

CREATE MODEL: PREDICTIVE MAINTENANCE

The following is a step by step guide to build and deploy a new model in the elipsa platform.

Click the button to build a new model from the home screen or using the orange button on the top menu

+ Build a New Model

Step 1: Select Get Started under Outlier

CHOOSE MODEL PICK TARGET ADD DRIVERS GET RESULTS

Let's play with some data.
What type of model are you looking to analyze?

Event
I want to see how likely is a future event going to occur.
GET STARTED

Value
I want to project the future value of a series.
GET STARTED

Grouping
I want to explore patterns to group like items.
COMING SOON

Outlier
I want to find the positive and negative outliers from the norm.
GET STARTED

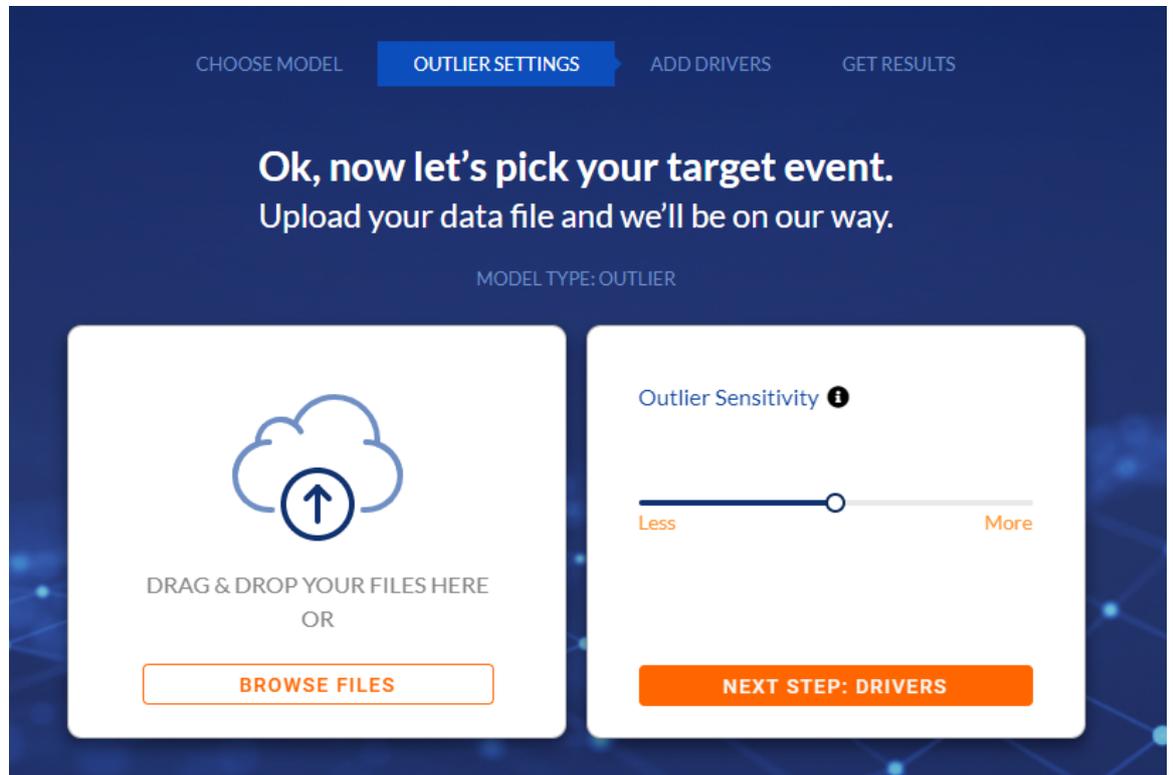
For the use case of predictive maintenance, we will be building an outlier detection model. As a result, click Get Started under the Outlier section

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Step 2: Upload Data and Set Sensitivity



The screenshot shows a web interface for creating a predictive maintenance model. At the top, there are four navigation tabs: 'CHOOSE MODEL', 'OUTLIER SETTINGS' (which is highlighted in blue), 'ADD DRIVERS', and 'GET RESULTS'. Below the tabs, the main heading reads 'Ok, now let's pick your target event. Upload your data file and we'll be on our way.' Below this, it says 'MODEL TYPE: OUTLIER'. The interface is split into two main sections. The left section is a white box with a cloud icon containing an upward arrow, with the text 'DRAG & DROP YOUR FILES HERE OR' and a 'BROWSE FILES' button. The right section is a white box with the title 'Outlier Sensitivity' and an information icon. It features a horizontal slider with 'Less' on the left and 'More' on the right, and a 'NEXT STEP: DRIVERS' button at the bottom.

Upload File

Export your historical sensor data into csv format. Browse to the location of the file on your computer by clicking the button in the application or simply drag your file into the left hand side

Select the sensitivity to set the number of outliers in your data

The sensitivity helps to set how many outliers you want to see if your data.

Higher sensitivity will result in fewer outliers with only more extreme outliers being reported. The setting should be based partially on how sensitive you are to false positives but also should be based on your knowledge of the uploaded data and what percentage of it can be considered normal.

In other words, if you are uploading data on a machine that does not fail often, you can set a higher sensitivity.

