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In our earlier work, we employed *tropical algebras* as platforms for several cryptographic schemes by mimicking some well-known “classical” schemes in the “tropical” setting. What it means is that we replaced the usual operations of addition and multiplication by the operations  $\min(x, y)$  and  $x + y$ , respectively. An obvious advantage of using tropical algebras as platforms is unparalleled efficiency because in tropical schemes, one does not have to perform any multiplications of numbers since tropical multiplication is the usual addition. In the present work, we use extensions of tropical matrix algebras by homomorphisms as platforms. We call these extensions *semidirect products* since they are similar to a well-known operation (with the same name) in (semi)group theory. (Received August 15, 2018)