalog and work with your content. Here's an example of what the upload tab will look like when you access the system for the first time:



The Button Bar

A button bar is presented at the top of the area that displays the objects in the Digital Bunker:



The buttons in the button bar, from left to right, are:

Filter Button

This button will open up filter fields below the column headers. You use these fields to filter returned rows for a specific value.

Toggle Select

This button will toggle the rows that have been selected. You can use this button to perform a 'Select All' operation as well. To do so, start by having no rows selected - use Control-Click to de-select a row if necessary - and then press the Toggle Select button.

Refresh

This will refresh the display of objects returned from the Digital Bunker. You will use this button to manually fetch records from the Digital Bunker when you are working with large data sets and have the auto-query feature turned off.

Enable/Disable Object Vault Gateway

This button will only appear if you have 'Enable Gateway Elements' checked in your user preferences.

Use this button to enable or disable the Object Vault Gateway. The Object Vault Gateway is a feature that requires the installation and use of the DbObscura File System Gateway. If DbObscura is not running, this button will have no effect.

Assigned Keywords

This button allows you to access the keywords assigned to the objects you have selected. You can use this button to associate keywords with multiple objects in one operation.

Secure Web Link

Pressing this button will allow you to access the Secure Web Link screen where you can generate a secure web link for the selected row. Note that this button is disabled if you have selected more than one row.

Enroll Content

This button will only appear if you have 'Enable Gateway Elements' checked in your user preferences.

This button will bring up the Enroll Content screen. Using this screen you can generate a file name that can be used to create a new object in the Digital Bunker. This file name can be handed off to a program or used at the command line.

File Types

This drop-down button will allow you to limit the returned objects to the selected file-types.

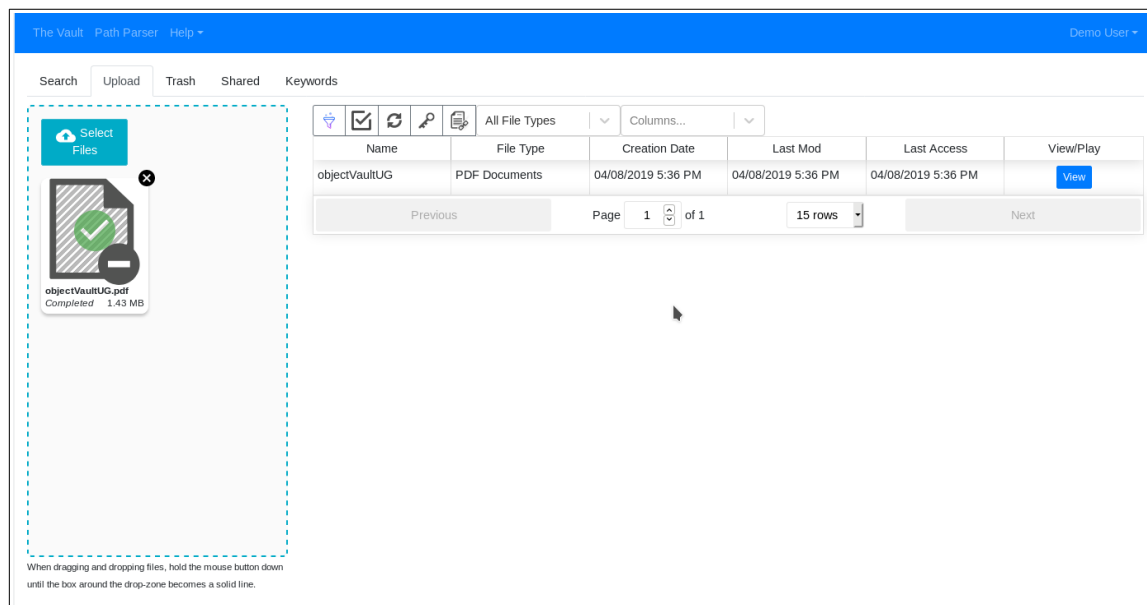
Column Selector

This drop-down button allows you to select/de-select the columns that are shown.

Uploading a File

The Upload tab is where you ingest new content into the database. A file-upload widget is available on the left side of the page. You can drag-and-drop content into the drop-zone or press the 'Select Files' button to upload files. You can ingest multiple files and files of differing types in one transaction.

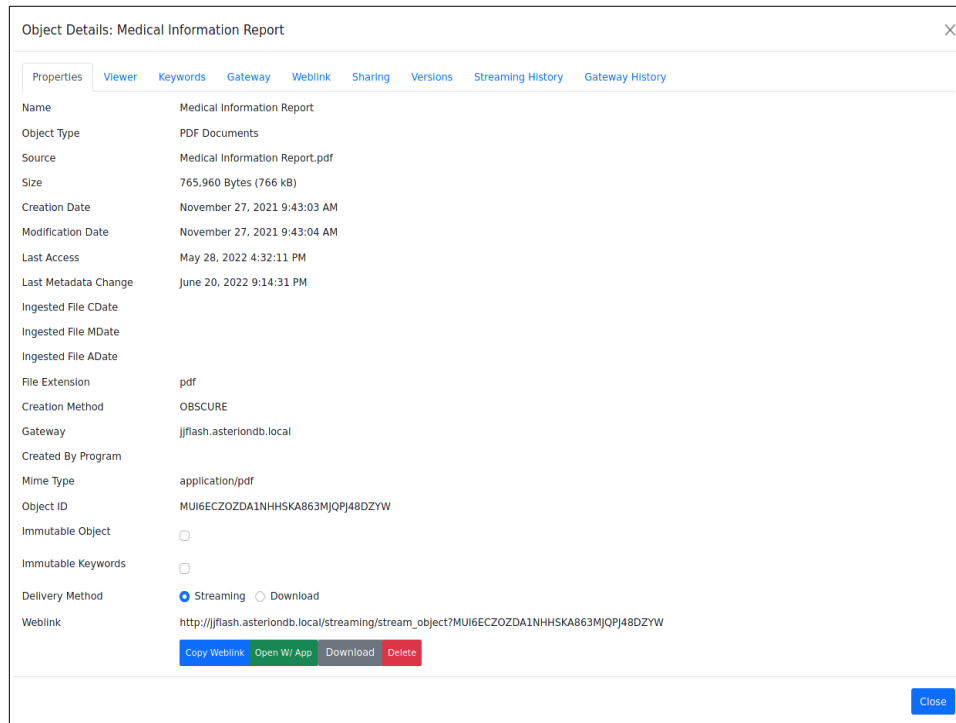
When files are ingested into the Digital Bunker, the system examines the file-type, as defined by the file-extension, and will reject any file-types that have not been enabled by the Digital Bunker Administrator.



Object Properties

By double-clicking on the row, or using the right-click context menu, you can access the object's properties. The properties are presented using a modal, tabbed display. The tabs allow you to access the object's details, a viewer, keywords, gateway and web link functions, sharing, versions and streaming history.

Here's an example of the object's details. On this tab you have access to a static link for the object. This link can be generated for streaming (if the object is playable media) or for download (e.g. archive objects).



You can also toggle the Immutability Flag - which prevents any and all changes to the object. Immutable objects can not be deleted or altered in any way - keywords and values included. Changes to versioned objects is also disallowed.

Buttons to delete the object and download the object directly are also provided.

You will notice that there are no values provided for 'Ingested File CDate/MDate/ADate'. These values can not be populated from web-ingested content. These values represent the original file's status change date, modification date, and last access date (respectively) and are only available for content ingested through the DbObscura File System Gateway.

Viewing an Object

An integrated object viewer is available on the 'Viewer' tab. Note that support for viewing an object is determined by the browser and underlying operating system capabilities. You will find variance among browsers and operating systems in their support for multimedia formats. That said, the most popular and prevalent formats are typically supported across the board. It's the more esoteric formats that may be lacking in support. Currently the following object types are supported by the Object Viewer:

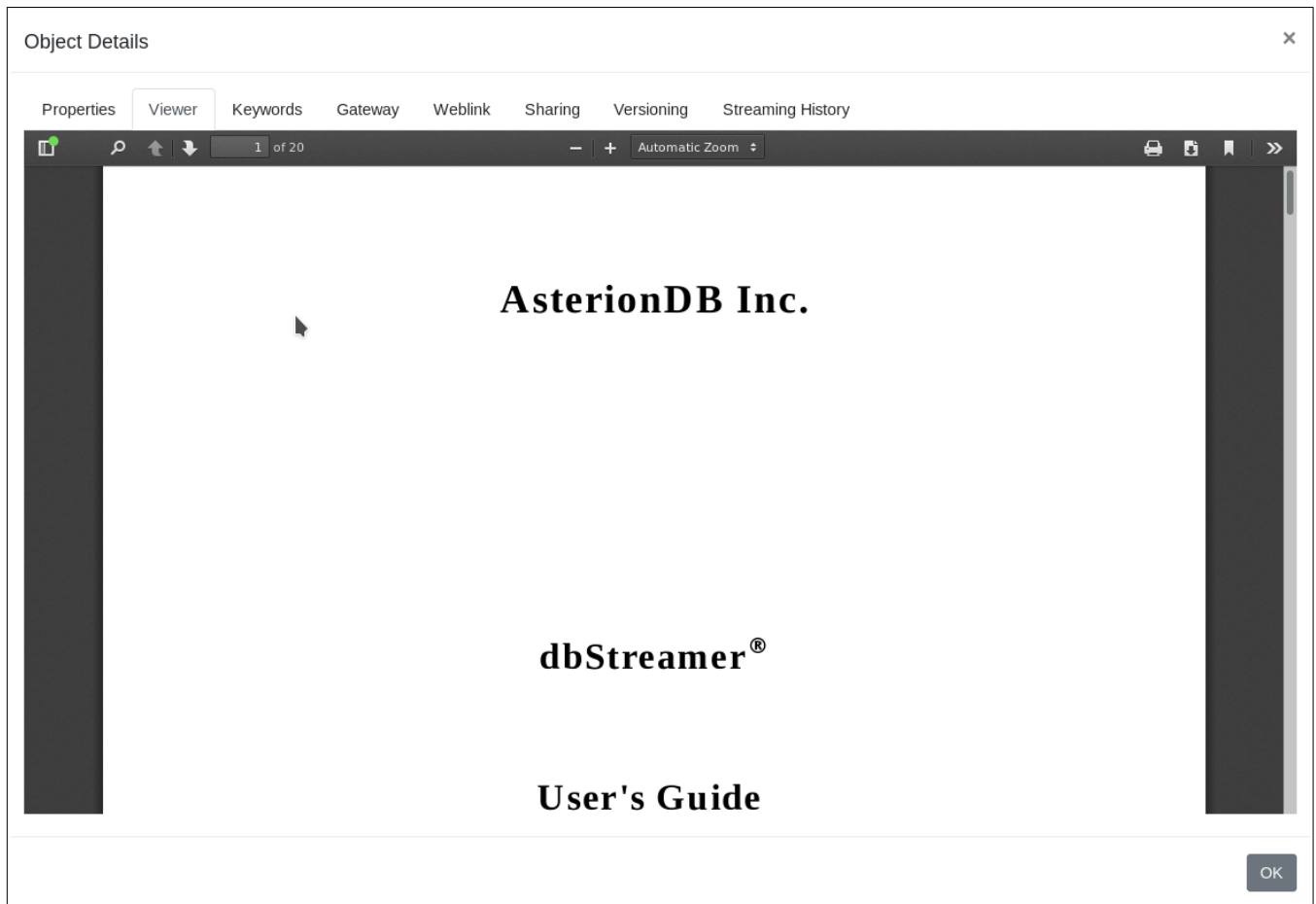
- Audio
- Video
- Images

AsterionDB Inc.

