

Risk Plotter©

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1.0 Introduction: What is Risk Plotter©?

Risk Plotter© is a software tool whose purpose is to generate graphical displays of risk management information. Risk Plotter displays risk milestone schedule, level, rank and plan status information in an easy to use, intuitive graphical format. Risk information can be managed and grouped in a variety of ways, providing the user with the flexibility required to meet their risk management needs. Risk Plotter provides graphical output in both in Microsoft® PowerPoint slide and Excel worksheet formats.

1.1 Machine/Software Requirements

Risk Plotter© is written in the Visual Basic for Applications (VBA) language using MS Office 2003 application libraries. MS Excel and PowerPoint applications must be available for Risk Plotter. For computers which are using earlier versions of Excel or PowerPoint, Risk Plotter may not run properly. Later versions of Excel and PowerPoint should be backward compatible.

Risk Plotter was built on a Windows XP OS baseline. Risk Plotter should run properly for both the Windows XP and Windows NT OS environments and may run properly using Windows Me and 98SE.

In the event of a problem running Risk Plotter with older variants of Excel and/or PowerPoint or with an alternate OS, please contact [tech support](#).

1.2 Enabling Macros

Risk Plotter contains Excel macros. In order for Risk Plotter to run properly, the Excel security setting which enables execution of these macros must be set properly. This setting can have one of four values in Excel; very high, high, medium and low. When a user attempts to run or open the Risk Plotter file when the setting is not set to low, the user will be presented with a pop-up window something like that indicated in Figure i below.



Figure i: Example Excel Macro Security Warning

The message indicates that macros are disabled and will tell the user to either change the security settings to enable them or request a certificate. Risk Plotter does not come with digitally signed Trusted Certificates so the user must modify the macro security setting for Risk Plotter to run.

To enable macros, use the following procedure:

- 1) Open Excel
- 2) On the Excel menu bar, select 'Tools', then 'Macro', then 'Security'. This will open a small security options window.
- 3) On the 'Security Level' tab, select the radio button next to either 'medium' or 'low' (medium is recommended – see below) and click 'OK'.
- 4) Then close Excel. Excel checks the macro security setting only when it is opened; in order for the changes to take effect, Excel must be completely closed and then reopened. Note that this security level change will apply to ALL Excel macros from other worksheets the user may have.
- 5) Now open Risk Plotter.
- 6) If you selected the 'medium' security option, Excel will ask if you wish to enable macros. Click the 'Enable Macros' button. You are now ready to proceed with running Risk Plotter.

If the default security setting is medium, a security message will be displayed when the user opens or tries to run Risk Plotter or any other excel file containing macros. The message indicates that the worksheet contains macros and will ask the user if macros should be enabled or disabled. The user should click the 'enable' button if appropriate. This message will appear every time that Risk Plotter is opened. Note that changing the security level applies to ALL Excel macros from other worksheets the user may have. This may not be appropriate for users working in an environment open to the internet.

1.3 What is in the Users Guide?

This Users Guide contains multiple sections describing how to use Risk Plotter© ([Section 2.0](#)), what data inputs are required ([Section 3.0](#)) and what outputs can be generated ([Section 4.0](#)). Troubleshooting, and program limitations and constraints along with some tips on things to avoid are described in [Section 5.0](#). [Section 6.0](#) provides technical support contact information along with approximate technical support fees. [Section 7.0](#) details the license agreement for this software (the EULA).

Before attempting to use Risk Plotter©, it is highly recommended that the user read this Users Guide completely. This will provide the background necessary for the user to effectively utilize the tool. Once the user is familiar with the basics of tool, running Risk Plotter is a straightforward process.

2.0 Running Risk Plotter

The purpose of this section is to provide the user with a “walk through” of the process of running Risk Plotter and to identify some of the errors that can occur during runs. Risk Plotter is self contained (i.e. requires no other software other than MS Excel and PowerPoint) and is controlled via a simple point and click interface so it is very easy to use.

[Section 2.1](#) will walk the reader through the process in a step by step manner (assuming all goes as planned!). [Section 2.2](#) will provide information on potential errors, their causes, which errors that Risk Plotter is designed to detect, and how to fix them.

Before running Risk Plotter, the user should:

- a) read this file in its entirety!
- b) generate a risk milestone input data file according to the Risk Plotter input format requirements (see [Section 3.2](#))
- c) generate a PowerPoint template file to use as the default template for the risk milestone status charts (see [Section 4.4](#))

2.1 Risk Plotter Walkthrough

The user's starting point for a Risk Plotter run is the 'Main' worksheet tab – seen below in [Figure 1](#). From this sheet, the user can access the User Input sheet, the Help sheet or Tech Support information. The first step in running Risk Plotter is to move to the User Input sheet by clicking on the 'Step 1: Enter User Inputs' link.



Figure 1: The 'Main' Worksheet

On the User Input sheet, the user will find a variety of input parameters that must be configured appropriately. The user is required to define several control parameters for dates, risk levels, etc. along with defining what the header graphic for the risk milestone status plots should look like. **This information is covered in detail in [Section 3.1](#) of this file so the user should follow the instructions there to fill out the User Input sheet.** Once the information required has been entered on the sheet, return to this walkthrough for the rest of the Risk Plotter run process.

Once the User Input control parameters have been set to the user's satisfaction and the user has returned to the Main sheet (as seen above), the user is ready to run Risk Plotter. To do this, simply click on the 'Step 2: Run Risk Plotter' button on the Main sheet.

Once Risk Plotter starts, the user will be queried for several pieces of information via input windows. First, the user will be asked to identify the input risk data file which contains the risk milestone data to be used in the current run. This data file must have been generated prior to running Risk Plotter. The data file is an Excel file typically produced by pulling the appropriate risk milestone data from a project schedule database. The request for the name of the resulting risk input data excel file (.xls) is done via the typical Windows 'Open File' interface as seen in [Figure 2](#) below.

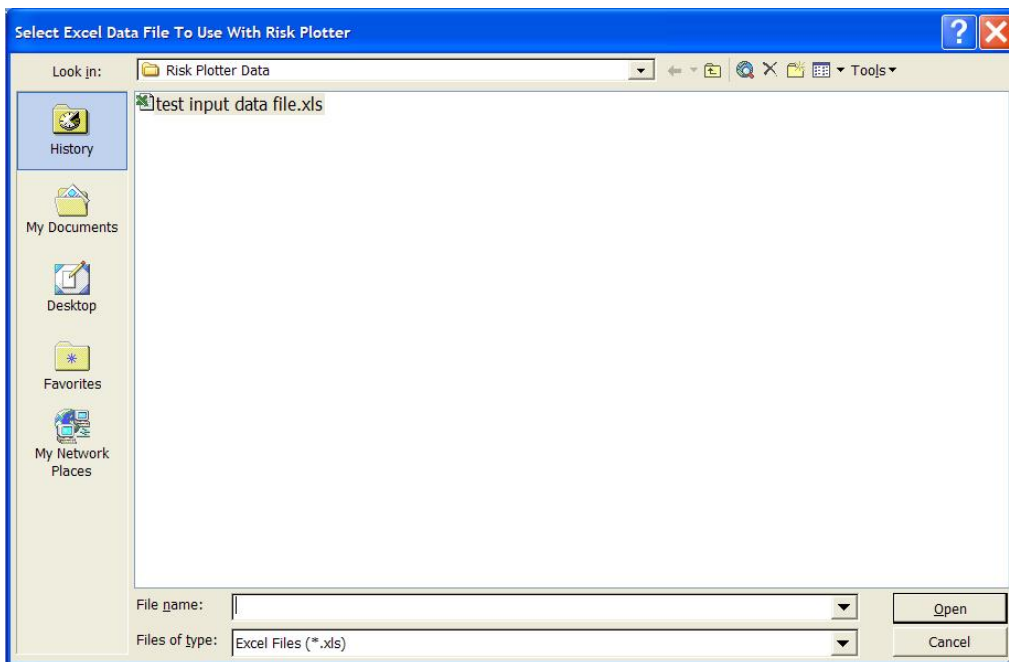


Figure 2: Input Data File Name

Once the file name has been identified and either double-clicked or the open button has been clicked, Risk Plotter will check for multiple data sheets within the file. If the file contains more than one worksheet, Risk Plotter will provide a list of the different worksheets in the file as seen in [Figure 3](#). The user selects the correct sheet name by clicking on it and then clicks OK to continue the Risk Plotter run.

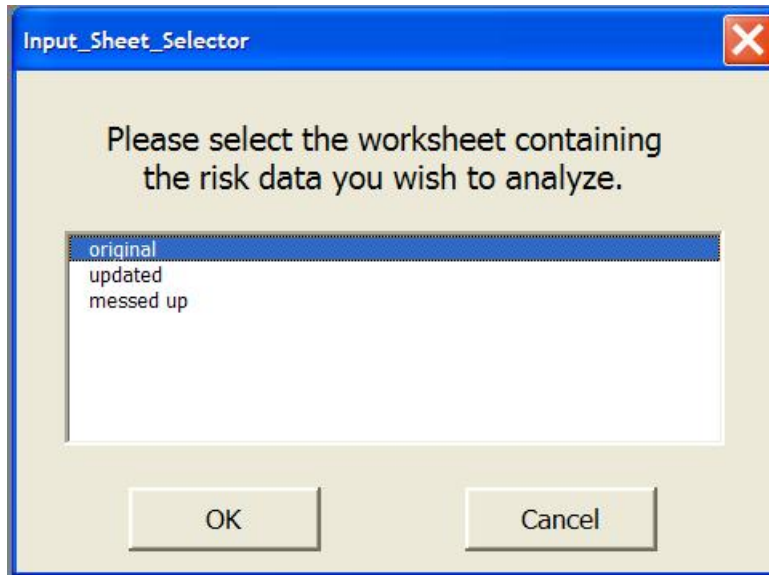


Figure 3: Input Sheet Selector

Risk Plotter will then generate all the plot information from the input data. While this process is working, the mouse will become an hourglass shape and a graphic indicating that Risk Plotter is running will be displayed on the Main sheet, as shown in [Figure 4](#) below.

