A new hexakis-fullerene adduct with two 4,5-diazafluorene groups located at trans-1 positions was successfully and selectively synthesized in very high yield. The N-containing 4,5-diazafluorene groups have strong affinity for metal ion coordination as a chelating ligand. By assembly with Ag(triflate), a one dimensional metal-organic coordination polymer based on a fullerene linker was obtained. In contrast, reaction with Ag(BF$_4$) failed to assemble a coordination polymer. The reasons for this difference are revealed in the single crystal X-ray crystal structures of the two products. These results are promising for further elaboration of C$_{60}$ linkers as new building blocks for 2D and 3D Metal-organic frameworks (MOFs).