

Your Ultimate Guide to Backtesting Level 2 Futures Data in NinjaTrader 8

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So, you've got a cool trading idea for futures, and you want to see if it would have worked in the past without risking real money? That's exactly what backtesting is all about! This guide will walk you through how to test strategies using super-detailed "Level 2" data for futures contracts in a powerful trading platform called NinjaTrader 8. It might sound complicated, but we'll break it down step-by-step.

1. What's Backtesting Anyway? (And Why Bother?)

Imagine you have a new strategy for a video game. Before you play against a tough opponent, you might try your strategy against the computer on an easier level to see if it works. Backtesting in trading

is similar.

- **Backtesting Defined:** It's a method of testing your trading strategy against historical market data to see how it would have performed in the past.¹ You're essentially going back in time to see if your trading rules would have made or lost "pretend" money.
- **Why Do It?**
 - **Test Before You Risk:** It helps you see if a strategy has potential *before* you use real money.¹
 - **Find Strengths and Weaknesses:** You can discover what parts of your strategy work well and what parts need improvement.¹
 - **Build Confidence (or Save Cash!):** If a strategy performs well in backtests, it can give you more confidence. If it performs poorly, it saves you from losing real money on a bad idea.
- **Important Caveat (The "Past Isn't a Perfect Crystal Ball" Rule):** Just because a strategy worked in the past doesn't guarantee it will work in the future.² Market conditions change! Think of it like this: just because your favorite basketball team won all their games last year doesn't mean they'll automatically win every game this year. Backtesting is a helpful tool, but it's not a foolproof predictor.² It's part of doing your homework before making a trade.

2. Futures Contracts: A Quick Intro

Before we dive into Level 2 data, let's quickly understand what futures are.

- **What is a Futures Contract?** A futures contract is basically an agreement to buy or sell something (like corn, oil, gold, or even

financial things like a stock market index) at a specific price on a specific date in the future.³ The "something" is called the "underlying asset."

- **Analogy:** Imagine you agree today to buy a popular video game from a friend for \$50, but you'll actually pay and get the game one month from now. That's like a futures contract. You've locked in the price today for a future exchange.
- **Key Parts of a Futures Contract (The "Specs"):** Every futures contract has specific details set by an exchange (like the CME Group), including ⁶:
 - **Underlying Asset:** What's being traded (e.g., Crude Oil, E-mini S&P 500).
 - **Contract Size:** How much of the asset one contract represents (e.g., 1,000 barrels of oil, or \$50 times the S&P 500 index value for an E-mini contract).
 - **Delivery Month/Date:** When the contract expires and the asset is to be delivered (though many futures are settled in cash instead of actual delivery, especially financial ones).⁴
 - **Price:** The price agreed upon for the future transaction.
- **Who Trades Futures and Why?**
 - **Hedgers:** These are often businesses trying to protect themselves from price changes. For example, a farmer might sell a corn futures contract to lock in a price for their crop before harvest.⁴
 - **Speculators:** These are traders (maybe like you!) who try to profit from predicting whether the price of the underlying asset will go up or down.⁴ If they think the price will rise, they might buy a futures contract (go "long"). If they think it will fall, they might sell a futures contract (go "short").

3. What is Level 2 Market Data? Peeking Behind the Curtain!

Okay, now for the "Level 2" part. When you look at a stock or futures price, you usually see the current price, maybe the highest bid (what someone is willing to pay) and the lowest ask (what someone is willing to sell for). This basic info is often called "Level 1" data.⁷

Level 2 data gives you a much deeper look.

- **Level 1 Data (The Tip of the Iceberg):**

- Shows the **best bid price** (highest price someone is currently offering to buy for).
- Shows the **best ask price** (lowest price someone is currently offering to sell for).
- Shows the **last traded price** and **volume** (how much has been traded).
- Good for a quick glance or long-term investors, often free or low-cost.⁷

- **Level 2 Data (Seeing the Whole Iceberg):**

- Shows the **full order book** (like a waiting list for buyers and sellers).⁷
- Displays **multiple levels of bid and ask prices**, not just the best ones. You can see orders waiting at prices above and below the current market.
- Shows the **size of the orders** (how many contracts or shares people want to buy or sell) at each of these different price levels. This is called **market depth** or **bid/ask depth**.⁷
- Sometimes shows **Market Maker IDs** (who is placing the orders), giving clues about institutional activity.⁷
- Typically requires a paid subscription and is used by active, short-term traders.⁷
- **Analogy for Order Book & Market Depth:** Imagine you're at a concert, and people are lining up to buy T-shirts.
 - **Level 1** just tells you the price of the T-shirt at the very

front of the line (\$25) and maybe how many people are at the very front.

- **Level 2** shows you the *entire line* of people wanting to buy T-shirts. It shows you that 10 people are willing to pay \$25, but behind them, 20 people are waiting hoping to buy at \$24, and 50 more people are waiting at \$23. It also shows you the line of people selling T-shirts – maybe one person is selling for \$26, but five others are willing to sell for \$27, and so on. This "full view" of buyers and sellers at different prices is the order book, and how many orders there are at each price is the market depth.
- **Why is Level 2 Useful for Futures Trading?**
 - **Spotting Support and Resistance:** Large clusters of buy orders at a certain price level might act as "support" (a price floor). Large clusters of sell orders might act as "resistance" (a price ceiling).⁷
 - **Gauging Liquidity:** Seeing the order sizes helps you understand if you can easily buy or sell a lot of contracts without moving the price too much.⁷
 - **Understanding Order Flow:** Watching how orders are added, removed, or filled can give clues about short-term price direction.⁷ For example, if you see buy orders getting filled very quickly and new ones appearing, it might suggest strong buying pressure.

NinjaTrader itself describes Level II data as the Level I feed PLUS data on the number of contracts resting at prices above and below the last traded price.⁹

4. NinjaTrader 8: Your Backtesting Playground

NinjaTrader 8 is a popular trading platform, especially for futures

traders.¹² It provides charting tools, order entry, and the ability to develop and test automated trading strategies.

