

Exercise 7: Map Layout

In this exercise you will learn how to use the QGIS Print Composer, add map elements to the map to make it more useful, and export the map. Map elements include a legend, a map title, a scale bar, dates for the data and map, the name of the author, and other textual disclosures or pertinent information.

Note: This exercise is about how you add the different map elements and manipulate their characteristics. This does not imply, however, that you should have all these elements in every map you make. The map objectives and individual map specifications at your organization or supplied by your client will dictate what map elements are important to include in each map.

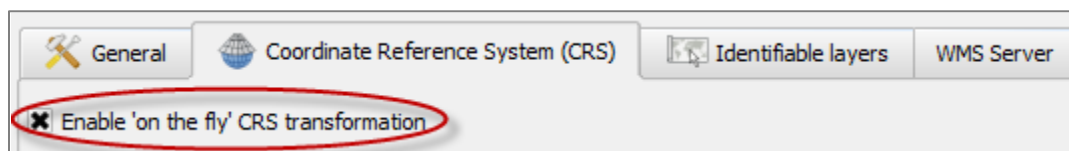
Section 1: Set the Map Projection

First, launch the QGIS application (if not already open)

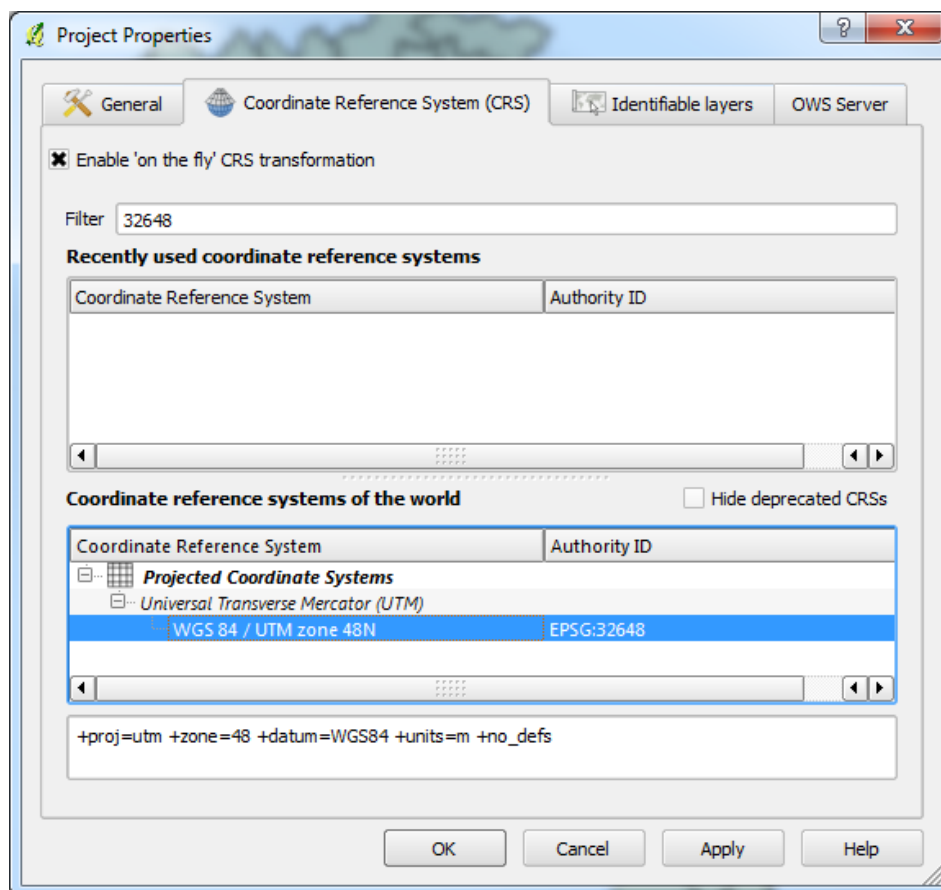
1. Click *File>Open*
2. Navigate to
\\Vietnam_Training\04_Exercises\Project_Files
3. Double click *VNM_Map_Layouts.qgs* to open the map


The Map_Layout project file is currently in the WGS 84 Geographic Coordinate System, which means the units are in decimal degrees. To make sure that your map displays units that are easier to understand (such as meters or kilometers) you must change the map to a Projected Coordinate System. The recommended projection for Vietnam is *WGS 84 / UTM zone 48N*.

