

# Cloud Files™

## Introduction

API v1 (Aug 10, 2011)



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This document is intended for potential and actual users of Rackspace Cloud Files™ and for software developers interested in developing applications using the Rackspace Cloud Files™ Application Programming Interface (API). The document is for informational purposes only and is provided "AS IS."

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# 1. Introduction

Rackspace Cloud Files™ is an affordable, redundant, scalable, and dynamic storage service offering. The core storage system is designed to provide a safe, secure, automatically re-sizing and network-accessible way to store data. You can store an unlimited quantity of files and each one can be as large as 5 gigabytes. Users can store as much as they want and pay only for storage space they actually use.

Additionally, Cloud Files provides a simple yet powerful way to publish and distribute content behind the industry-leading Akamai Content Distribution Network. Cloud Files users get access to this network automatically without having to worry about contracts, additional costs, or technical hurdles.

Cloud Files allows users to store/retrieve files and CDN-enable content via a simple ReST (Representational State Transfer) web service interface. There are also language-specific APIs that utilize the ReST API but make it much easier for developers to integrate into their applications.

For more details on the Cloud Files service, please refer to [http://www.rackspacecloud.com/cloud\\_hosting\\_products/files](http://www.rackspacecloud.com/cloud_hosting_products/files).

## 2. Ideal Uses of Cloud Files

There are a number of uses for the Cloud Files service. Cloud Files is an excellent storage solution and is well suited for applications such as:

- Backing up or archiving data
- Serving images/videos (streaming data to the user's browser)
- Serving content with a world-class CDN (Akamai)
- Storing secondary/tertiary, static web-accessible data
- Developing new applications with data storage integration
- Storing data when predicting storage capacity is difficult
- Storing data for applications affordably

## 3. Why Use Cloud Files?

There are a number of reasons to choose the Cloud Files service over similar services available in the market.

- Simplicity of security mechanisms and CDN functionality
- Affordability of the service with a price of just 15cents / gigabyte of storage
- Flexibility in terms, paying as you go
- Great performance
- World-class support

## 4. Cloud Files Features

Cloud Files' key features include simplicity, affordability, flexibility, Fanatical Support®, data redundancy, and security.

### 4.1. Simplicity

Cloud Files is simple to use for developers and non-developers alike. Users can get started in as little as five minutes. Users do not have to know how to code to use Cloud Files and CDN. Users can, within minutes, sign up for Cloud Files, create a Container, upload a file and publish that Container's content through the CDN. The Cloud Files GUI is easy to navigate and use. The Rackspace browser-based control panel lets users easily upload files and distribute on a CDN without writing any code.

All the content can be backed by a CDN without complex negotiations and details of updating content for optimizing delivery. Given the complexity of the CDN, users may have to make a series of choices such as number of servers to use, etc., before obtaining the service. After making the choices, users must ensure that their usage bills are accurate. All these issues are handled by Cloud Files. CDNs have, in the past, been the prerogative of companies with more money but Cloud Files has changed that.

Cloud Files is a user-friendly and developer-friendly service. Security mechanisms are simple to use. Third-party tools which further simplify use of the storage service are available. Developers can use an Application Programming Interface (API) with language-specific bindings to develop utilities or applications. The API is easy to use and is documented with examples to get started quickly.

### 4.2. Affordability

Pricing for Cloud Files with CDN starts at 15 cents per gigabyte of storage and 18 cents per gigabyte of bandwidth outbound to any edge location around the globe. There is no charge for inbound bandwidth and there are no per-requests fees for CDN. For the latest pricing information, please refer to the Cloud Files web site at [http://www.rackspacecloud.com/cloud\\_hosting\\_products/files](http://www.rackspacecloud.com/cloud_hosting_products/files).

