

# Design and Development of a Comprehensive Smart Trade Management Ecosystem

## Project Introduction and Objectives

The goal of this project is to design and implement an intelligent trading ecosystem in the Meta Trader 5 environment that goes beyond a simple Expert Advisor and acts as a complete assistant across three separate but connected layers. This project must be developed using the best programming methodologies (Object-Oriented Programming), following the highest coding security standards, and designing a modern and dynamic GUI.

## Three-Part System Structure (Core Modules)

### 1. Money Management & Toolbox

This module is loaded on all trading charts. Its main focus is precise money management (automatic calculation based on risk) and trading execution speed. It must also include a graphical toolbox for fast drawings (lines, boxes, reward tools, etc.) to improve the trading experience.

### 2. Central Master Dashboard

This section is the heart and command center of the system and runs on a separate chart. The responsibility of this module is controlling the current account's global parameters, applying strong filtering (news, spread, sessions), and overall management. Account security and compliance with daily drawdown limits are guaranteed in this section.

### 3. Multi-Account Analytical Monitor

This specialized section provides the ability for centralized monitoring and analysis. The trader must be able to enter different account numbers (even from other terminals) and view and analyze their complete details (Balance, Equity, Drawdown, Margin) live within the master panel.

## Comment

## Magic Number

These two options above must be empty and blank by default in all modes, and nothing should be displayed. However, there must be an option in the settings so that whenever necessary, we can enter whatever is needed.

## Expected Standards in Execution

### • Overall System Architecture

The Expert Advisor must be fully modular and event-driven and use the functions OnInit, OnTick, OnTradeTransaction, OnTimer, and OnDeinit.

All calculations must be based on the Point and Tick Value of each symbol, and any use of Pip or fixed values is not allowed.

### • Graphics and User Experience (UI/UX):

Use advanced graphical libraries to create beautiful, black-themed, and responsive panels.

### • Security and Stability:

Optimized coding to prevent lag in MetaTrader and proper error handling when sending commands to the server.

### • Integration:

Fast and uninterrupted communication between all three sections through Global Variables or secure data exchange methods.

Note: This system must be designed in such a way that, in addition to visual beauty, it functions flawlessly as an industrial-grade and precise tool for money management and simultaneous monitoring of multiple accounts.

## Chapter One

### Section One: Trade Management

#### • Zone (1h/15m):

This button must calculate a two-step entry with one shared stop loss and take profit. The first trade should be activated on the entry line, and the second entry must be placed exactly at half of the distance between the entry and the stop loss.

#### • Zone (5m):

This button is the opposite of the first mode. The take profit is shared, but the stop losses are different. Meaning when we

manually and structurally define the entry point and stop loss, the second entry must be placed exactly on the stop loss of the first position, and the second stop loss must also be manually and structurally defined.

Note: In this model, there must be one entry line, one take profit line, and two stop loss lines; one for the first stop + second entry, and the second stop loss line for the stop of the second trade.

- Buy/Sell:

These do not open direct orders; instead, they display virtual lines (Entry, SL, TP) on the chart so the trader can move them.

- Set Order:

Convert virtual lines into real Limit Orders and clear the chart environment.

- Clear Line:

Only remove the virtual trade lines (before they are set) without affecting other analyses.

Style and Line Position Details (Bottom Left Side of the Image)

- Text Arrangement:

All details (price, pip amount, dollar amount, and R/R) must be displayed exactly like the image directly on the lines themselves.

- Starting Point:

These texts must not overlap the prices; instead, they must start exactly from the edge of the Expert panel (left side of the panel).

- Edit Box:

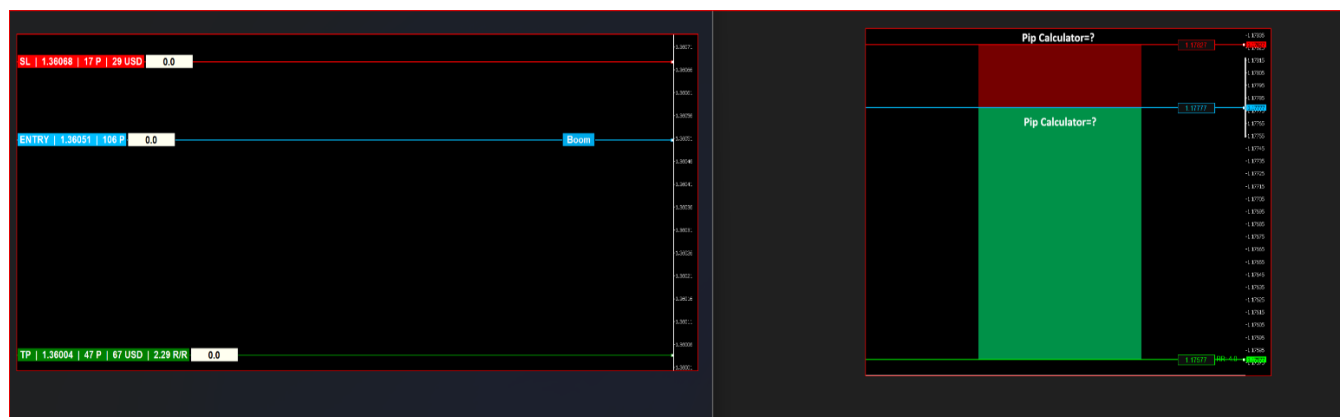
At the end of each line, there must be a white box for manually entering the price number.

