

## Analyze Toolwindow Usage Data – Two strategies + Winsorizing

Cleaning: keep CLOSE; keep OPEN only with open\_type ∈ {manual, auto}; sort by user\_id,timestamp.

A) implicit\_close: second OPEN closes current episode at its time, then new episode starts; censored excluded.

B) skip\_double\_open: second OPEN while open is ignored; censored excluded.

Orphan CLOSE ignored; non-positive durations dropped.

A) meta: {'orphan\_closes': 16, 'implicit\_closes': 209, 'skipped\_double\_opens': 0, 'right\_censored': 34}

B) meta: {'orphan\_closes': 16, 'implicit\_closes': 0, 'skipped\_double\_opens': 209, 'right\_censored': 34}

implicit\_close – per open\_type

manual: n=651, median=14.00s, mean=4640.45s, p75=161.99s, p95=6379.99s, p99=154088.55s, max=447314.55s, winsor\_mean(p1–p99)=3374.34s

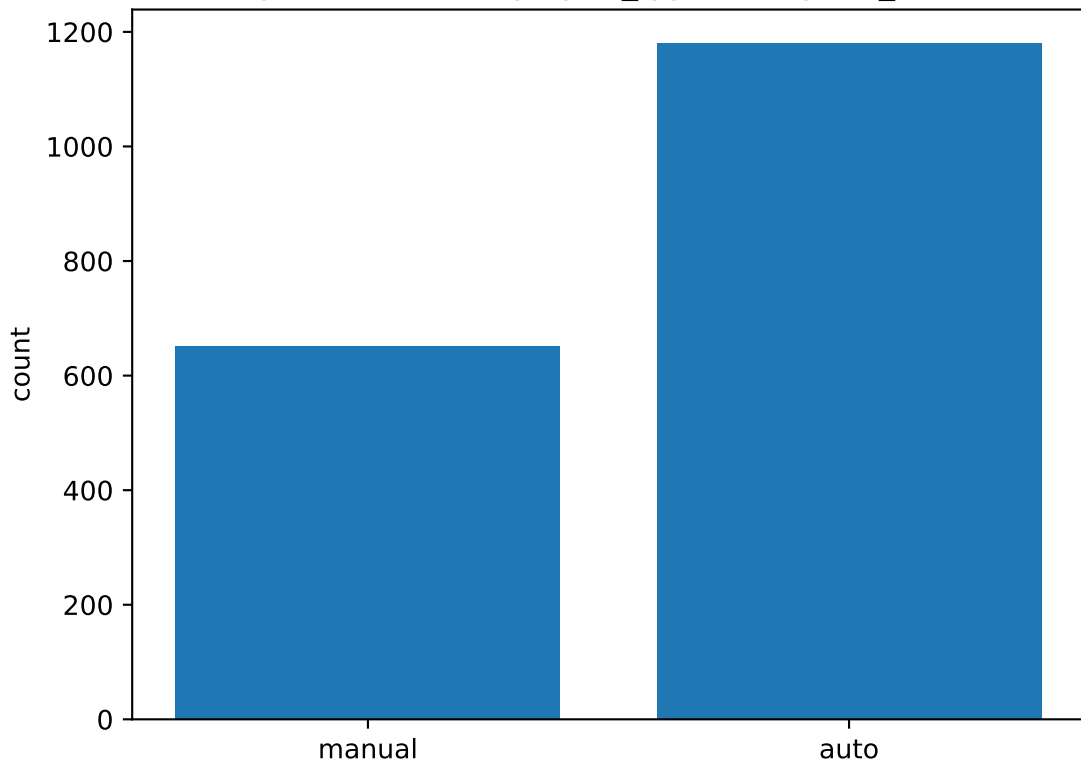
auto: n=1180, median=285.42s, mean=17464.65s, p75=2382.60s, p95=92001.16s, p99=306608.13s, max=728695.21s, winsor\_mean(p1–p99)=15889.57s

