

TITAN BREAKOUT

User Manual

Expert Advisor MetaTrader 5 · Breakout institutionnel H1

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Takeaway from the start

Titan Breakout can be idle for hours or even days.

This is not a malfunction, but the consequence of its filters.

If the EA does not trade, it means that no conditions are met.

Enable ModeDebug = True and observe the Comment() of the graph to understand in real time why each signal is denied.

1. Presentation

1.1 What is Titan Breakout?

Titan Breakout is an Expert Advisor (EA) for MetaTrader 5. It automates an institutional breakout strategy on the H1 timeframe, i.e., it searches, filters, and executes entries when the price crosses a reference level in the direction of the prevailing trend.

He doesn't trade all the time. He waits. Its value lies precisely in its ability to refuse bad contexts rather than seize every opportunity. One well-selected trade is better than ten rushed trades.

This Expert Advisor is the result of several independent audit cycles, with an institutional-level defensive infrastructure: Systemic capital protection, precise money management via OrderCalcProfit direction-aware, multi-instance mutex, kill switches with automatic retry, circuit breaker errors broker, cache of expensive calculations.

1.2 Who is this EA for?

- Beginner traders who want automated risk management and execution discipline that they would not be able to maintain manually
- Intermediate traders who understand the breakout strategy and want to automate it without sacrificing their control over parameters
- Advanced and professional traders who trade on multiple instruments simultaneously, on a Prop Firm account or own account, and who need a robust execution infrastructure with drawdown management, anti-correlation, and built-in PropFirms protection

1.3 What Titan Breakout doesn't do

- It does not use a martingale, a grid, or an automatic batch increase after a loss
- It does not open multiple simultaneous positions on the same symbol
- It does not guarantee any results. He applies a method with rigor, nothing more
- It is not a substitute for statistical validation. The parameters must be tested on historical data before any use in real account

1.4 Instruments compatibles

Titan Breakout is designed to work on all tradable instruments in MT5. The lot and risk calculation is universal: it primarily uses OrderCalcProfit() from the MT5 core, which automatically adapts to each asset class (account currency, conversion, CFD mode, swap).

Asset class	Examples	Compatibility
Forex (majors)	EURUSD, GBPUSD, USDJPY, AUDUSD, USDCAD	Excellent: Anti-correlation currency by active currency
Forex (minors)	EURGBP, EURJPY, GBPJPY, NZDCAD	Good
Precious metals	XAUUSD (Or), XAGUSD (Argent)	Good: Strong responsiveness to Kill Zones

Asset class	Examples	Compatibility
Stock indices	US100 (Nasdaq), US30 (Dow), GER40 (DAX), SPX500	Good: Self closing recommended
Cryptocurrencies	BTCUSD, ETHUSD	Acceptable: High risk, reduced Risk_Percent advised

Optimal selection by asset class

The theoretical edge of the Donchian H1 strategy is more pronounced on certain instrument-session pairs: US indices (US100, US30, SPX500) during the NY session (Kill Zone NY active): Sharpest edge thanks to the concentrated institutional liquidity at the open.

Major forex (EURUSD, GBPUSD) during the London-NY overlap (1pm-4pm broker time): Solid edge thanks to the convergence of European and US flows.

Crypto (BTCUSD, ETHUSD) outside the weekend, outside of Asian illiquidity phases: Edge highly dependent on the volatility regime.

Metals (XAUUSD): Variable edge depending on the USD macro context.

Range periods that penalize the strategy.

Crypto specifics: Automatic minimum ATR filter

On cryptocurrencies, some brokers (Admirals, IC Markets) do not return the minimum stop via the standard API.

Titan Breakout applies an internal safety floor: if the signal ATR would produce a SL lower than 0.5% of the current price, the signal is cleanly rejected.

This protection avoids cascading broker rejections that would trigger the circuit breaker (30-minute SAFE mode).

Active only on crypto instruments and only when the broker does not provide the minimum stop information.

2. The Strategy: Fully Functioning

2.1 The basic signal: Donchian H1 breakout

The mid-engine of Titan Breakout is a Breakout of the Donchian Channel on the H1 chart. The Donchian Channel plots the highest and lowest of the last N candles closed. When the price closes above the high, it is a bullish breakout. Below the low, a bearish breakout.

Calculation on closed candles only

The Donchian channel is calculated only on fully fenced candles.

The spark plug being formed is never included in the calculation.

Only the close of an H1 candle triggers the evaluation of the signal, never an intermediate tick.

Conditions of a LONG signal (all required simultaneously)

- **(1) Bullish breakout:** The last closed H1 candle closed above the Donchian high. The candle is bullish (close > open).
- **(2) Significant Body:** The body of the candle is greater than or equal to $\text{BodyMinATR} \times \text{ATR}$. Filters out indecisive candles, dojis and false breaks on wick.
- **(3) Daily Trend (D1):** The fast EMA D1 is above the slow EMA D1. The market is in an uptrend over the long term.
- **(4) Hourly Trend (H1):** The fast H1 EMA is above the slow H1 EMA. The market is in a short-term uptrend.
- **(5) Trend strength (ADX):** ADX H1 exceeds ADX_Seuil . The market has a direction. He doesn't go around in circles.
- **(6) ADX Slope (optional):** If `UseADXslope` is enabled, the current ADX must be greater than or equal (depending on the mode) to the ADX of `ADXslope_Lookback` spark plugs ago. Filters breakouts where the trend peaks or drops from a peak.

The SHORT signal is the exact mirror: Bearish Breakout + Fast EMA < Slow EMA on D1 and H1 + Validated ADX + (if enabled) ADX Compliant Slope.

For Beginners: What These Filters Prevent

EMA D1 + H1 : Avoids entering an uptrend market in a downtrend (countertrend). **ADX** : Avoids breakouts in flat markets (range) where breakouts have no follow-up. **Minimum Body** : Avoids entries on single strands that briefly cross the level. **ADX Slope** : Avoids breakouts in trends that are running out of steam.

You arrive late to the party.

2.2 Entry window and live reconfirmation

Once the signal is detected at the close of an H1 candle, the EA arms a hanging signal. He then has a window of `MaxMinutesAfterClosing` minutes to execute the order.

During this window, the EA monitors the price in real-time. If the price falls back below the Donchian breakout level before execution, the signal is automatically canceled, as the breakout is no longer valid.

If the window expires without execution (15 minutes by default), the signal is dropped. The market has evolved too much since detection.

Entry distance cap (DIRECT mode)

When the EA executes in direct entry mode (without FVG retest), it checks that the current price is not too far from the Donchian breakout level.

If the distance exceeds $\text{MaxEntryDistanceATR} \times \text{ATR}$ (default: 0.5 ATR), the signal is canceled.

This protection avoids late entries where the price has already moved significantly away from the breakout level and where the SL would be unfavorably positioned.

The FVG mode (entry on retest) is not affected because the retest mechanically brings the price back close to the relevant level.

2.3 The three institutional filters

Beyond the Donchian signal, three additional filters apply institutional logic before allowing input. Each can be configured independently or even disabled.

Filter 1: Kill Zones

Not all signals are equal depending on the time they appear. A breakout at 3 a.m. on a EUR/USD pair does not have the same value as a breakout at the opening of London (8 a.m. to 10 a.m.) when the major institutional players enter the market.

Kill Zones are four time windows that correspond to times of highest institutional activity. Titan Breakout can be set to trade only during these windows.

Kill Zone	Default Window	Mainly active markets
Asia (Tokyo)	02:00 - 04:00	JPY, AUD, NZD, XAU
London (opening)	08:00 - 10:00	EUR, GBP, CHF - Most Active Forex Session
New York (overlap)	1:30 pm - 4:00 pm (EDT)	USD - Highest liquidity of the day
NY Fence	7:00 pm - 8:00 pm	End of session flips and rebalances

Intra-Hour Minutes in Kill Zones

Kill Zones support intra-hour minutes via the `KZ__StartMin` and `KZ__EndMin` parameters.

The default KZ_NY_StartMin = 30 corresponds to the actual NY open at 13:30 UTC in Daylight Saving Time (EDT).

In Daylight Saving Time (EST, November-March), reconfigure to KZ_NY_Start=14, KZ_NY_StartMin=30 to stay aligned with the actual NY open.

