

# NACRE

XCSP3 2018 Competition

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NACRE (Nogood And Clause Reasoning Engine) is a constraint solver written in C++. The main purpose of this solver is to experiment nogood recording (with a clause reasoning engine) in Constraint Programming (CP). In particular, the data structures of the solver have been carefully designed to play around nogoods and clauses. This is the first version of the solver and its first submission ever to a competition.

Although most of the XCSP3-core constraints are implemented, the current version of NACRE does not support all of them and cannot currently deal with optimization (COP). Therefore it will compete only into the CSP MiniTrack. A mini version, the one submitted to the competition, is available on a public deposit at [https://github.com/gglorian/nacre\\_mini](https://github.com/gglorian/nacre_mini). You can always contact me for more information.

The submitted version uses all the following technologies :

- arc consistency [3]
- variable selection heuristic: dom/wdeg [1]
- value selection heuristic: minimum
- restart policy:  $1\text{uby} \times 100$  [2]
- a clause reasoning engine with lazy explanations, backjumping, clauses database reduction, etc.

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## References

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- [3] A. K. Mackworth. Consistency in networks of relations. *Artificial Intelligence*, 1977.