

## QAL Lite Screenshots

Following are few screenshots of QAL Lite (and of earlier versions of QAL). Below each screenshot is a brief description of what the shot presents. All material below is copyrighted (Copyright © 2023-2024 Moez A. AbdelGawad).

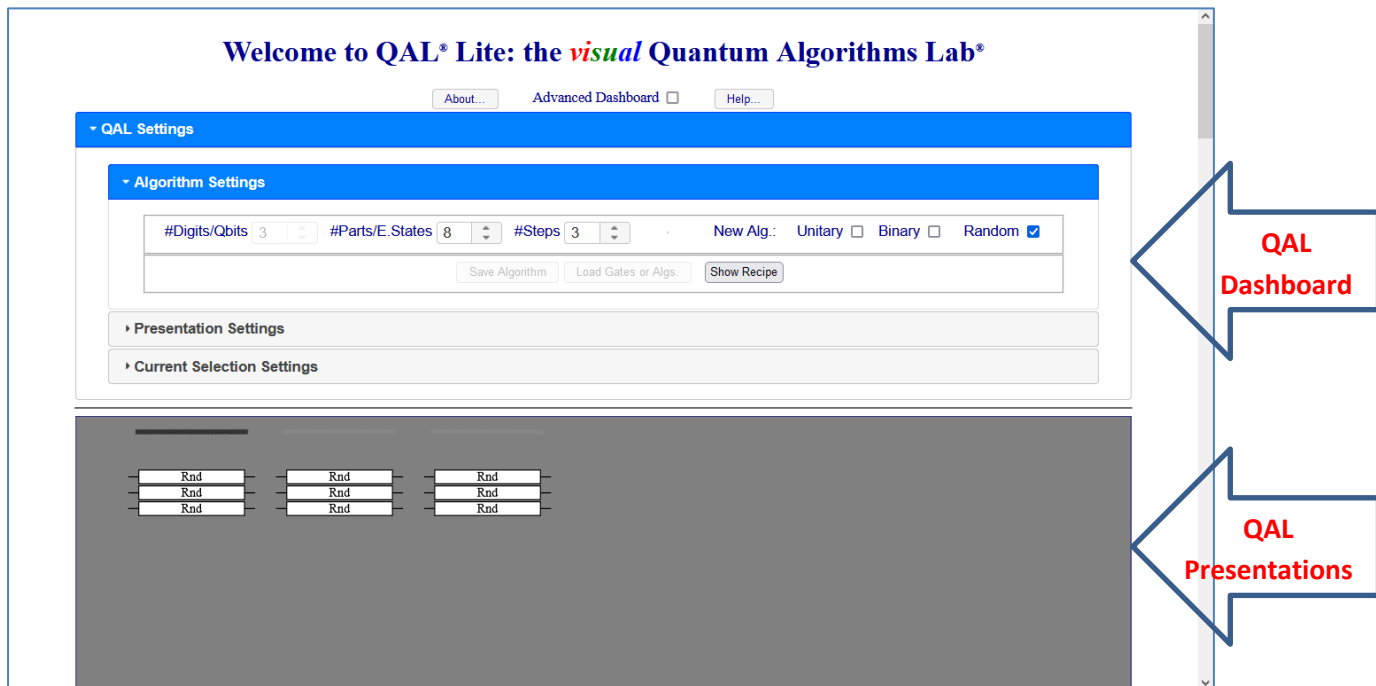


Figure 1. Initial QAL Lite Screen

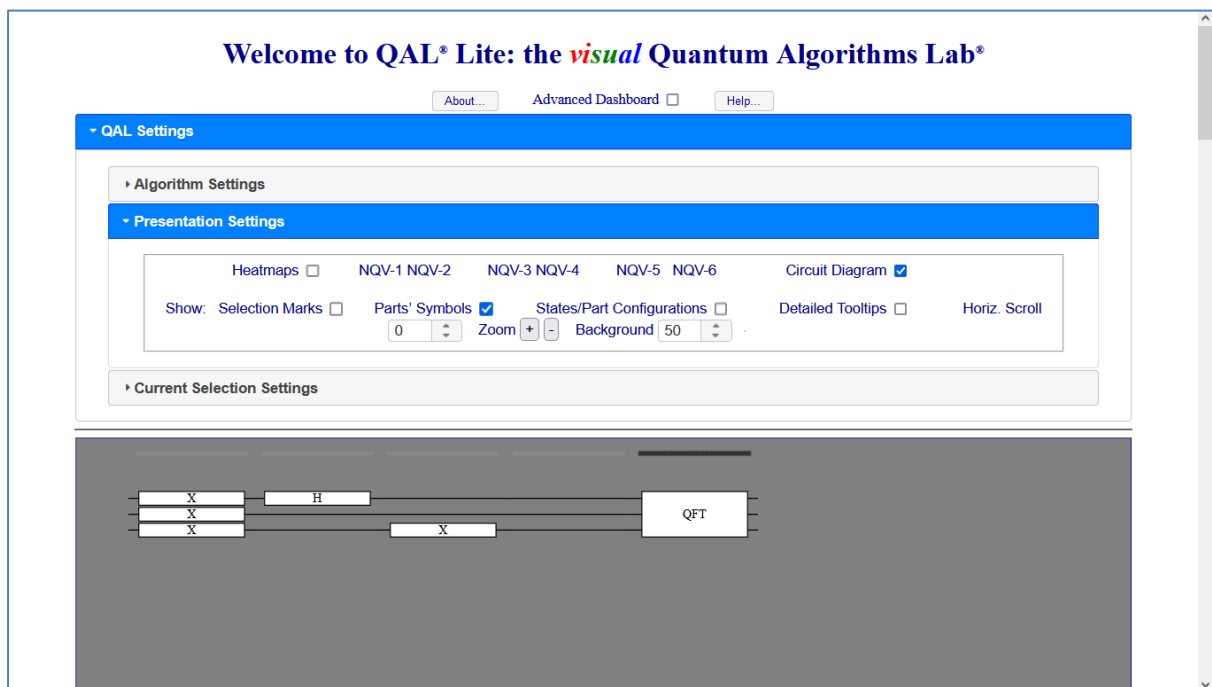


Figure 2. A Basic Quantum Algorithm (presented in a QAL Circuit Diagram)

