

## Universal Task Documentation

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### Universal Automation Center support for scheduling AMAZON S3 file Transfers

#### ut-aws-s3-list-buckets-linux

Associated Activities:

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| CONFIDENTIALITY INFORMATION |
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|          |          |           |                                   |
|          |          |           |                                   |

#### Abstract:

The here described Universal Tasks allow to Transfer and retrieve files from Amazon AWS S3. As a result, you can integrate any AWS S3 file transfers into you existing or new scheduling workflows, providing a true hybrid cloud (on-premise and cloud computer) file transfer solution.

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## 1 Disclaimer

No support and no warranty are provided by Stonebranch GmbH for this document and the related Universal Task. The use of this document and the related Universal Task is on your own risk.

Before using this task in a production system, please perform extensive testing.

Stonebranch GmbH assumes no liability for damage caused by the performance of the Universal Tasks

## 2 Scope

This document provides a documentation how to install and use the Universal Tasks for AWS S3 File Transfers. If more Task will be created in the future this document will be updated accordingly.

## 3 Introduction

Storing data in the cloud becomes an integral part of most modern IT landscapes. With Universal Automation Center you can securely automate your AWS, Azure or any other Cloud File Transfer and integrate them into your existing scheduling flows.

As security is one of the key concerns, when moving to the cloud, the provided solution supports multi-level of security:

- All Credential for AWS S3 (Access Key, Secret Access key and Region) are stored in an encrypted form in the database
- Connections towards the AWS VPC via a Proxy Server are supported
- Secure access to AWS S3 buckets using *AWS bucket policies* can be configured
- Restrict sending files only to specific buckets using *AWS End Points*

The here described Series of Universal Tasks focuses on the AMAZON AWS S3 file transfer. A similar solution as for AWS S3 is also available for Microsoft Azure.

Some details about the universal tasks for AWS S3:

- The Universal Tasks are calling the python module Boto3 - the Amazon Web Services (AWS) SDK for Python. Both Boto3 API Types are used the "low-level" Client API and Resource APIs.
- The python boto3 module is called by a Universal Agent running on a Linux Server or Windows Server – Note: This document focuses on the Linux Version
- The Server Running the Universal Agent needs to have Python 2.7.x or 3.6.x installed
- All Universal Task support encrypted connections via a Proxy Server
- All Credential for AWS S3 (Access Key, Secret Access key and Region) are stored in an encrypted form in the database
- You can configure all connection Parameters for the Proxy and AWS via the Universal Task
- You can select different log-levels e.g. Info and debug

The following Universal Task for AWS S3 have been implemented:

| Command                   | UT Name                                   | Description  |
|---------------------------|---|--|
| Create_Bucket             | ut_AWS_S3_Create_Bucket_linux             | Creates a bucket in AWS S3                         |
| Monitor_key_in_bucket     | ut_AWS_S3_Monitor_key_in_bucket_linux     | Monitors at a given interval for a key in a bucket |
| Copy_file_to_bucket       | ut_AWS_S3_Copy_file_to_bucket_linux       | Copies a file to a bucket                          |
| List_keys_in_bucket       | ut_AWS_S3_List_keys_in_bucket_linux       | Lists all keys in a bucket                         |
| Download_file_from_bucket | ut_AWS_S3_Download_file_from_bucket_linux | Downloads an AWS S3 key to a local file            |
| Delete_key_from_bucket    | ut_AWS_S3_Delete_key_from_bucket_linux    | Deletes a key from a bucket                        |
| Delete_empty_bucket       | ut_AWS_S3_Delete_empty_bucket_linux       | Deletes an empty bucket                            |
| List_buckets              | ut_AWS_S3_List_buckets_linux              | List all buckets of an AWS account                 |
| Check_for_key_in_buckets  | ut_AWS_S3_Check_for_key_in_buckets_linux  | Checks for the existence of a key in a bucket      |

## 4 Installation

### 4.1 Software Requirements

**Universal Task name:** `ut_AWS_S3_<xxx>_bucket_linux`

**Related UAC XML Files for template and task:** *Github repository*

**Software used:**

For the set-up you need:

1. Python 2.7.x (or 3.6.x) for Linux installed on a server where a Universal Agent is installed.
2. For Python the following modules are required:
  - **Re**, to support regular expression matching operations
  - **glob**, to find Unix pathnames matching a specified pattern
  - **os**, to support operating system dependent commands
  - **sys**, for output re-direct processing
  - **datetime**, **date** and time stamps for messages
  - **logging**, to provide logging capabilities for debug, info etc.
  - **boto3**, provide the Amazon Web Services (AWS) SDK for Python
  - **botocore**, Botocore is a low-level interface to a growing number of Amazon Web Services. Botocore serves as the foundation for the AWS-CLI command line utilities.
  - **argparse**, to allow testing of the Universal TPL. script on the command line

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*Note: Only the module **boto3** and **botocore** need to be added to python 3.6.x. e.g. using pip.*

- *pip install boto3*
  - *pip install botocore*
3. Universal Controller 6.4.5.x or higher
  4. Universal Agent 6.4.2.2 or higher installed on a Linux Server
  5. An Amazon AWS S3 account to try it out

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## 4.2 Installation Steps

The following describes the installation steps:

### 1. Install Python 2.7.x or 3.6.x for Linux on the Universal Controller server or any Linux Server running a Universal Agent.

Official Download link: <https://www.python.org/downloads/>.

Note:

In most cases python is already available on Linux. Check availability with: `python -V`

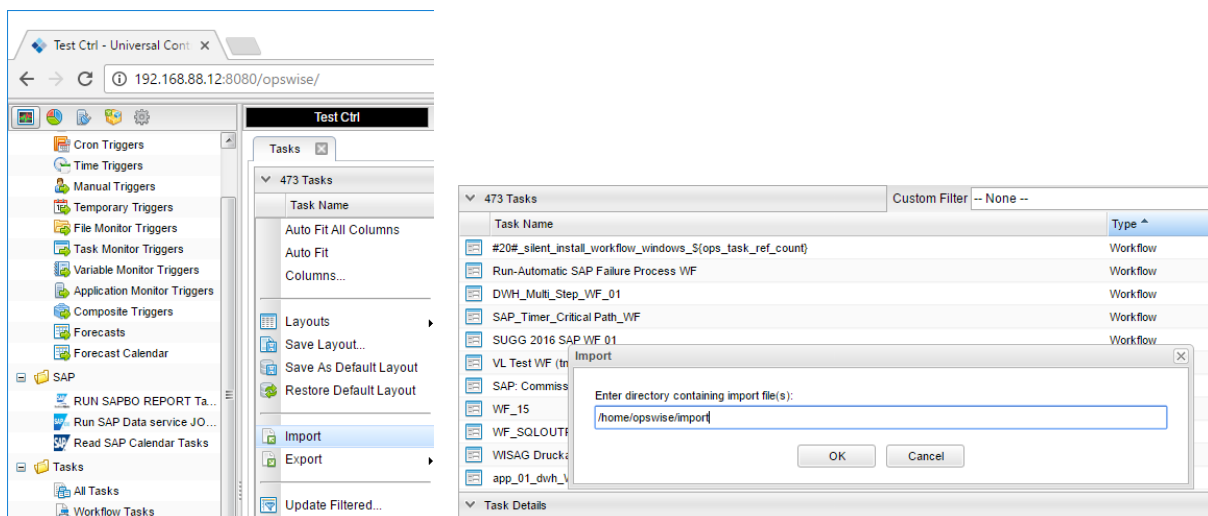
### 2. Add the boto3 and botocore modules to your python installation

In a command shell run as root or sudo:

- `pip install boto3`
- `pip install botocore`

### 3. Import each AWS S3 Universal Task including the Universal Template to your Controller

Go to “All Tasks” and load via the Import functionality the Universal Task configuration into the Controller.



