Algorithmic StockPicking trading for everyone

100% practical guide for algo-trading enthusiasts

Kornel Mazur, Tomas Matejka & StrategyQuant Team

Disclaimer

All information provided in this document has only educational character.

Table of contents

Disclaimer **2**
Table of contents **3**
Let the algo-trading revolution begin! **5**
What is the purpose of this book? 5
Four reasons why you should trade StockPicking strategies **6**
1. Picking only the best trading opportunities on the market 6
2. Reducing drawdown comparing to holding only one index 6
3. Working with a smaller or no leverage - lower risk of rapid loss of capital 6
4. Working with growing markets 6
It is a journey for determined traders **7**
1. The first steps 7
2. Active trader with advanced skill 8
3. Professional trader 8
What trading instruments does StockPicking use? **9**
Let’s talk about indexes 9
Stock sectors 11
Practice: StockPicking trading systems explained **12**
1. Buy Dips 13
Sample trade 14
System example in SQ AlgoCloud platform 14
Strategy rules overview: 15
2. Mean Reversion 18
Sample trade 19
System example in SQ AlgoCloud platform 19
Strategy rules overview: 20
3. Breakout (Momentum) 23
Sample trade 23
System example in SQ AlgoCloud platform 24
Strategy rules overview: 24
How to test systems from this e-book in AlgoCloud trading platform: Plug&Play setup **27**
How to create an account on www.algocloud.io 27
Brief description of AlgoCloud platform features 29
Opening the sample system 29
Checking strategy backtest results 31
How to deploy trading strategies on a live account 32
Creating Alpaca broker demo account 33
Activating connection to Alpaca broker in AlgoCloud 34

Deploying trading strategy on the live account 38
Monitoring of the live trading of the strategy 43
Final thoughts **47**

Let the algo-trading revolution begin!

- ➔ We're creating a revolution. The systems that had been in hands of experienced traders (e.g. programmers and professionals in banks) are newly available for everyone. Programming skills and knowledge about detailed processes on exchanges are no longer needed. All knowledge you need is basic use of your PC.

- ➔ It doesn't matter whether you're a beginner or you're in the field of trading for some time… all the required steps are clearly described here, and those who are more advanced will find a new dose of inspiration.

- ➔ I meet a lot of traders who know that StockPicking is a good way, but technical issues have stopped them. Also, the question is whether it makes sense to invest hundreds of hours and then to manage only a small personal account. In this book we will show you how to solve this gracefully.

What is the purpose of this book?

While I was writing this book I focused on three priorities:

Firstly, to explain in a clear way how StockPicking algorithmic trading works.

Secondly, not to stick only to theory and rather to give practical procedures that could be immediately put into practice to start trading without any previous knowledge. You can test the examples in this book without having to buy anything or open an account with a broker.

And thirdly, based on long-term observation of the trading community, to define what distinguishes successful traders from unsuccessful ones and describe the path in trading that has a high probability of success.

It was quite challenging to stick to these priorities while ensuring that the book did not slip into a several hundred page treatise. You can judge for yourself whether I succeeded in my goal of introducing you to StockPicking in a practical way. I will then be glad if you write me feedback after reading this book.

Four reasons why you should trade StockPicking strategies

1. **Picking only the best trading opportunities on the market**

   By selecting from a large number of possible stocks we can enter a trade only if there is a very strong signal (compared to a single-symbol strategy that might suffer from a lack of trades).

2. **Reducing drawdown comparing to holding only one index**

   By combining multiple strategies we can achieve lower drawdowns (and thus the risk) compared to holding a single instrument, e.g. SPY (S&P 500).

3. **Working with a smaller or no leverage account - lower risk of rapid loss of capital**

   Stock trading teaches us the necessary habit of patience right from the start. The chances of losing capital are greatly reduced by not using leverage (you can use leverage if you are sure about your stock-picking strategy - but it is still lower than in case of other instruments).

4. **Working with growing markets**

   In general, stocks tend to rise, and we can benefit from this principle successfully in our trading strategies.

It is a journey for determined traders

There are countless trading approaches available for testing: a trader can literally spend his life by trying to master them. Maybe this sounds familiar to you or maybe you know someone who invested thousands of hours in trying different trading methods without any success. As I am a part of the trading company that has been trading on financial markets for more than 10 years, I had opportunities to meet hundreds of traders. This experience led me to write this chapter. We will not focus on the certain trading method but rather on the trader's journey. We will aim for the aspects that determine success in this area. You can also look forward to several insights which could be an inspiration on your personal way.

Thousands of hours spent on studying and testing trading methods is not a ticket for success automatically. The **success in trading is about choosing the right way**. Let me give you an example. If you want to outperform 92 % of hedge funds in the long term, then you can just buy and hold S&P 500 ETF. Just this simple “buy & hold” rule can work.

https://www.cnbc.com/2019/03/15/active-fund-managers-trail-the-sp-500-for-the-ninth-year-in-a-row-in-triumph-for-indexing.html

The three stages of the trader

In this chapter I have divided the trader's journey into **three stages**. According to my experience they cannot be avoided and if you go through all of them step-by-step, the probability of becoming a successful trader significantly increases.

1. The first steps

Most beginners open an account with a broker, try some system on forex on a low time-frame and blow up their account. There are two problems here: forex is a market for advanced traders (beginners should avoid it) and low time-frames always mean to meet the doom of account even quicker (it’s definitely not for beginners). Why is this usually the scenario? Because it looks like the quickest and easiest way with a big profits illusion.

- ➔ What’s my recommendation then? Choose **a daily time-frame (1D) minimally.** Focus on markets with a significant long-bias (trend) and start with a simple strategy that you

understand (I'm going to show you examples later). You can get inspired by some simple and trustworthy (!) principle.

- ➔ It's not a bad idea to open e.g. a long position on SPY and to watch and experience the market (please note that even this simple approach may be losing in the short term in case of a worsened situation on markets).
- ➔ **Be patient.** Stick to the small positions at least for a year. You will understand it and gain know-how.
- ➔ Why don't people do that? It sounds boring and people often think they can be millionaires after a few weeks. On the other hand, most importantly: **you will not lose a lot of money**.

2. Active trader with advanced skill

In this stage a trader becomes more confident. They trade several strategies.

- ➔ You need to know about the **importance of Money Management** and set it for your strategies strictly.
- ➔ You have strategies for both long and short positions.
- ➔ You have done dozens of trades.
- ➔ You have already experienced a drawdown and you understand that an equity curve can't be a straight line.
- ➔ You're able to strictly follow your system.

For this phase you will get support in this book in the form of sample systems

3. Professional trader

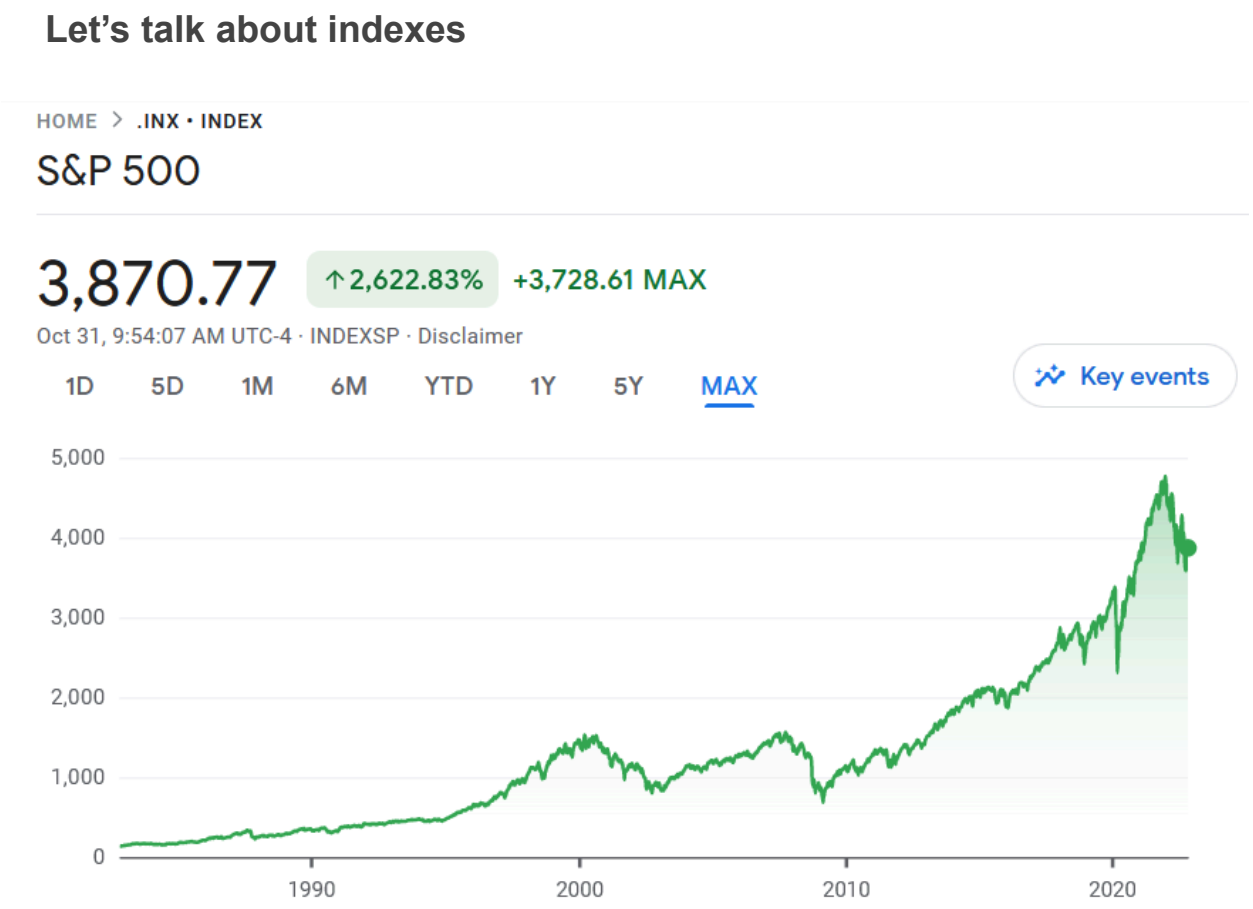
Professional traders understand markets well and know what approach is suitable for a particular situation.

- ➔ You combine **various approache**s to smooth out your capital equity curve.
- ➔ You are a part of a **community of traders** which support each other and to share experience.
- ➔ You work with a bigger capital and you should be able to gain **profits steadily**.
- ➔ You trust your system and know their principles well.

What trading instruments does StockPicking use?

We will trade **stocks**. But as the first thing it is important to emphasize that we will not focus on a single stock symbol trading. StockPicking trading strategies open multiple trades (on different stocks) simultaneously.

For this purpose we always need to define an elemental group (list) of stocks which may be picked by the strategy. For example, an elemental list of stocks might be based on an index (e.g. S&P 500).

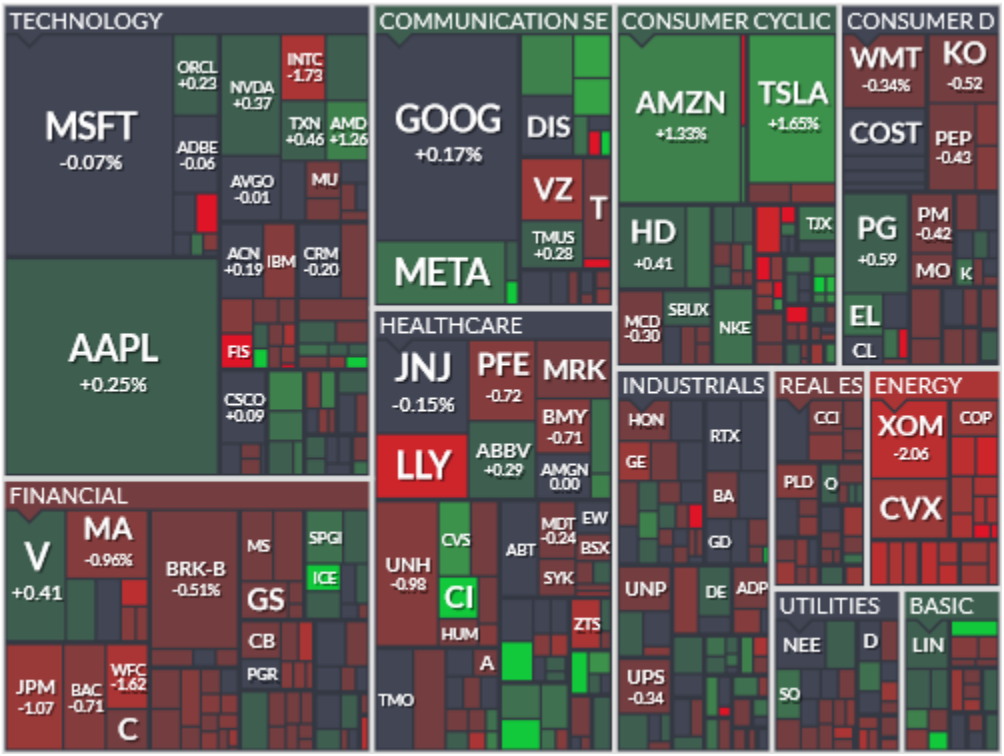


S&P 500 graph (source: google.com)

Let's discuss first the best known index in the world: S&P 500 index tracks performance of the 500 largest companies listed in US exchanges. Their selection is based on criteria such as market capitalization, traded volume, etc. This index represents the longest tracked stock index history and follows the whole modern era of the human kind. Obviously it is hard to access all

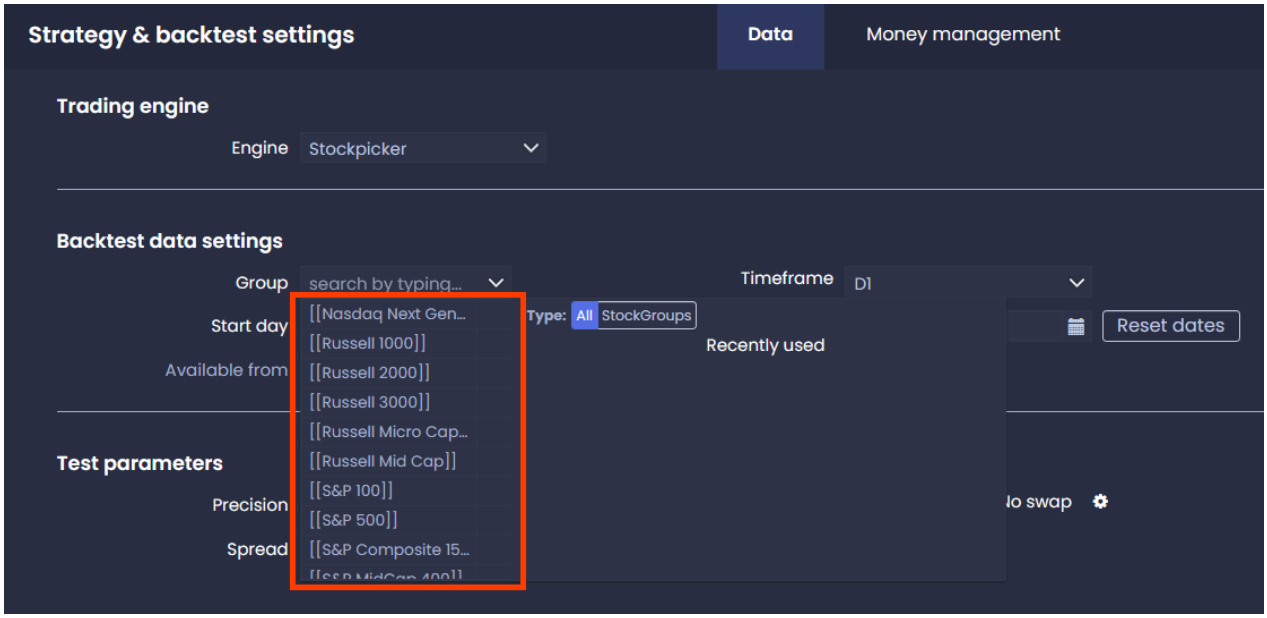
the data of the companies that are part of the index during its history, but for example, in SQ AlgoCloud tool the history is covered back to 1980: it gives 42 years of historical data for quality-testing of our trading strategies.