Click Next Step: Drivers

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Step 3: Select columns to use as predictors

CHOOSE MODEL OUTLIER SETTINGS **ADD DRIVERS** GET RESULTS

Which columns are we going to use as predictors?

MODEL TYPE: OUTLIER

Columns	Predictors
<input type="checkbox"/> Datetime	<input checked="" type="checkbox"/> AHU: Supply Air Temperature
<input checked="" type="checkbox"/> AHU: Supply Air Temperature	<input checked="" type="checkbox"/> AHU: Supply Air Temperature Heating Set Point
<input checked="" type="checkbox"/> AHU: Supply Air Temperature Heating Set Point	<input checked="" type="checkbox"/> AHU: Supply Air Temperature Cooling Set Point
<input checked="" type="checkbox"/> AHU: Supply Air Temperature Cooling Set Point	<input checked="" type="checkbox"/> AHU: Outdoor Air Temperature
<input checked="" type="checkbox"/> AHU: Outdoor Air Temperature	<input checked="" type="checkbox"/> AHU: Mixed Air Temperature
<input checked="" type="checkbox"/> AHU: Mixed Air Temperature	<input checked="" type="checkbox"/> AHU: Return Air Temperature
<input checked="" type="checkbox"/> AHU: Return Air Temperature	<input checked="" type="checkbox"/> AHU: Supply Air Fan Status
<input checked="" type="checkbox"/> AHU: Supply Air Fan Status	<input checked="" type="checkbox"/> AHU: Supply Air Fan Speed Control Signal
<input checked="" type="checkbox"/> AHU: Supply Air Fan Speed Control Signal	<input checked="" type="checkbox"/> AHU: Outdoor Air Damper Control Signal
<input checked="" type="checkbox"/> AHU: Outdoor Air Damper Control Signal	<input checked="" type="checkbox"/> AHU: Return Air Damper Control Signal
<input checked="" type="checkbox"/> AHU: Return Air Damper Control Signal	<input checked="" type="checkbox"/> AHU: Supply Air Fan Status
<input checked="" type="checkbox"/> AHU: Exhaust Air Damper Control Signal	<input checked="" type="checkbox"/> AHU: Supply Air Fan Speed Control Signal
<input checked="" type="checkbox"/> AHU: Cooling Coil Valve Control Signal	<input checked="" type="checkbox"/> AHU: Outdoor Air Damper Control Signal

Driver count: 15

CREATE MY MODEL!

In this step you will select the columns from your input file that you want to use to monitor the health of the system.

In many cases, you will want to select all columns that you exported. You can easily do this with the select all button on the left pane. All selected columns will appear in the right pane and can be removed by clicking the X icon on the right or toggling the checkbox on the left.

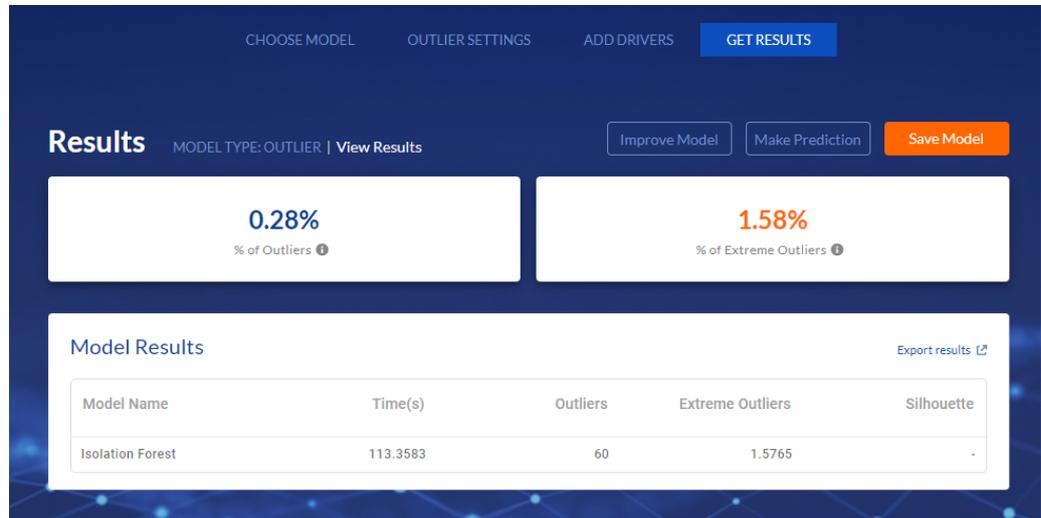
Note that often times when monitoring machine data the data is in a time series. Be very careful about including date and time columns as predictors as you will be specifying to the system that the health of the machine depends not just on sensor readings but also on the date or time of day which is generally not the case.

Our suggestion is to avoid including date/time as predictors for most use cases.

Click Create Model

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Step 4: Review and Save Model



Once the model is built, the system will return information regarding the % of outliers and extreme outliers in your training data as well as information about the model chosen.

Users can click Save Model at which point the user will be presented with a screen to name the model and provide a description.

Once saved, the model will be instantly deployed to the elipsa cloud. The model will then be present in the user's My Models list and the user can then make future predictions against the model using the Make Predictions section in the user interface or via our APIs

Model Details

Name: Predictive Maintenance

Description: Model to perform predictive maintenance on specific machine

Save Model