

SNAPHU Export

Unwrapping with SNAPHU

SNAPHU is a statistical-cost network-flow algorithm for phase unwrapping developed at Stanford University by Curtis Chen and Howard Zebker.

http://nova.stanford.edu/sar_group/snaphu/

Snaphu is available for Linux only. Linux users simply need to install the software package by

apt-get install snaphu

Windows users can download a Linux VMWare virtual machine and use it to unwrap the phase.

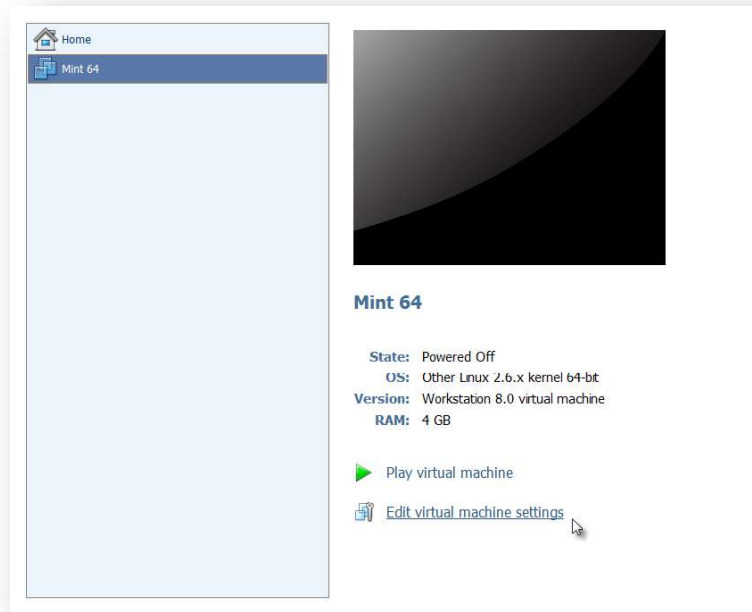
http://sourceforge.net/projects/s1tbx/files/snaphu_vm/SAR%20Mint%2064.zip/download

The free VMWare Workstation Player can be downloaded from

<https://my.vmware.com/web/vmware/downloads>

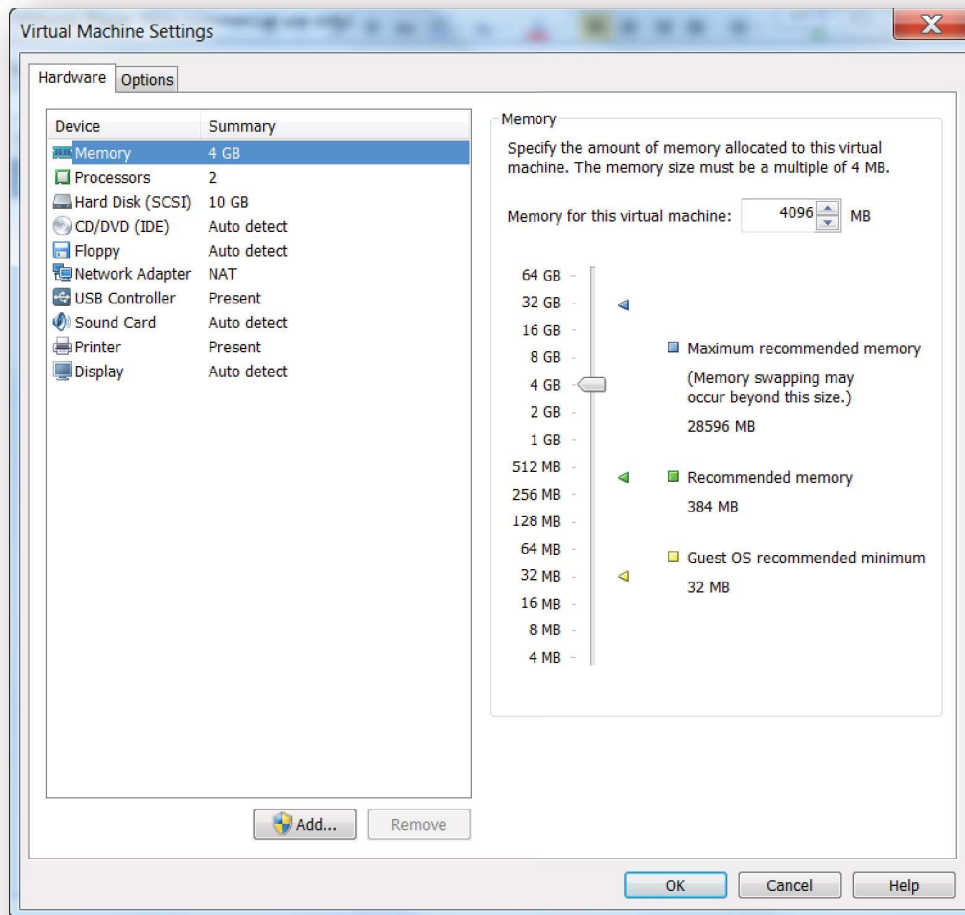
Open the VMWare player and browse for the virtual machine.

Edit the virtual machine settings to increase the memory and setup a shared folder between Linux and Windows.