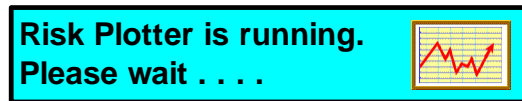


Figure 4: Risk Plotter Working Graphic

Once the risk plot data has been generated, the user is presented with the option to generate PowerPoint slides from the plots as seen in [Figure 5](#).

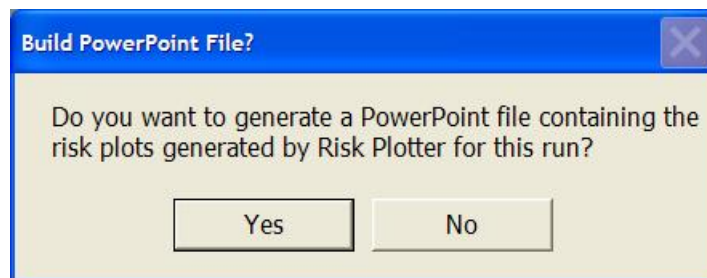


Figure 5: PowerPoint Slide Option Window

If the user clicks on 'No', Risk Plotter will skip the PowerPoint chart generation option and the run will end. A 'success' message, as seen in [Figure 8](#), will be displayed.

If the user clicks on 'Yes', then Risk Plotter activates the PowerPoint chart generation option. The user will then be asked for the name of a PowerPoint chart template file as shown in [Figure 6](#). See [Section 4.4](#) for more information on the chart template file; the template file should be generated prior to running Risk Plotter! If the cancel button is selected, Risk Plotter will build the PowerPoint presentation using a blank template.

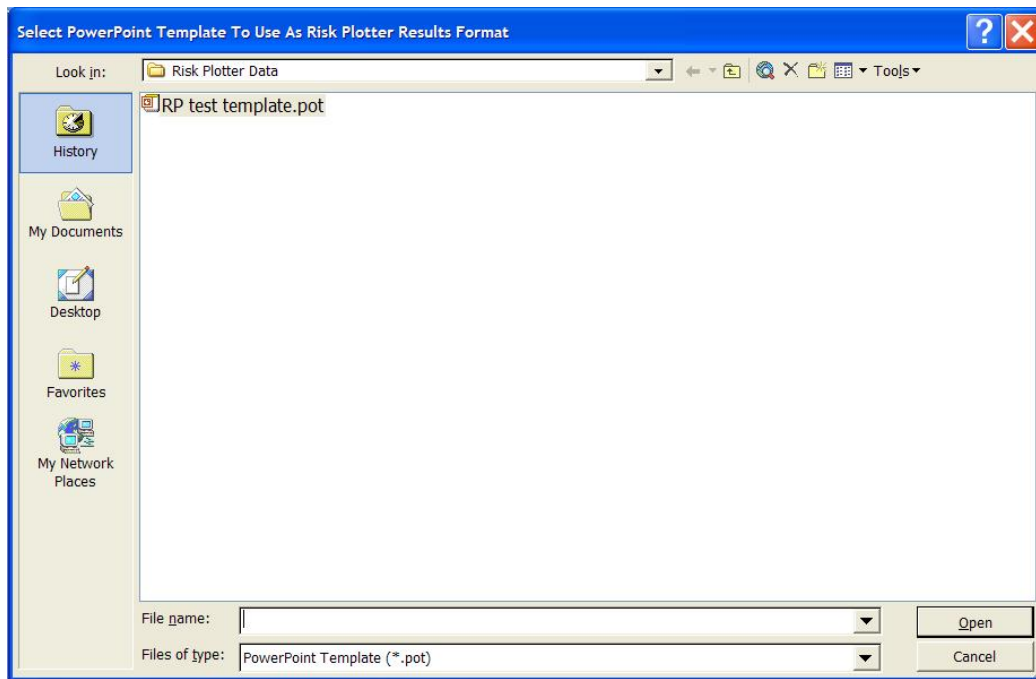


Figure 6: Chart Template File Name Request

Risk Plotter will then copy all of the risk milestone status plots that it generated in Excel to a PowerPoint presentation using either the user selected ".dot" template file or a blank template. During this process, the user is likely to see some screen flickering and the mouse pointer will become an hourglass (or equivalent). Once the PowerPoint presentation generation process is complete, Risk Plotter will query the user for a file name to save the presentation to as shown in [Figure 7](#). A default name of 'Risk Plotter Chart Package dd-mmm-year.ppt' is provided. The user can save to this file name or select one of their own.

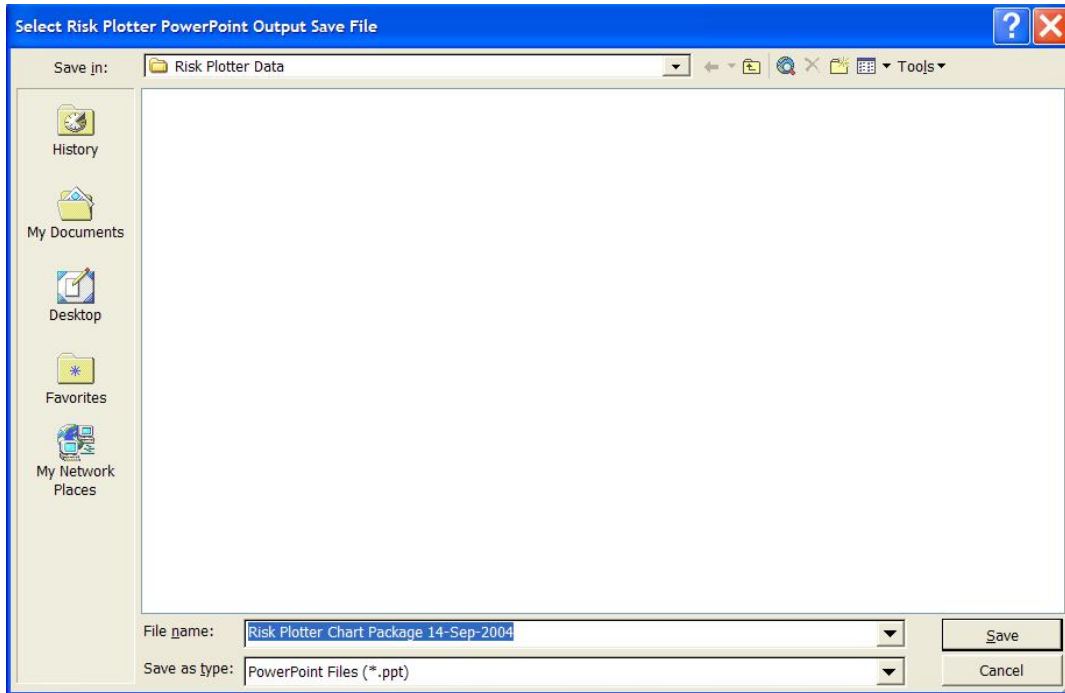


Figure 7: PowerPoint Save File Name

Once the name has been provided, Risk Plotter will save the PowerPoint file and display a 'success' message – see [Figure 8](#). When the OK is clicked, Risk Plotter has successfully completed.

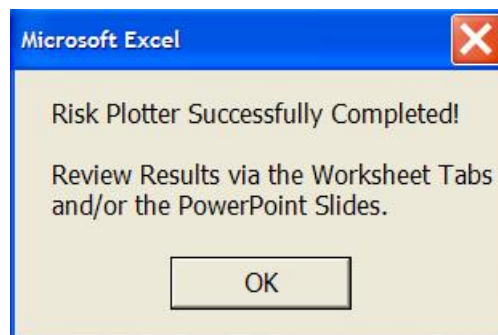


Figure 8: Successful Risk Plotter Completion Message

The user is now ready to analyze the Risk Plotter results by examining the different worksheets in the Excel file or by looking at the plots in the PowerPoint presentation. See [Section 4](#) for more information on output results.

2.2 Errors and How To Fix Them

Risk Plotter is built with a modest level of internal data checking and error trapping, including error messages for the user. In the event that Risk Plotter does detect an error with the input data provided by the user or with an internal software coding problem, Risk Plotter will send an error message to the user via a simple message box interface.

2.2.1 Risk Plotter Trapped Fatal Errors

The example error message shown in [Figure 9](#) is representative of the error messages that Risk Plotter can provide for fatal program errors that it has trapped (detected). Each error message includes the name of the internal subroutine where the error occurred along with an error code. Following that, the message provides a text description of what the error is thought to be along with a possible corrective course of action the user can take to fix the problem.

