

# HP Operations Orchestration

For the Windows and Linux operating systems

Software Version: Content Pack 9

---

## Amazon S3 Integration Guide

Document Release Date: July 2012

Software Release Date: July 2012



# Legal Notices

## Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

## Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

## Copyright Notice

© Copyright 2012 Hewlett-Packard Development Company, L.P.

## Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

This product includes an interface of the 'zlib' general purpose compression library, which is Copyright © 1995-2002 Jean-loup Gailly and Mark Adler.

## Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

**<http://h20230.www2.hp.com/selfsolve/manuals>**

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

# Support

Visit the HP Software Support Online web site at:

**<http://www.hp.com/go/hpsoftwaresupport>**

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

To find more information about access levels, go to:

**[http://h20230.www2.hp.com/new\\_access\\_levels.jsp](http://h20230.www2.hp.com/new_access_levels.jsp)**

---

# Contents

Amazon S3 Integration Guide .....	1
Contents .....	5
Introduction .....	6
About Amazon S3 Integration .....	6
Audience .....	6
Prerequisites .....	7
Amazon S3 Supported Versions .....	7
Downloading OO Releases and Documents on HP Live Network .....	7
Getting Started .....	8
Installing and Configuring the Integration .....	8
Use Cases .....	8
Amazon S3 — OO Integration Architecture .....	9
Location of Amazon S3 Integration Operations and Flows in OO Studio .....	10
Troubleshooting .....	11
Troubleshooting Overview .....	11
General Troubleshooting Procedures .....	11
Error Messages .....	12
Security .....	18

# Chapter 1

---

## Introduction

This chapter includes:

About Amazon S3 Integration .....	6
Audience .....	6
Prerequisites .....	7
Amazon S3 Supported Versions .....	7
Downloading OO Releases and Documents on HP Live Network .....	7

## About Amazon S3 Integration

This integration enables administrators to create HP Operations Orchestration (OO) flows that are integrated with Amazon Simple Storage Service (S3).

Amazon S3 is storage for the Internet. It is designed to make web-scale computing easier for developers.

Amazon S3 provides a simple web service interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the web. It gives any developer access to the same highly scalable, reliable, secure, fast, inexpensive infrastructure that Amazon uses to run its own global network of web sites. The service aims to maximize benefits of scale and to pass those benefits on to developers.

The OO Integration with the Amazon S3 service uses REST-based requests to automate some of the service's basic functionalities on buckets. In addition, it comes with a complete set of operations that enable the launching of upload tasks in your S3 account. The existing operations can be used to further develop similar scenarios. The integration contains also authorization support through an operation that calculates the Amazon signature.

To learn how to create OO flows, see the Studio Guide to Authoring Operations Orchestration Flows in the documentation set for the current OO release. The S3 integration uses the S3 REST API released on 2006-03-01 to integrate with OO. To use this integration successfully, you should have knowledge of S3 technology.

## Audience

This guide is intended for users who have an Amazon AWS account and wish to store data in the cloud or users who wish to access public data from the cloud.

## Prerequisites

To use this integration successfully, you must have an Amazon AWS account and the S3 service enabled. You can use this [link](#) to sign up for S3.

Other useful links and resources are:

**AWS S3.** <http://aws.amazon.com/s3/>

**S3 API reference.** <http://docs.amazonwebservices.com/AmazonS3/latest/API/>

## Amazon S3 Supported Versions

Operations Orchestration Version	Amazon 3
OO Content Pack 9	S3 REST API version 2006-03-01

## Downloading OO Releases and Documents on HP Live Network

HP Live Network provides an Operations Orchestration Community page where you can find and download supported releases of OO and associated documents.

To download OO releases and documents, visit the following site:

<https://hpln.hp.com/>

**Note:** This site requires that you register for an HP Passport and sign-in.

To register for an HP Passport ID:

1. Go to: <http://h20229.www2.hp.com/passport-registration.html>

Or

Click the **New users - please register** link on the HP Passport login page.

2. On the HP Live Network page, click **Operations Orchestration**.
3. On the left-hand side, click **Operations Orchestration Content Packs**.
4. In the **Operations Orchestration Content Packs** box, click **Content**. The HP Passport and sign-in page appears.
5. Enter your user ID and Password to access to continue.
6. Click **HP Operations Orchestration 9.00**.
7. Search for the required HP Operations Orchestration Content Pack.

# Chapter 2

---

## Getting Started

This chapter includes:

Installing and Configuring the Integration .....	8
Use Cases .....	8
Amazon S3 — OO Integration Architecture .....	9
Location of Amazon S3 Integration Operations and Flows in OO Studio .....	10

## Installing and Configuring the Integration

No special installation and configuration instructions are required for Amazon Simple Storage Service integration. To use Amazon Simple Storage Service you need to have an AWS account ID or credentials of an S3 user belonging to an AWS account.

