A C^*-algebra that isn't a von Neumann algebra.

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$K(H)$, where H is a separable infinite dimensional Hilbert space is a C^*-algebra but not a von Neumann algebra. In fact if $(e_n)_{n\in\mathcal{N}}$ is a orthonormal basis for H and $P_n = \sum_{i=1}^{n} e_i \overline{\otimes} e_i$, then P_n is a finite-rank projection converging strongly to the identity operator I (since for each $x \in H$, $I(x) = x = \sum_{i=1}^{\infty} < x, e_i > e_i = \lim_n P_n(x)$). If $K(H)$ were a von-Neumann algebra, it should be $I \in K(H)$, a contradiction.