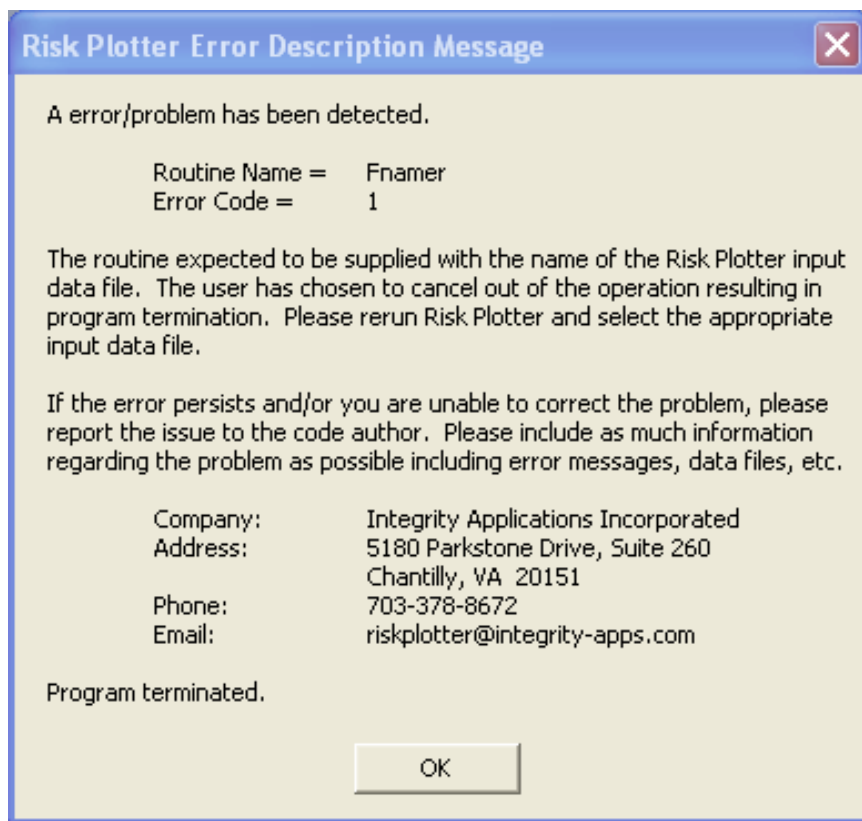


Figure 9: Example Error Message

Note that the final words in the error message are “Program terminated.” All Risk Plotter errors of this form will result in the program terminating and the user receiving an abnormal end of run message as seen in [Figure 10](#).

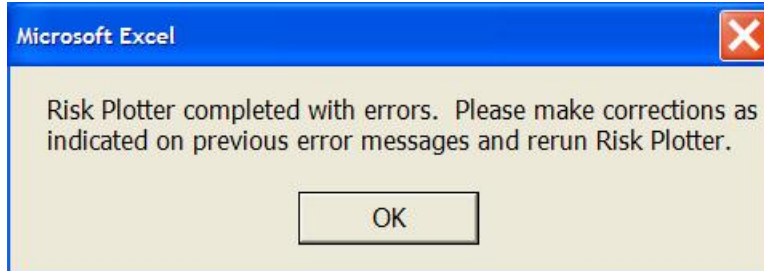


Figure 10: Risk Plotter Abnormal Termination Message

See [Section 2.2.4](#) for a complete listing of all Risk Plotter trapped fatal errors along with recommended corrective actions.

2.2.2 Risk Plotter Trapped Non-Fatal Errors

Some input data errors are not fatal. Risk Plotter attempts to handle these errors and continue running. An example of this type of error is shown in [Figure 11](#). In this case, Risk Plotter was run with the option for risk ranking set to user defined risk ranks. Risk Plotter has determined that some of the ranking data in the risk input data file for the Org named 'junk' is either missing (blank), set to zero or set to a negative number.

In this case, Risk Plotter will remove all the risk items that have the blank, zero or negative risk ranks from the run, i.e. they are ignored and will not be plotted. While Risk Plotter does run to completion in this case, the detected error is an indicator that something is not quite right with the risk input data file. The user should reexamine the data file and correct it for errors.

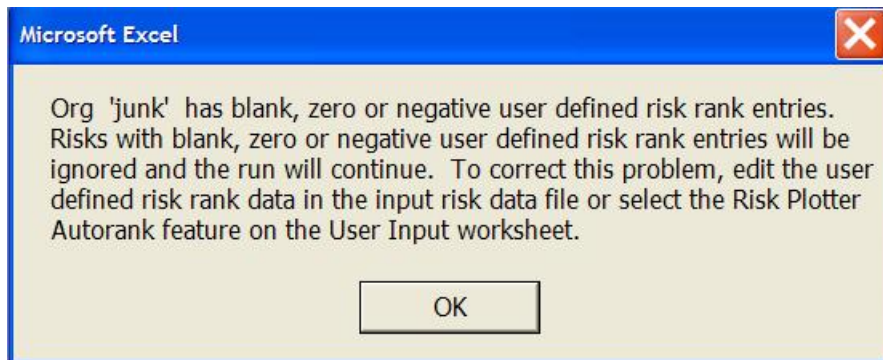


Figure 11: Example Risk Plotter Non-Fatal Error

2.2.3 Unidentified, Un-trapped Errors

Risk Plotter does not trap all possible errors. Some input data file errors can pass through undetected and may result in the program failing. In the event that an error has occurred which has not been trapped, the user will likely see an error message similar to the one shown in [Figure 12](#). For errors of this type, the recommended corrective action is to examine the risk input data file and look for incorrect entries – items such as missing ranking information, missing Org names, etc. Most un-trapped errors can be traced to problems with the risk input data file. If no format or data errors can be found, an analysis of the error involving detailed examination of the code is required and the user should contact [tech support](#).

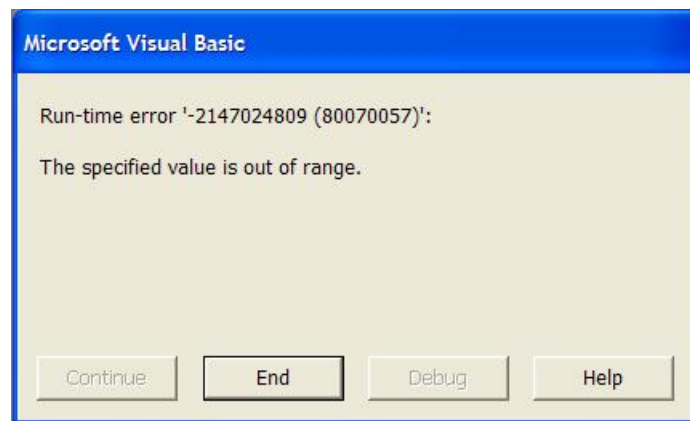


Figure 12: Example Unidentified Error Message

When Risk Plotter terminates with an unidentified, un-trapped error, the program will be left in an intermediate state. This is generally not a problem, with one exception.

On the 'Main' worksheet, the graphic shown in [Figure 4](#) will still be visible. The user should delete this graphic immediately. If the user reruns Risk Plotter without removing this graphic, the graphic will be "stuck" on the page. The user will be unable to select the object to delete it. To correct this, follow the procedure described below.

In the event that this "sticking" occurs, the user should open Risk Plotter. On the 'Main' worksheet, the user should then click on the menu bar on 'Tools/Protection/Unprotect Sheet'. This un-protects the worksheet and will allow the user to select the graphic shown in [Figure 4](#). Once selected, press the delete key. The user should then click on the menu bar on 'Tools/Protection/Protect Sheet' and then click OK – do not select or deselect any of the protection boxes. That completes the process.

2.2.4 Risk Plotter Trapped Fatal Error Message Listing

This section lists all the Risk Plotter trapped fatal error messages and provides some more detailed recommendations as to potential corrective actions. In the event that the corrective action does not fix the problem or the problem cannot be definitively identified, the user should contact [tech support](#) and provide the routine name, error code and the risk input data file.

Table 1: Risk Plotter Error Messages

Routine Name = Addasheet		Error Code = 1
Error Message	The routine has encountered an error when attempting to add a worksheet to the workbook. The most likely cause is that this worksheet already exists. Delete the worksheet which was identified in the previous error message and then rerun Risk Plotter.	
Potential Cause	This error occurs when Risk Plotter attempts to add a worksheet to the workbook but the worksheet already exists. The previous error message indicated the name of the worksheet that is causing the problem.	
Corrective Action	Manually delete the worksheet which was identified in the previous error message and then rerun Risk Plotter.	
Routine Name = Addasheet		Error Code = 3
Error Message	The routine has encountered an error when attempting to add the 'dummy' worksheet to the workbook. The most likely cause is that this worksheet already exists. Delete the 'dummy' worksheet and then rerun Risk Plotter.	
Potential Cause	This error occurs when Risk Plotter attempts to add a worksheet to the workbook but the worksheet already exists. The worksheet that caused the error is called 'dummy'.	
Corrective Action	Manually delete the 'dummy' worksheet which was identified in the previous error message and then rerun Risk Plotter.	

Routine Name = ButtonStripper		Error Code = 1
Error Message	The routine found a problem while stripping the Org name and risk number from the 'Details' button name. The '==>' separator string indicator was not found. This error can occur if the user is working on a Risk Plotter file that has been modified by a user in some way. A possible solution is to rerun Risk Plotter and then relick on the 'Details' button of interest.	
Potential Cause	This error should only occur if a user has 'corrupted' the data in the Org worksheets. This can happen if the user runs Risk Plotter, then makes some modifications to the data and/or plots on the individual Org worksheets and then attempts to get a detailed look at a specific risk by clicking on the 'Details' button.	
Corrective Action	Rerunning Risk Plotter and then clicking of the 'Details' button for the risk of interest should fix the problem. Do not modify any of the risk milestone data on the Org sheet of the risk of interest prior to clicking the 'Details' button.	
Routine Name = ButtonStripper		Error Code = 2
Error Message	The routine found a problem while stripping the Org name and risk number from the 'Details' button name. The name of the Org associated with the button returned as Null. This error can occur if the user is working on a Risk Plotter file that has been modified by a user in some way. A possible solution is to rerun Risk Plotter and then relick on the 'Details' button of interest.	
Potential Cause	This error should only occur if a user has 'corrupted' the data in the Org worksheets. This can happen if the user runs Risk Plotter, then makes some modifications to the data and/or plots on the individual Org worksheets and then attempts to get a detailed look at a specific risk by clicking on the 'Details' button.	
Corrective Action	Rerunning Risk Plotter and then clicking of the 'Details' button for the risk of interest should fix the problem. Do not modify any of the risk milestone data on the Org sheet of the risk of interest prior to clicking the 'Details' button.	

