# **Custom Constraints**

# ADD, EDIT, DELETE CUSTOM CONSTRAINTS

You can add, edit, or delete custom constraints from Allocate > Portfolio ManagementCUSTOM CONSTRAINTS page.

| Scenario: Default Scenario                                   | Import Custom Constraint(s) 🔹 | 🔊 Reload selected con | straints 🛛 🔀 De             | elete selected | I Delete All Custom Constraints |  |  |
|--|-------------------------------|-----------------------|-----------------------------|----------------|---------------------------------|--|--|
|  | <b>Custom Constraints</b>     | for Scenario "De      | efault Scena                | rio"           |                                 |  |  |
|  | Nam                           | e                     | Ignore<br>(Soft Constraint) | Action         |                                 |  |  |
|  | E Network                     |                       |                             | <i>I</i> 🛇     |                                 |  |  |
|  | Project Mgrs                  |                       |                             |                |                                 |  |  |
|  |                               |                       |                             | +              |                                 |  |  |
| To add new Custom Constraints, sim                           | nly type the Custom Co        | nstraint Name in tl   | he text box pr              | ovided and     | then click the button           |  |  |
|  |                               |                       | ne text box pi              | ovided dife    |                                 |  |  |
| To edit the Custom Constraint name,                          | click the ァ icon.             |                       |                             |                |                                 |  |  |
| To delete a Custom Constraint, click                         | the 🚫 icon.                   |                       |                             |                |                                 |  |  |
| You can also delete one or multiple c                        | ustom constraints by ch       | necking the check     | poxes to the l              | eft of the c   | ustom constraints you           |  |  |
| vant to delete and then clicking the Celete selected button. |                               |                       |                             |                |                                 |  |  |
|  |                               |                       |                             |                |                                 |  |  |
| You can clear all the Custom Constra                         | iints by clicking the 🤇       | Delete All Cust       | om Constraiı                | nts .          |                                 |  |  |

Custom constraints added are displayed as columns in the Portfolio View Grid. Below are the Network and Project Managers custom constraints.

|      |   |        | Res  | source Al                             | locatio | on for sce   | nario "D | efault | Scenario  |       |        |               |              |                  |
|------|---|--------|--|---------------------------------------|---------|--|----------|--------|---|-------|--------|---------------|--------------|------------------|
|      | Budget Limit       12,000     ≡       Funded Cost     6,615 | Base C | cted Benefit<br>5.9468<br>case Maximum<br>0.1974 | state Customize % = 58.32 effectivene |         | gnore: ——<br>Musts<br>Must Nots<br>Custom Cor<br>Dependenci<br>Groups »» |          | »»     | Funding Po<br>Risks<br>Time Periods<br>Min<br>Max |       |        | Groups        | se includes: | ]                |
| ID 🛦 | Alternative Name =  | Funded |  | E.Benefit ≡                           | Risk ≡  |  | Cost ≡   |        | ■ Partial =                                       | Min % | Must ≡ | Must ≡<br>Not | Network =    | Project<br>Mngrs |
|      | O AS/400 Replacements                                       | YES    | 0.6804   | 0.6212                                | 0.0592  | 0.0870   | 990      |        |   |       |        |               | 5            | 1                |
| 2    | Oisco Routers   | YES    | 0.7967   | 0.7768                                | 0.0199  | 0.0250   | 500      | #1     |   |       |        |               | 2            | 0.5              |
| 3    | 0 Customer Service Call Center                              | YES    | 0.7789   | 0.7368                                | 0.0421  | 0.0540   | 980      |        |   |       |        |               | 2            | 0                |
| 4    | Desktop Replacements  |        | 0.6346   | 0.6289                                | 0.0057  | 0.0090   | 800      | #2     |   |       |        |               | 5            | 1                |
| ŧ    | EMC Symmetrix   |        | 0.6808   | 0.6038                                | 0.0769  | 0.1130   | 4,220    |        |   |       |        |               | 3            | 1                |
| 6    | • Firewall and Antivirus Licenses                           | YES    | 0.7322   | 0.7322                                | 0.0000  | 0.0000   | 120      | #1     |   |       |        |               | 1            | 0                |
| 7    | 0 Iron Mountain Backup Service                              | YES    | 0.7738   | 0.7723                                | 0.0015  | 0.0020   | 430      |        |   |       |        |               | 0.5          | 0                |
| 8    | Iaptop Replacements   |        | 0.4229   | 0.4089                                | 0.0140  | 0.0330   | 1,340    | #2     |   |       |        |               | 1            | 0                |
| ę    | Mobile Workforce Pocket PCs                                 |        | 0.4220   | 0.2979                                | 0.1241  | 0.2940   | 230      | #2     |   |       |        |               | 0.5          | 0                |

