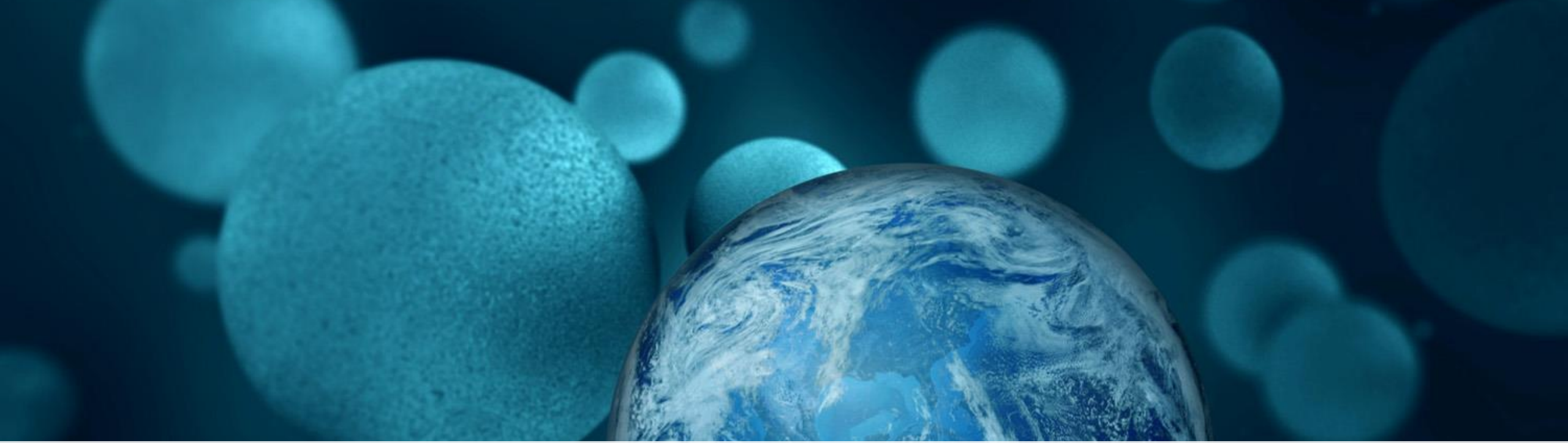

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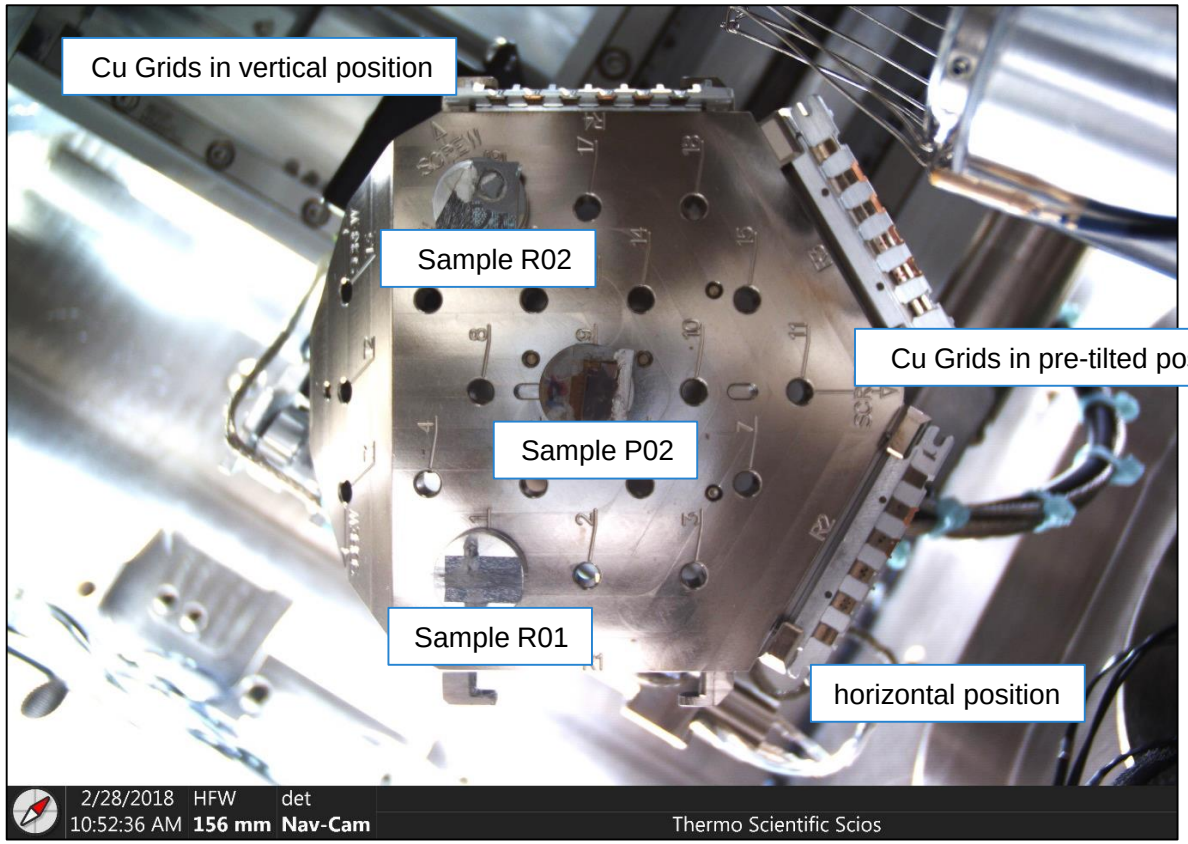
Scios AutoTEM4

