barra
portfolio
manager

Portfolio Construction Quick Start Guide

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[1] As of March 31, 2014, as reported on June 25, 2014, by eVestment, Lipper and Bloomberg   July 2014

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Overview

Barra Portfolio Manager lets equity portfolio managers build better portfolios. The Barra Portfolio Manager portfolio construction features are designed to simplify the recurring tasks of portfolio managers and quantitative support staff that build and rebalance portfolios as part of managing an equity investment process.

This guide describes how to use Barra Portfolio Manager for constructing portfolios with point in time optimization. For additional information about portfolio construction in Barra Portfolio Manager, see the Portfolio Construction Guide available at the Barra Portfolio Manager Help Center.

Constructing a Portfolio in BPM

The portfolio construction tools in Barra Portfolio Manager are available by subscription and sample portfolios are provided. While all users can view the sample portfolios, only subscribers can actively use the rebalancing tools.

The following steps briefly describe how to construct a portfolio in Barra Portfolio Manager. For the detailed description of the steps listed below, see Constructing a New Portfolio .

1. **Upload Your Portfolios and Asset Data**
   Use the import templates in Microsoft® Excel® to upload your initial portfolio holdings and asset data.

2. **Set up Picklists**
   Add the picklist items required for portfolio construction.

3. **Create a New Rebalance Profile**
   Set up a new rebalance profile to define the settings and options for your rebalance.

4. **Add Settings to Your Rebalance Profile**
   Add settings to your rebalance profile from the available optional settings.

5. **Edit Your Rebalance Profile**
   Use the additional features of the Profile Manager to edit your rebalance profile.

6. **Save Your Rebalance Profile**
   Save your rebalance profile to make it available in the Profile picklist.

7. **Run a Rebalance**
   Launch the Rebalance Tool to create the first iteration for the selected parameters.

8. **Revise Profile and Run Optimization**
   Use the optimizer to make incremental edits to your rebalance profile.

9. **Diagnose the Optimization Run**
   View the diagnostic reports to verify the optimization run.

10. **View the Optimal Portfolio**
    Analyze the portfolio after reviewing the optimization diagnostics.

11. **Generate a Trade List**
    Verify and generate the final trade list that you want to submit to the market.

12. **Archive**
    Save the iterations you want to keep and remove the unnecessary ones.

13. **Rebalance Multiple Portfolios**
    Use the Rebalance Assistant to rebalance and optimize a large number of portfolios in a single batch rebalance cycle for a specific analysis date.

14. **Save Your Workspace**
    Save your portfolio construction workspace for future rebalance cycles.

Constructing a New Portfolio

The Barra Portfolio Manager portfolio construction process helps create and compare multiple rebalance scenarios to build the best portfolio for you. This chapter describes the steps involved in constructing a new portfolio.

Upload Your Portfolios and Asset Data

Use the import templates in Microsoft® Excel® to upload your initial portfolio holdings and asset-specific data (such as alphas, asset bounds, round lots, etc.) to be used for optimization. You can download these import templates from the Barra Portfolio Manager Help Center.

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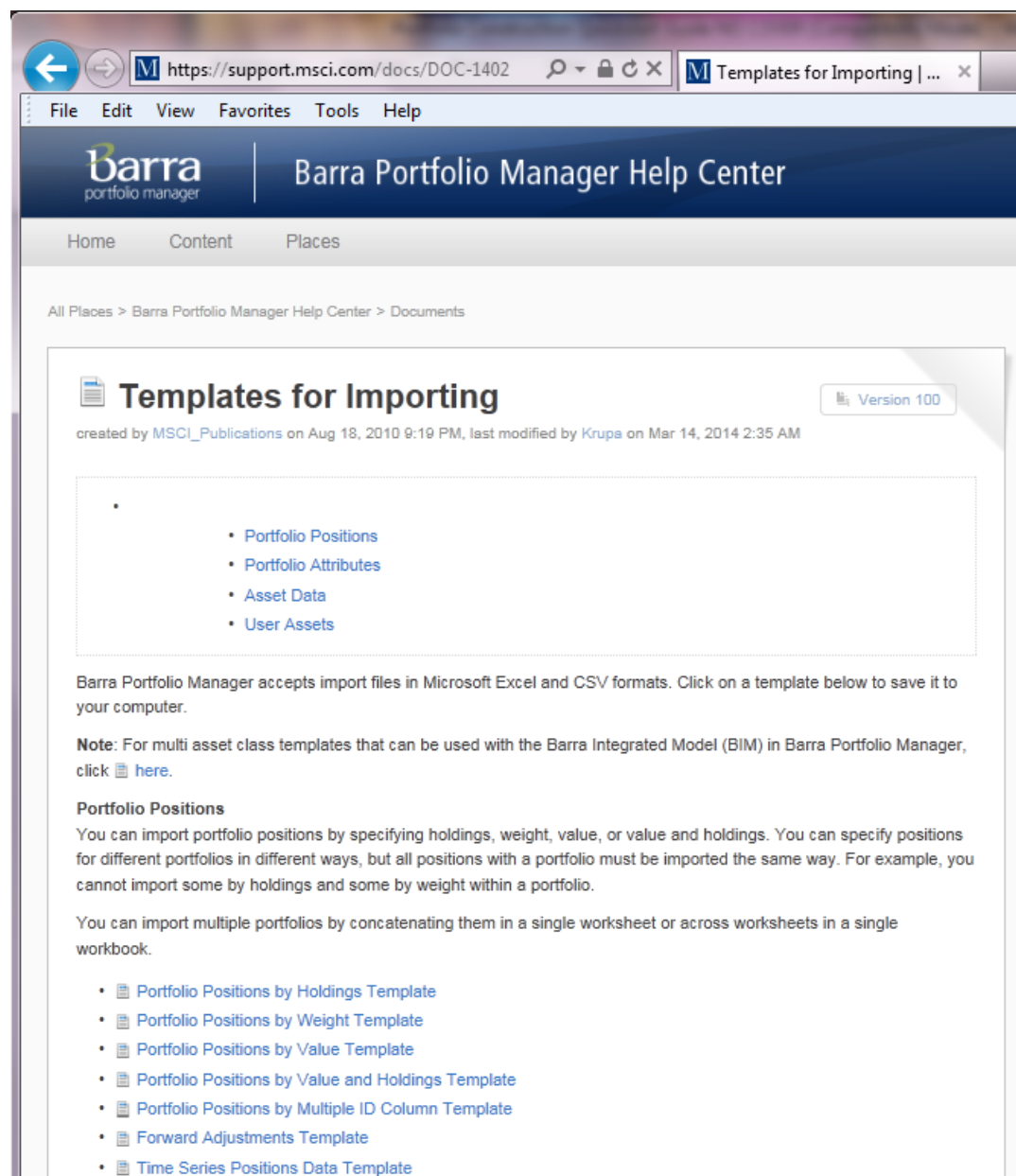
Follow these steps to add your initial portfolios and asset data to the import templates:

1. Enter the details of your holdings and assets in the import templates, and save the files to your local machine.
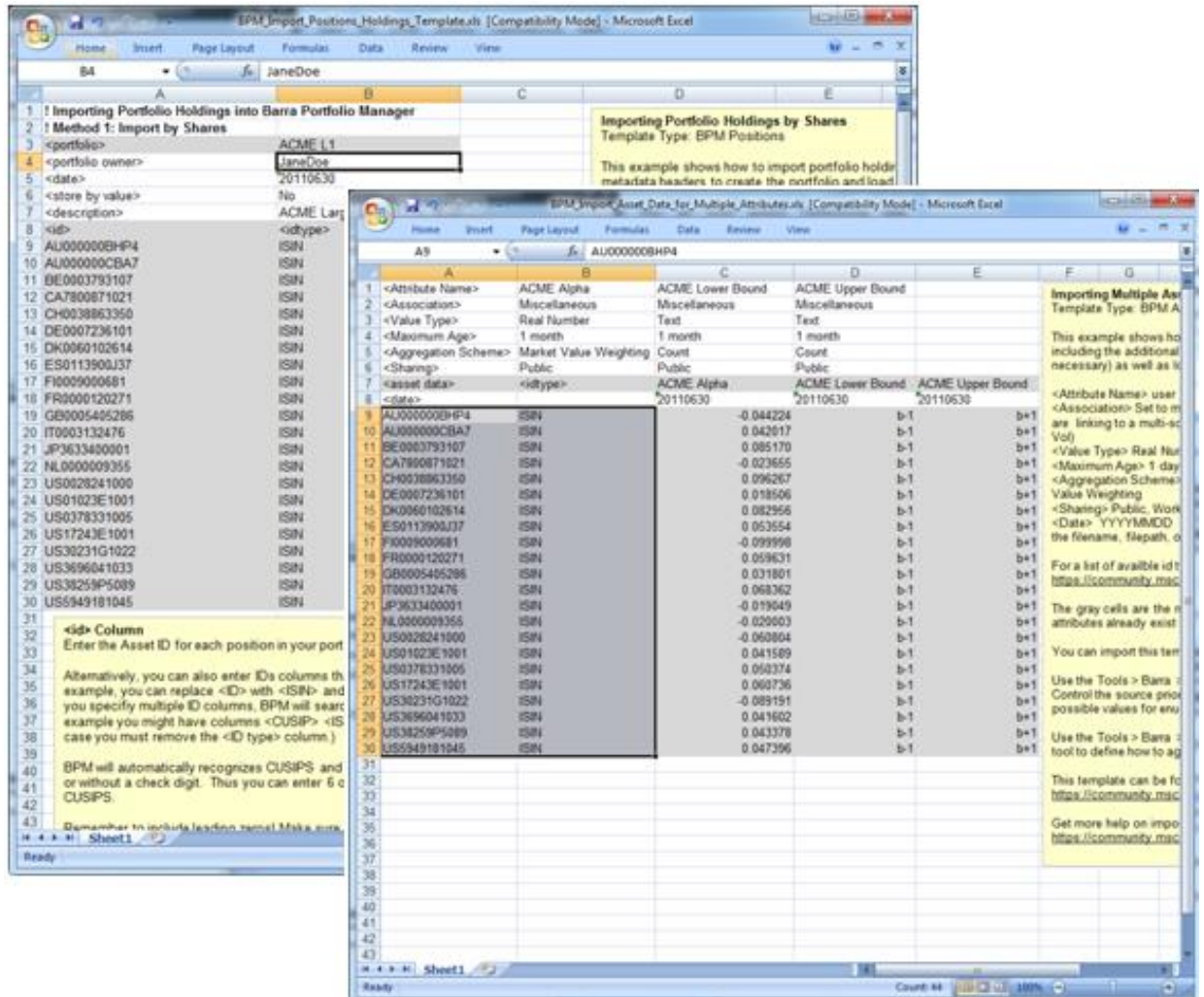
2. Log on to Barra Portfolio Manager.

