Dosimetric evaluation of completed brachytherapy implant procedures is crucial in developing proper technique and has prognostic implications. Accurate definition of the prostate gland and localization of the implanted radioactive sources are critical to attain meaningful dosimetric data. MRI has been recognized as a superior imaging modality in delineating the prostate gland. It has recently been demonstrated that MRI can be used for source localization in postimplant prostates. The MRI derived source localization error bears further investigation. Presented is a useful tool in determining the source localization error as well as permitting the fusion, or coregistration of selected data from multiple imaging modalities. A custom prostate phantom constructed of hydrocolloid material was precisely implanted with I125 seeds. CT, the accepted modality, and MRI scans were obtained of the phantom. An automated algorithm was developed which employs an iterative translation of data sets to initially maximize coregistration and minimize error between data sets. This was followed by a non-iterative solution for the necessary rotation transformation matrix using the Orthogonal Procrustes Solution. This algorithm was applied to CT and MRI scans of the custom phantom. CT derived source locations had source loacalization errors of 1.594 mm ± 0.637 mm. MRI derived source locations produced similar results (1.669 mm ± 0.756 mm). These errors may be attributed to the digitization process.