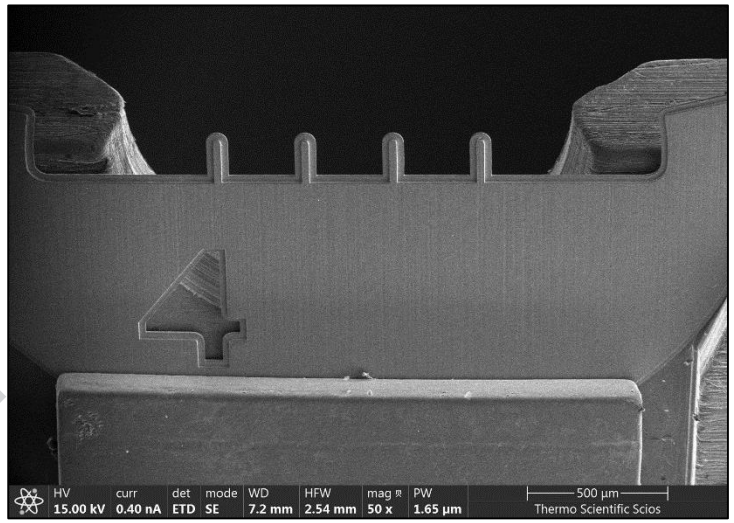
Module 20

Large sample holder; loading samples + TEM grids



- Multiple positions accommodate plenty of samples
- Easy and Fast sample Location/navigation with Nav-Cam
- Bulk samples and TEM grids can be loaded simultaneously (in vertical or pre-tilted position)
- TEM grids in pre-tilted position (R3) allows S(TEM) sample preparation with STEM end pointing and imaging without breaking the vacuum

Best way to load the TEM grids in the TEM grid holder



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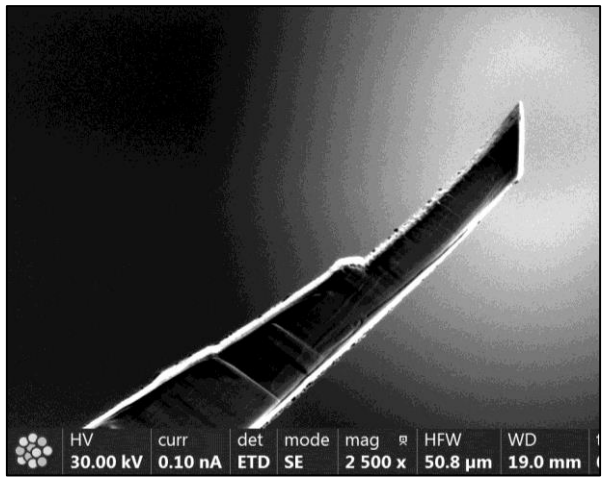
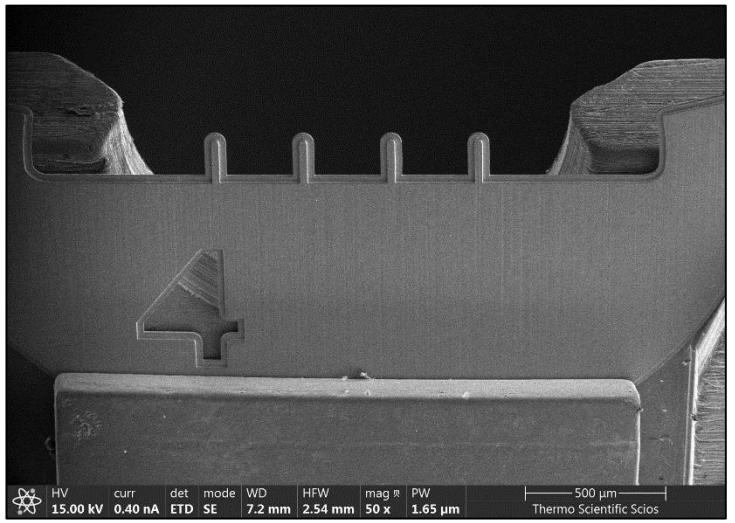
Pre-requirements

To run a successful AT4 project it is important to:

- Load the Copper grids in the correct position in the TEM grid holder and load the rowbar correctly in large sample holder as well
- Home stage
- Run stage rotation alignment
- Check EasyLift needle; shape needle tip
- Have a good vacuum <10-6 mbar
- Check settings AT4





- This is the way to load the TEM grids in the TEM grid holder: flat side to the front
- Mount row bar with clamps towards stage center (as in NavCam image on slide2)
- This is the correct way for both the vertical and pre-tilted position