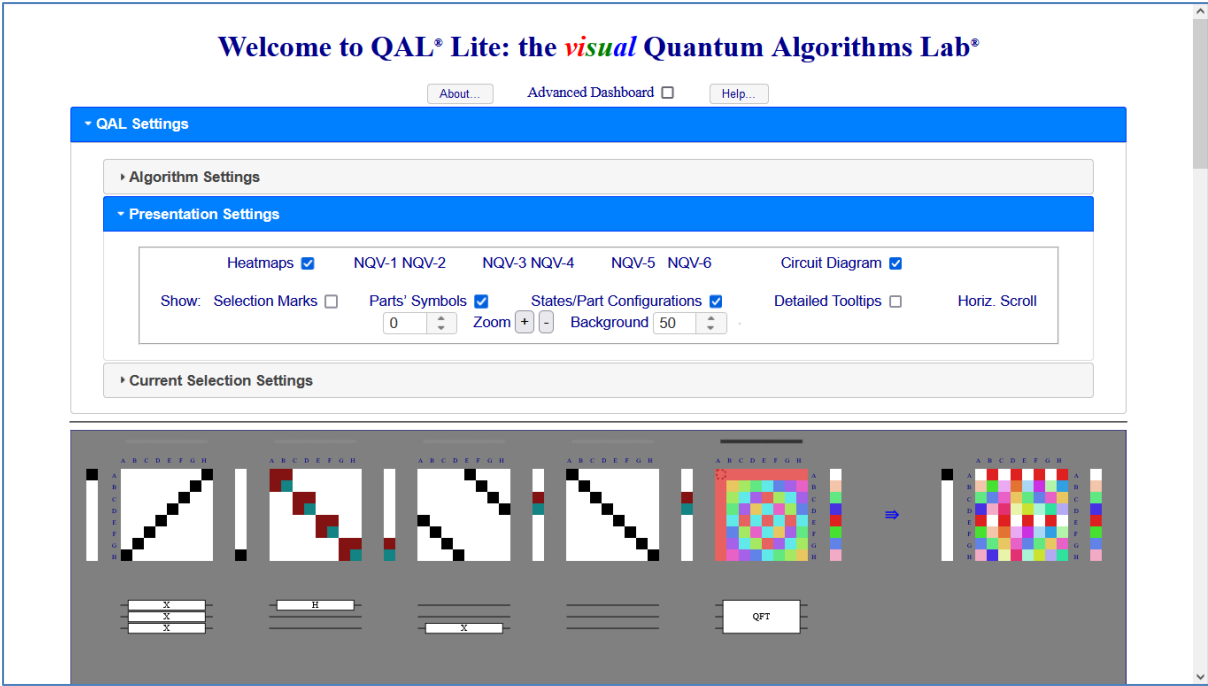


Figure 3. Basic Algorithm (Heatmaps)

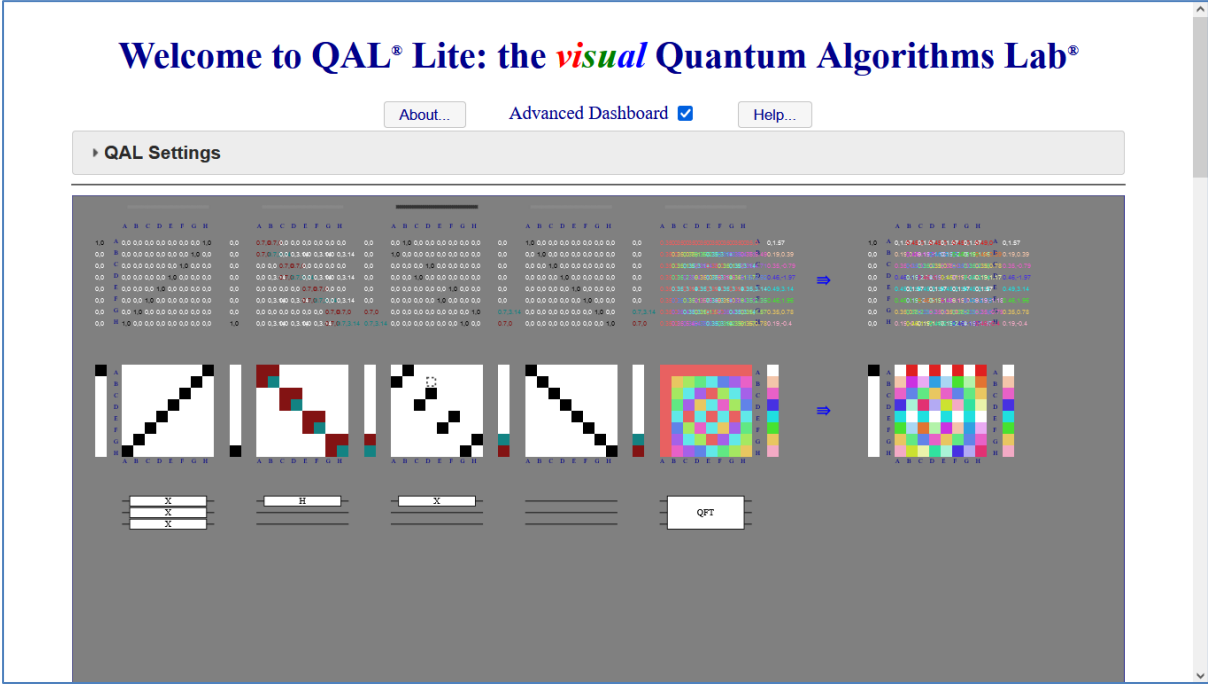


Figure 4. Modified Basic Algorithm (Heatmaps + Matrices)

