MOMENTUM LAB
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ApexXAU Intelligent Pro-4 Optimization Guide

1. **Introduction**

   This guide presents a flexible, multi-objective methodology for tuning the ApexXAU Intelligent Pro-4 Expert Advisor's inputs. Rather than prescribing fixed values, it groups related parameters, defines optimization criteria, and shows how to specify "start–step–stop" ranges for each input in your Strategy Tester or optimizer tool.

2. **Parameter Groups**

   Group 1: Risk Management
   • Risk Percent
   • Base Lot Size
   • Maximum Orders
   • ATR Multiplier

   Group 2: Entry Filters
   • CCI Period
   • RSI Period
   • MACD Fast, Slow & Signal Periods
   • ADX Period & Threshold

   Group 3: Exit & Trailing
   • StopLoss (pips)
   • TakeProfit (pips)
   • SL/TP Ratio Factor
   • Dynamic TP Gap (pips)

   Group 4: Adaptive & Timing
   • Multi-Timeframe Weight
   • News Refresh Interval (minutes)
   • Time-of-Day Filter (start & end hours)

   Group 5: Scaling & Aggregated Closure
   • Scaling Enabled
   • Scaling Max Orders
   • AggClosure ATR Multiplier
   • Aggregation Threshold

   Group 6: Custom / Advanced
   • Complex-Criterion Flags
   • Custom Multipliers
   • Feature On/Off Switches

3. **Optimization Criteria**
   Balance Max
   Maximize ending equity.

   Profit Factor Max
   Highest gross-profit to gross-loss ratio.

   Expected Payoff Max
   Highest average net profit per trade.

   Drawdown Min
   Lowest maximum drawdown.

   Recovery Factor Max
   Net-profit ÷ max drawdown.

   Sharpe Ratio Max
   Highest risk-adjusted return consistency.

   Custom Criterion
   Weighted formula, e.g. 0.5×PF + 0.3×Expectancy + 0.2×(1–DD%).

   Complex Criterion
   Evolutionary or swarm algorithms to identify Pareto-optimal settings.

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4. **Step-by-Step Workflow**

5. **Pre-Filter**
   • Disable scaling/adaptive.
   • Set Risk % to 1–2%.

6. **Optimize Risk Management**
   • Tune Risk % & Base Lot.
   • Measure ending balance vs drawdown.

7. **Optimize Entry Filters**
   • Vary CCI/RSI/MACD ±20%.
   • Assess Profit Factor & trade frequency.

8. **Optimize Exit & Trailing**
   • Adjust StopLoss, TakeProfit, trailing stops.
   • Balance win rate vs average win size.

9. **Adaptive & Timing**
   • Enable one feature at a time (MTF, news, time filter).
   • Score each using Custom Criterion.

10. **Scaling & Aggregated Closure**
    • Test Max Orders under scaling.
    • Tune AggClosure thresholds; observe Recovery Factor.

11. **Multi-Objective Search**
    • Apply genetic solver or Excel Solver to maximize composite score.

12. **Validation**
    • Walk-forward analysis.
    • Safeguard against curve-fitting.

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5. **Additional Recommendations**
    • Tackle one group at a time—lock in risk settings before moving on.
    • Build a performance dashboard (PF, DD%, equity curve) in Excel or TradingView.
    • Run sensitivity tests (±10% variation) to verify stability.
    • Set live-account alerts if drawdown exceeds your threshold (e.g. 15%).
    • Log every test run with parameters, period, and results.

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6. **Optimization Ranges (Start – Step – Stop)**

Parameter	Start	Step	Stop
Risk Percent (%)	0.5	0.5	5.0
Base Lot Size	0.01	0.01	0.10
Maximum Orders	1	1	5
ATR Multiplier	1.0	0.5	3.0
CCI Period	12	2	24
RSI Period	14	2	26
MACD Fast Period	8	2	18
MACD Slow Period	16	2	28
MACD Signal Period	8	2	14
ADX Period	14	2	30
ADX Threshold	20	5	40
StopLoss (pips)	50	50	300
TakeProfit (pips)	100	50	500
SL/TP Ratio Factor	10	5	25
Dynamic TP Gap (pips)	10	10	50
MTF Weight	0.5	0.1	1.0
News Refresh Interval (mins)	30	15	120

Parameter	Start	Step	Stop
Time Filter Start Hour	0	1	23
Time Filter End Hour	0	1	23
Scaling Max Orders	1	1	5
AggClosure ATR Multiplier	1.0	0.5	3.0
Aggregation Threshold	0.05	0.05	0.25
