Tree

A tree algorithm with forward pruning.

Inputs

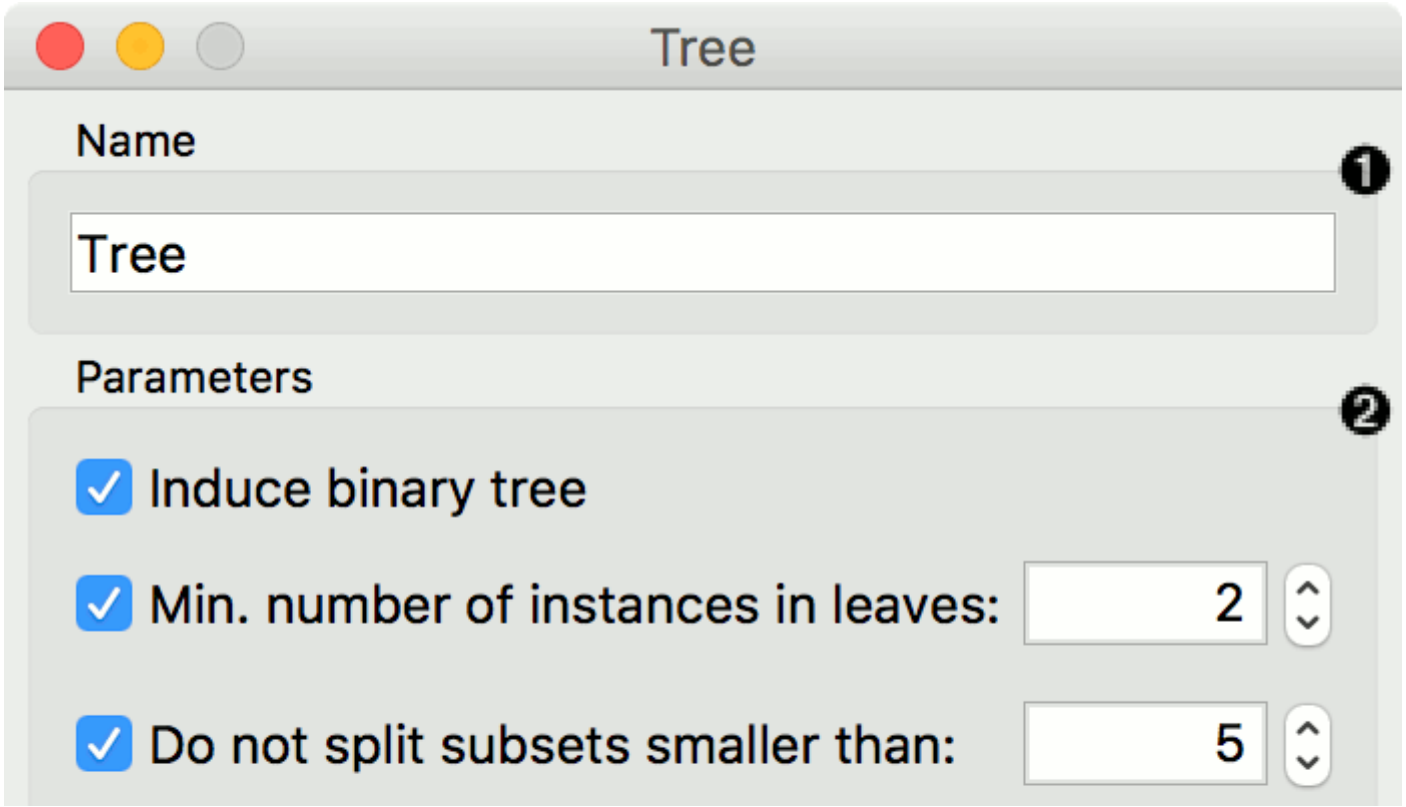
- Data: input dataset
- Preprocessor: preprocessing method(s)