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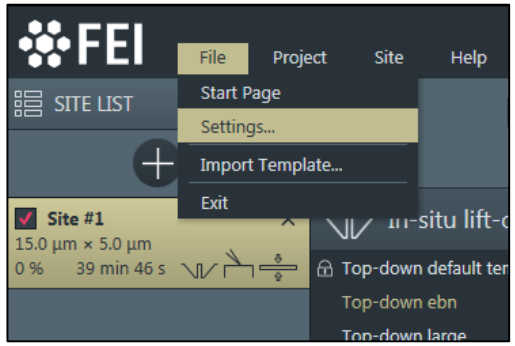
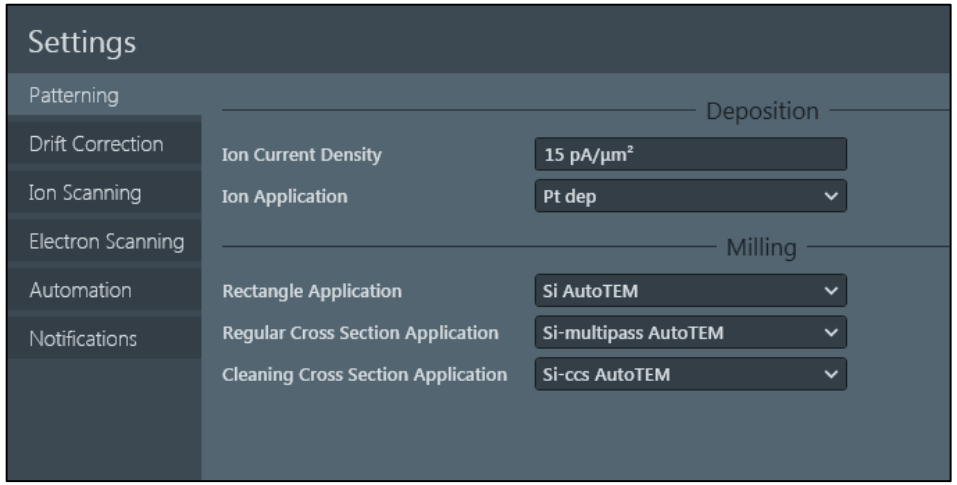
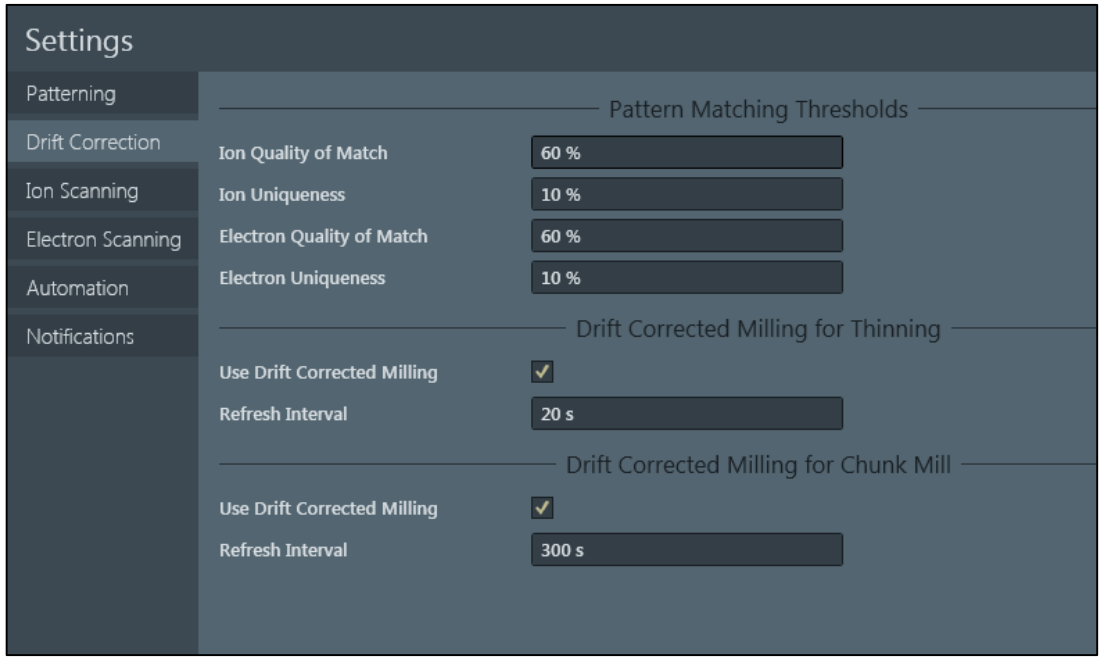
AutoTEM4; settings-1





Default application files:
Change Pt dep to Pt dep_high



Thresholds changed to 60% (default 50%)