## Use Cases

The following are the major use cases for the Amazon S3 integration, and the operations that you can use to implement them.

### 1. Buckets:

- Create Bucket
- Delete Bucket
- Enumerate Buckets
- Get Bucket Content
- Is Bucket Available

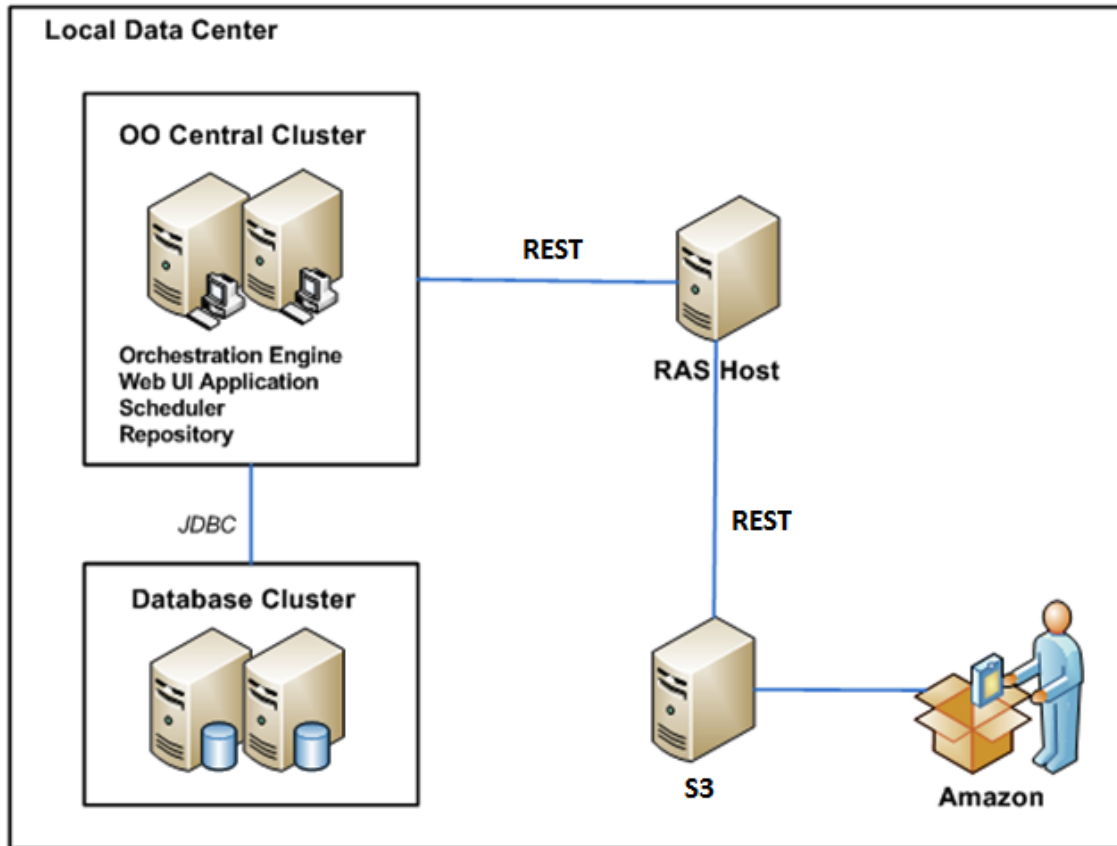
### 2. Objects:

- Single Part File Upload
- Initiate Multipart Upload
- Upload Part
- Multipart File Upload
- List Parts
- Abort Multipart Upload
- Complete Multipart Upload
- Upload File



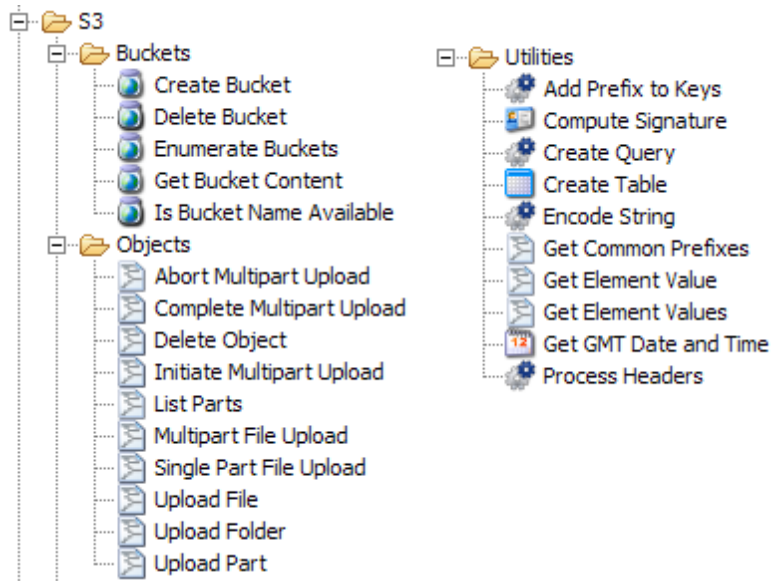
- Upload Folder
- Delete Object

## Amazon S3 — OO Integration Architecture



## Location of Amazon S3 Integration Operations and Flows in OO Studio

The S3 integration includes the following operations and flows in the **OO Studio Library/Integrations/Amazon/S3** folder.



