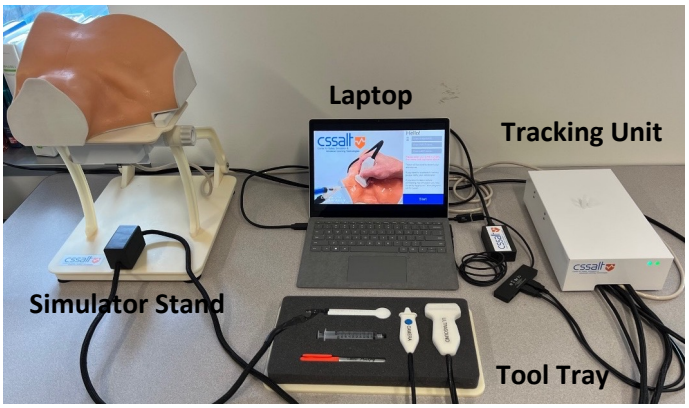
Central Venous Access Simulator Quick Start Guide

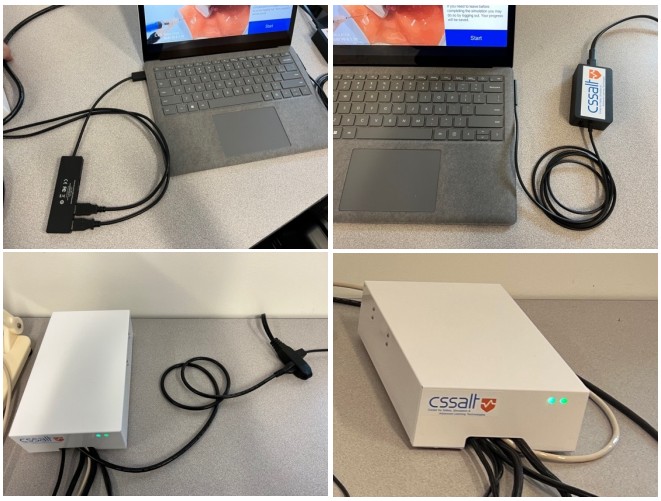
University of Florida
February 2023



Keep the Simulator Stand away from the Tracking Unit by 4 feet or more; the electromagnetic tracking system is sensitive to metal.

Use the foam tool tray and the needle protector. Place the foam tool tray off to the side, not in line with the Simulator Stand or on top of the Tracking Unit.

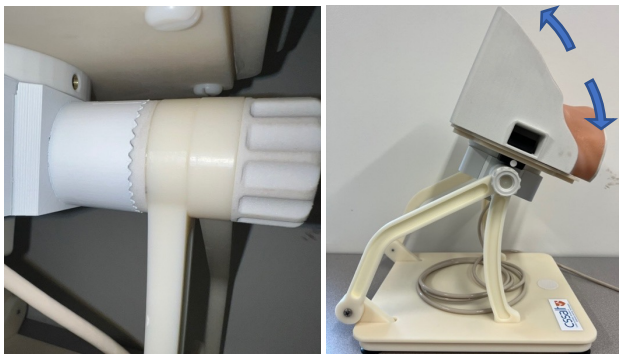
Don't bend the needle.
Use the protector.
Let users see this.

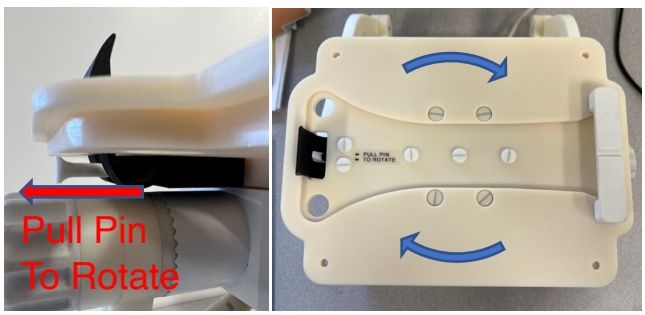


Make four connections:
- Two USB connections from Tracking Unit to Laptop (through a USB Hub)
- Tracking Unit power supply (35 Watts)
- Laptop power supply (65 Watts)

2 green lights on the Tracking Unit. Left light is on when there is electrical power. Right light flashes when there is a connection to the microcontroller and turns solid when communication with the simulation program is established.

The simulator stand knobs have detents for different Trendelenburg orientations:
To change positions, loosen knobs until platform can move easily. Never overtighten the knobs; finger tight is sufficient.