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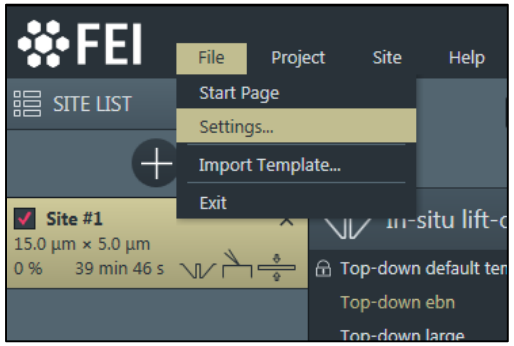
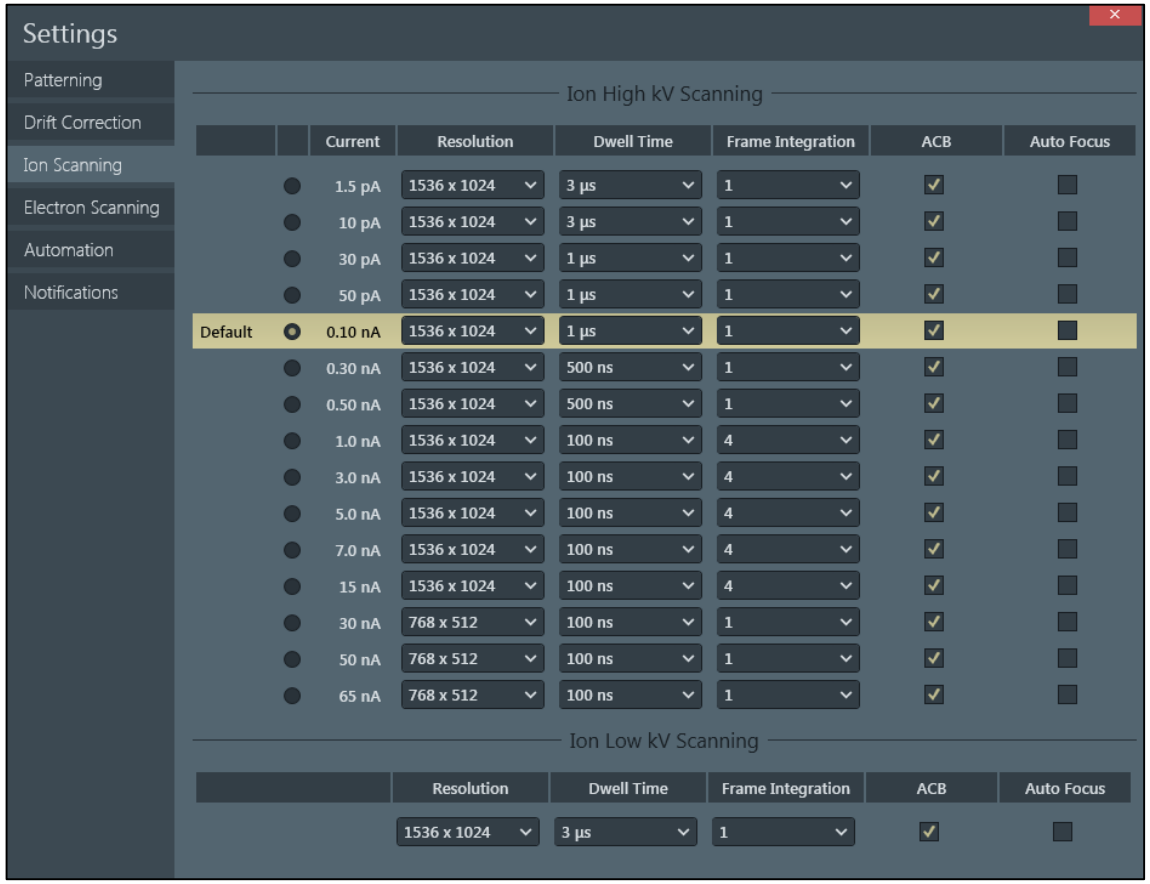
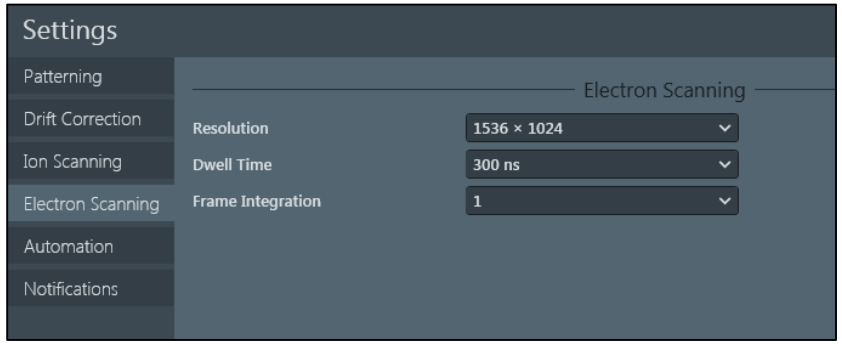
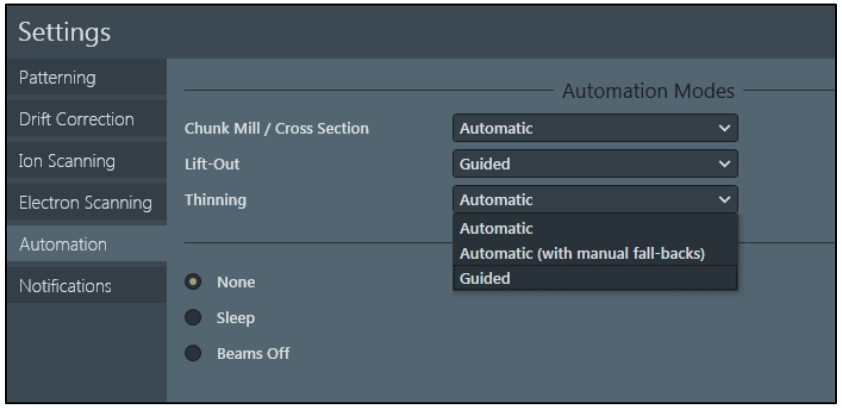
AutoTEM4; settings-2









FIB imaging conditions changed for high BC and default BC is changed

Automation can be set here

NOTE: settings are not linked to a project or template (can be changed by any user)

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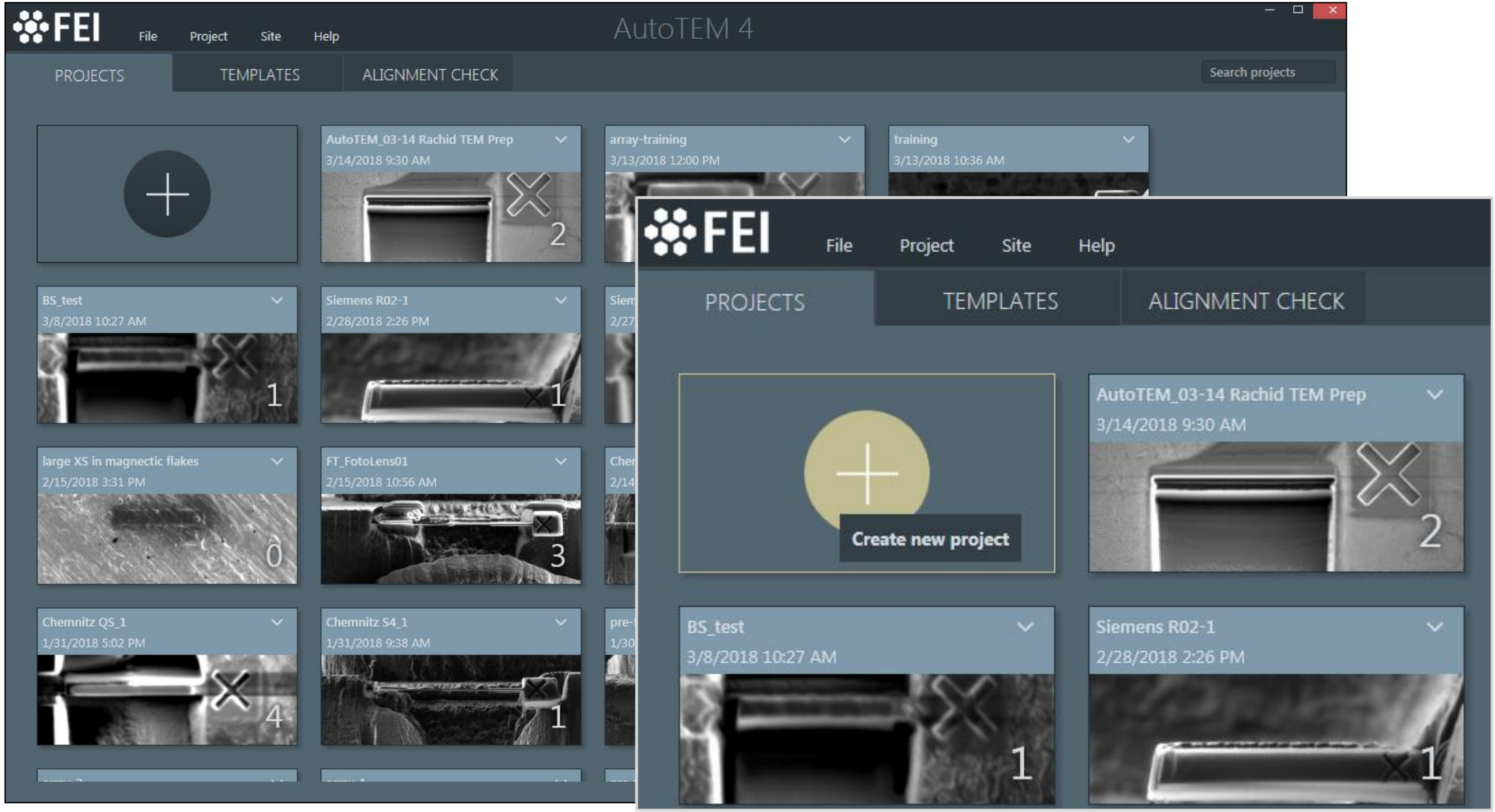
AutoTEM4; starting by creating (or opening) a project