The AsterionDB Digital Bunker - A User's Guide

- PDFs
- Text files

Here's a PDF:



6. Keywords, Keyword Groups & Suggested Values

Now that you have content in the Digital Bunker you need a way to catalog, tag, query and retrieve your objects. The Digital Bunker provides a mechanism that allows you to qualify and tag your objects with keywords and values.

If you think of it, your directory path is nothing more than a series of keyword and value pairs. Consider the following:

```
/softwareProjects/objVault/testData/masterRosterList.odt
```

You could just as easily say that the object is qualified by these properties:

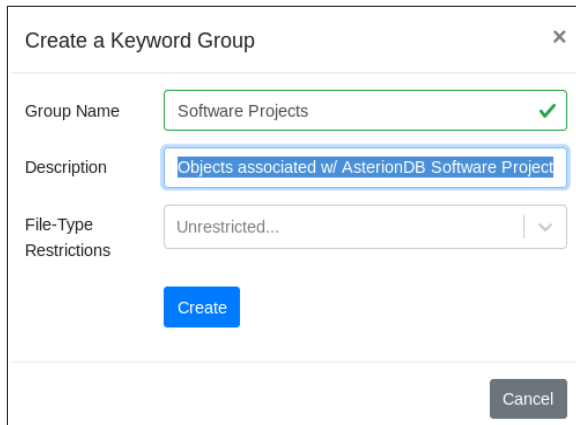
- It's part of the Digital Bunker Project.
- The type of content is test data that is utilized by the Digital Bunker Project.
- The object contains a Master Roster List.

Considering things this way leads us to envisioning a group of keywords that all relate to the Digital Bunker Project.

The screenshot displays the 'Keywords' management interface. On the left, the 'Keyword Groups' sidebar lists two groups: 'Software Projects' (description: 'Objects associated w/ As...') and 'Contents'. The main panel shows a table of keywords. The 'Contents' keyword is selected, revealing its configuration: 'Value Type' is 'character', 'User Input Handling' is 'Dynamic Suggestion List' (selected), and there is a 'Suggested Values' button. The bottom of the interface includes pagination controls showing 'Page 1 of 1' and '20 rows'.

Create a Keyword Group

To create a keyword group such as this press the New button (to the left of the page) to enter the appropriate information. Note that keyword groups can be restricted to a specific file-types but in this instance we are going to have all sorts of associated objects so we'll leave the keyword group unrestricted.



Create a Keyword Group

Group Name: Software Projects ✓

Description: Objects associated w/ AsterionDB Software Project

File-Type Restrictions: Unrestricted...

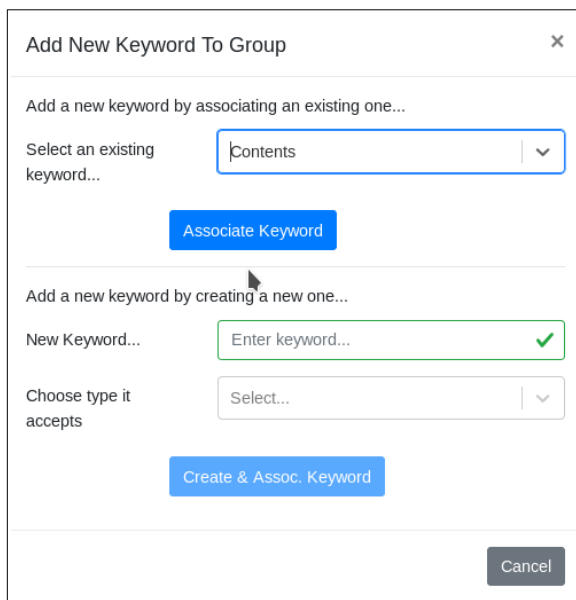
Create

Cancel

Create & Associate Keywords with the Group

With the group created, select it on the left hand side and then press the New button to create a new keyword. The first keyword we will create is for the 'contents' of the file.

Keywords can be used in more than one keyword group. You can easily imagine how the keyword 'contents' could apply for objects that are associated with your software projects as well as objects that are part of another group. To support this functionality you can either create a new keyword or associate an already existing keyword. The 'contents' keyword is rather common so you'll probably find it in your list of existing keywords.



Add New Keyword To Group

Add a new keyword by associating an existing one...

Select an existing keyword...: contents

Associate Keyword

Add a new keyword by creating a new one...

New Keyword...: Enter keyword... ✓

Choose type it accepts: Select...

Create & Assoc. Keyword

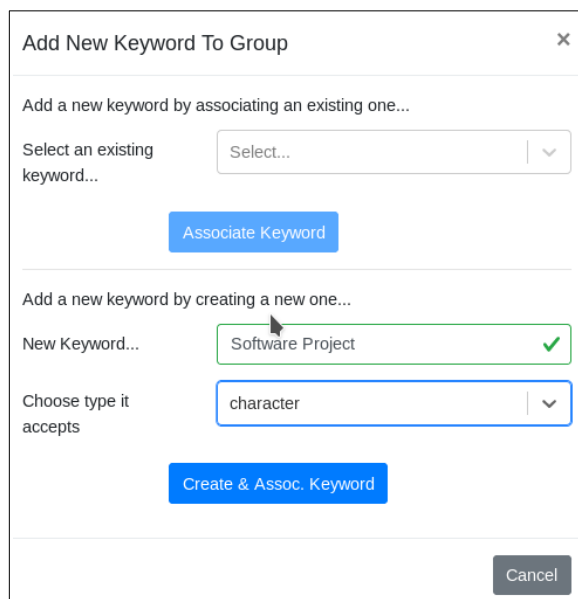
Cancel

We also need a keyword to track the software project. There probably is not a keyword for this already so we'll go ahead and create one. Keywords values can be of the following types:

- boolean

- character string
- date
- date and time
- floating point
- integer
- negative floating point
- negative integer
- positive floating point
- positive integer
- time
- yes or no

This example shows how we are creating a keyword for 'Software Project' and it will accept character string values.



Add New Keyword To Group

Add a new keyword by associating an existing one...

Select an existing keyword...

Associate Keyword

Add a new keyword by creating a new one...

New Keyword... ✓

Choose type it accepts

Create & Assoc. Keyword

Cancel

Adjust Keyword Value Handling

With an additional keyword created for 'Content Type' we'll have a set of keywords assigned to our 'Software Projects' keyword group that looks like this:

New				
Keyword	Value Type	User Input Handling	Suggested Values	Delete Keyword
Content Type	character	<input checked="" type="radio"/> Dynamic Suggestion List <input type="radio"/> Static Suggestion List <input type="radio"/> No Suggestions		Delete
Contents	character	<input checked="" type="radio"/> Dynamic Suggestion List <input type="radio"/> Static Suggestion List <input type="radio"/> No Suggestions		Delete
Software Project	character	<input checked="" type="radio"/> Dynamic Suggestion List <input type="radio"/> Static Suggestion List <input type="radio"/> No Suggestions		Delete
Previous Page 1 of 1 20 rows Next				

We can now adjust how the system will accept values for these keywords. There are three ways that keyword values can be handled:

1. Offer a static list of values
2. Offer a dynamic list of values to which you can add new values to on-the-fly
3. Offer no suggestions

We can use this handling to our advantage when it comes to structuring how objects get tagged. In this example, we have a set of software projects that we're working on (e.g. a static list) and limited set of content types (e.g. test data, scripts, etc.). The 'content' of course is probably all over the map as far as values goes so we'll want to allow the users to pick from a dynamic set of suggested values.

'No Suggestions' is useful for things like serial numbers where the value is not known in advance and it is not likely to repeat.

We will toggle the radio buttons to set the input handling for 'Content Type' and 'Software Project' and have a screen that appears like this:

Cataloged Uncataloged Deleted Shared Keywords

Keyword Groups - Select one to see the keywords displayed to the right.

New Edit Refresh

Keyword Group	Description
Software Projects	Objects associated w/ As...

New

Keyword	Value Type	User Input Handling	Suggested Values	Delete Keyword
Content Type	character	<input type="radio"/> Dynamic Suggestion List <input checked="" type="radio"/> Static Suggestion List <input type="radio"/> No Suggestions	Suggested Values	Delete
Contents	character	<input checked="" type="radio"/> Dynamic Suggestion List <input type="radio"/> Static Suggestion List <input type="radio"/> No Suggestions		Delete
Software Project	character	<input type="radio"/> Dynamic Suggestion List <input checked="" type="radio"/> Static Suggestion List <input type="radio"/> No Suggestions	Suggested Values	Delete

Previous Page 1 of 1 20 rows Next

Creating Suggested Values

Pressing the 'Suggested Values' button will bring us to a modal where we can build our list of suggested values. Here's an example:

Suggested Keyword Values
For "Software Project" in Group "Software Projects"

New Suggested Value...

SecureObject Vault

Add value

Keyword Value	
DbObscura	Delete
DbPluginServer	Delete
DbStreamer	Delete

OK

It is important to note that deleting a suggested value will not remove that value from any objects to which it has been associated to. To do so, you will need to query the Digital Bunker for that keyword/value pair and change or remove the association.

