

# **RiskyProject Lite 3.2**

**Project Risk Management Software**

## **Getting Started with RiskyProject Lite**

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# Chapter 1: Managing Projects

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# RiskyProject for Microsoft Project and as a Standalone Application

## RiskyProject as a Standalone Application

You may run RiskyProject from Windows program menu. Just click on RiskyProject Lite 3.x under RiskyProject 3.x. You will be presented with a RiskyProject main frame where you can enter schedule and risk, perform the analysis, track project performance and report the results.

The RiskyProject workflow includes five major steps. Each step includes a number of activities and each activity is associated with at least one RiskyProject view.

The five major steps of the RiskyProject workflow are:

1. Create or import a project schedule, which includes tasks, resources, and costs;
2. Add and uncertainties to the project, assign risks to specific tasks and resources, or make them global;
3. Perform calculation and analyze results;
4. Track project performance; and,
5. Report results.

Each step is associated with the tan on RiskyProject workflow bar. Use these steps to perform the analysis.

Before you create new project please you may need to define:

1. Main Project Settings, such as project start time: choose **Main Project Settings** from **Project** menu.
2. Calendars: choose **Working Time** from **Tools** menu
3. Various project options, such as units, default calculation settings: choose **Options** from **Tools** menu.

## RiskyProject for Microsoft Project

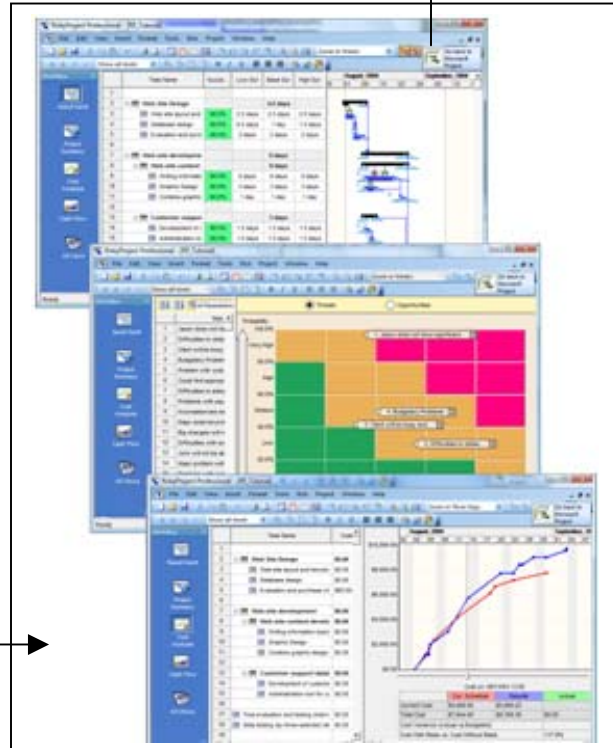
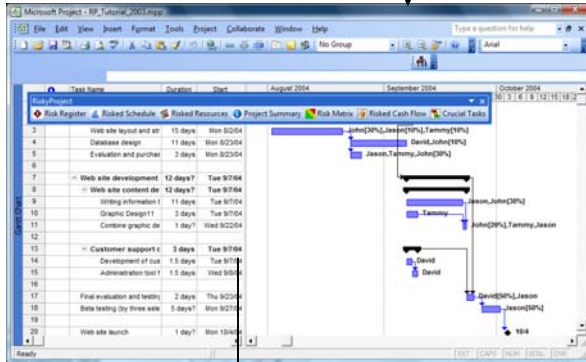
RiskyProject is seamlessly integrated with Microsoft Project 2003 and higher. When RiskyProject is installed it checks if Microsoft Project is installed on the computer and adds a RiskyProject toolbar and macro to Microsoft Project.

Here is how the integration works:

1. The first time you open Microsoft Project after installing RiskyProject for Project, check to see that the RiskyProject toolbar is visible.
2. Create a schedule in Microsoft Project.
3. Click one of buttons on the RiskyProject toolbar in Microsoft Project to go to selected RiskyProject view. Essentially, RiskyProject offers additional risk related views to Microsoft Project such as risk adjusted Gantt Charts, Risk Matrixes, a risk adjusted cash flow charts and others.
4. Add risks, uncertainties, and other risk-related information in the RiskyProject views.
5. Run the simulation, perform the analysis and report the results from RiskyProject.

- At any moment you can go back to Microsoft Project and make changes to your schedule. All changes will be reflected in RiskyProject. However if you make changes to the deterministic project schedule in RiskyProject, these changes may be overwritten by Microsoft Project schedule.

Click the Go Back to Microsoft Project button in RiskyProject to view original schedule and resources



Use the RiskyProject toolbar in Microsoft Project to open the selected risk view in RiskyProject.

**Microsoft Project**

**RiskyProject Lite**

- Risks and uncertainties defined in RiskyProject will be always associated with Microsoft Project schedule. Once you have opened a risk view from your Microsoft Project file, your Microsoft Project file will be associated with the RiskyProject data file that contains risks and uncertainties for the schedule created in Microsoft Project
- Links between the Microsoft Project schedule and the RiskyProject data is saved in the registry. We recommend the save RiskyProject file (alm extension) in the same directory as your Microsoft Project file, though the RiskyProject file can saved in any directory.

# Creating Projects

## Creating a new project

The original view for a new document is defined in the **Options, View** tab. The default view can be the last view in the previous RiskyProject session.

1. On the **File** menu, click **New**. The new project file opens.
2. Click the Save button and type in a project name.



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In addition to projects files created in RiskyProject, you can also open files that have been saved as a Microsoft Project XML or MPX format. These formats are industry standards for project management software and are supported by Microsoft Project and many other project management software applications.

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## Importing existing project schedules

You can import existing project schedules from MS Project, Primavera and other project management tools using a variety of file formats.

### Importing Microsoft Project files

You can import MS Project files using MPX, or XML formats.

1. From the **File** menu, choose **Open**. The **Open File** dialog box opens.
2. Select the format that the project file is in from the **Files of type** drop-down list.
3. Select the MS Project file format that you just saved.
4. Click **OK**.



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Due to the specific features of each application and the probabilistic nature of RiskyProject data, in very rare cases there can be discrepancies in the original project schedule and imported schedule in RiskyProject.

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# Project Tasks

When you first start RiskyProject, the Gantt view opens. Start the scheduling process by adding tasks. Each task should have a name and a base duration. You may enter this information directly onto the datasheet or using the Task Information dialog box.