## Resource Allocation for scenario "Default Scenario"

## **IMPORT CUSTOM CONSTRAINTS**

You can import custom constraints from:

- Categorical Alternative Attributes establish strategic buckets for use in "Balance and Coverage" analysis and for use as a constraint
- Numerical Alternative Attributes useful as constraints and for analysis

Navigate to Allocate > CUSTOM CONSTRAINTS, then click the Import Custom Constraint(s) button:

| MANAGE MODELS           | A DEFINE MODEL |           | <b>INPUT</b> | E SYNTHES       | ZE 🤅 |             | <b>Ø</b> DA SHBOARDS |
|-------------------------|----------------|-----------|--------------|-----------------|------|-------------|----------------------|
|                         | Ŧ              | Scenario: | Azlterna     | tive scenario A | ~    | 🔄 Import Cu | stom Constraint(s) 🔻 |
| 🛩 Portfolio Assessment  |                |           |              |                 | _    |             |                      |
| 🐯 Portfolio Canvas      | C              |           |              |                 |      |             |                      |
| 🛱 Efficient Frontier    |                |           |              |                 |      |             |                      |
| 🚿 Strategic Buckets     |                |           |              |                 |      |             |                      |
| 🕸 Visualizations        |                |           |              |                 |      |             |                      |
| 🚧 Scenario Compariso    | ns             |           |              |                 |      |             |                      |
| 🗒 Portfolio Constraints |                |           |              |                 |      |             |                      |
| Custom Constraint       | S              |           |              |                 |      |             |                      |
| Dependencies            |                |           |              |                 |      |             |                      |
| 🕃 Time Periods Duratio  | ons            |           |              |                 |      |             |                      |
| 🕃 Time Periods Result   | s              |           |              |                 |      |             |                      |
| 🕮 Groups                |                |           |              |                 |      |             |                      |
| Funding Pools           |                |           |              |                 |      |             |                      |

# From Categorical Alternative Attributes (Strategic Buckets)

You can view and manage alternative attributes from theAlternatives or Strategic Buckets pages.

For example, from the Strategic Buckets page below we see an attribute named "Time frame" with Short, Medium, and Long term category items:

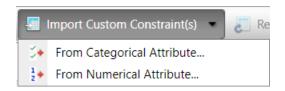
|      |                                 |             | ("Default Scenario") |          |         | Sear    | ch:        |   |
|------|---------------------------------|-------------|----------------------|----------|---------|---------|------------|---|
| No 🔺 |                                 | Alternative |                      | ■ Funded | Total ≡ | Costs ≡ | Time Frame | ≡ |
| 1    | AS/400 Replacements             |             |                      | Yes      | 0.527   | 990     | Long       | • |
| 2    | Cisco Routers                   |             |                      | Yes      | 0.618   | 500     | Medium     | • |
| 3    | Customer Service Call Center    |             |                      | Yes      | 0.604   | 980     | Long       | • |
| 4    | Desktop Replacements            |             |                      |          | 0.492   | 800     | Medium     | • |
| 5    | EMC Symmetrix                   |             |                      |          | 0.528   | 4,220   | Medium     | • |
| 6    | Firewall and Antivirus Licenses |             |                      | Yes      | 0.568   | 120     | Short      | • |
| 7    | Iron Mountain Backup Service    |             |                      | Yes      | 0.600   | 430     | Medium     | • |
| 8    | Laptop Replacements             |             |                      |          | 0.328   | 1,340   | Medium     | • |
| 9    | Mobile Workforce Pocket PCs     |             |                      |          | 0.327   | 230     | Medium     | • |
| 10   | Oracle 9i Upgrade               |             |                      |          | 0.577   | 1,890   | Short      | • |
| 11   | PeopleSoft Upgrade              |             |                      |          | 0.453   | 1,670   | Short      | • |
| 12   | Plumtree Corporate Portal       |             |                      | Yes      | 0.775   | 1,345   | Medium     | • |
| 13   | ProServe System Upgrade         |             |                      |          | 0.554   | 2,300   | Short      | • |
| 14   | Sales Force Laptops             |             |                      | Yes      | 0.531   | 150     | Medium     | • |
| 15   | SRDF Site/Service               |             |                      |          | 0.453   | 3,440   | Long       | • |
| 16   | Thin Client Implementation      |             |                      | Yes      | 0.713   | 2,100   | Long       | • |
|      |                                 |             |                      |          |         |         |            |   |