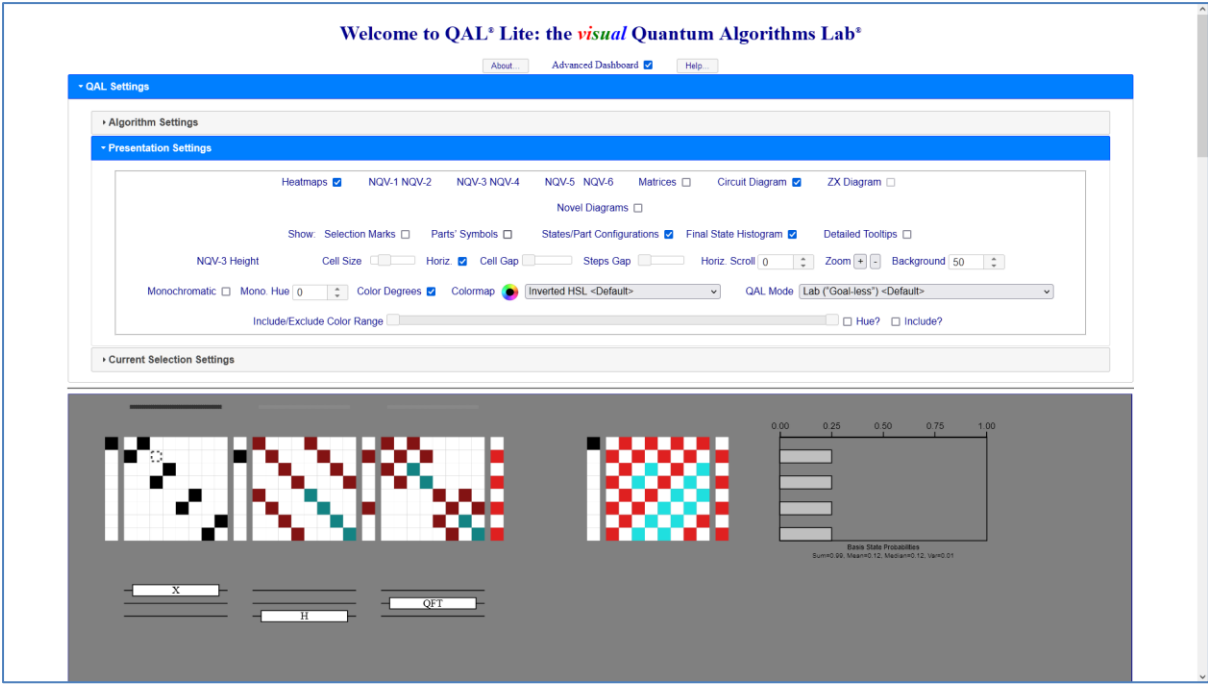


Figure 5. A Second Basic Quantum Algorithm and a Final State Histogram

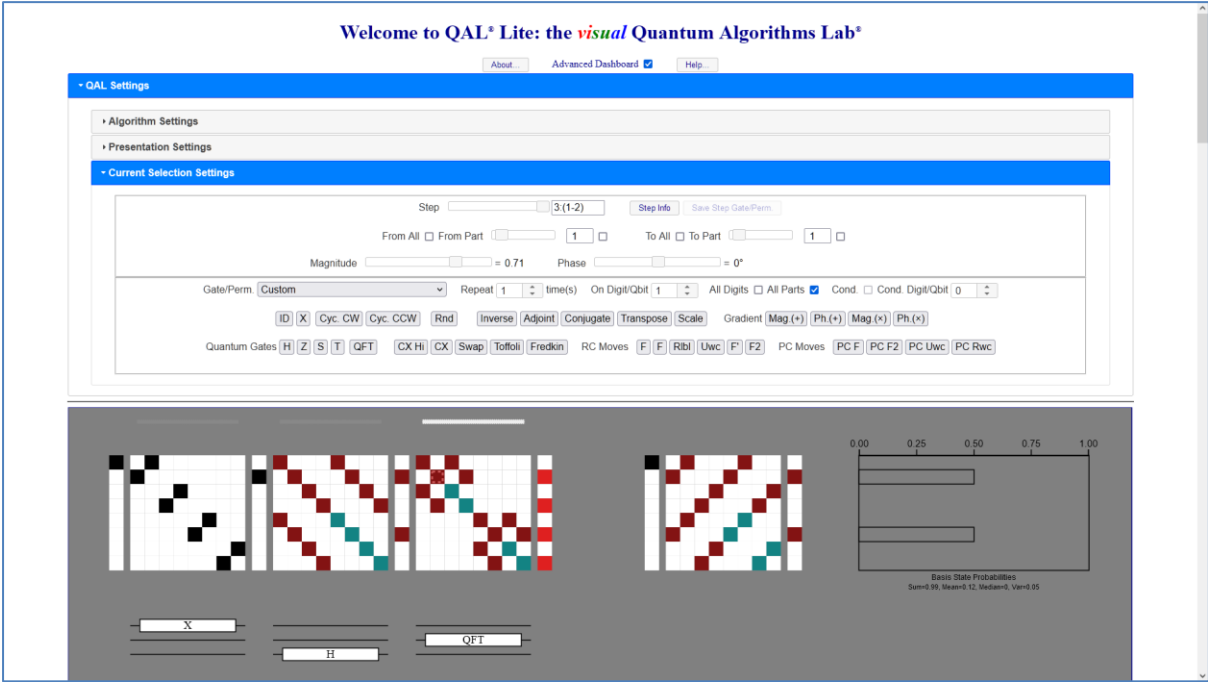


Figure 6. A QAL Subalgorithm



Figure 7. Effect of Some QAL Presentation Settings



Figure 8. Further QAL Presentation Settings and Changing Final State Probabilities

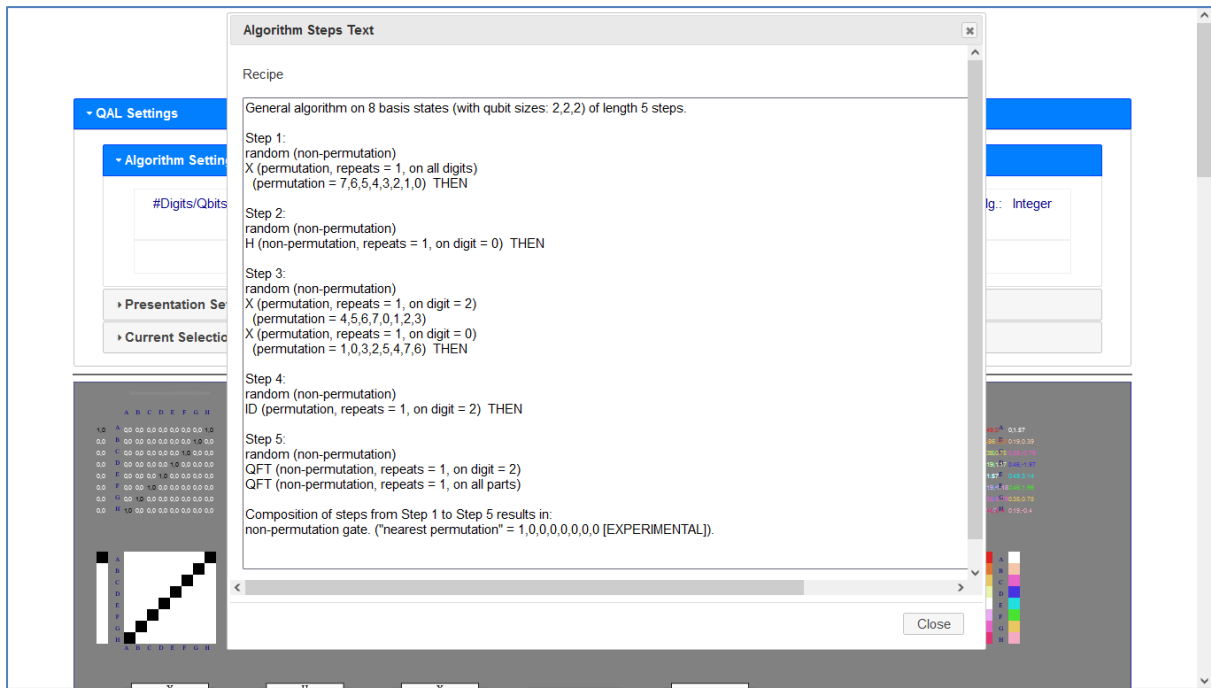


Figure 9. QAL Quantum Recipe (Textual Quantum Algorithm Steps)