## Opening the Task Information dialog box

The **Task information** dialog box can be used to enter task parameters (duration, start, finish times, assign resources to tasks, assign risks, etc.). You can open the task information dialog can in invoked using one of the following ways:

- Double click on Task ID
- Right click on task ID and Select Task Information
- Select Task and Click on **Project -> Task Information**

## Entering task name and duration

When you create a task, the first step is to enter a name and a base duration.

1. Click on the **Task Name** field in the **Gantt** view.
2. Provide a name for task.
3. Enter a base duration in the **Base Duration** field.



The default Start Time for tasks is defined in the **Calendar** tab of the **Options** dialog box. The start time can be either the current date or a project start date, defined in **Project ->Main Project Settings**. You can always change start time using constraints (see **Start, Finish Times and Constraints**). You can also change other default parameters in the **Options** dialog box.



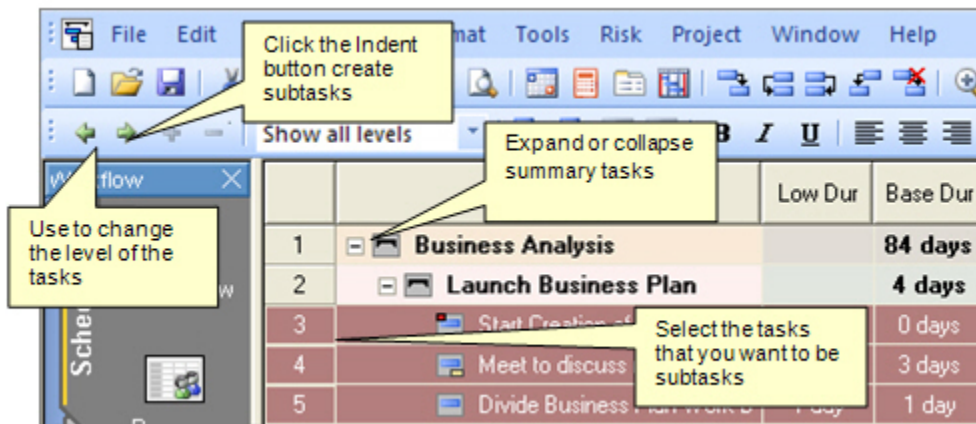
Define task durations using the **Base Duration** column. Once you have added all of the tasks, you can add uncertainties by assigning low and high durations.

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## Defining summary tasks and subtasks

Summary tasks represent groups of tasks (subtasks) that can be logically grouped together under a larger task. In large projects with many tasks, this is a useful method of organizing your tasks.

1. Create a task directly above the tasks that you want to group under it. This will become the **Summary Task**.
2. Select the tasks that you want to be the subtasks of the summary task you created in step 1.
3. Click the **Indent** button located on the **Format** toolbar to indent the tasks. The indented tasks are automatically recognized as subtasks of the summary task. If you want to move a task out from under the summary task, select the task and click the Outdent buttons. After you click on an **Indent** or **Outdent** button, RiskyProject automatically recalculates the project.

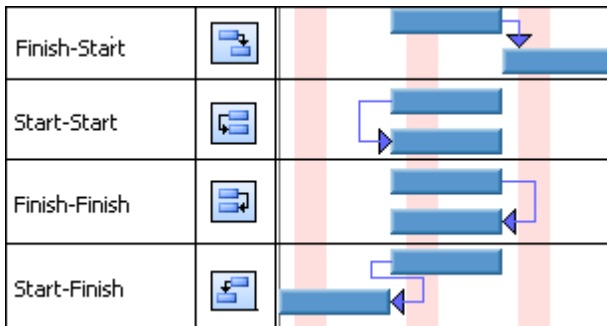


## Task Links

All projects require that the WBS tasks be performed in a certain order. These relationships are defined in RiskyProject using the four linking buttons located on the standard toolbar.



The four types of task dependencies are shown in the following figure:



## Predecessors and Lags

You define information about predecessors and lags in the **Predecessor** tab of **Task Information** dialog box.

You can use the **Standard** toolbar button to link tasks; however, this method of creating task dependencies has limitations. Particularly you cannot link a task (from example Task #5) to a previous task (for example Task #3).



- Sometimes it is convenient to use predecessor tab instead of link toolbar buttons when task has multiple predecessor or if there is a big difference in task Ids between current task and predecessor. For example, it is not convenient to link task number 5 to task number 74 using toolbar buttons.
- You may use Predecessor column within Gantt view to define or modify predecessors. Text: “1, 2+2 days” would mean than current task has two predecessors (Task 1 and Task 2 with lag 2 days).

### Adding a predecessor to a task

1. Select the task to which you want to add a predecessor.
2. Open the **Task Information** dialog box.
3. Click the **Predecessor** tab.
4. On the first row of the grid, click in the **Task Name** cell. A drop-down list appears containing a list of all available tasks or type
5. Select the predecessor from the drop-down list. By default, the predecessor type is **Finish-Start (FS)**.
6. If required, enter a **lag** time
7. Click **OK**.



- You cannot make a task be a predecessor to itself
- You cannot create a schedule that it will lead to a circular relationship between tasks
- You cannot link a summary task to one of its subtasks
- You cannot link two tasks twice.

## Constraints

Constraints are limitations that you set on tasks. For example, you can specify that a task must start on a particular date or finish no later than a particular date. In RiskyProject, you can assign one of four constraints to a task:

- As Soon As Possible (default)
- Start Not Early Than
- Must Start On
- Must Finish On

Use the **General** tab of **Task Information** dialog box to add or modify constraints. If you set a constraint to Start Not Early Than, an additional edit box opens in which you set the date for this constraint.

If you assign a constraint other than **As Soon As Possible**, the background color for low, base, and high Start Times or low, base and high Finish Times changes to orange and the icon next to the task name has a red dot added to indicate that the constraint is other than **As Soon As Possible**.

The screenshot shows a task row for 'Development' with a duration of 6 days. The start and finish dates are 02/19/09 08:00 and 02/26/09 17:00. The row is shaded orange, and there is a red dot next to the task name. Two callout boxes provide explanations: one pointing to the red dot and another pointing to the orange shading.

Task ID	Task Name	Base Dur	Start Time	Finish Time
1	Development	6 days	02/19/09 08:00	02/26/09 17:00

Use constraints to ensure that that task starts or finishes on the specific dates. Use caution when you link tasks with a constrained start or finish time with predecessors because of the potential for scheduling conflicts. In this situation, to avoid scheduling conflicts, set the constraint to **As Soon As Possible**.

Constraints affect both probabilistic and deterministic calculations. If you change the Low or High Start times, the constraint is set to Must Start On, similar to when you change the Base Start time.



When a task has a constraint other than As Soon as Possible, it may not shift due to the nature of Monte Carlo calculations, even if predecessors have risks and uncertainties. Therefore, use caution when you planning to perform probabilistic calculation with constraints.

