BACKTESTING GUIDE V2

Nika EA V2.91

Starter Parameters, Optimization Ranges
& Practical Recipes

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Chapter 1

Strategy Tester Quick Setup

This chapter is a condensed quick-start for running Nika EA V2.91 in the MetaTrader 5 Strategy Tester. If you are already familiar with the Strategy Tester, skip to Chapter 2.

Opening the Strategy Tester

In MetaTrader 5, press **Ctrl+R** or navigate to **View → Strategy Tester**. Select Nika EA V2.91 from the Expert Advisor dropdown. Configure the following settings:

Setting	Recommended Value	Notes
Expert Advisor	Nika EA V2.91	Select from the dropdown
Symbol	EURUSD (or target pair)	Match your intended trading instrument
Period	H1	Default timeframe; adjust per strategy
Date Range	2020.01.01 – 2025.12.31	Minimum 3–5 years for robust results
Modeling	Every tick based on real ticks	Most accurate; requires tick data download
Deposit	10,000 USD	Standard benchmark for comparison
Leverage	1:100	Match your intended broker conditions
Optimization	Disabled (for first run)	Enable later in Chapter 5

Tick Mode Comparison

Mode	Speed	Accuracy	When to Use
Every tick (real ticks)	Slowest	Highest	Final validation, prop-firm testing
Every tick	Slow	High	General backtesting, optimization
1 minute OHLC	Fast	Moderate	Quick scans, early parameter exploration
Open prices only	Fastest	Low	Only for strategies that trade on bar open

FIRST RUN

For your very first run, use **Every tick** mode with default parameters. This validates that the EA loads correctly and generates trades. Check the Journal tab for errors before proceeding to optimization.

Downloading Tick Data

Real-tick backtesting requires historical tick data. In the Strategy Tester, click the **tick data icon** next to the modeling dropdown. MetaTrader will download tick data from your broker. This may take several minutes for multi-year periods. Ensure your **History Quality** is above 95% — results below 90% are unreliable.

Running Your First Backtest

With settings configured, click **Start**. Monitor the progress bar and check the Journal tab for any initialization errors. Once complete, review the **Results**, **Graph**, and **Backtest** tabs. The Graph tab shows the equity curve — look for a smooth upward trajectory without catastrophic drawdowns.

> COMMON PITFALL
> Do not run optimization before verifying a clean single run. If the EA shows zero trades, check: (1) correct symbol suffix (e.g., EURUSD vs EURUSDm), (2) hours filter settings, (3) minimum entry score threshold, (4) spread filter may be rejecting all entries.

Chapter 2

NQ Optimization Metrics

Nika EA V2.91 includes a built-in custom optimization criterion called **NQ (NikaQuant) Score**. Instead of optimizing for raw profit or profit factor alone, NQ Score combines multiple performance dimensions into a single weighted metric. The Strategy Tester's **Custom max** criterion uses this score to rank parameter combinations.

NQ Score Modes

Select the mode via the `_nq_mode` parameter. Each mode emphasizes different performance characteristics:

Mode	Name	Primary Focus	Best For
0	Balanced	Equal weight across all metrics	General-purpose optimization
1	Profit Maximizer	Net profit + profit factor	Maximizing raw returns
2	Risk-Adjusted	Sharpe ratio + recovery factor	Risk-conscious strategies
3	Drawdown Shield	Minimal drawdown emphasis	Prop firm challenges
4	Consistency	Win rate + expected payoff stability	Steady income strategies
5	Recovery	Recovery factor + max DD recovery speed	Resilience after drawdowns
6	Trade Quality	Avg win/loss ratio + expectancy	Quality over quantity
7	Frequency	Trade count + profit factor balance	Active trading strategies
8	Smooth Equity	Equity curve linearity	Lowest-volatility equity curves
9	Sortino Focus	Downside deviation minimization	Asymmetric risk management
10	Custom	User-defined weight vector	Advanced users with specific goals

NQ Score Formula

The NQ Score is calculated as a weighted sum of normalized sub-metrics, multiplied by a Trade Adequacy factor:

$$NQ = TradeAdequacy \times \Sigma(w_i \times normalized\_metric_i)$$

Each sub-metric is normalized to 0–1 range using min/max bounds. The weights $\mathbf{w_i}$ are set by the selected NQ mode or by custom user weights in mode 10.

