For an angle θ in standard position, with the terminal side intersecting the unit circle at the point (x, y), the value of the secant function is given by $\sec\theta = \dfrac{1}{\cos\theta} = \dfrac{1}{x}$. Therefore:

$$\sec 45^\circ = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{2}{\sqrt{2}} = \frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2}$$