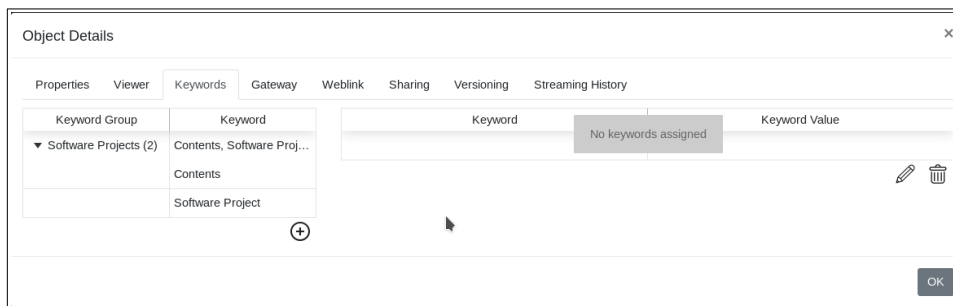
7. Cataloging Your Objects

As we've discussed, tagging your objects with keyword/value pairs allows you to query and retrieve your objects from the Digital Bunker. We have two types of objects (deleted objects notwithstanding) - cataloged and uncataloged/uploaded objects. By associating keywords and values with an object its status transitions from uncataloged/uploaded to cataloged. You will notice that objects 'move' off of the Upload tab after you have associated keywords and values with them.

Assigning Keywords

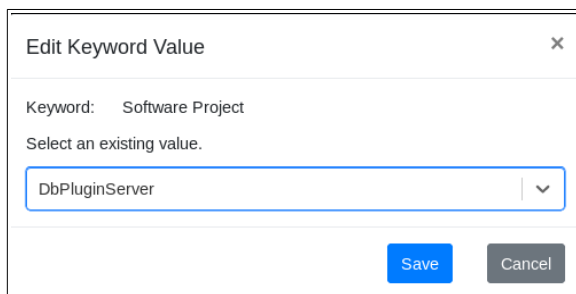
Returning to the Upload tab on the Digital Bunker screen, we can double-click on our object to access the Objects Details Modal. Navigating to the Keywords tab allows us to associate keywords and values with our object.

On the left-hand side you will see all of your keyword groups. You have to expand the keyword group in order to see the individual keywords.

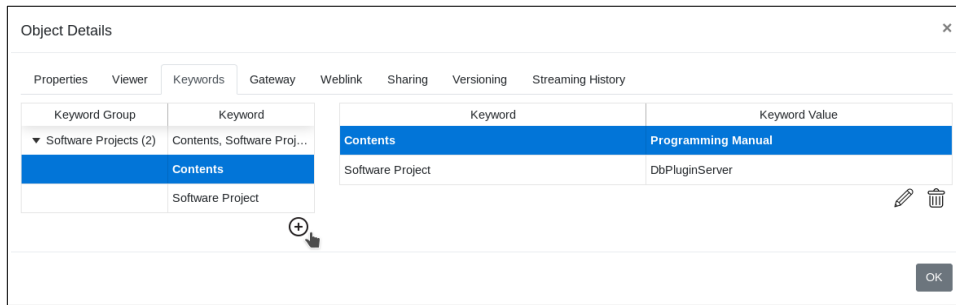


Setting Keyword Values

Double clicking on the keyword will allow you to associate the keyword with the object and set the keyword value. In this case we will select the Software Project keyword and an existing value to be associated with our object.



Here's what the modal screen will look like after a couple of keywords and values have been set.



It is worthwhile to note that unlike the traditional file system, objects do not necessarily have to be tagged with a unique set of keywords and values. What this means in practical terms is that you can tag your objects to one degree at first and then expand upon those associations at a later time.

You can edit the keyword value by double-clicking on the row or by hitting the 'edit' button. You can also remove a keyword/value association by pressing the 'delete' button.

Setting Keywords for Multiple Objects

You can associate keyword/value pairs with more than one object at a time. To do so, select the desired objects and press the Keywords button (see the section on the button bar). When working with multiple objects the keyword/value pairs shown are only the ones that are in common among all of the selected objects.

8. Retrieving Cataloged Objects

Now that we have associated some keywords and values with a few objects in the Digital Bunker we can search among the cataloged objects for the items we want. Remember, once an object has been associated with some keywords, it becomes a cataloged object and you will find it on the Search tab. Navigating to the Search tab you will see a Query Builder on the left-hand side of the page.

Initially, the Query Builder has fields that allow you to select the keyword, a keyword value and an operator value (i.e. equal, not-equal).

The screenshot displays the AsterionDB Search interface. At the top, there is a navigation bar with links: The Vault, Path Parser, Admin, and Help. The user's name, Steve Guilford, is in the top right corner. Below the navigation bar, there is a search bar with a dropdown menu labeled "Select a keyword...". To the right of the search bar, there are buttons for Upload, Trash, Shared, and Keywords. Below the search bar, there is a table of cataloged objects. The table has columns: Name, Object Type, Creation Date, Keyword List, Versioned Obj., and View/Play. The table contains 17 rows of data. The first row is "speedo" with Object Type "Image Files", Creation Date "12/04/2021 9:21 P", Keyword List "Subject: Random Stuff", Versioned Obj. "Y", and a View/Play button. The second row is "Medical Informatio" with Object Type "PDF Documents", Creation Date "11/27/2021 9:43 A", Keyword List "Subject: Random Stuff", Versioned Obj. "Y", and a View/Play button. The third row is "278370748_13826" with Object Type "Image Files", Creation Date "06/09/2022 3:06 P", Keyword List "Container Type: image2 sequence, Height: 0, Width: 0, Image Codec: mjpeg", Versioned Obj. "Y", and a View/Play button. The fourth row is "vincentVanGogh_2" with Object Type "Image Files", Creation Date "06/20/2022 9:07 P", Keyword List "Subject: React Demo", Versioned Obj. "N", and a View/Play button. The fifth row is "vincentVanGogh_1" with Object Type "Image Files", Creation Date "06/20/2022 9:06 P", Keyword List "Subject: React Demo", Versioned Obj. "N", and a View/Play button. The sixth row is "vanGogh" with Object Type "PDF Documents", Creation Date "06/20/2022 9:12 P", Keyword List "Subject: React Demo", Versioned Obj. "N", and a View/Play button. The seventh row is "shop9" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Subject: Random Stuff", Versioned Obj. "N", and a View/Play button. The eighth row is "shop7" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Container Type: image2 sequence, Height: 0, Width: 0, Image Codec: mjpeg", Versioned Obj. "N", and a View/Play button. The ninth row is "seals5" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Subject: Random Stuff", Versioned Obj. "N", and a View/Play button. The tenth row is "seals4" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Subject: Random Stuff", Versioned Obj. "N", and a View/Play button. The eleventh row is "rrpsgr2" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Subject: Random Stuff", Versioned Obj. "N", and a View/Play button. The twelfth row is "rraptr9" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Subject: Random Stuff", Versioned Obj. "N", and a View/Play button. The thirteenth row is "reassmb17" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Subject: Random Stuff", Versioned Obj. "N", and a View/Play button. The fourteenth row is "reassmb14" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Subject: Random Stuff", Versioned Obj. "N", and a View/Play button. The fifteenth row is "reassmb12" with Object Type "Image Files", Creation Date "12/04/2021 9:07 P", Keyword List "Subject: Random Stuff", Versioned Obj. "N", and a View/Play button. At the bottom of the table, there is a pagination bar with "Previous", "Page 1 of 17", "15 rows", and "Next".

Name	Object Type	Creation Date	Keyword List	Versioned Obj.	View/Play
speedo	Image Files	12/04/2021 9:21 P	Subject: Random Stuff	Y	View/Play
Medical Informatio	PDF Documents	11/27/2021 9:43 A	Subject: Random Stuff	Y	View/Play
278370748_13826	Image Files	06/09/2022 3:06 P	Container Type: image2 sequence, Height: 0, Width: 0, Image Codec: mjpeg	Y	View/Play
vincentVanGogh_2	Image Files	06/20/2022 9:07 P	Subject: React Demo	N	View/Play
vincentVanGogh_1	Image Files	06/20/2022 9:06 P	Subject: React Demo	N	View/Play
vanGogh	PDF Documents	06/20/2022 9:12 P	Subject: React Demo	N	View/Play
shop9	Image Files	12/04/2021 9:07 P	Subject: Random Stuff	N	View/Play
shop7	Image Files	12/04/2021 9:07 P	Container Type: image2 sequence, Height: 0, Width: 0, Image Codec: mjpeg	N	View/Play
seals5	Image Files	12/04/2021 9:07 P	Subject: Random Stuff	N	View/Play
seals4	Image Files	12/04/2021 9:07 P	Subject: Random Stuff	N	View/Play
rrpsgr2	Image Files	12/04/2021 9:07 P	Subject: Random Stuff	N	View/Play
rraptr9	Image Files	12/04/2021 9:07 P	Subject: Random Stuff	N	View/Play
reassmb17	Image Files	12/04/2021 9:07 P	Subject: Random Stuff	N	View/Play
reassmb14	Image Files	12/04/2021 9:07 P	Subject: Random Stuff	N	View/Play
reassmb12	Image Files	12/04/2021 9:07 P	Subject: Random Stuff	N	View/Play

AsterionDB WebApp tag: 2022.09 branch: main Copyright © 2022 by AsterionDB Inc. All Rights Reserved.

Selecting a Keyword

Selecting a keyword from the drop-down list will allow us to then select a value. You will also notice that the returned set of objects narrows after selecting a keyword.

The Vault Path Parser Admin Help
Steve Guilford

Search Upload Trash Shared Keywords

Steve's Vinyl - Genre X
= Select a value...

All Object Types Columns...