When you enter actual start date of the task as part of tracking input, task would become constrained for the probabilistic calculation only. Start time will not change regardless of risks and uncertainties for predecessors.

### Adding constraints

Before you add a constraint, you should define the task name and duration.

1. Double-click the task to which you want to add a constraint.
2. Click the **General** tab.
3. From the **Constraints** drop-down list, select a constraint that you want to add to the task.

# Managing Resources and Work

Resources are the people and equipment that are assigned or the material that is used to complete a task.

## Adding resources

1. On the **Workflow** bar, click the **Resources** view.
2. Click on a row.
3. Provide a **Name** (mandatory), **Initials** (optional), and **Rate** (mandatory).
  - You can group resources to define reams using the indent and outdent buttons.
  - Initials and notes are for information only and do not affect the calculations.
  - Rates affect the cost the task to which the resource is assigned. Rates for work resources can be per year, month, week, day, hour and minute. Rates for material resources are per unit (e.g. 10 tons).
4. Select the resource type: **Material** or **Work**.
  - Material label indicates type of material resources (e.g. tons)
  - Maximum units are used to calculate Overallocation of work resources. It is not used for the material resources.



- 
- Use the Resource Information dialog box to assign resources risks.
  - You can add risks to a resource using the Risk tab of Resource Information dialog box. If you have only a few risks assigned to a few resources, this is the preferred method to define resource risks. If you have many resources, we recommend that you add the risks in the Risk Register of Risk workflow tab and then assign them to the resources from one of the risk views.
  - Default rate for resource type Work is defined in **Tools->Options** Cost tab.
-

### Assigning resources to tasks

1. On the **Workflow** bar, click the **Gantt View**.
2. Select the task to which you want to assign the resource.
3. Click in the **Resource** field associated with the task.
4. Select a resource from the drop-down list. If you type in a new resource name, it will be added to the list of resources in the resource view. When you add a new resource in this manner, it will be assigned at 100% effort for work resource.



To assign resources at less than 100% or if want to assign material resource, you must go to the **Resources** tab in the **Task Information** dialog box.



- Multiple resources can be assigned to a particular task.
  - Tasks do not have to have resources assigned to them.
- 

### Assigning a calendar to a resource

By default, RiskyProject assigns the Standard calendar to resources.

1. On the **Resource** view, double-click on a resource ID.
2. Select a resource calendar from the **Base Calendar** drop-down list.
3. Click the Working Time button (Tools menu) to modify the resource calendar.

# Managing Costs

There are two types of costs in RiskyProject:

- **Fixed costs**, which are associated with tasks; and,
- **Variable costs**, which are associated with resources.

Costs associated with resources are calculated based on rate, units assigned, and work of the particular resource.

Fixed cost can be accrued at the beginning of the task, at end of the task or be prorated.

## Adding fixed costs to tasks

The Cost Analysis view also shows the calculated results for fixed costs, resource costs, and

1. On the **Workflow** bar, click the **Cost Analysis** view.
2. Select the task in which you want to fixed costs.
3. Enter base fixed cost in the **Cost** field. You can enter in Low and High estimated costs.
4. Select an accrual method in the **Accrual** column. Accrual methods indicate how cost is accrued in the task. Default accrual method if defaulted in **Tools -> Options**, cost tab separately for cost. Accrual methods available are:
  - Start
  - Finish
  - Prorated



- 
- You may assign fixed cost to the summary tasks the same way as they are assigned to the subtasks
  - You may define uncertainties in fixed cost using low, base and high values of cost.
  - Uncertainty in variable cost is originated in task work since variable cost = resource work \* number of units \* rate.
-





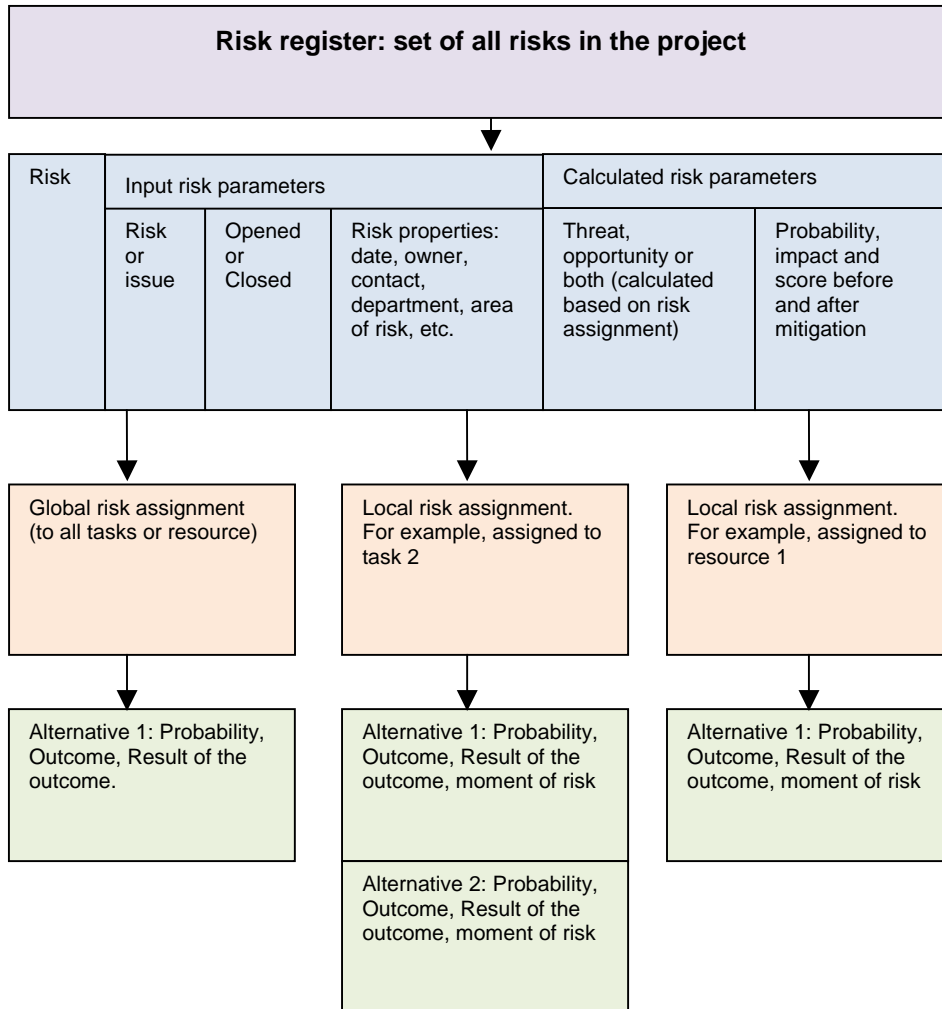
## **Chapter 2: Managing Risks and Uncertainties**

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# Risks and the Risk Register

## Risks in RiskyProject

Once you have set up your Risk Outcomes, you can now set enter and assign risks to your schedule. Risks can be stored in the Risk Register. Risk Register is a set of risks with input and output parameters.



