ETF ACTION MODEL BUILDER & MODEL UPDATE GUIDE

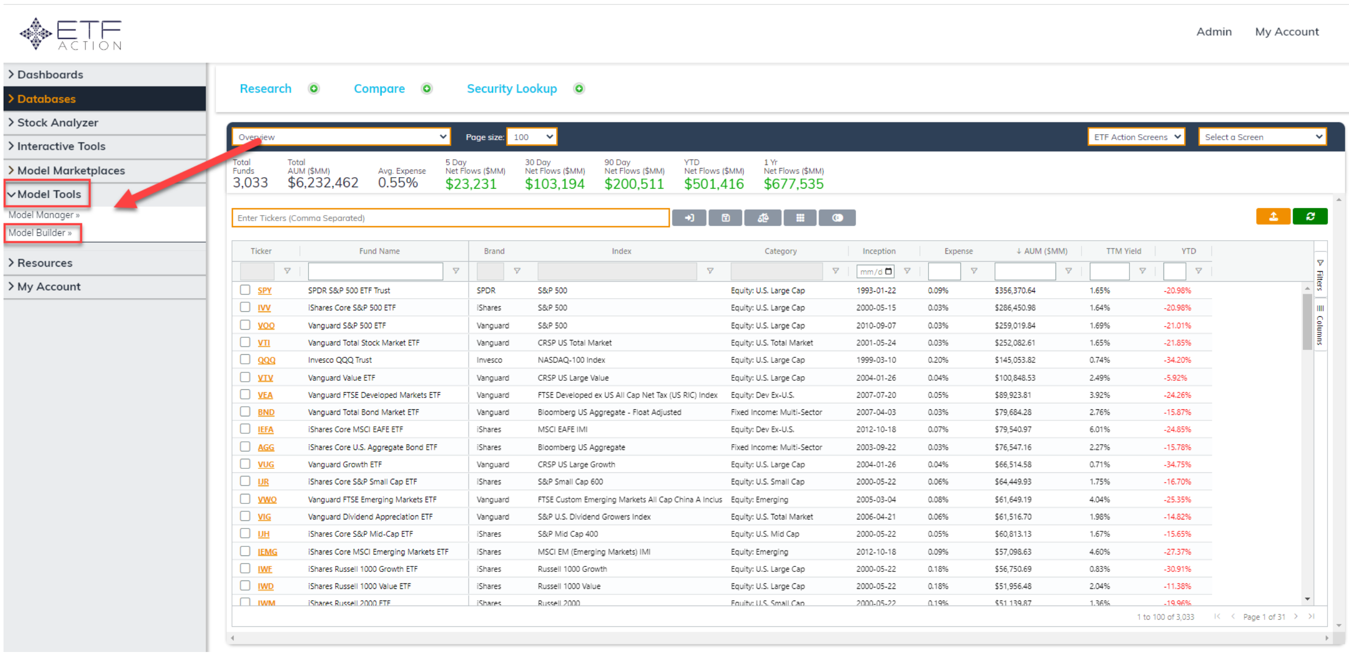
Model, & Blended Model

Table of Contents

<u>Model Builder Guide</u>

Please see below for a step-by-step guide on the Model Building process:

Once logged onto the ETF Action platform, click the Model Tools drop down on the left side panel to access the Model Builder and Model Manager tools.

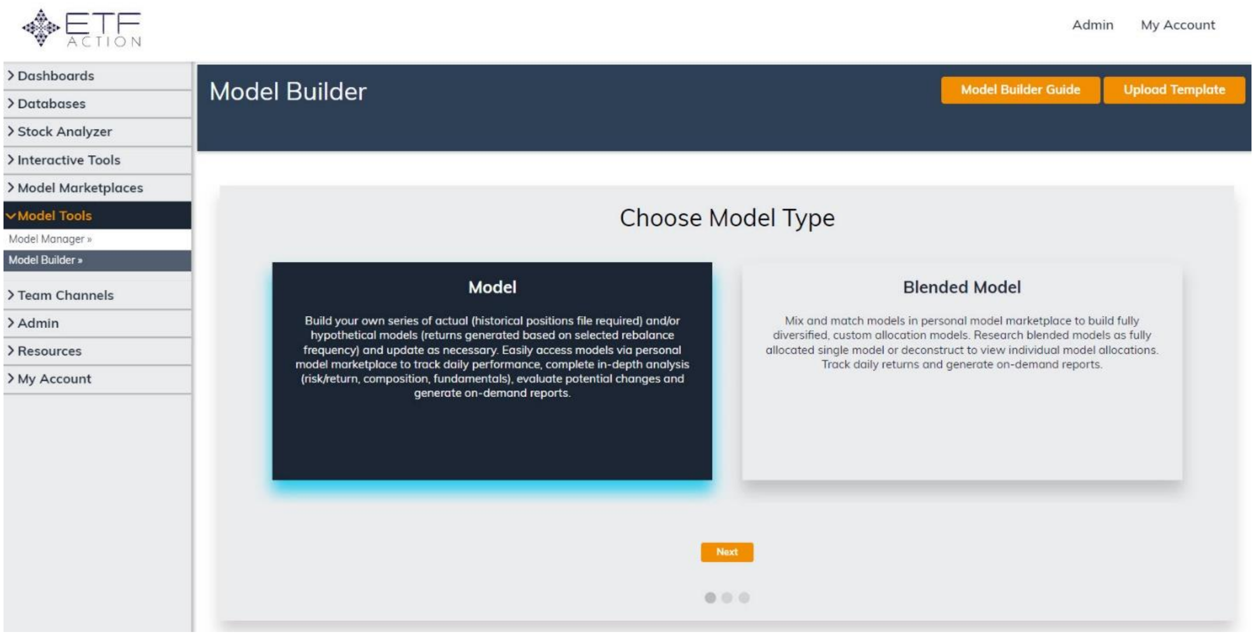


To build a new model, click Model Builder. There are two types of models you can build:

1) **Model** is the most used type which can hold ETFs, mutual funds, stocks, or cash. This type of model can be backtested with custom baskets (historical positions, weights, and dates) or on a set frequency (daily, monthly, quarterly, annually). You can track daily performance, complete in-depth analysis (risk/return, composition, fundamentals), evaluate potential changes, and generate on-demand reports

2) **Blended Models** can hold individual models and cash and currently only supports constant rebalancing (daily)

How to Build a Model



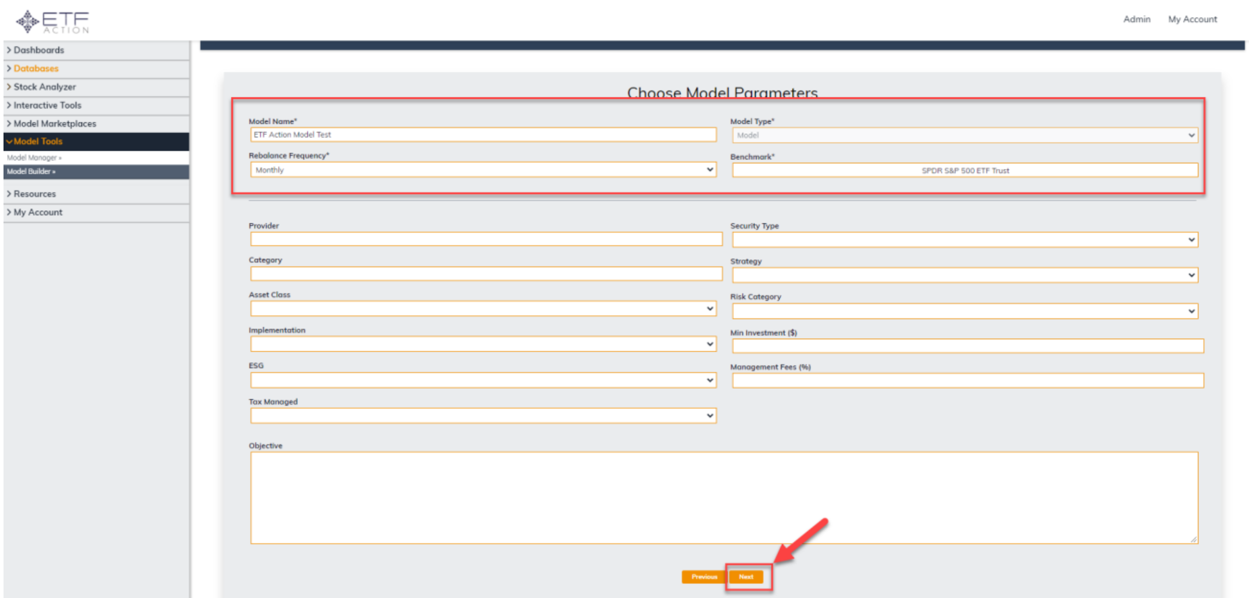
After selecting the Model type, you need to populate the model settings. Model Name, Model Type (which is pre-populated), Rebalance Frequency, and Benchmark are the only required settings for a Model.