Source	Object Type	Creation Date	Keyword List
/home/gilly/storage/objVault/testData/01 1970-04-15 Fillmore	Audio Files	01/25/2022 7:05	Artist: Grateful Dead, Genre: Rock
/home/gilly/storage/ITunes/Rickie Lee Jones/Rickie Lee Jones/0	Audio Files	07/09/2022 4:56	Title: Rickie Lee Jones, Artist: Rickie Lee Jones, Genre: Rock
/home/gilly/storage/ITunes/Rickie Lee Jones/Rickie Lee Jones/0	Audio Files	07/09/2022 4:56	Title: Rickie Lee Jones, Artist: Rickie Lee Jones, Genre: Rock
/home/gilly/storage/ITunes/Patti Smith/Horses/02 Track 02.m4	Audio Files	07/09/2022 4:56	Title: Horses, Artist: Patti Smith, Genre: Rock
/home/gilly/storage/ITunes/Patti Smith/Horses/01 Track 01.m4	Audio Files	07/09/2022 4:56	Title: Horses, Artist: Patti Smith, Genre: Rock
/home/gilly/storage/ITunes/Love/Forever Changes/02 Track 02	Audio Files	07/09/2022 4:54	Title: Forever Changes, Artist: Love, Genre: Rock
/home/gilly/storage/ITunes/Love/Forever Changes/01 Track 01	Audio Files	07/09/2022 4:54	Title: Forever Changes, Artist: Love, Genre: Rock
/home/gilly/storage/ITunes/John Mayall & The Bluesbreakers/Ci	Audio Files	07/09/2022 4:54	Title: Crusade, Artist: John Mayall & The Bluesbreakers, Genre: Rock
/home/gilly/storage/ITunes/John Mayall & The Bluesbreakers/Ci	Audio Files	07/09/2022 4:54	Title: Crusade, Artist: John Mayall & The Bluesbreakers, Genre: Rock
/home/gilly/storage/ITunes/Jimmy Reed/At Carnegie Hall/02 Tra	Audio Files	03/19/2022 8:31	Title: At Carnegie Hall, Artist: Jimmy Reed, Genre: Jazz
/home/gilly/storage/ITunes/Jimmy Reed/At Carnegie Hall/01 Tra	Audio Files	03/19/2022 8:31	Title: At Carnegie Hall, Artist: Jimmy Reed, Genre: Jazz
/home/gilly/storage/ITunes/Humble Pie/Smokin'/03 Track 03.m	Audio Files	03/17/2022 6:27	Title: Smokin', Artist: Humble Pie, Genre: Rock
/home/gilly/storage/ITunes/Humble Pie/Smokin'/01 Track 01.m	Audio Files	03/17/2022 6:27	Title: Smokin', Artist: Humble Pie, Genre: Rock
/home/gilly/storage/ITunes/Frank Zappa/Live At The Fillmore/0	Audio Files	07/09/2022 4:53	Title: Live At The Fillmore, Artist: Frank Zappa, Genre: Rock
/home/gilly/storage/ITunes/Frank Zappa/Live At The Fillmore/0	Audio Files	07/09/2022 4:53	Title: Live At The Fillmore, Artist: Frank Zappa, Genre: Rock

Previous Page 1 of 2 15 rows Next

AsterionDB WebApp tag: 2022.09 branch: main Copyright © 2022 by AsterionDB Inc. All Rights Reserved.

Selecting a Keyword Value

Selecting a keyword value further narrows down the set of objects returned.

You can also change the equivalence operator (i.e. equal, not-equal) to tailor your search.

The screenshot shows the AsterionDB interface with the following data in the table:

Source	Object Type	Creation Date	Keyword List
/home/gilly/storage/obj/Vault/testData/01 1970-04-15 Fillmore	Audio Files	01/25/2022 7:05	Artist: Grateful Dead, Genre: Rock
/home/gilly/storage/Tunes/Rickie Lee Jones/Rickie Lee Jones/0	Audio Files	07/09/2022 4:56	Title: Rickie Lee Jones, Artist: Rickie Lee Jones, Genre: Rock
/home/gilly/storage/Tunes/Rickie Lee Jones/Rickie Lee Jones/0	Audio Files	07/09/2022 4:56	Title: Rickie Lee Jones, Artist: Rickie Lee Jones, Genre: Rock
/home/gilly/storage/Tunes/Patti Smith/Horses/02 Track 02.m4a	Audio Files	07/09/2022 4:56	Title: Horses, Artist: Patti Smith, Genre: Rock
/home/gilly/storage/Tunes/Patti Smith/Horses/01 Track 01.m4a	Audio Files	07/09/2022 4:56	Title: Horses, Artist: Patti Smith, Genre: Rock
/home/gilly/storage/Tunes/Love/Forever Changes/02 Track 02	Audio Files	07/09/2022 4:54	Title: Forever Changes, Artist: Love, Genre: Rock
/home/gilly/storage/Tunes/Love/Forever Changes/01 Track 01	Audio Files	07/09/2022 4:54	Title: Forever Changes, Artist: Love, Genre: Rock
/home/gilly/storage/Tunes/John Mayall & The Bluesbreakers/Ci	Audio Files	07/09/2022 4:54	Title: Crusade, Artist: John Mayall & The Bluesbreakers, Genre: Rock
/home/gilly/storage/Tunes/John Mayall & The Bluesbreakers/Ci	Audio Files	07/09/2022 4:54	Title: Crusade, Artist: John Mayall & The Bluesbreakers, Genre: Rock
/home/gilly/storage/Tunes/Humble Pie/Smokin'/03 Track 03.m	Audio Files	03/17/2022 6:27	Title: Smokin', Artist: Humble Pie, Genre: Rock
/home/gilly/storage/Tunes/Humble Pie/Smokin'/01 Track 01.m	Audio Files	03/17/2022 6:27	Title: Smokin', Artist: Humble Pie, Genre: Rock
/home/gilly/storage/Tunes/Frank Zappa/Live At The Fillmore/0	Audio Files	07/09/2022 4:53	Title: Live At The Fillmore, Artist: Frank Zappa, Genre: Rock
/home/gilly/storage/Tunes/Frank Zappa/Live At The Fillmore/0	Audio Files	07/09/2022 4:53	Title: Live At The Fillmore, Artist: Frank Zappa, Genre: Rock

You will also see that additional buttons have appeared. These buttons allow you to add another query term or clear all of the query terms.

Adding Another Query Term

Pressing the 'Add Filter' button that is below the keyword value drop-down will allow you to enter in another keyword/value. Here's an example:

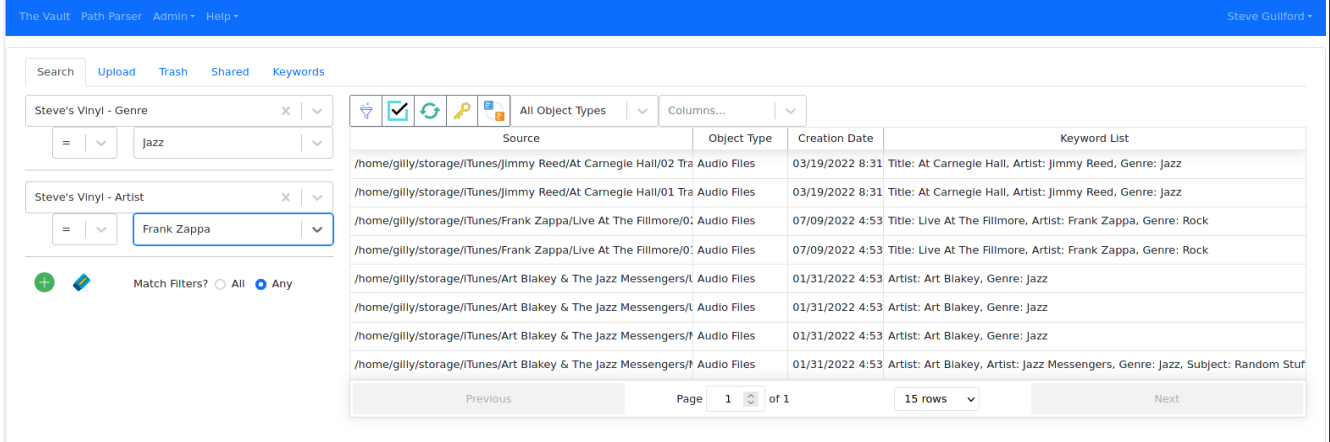
The screenshot shows the AsterionDB interface with two filters applied. The table now contains the following data:

Source	Object Type	Creation Date	Keyword List
/home/gilly/storage/Tunes/Frank Zappa/Live At The Fillmore/0	Audio Files	07/09/2022 4:53	Title: Live At The Fillmore, Artist: Frank Zappa, Genre: Rock
/home/gilly/storage/Tunes/Frank Zappa/Live At The Fillmore/0	Audio Files	07/09/2022 4:53	Title: Live At The Fillmore, Artist: Frank Zappa, Genre: Rock

You can press the 'x' character in the drop downs to clear a filter value or remove it entirely.

Matching Any or All

You will also notice an additional set of options to set the ‘Match Filters’. This provides a simple and/or condition whenever multiple keyword/tag pairs are specified. Here is an example where we are matching any of the specified keyword/tag pairs:



The screenshot shows the AsterionDB interface with the following elements:

- Navigation Bar:** The Vault | Path Parser | Admin | Help
- User:** Steve Guilford
- Search Bar:** Search | Upload | Trash | Shared | Keywords
- Filters:**
 - Steve's Vinyl - Genre: [Jazz]
 - Steve's Vinyl - Artist: [Frank Zappa]
 - Match Filters? ☐ All ☒ Any
- Table:**

Source	Object Type	Creation Date	Keyword List
/home/gilly/storage/ITunes/Jimmy Reed/At Carnegie Hall/02 Tra	Audio Files	03/19/2022 8:31	Title: At Carnegie Hall, Artist: Jimmy Reed, Genre: Jazz
/home/gilly/storage/ITunes/Jimmy Reed/At Carnegie Hall/01 Tra	Audio Files	03/19/2022 8:31	Title: At Carnegie Hall, Artist: Jimmy Reed, Genre: Jazz
/home/gilly/storage/ITunes/Frank Zappa/Live At The Fillmore/0:	Audio Files	07/09/2022 4:53	Title: Live At The Fillmore, Artist: Frank Zappa, Genre: Rock
/home/gilly/storage/ITunes/Frank Zappa/Live At The Fillmore/0:	Audio Files	07/09/2022 4:53	Title: Live At The Fillmore, Artist: Frank Zappa, Genre: Rock
/home/gilly/storage/ITunes/Frank Zappa/Live At The Fillmore/0:	Audio Files	01/31/2022 4:53	Artist: Art Blakey, Genre: Jazz
/home/gilly/storage/ITunes/Art Blakey & The Jazz Messengers/L	Audio Files	01/31/2022 4:53	Artist: Art Blakey, Genre: Jazz
/home/gilly/storage/ITunes/Art Blakey & The Jazz Messengers/f	Audio Files	01/31/2022 4:53	Artist: Art Blakey, Genre: Jazz
/home/gilly/storage/ITunes/Art Blakey & The Jazz Messengers/f	Audio Files	01/31/2022 4:53	Artist: Art Blakey, Artist: Jazz Messengers, Genre: Jazz, Subject: Random Stuf
- Page Info:** Previous | Page 1 of 1 | 15 rows | Next

9. The File-System Gateway

The functionality described in this section is enabled by checking the option 'Enable Gateway Elements' in your user profile. To utilize the gateway functionality you must have an instance of the DbObscura File System Gateway running on your computer. Consult the DbObscura documentation for information on installing and configuring the file system gateway on your computer.