**Risks in RiskyProject are defined the following manner:**

1. Name: names must for each risk must be unique. It is case sensitive.
2. Parameters: Parameters can be inputs or calculated. Input parameters include is it Risk or Issue, is this Opened and Closed, as well as multiple risk properties: date, owner, contact, department, area of risk, etc. You define default risk properties in the Risk menu > Default Risk Properties. All risks are stored in Risk Register.
3. Assignment : risks can have global (to all tasks or resources) or local (to specific task or resources) assignments. If a risk is not assigned, the impact of the risk cannot be calculated

4. Mutually exclusive alternatives: each risk assignment may have one or many mutually exclusive alternatives. Each alternative includes chance of occurrence, outcome, and outcome result.

### **Example**

Your project has a risk: Low quality of component. The risk has the following input parameters:

- It is open
- It is a risk not an issue
- It has a number of parameters: detailed description, dates created and modified, owner, recorder and other information.

You need to assign the risk to tasks or resources. This assignment information will include a number of mutually exclusive alternatives for to each task the risk is assigned.

For example, the risk is assigned to the task “Component installation” with one alternative: Chance of occurrence 10%, Outcome: Restart Task. The risk is also assigned to the task: “Testing” with two alternatives: Chance of occurrence 10%, Outcome: Restart Task and Chance of occurrence 15%, Outcome Delay 2 days.

## **Risk Register**

The risk register is a set of all risk in the project. The risk register can be populated in two ways:

1. Directly entering risk information into the risk register view.
2. Using the Global Risk Assignment view, Local risk assignment views for tasks and resources, or risk tabs in Task Information dialog and resource information dialog. Any new risks entered using these views and tabs will be automatically added to the risk register.

Risk registers include the following information:

- Risk names: Each risk name is unique. You cannot define risk with the same name within risk register.
- Risk parameters: risks can be opened and closed, risks or issues, assigned to different tasks or resources, and risk properties (dates, owner, contact, description, etc.).
- Calculated risk parameters: probabilities, impact, and scores, is this risk threat, opportunity or both.

Risk Name	Pro...	Imp...	Sco...	Score
1 Delay in Financing	61.8%	45.3%	28.0%	
2 Other risks, related to the project	30.9%	84.3%	26.0%	
3 Not enough information about competitors	98.2%	18.4%	18.0%	
4 Lack of knowledge of the specific area	3.6%	34.0%	1.2%	
5 Risks affecting whole company/division	1.8%	24.6%	0.4%	
6 Cost information is not available	69.1%	0.0%	0.0%	
7 Delay in getting level advise	96.4%	0.0%	0.0%	
8 Delay in patent and trademark search	41.8%	0.0%	0.0%	
9 Not enough data to analyze demand level	65.5%	0.0%	0.0%	
10 Not enough data to plan management of demand	20.0%	0.0%	0.0%	
11 Problem with hiring	14.5%	0.0%	0.0%	
12 Selected name is taken	23.6%	0.0%	0.0%	
13 Staff turnover	3.6%	0.0%	0.0%	

Callouts in the image:

- Risk names**: Points to the 'Risk Name' column header.
- Risk can be assigned to specific tasks or resources (local) or all tasks and resources (global)**: Points to the 'Assigned to' column.
- Threat, opportunity or both**: Points to the 'Threat' column.
- Probability, impact, score, and "tornado" – type diagram for the score.**: Points to the 'Pro...', 'Imp...', 'Sco...', and 'Score' columns.
- Double click on Risk ID to be presented with risk information dialog**: Points to the 'Risk ID' column.

To view probabilities, impacts, and scores you must calculate the project..

### Opening the Risk Information dialog box

Double-click on any risk ID to open the **Risk information** dialog box. There you can enter risk parameters, assign risks to tasks and resources, and view risk mitigation information.

### Opening and closing risks

In RiskyProject, risks can be opened and closed. Opened risks are currently active risks, which can occur. Closed risks are those risks, which cannot occur anymore because certain measures are taken. Closed risk also may contain important information, because they can be reopened again or information regarding these risks may useful for management or other risks.

When you switch a risk from opened to closed, all risk assignments are disabled. In addition, when you a switch risk from closed to opened, all risk assignments will be enabled.

By default, all new risks are open.

#### Marking a risk as opened

1. On the **Risks** tab of the **Workflow** bar, click the **Risk Register** view.
2. Double-click on risk ID. Risk information dialog will come up.
3. On the **Properties** tab, select **Opened** or **Closed**.

### Risks and Issues

RiskyProject manages both risks and issues. Risks are an event that may occur. Issues are an event that has already occurred. When you enter new record to the risk register, it is a risk.

You may switch between risks or issues. When you switch risk to issue, chance of occurrence of the issue would be 100%.

#### Converting a risk to an issue

1. On the **Risks** tab of the **Workflow** bar, click the **Risk Register** view.
2. Double-click on risk ID. Risk information dialog will come up.
3. On a **Properties** tab, select **Issue**.



- If you switch from issue to risk, probabilities for all risk assignments will remain 100%. You would have manually assign probabilities to actual number of all risk assigned after switch it from issue to risk.
- If the risk has mutually exclusive alternatives as part of risk assignment and this risk is switched to the issue, chance of occurrence will not change. In this case, it is recommended manually remove mutually exclusive alternatives, keep only one alternative and set it chance of occurrence to 100%.

### Threats and Opportunities

Risk can be threats, opportunities or both. Threats and opportunities are defined for risk assignment depending on results of the risk outcome. Negative risk outcomes mean opportunities.

#### Example 1:

Risk: Change Requirements

Outcome: Fixed Delay

Result: 2 days

This is threat

#### Example 2:

Risk: Change of technology

Outcome: Delay in technology introduction

Result: -10% Low

This is an opportunity: a negative number indicates that this is an acceleration rather than a delay of the technology introduction

### Adding risks to the Risk Register

It is a best practice to use the Risk Register to add and assign risks to your current project schedule.

1. On the **Risks** tab of the **Workflow** bar, click the **Risk Register** view.

2. Click on an empty row.
3. Provide a name for the risk. The risk is now added to the register. You can now add risk properties or assign them as local or global risks.