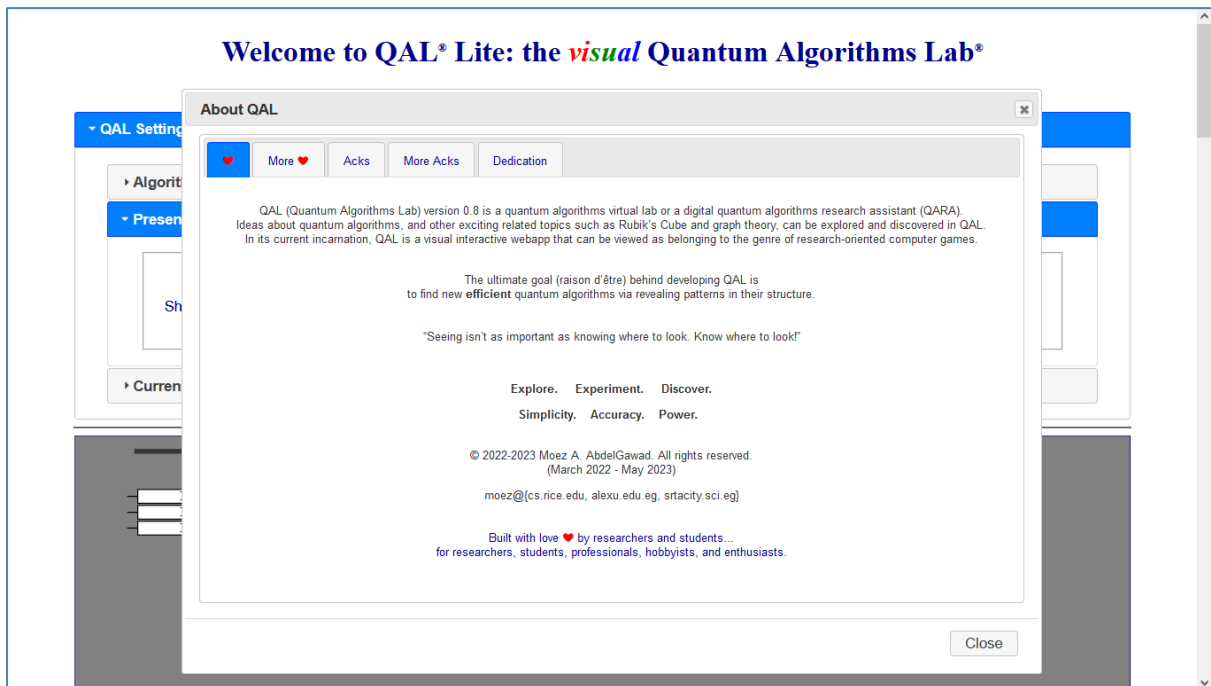


Figure 10. About QAL Dialog Box

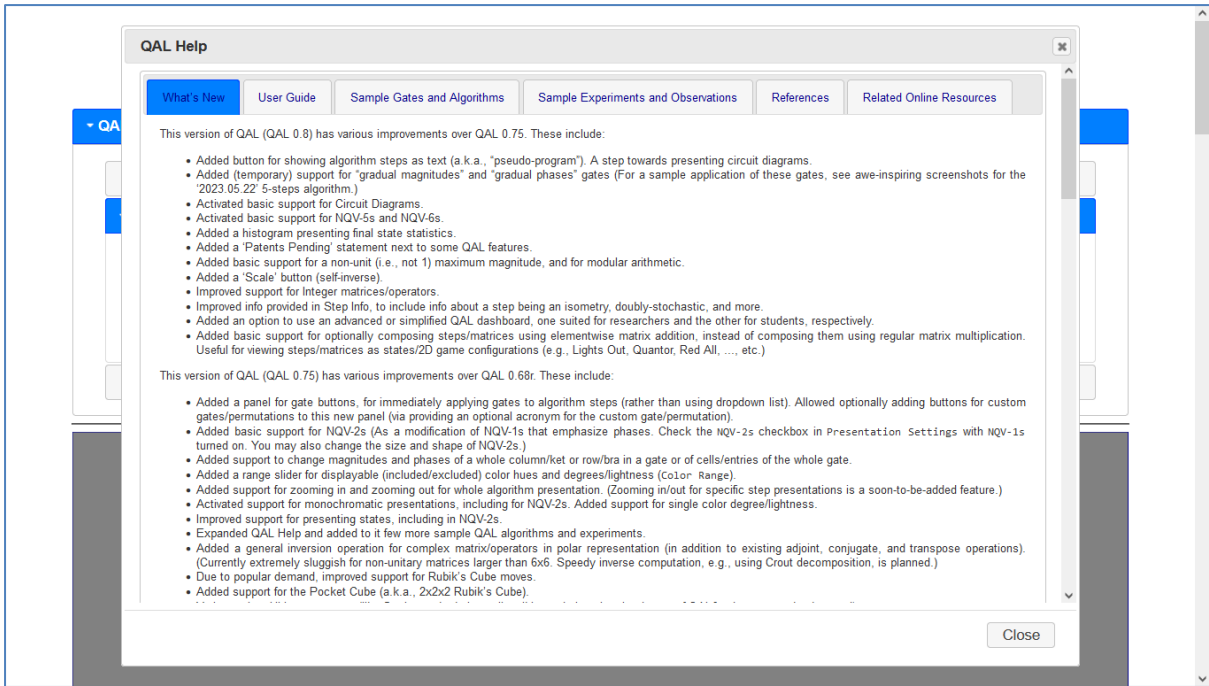


Figure 11. QAL Lite Help Dialog Box

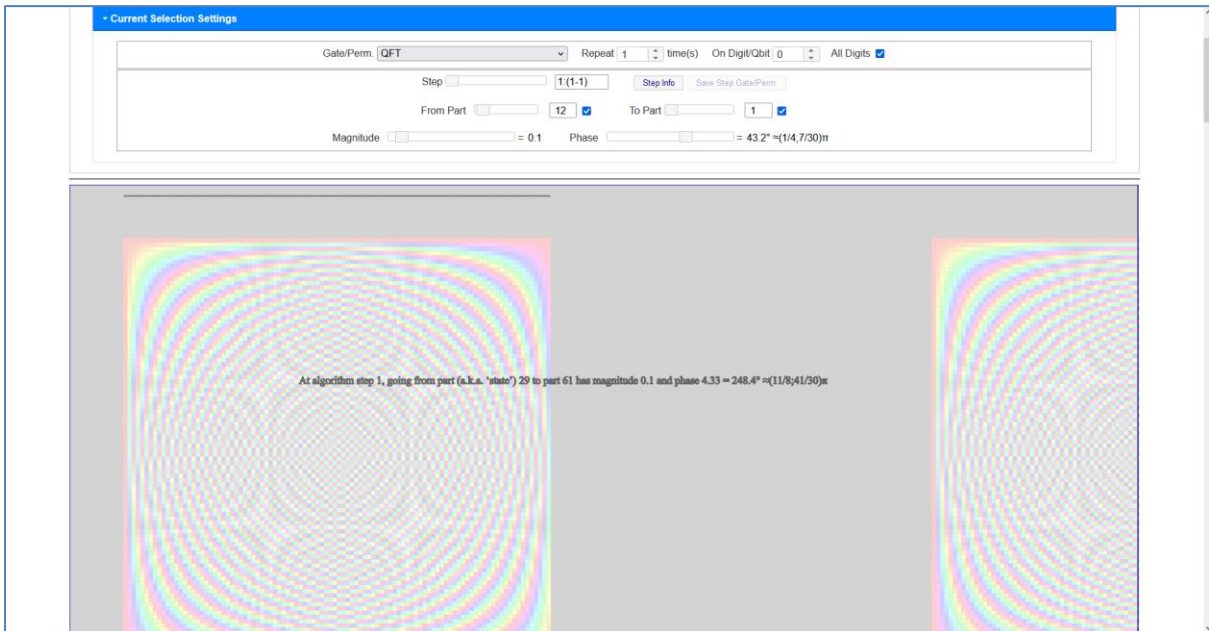


Figure 12. QAL 0.6 (QFT Heatmap)