Weight Table by Mode (Top 5 Modes)

Metric	Mode 0 Balanced	Mode 1 Profit	Mode 2 Risk-Adj	Mode 3 DD Shield	Mode 4 Consistency
Net Profit	1.0	2.0	0.5	0.5	0.8
Profit Factor	1.0	1.5	1.0	0.8	1.0
Max DD %	1.0	0.5	1.5	2.5	1.0
Sharpe Ratio	1.0	0.5	2.0	1.0	0.8
Recovery Factor	1.0	0.5	1.5	1.5	0.8
Win Rate	0.8	0.3	0.5	0.5	2.0
Avg Win/Loss	0.8	0.5	1.0	0.5	1.5
Trade Count	0.5	0.3	0.3	0.3	0.5
Expected Payoff	0.8	1.0	0.8	0.5	1.5
Equity Linearity	0.5	0.2	0.5	1.0	0.8

Trade Adequacy Curve

The Trade Adequacy factor penalizes results with too few trades. It uses a sigmoid curve that ramps from 0 to 1 based on the number of closed trades relative to `_nq_min_trades`:

At **50%** of min_trades → Adequacy ≈ 0.12 (heavy penalty). At **100%** of min_trades → Adequacy ≈ 0.73. At **150%** of min_trades → Adequacy ≈ 0.95 (near full score). At **200%+** → Adequacy ≈ 1.0 (no penalty).

> GUIDELINE
> Set `_nq_min_trades` to your minimum acceptable trade count. For daily timeframes, 50–100 trades over 5 years is reasonable. For H1, aim for 200+. This prevents the optimizer from finding "perfect" parameter sets that only took 5 trades.

NQ Parameter Reference

Parameter	Default	Description
`_nq_mode`	0	NQ scoring mode (0–10); see mode table above
`_drawdown_type`	1	0 = Balance DD, 1 = Equity DD (recommended)
`_nq_risk_pct_per_trade`	0.5	Used for normalized risk-adjusted calculations
`_nq_min_trades`	100	Minimum trades for full Trade Adequacy score
`_nq_custom_w_profit`	1.0	Mode 10 only: custom weight for net profit
`_nq_custom_w_pf`	1.0	Mode 10 only: custom weight for profit factor
`_nq_custom_w_dd`	1.0	Mode 10 only: custom weight for max drawdown
`_nq_custom_w_sharpe`	1.0	Mode 10 only: custom weight for Sharpe ratio

Parameter	Default	Description
`_nq_custom_w_recovery`	1.0	Mode 10 only: custom weight for recovery factor
`_nq_custom_w_winrate`	0.8	Mode 10 only: custom weight for win rate
`_nq_custom_w_avgrr`	0.8	Mode 10 only: custom weight for avg win/loss

PROP FIRM TIP

For prop firm challenges, use **Mode 3 (Drawdown Shield)** with `_nq_min_trades = 50`. This prioritizes capital preservation while ensuring enough trades for statistical validity.

Chapter 3

Starter Parameter Sets

This chapter provides three complete, copy-ready configurations. Each specifies exact parameter values that you can enter directly into the Strategy Tester. These are **starting points** — not final optimized sets. Use them as baselines, then optimize with the ranges in Chapter 4.

> DISCLAIMER
> These configurations are starting points for backtesting and optimization, not guaranteed profitable strategies. Always validate on out-of-sample data and demo accounts before live trading. Past backtest performance does not guarantee future results.

Config A: Trend Following Starter

Pair: EURUSD **Timeframe:** H1 **Difficulty:** Beginner

A simple trend-following setup that uses NikaCross for entry signals with a 50 EMA trend filter. Trades are only taken in the direction of the 50-period EMA, filtering out counter-trend noise. The ATR-based stop loss adapts to daily volatility, and a three-tier take-profit system locks in gains progressively.