For other sessions (Asia, London, Closing), the default minutes are 0 but can be refined if necessary.

Three modes of operation

- **Mode KZ_FILTER (recommended):** Only signals generated during a Kill Zone are processed. Outside the zone, the signal is ignored, regardless of its quality.
- **Mode KZ_BOOST:** Signals are accepted at any time, but when the actual entry occurs during a Kill Zone, the Stop Loss is reduced by the KZ_Boost_SL_Reduction multiplier, which improves the risk/reward ratio in session.
- **KZ_OFF Mode:** Kill Zones are disabled. Titan Breakout can enter on valid signal at any time.

Re-check at runtime

The Kill Zone is checked twice: at the time of signal detection, and at the time of actual execution.

If the EA is waiting for an FVG retest (see next filter) and the Kill Zone expires in the meantime, the order is not placed.

This double-checking ensures that each entry adheres to the configured session filter.

Runtime cancellation applies only to KZ_FILTER.

In KZ_BOOST, if the zone expires, the order is executed without an SL bonus.

Filter 2: Structural Levels (PDH / PDL / PWH / PWL)

The big market players (funds, banks, institutional algorithms) accumulate and liquidate their positions around specific price levels: The highs and lows of the previous days and weeks.

Entering a bullish position just below the PDH (Previous Day High) not yet broken is to enter against a resistance where institutional sellers are waiting. This filter avoids this type of situation.

Level	Meaning	Usage
PDH	Previous day's high closed	Resistance for a LONG signal
PDL	Previous day's low closed	Support for a SHORT signal
PWH	Previous week high closed	Major resistance for a LONG signal
PWL	Previous week low closed	Major support for a SHORT signal

Rejection rule: If the price is within $\text{StructuralZone_ATR} \times \text{ATR}$ of an unbroken adverse level, the signal is rejected. The exclusion zone adapts to market volatility via the ATR.

These levels are calculated when the EA starts and updated every hour. They are permanently displayed in the MT5 chart, visible without activating a specific log.

Filter 3: Fair Value Gaps M15

After a validated Donchian Breakout, instead of immediately entering the market price, Titan Breakout can identify a Fair Value Gap (FVG) on the M15 chart and wait for the price to come back to test it.

What is a Fair Value Gap?

A Fair Value Gap is an area of imbalance created by three consecutive M15 candles.

There is a bullish FVG when the high of the first candle is lower than the low of the third (the central "N-1" candle must be fully within the gap for the FVG to be validated).

This condition filters out partial micro-gaps).

A price gap that the market has not yet closed: This area attracts the price like a magnet because unfilled orders are waiting there.

Why wait for the FVG? Entering a FVG retest rather than immediately after the breakout allows for two things: a better entry price (often after a slight market pullback), and a tighter Stop Loss calculated from the bottom of the FVG zone rather than a raw ATR multiple. The risk/return ratio is mechanically improved.

Three modes of operation

- **FVG_OFF Mode:** Off. The EA enters immediately after validation of the Donchian signal.
- **Mode FVG_OPTIONAL:** The EA uses the FVG if it finds one in recent M15 spark plugs (up to FVG_MaxBarsOld spark plugs back). If he can't find one, he enters immediately. Balanced Mode: Recommended to start.
- **Mode FVG_STRICT:** The LVF is mandatory. Without valid FVG available, the signal is canceled. More selective mode, reduced number of trades, but higher quality entries in theory. To be validated on historical data before use.

Expiry period of the LVF

If the EA is waiting for an FVG retest and that retest doesn't come within the MaxMinutesAfterClosing timeframe, the signal times out.

In FVG_STRICT mode, the signal is permanently canceled.

In FVG_OPTIONAL mode, the EA can switch to an immediate input if the FVG expires, depending on the configuration.

2.4 Complete Decision Flow

With each new prize received (each tick), Titan Breakout executes the next sequence in strict order. As soon as a condition fails, the evaluation stops.

Full sequence: Evaluation order at each tick

Security → Valid license?

Active SAFE broker mode?

Daily drawdown achieved?
Overall drawdown achieved?
Market→ Tradable Symbol?
Tick valid?
Acceptable spread?
Retry→ Is there a pending execution attempt?
Indicators→ Sufficient history?
Calculated handles?
Volatility → ATR in the acceptable range?
Environment→ In the time slot?
No HIGH impact news?
Deadline between trades respected?
H1 signal→ New candle closed?
Donchian breakout?
Able-bodied body?
EMAs aligned?
ADX sufficient?
ADX slope compliant (if UseADXSlope)?
Kill Zone→ Active Institutional Session (if KZ_FILTER)?
Structural levels→ Signal against an unbroken opponent's PDH/PDL/PWH/PWL?
Fair Value Gap → FVG M15 available?
Retest achieved?
Reconfirmation → Price still above the Donchian breakout level?
Rechecked → Kill Zone Execution + Anti-Correlation + SL/TP Calculation + Order Placement Position management→ Break-even + Trailing stop (with each tick, continuously)

3. Position Management

3.1 Stop Loss

The Stop Loss defines the maximum amount a trade can lose. It is automatically calculated in multiples of ATR (Average True Range), an indicator of volatility. This approach is adaptive: the SL will automatically be wider in a highly volatile market and tighter in a quiet market.

- **Standard SL:** $SL_ATR \times ATR$ H1. This is the default, used when FVG filters are disabled or no FVG is found.
- **SL from the FVG:** When an FVG retest entry is made and $FVG_SL_Mode = FVG_SL_FVG$, the SL is placed below the bottom of the FVG zone (LONG) or above the top of the zone (SHORT). This SL is generally tighter than the standard SL ATR, which improves the risk/reward ratio.
- **SL with Boost Kill Zone:** In KZ_BOOST mode, during active sessions, the calculated SL is multiplied by $KZ_Boost_SL_Reduction$ (e.g. 0.75 = SL reduced by 25%). A floor of $0.5 \times ATR$ is always applied last to avoid too tight stops, even with the boost.

Automatic adjustment to broker minimum stop

Each broker enforces a minimum stop ($SYMBOL_TRADE_STOPS_LEVEL$) below which an order is rejected with `INVALID_STOPS`.

Titan Breakout automatically detects this constraint and adjusts the SL to broker minimum $\times 1.1$ if necessary.

For instruments where the broker does not provide this information ($STOPS_LEVEL=0$, frequent on cryptos and indices with variable spread), a fallback uses the current spread $\times 2$ as a safety floor.

If despite this adjustment the broker still rejects the order, the signal is canceled immediately (instead of the tick-by-tick cascade that would trigger the circuit breaker).

3.2 Take Profit

The Take Profit is the winning goal. It is calculated at the opening of the trade: $TP_ATR \times ATR$ H1. It remains fixed for the duration of the trade.

The TP is calculated on the basis of the ATR at the time of entry, regardless of how the SL is calculated. If the SL comes from the LVF, the TP remains on the ATR, which mechanically produces a better R:R ratio since the SL LVF is often tighter.

3.3 Break-even

Break-even is a protection mechanism that moves the Stop Loss to the entry price (or slightly above) once the trade has moved in the right direction.

- **Trigger:** When the free float profit reaches $BE_Trigger_ATR \times ATR$.
- **Position of the SL after BE:** Entry price + $ATR \times BE_Offset_ATR$. If $BE_Offset_ATR = 0$, the SL is exactly at the entry price (neutralized risk). If $BE_Offset_ATR = 0.1$, the SL is slightly in profit.
- **Irreversibility:** Once moved, the SL can never move backwards. It is only progressing in the favorable direction.

The value of the best SL achieved is saved in persistent memory. It survives a restart of MT5 or the EA.

Multi-positions by symbol (hedging account)

The break-even / trailing stop mechanism simultaneously manages several open positions on the same symbol (hedging case or cohabitation with a manual trade using the same magic).

Each position receives its own BE/TS with its own persistence key per ticket.

3.4 Trailing Stop

The trailing stop is a dynamic Stop Loss that follows the price once the trade has reached a certain level of profit. It allows gains to be gradually locked in while letting the trade run if the market continues in the right direction.

- **Activation:** When the free float reaches $TS_Trigger_ATR \times ATR$ (must be greater than $BE_Trigger_ATR$ to avoid conflicts).
- **Behavior:** The SL moves to stay at $TS_Distance_ATR \times ATR$ of the list price. It never retreats, but only follows in the right direction.