### 4.3. Flexibility

Cloud Files is a dynamically expanding storage system. It is very flexible and is built on the pay-for-use principle. Customers can use as much or little storage as necessary, while paying only for storage space used. There is no limit on total space used and individual files can be as large as 5GB. The GUI control panel allows users to check storage space used and bandwidth utilized. There are no upfront fees or contracts and end users pay only for storage space used and outgoing bandwidth that they use.

System administrators can use this for simple manual updates as well. Users do not have to know how to code to use Cloud Files and CDN. No API is required to share files. Non-developers have a simple web interface that can be used to quickly and easily upload data and enable CDN access. Multiple third party tools make it even more flexible for users of specific environments such as the Mac OS.

Developers can use the ReST web service and language-specific APIs in PHP, Python, Java, Ruby, and C#/.NET. The APIs provide full support for managing content in Cloud Files and publishing content over the CDN. The API allows developers to work in the language they feel most comfortable using.

## 4.4. World-Class Support

With Cloud Files, world-class free technical support is only a click away. Live support, with real people, is available 24/7. Fanatical Support® is built into the price. Users can get peace of mind knowing that technical support is just a phone call or online chat away — at any time of the day.

## 4.5. Data Redundancy

The Cloud Files storage system is designed to be highly available and fault tolerant. Cloud Files achieves client data redundancy by replicating three full copies on different storage nodes. Storage nodes are grouped in logical Zones within Rackspace datacenters. Zones are connected to redundant internet backbone providers and reside on redundant power supplies and generators. The system has been engineered in such a way as to continue to be fully functional even in the event of a major service disruption within a datacenter. Content on the CDN provides an additional layer of data redundancy.

## 4.6. Security

Cloud Files uses a number of different measures to ensure that your data is kept safe. First and foremost, all traffic between clients and the Cloud Files system uses SSL to establish a secure, encrypted communication channel. This ensures that any data (usernames, passwords, and content) cannot be intercepted and read by a third-party. Users authenticate with a valid username and API Access Key and are granted a session authentication token. These authentication tokens are used to validate all operations against Cloud Files. There is no way to terminate a valid session by the user, but the session tokens will automatically expire after 24 hours, forcing clients to resend their credentials.

The API Access Key is only available after login to the customer's Rackspace Cloud control panel. Users must enter their valid username and password to gain access to view the API Access Key or to generate a new key.

It is important to note that Cloud Files does not apply any transformations to data before storing it. This means that Cloud Files will not store data in encrypted form unless the client encrypts it prior to transmission. This allows users to select the type and level of encryption best suited to their applications.

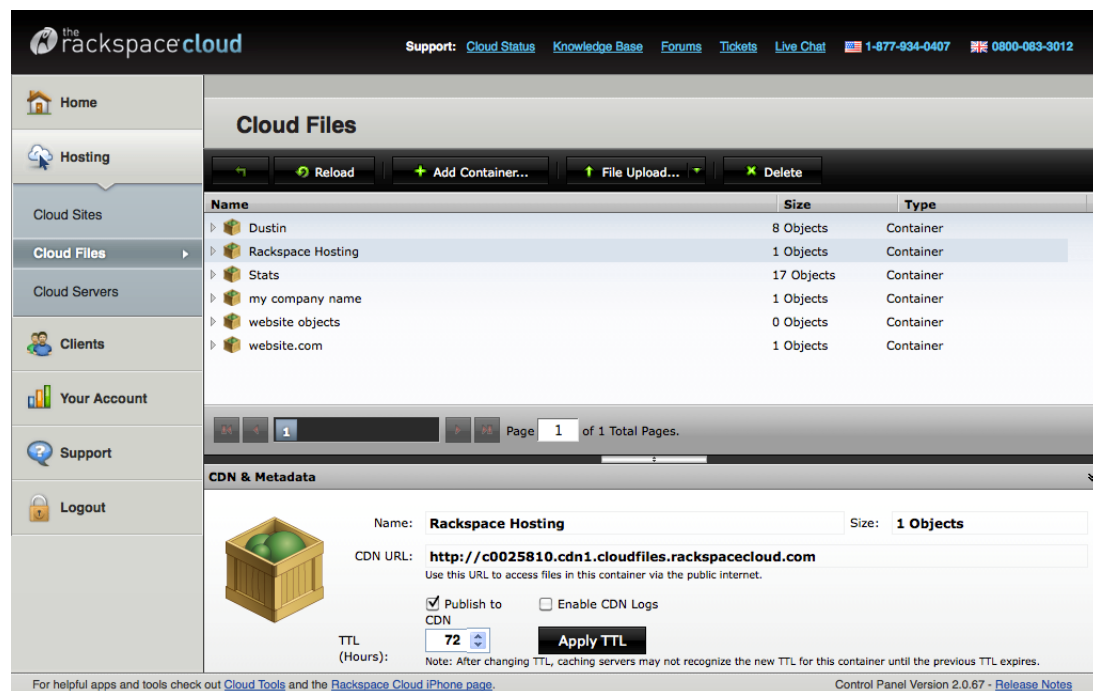
When deleting storage Objects from the Cloud Files system, all copies of data are permanently removed within a matter of minutes. Furthermore, the physical blocks making up the customer's data are zeroed over before that space is re-used for other customer data. In other words, after a delete request, the data will be unrecoverable.

