PSEDYS | TECHNICAL REFERENCE MANUAL V3.0

HVN Zone — High Volume Node

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Technical Reference Manual v1.0

PSEDYS | Volume Profile Indicators

1. What is HVN?

High Volume Node (HVN) is a price zone where the traded volume exceeds a defined threshold relative to the local maximum of the Volume Profile distribution. HVNs are peaks in the histogram (not necessarily the absolute maximum — that is the POC).

HVN represents market acceptance zones:
- Acts as **support** when the price is above them
- Acts as **resistance** when the price is below them
- Causes the price to slow down or consolidate upon contact

HVN != POC. A profile can contain 2-6 HVNs simultaneously.

HVN vs LVN vs POC

Characteristic	POC	HVN	LVN
Definition	Absolute maximum	Peak >=80% of max	Valley <=20% of max
No. per profile	Exactly 1	2-6 typical	2-8 typical
Price behavior	Strong magnet	Slowdown/consolidation	Rapid traversal

2. Calculation Formula — 3 Steps

Step 1 — Prerequisite: Volume Profile

HVN is calculated on the same Volume Profile as POC. The volume_bins[] calculated at POC are reused.

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Step 2 — HVN Threshold

```
HVN_THRESHOLD = 0.80    # 80% of the maximum bin
max_bin_volume = max(volume_bins)
hvn_threshold_volume = max_bin_volume * HVN_THRESHOLD
```

Threshold	Typical No. of HVNs	Usage
70%	4-8	Detailed analysis
80%	2-4	PSEDYS Standard
90%	1-2	Ultra-selective

Step 3 — Identify and Define HVN Zones

```
hvn_zones = []
for i, vol in enumerate(volume_bins):
    if vol >= hvn_threshold_volume:
        hvn_zones.append({
            "low":        price_min + i * bin_size,
            "high":       price_min + (i + 1) * bin_size,
            "mid":        price_min + (i + 0.5) * bin_size,
            "volume":     vol,
            "pct_of_poc": vol / max_bin_volume
        })

# Merge adjacent bins:
merged_hvns = []
current_zone = None
for hvn in hvn_zones:
    if current_zone and abs(hvn["low"] - current_zone["high"]) < 1e-10:
        current_zone["high"] = hvn["high"]
        current_zone["volume"] += hvn["volume"]
    else:
        if current_zone:
            merged_hvns.append(current_zone)
        current_zone = dict(hvn)
if current_zone:
    merged_hvns.append(current_zone)
```

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Numeric Example — Bimodal Profile

```
  bin 0 [98.0-99.8]:   V=400   15%  NOT HVN
  bin 1 [99.8-101.6]:  V=2100  84%  HVN
  bin 2 [101.6-103.4]: V=2500  100% = POC  HVN
  bin 3 [103.4-105.2]: V=2050  82%  HVN
  bin 4 [105.2-107.0]: V=300   12%  NOT HVN

Bins 1+2+3 consecutive merge:
  Unified HVN Zone: low=99.8, high=105.2
  Volume shelf wide acceptance zone
```

3. Configurable Parameters PSEDYS

```
HVN_THRESHOLD      = 0.80   # 80% of max bin volume
HVN_LOOKBACK       = 100    # bars (identical to POC_LOOKBACK)
HVN_NUM_BINS       = 50     # identical to POC_NUM_BINS
HVN_MERGE_ADJACENT = True   # merge adjacent bins
```

4. PSEDYS Trading Signals

HVN as support (LONG):
- Price retraces from a bullish move towards the HVN zone (coming from above)
- Entry LONG: at hvn_zone["high"] or hvn_zone["mid"]
- Stop-loss: below hvn_zone["low"] - 0.1%

HVN as resistance (SHORT):
- Price rises from a bearish move towards the HVN zone (coming from below)
- Entry SHORT: at hvn_zone["low"] or hvn_zone["mid"]
- Stop-loss: above hvn_zone["high"] + 0.1%

Breakout through HVN (momentum):
- Closed candle beyond the zone + volume >1.5x average valid breakout
- Broken HVN subsequently becomes S/R in the opposite direction (flip)

SKIP — when not to use HVN:
- Choppiness Index > 61.8 lateral market
- Volume at HVN contact below 0.7x average soft touch

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5. HVN Cheat Sheet

Concept	Value / Rule
Standard threshold	>=80% of the maximum bin volume (POC)
Acceptable range	75%-85%
Lookback	Identical to POC (100 bars on 5M)
Typical No. of HVNs per profile	2-4 distinct zones
Adjacent bins	Merge into a single zone
Role of price below HVN	Resistance
Role of price above HVN	Support
HVN Breakout	Vol >1.5x average + closed candle beyond
HVN flip	Broken HVN reversed S/R
SKIP trigger	Choppiness >61.8 or volume <0.7x average

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