4. In the main map window click on *Settings>Project Properties*
5. Click on the *Coordinate Reference System (CRS)* tab
6. Check the box next to Enable 'on the fly' CRS transformation





7. Type *32648* into the *Filter* box and click find **OR** scroll down to the Coordinate Reference System called *WGS 84 / UTM zone 48N* and select it by clicking on it

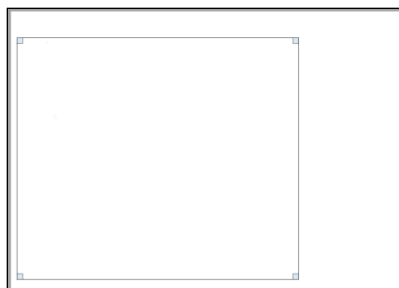


8. Click *OK*
9. In main map window select the *VNM_adm1* layer
10. Click on *Zoom to selected* 

Section 2: Start a New Print Composer Session

Print composer is the interface in QGIS for creating a map layout for export or print

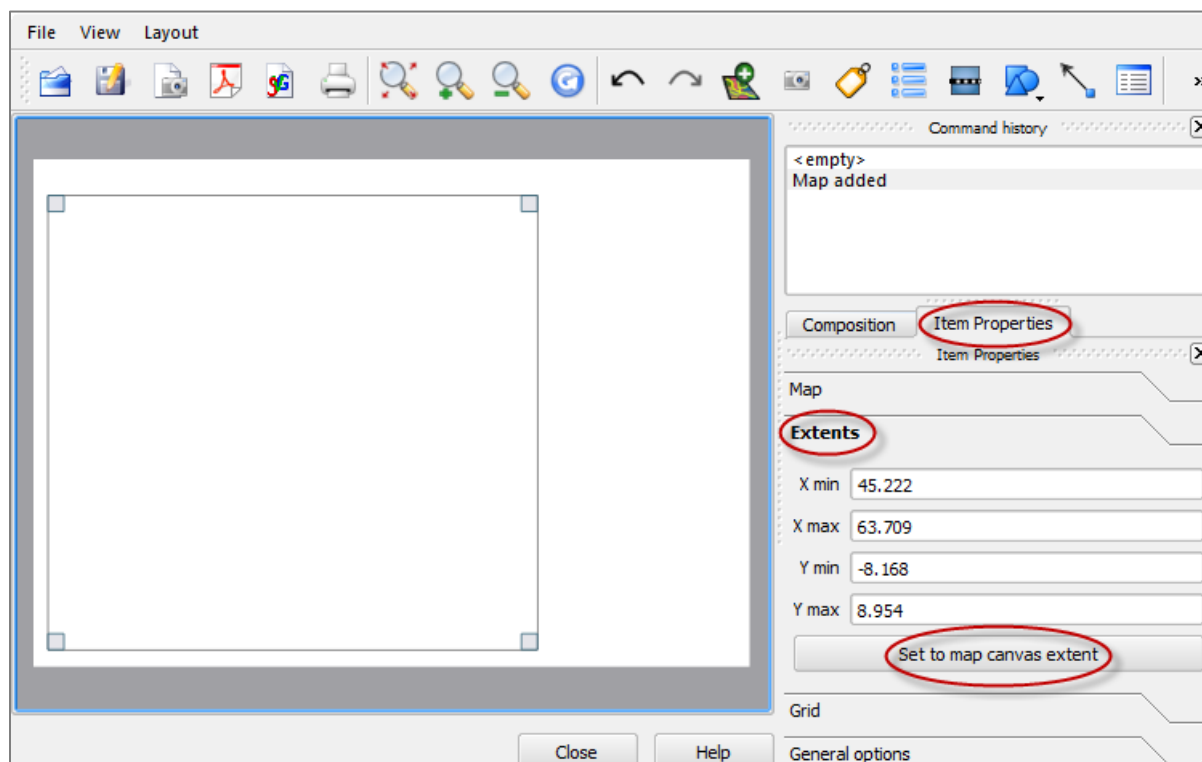
1. Click the *Print Composer*  button
2. Click the *Add New Map*  button
3. Now, in order to add the map, hover the mouse over the top left corner of the white page. Click and hold the left mouse button and move the mouse right and down to create a square on the white page. Release the mouse button. The placement of your map should look similar to this:





4. You should see the same data from the map display. This is what will be exported
5. Select the map by clicking in the map. In the corners you will see little light blue squares that indicates the object (map) is selected



6. If the scale of the map is not as desired then click on the *Item Properties* tab on the right sidebar
7. Click on *Extents* in the *Items* tab
8. Click on *Set to map canvas extent*. This will adjust the viewing area of your map object to best show the layer of interest, which is *VNM_adm2* in this case





9. To center the map on the country of interest, select the *Move item content*  button. Move the mouse to the map, click and hold the left mouse button and drag the country of interest to the center
10. You may close the *Command history panel* if you wish by clicking on the  at the top right hand corner of the panel

Section 3: Save a Template of your Map


It is a good idea to save your work frequently when working in the *Composer* window

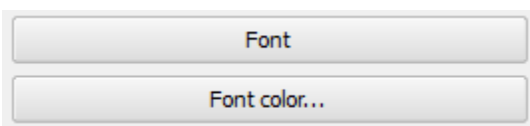
1. In the *Composer* window, go to the *File* menu and select *Save as Template*
2. Navigate to
 \\Vietnam_Training\06_Participant_Work
3. Name the file “Map_Layout”
4. Click *Save*
5. Repeat this save process throughout the exercise to make sure you do not lose your work

It is easy to accidentally close your *Composer* window so we will practice how to reopen your saved template.


6. Click the *Close* button on the bottom of the *Composer* window
7. Click the *Print Composer*  button
8. Click *File>Load from Template* **OR** the *Load from Template*  button to open your saved template
9. Browse to
 \\Vietnam_Training\06_Participant_Work\Map_Layout.qpt
10. Click *Open*

Section 4: Add a Title and Citation


1. Use the *Add New Label*  button to create a descriptive title
2. Click on the top of the page to insert a label
3. Select the *Item Properties* tab and then the *Label* tab in the box on the right side of the screen
4. Enter a title (e.g. Vietnam’s Regions) in the *Label* box
5. Set the *Font* and *Font Color...* using the buttons under the *Item* menu