There are 5 different Back-Test Rebalance Frequency options for a Model:

- Daily (Continuous): holdings are rebalanced each day to desired weights
- Monthly: holdings are rebalanced each month to desired weights
- Quarterly: holdings are rebalanced each quarter to desired weights
- Annually: holdings are rebalanced each year to desired weights
- Custom: holdings are rebalanced on a specified dates to specified holdings/ weights (custom backtest)

Benchmarks can be ETFs, mutual funds, stocks, or other models. Click the Next button at the bottom of the page after filling in your desired settings. All other settings can be changed at any time on the Model Manager page using the Settings tab (see the Updating Settings Section).

Once the required fields are inputted, click the Next button at the bottom of the screen



Next, you need to compile the Model data (Ticker and Weight of Security, and Date for Models with Custom Rebalance Frequency). There are two methods of inputting your data into the platform:

1) <u>Manual Input</u>

Users can manually input all desired holdings directly onto the platform.

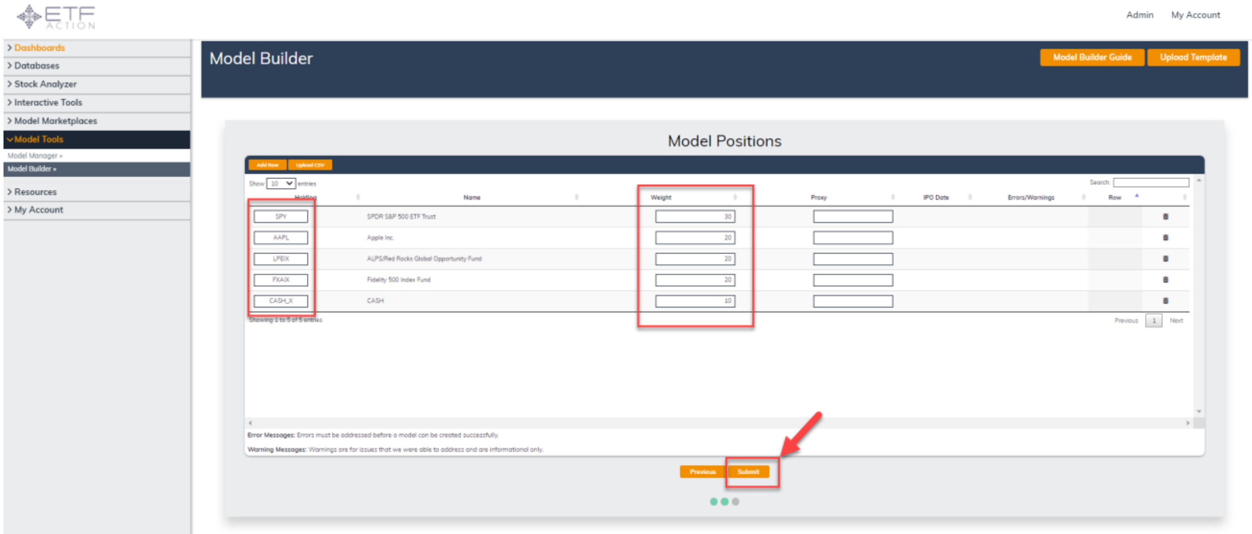
For Models with Daily (Continuous), Monthly, Quarterly, and Annually Rebalance Frequencies, enter the ticker of the stock, ETF, or Mutual Fund into the Holding Column then enter the desired weight into the Weight column. For cash positions, please use CASH_X for the ticker.

Make sure all weights add up to 100

For holdings with a limited track record, you can also enter in the ticker of a proxy holding into the Proxy column that will hold the desired weight until inception of the original holding

Please note that all Models with Daily (Continuous), Monthly, Quarterly, and Annually Rebalance Frequencies will have an inception date at the earliest common inception of all holdings

Once the desired holdings and weights have been entered manually, click the Submit button at the bottom of the Page



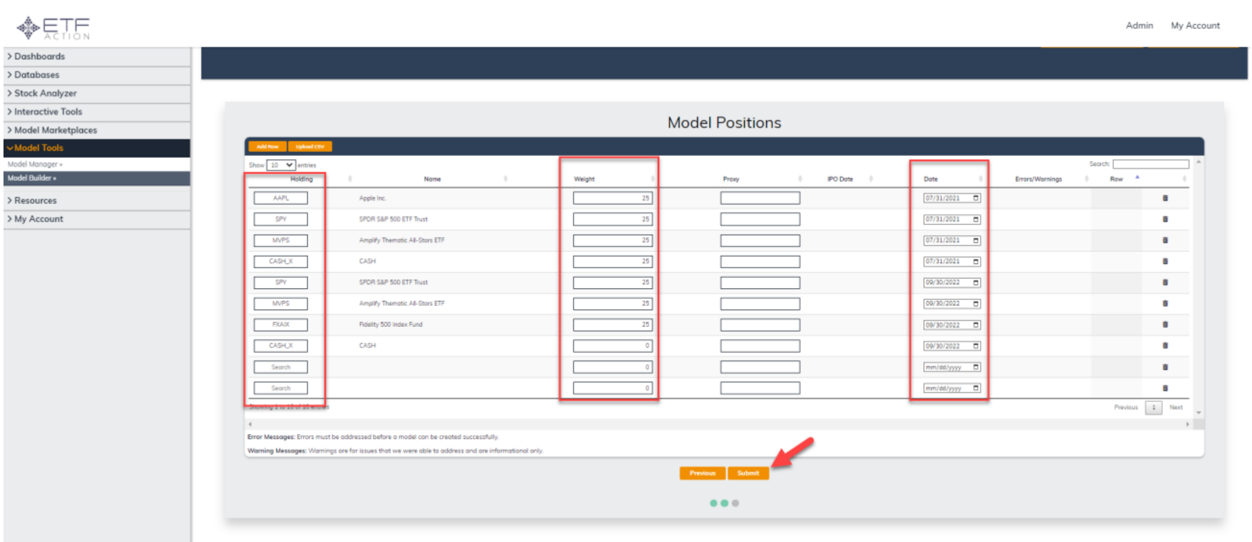
For Models with a Custom Rebalance Frequency, enter the ticker of the stock, ETF, or Mutual Fund into the Holding Column, the desired weight into the Weight column, and the desired date in the Date column. For cash positions, please use CASH_X for the ticker.

****Make sure the weights for each date add up to 100***

For holdings with a limited track record, you can also enter in the ticker of a proxy holding into the Proxy column that will hold the desired weight until inception of the original holding

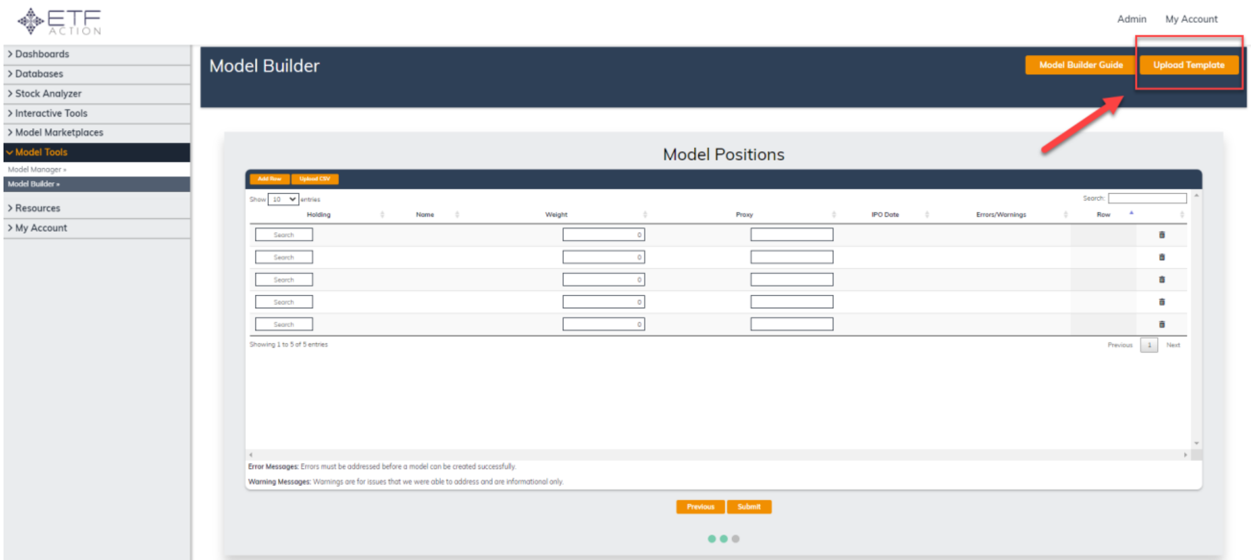
****Please note that all Models with the Custom rebalance frequency will have the inception date of the earliest date included in the holdings data***

Once the desired holdings, weights, and dates have been entered manually, click the Submit button at the bottom of the Page



1) <u>Upload CSV File</u>

Users can also upload a CSV (Comma Delimited) file with the desired holdings data. Users can download a template upload file by clicking the Upload Template button on the top right of the screen.