Routine Name = ButtonStripper		Error Code = 3
Error Message	The routine found a problem while stripping the Org name and risk number from the 'Details' button name. The risk number associated with the button returned as negative Null. This error can occur if the user is working on a Risk Plotter file that has been modified by a user in some way. A possible solution is to rerun Risk Plotter and then relick on the 'Details' button of interest.	
Potential Cause	This error should only occur if a user has 'corrupted' the data in the Org worksheets. This can happen if the user runs Risk Plotter, then makes some modifications to the data and/or plots on the individual Org worksheets and then attempts to get a detailed look at a specific risk by clicking on the 'Details' button.	
Corrective Action	Rerunning Risk Plotter and then clicking of the 'Details' button for the risk of interest should fix the problem. Do not modify any of the risk milestone data on the Org sheet of the risk of interest prior to clicking the 'Details' button.	
Routine Name = Commando		Error Code = 1
Error Message	The routine has encountered a critical error and cannot proceed. The worksheet 'Reserved' which holds program critical information has been deleted. The required corrective action is to replace the Reserved worksheet from the original copy of the Risk Plotter workbook. Otherwise, contact the author for support.	
Potential Cause	This error should only appear if the 'Reserved' worksheet has been deleted. This worksheet is required for Risk Plotter to run.	
Corrective Action	The only way to fix this problem is to replace the Reserved worksheet from the original copy of the Risk Plotter workbook and rerun Risk Plotter.	
Routine Name = DataGrab		Error Code = 2
Error Message	The routine expected to be supplied with the worksheet name containing the risk data. The user has chosen to cancel out of the operation resulting in program termination. Please rerun Risk Plotter and select the appropriate worksheet containing the risk data.	
Potential Cause	The user selected the cancel button or cancelled the input sheet selector window when Risk Plotter requested the name of the worksheet to use in the risk input data file. Without this worksheet name, Rick Plotter cannot run.	
Corrective Action	The user should rerun Risk Plotter and, when requested for the worksheet containing the risk input data, the user should select the worksheet name and click on the OK button.	

Routine Name = DataGrab		Error Code = 5
Error Message	The probability information entered in the risk input data file has an error. Either the probability exceeds the maximum value as defined on the User Input worksheet (5 or 10) or a zero/negative value was detected. Please correct the erroneous probability field(s) in the input file and rerun Risk Plotter.	
Potential Cause	The risk input data file has a probability value that is either 0, negative or larger than the allowed range (which can be either 5 or 10 depending on the inputs from the User Input worksheet).	
Corrective Action	Search the risk input data file probability column for values that are either 0, negative or larger than the allowed maximum. Correct these values and rerun Risk Plotter.	
Routine Name = DataGrab		Error Code = 6
Error Message	The consequence information entered in the risk input data file has an error. Either the consequence exceeds the maximum value as defined on the User Input worksheet (5 or 10) or a zero/negative value was detected. Please correct the erroneous consequence field(s) in the input file and rerun Risk Plotter.	
Potential Cause	The risk input data file has a consequence value that is either 0, negative or larger than the allowed range (which can be either 5 or 10 depending on the inputs from the User Input worksheet).	
Corrective Action	Search the risk input data file consequence column for values that are either 0, negative or larger than the allowed maximum. Correct these values and rerun Risk Plotter.	
Routine Name = DataSort		Error Code = 1
Error Message	The routine expected to find Org names in the Org name column of the risk input data worksheet but no Org names were found. Please examine the risk input data file and ensure that the column contains the Org name information. Then rerun Risk Plotter.	
Potential Cause	The column that is supposed to contain the Org names is apparently empty (nominally column B). Risk Plotter requires that the risk input data file have the Org name in every row of risk milestone data.	
Corrective Action	Correct the input data file so that the Org name appears in the correct column for every row and then rerun Risk Plotter.	

Routine Name = DataSort		Error Code = 2
Error Message	The routine expected to find Org names in every row of risk milestone data in the risk input data worksheet but at least one blank field was detected. Please examine the risk input datafile and ensure that every row has Org name information. Then rerun Risk Plotter.	
Potential Cause	Every row of data in the risk input data file is required to have the Org name in the Org name column (nominally column B), but apparently one or more rows has this field blank/empty. Risk Plotter requires that the risk input data file have the Org name in every row of risk milestone data.	
Corrective Action	Correct the input data file so that the Org name appears in the correct column for every row and then rerun Risk Plotter.	
Routine Name = DetailPlot		Error Code = 2
Error Message	The routine has encountered an error when attempting to clear the Details worksheet. The reason for this is unknown. Manually deleting the Details worksheet and re-clicking on the 'Details' button of interest should solve the problem.	
Potential Cause	If Risk Plotter has previously failed for some reason, the logic used in the process used to clear out the Details worksheet can result in weird behavior.	
Corrective Action	Manually delete the worksheet called 'Details' in the Risk Plotter workbook and then click on the appropriate Details button by the risk of interest.	
Routine Name = Fnamer		Error Code = 1
Error Message	The routine expected to be supplied with the name of the Risk Plotter input data file. The user has chosen to cancel out of the operation resulting in program termination. Please rerun Risk Plotter and select the appropriate input data file.	
Potential Cause	The user selected the cancel button or cancelled the open file window when Risk Plotter requested the name of the risk input data file. Without this file, Rick Plotter cannot run.	
Corrective Action	The user should rerun Risk Plotter and, when requested for the risk input data file, the user should navigate to the proper file and click on the open button.	

Routine Name = GetRefDates		Error Code = 1
Error Message	The routine expected to find the table of Control Date Definitions on the User Input worksheet. The program cannot find the 'Reference Date for Risk Data:' header in column A. Please edit the User Input worksheet such that the line prior to the table containing the risk color data has 'Reference Date for Risk Data:' in column A.	
Potential Cause	Risk Plotter searches the User Input sheet in column A for specific text and uses its location to determine what rows to read the input date information from. If that line has been deleted or modified, Risk Plotter cannot determine where to get the date span information. This should not occur since the worksheet is protected; if it has occurred, then the file has been corrupted or a user has turned protection off and modified the sheet.	
Corrective Action	Ensure that the User Input worksheet has all the original format and information in each row.	
Routine Name = GetRefDates		Error Code = 2
Error Message	The Risk Plot Time Span End Date is set earlier than the Risk Plot Time Span Start Date on the User Input worksheet. Please correct the time span values and rerun/reclick.	
Potential Cause	Risk Plotter searches the User Input sheet in column A for specific text and uses its location to determine what rows to read the input date information from. If that line has been deleted or modified, Risk Plotter cannot determine where to get the date span information. This should not occur since the worksheet is protected; if it has occurred, then the file has been corrupted or a user has turned protection off and modified the sheet.	
Corrective Action	Ensure that the User Input worksheet has all the original format and information in each row.	
Routine Name = GetRefDates		Error Code = 3
Error Message	The Reference Date for Risk Data on the User Input worksheet is outside of the range defined by the Risk Plot Time Span Start Date and the Risk Plot Time Span End Date. Please correct the reference date value and rerun/reclick.	
Potential Cause	Risk Plotter searches the User Input sheet in column A for specific text and uses its location to determine what rows to read the input date information from. If that line has been deleted or modified, Risk Plotter cannot determine where to get the date span information. This should not occur since the worksheet is protected; if it has occurred, then the file has been corrupted or a user has turned protection off and modified the sheet.	
Corrective Action	Ensure that the User Input worksheet has all the original format and information in each row.	

Routine Name = GetRiskData		Error Code = 5
Error Message	The routine could not find the 'Risk Computation Method:' label in column A on the User Input worksheet. Please ensure that the label is located in column A and the flag value is in the same row in column B. Rerun Risk Plotter reclick the Details button as appropriate.	
Potential Cause	Risk Plotter searches the User Input sheet in column A for specific text and uses its location to determine what rows to read the input risk information from. If that line has been deleted or modified, Risk Plotter cannot determine where to get the risk information. This should not occur since the worksheet is protected; if it has occurred, then the file has been corrupted or a user has turned protection off and modified the sheet.	
Corrective Action	Ensure that the User Input worksheet has all the original format and information in each row.	
Routine Name = GetRiskData		Error Code = 6
Error Message	The Risk Computation Method flag on the User Input worksheet is not set to one of the acceptable input values. Please reset the flag to either 0 or 1 and rerun Risk Plotter or reclick the Details button as appropriate.	
Potential Cause	The variable in question can only have a value of 0 (zero) or 1.	
Corrective Action	Ensure that the variable input value is 0 (zero) or 1.	
Routine Name = GetRiskData		Error Code = 7
Error Message	The routine could not find the 'Probability/Consequence Range:' label in column A on the User Input worksheet. Please adjust the risk input data to ensure that the label is located in column A and the value is in the same row in column B. Rerun Risk Plotter or reclick the Details button as appropriate.	
Potential Cause	Risk Plotter searches the User Input sheet in column A for specific text and uses its location to determine what rows to read the input risk information from. If that line has been deleted or modified, Risk Plotter cannot determine where to get the risk information. This should not occur since the worksheet is protected; if it has occurred, then the file has been corrupted or a user has turned protection off and modified the sheet.	
Corrective Action	Ensure that the User Input worksheet has all the original format and information in each row.	

