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Projects

Create a Forecasting Project
Use Model Studio to create a project for SAS Visual Forecasting.
View the slideshow in SAS Help Center.

Model Studio Toolbox
The Model Studio Toolbox provides a list of templates used for project pipelines and modeling nodes. Each template listed includes a description, the product type for the project, the name of the owner who created the template, and the date on which it was last modified.
View the slideshow in SAS Help Center.
The templates that you use are specific to the type of project you are working on; Forecasting, Text Analytics, or Data Mining and Machine Learning.

Create Reusable Project Templates
Use the Toolbox in Model Studio to share template pipelines and modeling nodes for use in other projects. For more information about templates, see “Model Studio Toolbox” on page 1.
View the slideshow in SAS Help Center.

Migrate Projects from Forecast Studio
You can migrate projects from SAS Forecast Studio.
View the slideshow in SAS Help Center.
Using the Pipelines Tab

Initial Pipeline for a New Project

Pipelines consist of a series of nodes that are run in a sequence to produce forecasts based on the models and settings that you choose for the project. After you first create a project, the pipeline is set up in the Pipelines tab. The pipeline is labeled Pipeline 1. For time series projects, the Auto-forecasting node is selected for the modeling strategy.

Click + to create a new pipeline. By default, it is named Pipeline 2. You can change any pipeline name by double-clicking it and entering a new name.
Node Status

Position your pointer over each node to see its status.

- When you first create the pipeline, all nodes have a status of *Initialized*.
- After a node in the pipeline has successfully finished execution, the node shows a status of *Successful*.
- A node with a status of *Pending* is waiting for other nodes in the pipeline to complete before starting.
- If a pipeline run fails, check to see which node has a *Failed* status.
- If you make any changes to the project settings or variable assignments, the nodes will change to *Out-of-date* status, and the pipeline needs to be run again.

Pipeline Details

Right-click any node in a pipeline to open a pop-up menu.

- Select *Run* from the pop-up menu to run the node. Any preceding nodes in the pipeline that do not have a status of *Successful* are run first. After the preceding nodes complete successfully, the selected node runs.
- Select *Rename* to rename a node. The new name applies only to the node on this pipeline.

Right-click the data node to get these actions in the pop-up menu.

- Select *Add below* to add a forecasting modeling node to the pipeline.
- After the data node has completed a run, select *Explore time series* to open a plot of the historical data.

Right-click any modeling node to get these actions in the pop-up menu.

- Select *Delete* to remove the node from the pipeline. If it is the only modeling node in the pipeline, then the *Model Comparison* and *Output* nodes are also removed.
- Select *Open* to open the code editor for the node.
- Select *Save as* to save the node, with any settings you have made in the Options panel on the right, to the Toolbox. This makes the saved node available for other projects.
- Select *Results* to view the results of the model, including an execution summary, MAPE distribution, and other relevant data.
- Select *Log* to view a log of the node’s processing.

Right-click the *Model Comparison* node to get these actions in the pop-up menu.

- Select *Results* to view the MAPE distribution and summary statistics for each modeling node along with the selected champion model in the pipeline.
- Select *Select champion model* to choose a champion model other than the one selected by SAS Visual Forecasting. If you choose a different champion model, you need to rerun the Model Comparison and Output nodes.

There are four icons on the right side of the pipeline content area that you can use to manage your pipelines.

- Saves the pipeline as a template to the Model Studio Toolbox for use with other forecasting projects.

- Runs the pipeline.

- Stops a running pipeline.
Deletes a pipeline. This is disabled if you have only one pipeline.

Nodes Panel
On the left side of the pipeline is the Nodes panel. Click to show and hide the Nodes panel. This panel provides modeling nodes that you can add to any pipeline. You can drag a modeling node over the Data node in the pipeline to add it. To remove a modeling node, right-click and select Delete. Each pipeline requires at least one modeling node.

Options Panel
The Options panel on the right side of the pipeline displays options that you can set for a selected node in the pipeline. Click to show and hide the Options panel.

- All nodes in the pipeline have a Description option that you can update.
- Many modeling nodes in the pipeline have an Open button that you can use to view and edit the code inline. Use SAS Visual Forecasting: Programming Guide as a reference when you are working with this code. You cannot edit the Hierarchical Forecasting or External Forecasts nodes.

After running a pipeline, any change to the options for a modeling node move the pipeline back to out-of-date state. This is also true if you make a change and then change the setting back to the original value.

When a pipeline is running, the options for each modeling node in the pipeline cannot be changed until the pipeline completes. If you need to make further updates to a modeling node after starting the pipeline, click and wait for the pipeline to stop operation before you make any changes.

Compare Modeling Nodes in a Pipeline
Each pipeline must have one or more modeling nodes. The Model Comparison node shows the best model based on the selection criteria that you choose. If only one modeling node is present in the pipeline, it still provides an assessment of the accuracy of the model.

View the slideshow in SAS Help Center.
Creating Overrides

Before you can add any overrides, you must first run one or more pipelines and select a champion pipeline. Any changes you make to the project settings can invalidate the selected champion pipeline. In this case, the pipelines must be run again, and a new champion must be selected. When you are certain that the final champion pipeline is selected, you are ready to start working on applying overrides to the statistical forecasts from that pipeline.

When you are specifying overrides, it is important to remember the following:

- You can enter overrides only for the time periods in the forecast horizon. The forecast horizon is the period of time for which forecasts are computed. It starts after the end of the historical data and continues for the number of periods specified by the *Number of forecast periods (horizon)* option in the Project Settings dialog box. The end date for the series is the largest time ID value with a nonmissing value for the dependent variable.

- You cannot add a negative override if negative forecasts are not allowed in the project. To allow negative forecasts, you must select the *Allow negative values for forecasts and overrides* check box in the Overrides panel of the Project Settings dialog box. Changes to this setting require you to rerun the pipelines.

- If you create one or more overrides for one filter, you must submit those overrides before you can create overrides on another filter.

- Forecast values of 0 cannot be overridden.

Follow these steps to add overrides:

1. Select the *Overrides* tab in your project.
2. Select one or more filters from the Attributes section. For example, you could select a single product name if you want to review the forecasts and submit any overrides for that product. Or you might select several store locations within a focused geographical location that often has similar results. Typically, you want to have some filter specifications already bookmarked.

3. To add an override for any forecasted time series, right-click the Override row for that time series and select Override Calculator. You also have the option of entering a specific value directly in that table cell.

   For each override, you can specify whether the override is locked or unlocked. This locking determines how SAS Visual Forecasting treats the override during the reconciliation process.

4. When you finish specifying overrides for a filter, click and select Submit All.

When you submit a pending override, SAS Visual Forecasting reconciles the override value with other overrides and constraints that are imposed on that time period. If no conflicts are found, the override's status is applied, and the final forecast shows the reconciled value. If conflicts are found, you must resolve them.
Collaborating

Share Projects to Other Groups

This exercise demonstrates how to share a project that you have created with other users.

View the slideshow in SAS Help Center.