The Gateway tab of the Object Details modal provides the means by which you can generate a file name for an object in the Digital Bunker.

Setting File Name Usability Limits

The Gateway tab allows you to govern how the file names are used by setting some parameters.

Access Mode

You can restrict access to the file to read, write or read/write operations.

Access Limit

You can restrict the number of times a file name can be used (referenced in an 'open' statement) to a specific number of uses.

Expiration Date

You can cause the file name to expire after a specified period of time by specifying a Expiration Date value.

IP Address Match

If checked, the IP address of the server that uses the generated file name must match the IP address of the computer that consumes the file name.

System Process ID Match

If checked, the System Process ID of the process that uses the generated file name must match or be a child of the process that generated the file name.

DB Session Must Be Active

If checked, the database session that generated the file name must be active at the time the file name is used.

Generating a File Name

Here's what the screen will look like after you've generated a file name:

Object Details

Properties

Viewer

Keywords

Gateway

Weblink

Sharing

Versioning

Streaming History

Name

Asterion Investor Brief 170505

File Type

PDF Documents

Original (source) Location

Asterion Investor Brief 170505.pdf

Access Mode

☒ Read ☐ Write ☐ Read/Write

Access Limit

☒ One Time ☐ Unlimited ☐ Custom

1

Expiration Date

☒ +1 Hour ☐ +1 Day ☐ Custom

Custom Expiration Date

Select a custom date...

Security Settings

☐ IP Address Match ☐ System Process ID Match ☐ DB Session Must Be Active

Generate a generic filename

Generate

/mnt/dbObscuraOra/RoJAcuOVUUmLwOEIpQdrLkpolQAaDL

Copy

OK

Using a Generated File Name

Press the COPY button to copy the file name into your paste buffer. You can then use the file name on a command line:

```
evince /mnt/dbObscuraOra/QOR...LBh/XiO...WKEe.pdf
```

10. Secure Web Links

There are two types of web links that the Digital Bunker will generate:

- Static web links that do not expire
- Secure web links with access rights that can be set through specified parameters

A Secure Web Link Use Case

Generating secure web links has several use cases. Here is a good one. We are all familiar with how prevalent it is for people to include attachments in emails. This is a problem in that if the emails get hacked, the hacker gets all of the attachments. What we can do with the secure link is include that in an email instead of the attachment. The link is generated for one time use, or maybe to expire after an hour or perhaps it is tied to a specific IP address. The recipient of the email will know to access the link upon receipt.

With this mechanism we can protect against hackers receiving sensitive information that may be included in attachments.

Generating a Secure Web Link

You will find the static link on the Object Details - Properties tab. You will generate a secure web link by accessing the Object details - Weblink tab. An example is shown below:

Object Details

Properties Viewer Keywords Gateway **Weblink** Sharing Versioning Streaming History

Name 01 Track 01

File Type Audio Files

Original (source) Location /home/gilly/storage/iTunes/Los Lobos/By The Light Of The Moon/01 Track 01.m4a

Expiration Date ☒ +1 Hour ☐ +1 Day ☐ Custom

Custom Expiration Date

Access Limit ☒ One Time ☐ Unlimited ☐ Custom

Restrict to IP Address: ☐

Delivery Method ☒ Streaming ☐ Download

Setting Parameters for a Secure Web Link

The parameters that you can specify are:

Expiration Date

The web link has an expiration date. You can set the link to expire in one hour, one day, to never expire or to expire at a specific date and time.

Access Limit

You can limit the number of times the link can be accessed.

Restrict To IP Address

You can restrict the use of the link to a specified IP address.

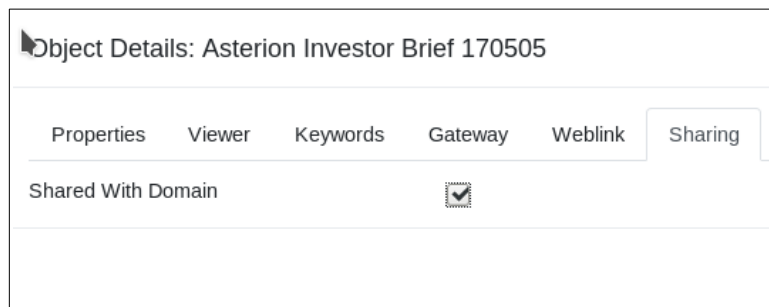
Delivery Method

If the object can be 'streamed' to a browser/player/application, the user interface will present a set of radio buttons to select how the secure web link is to be generated. A 'streaming' link will cause the link to automatically come up in a browser/player/application. A 'download' link will cause the browser to offer a 'Save As' screen allowing you to save the object to a local file.

11. Object Sharing

Object sharing is enabled for installations of the Digital Bunker that are restricted to a specific domain. This is a setting that is determined during the initial installation of the Digital Bunker. This feature is useful for corporate users that want to share information company wide with all users of the Digital Bunker.

To share an object, access the Sharing tab of the Object Details modal and select the check box.



Object Details: Asterion Investor Brief 170505

Properties	Viewer	Keywords	Gateway	Weblink	Sharing
Shared With Domain					<input checked="" type="checkbox"/>

12. Object Versions

The Digital Bunker will keep track of object versions. Objects by default are not versioned. In order to keep object versions you must transform an object into a versioned object.

Transforming an Object

The Versions tab of the Object Details modal allows you to transform and manage a versioned object. The first step is to transform a non-versioned object into one that is versioned. To do so, enter some comments (optional) and press the Transform button.

Object Details: Asterion Investor Brief 170505

Properties Viewer Keywords Gateway Weblink Sharing Versions Streaming History

This object has not been versioned. If you would like to transform it to a versioned object enter some comments (optional) and press the 'Transform' button

Enter some comments here...

Transform

OK

Version History - New Versions

Once an object has been transformed into a versioned object you can view the objects version history and upload new versions of the object. Notice how the Versions tab has changed to present the version history and provide a drop-zone / file-upload area.

Object Details: usersGuide

Properties Viewer Keywords Gateway Weblink Sharing Versions Streaming History

This is a versioned object. To upload a new version press the 'Select Files' button.

Select Files

usersGuide.pdf
Completed 1.35 MB

#	Source Path	Date	Comments
2	usersGuide.pdf	01/30/2019 5:21 PM	
1	usersGuide.pdf	01/26/2019 1:44 PM	

Previous Page 1 of 1 5 rows Next

File System Gateway Support

File names generated for a versioned object are always 'read only'. The file name will also always access the most recent, current version of the object.

Object Details: usersGuide

Properties

Viewer

Keywords

Gateway

Weblink

Sharing

Versions

Streaming History

Name

usersGuide

File Type

PDF Documents

Original (source) Location

usersGuide.pdf

Access Mode

Versioned object - read only access allowed...

Access Limit

One Time

Unlimited

Custom

1

Expiration Date

+1 Hour

+1 Day

No Expiration

Custom Expiration Date

Select a custom date...

Security Settings

IP Address Match

System Process ID Match

Generate a generic filename

Generate

/mnt/dbObscuraOra/mgyNAWNUXIulzxsAmkTwIHqHStTMuU

Copy

OK

Web Links for Versioned Objects

The web links generated for versioned objects will always access the most recent, current version of the object.

13. Streaming History

You can access a full history of all of the times an object has been streamed by selecting the 'Streaming History' tab of the Object Details modal. Some of the columns are obvious. The non-obvious columns are:

Server

The host name of the server that streamed the content.

Weblink

If the content was accessed by a secure link, the link value is in this column. This column will be blank if a static link was used to access the content.

IP4 Address

The requesting client's IP4 address. Note that if your installation uses a proxy-server, the proxy-server's IP4 address will be indicated here. The actual client's IP4 Address is in the Forwarded For column.

Forwarded For

If your installation uses a proxy-server, the IP4 address of the client that requested the content is indicated here.

Referer

This is the HTTP Referer header value. It is an optional value that is not always present. If it is present, the value indicates the web page that contained the link for the content.

Object Details

Properties

Viewer

Keywords

Gateway

Weblink

Sharing

Versioning

Streaming History

Access Count:

500

Total Bytes:

41.8 GB

Start Time	End Time	Server	Weblink	IP4 Address	User Agent	Bytes Strea...	Forwarded ...	Referer
01/16/2019 5:46 PM	01/16/2019 5:46 PM	cloud-eval.asteriondb.com		127.0.0.1	Mozilla/5.0 (Win	377,997,264	23.104.98.110	http://www.googl
01/16/2019 11:00 AM	01/16/2019 11:01 AM	cloud-eval.asteriondb.com		127.0.0.1	Mozilla/5.0 (Win	377,997,264	52.44.93.197	
01/16/2019 11:00 AM	01/16/2019 11:00 AM	cloud-eval.asteriondb.com		127.0.0.1	Mozilla/5.0 (Win	3,145,728	52.44.93.197	
01/16/2019 11:00 AM	01/16/2019 11:01 AM	cloud-eval.asteriondb.com		127.0.0.1	Mozilla/5.0 (Win	377,997,264	148.87.23.5	https://cdn-eval.e
01/16/2019 11:00 AM	01/16/2019 11:00 AM	cloud-eval.asteriondb.com		127.0.0.1	Mozilla/5.0 (Win	5,767,168	148.87.23.5	
01/07/2019 4:42 PM	01/07/2019 4:42 PM	cloud-eval.asteriondb.com		127.0.0.1	Mozilla/5.0 (X11	377,997,264	174.87.242.236	https://cloud-eval
12/08/2018 9:39 PM	12/08/2018 9:39 PM	cloud-eval.asteriondb.com		127.0.0.1	Mozilla/5.0 (X11	64,341,968	108.250.36.50	https://cloud-eval

14. Gateway History

The Gateway History tab allows you to see all of the times that an object was accessed as a file via the DbObscura File System Gateway:

Object Details: Medical Information Report ×

Properties Viewer Keywords Gateway Weblink Sharing Versions Streaming History Gateway History

Creation Date	Last Access	Access Mode	Access Count	Access Limited
05/28/2022 4:33 PM	05/31/2022 5:15 PM	Read	11	Unlimited
11/27/2021 9:43 AM	11/27/2021 9:43 AM	Read/Write	1	1

Previous Page 1 of 1 20 rows Next

Close

15. Deleted Objects

Deleted objects are really just in the trash! You have to purge them in order to really delete and free up the resources associated with an object. You can view the objects in your 'recycle bin' by accessing the Trash tab.