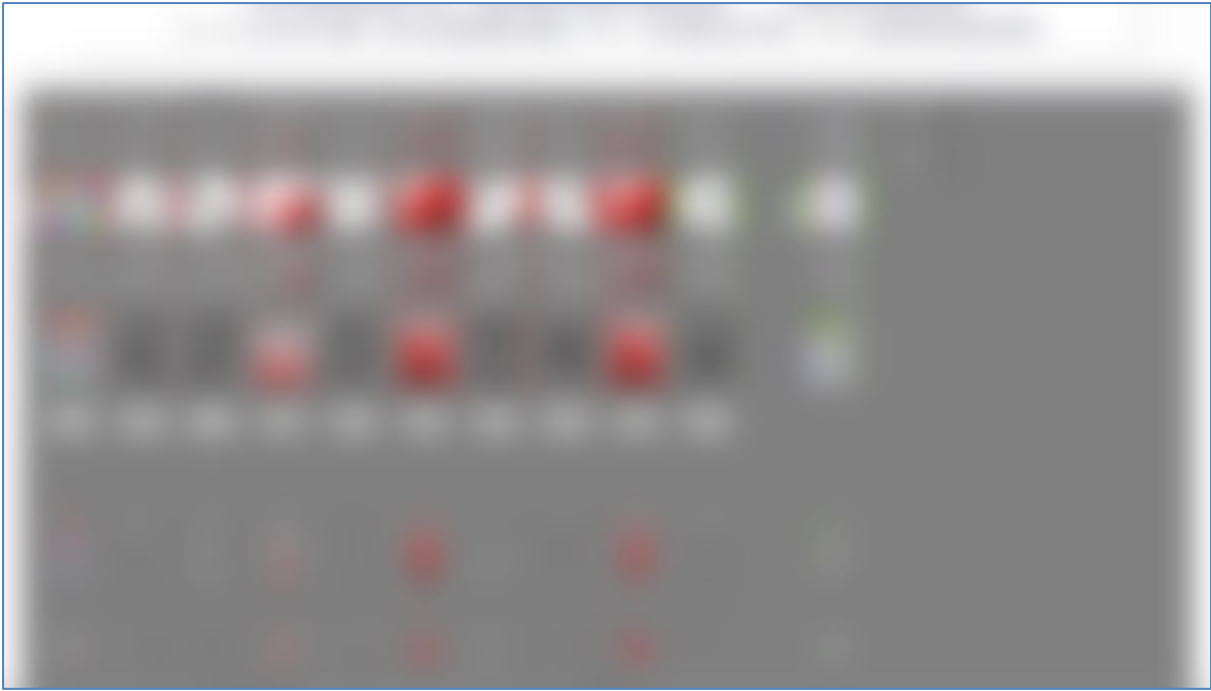


Figure 13. Blurred QAL 0.8 (incl. QALA NIVs)

