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An omnimosaic $O(n, k, a)$, is defined to be an $n \times n$ matrix, with entries from the set $A = \{1, 2, \dots, a\}$, that contains, as a submatrix, each of the a^{k^2} $k \times k$ matrices over A . We present a general scheme for the explicit construction of omnimosaics which yields square omnimosaics with $n \approx ka^{k/2}$. Time permitting, we will outline techniques used to compute $\omega(k, a)$ for small k and a , comment on higher-dimensional generalizations, and show that for fixed k and a the smallest possible size $\omega(k, a)$ of an $O(n, k, a)$ omnimosaic satisfies

$$\frac{ka^{k/2}}{e} \leq \omega(k, a) \leq \frac{ka^{k/2}}{e}(1 + o(1))$$

for a well-specified function $o(1)$ that tends to zero as $k \rightarrow \infty$. (Received September 17, 2010)