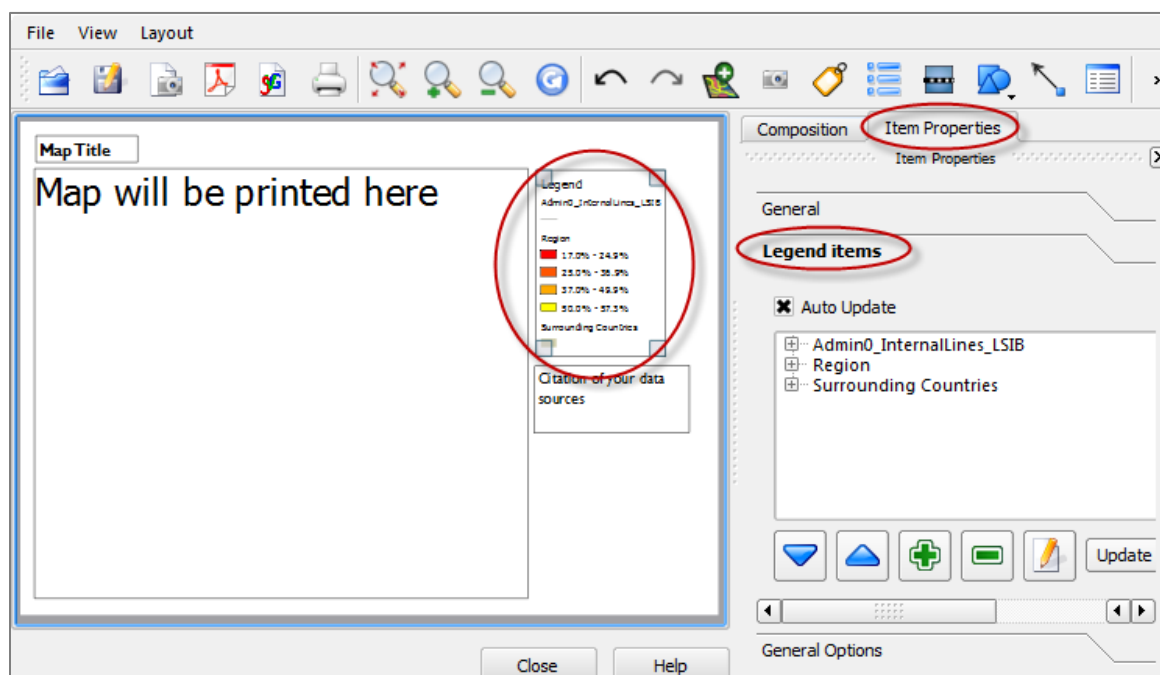


Note: As the title of your map, it is important to make sure that the font size is large enough for others to read easily. Setting the font style to bold is another way to make the title easier to read.

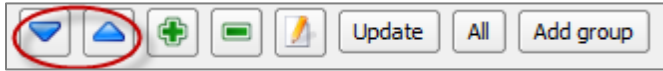
- Click on the *General Options* tab
- Uncheck the box under *General options – Show frame* to remove the frame from around the title
- Adjust the size of the box by dragging the corners of the box until all the text is visible
- Click the *Add New Label*  button
- Click on the empty space on the right side of the map layout
- In the *Item* tab, click on the *Label* tab and type a citation for the data values in the map. For example, “Data is from gadm.org”
- Resize the box so that all of the text is visible
- Save your map template



Section 5: Add a Legend

1. Add a legend by selecting the *Add New Vector Legend*  button
2. Click on the top right of the page to insert the legend
3. Select the legend by clicking on it so the blue squares in the corners appear
4. Click on the *Item Properties* tab on the right side of the window
5. Click on the *Legend Items* tab




- If your map has more than one layer you can order items by selecting the layer in the *Legend Items* box and clicking on the up and down arrows



- Remove the *admin0_region_ne10m* layer from the Legend by selecting the layer so it is highlighted blue, then clicking the *minus*  button
- Edit the layer name for the *VNM_adm1* layer by selecting the layer, then clicking the *Edit*  button. Name the layer "Regions"
- Save your map template

Section 6: Add a Scale Bar

- Add a scale bar by selecting the *Add New Scale bar*  button
- Click on the map where you want your scale bar to be placed
- Select the *Item Properties* tab on the right side of the window
- Select the *Scale Bar* section

Note: The *Segment Size* number is the number of units (meters in this case) that each section of the scale bar is equal to. The *Segment Size* (map units) will automatically set itself to the scale and units of the map. The default segment size always starts with the number one.

