**Benign-Ex Quick Start Manual**

**Version 1.0**

**May 2021**

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The purpose of this Quick Start Manual is to get Benign-Ex up and running and process the provided example dataset. If you are interested in configuring Benign-Ex to run against your own database, please refer to the User Manual.

**REQUIREMENTS:**

Benign-Ex requires Python (2.7.X) and R (>=3.6.0) in a Linux operating system to run. Python3 currently not supported. A list of the required Python modules and R libraries is listed below. Benign-Ex is configured to attempt to install the required Python modules, but the R libraries must be manually installed. If the required Python modules do not install on their own, they will need to be installed manually.

PYTHON MODULES

* progress
* networkx; version 1.8.1
* intervaltree

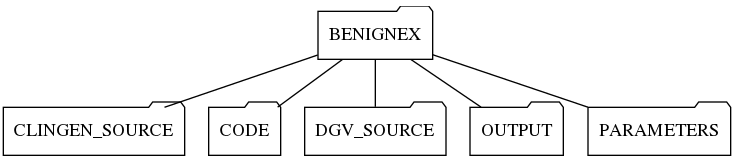
R LIBRARIES

* bestNormalize
* BoutrosLab.plotting.general
* tidyverse

**INSTALLATION:**

After you have downloaded the BENIGNEX\_X.X.tar.gz file, move zipped file to the directory in which you want to run Benign-Ex. Then, decompress the file.

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| --- |
| tar -xzvf BENINGEX\_1.0.tar.gz --one-top-level=BENIGNEX --strip-components 1 |



**MINIMAL SETUP INSTRUCTIONS:**

Open the ‘AUTOMATION’ file in the PARAMETERS folder (~/BENIGNEX/PARAMETERS/AUTOMATION) and modify lines (4) and (5) to call to the correct version of Python (2.7.X) and R (>=3.6.0). Examples include: [ python, python2, py2 ] [ R, R-3.6.0, R\_3.6.0 ]

**AUTOMATION File Contents:**

|  |
| --- |
| EXAMPLE  CLINGEN\_HG19\_2021,DGV\_HG19\_2020  BENIGN-EX=N,HEATMAP=Y  **<python>**  **<R>**  DEFAULT,Primary\_CNVs\_hg19.BED |

**RUNNING BENIGNEX:**

Enter the BENIGNEX directory, and use the following command to run Benign-Ex

|  |
| --- |
| cd ~/PATH/BENIGNEX  python CODE/INTERFACE\_BENIGNEX.py PARAMETERS/AUTOMATION |

If all the required Python modules and R libraries are installed Benign-Ex will run and you will get the following output to the console:

|  |
| --- |
| RUNNING A DEPENDENCIES CHECK ...  YOUR PYTHON VERSION INSTALLED IS: [ Python Version ]  YOUR R VERSION INSTALLED IS: [ R Version ]  ALL THE DEPENDENCIES ARE UP TO DATE...  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  PROCESSING CLINGEN DATABASE...  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  COMPUTING OVERLAP COEFFICIENT FOR...CLINGEN  THIS MIGHT TAKE TIME, PLEASE BE PATIENT...  Processing |################################| 100%  IDENTIFYING THE OPTIMAL PARAMETER SET FOR ...CLINGEN  Processing |################################| 100%  YOUR OUTPUT IS SUBMITTED HERE: ~/PATH/BENIGNEX/OUTPUT/EXAMPLE/CLINGEN\_HG19\_2021  Processing |################################| 100%  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  PROCESSING DGV DATABASE...  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  COMPUTING OVERLAP COEFFICIENT FOR...DGV  THIS MIGHT TAKE TIME, PLEASE BE PATIENT...  Processing |################################| 100%  IDENTIFYING THE OPTIMAL PARAMETER SET FOR ...DGV  Processing |################################| 100%  YOUR OUTPUT IS SUBMITTED HERE: ~/PATH/BENIGNEX/OUTPUT/EXAMPLE/DGV\_HG19\_2020  Processing |################################| 100%  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  GENERATING FINAL BENIGN-EX BENIGN REGIONS...  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  YOUR OUTPUT IS SUBMITTED HERE: ~/PATH/BENIGNEX/OUTPUT/EXAMPLE |

# **COMMON ERRORS:**

Use of Python3 instead of Python2 (2.7.X):

|  |
| --- |
| File "CODE/INTERFACE\_BENIGNEX3.py", line 6  print "\nERROR: AUTOMATION FILE NOT PROVIDED. PLEASE REVIEW README FILE."  ^  SyntaxError: Missing parentheses in call to 'print'. Did you mean print("\nERROR: AUTOMATION FILE NOT PROVIDED. PLEASE REVIEW README FILE.")? |

Use of R version which is not installed:

|  |
| --- |
| sh: 1: R-3.6.0: not found |