skip\_double\_open – per open\_type

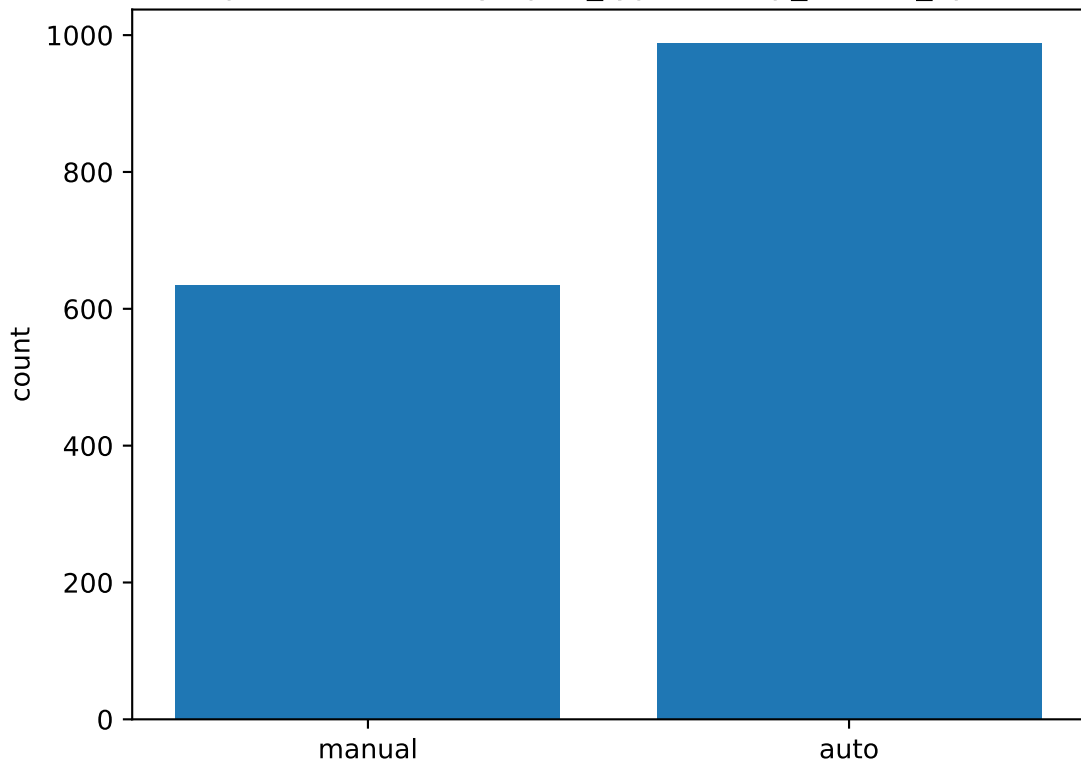
manual: n=634, median=14.02s, mean=5422.73s, p75=168.58s, p95=6980.01s, p99=170880.86s, max=447349.08s, winsor\_mean(p1–p99)=3827.70s

auto: n=988, median=216.67s, mean=15555.94s, p75=1499.43s, p95=76913.73s, p99=347198.97s, max=896588.15s, winsor\_mean(p1–p99)=13218.91s