You can search for objects as you would normally by entering the relevant keyword/value pairs in the query-builder.

Deleted objects however can not be viewed, streamed or otherwise worked with. You can view the meta-data and keyword/value pairs associated with the object but these values can not be changed.

Objects can be restored from the Trash tab and they can be purged as well. Purging an object, as mentioned, removes all resources, meta-data and disassociates the keyword/value pairs from the object.

Restoring and purging of objects is accomplished through the context menu (useful for working on multiple objects at once) and from the Properties tab of the Object Details modal.

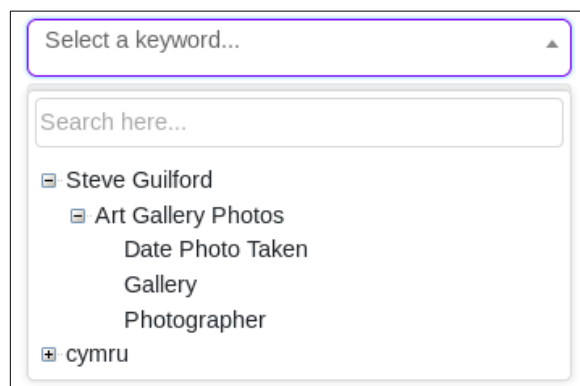
16. Shared Objects

Note: Object sharing is an optional feature that is enabled by your system administrator.

Objects that have been shared with you can be found on the Shared tab.

Querying Shared Objects

This tab presents a modified query builder which allows you to search for objects based upon the keyword/value pairs associated by the owner of the object. Here's an example:



You can see how the keywords are grouped by owner. You have to expand the owner node and then expand the keyword-group node in order to select a keyword to search by.

Working with Shared Objects

The Object Details modal for shared objects presents a subset of the functionality that you would normally find for your own objects. This release of the Digital Bunker supports shared objects at the domain level - you can share your objects with everybody in your (email) domain. Users accessing objects that have been shared globally have read-only access privileges. They can not change a globally shared object. Accordingly, the Keyword tab allows you to view the associated keyword/value pairs.

Object Details: A6505085 ×

Properties Viewer **Keywords** Gateway Weblink Streaming History

Keyword	Keyword Value
Date Photo Taken	August 3, 2018
Gallery	New York Museum of Art
Photographer	Glenn Barber

OK

If you generate a file name for a globally shared object the access mode will be restricted to read-only:

Object Details: A6505085 ×

Properties Viewer Keywords **Gateway** Weblink Streaming History

NameA6505085

File TypeImage Files

Original (source) Location/home/gilly/storage/grayMatter/NYMOA/A6505085.JPG

Access ModeObject shared with domain - read only access allowed...

Access Limit

☒ One Time ☐ Unlimited ☐ Custom

Expiration Date

☒ +1 Hour ☐ +1 Day ☐ No Expiration ☐ Custom

Custom Expiration Date

Select a custom date...

Security Settings

☐ IP Address Match ☐ System Process ID Match ☐ DB Session Must Be Active

Generate a generic filename

Generate

/mnt/dbObscuraOra/NJbDtnMoBEplwpRWMVylqUexHJuXVx

Copy

Open w/ Helper App.

OK

Copyright ©2022 by AsterionDB Inc.

<https://asteriondb.com>

17. Enrolling New Objects in the Digital Bunker

The functionality described here is enabled by checking the option 'Enable Gateway Elements' in your user profile.

The Enroll Content button on the button bar brings you to a screen that allows you to create a new object in the Digital Bunker. This screen requires that you enter in the original source location (or name) of the content. Pressing the Generate Filename button will generate a file name that you can use in a program or on the command line.

Enroll Content

Original (source) Location: tahoe3.jpg

Version Control: ☒ Unversioned Object ☐ Versioned Object

Access Mode: ☒ Write ☐ Read/Write

Expiration Date: ☒ +1 Hour ☐ +1 Day ☐ No Expiration ☐ Custom

Custom Expiration Date: Select a custom date...

Access Limit: ☒ One Time ☐ Unlimited ☐ Custom 1

Security Settings: ☐ IP Address Match ☐ System Process ID Match ☐ DB Session Must Be Active

Generate Filename: /mnt/dbObscuraOra/iMJDdflKiwfJuehmdEzcCoBLgsFtkFcsF Copy

OK

The following parameters allow you to tailor how the file name can be used:

Access Mode

You can restrict access to the file to write or read/write operations.

Access Limit

You can restrict the number of times a file name can be used (referenced in an 'open' statement) to a specific number of uses.

Expiration Date

You can cause the file name to expire after a specified period of time by specifying a Expiration Date value.

IP Address Match

If checked, the IP address of the server that uses the generated file name must match the IP address of the computer that consumes the file name.

System Process ID Match

If checked, the System Process ID of the process that uses the generated file name must match or be a child of the process that generated the file name.

DB Session Must Be Active

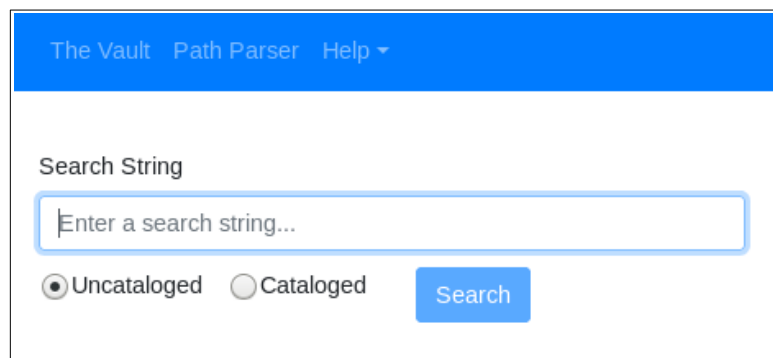
If checked, the database session that generated the file name must be active at the time the file name is used.

18. Parsing Source Paths

The Digital Bunker includes an integrated Path Parser that allows you to quickly turn the meta-data embedded in your directory paths into searchable keyword/value pairs. Remember though that path information is typically only available for objects that are ingested through the DbObscura File System gateway. It is not possible, due to the limitations of web-browser design, to determine the full path of an object that is uploaded by the Digital Bunker's web application.

Upon entering the Path Parser screen you will be presented with a entry field that you use to specify your search string. We use the '%' character as a wildcard.

The screen defaults to searching through un-cataloged (e.g. recently uploaded, un-tagged) objects.



You may find it necessary to include a forward or backward slash to indicate Linux vs. Windows paths. If you enter a search term that returns objects ingested from both Windows and Linux machines, a pop-up notification will be displayed warning you of this fact.

This screen is designed to show you the unique paths returned by your search string. It does not show you each individual object found by your search string.

After entering a search string, you will use the Path Parser screen to associate sub-directory elements to specific keywords where the sub-directory value becomes the keyword value.

By default, the screen will mask off your search string. Here is an example of what the Path Parser screen will look like after entering in a search string:

Search String

☐ Uncataloged ☒ Cataloged

Mask Search String? ☒

	Keyword
Dir. 1	Select a keyword...
Dir. 2	Select a keyword...
File Name	Select a keyword...

Unique Paths: 7 Object Count: 16

Directory Path	Parsed Values
/Neil Young/After the Gold Rush	
/Neil Young/Everybody Knows This Is Nowhere	
/Neil Young/Harvest Moon	
/Neil Young/Mirror Ball	
/Neil Young/Old Ways	
/Neil Young/Time Fades Away	
/Neil Young/Tonight's The Night	

Previous Page 1 of 1 15 rows Next

You can uncheck the Mask Search String check-box if you prefer to see the full path.

Search String

☐ Uncataloged ☒ Cataloged

Mask Search String? ☐

	Keyword
Dir. 1	Select a keyword...
Dir. 2	Select a keyword...
Dir. 3	Select a keyword...
Dir. 4	Select a keyword...
Dir. 5	Select a keyword...
Dir. 6	Audio Files - Title x
File Name	Select a keyword...

Unique Paths: 7 Object Count: 16

Directory Path	Parsed Values
/home/gilly/storage/iTunes/Neil Young/After the Gold Rush	After the Gold Rush
/home/gilly/storage/iTunes/Neil Young/Everybody Knows This Is Nowhere	Everybody Knows This Is Nowhere
/home/gilly/storage/iTunes/Neil Young/Harvest Moon	Harvest Moon
/home/gilly/storage/iTunes/Neil Young/Mirror Ball	Mirror Ball
/home/gilly/storage/iTunes/Neil Young/Old Ways	Old Ways
/home/gilly/storage/iTunes/Neil Young/Time Fades Away	Time Fades Away
/home/gilly/storage/iTunes/Neil Young/Tonight's The Night	Tonight's The Night

Previous Page 1 of 1 15 rows Next

Here's an example of the Path Parser string after entering in a search term with a wild card - the '%' character. If you specify a wild card in your search string the Mask Search String check box will not be displayed and the search string will not be masked off.

You will see how we have specified that the sixth directory element is the Album Title and that the file-name for each object will be the Track value. The parsing results are shown to the right of the columns so that you can verify that the values parsed properly.

Search String

☐ Uncataloged ☒ Cataloged

Dir. 1

Select a keyword... ▼

Dir. 2

Select a keyword... ▼

Dir. 3

Select a keyword... ▼

Dir. 4

Select a keyword... ▼

Dir. 5

Select a keyword... ▼

Dir. 6

Audio Files - Title x ▼

File Name

Audio Files - Track x ▼

Unique Paths: 6 Object Count: 20

Directory Path	Parsed Values
/home/gilly/storage/iTunes/Grateful Dead/American Beauty	American Beauty
/home/gilly/storage/iTunes/Grateful Dead/Anthem of the Sun	Anthem of the Sun
/home/gilly/storage/iTunes/Grateful Dead/Europe 72	Europe 72
/home/gilly/storage/iTunes/Grateful Dead/Live Dead	Live Dead
/home/gilly/storage/iTunes/Grateful Dead/Without A Net Pt. 1	Without A Net Pt. 1
/home/gilly/storage/iTunes/Grateful Dead/Without A Net Pt. 2	Without A Net Pt. 2

Previous

Page 1 of 1

15 rows ▼

Next

Note that we do not show you the result of parsing the file-name due to the fact that your search results may return hundreds if not thousands of individual objects within a relatively limited number of individual sub-directories.

