stonebranch

Universal Task Documentation

Universal Automation Center to upload a local Linux or Windows directory to an Azure Container

ut-azure-blobstorage-download-container-linux

Associated Activities:

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CONFIDENTIALITY INFORMATION

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Revision	Date	Author	Changes
00	20180806	Nils Buer	Initial Document (WIP)

Abstract:

The here described Universal Tasks downloads an Azure container to a local Windows or Linux directory. As a result, you can integrate downloads of an entire Azure container 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 to download an Azure Blob Storage Container to a local Linux or Windows directory.

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 blob concerns, when moving to the cloud, the provided solution supports multi-level of security:

- All Credential for Azure Blob Storage are stored in an encrypted form in the database

Some details about the universal tasks to upload a local directory to an Azure Blob Storage Container:

- The Universal Task is calling the Python blobxfr module
- The python *blobxfr* 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 Credential for Azure are stored in an encrypted form in the database
- You can select different log-levels e.g. Info and debug
- A proxy connection towards Azure is currently not implemented for this Universal Task (it is however possible with some minor adjustments)

4 Installation

4.1 Software Requirements

Universal Task name: *ut_azure_download_container_<xxx>_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.
    - ***argparse***, to allow testing of the Universal TPL. script on the command line
    - ***azure-storage-blob***, The Azure libraries for Python to use Azure services and manage Azure resources
    - ***azure-storage-logging***, provide enhanced logging for Azure storage services
    - ***blobxfr***, provides support for uploading a directory to an Azure container

    *Note: Only the module **azure-storage-blob** and **azure-storage-logging** need to be added to python 3.6.x. e.g. using pip.*
    - *pip install azure-storage-blob*
    - *pip install azure-storage-logging*
    - *pip install blobxfr*

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 Azure account to try it out

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 *azure-storage-blob* and *azure-storage-logging* modules to your python installation**

   In a command shell run as root or sudo:

   - *pip install azure-storage-blob*
   - *pip install azure-storage-logging*
   - *pip install blobxfr*

   Pre-requisites

   (for details refer to: http://blobxfer.readthedocs.io/en/latest/01-installation/)

   blobxfer is a pure Python package, however, some dependencies require a C compiler and supporting libraries if there is no binary wheel for that dependency and your platform. Please follow the pre-requisites section first prior to invoking installation via pip.
   blobxfer has dependencies which require a C compiler if your platform does not have pre-made binary wheels for these dependencies. Please follow the instructions below for your platform. You will need to run the following commands via sudo or as root.

   Ubuntu

   - for Python3 (recommended)
     apt-get update
     apt-get install -y build-essential libssl-dev libffi-dev python3-dev python3-pip

   - for Python2
     apt-get update
     apt-get install -y build-essential libssl-dev libffi-dev python-dev python-pip

   CentOS/RHEL

   - for Python3 (recommended)
     yum install -y epel-release
     yum install -y python34 python34-devel gcc openssl-devel libffi-devel
     curl -fSsL https://bootstrap.pypa.io/get-pip.py | python3

   - for Python2
     yum install -y gcc openssl-devel libffi-devel python-devel
     curl -fSsL https://bootstrap.pypa.io/get-pip.py | python