Routine Name = GetRiskData		Error Code = 8
Error Message	The Probability/Consequence Range on the User Input worksheet is not set to one of the acceptable input values. Please reset the value to either 5 or 10 and Risk Plotter or reclick the Details button as appropriate.	
Potential Cause	The variable in question can only have a value of 5 or 10.	
Corrective Action	Ensure that the variable input value is 5 or 10.	
Routine Name = GetRiskData		Error Code = 9
Error Message	The routine could not find the 'Automated Risk Ranking Flag:' label in column A on the User Input worksheet. Please adjust the risk input data to ensure that the label is located in column A and the value is in the same row in column B. Rerun Risk Plotter or reclick the Details button as appropriate.	
Potential Cause	Risk Plotter searches the User Input sheet in column A for specific text and uses its location to determine what rows to read the input risk information from. If that line has been deleted or modified, Risk Plotter cannot determine where to get the risk information. This should not occur since the worksheet is protected; if it has occurred, then the file has been corrupted or a user has turned protection off and modified the sheet.	
Corrective Action	Ensure that the User Input worksheet has all the original format and information in each row.	
Routine Name = GetRiskData		Error Code = 10
Error Message	The Automated Risk Ranking Flag on the User Input worksheet is not set to one of the acceptable input values. Please reset the value to either 0 or 1 and rerun Risk Plotter or reclick the Details button as appropriate.	
Potential Cause	The variable in question can only have a value of 0 (zero) or 1.	
Corrective Action	Ensure that the variable input value is 0 (zero) or 1.	

Routine Name = GetRiskData		Error Code = 11
Error Message	The routine expected to find the table of Risk Color Definitions on the User Input worksheet. The program cannot find the 'Probability Level' header in column A. Please edit the User Input worksheet such that the line prior to the table containing the risk color data has 'Probability Level' in column A and rerun Risk Plotter or reclick the Details button as appropriate.	
Potential Cause	Risk Plotter searches the User Input sheet in column A for specific text and uses its location to determine what rows to read the input risk information from. If that line has been deleted or modified, Risk Plotter cannot determine where to get the risk information. This should not occur since the worksheet is protected; if it has occurred, then the file has been corrupted or a user has turned protection off and modified the sheet.	
Corrective Action	Ensure that the User Input worksheet has all the original format and information in each row.	
Routine Name = GetRiskData		Error Code = 12
Error Message	The routine could not find the 'Top Ten/All Program Risks Flag:' label in column A on the User Input worksheet. Please adjust the risk input data to ensure that the label is located in column A and the value is in the same row in column B. Rerun Risk Plotter or reclick the Details button as appropriate.	
Potential Cause	Risk Plotter searches the User Input sheet in column A for specific text and uses its location to determine what rows to read the input risk information from. If that line has been deleted or modified, Risk Plotter cannot determine where to get the risk information. This should not occur since the worksheet is protected; if it has occurred, then the file has been corrupted or a user has turned protection off and modified the sheet.	
Corrective Action	Ensure that the User Input worksheet has all the original format and information in each row.	
Routine Name = GetRiskData		Error Code = 13
Error Message	The Top Ten/All Program Risks Flag on the User Input worksheet is not set to one of the acceptable input values. Please reset the value to either 0 or 1 and rerun Risk Plotter or reclick the Details button as appropriate.	
Potential Cause	The variable in question can only have a value of 0 (zero) or 1.	
Corrective Action	Ensure that the variable input value is 0 (zero) or 1.	

Routine Name = InputData		Error Code = 4
Error Message	The routine could not find the risk tracking plot header graphic object in section of the User Input worksheet. This is used by Risk Plotter as the header on all risk tracking plots. Rebuild the graphic using the standard Excel drawing tools. The graphic must include a background rectangle as one of its components. All other objects must lie within the rectangle boundaries. When complete, rerun Risk Plotter.	
Potential Cause	Risk Plotter requires that the user include a plot header graphic in the User Input sheet. In the course of the run, Risk Plotter could not find any graphic objects on the User Input worksheet. This is typically because the graphic has been accidentally deleted.	
Corrective Action	See Section 3.1.3 for instructions on how to generate this graphic. Once the graphic has been generated on the User Input sheet, rerun Risk Plotter.	
Routine Name = PlotGen		Error Code = 1
Error Message	The routine found a problem in the risk data for the Org named in the previous error message. The number of risks that were read for that Org did not match the number computed for that Org. This error can occur when there is missing or incorrect risk ranking data in the input data file for that Org. Please review the risk data input file for errors, correct them and rerun Risk Plotter.	
Potential Cause	This error message points to a previous non-fatal error message and so must be evaluated in combination with that message. The previous message will indicate where the trouble appears to be in the input data file (i.e. the Org of concern). The most likely cause of the error is some missing or incorrect data in the input data file.	
Corrective Action	Review the risk data input file for errors, correct them and rerun Risk Plotter. In the event that this does not fix the problem, contact tech support .	

Routine Name = PlotGen2		Error Code = 1
Error Message	The routine found a problem when trying to add series data to the 'Details' milestone plot. No series data was found. Check for potential risk data errors on the worksheet containing the Org risk data of interest. This error can occur if the user is working on a Risk Plotter file that has been modified by a user in some way. A possible solution is to rerun Risk Plotter and then reclick on the 'Details' button of interest.	
Potential Cause	This error should only occur if a user has 'corrupted' the data in the Org worksheets. This can happen if the user runs Risk Plotter, then makes some modifications to the data and/or plots on the individual Org worksheets and then attempts to get a detailed look at a specific risk by clicking on the 'Details' button.	
Corrective Action	Rerunning Risk Plotter and then clicking of the 'Details' button for the risk of interest should fix the problem. Do not modify any of the risk milestone data on the Org sheet of the risk of interest prior to clicking the 'Details' button.	
Routine Name = PlotGen2		Error Code = 2
Error Message	The routine found a problem finding the starting line of risk milestone data when attempting to build the Details plot. Check for potential risk data errors on the worksheet containing the Org risk data of interest. This error can occur if the user is working on a Risk Plotter file that has been modified by a user in some way. A possible solution is to rerun Risk Plotter and then reclick on the 'Details' button of interest.	
Potential Cause	This error should only occur if a user has 'corrupted' the data in the Org worksheets. This can happen if the user runs Risk Plotter, then makes some modifications to the data and/or plots on the individual Org worksheets and then attempts to get a detailed look at a specific risk by clicking on the 'Details' button.	
Corrective Action	Rerunning Risk Plotter and then clicking of the 'Details' button for the risk of interest should fix the problem. Do not modify any of the risk milestone data on the Org sheet of the risk of interest prior to clicking the 'Details' button.	

Routine Name = PPTLoader		Error Code = 1
Error Message	The routine has encountered an error when attempting to save the PowerPoint chart package. The user did not select a file name to save to. Risk Plotter does NOT save the PowerPoint chart package when this occurs. The chart package remains open and may be manually saved.	
Potential Cause	This is a non-fatal error in that Risk Plotter has generated all the risk information and charts but has not yet saved it in PowerPoint. This error occurs when the user selects the cancel button or the 'X' in the upper right corner of the PowerPoint Save window.	
Corrective Action	Risk Plotter does not delete the PowerPoint presentation file when this error occurs so the presentation file should still be open. Click on the PowerPoint file and manually save the file to whatever filename is desired. When running Risk Plotter, selecting a PowerPoint save file name when asked will prevent this from happening.	
Routine Name = PPTLoader		Error Code = 3
Error Message	The routine has encountered an error when attempting to add the 'pptstinks' worksheet to the workbook. The most likely cause is that this worksheet already exists. Delete the 'pptstinks' worksheet and then rerun Risk Plotter.	
Potential Cause	This error occurs when Risk Plotter attempts to add a worksheet to the workbook but the worksheet already exists. The worksheet that caused the error is called 'pptstinks'.	
Corrective Action	Manually delete the 'pptstinks' worksheet which was identified in the previous error message and then rerun Risk Plotter.	

3.0 Input Data

Risk Plotter utilizes three different types of user inputs. These are user control inputs (described in [Section 3.1](#)), risk data file inputs (described in [Section 3.2](#)) and 'Reserved' inputs (described in [Section 3.3](#)). The first two input types are used regularly. The 'reserved' inputs are rarely changed and are, in fact, protected from arbitrary or erroneous changes. The following sections cover each input type in detail and should provide all the information that the user needs to run Risk Plotter effectively.

3.1 User Control Inputs

User Control Inputs are those inputs entered by the user on the User Input worksheet. These inputs are used by Risk Plotter to set up date durations for plots, to define risk colors and levels, and to generate the legend graphics for this particular risk run. The worksheet is color coded with user inputs required in the sections marked with a peach color. Note that the user should NOT alter or move any of the text in the cells that are filled in a blue color. Changes to those cells can cause Risk Plotter to fail and/or run incorrectly.

The only exception to this color coding rule relates to the fill color used in the risk table as described in [Section 3.1.2](#) and the Legend Graphic as described in [Section 3.1.3](#). The user is permitted to alter these colors and the graphic as appropriate.

The three general areas that require user input on the User Input worksheet are described in the sections below. They are:

- [3.1.1\) Defining Dates,](#)
- [3.1.2\) Defining Risks,](#) and
- [3.1.3\) Building the Graphic Header for the Risk Plots](#)

3.1.1 Defining Dates

Risk Plotter generates risk milestone status plots as its primary function. To do that, the program requires three dates from the user as shown in [Figure 13](#).

Section 1: Dates	
Reference Date for Risk Data:	07/28/04
Risk Plot Time Span Start Date:	01/01/04
Risk Plot Time Span End Date:	01/01/06

Figure 13: Date Inputs

The first date is the 'Reference Date for Risk Data'. This date is used as the date to generate the line representing the current day on the schedule plots. It is also used as the reference date in the plot legends. It typically would be the date the risk data that is being plotted was generated or stripped out of a master schedule file, etc.

The second date is the 'Risk Plot Time Span Start Date'. This represents the date that the user wants to use as the start date for the risk schedule plots, i.e. the left-most date shown on the schedule plots.