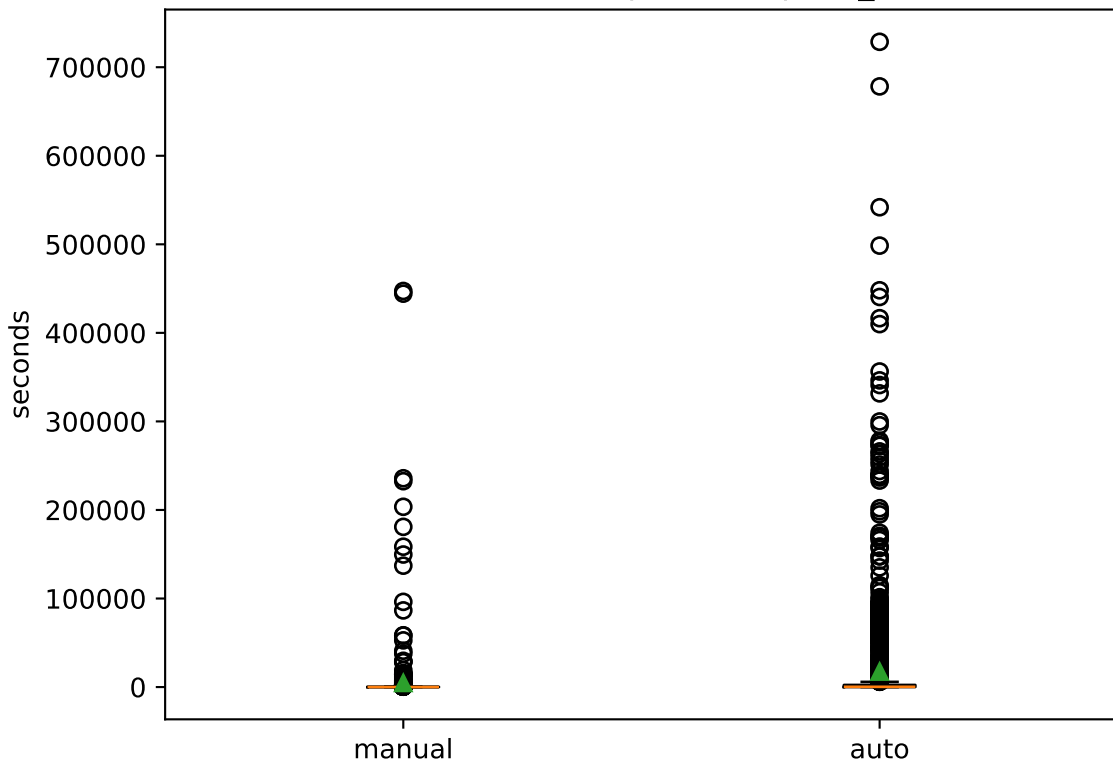
Episodes count by open\_type — implicit\_close



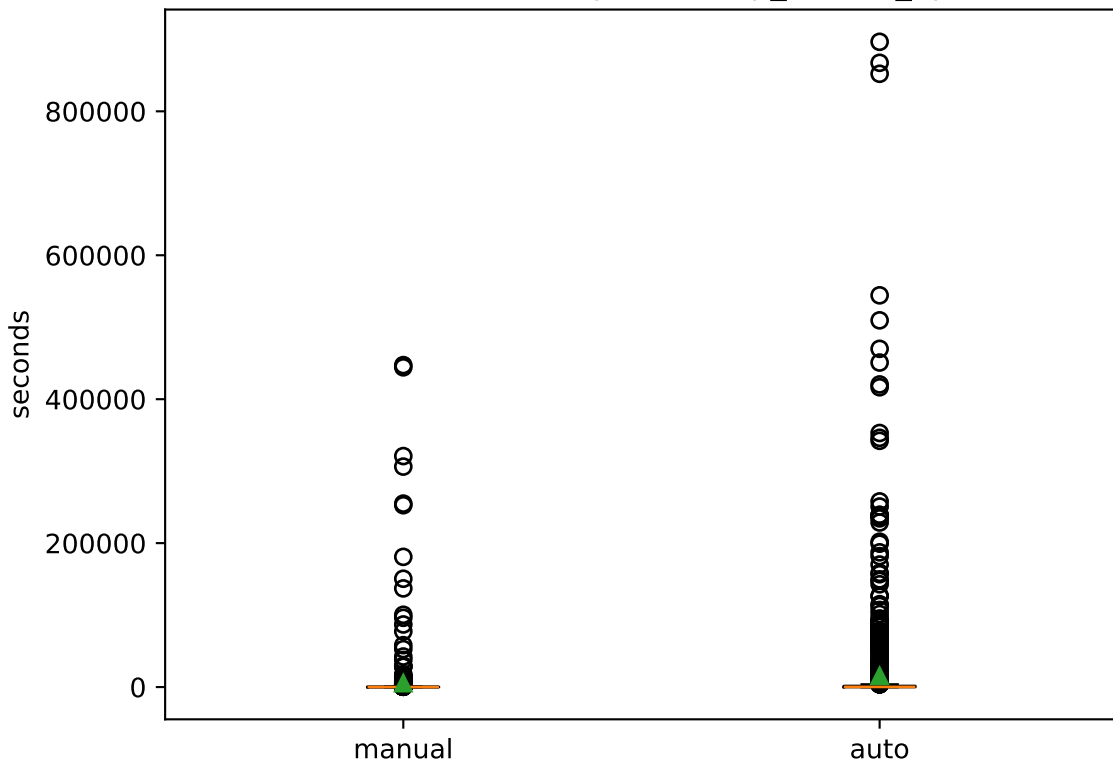
Episodes count by open\_type — skip\_double\_open