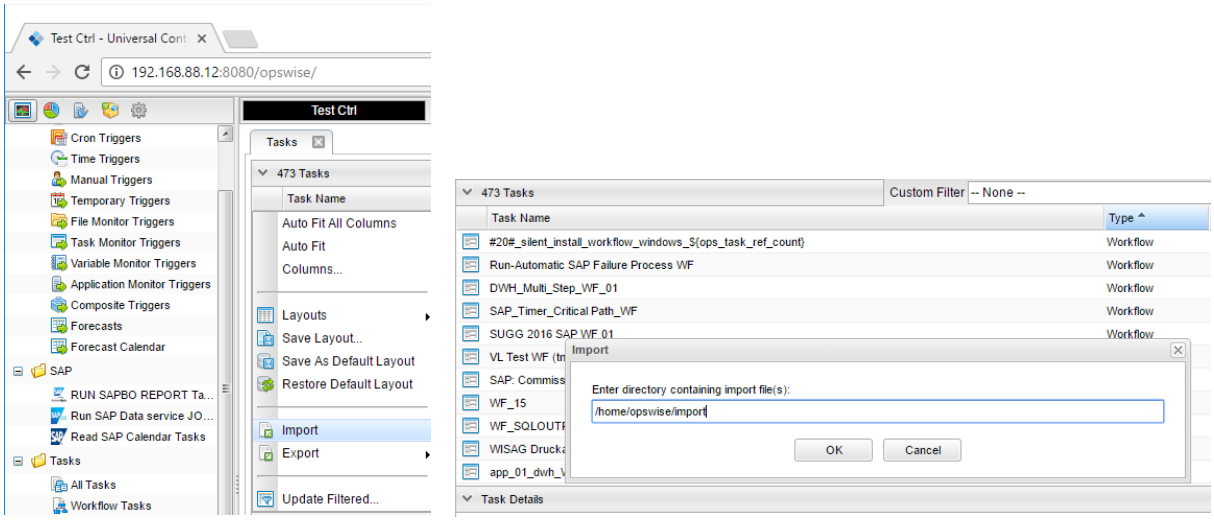
   SLES/OpenSUSE

- for Python3 (recommended)
  zypper ref
  zypper -n in gcc libopenssl-devel libffi48-devel python3-devel
  curl -fSsL https://bootstrap.pypa.io/get-pip.py | python3

- for Python2
  zypper ref
  zypper -n in gcc libopenssl-devel libffi48-devel python-devel
  curl -fSsL https://bootstrap.pypa.io/get-pip.py | python

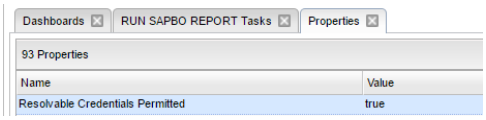
3. Import the Azure container download Universal Template into your Controller