# Chapter 3

---

## Troubleshooting

This chapter includes:

Troubleshooting Overview .....	11
General Troubleshooting Procedures .....	11
Error Messages .....	12

## Troubleshooting Overview

This section provides troubleshooting procedures and tools that you can use to solve problems you may encounter while using this integration. It also includes a list of the error messages you may receive while using the integration and offers descriptions and possible fixes for the errors.

## General Troubleshooting Procedures

When troubleshooting issues related to the S3 integration, verify that:

1. The same operation works when it is performed through the S3 console using the same parameters.
2. That your access key and proxy parameters are correct.
3. At Delete Bucket, the bucket is empty.
4. If the credentials used for authentication when using these operations belong to an S3 user, this S3 user has permission to access the S3 services.
5. Bucket names follow the Amazon S3 bucket naming conventions:
  - Use from 3 to 63 characters.
  - Use only the following characters:
    - Lower case letters
    - Numbers
    - A period (.)
    - A plus sign (+)
    - A minus sign (-)
  - Do not start or end the bucket name with a period (.) and do not follow or precede a period (.) with a minus sign (-).
  - Keys can be named with any properly encoded UTF-8 character. If used, the plus sign (+) character must be URL encoded

For more information on bucket-naming conventions, go to <http://docs.amazonwebservices.com/AmazonS3/latest/dev/BucketRestrictions.html>.

## Error Messages

This section lists the error messages you may receive while using this integration. Each error message includes possible causes and fixes for the error.

- `AccessDenied`

Access Denied.

- `AccountProblem`

There is a problem with your AWS account that prevents the operation from completing successfully.

- `AmbiguousGrantByEmailAddress`

The e-mail address you provided is associated with more than one account.

- `BadDigest`

The Content-MD5 you specified did not match what we received.

- `BucketAlreadyExists`

The requested bucket name is not available. The bucket namespace is shared by all users of the system. Please select a different name and try again.

- `BucketAlreadyOwnedByYou`

Your previous request to create the named bucket succeeded and you already own it.

- `BucketNotEmpty`

The bucket you tried to delete is not empty.

- `CredentialsNotSupported`

This request does not support credentials.

- `CrossLocationLoggingProhibited`

Cross location logging is not allowed. Buckets in one geographic location cannot log information to a bucket in another location.

- `EntityTooSmall`

Your proposed upload is smaller than the minimum allowed object size.

- `EntityTooLarge`

Your proposed upload exceeds the maximum allowed object size.

- `ExpiredToken`

The provided token has expired.

- `IllegalVersioningConfigurationException`

Indicates that the versioning configuration specified in the request is invalid.

- `IncompleteBody`

You did not provide the number of bytes by the Content-Length HTTP header.

- `IncorrectNumberOfFilesInPostRequest`

POST requires exactly one file upload per request.

- `InlineDataTooLarge`

Inline data exceeds the maximum allowed size.

- `InternalError`

We encountered an internal error. Please try again.

- `InvalidAccessKeyId`

The AWS Access Key Id you provided does not exist in our records.

- `InvalidAddressingHeader`

You must specify the Anonymous role.

- `InvalidArgument`

Invalid Argument.

- `InvalidBucketState`

The request is not valid with the current state of the bucket.

- `InvalidDigest`

The Content-MD5 you specified was invalid.

- `InvalidLocationConstraint`

The specified location constraint is not valid. For more information about regions, see [How to Select a Region for your Buckets](#).

- `InvalidPart`

One or more of the specified parts could not be found. The part might not have been uploaded, or the specified entity tag might not have matched the part's entity tag.

- `InvalidPartOrder`

The list of parts was not in ascending order. Parts list must be specified in order by part number.

- `InvalidPayer`

All access to this object has been disabled.

- `InvalidPolicyDocument`

The content of the form does not meet the conditions specified in the policy document.