Conseil de configuration : Break-even et Trailing Stop

$TS_Trigger_ATR$ must always be greater than $BE_Trigger_ATR$.

Consistent example: $BE_Trigger = 1.0$, $TS_Trigger = 1.5$, $TS_Distance = 1.0$.

This means: break-even at +1 ATR, trailing enabled at +1.5 ATR, SL maintained at 1 ATR behind the price.

3.5 Automatic closing at a fixed time

Titan Breakout may close all of its positions at a specific time each day. This feature is useful to avoid overnight exposure to stock indices (which close at a set time) or to comply with Prop Firm rules prohibiting weekend positions.

`EnableAutoClosePositions = True`: The close runs at `AutoCloseTime:AutoCloseMinuteAuto` (in broker time + Time Shift).

Only the positions of this instance (identified by `MagicNumber`) are affected. Manual positions or those of other EAs on the same account are not affected.

Closing check with automatic retry

Each close attempt checks the retcode broker.

If a close fails (broker unavailable, `REQUOTE`, `FROZEN`), a critical log is emitted and the function automatically retries at the next tick as long as the target minute remains in progress (typically 60 seconds retry window).

Beyond the minute, a critical log allows the operator to take control.

This protection is essential for Prop Firm accounts using scheduled closure to comply with overnight rules.

4. Risk Management

4.1 Automatic batch calculation

The size of each position is calculated automatically so that the risk per trade corresponds exactly to Risk_Percent of the capital. You define the desired risk. Titan Breakout calculates the appropriate batch.

Reference capital: $\min(\text{Balance}, \text{Equity})$. In the case of an active floating drawdown (loss-making positions), the equity, the actual value of the account, is used as the basis. This conservative approach avoids taking more risk when the account is already in trouble.

Calcul direction-aware via OrderCalcProfit

Titan Breakout no longer uses the simplified $\text{tick_value}/\text{tick_size}$ formula.

It calls OrderCalcProfit() from the MT5 core, which calculates the actual currency risk taking into account the account currency, the symbol's currency conversion, the broker's calculation mode (CFDs, indices, cryptos), and the direction of the order.

This method ensures strict adherence to the Risk_Percent even on instruments with asymmetric BUY/SELL behavior.

Direction of calculation: For new trades, the calculation is performed only on the actual direction side (LONG or SHORT).

Post-rounding reduction loop: After the mandatory rounding to the broker's volume step (SYMBOL_VOLUME_STEP), the effective risk is recalculated.

If rounding has produced a risk exceeding the target (a frequent case with a broker with a step of 0.10), the lot is gradually reduced by volume steps until strictly Risk_Percent.

This accuracy of the order of a hundredth of a percent is rare in commercial EAs.

Fallback: If OrderCalcProfit fails (extreme case, unavailable prices), the EA automatically switches to the classic $\text{tick_value}/\text{tick_size}$ formula so as not to block execution.

The calculated lot is automatically rounded to the broker's volume step, bounded between the minimum and maximum volume allowed. If even the minimum lot exceeds the target risk, the order is declined.

4.2 Portfolio Risk Cap

When several instances of Titan Breakout are running simultaneously (EURUSD, GBPUSD, USDJPY...), the total cumulative risk can add up quickly. MaxTotalRiskPercent mitigates this overall risk.

Before each new entry, the EA calculates the sum of the risks of all its open positions plus the risk of the new candidate position. If the total exceeds MaxTotalRiskPercent, the new entry is denied, even if all other filters are satisfied.

Portfolio Compute Cache

The cumulative risk calculation is cached for 5 seconds and automatically invalidated each time a position is opened or closed.

On an account with 9 active instances, this avoids up to 18 OrderCalcProfit calls per check, with no discernible

latency on the decision-making side.
The cache is strictly internal and transparent to the user.

4.3 Prop Firms protection : Daily and global Drawdown

Titan Breakout natively integrates the protection mechanisms required by Prop Firms. These mechanisms also apply to any personal account.

Mechanism	Parameter	Triggering	Behavior
Daily drawdown	MaxDailyDrawdown_Pct	Loss > X% since the balance at the beginning of the day	Closes all positions and blocks trading until the next day
Drawdown global	MaxGlobalDrawdown_Pct	Loss > X% since the historical peak of the balance	Closes all positions and permanently freezes (restart required)

Multi-Restart Persistence: All flags, thresholds, and timestamps are stored in MT5 global memory. Even if the EA or MT5 is restarted, the drawdown counters are restored. A kill switch triggered during the day remains active even after reconnecting.

Automatic daily reset: The daily kill switch rises automatically at midnight (in broker time + time zone). The reference balance is recalculated at the beginning of each new day.

Automatic retry when a close fails

When a kill switch triggers the closing of positions (CloseAllOwnPositions), each PositionClose() attempt checks the retcode broker.

If a close fails (offline broker, REQUOTE, FROZEN), a critical log is emitted and the function retries the close with each subsequent tick as long as Titan positions remain open (checked on all symbols via HasOwnPositionAnySymbol).

This loop ensures that no position remains open in defiance of an active kill switch, even in the event of a temporary broker failure.

The same mechanism applies to the scheduled closing at a fixed time

Mandatory configuration before use

MaxDailyDrawdown_Pct and MaxGlobalDrawdown_Pct have a default value of 1000, which is intentionally impossible.

They must be configured according to the rules of your broker or Prop Firm before starting the EA.

Typical Prop Firms values: 4–5% daily, 8–10% overall.

4.4 Anti-correlation filter

When several charts work simultaneously, a risk exists: Opening several positions that expose the same currency in the same direction, for example, EURUSD LONG and EURGBP LONG: Double exposure to the bullish euro, with double effective risk.

Titan Breakout automatically detects and blocks these situations in the Forex market, analyzing currency by currency the cross-exposures between open positions and new candidate entries.

On non-Forex instruments (indices, metals, crypto), the logic applies by group: Two US indices in the same direction are considered correlated and cannot be opened simultaneously.

Refactor for multi-position and performance

The analysis goes directly through the list of open positions (PositionsTotal) rather than the full Market Watch (SymbolsTotal).

On an account with 50-200 symbols in the Market Watch and multiple active instances, this divides the CPU cost by 10 to 20.

Bonus: The loop sees all positions on the hedging account, not just the first one on a given symbol.

5. Security Filters

5.1 Overview

Regardless of the quality of the trading signal, there are several market conditions that can make an entry unsuitable. Titan Breakout systematically checks each of these conditions before considering any trade.

Filter	Parameter(s)	Behavior
Time slot	HeureDebutTrading / HeureFinTrading	No new entries outside the defined range. Existing positions and break-even/trailing continue as normal
Economic News	ActiverFiltreNews	Blocks all new entries 30 minutes before and 30 minutes after a high-importance news item (CALENDAR_IMPORTANCE_HIGH). Targeted on the currencies of the pair for Forex. For non-forex (indices, metals, crypto): Only USD and EUR news are blocking
Excessive spread	SpreadMax_ATR_Ratio	Locks if spread > ratio × ATR. Adaptive: the same ratio accepts wider spreads in a volatile market and tighter spreads in a calm market
Time Between Trades	DelayBetweenTradesSeconds	Mandatory break between two position openings. Avoids bursts of entries into the same market dynamics. Installed on actual execution
Volatility too low	ATR_Min_PricePercent	Locks if ATR < X% of the price. Avoids entries into sleepy markets where SL would be unrealistic
Too high volatility	ATR_Max_PricePercent	Locks if ATR > X% of the price. Avoids entries in extreme market conditions (crises, major announcements)
Untradable symbol	(automatic)	Verifies that the symbol accepts orders and has a valid tick before any processing
Market temporarily closed	DelayBlockingMarketClosedSeconds	Automatic pause after a "closed market" rejection by the broker. Avoids unnecessary attempts
Volume Limit	DelayDeadlockVolumeLimitSeconds	Automatic pause after a 'volume limit' rejection from the broker

Filter	Parameter(s)	Behavior
Circuit breaker broker	(automatic)	If > 50 broker errors in 10 min, SAFE mode for 30 min: new signals suspended, retries in progress allowed

5.2 News filter: Detailed operation

The news filter uses the built-in economic calendar of MetaTrader 5. No external sources are needed. With each tick, the EA checks to see if a high-importance news item is scheduled within 30 minutes or if it just happened in the last 30 minutes.