For a Model with the Daily (Continuous), Monthly, Quarterly, and Annually Rebalance Frequencies, the format for the upload CSV file is as such:

	A	B	C	D	E	F
1	ticker	weight				
2	SPY	40				
3	FXAIX	20				
4	AAPL	20				
5	LPEIX	10				
6	CASH_X	10				
7						
8						
9						

Make sure all weights add up to 100

Please note that all Models with Daily (Continuous), Monthly, Quarterly, and Annually Rebalance Frequencies will have an inception date at the earliest common inception of all holdings

Please do not overwrite an existing upload file and always create a new upload file with the correct format in order to avoid errors

If users wish to include proxy holdings for a Model, the format for the upload CSV file is as such:

	A	B	C	D	E
1	ticker	weight	proxy_ticker		
2	SPY	40			
3	FXAIX	20			
4	AAPL	20			
5	LPEIX	10	VINIX		
6	CASH_X	10			
7					
8					

For a Model with the Custom Rebalance Frequency, the format for the upload CSV file is as such:

	A	B	C	D	E
1	as_date	ticker	weight		
2	7/31/2021	AAPL	25		
3	7/31/2021	SPY	25		
4	7/31/2021	MVPS	25		
5	7/31/2021	CASH_X	25		
6	9/30/2022	SPY	25		
7	9/30/2022	MVPS	25		
8	9/30/2022	FXAIX	25		
9	9/30/2022	CASH_X	25		
10					
11					

Make sure all weights add up to 100

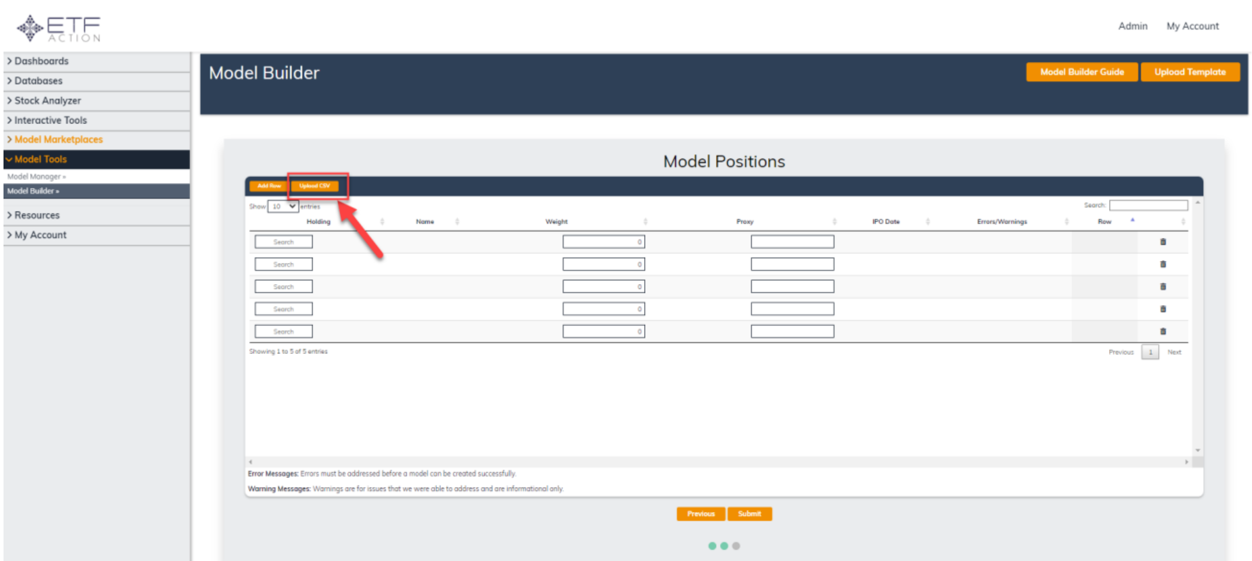
Please note that all Models with the Custom rebalance frequency will have the inception date of the earliest date included in the holdings data

Please do not overwrite an existing upload file and always create a new upload file with the correct format in order to avoid errors

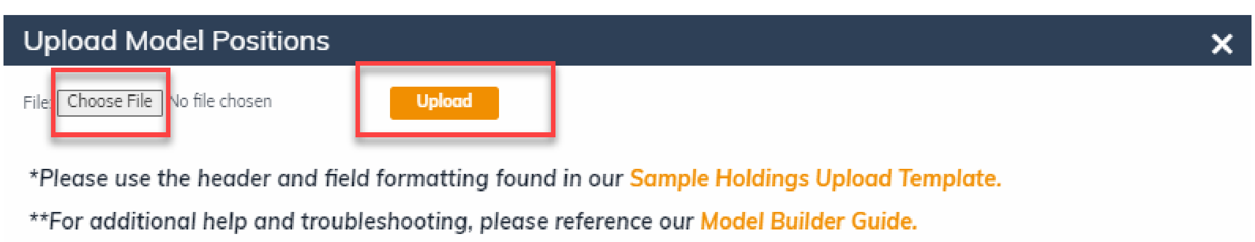
If users wish to include proxy holdings for a Model, the format for the upload CSV file is as such:

	A	B	C	D	E
1	as_date	ticker	weight	proxy_ticker	
2	7/31/2021	AAPL	25		
3	7/31/2021	SPY	25		
4	7/31/2021	MVPS	25	VINIX	
5	7/31/2021	CASH_X	25		
6	9/30/2022	SPY	25		
7	9/30/2022	MVPS	25		
8	9/30/2022	FXAIX	25		
9	9/30/2022	CASH_X	25		
10					
11					

Once the CSV file has the correct format and contains the correct holdings data, save the file as a CSV. Return to the ETF Action Model Builder and press the Upload CSV button.



Next, click the Choose File button to select your CSV upload file then click the Upload button



After clicking the Upload button, the holdings data from the CSV upload file will populate.

<u>Submitting a Model</u>

If there are errors in the holdings data, any warning or error messages will be displayed in the table for troubleshooting reference. Common errors include:

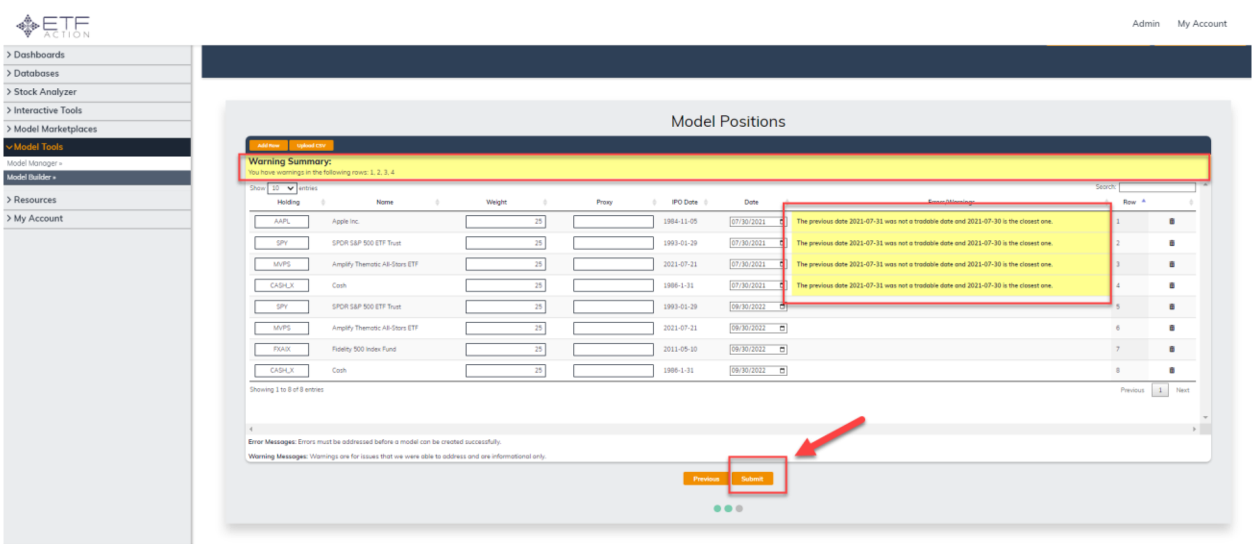
a. Ticker is incorrect or does not exist
b. For US domiciled individual equity securities, remove the "-US" from tickers. For example, use AAPL instead of AAPL-US
c. Weight should be formatted as a general number format. For example, 25% of the portfolio would be 25. Ensure the weights for a specific date add up to 100
d. File is not .csv format