- **What is NinjaTrader?** It's software designed for active futures traders that lets you analyze markets, see charts, place trades (real or simulated), and automate your trading ideas.¹² It can connect to various brokers and data providers.
- **Key Features for Our Task:**
 - **Charting:** Professional-grade charts with many tools and indicator options.¹⁴
 - **Futures Focus:** Strong support for futures trading, including access to precise, tick-by-tick data.¹⁴
 - **Simulation ("Paper Trading"):** Allows you to practice trading with "fake" money to test strategies without risk.¹³
 - **NinjaScript:** Its own programming language to build custom indicators and automated strategies.¹⁴
 - **Playback Connection:** A crucial feature for replaying historical market data, including Level 2, as if it were happening live. This is what we'll use for backtesting L2 strategies.
 - **Market Replay Data:** NinjaTrader allows you to download or record historical data, including Level 2 depth, for use with the Playback connection.¹⁶
- **What is NinjaScript?**
 - NinjaScript is NinjaTrader's special programming language, based on C# (C-sharp, a common programming language).¹⁵ It lets you write down your trading rules in a way the computer can understand and follow automatically. You can build custom indicators (tools that draw on your charts) or full strategies (that can even place trades for you in simulation).¹⁴

- **Analogy:** Think of NinjaScript as teaching NinjaTrader your secret trading plan. You write down all the "if this happens, then do that" rules, and NinjaTrader will watch the market and execute your plan for you.
- While NinjaScript is incredibly powerful for creating custom tools and fully automated strategies ¹⁴, it's like learning a new language. Because it's based on a full programming language like C# ¹⁵, it has a learning curve, especially if you're new to coding. Starting with very simple concepts and examples is the best approach.

5. The Big Picture: Why "Playback Connection" is Key for Level 2 Backtesting

When you want to backtest a strategy in NinjaTrader, there are two main ways to do it: the Strategy Analyzer and the Playback Connection. For strategies that use Level 2 data, the Playback Connection is usually the way to go. Here's why:

- **Strategy Analyzer: Good for Simpler Strategies**

- The Strategy Analyzer is great for testing many strategies, especially those based on chart patterns or indicators that only use Level 1 data (like the open, high, low, and close prices of a bar).
- It can run tests quickly over long periods.
- **The Catch for Level 2:** The Strategy Analyzer, by default, *does not process the full stream of Level 2 data updates* in a way that a strategy can react to each individual change in the order book. Specifically, a crucial NinjaScript event called `OnMarketDepth()`, which is designed to react to every Level 2 update, *is not called when running a backtest in the Strategy Analyzer*.²⁰ This means if your strategy's logic for making

decisions relies on seeing those detailed Level 2 changes as they happen, the Strategy Analyzer can't fully test that part of your strategy.

- **Playback Connection: Your Go-To for Level 2**

- The Playback Connection lets you replay historical market data—including Level 1 and Level 2 (market depth)—tick-by-tick, exactly as it happened.¹⁶ It's like watching a recording of the market.
- **Crucially for L2 Strategies:** When using Playback with Market Replay Data (which contains L2 info), the `OnMarketDepth()` event *does fire* in your NinjaScript strategy.¹⁷ This allows your strategy to "see" and react to every historical change in the order book, just like it would in live trading.
- This makes Playback the most accurate way to simulate and test how a Level 2-based strategy would have behaved.

The fact that `OnMarketDepth()` doesn't work in the Strategy Analyzer fundamentally shapes how you must test L2-based ideas in NinjaTrader. If the core intelligence of your strategy is to analyze the order book, you are pushed towards using the Playback feature.

- **What is "Market Replay Data"?**

- This is special historical data that NinjaTrader records or allows you to download. It's not just the price bars; it includes the sequence of individual ticks and, importantly for us, the Level 2 market depth information.¹⁶
- NinjaTrader stores Level 1 and Level 2 data together in market replay files to ensure they are perfectly synchronized.¹⁶ This data can be very granular, with timestamps down to the 100-nanosecond level (though this

depends on the original data provider).¹⁶

So, to test a strategy that truly uses Level 2 data for its decisions (like looking for big orders or imbalances in the order book), you'll need to:

1. Get Market Replay data that includes Level 2.
2. Write a NinjaScript strategy that uses the OnMarketDepth() event to analyze this L2 data.
3. Run your strategy using the Playback Connection.

6. Getting the Goods: Acquiring Historical Level 2 Data

To backtest with Level 2 data in Playback, you first need that data. NinjaTrader calls this "Market Replay data" when it includes Level 2 depth.¹⁶ Here are the main ways to get it:

- **1. Downloading from NinjaTrader Servers (Free, but Limited)**
 - **What it is:** NinjaTrader provides a limited amount of free Market Replay data (including Level 1 and Level 2) for some popular futures instruments.¹⁷
 - **How to do it (Step-by-Step):**
 1. In the NinjaTrader Control Center, go to Tools > Historical Data.¹⁷
 2. In the Historical Data window, look for a section like "Get Market Replay data" (usually at the bottom of the "Load" tab).¹⁷
 3. Select the Instrument you want (e.g., ES 06-24 – make sure to pick the specific contract month, not a continuous contract).
 4. Select the Date you want the data for.
 5. Click Download or OK.¹⁷
 - **Limitations:**

- **Limited History:** Usually only available for the past 90 days or so.²² If you need older data, this free source won't cut it.
- **One Day at a Time:** You typically have to download data for each day individually, which can be tedious if you need many days.²⁶
- **Common Instruments Only:** May not be available for all futures contracts, mostly just the popular ones.¹⁷
- **Current Day's L2 Data Delay:** For the *current* trading day, full Level 2 data might only be available for download after midnight Eastern Time.²⁸
- **2. Recording Live Market Data Yourself (Requires a Live L2 Data Feed)**
 - **What it is:** If you have a real-time data feed that provides Level 2 data (e.g., from Kinetick, IQFeed, or your broker), you can set NinjaTrader to record this data as it streams in. This recorded data then becomes your Market Replay data.
 - **How to do it (Step-by-Step):**
 1. In the NinjaTrader Control Center, go to Tools > Options.¹⁷
 2. In the Options window, select the Market Data category.
 3. Check the box that says "Enable market recording for playback".¹⁷ Click OK.
 4. **Crucial Step for L2:** To record Level 2 data, you *must* have a window open that actively displays Level 2 data for the instrument(s) you want to record. This could be a Level II window, a SuperDOM, or an FX Pro window.¹⁷ The Market Analyzer window is often recommended if you want to record multiple instruments simultaneously, as long as it's configured to receive L2 data for them.¹⁷
 5. Keep NinjaTrader connected to your live L2 data feed

with these windows open. The data will be recorded to your computer.