On Forex pairs, the filter is intelligent: It identifies the currencies of the pair (e.g. EUR and USD for EURUSD) and only blocks if the news concerns one of these two currencies. A news about the JPY does not block EURUSD.

On non-forex instruments: Only USD and EUR lock

On non-Forex instruments (indices, metals, crypto), only HIGH importance news about USD or EUR is blocking. AUD, JPY, GBP, or other non-systemic currencies news does not block trades on BTCUSD, US100, XAUUSD, etc. This logic avoids over-filtering: An AUD event should not block a BTC breakout without a causal relationship.

TTL cache 60 seconds

The result of the news filter is cached for 60 seconds to avoid dozens of redundant CalendarEventById calls with each tick on the loaded windows (NFP, FOMC).

Transparent behavior for the user, significant CPU savings.

5.3 Post-news cooldown

Beyond the blocking during the news window (30 minutes before/after), Titan Breakout applies an additional cooldown after the news block is lifted. This cooldown prevents entries in the minutes immediately following a major news event, when spreads are still wide and liquidity unstable.

Concerned parameter: PostNewsCooldownSeconds. Default: 3600 seconds (1 complete H1 candle, aligned with the strategy timeframe).

Why this additional cooldown?

The 30 to 60 minutes following a HIGH impact news event (NFP, FOMC, CPI) are characterized by very wide spreads, unstable price spikes, and degraded execution at most retail brokers.

Entering this window means paying a disproportionate execution cost compared to the expected edge.

The cooldown ensures we wait for the market to digest the information before reconsidering an entry.

Can be disabled by setting PostNewsCooldownSeconds = 0.

5.4 Circuit breaker errors broker

If more than 50 runtime errors are logged in 10 minutes, the EA automatically switches to SAFE mode for 30 minutes. During this period, new signals are suspended but ongoing retries of an armed position remain authorized (priority to the resolution of current situations). This mechanism protects against periods of prolonged broker malfunction.

A critical log announces the automatic activation and exit of safe mode. No user intervention is required. The error counter resets automatically.

6. Multi-instance operation

6.1 MagicNumber: Wallet Control ID and Key

Each instance of Titan Breakout uses the MagicNumber to distinguish its own positions from those of other EAs or manual trades on the same account. It also prefixes all persistence variables (drawdown, best_sl, kill switch).

The choice of the MagicNumber depends on the use:

- **Single-Active Use or Independent Instances:** Use a different MagicNumber per instance. EAs ignore each other. No shared wallet control.
- **Multi-Asset Usage with Portfolio Control:** Use the same MagicNumber on all instances. This is the prerequisite for the cumulative risk calculation, the kill switch drawdown and the correlation filter to work correctly at the account level.

Attention

In multi-asset, different MagicNumbers between instances de facto disable portfolio control. Each EA then reasons in its own corner. The real risk of the account is no longer under control.

6.2 Atomic mutex: Conflict protection

When multiple instances attempt to execute an order simultaneously, a conflict can occur. Titan Breakout uses a system of locks (mutexes) to ensure that only one instance can place an order at a time.

This mechanism is atomic. It uses a native MT5 operation (GlobalVariableSetOnCondition) that ensures that no race conditions are possible, even if two instances are on different graphs of the same machine.

An unreleased lock (e.g. if the EA crashes) automatically expires after 30 seconds. A pending instance automatically resumes.

Unique proprietary token

The mutex uses an identification token derived from the MT5 login, the MagicNumber, the ChartID and a microsecond counter at startup.

This combination ensures that mutex collisions are not possible between instances, even on different broker servers that share the same pool of Global Variables.

The mechanism includes protection against active mutex theft: If two instances simultaneously try to take the lock, only the one that holds the correct token can release it.

IEEE-754 Accuracy Limit Token: The token is calibrated to comfortably stay under $2^{52} \approx 4.5 \times 10^{15}$, ensuring that the double comparison never introduces an accuracy error.

6.3 Asynchronous Retry

Sometimes, a broker rejects an order for temporary reasons: Requote (the price changed during processing), too many simultaneous requests, or outdated slippage. In this case, Titan Breakout will automatically try again.

The retry mechanism is asynchronous: The EA arms the next attempt and returns immediately, without blocking. The break-even and trailing stop of existing positions continue to execute normally during the wait between attempts.

Distinguishing between post-send and pre-send failures

Failure after sending (retcode broker REQUOTE, PRICE_CHANGED, TOO_MANY_REQUESTS): Retry up to 3 times with delays 200-500ms.

Failure before sending (prices unavailable, stop guards/margin failed): Retry up to 60 times with a delay of 1 second between attempts.

Beyond that, critical abort log and deleted signal.

This limit prevents an infinite loop in the event of a prolonged broker problem while allowing to recover brief incidents (2-3 seconds of widened spread).

7. License and Security

7.1 License verification

Titan Breakout checks the validity of the license at startup and every 6 minutes during operation. Verification is carried out via a secure request to Pipmaster France's servers, using the MT5 account number and the name of the broker server.

Situation	EA Behavior
Valid license	Trading allowed as normal
Unrecognized account or server	Immediate and permanent shutdown
WebRequest not allowed in MT5	Stop with instruction message to set up MT5
Transient Network Error	Tolerated. Consecutive failure counter maintained in persistent memory
10 consecutive network failures	Permanent blockage. Support contact required
Network Error Recovery	Counter reset, trading resumes automatically
Strategy Tester MT5	License automatically validated. No server request

7.2 System Requirements

For the license verification to work, WebRequest must be authorized for the domain pipmaster.fr in the MetaTrader 5 options.

WebRequest authorization procedure

1.
In MT5: Options → Tools → Expert Advisors 2.
Check "Allow WebRequests for listed URLs" 3.
Add: <https://pipmaster.fr> 4.
Click OK and restart the EA

8. Installation and first boot

8.1 Prerequisites

- MetaTrader 5 with auto trading enabled ('Algo Trading' button in the toolbar)
- A live or demo trading account with an MT5 compatible broker
- Sufficient historical data for the symbol: Minimum EMA_Period_D1_Slow + 5 daily candles and Donchian_Period + 5 hour candles
- WebRequest allowed for <https://pipmaster.fr> (see section 7.2)

8.2 Installation Steps

- **Copy EA file:** Place the ".ex5" file in the MT5 Experts folder (accessible via File → Open Data Directory → MQL5 → Experts).
- **Open an H1 chart:** Open the chart of the symbol you want to trade in H1 timeframe. The graph should be on H1. The EA will not work properly on any other timeframe.
- **Attach the EA:** Drag Titan Breakout from the Navigator to the chart, or double-click on it.
- **Allow WebRequest:** Follow the steps in section 7.2 if you haven't already.
- **Configure the settings:** Set up the EA according to section 9 before validating.
- **Check Chart:** After starting, the Comment() chart displays the status of the EA in real-time. It should show "EA Operational" if everything is set up correctly.
- **Demo test:** Use a demo account or the Strategy Tester before using it as a real account.