3. In the toolbox, select the **Reports/Tools** tab.

4. In the Tools picklist, double-click **Upload Files**. The Upload Files window appears.
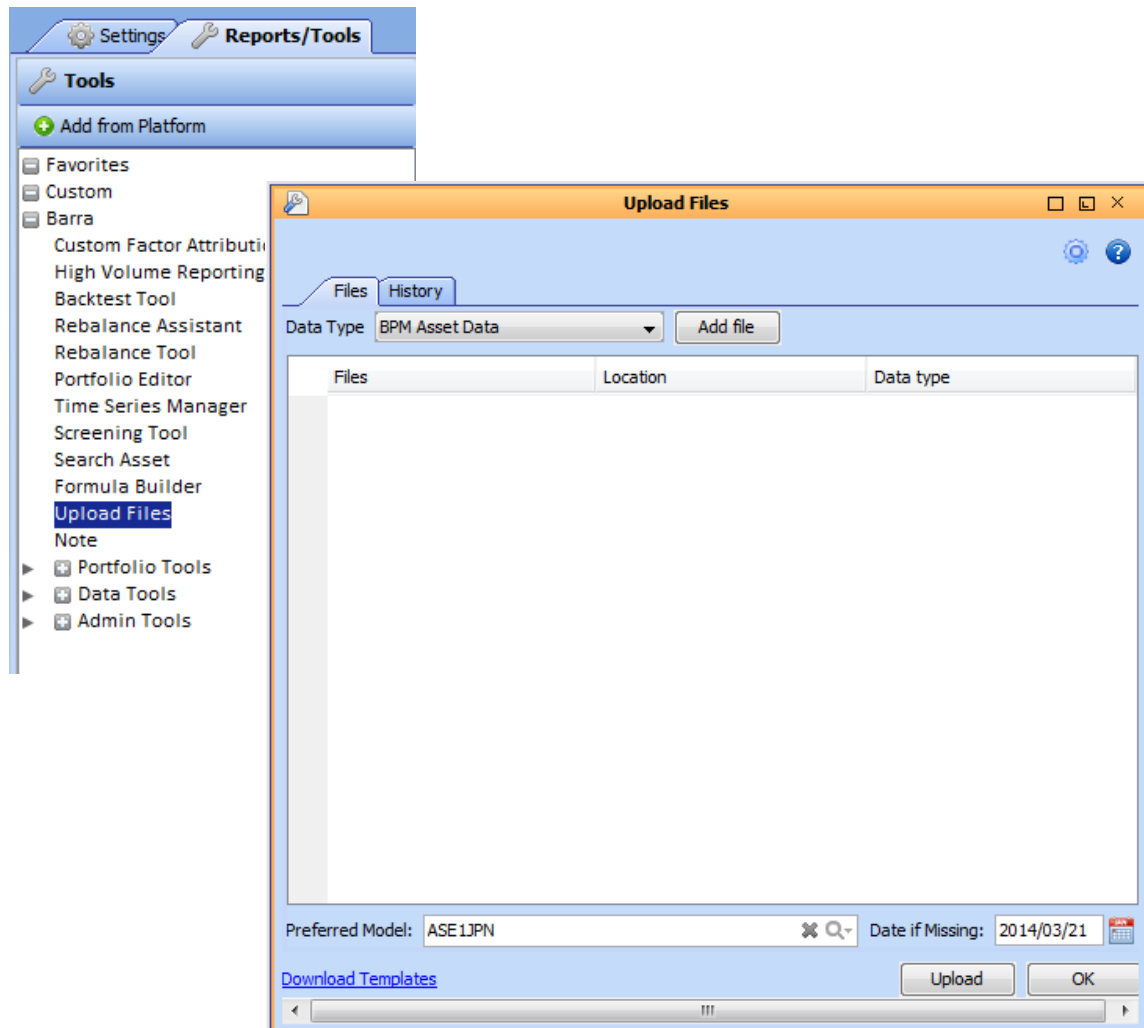
5. In the Files tab, set the data type to **BPM Positions**, and then click **Add file** to select the file with your holdings data.

6. Set the data type to **BPM Asset Data**, and then click **Add file** to select the file with your assets data.

7. Select the preferred risk equity model for the import job.

8. Set the date if not specified in the file or the filename.

9. Click **Upload** to load the files.

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10. (Optional) View the details of the upload job.

- To view the status of the upload process, select the **History** tab and click **Refresh**.

- To view the details of an upload job in the Upload Files window itself, select the job from the Submitted Jobs list.

- To view the detailed log of an upload job, select the job and click **View Log**.
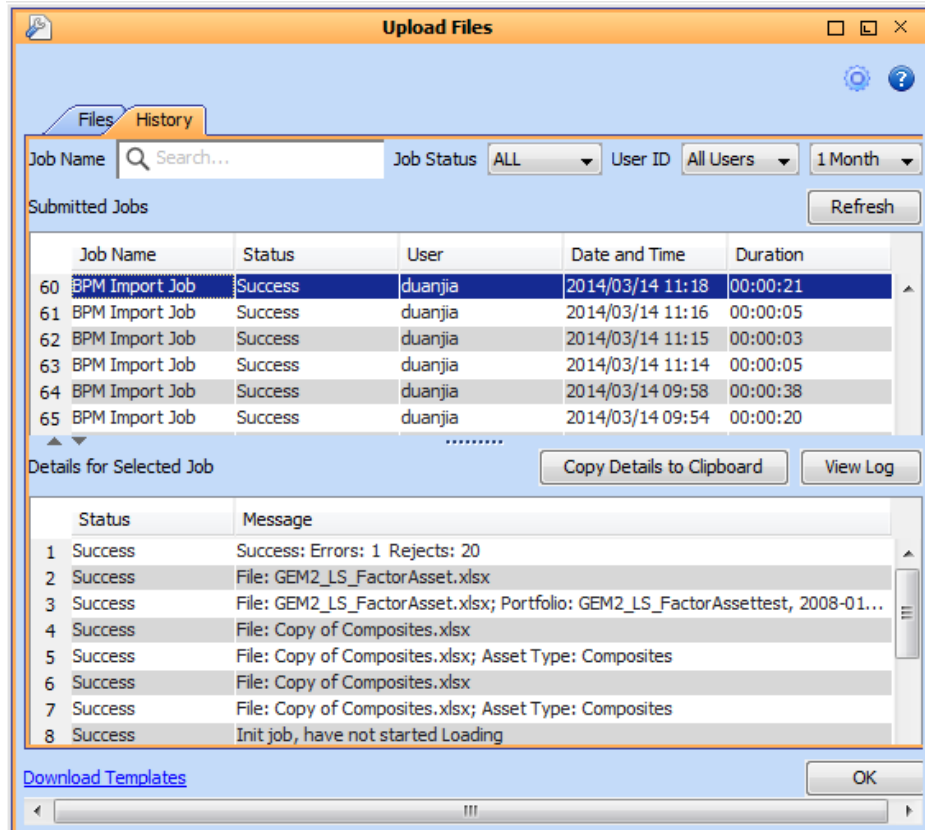
Set Up Picklists

Picklists help to organize information in the form of portfolios, analysis settings, and analytic views within a workspace. Use the toolbox in the Barra Portfolio Manager to organize picklists. You can set up picklists by creating new items or by adding shortcuts to existing items.

For portfolio construction, you need the following four picklist items:

- initial portfolio

- date

- analysis settings

- rebalance profile

These items define the context in which you will run optimization and view reports.

Adding an Initial Portfolio

In the Portfolios picklist on the Settings tab in the toolbox, click **Add from Platform**. Add a shortcut to the initial portfolio you previously imported.
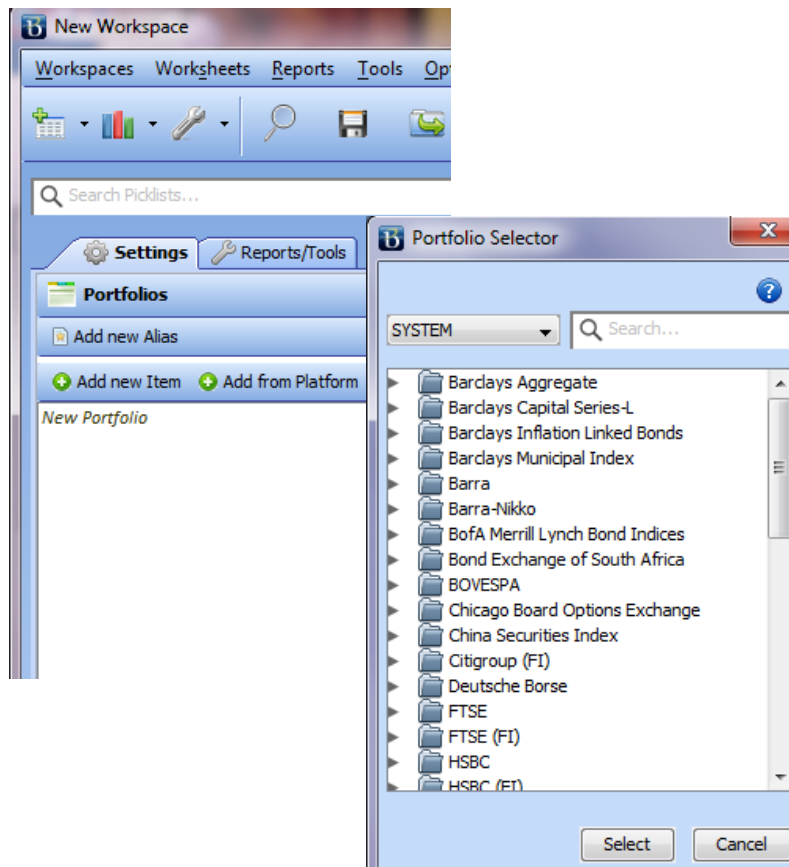
Adding a Date

In the Dates picklist on the Settings tab in the toolbox, click **Add new Item**. Add a shortcut to the preferred date for analysis and rebalancing your portfolio. You can select a specific date or dates based on standard rules, such as previous month end.
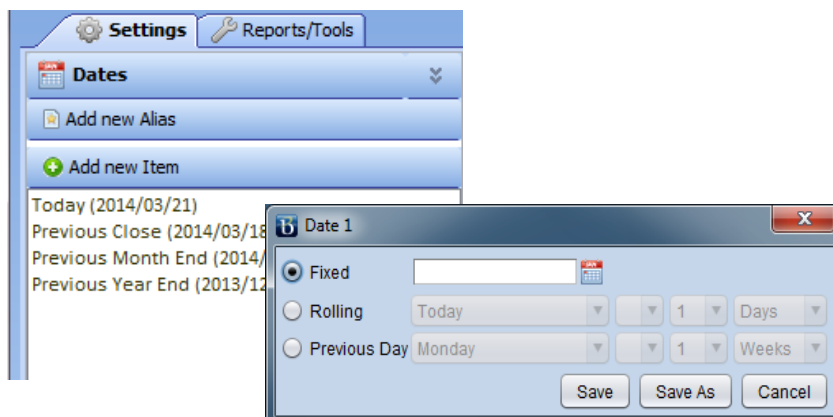
Configuring Analysis Settings

