ABSTRACT. Let Σ be a compact oriented surface immersed in a four dimensional Kähler-Einstein manifold (M, ω) . We consider the evolution of Σ in the direction of its mean curvature vector. It is proved that being symplectic is preserved along the flow and the flow does not develop type I singularity. When M has two parallel Kähler forms ω' and ω'' that determine different orientations and Σ is symplectic with respect to both ω' and ω'' , we prove the mean curvature flow of Σ exists smoothly for all time. In the positive curvature case, the flow indeed converges at infinity.