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topological manifold

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The definition given in the manifold article is in fact the definition of topological manifold. If we change it to allow only smooth (differentiable) transition (maximal rank) functions, then we speak of a smooth manifold. Or if we take real analytic function as the transition ones we get \mathbb{R} -analytic manifolds.

One must emphasize that the invariant number n appearing in the definition there is the dimension of the manifold which is also the dimension of the tangent space at a point, in a smooth manifold.