Signal Configuration

Parameter	Value	Description
`_signal_NikaCross_enabled_1`	true	Enable NikaCross as primary entry signal
`_signal_NikaCross_weight_1`	1.0	Full weight — primary signal
`_signal_NikaCross_role_1`	Entry	Acts as the entry trigger
`_signal_NikaCross_length_1`	13	Lookback period for Nika oscillator
`_signal_NikaCross_nika_ma_period_1`	3	Signal smoothing period
`_signal_MAPriceCross_enabled_1`	true	Enable 50 EMA as trend filter
`_signal_MAPriceCross_weight_1`	0.8	Slightly lower weight — filter role
`_signal_MAPriceCross_role_1`	VETO/Filter	Blocks trades against the trend
`_signal_MAPriceCross_ma_method_1`	EMA	Exponential Moving Average
`_signal_MAPriceCross_ma_period_1`	50	50-period EMA for trend direction

Stop Loss & Take Profit

Parameter	Value	Description
`_sl_method`	ATR	Volatility-based stop loss

Parameter	Value	Description
_sl_atr_timeframe	D1	Daily ATR for stable SL distance
_sl_atr_period	21	21-day ATR lookback
_sl_atr_multiplier	0.2	SL = 0.2 × Daily ATR
_tp1_multiplier	1.5	TP1 = 1.5× SL distance
_tp1_partial_perc	70	Close 70% of position at TP1
_tp2_multiplier	2.0	TP2 = 2.0× SL distance
_tp2_partial_perc	90	Close to 90% cumulative at TP2
_tp3_multiplier	2.5	TP3 = 2.5× SL distance
_tp3_partial_perc	100	Close remaining position at TP3

Risk & Trade Management

Parameter	Value	Description
_lot_risk_perc	0.5	Risk 0.5% of balance per trade
_max_entries	1	Maximum 1 simultaneous entry
_max_reentries	3	Allow up to 3 re-entries after exit
_min_entry_score	0.5	Minimum combined signal score to enter
_min_active_weight	1.0	Minimum total active signal weight
_trailing_enabled	false	Trailing OFF — TP system handles exits
_hours_filter_enabled	true	Restrict trading hours
_hours_filter_start	2	Start trading at 02:00 server time
_hours_filter_end	22	Stop trading at 22:00 server time
_spread_filter_enabled	false	Spread filter OFF for simplicity

HOW IT WORKS

The 50 EMA VETO filter is the key to this config. It prevents entering short when price is above the 50 EMA and prevents entering long when price is below it. This single filter eliminates most whipsaw trades in ranging markets.

Config B: Multi-Signal Momentum

Pair: XAUUSD **Timeframe:** H1 **Difficulty:** Intermediate

A multi-signal configuration designed for Gold (XAUUSD). Three signals combine: NikaCross and HistLevCross provide entry confluence, while a 100 EMA on H4 acts as a higher-timeframe trend filter. The trailing stop locks in profits on Gold's momentum moves.

Signal Configuration

Parameter	Value	Description
`_signal_NikaCross_enabled_1`	true	Primary momentum signal
`_signal_NikaCross_weight_1`	1.0	Full weight — primary entry
`_signal_NikaCross_role_1`	Entry	Entry trigger
`_signal_NikaCross_length_1`	8	Faster lookback for Gold volatility
`_signal_NikaCross_nika_ma_period_1`	3	Standard signal smoothing
`_signal_HistLevCross_enabled_1`	true	Histogram level cross confirmation
`_signal_HistLevCross_weight_1`	0.8	Secondary entry signal
`_signal_HistLevCross_role_1`	Entry	Adds confluence to entries
`_signal_HistLevCross_length_1`	13	Oscillator lookback
`_signal_HistLevCross_smooth_1`	2	Histogram smoothing
`_signal_HistLevCross_level_1`	0	Zero-line cross
`_signal_MAPriceCross_enabled_2`	true	H4 trend filter (slot 2)
`_signal_MAPriceCross_weight_2`	0.5	Lower weight — filter role
`_signal_MAPriceCross_role_2`	VETO/Filter	Blocks counter-trend entries
`_signal_MAPriceCross_ma_method_2`	EMA	Exponential Moving Average
`_signal_MAPriceCross_ma_period_2`	100	100 EMA on H4 for major trend
`_signal_MAPriceCross_timeframe_2`	H4	Higher timeframe filter