8.3 Common Startup Messages

Message displayed	Cause	Solution
Operational EA	Everything works properly	No action required
HISTORIQUE_INSUFFISANT	MT5 has not downloaded enough historical candles for the symbol	Open the graph M15 of the symbol, scroll to the far left (Ctrl+Y), then the same on H1 and on D1. The history downloads automatically. Relaunching the EA
INDICATEURS_NON_PRETS	The Handles of indicators are currently being calculated	Wait a few seconds. Resolves automatically
LICENSE DENIED	Account number or broker server is not allowed	Contact administrateur@pipmaster.fr with your MT5 account number and server name
BLOCKED LICENSE	10 consecutive network failures or internal data inconsistency	Check the internet connection and WebRequest authorization. Restarting the EA
SCHEDULE	The EA is outside the configured	Normal. The EA will automatically

Message displayed	Cause	Solution
	time range	resume at StartTimeTrading
SIGNAL_REJECTED_KILLZONE	A signal has been detected but out of Kill Zone (KZ_FILTER mode)	Normal. Enable ModeDebug to see details
BROKER_SAFE_MODE_ACTIVE	More than 50 broker errors in 10 minutes - Safe mode enabled	Wait for automatic exit (30 min). Check the broker connection and the BROKER category logs
BLOCKED_BY_PORTFOLIO_RISK	The cumulative risk of the portfolio would reach MaxTotalRiskPercent	Normal. Reducing Risk_Percent or waiting for an existing position to be closed
SIGNAL_REJECTED_BREAKOUT_TO_O_LATE	Signal expired by exceeding MaxMinutesAfterClose	Normal on fast markets. Increase MaxMinutesAfterClosing if too frequent
SIGNAL_REJECTED_RECONFIRMATION_FAIL	The price fell back below the Donchian level before execution	Normal - Fakeout Protection
SIGNAL_REJECTED_ADX_SLOPE	ADX Slope Filter Rejected Signal - Trend Peaking or Falling	Normal if UseADXSlope = true. Disable UseADXSlope or expand ADXSlope_Lookback/ADXSlope_Mode for more tolerance
EXEC_ENTRY_CAP_DEPASSE	In DIRECT mode, price is too far from Donchian level ($> \text{MaxEntryDistanceATR} \times \text{ATR}$)	Normal on fast breakout. Increase MaxEntryDistanceATR (e.g. 0.7-1.0) if too frequent, or use FVG_OPTIONAL to enter on retest
NEWS_COOLDOWN	Post-news cooldown active after HIGH news block has been lifted	Normal. The EA resumes automatically at the end of the cooldown (PostNewsCooldownSeconds, default 1h)
Signal cancelled - INVALID_STOPS	The broker has rejected the order because SL/TP is too close to the price	Normal on instruments with variable spread. The EA cleanly cancels to avoid the cascade of errors. Check that volatility (ATR) is sufficient
Signal cancelled - CRYPTO insufficient ATR	On crypto, signal ATR would produce an SL $< 0.5\%$ of price	Normal during crypto consolidation. Wait for a more volatile period for the breakout to become tradable with a viable SL

9. Parameters: Full Reference

This section details all the parameters exposed by the EA, their default values, and the recommended ranges as starting points. Each parameter is grouped by function.

The marked  parameters have a deliberately aberrant default value (1000) to force you to configure them before any use.

Required Settings: Invalid Defaults

The settings below have a default value of 1000, which is intentionally outlier, to force you to configure them.

The EA refuses to start (INIT_FAILED) if one of them is left at 1000.

Risk_Percent, SL_ATR, TP_ATR, BE_Trigger_ATR, BE_Offset_ATR, TS_Trigger_ATR, TS_Distance_ATR, ATR_Period, Donchian_Period, ADX_Period, ADX_Seuil, EMA_Period_D1_Fast, EMA_Period_D1_Slow, EMA_Period_H1_Fast, EMA_Period_H1_Slow, HeureDebutTrading, HeureFinTrading, DecalageFuseau, SpreadMax_ATR_Ratio, DelaiEntreTradesSecondes, DelaiEntreLogs, MaxDailyDrawdown_Pct, MaxGlobalDrawdown_Pct.

Additional validation also checks the consistency of the parameters between them: TS_Trigger_ATR must be greater than BE_Trigger_ATR, Risk_Percent must be less than or equal to MaxTotalRiskPercent, BE_Offset_ATR must be positive or zero, ADXSlope_Lookback must be greater than or equal to 1 if UseADXSlope = true.






"Recommended" column







The recommended values are starting points for backtesting.





Not optimized settings.


They must be validated on historical data for each instrument and period before any use in the real account.






Parameter	Default	Recommended	Description
Group 1 — General			
ModeDebug	false	false	Activates detailed logs: filters, rejections, indicator statuses. Recommended to understand why the EA is not trading. Disable in normal production to keep only trade logs.
ModeVerbose	false	false	Enables very detailed level logs: mutex, license check, internal variables. Reserved for advanced


Parameter	Default	Recommended	Description
			technical diagnosis. Generates a high volume of logs. Not to be activated in production.
MagicNumber	1000	1001...	The identifier of this instance. See section 6.1 for use cases.
TradeComment	""	""	Comment added to each order in the MT5 history. If left blank, the EA automatically uses "SYMBOL LONG" or "SYMBOL SHORT".
Group 2 — Money Management			
Risk_Percent	 1000	0.3 - 0.5	Percentage of risky capital per trade. Calculated on $\min(\text{Balance}, \text{Equity})$. 0.3 = risk of 0.3% of the capital per trade. Start cautiously: 0.3% in demo, increase gradually. For Prop Firm accounts: not to exceed 0.5%.
Group 3 — Stop Loss, Take Profit, Break-even, Trailing Stop			
SL_ATR	 1000	1.5 - 3.0	Stop Loss expressed in multiples of ATR H1. The SL in price = $\text{SL_ATR} \times \text{ATR}$. Automatically adjusts to volatility. Can be replaced by the SL FVG if configured.
TP_ATR	 1000	2.0 - 5.0	Take Profit expressed in multiples of ATR H1. Fixed, calculated at the entrance. $\text{TP_ATR} > \text{SL_ATR}$ guarantees a positive R:R ratio.
BE_Trigger_ATR	 1000	1.0	Break-even trigger threshold (in ATR). Break-even activated when $\text{profit} \geq \text{BE_Trigger_ATR} \times \text{ATR}$. Must be less than TS_Trigger_ATR .
BE_Offset_ATR	 1000	0.0 - 0.2	Position of the SL after break-even, above the entry price (in ATR). 0 =


Parameter	Default	Recommended	Description
			SL exactly at the entrance, zero risk. 0.1 = SL slightly in profit.
TS_Trigger_ATR	 1000	1.5 – 2.0	Trailing stop activation threshold (in ATR). Must be greater than BE_Trigger_ATR. Example: BE = 1.0, TS_Trigger = 1.5.
TS_Distance_ATR	 1000	0.8 – 1.5	Distance from the current price (in ATR). The SL tracks the price at this distance. Never back down.
Group 4 — Trend Indicators and Filters			
ATR_Period	 1000	14	Period for calculating the ATR on H1. Central volatility reference: used for SL, TP, spread, FVG, structural zone. Universally recognized standard: 14.
Donchian_Period	 1000	20	Number of H1 candles closed for the Donchian canal. Breakout signal when the close exceeds the channel. 20 = standard. Higher = rarer but more significant signals.
ADX_Period	 1000	14	Period of calculation of the ADX on H1. Standard : 14.
ADX_Seuil	 1000	20 – 25	The minimum value of ADX to validate a signal. Below this threshold, the market lacks direction: signal rejected. 20 = permissive, 25 = selective.
Sub-group: ADX slope filter (optional)			
UseADXSlope	false	false then true after evaluation	Activates the ADX additional slope filter. Disabled by default → standard behavior. When activated, requires the ADX to be up (or plateau

Parameter	Default	Recommended	Description
			depending on the mode) over the last ADXSlope_Lookback candles. Filters breakouts in trends that are plateauing or falling back from a peak.
ADXSlope_Lookback	3	2 - 4	Number of H1 candles back to compare ADX[0] vs ADX[lookback]. 2 = sensitive, 4 = strict. <2 too noisy, >4 filters out legitimate breakouts. Ignored if UseADXSlope = false.
ADXSlope_Mode	ADX_RISING_OR_FLAT	ADX_RISING_OR_FLAT	ADX_RISING_STRICT (>) requires real acceleration. ADX_RISING_OR_FLAT (≥) accepts the tray. OR_FLAT recommended on indices/BTC where the ADX zigzags around a level.
Subgroup: EMA (Trends D1 and H1)			
EMA_Period_D1_Fast	 1000	50	Fast EMA period on the daily chart. LONG signal valid only if D1 fast EMA > D1 slow EMA (daily uptrend).
EMA_Period_D1_Slow	 1000	200	Slow EMA period on the daily chart. Also determines the minimum required D1 history volume (EMA_Period_D1_Slow + 5 candles).
EMA_Period_H1_Fast	 1000	50	Fast EMA period on chart H1.
EMA_Period_H1_Slow	 1000	200	Slow EMA period on chart H1.
Group 5 — Signal validation			
MaxMinutesAfterClosing	15	10 - 20	Entry window after the close of the signal candle (minutes). Signal expired if the timeout is exceeded without

