We calculate hyperon-nucleon (YN) and hyperon-hyperon (YY) potentials from the Bethe-Salpeter amplitude measured in the quenched QCD simulation with the spatial lattice volume, $(4.4 \text{ fm})^3$. The methodology is based on the recent publications by S. Aoki, et al, PRD71, 094504 (2005), and N. Ishii, et al., nucl-th/0611096. The latter publication is a first successful attempt to describe a nucleon-nucleon (NN) potential from lattice QCD. So far, the phenomenological description of YN and YY interactions has large uncertainties, which is in sharp contrast to the nice description of phenomenological NN potential. One of the reasons is that the YN and YY scattering experiments are either difficult or impossible due to the short life-time of the hyperons. Therefore, the present approach can be a new 'experiment' to study the hyperon interactions from ab initio numerical simulations. We will report the YN and YY potentials in various channels as a function of the relative distance between the baryons.