In the Analysis Settings picklist on the Settings tab in the toolbox, click **Add new Item**. Define the settings you intend to use to analyze the optimal portfolio using risk, exposure, and positions report.
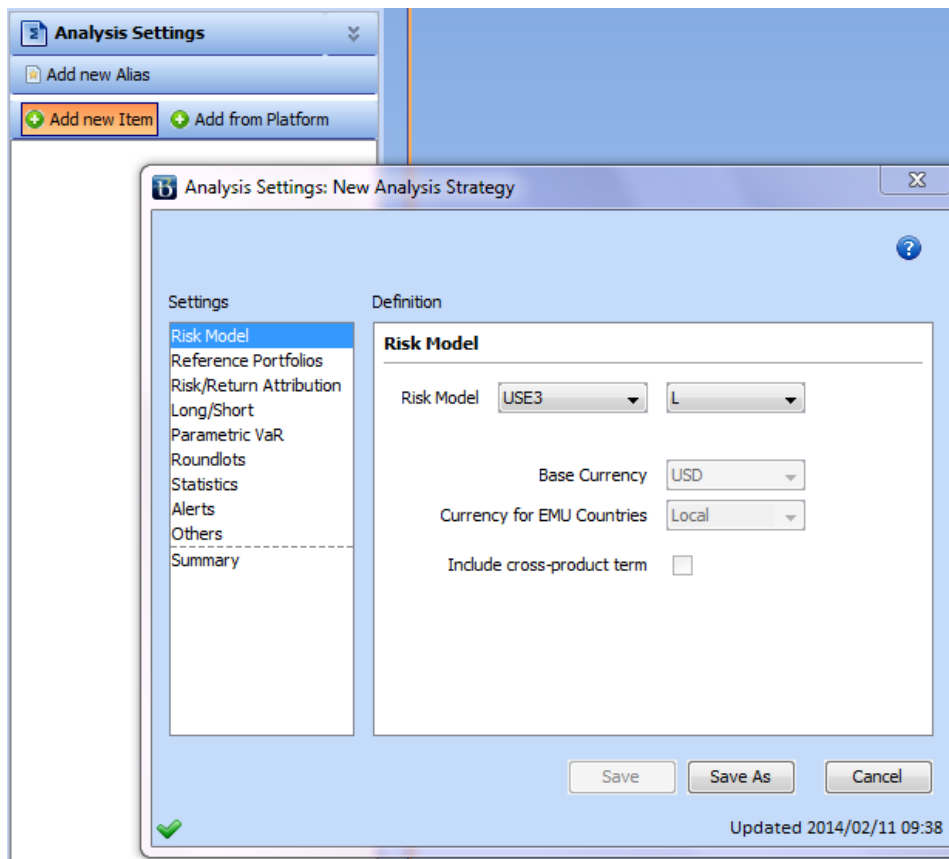
Running a Positions Report

After setting up picklists in the toolbox, you can run the positions report to verify the imported data.

1. From the Reports menu, select **Risk** > **Asset Reports** > **Positions Report**.
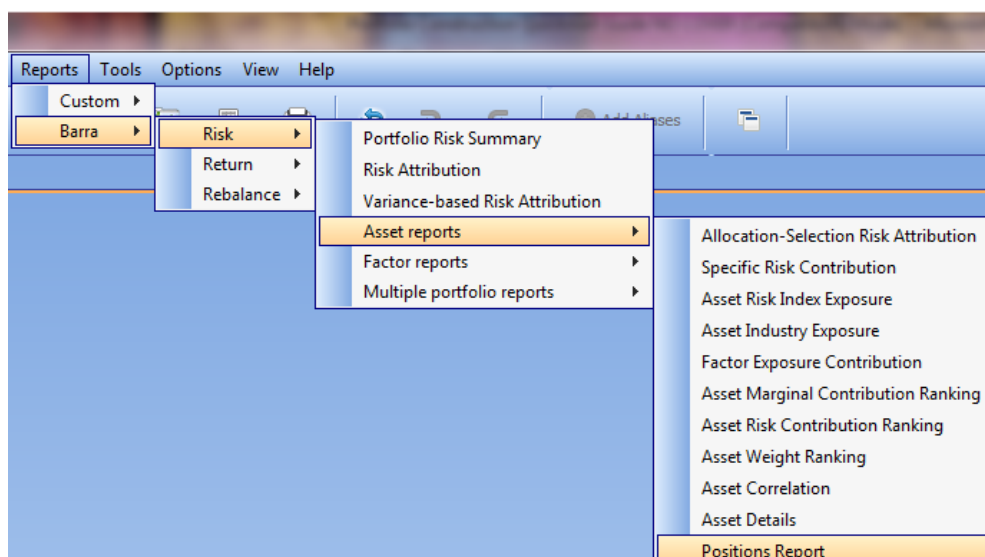
2. Double-click the red fields in the Positions Report window and select the key inputs for the report.
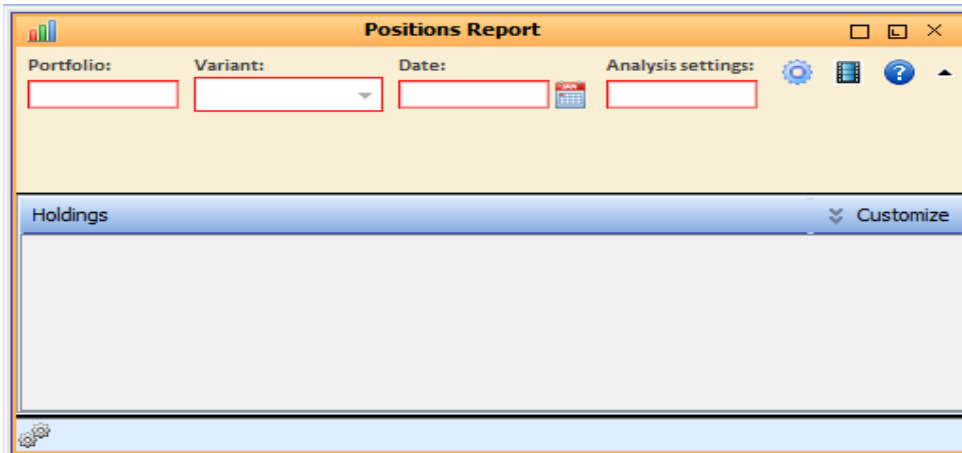
3. Click the ⚙ icon and select **Add/Remove Columns** to add the imported asset data as additional columns in the report. You can search for your asset data attributes by name.

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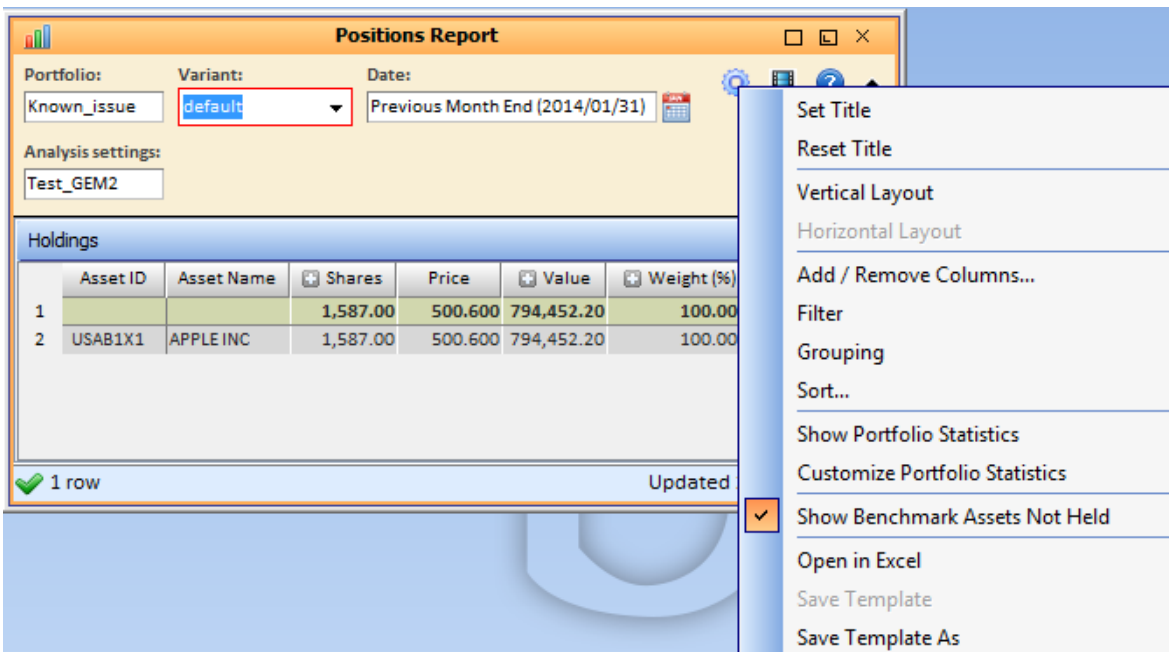
4. Verify that the initial portfolio weights and asset data in the positions report are correct.

