# Template Mode Guide

the following text refers to Template *mode 2* but except for three additional parameters it can also be used as a reference for mode 1.

When starting template mode 2 you are asked to choose a template (the object you want to track). Then – in case you chose follow mode – you have to select an area inside which you want to search for the object. You do that via the sliders **area limit x** and **y** (width and height of that area) and **position x** and **y** (center of the area):
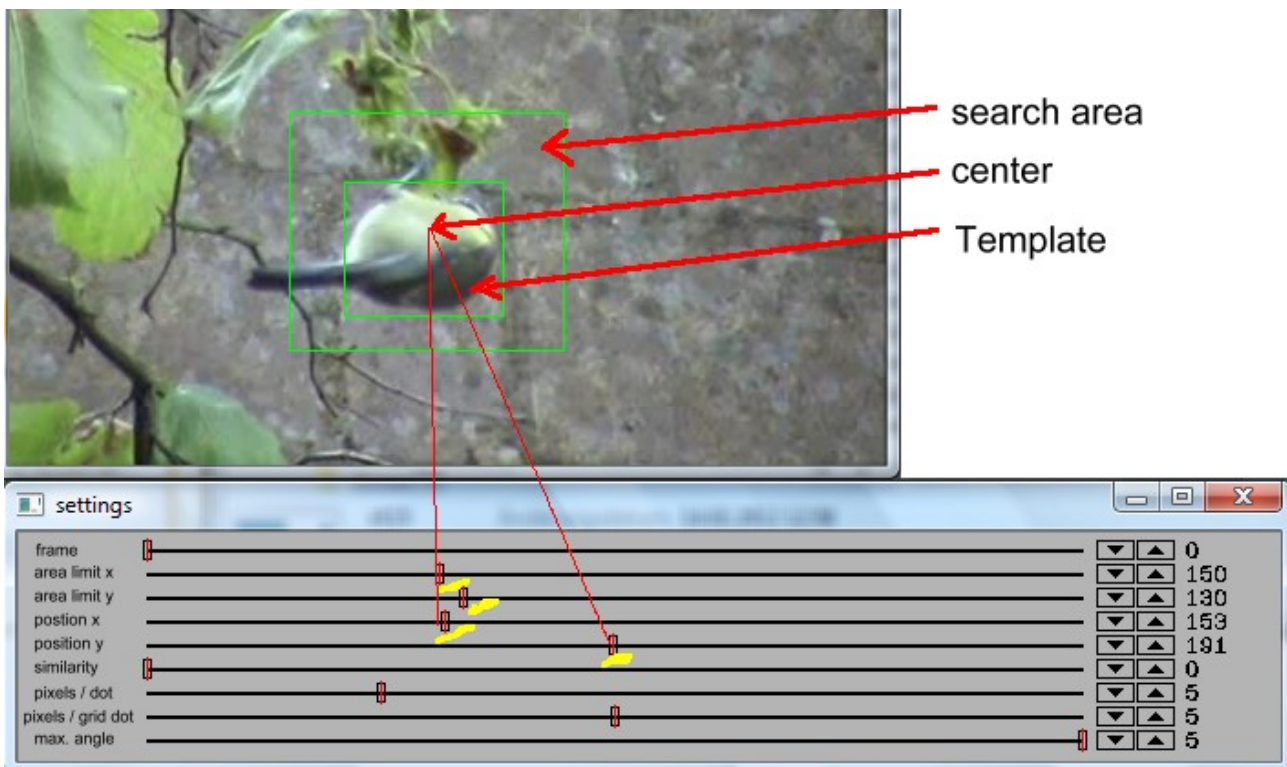

You can also use a different frame but please remember that the position of the rectangle you choose in an arbitrary frame will be its postion in frame 0 when the program starts processing. You can also set the **similarity** parameter to re-detect a lost object or if the object is not visible in the beginning (see file info.pdf, item *c) template tracking* for more about that, you can show this file also by clicking the info button in the starting screen).