The S&P 500 index is regularly being updated by adding new companies and removing those which do not meet the criteria or are not traded anymore.



Graphical representation of S&P 500 composition (source: finviz.com)

There're also other indexes: S&P 100 (a subset of the S&P 500 which consists of 100 US companies) or Russell 3000 (containing 3000 US companies). Our software enables us to trade multiple predefined indexes or even selected stock sectors.



You can select an index in our trading software: the only thing you need to do is to select a group and all the math behind (such as survivorship bias) is performed automatically

Stock sectors

All the stocks traded on stock exchanges can be divided into several sectors: each sector represents a specific part of the economy (such as energy, real estate, etc.). See below:

Technology - Utilities - Real Estate - Consumer Staples - Communication Services - Materials - Healthcare - Energy - Industrials - Consumer Cyclicals - Consumer non-Cyclicals - Government - Activity - Financial Services

By running one strategy on different sectors we may get very interesting diversification, because in a crisis the behavior of the sectors differs. E.g. Real Estate sector behaves completely differently compared to the Healthcare sector. Real Estate stops selling, but the demand for Health Care remains at a similar level. I recommend starting with whole indexes (not to choose sectors). Nevertheless, after gaining the necessary trading experience, sectors are one option for diversification. Alternatively, you can also use a filter to exclude a specific sector. For example, companies in the Health Care sector tend to move sharply when a new medicine is discovered. For example, in the case of “Mean Reversion” systems, this principle is not desired and it may be better to avoid such stocks.

Practice: StockPicking trading systems explained

In this chapter we will describe how basic StockPicking systems work. It's good to start working with basic ones and then maybe develop them further (it saves a lot of time as you don't need to start from scratch). It's similar to learning to play a musical instrument: First we learn to play other people's songs and when we fully master them then we can start to create our own and become a master in the philharmonic.

First I will try to explain it briefly and generally: Imagine we have a package of stocks that we watch (e.g. all the stocks from S&P 500 index) on a daily time-frame (one bar = one trading day on the exchange). We set entry conditions that will indicate a desired situation (e.g. a sharp movement of price) if it occurs for any of the stocks. If more stocks meet the conditions, the stocks are ranked from the best opportunity and trades are opened only on the selected number of stocks (e.g. the top five). Trades are closed later (on the same day or after a few days) when exit conditions are met. We also need to set a Money Management that says what's the maximum number of open trades and how large the opened position should be (e.g. 20 % of the capital).

The further described systems - "Buy Dips", "Mean Reversion" and "Breakout" are representatives of basic trading systems in general. Their benefit is that they are based on general principles of market functioning. Simply said: markets have dips, after sharp moves they tend to retrace (pull back), just as after breaking strong levels (resistances) they tend to continue to rise (momentum). These phenomena have always been recurring in markets.

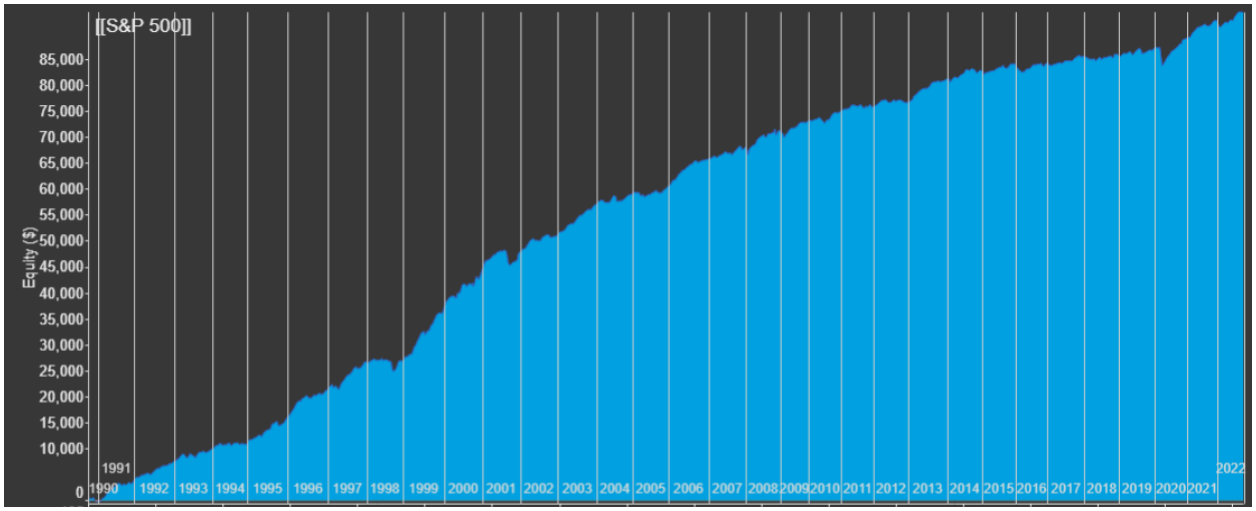
This chapter clearly explains the principle of each system so that you can immediately test it yourself without any prior knowledge.

What is backtest?

A backtest is a simulation that is used to evaluate the performance of a trading or investment strategy. It involves running the strategy on historical data to see how it would have performed in the past. This allows traders and investors to assess the strategy's viability and make informed decisions about whether to use it in the future. Backtesting is a crucial tool for evaluating the effectiveness of a strategy and for refining it over time. It can help traders and investors identify potential weaknesses in a strategy and make adjustments to improve its performance.

1. Buy Dips

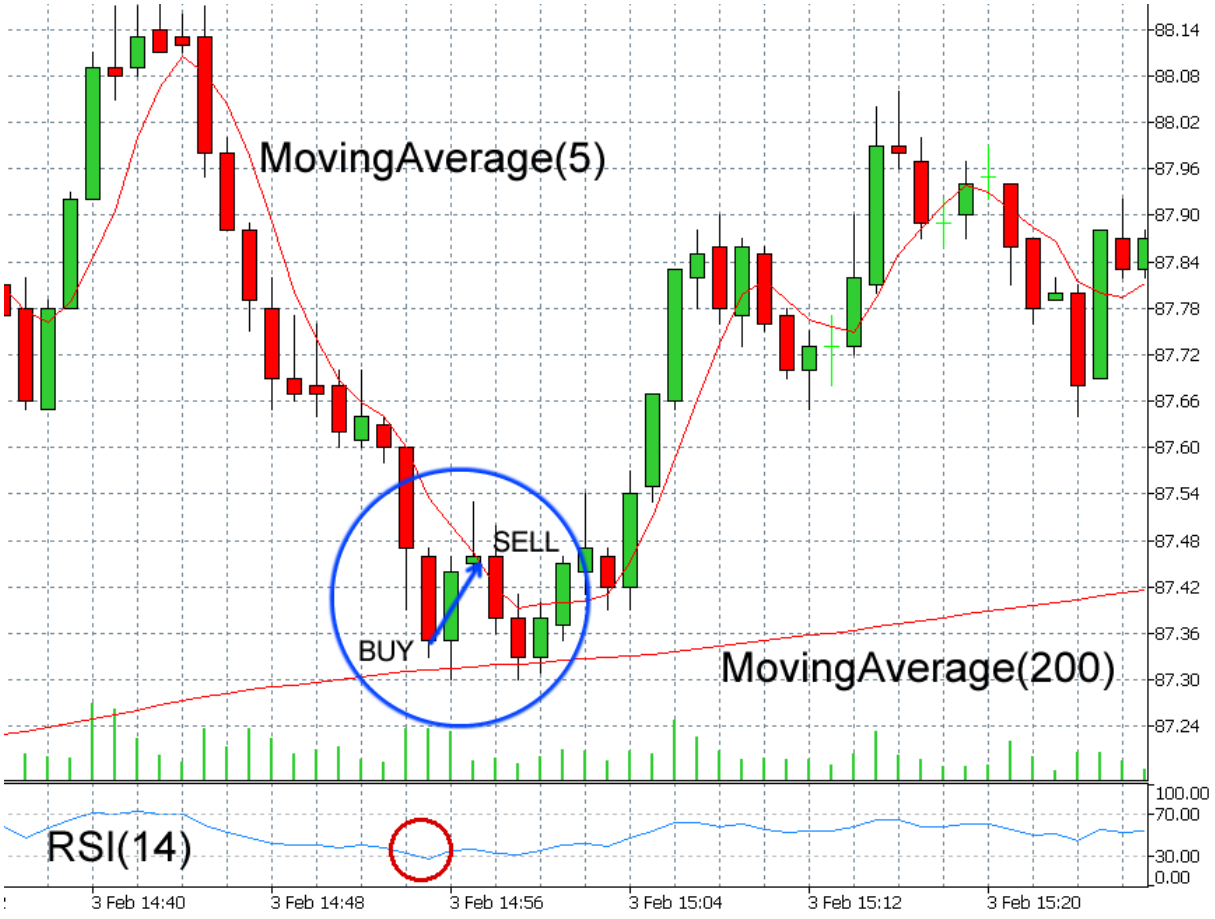
“Buy Dips” system may be rightly called the king of StockPicking strategies.



Strategy backtest results in SQ AlgoCloud platform

I first came across this strategy ten years ago on a blog: a community of people were successfully trading it. What caught my interest was that even though the Buy Dips principle had been traded long term, it still worked. Ten years later, at the time of writing this book, the system still shows good results. Even though it has been in drawdown several times, it always had the energy to make a new high. The second big advantage of the system is its simplicity. For this reason, I have chosen it as the first system to begin our practical excursion into the world of StockPicking strategies with.

Sample trade



After a sharp drop in price the strategy opened a trade (BUY) at the closing price of the candle when the value of the RSI indicator dropped below the level of 30 and at the same time the price was above the MovingAverage(200) indicator. The trade duration is shown by the blue arrow. The profitable trade was left (SELL) when a candle had closed above MovingAverage(5).

System example in SQ AlgoCloud platform

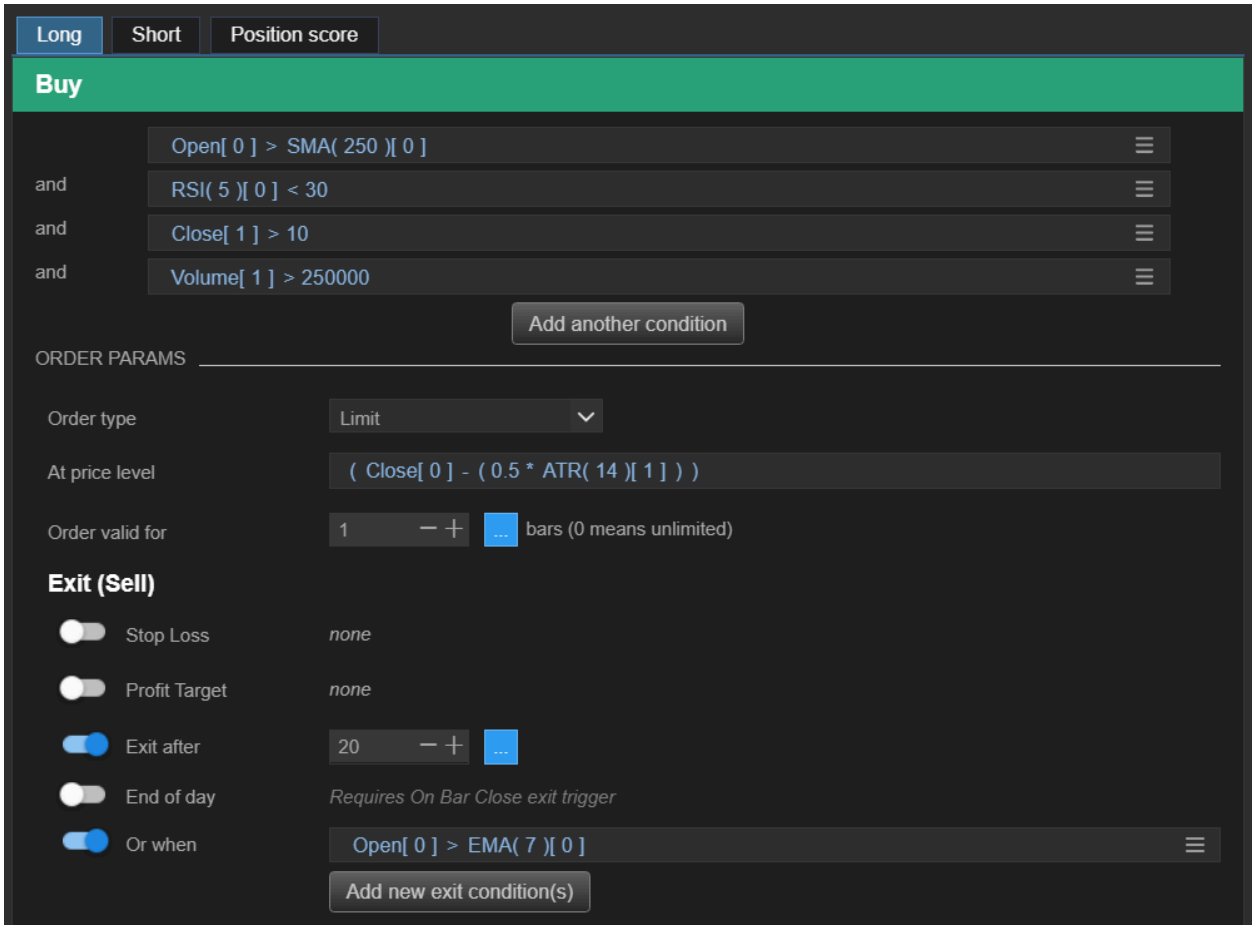
Now we will try a backtest of the system directly in the AlgoCloud trading platform. Just click on the link below to see the strategy tab with the backtest and results. You can try to modify the strategy yourself or to test it. For details, see the chapters ‘How to test systems from this e-book in AlgoCloud trading platform - Plug&Play setup’ and ‘Going live’.

https://strategyquant.com/ebook-buydips

Strategy rules overview:

1	**Time-frame**	D1	One trading session on the exchange = one day = one bar (candle)
2	**The group of stocks (list) we choose from**	S&P 500	Index consisting of the 500 biggest US companies
3	**Rules for trade ENTRY**	The today's lowest price > MovingAverage(250) **and at the same time** RSI(5) < 30 **And at the same Time** Close > 10	These conditions give candidates for opening the a trade
4	**POSITION SCORE: ranking of candidates**	(1 - ROC(15)) *The higher price drop the better score*	Those stocks that meet the conditions for entering a trade are ranked according to the formula
5	**Maximum number of open trades**	5	We select the five stocks that meet the entry conditions and have the highest Position Score
6	**WHEN to open the trade**	BeforeBarOpen	Trade will be opened when market opens
7	**How to open the trade**	Limit order at level: Close[0]-0.5*ATR(14)	We open pending orders on these 5 stocks using a Limit order order at the exactact level
8	**Rules for trade EXIT**	Open[0] > EMA(7) or after 20 bars	Trade is closed when the price closes above the exponential moving average with a period of 7

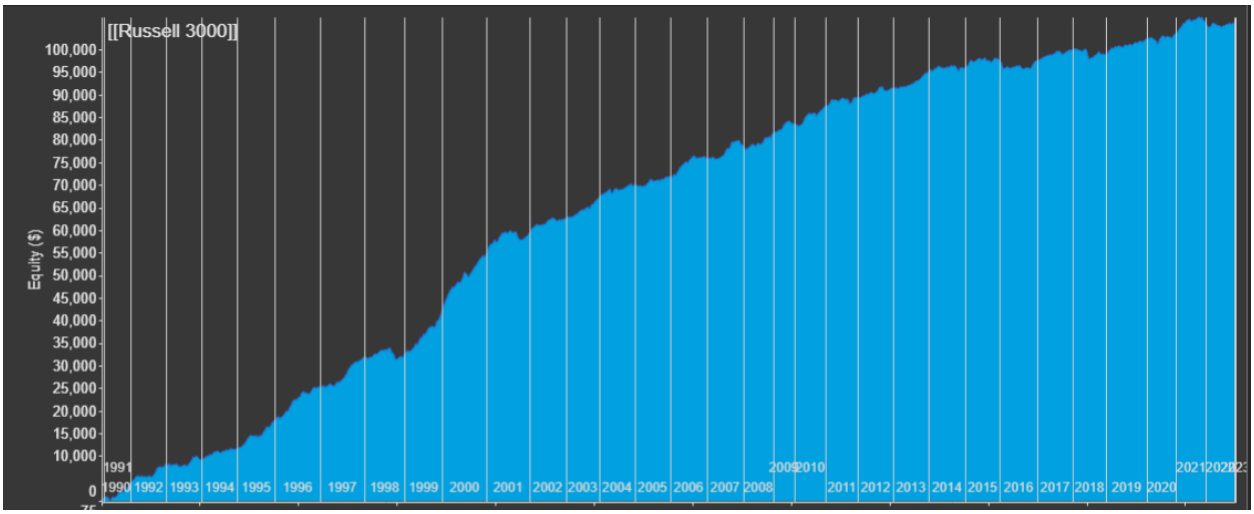
9	**WHEN to close the trade**	OnBarClose	Trade is closed 1 min before exchange close at 14:59 EST
10	**Closing of the trade**	Market	We close trades using a MARKET order (i.e. buy immediately at the current market price)
11	**Money Management**	Max. 5 positions	We open a maximum of 5 trades. Further trades only after closing of one of the previous trades. Example: 20% of account allocated in every trade, without leverage.



