

# Building a Safety Case for a Safety-Critical NASA Space Vehicle Software System

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*Abstract*—We describe our development of a key portion of a safety case for a safety-critical piece of NASA software designed to operate on a NASA launch vehicle. The software's purpose is to make real-time determinations of the presence of catastrophic failure conditions of that vehicle and react accordingly. We show

how our safety case development applies a series of generic software considerations instantiated on the specifics of the NASA software system. We conclude that this approach is applicable to a wide range of NASA software systems.

*Software safety; safety cases; V&V*