## 5 Universal Task Configuration

### 1. Activate: Resolvable Credentials in Universal Automation Center:

|  |       |
|--|-------|
| Dashboards X RUN SAPBO REPORT Tasks X Properties X |       |
| S3 Properties                                      |       |
| Name   | Value |
| Resolvable Credentials Permitted                   | true  |

### 2. Fill Out the Universal Task for each AWS command, which you want to execute:

In the example below the *S3 Boto3 Create Bucket Task* was selected

The screenshot shows the Universal Controller interface with the 'S3 Boto3 Create Bucket Task' selected. The task details are as follows:

- Task Name:** Create bucket
- Version:** 7
- Task Description:** CASE-S3-01
- Member of Business Services:** (Dropdown menu)
- Resolve Name Immediately:** ☐
- Hold on Start:** ☐
- Virtual Resource Priority:** 10
- Hold Resources on Failure:** ☐
- Further Info's:** System: (Text field)
- Agent:** \$[LX\_AGT\_gozilla]
- Agent Cluster:** (Dropdown menu)
- Agent Variable:** ☒
- Agent Cluster Variable:** ☐
- Credentials:** (Dropdown menu)
- Credentials Variable:** ☐
- Cluster Broadcast:** (Dropdown menu)
- Proxy:** ☐
- Use Proxy:** No
- Port:** (Text field)
- Bucket:** testbucket
- loglevel:** INFO
- AWS\_DEFAULT\_REGION:** AWS\_DEFAULT\_REGION\_dummy
- AWS\_ACCESS\_KEY\_ID:** AWS\_ACCESS\_KEY\_ID\_dummy
- AWS\_SECRET\_ACCESS\_KEY:** AWS\_SECRET\_ACCESS\_KEY\_dummy
- Runtime Directory:** (Text field)
- Environment Variables:** (Table with Name and Value columns, currently empty)

Fill out or select the required Credentials for AWS and optionally a Proxy Server

In the example below the *AWS\_SECRET\_ACCESS\_KEY* credentials are shown:

The screenshot shows the 'Credential Details: AWS\_SECRET\_ACCESS\_KEY\_dummy' dialog box with the following details:

- Name:** AWS\_SECRET\_ACCESS\_KEY\_dummy
- Version:** 1
- Type:** Resolvable
- Runtime User:** dummy
- Runtime Password:** (Masked with dots)
- Description:** (Text field)

## 6 Universal Tasks for AWS S3

The following chapter describes the provided AWS S3 Universal Tasks.

### 6.1 Create\_Bucket

| Command       | UT Name                       | Description                |
|---------------|-------------------------------|----------------------------|
| Create_Bucket | ut_AWS_S3_Create_Bucket_linux | Creates a bucket in AWS S3 |

#### Task Screenshot:

The screenshot shows the configuration window for the 'S3 Boto3 Create Bucket Task'. The 'General' tab is active, displaying fields for 'Task Name' (Create bucket), 'Task Description' (CASE-S3-01), 'Version' (7), 'Member of Business Services', 'Resolve Name Immediately', 'Hold on Start', 'Virtual Resource Priority' (10), 'Hold Resources on Failure', 'Further Info's', and 'System'. The 'S3 Boto3 Create Bucket Details' section includes fields for 'Agent' (\$LX\_AGT\_gozilla), 'Agent Variable', 'Credentials', 'Credentials Variable', 'Proxy', 'Use Proxy' (No), 'proxycrd', 'AWS\_DEFAULT\_REGION' (AWS\_DEFAULT\_REGION\_dummy), 'AWS\_SECRET\_ACCESS\_KEY' (AWS\_SECRET\_ACCESS\_KEY\_dummy), 'Agent Cluster', 'Agent Cluster Variable', 'Cluster Broadcast', 'Port', 'Bucket' (testbucket), 'loglevel' (INFO), and 'AWS\_ACCESS\_KEY\_ID' (AWS\_ACCESS\_KEY\_ID\_dummy). A 'Runtime Directory' field is also present. At the bottom, there is an 'Environment Variables' table with columns 'Name' and 'Value'.