Pressing the Parse button will perform the actual work of parsing the directory paths. If you parse paths for un-cataloged objects remember that you will now find those objects in the 'Search' tab as they are now considered cataloged objects.

The screenshot shows the AsterionDB interface. At the top is a blue header bar with 'The Vault', 'Path Parser', and 'Help' on the left, and 'Demo User' on the right. Below the header is a navigation bar with 'Search', 'Upload', 'Trash', 'Shared', and 'Keywords'. The 'Search' section on the left has a dropdown menu set to 'Music - Artist' and a 'Select a value...' option. Below this are 'Add Filter' and 'Clear All Filters' buttons. The main area displays a table with two columns: 'Source' and 'Keyword List'. The table contains 15 rows of data, showing file paths and their corresponding metadata. At the bottom of the table, there are 'Previous', 'Page 1 of 2', '15 rows', and 'Next' controls.

Source	Keyword List
/home/gilly/storage/iTunes/Bob Dylan/Blood on the Tracks/01 Track 01.m4a	Artist: Bob Dylan, Title: Blood on the Tracks, Track: 01 Track 01
/home/gilly/storage/iTunes/Bob Dylan/Blood on the Tracks/02 Track 02.m4a	Artist: Bob Dylan, Title: Blood on the Tracks, Track: 02 Track 02
/home/gilly/storage/iTunes/Bob Dylan/Bringing It All Back Home/01 Track 01.m4a	Artist: Bob Dylan, Title: Bringing It All Back Home, Track: 01 Track 01
/home/gilly/storage/iTunes/Bob Dylan/Bringing It All Back Home/02 Track 02.m4a	Artist: Bob Dylan, Title: Bringing It All Back Home, Track: 02 Track 02
/home/gilly/storage/iTunes/Bob Dylan/Highway 61 Revisited/01 Track 01.m4a	Artist: Bob Dylan, Title: Highway 61 Revisited, Track: 01 Track 01
/home/gilly/storage/iTunes/Bob Dylan/Highway 61 Revisited/02 Track 02.m4a	Artist: Bob Dylan, Title: Highway 61 Revisited, Track: 02 Track 02
/home/gilly/storage/iTunes/Bob Dylan/John Wesley Harding/01 Track 01.m4a	Artist: Bob Dylan, Title: John Wesley Harding, Track: 01 Track 01
/home/gilly/storage/iTunes/Bob Dylan/John Wesley Harding/02 Track 02.m4a	Artist: Bob Dylan, Title: John Wesley Harding, Track: 02 Track 02
/home/gilly/storage/iTunes/Frank Zappa/Absolutely Free/01 Track 01.m4a	Artist: Frank Zappa, Title: Absolutely Free, Track: 01 Track 01
/home/gilly/storage/iTunes/Frank Zappa/Absolutely Free/02 Track 02.m4a	Artist: Frank Zappa, Title: Absolutely Free, Track: 02 Track 02
/home/gilly/storage/iTunes/Frank Zappa/Absolutely Free/03 Track 03.m4a	Artist: Frank Zappa, Title: Absolutely Free, Track: 03 Track 03
/home/gilly/storage/iTunes/Frank Zappa/Apostrophe/01 Track 01.m4a	Artist: Frank Zappa, Title: Apostrophe, Track: 01 Track 01
/home/gilly/storage/iTunes/Frank Zappa/Apostrophe/02 Track 02.m4a	Artist: Frank Zappa, Title: Apostrophe, Track: 02 Track 02
/home/gilly/storage/iTunes/Frank Zappa/Hot Rats/01 Track 01.m4a	Artist: Frank Zappa, Title: Hot Rats, Track: 01 Track 01
/home/gilly/storage/iTunes/Frank Zappa/Hot Rats/02 Track 02.m4a	Artist: Frank Zappa, Title: Hot Rats, Track: 02 Track 02

Finally, there is a feature in the context menu that allows you to remove all keywords for an object. If you find that you did not parse the directory paths properly, you can always remove the keywords from the objects you just parsed and start over.

As you might expect, the Last Metadata Change data is set for each object parsed. This gives you an easy way to find your most recently parsed objects in order to verify (or correct) the values extracted from the parsed directory paths.

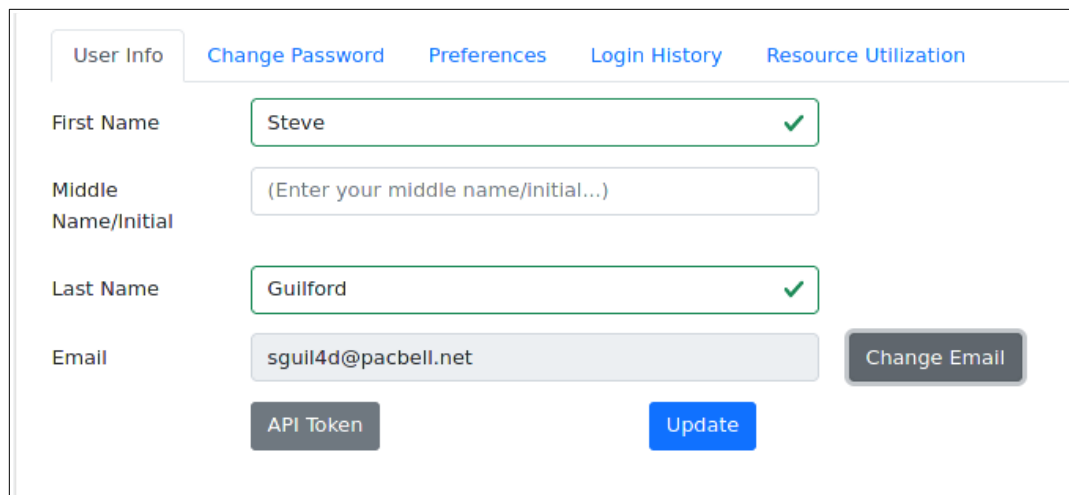
19. Managing Your User Profile

At the upper right hand corner of the Digital Bunker's user interface you will find a pull down menu labeled with your user name. From this menu you can access your user profile, streaming history and log out of the user interface.

Accessing your user profile allows you to set your user info, change your password, set preferences and view your login history. Your user profile is presented using a tabbed modal interface.

Managing Your User Info

The User Info tab allows you to maintain your personal information.

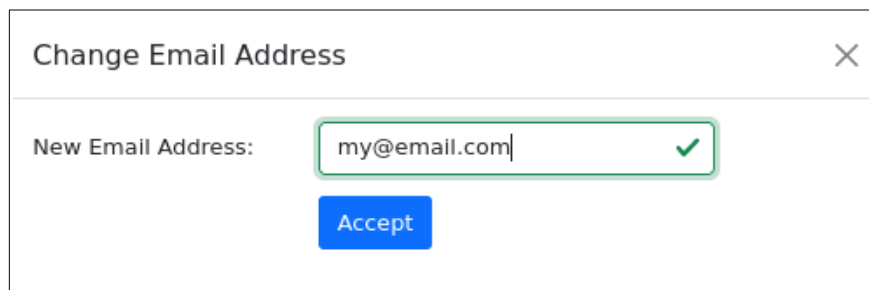


The screenshot shows a tabbed interface with five tabs: 'User Info' (selected), 'Change Password', 'Preferences', 'Login History', and 'Resource Utilization'. The 'User Info' tab contains the following fields and controls:

- First Name:** A text input field containing 'Steve' with a green checkmark icon on the right.
- Middle Name/Initial:** A text input field with the placeholder text '(Enter your middle name/initial...)'.
- Last Name:** A text input field containing 'Guilford' with a green checkmark icon on the right.
- Email:** A text input field containing 'sguil4d@pacbell.net'. To its right is a 'Change Email' button.
- API Token:** A button located below the email field.
- Update:** A blue button located at the bottom right of the form.

Changing Your Email Address

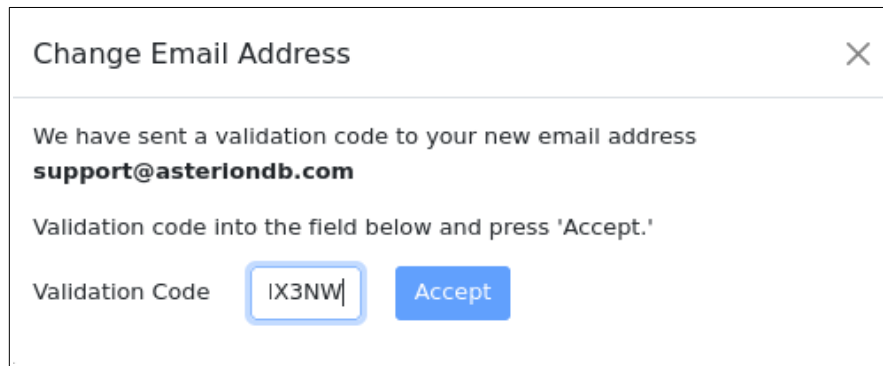
Press the 'Change Email' button to begin the process of changing your email address. A modal will open allowing you to input your new email address. Your new email must be unique and **NOT** previously registered with AsterionDB. Enter your new email address and press 'Accept'.



The screenshot shows a modal dialog titled 'Change Email Address' with a close button (X) in the top right corner. The dialog contains the following elements:

- New Email Address:** A text input field containing 'my@email.com' with a green checkmark icon on the right.
- Accept:** A blue button located below the input field.

After pressing 'Accept' a new modal will appear and AsterionDB will send an email to your new email address with a confirmation code. You must provide in the next step to verify your new email address. The confirmation code will expire 20 minutes after being sent. If your code expires, simply restart the change process.

A modal window titled "Change Email Address" with a close button (X) in the top right corner. The text inside reads: "We have sent a validation code to your new email address **support@asteriondb.com**". Below this, it says "Validation code into the field below and press 'Accept.'". There is a label "Validation Code" followed by a text input field containing "IX3NW" and a blue "Accept" button.

Change Email Address

We have sent a validation code to your new email address
support@asteriondb.com

Validation code into the field below and press 'Accept.'