- Boom:

This button named Set Order must be configured exactly as shown in the image under the name (Boom) and must be placed exactly on the Entry Line.

- Visual Risk/Reward:

The distance between the entry line and stop loss must be filled with a semi-transparent Red color, and the distance between the entry and take profit must be filled with a semi-transparent Green color.



- Line Color

- Red Color (clrRed)

- Blue Color (clrDeepSkyBlue)

- Green Color (clrGreen)

- Line Settings

- Total Line (Set the line thickness to 2)

- Set lines to selected state

- By default, set the stop loss 30 points away from the entry price, and set the take profit to 3 times the stop loss.

## Section Two: Tool Box (Analytical Toolbox)

- Five Main Tools:

Path, Line, Ray, Box, and Reward must be coded exactly with the same functionality and appearance as Trading View.

Note: Magnetic Capability:

If the line is close to a candle, it must automatically snap and attach to the candle.

- Schematic Icons:

In front of each button, a small icon of that tool (for example, a line or rectangle shape) must be displayed for beauty and quick understanding.

### Smart Toolbox

Smart Auto-Color Sync Mechanism:

The system must automatically detect the chart timeframe and set the colors of the tools (Path, Line, Ray, Box, Reward) according to the following pattern:

- Lower Timeframes (1m - 5m):

All tools must be drawn in Red color.

- Middle Timeframes (6m - 59m):

All tools must be drawn in Green color.

- Higher Timeframes (1h and above):

All tools must be drawn in Blue color.

Note:

The default thickness (Width) of all these lines must be set to 2.

### Interactive Icons UI

- Icon-Based Design:

Instead of text, use small and high-quality graphical icons.

- Hover Capability:

When the cursor is placed over the icon (without clicking), the tool name such as (BOX) must appear inside a very small Tooltip box.

- Single-Click Execution:

With one click on the icon, the tool becomes active and the trader must immediately be able to start drawing on the chart.

### Advanced Hide/Show Management System

- This section must include 4 toggle modes so the trader has full control:

- Hide All:

Hide all drawings (Red, Green, and Blue) at once.

- Hide Red (M1-M5):

Only hide the lines related to timeframes below five minutes.

- Hide Green (M6-M59):

Only hide the lines related to these timeframes.

- Hide Blue (H1+):

Only hide the lines related to hourly and higher timeframes.

### Telegram Connection (Notification System)

- Enable Telegram, Bot Token, ID

Reports:

- Entry Report  
(Number, Symbol, Trade Type, Result, Reward, and Time Duration)

- Error Report

- Daily Summary  
(Profit/Loss + Number of Trades)

Note:

Sending must be non-blocking (without causing lag).

Delete Function

- The Delete button must be smart; meaning only when a specific object is selected, only that object should be deleted.

Object Auto-Save & Persistence Capability

All graphical drawings created by the toolbox (lines, boxes, and alerts) must have automatic save capability. The system must be designed in such a way that by closing the terminal, changing the timeframe, or disconnecting/reconnecting the internet, all settings remain preserved after the chart is loaded again.

Section Three: Monitoring (Chart Watcher)

- Pending:

Display the number of inactive limit orders on the current chart.

- Active:

Display the number of running positions.

(When any pending order becomes active, its number must be deducted from the previous section and added to this section.)

- Close All:

Emergency exit button that closes all open positions and pending orders for that specific symbol only.

- Spread:

Real-time display of the bid and ask price difference.

- Next Candle:

Countdown timer showing candle close time in minutes and seconds.

Calculation Standards and Real-Time Data Update (Calculation Logic & Real-Time Update)

All calculations of this Expert Advisor in the monitoring sections (spread display, profit/loss display, and volume calculations) must be designed based on the most precise measurement unit of each symbol (Tick Value & Point).