- **Pros:** You can build up a library of L2 data for any instrument your feed supports, for as long as you record it.
- **Cons:**
 - You need a paid subscription to a data feed that provides Level 2 data (NinjaTrader itself is not a data provider; it connects to data providers).²⁹ Kinetick and IQFeed are common choices that can provide Level 2 tick data for futures [²⁹ (NT7 table, but Kinetick/IQFeed are still relevant), ³²].
 - It takes time to accumulate data. You can only record data from the moment you turn on recording.
 - Uses more PC resources while recording.³⁰
- **3. Third-Party Data Providers (Paid, More Comprehensive)**
 - **What it is:** Some companies specialize in selling historical market data, including deep Level 2 history.
 - **How to do it:** You'd typically purchase data files from them and then import them into NinjaTrader. The import process usually involves going to Tools > Historical Data Manager > Import tab, then selecting the file and specifying its format.³¹ However, directly importing third-party *Level 2* data files specifically for Market Replay might have specific requirements or limitations not fully detailed in general import guides. NinjaTrader's Market Replay files have a particular way of storing L1 and L2 data together.¹⁶
 - **Pros:** Can provide extensive history for many instruments.
 - **Cons:** Can be expensive. Ensure the data format is compatible with NinjaTrader's Market Replay system for L2. The NinjaTrader Ecosystem website might list such vendors.²¹

Data Provider Notes:

- NinjaTrader itself is not a market data provider. It connects to various data services.²⁹
- **Kinetick:** A popular data feed often used with NinjaTrader. It offers free End-of-Day data for all users, and real-time/historical plans that can include Level 2 tick data for futures [²⁹ (NT7), ³²]. Kinetick provides true tick-by-tick data, not aggregated.³²
- **IQFeed:** Another well-regarded data provider that can supply high-quality Level 2 data.³²
- **Your Broker's Feed:** Some brokers provide Level 2 data directly through their connection to NinjaTrader.

For a 9th grader starting out, the **free downloaded Market Replay data from NinjaTrader's servers** is the easiest way to begin, even with its limitations. It lets you get a feel for L2 data and playback without any extra cost.

7. Setting Up NinjaTrader for Level 2 Playback

Once you have some Market Replay data (that includes Level 2), you need to tell NinjaTrader to use it. This involves the Playback Connection.

- **Understanding the Playback Connection**
 - The Playback Connection is a special mode in NinjaTrader that lets you replay your downloaded or recorded Market Replay data as if it were happening live.¹⁶
 - It delivers this data (including L2 depth if present in your files) to all NinjaTrader windows (charts, SuperDOMs, etc.) synchronously.³⁴
 - You can even place simulated trades against this replayed data.³⁴

- **Connecting to the Playback Connection (Step-by-Step):**
 1. **Disconnect Other Connections:** First, make sure you are disconnected from any live broker or other data feed connections. In the Control Center, go to Connections and disconnect anything active.¹⁷
 2. **Select Playback:** Go to Connections again and select Playback Connection.¹⁶
 3. **Historical Data Window Appears:** A Historical Data window will pop up. This window shows you the Market Replay data you have available ("Loaded" section) and also lets you download more data if needed (the "Get Market Replay data" section we discussed earlier).²⁶
 - Check the "Loaded" section to confirm the instrument and dates you want to replay are listed and show L2 data availability. You can right-click in the Playback Control (once connected) and select Show Available Data to see this too; it will show L1 and L2 begin/end dates and times.¹⁶
 4. **Click Continue/OK:** Once you're happy with the available data, click Continue or OK in the Historical Data window.²⁶
 5. **Playback Controller Appears:** The Playback Controller window should now be visible. This is your "remote control" for the data replay.¹⁶
- **Using the Playback Controller:**
 - **Looks like a DVD Player:** It has Play, Pause, and speed controls.¹⁶
 - **Playback Type:** You can select "Market Replay" (for L1+L2 data) or "Historical" (for less accurate L1 tick data if L2 replay isn't available).¹⁶ For L2 backtesting, ensure "Market Replay" is chosen.

- **Start/End Dates:** Set the date range you want to replay using the slider or by right-clicking and using "Go To" for a specific time.¹⁶ For best performance, select the closest possible Start and End dates for your test.²⁶
- **Play Button:** Starts the data replay.¹⁶
- **Speed Control:** You can speed up or slow down the replay.¹⁶ "Max" speed processes data as fast as possible.
- **Slider:** Allows you to jump to different points in the replayed data. Be careful, as moving the slider can reset your simulated trade history in the Playback101 account.¹⁶
- **Playback Modes (Right-Click Menu):**¹⁶
 - Playback Current Day: Only replays the current day selected on the slider.
 - Playback from selected: Loads historical data up to the slider point and then uses Market Replay data going forward. This is the default and fastest, good if your script doesn't need every single historical tick event *before* the replay point.
 - Playback from start: Replays Market Replay data for every day from the slider's start to its end. Slower, but more thorough if your strategy needs the exact sequence of all historical events. This is often useful when backtesting a strategy in playback.¹⁶
- **Opening Charts and SuperDOMs for Replay:**
 - Once connected to Playback and data is replaying, open a Chart or SuperDOM for the instrument you have Market Replay data for.
 - The chart/SuperDOM should start showing the replayed data, including Level 2 depth on the SuperDOM or in a Level II window if your Market Replay file contains it.¹⁸

- **Tip:** If your SuperDOM is moving but your chart isn't, right-click the chart, select Data Series (Ctrl+F), set Trading Hours to "Default 24x7", click OK, then right-click the chart and select "Reload all historical data".²⁶

Now you're ready to apply a strategy!

8. NinjaScript and Level 2: Writing a Simple Strategy (Conceptually)

To make NinjaTrader react to Level 2 data, you need to use NinjaScript. We won't write a full, complex program here, but let's understand the key part of a NinjaScript strategy that "sees" Level 2 data and a very simple idea of what it might do.