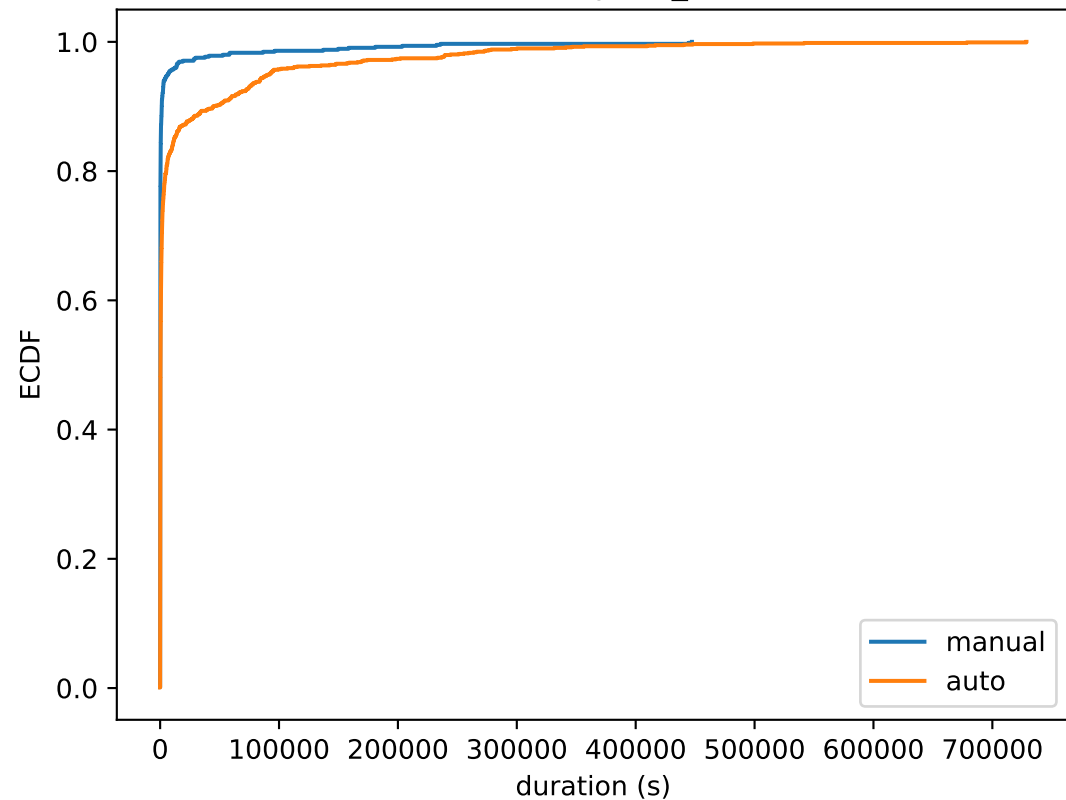
Duration (s) — boxplot — implicit\_close