	Asset ID	Asset Name	Shares	Price	Value	Weight (%)	ACME Alpha	ACME LowerBound	ACME UpperBound
1			175,298,147,510.00	64.957	7,465,366,808,342.30	100.00%	-0.00	N/A	N/A
2	USAKTN1	ALTRIA GROUP INC	2,093,387,000.00	26.410	55,286,350,670.00	0.74%	0.05	b-1.84	b+1.84
3	USAEPV1	ENTERGY CORP NEW	177,968,000.00	68.280	12,151,655,040.00	0.16%	0.03	b-1.88	b+1.88
4	USASA21	LOCKHEED MARTIN CORP	284,785,180.00	80.970	23,059,056,024.60	0.31%	0.04	b-0.11	b+0.11
5	USABCA1	AVON PRODS INC	430,188,000.00	28.000	12,045,264,000.00	0.16%	-0.08	b-3.23	b+3.23
6	USABHX1	BANK OF NEW YORK MELLON CORP	1,241,724,000.00	25.620	31,812,968,880.00	0.43%	-0.01	b-3.26	b+3.26
7	USA2ZQ1	DEVON ENERGY CORP NEW	423,000,000.00	78.810	33,336,630,000.00	0.45%	0.04	b-3.28	b+3.28
8	USAP6X1	XEROX CORP	1,401,186,000.00	10.410	14,586,346,260.00	0.20%	0.01	b-1.09	b+1.09
9	USAHML1	JOHNSON & JOHNSON	2,741,143,000.00	66.520	182,340,832,360.00	2.44%	0.00	b-3.36	b+3.36
10	USAPIO1	TIME WARNER INC	1,070,821,000.00	36.370	38,945,759,770.00	0.52%	0.06	b-1.15	b+1.15
11	USAPE81	QUALCOMM INC	1,669,532,000.00	56.790	94,812,722,280.00	1.27%	-0.03	b-1.16	b+1.16
12	USAD3D1	COLGATE PALMOLIVE CO	488,894,000.00	87.410	42,734,224,540.00	0.57%	-0.03	b-3.41	b+3.41
13	USA37C1	UNITED PARCEL SERVICE INC	986,214,000.00	72.930	71,924,587,020.00	0.96%	0.04	b-0.17	b+0.17
14	USAB1B1	APACHE CORP	383,447,000.00	123.390	47,313,525,330.00	0.63%	-0.05	b-3.42	b+3.42
15	USA2ND1	GOLDMAN SACHS GROUP INC	517,735,000.00	133.090	68,905,351,150.00	0.92%	0.06	b-1.99	b+1.99
16	USAL6I1	PROCTER & GAMBLE CO	2,791,294,000.00	63.570	177,442,559,580.00	2.38%	0.05	b-2.01	b+2.01
17	USABPA2	BERKSHIRE HATHAWAY [B]	1,731,261,700.00	77.390	133,982,342,963.00	1.79%	-0.05	b-2.02	b+2.02
18	USAB1X1	APPLE INC	924,755,000.00	335.670	310,412,510,850.00	4.16%	0.07	b-3.47	b+3.47
19	USAGKY1	HEINZ H J CO	321,821,000.00	53.280	17,146,622,880.00	0.23%	0.05	b-3.48	b+3.48
20	USABND1	VERIZON COMMUNICATIONS INC	2,829,078,000.00	37.230	105,326,573,940.00	1.41%	-0.02	b-3.49	b+3.49
21	USAKBG1	ORACLE CORP	3,896,597,320.00	32.910	128,237,017,801.20	1.72%	-0.04	b-0.23	b+0.23
22	USABLB1	BAXTER INTL INC	570,378,000.00	59.690	34,045,862,820.00	0.46%	-0.01	b-2.14	b+2.14
23	USAJWG1	NIKE INC	379,304,000.00	89.980	34,129,773,920.00	0.46%	-0.05	b-0.27	b+0.27
24	USAK1N1	WELLS FARGO & CO NEW	5,289,099,000.00	28.060	148,412,117,940.00	1.99%	0.06	b-0.28	b+0.28
25	USAJVL2	NEWS CORP [A]	2,285,168,100.00	17.700	40,447,475,370.00	0.54%	-0.07	b-2.17	b+2.17
26	USAFDB1	US BANCORP DEL	1,926,650,000.00	25.510	49,148,841,500.00	0.66%	-0.09	b-2.23	b+2.23
27	USAIDU1	LOWES COS INC	1,302,070,000.00	23.310	30,351,251,700.00	0.41%	0.07	b-0.32	b+0.32
28	USAWY11	NATIONAL OILWELL VARCO INC	423,077,000.00	78.210	33,088,852,170.00	0.44%	-0.05	b-1.29	b+1.29
29	USABZB1	BRISTOL MYERS SQUIBB CO	1,705,988,000.00	28.960	49,405,412,480.00	0.66%	-0.09	b-3.74	b+3.74
30	USAAJ41	ALCOA INC	1,063,715,000.00	15.860	16,870,519,900.00	0.23%	-0.06	b-0.34	b+0.34
31	USAKTU1	CONOCOPHILLIPS	1,413,507,000.00	75.190	106,281,591,330.00	1.42%	-0.01	b-1.31	b+1.31

Positions Report

Portfolio: Initial Portfolio Variant: Pre-Trade Date: Date 1 (6/30/2011) Analysis settings: Attribution

100 rows   Updated 01/26/2012 15:14

Create a New Rebalance Profile

To create a new rebalance profile, you need to select the optimization method, objective type, and risk model for the profile using the steps described below. Barra Portfolio Manager allows you to select a secondary risk model as an additional risk term in your utility function or as a secondary risk constraint.

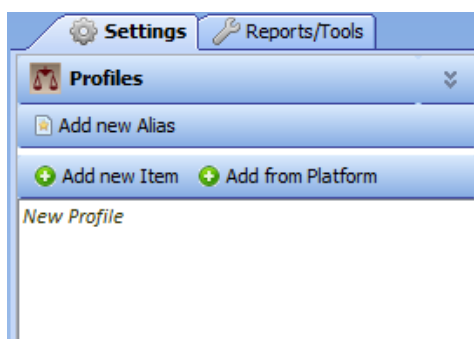1. In the Profiles picklist on the Settings tab in the toolbox, click **Add new Item**.

Settings | Reports/Tools

Profiles

Add new Alias

Add new Item   Add from Platform

New Profile

2. On the New Profile dialog box, select the optimization method, objective type, and risk model.

3. Click **Next**. The Profile Manager appears.

4. Create a new rebalance profile using the Profile Manager by configuring the essential (minimum) settings required to run optimization.

5. Select a category from the displayed list to modify the relevant settings. As you select settings in the upper window, the details of the selected setting are displayed in the lower window.

6. Enter the required parameters for a selected setting.


Add Settings to Your Rebalance Profile

You can use the Profile Manager to add optional settings, such as utility terms and constraints, to your profile. On the Profile Manager, click **Add** to add your preferred settings from the list of available settings.

A brief description of each setting is displayed on the right. You can add multiple settings at once by selecting them and clicking **Add.**
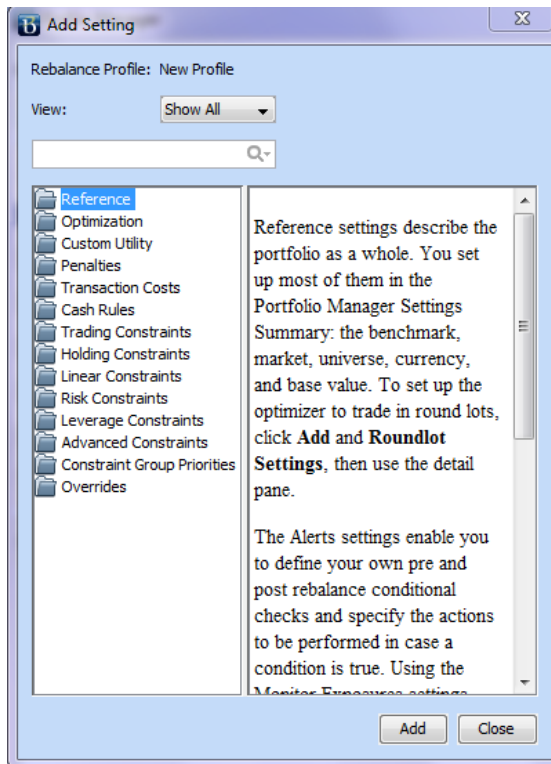
Some settings can be added only once and do not appear in the available list once they have been added to the profile. Other settings remain in the list to enable you to add multiple instances to your profile. You can also search for settings by keywords or use the filters to filter by category.
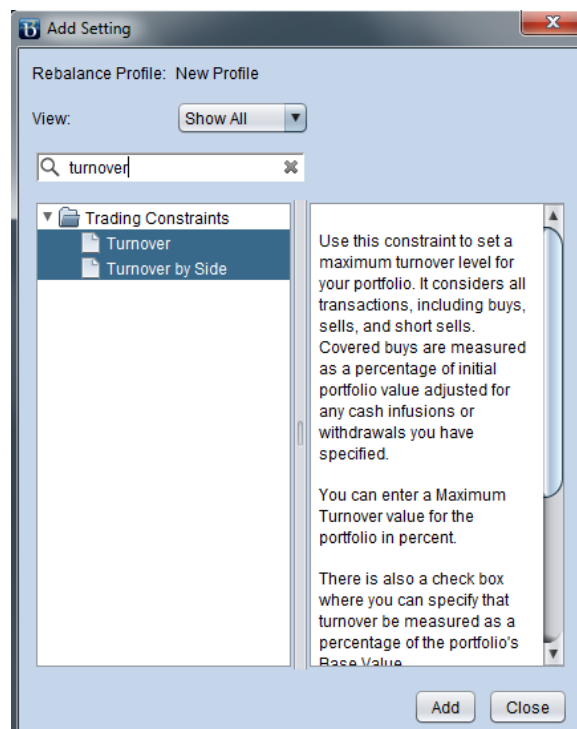
The following examples depict the types of custom settings that can be included in your rebalance profile.

Example 1 – Setting Factor Exposure Constraints

To specify constraints that control the portfolio exposure to risk model factors, add the **Factor Constraints – Primary Model** setting available in the Linear Constraints folder. Click **Close** and return to the Profile Manager.
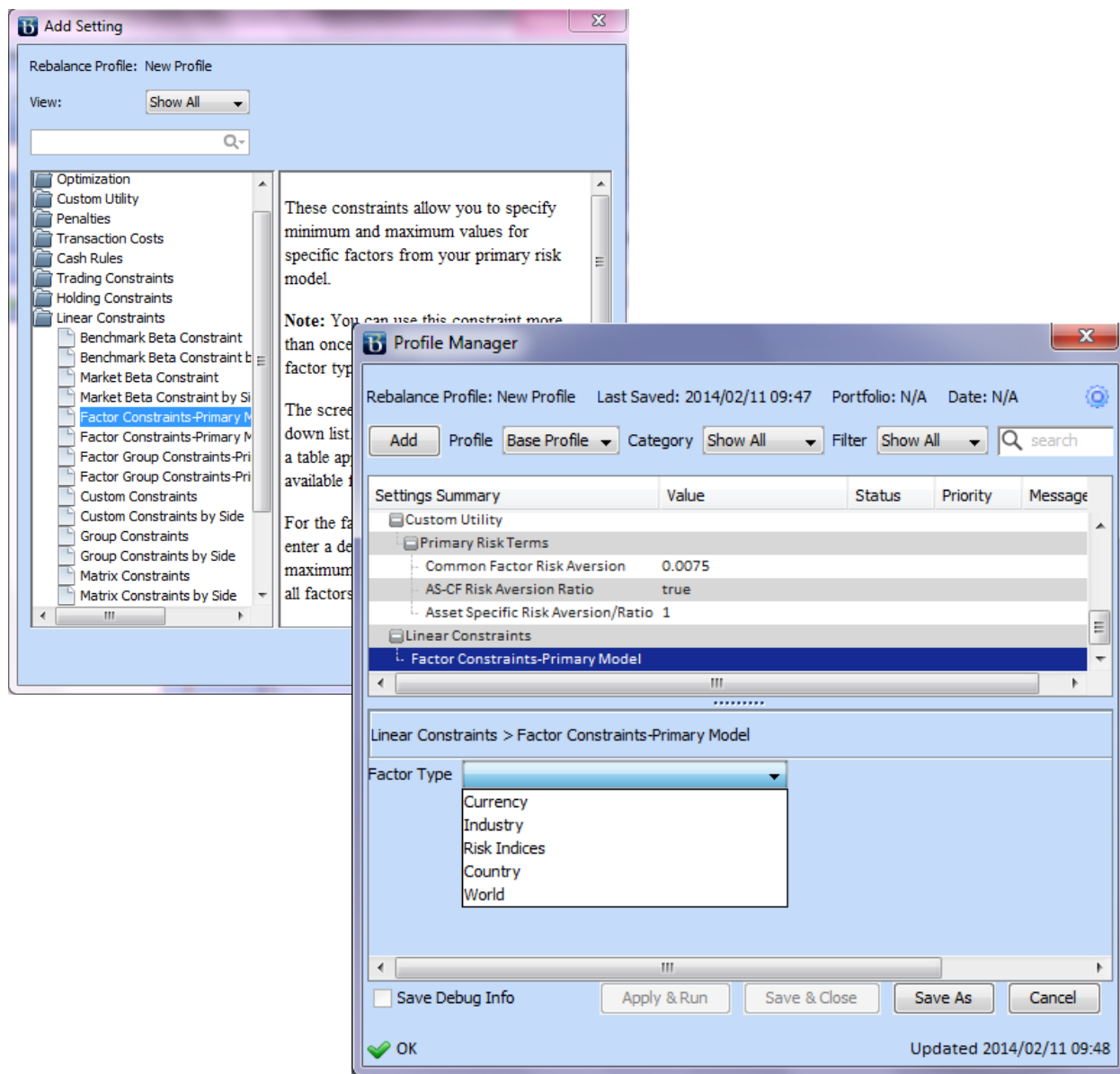
Select the factor type you want to constrain. You can enter a default bound that applies to all factors of the same type or specify bounds for individual factors. As a rule, individual factor bounds always supersede the default bounds. You can specify relative bounds on the primary (b+# or b- #) or secondary benchmark (b2+# or b2-#). Press the Enter key to apply the updated settings.

