

QGIS Application - Feature request #4530

GdalTools Clipper: make "-crop_to_cutline" a separate option

2011-11-13 02:46 PM - alobo -

Status:	Closed	
Priority:	Normal	
Assignee:		
Category:	Processing/GDAL	
Pull Request or Patch Supplied:		Resolution: fixed/implemented
Easy fix?:	No	Copied to github as #: 14448
Description		
I get a shifted result if clipping a raster layer with a vector layer. Raster to be clipped: South East Asia_2007_deliverable.zip from http://www.eorc.jaxa.jp/SAFE/LC_MAP/ (no direct link) Clipping vector: https://sites.google.com/site/filestemp2/home/Borneo.zip Clipped result: https://sites.google.com/site/filestemp2/home/BorneoLC.tif		
Zoom in the coast to see a ~1 pixel shift to the NE Qgis 1.7.1. GdalTools 1.2.28 GDAL:1.8.0		
Agus		

History

#1 - 2011-11-13 03:06 PM - Giovanni Manghi

- Status changed from Open to Feedback

Hi Agus,

if there is a problem it should be in gdal, not the tools. Please give it a try from the command line.

In any case I think this is expected and not a bug as the clipping doesn't occur exactly on a pixel edge of the input dataset.

#2 - 2011-11-14 02:45 AM - alobo -

Hi Giovanni,

1. I confirm this is a problem in GDAL as the same result is produced by the command pasted on the console.
2. In my opinion, this is a bug: clipping a raster should leave the geometry of the remaining pixels unmodified. Note this result is particularly wrong for categorical raster layers (i.e., landcover maps). Actually, note that this problem does not occur if you draw the rectangle interactively. The input clipping vector should be automatically modified to match the raster grid by default. The current behaviour could be an option, and in this case a choice of interpolation should also be prompted.

Perhaps if agree on this modification we could ask the GDALtools to consider it?

#3 - 2011-11-14 02:45 AM - alob -

I meant the GDALtools developer team...

#4 - 2011-11-17 01:38 AM - Giovanni Manghi

- File snapshot10.png added
- File snapshot11.png added
- Status changed from Feedback to Closed
- Resolution set to invalid
- Assignee set to Giuseppe Sucameli
- File snapshot4.png added
- File snapshot8.png added

| 1. I confirm this is a problem in GDAL as the same result is produced by the command pasted on the console.

Hi Agus,

I actually tested the operation myself on qgis-master/Ubuntu 11.10 and **gdal 1.7.x or 1.6.x** and I can't find any shift. The command is

```
gdalwarp -q -cutline /home/gio/Desktop/Borneo.shp -of GTiff /home/gio/Desktop/SEA_2007_deliverable/Insular_SEA_land_cover_2007.tif  
/home/gio/Desktop/clip3.tif
```

On the other hand with both Linux and Windows, when using a QGIS version compiled against **gdal 1.8.x** I get the shift. The shift I see is half pixels size (half width) in the south east direction, not north east...

This issue is probably related to this

<http://trac.osgeo.org/gdal/ticket/4222>

that I filed in the GDAL trac a while ago and that was rejected.

The issue is in any case definitely a GDAL issue, and you may want (please) insist with the GDAL developers that this is a **regression**.

Speaking more in general (and not considering the shift problem in gdal >= 1.8):

The vector border obviously passes through pixels so, in the result raster, what I see is that if more than 50% of the pixel of the input raster - cut by the vector border - is "inside" the vector mask, then it is part also of the output raster (with the right value), otherwise (less than 50% of the pixel "inside" of the vector mask) the pixel is part of the output raster.

Using the "value tool" plugin is very easy to verify it and also see that all the other pixels (the ones completely "inside" the vector mask) do match perfectly in both input and output rasters.

| 2. In my opinion, this is a bug: clipping a raster should leave the geometry of the remaining pixels unmodified. Note this result is particularly wrong for categorical raster layers (i.e., landcover maps).

There is no way to have the vector mask fit exactly the edges of the raster pixels... Well... there is one way, you can rasterize the vector, make it a mask and then clip the original raster with it. I'll do this operation in a few seconds in QGIS using the GRASS plugin. If you set the GRASS region with the extent and

the resolution of the input raster then, when rasterizing, the vector will fit perfectly the edges of the pixels of your input raster.

Actually, note that this problem does not occur if you draw the rectangle interactively.

see the attached screenshot, drawing interactively the rectangle mask **do not** fit the raster pixels edges. If you know the extension of the input raster, the coordinates of the corners and the resolution than you can easy make the clip rectangle fit the edges of the pixels by introducing its extent manually.

The input clipping vector should me automatically modified to match the raster grid by default. The current behaviour could be an option, and in this case a choice of interpolation should also be prompted.

See above, this is somehow already done: if the pixels - where the mask border pass trough - are mainly inside the mask, then are part of the output. If you want the vector borders follow the pixels edges then you have to rasterize it.

#5 - 2011-11-17 02:09 AM - Giovanni Manghi

Giuseppe (the gdal tools developer), what do you think about? Do you confirm is a gdal issue?