Now it becomes a bit tricky (if you want to understand the meaning of the last three parameters of the settings window). The default values for **pixels / dot**, **pixels / grid** dot and **max. angle** are all 5. What does that mean? The first of the three last parameters (**pixels / dot**) defines the number of control points of the template. The value itself tells the program to check and compare a pixel (dot) of the template with a location in the current frame after the set number of pixels (both in direction of length and width):

the parameter **pixels / grid dot** tells the program how many pixels (both in x and y- direction) are between two control points at which the template grid is compared with the frame.
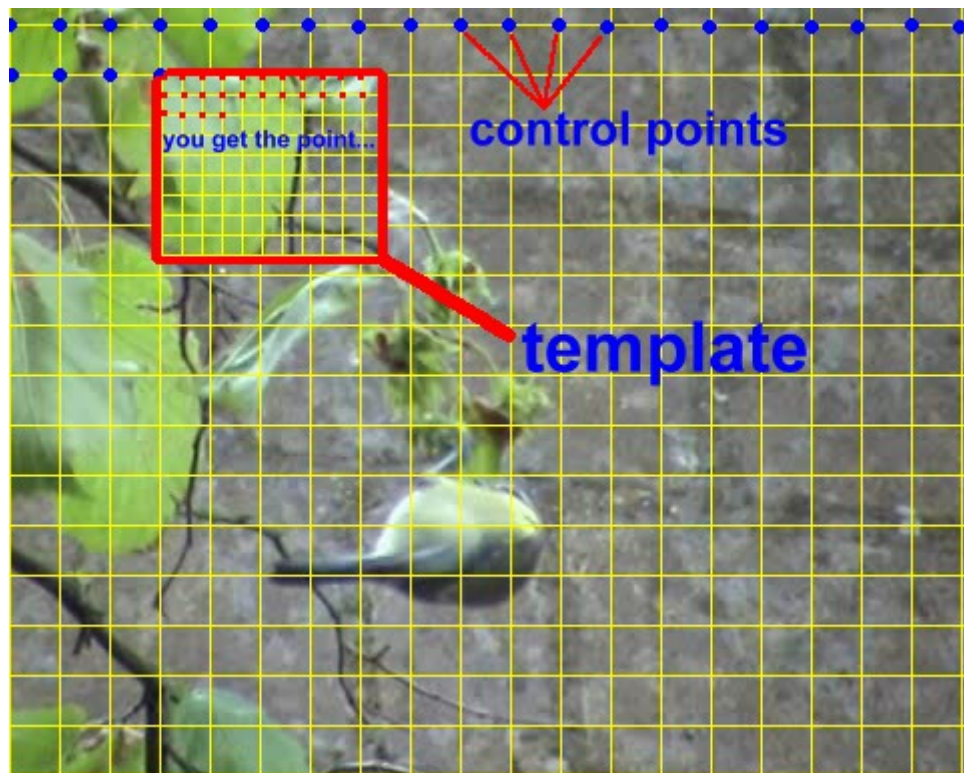

For *example*: if you choose **pixels / dot** = 5 and **pixels / grid dot** = 10 your template will be compared every 10 pixels (x and y direction) with the frame while this takes places for every fifth pixel of the template. Finally the region ((2*10)*(2*10) pixels) around the most similar dot of the frame grid will be compared – pixel by pixel - with the template. The default values are pretty accurate in most cases but if you have chosen **detect object rotation** you may want to increase processing speed by altering them. For example if you choose 15 instead of 5 for the **pixels / dot** parameter processing will be much faster as much less pixels are compared. An increase of **pixels/ grid dot** may lead to less precission though.

Finally we have the **max. angle** parameter. This parameter is easy to explain: the values 1, 2, 3, 4, 5 correspond to 2°, 4°, 6°, 8° and 10°. That is the angle up to which the rotation of the template can be detected, the angle of the template between two frames, to be precise. Thus you won't be able to detect angles > 10° (that could be easily programmed but processing would take ages). Anyway, for objects that do not rotate too much the **detect object rotation** may enhance the result under certain conditions. Angles will be shown by different rectangle colors: 0-2°: green, 2-4°: blue, 4-6°: yellow, 6-8°: red, 8-10°: black and rotation direction will be shown as left and right arrows on the red cross.

Example: if you choose **max. angle** = 3 all angles up to 6° will (possibly) be detected. Processing will be faster than for values 4 and 5 but angles > 6° will not be detected.

Important: make sure that the *search area* is big enough if you use the higher values of **max. angle** since you want to look for a template that is rotated by several degrees:
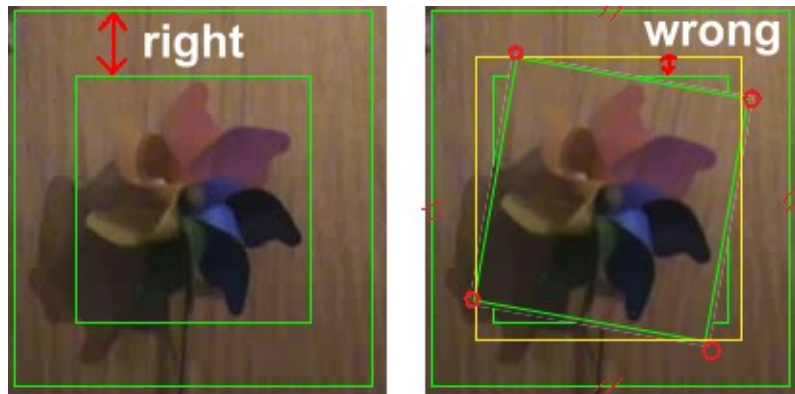
The option **detect object rotation** only works if **detect object size** is ticked as well.