- **The OnMarketDepth() Event: Your Strategy's "Eyes" for Level 2**
 - Inside a NinjaScript strategy (which is basically a text file with code you write or get from someone else), there's a special function (or "event handler") called OnMarketDepth().¹⁹
 - This function automatically runs *every single time* there is a change in the Level 2 order book for the instrument your strategy is watching.²⁰ A change could be a new order appearing, an existing order getting bigger or smaller, or an order being canceled.
 - When OnMarketDepth() runs, it receives information about the specific change: was it a bid or an ask? What price level? What was the new size (volume)? What type of change was it (new, update, delete)?²⁰
 - **Crucial Reminder:** This OnMarketDepth() event *only works* when you are connected to live data OR using the Playback Connection with Market Replay data that contains Level 2

information. It *does not work* in the normal Strategy Analyzer backtest.²⁰

- The event-driven nature of OnMarketDepth means strategies using it are reacting to a continuous flow of L2 updates. These updates can be very frequent, especially in active markets, making the data stream quite intensive.⁷ Efficient coding within the OnMarketDepth function is important to prevent your computer from slowing down too much.²⁰
- A Super Simple Conceptual NinjaScript Idea: Order Imbalance
Let's imagine a very basic strategy idea: "If there are way more buy orders than sell orders close to the current price, maybe the price will go up. If there are way more sell orders, maybe it will go down." This is a concept of "order imbalance." Here's how you might think about it in pseudo-code (not real NinjaScript, just the logic):

```
// This code would be inside the OnMarketDepth() function,  
// which runs every time the Level 2 order book changes.
```

```
// Each time OnMarketDepth is called:
```

```
// 1. Get the current list of all buy orders (bids) and their sizes  
// from the Level 2 data.
```

```
// (NinjaScript provides ways to access this information).
```

```
// 2. Get the current list of all sell orders (asks) and their sizes.
```

```
// 3. Let's look at the top few price levels (e.g., the best 5 bid  
// prices and best 5 ask prices).
```

```
// 4. Add up the total number of contracts wanting to BUY at  
// these top bid levels (TotalBuyVolume).
```

```
// 5. Add up the total number of contracts wanting to SELL at  
// these top ask levels (TotalSellVolume).
```



```
// 6. Now, compare them:  
// IF TotalBuyVolume is MUCH BIGGER than TotalSellVolume  
(e.g., 3 times bigger):  
// Then, print "Strong Buy Imbalance Detected!" to the  
NinjaTrader output window.  
// (A real strategy might then consider placing a buy order).  
// ELSE IF TotalSellVolume is MUCH BIGGER than  
TotalBuyVolume:  
// Then, print "Strong Sell Imbalance Detected!" to the  
output window.  
// (A real strategy might then consider placing a sell order).  
// ELSE:  
// Print "Order book is relatively balanced."
```

Why this matters: This simple idea shows how a script would, conceptually, use the data provided by OnMarketDepth to make a decision. Real NinjaScript for this would involve specific commands to access the bid/ask collections and their properties like price and volume.²⁰ Users in forums discuss creating their own "Level 2 book" within their scripts to track these orders.²⁰ Even this "simple" idea requires careful thought. For instance, how many price levels should you look at? What exactly does "MUCH BIGGER" mean (2 times? 5 times?)? How do you avoid reacting to every tiny change (known as "noise") in the order book? These are things traders have to define when building real strategies. Translating a conceptual L2 idea into robust NinjaScript requires handling many such details, including managing the state of the order book and defining clear, quantifiable rules. Forum discussions often revolve around these practical implementation challenges.³⁹

Another Conceptual Strategy: Detecting Large Orders (Potential Support/Resistance)

Another common Level 2 strategy is to look for unusually large orders sitting on the bid or ask side, which might act as temporary support or resistance.¹⁰

Pseudo-code idea:

```
// Inside OnMarketDepth():
```

```
// 1. Check each new or updated bid and ask order.
```

```
// 2. IF a single bid order's size is VERY LARGE (e.g., more than 100 contracts for E-mini S&P):
```

```
//   Print "Large Buy Order (potential support) detected at [price] for [size] contracts!"
```

```
//   (A strategy might avoid selling near this price, or look for a bounce).
```

```
// 3. IF a single ask order's size is VERY LARGE:
```

```
//   Print "Large Sell Order (potential resistance) detected at [price] for [size] contracts!"
```

```
//   (A strategy might avoid buying near this price, or look for a rejection).
```

Again, defining "VERY LARGE" is key, and traders must be aware of "spoofing" – where large orders are placed to trick others, then quickly canceled.⁷

For a 9th grader, you wouldn't be expected to write complex NinjaScript from scratch immediately. You might start by finding simple example scripts online (like from the NinjaTrader forum or community) that use OnMarketDepth and try to understand their logic, then run them in Playback. Some forum threads show users sharing code snippets for imbalance or accessing Level 2

data.³⁹

9. Running Your Strategy in Playback Mode

Now for the exciting part: actually running your strategy (or a sample one you found) using the Playback Connection and the replayed Level 2 data!

- **Applying Your Strategy to a Chart/SuperDOM in Playback (Step-by-Step):**

1. **Connect to Playback:** Make sure you are connected to the Playback Connection and that your Market Replay data (with L2) is loaded and playing (you should see the Playback Controller moving and time advancing).¹⁶
2. **Open a Chart:** Open a Chart for the specific futures contract and date range for which you have Market Replay data (e.g., ES 06-24 for June 10, 2024).
 - *Tip from NinjaTrader's Help ¹⁶: "Should you be using the Playback for testing a NinjaScript strategy, please be sure the chart you apply the strategy onto has bars populating it prior to the start time of your replay." This means let the chart load some historical bars first.*
3. **Access Strategies Window:** Right-click on the chart. In the menu that appears, select Strategies.⁴⁸ (Alternatively, click the Strategies icon in the chart toolbar or press CTRL+S).
4. **Add Your Strategy:** In the Strategies window:
 - Find your L2 strategy (or a sample one) in the "Available" list on the left.
 - Click the add button (or double-click the strategy name) to move it to the "Configured" list on the right.⁴⁸
5. **Configure Strategy Properties:** This is super important!
 - **Enabled:** You MUST set this property to True. If it's False,

the strategy is loaded but won't do anything.⁴⁸

- **Account:** Select the Playback101 account from the dropdown list.⁴⁸ This tells the strategy to use your "fake money" account for the replay.
 - **Other Parameters:** Adjust any other input parameters your specific strategy has (e.g., if your imbalance strategy needs a "threshold" for how big the imbalance should be, you'd set it here).
 - **Calculate:** This setting (e.g., 'On bar close', 'On price change', 'On each tick') primarily affects how often the OnBarUpdate() part of your strategy runs.⁴⁸ For strategies heavily reliant on OnMarketDepth() (which fires on every L2 change independently), this setting might be less critical for the L2 logic itself. However, if your L2 strategy *also* uses indicators or logic based on chart bars, setting Calculate to 'On price change' or 'On each tick' during playback can help ensure that bar-based calculations happen frequently enough to align with the fast-moving L2 events. This is different from Strategy Analyzer, which often effectively only processes 'On bar close' for historical data due to data limitations.⁴⁹
6. **Click OK:** Once all properties are set, click OK.
 7. **Observe:** Your strategy should now be active on the chart. If it's designed to print messages (like our conceptual imbalance strategy), you might see them in the NinjaScript Output window (from Control Center: New > NinjaScript Output > select the Strategies tab). If it's designed to place trades, you might see trade markers appear on the chart as the replay progresses.