Parameter	Default	Recommended	Description
			execution. Donchian live reconfirmation applies throughout this window.
BodyMinATR	0	0.2 – 0.4	Minimum body of the signal candle in fraction of ATR. 0 = Off. Ex: 0.3 = body must represent 30% of the minimum ATR. Filters out dojis and false breaks on the wick.
MaxEntryDistanceATR	0.5	0.3 – 1.0	Entry distance cap in DIRECT mode (without FVG retest). If the current price has moved more than $\text{MaxEntryDistanceATR} \times \text{ATR}$ away from the Donchian level at execution time, the signal is cancelled. Avoids late entries where the SL would be unfavorably positioned. 0 = disabled. Ignored on FVG retest entry.
ATR_Min_PricePercent	0	0.03	Minimum acceptable volatility, as a % of price. 0 = Off. Blocks sleepy market periods. E.g. 0.03 = ATR must be worth at least 0.03% of the price.
ATR_Max_PricePercent	0	0.5 – 2.0	Maximum acceptable volatility, as a % of price. 0 = Off. Blocks markets in crisis or with extreme volatility. Break-even/trailing continues during the block.
Group 6 – Trading Conditions			
HeureDebutTrading	 1000	0 – 8	The start time of the trading range (broker time after offset). In KZ_FILTER mode, Kill Zones filter more inside this range. Put 0 and 23 to disable the global time filter and let the Kill Zones decide on their own.

Parameter	Default	Recommended	Description
HeureFinTrading	 1000	20 - 23	End time of the trading range. Inclusive Bound: with FinTradingTime=20, the EA trades until 20:59.
Time ShiftTime Zone	 1000	-2 to +3	The offset between the broker server's time and the actual target time (in whole hours). Applies to all time checks: Range, Kill Zones, Auto Close, Daily Drawdown. Ex: broker UTC+3, target time UTC+2 → Time Shift = -1.
SpreadMax_ATR_Ratio	 1000	0.10 - 0.20	Maximum allowed spread, expressed in ATR fractions. Adaptive: 0.15 × ATR will be more permissive in a volatile market and stricter in a calm market. Typical value: 0.15.
DelayBetweenTradesSeconds	 1000	3600	Minimum pause between two position openings (seconds). 3600 = 1 hour. Avoids a series of entries on the same market dynamic. Installed on actual execution. Not on retcode PLACED.
BetweenLogs Delay	 1000	60	Maximum repetition interval of current logs (seconds). Does not affect critical logs (kill switch, runtime errors) that are always displayed.
MaxSlippagePct	0.05	0.05 - 0.15	Maximum slippage tolerated on execution, in % of price. Converted to points and passed to SetDeviationInPoints(). Absolute floor of 2 points applied to avoid broker rejection on EURUSD at 1.05000 where 0.02% gave 0 points.
Group 7 — News filter			
ActiverFiltreNews	true	true	Activates the MT5 built-

Parameter	Default	Recommended	Description
			in economic calendar filter. Blocks any new entries 30 minutes before and after each HIGH importance news. On Forex: Targeted at the currencies of the pair. On non-forex: only USD and EUR are blocking TTL 60s cache applied
PostNewsCooldownSeconds	3600	1800 - 7200	Additional cooldown after the news block is lifted (seconds). Prevents entries in the minutes immediately following a major news event, when spreads are still wide. 3600 = 1 complete H1 candle. 0 = disabled.
Group 8 – Self-closing			
EnableCloseAutoPositions	false	false (sauf indices/Prop Firm)	Activates the automatic closing of positions at a fixed time. Useful to avoid overnight exposure on clues or before the weekend. Filtered by MagicNumber. Automatic retry on broker failure
TimeClosingAuto	22	17 - 22	Automatic closing time (broker time + time zone).
MinuteAutoClosure	30	0	Automatic closing minute. Ex: 10:00 p.m. → AutoShutOff Minute = 0.
Group 9 – PropFirms Blocking and Protection			
DelayBlockingMarketClosedSeconds	900	900	Pause after a 'closed market' rejection by the broker (seconds). 900 = 15 minutes. Avoids unnecessary repeated attempts.
DelayDeadlockVolumeLimitSeconds	900	900	Pause after a 'volume limit' rejection of the broker (seconds).
MaxDailyDrawdown_Pct	 1000	4.0 - 5.0	Maximum daily drawdown since the start

Parameter	Default	Recommended	Description
			of day balance (%). Triggering: closing all positions + blocking until the next day. Typical PropFirms: 4-5%. Automatic retry to close in case of broker failure
MaxGlobalDrawdown_Percent	 1000	8.0 - 10.0	Maximum overall drawdown since historical balance peak (%). Triggering: closing + permanent blocking. Typical PropFirms: 8-10%. Survives MT5 reboots.
Group 10 — Cumulative Portfolio Risk			
MaxTotalRiskPercent	3.0	1.5 - 3.0	Maximum total risk on all positions opened simultaneously (%). Before each new entry, the sum of the open risks + the candidate is calculated. If the total exceeds this threshold, entry is denied. Top-up to the Risk_Percent per trade. TTL 5s cache
Group 11 — Kill Zones (Institutional Sessions)			
KillZone_Mode	KZ_FILTER	KZ_FILTER	How Kill Zones work. KZ_OFF = Off. KZ_FILTER = signal rejected outside the Kill Zone. KZ_BOOST = signal accepted everywhere, SL reduced in zone.
KZ_Asian_Start / End	2 / 4	0-3 / 2-5	Kill Zone Asia window in broker time. Relevant to JPY, AUD, NZD. Adjust according to Time Shift.
KZ_Asian_StartMin / EndMin	0 / 0	0	Minutes from the beginning and end of Kill Zone Asia. 0 = HH:00, 30 = HH:30.
KZ_London_Start / End	8 / 10	7-9 / 9-11	Kill Zone window opening London. Most active session in Forex. Relevant to EUR, GBP, CHF.

Parameter	Default	Recommended	Description
KZ_London_StartMin / EndMin	0 / 0	0	Minutes from the start and end of Kill Zone London
KZ_NY_Start / End	13 / 16	13 / 15-17	Kill Zone New York window. London/NY overlap: highest liquidity of the day. Default 1:30 PM EDT
KZ_NY_StartMin	30	30 (EDT) / 30 with KZ_NY_Start=14 (EST)	Kill Zone NY start minutes - default 30 for 1:30 PM EDT (NY open actual in daylight saving time). In Daylight Saving Time (EST), pass KZ_NY_Start=14, KZ_NY_StartMin=30.
KZ_NY_EndMin	0	0	Minutes de fin Kill Zone NY.
KZ_Close_Start / End	19 / 20	18-20 / 21	NY Fence Kill Zone window. Possible reversals at the end of the American session.
KZ_Close_StartMin / EndMin	0 / 0	0	Minutes of the start and end of Kill Zone closing
KZ_Boost_SL_Reduction	0.75	0.70 - 0.85	SL multiplier in KZ_BOOST mode during a Kill Zone. 0.75 = SL reduced by 25%. A floor of $0.5 \times \text{ATR}$ is always applied last. Do not go below 0.60.
Group 12 — Structural Levels (PDH / PDL / PWH / PWL)			
UseStructuralLevels	true	true	Activates the institutional structural level filter. Monitors PDH, PDL (previous day) and PWH, PWL (previous week). Calculated at startup and active from the first tick. 60s cache and throttle even when data is unavailable
StructuralZone_ATR	0.5	0.4 - 0.7	Rejection distance around the opposing levels, in multiples of ATR. If price < zone \times ATR of an opponent's level

Parameter	Default	Recommended	Description
			not broken → signal rejected. Higher = wider filter.
Group 13 — Fair Value Gaps M15			
FVG_Mode	FVG_OPTIONAL	FVG_OPTIONAL	How Fair Value Gaps work. FVG_OFF = immediate entry. FVG_OPTIONAL = LVF if available, if not immediate. FVG_STRICT = FVG mandatory, signal cancelled without FVG.
FVG_MaxBarsOld	12	8 - 16	Maximum age of an LVF in M15 candles to be valid. 12 = 3 hours. An LVF that is too old is ignored because the liquidity has probably been partially consumed.
FVG_MinSize_ATR	0.1	0.08 - 0.15	Minimum size of a LVF as a fraction of ATR H1. Filters out insignificant micro-gaps. 0.1 = LVF must be at least 10% of the H1 ATR.
FVG_SL_Mode	FVG_SL_FVG	FVG_SL_FVG	How the Stop Loss is calculated when entering an FVG retest. FVG_SL_FVG = SL from the FVG zone (tighter, better R:R). FVG_SL_ATR = Standard ATR SL independent of the FVG.