In some cases where the object often changes in shape and/ or color the Centertracker loses track of it sooner or later and scans for something else. In such cases you can try to avoid that by using the option **invariable template**. For more information about that refer to the Info file (info button in main screen).

Mosaic effect/ concealment
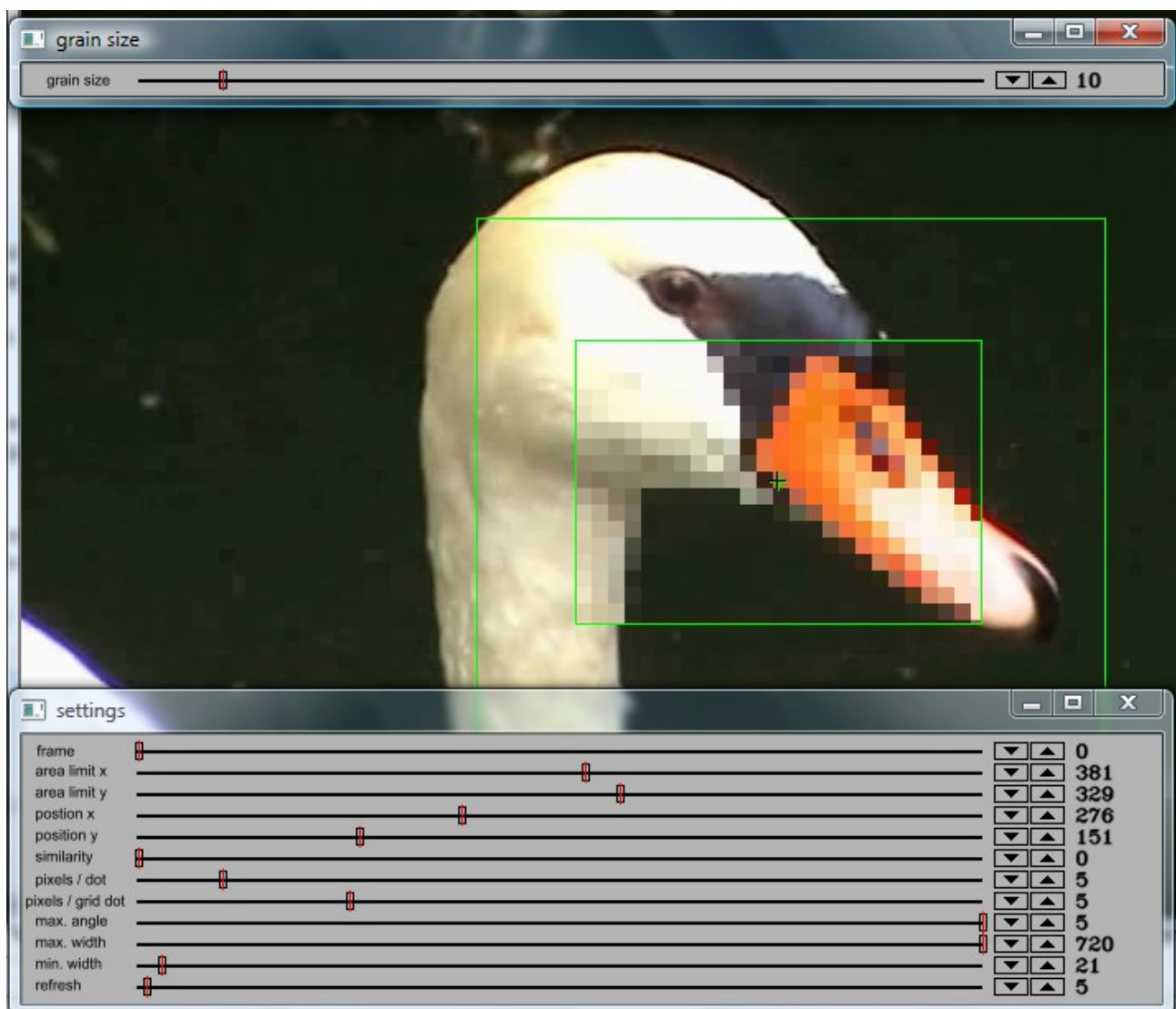
to apply the mosaic effect/ concealment (**mosaic overlay**) simply choose a template via two left clicks and set the **grain size** to the desired value (example: 10). The other parameters can be adjusted as usual. If you have ticked **'detect object size'** the mosaic size will adapt to the detected object size.