Strategy rules loaded in the SQ AlgoCloud online software

2. Mean Reversion

"A unique market neutral advantage that works no matter if markets go up or down".



Backtest of the MeanReversion system

This strategy uses an opposite principle compared to the Buy Dips. After a quick sharp rise, a reverse move (drop) often comes. Markets tend to return to normal after sharp movements. To say it simply: just imagine that a market curve is elastic and when there is a big pressure of price change in one direction, it tends to create a back pressure and straighten the price back.

Sample trade

When the stock price fell by 3 %, the strategy placed a pending order to the market at yesterday's close price. The limit order was executed the following day and a long trade was opened. The trade was subsequently closed four days later.

System example in SQ AlgoCloud platform

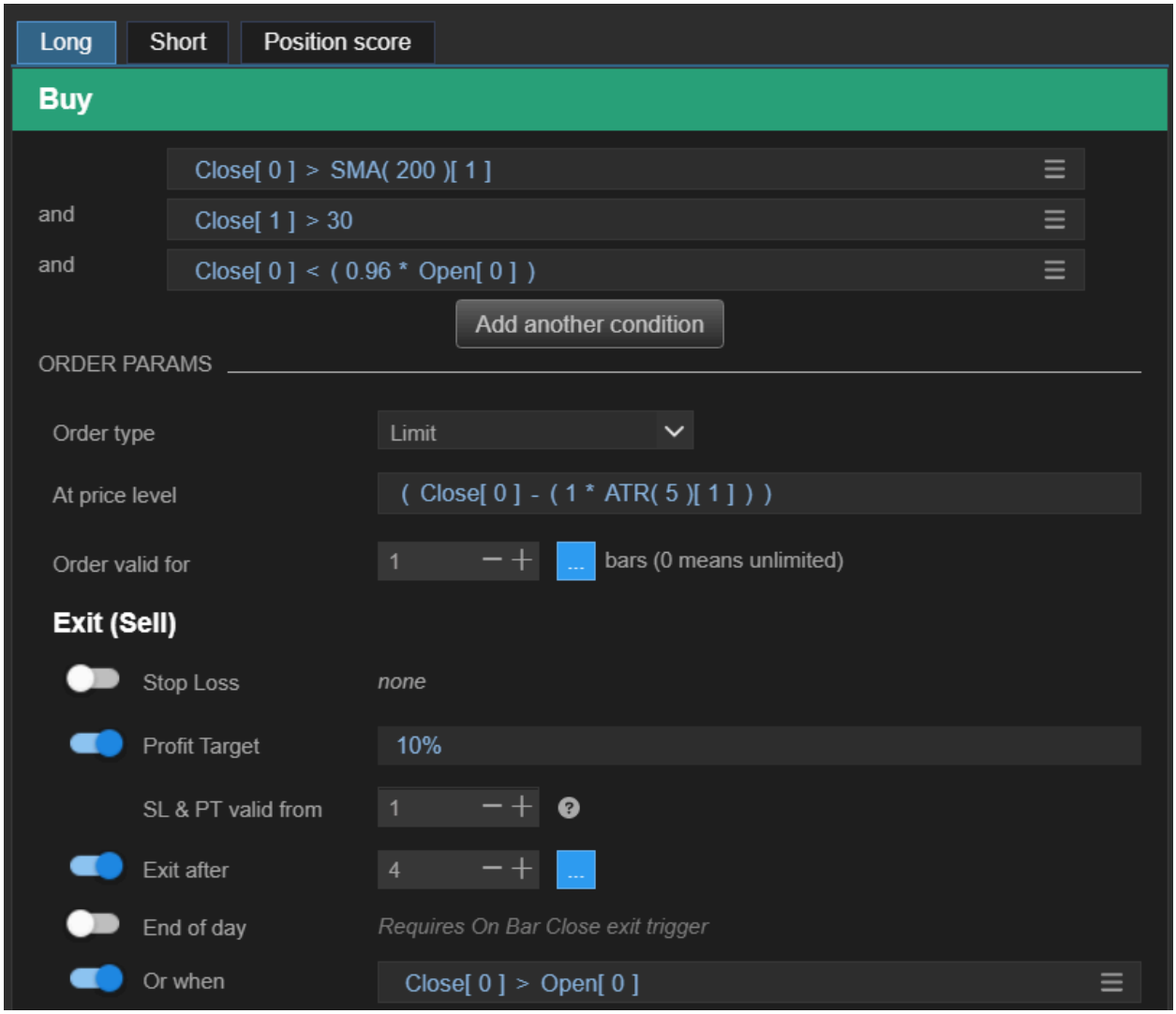
Now we will try a backtest of the system directly in the AlgoCloud trading platform. Just click on the link below to see the strategy tab with the backtest and results. You can try to modify the strategy yourself or to test it. For details, see the chapters ‘How to test systems from this e-book in AlgoCloud trading platform - Plug&Play setup’ and ‘Going live’.

https://strategyquant.com/ebook-meanreversion

Strategy rules overview:

1	**Time-frame**	D1	One trading session on the exchange = one day = one bar (candle)
2	**The group of stocks (list) we choose from**	Russell 3000	Group of stocks of 3000 US companies
3	**Rules for trade ENTRY**	Close[0] > MA(200) **and at the same time** Close[0] < (1*ATR(5)) **and at the same time** Close > 30	Yesterday's closing price is above the moving average with a period of 200 (= the last 200 days) and at the same time yesterday's bar (price from open to close) dropped by ATR(5) and price value is higher than 30 USD
4	**POSITION SCORE: ranking of candidates**	(1-ROC(5)) *The higher price drop the better score*	Select the stocks with the largest price drop from the list of stocks that meet entry conditions
5	**Maximum number of open trades**	5	We select the five stocks that meet the entry conditions and have the highest Position Score
6	**WHEN to open the trade**	BeforeBarOpen	The order is placed when market opens
7	**How to open the trade**	Limit order at level: Close[0] - 1.1*ATR(5) ATR is volatility indicator, the higher volatility, the higher value	At the beginning of the exchange trading session (9:30 EST) we place a pending (limit) order at level: below yesterday's closing price. If this pending order is not filled, we delete it at the end of the day

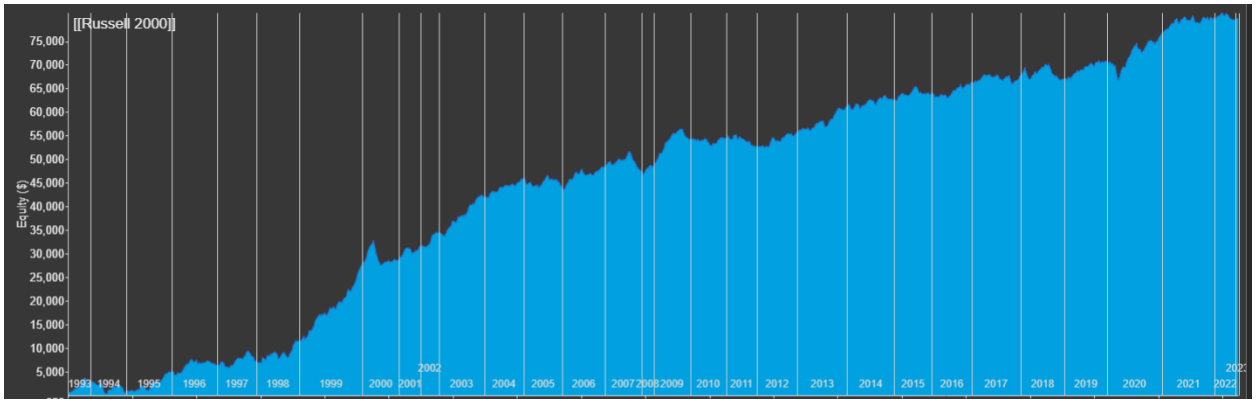
8	**Rules for trade EXIT**	After 4 bars **or** ProfitTarget 10%	Trade is closed if it lasts four days or reach 10% profit target
9	**WHEN to close the trade**	OnBarClose	Trade is closed 1 min before exchange close at 14:59 EST
10	**Closing of the trade**	Market, Limit	ProfitTarget - limit After 4 bar exit - market.
11	**Money Management**	Max. 5 positions	We open a maximum of 5 trades. Further trades only after closing of one of the previous trades. Example: 20% of account allocated in every trade, without leverage.



Mean Reversion Strategy Rules in SQ AlgoCloud platform

3. Breakout (Momentum)

"After a period of calmness often comes a storm."



Backtest of a strategy on the Russell MidCap Index

Breakout strategies are the most common type of strategies in algo-trading in general. The principle of such a strategy assumes that a market accumulates energy before breaking a strong level (resistance) and once it's broken it tends to continue rising (momentum in a market). In our case, we open a trade if the stock price breaks its high of the last 250 days.

Sample trade

The trade was entered if the market had opened above the highest level of the last 250 days.

System example in SQ AlgoCloud platform

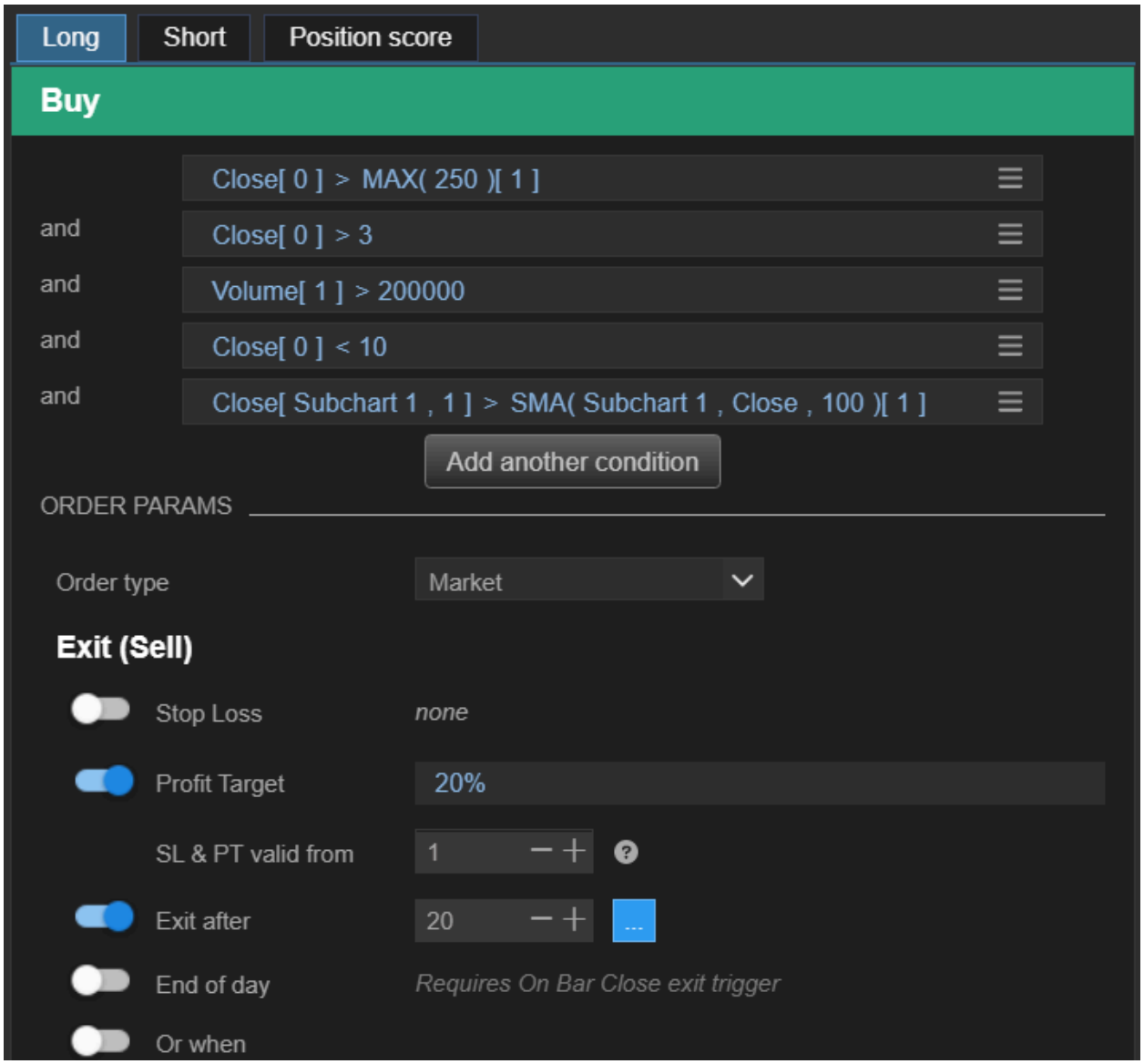
Now we will try a backtest of the system directly in the AlgoCloud trading platform. Just click on the link below to see the strategy tab with the backtest and results. You can try to modify the strategy yourself or to test it. For details, see the chapters 'How to test systems from this e-book in AlgoCloud trading platform - Plug&Play setup' and 'Going live'.

https://strategyquant.com/ebook-breakout

Strategy rules overview:

1	**Time-frame**	D1	One trading session on the exchange = one day = one bar (candle)
2	**The group of stocks (list) we choose from**	Russell 2000,	
3	**Rules for trade ENTRY**	Open[0] > Maximum(250)[1] **and at the same time** Close[1] > 3 **and at the same time** Close[1] < 10 **and at the same time** Volume > 200 000 **and at the same time** Close(SPY) > MovingAverage(100, SPY)	We open a position if all the 5 following conditions are met: 1) the market has reached its 250-day high 2) the stock price is higher than $3 3) and lower than $10 4) the daily volume is greater than $200,000 5) the close price of the SPY ETF chart is greater than the moving average of the SPY ETF with a period of 100
4	**POSITION SCORE: ranking of candidates**	RSI(14)	we use the RSI(14) indicator

5	**Maximum number of open trades**	5	We select the five stocks that meet the entry conditions and have the highest Position Score
6	**WHEN to open the trade**	OnBarClose	Trades are opened 1 minute before end of trading session.(14:59 EST)
7	**Opening of the trade**	Market order	We open trades on these 5 stocks using a MARKET order (i.e. buy immediately at the current market price)
8	**Rules for trade EXIT**	Profit Target 20% **or** after 20 bars	Trade is closed if the profit reaches 15 % or when the position is open for 20 bars (days)
9	**WHEN to close the trade**	OnBarClose	Trade are closed 1 min before exchange close
10	**Closing of the trade**	Market, Limit	ProfitTarget - limit After 20 bar exit - market.
11	**Money Management**	Max. 5 positions	We open a maximum of 5 trades. Further trades only after closing of one of the previous trades. Example: 20% of account allocated in every trade, without leverage.



