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Program 2: Backup to Cloud

**Backup Directory to the Cloud**

**Architecture and Design**

This is a simple program that can be used to backup a local directory to Amazon Web Services (AWS) S3. In order for the program to work properly you need to have already set up your credentials for AWS (See instructions below). The program begins by listing all available buckets for the user to choose where they want to back up to. Once the user has chosen a valid bucket, they are then prompted for the full path of the directory they want to backup. The current implementation will overwrite any existing backups that the user has of this directory. The program then walks over the directory and all of its subdirectories. It first adds each directory to the chosen bucket and then after doing this it adds the files to the correct directory. After the backup is complete the user can select to view the update bucket containing the backup they made.

**Getting Started**

These instructions will get you up and running on your local Windows machine to test the project on.

**Prerequisites**

You will need to have Python 3.6 installed on your machine.

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| https://www.python.org/ftp/python/3.6.0/python-3.6.0.exe |

If you plan to run this through Visual Studio you will also need to have a Python interpreter. There are many available interpreters available to use. In this project I used the latest release of CPython. See the link below for possible interpreters.

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| https://github.com/Microsoft/PTVS/wiki/Selecting-and-Installing-Python-Interpreters |

**AWS Command Line Interface**

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| http://docs.aws.amazon.com/cli/latest/userguide/installing.html |

Next setup AWS credentials through the AWS console.

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| http://docs.aws.amazon.com/cli/latest/userguide/cli-chap-getting-started.html |

Navigate to Identity and Access Management (IAM) -> Create a User -> Add User to a Group -> Add in Administrator Access policy to the group -> generate the key. Copy your Secret Access Key and Access Key ID.

Now open Command Prompt and type *aws configure*. Enter your Access Key ID, Secret Access Key, Default Region and Output Format.

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| --- |
| $ **aws configure**  AWS Access Key ID [None]: ***AKIAIOSFODNN7EXAMPLE***  AWS Secret Access Key [None]: ***wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY***  Default region name [None]: ***us-west-2***  Default output format [None]: ***json*** |

Verify that your credentials were setup. Navigate to your user directory (generally C:\Users\userName), and click on .aws folder. You should have a credentials file that has your keys in it.

**Next use pip to install Boto3**

Navigate to your Python installation directory.

First upgrade your pip

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| > python –m pip install –U pip |

Install boto3 package

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| > pip install boto3 |

Upgrade boto3 package

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| > pip install --upgrade boto3 |

**Running the Backup Program**

You can use your favorite Python development environment. I will explain how to run the project using Visual Studio and Python Shell.

**Visual Studio**

Open the project in Visual Studio by opening the Program2.sln file. This will load the project into Visual Studio. Be sure that VS has selected a Python environment interpreter.

Go to View-> Other Windows -> Python Environments. Make sure Python3.5 is selected.

In the Solution Explorer click on Backup.py. Click Start to run the program.

**Python**

Navigate to the directory containing Backup.py. Right click -> Open with -> Python

**Note**

Occasionally the program will appear to hang when outputting the list of buckets. If this happens and does not appear after a few seconds, press a key on your keyboard and the list of buckets will appear.