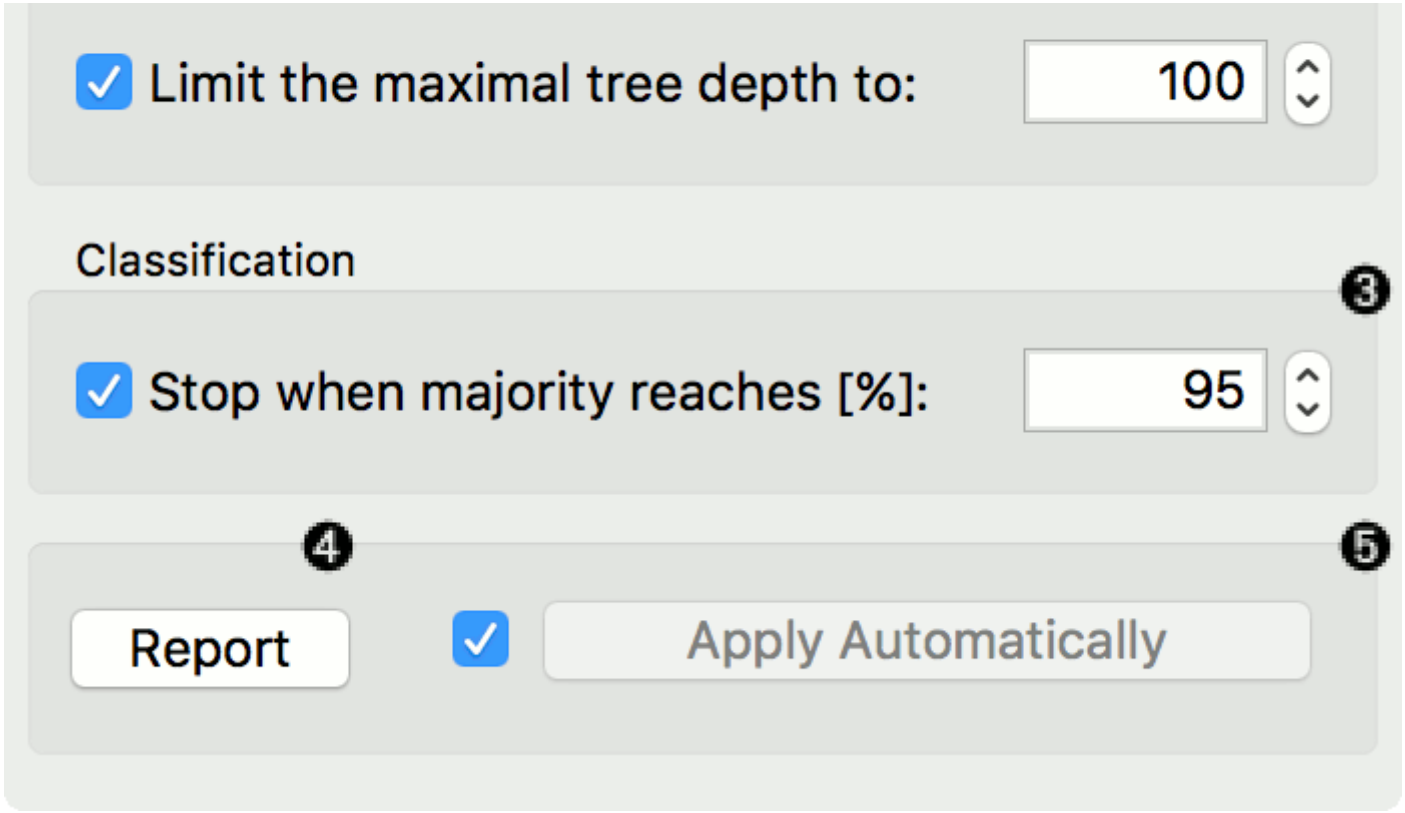
Outputs

- Learner: decision tree learning algorithm
- Model: trained model

Tree is a simple algorithm that splits the data into nodes by class purity. It is a precursor to Random Forest. Tree in Orange is designed in-house and can handle both discrete and continuous datasets.

It can also be used for both classification and regression tasks.