Breakout Strategy Rules in SQ AlgoCloud platform

How to test systems from this e-book in AlgoCloud trading platform: Plug&Play setup

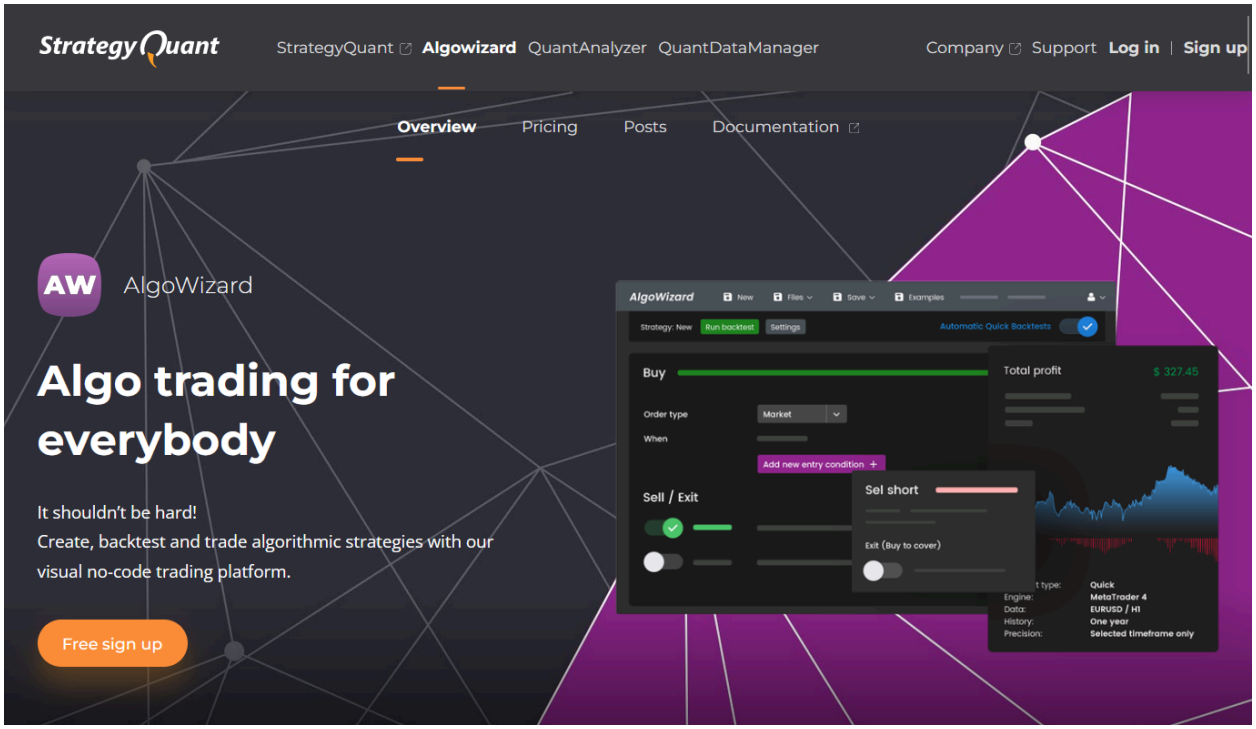
Now it is the right time to test our strategies directly in our AlgoCloud software. Just click on the specific link below to view the backtest results.

- Buy Dips: https://strategyquant.com/ebook-buydips
- Mean Reversion: https://strategyquant.com/ebook-meanreversion
- Breakout: https://strategyquant.com/ebook-breakout

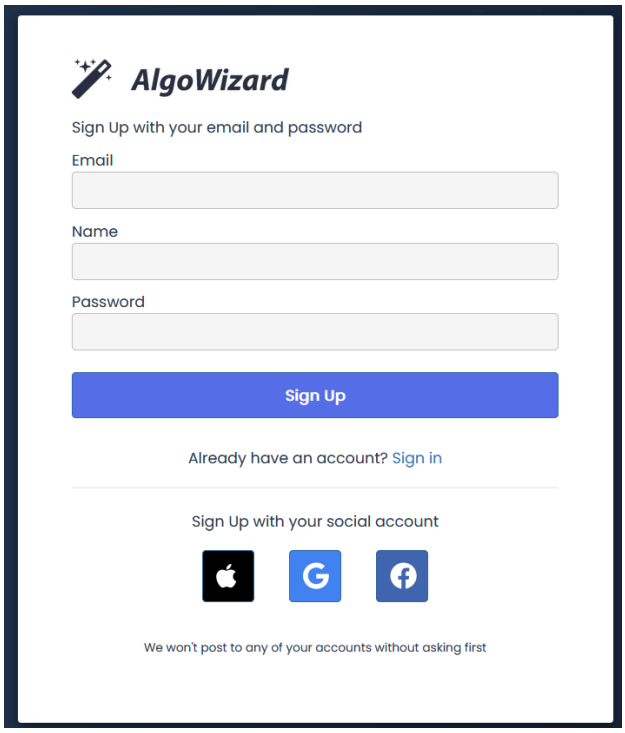
If you would like to test the system yourself, or even try to modify its logic and test how your change affects the outcome of the systems, just create a free account on www.algocloud.io, clone the system and start testing.

How to create an account on www.algocloud.io

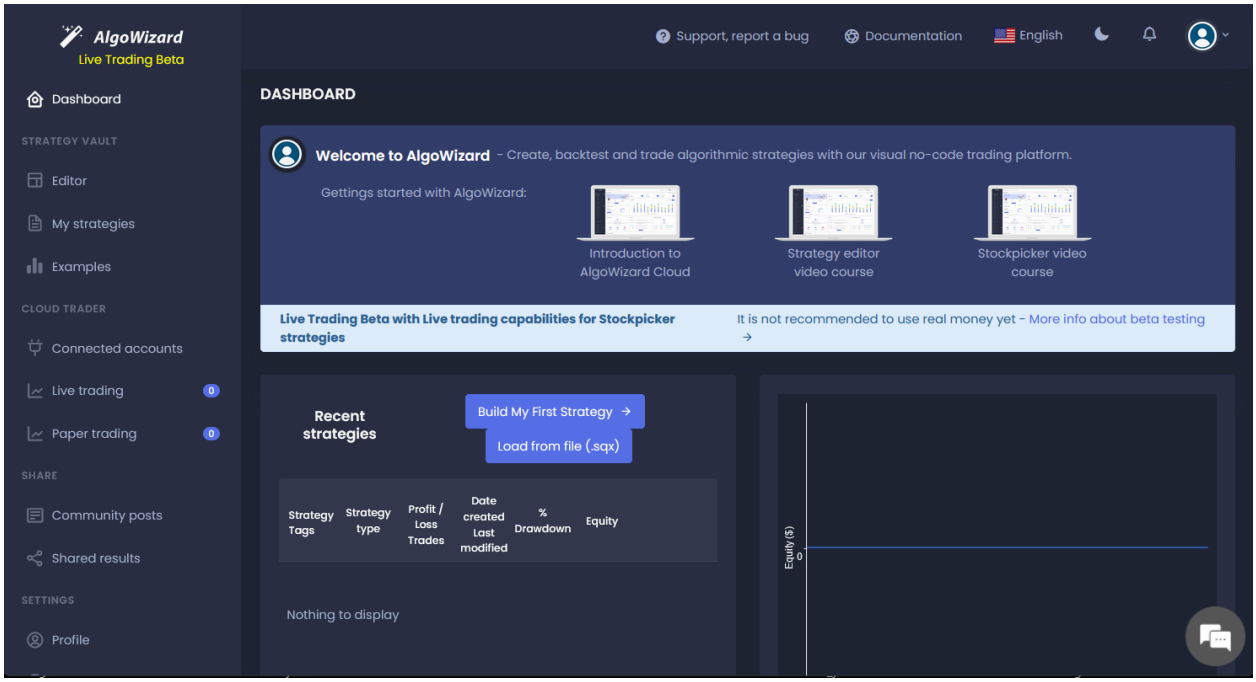
1) At www.algocloud.io open the registration by clicking on the button “Free sign up”:



2) Then create an account using one of the options offered:



3) We will send you a registration confirmation email.
4) After your registration and logging in you will be redirected to the AlgoCloud platform default screen



Brief description of AlgoCloud platform features

Editor - allows you to create or edit strategies without programming knowledge. It is not necessary to know exactly how to enter a trade on the exchange, the fine-tuned editor engine takes care of everything.

My strategies - your trading strategies cloud storage. Allows access to all your strategies including deploying them on a live account.

Examples - example strategies and trading robot logics which you can test in the editor.

Connected accounts - allows you to connect your brokerage account and trade your strategies on it. This part is covered in detail in chapter “Going live”.

Live trading - overview of your strategies which are being traded on your live accounts.

Paper trading - overview of your trading strategies which are being traded on the paper account (simulated AlgoCloud account, no connection to broker).

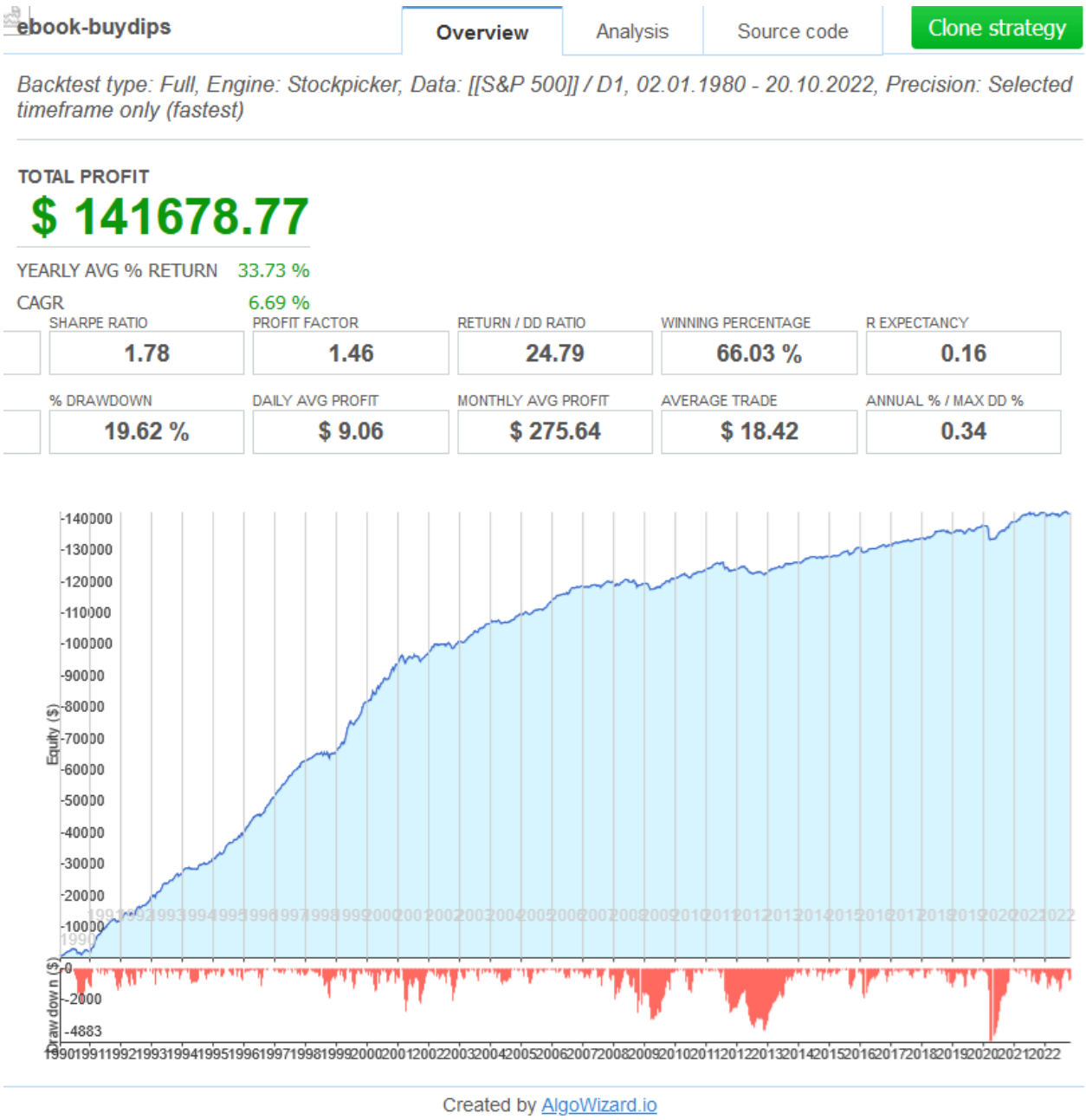
Community posts - interesting content created by our trading community.

Shared results - your strategies which you share with others.

Opening the sample system

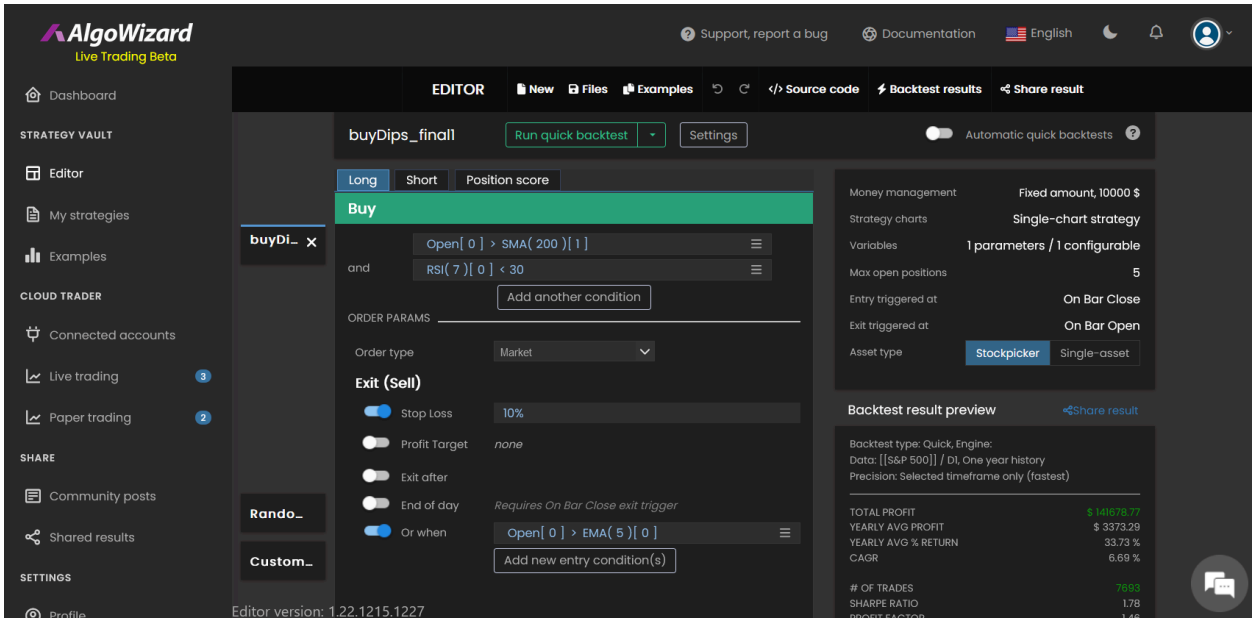
Once logged into the AlgoCloud platform, click on the link below to view the example backtest of a system:

- https://strategyquant.com/ebook-buydips



When the system backtest is displayed, click on the "Clone strategy" button.