#### Field Description:

| Field              | Required  | Description  |
|--------------------|-----------|--|
| Agent              | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands                              |
| Credentials        | Optional  | The Credentials used on the Linux Server   |
| Use Proxy (yes/no) | Mandatory | Decide If a Proxy Server should be used yes or no (If "no" is selected the fields Proxy,Port and proxycrd are ignored) |
| Proxy              | Optional  | Proxy Server IP or hostname (only used in case Use Proxy = yes)  |
| proxycrd           | Optional  | Proxy Server Credentials (only used in case Use Proxy = "yes" is selected)   |
| Port               | Optional  | Proxy Server Port (only used in case Use Proxy = yes)  |
| loglevel           | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL   |



|                       |           |                               |
|-----------------------|-----------|-------------------------------|
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key                |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key                |
| Bucket                | Mandatory | Bucket to created             |

## 6.2 Monitor\_key\_in\_bucket

| Command               | UT Name                               | Description  |
|-----------------------|---------------------------------------|--|
| Monitor_key_in_bucket | ut_AWS_S3_Monitor_key_in_bucket_linux | Monitors at a given interval for a key in a bucket |

### Task Screenshot:

### Field Description:

| Field              | Required  | Description   |
|--------------------|-----------|---|
| Agent              | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands                               |
| Credentials        | Optional  | The Credentials used on the Linux Server  |
| Use Proxy (yes/no) | Mandatory | Decide If a Proxy Server should be used yes or no (If “no” is selected the fields Proxy,Port and proxycred are ignored) |
| Proxy              | Optional  | Proxy Server IP or hostname (only used in case Use Proxy = yes)   |
| proxycred          | Optional  | Proxy Server Credentials (only used in case Use Proxy = “yes” is selected)  |

|                       |           |  |
|-----------------------|-----------|--|
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)  |
| loglevel              | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL |
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential                          |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key   |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key   |
| File to scan          | Mandatory | AWS key (=file) to scan in the given bucket            |
| Bucket name           | Mandatory | AWS Bucket to scan for the given AWS key (=file)       |
| interval              | Mandatory | Scan Interval  |

### 6.3 Copy\_file\_to\_bucket

| Command             | UT Name                             | Description               |
|---------------------|-------------------------------------|---------------------------|
| Copy_file_to_bucket | ut_AWS_S3_Copy_file_to_bucket_linux | Copies a file to a bucket |

#### Task Screenshot:

The screenshot displays the configuration window for the 'S3 Boto3 Copy File to S3 Task'. The 'General' tab is active, showing fields for 'Task Name' (Copy file to bucket), 'Task Description' (CASE-S3-03), 'Member of Business', 'Services', 'Resolve Name Immediately', 'Hold on Start', 'Virtual Resource Priority' (10), and 'Further Info's'. Below this, the 'S3 Boto3 Copy File to S3 Task Details' section is visible, containing fields for 'Agent' (\$[LX\_AGT\_gozilla]), 'Agent Variable' (checked), 'Credentials' (\$[LX\_CRED\_gozilla]), 'Credentials Variable' (checked), 'Source File' (/home/opswise/demo/sales\_data.txt), 'proxy', 's3key' (sales\_data.txt), 'proxycred', 'AWS\_DEFAULT\_REGION' (AWS\_DEFAULT\_REGION\_dummy), 'AWS\_SECRET\_ACCESS\_KEY' (AWS\_SECRET\_ACCESS\_KEY\_dummy), 'Runtime Directory', 'Agent Cluster', 'Agent Cluster Variable', 'Cluster Broadcast', 'Bucket Name' (testbucket), 'proxy port', 'Use Proxy' (No), 'loglevel' (INFO), 'AWS\_ACCESS\_KEY\_ID' (AWS\_ACCESS\_KEY\_ID\_dummy), and 'overwrite' (unchecked).

#### Field Description:

| Field       | Required  | Description   |
|-------------|-----------|---|
| Agent       | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands |
| Credentials | Optional  | The Credentials used on the Linux Server  |

|                       |           |  |
|-----------------------|-----------|--|
| Use Proxy (yes/no)    | Mandatory | Decide If a Proxy Server should be used yes or no<br>(If “no” is selected the fields Proxy,Port and proxycréd are ignored) |
| Proxy                 | Optional  | Proxy Server IP or hostname (only used in case Use Proxy = yes)  |
| proxycréd             | Optional  | Proxy Server Credentials (only used in case Use Proxy = “yes” is selected)   |
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)  |
| loglevel              | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL   |
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential  |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key   |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key   |
| Bucket Name           | Optional  | Name of the target bucket  |
| overwrite             | Mandatory | If checked, allow to overwrite an existing key in the bucket   |
| S3key                 | Mandatory | S3 key to copy to the given bucket   |