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

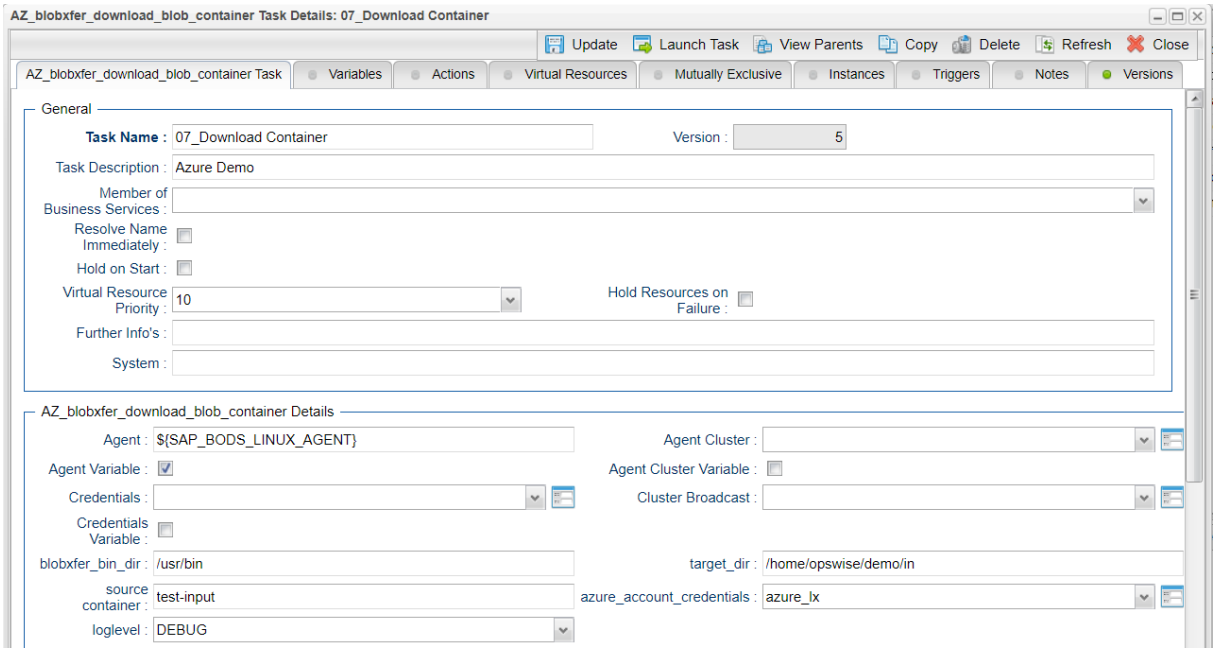


5 Universal Task Configuration

1. Activate: Resolvable Credentials in Universal Automation Center:



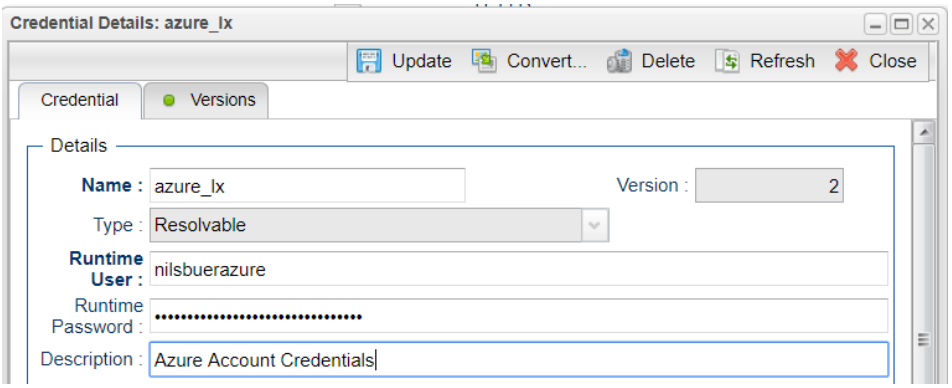
2. Fill Out the Universal Task:



In the example above the container *test-input* is downloaded to the local directory */home/opswise/demo/in*

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

In the example below the azure_account credentials are shown:

