A metadata management is one of the key features of modern component based systems. The most contemporary used standard for metadata management is OMG Meta Object Facilities (MOF). Having the metadata in a MOF-based repository plays an important role for developing software using the Model Driven Architecture (MDA) approach, i.e. developing the system by sequence of transformations of its conceptual model. The thesis analyze the Objectweb's Fractal component model and designs its MOF-based metamodel. Designing of the metamodel is complicated by existence of several conformance levels to the Fractal component model. The Fractal metamodel proposed in this thesis is applicable for describing components system conforming to Fractal at an arbitrary level.