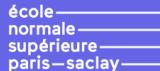


# A Tool for the Coverability Problems in Petri Nets

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MSR 2019

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$$\mathbf{m} \in \mathbb{N}^P \text{ is coverable} \iff \mathbf{m}_\omega \in Clover(\mathcal{N}, \mathbf{m}_0), \mathbf{m} \leq \mathbf{m}_\omega$$

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Looking for minimal time

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## Implementation features

- Written in Python,  $\approx$  2000 lines.
- Can be found in <https://github.com/IgorKhm/MinCov>

# Benchmarks

## 123 benchmarks (literature)

	T/O <sup>1</sup>	Time	#Nodes
MinCov	16	18127	48218
VH	15	14873	75225
MP	24	23904	478681
GR	49	47089	N/A
AF	19	19223	45660

## 100 benchmarks (random)

	T/O <sup>1</sup>	Time	#Nodes
MinCov	14	13989	61164
VH	15	13692	208134
MP	21	21726	755129
GR	80	74767	N/A
AF	16	15888	63275

1. Timeout after 900 seconds.

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	Unsafe (60)		Safe(115)		Total	
	Time	T/O	Time	T/O	T/O	Time
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Complementary tools!

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MinCov    qCover <sup>1</sup>	1841	2	13493	11	13	15334

1.  $\text{Time}(\text{MinCov} \parallel \text{qCover}) = 2 \min(\text{Time}(\text{MinCov}), \text{Time}(\text{qCover}))$ .

Thank you!

See you at the tool  
demonstration!