- If you enter any risk assignment without entering the risk to the risk register, the risk will be added to the risk register automatically as long as it is a new risk (has a new unique name). We recommend entering risk assignment first if you have a relatively small project with few risks.
- You may rename a risk in the risk register. The risk will be automatically renamed in all risk assignments.

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### Adding risk properties

Risk properties are attributes that can be used for filtering or searching. While some properties are populated automatically (e.g. Creation Date), you can enter specific values as required. You define default risk properties in the Default Risk Properties dialog box accessible from the Risk menu.

1. Open the Risk Register.
2. Double-click on the risk **ID** to which you want to add properties.
3. Click the **Properties** tab.
4. Add a description in the **Description** box.
5. For each property, add a value as required.



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Risk properties do not affect calculations, including risk ranking, cost, duration, etc. For example, the risk property “Potential Loss in Monetary Terms” does not affect cost calculations.

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# Managing Risk Assignments

## Risk Assignments

Risks must be assigned to calculate their impact. If risk is not assigned to any tasks or resources it will remain in risk register, but probability, impact, and score will not be shown.

RiskyProject has two types of risks assignment:

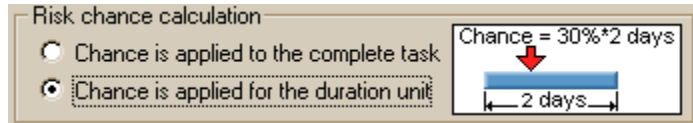
- **Global Risk Assignments** – Global risk assignment are those risk assignments, which have a chance of affecting the project as a whole and are not limited to specific tasks or resources. For example, political or weather risks would be assigned as global.
- **Local Assignment** – Local risk assignments are those risks that have a chance of affecting only specific tasks or resources. A local risk assignment can affect more than one task or resource. For example, risks affecting the delivery of specific equipment for a certain phase of a project would be assigned local.

You can edit or view risk assignments in the following dialog boxes and views:

View	Dialog/Tab	Local or Global	Assigned to tasks or resources
<b>Global Risk Assignment View</b>		Global Risks. Local risks can be assigned from global risks	Both task and resources
<b>Risk Register</b>	Risk information dialog (double click on Risk ID), Assignment tab	Both local and global risk	Both task and resources
<b>Any view with task information (Gantt View, Result Gantt, etc.)</b>	Task information dialog (double click on Task ID), Risk tab	Local risks	Task
<b>Resource View</b>	Resource information dialog (double click on Resource ID), Risk tab	Local risks	Resources

Each risk assignment has the following information.

- Risks can be assigned to Tasks or Resources
- Risks are defined by the **chance of occurrence** (from 0% to 100%). The chance can be defined per task (by default) or per duration unit. For example, if there is a 30% chance that task can be restarted per day. If task duration is 2 days, the chance of the risk occurring per task is 60%. This chance calculation option is defined for **all tasks and resources** for the project in the **Risk** tab of the **Options** dialog box:



- Each risk has a different **outcome**. Outcomes can be schedule and cost related and non-schedule related, which you can customize using Risk Outcome dialog (Risk menu). Standard schedule-related risk outcomes are shown in the table.

Outcome	Description	
No Impact	This is for information only and has no impact on project schedule	
Relative Delay Fixed Delay	Durations will be expanded in the period, defined in the <b>Result</b> field regardless of, when the risk occurs. If the <b>Result</b> is negative, the task duration will be reduced.	
Relative Cost Increase Fixed Cost Increase	Task related fixed costs are increased by the amount, defined in the field <b>Result</b> regardless of when the risk occurs. If the <b>Result</b> is negative, costs are reduced.	
Restart Task	Tasks are restarted from the moment the risk occurs. As a result, the task duration is increased.	
End Task	Tasks are successfully completed when the risk occurs. As a result, the task duration is reduced.	
Cancel Task	Tasks are canceled when the risk occurs. As a result, the task duration is reduced and the task is marked as canceled.	
Cancel Task + all successors	Tasks and all its successors are canceled when the risk occurs. As a result, the task duration is reduced and the task and all its successors are marked as canceled.	

- The **Result of outcome** is related to the outcomes “**Fixed cost increase**”, “**Relative cost increase**”, “**Fixed delay**”, and “**Relative delay**”. It defines how much the duration or cost will be increased or reduced. Result of outcomes also used for non-schedule risks and is defined as a percentage. For example, risk outcome “Technology change” has outcome 20%. It also has a verbal definition that comes from Impact labels defined in **Format Risk Labels** dialog (see Format menu).
- RiskyProject calculates **Risk Impact** for duration and cost as a result of sensitivity analysis and displays this in the Risk Register, Global Risk Assignment views and Risk Tabs for Tasks and Resources. Colors are used to indicate the level of correlation between the risk and project duration and cost.
  - Red indicates a strong correlation
  - Yellow a medium
  - Green a weak or no correlation

Colors for threats are the opposite. Particular colors for the risk impact value depend on the risk tolerance defined in Format Risk Matrix dialog box.

One risk can have different outcomes or different results of outcomes. For example, if a risk occurs there is a 10% chance the task will restart, and 10% chance that the task will be canceled. To define a risk with alternative outcomes, use the same risk name for the consecutive items. RiskyProject will automatically recognize that this is a discrete outcome of the same risk. Each outcome will be given a number (starting at 1) and all will be colored green in the **Mutually Exclusive Risk Alternative** column (read only).

Mutually exclusive alternatives must:

- have the same name
- not be separated by empty rows
- belong to the same category. For example, if you have the same risk “Change in requirements” with outcomes Reduce Quality and Fixed Delay, these outcomes will not be mutually exclusive alternatives as they are different risk categories that have different impacts.

Here is an example of risk assignments:

									Dur	Cost
3	Risks affecting whole company/division	Task	2		Rela	50.0 %		24.6%	12.9%	11.7%
4	Risks affecting whole company/division	Task	3	1.0 %	Rest task			24.6%	12.9%	11.7%
5	Risks affecting whole company/division	Task	4	1.0 %	Cancel task			24.6%	12.9%	11.7%
6										
7	Resource Risks									
8	Lack of knowledge of the specific area									
9	Lack of knowledge of the specific area	Resource	1	3.0 %	Relative delay	20.0 %		34.0%	16.9%	17.1%
10	Lack of knowledge of the specific area	Resource	2	3.0 %	Relative delay	40.0 %		34.0%	16.9%	17.1%
11	Lack of knowledge of the specific area	Resource	3	3.0 %	Restart task			34.0%	16.9%	17.1%
12	Staff turnover									
13	Staff turnover	Resource	1	5.0 %	Restart task			0.0%	0.0%	0.0%
14	Staff turnover	Resource	2	5.0 %	Relative delay	30.0 %		0.0%	0.0%	0.0%
15										
16	Other risks, related to the project									
17	Other risks, related to the project		1	5.0 %				84.3%	41.3%	42.9%
18	Other risks, related to the project		2	5.0 %				84.3%	41.3%	42.9%
19	Other risks, related to the project	Task	3	5.0 %				84.3%	41.3%	42.9%



- RiskyProject flags any mutually exclusive alternative outcomes whose sum or probabilities are greater than 100% with pink shading. In these cases, the calculation results may be incorrect.