## 5. Tools and Applications for Cloud Files

In addition to the ReST API and its language-specific bindings, there are several other ways for users to interact with Cloud Files.

### 5.1. Control Panel

The Rackspace Cloud control panel is one way to access Cloud Files. Files can be uploaded and downloaded through the control panel. This is a tool to understand at a high level how Cloud Files works. It gives system administrators a view of the various containers and objects stored on Cloud Files. It also provides a means of updating individual files and the metadata that describes those files.



Name	Size	Type
Dustin	8 Objects	Container
Rackspace Hosting	1 Objects	Container
Stats	17 Objects	Container
my company name	1 Objects	Container
website objects	0 Objects	Container
website.com	1 Objects	Container

CDN & Metadata

Name: **Rackspace Hosting** Size: **1 Objects**

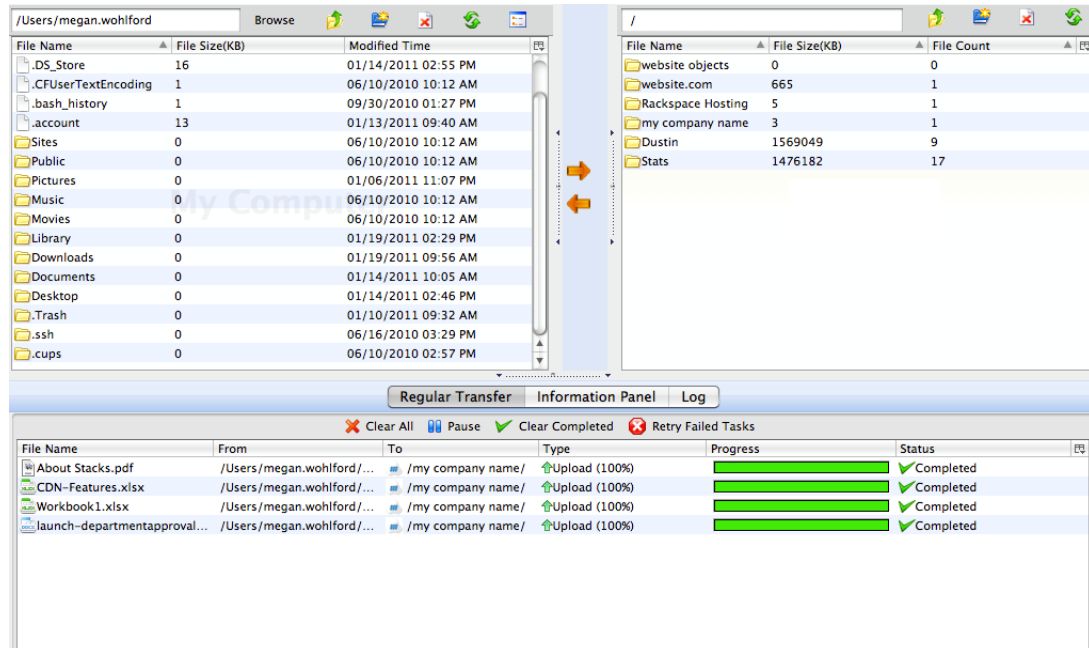
CDN URL: **http://c0025810.cdn1.cloudfiles.rackspacecloud.com**  
Use this URL to access files in this container via the public internet.