The third date is the 'Risk Plot Time Span End Date'. This represents the date that the user wants to use as the end date for the risk schedule plots, i.e. the right-most date shown on the schedule plots.

Note that both the Start Date and End Date will define the horizontal axis range of all the risk milestone plots. If the Plot Header graphic is constructed (see [Section 3.1.3](#)) to include date specific items such as program milestones (e.g. PDR, CDR, etc.), then their manual placement on the graphic by the user needs to reflect the date range selected by the user. Failure to do so will result in a header graphic that does not match the schedule plot below it.

3.1.2 Defining Risks

Risk Plotter requires five separate risk parameters as inputs; four flags and one set of color information. The input formats on the User Input worksheet for the four flags are shown in [Figure 14](#). The risk color information input format is depicted in [Figure 15](#).

Probability/Consequence Range:	5	Enter 5 if Probability and Consequence range from 1 to 5; or Enter 10 if Probability and Consequence range from 1 to 10
Risk Computation Method:	1	Enter 0 if Risk = Probability + Consequence; or Enter 1 if Risk = Probability x Consequence
Automated Risk Ranking Flag:	1	Enter 0 if Risks are Ranked by the User in the Input File; or Enter 1 if Risks should be auto-ranked by Risk Plotter
Top Ten/All Program Risks Flag:	0	Enter 0 if Top Ten means only the Top Ten Risks; or Enter 1 if Top Ten means All Top Ten Ranked Program Risks

Figure 14: Risk Flag Input Parameters

The first risk flag is the Probability/Consequence Range. Risk Plotter supports two ranges for risk probability and risk consequence, namely 1 to 5 and 1 to 10. The user should set this flag to 5 if the range is intended to vary from 1 to 5. The user should set this flag to 10 if the range is intended to vary from 1 to 10. In either case, risks with larger numerical scores are assumed to be higher risk, i.e. worse.

The second risk flag is the Risk Computation Method flag. This flag tells Risk Plotter whether the risk probability and risk consequence should be added together or if they should be multiplied together when computing the total risk score. The user should set this flag to 0 if addition is desired or to 1 if multiplication is desired. For example, if the user sets the Probability/Consequence Range flag to 5 and the Risk Computation Method flag to 1, then the risks can vary in score from 1 to 25.

The third risk flag is the Automated Risk Ranking flag. Risk Plotter provides the user with the capability to accept either user defined risk rankings or to compute the risk rankings automatically based on the risk scores determined from the risk probability and consequence. The user should set this flag to 0 if user rankings are to be used or to 1 if automated ranking is to be used. If user rankings are desired (flag = 0), the ranking information must be included in the risk input data in the appropriate format (see [Section 3.2](#)). When automated risk ranking is selected, Risk Plotter will determine the risk score for each risk as of its last completed milestone and use that for ranking purposes. Risks that have equal risk scores are reported in the alphabetical order of their respective Organization.

The fourth risk flag is the Top Ten/All Program Risks flag. This flag tells Risk Plotter how it should generate plots for the "Top Ten" ranked risks from all the Organizations in the program. Additionally, the results of this flag depend heavily on the selection of the Automated Risk Ranking flag. Four potential outcomes exist.

If this flag is set to 0 and the Automated Risk Ranking flag is set to 0, then Risk Plotter will generate a plot of the ten highest program ranked risks. These program ranked risks are selected by the user and included in the input data sheet nominally in column G (as described in [Section 3.2](#)). Risk Plotter will only generate a single plot with up to 10 risks on it, depending on how many risks were ranked by the user in the input data file.

If this flag is set to 0 and the Automated Risk Ranking flag is set to 1, then Risk Plotter will generate a plot of the ten highest program ranked risks. These program ranked risks are computed by Risk Plotter internally as a function of the current risk probability and consequence values. Any program risk ranking data in the input data sheet nominally in column G (as described in [Section 3.2](#)) is ignored. Risk Plotter will only generate a single plot with up to 10 risks on it, depending on how many risks exist in the program.

If this flag is set to 1 and the Automated Risk Ranking flag is set to 0, then Risk Plotter will generate multiple plots of the highest program ranked risks. These program ranked risks are selected by the user and included in the input data sheet nominally in column G (as described in [Section 3.2](#)). Risk Plotter will generate as many plots as required to cover all the user ranked risks from column G. For instance, if the user ranked risks at the program level for the 25 highest ranked risks, Risk Plotter would generate 3 plots, 2 with 10 risks per plot and one with 5 risks.

If this flag is set to 1 and the Automated Risk Ranking flag is set to 1, then Risk Plotter will generate multiple plots covering every single risk in the program. Risk Plotter will rank the risks in the order defined by the current risk probability and consequence values. Any program risk ranking data in the input data sheet nominally in column G (as described in [Section 3.2](#)) is ignored. Risk Plotter will generate as many plots as required to cover all the risks in the program. For large programs, this can be a significant number of plots!

Risk Plotter gives the user the ability to alter the colors of the risk matrix for low, medium and high risks. Note that the user should ensure that the risk flags described above have been set to their proper values before altering these risk colors.

Once the flags have been set, the user will be presented with a color input matrix as shown in [Figure 15](#) below. This example is consistent with the example flag values shown in [Figure 14](#); the risk scores as a function of probability and consequence are determined by multiplication and the active area of the matrix (that area that has not been grayed out) covers the probability and consequence range of 1 to 5. If the user had selected a range of 1 to 10, none of the score cells would be grayed out.

Risk Color Definitions										
	Consequence Level - Set Appropriate Color by Using Color Fill Tool (color code the upper left quadrant if prob & cons range from 1 - 5; color code the whole array if prob or cons range from 1 - 10)									
Probability Level	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Figure 15: Risk Color Information Input Format

Risk Plotter uses the colors in this matrix to show risk milestone levels (low, medium and high) on the output plots. Risk Plotter currently uses a default color scheme as shown for risk level. For the current example, a risk with a probability of 5 and a consequence of 1 has a risk score of 5 and has currently been assigned a color of yellow (medium).

If desired, the user can change the default color corresponding to the risks scores. For example, a user may wish to make all risks whose values are between 6 and 15, inclusive, to be assigned a medium or yellow level. In the example in Figure 15 above, that would mean that the two risk boxes with a value of 15 colored red should be altered to reflect a yellow color.

To change the risk colors for a particular cell, the user should sue the following procedure:

- 1) with the color matrix displayed on the screen, select 'Tools', then "Protection', then 'Unprotect Sheet' from the menu bar
- 2) select the cell to be changed in color

- 3) select the color fill button of the desired color (on the drawing tool bar (use View/Toolbars/Drawing if it is not already displayed) and select the color fill menu (the tipping paint can) and select the desired color)
- 4) select 'Tools', then "Protection', then 'Protect Sheet' from the menu bar

Note that the user can select any color for any of the risk values. Risk Plotter will display milestones on the plot using the colors defined in this matrix. However, the default colors for the three risk levels in the default plot legend graphic (see bottom of [Figure 16](#)) are set to green for low, yellow for medium and red for high. If the user has elected to use colors different from the defaults (e.g. magenta instead of red), the plot legend graphic will need to be changed manually. See [Section 3.3.2](#) for more information.

3.1.3 Building the Graphic Header for the Risk Plots

A typical Milestone Status Plot is depicted in [Figure 16](#) below. The gray box in the upper right containing the red upside down triangle indicating "FOC" is the Plot Header Graphic.

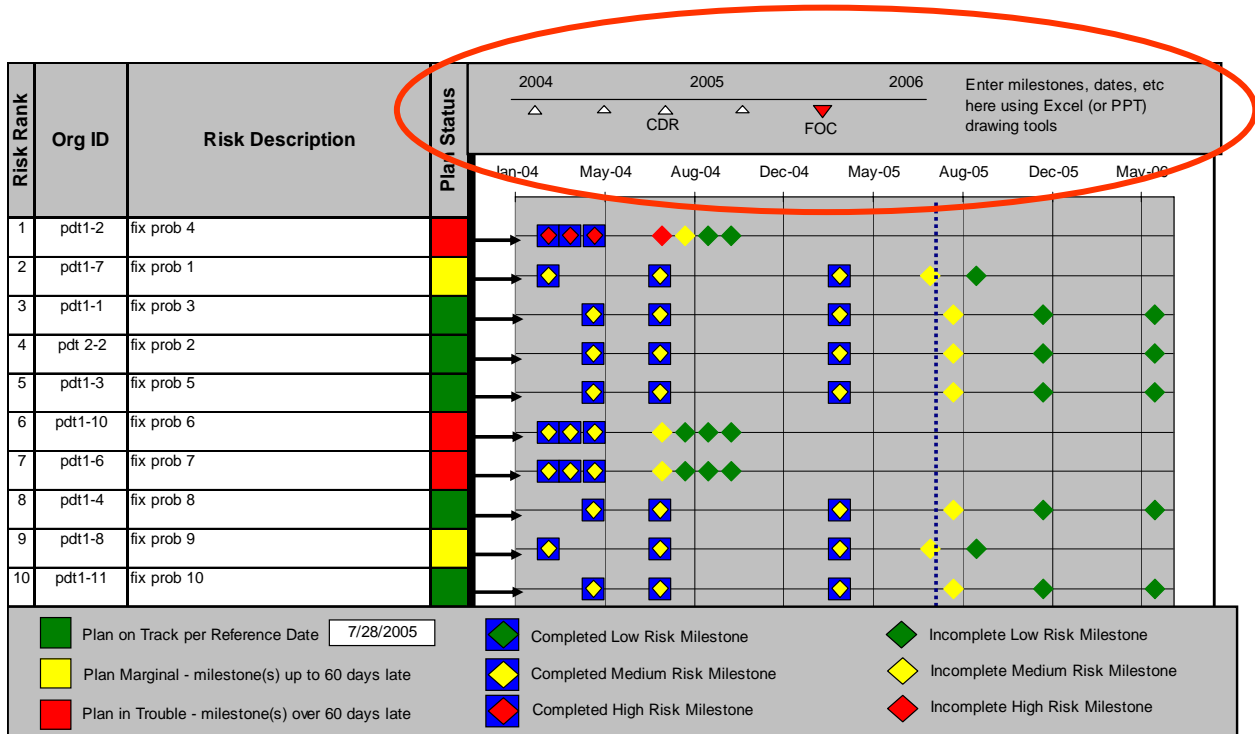


Figure 16: Typical Milestone Status Plot

The Plot Header Graphic is located on the User Input sheet below the risk color matrix input area and can be modified as the user sees fit. The graphic can be left blank or can include whatever the user wishes (e.g. text, markers, pictures, etc.). To modify the graphic, the user should use the standard Excel drawing tools found on the drawing toolbar. For those headers that require date dependent items (e.g. program milestone markers), it is likely that the user will have to align them by trial and error in order to get the placement lined up appropriately with the dates in the plot.