Please note: Money Market mutual funds must be replaced with our cash security at this time (CASH_X)

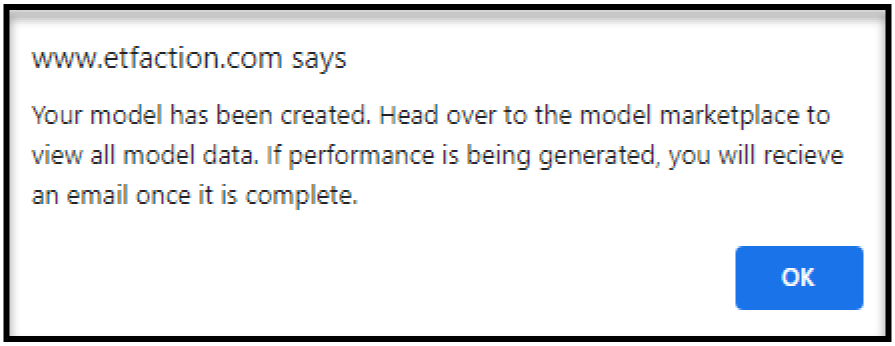
Warnings that produce a yellow warning notification: These warnings have been corrected by the system and there is nothing needed from the user.

Errors that produce a red error notification: These errors will need to be corrected by the user in order to create the Model.

If there are no errors, click the Submit button to create your Model.



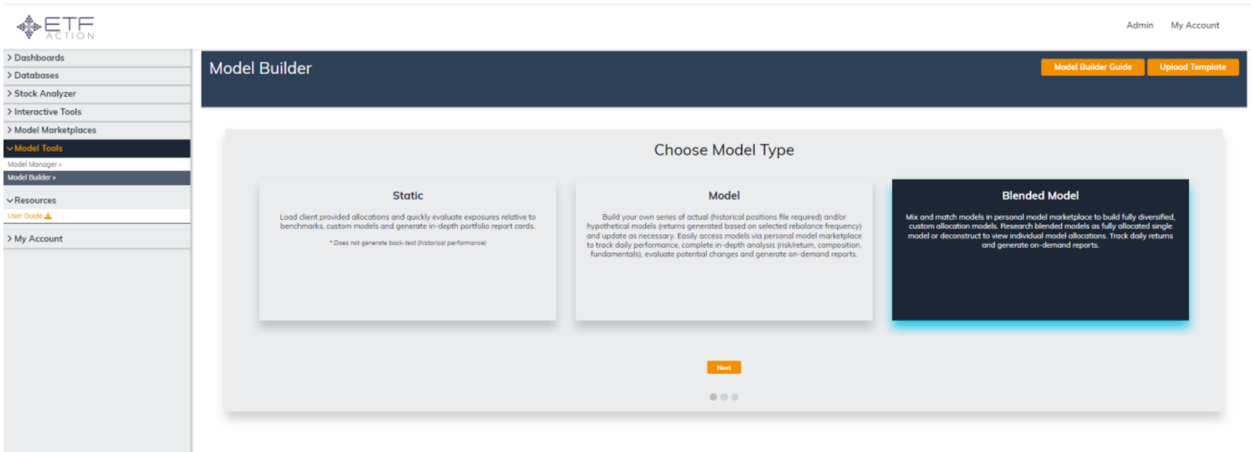
After clicking Submit, the user will receive a pop-up window notifying that the Model has been created:



You will also receive an email within 1 to 2 minutes notifying you that performance has been successfully run for your Model. Note that any model with a daily rebalance frequency should generate performance immediately and will not send a completion email.

You will be able to view and analyze your Model by accessing My Marketplace under the Model Marketplaces dropdown.

How to Build a Blended Model

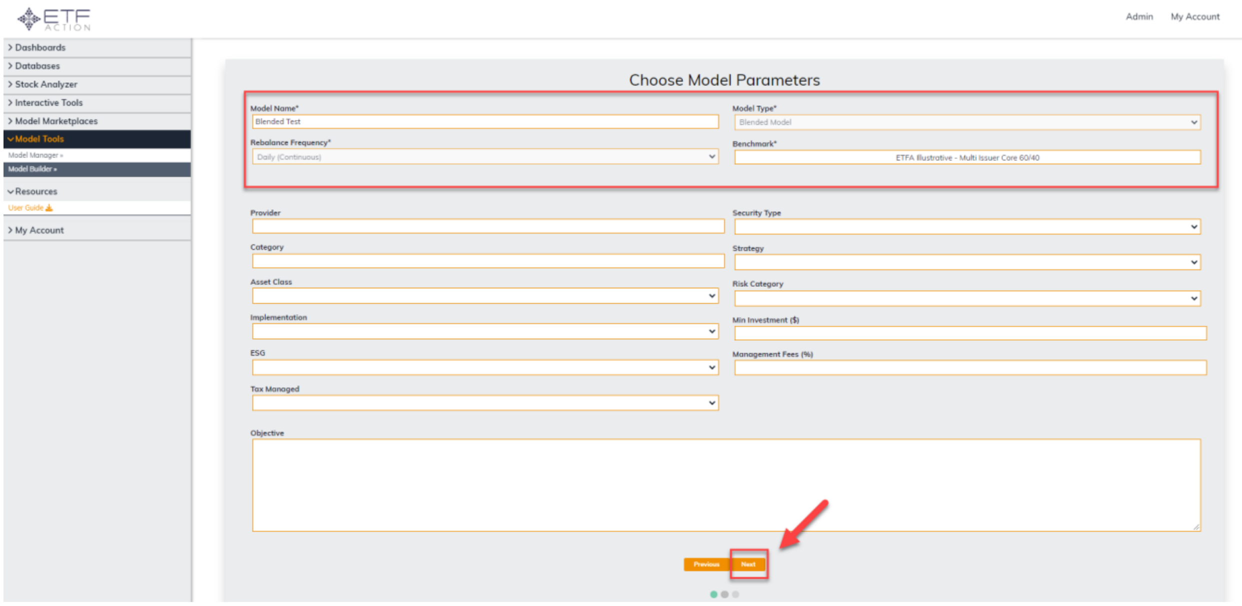


After selecting the Blended Model type, you need to populate the model settings. Model Name, Model Type (which is pre-populated), Rebalance Frequency, and Benchmark are the only required settings for a Blended Model. The Rebalance Frequency will always be Daily (Continuous) meaning that positions will rebalance each day to desired weights.

****Please note that Blended Models can only hold other models that have been previously created and cash. Blended Models cannot hold other ETFs, mutual funds, and stocks.***

Benchmarks can be ETFs, mutual funds, stocks, or other models. Click the Next button at the bottom of the page after filling in your desired settings. All other settings can be changed at any time on the Model Manager page using the Settings tab (see the Updating Settings Section).

Once the required fields are inputted, click the Next button at the bottom of the screen



Next, you need to compile the Blended Model data (Ticker/ Model ID and Weight of Model). There are two methods of inputting your data into the platform:

1) <u>Manual Input</u>

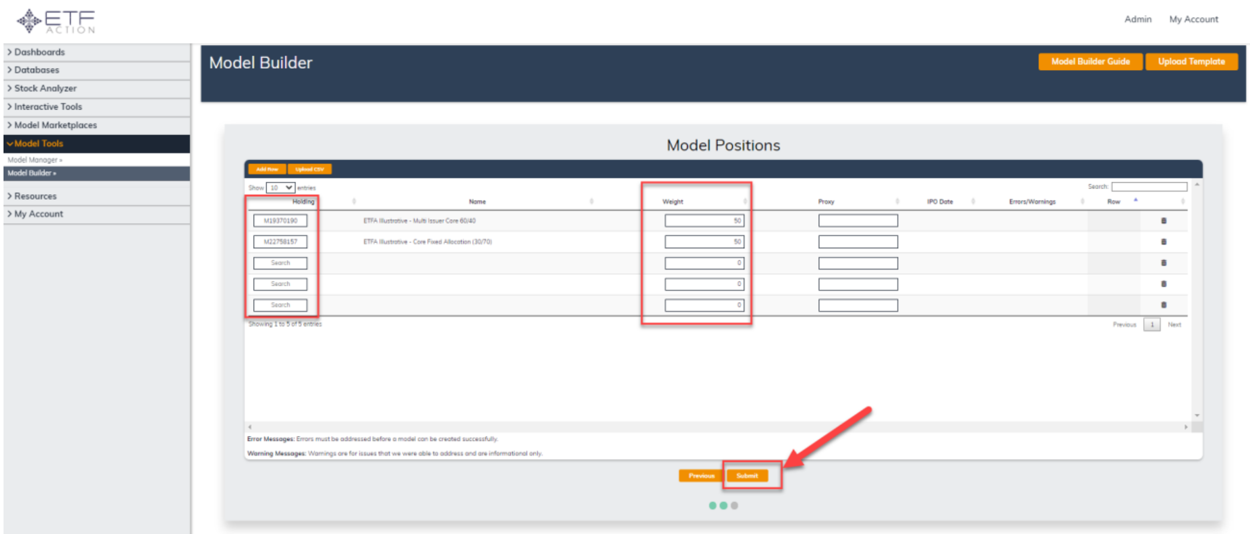
Users can manually input all desired models directly onto the platform. Enter the name or Model ID of the desired Model into the Holding Column then enter the desired weight into the Weight column. For cash positions, please use CASH_X for the ticker. Model IDs can be found on the far-left column of the Model Manager tool which is under the Model Tools dropdown

