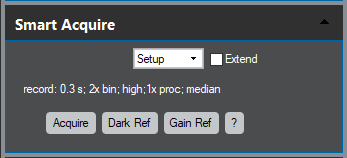
**Smart Acquire**

Smart Acquire (*SmartAcq*) facilitates taking exposures with the Orius CCD camera. It works with the Orius SC1000A 1 Camera (*Camera*) task that is included in the Digital Micrograph (DM) Camera plug-in. SmartAcq uses most of the camera settings set in the Camera Setup dialog, but it uses a separate system for dark-reference images and gain-reference images. Gatan calculates the dark-ref image based on slope and bias images that are acquired through the DM procedure that shows up in the Camera menu only when the user mode is set to “Service”. (Password is gatan\_5ervice). But this is inconvenient and not always accurate. *SmartAcq* acquires the dark-ref image only when needed by shuttering the beam. (This method is also used by SerialEM.) Also, the “Capture” button in the *Camera* task always puts the captures image in a different workspace, which is annoying (editor’s note).

Here is a screenshot of the *SmartAcq* dialog. This has been installed in the “Acquisition” technique within the “JEM-2100” group, because otherwise, DM stops the camera view every time you switch between techniques.



There are three setups to choose from. The names don’t really mean anything; they are just inherited from the previous version of DM. When a different setup is selected from the popup menu, those become the active parameters for *SmartAcq* parameters for that setup are loaded into the Camera task. (A short summary of the active parameters is shown on the second line.) Holding CTRL down when selecting a setup loads those values into Camera. Pressing “Acquire” takes an exposure with the current setup parameters. Holding CTRL while pressing “Acquire” takes the exposure and also loads those parameters into *Camera*.

An uncorrected image can be acquired by holding ALT while pressing “Acquire”. Various processing parameters are applied to the uncorrected exposure. The can be set by pressing both SHIFT and ALT while pressing “Acquire”.

Multiple exposures can be summed into a single exposure. Hold SHIFT while pressing “Acquire” to set the number of exposures.

A dark-ref image using the current setup can be acquired by pressing “Dark Ref”. Hold SHIFT while pressing “Dark Ref” to set the number of dark-ref exposures.

A gain-ref image using the current setup can be acquired by pressing “Gain Ref”. Hold SHIFT while pressing “Gain Ref” to set the number of gain-ref exposures.

The “Extend” checkbox uses two exposures to extend the dynamical range of the camera.

…and the “?” button shows this file. Feel free to edit.