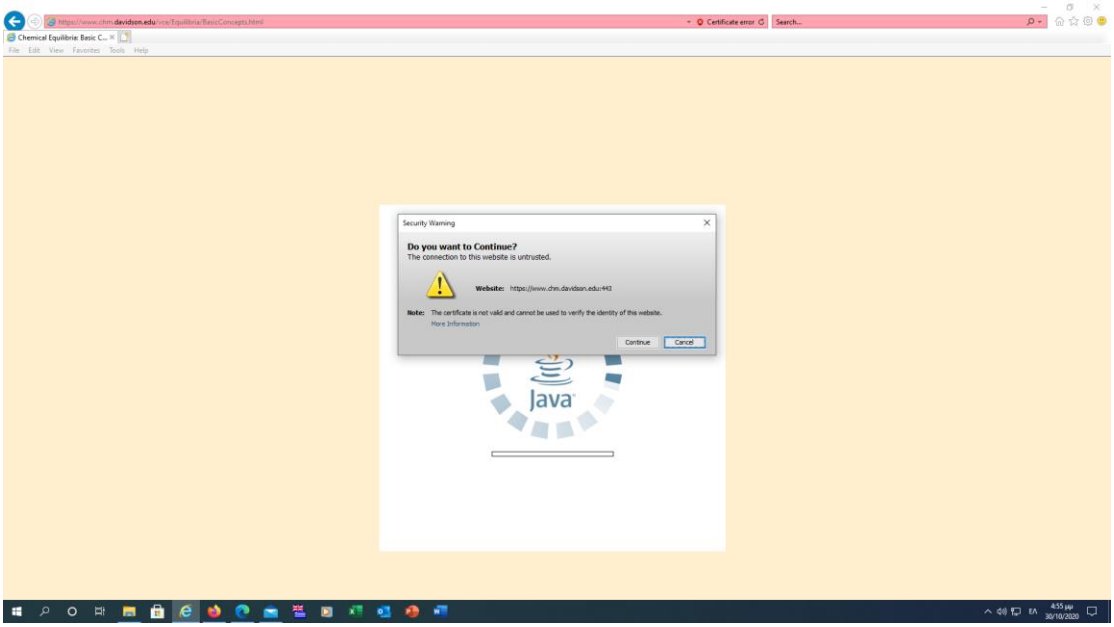

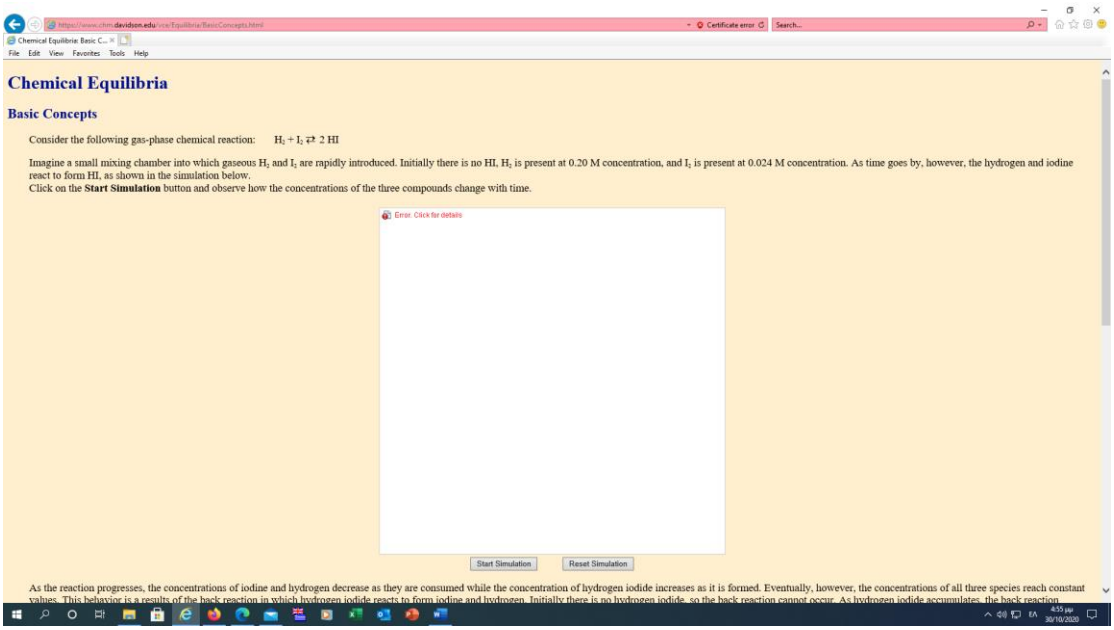

Chemical Equilibria

Basic Concepts

Consider the following gas-phase chemical reaction: $H_2 + I_2 \rightleftarrows 2\ HI$

Imagine a small mixing chamber into which gaseous H_2 and I_2 are rapidly introduced. Initially there is no HI, H_2 is present at 0.20 M concentration, and I_2 is present at 0.024 M concentration. As time goes by, however, the hydrogen and iodine react to form HI, as shown in the simulation below.
Click on the **Start Simulation** button and observe how the concentrations of the three compounds change with time.

Error. Click for details

Start Simulation Reset Simulation

As the reaction progresses, the concentrations of iodine and hydrogen decrease as they are consumed while the concentration of hydrogen iodide increases as it is formed. Eventually, however, the concentrations of all three species reach constant values. This behavior is a results of the back reaction in which hydrogen iodide reacts to form iodine and hydrogen. Initially there is no hydrogen iodide, so the back reaction cannot occur. As hydrogen iodide accumulates, the back reaction