- Use the Indent and Outdent arrows to group risks and create a risk breakdown structure.

## Assigning local and global risks

Once you have added your risks you can start assigning your local risks to tasks and resources. You cannot assign the same local risk to both a task and a resource. RiskyProject offers a number of ways how risks can be assigned to task and resources.

### Assigning global and local risks using risk register

This is a preferred method for assigning risk in complex project. This method is also useful when you edit risk assignment, for example for mitigation planning. You will be able to view all risk assignments in one place. With the risk register, you can assign both local and global risks.

1. Open the **Risk Register**.
2. Double-click on the risk to which you want to add properties.
3. Click either the **Assign to tasks or resources** tab.
4. Depending upon whether you are assigning local or global risk to a task or resource click on the first empty row in either the Assigned to tasks or Assigned to resources tables.
5. Select the task or resource from the drop-down list. You may select “All Tasks” or “All Resources” for global risk assignments. If you select a specific task or resource, it will have a local risk assignment.
6. Click the row ID cell the item you just select to enable the **Selected assignment** table to the right. This is where you define the risk assignment.
7. Click in the **Chance** cell to start entering the **Chance**, **Outcome**, and **Result** of the risk.
8. Click in an additional row to enter a mutually exclusive risk alternative. A risk alternative is a different outcome from the same event.



- Use the Pie Chart for mutually exclusive risk alternatives to as a guide for how they affect the overall chance that the risk will occur.
- If you do not enter chance, outcome, or results assignment will not be saved even you selected task or resources.

## Risks Assignments on the Gantt Chart

Risks and issues can be shown on the Gantt chart as arrows:



Colors represent the calculated the impact of the risk on all project parameters combined. The size of the arrow represents probability. You may click on each risk arrow within a Gantt chart to be presented with information about risks:

## Managing Uncertainties

If you have good historical statistical data that is analogous to a particular in your project, we recommend that you use these data to model uncertainty in your project as opposed to risk events. Be aware of double-counting risk and uncertainty as most of the uncertainty in a project is due to the probability of risk events occurring.

The process of defining uncertainties comprises of the following steps:

1. Define a 3-point estimate for any of task parameters: cost, duration, and start time. 3 points estimates for work will be calculated automatically based on uncertainty in duration. You may also define 3 points estimates for the lag.
  2. After you define 3-points estimates, a statistical distribution will be assigned. RiskyProject Lite does not present statistical distribution. By default statistical distribution is triangular.
- 

### Adding 3-point estimates for task duration and start times

1. On the **Gantt** view, double-click on the task ID.
2. Click the **General** tab.
3. Select a **Base**, **Low**, and **High** dates for **Start Time**.
4. Select a **Base**, **Low**, and **High** values for **Duration**. By default when you enter a value for duration, the default values for Low and High are calculated based on the defaults set in the Duration Options.
5. Click **OK** to save the estimates.

### Adding 3-point estimates for task cost

1. On the **Cost Analysis** view, select the task to which you want to add cost estimates
2. Enter cost data for **Cost Low**, **Cost**, and **Cost High**. By default when you enter a value for Cost, the default values for Low and High are calculated based on the Cost defaults set in the Cost Options.
3. Click **OK** to save the estimates.





# Chapter 3: Analyzing Project Results


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## Calculations

RiskyProject has two types of calculations:

- **Deterministic calculation of current schedule** - The default calculation automatically performed when you modify a project schedule. As this calculation occurs automatically, you do not need to press the Calculation button. This calculation uses the Base input parameters (duration, start time, lag) without calculating the effect of risk or uncertainty.
- **Probabilistic (Monte Carlo simulations)** – Use this to calculate the project schedule and costs with uncertainties and risks.

### Running probabilistic calculations

- Click the **Calculation** button  on the **Standard** toolbar. You may cancel the probabilistic calculation at any time; however, if number of simulations performed is less than 20, no probabilistic results will be calculated.

### Ranking non-schedule risks

You can run a risk analysis on non-schedule risks even if you have not yet entered a project schedule. This analysis will provide a risk ranking for all non-schedule risks currently in the risk register. For example, if you have non-schedule risks with the outcome “Legal Issues”, you do not need to have project schedule to rank these risks. However, these risks must be have a global (task or resource) assignment to be analyzed.

# Analyzing Results

## The Project Dashboard 3x3

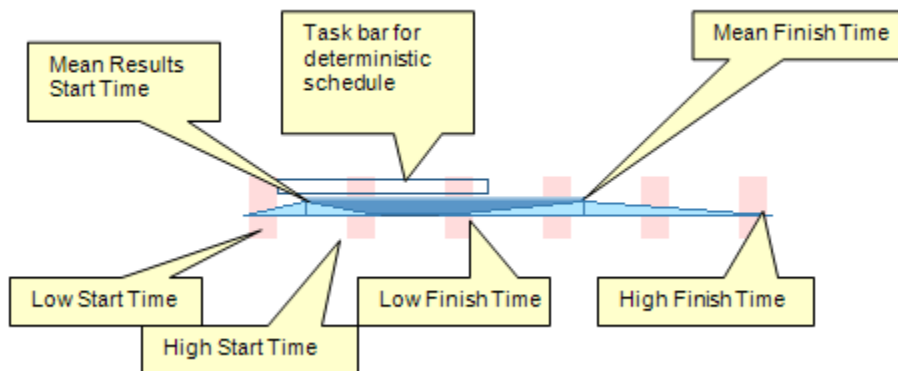
RiskyProject includes the **Project Dashboard 3x3**. This view shows the results of your analysis in a logical and easy to understand manner. Total project cost, duration, and finish time with risks are the mean values for each. Crucial tasks and critical risks are the results of the sensitivity analysis.

Three main project parameters for the current schedule and with risks and uncertainties (mean values)

1. Total Project Cost
  - Project Finish Time
  - Project Duration
2. Three most crucial tasks
  - Affect on project cost
  - Affect on project duration
3. Three most critical risks
  - Affect on project cost
  - Affect on project duration

## Results Gantt Chart

RiskyProject displays the start and finish ranges of each task in the Result Gantt view. The calculated project and current deterministic schedules are shown in the same Gantt chart. You can use the task bar for deterministic current schedule to compare deterministic and probabilistic schedules.



