

# Cloud API Extensions

## Introduction

API v1.0 BETA (May. 6, 2011)

DRAFT

## Cloud API Extensions Introduction

API v1.0 BETA (2011-05-06)

Copyright © 2010, 2011 Rackspace US, Inc. All rights reserved.

This document is intended for software developers interested in developing applications using OpenStack API Extensions. The document is for informational purposes only and is provided "AS IS."

RACKSPACE MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, AS TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS DOCUMENT AND RESERVES THE RIGHT TO MAKE CHANGES TO SPECIFICATIONS AND PRODUCT/SERVICES DESCRIPTION AT ANY TIME WITHOUT NOTICE. RACKSPACE SERVICES OFFERINGS ARE SUBJECT TO CHANGE WITHOUT NOTICE. USERS MUST TAKE FULL RESPONSIBILITY FOR APPLICATION OF ANY SERVICES MENTIONED HEREIN. EXCEPT AS SET FORTH IN RACKSPACE GENERAL TERMS AND CONDITIONS AND/OR CLOUD TERMS OF SERVICE, RACKSPACE ASSUMES NO LIABILITY WHATSOEVER, AND DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO ITS SERVICES INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NONINFRINGEMENT.

Except as expressly provided in any written license agreement from Rackspace, the furnishing of this document does not give you any license to patents, trademarks, copyrights, or other intellectual property.

Rackspace®, Rackspace logo and Fanatical Support® are registered service marks of Rackspace US, Inc. All other product names and trademarks used in this document are for identification purposes only and are property of their respective owners.

## Table of Contents

1. Overview .....	1
1.1. Intended Audience .....	1
1.2. Document Change History .....	1
1.3. Additional Resources .....	1
2. What Problems Can API Extensions Solve? .....	2
2.1. Standardization vs Innovation and Differentiation .....	2
2.2. Pluggability .....	2
2.3. Open Source .....	2
3. What Are API Extensions? .....	3
3.1. Case Study: Open GL .....	3
3.2. Extensions .....	3
3.3. Extensions vs Versions .....	3
3.4. Extensions and Pluggability .....	3
4. How Do API Extensions Work with ReST? .....	4
4.1. What can be extended? .....	4
4.2. How are available extensions identified? .....	4
4.3. How is an extension's vendor identified? .....	4
4.4. Can data be extended? .....	4
4.5. Can actions be extended? .....	4
4.6. Can headers and states be extended? .....	4
4.7. Which resources can use which extensions? .....	5
5. How Can an API Extension Become an API Feature? .....	6
5.1. Specification governance .....	6
5.2. ARB-Approved Extensions .....	6
5.3. Promotion Path .....	6
6. What Challenges Must Be Met? .....	7
6.1. Language Bindings .....	7
6.2. JSON and Collections .....	7
7. When is an API Extension the Best Approach? .....	8
7.1. Why use extensions? .....	8
7.2. How to use extensions? .....	8

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

# 1. Overview

Rackspace Cloud API Extensions make it possible to add functionality to Cloud APIs without modifying the core of the API itself.

We welcome feedback, comments, and bug reports at [support@rackspacecloud.com](mailto:support@rackspacecloud.com).

## 1.1. Intended Audience

This Guide is intended to assist software developers who want to develop applications using the Cloud API Extension. To use the information provided here, you should first have a general understanding of Rackspace Cloud APIs. You should also be familiar with:

- ReSTful web services
- HTTP/1.1 conventions
- JSON and/or XML data serialization formats
- Atom syndication format

## 1.2. Document Change History

This version of the Introduction replaces and obsoletes all previous versions. The most recent changes are described in the table below:

Revision Date	Summary of Changes
May 6, 2011	• Initial draft.

## 1.3. Additional Resources

You can read the most current versions of other API-related documents at <http://docs.rackspacecloud.com/api/>.

## 2. What Problems Can API Extensions Solve?

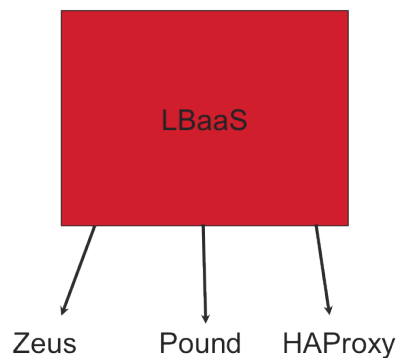
### 2.1. Standardization vs Innovation and Differentiation

placeholder for content

### 2.2. Pluggability

placeholder for content

**Figure 2.1. One service can reach many backends.**



### 2.3. Open Source

placeholder for content

## 3. What Are API Extensions?

### 3.1. Case Study: Open GL

placeholder for content

### 3.2. Extensions

placeholder for content

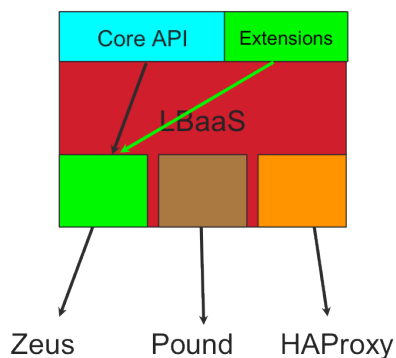
### 3.3. Extensions vs Versions

placeholder for content

### 3.4. Extensions and Pluggability

placeholder for content

**Figure 3.1. One backend can be reached by both the Core API and Extensions.**



## 4. How Do API Extensions Work with ReST?

## 4.1. What can be extended?

placeholder for content

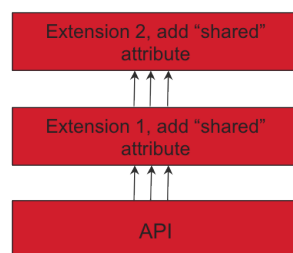
## 4.2. How are available extensions identified?

placeholder for content

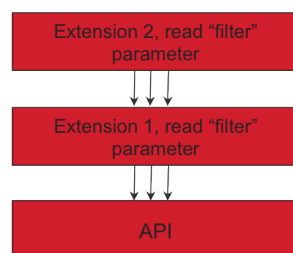
### 4.3. How is an extension's vendor identified?

placeholder for content

**Figure 4.1. Two extensions add a "shared" attribute; one overrides the other.**



**Figure 4.2. Two extensions read a "filter" parameter; both are activated.**



#### 4.4. Can data be extended?

placeholder for content

## 4.5. Can actions be extended?

placeholder for content

#### 4.6. Can headers and states be extended?

placeholder for content



## 4.7. Which resources can use which extensions?

placeholder for content

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -

DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT - DRAFT -