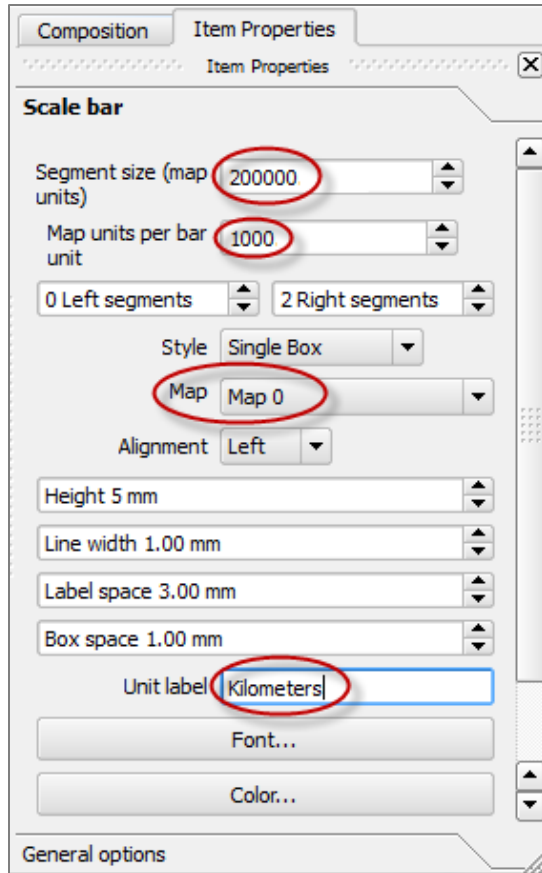
- Set the *Segment Size* to 200000

Note: This sets each section of your scale bar equal to 200,000 meters

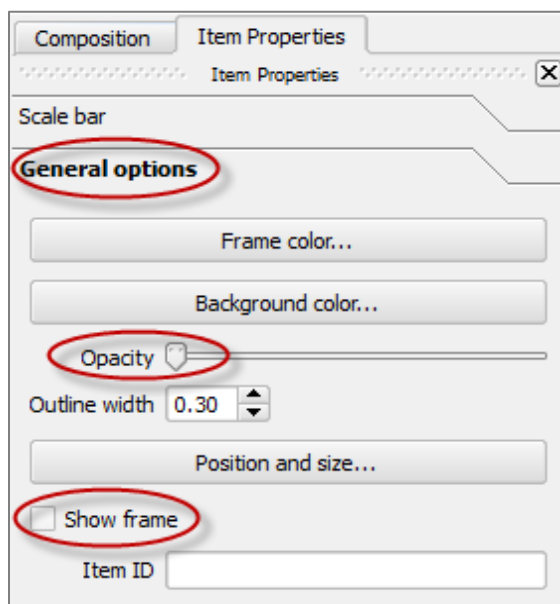
- Adjust the *Map units per bar unit* to 1000.

Note: This converts the units of the scale bar from meters to kilometers (1000 meters per kilometer)

- Make sure the Map 0 is selected under the *Map Section*. This links your scale bar to the first (primary) map you added to your layout




8. Enter the *Unit label* as *Kilometers*.
9. Adjust the box around your scale bar dragging the corners to fit the size of the bar.
10. Under *General Options*, change the *Opacity* to clear by dragging the slider all the way to the left. This will make it possible to see through the box surrounding the scale bar.

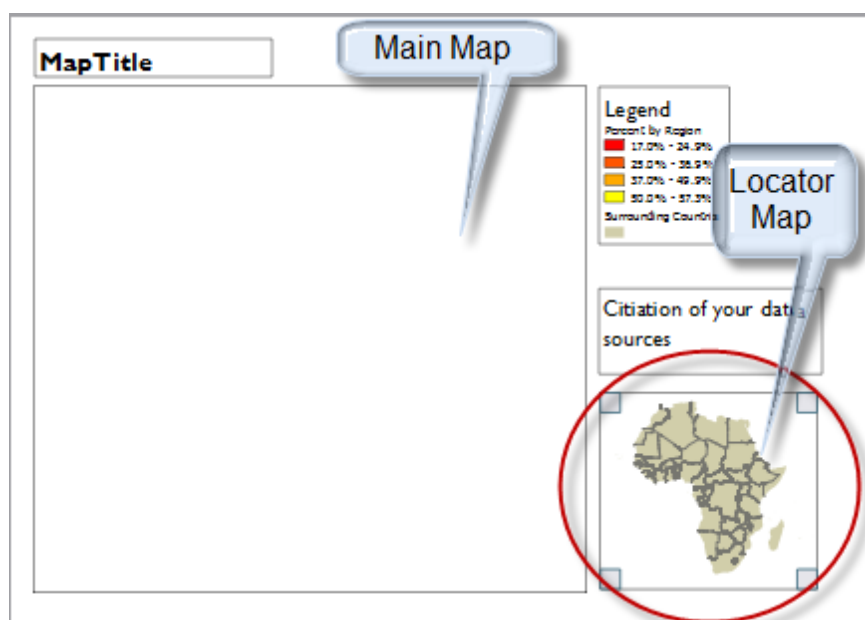




11. Uncheck *Show Frame*
12. Save your map template

Section 7: Add a Locator Map

One way to provide context for a map is to include a locator map (inset). The locator map is a second map that shows the reader where the area of interest is located.

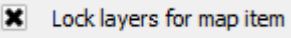
1. Click the *Add new map*  button
2. Click and hold the left mouse button and drag the mouse to create a small map in the bottom right corner of the page. Release the mouse button. The placement of your locator map should look similar to the image below, but with your own content.



3. Select the locator map, by clicking on the map. In the corners you will see little blue squares that indicate the object (map) is selected.
4. Using the scroll button on your mouse, zoom out by scrolling down until you see all of SE Asia.
5. Select the *Move Item* content button .
6. To center the map on SE Asia, move the mouse to the map, click and hold the left mouse button and drag to center the map
7. Click the *Select / Move item* button .