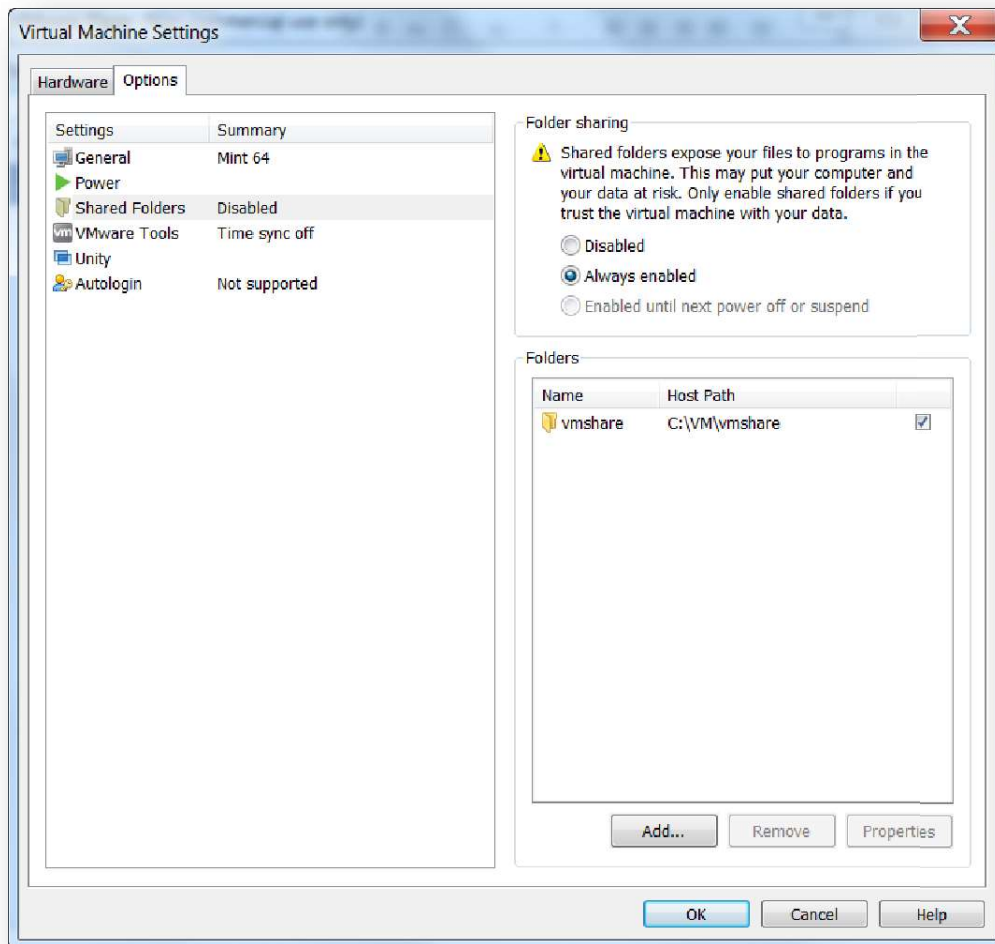
Edit Virtual Machine Settings

Increase the memory to suit your computer. Depending on the size of your images, you may need at least 8GB.



Increase Memory

Under the **options** tabs, add a shared folder. Select '**Always Enable**'.



Enable a Shared Folder

Save the wrapped phase output into the shared folder

After starting the Linux virtual machine, open a command terminal and you should see the data in **/mnt/hgfs/**

Start the virtual machine and login with:

Login: sar

Password: sar01

Go to the data folder in **/mnt/hgfs/** and open the **snaphu.conf** file.

```
cd /mnt/hgfs/vmshare/data/target_snaphu/  
gedit snaphu.conf &
```

```

snaphu.conf *
# CONFIG FOR SNAPHU
# -----
# Created by NEST software on: 11:16:49 20/03/2015
#
# Command to call snaphu:
#
#   snaphu -f snaphu.conf Phase_ifg_srd_07Aug2014_31Aug2014.snaphu.img 18453
#####
# Unwrapping parameters #
#####

STATCOSTMODE    DEFO
INITMETHOD      MCF
VERBOSE         TRUE

```

Copy the snaphu command and paste it into the command terminal and then run it.

snaphu -f snaphu.conf Phase_ifg_srd_07Aug2014_31Aug2014.snaphu.img 18453

SNAPHU uses an iterative optimization procedure; its execution time depends on the difficulty of the interferogram.

Unwrapping can use a lot of memory. If the unwrapping fails due to there being not enough memory, you could create a subset of your area of interest and try with SNAPHU again.

```

Terminal
Building azimuth cost arrays
Initializing flows with MCF algorithm
Setting up data structures for cs2 MCF solver
Running cs2 MCF solver
Running nonlinear network flow optimizer
Maximum flow on network: 12
Number of nodes in network: 32349493
Flow increment: 1 (Total improvements: 0)
1 incremental cost clipped to avoid overflow (0.000%)
Treesize: 32349493 Pivots: 581827 Improvements: 12560
Maximum flow on network: 3
Flow increment: 2 (Total improvements: 12560)
Treesize: 32349493 Pivots: 20 Improvements: 0
Maximum flow on network: 3
Flow increment: 3 (Total improvements: 12560)
Treesize: 32349493 Pivots: 0 Improvements: 0
Maximum flow on network: 3
Total solution cost: 138196748
Integrating phase
Writing output to file Unw_Phase.img
Program snaphu done
Elapsed processor time: 0:46:23.01
Elapsed wall clock time: 0:46:51

```

SNAPHU Output