- **The Playback101 Account: Your Simulated Trading Money**
 - When you use the Playback Connection, NinjaTrader automatically uses a special simulation account called Playback101.²⁶ Any "trades" your strategy makes during the replay will happen in this account using pretend money.
 - **Important:** The settings for your Playback101 account (like how much starting "cash" it has and what "commissions" are charged per trade) are *inherited* from your main simulation account, which is usually called Sim101.⁵⁰ You don't edit the Playback101 account directly; you edit Sim101. This link is crucial because if your Sim101 account has unrealistic settings (like zero commission or a million-dollar starting balance), your Playback101 test results will also be based on those unrealistic conditions, potentially skewing your perception of the strategy's performance.
 - **Heads Up! Trade History Reset:** Be aware that the Playback101 account's trade history (the record of its pretend trades) often gets reset if you disconnect from the Playback connection, manually move the time slider on the Playback Controller, or change the playback time to a different point.¹⁶ So, if you run a test, make sure to check your results *before* doing things that might wipe the history for that session.
- Setting Initial Capital and Commissions for Playback101 (by Configuring Sim101):
 To make your Playback test more realistic, you'll want to set a reasonable starting capital and commission rate. You do this by editing the Sim101 account:
 1. **Disconnect from Playback:** Make sure you are *not* currently connected to the Playback Connection. You might

need to be connected to a live data feed or no connection at all to edit the Sim101 account.

2. **Go to Accounts Tab:** In the NinjaTrader Control Center, click on the Accounts tab.
 3. **Edit Sim101:** Find your Sim101 account in the list, right-click on it, and select Edit Account.⁵¹
 4. **Configure Settings:** In the Edit Account window that appears:
 - **Initial Cash:** Set the starting "fake money" balance you want to simulate (e.g., \$5,000, \$10,000). You might need to click a "Reset" button within this window to apply changes to the initial cash value.⁵¹
 - **Commission:** This is important! Select a commission template from the dropdown that closely matches what real trading commissions would be for the futures contract you're testing. If none of the defaults fit, you can create your own custom commission template by going to Tools > Commissions in the Control Center.⁵¹ Accurately setting commissions is vital because they can significantly impact the profitability of a strategy, especially if it trades frequently. Even small per-trade fees add up. NinjaTrader's commission templates offer flexibility, but you'll need to understand your potential broker's fees or make reasonable estimates.⁵⁴
 5. **Click OK:** Save your changes.
 6. **Ready for Playback:** Now, the next time you connect to the Playback Connection, your Playback101 account will use these new initial cash and commission settings from Sim101.
- **What About Slippage in Playback? (A Key Difference from Strategy Analyzer)**

- **Slippage Explained:** Slippage is when your trade order gets filled at a slightly different price than you saw when you clicked the button (or when your strategy decided to trade). This usually happens in fast-moving markets or if your order is large.
- **Strategy Analyzer:** When you backtest using the Strategy Analyzer (which isn't ideal for L2 strategies, remember?), you can usually set a "Slippage" value in ticks, and the Analyzer will try to simulate this.⁵⁵ For example, if you set 1 tick of slippage, it might assume your buy orders fill 1 tick higher and sell orders 1 tick lower.
- **Playback Connection (Playback101 Account):** This is different. The automatic slippage setting you might use in Strategy Analyzer *does not apply* to the Playback101 account.⁵⁶ Orders placed in the Playback101 account are generally processed *immediately* at the price observed in the replayed data, without simulated internet delays or the typical random slippage you'd get in live trading.¹⁶
- **Why the Difference?** Playback is designed to show what *would have happened* if your orders hit the market precisely as the data replayed, without adding an extra layer of simulated slippage on top. The Strategy Analyzer often adds simulated slippage because it's working with less granular bar data (Open, High, Low, Close) and needs to make more assumptions about fills.
- **How to Think About This (for Beginners):**
 - Be aware that your fill prices in Playback might look "too perfect." In real trading, you'll almost always have *some* slippage on market orders.
 - This means your Playback results might be a bit more

optimistic (show more profit or less loss) than what you'd achieve live.

- Some very advanced NinjaScript programmers try to code their own slippage simulation into their strategies for Playback (e.g., by slightly adjusting their entry price targets or adding small delays), but this is complex.⁵⁷
- For a 9th grader, the main takeaway is to be a little skeptical of absolutely perfect fills in Playback and understand that real trading will likely involve some cost due to slippage. The lack of automatic slippage simulation in Playback is a notable factor that can make Playback results appear more favorable than live trading, and this is an important limitation to keep in mind for realistic L2 backtesting. While Playback offers high accuracy for replaying L2 *data*, its order *fill* simulation is an idealized scenario.

10. Did Your Strategy Work? Checking the Score!

After you've run your strategy in Playback mode for a while (maybe an hour of replay, or a whole day's worth of data), you'll want to see how it did. Did it make or lose "fake" money?

- Viewing Strategy Performance after Playback (Step-by-Step):

There are a couple of ways to see the results:

Method 1: From the Chart (Quick Look)

1. While your strategy is still running in Playback on a chart, or after the replay period has finished:
2. Right-click anywhere on the chart.
3. In the menu, go to Strategy Performance.
4. A sub-menu will appear with the name of your strategy. Hover over your strategy's name.

5. Select Real-Time. (Even though it's Playback, NinjaTrader considers the replayed data stream as "real-time" for the purpose of the strategy running on the chart).⁴⁸ You can also select Both to see if there was any historical portion processed before the "real-time" replay started.
6. A performance report window for that specific instance of the strategy on that chart will appear.

Method 2: Using the Trade Performance Window (More Detailed)

1. In the NinjaTrader Control Center, click on the New menu.
 2. Select Trade Performance.⁵⁹
 3. A Trade Performance window will open.
 4. **Set the Date Range:** At the top, select the From and To dates that cover the period you ran your Playback test.
 5. **Filter by Account:** Click the "Filter" icon (looks like a funnel) to expand filter options. Make sure your Playback101 account is selected or checked in the Accounts filter.⁵⁹
 6. Click the Generate button.
 7. The window will fill with detailed reports, including a summary, analysis, lists of executions (fills), trades, and orders.⁵⁹
- **Important Note on ATM Strategies:** If your NinjaScript strategy uses built-in ATM (Advanced Trade Management) templates to manage its stop-loss or profit-target orders, the Strategy Performance window (Method 1) might not accurately show the profit and loss. In such cases, you should use the Trade Performance window (Method 2) for a more accurate picture.⁶² This is a bit more advanced, but good to know if you start using sample strategies that include ATMs.