- `InvalidRange`  
The requested range cannot be satisfied.
- `InvalidRequest`  
The SOAP request must be made over an HTTPS connection.
- `InvalidSecurity`  
The provided security credentials are not valid.
- `InvalidSOAPRequest`  
The SOAP request body is invalid.
- `InvalidStorageClass`  
The storage class you specified is not valid.
- `InvalidTargetBucketForLogging`  
The target bucket for logging does not exist, is not owned by you, or does not have the appropriate grants for the log-delivery group.
- `InvalidToken`  
The provided token is malformed or otherwise invalid.
- `InvalidURI`  
Couldn't parse the specified URI.
- `KeyTooLong`  
Your key is too long.
- `MalformedACLError`  
The XML you provided was not well-formed or did not validate against our published schema.
- `MalformedPOSTRequest`  
The body of your POST request is not well-formed, multipart/form-data.
- `MalformedXML`  
This happens when the user sends a malformed xml (xml that does not conform to the published xsd) for the configuration. The error message is: The XML you provided was not well-formed or did not validate against our published schema.
- `MaxMessageLengthExceeded`  
Your request was too long.
- `MaxPostPreDataLengthExceededError`  
Your POST request fields preceding the upload file were too large.
- `MetadataTooLarge`  
Your metadata header exceeded the maximum allowed metadata size.

- `MethodNotAllowed`

The specified method is not allowed against this resource.

- `MissingAttachment`

A SOAP attachment was expected, but none was found.

- `MissingContentLength`

You must provide the Content-Length HTTP header.

- `MissingRequestBodyError`

This happens when the user sends an empty xml document as a request. The error message is:  
`Request body is empty.`

- `MissingSecurityElement`

The SOAP 1.1 request is missing a security element.

- `MissingSecurityHeader`

Your request was missing a required header.

- `NoLoggingStatusForKey`

There is no such thing as a logging status sub-resource for a key.

- `NoSuchBucket`

The specified bucket does not exist.

- `NoSuchKey`

The specified key does not exist.

- `NoSuchLifecycleConfiguration`

The lifecycle configuration does not exist.

- `NoSuchUpload`

The specified multipart upload does not exist. The upload ID might be invalid, or the multipart upload might have been aborted or completed.

- `NoSuchVersion`

Indicates that the version ID specified in the request does not match an existing version.

- `NotImplemented`

A header you provided implies functionality that is not implemented.

- `NotSignedUp`

Your account is not signed up for the Amazon S3 service. You must sign up before you can use Amazon S3. You can sign up at <http://aws.amazon.com/s3>.

- `NoSuchBucketPolicy`

The specified bucket does not have a bucket policy.

- `OperationAborted`

A conflicting conditional operation is currently in progress against this resource. Please try again.

- `PermanentRedirect`

The bucket you are attempting to access must be addressed using the specified endpoint. Please send all future requests to this endpoint.

- `PreconditionFailed`

At least one of the preconditions you specified did not hold.

- `Redirect`

Temporary redirect.

- `RequestIsNotMultiPartContent`

Bucket POST must be of the enclosure-type multipart/form-data.

- `RequestTimeout`

Your socket connection to the server was not read from or written to within the timeout period.

- `RequestTimeTooSkewed`

The difference between the request time and the server's time is too large.

- `RequestTorrentOfBucketError`

Request in the torrent file of a bucket is not permitted.

- `SignatureDoesNotMatch`

The request signature calculated does not match the signature provided. Check your AWS Secret Access Key and signing method. For more information, see [REST Authentication](#) and [SOAP Authentication](#).

- `ServiceUnavailable`

Please reduce your request rate.

- `SlowDown`

Please reduce your request rate.

- `TemporaryRedirect`

You are being redirected to the bucket while DNS updates.

- `TokenRefreshRequired`

The provided token must be refreshed.

- `TooManyBuckets`

You have attempted to create more buckets than allowed.

- `UnexpectedContent`

This request does not support content.



- `UnresolvableGrantByEmailAddress`

The e-mail address you provided does not match any account on record.

- `UserKeyMustBeSpecified`

The bucket POST must contain the specified field name. If it is specified, please check the order of the fields.

# Chapter 4

---

## Security

The requests from OO to S3 can be sent using either the HTTP or HTTPS protocol. When using the HTTPS protocol, the Authorization header of the request sent to Amazon will not be visible over the network. In addition, we provide an operation to compute a signature needed in order to secure your request. The signature is available for only 15 minutes.

S3 provides the following access control mechanisms:

- **Identity and Access Management (IAM) policies.**
- **Access Control Lists (ACLs)** - Enables you to selectively add (grant) certain permissions for individual objects.
- **Bucket policies** - Used to add or deny permissions across some or all of the objects within a single bucket.
- **Query string authentication** - Enables you to share Amazon S3 objects through URLs that are valid for a predefined expiration time.

**Note:** The only mechanisms OO supports are **Identity and Access Management (IAM) policies** and **ACLs**.

For more details about Amazon S3 security, click [here](#).