Validation Code

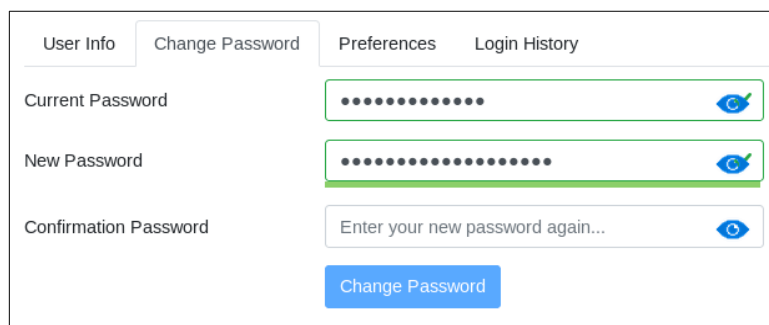
Press 'Accept' to complete the verification process.

If you do not complete the verification process your email address will remain unchanged.

Changing Your Password

The Change Password tab is where you can change your password. You can also change your password from the login screen but that process requires you to respond to an email in order to verify your identity.

In order to change your password from this tab you will need to know your current password. You will also have to enter a new, strong password twice before the Change Password button will be enabled. You will know that your password is strong enough when the indicator bar turns green as you can see in the image below:

A form with four tabs: "User Info", "Change Password", "Preferences", and "Login History". The "Change Password" tab is active. It contains three input fields: "Current Password", "New Password", and "Confirmation Password". The "Current Password" and "New Password" fields have green borders and green indicator bars on the right, suggesting the passwords are strong. The "Confirmation Password" field has a placeholder text "Enter your new password again..." and a blue indicator bar. A blue "Change Password" button is at the bottom.

User Info Change Password Preferences Login History

Current Password

New Password

Confirmation Password

Setting Your Preferences

The Preferences tab allows you to customize the functionality of the Digital Bunker's user interface.

The screenshot displays the 'Preferences' tab in the AsterionDB Digital Bunker user interface. At the top, there are five tabs: 'User Info', 'Change Password', 'Preferences' (which is active), 'Login History', and 'Resource Utilization'. Below the tabs, the settings are as follows:

- Default Timezone:** A dropdown menu showing 'America/Los_Angeles' with a downward arrow.
- Auto-fetch?:** A checkbox that is checked with a blue checkmark.
- Enable gateway elements?:** A checkbox that is checked with a blue checkmark.
- Concurrent File Uploads:** A numeric input field containing the number '4', with '+' and '-' buttons on the right.
- Multi-Factor Auth.:** Three radio buttons: 'Disabled' (unselected), 'Auth Code' (selected with a blue dot), and 'Login URL' (unselected).

Default Timezone

The system will determine your default timezone during the sign-up process. We use this value internally in the system to provide properly adjusted times when sending emails and other instances that call for a date/time presentation.

If for some reason the timezone is not determined properly during installation you can adjust the value here.

Automatically Fetch Objects

Checking the Auto Fetch check box causes the Digital Bunker to fetch a result set of objects from the Digital Bunker automatically. This can be troublesome in environments that have large data sets. In that case what you want to do is disable Auto Fetch and use the Refresh button on the toolbar to query the Digital Bunker after you have entered in some query terms. What you want to avoid is having the Digital Bunker fetch objects without having some query terms to restrict the returned objects.

Enable Gateway Elements

There are several buttons and tabs that are relevant to those installations that utilize the DbObscura File System Gateway. By default, these elements are not enabled. If you are using the DbObscura File System Gateway then you will want to enable these elements by checking this box.

The web application tries to sniff out your DbObscura Gateway client. If it can not, a pop-up modal window will appear asking you to provide the name of your gateway client.

Concurrent File Uploads

The AsterionDB web interface allows you to specify the maximum number of files to simultaneously upload. Limiting the number of files uploaded may be necessary when running with Oracle's Always Free Autonomous Database.

Multi-Factor Authentication

AsterionDB supports two types of multi-factor authentication. Note that SMTP must be enabled to support the sending of authorization codes and unique login-urls.

1. **Authorization Code** – a unique authorization code that will be sent to the user's email address. The authorization code expires 5 minutes after being sent.
2. **Unique Login URL** – a unique login URL will be sent to the user's email address. The URL expires 5 minutes after being sent.

Viewing Your Login History

A history of your login attempts, successful and unsuccessful, is provided for your convenience. It is accessed from your User Profile's Login History tab.

User Info							
Change Password							
Preferences							
Login History							
Start	End	Last Activity	IP Address	Status	Disposition	Terminated By	User Agent
04/08/2019 9:39 PM		04/08/2019 9:39 PM	192.168.1.15	active			Mozilla/5.0 (X11; Linux x8
04/08/2019 5:25 PM	04/08/2019 9:39 PM	04/08/2019 9:39 PM	192.168.1.15	terminated	logout	Demo User	Mozilla/5.0 (X11; Linux x8
Previous							
Page 1 of 1							
15 rows							
Next							

Streaming History

A history of all of the objects streamed from your account is provided by a selection on your User menu. Some of the columns are obvious. The non-obvious columns are:

Server

The host name of the server that streamed the content.

Weblink

If the content was accessed by a secure link, the link value is in this column. This column will be blank if a static link was used to access the content.

IP4 Address

The requesting client's IP4 address. Note that if your installation uses a proxy-server, the proxy-server's IP4 address will be indicated here. The actual client's IP4 Address is in the Forwarded For column.

Forwarded For

If your installation uses a proxy-server, the IP4 address of the client that requested the content is indicated here.

Referer

This is the HTTP Referer header value. It is an optional value that is not always present. If it is present, the value indicates the web page that contained the link for the content.

Gateway History

You can view a log of all of the objects that have been accessed by the DbObscura File System Gateway by selecting the Gateway History option from your User menu.

20. Digital Bunker Tutorials

The Digital Bunker comes with some tutorial examples. These tutorials are provided for programmers that need to integrate the capabilities of the Digital Bunker into their applications.

The tutorials need to be enabled by the system administrator before you can enable them for your account. To enable them for your account, access the account preferences tab at 'Manage Profile' page. Refer to the preceding chapter on managing your user profile for more information on enabling the tutorials.

Insurance Claim Application

An insurance claim application is a very good initial example of how structured and unstructured data is combined together. Insurance claims obviously deal with the date of the claim, the claimant's name, address, date of birth and so forth - structured data. They also have to manage things like accident scene photographs, investigators reports (PDFs) and other unstructured elements. These data elements have to be brought together on a web page for the insurance agent.

Frequently, the insurance claim application will manage the unstructured data in the file system and just keep a 'file pointer' to the relevant photograph or document. Maybe if you're fancy you've got your data stored in S3 or DropBox but still, you have to stitch together in your structured database so that it can reference the relevant unstructured data. After all, it's the structured data that's telling you what you are doing with the unstructured data - not the other way around!!!

A better solution is to store a `photo_id` and a `report_id` in the relevant tables so that you can reference a fixed, immutable ID for the resource. That ID can then be used to generate links and file names as appropriate.

The process is really simple. The biggest hassle is download and uploading the files and then transferring over the relevant resource ID's to the insurance claim tables. Aside from that drudgery, there's just a few changes to be made to tables and code.

Here's the outline:

- Access the Insurance Claim tutorial application. There are two claims with associated photographs and reports.
- Notice that the unstructured resources are being served from file based locations (e.g. hover over the 'view' button).
- Download the photographs and PDFs to a directory (hint: use an empty directory - makes the next step easier!!)

- Upload the photographs and PDFs to your Digital Bunker account.
- Using a database tool such as SQL*Developer, access your database account and issue the following two commands to add the ID columns:
 - `alter table insurance_claims add report_id varchar2(32);`
 - `alter table insurance_claim_photos add photo_id varchar2(32);`
- Use the SecureObjects web application to examine the properties of your just uploaded objects. Using SQL*Developer, copy over the ID values as appropriate to the insurance_claims and insurance_claim_photos tables.
- Using SQL*Developer, access the tutorials_pkg package body and make the following modifications.

In the get_insurance_claim_detail function alter the select list to generate a weblink for the claims adjuster's report. The new SELECT statement will look like this:

```
select json_object(
    'insuredParty' is insured_party,
    'accidentDate' is to_char(accident_date, 'dd-MON-yyyy'),
    'accidentLocation' is accident_location,
    'deductibleAmount' is deductible_amount,
    'claimsAdjusterReport' is object_vault_pkg.generate_object_weblink(report_id),
    'claimPhotos' is get_insurance_claim_photos(p_claim_id) format json
    returning clob)
into l_clob
from insurance_claims
where claim_id = p_claim_id;
```

In the get_insurance_claim_photos function alter the select list to generate a weblink for the photographs:

```
select json_arrayagg(json_object(
    'mediaUrl' is object_vault_pkg.generate_object_weblink(photo_id)
    returning clob)
into l_clob
from insurance_claim_photos
where claim_id = p_claim_id;
```

Refresh the insurance claim web page and notice that the unstructured resources are now being served out of the database by the Digital Bunker.

Alphabetical Index

Access Limit.....	30, 33, 41
access mode.....	30, 40, 41
Auto Fetch.....	49
button.....	14, 15, 17, 19, 20, 22, 23, 25, 31, 33, 35, 41, 48, 49
Database Plugin Server.....	7
DB Session.....	30, 42
DbObscura.....	7, 9, 11, 15, 17, 30, 31
DbStreamer.....	7, 11
Default Timezone.....	49
Deleted objects.....	24, 38
Delivery Method.....	33
download.....	11, 12, 16, 17, 33
Enroll.....	15, 41
Expiration Date.....	30, 33, 41
File Types.....	15
Forwarded For.....	37, 50, 51
Immutability.....	12, 17
ingest.....	15, 17
IP address.....	30, 32, 33, 41, 42
keyword.....	6, 9, 11, 13, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 38, 39
keyword/value.....	6, 9, 11, 23, 24, 25, 28, 38, 39
keywords.....	9, 11, 13, 15, 16, 17, 19, 20, 21, 22, 24, 25, 26, 39
keywords,.....	26
large data set.....	14, 49
Oracle Cloud.....	8
password.....	47, 48
Process ID.....	30, 42
Referer.....	37, 51
Refresh.....	14, 49
SecureObjects Server.....	6, 8, 9, 11, 12, 13, 15, 19, 34, 35
shared objects.....	39
SQL*VOX.....	6, 7
stream.....	7, 8, 11, 12, 16, 33, 37, 38, 47, 50
Suggested Value.....	19, 22, 23
The SecureObjects Server User's Guide.....	1
upload.....	11, 13, 15, 35
versions.....	12, 16, 35
Web Link.....	32
web links.....	12, 32, 36