Example 2 – Categorizing Asset Bounds by Group

You can use the **Asset Level Bounds by Group** setting to specify holdings bounds for assets according to the cross-sectional group to which they belong. For example, you can set holdings bounds by market capitalization quintile.

To use dynamic groups, first create the grouping scheme using the Setup Asset Grouping Scheme tool from the User Data Tools menu in the toolbox.
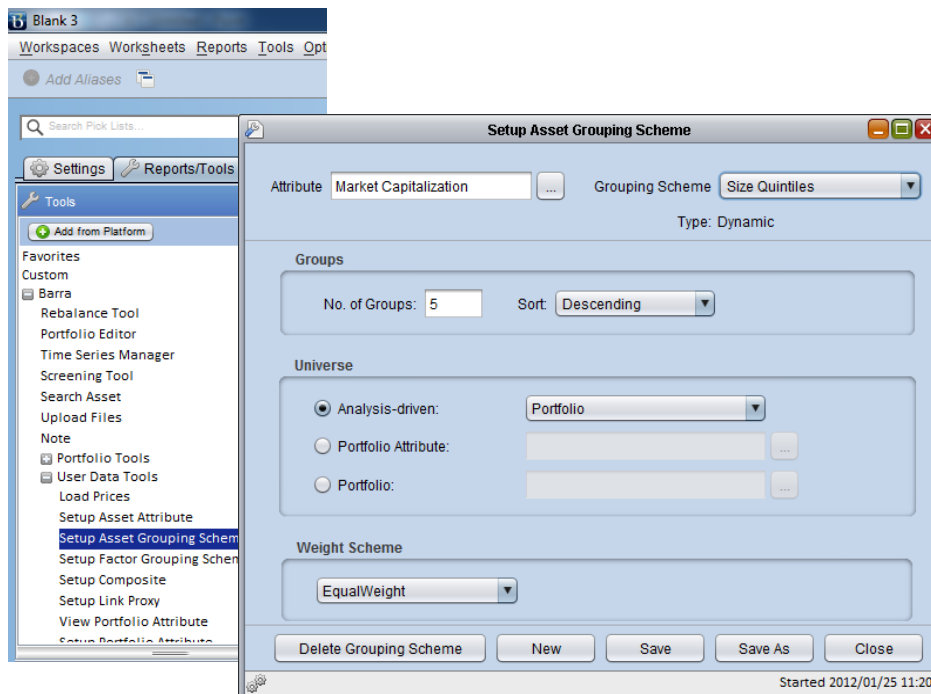
Follow these steps to add a grouping scheme for an asset attribute using the Setup Asset Grouping Scheme tool:

1. In the Profile Manager, click **Add** and then select the **Asset Level Bounds by Group** setting available in the Holdings Constraints folder.
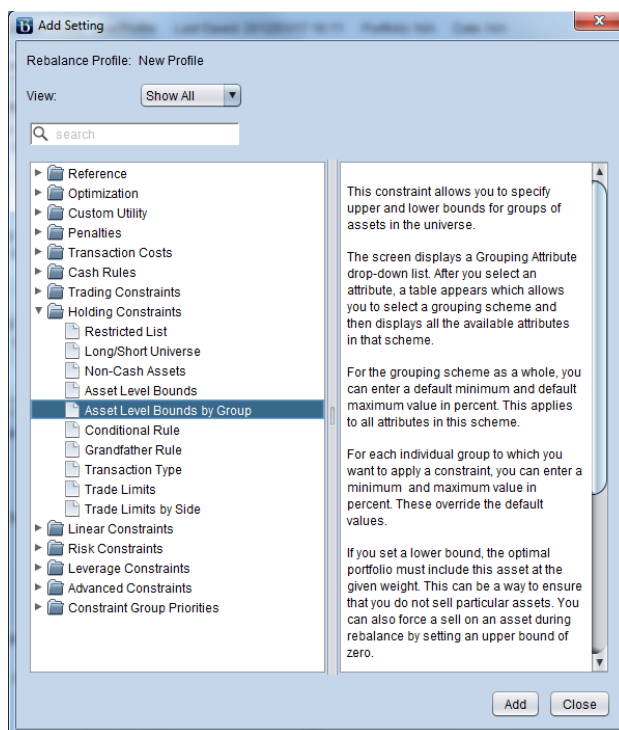
2. Click **Close** to return to the Profile Manager.

3. To use an existing asset attribute, double-click in the **Grouping Attribute** field and select from the available attributes. You can only select asset attributes for which grouping schemes are defined.

    Note: When grouping using descriptive (enumerated) attributes, you can select **distinct** or select a user-defined grouping scheme.

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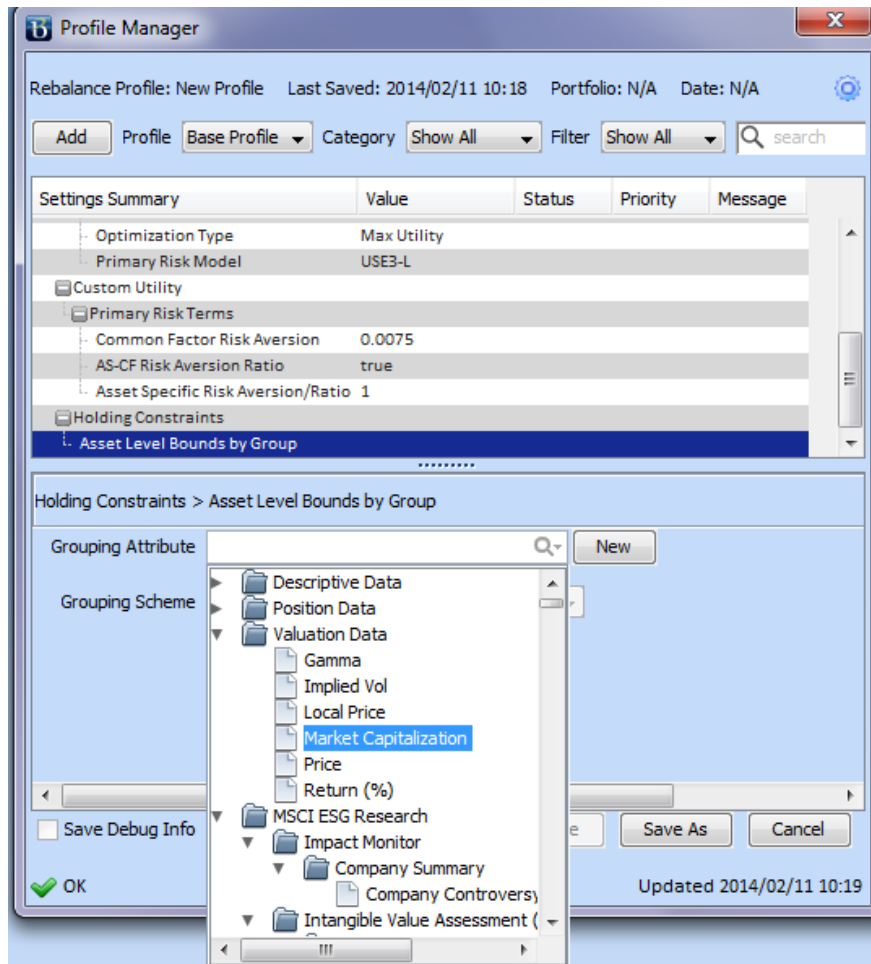
4. To set up a new asset attribute, click **New**. The Setup Asset Attribute window appears.

5. Enter asset bounds for each asset group. As a rule, individual group bounds always supersede the default bounds.

Edit Your Rebalance Profile

The Profile Manager offers the following additional features to help you edit your rebalance profile:

- View settings that belong to a specific category

- Filter settings based on predefined criteria such as priorities, status, etc.

- Search for keywords in the rebalance profile

- Enable or disable profile settings
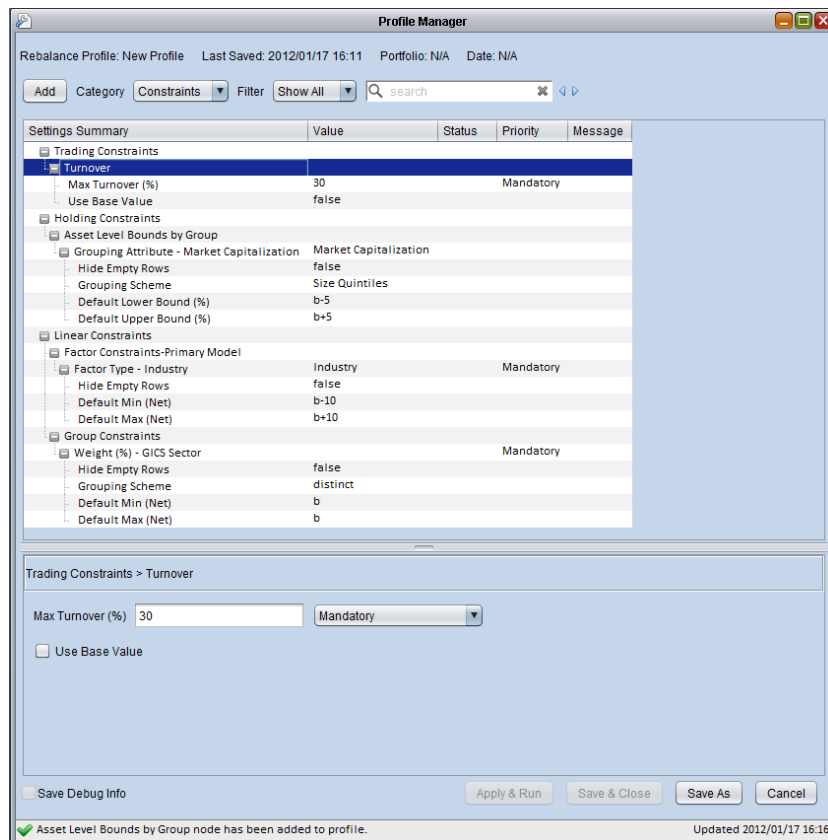
Categories

You can filter the settings displayed in your rebalance profile based on the following categories:

- reference settings

- utility terms

- constraints

To view all the settings, select **Show All** from the Category list.