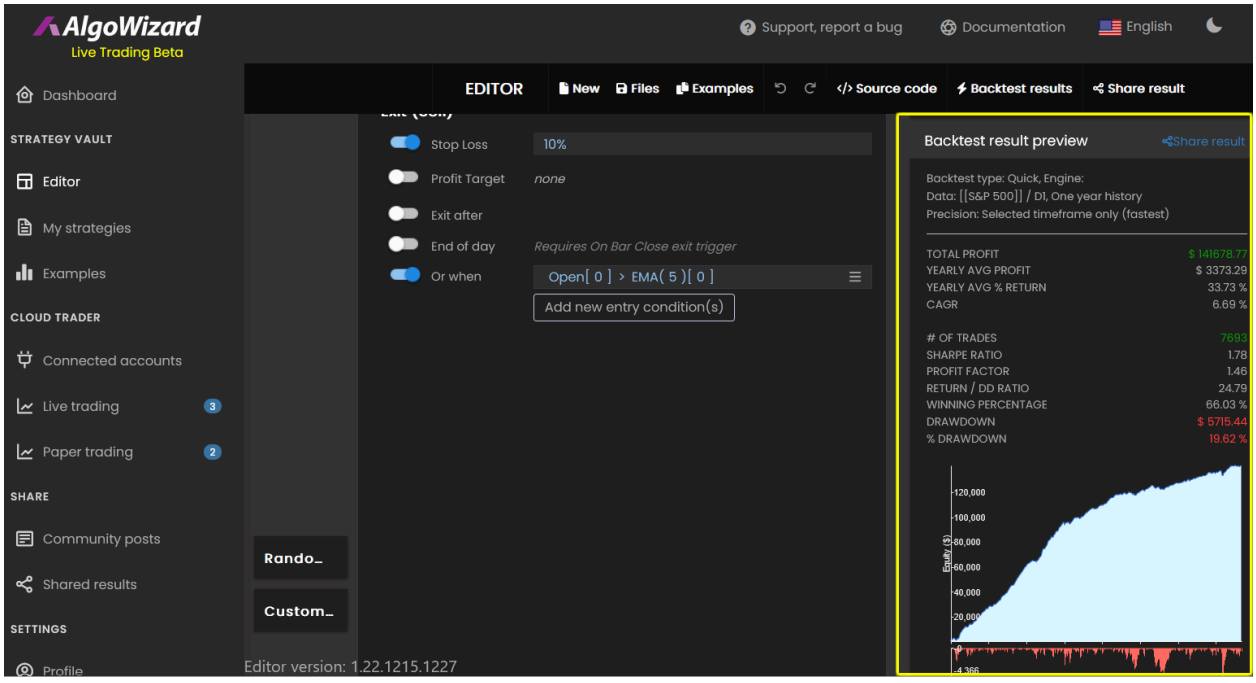
Now you can see the strategy loaded in the AlgoCloud strategy editor. (You might be asked to logging-in into AlgoCloud trading platform)



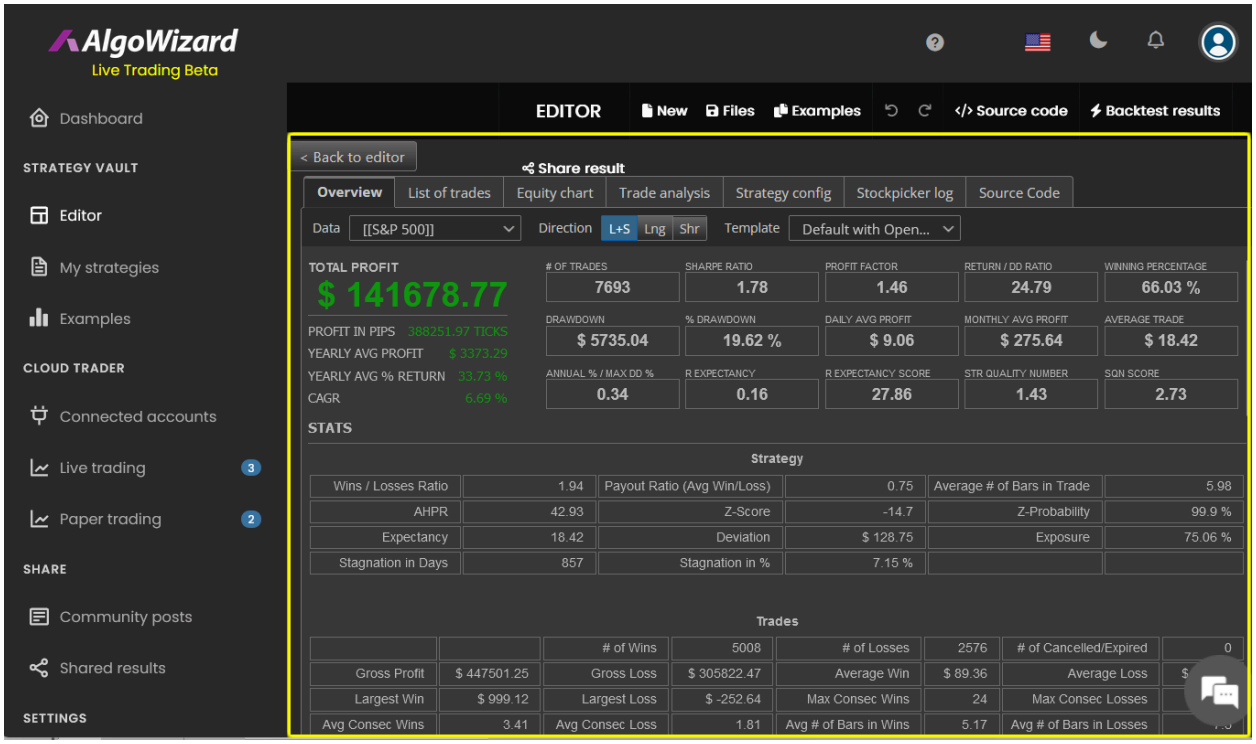
Strategy loaded in the cloud trader strategy editor

Checking strategy backtest results

On the right side of the screen you can find a backtest results preview. Click on it and you will be redirected to the detailed strategy statistics tab.



Strategy backtest results preview



StrategyDetailed statistics

If you decide to backtest strategy by yourself then you can do it by clicking on the “Run quick backtest” or “Run full backtest” button. Quick backtest will perform backtest using one year data history. Full backtest will perform backtest using longer data period. The period can be defined in the “Setting” popup.

How to deploy trading strategies on a live account

The great part of AlgoCloud platform is the possibility to run your strategies live. AlgoCloud currently supports several Brokers and more are coming..

Supported brokers:

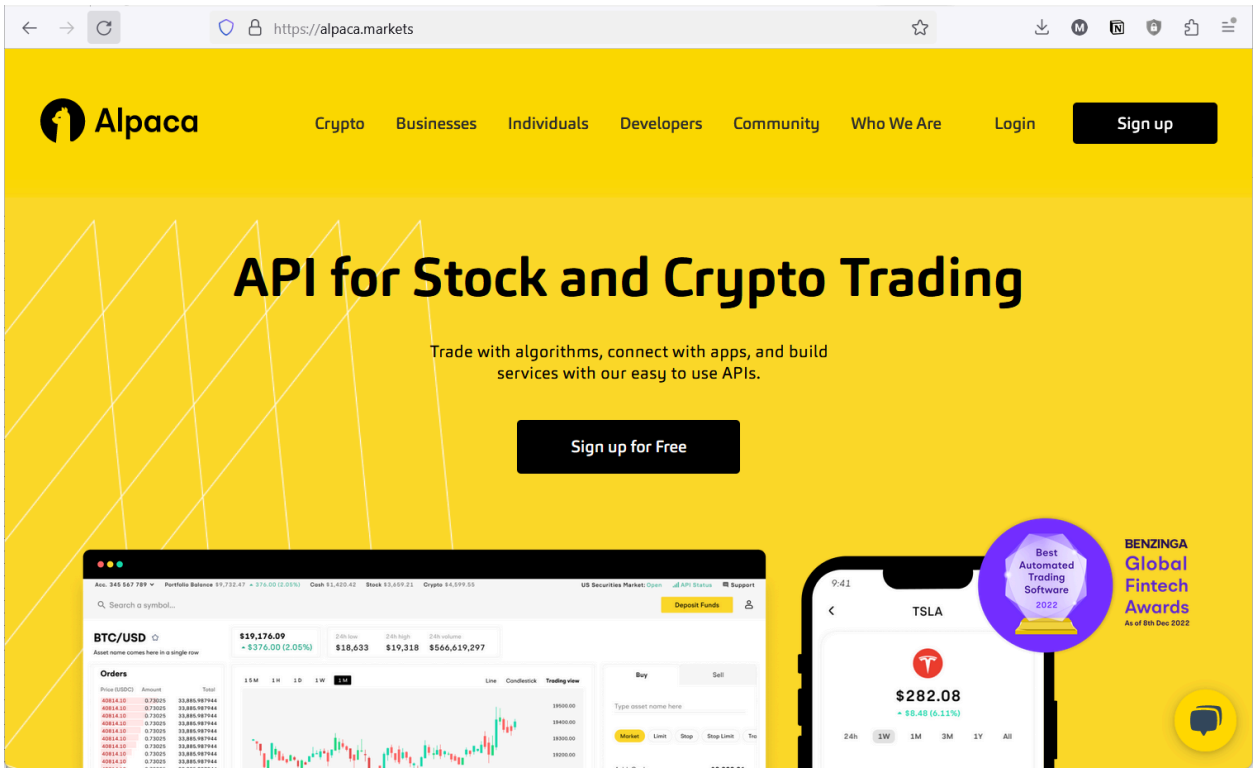
- Alpaca
- Interactive brokers
- XTB

In the following chapter you can find a step-by-step guide, how to deploy example strategy on the Alpaca broker testing account.

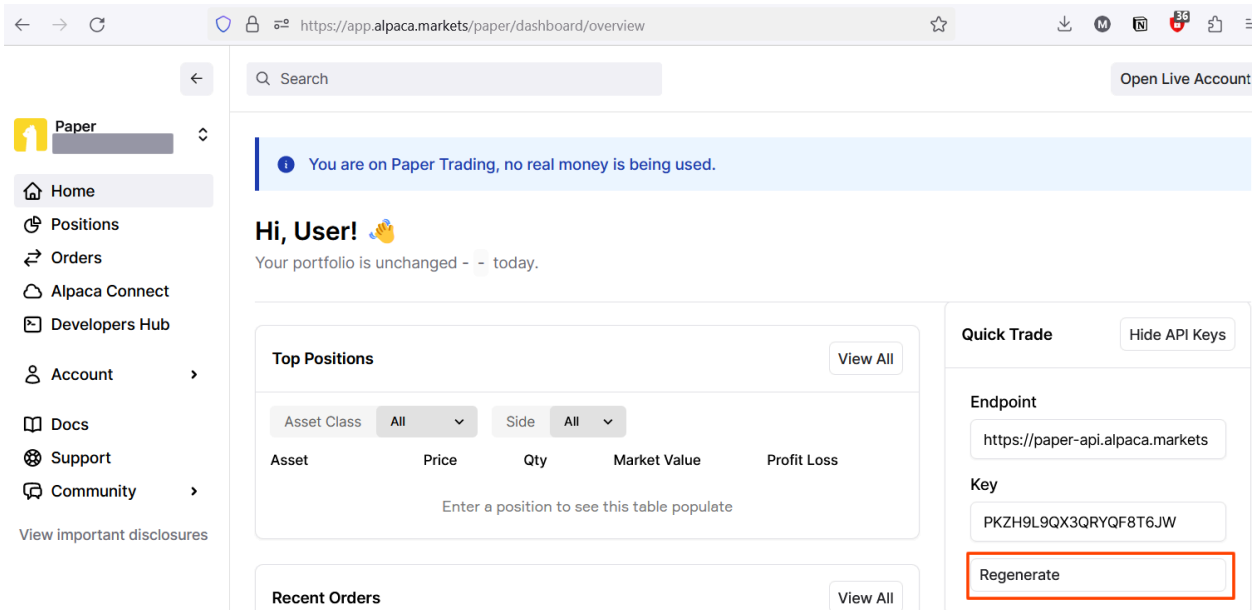
Creating Alpaca broker demo account

To create an account for the broker Alpaca.Markets, follow these steps:

1. Go to the Alpaca.Markets website.
2. Click on the "Sign Up" button in the top right corner.
3. Fill out the registration form with your personal information.
4. Verify your email address.
5. Log-in to the website - use “Traders” option.



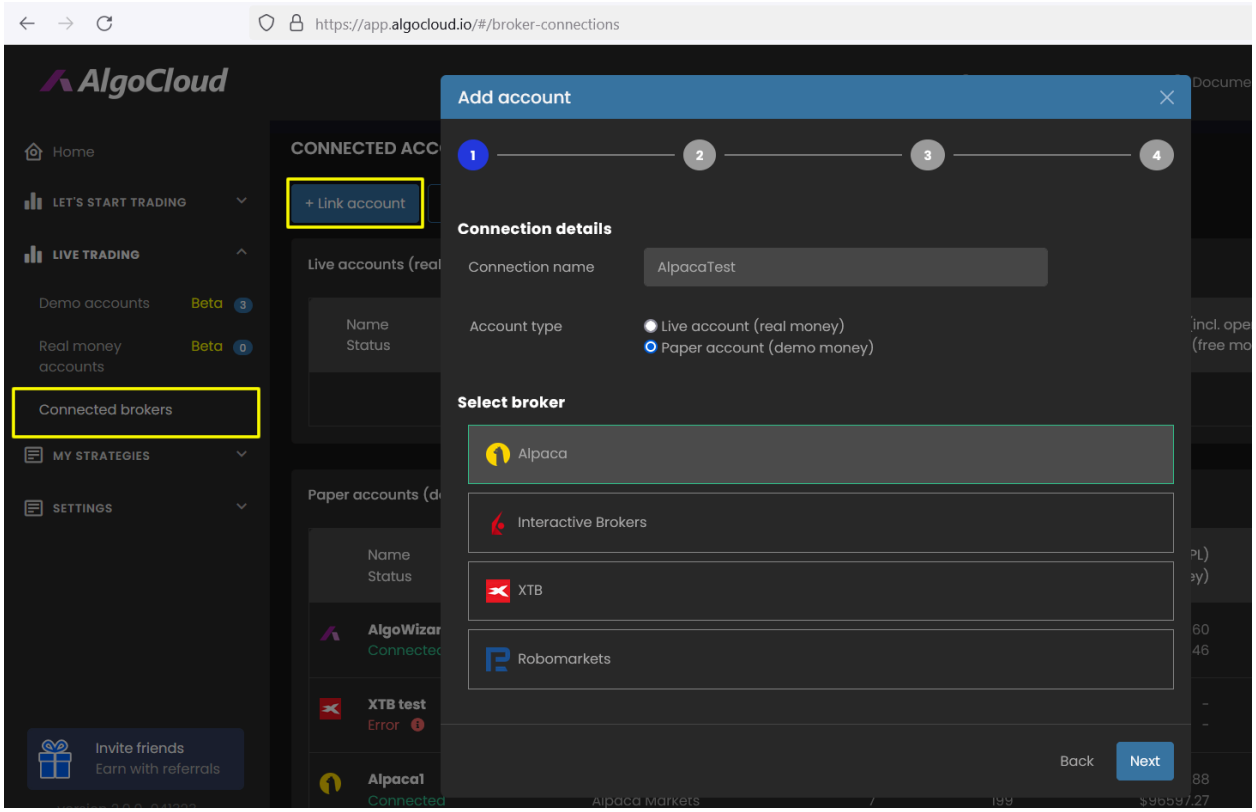
After logging in you will need to generate, copy and save two values. You will use them for connecting AlgoCloud to the Alpaca broker.