To rotate the top platform, pull the latch pin outwards and then rotate. Friction when rotating is normal, it is easier to use both hands holding opposite side of the platform to rotate. The latch pin is to prevent unwanted movement.

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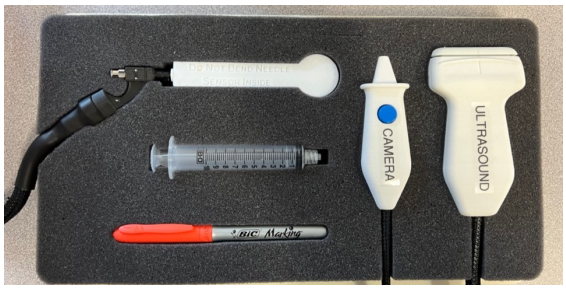
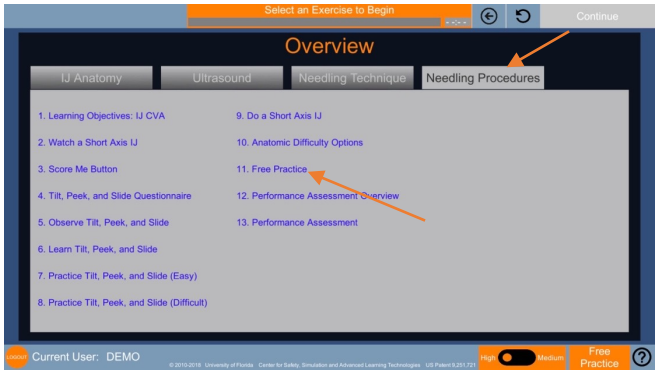


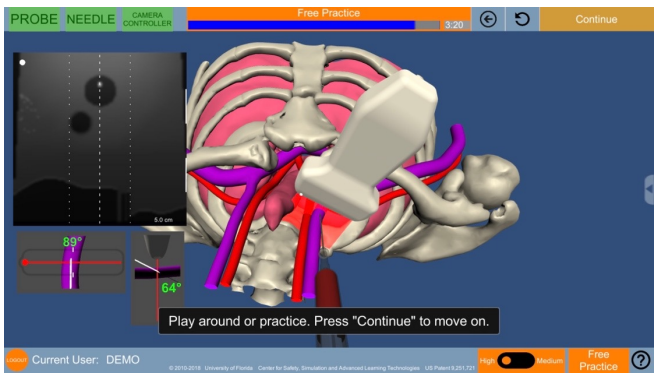
Three physical tools with embedded trackers:

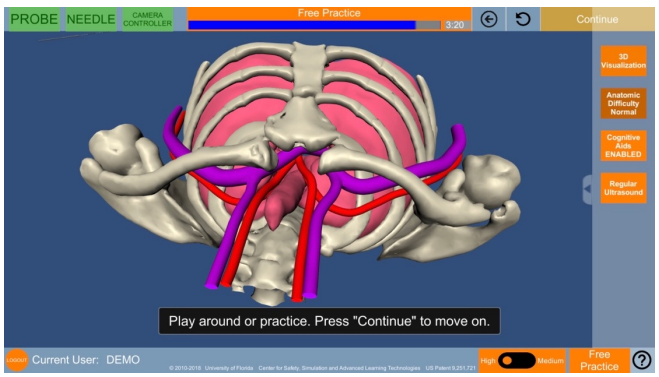
- Needle, with tactile feedback and aspiration syringe
- Camera, with a "shutter button" to control virtual view in the simulation (press button to track, release to lock)
- Simulated Ultrasound Probe

Open CVA MI program on Surface Laptop desktop. Type "demo" into the "Enter ID" box and click "Start" button on bottom right. Click on "Needling Procedures" tab and then on "11. Free Practice" for unguided free play. Pressing Shift + Esc closes the simulation.



The simulated ultrasound image will display when the tracked Ultrasound Probe is pressed against the skin. On the right, touch screen buttons control various learning aids.





- The Visualization Mode button toggles through two modes: see everything like in the above picture, and see nothing but the ultrasound, which will show full screen in place of the 3D visualization.
- The Anatomic Difficulty button toggles between three vein diameters (small, medium, large).
- The Cognitive Aids button toggles ultrasound and needle guidance features on/off.
- The Regular/Enhanced Ultrasound toggle button switches between realistic ultrasound rendering (needle anisotropy, depth attenuation) and sharpened ultrasound rendering.
- Certain sections of the tutorial use the "Needle in Place" button. The space bar serves as the "Needle in Place" button.
- See Instructions Video on the desktop of the laptop for more information. It provides a brief overview of simulator startup.