Automorphism groups of CR manifolds

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Abstract: Given a germ of a real-analytic hypersurface $(M, 0)$ in N-dimensional complex space C^N, the finite jet parametrization problem asks to determine a suitable inverse to the map which associates to a biholomorphism $H : (C^N, 0) \to (C^N, 0)$ taking $(M, 0)$ into itself its k-jet $j_0^k H$ at 0, for an appropriate integer k. These biholomorphisms form a group, called the stability group of $(M, 0)$ that is denoted by $Aut(M, 0)$. The upshot from a good solution of the finite jet parametrization problem is that the jets can be used as parameters providing a Lie group structure on $Aut(M, 0)$. We survey the known results and discuss our recent joint worK providing (among other things) a solution to this problem for hypersurfaces containing no complex-analytic varieties (and therefore, for pieces of boundaries of real-analytic domains).