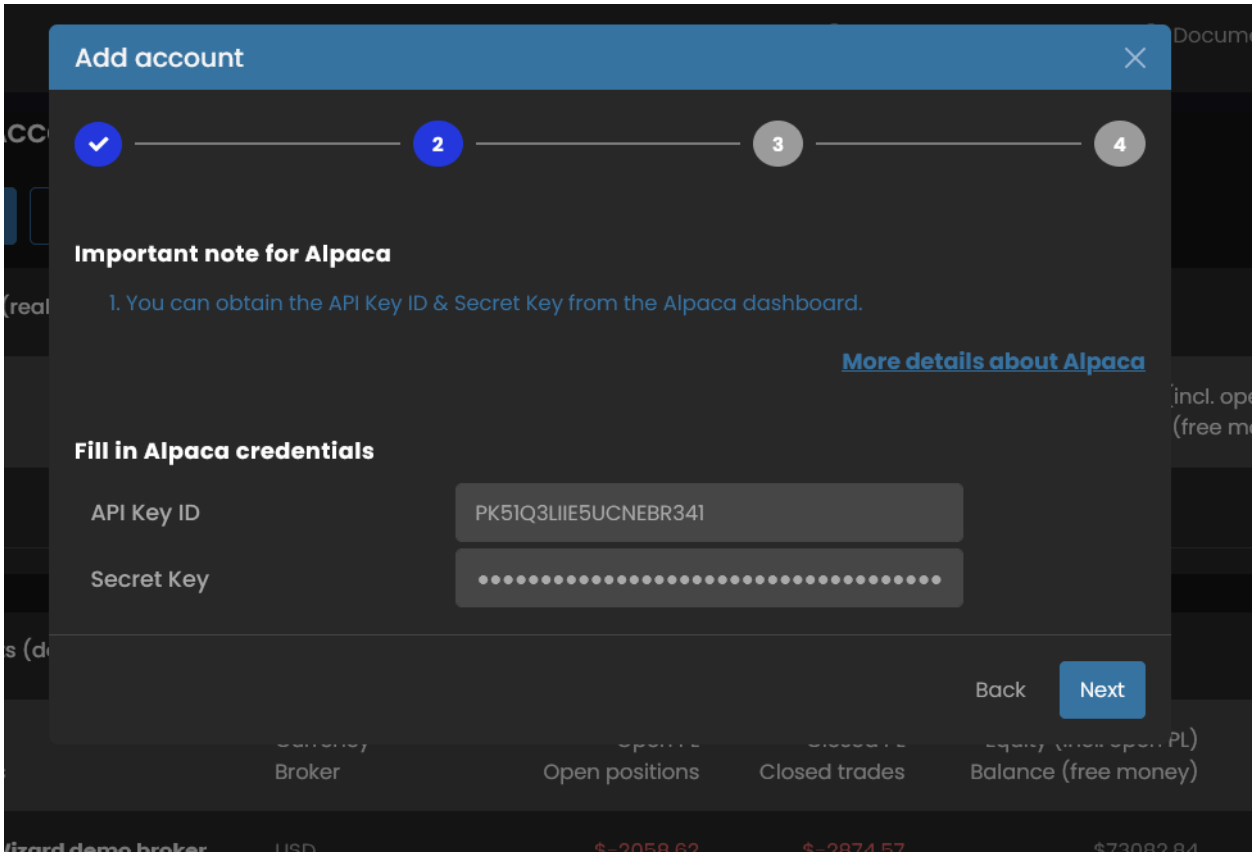
On the home screen click on the button “Regenerate”, then continue with clicking “Generate new keys”. Finally save the values of the values “Key” and “Secret”. We will use them in AlgoCloud for connecting the Alpaca account.

Activating connection to Alpaca broker in AlgoCloud

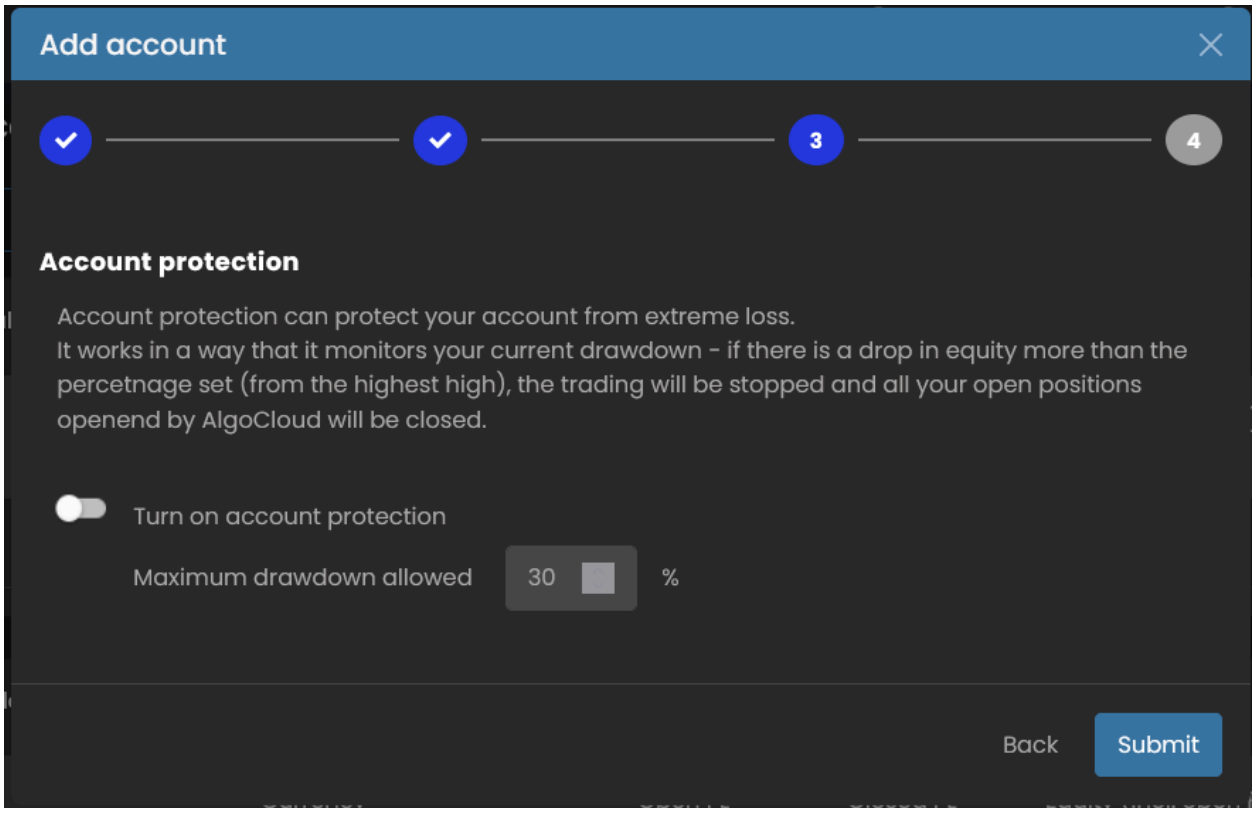
This is the second part of the process of connecting Alpaca brokers to AlgoCloud.



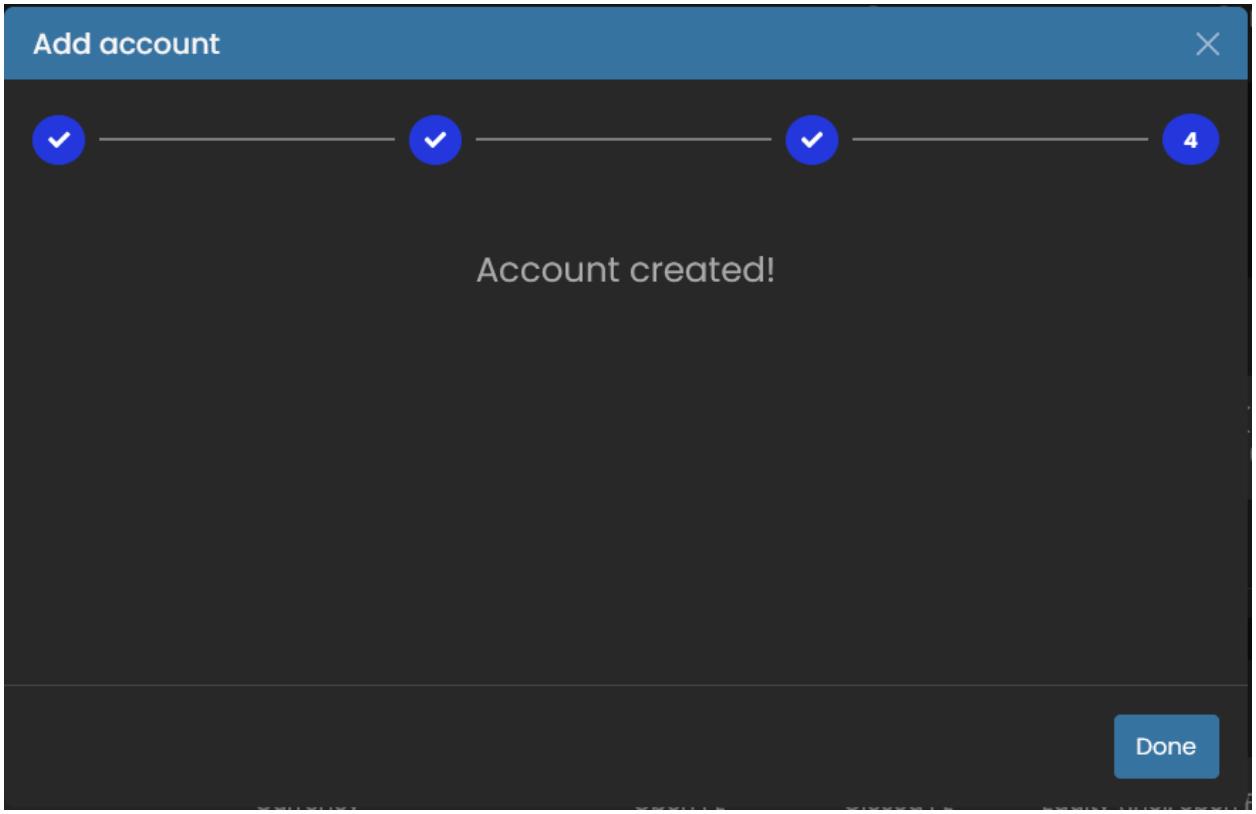
Step 1: On the screen "Connected brokers" click button "+"Link account". In the appeared popup select "Alpaca", type-in connection name and click button "Next".



Step 2 : Insert API Key ID and Secret key which you saved during creating your Alpaca Brokers account. Continue to the next step.



Step 3: There you can turn on account protection.

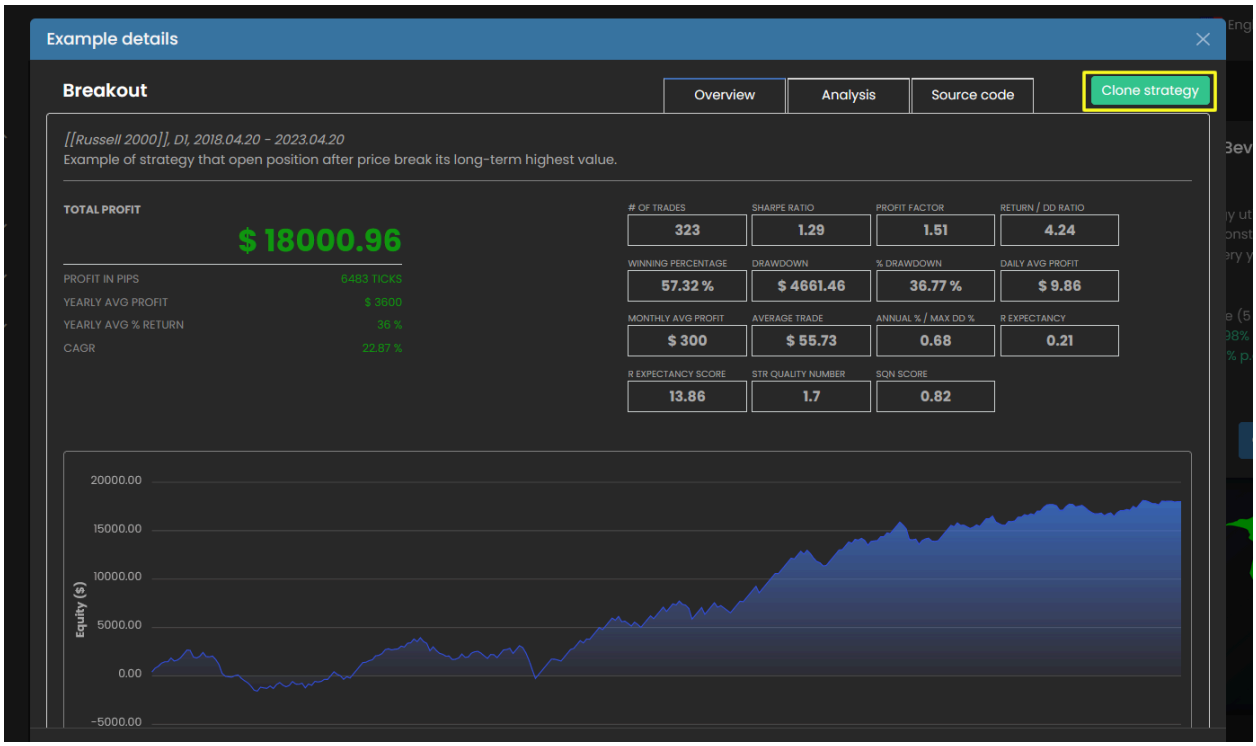


Step 4: Your Alpaca Brokers account has been successfully connected to the AlgoCloud trading platform

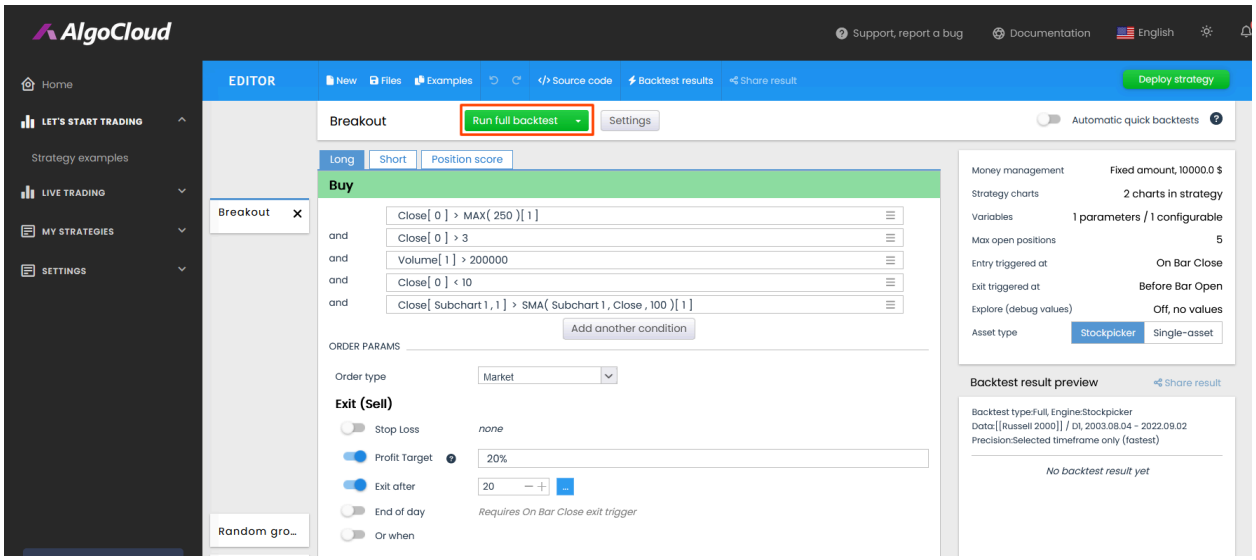
Deploying trading strategy on the live account

Finally we can deploy your strategy on the live account and start trading. We will deploy our example **BuyDips** strategy discussed earlier in this e-book.