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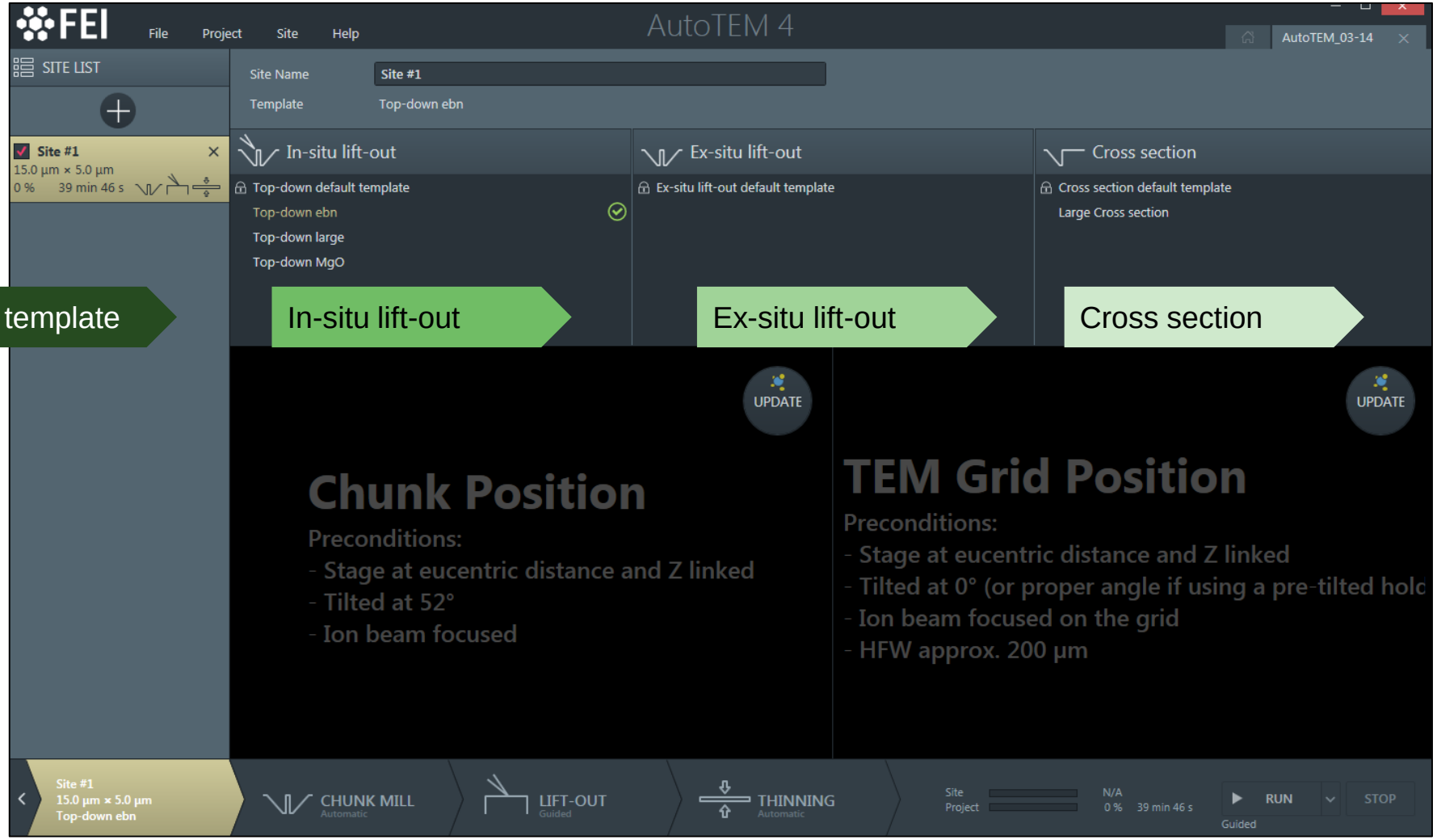
AutoTEM4; workflow



