Purpose This paper aims to provide image repository to the medical professional in an open source platform, which will increase the visibility of Digital Imaging and Communication in Medicine (DICOM) image in a network mode; further, the proposed system will reduce the storage cost of the images to significant level. Design/methodology/approach The authors have developed a new institutional repository model for the medical professionals cum radiologists to preserve, store and retrieve medical images from one database with the help of open source software. The authors used JavaScript programming to integrate and develop the DICOM Standard with DSpace. Findings Major outcome of this work is that DICOM images can be accommodated in DSpace without modifying the image properties and keeping intact the various dimensions of image viewing options. Further, it was found that the images are retrieved without any ease because of the robust indexing system. Research limitations/implications Major limitation of this study was the size of the data (5000 DICOM image) with which the authors have tested the system. The scalability of the system has to be tested on various fronts, for which separate study has to be done. Practical implications Once this system is in place, DICOM user can store, retrieve and access the image from Web platform. This proposed repository will be the storehouse of various DICOM images with reasonable storage costs. Originality/value In addition to exploring the opportunities of open source software (OSS) implementation in Medical Fields, this study includes issues related to implementation of open source repository for storing and preserving medical image. This is the first time in Library Science field to create and develop Open Source DICOM Medical Image Library with the help of DSpace. The study will create value for library professionals as well as medical professionals and OSS vendors to understand the medical market in the context of OSS.