Object magnification
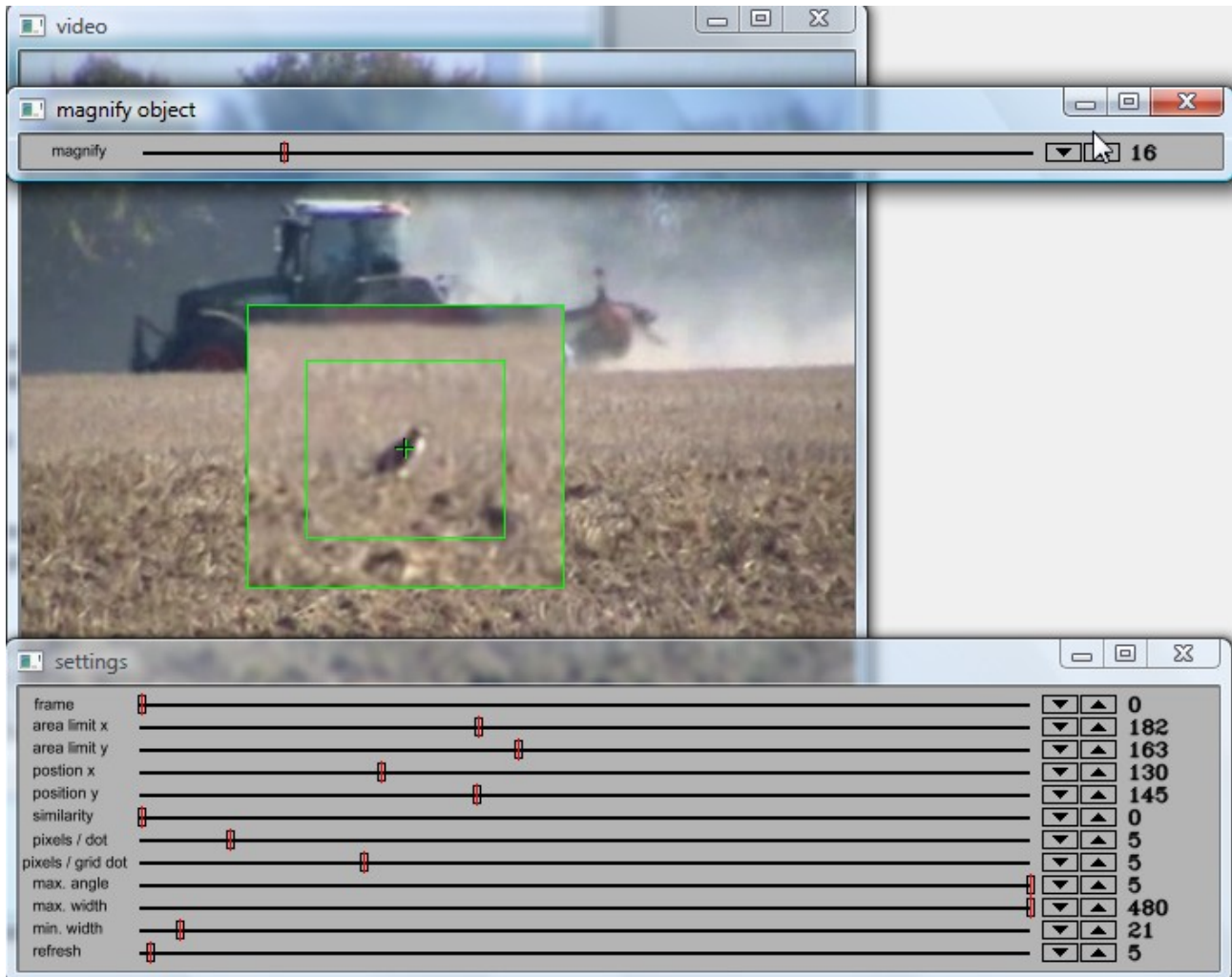
to apply magnification (**magnify object**) you select a template and set the manification factor (example: 16). The other parameters are set as usual. If you have ticked **'detect object size'** the magnification will adapt to the detected object size.