The only constraint on the generation of the header graphic is that the user added objects need to be located entirely within the rectangle. The user can alter the size of the rectangle on the User Input worksheet if they wish, however, Risk Plotter will resize the rectangle when it begins to run so that it matches up with the size of the milestone status plot. The graphic can also be generated in PowerPoint and copied into the Excel file. In either case, take care with the use of text. Both Excel and PowerPoint will resize text in ways that are not readily apparent! This may result in the Plot Header Graphic that is put on the risk plots having incorrect text markings.

Note that Risk Plotter will use ALL the graphic objects on the User Input worksheet when resizing this object so be sure that all graphic objects are within the rectangle area. Objects located outside the rectangle will result in the milestone status plots with faulty formats. Note that if the user deletes the graphic from the User Input worksheet, Risk Plotter will send an error message when it is next run and will put a blank rectangle back onto the User Input sheet for the user to start from.

Once the Plot Header Graphic has been generated, the user is ready to return to the Main sheet and [continue with the Walkthrough](#).

3.2 Risk Data Inputs

Risk Plotter uses the plotting capabilities of Excel to present risk milestone status information in a plot format. In order to do this, the program needs to be able to ingest pertinent risk information from a risk data file. The risk data file would typically be generated automatically by stripping risk milestone data out of a program schedule management database such as an IMS, etc. This section describes what information is required by Risk Plotter and what format the data is expected to be in.

[Figure 17](#) below shows a typical risk data file input format with each column identified with a letter, a header row and an example first line of data. The letter values in each block correspond to the Excel column letters that Risk Plotter expects to find the information in. Each of the data fields is explained by column in [Section 3.2.2](#). As you can see, Risk Plotter requires ~15 - 20 different pieces of information about each risk. Also note that [Figure 17](#) only shows information in columns A through S. In fact, Risk Plotter can use inputs in columns A through Y if necessary. Additionally, the user can move/switch these columns from this default configuration if desired. In that case, Risk Plotter must be provided with the mapping from the default column location to the user defined column location. Implementing this capability is described in [Section 3.3.3](#).

A	B	C	D	E	F	G	H	I	J
id	Org	Org risk id	risk description	progress assessment	risk rank in Org	top 10	mitigation step number	ims task description	risk owner
	junk	7	fix prob 1	unknown	0	-1	1	plan step 1	joe blow

K	L	M	N	O	P	Q	R	S
mit step prob	mit step cons	scheduled completion date	actual completion date	complete 100%	parent	rank in parent	rank in grandparent	rank in great-grandparent
5	5	3/15/2004	2/15/2004	100	space	12		

Figure 17: Risk Input Data Format

3.2.1 General Format Requirements

Risk Plotter, version 7.3, requires that the risk input data file must be an Excel file. Risk Plotter will not currently read any other type of input file (e.g. CSV, etc.). Changes to the program to implement that capability can potentially be obtained by contacting [tech support](#).

Risk Plotter expects that the first row in the risk input data file is a header line, i.e. something akin to that shown in [Figure 17](#) above. Risk Plotter does not care about the content of the header line since it ignores it but it does expect that the first row of the file will contain header data.

Risk Plotter expects all risk milestone data to begin on row number 2 of the file and to continue sequentially by row down to the final risk milestone. No blank line separators are allowed in the file.

Risk Plotter expects that all the rows in default columns B-D, F-I, and K-M inclusive are filled in with risk milestone information, i.e. no blank fields are allowed.

Risk Plotter expects that all rank data will be positive and that user defined risk ranks use 1 as the highest rank and n as the lowest. No zero rank or negative ranks are allowed. Risk Plotter checks default columns F, G and Q-Y for negative or zero rank values and replaces them with blank fields if found.

Default columns A, E and J are ignored and may contain anything.

Default columns O through Z may have blank fields depending on the risk completion status and the user defined relationships between Organizations (parents, grandparents, etc.).

Note that the Risk Plotter software delivery includes a sample risk data input file that can be used to help work through these section.

3.2.2 Data Definitions and Expected Format

[Figure 18](#) shows the expected user data inputs and default column locations. The user can change these default column locations, if required, by modifying a column mapping table on the Reserved sheet as described in [Section 3.3.3](#). Detailed descriptions of the data items in the table are provided immediately following the table.

Risk Plotter Input Data Format Column Definitions			
Data Item Expected in the Column	Is the column used by Risk Plotter?	Default Column for Data Location	Expected Variable Type
N/A	No	N/A	N/A
Org name	Yes	B	String
Org risk id	Yes	C	Integer
risk title/description	Yes	D	String
N/A	No	N/A	N/A
risk rank in Org	Yes	F	Integer
risk rank in top 10	Yes	G	Integer
mitigation step number of current risk milestone	Yes	H	Integer
milestone task description	Yes	I	String
N/A	No	N/A	N/A
risk probability at completion of mitigation step	Yes	K	Integer
risk consequence at completion of mitigation step	Yes	L	Integer
scheduled milestone completion date	Yes	M	Date
actual milestone completion date	Yes	N	Date
milestone completion percentage (blank to 100)	Yes	O	Integer
parent Org name	Yes	P	String
risk rank in parent Org	Yes	Q	Integer
risk rank in grand-parent Org	Yes	R	Integer
risk ranks in older great-xxx-parent Orgs	Yes	S - Y	Integer
INPUTS TO THE RIGHT OF COLUMN Y ARE IGNORED			

Figure 18: Input Data Format Column Definitions

Org name: This column/field contains the name of the Organization (Org) that the current line of risk data applies to. Short names or abbreviations are best since this data is used as a label on some of the output plots. Every line of risk data must have this field filled in. Read as text.

Org risk id: This column/field contains the risk id number for the risk in the Org. Every line of risk data must have this field filled in. Read as integer.

risk title/description: This column/field contains a short risk description/name and is used by Risk Plotter to label risks on plots. Every line of risk data must have this field filled in. Read as text.

risk rank in Org: This column/field contains the rank of the risk within its Org. The rank value should be the same for every milestone associated with that risk. Data is only required in this column if the user has selected User Ranking as the ranking option. Rank order is defined as 1 being the highest risk. If Autorank is selected, this column is ignored. Read as integer.

risk rank in top 10: This column/field contains the rank of the risk within the overall program and is used to generate the top ten set of risks for the program. The rank value should be the same for every milestone associated with that risk. Data is only required in this column if the user has selected User Ranking as the ranking option. Rank order is defined as 1 being the highest risk. If Autorank is selected, this column is ignored. Read as integer.

mitigation step number of current risk milestone: This column/field contains the mitigation step number for the current risk milestone, beginning with 1 and incrementing by 1 until the final milestone for that risk is reached. Every line of risk data must have this field filled in. Read as integer.

milestone task description: This column/field contains a short description of the task associated with the milestone. It is used on the Details sheet to show what events occurred at the milestone 'steps'. Every line of risk data must have this field filled in. Read as text.

risk probability at completion of mitigation step: This column/field contains the risk probability value (1-5 or 1-10 depending on user inputs) that the current risk has at the completion of the current milestone. Every line of risk data must have this field filled in. Read as integer.

risk consequence at completion of mitigation step: This column/field contains the risk consequence value (1-5 or 1-10 depending on user inputs) that the current risk has at the completion of the current milestone. Every line of risk data must have this field filled in. Read as integer.

scheduled milestone completion date: This column/field contains the date that the current milestone is planned/expected to be completed. Every line of risk data must have this field filled in. Read as date.

actual milestone completion date: This column/field contains the date that the current milestone actually was completed. If the milestone has not been completed yet, the field should be blank. Read as date.

milestone completion percentage: This column/field contains the percent that the current milestone is complete. It should range from blank (no progress on milestone) to 100 for a completed milestone. Read as an integer (do not format this field as a percent in Excel!).

parent Org name: This column/field contains the name of the parent Organization that the Organization that owns the current risk belongs to. For the example shown in [Figure 17](#), the current risk is part of the 'pdt1' Org (shown in column B). The 'pdt1' Org is part of a larger/higher level Org, i.e. its parent Org, named 'group3' (shown in column P). If no Org name is present in this field, then the risk will only be plotted as part of the current Org ('pdt1' in this example). Read as text.

risk rank in parent Org: This column/field contains the rank of the current risk in the parent Org. The user defined rank value should be the same for every milestone associated with that risk. Data is only required in this column if the user has selected User Ranking as the ranking option and if there is a relationship to a parent Org desired. If Autorank is selected, this column is ignored. Read as integer.

risk rank in grand-parent Org: This column/field contains the rank of the current risk in the grand-parent Org, i.e. the Org two levels above the current one. For example, in the [Figure 17](#) example above, risks in Org 'pdt1' also belong in their parent Org 'group3'. In the event that the 'group3' Org had a parent Org called 'system 2', all risks from 'pdt1' and 'group3' would be carried in the 'system 2' Org. This column then would contain the ranking information for the 'pdt1' risks in the 'system 2' Org, i.e. the Org 2 levels above the current 'pdt1' Org (the grandparent Org). The rank value should be the same for every milestone associated with that risk. Data is only potentially required in this column if the user has selected User Ranking as the ranking option and if there is a relationship to a parent/grandparent Org desired. If Autorank is selected, this column is ignored. Read as integer.

risk ranks in older great-xxx-parent Orgs: These columns/fields contain the rank of the current risk in successively higher level parent Orgs. No data can be located past column Y, i.e. columns Z and to the right are ignored. The rank value should be the same for every milestone associated with that risk. Data is only potentially required in these columns if the user has selected User Ranking as the ranking option and if there is a relationship to a parent/grandparent Org desired. If Autorank is selected, this column is ignored. Read as integer.