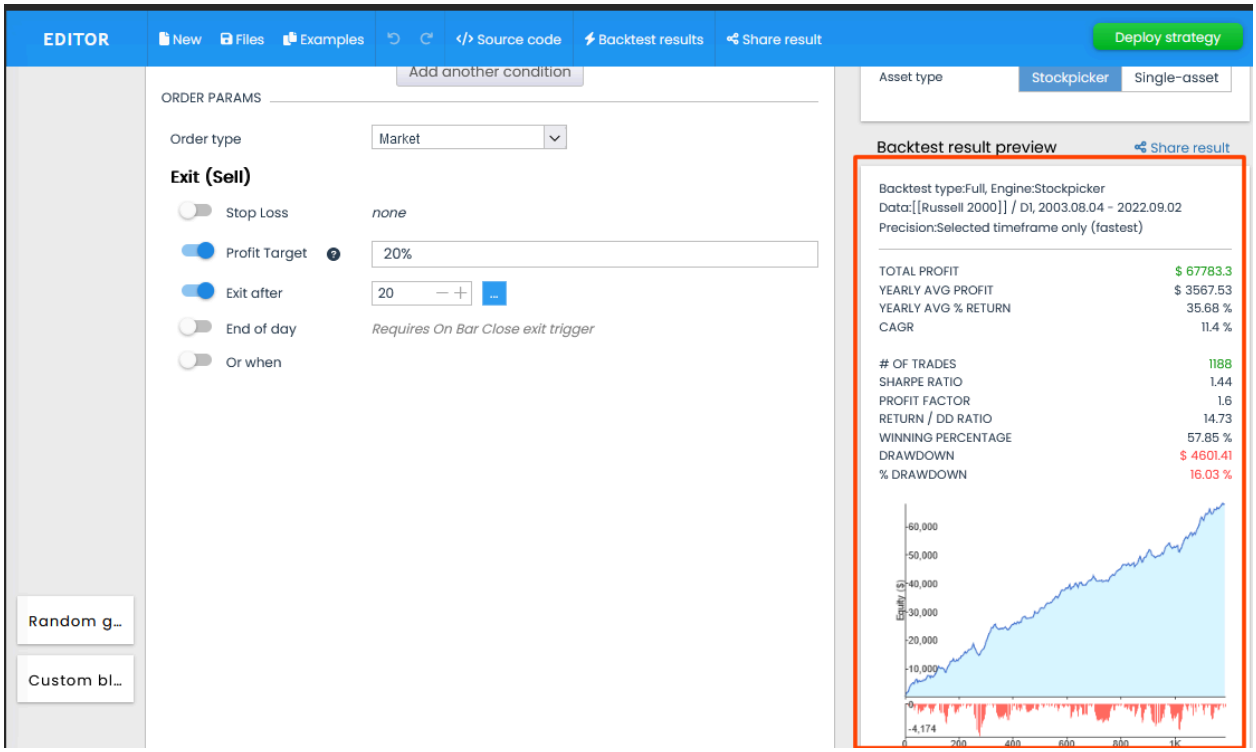
Let's open the strategy Breakout. You can find the strategy here:
https://strategyquant.com/ebook-breakout



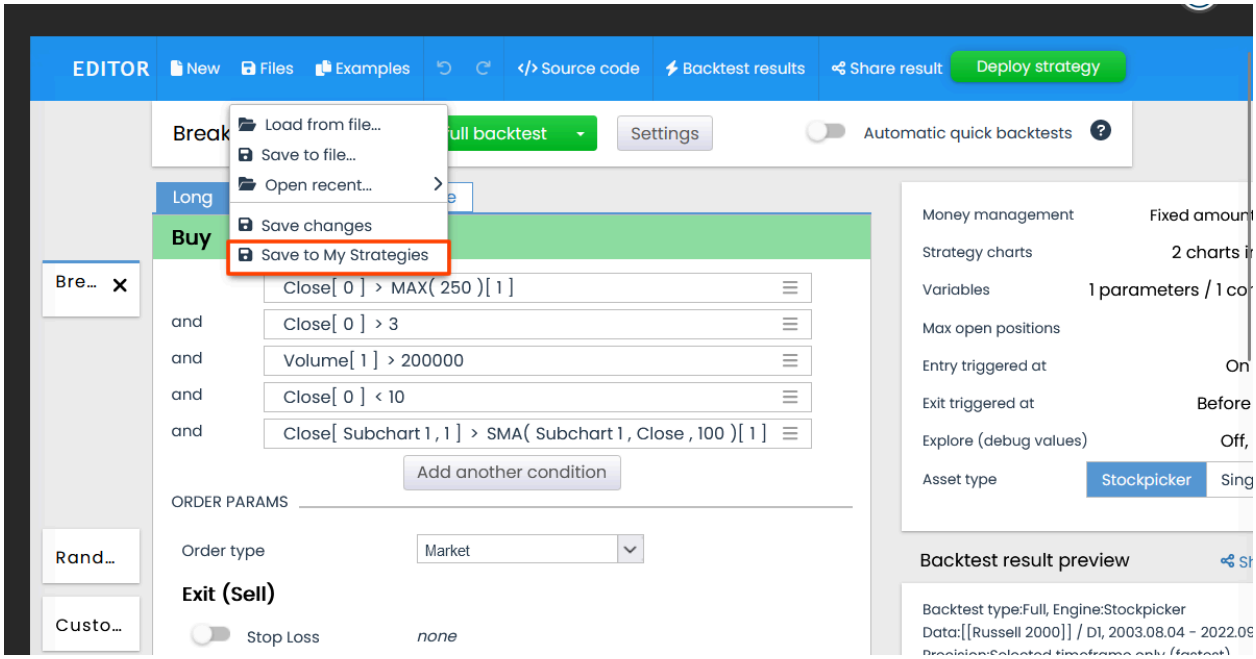
Just Open the link and in the appeared window click “Clone” button

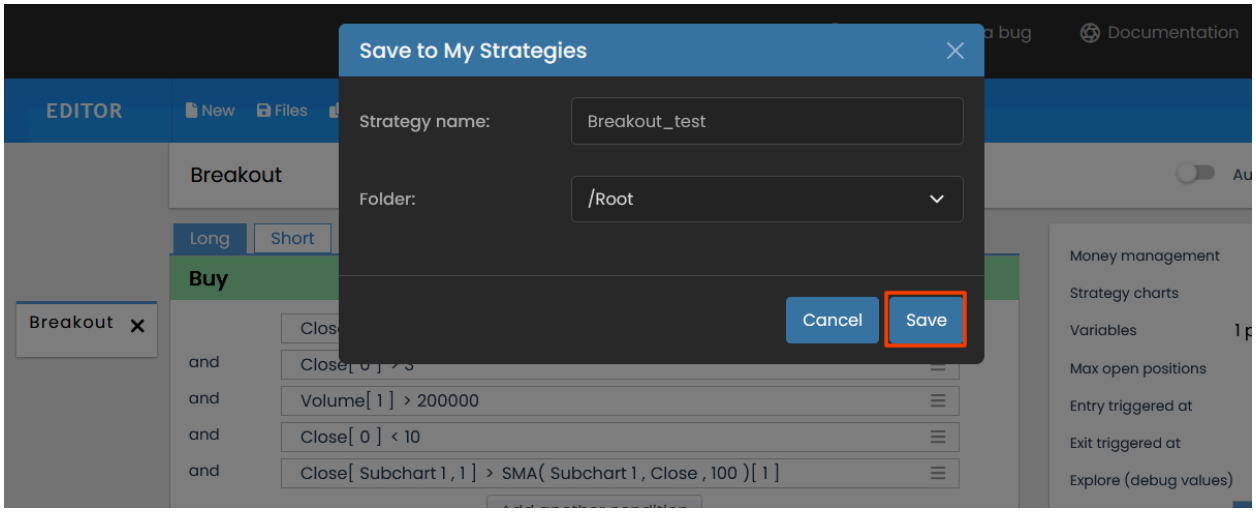


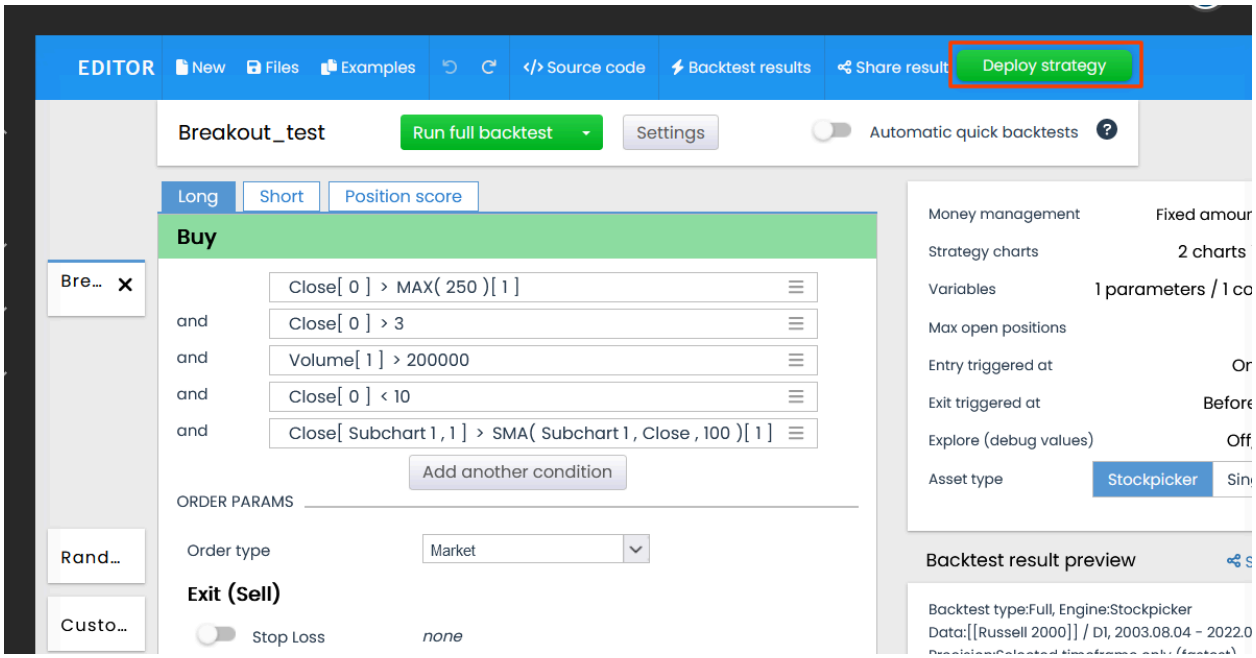
After opening strategy in editor click “Run full backtest” button



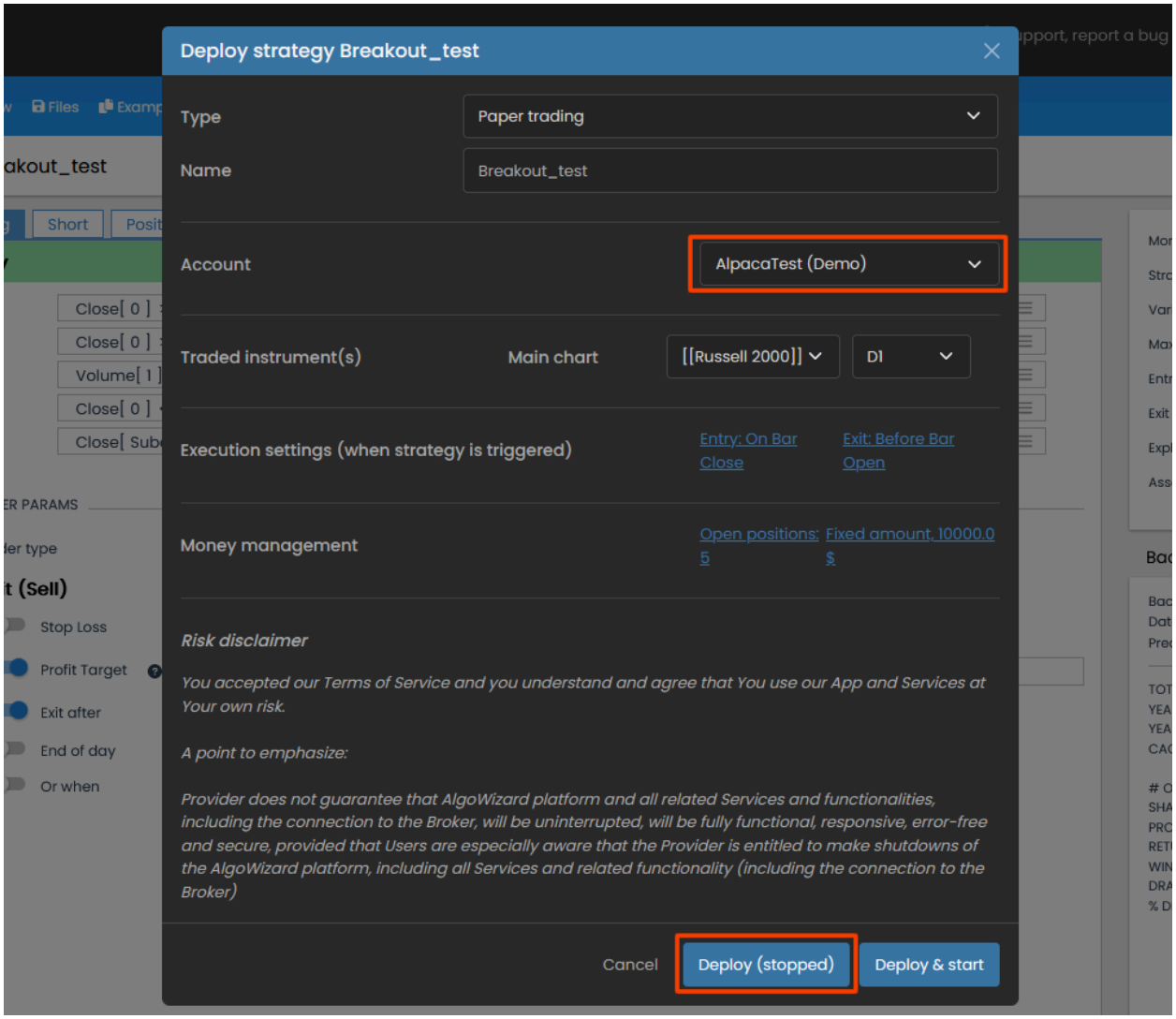
The backtest of the cloned strategy will appear. You can check detailed results clicking on this tab.



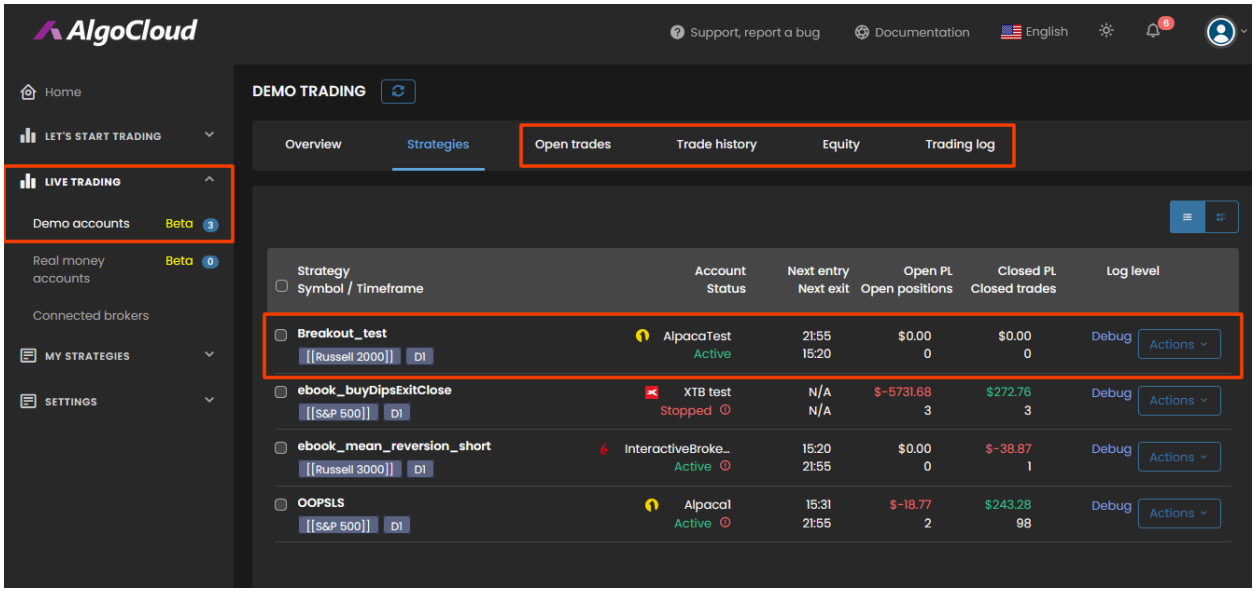




Click “Deploy strategy button”



In the appeared popup you can set details of the deployed strategy. In our case we just need to select "AlpacaTest" account which we created previously. Other settings are taken from the strategy settings.

