

# Software engineering issues in the MUMPS project

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## Abstract

In a project like MUMPS, software engineering aspects are critical to ensure the stability of the software and improve the users' experience. In this talk, we present some of the software engineering aspects tackled since the last users meeting. We present a new functionality allowing users to dump all MUMPS internal data to disk and then restart a previous MUMPS instance from a different process, and another one to better process singular matrices and determine a null-space basis. We also discuss compatibility issues with some of the external libraries used in MUMPS. We then focus on tools used to test and maintain the software in terms of functionalities and performance. In particular, we present a post-mortem visualization tool to analyze the behaviour of the factorization (parallel aspects, performance, numerical issues).