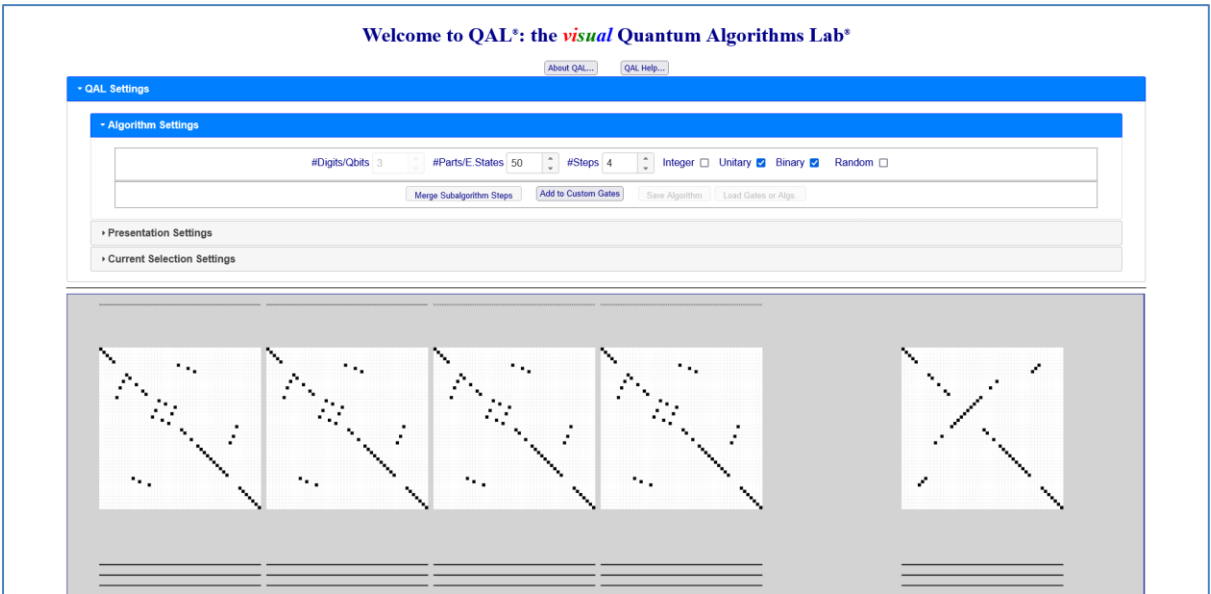


Figure 14. Rubik's Cube Moves in QAL 0.8

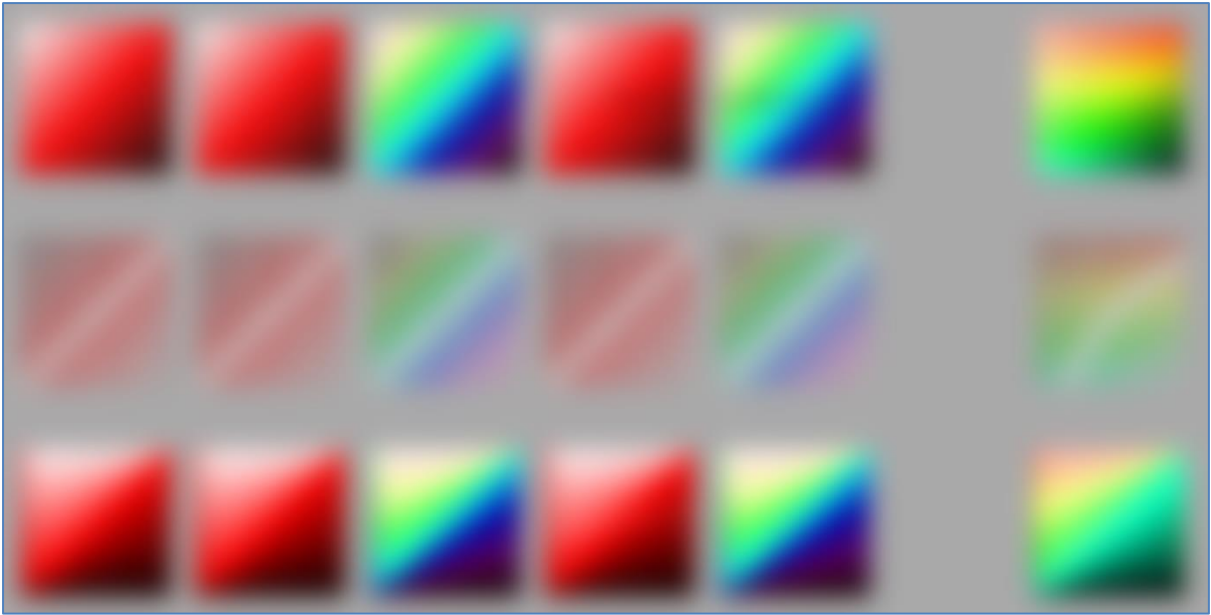


Figure 15. Blurred QAL 0.71

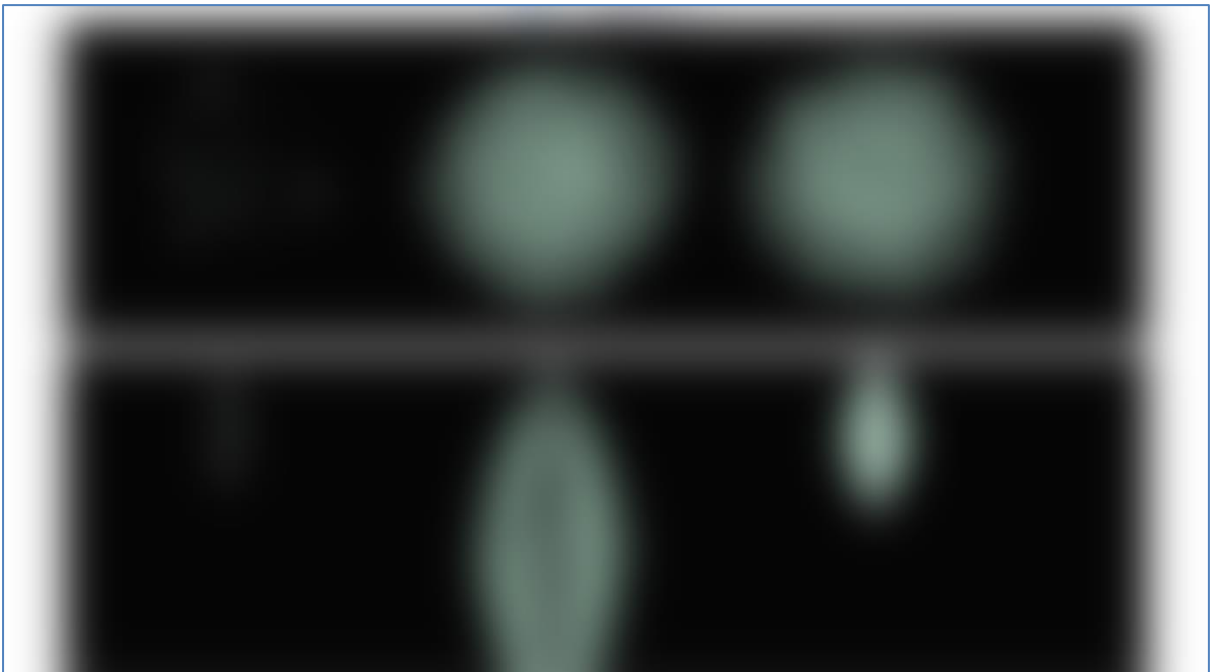


Figure 16. Blurred QAL (QNA/SCCSDs)



Welcome to QAL® Lite: the *visual* Quantum Algorithms Lab®

About... Advanced Dashboard  Help...

QAL Settings

Algorithm Settings

Presentation Settings

Heatmaps  NQV-1 NQV-2 NQV-3  
NQV-4 NQV-5 NQV-6 Circuit  
Diagram

Show: Selection Marks  Parts'  
Symbols  States/Part Configurations  
 Detailed Tooltips  Horiz.  
Scroll 0 Zoom + - Background

Current Selection Settings

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QAL Settings

Algorithm Settings

Presentation Settings

Current Selection Settings

Step 3:(1-3) Step Info  
From Part F  
To Part E

Magnitude = 0  
Phase = 0°

Repeat 1 time(s) On Digit/Qbit 0  
All Digits  All Parts

ID X Cyc. CW Cyc. CCW Rnd  
Inverse Adjoint Conjugate Transpose  
Scale Gradient Mag.(+) Ph.(+) Mag.(x)  
Ph.(x)

Quantum Gates H Z S T QFT CX Hi  
CX Swap Toffoli Fredkin RC Moves F  
F Rbl Uwc F' F2 PC Moves PC F  
PC F2 PC Uwc PC Rwc

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QAL Settings

Figure 17. QAL Lite on Samsung Galaxy A12 (as a web app, on Firefox 110.1)