## 6.4 List\_keys\_in\_bucket

| Command             | UT Name                             | Description                |
|---------------------|-------------------------------------|----------------------------|
| List_keys_in_bucket | ut_AWS_S3_List_keys_in_bucket_linux | Lists all keys in a bucket |

### Task Screenshot:

The screenshot displays the configuration window for the 'S3 Boto3 List Bucket content Task'. The 'General' tab is active, showing fields for 'Task Name' (List keys in bucket), 'Task Description' (CASE-S3-04), 'Member of Business', 'Services', 'Resolve Name', 'Immediately', 'Hold on Start', 'Virtual Resource Priority' (10), 'Further Info's', and 'System'. Below this, the 'S3 Boto3 List Bucket content Details' section is visible, containing fields for 'Agent' (\$LX\_AGT\_gozilla), 'Agent Variable', 'Credentials', 'Credentials Variable', 'proxy', 'bucket' (testbucket), 'proxycréd', 'AWS\_SECRET\_ACCESS\_KEY' (AWS\_SECRET\_ACCESS\_KEY\_dummy), 'AWS\_ACCESS\_KEY\_ID' (AWS\_ACCESS\_KEY\_ID\_dummy), 'Runtime Directory', 'Agent Cluster', 'Agent Cluster Variable', 'Cluster Broadcast', 'port', 'Use Proxy' (No), 'loglevel' (INFO), and 'AWS\_DEFAULT\_REGION' (AWS\_DEFAULT\_REGION\_dummy).

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**Field Description:**

| Field                 | Required  | Description  |
|-----------------------|-----------|--|
| Agent                 | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands                                  |
| Credentials           | Optional  | The Credentials used on the Linux Server   |
| Use Proxy (yes/no)    | Mandatory | Decide If a Proxy Server should be used yes or no<br>(If “no” is selected the fields Proxy,Port and proxycred are ignored) |
| Proxy                 | Optional  | Proxy Server IP or hostname (only used in case Use Proxy = yes)  |
| proxycred             | Optional  | Proxy Server Credentials (only used in case Use Proxy = “yes” is selected)   |
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)  |
| loglevel              | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL   |
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential  |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key   |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key   |
| bucket                | Mandatory | List all AWS keys in the bucket  |

## 6.5 *Download\_file\_from\_bucket*

| Command                   | UT Name                                   | Description                             |
|---------------------------|---|---|
| Download_file_from_bucket | ut_AWS_S3_Download_file_from_bucket_linux | Downloads an AWS S3 key to a local file |

**Task Screenshot:**

S3 Boto3 Download File from S3 Task Details

Update New Launch Task View Parents Copy Delete Refresh

Variables Actions Virtual Resources Mutually Exclusive Instances Triggers Notes Versions

General

Task Name : Download file from bucket Version : 7

Task Description : CASE-S3-05

Member of Business Services :

Resolve Name Immediately : ☐

Hold on Start : ☐

Virtual Resource Priority : 10 Hold Resources on Failure : ☐

Further Info's :

System :

S3 Boto3 Download File from S3 Details

Agent : \${LX\_AGT\_gozilla} Agent Cluster :

Agent Variable : ☒ Agent Cluster Variable : ☐

Credentials : \${LX\_CRED\_gozilla} Cluster Broadcast : ☐

Credentials Variable : ☒

proxy :

bucket : testbucket port :

Target File : /home/opswise/demo/in/sales\_data\_from\_AWS.txt s3key : sales\_data.txt

proxycrd : useproxy : No

AWS\_DEFAULT\_REGION : AWS\_DEFAULT\_REGION\_dummy loglevel : INFO

AWS\_SECRET\_ACCESS\_KEY : AWS\_SECRET\_ACCESS\_KEY\_dummy AWS\_ACCESS\_KEY\_ID : AWS\_ACCESS\_KEY\_ID\_dummy

Runtime Directory : overwrite : ☐

### Field Description:

| Field                 | Required  | Description   |
|-----------------------|-----------|---|
| Agent                 | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands                                 |
| Credentials           | Optional  | The Credentials used on the Linux Server  |
| Use Proxy (yes/no)    | Mandatory | Decide If a Proxy Server should be used yes or no<br>(If “no” is selected the fields Proxy,Port and proxycrd are ignored) |
| Proxy                 | Optional  | Proxy Server IP or hostname (only used in case Use Proxy = yes)   |
| proxycrd              | Optional  | Proxy Server Credentials (only used in case Use Proxy = “yes” is selected)  |
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)   |
| loglevel              | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL  |
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential   |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key  |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key  |
| Target File           | Mandatory | Target file name and directory e.g.<br>/home/opswise/demo/in/sales_data_from_AWS.txt                                      |
| S3key                 | Mandatory | Source Key file to download   |
| bucket                | Mandatory | Source bucket   |

