Singularity

Singulariy installation

Following the singularity website gives some problems with go, is better this approach:

GO 1.18 is working correctly when it was written, but is possible changing the VERSION variable

```
sudo apt-get update && \
sudo apt-get install -y build-essential \
libseccomp-dev pkg-config squashfs-tools cryptsetup
sudo rm -r /usr/local/go
export VERSION=1.18 OS=linux ARCH=amd64  # change this as you need
wget -O /tmp/go${VERSION}.${OS}-${ARCH}.tar.gz https://dl.google.com/go/go${VERSION}.${OS}-
${ARCH}.tar.gz && \
sudo tar -C /usr/local -xzf /tmp/go${VERSION}.${OS}-${ARCH}.tar.gz
echo 'export GOPATH=${HOME}/go' >> ~/.bashrc && \
echo 'export PATH=/usr/local/go/bin:${PATH}:${GOPATH}/bin' >> ~/.bashrc && \
source ~/.bashrc
curl -sfL https://install.goreleaser.com/github.com/golangci/golangci-lint.sh |
sh -s -- -b $(go env GOPATH)/bin v1.21.0
mkdir -p ${GOPATH}/src/github.com/sylabs && \
cd ${GOPATH}/src/github.com/sylabs && \
git clone https://github.com/sylabs/singularity.git && \
cd singularity
git checkout v3.6.3
cd ${GOPATH}/src/github.com/sylabs/singularity && \
./mconfig && \
cd ./builddir && \
make && \
sudo make install
```

View is singularity is working:

```
singularity version
```

For creating a sif image first is necessary create a deb file which will define the package and files to install en execute in the singularity image, which looks like this:

```
Bootstrap: docker
From: ubuntu:22.04

%post
    apt-get -y update
    export DEBIAN_FRONTEND=noninteractive
    apt-get install -y tzdata
    apt install -y cmake
    apt install -y git-all
    apt-get install -y autoconf zlib1g-dev
    apt-get install -y build-essential
    apt-get install -y libbz2-dev
    apt-get install -y libcurl4-openssl-dev
    apt install -y python3
    apt install -y python3-pip
    pip3 install numpy==1.21.2
    pip3 install pyfaidx==0.5.9.1
    pip install pysam
    apt-get install -y liblzma-dev
    git clone https://github.com/kensung-lab/INSurVeyor
    cd INSurVeyor/
    ./build_htslib.sh
    cmake -DCMAKE_BUILD_TYPE=Release . && make
%files
    /root/INSurVeyor/surveyor.py

%runscript
    python /root/INSurVeyor/surveyor.py
```

First it is necessary to define desired bootstrap (docker) and distro (ubuntu:22.04).

In post will define the packages needed, using `-y` in `apt-get` for avoiding errors and export `DEBIAN_FRONTEND=noninteractive` in the interactive installations for avoiding problems.

files and runscript define the files and the diferents actions than will be run if singularity run is executed

Is it very usefull use:

```
sudo singularity shell --writable insurveyor
```

To enter interactively into the singularity image to try the installation parameters and try the different software installed.

In this case if we run:

```
singularity run insurveyor_marc.sif
```

The surveyor.py python script will be run.

Is it possible then define the diffent arguments of the script

```
singularity run insurveyor_marc.sif data/sample.bam data/sample_workdir data/sample.vcf
```