#6 - 2011-11-17 09:45 AM - Giovanni Manghi

alobo - wrote:

I meant the GDALtools developer team...

I filed a ticket in the GDAL trac

<http://trac.osgeo.org/gdal/ticket/4344>

I hope they will not reject it as

<http://trac.osgeo.org/gdal/ticket/4222>

#7 - 2011-11-18 01:47 AM - Giovanni Manghi

- Target version changed from Version 1.7.2 to Version 1.8.0
- Status changed from Closed to Feedback
- Resolution deleted (invalid)

Oh gosh, what a mess.

I was sure that I made pretty precise tests, then found a pattern (the gdal version) so I filed the ticket in the gdal trac. They didn't confirmed, so I made another round of tests and now I can safely say that I found the real pattern.

Using gdaltools the produced command is like

```
gdalwarp -q -cutline /home/gio/Desktop/SEA_2007_deliverable/Borneo.shp -crop_to_cutline -of GTiff
```

/home/gio/Desktop/SEA_2007_deliverable/Insular_SEA_land_cover_2007.tif /home/gio/Desktop/SEA_2007_deliverable/out_ubuntu_gdal180_qgis.tif

with both "-cutline" and "-crop_to_cutline" parameters.

If both are left in the command, then the output get the observed shift.

if you edit the command in the gdaltools GUI (now that is possible) and remove the "-crop_to_cutline" parameter, then the output is not shifted.

I reopen the ticket as I'm not sure if is a bug, and especially if is a gdal tools one or a gdal one. I will leave feedback in the ticket I filed in the gdal trac, and then let you know when they will answer.

#8 - 2011-11-18 05:30 AM - Giuseppe Sucameli

Anyone confirm that it works fine when clipping the raster with a rectangular region?

If yes, in my opinion is a GDAL bug,

otherwise I may remove the -crop_to_cutline option (intended to shift the output raster cuttin' pixels) and then change it with the extent of the cutline fitted to the grid.

#9 - 2011-11-18 05:37 AM - Giovanni Manghi

Giuseppe Sucameli wrote:

Anyone confirm that it works fine when clipping the raster with a rectangular region?

If yes, in my opinion is a GDAL bug,

otherwise I may remove the -crop_to_cutline option (intended to shift the output raster cuttin' pixels) and then change it with the extent of the cutline fitted to the grid.

clipping with the interactive rectangle/window (then using gdal_translate) is ok, no shift.

#10 - 2011-12-01 01:37 AM - Giovanni Manghi

This is the answer of the gdal developers

<http://trac.osgeo.org/gdal/ticket/4344#comment:5>

#11 - 2011-12-01 08:29 AM - Giovanni Manghi

Giovanni Manghi wrote:

This is the answer of the gdal developers

<http://trac.osgeo.org/gdal/ticket/4344#comment:5>

My suggestion is then to add the "-crop_to_cutline" parameter as optional with a checkbox.

#12 - 2011-12-25 03:51 AM - Giovanni Manghi

- Tracker changed from Bug report to Feature request
- Subject changed from GdalTools Clipper: shifted result to GdalTools Clipper: make "-crop_to_cutline" a separate option
- Status changed from Feedback to Open

Ok, the issue is then in GDAL not QGIS. This can become a feature request.

#13 - 2012-04-15 10:06 AM - Giovanni Manghi

- Target version changed from Version 1.8.0 to Version 2.0.0

#14 - 2012-10-06 02:16 AM - Pirmin Kalberer

- Target version changed from Version 2.0.0 to Future Release - Nice to have

#15 - 2012-12-31 01:24 AM - Paolo Cavallini

- Assignee changed from Giuseppe Sucameli to anonymous -

#16 - 2014-06-29 10:09 AM - Jürgen Fischer

- Assignee deleted (anonymous -)

#17 - 2014-09-24 01:38 AM - Alexander Bruy

I can confirm issue with shifted results when clipping rasters.

#18 - 2015-10-06 04:25 PM - Pedro Venâncio

Since this issue is still unsolved from the GDAL side, I think it is best to put the -crop_to_cutline parameter as optional. I've made a Pull Request with this change: <https://github.com/qgis/QGIS/pull/2351>

Furthermore, I added the -tr xres yres (set output file resolution (in target georeferenced units)) parameter [also as optional] that seems important to me.

#19 - 2017-01-02 05:55 AM - Giovanni Manghi

- Category changed from GDAL Tools to Processing/GDAL

#20 - 2017-02-09 04:35 AM - Alexander Bruy

- Status changed from Open to Closed
- Resolution set to fixed/implemented

Should be fixed in the Processing front-end. Please reopen if necessary

Files

snapshot4.png	260 KB	2011-11-17	Giovanni Manghi
snapshot8.png	199 KB	2011-11-17	Giovanni Manghi
snapshot10.png	198 KB	2011-11-17	Giovanni Manghi
snapshot11.png	189 KB	2011-11-17	Giovanni Manghi