## 6.6 Delete\_key\_from\_bucket

| Command                | UT Name                                | Description                 |
|------------------------|--|-----------------------------|
| Delete_key_from_bucket | ut_AWS_S3_Delete_key_from_bucket_linux | Deletes a key from a bucket |

### Task Screenshot:

The screenshot shows the configuration interface for the 'S3 Boto3 Delete S3 Key Task'. The 'General' tab is selected, displaying the following fields:

- Task Name:** Delete Key from bucket
- Task Description:** CASE-S3-06
- Version:** 7
- Member of Business Services:** (dropdown menu)
- Resolve Name Immediately:** ☐
- Hold on Start:** ☐
- Virtual Resource Priority:** 10
- Hold Resources on Failure:** ☐
- Further Info's:** (text area)
- System:** (text area)

The 'S3 Boto3 Delete S3 Key Details' tab is also visible, showing the following fields:

- Agent:** \${LX\_AGT\_gozilla}
- Agent Variable:** ☒
- Credentials:** \${LX\_CRED\_gozilla}
- Credentials Variable:** ☒
- Use Proxy:** No
- Port:** (text field)
- Bucket:** testbucket
- loglevel:** INFO
- AWS\_ACCESS\_KEY\_ID:** AWS\_ACCESS\_KEY\_ID\_dummy
- AWS\_SECRET\_ACCESS\_KEY:** AWS\_SECRET\_ACCESS\_KEY\_dummy
- Runtime Directory:** (text field)
- Agent Cluster:** (dropdown menu)
- Agent Cluster Variable:** ☐
- Cluster Broadcast:** (dropdown menu)
- Proxy:** (text field)
- S3Key:** sales\_data.txt
- proxycr:** (text field)
- AWS\_DEFAULT\_REGION:** AWS\_DEFAULT\_REGION\_dummy

### Field Description:

| Field                 | Required  | Description   |
|-----------------------|-----------|---|
| Agent                 | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands                             |
| Credentials           | Optional  | The Credentials used on the Linux Server  |
| Use Proxy (yes/no)    | Mandatory | Decide If a Proxy Server should be used yes or no (If "no" is selected the fields Proxy,Port and proxycr are ignored) |
| Proxy                 | Optional  | Proxy Server IP/ hostname (used if Use Proxy = "yes")   |
| proxycr               | Optional  | Proxy Server Credentials (used if Use Proxy = "yes")  |
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)   |
| loglevel              | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL  |
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential   |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key  |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key  |
| S3key                 | Mandatory | Key to delete from the given bucket   |
| Bucket                | Mandatory | Bucket, which contains the key to delete  |

## 6.7 Delete\_empty\_bucket

| Command             | UT Name                             | Description             |
|---------------------|-------------------------------------|-------------------------|
| Delete_empty_bucket | ut_AWS_S3_Delete_empty_bucket_linux | Deletes an empty bucket |

### Task Screenshot:

### Field Description:

| Field                 | Required  | Description  |
|-----------------------|-----------|--|
| Agent                 | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands                                  |
| Credentials           | Optional  | The Credentials used on the Linux Server   |
| Use Proxy (yes/no)    | Mandatory | Decide If a Proxy Server should be used yes or no<br>(If "no" is selected the fields Proxy,Port and proxycred are ignored) |
| Proxy                 | Optional  | Proxy Server IP/ hostname (used if Use Proxy = "yes")  |
| proxycred             | Optional  | Proxy Server Credentials (used if Use Proxy = "yes")   |
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)  |
| loglevel              | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL   |
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential  |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key   |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key   |
| bucket                | Mandatory | Bucket to delete   |