Filters
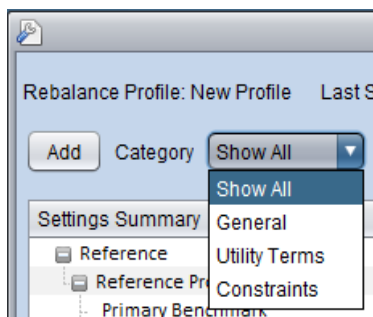
You can also use the following filters to sort the settings displayed in your rebalance profile:

- Status – Display settings that are enabled or disabled.

- Priority – Display settings that are mandatory or with high, medium, or low priority.

- Optional – Display optional settings.

- Errors – Display settings that have errors.
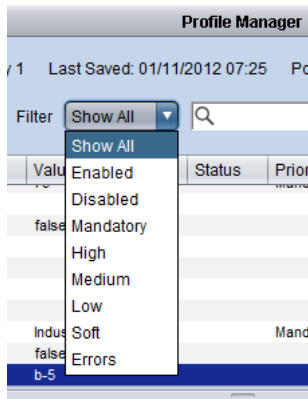
To view all the settings, select **Show All** from the Filter list.

Search

Use the Search bar to find a specific keyword in the rebalance profile. Use the arrow buttons to jump from one match to the next. Use the ✖ button to clear the Search bar.
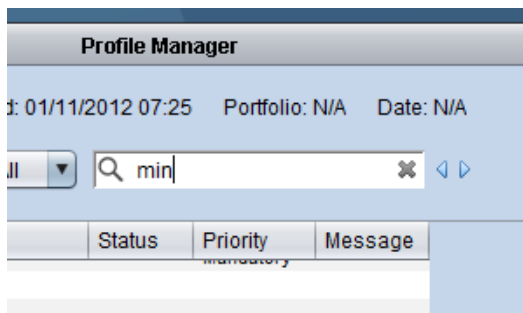
Enable/Disable

To disable or enable any setting, right-click on it and select the appropriate option. By disabling settings in your rebalance profile, you save them as part of the profile but exclude them from optimization. This is useful when you want to relax specific constraints to see the impact on the optimization results or to disable settings that may conflict with other settings.
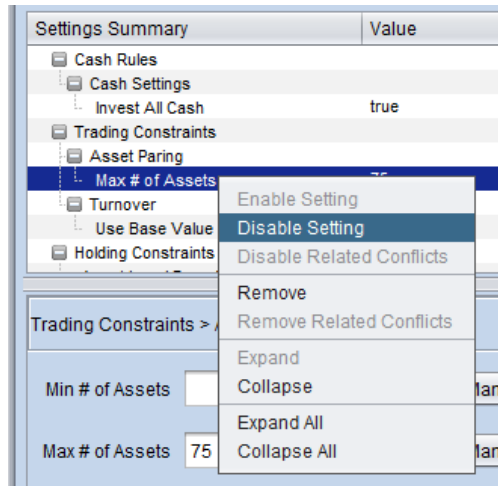

Save Your Rebalance Profile

Once you have built a complete rebalance profile, click **Save As** to save the profile. Enter the preferred profile name and set the visibility. You can allow the profile to be visible to all other users in your client ID or only to specific workgroups according to your workgroup permission settings. Once you save the rebalance profile, it will automatically appear in the Profile picklist.
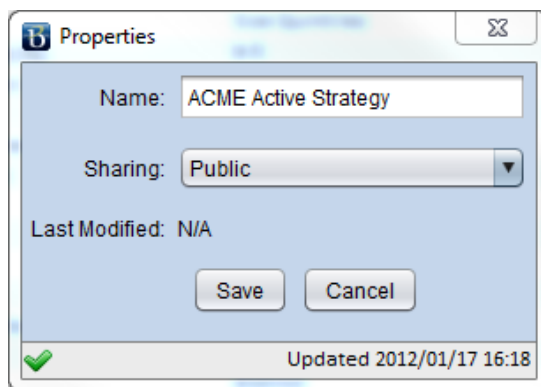
Run a Rebalance

The goal of the rebalancing process is to create an optimized portfolio that maximizes utility while taking into account any constraints you specify.

Follow these steps to run rebalancing:

1. In the main menu, click **Tools**.

2. Click **Barra** > **Portfolio Construction** > **Rebalance Tool**.
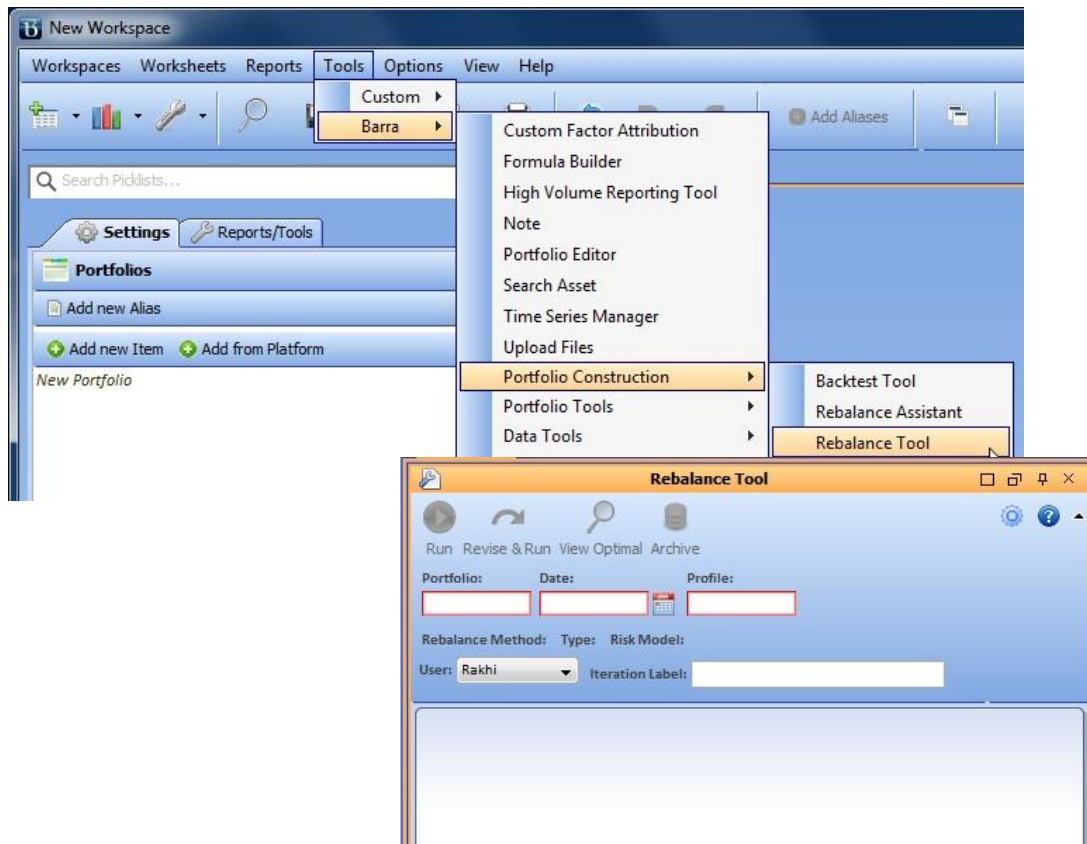
3. Double-click on the red fields and select the key inputs for the report. The list of available choices displays the picklists that you set up earlier.

4. Select the initial portfolio.

5. Select the date.

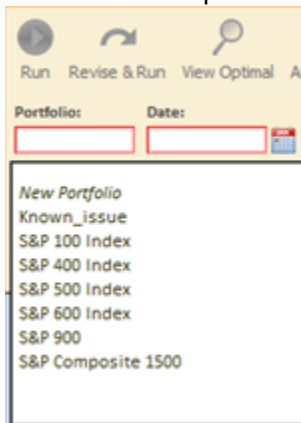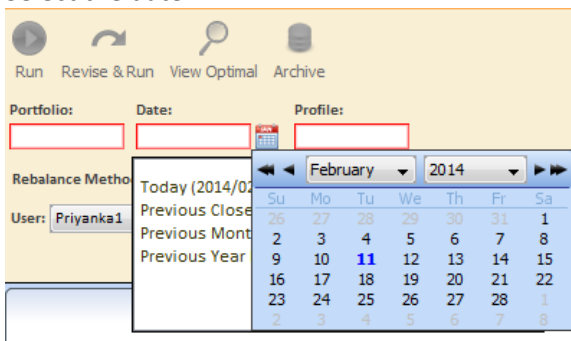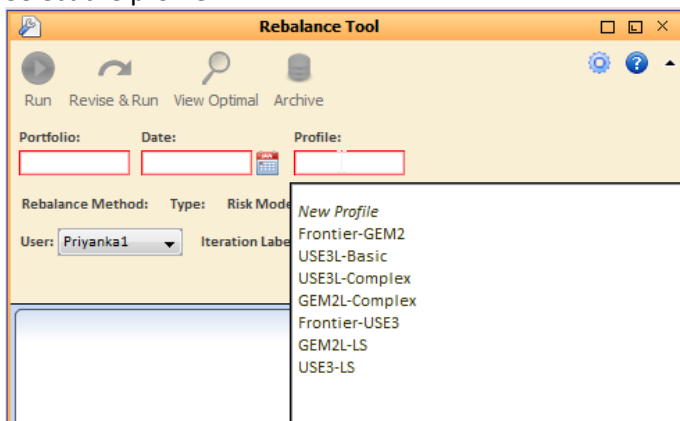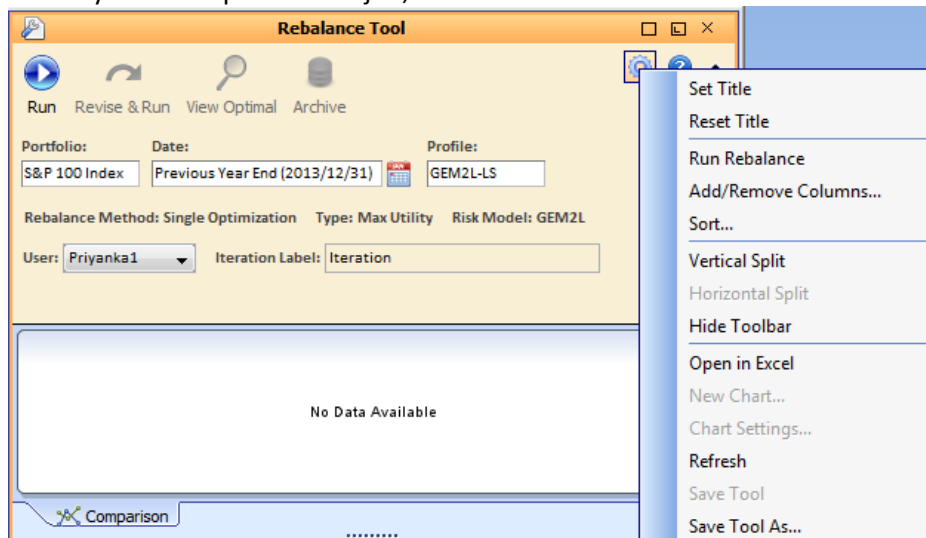6. Select the profile.

