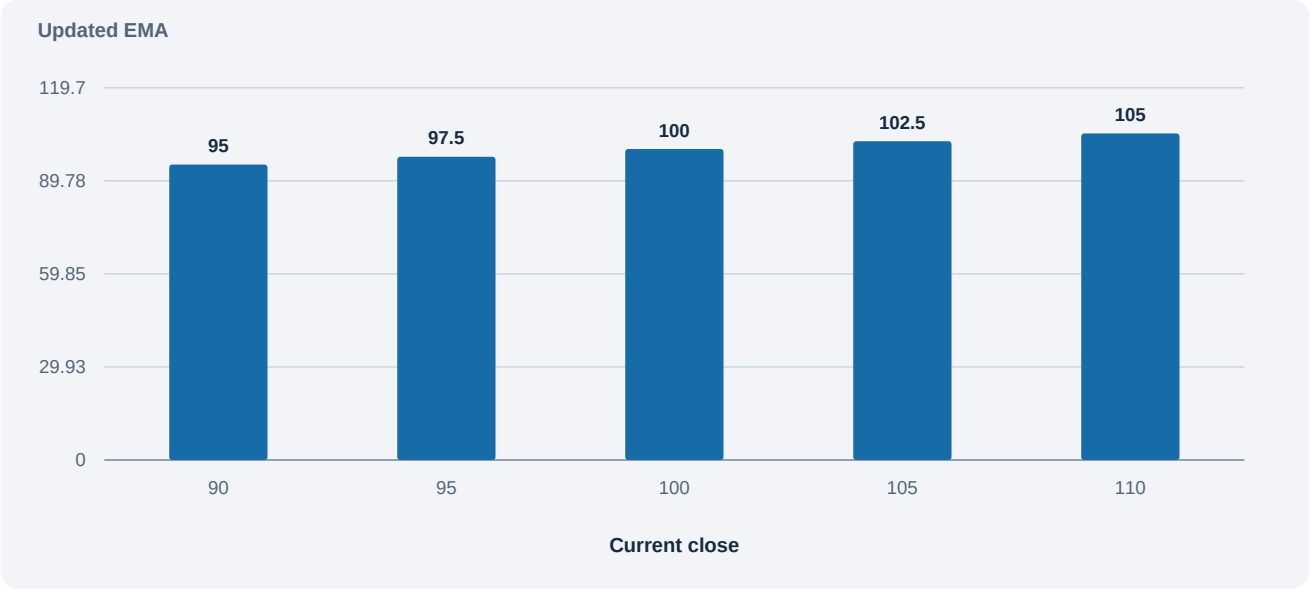
One exponential-average update

Price and indicators | Original synthetic example | Edition 2026-11-26

An exponential moving average updates the prior average using the current observation and a smoothing factor. The chosen initialization can affect early values in a series.

FORMULA EMA new = alpha x close + (1 - alpha) x EMA old

SCENARIO 01: Previous EMA 100; smoothing alpha 0.500



WORKED EXAMPLE

At close 105, updated EMA is 102.5. The prior average already embodies the chosen seed rule.

COMMON MISTAKE

Ignoring the initialization rule makes two implementations appear inconsistent even when their updates match.

BEFORE YOU USE THE CALCULATION

1. State alpha or span.
2. Record the initial average.
3. Use the same observation timing throughout.

COMPARE TWO MORE INPUT SETS

Scenario 05: Previous EMA 140; smoothing alpha 0.222. At close 145, updated EMA is 141.11. The prior average already embodies the chosen seed rule.

Scenario 10: Previous EMA 190; smoothing alpha 0.065. At close 195, updated EMA is 190.32. The prior average already embodies the chosen seed rule.

Synthetic values are not historical market data. Educational material; trading can result in substantial losses.