## 6.8 List\_buckets

| Command      | UT Name                      | Description                        |
|--------------|------------------------------|------------------------------------|
| List_buckets | ut_AWS_S3_List_buckets_linux | List all buckets of an AWS account |

### Task Screenshot:

The screenshot shows the configuration interface for the 'S3 Boto3 List Buckets Task'. The 'General' tab is selected, displaying the following fields:

- Task Name:** List Buckets in S3 Account
- Task Description:** CASE-S3-08
- Member of Business:** (dropdown menu)
- Resolve Name:** (checkbox)
- Hold on Start:** (checkbox)
- Virtual Resource Priority:** 10
- Hold Resources on Failure:** (checkbox)
- Further Info's:** (text area)
- System:** (text area)

The 'S3 Boto3 List Buckets Details' tab is also visible, showing the following fields:

- Agent:** \${LX\_AGT\_gozilla}
- Agent Variable:** (checkbox)
- Credentials:** (text area)
- Credentials Variable:** (checkbox)
- Proxy:** (text area)
- Use Proxy:** No
- AWS\_DEFAULT\_REGION:** AWS\_DEFAULT\_REGION\_dummy
- AWS\_SECRET\_ACCESS\_KEY:** AWS\_SECRET\_ACCESS\_KEY\_dummy
- Runtime Directory:** (text area)
- Agent Cluster:** (dropdown menu)
- Agent Cluster Variable:** (checkbox)
- Cluster Broadcast:** (text area)
- Proxy Port:** (text area)
- proxycred:** (text area)
- AWS\_ACCESS\_KEY\_ID:** AWS\_ACCESS\_KEY\_ID\_dummy
- loglevel:** INFO
- Environment Variables:** (table with Name and Value columns)

### Field Description:

| Field                 | Required  | Description   |
|-----------------------|-----------|---|
| Agent                 | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands |
| Credentials           | Optional  | The Credentials used on the Linux Server  |
| Proxy                 | Optional  | Proxy Server IP/ hostname (used if Use Proxy = "yes")                                     |
| proxycred             | Optional  | Proxy Server Credentials (used if Use Proxy = "yes")                                      |
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)                                     |
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)                                     |
| loglevel              | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL                                    |
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential   |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key  |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key  |



## 6.9 Check\_for\_key\_in\_buckets

| Command                  | UT Name                                  | Description                                   |
|--------------------------|--|---|
| Check_for_key_in_buckets | ut_AWS_S3_Check_for_key_in_buckets_linux | Checks for the existence of a key in a bucket |

### Task Screenshot:

The screenshot displays the configuration window for the 'S3 Boto3 File Check Task'. The 'General' tab is selected, showing the task name 'Check for key in bucket' and version '8'. Below this, the 'S3 Boto3 File Check Details' section is visible, containing various configuration fields such as 'Agent' (set to '\$LX\_AGT\_gozilla'), 'bucketname' (set to 'testbucket'), 's3key' (set to 'sales\_data.txt'), and 'AWS\_ACCESS\_KEY\_ID' (set to 'AWS\_ACCESS\_KEY\_ID\_dummy').

### Field Description:

| Field                 | Required  | Description   |
|-----------------------|-----------|---|
| Agent                 | Mandatory | The Linux Universal Agent, which runs the Python boto3 module to call the AWS S3 commands         |
| Credentials           | Optional  | The Credentials used on the Linux Server  |
| Use Proxy (yes/no)    | Mandatory | Decide If a Proxy Server should be used yes or no (If "no" Proxy, Port and proxycred are ignored) |
| Proxy                 | Optional  | Proxy Server IP/ hostname (used if Use Proxy = "yes")   |
| proxycred             | Optional  | Proxy Server Credentials (used if Use Proxy = "yes")  |
| Port                  | Optional  | Proxy Server Port (only used in case Use Proxy = yes)   |
| loglevel              | Mandatory | logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL  |
| AWS_DEFAULT_REGION    | Mandatory | AWS Region kept as credential   |
| AWS_SECRET_ACCESS_KEY | Mandatory | AWS Secret Key  |
| AWS_ACCESS_KEY_ID     | Mandatory | AWS Access Key  |
| S3key                 | Mandatory | Key to check for in the given bucket  |
| bucketname            | Mandatory | Bucket to check for the given key   |