Duration (s) — boxplot — skip\_double\_open

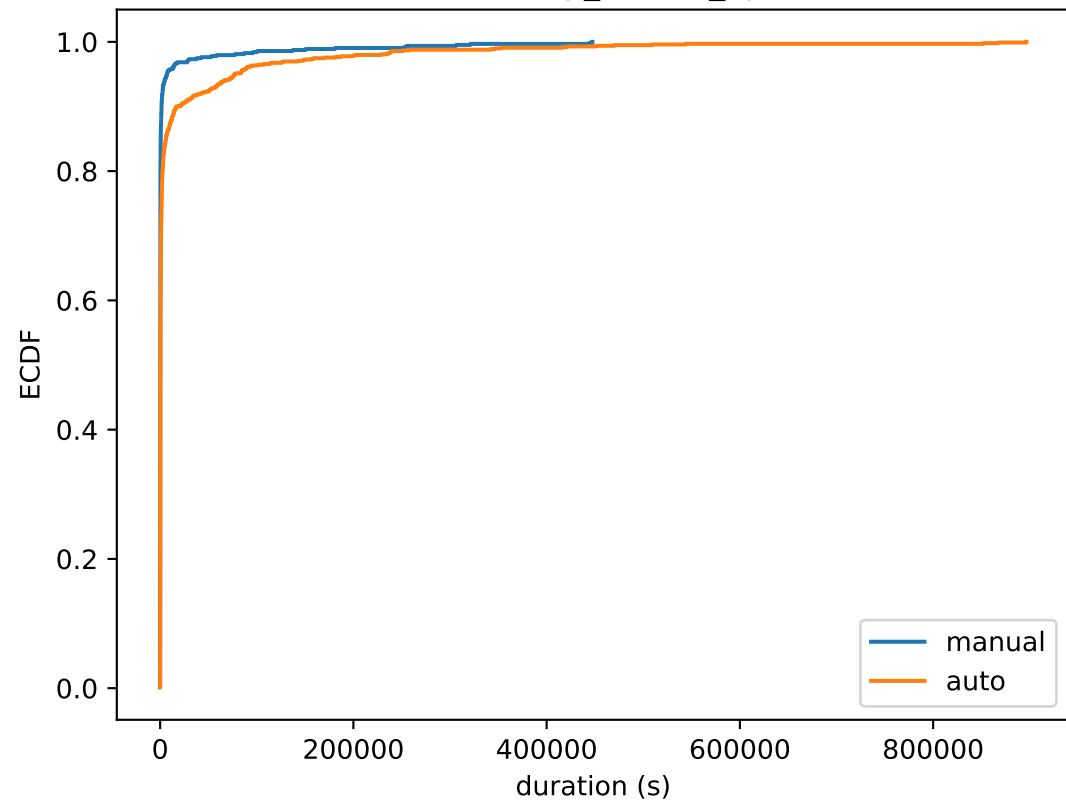


ECDF — implicit\_close

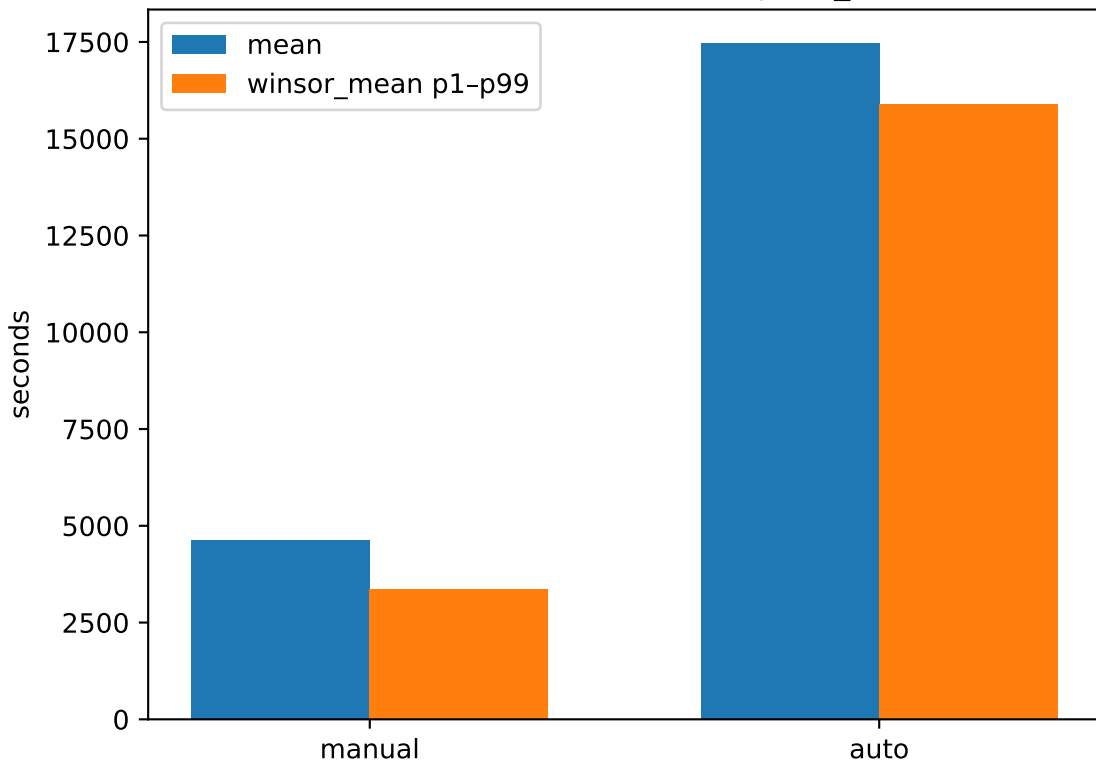




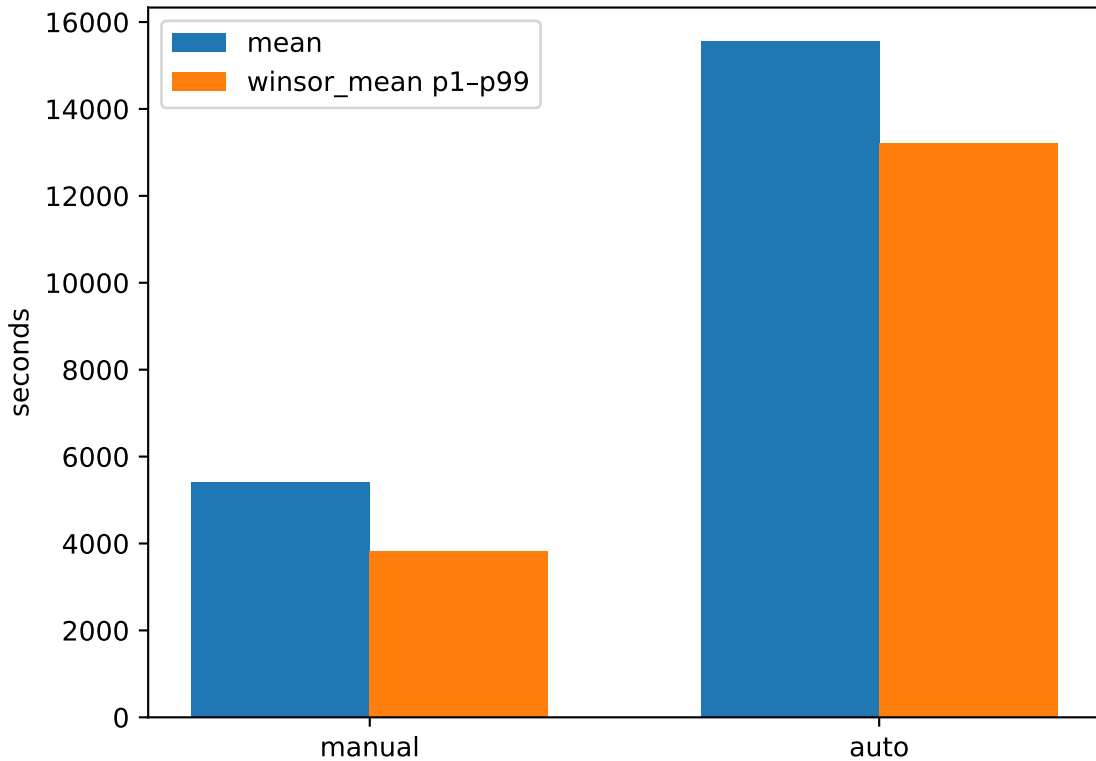
ECDF — skip\_double\_open



Mean vs winsor-mean — implicit\_close



Mean vs winsor-mean — skip\_double\_open



Permutation test for difference in means (manual - auto)  
implicit\_close: diff=-12824.20s, p=0.0003  
skip\_double\_open: diff=-10133.21s, p=0.0007