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We compute the integer cohomology ring of the complement of a toric arrangement, giving a description of the toric analogue of the Orlik-Solomon algebra. We begin recalling some basic combinatorial invariants and we investigate the dependency of the cohomology ring from the arrangement's combinatorial data. To this end, we first consider the real complexified case and we study a morphism of spectral sequences associated to certain combinatorially defined subcomplexes of the toric Salvetti category. Then we use a technical argument in order to extend the results to full generality. In the case of a non-unimodular arrangement, it is still an open problem to find a purely combinatorial description of the integer cohomology ring. (Received January 13, 2016)