Make sure all weights add up to 100

For models with a limited track record, you can also enter in the Model ID of a proxy model into the Proxy column that will hold the desired weight until inception of the original model

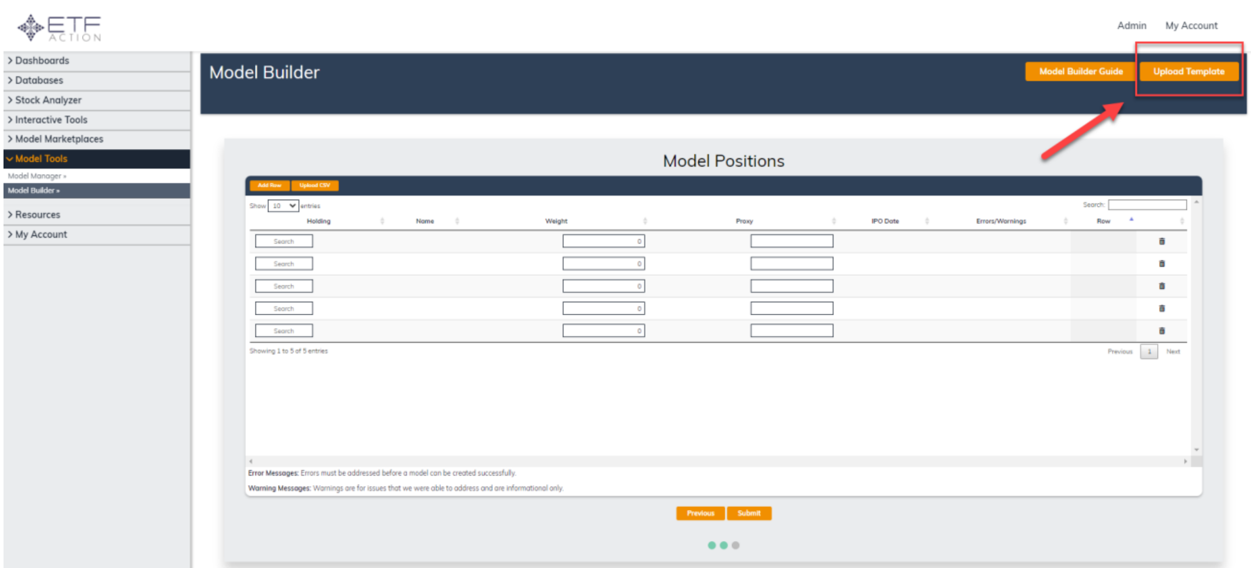
Please note that all Blended Models will have an inception date at the earliest common inception of all underlying models

Once the desired holdings and weights have been entered manually, click the Submit button at the bottom of the Page



2) Upload CSV File

Users can also upload a CSV (Comma Delimited) file with the desired holdings data. Users can download a template upload file by clicking the Upload Template button on the top right of the screen.



For a Blended Model, the format for the upload CSV file is as such:

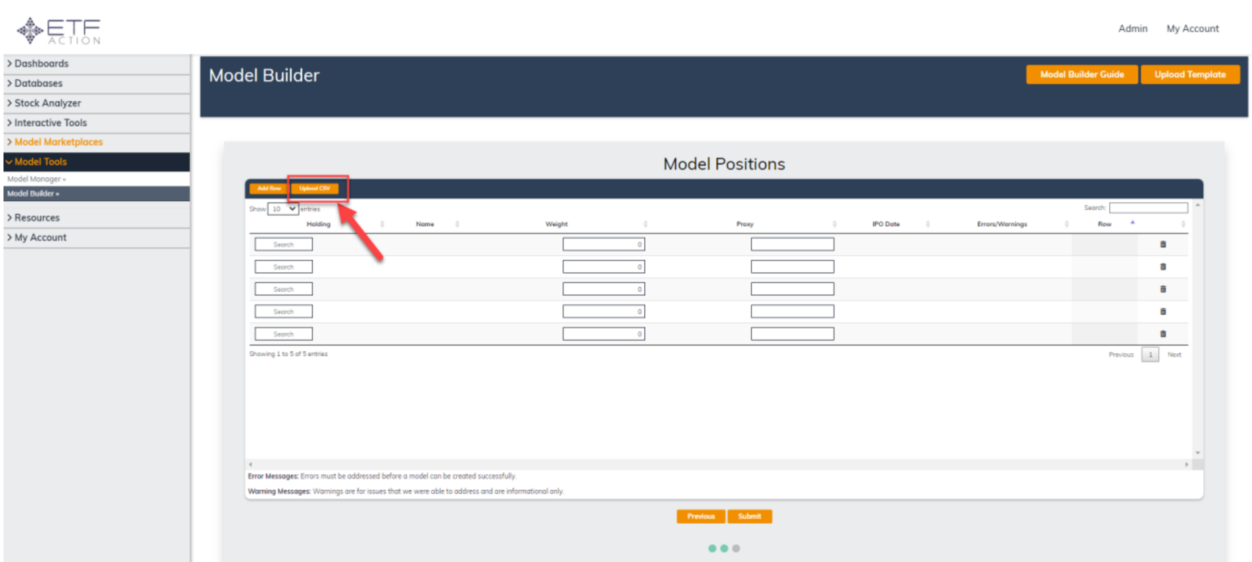
	A	B	C	D	E
1	ticker	weight			
2	M92161763	34			
3	M56977099	33			
4	M72248235	33			
5					
6					
7					
8					
9					
10					
11					

Model IDs can be found on the far-left column of the Model Manager tool which is under the Model Tools dropdown

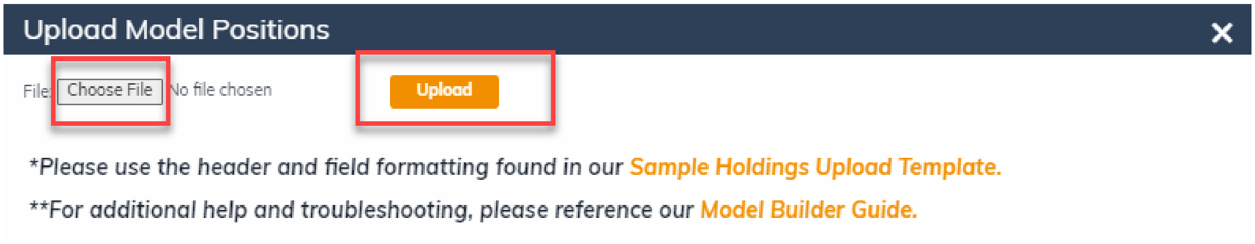
Make sure all weights add up to 100

Please do not overwrite an existing upload file and always create a new upload file with the correct format in order to avoid errors

Once the CSV file has the correct format and contains the correct holdings data, save the file as a CSV. Return to the ETF Action Model Builder and press the Upload CSV button.



Next, click the Choose File button to select your CSV upload file then click the Upload button



After clicking the Upload button, the holdings data from the CSV upload file will populate.

