The metallic oxide nanomaterials including ZnO, Ga$_2$O$_3$, TiO$_2$, and SnO$_2$ have been synthesized by a number of methods including laser ablation, arc discharge, thermal annealing procedure, catalytic growth processes, and vapor transport. We have been interested in preparing the nanomaterials of Ga$_2$O$_3$, which is a wide band gap semiconductor ($E_g$=4.9 eV) and used as insulating oxide layer for all gallium–based semiconductor. Ga$_2$O$_3$ is stable at high temperature and a transparent oxide, which has potential application in optoelectronic devices. The Ga$_2$O$_3$ nanoparticles and nanobelts were produced using GaN single crystals, which were grown by flux method inside SUST™ cell using a Na flux and exhibit plate-like morphologies with 4 ~ 5 mm in size. In these experiments, the conventional electric furnace was used. GaN single crystals were pulverized in form of powder for the growth of Ga$_2$O$_3$ nanomaterials. The structure, morphology and composition of the products were studied mainly by X-ray diffraction (XRD), field emission scanning electron microscopy (FESEM), and high-resolution transmission electron microscopy (HRTEM).