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1. Code retrieval
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Download the latest Lagranto version from SVN repository <https://svn.iac.ethz.c
h/websvn/pub/wsvn/>.

Then create a directory where you want Lagranto to be installed; place the whole
 source code in this
directory and set an environment variable {LAGRANTO} pointing to this directory.

> setenv LAGRANTO {PATH TO YOUR LAGRANTO INSTALLATION}


2. Compiling the Lagranto code
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Choose the correct Fortran compiler in <install.csh>. At the moment, PGI is set.
 I have sucessfully
compiled the code with <ifort> and <gfortran>, so you might want to use one of t
hese two compilers.
You additonally have to set in <install.csh> the environment variable <NETCDF> w
hich point to the
installstion of the netCDF libraries.

> setenv NETCDF  {PATH TO YOUR NETCDF LIBRARY}

> cd ${LAGRANTO}/
> ./install.csh clean
> ./install.csh lib
> ./install.csh create_startf
> ./install.csh caltra
> ./install.csh trace
> ./install.csh select
> ./install.csh density
> ./install.csh lidar
> ./install.csh goodies
> ./install.csh docu
> ./install.csh links

Add the end of the installation, it's best to add the following directory to you
r PATH variable. In <bash>
this should look like

>  export PATH=${LAGRANTO}/bin/:$PATH

If the <LAGRANTO/bin> directory is in your PATH, then you will be able to run La
granto from any directory.
Otherwise, you will always to give the full path to your Lagranto commands, e.g.

> ${LAGRANTO}/bin/caltra



3. Compiling the Grib-netCDF converter
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In the subdirectory <convert/fgrb2cdf> you find the program you find the Fortran
 program which we use to
convert the Grib files from ECMWF into netCDF. Note that we use a somewhat 'stra
nge' netCDF format; therefore
you have to use this converter. In the near future, I will make available a conv
ersion tool based on the CDO
tools...

You will have to set some paths to compile the program; in particular, a referen
ce must be made to the
GRIB_API.
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4. Lagranto documentation
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Lagranto comes with a detailed documentation; you can start it with one of the f
ollowing calls:

> lagrantohelp
> lagrantohelp tutorial
> lagrantohelp reference

The most important program for you will be <caltra> which calculates the traject
ories...

> lagrantohelp caltra


5. Test data set
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On our FTP server you find a sample data set which allows you to run Lagranto wi
thout bothering about the
Grib-netCDF conversion.

ftp://iacftp.ethz.ch/pub_read/sprenger/lagranto.ecmwf.test/


6. Minimal test run
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a) Define a starting position in a file <startf>; the format is <longitude latit
ude pressure>.

> more startf
  8.0 46.0 500.
-10.0 30.0 850.

Each line corresponds to a single starting position. Note that longitudes must b
e within -180 ... +180 deg.


b) Start the trajectory

It is a forward trajectory starting at 00 UTC 1 Jan 2012. The time span is 18 UT
C. Starting positions are
taken from <startf>, the output is written to <trajectory>. For details about th
e optional flag <-j> and
<-notimecheck>, please consult the Lagranto help <lagrantohelp caltra>.

> caltra 20120101_00 20120101_18 startf trajectory -j
> more trajectory
Reference date 20120101_0000 / Time range    1080 min

  time      lon     lat     p
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    .00     8.00   46.00   500
   6.00    10.02   44.07   480
  12.00    11.64   42.13   504
  18.00    12.66   40.17   514

    .00   -10.00   30.00   850
   6.00   -10.42   30.14   866
  12.00   -10.40   30.25   885
  18.00   -10.46   29.93   906

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