Stop Loss & Take Profit

Parameter	Value	Description
`_sl_method`	ATR	Volatility-based stop loss
`_sl_atr_timeframe`	H4	H4 ATR for Gold's wider ranges
`_sl_atr_period`	14	14-bar ATR lookback on H4
`_sl_atr_multiplier`	0.5	SL = 0.5 × H4 ATR

Parameter	Value	Description
_tp1_multiplier	1.5	TP1 = 1.5× SL distance
_tp1_partial_perc	70	Close 70% at TP1
_tp2_multiplier	2.5	TP2 = 2.5× SL distance
_tp2_partial_perc	100	Close remaining at TP2
_tp3_multiplier	0	TP3 OFF — two-tier exit
_tp3_partial_perc	0	Not used

Risk & Trade Management

Parameter	Value	Description
_lot_risk_perc	0.3	Risk 0.3% per trade (Gold is volatile)
_min_entry_score	0.6	Higher threshold — 3 signals require more agreement
_trailing_enabled	true	Trailing stop ON for momentum capture
_trailing_mode	Steps	Step-based trailing
_trailing_start	0.5	Start trailing at 0.5× RRR (risk-reward)
_trailing_step	0.2	Move SL in 0.2 RRR increments
_spread_filter_enabled	true	Filter high-spread periods
_spread_filter_max	50	Max 50 points spread allowed

GOLD-SPECIFIC NOTE

Gold (XAUUSD) has much wider spreads and ATR values than forex pairs. The 0.3% risk and 50-point spread filter account for this. If backtesting shows excessive spread rejections, increase the spread filter to 70 points or switch to a raw-spread broker data source.

Config C: Prop Firm Safe

Pair: Any major pair **Timeframe:** H1 **Difficulty:** Intermediate

A conservative configuration designed specifically for prop firm challenges (FTMO, Funded Trading Plus, etc.). Triple confirmation with NikaCross, MACross, and 200 EMA filter. Built-in safety limits keep drawdown well below prop firm thresholds. The 4% max DD kill switch provides a buffer against the typical 5% daily limit.

Signal Configuration

Parameter	Value	Description
`_signal_NikaCross_enabled_1`	true	Primary entry signal
`_signal_NikaCross_weight_1`	1.0	Full weight — primary trigger
`_signal_NikaCross_role_1`	Entry	Entry trigger
`_signal_NikaCross_length_1`	13	Standard lookback
`_signal_NikaCross_nika_ma_period_1`	5	Smoother signal (less noise)
`_signal_MACross_enabled_1`	true	Moving average crossover entry
`_signal_MACross_weight_1`	0.6	Secondary entry — adds confluence
`_signal_MACross_role_1`	Entry	Entry signal
`_signal_MACross_ma_method_1`	EMA	Exponential Moving Average
`_signal_MACross_fast_period_1`	20	Fast MA period
`_signal_MACross_slow_period_1`	50	Slow MA period
`_signal_MAPriceCross_enabled_1`	true	200 EMA macro trend filter
`_signal_MAPriceCross_weight_1`	0.5	Filter weight
`_signal_MAPriceCross_role_1`	VETO/Filter	Blocks trades against 200 EMA
`_signal_MAPriceCross_ma_method_1`	EMA	Exponential Moving Average
`_signal_MAPriceCross_ma_period_1`	200	200 EMA — institutional trend filter

Stop Loss & Take Profit

Parameter	Value	Description
`_sl_method`	ATR	Volatility-based stop loss
`_sl_atr_timeframe`	D1	Daily ATR for stable, wider stops
`_sl_atr_period`	21	21-day ATR lookback
`_sl_atr_multiplier`	0.3	SL = 0.3 × Daily ATR (conservative)
`_tp1_multiplier`	1.0	TP1 = 1.0× SL (quick partial close)