Publish to CDN  Enable CDN Logs

TTL (Hours): **72** **Apply TTL**  
Note: After changing TTL, caching servers may not recognize the new TTL for this container until the previous TTL expires.

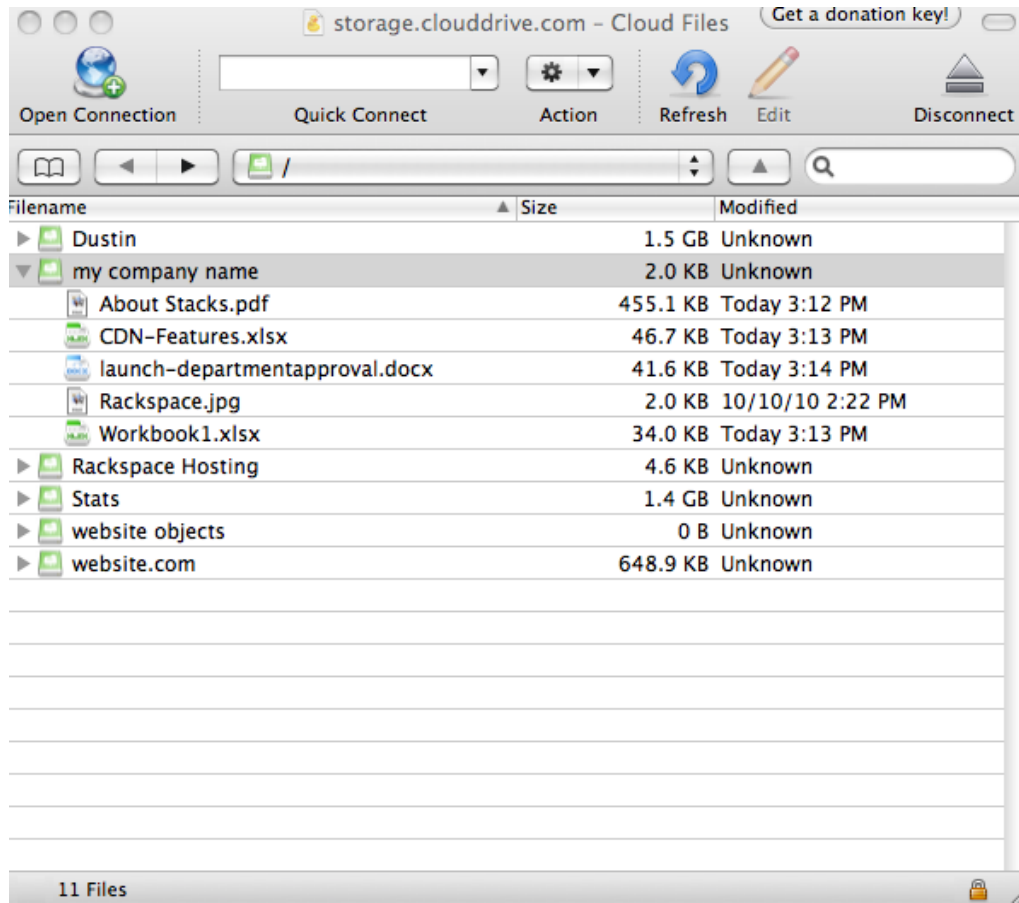
### 5.2. FireUploader GUI

FireUploader is a tool from Suchi Software; it provides an intuitive interface to move and manage files in Cloud Files. It works as a plug-in to the Mozilla Firefox browser and provides a GUI to manage the movement as well as metadata in Cloud Files. While setting up the tool, you must supply your Rackspace Cloud username; when prompted for a password, enter your API Access Key. This tool provides a creative way of working with available Cloud Files features to allow users to simulate a hierarchical file system structure. For more information, please see the Fireuploader web site at <http://www.fireuploader.com>.



## 5.3. Cyberduck

Cyberduck is an open-source Cloud Files browser licensed under the GPL; it's available for Mac and Windows. Cyberduck features an easy-to-use interface with easily accessible bookmarks. The browser outline view allows users to browse large folder structures efficiently and preview files with Quick Look. Cyberduck also provides seamless integration with many external editors, making it easy to change content quickly. It provides a way to upload and configure Cloud Files to distribute content over the CDN. For more information, please see the Cyberduck web site at <http://cyberduck.ch/>.



## 6. Developing Applications for Cloud Files

There are several programming interfaces for using Cloud Files that will allow developers to integrate the storage solution into new applications, or provide automated ways of accessing the system.

### 6.1. ReST API

Cloud Files allows users to store/retrieve files via a simple Web Service (ReST: Representational State Transfer) interface. New Cloud Files storage applications such as the tools described in the previous sections can be designed and developed by using the ReST application programming interface. For more details on developing Cloud Files applications, please refer to the Rackspace Cloud Files API Developer Guide at <http://docs.rackspacecloud.com/files/api/cf-devguide-latest.pdf>.