Understanding that "Real-Time" performance in the context of Playback refers to the *simulated* real-time environment is key. It's not actual live market results from a live brokerage account.

- **Key Numbers to Look At (Explained Simply):**

When you look at the performance report, you'll see a lot of numbers. Here are some of the most important ones for a beginner to understand 63:

- **Total Net Profit:** This is your strategy's final score for the test period. It tells you how much your "fake" account balance went up (profit) or down (loss) overall after all trades and commissions.
- **Max Drawdown:** This shows the biggest drop in your "fake" money from a high point before it (hopefully) started to recover. Think of it as the scariest, bumpiest part of the ride. A smaller drawdown is usually less stressful. For example, if your account went from \$10,000 up to \$12,000, then dropped to \$9,000 before going up again, your drawdown was \$3,000 (from the \$12,000 peak to the \$9,000 low).
- **Profit Factor:** This is a cool ratio. It tells you how many dollars your strategy made in its winning trades for every \$1 it lost in its losing trades. It's calculated as: Gross Profit (total from all winning trades) divided by Gross Loss (total from all losing trades).
 - If Profit Factor is above 1 (e.g., 1.5), it means your strategy made more money than it lost.
 - If it's 1, it broke even (after wins and losses).
 - If it's below 1 (e.g., 0.8), it lost more money than it made.
 - Generally, a higher profit factor (like 1.5 or 2 or more) is better.
- **Percent Profitable (often part of Win/Loss Ratio):** Out of all the trades your strategy made, what percentage of them

were winners? For example, if it made 10 trades and 6 were winners, your Percent Profitable is 60%. While a high percentage is nice, it doesn't tell the whole story without knowing how much you win or lose on average.

- **Ratio Avg Win / Avg Loss (Average Winning Trade / Average Losing Trade):** This compares the average amount of money you made on your winning trades to the average amount you lost on your losing trades.
 - If this ratio is above 1 (e.g., 2), it means your average win was bigger than your average loss (e.g., you won \$2 for every \$1 you lost, on average). This is generally good.
 - If it's below 1, your average loss was bigger than your average win, which can be a problem even if you win most of the time.
- **Sharpe Ratio (Optional - a bit more advanced):** This is a fancier way to measure if the profit your strategy made was "worth" the risk (the ups and downs, or volatility) it took to get that profit. Generally, a higher Sharpe Ratio (like 1 or more) is considered better, suggesting good returns for the amount of risk taken. NinjaTrader sets the "risk-free rate of return" to zero for this calculation.⁶⁴

It's important to look at these numbers together. A strategy might have a high Total Net Profit, but if it also had a huge Max Drawdown, it might be too risky or stressful to trade in real life. Similarly, a strategy could have a high Percent Profitable (lots of small wins), but if the Average Losing Trade is much much larger than the Average Winning Trade, it could still end up losing money overall (a low Profit Factor). And remember, these performance numbers are based on the *simulated* fills from the Playback connection. If those fills were "too perfect" (for example, because Playback doesn't automatically add slippage like the Strategy Analyzer can), then these performance metrics might also be overly optimistic compared to

what you'd see in live trading. Here's a quick summary table: **Table: Simple Performance Metrics Explained**

Metric (What's it Called?)	What it Tells You (In Simple Terms)	Good or Bad? (General Idea)
Total Net Profit	How much fake money you made or lost in total.	Higher is better (if positive).
Max Drawdown	The biggest dip your fake money took from a peak.	Smaller is generally better (less scary).
Profit Factor	How many dollars you won for every \$1 you lost.	Above 1 is good, much above 1 is great.
Percent Profitable	What percentage of your trades were winners.	Higher is often nice, but depends on win/loss size.
Avg. Win / Avg. Loss Ratio	Is your average winning trade bigger than your average losing trade?	Above 1 is good.

11. Common Problems and How to Fix Them (Troubleshooting for Beginners)

Even when you follow all the steps, sometimes things don't work as expected. Here are some common issues you might run into when backtesting Level 2 futures data in NinjaTrader 8, and some ideas on how to fix them.

- **"No Level 2 Data in Playback!" or "My SuperDOM is**

Blank/Not Showing Depth!"

○ Possible Causes & Solutions:

- **Market Replay Data Not Downloaded/Correct:** Did you actually download Market Replay data for the *exact* instrument (e.g., ES 09-24, not just ES) AND the specific date you're trying to replay? Does that data file even *contain* Level 2 information?
 - **Quick Tip:** In the Playback Controller, right-click and select Show Available Data. This will show you what instruments and dates you have data for, and whether L1 (Level 1) and L2 (Level 2) data is present for those dates.¹⁶
- **Trying to Replay L2 Data for the Current Day Too Soon:** NinjaTrader's servers might only make the full Level 2 data for the *current* trading day available for download *after midnight* (Eastern Time).²⁸ If you need it sooner, you'd have to record it live yourself (if you have a live L2 feed).
- **Incorrect Playback Type Selected:** In the Playback Controller window, make sure the Playback Type is set to "Market Replay." If it's set to "Historical," it will use less detailed tick data which might not have L2 depth.¹⁶
- **SuperDOM Display Settings:** If you see L2 data in the "Available Data" list but not on your SuperDOM:
 - Right-click on your SuperDOM window.
 - Select Properties.
 - Make sure "Show market depth" is checked.
 - Ensure that "# of market depth levels" is set to a reasonable number (e.g., 10 or more).²⁸
- **Data Connection Hiccup:** Sometimes, just

disconnecting from the Playback connection and then reconnecting can help refresh things.²⁸

- **Chart Not Displaying Data (but SuperDOM is):** If your SuperDOM shows replaying data but your chart is blank or not moving:
 - Right-click on the chart, select Data Series (or press Ctrl+F).
 - Set Trading Hours to "Default 24x7". Click OK.
 - Then, right-click on the chart again and select Reload all historical data.²⁶
- **"Playback is Super Slow!"**
 - **Possible Causes & Solutions:**
 - **Too Many Things Open:** Replaying Level 2 data, especially for multiple instruments or with many charts, SuperDOMs, and complex indicators open at once, can be demanding on your computer.
 - **Quick Tip:** Try closing any unnecessary charts or windows. Focus on replaying just one instrument at a time to see if that speeds things up.⁶⁵
 - **Replay Speed Too High for Your PC/Strategy:** If your strategy is very complex (doing lots of calculations on every L2 update) and you've set the replay speed to "Max," your computer might be struggling to keep up.
 - **Quick Tip:** Try a slower replay speed.
 - **PC Resources:** Other programs running on your computer can slow NinjaTrader down.
 - **Quick Tip:** Close any other applications you don't need while replaying.⁶⁶
 - **Narrow the Data Range:** Using the closest possible Start and End Dates on the Playback Controller for the

specific period you want to test can sometimes improve performance.²⁶

- "My Fills Look Weird or Too Good!" (Understanding Fill Assumptions)

This is a big one and can be confusing!