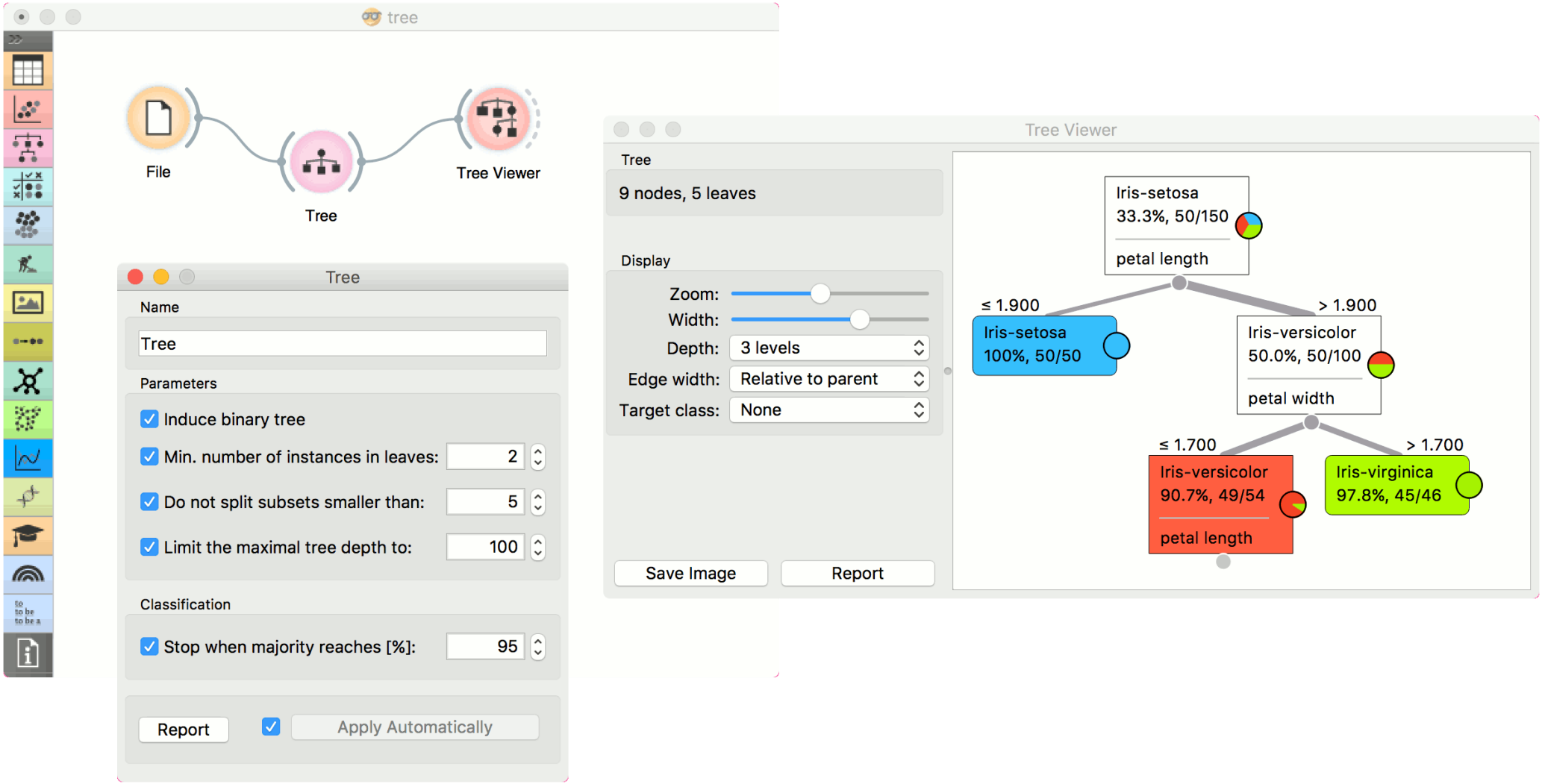




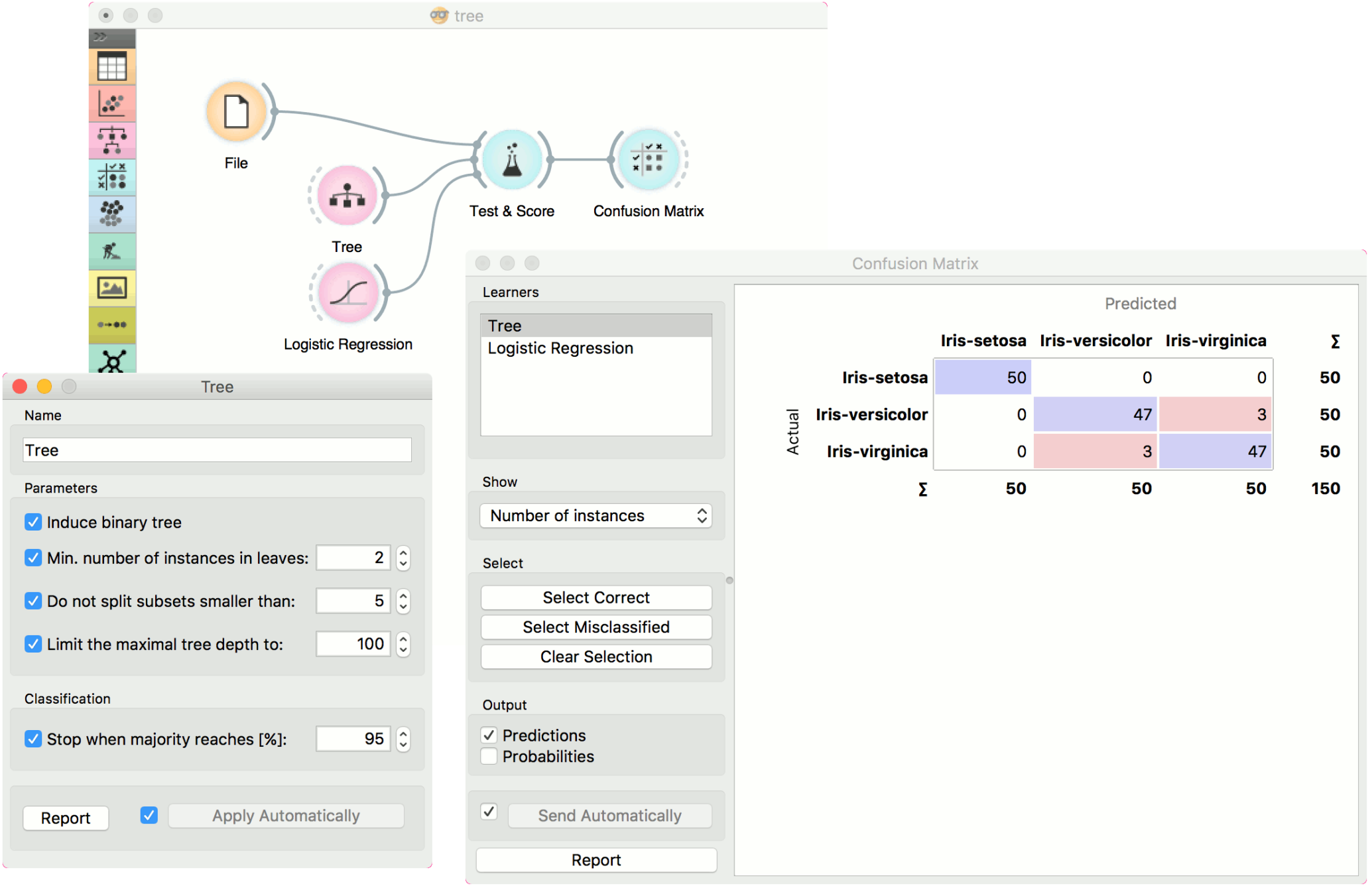
1. The learner can be given a name under which it will appear in other widgets. The default name is “Tree”.
2. Tree parameters:
    - **Induce binary tree**: build a binary tree (split into two child nodes)
    - **Min. number of instances in leaves**: if checked, the algorithm will never construct a split which would put less than the specified number of training examples into any of the branches.
    - **Do not split subsets smaller than**: forbids the algorithm to split the nodes with less than the given number of instances.
    - **Limit the maximal tree depth**: limits the depth of the classification tree to the specified number of node levels.
3. **Stop when majority reaches [%]**: stop splitting the nodes after a specified majority threshold is reached
4. Produce a report. After changing the settings, you need to click *Apply*, which will put the new learner on the output and, if the training examples are given, construct a new classifier and output it as well. Alternatively, tick the box on the left and changes will be communicated automatically.