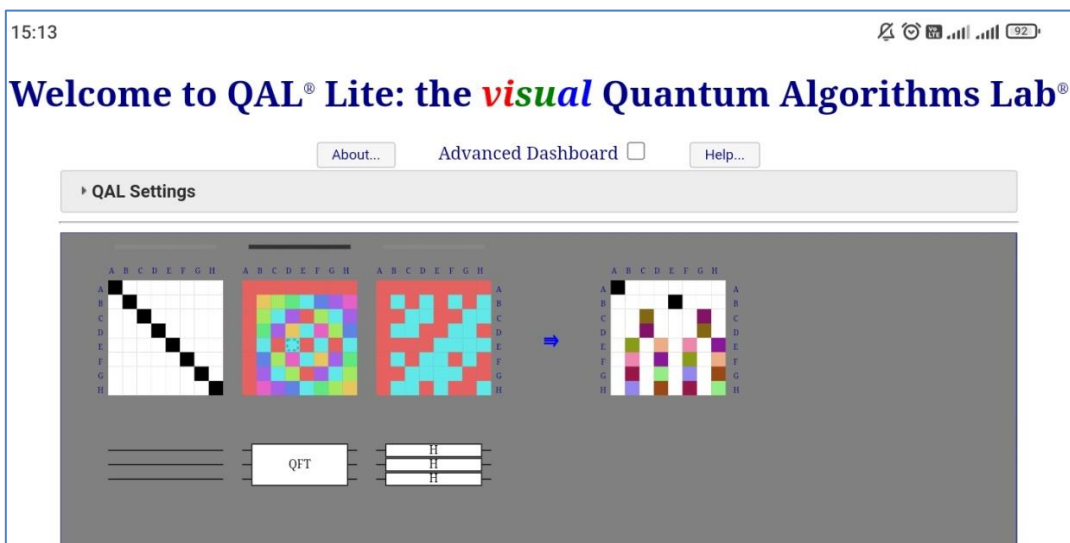
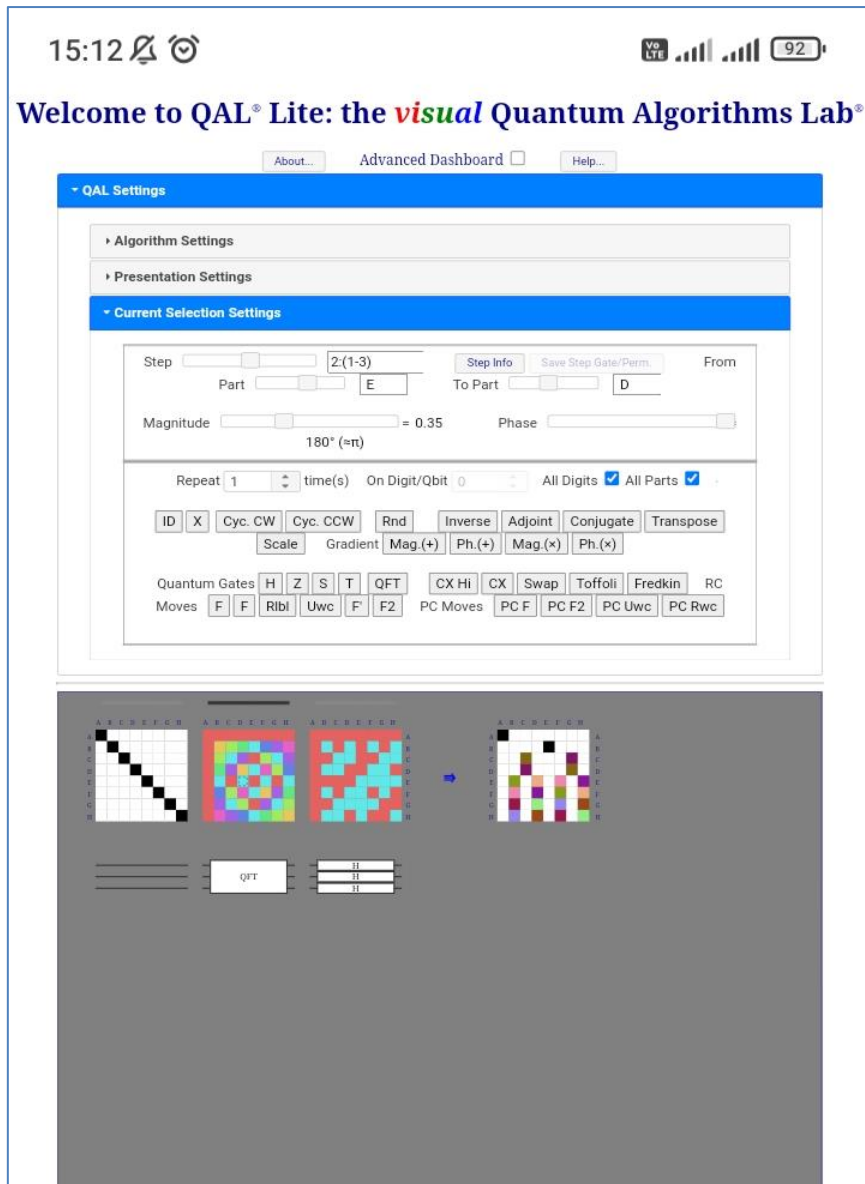


Figure 18. QAL Lite on Xiaomi Redmi 9A (as a web app, on Chrome 97.0)

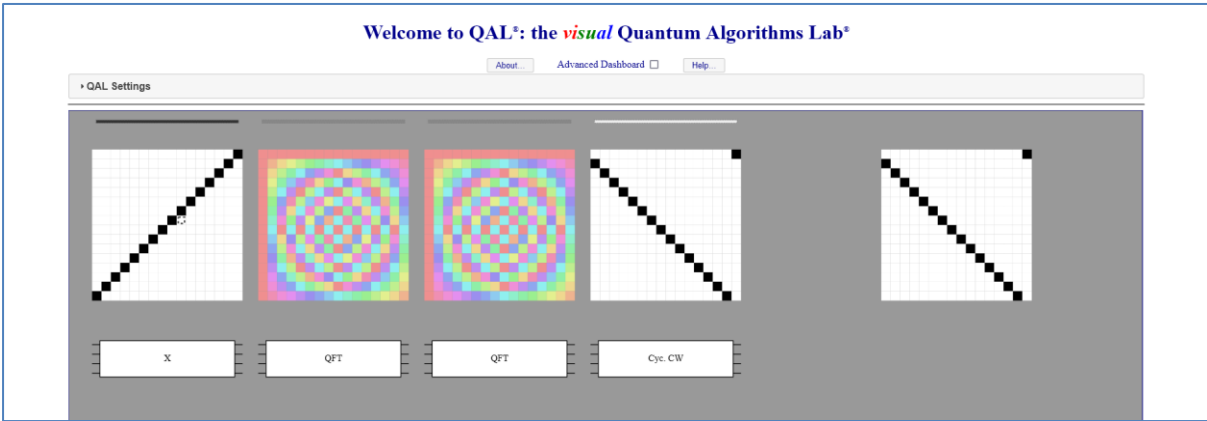


Figure 19. Visual confirmation that 'X then QFT<sup>2</sup>' is "successor" (=Cycle CW)

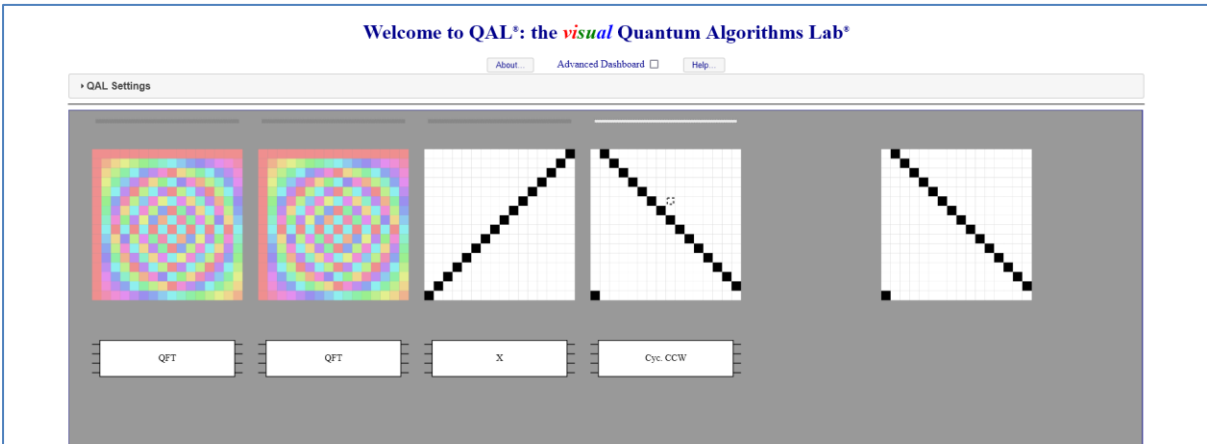


Figure 20. Visual confirmation that 'QFT<sup>2</sup> then X' is "predecessor" (=Cycle CCW)