Submitting a Blended Model

If there are errors in the holdings data, any warning or error messages will be displayed in the table for troubleshooting reference. Common errors include:

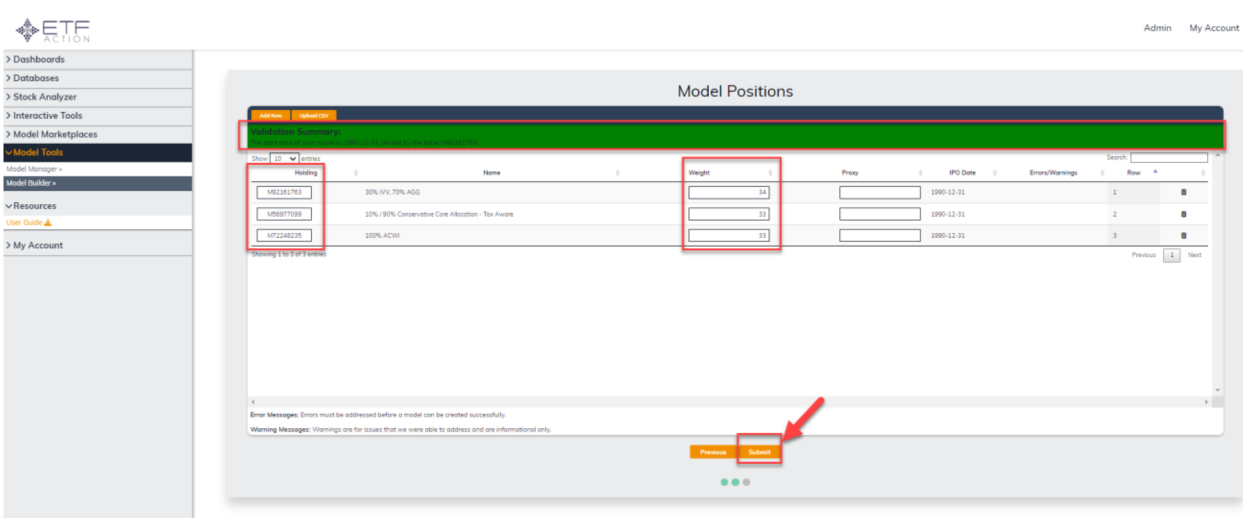
a. Model ID is incorrect or does not exist
b. Weight should be formatted as a general number format. For example, 25% of the portfolio would be 25. Ensure the weights for a specific date add up to 100
c. File is not .csv format

Please note: Money Market mutual funds must be replaced with our cash security at this time (CASH_X)

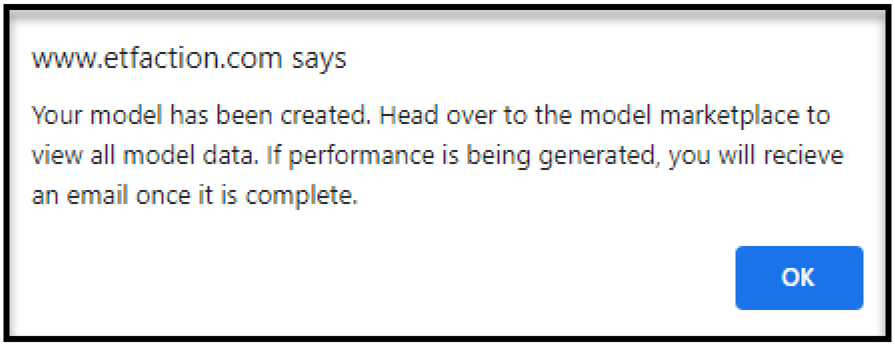
Warnings that produce a yellow warning notification: **These warnings have been corrected by the system and there is nothing needed from the user.**

Errors that produce a red error notification: These errors will need to be corrected by the user in order to create the Blended Model.

If there are no errors, click the Submit button to create your Static model.



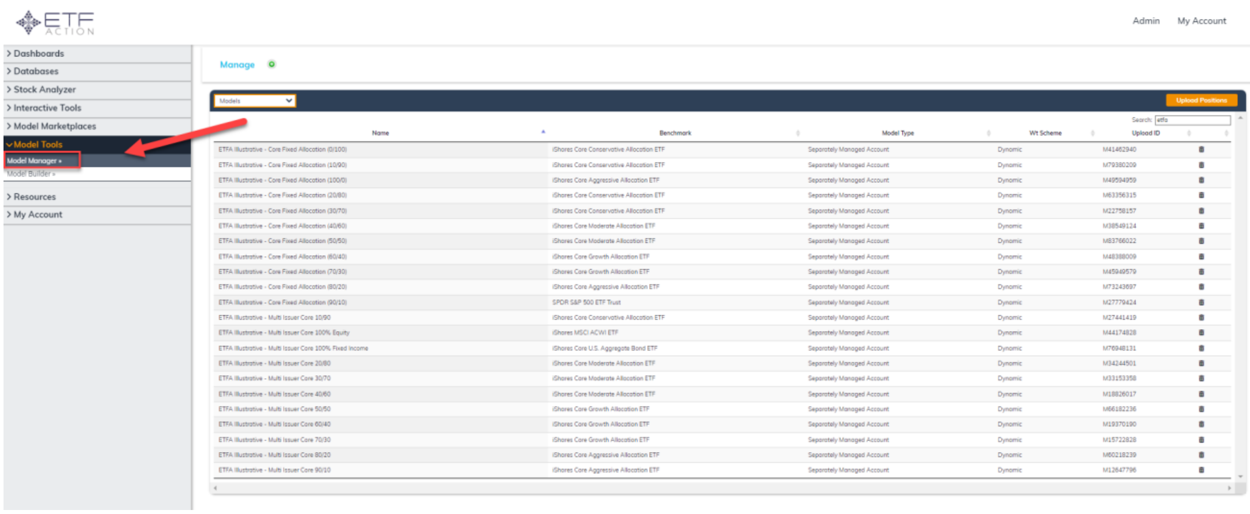
After clicking Submit, the user will receive a pop-up window notifying that the Static model has been created:



You will be able to view and analyze your Model by accessing My Marketplace under the Model Marketplaces dropdown.

Model Update Guide

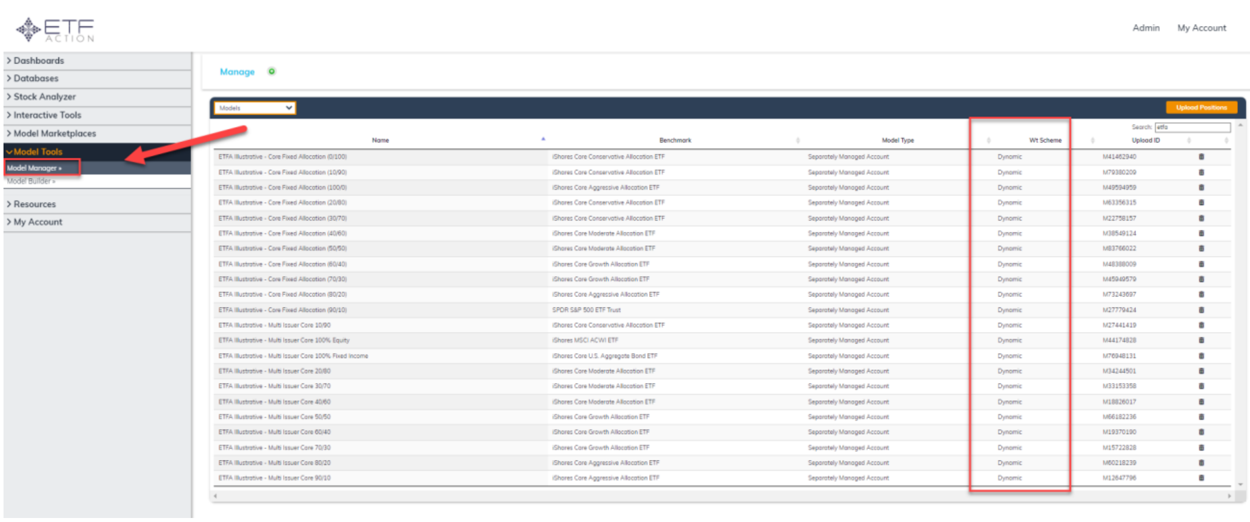
Once a Model, or Blended Model has been successfully created, users can update holdings and settings to models they are permissioned to through the Model Manager tool under the Model Tools dropdown



