**Start-up**

After opening the program, the boot-up sequence may take a while. A message asking what configuration to use will appear. Let the timer run out or click OK to continue to the program.

Inside the program, click the play button in the bottom left corner to start a live image of the stage. If the picture is blurry, it can be focused by the up and down arrows in the bottom left of the screen above the play/pause button. The radial arrows around the percent are used to move the stage by that percent (5% = small movement, 25% = larger movement). In the upper left corner by the “Leica” logo, there is a small white circle connected to a red bar. Moving the circle horizontally changes the screen-to-menu size ratio.

**Adjusting the Stage and Focus**

In the lower right corner, the current total magnification and the current coordinates are shown. The usual focused z-coordinate is about 8 mm if the surface of your sample is level to the stage. If your sample hangs down into the cavity below the stage, the z-coordinate will be less and will vary according to the height of your sample. If the computer just booted up, the distance will start at z = 0, so it will need to be adjusted greatly to get the sample to focus. The image can also be focused using the handheld dials near the microscope. The front top and bottom control movement of the stage and the small back dial controls focus.
**Adjusting Illumination and Magnification**

If the image is washed out / overexposed, click on the lightbulb icon on the left side of the screen and turn the illumination down from 255.

Below the illumination are the magnification settings. Between magnifications, the z-coordinate will change. Remember the z-coordinate that allows you to focus on the first magnification and move the adjusted z-coordinate back toward the earlier coordinate until it focuses again. When changing magnifications, make sure to increase in order (i.e., 5x to 10x to 20x) until the desired magnification is reached. When you are done, switch the microscope back to the lowest magnification (5x).

Below the magnification settings are the different configurations of illumination. There are four types: brightfield (IL-BF), darkfield (IL-DF), differential interference contrast (IL-DIC) and polarized (IL-POL).

**Adjusting Imaging**

Above the illumination is the image tab. Clicking on the camera icon prompts the image menu where you can change image qualities like exposure and the blend of colors. An image can be taken by clicking the flashing white circle in the upper left corner of the screen. Below the configurations tab is the Z-stack tab, which can be used to scan a 3D object by slice or cylindrical, or by a custom scan pattern. Below that is the stage tab, where you can configure the stage to move in a certain pattern.
Configuration, Acquire, Analysis, and Materials Tabs

At the top of the screen, there are four tabs: configuration, acquire, analysis and materials. The tab the bulk of the work will be done in is the acquire tab. The configuration tab is for data storage, microscope specs and image settings. Analysis and materials are both for doing in-program measurements and placing filters over your image, which can be exported to reports in excel format. The materials tab can also show grain boundaries using preset algorithms, which can be saved to the image or exported with the report. Grains can also be drawn in by hand. On the right side of the screen, the aspect and arrangement of data on screen can be arranged and zoomed, and it can be printed or saved as a pdf.

Additional Help

If more specificity is needed, the Leica help menu shortcut is in the upper right corner. Click “allow the pop ups” to see the full help menu, which gives more detail about specific program settings and modifications.