10. Behaviour under market conditions

Titan Breakout is a directional breakout strategy. Its effectiveness varies according to the market regime. Understanding these variations allows you to have realistic expectations and adjust your monitoring.

Background	EA Behavior	Realistic expectation
Strong trend (ADX > 25, EMAs aligned)	Optimal context. Clean breakouts, satisfied ADX/EMA filters, active Kill Zones. Regular entries if the signal is in the direction of the trend.	Good trade frequency, above average win rate.
Range Market (ADX < 20)	The ADX filter rejects the majority of signals. The EA remains inactive. A few false breakouts can pass if ADX_Seuil is too low.	Few or no trades. Normal - Range is the worst context for a breakout strategy.
High volatility (news)	News filter and ATR_Max filter protect against the most dangerous entries. The EA usually abstains during announcements.	Pause during the news. Resumes as soon as conditions normalize.
Quiet market (very weak ATR)	If ATR_Min_PricePercent is configured, the filter blocks the entries. Otherwise, low-amplitude signals may be taken.	SL can be very tight, rising risk of premature stop on market noise.
Logon (Active Kill Zone)	Privileged context in KZ_FILTER mode. The EA focuses its inflows on these windows of high liquidity.	More qualitative inputs, better follow-up of the initial movement.
Hors session, nuit	KZ_FILTER blocks all new entries. Existing positions are managed normally (break-even, trailing).	No new trades. Increased security.

11. Best practices

11.1 Before You Begin

- **Demo test first.** Minimum 30 days of demo trading before any actual outlay. Observe the behavior in real market conditions.
- **Validate on backtests.** Use the MT5 Strategy Tester with your broker's historical data. Test over a minimum of 3 years and several instruments. A backtest over a single period or instrument is not enough.
- **Configure all critical settings.** All marked ⚠ parameters must be set. The value 1000 is not operational and causes INIT_FAILED.
- **Adjust Time Shift precisely.** A ± 1 hour error moves all Kill Zones and the time range. Check the time displayed in MT5 and calculate the actual offset.
- **Choose suitable sessional instruments.** The edge is more marked on US indices in NY session, major forex in London-NY overlap, crypto outside weekend. Avoid forex in pure Asian session and metals in prolonged consolidation.

11.2 During Trading

- **Enable ModeDebug = True for the first few weeks.** The Comment() of the chart continuously displays the status of the EA. If the EA is not trading, it is for a reason that is visible in the logs. Not a bug.
- **Do not change Risk_Percent after a series of losses.** The desire to "catch up" by increasing the risk is the main cause of exceeding drawdown limits. Discipline on position size is non-negotiable.
- **Monitor the broker's actual spreads.** Outside of liquid hours (night, weekend for crypto, market opening for indices), spreads can exceed SpreadMax_ATR_Ratio. The EA abstained. That's okay.
- **The MagicNumber determines the mode of operation.** In multi-asset with portfolio control, use the same MagicNumber on all instances. This is what allows the cumulative risk calculation, the shared kill switch and the anti-correlation filter. In deliberately isolated instances, use separate identifiers.

Understand optional filters before activating them

Three filters are disabled by default and should only be enabled after evaluation: UseADXslope, UseStructuralLevels, and FVG_Mode = FVG_STRICT.

Activating an additional filter always reduces the number of signals.

This is its function.

The improvement of the win rate on the remaining subpopulation must be validated by backtest before production.

Start with the default configuration, observe for 4 weeks, then activate an additional filter at a time noting the impact on the frequency and quality of trades.

Activating multiple filters simultaneously without validation exposes you to the risk of producing an EA that no longer trades at all.

11.3 Specific Prop Firms

- **Configure MaxDailyDrawdown_Pct and MaxGlobalDrawdown_Pct as a priority.** These values must correspond exactly to the rules of your challenge. Check if your Prop Firm calculates the DD on balance or equity.
- **Use a different MagicNumber per challenge phase.** Change MagicNumber only between two distinct phases (new account or restart of a challenge). During a multi-pair active phase, keep the same MagicNumber on all instances.
- **The auto-close is filtered by MagicNumber.** It only affects the positions of this body. Other EAs or manual trades are not affected.
- **Do not accumulate too many instances.** MaxTotalRiskPercent limits the overall risk, but the more instances you have running at the same time, the faster drawdown kill switches can trigger if the market goes against you. Provided that all instances share the same MagicNumber, otherwise MaxTotalRiskPercent will not see the positions of other instances.
- **Use EnableAutoPositions = true for indices.** On stock indices (US100, US30, GER40, SPX500) with strict overnight rules, activate the scheduled closing at 5pm-10pm according to the rules. Automatic retry in case of broker failure ensures that the closure happens even in the event of a temporary broker incident.

Recommended System Requirements for Prop Firms

Risk_Percent: 0.3 - 0.5 (never above to preserve the margin under the daily HD).

MaxTotalRiskPercent: 1.5 - 2.0 (rollup across all active instances).

MaxDailyDrawdown_Pct: set at 90% of the actual Prop Firm limit to have a margin (e.g. 5% limit, configure 4.5%).

MaxGlobalDrawdown_Pct: same as 90% of the actual limit (e.g. limit 10%, configure 9.0%).

ActivateFiltreNews: true (essential on Prop Firm).

ActivateCloseAutoPositions: true on indices, to be evaluated on Forex according to the rules.

MagicNumber: Same on all instances in the same phase.

12. Frequently Asked Questions

The EA has not been trading for several days. Is this normal?

Yes, if the conditions are not met. Turn on `ModeDebug = True` and look at the `Comment()` of the chart. It continuously displays the last blocking reason. The most common causes: market in range (insufficient ADX), outside the Kill Zone, spread too wide, active news, or time slot not reached. If you have enabled `UseADXslope`, the ADX Slope Filter can also reject signals in trends that plateau.

What is the difference between FVG_OPTIONAL and FVG_STRICT?

In `FVG_OPTIONAL` mode, the EA uses the LVF when it finds one, but immediately enters if none is available in the scan window. This is the recommended balanced mode to begin with. In `FVG_STRICT` mode, the absence of LVF permanently cancels the signal. The LVF is mandatory. This mode reduces the number of trades but theoretically improves their quality by filtering out entries on pure momentum.

Can I run the EA on multiple pairs simultaneously?

Yes, this is the intended mode of operation. In multi-asset with portfolio control, all instances must share the same `MagicNumber`. This is what allows the cumulative risk calculation, the shared kill switch drawdown and the inter-pair correlation filter. The mutex system ensures that there are no execution conflicts. Ensure that `MaxTotalRiskPercent` is configured to the same value on all instances to control the overall risk of the account.

Is the EA suitable for Prop Firm challenges?

Yes. This is one of the uses for which it was designed. The daily and global drawdown mechanisms with multi-restart persistence cover the typical requirements of prop firms. The automatic retry to close in the event of a broker failure ensures that positions never remain open in defiance of an active kill switch.

Configure `MaxDailyDrawdown_Pct` and `MaxGlobalDrawdown_Pct` according to the rules of your challenge with a 10% safety margin. Check if your Prop Firm calculates the drawdown on balance or equity. Titan Breakout uses equity (real-time account value).

How do you choose between KZ_FILTER and KZ_BOOST?

`KZ_FILTER` is more conservative: only signals in an active session are processed. You will miss some off-session signals but avoid entries in low liquidity conditions. `KZ_BOOST` is more aggressive: all signals are processed, but session inputs benefit from a reduced SL. `KZ_BOOST` is suitable if you want to maximize the number of trades with better in-session R:R. `KZ_FILTER` is suitable if you prefer quality over quantity.

Do I need to enable UseADXslope?

Not immediately. This filter requires the ADX to be up at the time of the signal. It filters breakouts in trends that have plateaued or fallen from a peak. It is a refinement that reduces the frequency of signals by 10 to 20% depending on the instrument.