Examples

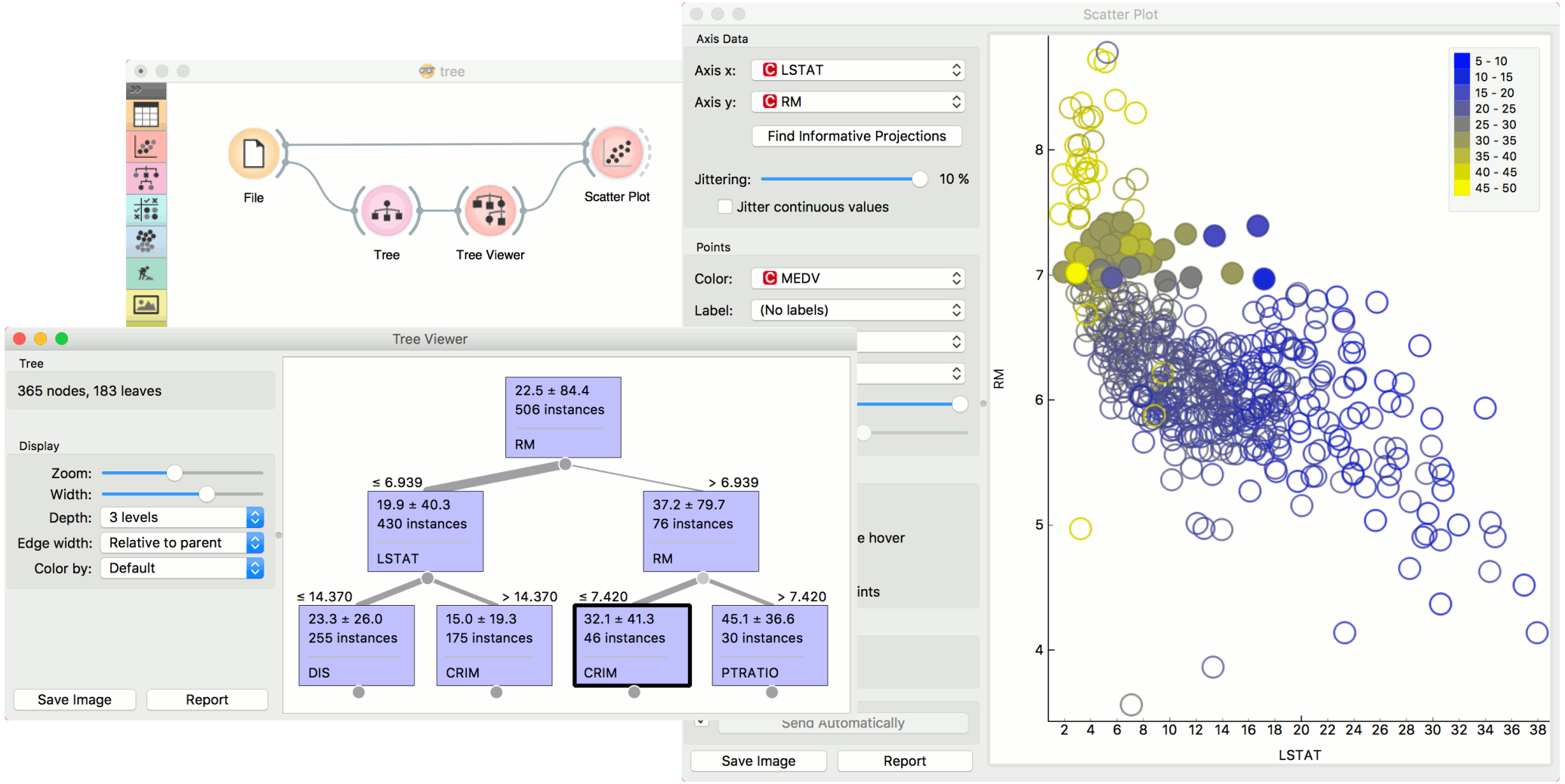
There are two typical uses for this widget. First, you may want to induce a model and check what it looks like in Tree Viewer.



The second schema trains a model and evaluates its performance against Logistic Regression.



We used the *iris* dataset in both examples. However, **Tree** works for regression tasks as well. Use *housing* dataset and pass it to **Tree**. The selected tree node from Tree Viewer is presented in the Scatter Plot and we can see that the selected examples exhibit the same features.


tree
File
Tree
Tree Viewer
Scatter Plot
Tree Viewer
Tree
365 nodes, 183 leaves
Display
Zoom:
Width:
Depth: 3 levels
Edge width: Relative to parent
Color by: Default
Save Image
Report
22.5 ± 84.4
506 instances
RM
≤ 6.939
19.9 ± 40.3
430 instances
LSTAT
> 6.939
37.2 ± 79.7
76 instances
RM
≤ 14.370
23.3 ± 26.0
255 instances
DIS
> 14.370
15.0 ± 19.3
175 instances
CRIM
≤ 7.420
32.1 ± 41.3
46 instances
CRIM
> 7.420
45.1 ± 36.6
30 instances
PTRATIO
Scatter Plot
Axis Data
Axis x: LSTAT
Axis y: RM
Find Informative Projections
Jittering: 10 %
Jitter continuous values
Points
Color: MEDV
Label: (No labels)
e hover
ints
Send Automatically
Save Image
Report
5 - 10
10 - 15
15 - 20
20 - 25
25 - 30
30 - 35
35 - 40
40 - 45
45 - 50
RM
LSTAT