Define a site: stage coordinates → Automatic Chunk mill → Guided Lift-out → Automatic Final thinning

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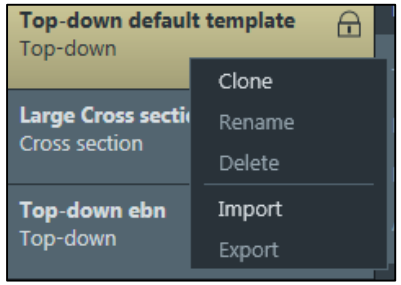
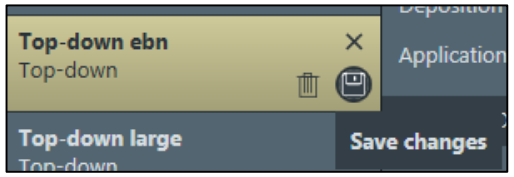
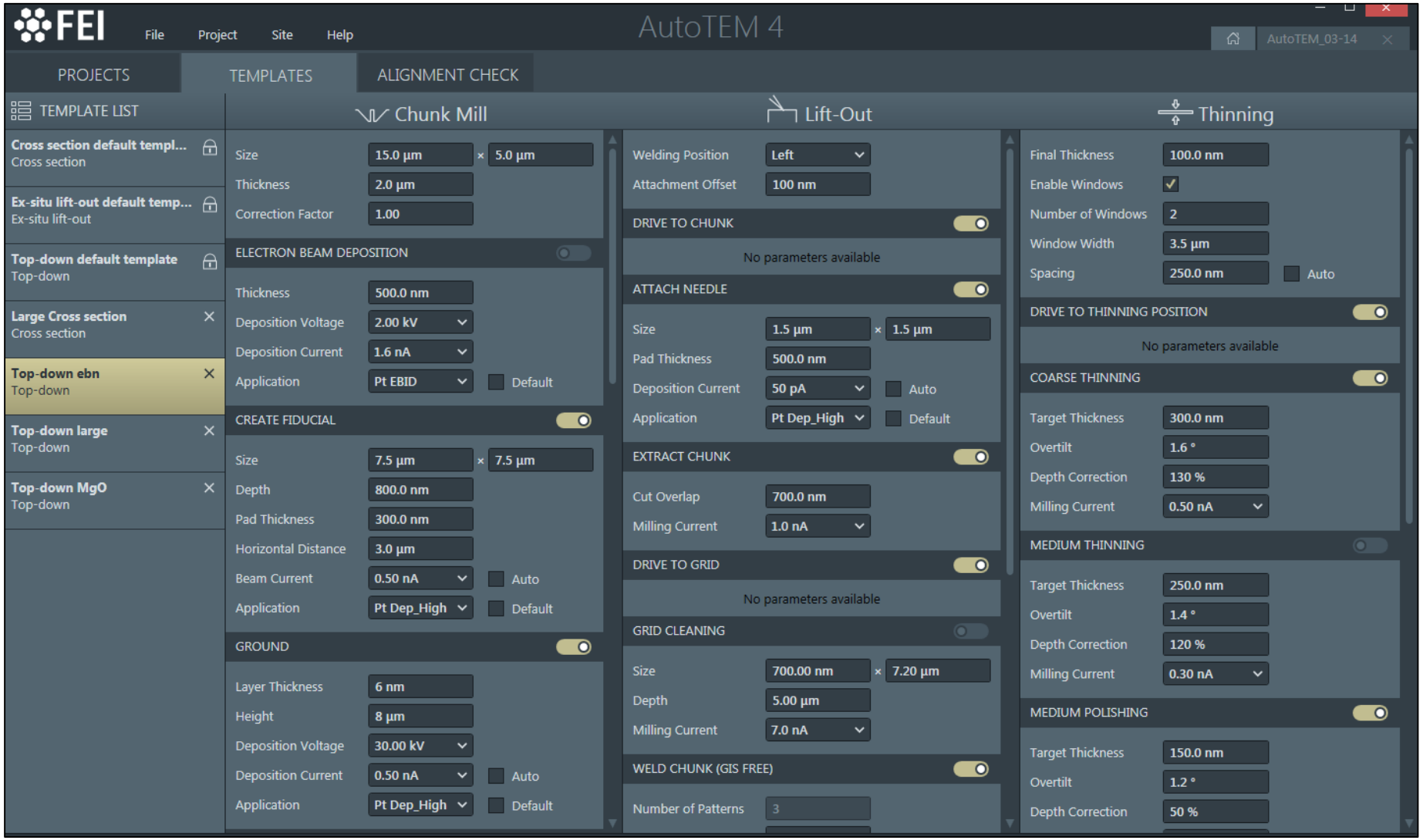
AutoTEM4; templates

- Template can be modified
- Clone (RM) an existing template
- Rename
- Modify and save changes
- Note: in a site template temporary changes can be made