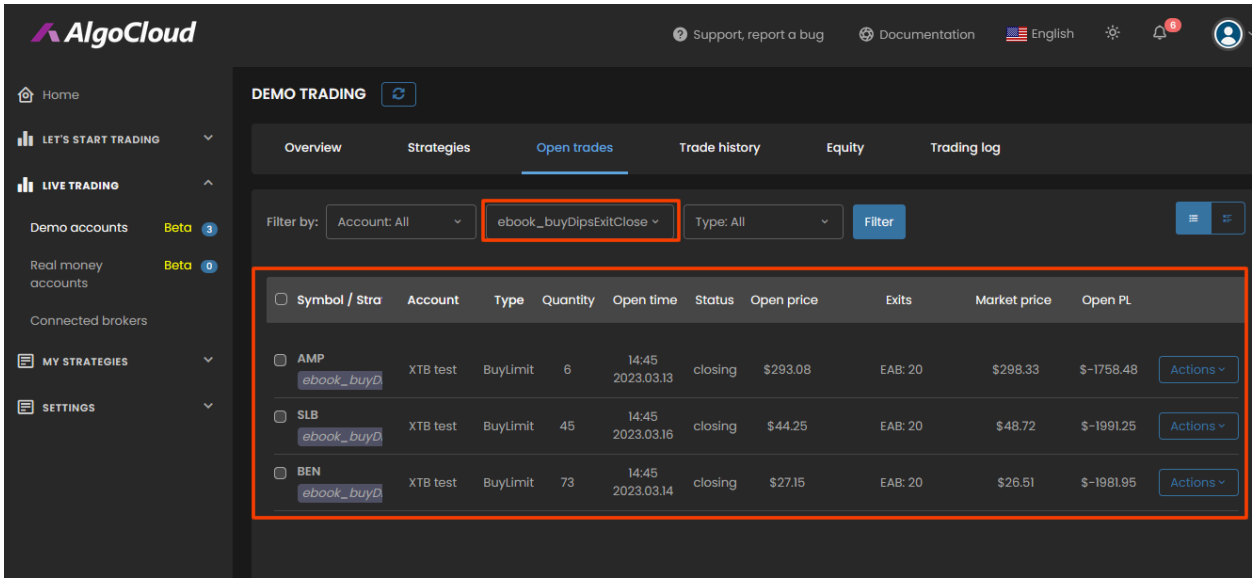


Now let's check "Live trading - Demo accounts screen". There you can find recently deployed strategy + on the other tabs you can check other detailed info like Open trades, Trade history Equity.

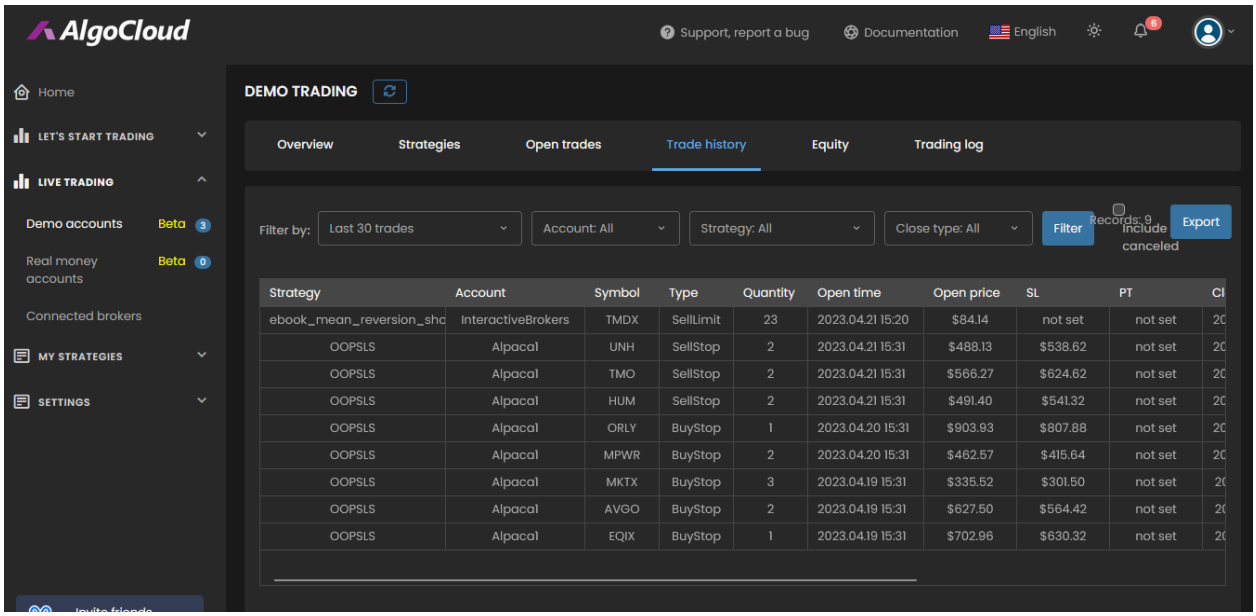
Monitoring of the live trading of the strategy

What will happen after redeployment of the strategy?

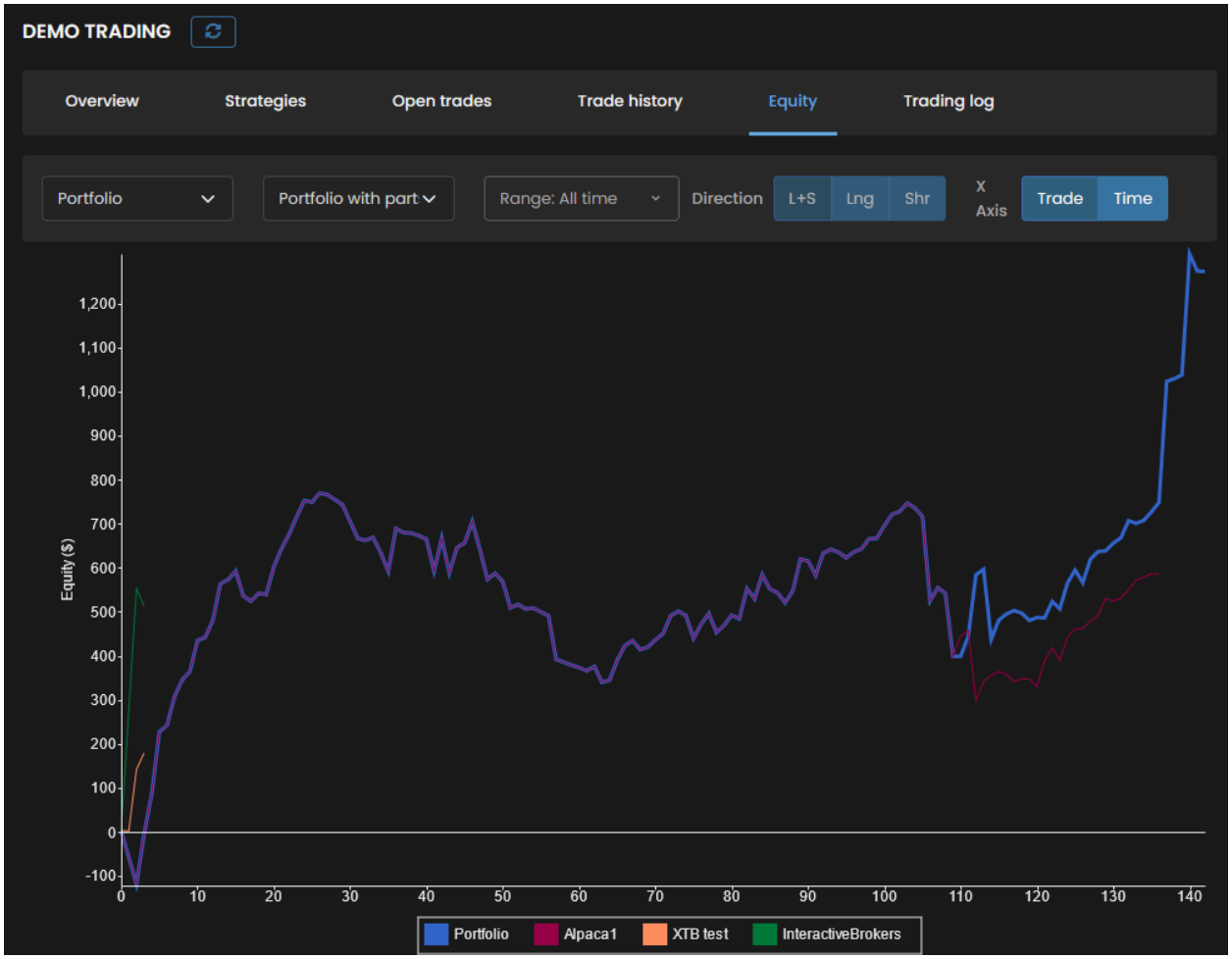
Our strategy called "Breakout" opens and closes trades at the end of the trading session, in our case it is 14:59 EST.
After this moment you can find detailed statistics and info about strategy live trading in tabs "Open trades", "Trade history", "Equity" and "Trading log".



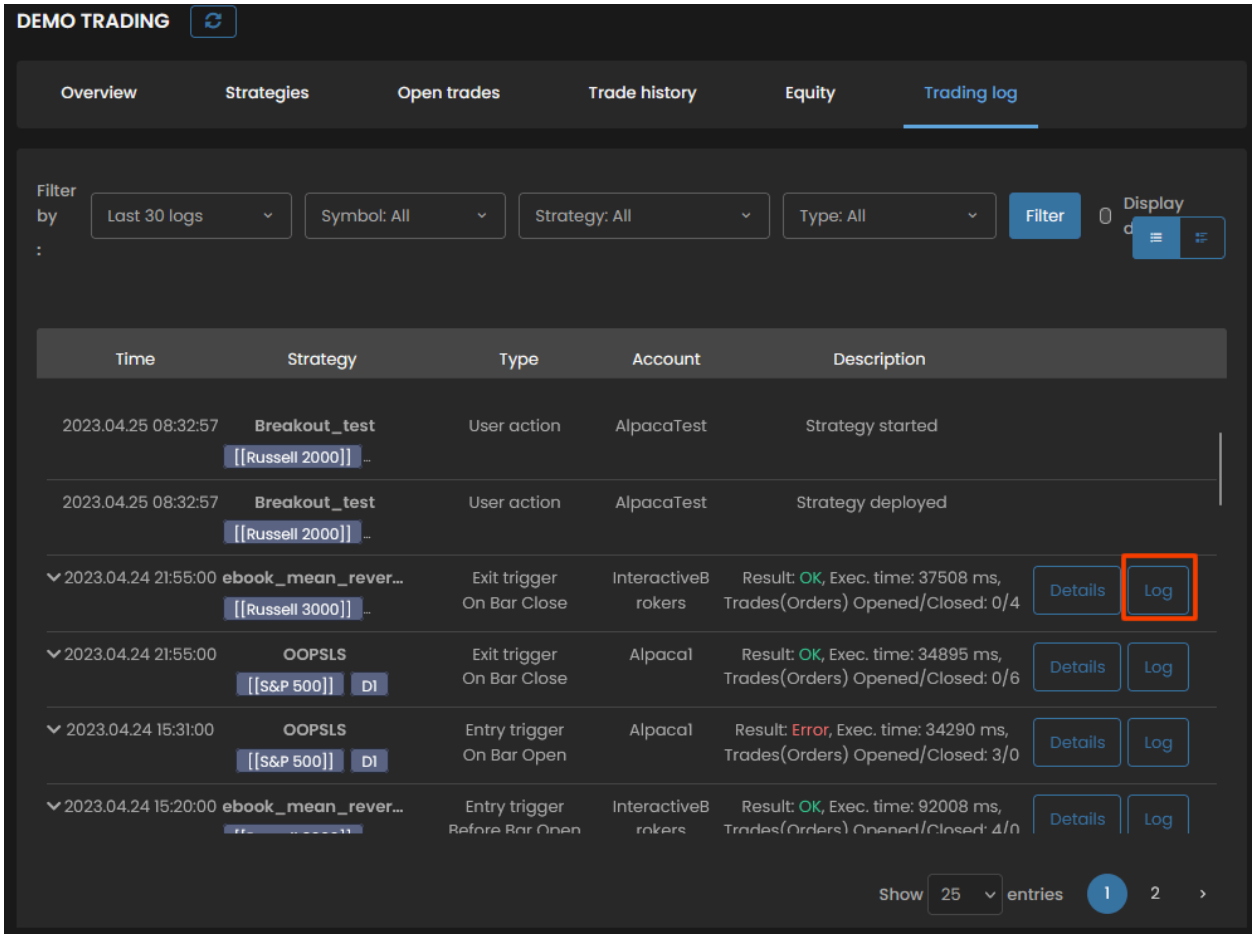
On the "Open trades" tab you can select a particular strategy and show its open trades.



On the "Trade history" tab you can check history of all trades



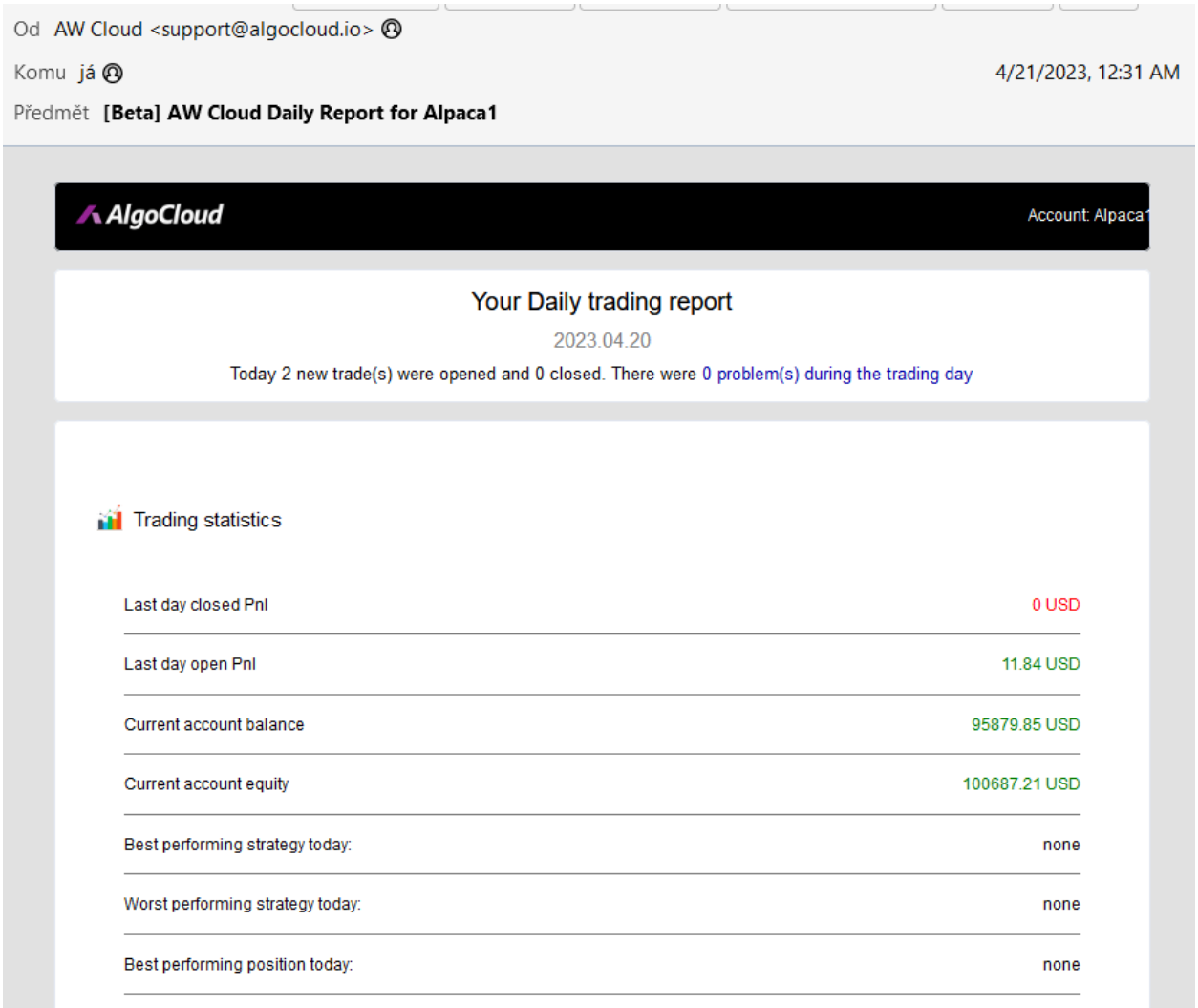
On the tab "Equity" you can find equity of your portfolio or certain strategies.



On the tab "Trading log" you can find very detailed info about strategy behavior.

Daily email reports

Once you set-up your CloudTrader account you will receive regular daily reports with info about your trading strategies and account. This way you can have a perfect overview of your trading account activity without the requirement of daily logging-in into AlgoCloud trading platform and checking results online.



Regular emails about your strategies trading activity.

Final thoughts

AlgoCloud is the trading platform with potential of democratization algorithmic stock trading. Especially StockPicking trading style was available just for experienced programmers until now.

Now everything is changing and we are welcoming you to join our movement and build your trading business with us. I can say for sure, that all obstacles have been removed and now it depends just on your decision.

And the story just begins.. There will soon be portfolio composition tools and support of the other trading styles.. Stay tuned.