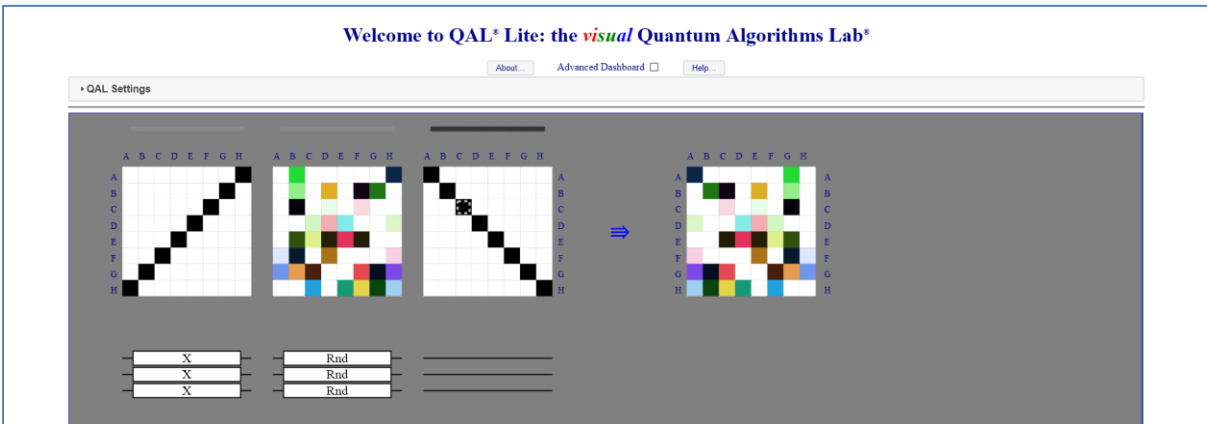


Figure 21. Visual confirmation that 'pre-multiply with X' is "flip horizontally" (thru vertical axis)

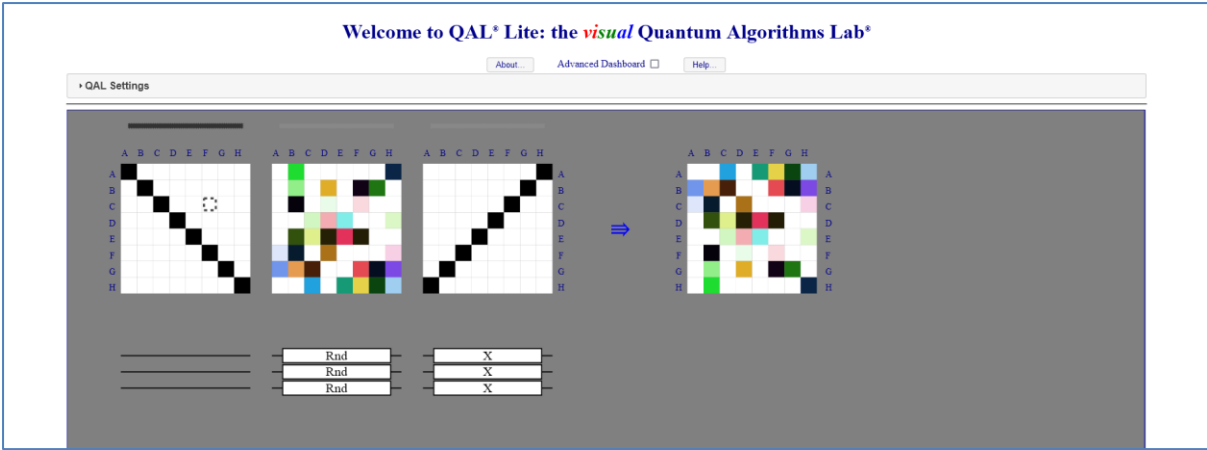


Figure 22. Visual confirmation that ‘post-multiply with X’ is “flip vertically” (thru horizontal axis)

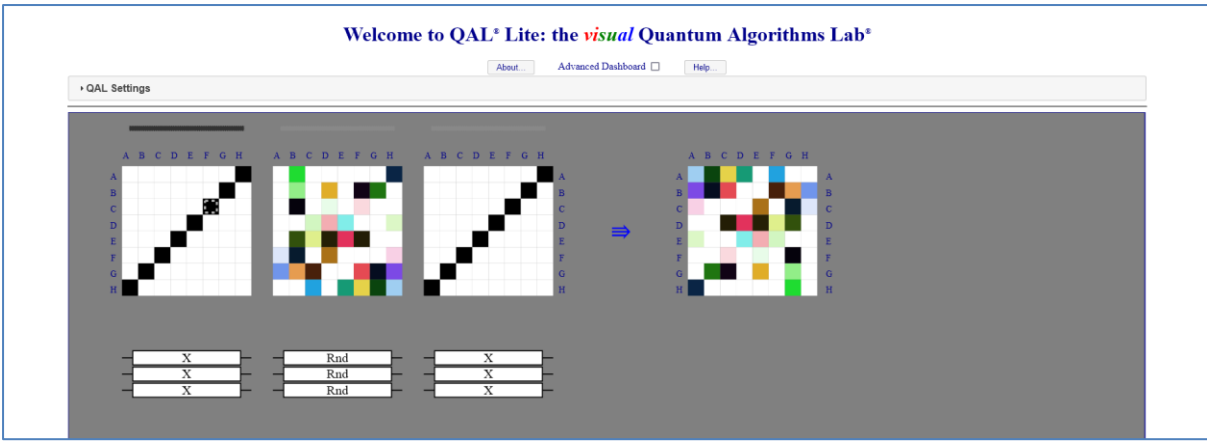


Figure 23. Visual confirmation that ‘pre-multiply and post-multiply with X’ is “reflect through origin” (rotate 180°)

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More QAL screenshots and tutorial videos to come. Keep watching...

More info on QAL can be found in the accompanying ‘QAL Abstract’ document available online.

You can check QAL Lite and play with it, for free, at:

<http://eng.staff.alexu.edu.eg/staff/moez/QAL/Lite/>

or

<https://q-info.github.io/QAL-Lite>

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