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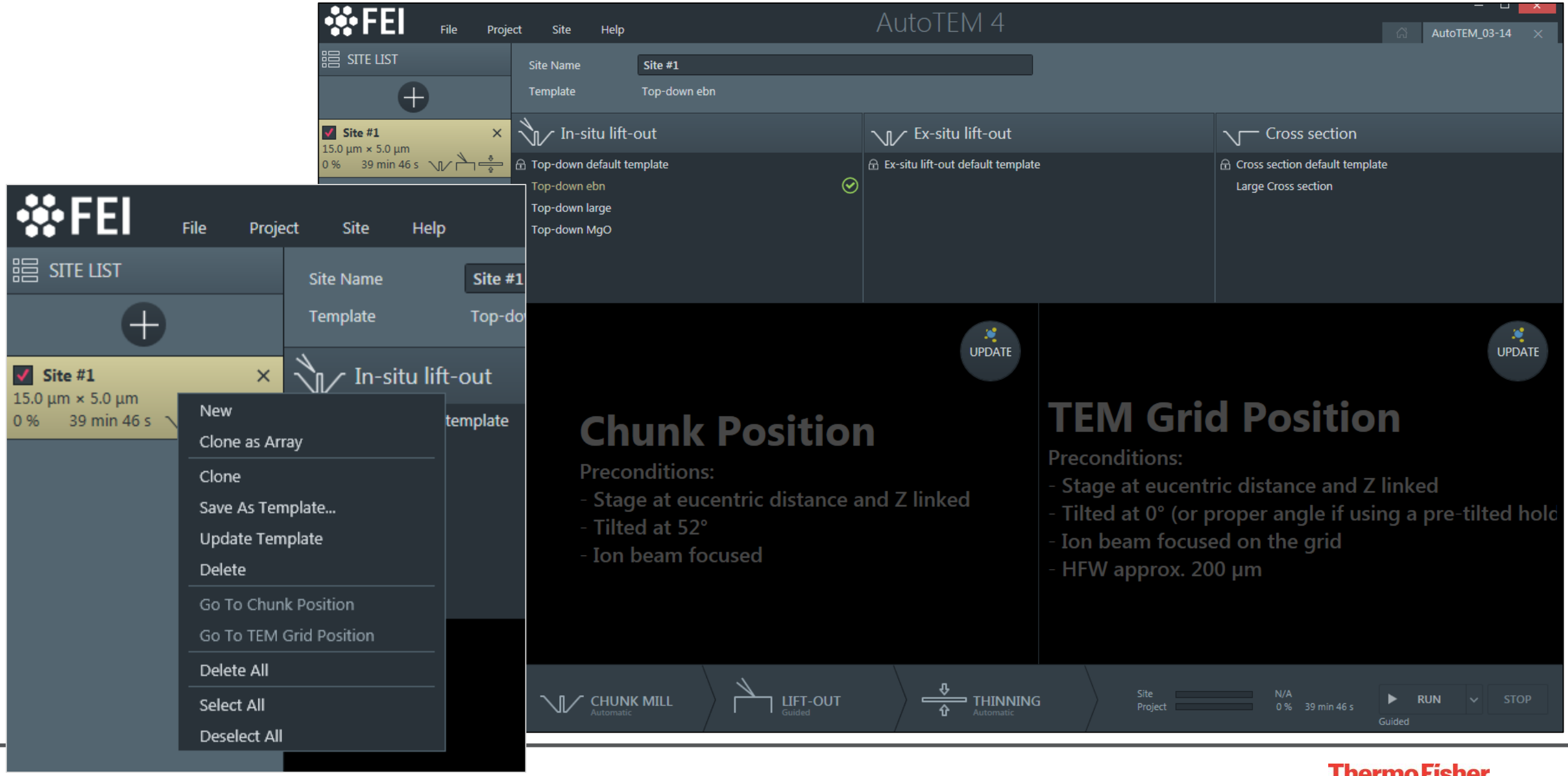
AutoTEM4; creating site – stage position



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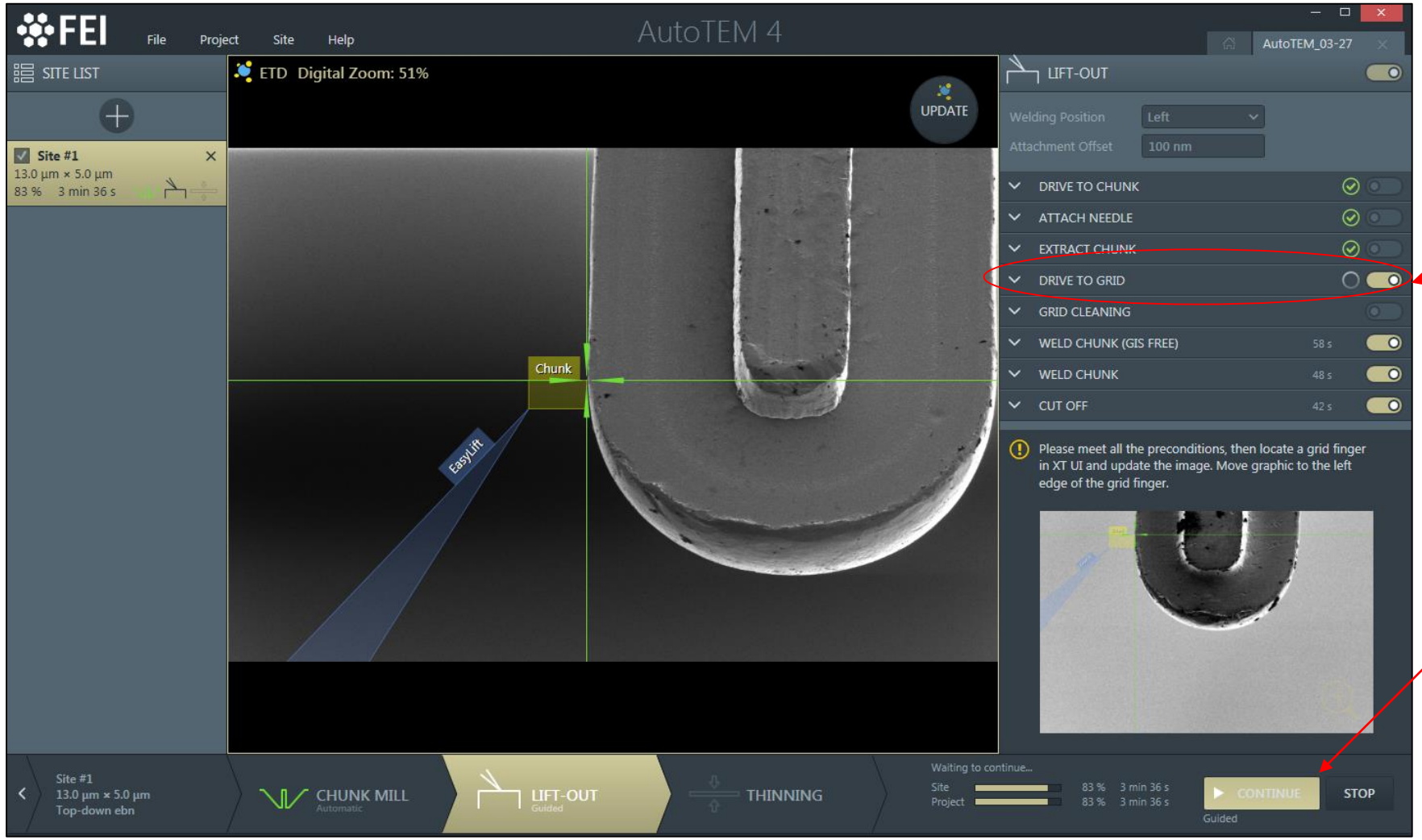
AutoTEM4; when bulk sample it too high