### Strategic Buckets for Model "Sample IT Portfolio Optimization"

To import the Time Frame attribute as a custom constraint, navigate to **Allocate > CUSTOM CONSTRAINTS** page and then click the **Import Custom Constraint(s)** button:

| MANAGE MODELS           | A DEFINE MODEL | 🖿 C | OLLECT    | INPUT    | E SYNTHES       | IZE | ALLOCATE  | Ø DA SHBOARDS        |
|-------------------------|----------------|-----|-----------|----------|-----------------|-----|-----------|----------------------|
|                         | 4              |     | Scenario: | Azlterna | tive scenario A | ~   | Import Cu | stom Constraint(s) 💌 |
| 🛩 Portfolio Assessment  |                |     |           |          |                 |     |           |                      |
| 📅 Portfolio Canvas      | 0              |     |           |          |                 |     |           |                      |
| 🗞 Efficient Frontier    |                |     |           |          |                 |     |           |                      |
| 🚿 Strategic Buckets     |                |     |           |          |                 |     |           |                      |
| 🕅 Visualizations        |                |     |           |          |                 |     |           |                      |
| 📂 Scenario Compariso    | ons            |     |           |          |                 |     |           |                      |
| 🗒 Portfolio Constraints |                |     |           |          |                 |     |           |                      |
| Custom Constraint       | ts             |     |           |          |                 |     |           |                      |
| <i>⊜</i> Dependencies   |                |     |           |          |                 |     |           |                      |
| 🔠 Time Periods Durati   | ons            |     |           |          |                 |     |           |                      |
| 38 Time Periods Result  | ts             |     |           |          |                 |     |           |                      |
| 🚜 Groups                |                |     |           |          |                 |     |           |                      |
| 🛿 Funding Pools         |                |     |           |          |                 |     |           |                      |

#### Select "From Categorical Attribute...":



A dialog will open where you can select the categorical attribute:

| Create Custom Constraints |   |        |  |  |  |  |  |  |
|---------------------------|---|--------|--|--|--|--|--|--|
| _                         | ategorical Attribute:<br>-Updating (Read-on |        |  |  |  |  |  |  |
|                           | ОК  | Cancel |  |  |  |  |  |  |

You can link any custom constraint that came from an Alternative Attribute to its source attribute as **Auto-Updating**" (Read-Only).

When this option is checked, any updates to the attribute will automatically update the constraint. The constraints in the Allocate Main grid will be disabled for editing (Read-only).

When "Auto-Updating" is unchecked, and you want to manually update or reload the constraints, use the



|   | Name          |   | Ignore<br>(Soft Constraint) | Action |
|---|---------------|---|-----------------------------|--------|
| ÷ | Network       |   |                             | a 🛇    |
| : | Project Mngrs |   |                             | I O    |
|   | Long          | S |                             | ø 🛇    |
| : | Medium        | S |                             | ø 🛇    |
|   | Short         | S |                             | ø 🛇    |
|   |               |   |                             | +      |

or from the Portfolio Canvas page, click the hamburger icon for the custom constraint column and then click Synchronize values from linked attribute.

| Custom Constra | Custom Constraints |   |   |  |  |  |  |  |  |
|----------------|--------------------|---|---|--|--|--|--|--|--|
|                |                    |   |   |  |  |  |  |  |  |
| ర              | Сι                 | Copy Column                             |   |  |  |  |  |  |  |
| 1.0            | П                  | Paste Column                            |   |  |  |  |  |  |  |
| 10             | 님                  | Syncronize values from linked attribute | Syncronize values from linked attribute |  |  |  |  |  |  |
| 1.0            |                    | Ignore (Soft Constraint)                |   |  |  |  |  |  |  |
| 1.0            |                    | Toch Induc                              | to                                      |  |  |  |  |  |  |

Custom constraints linked to an alternative attribute have a blue chain icon  $\mathscr{O}$  when auto-updating, and a gray chain icon  $\mathscr{O}$  when auto-updating. You can click the icon to toggle on and off.