Update or Change Model Holdings

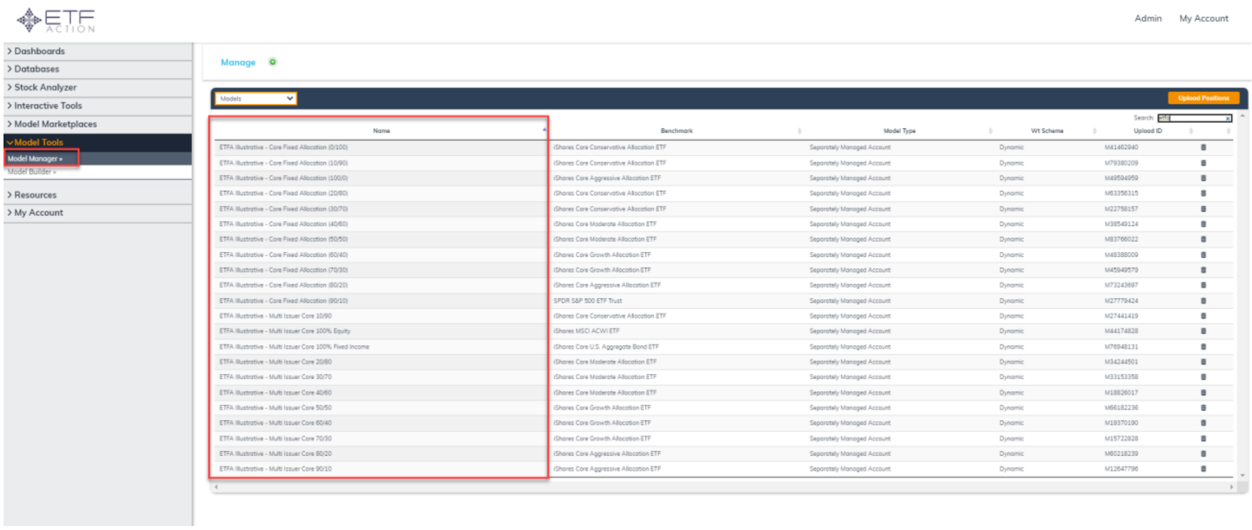
The first step in updating or changing the holdings of any Model in My Marketplace is to determine whether the model is Static or Dynamic. Static models have the Daily (Continuous) rebalance frequency. Dynamic models are models with Monthly, Quarterly, Annually, or Custom rebalance frequencies.

Users can determine whether a model is Static or Dynamic on the Wt. Schema column of the Model Manager page:



To update or change the holdings of a Dynamic Model (a model with Monthly, Quarterly, Annually, Custom Rebalance Frequency), you must upload a CSV (comma delimited) file with new holdings for the desired date.

First, click the name of the desired model to update from the Model Manager tool under the Model Tools dropdown.



Next, create a new CSV (comma delimited) file with the desired holdings. The CSV (comma delimited) file format for is as such:

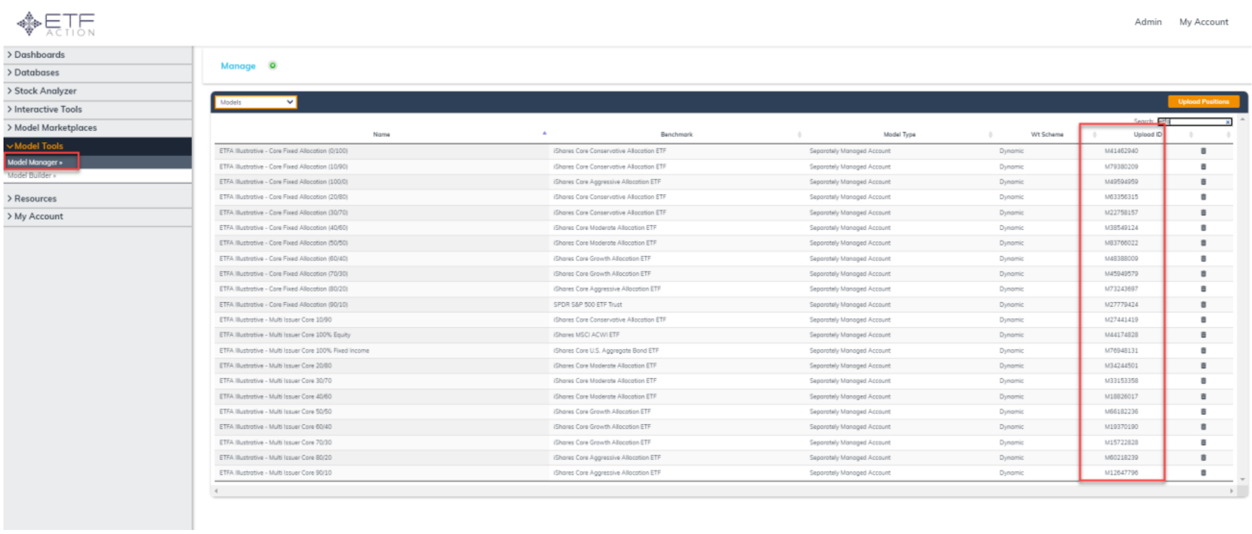
	A	B	C	D	E
1	model_id	as_date	ticker	weight	
2	M79380209	6/30/2022	AAPL	25	
3	M79380209	6/30/2022	FXAIX	25	
4	M79380209	6/30/2022	QQQ	20	
5	M79380209	6/30/2022	MVPS	20	
6	M79380209	6/30/2022	CASH_X	10	
7	M79380209	9/30/2022	MVPS	20	
8	M79380209	9/30/2022	TIP	30	
9	M79380209	9/30/2022	IVV	30	
10	M79380209	9/30/2022	FSLR	10	
11	M79380209	9/30/2022	CASH_X	10	
12					
13					

****Make sure all weights add up to 100 for every date included***

****Please do not overwrite an existing upload file and always create a new upload file with the correct format in order to avoid errors***

It is important to note that users can update the holdings for a Dynamic Model for several different dates. Additionally, users can change the holdings for a date that is previously populated, just ensure that the date is the same.

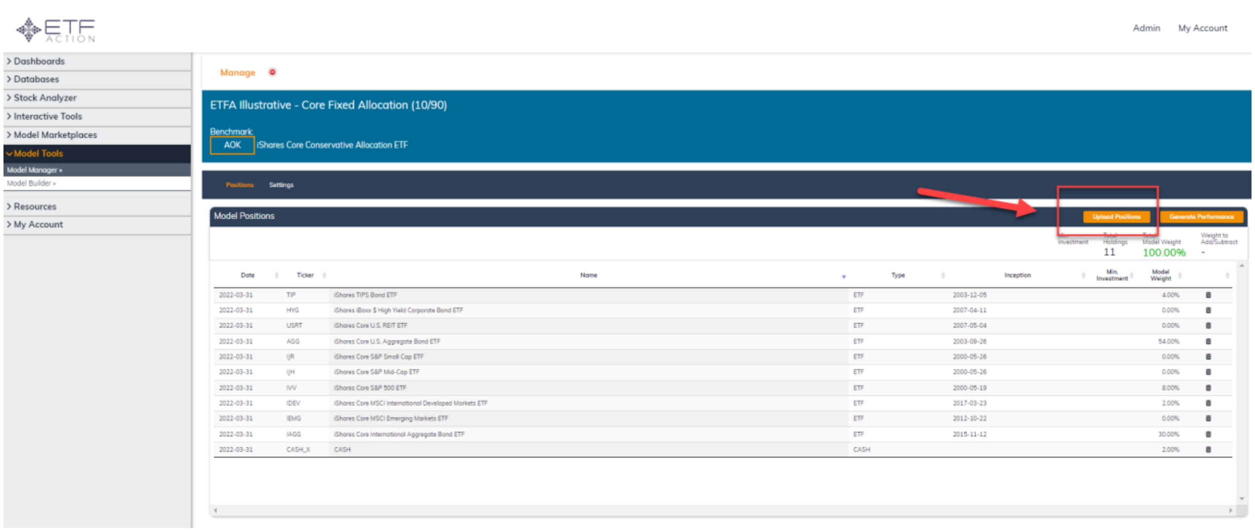
The Model ID for any model can be found in the Upload ID column of the Model Manager tool:



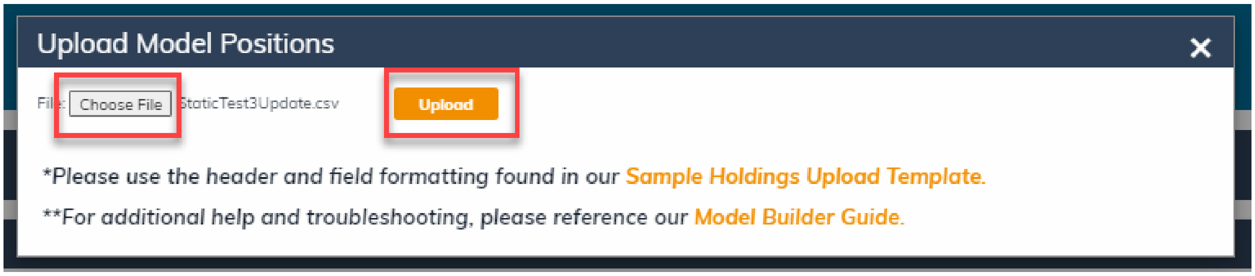
Simply copy and paste the Model ID into the left column for every holding.

Make sure the Model ID is consistent throughout the file

Once the CSV file has the correct format and contains the correct holdings data, save the file as a CSV. On the Positions tab of the Model Manager tool, press the orange Upload Positions button.

