

# CaDiCaL Options

Checkout: <https://github.com/arminbiere/cadical>

## 1 Basic Options

```
./cadical -P5 -d 0 -o out.cnf in.cnf
```

- **-P#**: Set the number of preprocessing rounds (default: 0), =outer loop,  
Note: no space between **-P** and the number
- **-d 0**: Set the maximum number of decisions to 0, =preprocessing only
- **-o out.cnf**: Write the result to **out.cnf**, =preprocessed formula
- **in.cnf**: The input file

## 2 Preprocessing Options

Separate name and value by '='

### 2.1 Blocked Clause Elimination

Option	Default	Min	Max
<code>--block</code>	0	0	1
<code>--blockmaxclslim</code>	$10^5$	1	$2 \cdot 10^9$
<code>--blockminclslim</code>	2	2	$2 \cdot 10^9$
<code>--blockocclim</code>	100	1	$2 \cdot 10^9$

### 2.2 Compacting

Option	Default	Min	Max
<code>--compact</code>	1	0	1
<code>--compactint</code>	2000	1	$2 \cdot 10^9$
<code>--compactlim</code>	100	0	1000
<code>--compactmin</code>	100	1	$2 \cdot 10^9$

## 2.3 Covered Clause Elimination

Option	Default	Min	Max
<code>--cover</code>	0	0	1
<code>--covermaxclslim</code>	$10^5$	1	$2 \cdot 10^9$
<code>--coverminclslim</code>	2	2	$2 \cdot 10^9$
<code>--covermaxeff</code>	$10^8$	0	$2 \cdot 10^9$
<code>--covermineff</code>	$10^6$	0	$2 \cdot 10^9$
<code>--coverreleff</code>	4	1	$2 \cdot 10^5$

## 2.4 Decompose

Option	Default	Min	Max
<code>--decompose</code>	1	0	1
<code>--decomposerounds</code>	2	1	16

## 2.5 Deduplicate

Option	Default	Min	Max
<code>--deduplicate</code>	1	0	1

## 2.6 Bounded Variable Elimination

Option	Default	Min	Max
<code>--elim</code>	1	0	1
<code>--elimands</code>	1	0	1
<code>--elimaxeff</code>	$2 \cdot 10^9$	0	$2 \cdot 10^9$
<code>--elimbackward</code>	1	0	1
<code>--elimboundmax</code>	16	-1	$2 \cdot 10^6$
<code>--elimboundmin</code>	0	-1	$2 \cdot 10^6$
<code>--elimclslim</code>	100	2	$2 \cdot 10^9$
<code>--elimequivs</code>	1	0	1
<code>--elimineff</code>	$10^7$	0	$2 \cdot 10^9$
<code>--elimint</code>	2000	1	$2 \cdot 10^9$
<code>--elimites</code>	1	0	1
<code>--elimlimited</code>	1	0	1
<code>--elimocclim</code>	100	0	$2 \cdot 10^9$
<code>--elimprod</code>	1	0	$10^4$
<code>--elimreleff</code>	1000	1	$10^5$
<code>--elimrounds</code>	2	1	512
<code>--elimsubst</code>	1	0	1
<code>--elimsum</code>	1	0	$10^4$
<code>--elimxorlim</code>	5	2	27
<code>--elimxors</code>	1	0	1

## 2.7 Instantiation

Option	Default	Min	Max
--instantiate	0	0	1
--instantiateclslim	3	2	$2 \cdot 10^9$
--instantiateocclim	1	1	$2 \cdot 10^9$
--instantiateonce	1	0	1

## 2.8 Failed Literal Probing

Option	Default	Min	Max
--probe	1	0	1
--probehbr	1	0	1
--probeint	5000	1	$2 \cdot 10^9$
--probemaxeff	$10^8$	0	$2 \cdot 10^9$
--probemineff	$10^6$	0	$2 \cdot 10^9$
--probereleff	20	1	$10^5$
--proberounds	1	1	16

## 2.9 Clause Subsumption

Option	Default	Min	Max
--subsume	1	0	1
--subsumebinlim	$10^4$	0	$2 \cdot 10^9$
--subsumeclslim	100	0	$2 \cdot 10^9$
--subsumeint	$10^4$	1	$2 \cdot 10^9$
--subsumelimited	1	0	1
--subsumemaxeff	$10^8$	0	$2 \cdot 10^9$
--subsumemineff	$10^6$	0	$2 \cdot 10^9$
--subsumeocclim	100	0	$2 \cdot 10^9$
--subsumereleff	1000	1	$10^5$
--subsumestr	1	0	1

## 2.10 Hyper Ternary Resolution

Option	Default	Min	Max
--ternary	1	0	1
--ternarymaxadd	1000	0	10000
--ternarymaxeff	$10^8$	0	$2 \cdot 10^9$
--ternarymineff	$10^6$	1	$2 \cdot 10^9$
--ternaryocclim	100	1	$2 \cdot 10^9$
--ternaryreleff	10	1	$10^5$
--ternaryrounds	2	1	16

## 2.11 Transitive Reduction

Option	Default	Min	Max
--transred	1	0	1
--transredmaxeff	$10^8$	0	$2 \cdot 10^9$
--transredmineff	$10^6$	0	$2 \cdot 10^9$
--transredreleff	100	1	$10^5$

## 2.12 Vivification

Option	Default	Min	Max
--vivify	1	0	1
--vivifyinst	1	0	1
--vivifymaxeff	$2 \cdot 10^7$	0	$2 \cdot 10^9$
--vivifymineff	$2 \cdot 10^4$	0	$2 \cdot 10^9$
--vivifyonce	0	0	2
--vivifyredefeff	75	0	1000
--vivifyreleff	20	1	$10^5$