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Interacting with virtual musical instruments at the junction nodes

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Sound synthesis by block-based physical modeling of musical instruments separates the tasks of component modeling and managing their interactions. The components are the exciters or the resonators, and their interactions are managed by explicit interaction blocks, which are obtained from the physical continuity and energy conservation rules. Well-known examples of the interactors include the wave- digital adaptors and the digital waveguide scattering junctions. When the virtual instruments need to be interfaced to the outside environment with sensors and actuators for bidirectional interaction, it is advantageous to reformulate the interactors to accept and provide signal inputs and outputs, respectively. In this contribution, we refer to these elements as nodes, introduce different types of nodes, and discuss their interconnection.