You can display Result Gantt associated only with low (optimistic) and high (pessimistic) results.

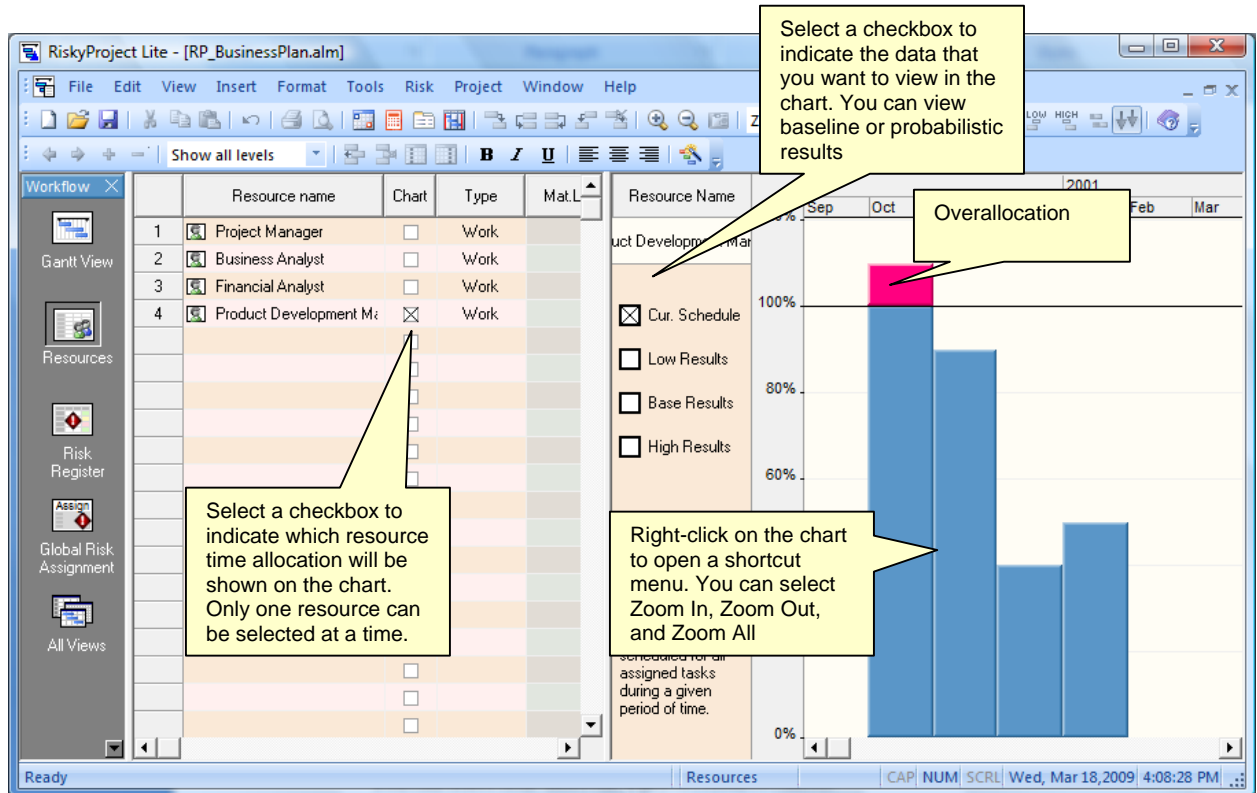
### Showing or Hiding Low/High Results

1. Right-click on the chart and a shortcut menu opens.
2. From the shortcut menu, choose one of the following viewing options:
  - Show Low/High Results

- Show Low Results
- Show High Results
- Show Current Schedule.

## Resource Allocation

The Resource chart shows the time allocation for a selected resource.



For the resource chart to open, two conditions must be met:

- You must select the **Chart** check box for a resource in the resource sheet.
- The selected resource must be assigned to a task.

**You can select four different types of resource charts:**

- **Peak units:** The highest level at which a resource is scheduled for all assigned tasks during a given period.
- **Work:** The total number of hours a resource is scheduled for all assigned tasks during a given period.
- **Overallocation:** A resource is over allocated when it has more work assigned than can be done in the resource's available time. Overallocation is number of hours a resource is scheduled for all assigned tasks over resource's available time. Overallocation can be presented only for work (not material) resources.
- **Percent allocation:** The percentage of a resource's capacity taken up by all of its assigned tasks during a given period. Percent allocation is only available for work (not material) resources.

## Selecting the resource chart type

1. Select the **Chart** check box associated with the resource.
2. Right-click on the **Resource** chart and choose one of chart types from the shortcut menu.



Overallocation for work resources is calculated based on Maximum Units, defined for the resource in the Resource view. For example, if maximum units are 150%, overallocation can be work above 150%.

