

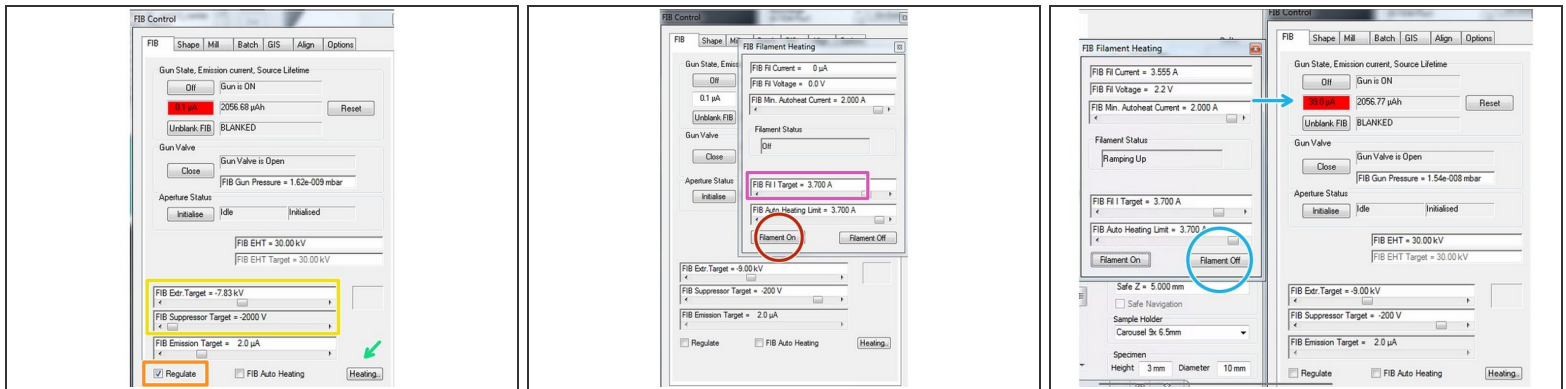
FIB-SEM Auriga: FIB gun heating

When the FIB emission is below 2 μA the filament has to be heated.

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The screenshot shows the 'FIB Control' software window. It has a tabbed interface with 'FIB' selected. The 'Gun State, Emission current, Source Lifetime' section shows 'Off' and 'Gun is ON' buttons, a red '0.1 μA ' display, '2056.68 μAh ', and a 'Reset' button. The 'Gun Valve' section has a 'Close' button and 'Gun Valve is Open' status. The 'Aperture Status' section has an 'Initialise' button and 'Idle'/'Initialised' status. The 'FIB EHT' section shows 'FIB EHT = 30.00 kV' and 'FIB EHT Target = 30.00 kV'. The 'FIB Extr. Target' section shows 'FIB Extr. Target = -7.83 kV' and 'FIB Suppressor Target = -2000 V'. The 'FIB Emission Target' section shows 'FIB Emission Target = 2.0 μA '. At the bottom, there is a 'Regulate' checkbox (checked and highlighted with an orange box), a 'FIB Auto Heating' checkbox (unchecked), and a 'Heating..' button (highlighted with a green arrow).

Step 1 — Preparation



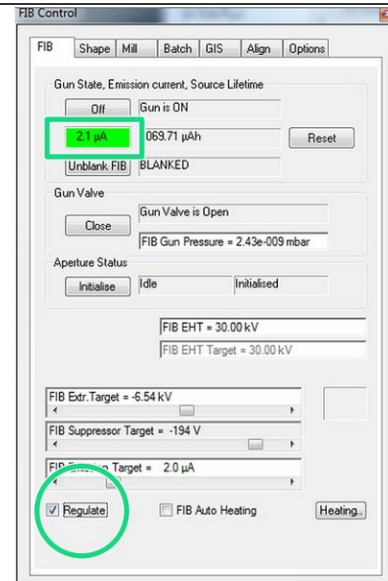
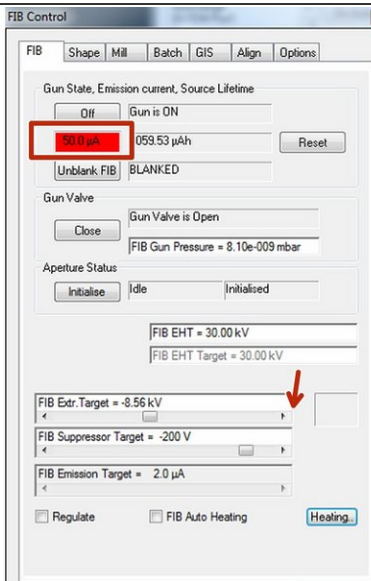
- Turn on FIB gun. [show button in image with colour].
- Blank beam (if not blanked). [show button in image with colour]
- If emission is below 2uA, turn regulate off.
- Set FIB Suppressor Target to -200 V and FIB Extractor Target to -9 kV.
- Open FIB Filament Heating window. [now switch to new step].

Step 2 — FIB gun heating process



- Set FIB Fil I Target to 3.600 A.
- Press "Filament On".
- Watch FIB Emission current and wait until it reaches 50.0 uA. [Show in the image where to watch with a colored square]
- Immediately after reaching 50 μ A, press "Filament Off".
- ① In case the FIB Emission current does not reach 50 μ A, increase the FIB Fil ITarget value to 3.700 A.

Step 3 — Adjusting FIB Extraction Target



- Lower the FIB Extr. Target by clicking on the right arrow of the slider once per 2 seconds until the the Emission current reaches 10 μA .
- ① It needs several clicks until a change in the Emission current appears. Be patient and keep clicking slowly!
- at 10 μA wait 5min.
- Wait 1 min and lower to 5 μA .
- Wait 1 min and lower to 4 μA .
- Wait 1 min and lower to 3 μA .
- Wait 1 min and lower to 2 μA .
- Wait 1 min and turn regulate on again.