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7. To run your first optimization job, click or click the icon and select **Run Rebalance**.


The Rebalance Tool displays the status of the optimization job and key statistics about the optimal portfolio. You can customize the columns by clicking the icon and selecting **Add/Remove Columns**.

	Status	Iteration	Number Of Assets	Net Return	Active Risk	Beta	Turnover	Utility	Submit
1	Waiting	Iteration 1	0	N/A	N/A	N/A	N/A	N/A	2012/0

	Status	Iteration	Number Of Assets	Net Return	Active Risk	Beta	Turnover	Utility	Submit
1	Success	Iteration 1	75	4.91%	2.55%	1.00	30.00%	0.05	2012/0

Revise Profile and Run Optimization

You can use the optimizer to create an unlimited number of iterations of the rebalance profile. Click the **Revise & Run** button or right-click on a previous iteration and click **Revise Profile & Run**.

msci.com
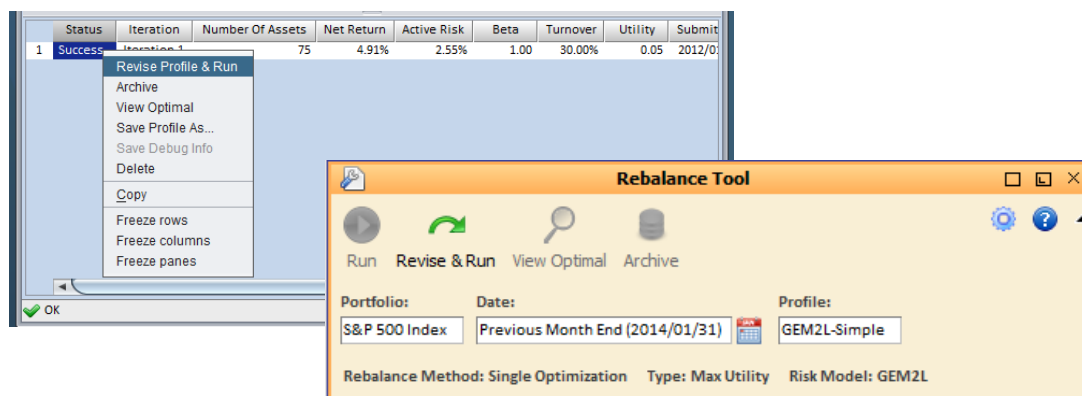
The Profile Manager opens with the settings you used from the selected iteration. Use the editing features previously described to make incremental edits to your rebalance profile.
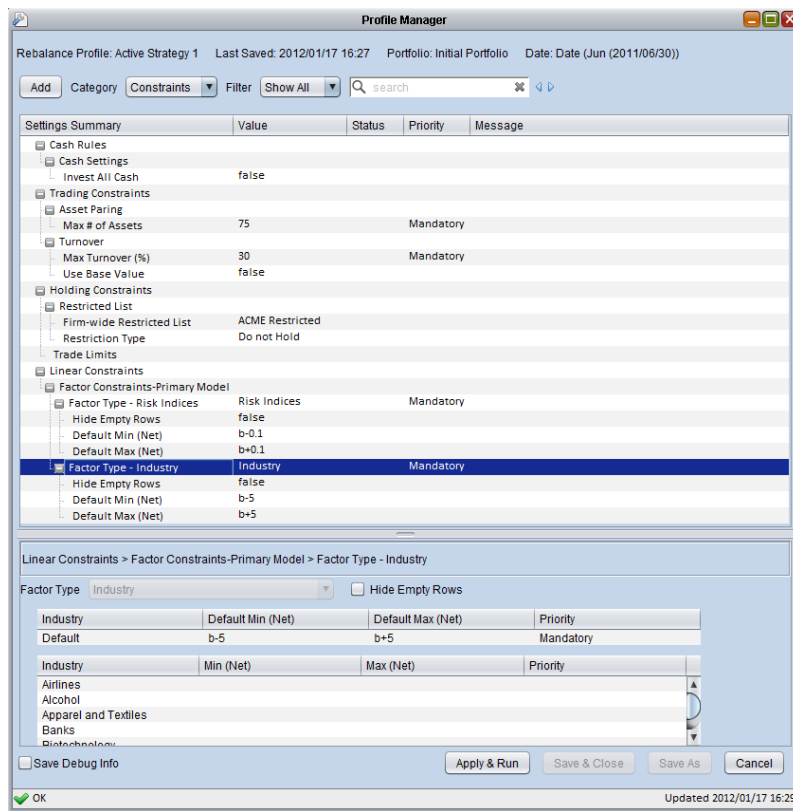
As you make incremental changes, click the icon and select **View Overrides** to confirm changes you have made relative to your default rebalance profile settings. All changes are highlighted in yellow. Revised settings display both the previous value and new value. Deletions appear as struck out and new settings are underlined.
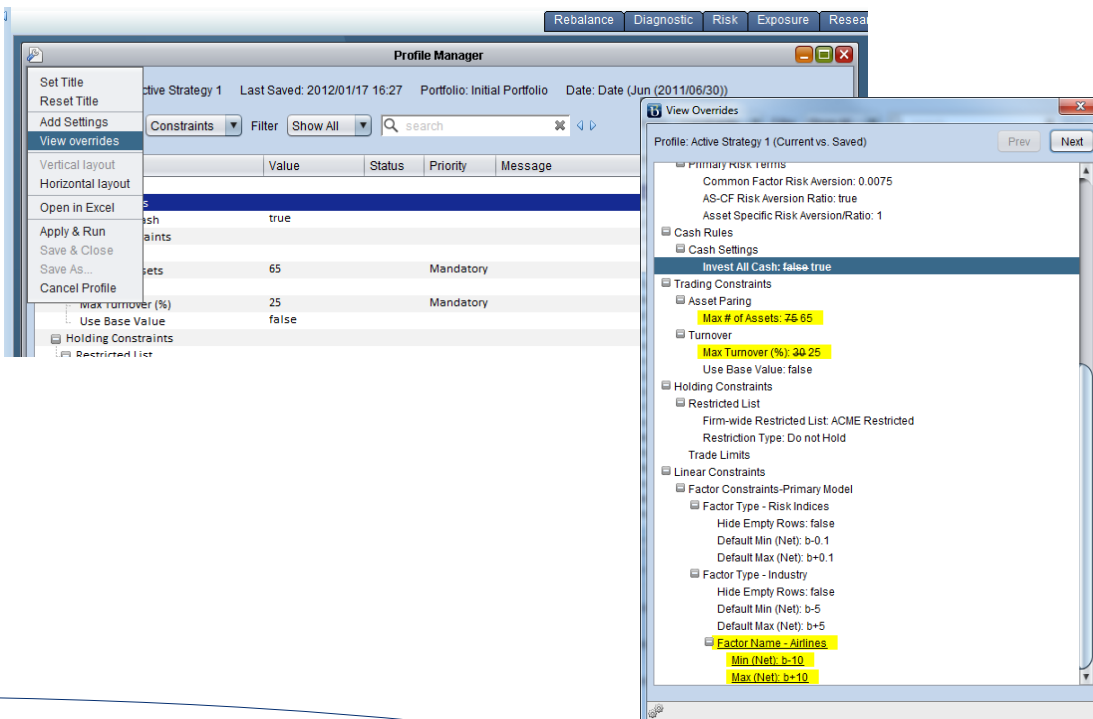
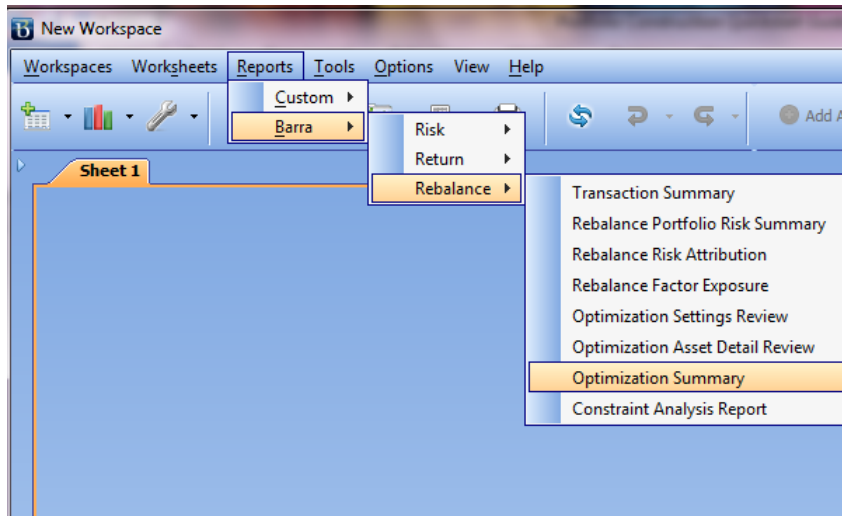Close the View Overrides screen and return to the Profile Manager. Once you finish your revisions, click **Apply & Run** to submit the optimization job.

Diagnose the Optimization Run

You can verify the optimization run by viewing the diagnostic reports located under **Reports** > **Barra** > **Rebalance**.


Use the Optimization Summary and Optimization Asset Detail Review to understand the input and output for the selected iteration. You can double-click on the input box to select a different iteration. The list of available iterations matches the picklist. Unlike other picklists, the Iteration picklist automatically includes optimizations you have run through the workspace.
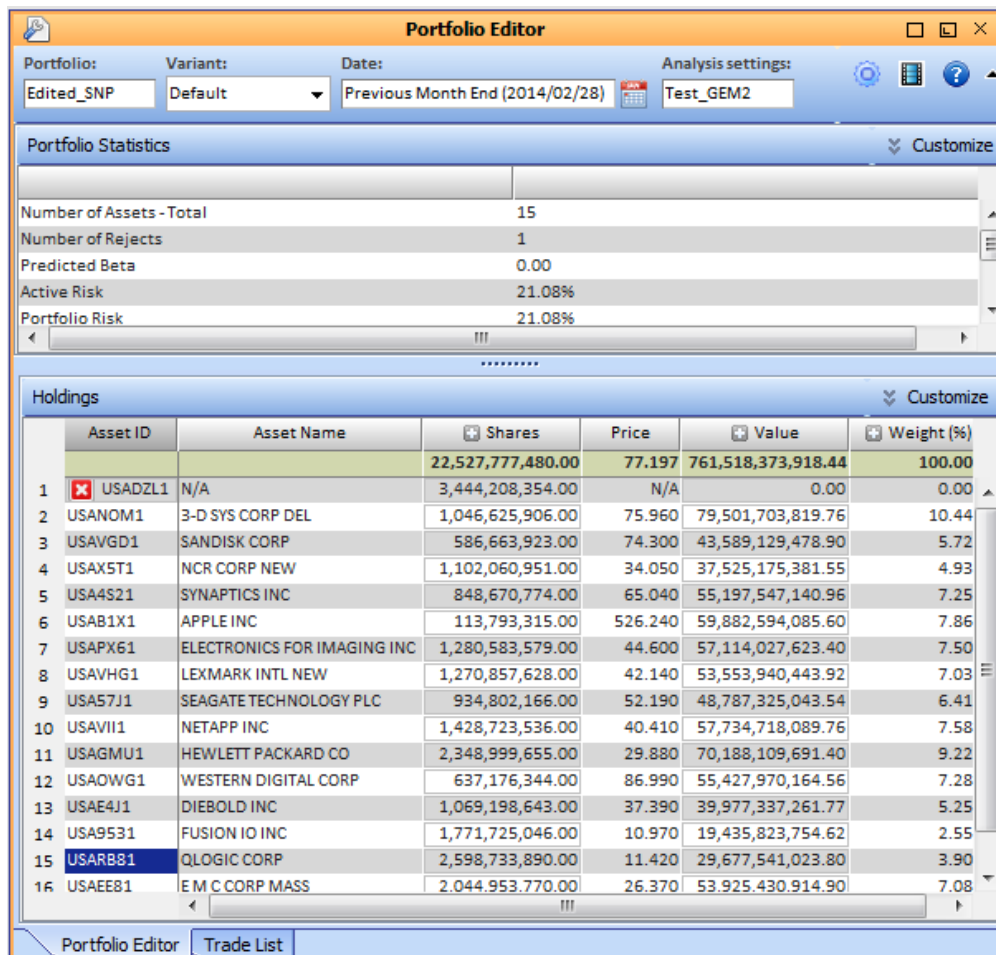
View the Optimal Portfolio

After diagnosing the optimization, you can also view the optimal portfolio, and run risk and exposure reports.

