



Overview

The not-for-profit organization DuraSpace, offers the open source cloud storage management service DuraCloud, an interface that brokers storage and preservation actions across multiple cloud storage services, including Amazon Web Service’s Simple Storage Service (S3) and Glacier, Rackspace, and/or the San Diego Supercomputer Center. DuraCloud offers multiple subscription plans with support for automated fixity checking, online access, and storage reporting and analytics. Enterprise subscription plans add additional features such as multiple user accounts, with associated administrative features to assign permissions and access controls, and video and audio streaming services. DuraClouds “Plus” subscription plans provide automatic replication to secondary storage sites (Glacier, Rackspace, or SDSC). Prices for DuraCloud subscriptions are offered as an annual subscription and scale up for customers with more than 1TB of data.

DuraCloud
SERVICE PROVIDER: DuraSpace
WEBSITE: www.duracloud.org
PRODUCT RELEASED: 2011
COMPLIANCE: Primary storage in Amazon S3 is HIPAA HITECH and SSAE-16 compliant
SERVICE: Deep storage, streaming
INFRASTRUCTURE: Contracted
COST: High

Data Management

DuraCloud offers multiple methods for delivery into the service: the DuraCloud sync tool supports upload via a graphical interface or the command line. The import tools can monitor local directories for all changes and additions, automatically delivering files into storage. Advanced integrations with client-side applications may be implemented using the tool’s API. **DuraCloud generates an md5 checksum for each file upon ingest and performs ongoing data integrity checks** (excluding data stored on Glacier). Failed integrity checks trigger automatic restoration from redundant copies within the primary or secondary storage services managed by DuraCloud. Outcomes of data integrity monitoring are available as logs and .csv exports in the DuraCloud Manager interface.

Reporting / Metadata

DuraCloud parses and generates metadata for each asset upon ingest, including mime type, file size, and an md5 checksum. **Additional custom metadata values and keyword tags can be applied to files as name-value pairs.** The DuraCloud Manager interface provides details on each space—a container for organizing files—documenting growth in storage usage and breakdowns of content by file type and size.

Redundancy

Through the storage infrastructure behind Amazon S3, redundant copies of data are stored within one of Amazon’s data regions placing digital materials at risk in cases of disaster. This can be expanded to offer geographically separate redundancy across secondary services at the Plus subscription level. **DuraCloud Plus services automatically synchronize data between primary and secondary storage.** Data lost due to a disaster or integrity failure is replaced from secondary copies if redundant copies in S3 have been compromised.

Accessibility

DuraCloud provides users a low-latency, high-speed primary store of data using Amazon’s S3. Enterprise subscription levels features streaming access of time-based media using Amazon CloudFront. DuraCloud also supports direct download of assets from the web interface or through shareable direct links.

Security

DuraCloud supports multiple user accounts at the Enterprise subscription level. **Administrators may apply permissions to user groups which have permissions associated with them, dictating the files users within that group may access and actions they may perform within the service.** DuraCloud supports authentication protocols for user login (Shibboleth integration is on the road map). Data transfers to and from DuraCloud use the Secure Sockets Layer encryption protocol. Data may be encrypted by the third party services utilized in DuraCloud, in these cases DuraCloud does not manage the encryption keys.

End of Service

Unique among the services covered in this series, DuraCloud is built on open source software, documented and available for download on GitHub. **Users can download the entirety of data at any point and discontinue the service without additional cost.** In the event that DuraCloud services are no longer available, DuraCloud states users may host the system locally or will be provided with the necessary credentials to manage the third party storage service on their own.

Levels of Preservation (at DuraCloud Enterprise Plus level)

	Level 1 (Protect)	Level 2 (Know)	Level 3 (Monitor)	Level 4 (Repair)
Storage	<ul style="list-style-type: none"> Two complete copies that are not collocated 	<ul style="list-style-type: none"> At least three complete copies At least one copy in a different geographic location 	<ul style="list-style-type: none"> At least one copy in a geographic location with a different disaster threat Obsolescence monitoring for storage system(s) 	<ul style="list-style-type: none"> At least three copies in geographic locations with different disaster threats
Data Integrity	<ul style="list-style-type: none"> Check file fixity on ingest if it has been provided with content Create fixity info if it wasn't provided with the content 	<ul style="list-style-type: none"> Check fixity on all ingests Virus-check high risk content 	<ul style="list-style-type: none"> Check fixity of content at fixed intervals Maintain logs of fixity info; supply audit on demand Ability to detect corrupt data Virus-check all content 	<ul style="list-style-type: none"> Check fixity of all content in response to specific events or activities Ability to replace/repair corrupted data Ensure no one person has write access to all copies
Security	<ul style="list-style-type: none"> Identify who has read, write, move, and delete authorization to individual files Restrict who has those authorization to individual files 	<ul style="list-style-type: none"> Document access restrictions for contents 	<ul style="list-style-type: none"> Maintain logs of who performed what actions on files, including deletions and preservation actions 	<ul style="list-style-type: none"> Perform audit of logs

**Have more questions? We can help.
Contact AVPreserve at info@avpreserve.com**