Parameter	Value	Description
_tp1_partial_perc	50	Close 50% at TP1 for safety
_tp2_multiplier	1.5	TP2 = 1.5× SL distance
_tp2_partial_perc	80	Close to 80% cumulative
_tp3_multiplier	2.0	TP3 = 2.0× SL distance
_tp3_partial_perc	100	Close all remaining at TP3

Risk & Safety Limits

Parameter	Value	Description
_lot_risk_perc	0.25	Risk 0.25% per trade (ultra-conservative)
_max_dd_kill_switch	4.0	Kill all trading if DD reaches 4%
_daily_loss_limit	1.5	Stop trading for the day at 1.5% loss
_min_entry_score	0.5	Standard entry threshold
_max_entries	1	Only 1 position at a time
_max_day_entries	3	Maximum 3 trades per day
_trailing_enabled	true	Hybrid trailing for protection
_trailing_mode	Hybrid BE+Trail	Break-even then trail
_trailing_start	TP1	Start trailing after first TP hit

PROP FIRM WARNING

Prop firm rules vary. Always verify the specific rules of your prop firm: max daily loss, max total drawdown, minimum trading days, weekend holding policy, and news trading restrictions. Adjust the kill switch and daily loss limit parameters accordingly. The values here assume a 5% max DD / 3–4% daily loss rule set.

TRAILING STRATEGY

The **Hybrid BE+Trail** mode first moves the stop loss to break-even after TP1 is hit, then activates step-based trailing. This protects capital first, then lets winners run — ideal for prop firm challenges where preserving the account is more important than maximizing profit.

Chapter 4

Optimization Ranges

When running the Strategy Tester in optimization mode, you specify a **Start** value, a **Min–Max range**, and a **Step** for each parameter. The optimizer tests all combinations (exhaustive) or samples intelligently (genetic). The tables below provide recommended ranges — start with these, then narrow based on results.

> OPTIMIZATION TIP
> Use **genetic optimization** when the total number of combinations exceeds 10,000. For exhaustive search, keep the parameter space under 10,000 by optimizing only 3–4 parameters at a time. See Chapter 5 for the phased workflow.

Signal Parameters to Optimize

These control how signals are generated. They have the most impact on entry timing and trade selection.

Parameter	Start	Range	Step	Notes
`_NikaCross_length_1`	13	5 – 34	1	Core signal lookback period. Lower = more trades, higher = fewer/smoother signals
`_NikaCross_nika_ma_period_1`	3	2 – 8	1	Signal smoothing. Lower = faster response, higher = less noise
`_NikaCross_weight_1`	1.0	0.5 – 2.0	0.1	Entry signal weight. Higher values dominate the score calculation
`_MACross_fast_ma_period_1`	20	10 – 50	5	Fast MA for crossover entry. Must be < slow period
`_MACross_slow_ma_period_1`	50	30 – 200	10	Slow MA for crossover. Wider gap = fewer but stronger signals
`_MAPriceCross_ma_period_1`	50	20 – 200	10	Trend filter MA period. 50 = medium-term, 200 = long-term trend
`_HistLevCross_length_1`	13	5 – 21	1	Histogram oscillator lookback. Affects signal frequency
`_HistLevCross_smooth_1`	2	1 – 5	1	Histogram smoothing. Higher = smoother, fewer false signals

Combinations estimate: Optimizing all 8 signal parameters simultaneously = ~29 × 6 × 15 × 8 × 17 × 18 × 16 × 4 = hundreds of millions. **Never optimize all at once.** Use the phased approach in Chapter 5.

Risk & SL/TP Parameters

These control stop loss distance, take profit targets, position sizing, and entry quality threshold.

Parameter	Start	Range	Step	Notes
_atr_multiplier	0.2	0.1 – 1.0	0.05	SL distance as ATR multiple. Lower = tighter stops, more stops hit
_atr_period	21	7 – 30	1	ATR lookback. 14 = standard, 21 = smoother on D1
_tp1_multiplier	1.5	1.0 – 3.0	0.25	First take profit target as SL multiple
_tp2_multiplier	2.0	1.5 – 4.0	0.5	Second take profit target. Must be > TP1
_lot_risk_perc	0.5	0.1 – 1.0	0.1	Risk % per trade. Higher = more profit but more DD
_min_entry_score	0.5	0.3 – 0.8	0.05	Entry quality threshold. Higher = fewer, better trades

PRIORITY

The _atr_multiplier and _tp1_multiplier are the two most impactful risk parameters. Optimize these first (Phase 2 in the workflow), keeping signal parameters fixed at your Phase 1 best values.