When creating custom constraints from a categorical alternative attribute, all the attribute categories are selected by default. You can create a separate custom constraint for each categorical alternative or, by deselecting some categories, a sub-set of the attribute categories. In the image below, all the categories of the Sponsor attribute are selected and a separate constraint will be created for each category.

### Expert Choice Comparion® Help Document



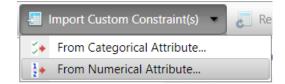
In the image below, the Long, Medium, and Short constraints belong to the Alternative Attribute named "Timeframe." When a project has a particular alternative attribute, a "1" will be placed in the appropriate column. The primary purposes of this is to get a count and to allow for balance and coverage constraints (the totals and constraint rows are not shown in the image below). For example, you can constrain the portfolio to fund a minimum of 3 projects for each of Long, Medium, or Short timeframe.

| ID 🔺 | Alternative Name             | Funded | Benefit ≡ | E.Benefit ≡ | Risk ≡ | P.Failure ≡ | Cost ≡ | Groups ≡ | Partial ≡ | Min % | Must ≡ | Must<br>Not ≡ | Network = | Project ≡<br>Mngrs | Long 🖉 🗏 | Medium ≡ | Short 🥐 🗏 |
|------|------------------------------|--------|-----------|-------------|--------|-------------|--------|----------|-----------|-------|--------|---------------|-----------|--------------------|----------|----------|-----------|
| 1    | AS/400 Replacements          | YES    | 0.6804    | 0.6212      | 0.0592 | 0.0870      | 990    |          |           |       |        |               | 5         | 1                  | 1        |          |           |
| 2    | Cisco Routers                | YES    | 0.7967    | 0.7768      | 0.0199 | 0.0250      | 500    | #1       |           |       |        |               | 2         | 0.5                |          | 1        |           |
| 3    | Customer Service Call Center | YES    | 0.7789    | 0.7368      | 0.0421 | 0.0540      | 980    |          |           |       |        |               | 2         | 0                  | 1        |          |           |
| 4    | Desktop Replacements         |        | 0.6346    | 0.6289      | 0.0057 | 0.0090      | 800    | #2       |           |       |        |               | 5         | 1                  |          | 1        |           |
| 5    | EMC Symmetrix                |        | 0.6808    | 0.6038      | 0.0769 | 0.1130      | 4,220  |          |           |       |        |               | 3         | 1                  |          | 1        |           |

# From Numerical Alternative Attributes

Importing from Numerical Alternative Attributes is the same process as importing from Categorical Alternative Attributes.

Navigate to Allocate > Custom Constraints page, then click the Import Custom Constraints button and select From Numerical Attribute:



Then select the desired custom constraint to import.

### SOFT CUSTOM CONSTRAINTS

Soft Constraints have the following properties:

- As a type of Custom Constraint, Soft Constraints are always numeric.
- Soft Custom Constraints are ignored by the Solver in arriving at optimal funding solutions.
- Soft Custom Constraint column headers are displayed with a light grey background and a strike-through font.
- Soft Custom Constraints can be used to calculate surplus or shortage by entering a number in the "Max" row and selecting the

"Calculate Soft Constraints" setting.

To designate a Custom Constraint as a Soft Constraint, check the Ignore check box for the Custom Constraint(s) you want to ignore.

### Custom Constraints for Scenario "Default Scenario"

|   | Name          |   | ■ Ignor<br>(Soft Const | e<br>raint) Action |
|---|---------------|---|------------------------|--------------------|
| ÷ | Network       |   |                        | Ø 🛇                |
|   | Project Mngrs |   |                        | ø* 🛇               |
|   | Long          | ତ |                        | ø* 🛇               |
|   | Medium        | S |                        | A 🖉                |
|   | Short         | ତ |                        | A 🖉                |
|   |               |   |                        | +                  |

For example, to ignore the custom constraint "Network" from theAllocate Main, click the  $\equiv$  of the constraint you want to ignore and then check the Ignore check box. To un-ignore a constraint, uncheck the Ignore checkbox.

| Network | Project =                | Long 🖉 🗏 |  |  |  |  |  |
|---------|--------------------------|----------|--|--|--|--|--|
|         | Copy to clip             |          |  |  |  |  |  |
|         | Ignore (Soft Constraint) |          |  |  |  |  |  |
|         | 2 0                      | 1        |  |  |  |  |  |

The Soft Constraint "Network" will be ignored in the Resource Allocation. Totals, overages, or shortages are available in the footer rows of the grid.