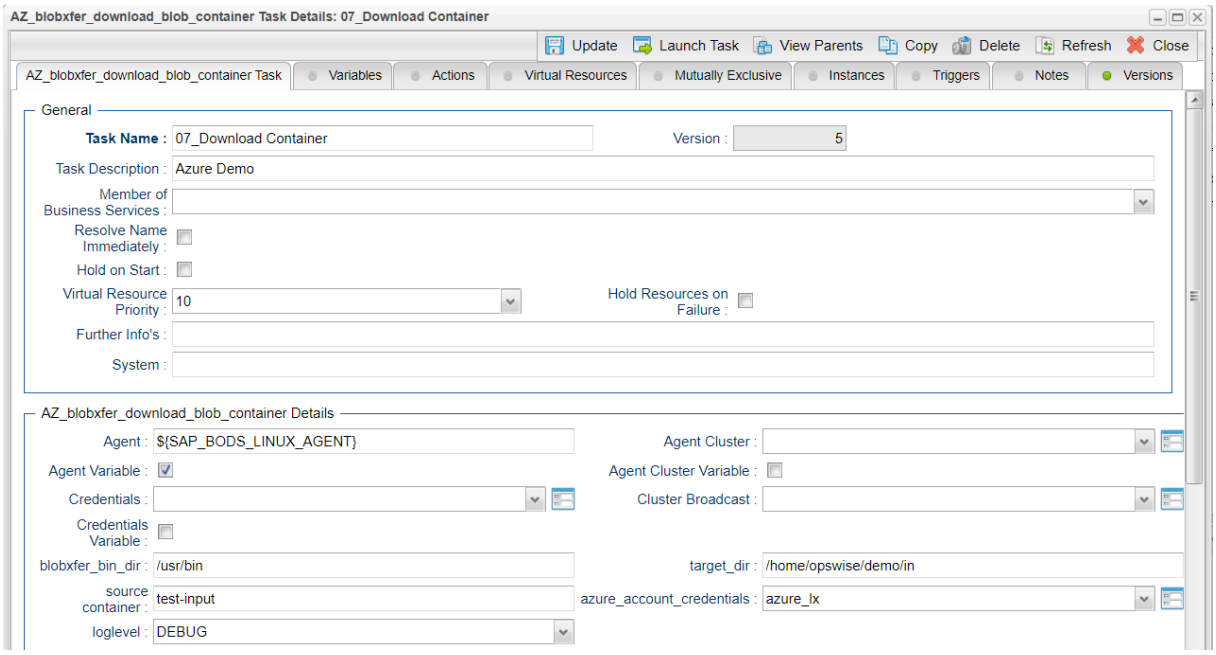


6 Universal Tasks for Azure Blob Storage

The following chapter describes the provided Azure container download Universal Task.

Command	UT Name	Description
Download container	ut_azure_directory_upload_linux	uploads a local Windows or Linux directory to an Azure Container

Task Screenshot:



Field Description:

Field	Required	Description
Agent	Mandatory	The Linux Universal Agent, which runs the Python azure-storage-blob module to call the AZURE BLOB STORAGE commands
Credentials	Optional	The Credentials used on the Linux Server
Loglevel	Mandatory	Logging: DEBUG, INFO, WARNING, ERROR, CRITICAL
source Container	Mandatory	Source Container, to be downloaded to a local window or Linux directory
Blobxfr_bin_dir	Mandatory	Directory of the blobxfr module CLI
Azure_account_credentials	Mandatory	Azure Credentials: Account Name and Password
target directory	Mandatory	Target directory, where the Azure Container is downloaded to. Do not use a slash at the end of the target directory (“/” or “\”)
Loglevel		logging settings DEBUG, INFO, WARNING, ERROR, CRITICAL

7 Test Cases

The following basic test cases have been performed:

Case#	Assumed behavior	Result
download a container to a local directory that exists	**Existing files are overridden** INFO - blobxfer start time: 2018-08-06 10:56:43.540599+02:00 INFO - downloading blobs/files to local path: /home/opswise/demo/in INFO - MD5: SKIPPED, test-input/customerdata/customer_data.txt None <L..R> YnYfhkduZqCQ2FzcjOomjg== INFO - MD5: SKIPPED, test-input/sales_data.txt None <L..R> WYpNe5SS7+ATvpcyceN6IA== INFO - MD5: SKIPPED, test-input/sales_data_2.txt None <L..R> WYpNe5SS7+ATvpcyceN6IA== .. INFO - attempting to delete 0 extraneous files INFO - elapsed download + verify time and throughput of 0.0291 GiB: 11.831 sec, 20.1831 Mbps (2.523 MiB/sec) INFO - blobxfer end time: 2018-08-06 10:56:56.262152+02:00 (elapsed: 12.722 sec)	Correct
download a container to a local directory that does not exists	INFO - MD5: SKIPPED, test-input/customerdata/customer_data.txt None <L..R> YnYfhkduZqCQ2FzcjOomjg== INFO - MD5: SKIPPED, test-input/sales_data.txt None <L..R> WYpNe5SS7+ATvpcyceN6IA== INFO - MD5: SKIPPED, test-input/sales_data_2.txt None <L..R> WYpNe5SS7+ATvpcyceN6IA== .. INFO - attempting to delete 0 extraneous files INFO - elapsed download + verify time and throughput of 0.0291 GiB: 13.292 sec, 17.9644 Mbps (2.246 MiB/sec) INFO - blobxfer end time: 2018-08-06 10:55:51.120929+02:00 (elapsed: 14.240 sec	

download a container that does not exists	Task goes to success: ERROR - The specified container does not exist. ErrorCode: ContainerNotFound	Error handling needs to be added
Wrong Azure credentials	Task goes to success: ValueError: specified storage account key is invalid for storage account: opswise	Error handling needs to be added

8 Document References

There are no document references.