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## 7 Test Cases

The following basic test cases has been performed:

| Case#  | Assumed behavior   | Result  |
|--|--|---------|
| Creates a bucket in AWS S3   | Log message:<br>INFO - bucket: <i>testbucket</i> created.  | Correct |
| Creates a bucket in AWS S3 (bucket already exists)                       | Log message:<br>ERROR - bucket: <i>testbucket</i> already exist  | Correct |
| Monitors at a given interval (10s) for a key in a bucket                 | If the key is not available Monitor stays in running status.<br><br>If the key is available Monitor goes to success<br><br>Log message:<br>INFO - Object: <i>sales_data.txt</i> found in bucket: <i>testbucket</i> | Correct |
| Copies a file to a bucket, if the key exists (flag overwrite is set)     | Log message:<br>INFO - Key: <i>sales_data.txt</i> exists and will be overwritten due to overwrite flag set<br><br>INFO - Starting new HTTPS connection (1): <i>s3.amazonaws.com</i>                                | Correct |
| Copies a file to a bucket, if the key exists (flag overwrite is not set) | Log message:<br>ERROR - Key: <i>sales_data.txt</i> exists and will not be overwritten, set overwrite flag  | Correct |
| Copies a file to a bucket (file does not exist in bucket)                | Log message<br>INFO - Finished uploaing file:<br><i>/home/opswise/demo/sales_data.txt</i> , to bucket: <i>testbucket</i> as key: <i>sales_data.txt</i>   | Correct |
| Lists all keys in a bucket   | Keys are listed in stdout:<br><br><i>sales_data.txt</i>  | Correct |
| Downloads an AWS S3 key to a local file if file does not yet exist       | Log message:<br>INFO - Downloading File: <i>sales_data.txt</i> ,from bucket: <i>testbucket</i> to file:<br><i>/home/opswise/demo/in/sales_data_from_AWS.txt</i> finished   | Correct |

|   |   |         |
|---|---|---------|
| Downloads an AWS S3 key to a local file if already exist (flag overwrite is set)              | Log message:<br>INFO - File: /home/opswise/demo/in/sales_data_from_AWS.txt exists and will be overwritten due to overwrite flag set<br>INFO - Downloading File: sales_data.txt ,from bucket: axa-secure-8 to file: /home/opswise/demo/in/sales_data_from_AWS.txt finished | Correct |
| Downloads an AWS S3 key to a local file if already exist (flag overwrite is not set)          | Log message:<br>ERROR - File: /home/opswise/demo/in/sales_data_from_AWS.txt exists and will not be overwritten, set overwrite flag  | Correct |
| Downloads an AWS S3 key to a local file if file does not yet exist and overwrite flag is set. | Log message:<br>INFO - Downloading File: sales_data.txt ,from bucket: testbucket to file: /home/opswise/demo/in/sales_data_from_AWS.txt finished  | Correct |
| Deletes a key from a bucket   | Log message:<br>INFO - : Key deleted: sales_data.txt, from Bucket: <i>testbucket</i>  | Correct |
| Deletes a key from a bucket (key does not exist)  | Log message:<br>ERROR - The object: sales_data.txt does not exists  |         |
| Deletes an empty bucket   | Log message:<br>INFO - bucket <i>testbucket</i> deleted   | Correct |
| Deletes a not empty bucket  | Log message:<br>INFO - bucket <i>testbucket</i> does not exist<br>INFO - bucket <i>testbucket</i> is not empty  | Correct |
| Deletes a bucket, which does not exist  | Log message:<br>INFO - bucket <i>testbucket</i> does not exist  | Correct |
| List all buckets of an AWS account  | Log message:<br>List of buckets is displayed  | Correct |
| Checks for the existence of a key in a bucket   | Log message:<br>INFO - Object: sales_data.txt found in bucket: <i>testbucket</i>  | Correct |

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|  |   |         |
|--|---|---------|
| Checks for the existence of a key in a bucket, if key does not exist | Log message:<br>ERROR - Object: sales_dataa.txt not found in bucket:<br><i>testbucket</i> | Correct |
|--|---|---------|

## 8 Document References

There are no document references.