Trade Management Parameters

These fine-tune position management after entry: partial closes, trailing, and trade spacing.

Parameter	Start	Range	Step	Notes
_tp1_partial_perc	70	30 – 80	10	% of position closed at TP1. Higher = more locked profit, less runner upside
_trailing_start	0.5	0.3 – 1.5	0.1	When trailing starts (in RRR). Lower = earlier trailing activation
_trailing_step	0.2	0.1 – 0.5	0.05	Trailing step size (in RRR). Smaller = tighter trail, more stops
_wait_bars_main	1	0 – 5	1	Cooldown bars between trades on same symbol. 0 = no cooldown

Trade management parameters are the final optimization phase. Optimize these only after signals and risk/SL/TP parameters are settled. Small changes here refine performance; they should not fundamentally change the strategy's character.

Parameters to NOT Optimize

Not every parameter should be in the optimizer. The following categories should remain at their defaults or be set once manually. Optimizing them wastes computation and increases overfitting risk:

Category	Examples	Why NOT Optimize
Magic Numbers	_magic_number, _magic_buy, _magic_sell	Functional identifiers only — they tag trades for management, not strategy logic. Any value works.

Category	Examples	Why NOT Optimize
Dashboard / Display	_show_dashboard, _dashboard_x, _chart_arrows, _color_buy	Visual-only settings that control chart display. Zero effect on backtesting results.
Journal / Logging	_journal_enabled, _journal_level, _journal_file	Control what gets logged to the Experts tab. Useful for debugging, not for performance.
State Persistence	_save_state, _state_file, _recovery_mode	Infrastructure settings for crash recovery and state saving. Not related to trade logic.
NQ Score Weights	_nq_custom_w_* (unless Mode 10)	These define your optimization objective. Changing them during optimization creates circular logic.
Account / Broker	_slippage, _max_spread_for_entry (initial value)	Set once to match your broker conditions. Optimizing these 'fits' noise, not strategy.

OVERFITTING RISK

Optimizing display or logging parameters is a classic overfitting trap. The optimizer may find that a specific magic number correlates with better results — this is pure coincidence and will not hold on live data. Only optimize parameters that logically affect trade decisions.

Chapter 5

5-Phase Optimization Workflow

Optimization is most effective when done in phases, each building on the previous. Never optimize everything simultaneously — the search space becomes too large and results become meaningless.

Phase	What to Optimize	NQ Mode	Tick Mode	Goal
1. Signal Discovery	Signal lengths, smoothing periods, weights (3–4 params)	Mode 0 (Balanced)	1-min OHLC	Find signal parameters that produce a positive-expectancy baseline
2. Risk Calibration	ATR multiplier, ATR period, TP1/TP2 multipliers (4 params)	Mode 2 (Risk-Adjusted)	Every tick	Set optimal SL/TP distances for the signals found in Phase 1
3. Entry Quality	min_entry_score, lot_risk_perc (2 params)	Mode 0 (Balanced)	Every tick	Filter entry quality and calibrate position sizing
4. Trade Management	Partial close %, trailing start/step, wait bars (3–4 params)	Mode 8 (Smooth Equity)	Every tick	Refine exit management for smoother equity curve
5. Validation	No optimization — fixed best params from Phases 1–4	N/A	Real ticks	Walk-forward test on out-of-sample period (last 20–30%)

Phase Workflow Details

Phase 1 — Signal Discovery: Use genetic optimization with 1-minute OHLC for speed. Test 3–4 signal parameters. The goal is a positive baseline — profit factor above 1.2 and at least 100 trades. Fix the best signal values before moving on.

Phase 2 — Risk Calibration: Switch to Every Tick mode. Lock Phase 1 signal values and optimize ATR multiplier, ATR period, TP1 and TP2 multipliers. Use NQ Mode 2 (Risk-Adjusted) to balance returns against drawdown. Target profit factor above 1.3 with drawdown under 15%.

