Local self-interaction correction in LSMS. MARKUS EISENBACK, G. M. STOCKS, ORNL — While local density approximation (LDA) calculations have proven to be exceptionally successful for performing first principles calculations materials generally thought of as being strongly correlated (e.g. transition metal oxides) are poorly described. However, for many of these systems, it is now clear that an important factor in this failure is the self-interaction error that results in an unphysical Coulomb interaction of an electron with itself. This error can be readily accounted for by use of self-interaction corrected (SIC) LDA [1,2]. Here we report on our implementation of the recently developed local SIC (L-SIC) formulation developed by Lüders et al. [3] and which is particularly well suited to multiple scattering theory based electronic structure methods. Here we will describe the implementation of L-SIC in our order-N locally self-consistent multiple scattering (LSMS) code as well results for example applications f-electron and TMO systems.