In the Rebalance Tool, right-click on the iteration you want to analyze and select **View Optimal**. Barra Portfolio Manager prompts you to specify a variant name and the analysis settings. The variant is a temporary portfolio used to store the optimal holdings. Click **View** to open the optimal portfolio in a new instance of the Portfolio Editor.
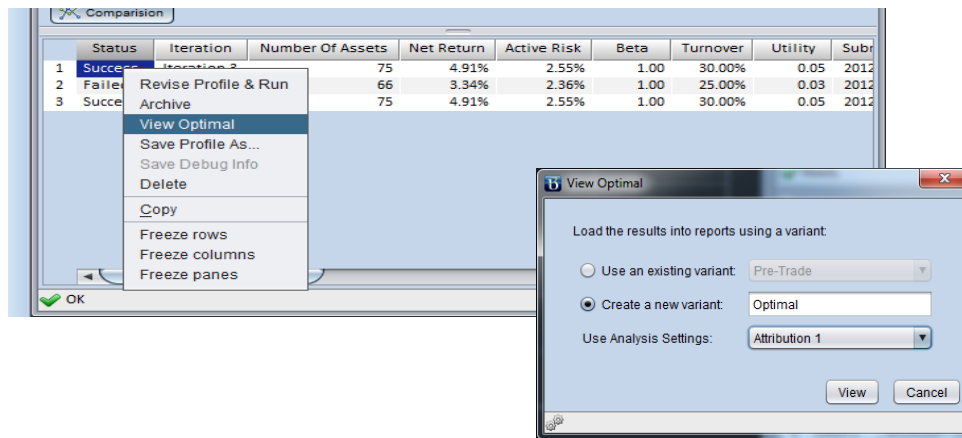
The Portfolio Editor displays the composition of the optimal portfolio as trades applied to the initial portfolio. The variant source header indicates the iteration currently in view. Using this variant portfolio, you can open risk attribution reports and exposure reports for the optimal holdings. By linking the reports to the same variant, you can also manually edit the optimal holdings and view the changes reflect in the risk and exposure reports immediately. You can also select the Trade List tab to edit the trade amounts.

The variant, once created, can be reused to view the optimal holdings for other iterations by selecting a different iteration from the Rebalance Tool and repeating the above procedure. Select **Use an existing variant** to reuse the Portfolio Editor and reports that are already open.

Note: If you exit the application or close the workspace, edits applied using the variant are lost.

Generate a Trade List

Once you have determined the preferred final holdings, you can use the Portfolio Editor to generate the trade list that you want to submit to the market.

Follow these steps to generate a trade list:

1. Select the **Trade List** tab in the Portfolio Editor.

2. Click the ⚙ icon and click **Add/Remove Columns**.
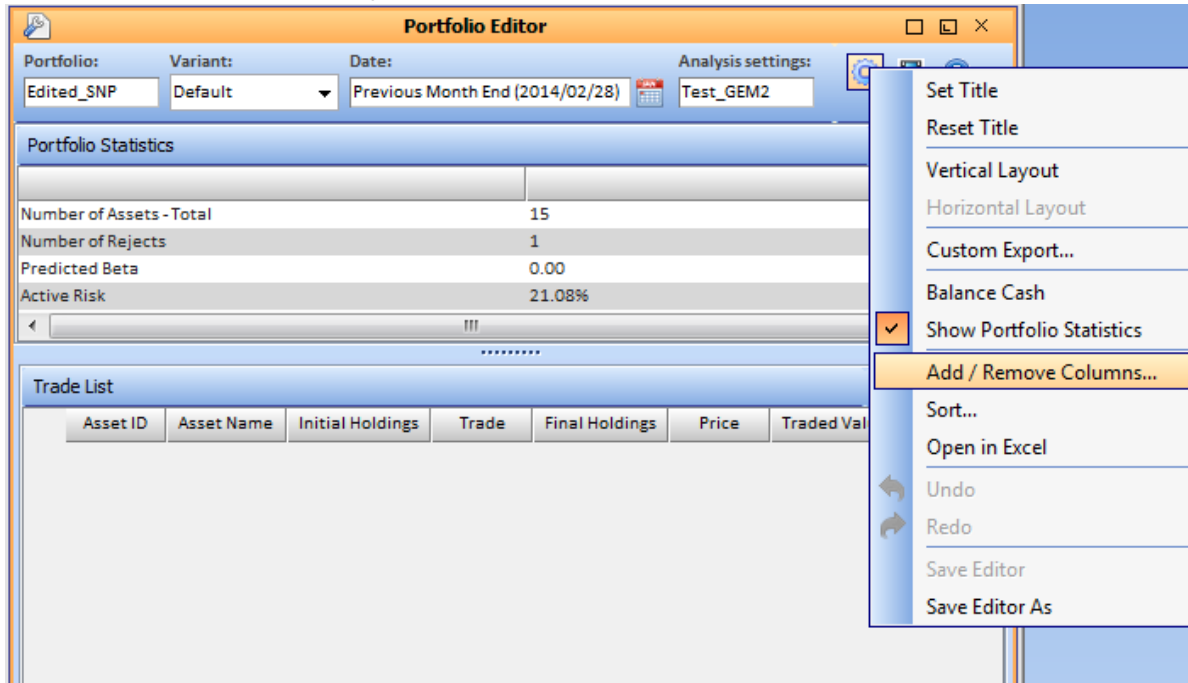
3. Select the ID column and trade-related columns you want to include in the trade list.

4. Click the ⚙ icon and select **Custom Export** and define your custom export options.
    You can incorporate your own trade type codes and control the export options.

5. Click **Export** to generate the desired file. Barra Portfolio Manager remembers the last settings used for future rebalance cycles.

Archive

The Rebalance Tool lets you archive iterations that you want to save. You can explicitly save your latest optimal and final portfolio holdings to an existing portfolio history. You can also delete other intermediate iterations that are no longer needed.

1. Right-click on the iteration that you want to archive.

2. Click **Archive**.

Rebalance Multiple Portfolios

You can use the Rebalance Assistant to rebalance multiple portfolios in a single rebalance job. You can use a single rebalance profile to optimize all portfolios or use a distinct profile for each portfolio in the job. To access the Rebalance Assistant, go to **Tools** > **Barra** > **Portfolio Construction** > **Rebalance Assistant**.
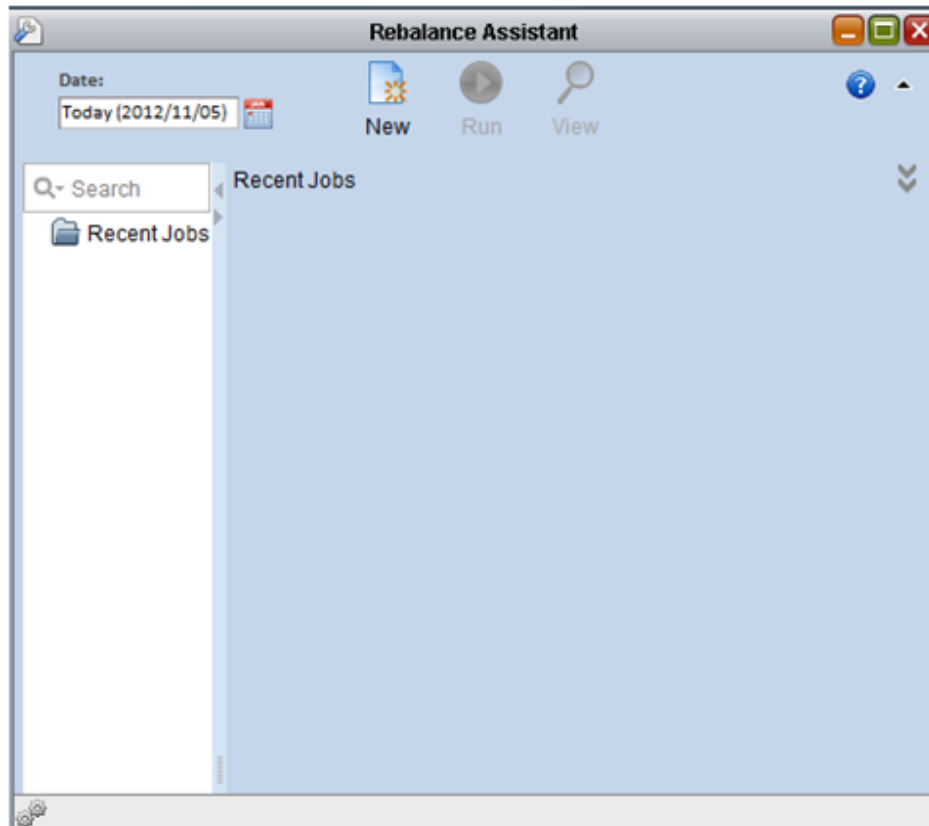
Using the Rebalance Assistant, you can:

- Set up a rebalance job, which defines the required settings to run a batch optimization on an unplanned or scheduled basis.

- Schedule to run the rebalance jobs daily or weekly. You can also schedule the rebalance job for overnight processing and specify retry rules when a job fails.

- View the details of a single job, which enables you to launch the Rebalance Tool and the standard single portfolio reports. The iterations generated by the Rebalance Assistant are independent from the iterations generated by the Rebalance Tool.

For more information about the Rebalance Assistant, see the Barra Portfolio Manager Help Center.

Save Your Workspace

To save your portfolio construction workspace for the future rebalance cycles, in the Main menu, click **Workspaces** > **Save As**. You can reopen the workspace and adjust the date in the Rebalance Tool to move to the next rebalance cycle. You can also set the date back to view iterations from previous dates.