Remarks on unique essential completions

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As usual, a monomorphism h in a category is called *essential* if kh monic, for any map k, implies k monic, and an *essential completion* of an object A is an essential monomorphism $A \to C$ where C is essentially complete, meaning: any essential monomorphism $C \to D$ is an isomorphism. Of particular interest here will be essential completions which are unique (up to isomorphism) and the question when the general existence of such in a given category $\mathcal{K}$ induces the same in suitable subcategories $\mathcal{M}$ of $\mathcal{K}$. We shall describe specific conditions for $\mathcal{K}$ and $\mathcal{M}$ which will ensure this and then discuss several concrete situations to which they apply, such as various categories of frames and uniform frames and of lattice-ordered rings and groups.

[*]Joint work with A. W. Hager.