Abstract. We study the extension of linear operators with range in a $\mathcal{C}(K)$-space, comparing and contrasting our results with the corresponding results for the nonlinear problem of extending Lipschitz maps with values in a $\mathcal{C}(K)$-space. We give necessary and sufficient conditions on a separable Banach space X which ensure that every operator $T : E \to \mathcal{C}(K)$ defined on a subspace may be extended to an operator $\tilde{T} : X \to \mathcal{C}(K)$ with $\|\tilde{T}\| \leq (1+\epsilon)\|T\|$ (for any $\epsilon > 0$). Based on these we give new examples of such spaces (including all Orlicz sequence spaces with separable dual for a certain equivalent norm). We answer a question of Johnson and Zippin by showing that if E is a weak*-closed subspace of ℓ_1 then every operator $T : E \to \mathcal{C}(K)$ can be extended to an operator $\tilde{T} : \ell_1 \to \mathcal{C}(K)$ with $\|\tilde{T}\| \leq (1+\epsilon)\|T\|$. We then show that ℓ_1 has a universal extension property: if X is a separable Banach space containing ℓ_1 then any operator $T : \ell_1 \to \mathcal{C}(K)$ can be extended to an operator $\tilde{T} : X \to \mathcal{C}(K)$ with $\|\tilde{T}\| \leq (1+\epsilon)\|T\|$; this answers a question of Speegle.