Recommended approach: start with `UseADXslope = false`, observe 4 weeks of trading, then activate with `ADXslope_Lookback = 3` and `ADXslope_Mode = ADX_RISING_OR_FLAT`. Then compare the evolution of the frequency and the PF over the following weeks.

Does the robot guarantee profits?

No. No automated trading system can guarantee profits. Titan Breakout applies a disciplined approach and manages risk rigorously, but does not remove the inherent uncertainty of the financial markets. Past

performance is not a guarantee of future performance. Validation on historical data and demo account testing are essential before any real capital commitment.

How do you diagnose unexpected behavior?

- Enable ModeDebug = True in the EA settings.
- Observe the Comment() on the graph: it displays the current state in real time.
- Consult the Log (Log tab in MT5) for the complete list of logs since startup.
- Identify the blocking line: This indicates precisely which filter rejected the signal and why.
- Contact support if the behavior remains unexplained: administrateur@pipmaster.fr, including a screenshot of the MT5 Log.

Why the default KZ_NY_StartMin = 30?

The actual NY open is 13:30 UTC Daylight Saving Time (EDT, March-November). The intra-hour minutes in Kill Zones align with this reality. In Daylight Saving Time (EST, November-March), reconfigure to KZ_NY_Start=14, KZ_NY_StartMin=30 to stay aligned with 14:30 UTC.

What is the purpose of SAFE broker mode?

The circuit breaker protects against periods of prolonged broker malfunction. If more than 50 execution errors are recorded in 10 minutes, the EA automatically suspends the new signals for 30 minutes. Ongoing retries of an armed position remain allowed to resolve ongoing situations. No user intervention is required. The error counter resets automatically.

What is the purpose of the MaxEntryDistanceATR cap?

When the EA executes in DIRECT mode (without FVG retest), it verifies that the current price is not too far from the Donchian breakout level. If the distance exceeds $\text{MaxEntryDistanceATR} \times \text{ATR}$ at execution time, the signal is cancelled. This protection avoids late entries where the price has already moved significantly after the signal candle close. With a default of 0.5 ATR, the EA refuses an entry if more than 0.5 ATR has already been traveled from the breakout level. For more permissive strategies, this can be raised to 1.0 ATR.

What is the purpose of PostNewsCooldownSeconds?

It is an additional cooldown applied after the news block is lifted. The 30 to 60 minutes following a HIGH impact news event (NFP, FOMC, CPI) are characterized by very wide spreads and unstable liquidity. The cooldown (1 hour by default, i.e. 1 H1 candle) ensures that we wait for the market to digest the information before reconsidering an entry. Can be disabled by setting the value to 0.

13. Glossary

13.1 Market Concepts

Term	Definition
Breakout (cassure)	A price movement that crosses an established benchmark level (recent high or low). Basic signal of Titan Breakout.
Trending	General Directorate of the Market over a given period. Identified by the alignment of the fast and slow EMAs.
Range	Market without clear direction, oscillating between two levels. Unfavorable context for breakout strategies.
Volatility	The magnitude of price movements over a period. Measured by the ATR. Serves as a reference for all distance calculations in Titan Breakout.
Kill Zone	Time window corresponding to the opening of a major financial centre. Period of high institutional liquidity.
Fair Value Gap (FVG)	An area of price imbalance formed by three consecutive candles with no overlap between the first and third. The price tends to come back to fill this zone.
PDH / PDL	Previous Day High / Low: The high and low of the previous day closed.
PWH / PWL	Previous Week High / Low: The highest and lowest of the previous week closed.
Institutional liquidity	Price areas where large players (banks, funds) have pending orders. PDH/PDL/PWH/PWL are typical examples.
Spread	The difference between the buy price (ask) and the sell price (bid). Direct cost of each transaction.
ADX Slope	Comparison of the current ADX with its N-value spark plugs back. A positive slope indicates a trend that is accelerating; A zero or negative slope indicates a plateau or shortness of breath.
Late entry cap	Mechanism that cancels an entry signal if the price has moved too far from the Donchian breakout level before execution. Limit parametrized by MaxEntryDistanceATR. Avoids late entries where the SL would be unfavorably positioned.
Post-news cooldown	Additional inactivity period applied after the HIGH impact news block has been lifted. Aims to avoid

Term	Definition
	unstable spikes that follow major announcements. Parametrized by PostNewsCooldownSeconds.

13.2 Technical Indicators

Indicator	Description	Use in Titan Breakout
ATR (Average True Range)	Measures average volatility over a defined period of time.	Central reference: SL, TP, max spread, minimum FVG, structural zone.
EMA (Exponential Moving Average)	Moving average giving more weight to recent prices.	Trend filter: Two pairs (D1 and H1) must be aligned in the direction of the signal.
ADX (Average Directional Index)	Measures the strength of a trend, regardless of its direction.	Strength Filter: Signal rejected if $ADX < ADX_Seuil$. With UseADXslope also requires a non-negative slope.
Canal Donchian	Plots the highest and lowest of the last N closed candles.	Breakout signal: H1 fence that exceeds the channel triggers the evaluation.

13.3 Position and Risk Management

Term	Definition
Stop Loss (SL)	The price level at which the position is automatically closed at a loss. Limits the maximum loss of the trade.
Take Profit (TP)	Target Gain: The position is closed automatically if the price reaches it.
Break-even	Moving the Stop Loss to the entry price. Cancels the risk of the trade once a certain profit is reached.
Trailing Stop	Dynamic Stop Loss that follows the price in the favorable direction to gradually lock in the gains.
Ratio R:R	Risk/Reward Ratio: ratio between the potential gain (TP) and the maximum loss (SL). An R:R of 2 means that the TP is worth twice the SL.
Drawdown	Capital has declined since a peak. The daily drawdown is calculated from the balance at the beginning of the day; the overall drawdown since the all-time high.
Lot	The unit of volume of a position. Automatically calculated by Titan Breakout based on the set risk and

Term	Definition
	actual direction.
Slippage	The difference between the asking price and the actual execution price. Inevitable in high-speed trading.
Prop Firm	Own account management company. It provides trading capital under strict rules (maximum drawdown, etc.).

13.4 Technical Architecture

Term	Definition
Expert Advisor (EA)	Automated trading robot running on MetaTrader 5. Titan Breakout is an EA.
OnTick()	MT5 function executed with each new price received. This is where the EA makes all its decisions.
MagicNumber	A numeric identifier that links the instances together. In multi-asset, all instances must share the same MagicNumber to enable shared wallet control. In isolated instances, use separate identifiers.
Global Variables (GV)	Variables shared between all MT5 instances on the same terminal. Used to persist drawdown, mutexes, and best_sl between reboots.
Mutex	An atomic lock that prevents two instances from performing critical actions simultaneously. Ensures no conflicts.
Proprietary token	Unique mutex identifier derived from the MT5 login + MagicNumber + ChartID + microseconds. Ensures lock uniqueness even between instances on different broker servers.
Asynchronous Retry	Runtime retry mechanism without blocking the program. The EA continues to manage existing positions between attempts. Post-send (3 attempts) and pre-send (60 attempts) terminal.
Circuit breaker	Protection mechanism that automatically suspends new signals after a broker error threshold is exceeded (50/10min → safe mode 30min). Aims to protect against periods of prolonged broker dysfunction.
OrderCalcProfit	Native MT5 feature that calculates the exact profit/loss of a virtual position. Used by Titan Breakout to accurately size batches on all types of instruments
Cache (TTL)	Temporary memorization of an expensive calculation

Term	Definition
	result (news filter, portfolio risk). The cache is invalidated automatically after a delay (Time To Live) or explicitly during relevant events (opening/closing of position).
Indicator handle	MT5 reference to a shared indicator calculation. Created at startup, released at shutdown.
WebRequest	MT5 feature allowing the EA to communicate with a remote server via HTTP. Used for license verification.
Kill Switch	Automatic emergency stop triggered by exceeding the drawdown limit. Persistent between reboots, with automatic retry to close in the event of a broker failure
Broker minimum stop	Minimum distance required by the broker between the current price and the SL/TP (SYMBOL_TRADE_STOPS_LEVEL). Titan Breakout automatically adjusts the SL to respect this constraint, with a fallback based on the current spread when the broker does not provide the information (common on cryptos and indices with variable spread).

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