Beam-Beam Interaction of Electrons and Ions at RIKEN RI Beam Factory, Y. BATYGIN, RIKEN; T. KATAYAMA, INS, University of Tokyo - One of the main experiment at the new RIKEN radioactive isotope beam factory is a collision of 2.5 GeV electron beam with unstable ion beams. This experiment is intended to be used for determination of the charge and current distribution in the radio active nuclei. The physics of beam-beam interaction at the collision point is an important issue for determination of the value of collider luminosity. Strong-strong picture of e^--ion collision is studied by numerical model combining particle-in-cell method for nonlinear space charge problem of interacted particles and beam mapping at every revolution. Mutual influence of the beams and threshold for beam-beam instability, obtained from numerical model are compared with analytical estimations.