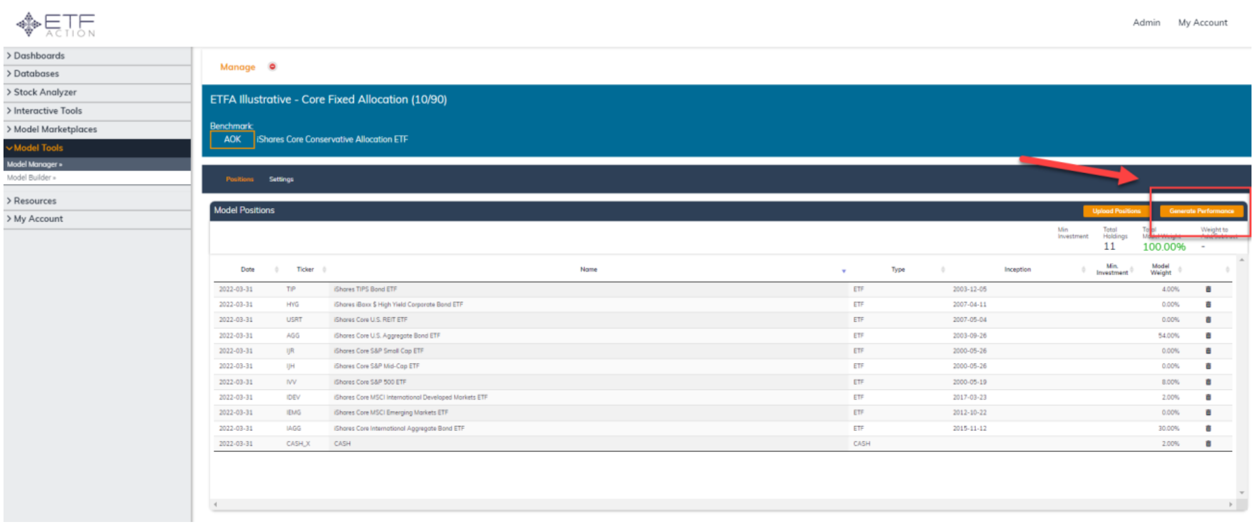


Next, press the Choose File button and select the CSV file. Once the file has been selected, press the orange Upload button

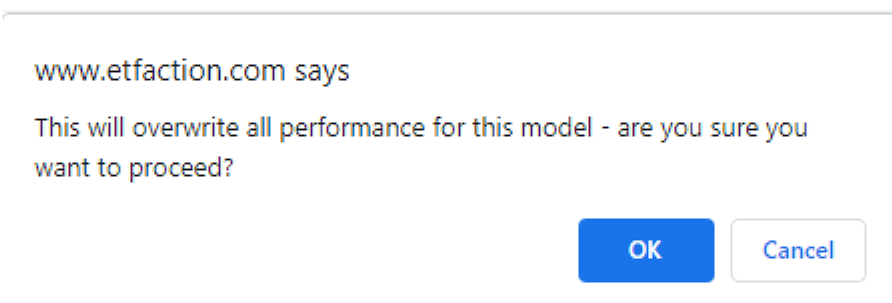


The updated holdings will populate into the Model Manager page and be automatically saved.

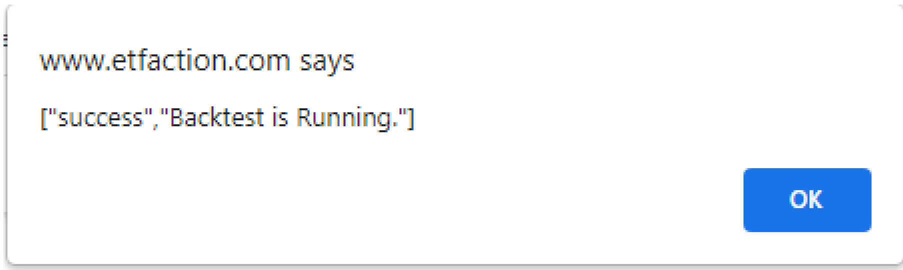
Next, press the orange Generate Performance button to update the performance of the Dynamic Model based upon the changes you have made.



Next, press OK on the popup window to confirm you would like to regenerate performance for the Dynamic Model



Next, a popup window will appear confirm that the backtest is running



Press the OK button and you will receive an email confirming that the performance has been regenerated for the updated Dynamic Model

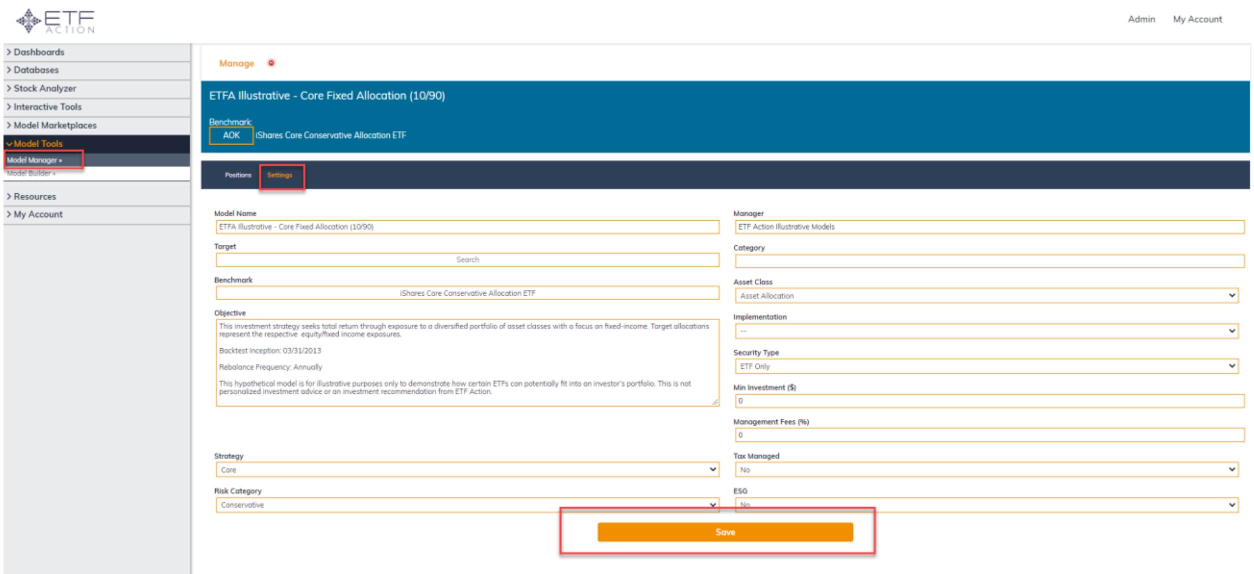
Once the backtest has been completed successfully, users will be able to access and analyze the updated Dynamic Model through the My Marketplace under the Model Marketplaces dropdown.

Updating Settings for Models

Users can update the settings for any model from the Settings tab of the Model Manager tool under the Model Tools dropdown.

From the Model Manager page, select the desired model and click on the Settings tab. From this page, users can update any of the below settings including the Benchmark, Target, Objective, Strategy, Risk Category, Manager, Category, Asset Class, Implementation, Security Type, Minimum Investment ($), Management Fees (%), and Tax Managed or ESG categories.

To save any changes, make sure to press the orange Save button at the bottom of the screen.



FAQs

See below for common errors when attempting to upload or update holdings for a Model or Blended model:

Security held prior to inception

Ensure all holdings in a model or blended model are actively listed on the holding date(s) included

Security held after transition or close

Ensure all holdings in a model or blended model are actively listed on the holding date(s) included

Date format incorrect

Ensure the date format on the CSV file is as such: MM/DD/YYYY. All other formats will generate an error when attempting to upload a holdings file

Weights do not add up to 100

Ensure the weights for all holdings add up to 100 for each date included in a holdings upload file. If all weights do not add up to 100 for each date, an error will be generated when attempting to upload.

Wrong file format

Ensure the file type of the model holdings upload file is CSV (Comma Delimited) Any other file type such as Excel Workbook, CSV UTF-8, CSV (Macintosh), or Text (Tab Delimited) are not accepted for the system and will generate an error when attempting to upload the holdings file.

Old file used which contains data (even if deleted)

When building a model holdings upload file, always use a new CSV file or the upload template provided on the ETF Action site. If you use a previously used holdings upload file and delete all data, the system can read data included in previous versions and will generate an error when attempting to upload the holdings file.

Ticker format incorrect

Ensure the format of tickers included in a holdings upload file are as such: AAPL, 8865-HK, MVPS, LPEIX. For US listed securities, do not include"-US" at the end of the ticker. For foreign listed securities, include the "-HK" or "-DE" at the end of the ticker. If the ticker format is incorrect, an error will generate when attempting to upload the holdings file.