Phase 3 — Entry Quality: Optimize min_entry_score and risk percentage. A higher entry score reduces trade count but should improve average trade quality. Verify that trade count remains above your NQ min_trades threshold.

Phase 4 — Trade Management: Fine-tune partial close percentages, trailing parameters, and cooldown. Use NQ Mode 8 (Smooth Equity) to favor consistent performance. Changes should be marginal — if this phase dramatically changes results, earlier phases need revisiting.

Phase 5 — Validation: The most critical phase. Run the final parameter set on out-of-sample data (the last 20–30% of your date range, excluded from optimization). Use real-tick mode. Out-of-sample performance should achieve at least 60% of in-sample metrics. If not, the strategy is likely overfit.

NQ Mode Selection Guide

Your Goal	Recommended NQ Mode	Phase
General-purpose strategy	Mode 0 — Balanced	Phases 1, 3
Maximize absolute profit	Mode 1 — Profit Maximizer	Phase 1 (aggressive)
Best risk-adjusted returns	Mode 2 — Risk-Adjusted	Phase 2
Prop firm challenge	Mode 3 — Drawdown Shield	Phase 2
Consistent monthly income	Mode 4 — Consistency	Phase 3
Smoothest equity curve	Mode 8 — Smooth Equity	Phase 4
Custom multi-objective	Mode 10 — Custom Weights	Any phase

WORKFLOW TIP

Save your optimization results at each phase. If Phase 3 or 4 degrades performance, you can roll back to the Phase 2 parameter set. The Strategy Tester saves results in .xml files — back them up after each phase.

Chapter 6

Reading Results & Avoiding Overfitting

Metric Benchmarks

Use these benchmarks to evaluate your backtest results. A strategy doesn't need to be "green" in every column — focus on your primary objectives (risk-adjusted for prop firms, raw profit for personal accounts).

Metric	Good	Acceptable	Poor	Notes
Profit Factor	> 1.5	1.2 – 1.5	< 1.2	Gross profit / gross loss ratio
Sharpe Ratio	> 1.0	0.5 – 1.0	< 0.5	Risk-adjusted return measure
Recovery Factor	> 2.0	1.0 – 2.0	< 1.0	Net profit / max drawdown
Max Drawdown %	< 15%	15% – 25%	> 25%	Largest equity peak-to-trough drop
Expected Payoff	> $10	$1 – $10	< $1	Average profit per trade (scale-dependent)
Win Rate	> 55%	40% – 55%	< 40%	Context-dependent; low WR + high RR is valid
Avg Win / Avg Loss	> 1.5	1.0 – 1.5	< 1.0	Average reward-to-risk ratio
Total Trades	> 200	100 – 200	< 100	Statistical significance threshold

Overfitting Red Flags

Overfitting occurs when parameters are tuned to historical noise rather than genuine market patterns. Watch for these warning signs:

Profit factor above 5.0 — Almost certainly overfit. Real strategies rarely sustain PF > 3.0.

Sharp parameter sensitivity — If changing one parameter by one step destroys profitability, the edge is fragile. Robust strategies show parameter "plateaus" where nearby values perform similarly.

Too many optimized parameters — Optimizing more than 5–6 parameters for a simple strategy is a curve-fitting exercise. Each additional parameter multiplies overfitting risk.

Back-loaded equity curve — If 80% of profits come from the last 20% of the test period, the strategy may only work in recent conditions.

Few trades with extreme results — 20 trades with a 4.0 profit factor is meaningless. You need 100+ trades for statistical significance, 200+ for confidence.

Huge gap between in-sample and out-of-sample — If out-of-sample performance drops below 50% of in-sample metrics, the strategy is likely overfit.

Walk-Forward Methodology

Walk-forward analysis is the gold standard for validating strategy robustness:

1. **Split your data:** 70% in-sample (optimization), 30% out-of-sample (validation).
2. **Optimize on in-sample:** Run the 5-phase workflow on the first 70% of data.
3. **Test on out-of-sample:** Run the best parameters on the remaining 30% with no changes.
4. **Evaluate:** Out-of-sample should achieve ≥60% of in-sample profit factor and ≤130% of in-sample max drawdown.
5. **Rolling walk-forward (advanced):** Repeat steps 1–4 across multiple overlapping windows to test robustness across different market regimes.