- **Possible Causes & Solutions:**

- **Strategy Analyzer vs. Playback are Different Animals:**

- Strategy Analyzer typically works with summarized bar data (Open, High, Low, Close). It has settings for Order fill resolution (like "Standard" or "High") and a Slippage setting where you can tell it to assume your fills are a bit worse than the exact price.⁵⁵
 - Playback Connection (using the Playback101 account) aims to be more like real-time. It processes orders based on the incoming replayed ticks and L2 data. However, it generally fills orders *synchronously* (right away) at the observed price *without automatically adding random slippage or simulating internet delays*.¹⁶
 - **Quick Tip:** For strategies based on OnMarketDepth and L2 data, Playback is the more appropriate testing environment, but you must be aware of its fill assumptions.
 - **No Automatic Slippage in Playback:** As mentioned, the Playback101 account usually gives you "perfect" fills in terms of price and timing. Real trading always has some slippage with market orders and can have delays.
 - **Quick Tip:** Understand that your Playback P&L might be more optimistic than live results. Advanced users sometimes try to program their own slippage/latency

logic into their NinjaScript for Playback, but that's tricky.⁵⁷ For now, just be aware of this difference.

- **"Fill limit orders on touch" Setting (in Strategy Analyzer & when applying strategy to chart for historical part):** If this setting is enabled, it means a limit order could fill if the price just touches it, even if not much volume traded there. Some experienced users advise *never* checking this box for more conservative (and possibly realistic) fills in the Strategy Analyzer.⁵⁵ This setting might also appear when you apply a strategy to a chart, affecting how historical fills are processed before the "real-time" playback part begins.
- **Intra-bar Fills & Calculation Mode:**
 - In Strategy Analyzer, by default, strategies are often calculated On bar close. This means decisions and trades happen only when a bar finishes. To get fills *inside* a bar, you'd need to use High Order Fill Resolution or a more complex setup with Tick Replay and an added 1-tick data series (though Tick Replay itself doesn't provide the full L2 book for strategy logic, and High Order Fill Resolution isn't compatible with Tick Replay).⁴⁹
 - In Playback, if your strategy uses OnMarketDepth or OnMarketData (which handles individual tick updates), it's naturally reacting to events *inside* the bars as they replay. The Calculate setting of the strategy ('On Each Tick', 'On Price Change', 'On Bar Close') will affect how often other parts of your script (like OnBarUpdate) run.
- **General Optimism in NT Backtests:** Some users in

online forums feel that NinjaTrader's backtesting, in general, can produce overly positive results due to fill assumptions.⁵⁷

- **Quick Tip:** Always be a bit skeptical of amazing backtest results. Forward testing (paper trading on live data) is the next important step after backtesting.
- **Data Issues (Gaps in Data, Incorrect Data, Limited History)**
 - **Possible Causes & Solutions:**
 - **Limited Free Market Replay Data:** Remember, NinjaTrader's free L2 Market Replay data is typically only for the last ~90 days for common futures, and you download it one day at a time.²¹ If you need more history or different instruments, you'll need to record it live (if you have an L2 feed) or look into paid third-party data.
 - **Corrupted Data Files or Cache:** Rarely, NinjaTrader's historical data files or cache can get messed up. Symptoms might include charts not loading, strange data appearing, or errors.
 - **Quick Tip (Advanced - Use with Caution!):** NinjaTrader support sometimes advises users to try renaming or (after backing up) deleting certain data folders within the Documents\NinjaTrader 8\db directory (like Tick, Minute, Day, Cache, Replay) or renaming the main database file (NinjaTrader.sqlite) to let NinjaTrader rebuild them.²⁵ **This can delete your existing historical data, so only do this if you understand the risks or are guided by support.**
 - **Issues with Your Data Provider (if recording live):** If you're recording your own L2 data, any problems with your live data feed (from Kinetick, IQFeed, your broker,

etc.) will result in bad recordings.

- **"Warning: Delayed data" Message:** This message in NinjaTrader might mean you're trying to view or trade instruments that aren't included in your current market data subscription.⁷² The data you see for those will be delayed, not real-time.
- **General NinjaTrader Errors (e.g., Connection Problems, Licensing, Indicator Errors)**
 - **Possible Causes & Solutions:**
 - **Connection Problems:** Can't connect to Playback or your data feed?
 - **Quick Tip:** Double-check any login credentials. If using a specific provider like Rithmic or Tradovate, make sure any required settings are correct (e.g., for Rithmic, ensure "Market Data" in RTrader Pro is OFF if you're getting data via NinjaTrader).⁷² Check your computer's firewall or antivirus software to make sure it's not blocking NinjaTrader. Try restarting your modem/router, then your PC, then NinjaTrader. Clearing your computer's DNS cache can sometimes help.⁷²
 - **License Key Issues:** If you have a paid license for NinjaTrader, make sure it's entered correctly.⁷²
 - **Errors from Custom Indicators or Strategies:** If you're using a script you wrote or got from someone else, an error in that code can cause problems.
 - **Quick Tip:** Check NinjaTrader's Log tab (from Control Center: New > Log). Error messages there can often point you to the problematic script or indicator.⁷² You might need to disable or remove the faulty script.