When a sample is too high, Run entire process without updating TEM position at the start.

Arriving at this point of the process a TEM grid position needs to be defined. This can be done after venting and taking out the sample. When vacuum is ok again, move to the TEM position, set height and tilt if needed. Update image and continue process from here.

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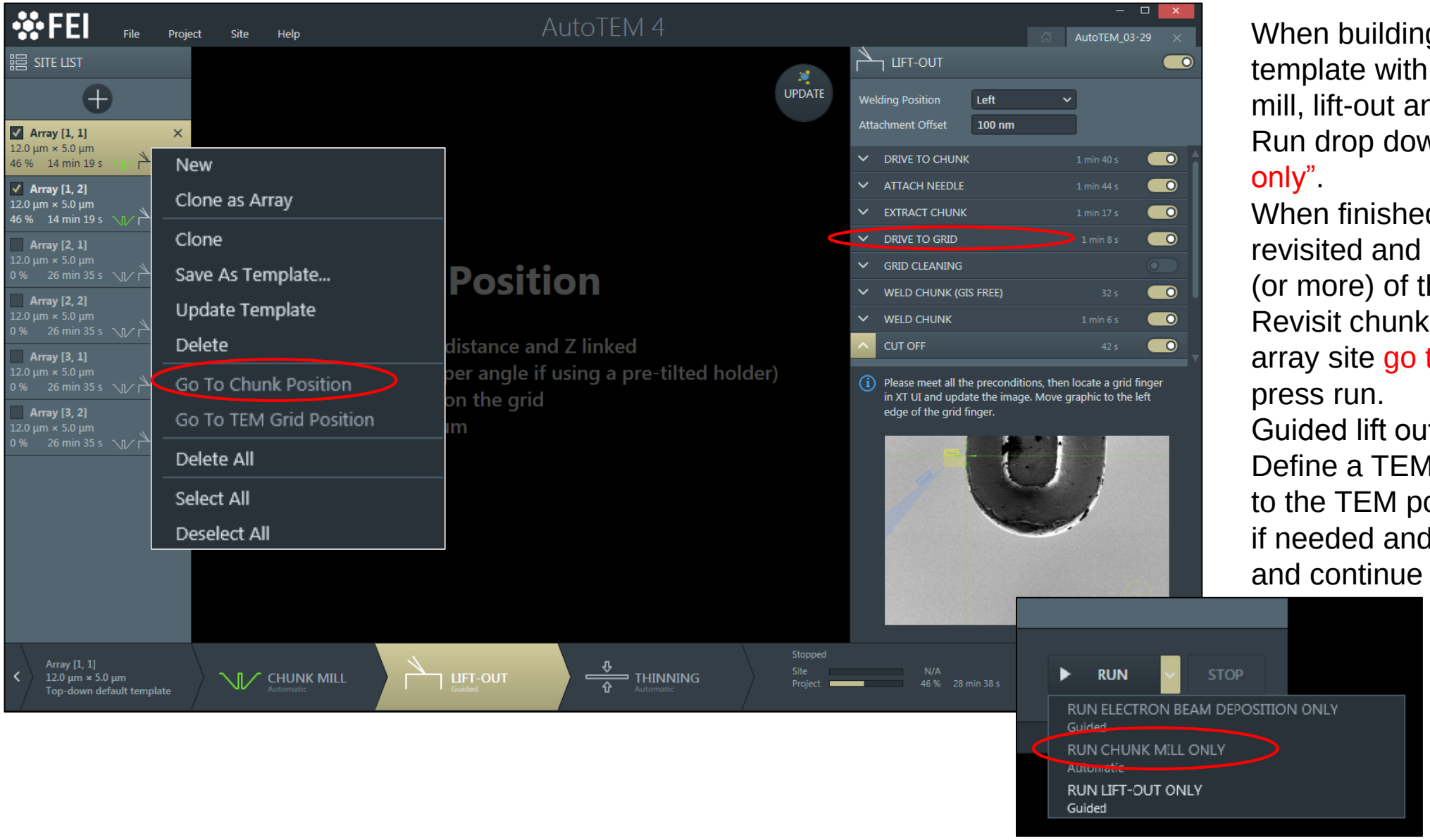
AutoTEM4; building an array followed by lift-out and thinning



When building an array: choose a template with all 3 steps (chunk mill, lift-out and thinning)
Run drop down: "Run chunk mill only".
When finished, the chunks can be revisited and decided to lift out one (or more) of them.
Revisit chunk position (RM on array site go to chunk position) and press run.
Guided lift out until "drive to grid"
Define a TEM grid position: move to the TEM position, set height, tilt if needed and update image…..
and continue process from here.

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