### 6.2. Language-Specific API Bindings

In addition to the ReST API, there are language-specific API documents and assets for C#/.NET, Python, PHP, Java and Ruby. These developer resources are documented on the Cloud Files web site at [http://www.rackspacecloud.com/cloud\\_hosting\\_products/files/api/](http://www.rackspacecloud.com/cloud_hosting_products/files/api/).

### 6.3. Caveats

There are many advantages to a storage system like Cloud Files and many appropriate use-cases. However, there are limitations depending on your needs and there are some use-cases for which Cloud Files is not an ideal storage solution. Keep the following points in mind as you further explore Cloud Files:

- Native support within your operating system. It is not possible to “mount” or “map” the Cloud Files storage system as a virtual hard-disk on your computer or server.
- Disk mirroring or backup solutions that require byte/block level differences. There are no concepts of “appending data” or “file locking” operations within Cloud Files.
- Data can be organized into storage compartments called “Containers”, but Containers cannot be nested. Since there is only one top level of organization, you will not be able to upload nested directory/folder structures into Cloud Files unless a transformation is performed to flatten the structure.
- There is no built-in concept of permissions or access controls in the Cloud Files system such as you may be accustomed to in a traditional file system.
- There are no transcoding capabilities to read a file in one format and upload it in one or more other formats into Cloud Files.

## 7. Additional Resources

The official support channels (phone, chat, email, forums, and knowledge base articles) for Cloud Files are available through the Rackspace Cloud web site at <http://www.rackspacecloud.com>.

The system status page at <http://status.cloudfiles.rackspacecloud.com> can be reviewed if you believe the Cloud Files system is not functioning to your expectations. This page is updated to reflect up-to-date information about the system's current health and status.

Interested users can also follow updates/announcements via twitter at <http://www.twitter.com/rackspace>.

Developers are also encouraged to join some of the members of the Cloud Files team at [irc.freenode.net](http://irc.freenode.net) on the #cloudfiles channel. This is not an official Cloud Files support channel but should rather be viewed as a community meeting place to share ideas and discuss Cloud Files.