- **Platform Needs an Update or Reinstall:** Sometimes, simply making sure your NinjaTrader 8 platform is updated to the latest version can fix odd issues. In rare cases, a full uninstall and reinstall might be needed.⁷²
- **"Read-only" Folder Problem:** NinjaTrader needs to write data to its folders in your "Documents" directory. If the Documents\NinjaTrader 8 folder has somehow been set to "Read-only," it can cause errors.
 - **Quick Tip:** Find the folder, right-click it, go to Properties, and make sure the "Read-only" attribute is unchecked.⁷²

Here's a quick troubleshooting table for easy reference:**Table: Quick Troubleshooting Guide**

Problem (What you're seeing)	Possible Cause (Why it might be happening)	Quick Tip (Try this!)
No L2 Data in Playback / SuperDOM blank	Market Replay data missing, wrong type, or L2 not present for that day	In Playback Controller, right-click Show Available Data. Ensure "Market Replay" type is selected. Check L2 availability.
L2 Data Missing for Today's Date	Today's L2 data not yet processed by NT servers for download	Wait until after midnight ET, or record it live yourself if you have an L2 feed.
Playback is Super Slow	Too many windows/charts/indicators open; PC struggling	Close extra charts/apps; slow down replay speed;

		focus on one instrument.
Fills in Playback Seem "Too Perfect"	Playback101 account doesn't automatically add slippage or latency	Be aware results might be optimistic. Real trading will have these costs.
Strategy Analyzer Results Differ from Playback	They use different data granularity & fill logic	For L2 strategies using OnMarketDepth, Playback is the more appropriate test.
Error Message in NinjaTrader Log / Platform Crash	Problem with data connection, a custom script, or NT files/settings	Check the Log tab for specific error messages. Try basic IT fixes (restart NT, PC, router; check firewall). Search NT forums.
Chart not updating, but SuperDOM is	Chart trading hours or data load issue	Set chart Trading Hours to "Default 24x7", then right-click chart & Reload all historical data.

Remember, troubleshooting is a normal part of working with powerful software like NinjaTrader. Don't get discouraged! Use the Log tab, the official help guides, and the NinjaTrader support forum.

12. Where to Learn More (Your Next Steps!)

This guide should give you a great start, but there's always more to learn. Here are some excellent resources:

- **NinjaTrader's Official Help Guides (The Rulebook!)**
 - NinjaTrader has very detailed built-in help and online documentation. This is the primary source for how everything is supposed to work.
 - **Key Sections to Look For:**
 - Strategy Analyzer / Backtesting: ⁵⁵ (Example: https://ninjatrade.com/support/helpGuides/nt8/backtest_a_strategy.htm)
 - Playback Connection: ¹⁶ (Example: <https://ninjatrade.com/support/helpGuides/nt8/playback.htm>)
 - Market Replay Data Setup (Downloading/Recording): ¹⁸ (Example: https://ninjatrade.com/support/helpGuides/nt8/set_up12.htm)
 - Level II Window: ³⁷ (Example: https://ninjatrade.com/support/helpGuides/nt8/level_ii.htm)
 - NinjaScript OnMarketDepth() event: ²⁰ (Example: <https://ninjatrade.com/support/helpGuides/nt8/onmarketdepth.htm>)
 - Understanding Discrepancies Real-Time vs. Backtest: ⁶⁸ (Example: https://ninjatrade.com/support/helpGuides/nt8/discrepancies_real-time_vs_bac.htm)
 - You can usually find these by searching on the NinjaTrader website or within the platform's help menu.
- **NinjaTrader's YouTube Channel(s) (See it in Action!)**
 - Watching video tutorials can be super helpful. NinjaTrader has official channels where they demonstrate platform

features.

- **What to Search For:**
 - "NinjaTrader LLC" on YouTube is their main channel with many platform training videos.⁷³
 - "NinjaTrader Ecosystem" on YouTube might have videos from partners.
 - Look for titles like:
 - "NinjaTrader 8 Playback Connection" ²¹
 - "NinjaTrader 8 Level II Window" ⁷⁷
 - "NinjaTrader 8 Market Replay" ²⁸
 - General "NinjaTrader 8 Tutorials".⁷⁴
- Videos like these ⁶⁵ often give practical tips on using features like Playback.
- **NinjaTrader Support Forum (Ask the Community!)**
 - This is an online community where NinjaTrader users and official support staff discuss problems, share NinjaScript code, ask questions, and help each other out. It's a goldmine of information, especially for tricky issues or advanced topics.
 - **Where to Go:** <https://ninjatrader.com/support/forum> (or search for "NinjaTrader Support Forum").
 - Look for sections like "Strategy Development," "Platform Technical Support," or "NinjaScript File Sharing."
 - You can search the forum for keywords related to your problem (e.g., "OnMarketDepth example," "Playback L2 data slow," "commission Playback101").
 - The forums are invaluable for troubleshooting specific, nuanced issues that might not be covered in general documentation, and for seeing how other users approach complex topics like L2 backtesting. Many of the solutions

and explanations in this guide were found through information shared on these forums.⁴⁰ Official NinjaTrader support staff (often with names like NinjaTrader_Jesse, NinjaTrader_Emily, NinjaTrader_Jason) actively participate, providing reliable answers.²¹

13. Conclusion: Your Journey into Level 2 Backtesting

You've made it! Backtesting Level 2 futures data in NinjaTrader 8 might seem like a big mountain to climb, but by breaking it down into these steps, it becomes much more manageable.

Key Takeaways to Remember:

1. **Level 2 Data is Special:** It gives you a deep view of the order book, which is awesome for certain short-term strategies.
2. **Playback is Your Friend for L2:** Because of how NinjaTrader handles L2 data events (especially OnMarketDepth), the Playback Connection with Market Replay Data is the primary way to test these strategies accurately. Strategy Analyzer is generally not suitable for the L2-specific logic.
3. **Data is King:** You need good quality Market Replay data that includes Level 2 depth. You can download limited free data from NinjaTrader, record it yourself if you have a live L2 feed, or buy it from third parties.
4. **NinjaScript is the Engine:** To make decisions based on L2 data, your strategy will need to use NinjaScript, particularly the OnMarketDepth() event.
5. **Simulate Realistically (As Much as Possible):** Configure your Sim101 account with appropriate starting capital and commission rates, as these will be inherited by the Playback101 account. Be aware that Playback doesn't automatically simulate slippage, so your results might be a bit optimistic.

6. **Analyze Your Results:** Use the performance reports to understand how your strategy did, looking at metrics like Net Profit, Max Drawdown, and Profit Factor.
7. **Troubleshooting is Normal:** Expect to run into little snags. Use the NinjaTrader Log, help guides, and forums to find solutions.

This journey into Level 2 backtesting is a fantastic way to learn more about how markets work at a detailed level and to develop your trading ideas in a safe environment. It takes patience and practice, but the skills you build will be incredibly valuable.

So, get NinjaTrader set up, download some Market Replay data, maybe find a simple L2 NinjaScript example to start with, and begin exploring. Good luck, and happy (back)testing!

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