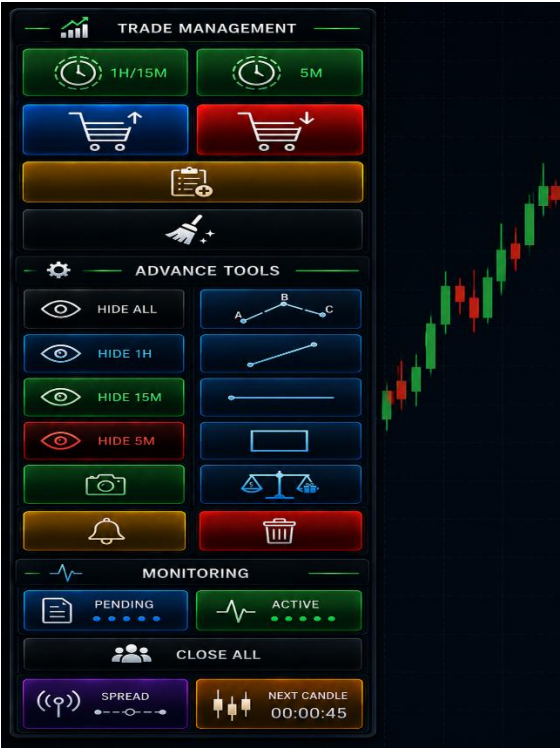
Calculation Logic (Unit Logic):

To ensure the system functions correctly across all symbols (including 5-digit currency pairs, gold, and indices such as Dow Jones), the developer is required to use Symbol Info Double and \_Point functions instead of fixed pip values, so calculations are performed specifically according to each symbol's Tick Value and minimum price movement (Point). This ensures money management accuracy across symbols with different decimal structures.

Real-Time Execution:

The monitoring section, especially spread display and candle timer (Next Candle), must be coded inside the OnTick function or using On Timer (with a 500-millisecond frequency) so data is displayed completely live on the chart without the slightest lag or latency.

Graphical Sample of the Smart Money Management Expert Panel + Smart Toolbox + Dedicated Monitoring Panel.



Comprehensive UI Documentation and Operational Standards

1. Responsive & Adaptive Design

- **Adaptive Layout:**  
The panel must be fully responsive. The developer must use resolution-detection functions to adjust button sizes, fonts, and spacing according to the monitor size (laptop or large displays) in order to prevent deformation or excessive scaling down.
- **Draggable Panel:**  
The ability to move the panel across the chart using the mouse is mandatory.
- **Minimize Mode:**  
A small button must be included to collapse the entire panel in order to increase chart viewing space.

2. Professional Styling and Modern Graphics

- **Double-Tone Theme:**  
Use a dual-tone system (shadow/light) and gradients according to the reference design pattern to create a modern and three-dimensional appearance.
- **Iconic Design:**  
Use high-quality icons and smart color separation (Red for Sell, Blue for Buy, Gold for Settings, etc.) to accelerate the trader’s visual understanding.

3. Speed, Performance, and Interaction

- **Ultra-Fast Execution:**  
Buttons must have the lowest possible response time (Low Latency), and commands must execute without graphical delay.
- **Audio Feedback:**  
Play a soft and short sound (Beep) when pressing sensitive buttons such as Set Order and Close All for final confirmation.

4. Shortcut Keys System (Hotkeys)

To maximize execution speed, the following keyboard shortcuts must be active:

- **B Key:** Activate virtual Buy lines (Buy Mode).
- **S Key:** Activate virtual Sell lines (Sell Mode).
- **Enter Key:** Final confirmation and order placement in the market (Set Order).
- **Delete Key:** Remove virtual lines before order placement (Clear Line).
- **C Key:** Instantly close all positions of the current chart (Close All).

5. Full Customization

- All parameters including color schemes, line thickness, shortcut keys, risk values, and graphical settings must be 100% editable and savable either through the Expert Advisor Inputs section or through the Master Dashboard.

## Master Dashboard and Strategic Management

The Master Dashboard is designed as the “Central Decision-Making Core” of the system. This section is responsible for monitoring the security of the current account, global filtering, performance analysis, and centralized monitoring of trading accounts. To maintain trader, focus and prevent chart clutter, this dashboard must be loaded on a separate chart and include a Two-Tab System with fast switching capability:

- **Tab One (Main Terminal):**

Dedicated to full management of the current account; including 5 main blocks (Account Information, Risk Management, Performance Analysis, Smart Filters, and System Settings).

- **Tab Two (Multi-Account Monitor):**

This section must be designed completely dynamically and flexibly. The trader must have the ability to add unlimited new accounts for monitoring or remove existing accounts. The system must instantly retrieve Equity, Balance, and Drawdown data of all defined accounts from different terminals and analyze them within a unified table.

