

Increasing the Z Upper Limit to Allow for Thick Samples

Abstract

Discovery-1 can be used to acquire images of thick specimens. This is especially useful with low magnification objectives with long working distances. To make use of this capability, you might need to change the upper limit for the objective turret so that your objective can focus on the top of your specimen. The recommended procedure for doing this is to create a new group and hardware settings with a higher upper limit.

Document ID
D50015

Product
Discovery-1, version 5.5

Created
28-Aug-2003

Last Reviewed
22-Oct-2003

Instructions

Caution: If you raise the upper limit of your Z-position, you risk an objective hitting your plate, unbalancing the plate, and possibly damaging the objective. Although the upper limit can be increased for the entire system set up, the procedure in this document creates a new application group to avoid incidental damage to higher magnification objectives. If you decide to complete this procedure, caution must be taken to ensure that the new application group is only used for the lower magnification, long working distance objectives (2, 4, 10X).

Caution: Before beginning this procedure, you should verify the state of the option Focus Knob always Enabled. This setting is located in the HTS Controller Configuration dialog box in the Meta Imaging Series Administrator program. It is not necessary to open this dialog box to verify whether this option is active. To verify, ensure that Live acquisition is not selected, then while observing the Focus display on the Discovery-1 Controller front panel, move the focus knob. If the focus value changes, the focus knob is enabled. If the option is enabled, you must be cautious when completing the steps in this procedure. When the Z motor (focus) is close to its upper limit, you are at greater risk for causing the objective to contact the plate or stage.

Note: The following procedures should be completed by the system administrator.

Finding a new upper limit

To set a new upper limit, you need to find the new Z position. To do this, complete the following instructions:

1. Start the Discovery-1 system. From the Apps menu, open the Screen Acquisition dialog box.
2. On the Main tab in the Magnification box, choose the objective with which you will be working.



3. On the Wavelength tab, choose the wavelength that you will use to focus.

Keywords: screening acquisition focus v5.5 v5 wavelength
Issue Type: acqn acquisition



4. Click the *Live* button to open a live image.



5. Move the focus knob until the upper part of your sample is in focus.
Caution: Be sure that your selected objective does not hit the stage or the plate. If your selected objective contacts the plate, move the focus a few microns away from the plate and use this as maximum upper limit for the focus motor to prevent damage to the objective. If one of the other objectives hits the plate or stage as you are focusing upward, contact Universal Imaging to discuss other options.
6. Record the Focus value displayed in the front panel of the controller. Multiply the number shown on the display by 10 and write it down. This number will be your new upper limit.

Creating a new hardware setting with the new upper limit

To create a new hardware setting with an expanded Z range, complete the following procedure:

1. Start the Meta Imaging Series Administrator program.
2. Click Configure Hardware.
3. In the Configure Hardware dialog box click *Create New Setting*. The Create New Setting dialog box opens.
4. In the *Settings Name* box, type *Extended Range*.
5. In the *Copy Settings From* box, choose *Default*.
6. Click *OK* to close the dialog box and apply the new setting name.
7. In the Configure Hardware dialog box, choose *Extended Range* from the Hardware Settings list, then click Configure Devices. The Configure Devices dialog box opens.
8. In the Configure Devices dialog box, click *Hardware Drivers*.
9. In the Device Installation dialog box, choose the *HTS Controller #1* and click Configure.
10. In the HTS Controller Configuration, find the Upper Limit (within the Focus box in the lower left of the dialog). Change the Upper Limit value to the one you have written down.
11. Click *OK* to close the HTS Controller Configuration dialog box.
12. Click *Done* to close the Device Installation dialog box.
13. Click *Done* to close the Configure Devices dialog box.
14. Click *OK* to close the Configure Hardware dialog box.

Setting up a new application group to use the new hardware setting

To create a new application group to make use of your new hardware setting, follow these instructions:

1. Start the Meta Imaging Series Administrator program.
2. If this dialog box opens in Single User Configuration mode, click Enter Multi-User Mode.
3. Click *Create Group*. The Create Group dialog box opens.
4. In the Group Name box, type a name for your application (for example, Agarose extended range).
5. In the Application box, select *Discovery-1*.
6. In the Hardware Configuration box, select *Extended Range*.
7. In the Copy Settings From box, select *Discovery-1*.

Discovery-1 Online Support

8. Click *Create* to create the group and close the Create Group dialog box.
9. Highlight the group that you just created under the groups list.
10. Choose a user from the list on the right side of the dialog that you want to assign to this new setting.
11. Click *Add User*. (repeat steps 10 and 11 for other users, as needed)
12. Click *Create Icons* to create a startup icon for your new application group. This icon will appear in the Meta Imaging series folder and can be dragged onto the desktop for ease of use.
13. Click *OK* to exit the Meta Imaging Series Administrator program.