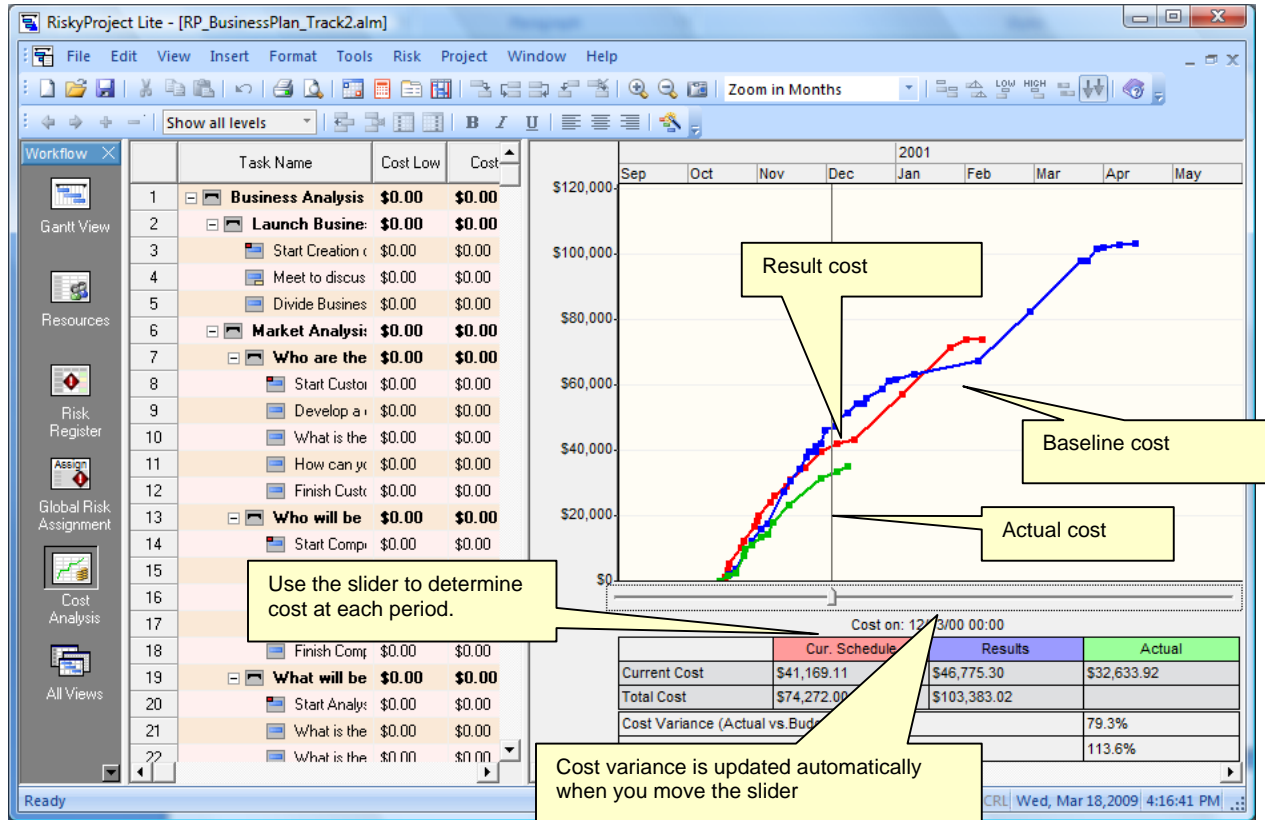
## Analyzing Cost

Use the **Cost Analysis** view to analyze cost on each stage of the project. The Cost Analysis view has up to three cost diagrams:

Cost diagram	Description	Color	When it is shown
Current schedule (budgeted) cost	Cost diagram with current project schedule (no risks)	Red	Always when cost for any task is defined
Result cost	Cost diagram with risk and uncertainties (calculation results)	Blue	Shown after calculation if uncertainties are defined
Actual cost	Cost diagram represents actual cost	Green	Shown after calculation if uncertainties are defined and actual cost is available (either entered directly or percent done for at least one task is defined)

You may use the slider to determine:

- Cost Variance (actual vs. budgeted cost)
- Cost with Risks and uncertainties vs. Current schedule (budgeted) cost.



- Use the shortcut menu to manipulate with chart. In particular, instead of presenting a **line** chart of current schedule, result, and actual cost, you can present an **area** chart by choosing **Fill Chart** from the shortcut menu.

## Risk Matrix

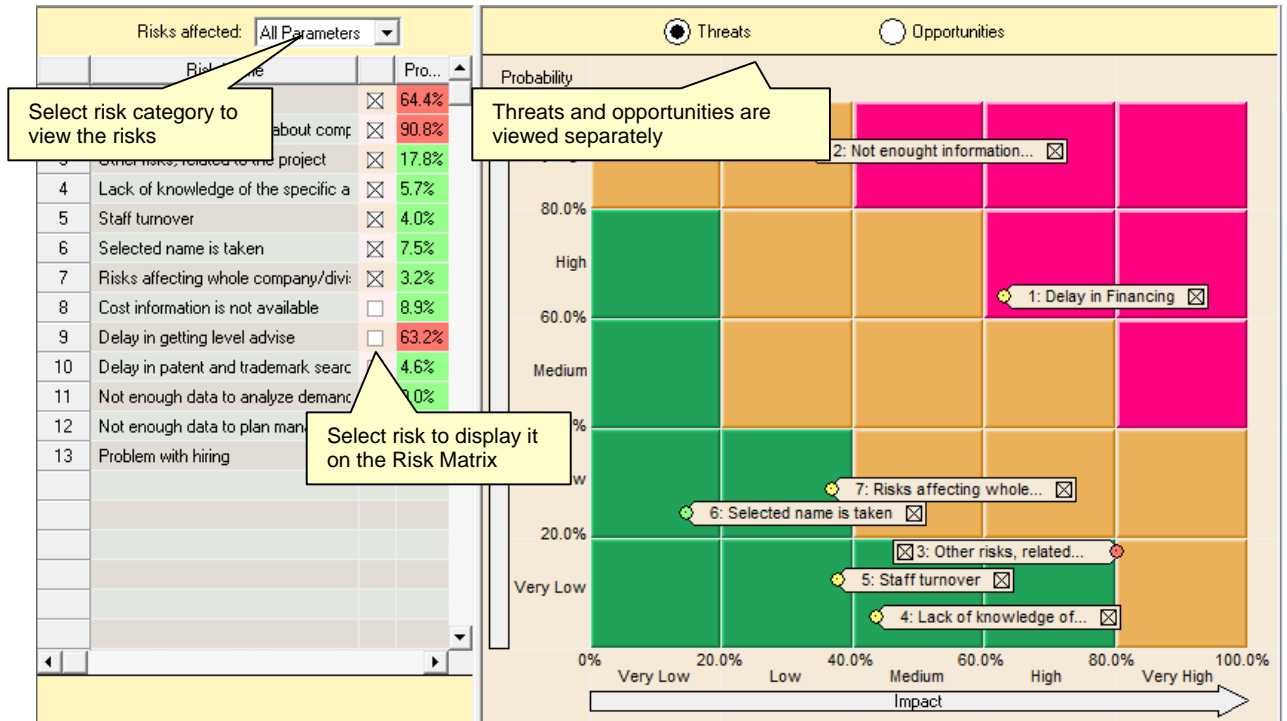
A **Risk Matrix** is a tool used in the Risk Assessment process that allows you to determine the severity of a risk occurring. The Risk Matrix view shows this using the risk probability (y-axis) vs. calculated risk impact (x-axis) of the project risks.

The Risk Matrix view is divided into two sections: a table with a list of risks with their actual calculated values for probability, impact, and score. When you select these risks, they are shown visually on a matrix, which provides a visual comparison of this data put as well as putting each risk into the context of your organization's risk tolerance. Is the risk in the green, yellow, or red areas of the matrix?

### Viewing the Risk Matrix

1. Select a risk category from the **Risks affected** drop-down list. Lists of all risks associated with the selected risk category are listed in the table. Select All Parameters to view all of the risks in all risk categories.

2. Select the **Threats** or **Opportunities** option at the top of the matrix. Threats and opportunities cannot be viewed at the same time.
3. Select the check boxes beside the risk names to view the risks on the Risk Matrix. To hide a risk, simply clear the check box. By default, risks with zero impact cannot be selected.



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