In all sections, priority must be given to calculation accuracy (Tick-based), real-time update speed, and capital security. The system must also include automatic journaling, screenshot capturing, and graphical equity plotting at all times.

### Tab One – Section Two of the Central Dashboard

#### (Account Information)

This section acts as the “Financial Watcher” and must be placed at the top of the first tab (Main Terminal). All data must be updated in real-time on every market tick.

#### Technical Specifications and Display Items:

- **Account Balance:**

Display the final account balance (excluding open trades).

- **Account Equity:**

Display live equity (balance + floating profit/loss).

- **Floating Profit/Loss:**

Display total profit or loss of running positions both as a dollar amount and as a percentage of the total account.

- **Used Margin:**

Amount of capital currently involved in trades.

- **Free Margin:**

Available capital for opening new positions.

- **Margin Level (%):**

Display the ratio of equity to used margin.

#### Note:

It must be designed so that if it falls below 100% or a user-defined level, it starts flashing red.

- **Account Type:**

Detect and display account type (Real or Demo).

- **Leverage:**

Display account leverage ratio (for example 1:100).

- **Currency:**

Display account currency (USD, EUR, etc.).

- **Broker Name:**

Display the broker’s name where the account is active.

#### (Risk Management & Status)

#### Risk Settings and Calculation Methods:

- Risk Mode:

Ability to switch between 3 calculation modes:

1. % Of Balance  
Calculate volume based on a percentage of total balance.
2. % Of Equity  
Calculate volume based on a percentage of live equity.
3. Fixed Lot Size  
Use a fixed volume for all entries.

- Risk %:

Define risk percentage per trade (for example 1%).

- Lot Size:

Manual volume input field (when Fixed Lot mode is enabled).

- Max Per Trade:

Define the maximum allowed loss per trade in dollars.

## 2. Protection Filters

- Max Daily Loss (%):

Maximum allowed daily loss. If the total loss of closed and open trades for the day reaches this percentage, the Expert Advisor must not allow any new trades until the end of the day.

- Max Total Risk (%):

Maximum total account risk; meaning the sum of all open stop losses must not exceed this value.

- Break Even:

Global enable/disable option for profit management across all charts.

## 3. Risk Status Traffic Light System

This section must be displayed graphically and colorfully at the center of the dashboard so the trader can instantly understand account health:

-  Low (Green):

When total open trade risk is below 1% of the account.

-  Normal (Yellow):

When total open trade risk is between 1% and 2% of the account.

-  High (Red):

When total open trade risk is above 2% of the account (in this state an audio alert must be triggered).

(Performance Info)

This section is responsible for mathematical analysis and trade quality evaluation to show strategy stability. All values must be calculated and displayed based on Account History:

- Total Trades:

Total number of closed trades (to evaluate activity volume).

- Win Rate (%):

Strategy success rate (winning trades divided by total trades).

- Profit Factor:

Profit ratio; total dollar profit divided by total dollar loss (main profitability indicator).

- Recovery Factor:

Recovery capability of the system (total profit divided by maximum drawdown).

- Expectancy:

Mathematical expectancy; average expected profit per market entry.

- Max Drawdown:

Maximum experienced equity drawdown displayed in percentage and dollars.

- Average Profit:

Average dollar profit of winning trades.

- Average Loss:

Average dollar loss of losing trades.

(Profit Monitor)

This section focuses on the financial output of the account across different time periods:

- Today Profit:

Net profit or loss achieved today (dollar and percentage).

- Weekly Profit:

Total profit or loss achieved during the current week.

- Monthly Profit:

Total profit or loss achieved during the current month.

- Net Profit:

Final net account profit (after deducting all side costs such as commission and swap).

- Last Trade Result:

Display the dollar result of the most recently closed trade.

- Consecutive Win/Loss:

Display consecutive wins and consecutive losses for trader psychology management.

(Filtering Settings)

This section acts as the “Security Filter” and controls trade entry conditions.

1. Environment Filters

- News Filter:

Smart connection to the economic calendar.

- o Adjustable timing capability:

“No trading X minutes before and Y minutes after High Impact news.”

- o Auto-Close Option:

Close or risk-free open positions before important news events.

- Session Filter:

Define allowed trading sessions (London, New York, Tokyo). If the market is not within the selected session, trade buttons become disabled.

- Max Spread:

Define maximum allowed spread. If real-time spread exceeds this value, the system must not allow new trades.

2. Operational Limits

- Max Orders Per Day:

Define maximum number of trades per day to prevent over-trading.