Example split for 2020–2025 data:
In-sample: 2020.01 – 2023.06 (3.5 years)
Out-of-sample: 2023.07 – 2025.12 (2.5 years)

> PRACTICAL ADVICE
> If you plan to trade on a prop firm account starting in 2026, your out-of-sample period should include the most recent 1–2 years. The in-sample period should cover diverse market conditions: COVID crash (2020), recovery (2021), rate hikes (2022–2023), and normalization (2024–2025).

Quick Reference Cards

Starter Config Comparison

Parameter	A: Trend Follow	B: Multi-Signal	C: Prop Firm
Pair	EURUSD	XAUUSD	Any major
Timeframe	H1	H1	H1
Signals	NikaCross + MA Filter	NikaCross + HistLev + MA Filter	NikaCross + MACross + MA Filter
SL Method	ATR (D1, 21, 0.2×)	ATR (H4, 14, 0.5×)	ATR (D1, 21, 0.3×)
TP Levels	1.5x / 2.0x / 2.5x	1.5x / 2.5x / OFF	1.0x / 1.5x / 2.0x
Risk %	0.5%	0.3%	0.25%
Entry Score	0.5	0.6	0.5
Trailing	OFF	Steps (0.5 start)	Hybrid BE+Trail
Max DD Kill	—	—	4%
Daily Loss Limit	—	—	1.5%
Spread Filter	OFF	ON (50 pts)	—
Hours Filter	ON (2–22)	—	—
Difficulty	Beginner	Intermediate	Intermediate

NQ Mode Quick Selector

If you want...	Use Mode	Key Metric
Best overall performance	0 — Balanced	All metrics weighted equally
Maximum raw profit	1 — Profit Max	Net profit + profit factor
Best return per unit risk	2 — Risk-Adjusted	Sharpe + recovery factor
Smallest possible drawdown	3 — DD Shield	Max drawdown minimization
Steady, consistent returns	4 — Consistency	Win rate + payoff stability
Fastest recovery from losses	5 — Recovery	Recovery factor
Highest quality trades	6 — Trade Quality	Avg win/loss + expectancy
More frequent trading	7 — Frequency	Trade count + profit factor

If you want...	Use Mode	Key Metric
Smoothest equity curve	8 — Smooth Equity	Equity curve linearity
Minimize downside only	9 — Sortino	Downside deviation
Build your own objective	10 — Custom	User-defined weights

Metric Benchmarks (Quick Reference)

Metric	Target	Minimum
Profit Factor	> 1.5	> 1.2
Sharpe Ratio	> 1.0	> 0.5
Recovery Factor	> 2.0	> 1.0
Max Drawdown	< 15%	< 25%
Total Trades	> 200	> 100
Win Rate	> 55%	> 40%
Avg Win/Loss	> 1.5	> 1.0

Optimization Phase Cheatsheet

Phase	Params	NQ Mode	Tick Mode	Key Check
1. Signals	3–4 signal params	Mode 0	1-min OHLC	PF > 1.2, trades > 100
2. Risk/SL/TP	ATR mult, TP mults	Mode 2	Every tick	DD < 15%, PF > 1.3
3. Entry Quality	Score, risk %	Mode 0	Every tick	Better avg trade
4. Management	Partials, trailing	Mode 8	Every tick	Smoother equity
5. Validation	None (fixed)	N/A	Real ticks	OOS ≥ 60% of IS

Do NOT Optimize — Checklist

Category	Reason
Magic numbers	Functional IDs — not related to trade logic
Dashboard / display settings	Visual only — zero effect on backtesting
Journal / logging settings	Debugging tools — no performance impact
State persistence settings	Infrastructure — not strategy-related
NQ score weights (unless Mode 10)	Defines the objective — optimizing creates circular logic
Account / broker parameters	Set once to match your broker — don't "optimize" to fit noise