8. Select the main map by clicking on it. In the corners you will see little blue squares that indicate the main map is selected
9. Click on the *Item* tab
10. Click on the *Map* section

11. Check the box *Lock layers for map item*. 

Note: This locks the layers of your main map so that the main map layout will not update if new layers are added to your project file

12. DO NOT CLOSE PRINT COMPOSER WINDOW

13. Go back to the main QGIS window and click the *Add vector layer* button .

14. Open the file


\\Vietnam_Training\05_Data\03_Shapefiles\00_Country\Admin\VNM_adm0.shp

15. Open the *Layer Properties* for the *VNM_adm0* file.

16. Change the fill color to black and click *OK*.

17. Turn off visibility for the *VNM_adm1* layer.

18. Click *OK* in the *Layer Properties* window.

19. Go back to your *Composer* window and click the *Refresh View*  button

Vietnam should have turned black in the locator map only

Note: If the *VNM_adm0* file was automatically added to your legend, select the legend, go to the *Legend Items* tab in the *Item* tab, select the *VNM_adm0* layer, and click the *minus* button to remove it.

20. Save your map template

Section 8: Export as a PDF

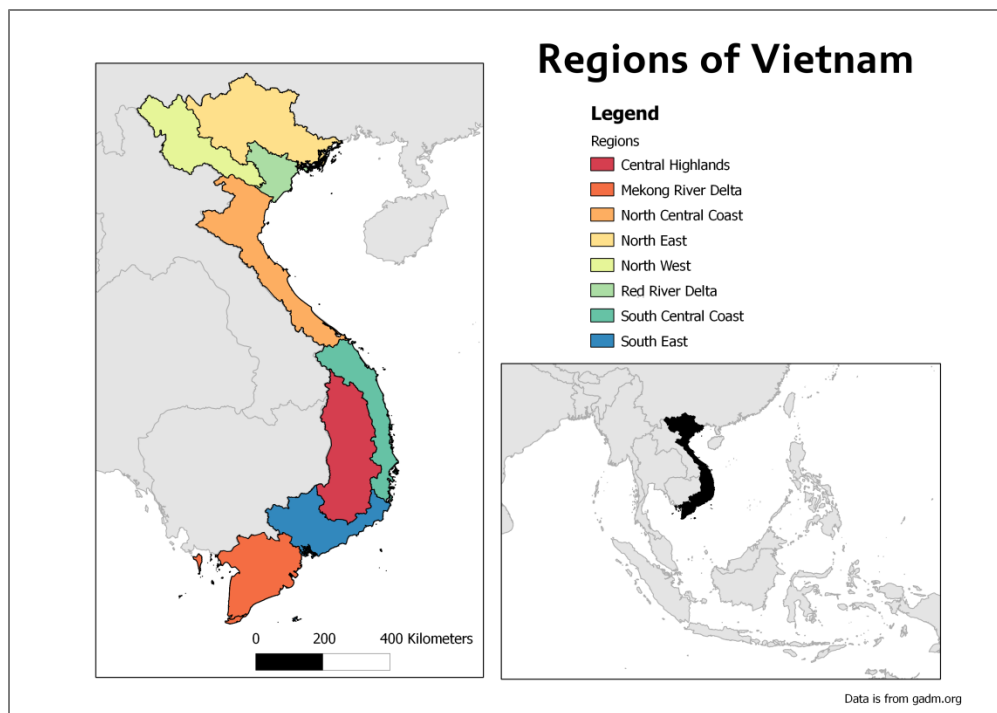
1. Click the *Export as PDF* button .

2. Give your map an appropriate file name and save it to


\\Vietnam_Training\06_Participant_Work

3. Navigate to the newly created PDF and open the document.

Does the map look as you intended? Below is just one example of a possible output.



Section 9: Export as an Image

1. Export the map as an image using the *Export as Image* button .
2. Choose *JPEG* in *Files of Type* and enter an appropriate location on your computer.
3. Give your map an appropriate file name and save it to
\\Vietnam_Training\06_Participant_Work
4. Navigate to the newly created JPEG and open the document.

Does the map look as you intended?

End Exercise.

The information provided in this exercise is not official American Red Cross information and does not necessarily represent the views of the American Red Cross. The exercise was adapted from materials produced by MEASURE DHS and MEASURE Evaluation, which are funded by the U.S. Agency for International Development (USAID). The information from those materials is not official U.S. government information and does not necessarily represent the views of USAID or the U.S. government.