- Max Open Positions:

Limit the number of simultaneously open positions across the entire account.



- Symbol Filter:

Ability to restrict the Expert Advisor to trade only specific symbols or block trading on high-risk symbols.

### 3. Directional and Trend Filters

- Trade Direction:

Ability to define allowed direction (Only Buy / Only Sell / Both).

This section must be coded so the Master Dashboard continuously checks the status of these filters and sends a “Permission Signal” to all other charts. If even one of these filters is red, the trade buttons on smaller panels must become disabled.

(Expert Settings)

- Auto Trading:

Main button to enable or disable all automated Expert Advisor operations.

- Sound Alert:

Enable/disable soft audio alerts for events.

- Popup Alert:

Display alert windows inside MetaTrader.

- Notification Alert:

Send Push Notifications to the mobile application.

- Magic Number:

Define a dedicated identification code to separate this Expert Advisor’s trades from others.

- Comment:

Ability to insert custom comments for all trades opened by the system for better journaling.

### 2. Trading Cost Management (Spread & Commission Logic)

Two critical switches must be added for precise or net profit calculation:

- Commission Calc (ON/OFF)

- Spread Impact (ON/OFF)

### 3. Documentation and Journaling

- Auto-Journal:

Record all trades into an Excel file.

1. ID:

Trade serial number.

2. Symbol:

Name of currency pair or asset (for example Gold or EURUSD).

3. Type:

Buy or Sell.

4. Mode:

Specify whether the entry type was Multi or Step.

5. Net Profit:

Final net profit or loss in dollars (including commission and swap).

6. R:R Ratio:

Achieved Risk/Reward ratio of the trade (for example 1:3).

7. Open Time:

Exact date and time of trade opening (broker time).

8. Close Time:  
Exact date and time of trade closing.
9. Duration:  
Lifetime of the position (for example 2 hours and 15 minutes).
10. Exit Reason:  
Record whether the trade closed by TP, SL, or manually.

- Trade Screenshot:  
Automatically capture screenshots at entry and exit moments (Open/Close).

## (Equity & Balance Graph)

This section must be placed at the bottom of the first tab and is responsible for transforming account growth from numerical form into graphical form so the trader can clearly understand fluctuations (Drawdowns) and account growth.

### 1. Graph Requirements

- Real-Time Plotting:  
The graph must live-plot Balance changes (solid line) and Equity changes (shadow or dotted line).
- Timeframe Toggle:  
Ability to switch between account display modes (Today / Current Week / Current Month).
- Visual Precision:  
Use Meta Trader graphical libraries to draw smooth and precise lines so that Peaks and Troughs are clearly visible.
- Grid & Levels:  
Display horizontal guide lines for important account value levels.

This entire section must be configured completely, accurately, professionally, and with outstanding graphics for the Master Dashboard and all sections from 0 to 100.



## Tab Two – Section Two of the Central Dashboard

### Advanced Prop Hub

This tab must be designed as a comprehensive platform that displays accounts in two separate categories along with full prop-firm stage details.

#### 1. Account Categorization Structure

The monitoring table must be divided into two main sections:

- Section One: Personal Accounts

Dedicated to personal Real and Demo accounts.

- Section Two: Funded/Challenge Accounts

Dedicated to proprietary firm accounts.

#### 2. Dynamic Details of Each Row (Account Rows)

For each account, the following information must be displayed with 100% accuracy:

- Account Label:

Custom trader-defined name, for example “FTMO 10K Phase 1”.

- Account Type:

Automatic detection of account type (Real / Demo).

- Status/Phase:

Determine account stage (Challenge / Verification / Funded).

- Profit/Loss:

Display real-time profit or loss in both dollar amount and percentage.

- Prop Target Alert:

The trader sets a target for each account (for example 10%). As soon as the account equity reaches this value, the system must send an audio alert and a “Target Reached” notification.

- Daily DD Watch:

Display the remaining distance to the prop firm’s Daily Drawdown limit in order to prevent rule violations.

#### 3. Search & Filtering Capabilities

- Search Bar:

Ability to quickly search accounts based on account number or Label name.

- Quick Filter:

Quick filter buttons to display only “Profitable”, “Losing”, “Prop”, or “Personal” accounts.

#### 4. Centralized Monitoring

- Global Overview:

At the bottom of the page, display the total capital involved in all prop accounts and personal accounts separately.

- Server Sync:

All information must be read in real-time from data files of other terminals so there is no need to open each Meta Trader separately.

This section must be coded completely accurately and with full detail for all monitoring sections of Meta Trader 4 and Meta Trader 5 accounts so all accounts can be managed inside one precise and integrated framework.