3.3 Reserved Data

Risk Plotter does require some fundamental program information to run. This information is kept in the Reserved worksheet and is comprised of things like:

- a) the graphic used for the plot legends,
- b) the graphic representing the date line on plots,
- c) the column mapping for risk data in the input data file and
- d) the set of worksheet names that Risk Plotter uses.

For most applications, the user should not need to access or modify the data in this worksheet. However, in the event that the user does need to make changes, the worksheet can be accessed and modified. The user should exercise extreme caution in making changes to the Reserved worksheet as an incorrect change can cause the program to fail catastrophically.

3.3.1 Enabling Changes to the Reserved Worksheet

The Reserved worksheet is kept hidden and protected for safety purposes. To access the data in the worksheet, the user must first unhide the worksheet. To do this, simply click on Format/Sheet/Unhide and select the Reserved sheet. In order to make changes, the user will have to actively unprotect the worksheet as well. The user can then make the required changes, re-protect the worksheet and save the file. In addition, Risk Plotter will automatically re-protect and re-hide the Reserved worksheet the next time it is run.

Danger: The user should NEVER make changes to the cell locations or contents of cells in columns A - D, rows 31 - 38 or columns A - G, rows 42 - 69 inclusive under any circumstances!! Changes to those fields will result in the failure of Risk Plotter.

3.3.2 Making Changes to the Plot Legends

Risk Plotter places graphic object legends onto both the [risk summary plots](#) and to the [detailed risk plots](#). The default legend that is placed on the risk summary plot is shown below in [Figure 19](#) while the legend used for the detailed risk plots is shown in [Figure 20](#).

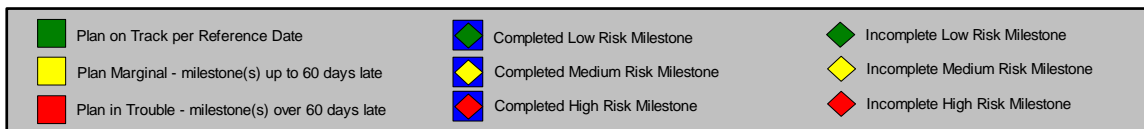


Figure 19: Risk Summary Plot Default Legend

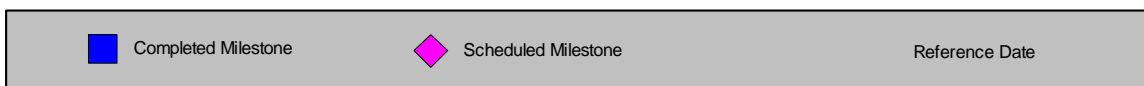


Figure 20: Detailed Risk Plot Legend

In order to make changes to these legends, the user must first enable changes on the Reserved worksheet as described in [Section 3.3.1](#). Once that has been completed, the user can alter the legends as they see fit. However, it is important to note that there are several limitations on allowed changes as described below:

- 1) As with the plot header graphic that the user created on the User Input worksheet, all changes should remain within the rectangle. Risk Plotter will size the legends to fill the plot but assumes that they will be within a rectangle.
- 2) Each of the group objects used as a legend has a specific name, namely “Legend Graphic” for the legend of the risk summary plot and “DetailPlot Legend” for the legend of the detailed risk plot. If the user clicks on one of the legends, that name will be displayed in the Name Box on the Excel input line. These names must be kept *exactly* the same because Risk Plotter uses them internally to refer to the object to place on each risk plot. As such, after the user makes the required changes to the legend and has grouped it into a single group object, the group object should be selected. The user should then move to the Name Box and enter the exact name as shown above followed by hitting Return. This will set the name of the object to the required value.
- 3) Note that the text box containing the date is NOT part of the legends – it is its own separate graphic object called “Date Box”. Risk Plotter places this Date Box on top of the legends in the locations indicated in [Figure 19](#) and to the left of the ‘Reference Date’ text in [Figure 20](#). The user cannot change the placement of

this Date Box in the legend so any modifications to the legends should account for this constraint.

To make changes to the legends, the user must first understand that the legends are a collection of objects that have been “grouped” together using the Draw/Group command on the drawing toolbar. When the user first clicks the cursor on one of the legends, the grouped object will be selected. To make changes, the user should then click on Draw/Ungroup on the drawing toolbar. This un-groups the object and will allow the user to make changes to each graphic component. Make changes to the legend as appropriate.

When the user has completed the changes to the legend(s) of interest, the user must then “group” all the objects comprising each legend together. To do this, the user should select all the objects in the legend (including the rectangle) and then click on “Draw/Group” from the drawing toolbar. The user should then move to the Name Box and enter the exact name of the graphic that was changed (as shown above or on the Reserved sheet) and hit Return.

When all changes have been made, the user should re-protect and re-hide the worksheet.

3.3.3 Making Changes to Input Data Column Mapping

Risk Plotter obtains risk milestone data from a user supplied risk data worksheet by reading in information from specific columns in the Excel worksheet. Risk Plotter assumes that the data type that is in each of the columns conforms to what it expects to find in those columns. This expected relationship between data type and the column where that data exists is called the default column mapping, i.e. it is the mapping between the particular risk data type (such as Org name, risk ID, etc.) and the column in the input data sheet that Risk Plotter expects to find that data in. This default column mapping information is shown in [Figure 18](#).

For added flexibility, Risk Plotter provides the user with the ability to change this mapping. The user can enter the risk data that Risk Plotter expects in any order as long as Risk Plotter is told what column to expect the data in. The only limitation to this remapping of column input data is that all input data must exist in columns A through Y inclusive. Data provided to the right of column Y is ignored.

In order to make changes to the risk input data column mapping, the user must first enable changes on the Reserved worksheet as described in [Section 3.3.1](#). Once that has been completed, the user can alter the mapping by simply entering the column letter that Risk Plotter should use for each of the required data inputs in Column I, rows 44 through 68. [Figure 21](#) below provides an abbreviated look at the table with column I represented in green.

Risk Plotter Input Data Format Column Definitions				
The data item that Risk Plotter expects in the column	Is the column used by Risk Plotter?	Program Column Do NOT Change!! Column Location	Program Column Do NOT Change!! Data Type	User Defined Column
N/A	No	N/A	N/A	N/A
Org name	Yes	B	Text	B
Org risk id	Yes	C	Integer	C
risk title/description	Yes	D	Text	D
N/A	No	N/A	N/A	N/A
risk rank in Org	Yes	F	Integer	F

Figure 21: Risk Input Data Column Mapping

For example, if the users input file was organized such that the risk title/description was located in column A, then the user would enter A in the green field for that row. Risk Plotter would then know to go to column A for that information. When all modifications have been completed, the user should re-protect and re-hide the worksheet.

Under no circumstances should the user alter any of the orange cells!!
Changes to any other column can result in catastrophic failure. Changes should be made to the green colored cells only.

4.0 Risk Plotter Outputs

Risk Plotter reads in risk milestone status information and generates two separate output plot types. These plot types are:

- 1) Risk Summary plots & Top Ten/Program Plots
- 2) Detailed Risk Plots

Risk Plotter generates risk summary plots for all the risks that have been included in the risk input data. The information is sorted by Organization (Org) with each Org having risk data plotted on a separate worksheet in the Risk Plotter workbook. These sheets are named with the Org name. All risks associated with an Org will be plotted on risk summary plots in rank order for that Org.

For Orgs that have children Orgs associated with them (as defined in the input data file), the worksheet for the parent Org will include all the risks of that Org along with the risks from the children Orgs. In addition, Risk Plotter generates a separate worksheet called "Org' Only" which contains the risks from the Org only, i.e. no children risks are included.

Top Ten/Program plots are very similar to the risk summary plots, having exactly the same format. The only difference is that, depending on the user risk flag inputs (see Section 3.1.2), the resulting worksheet in Excel called Top Ten or Program may contain anywhere from a single risk summary plot containing the top ten risks of the program to a set of risk summary plots containing every risk in the program in rank order. Note that this is in addition to the risk summary plots generated for each of the Orgs as described above.

Detailed risk plots are separate and distinct from the risk summary charts. Once the Risk Plotter run has completed, the user can remain in the Excel file and perform more detailed analysis on specific risks using these detailed risk plots. The detailed plots only contain data applicable to a single risk and essentially show the risk burn down plan and the status against that plan as a function of time and risk level.

Both risk summary plots and Top Ten/Program plots are complete once the Risk Plotter run has completed. No changes will occur on those worksheets unless Risk Plotter is rerun. Detailed risk plots can be generated and changed at any time from within the Excel workbook.

Each plot type is described in detail in the following sections. Note that all plot types are available for viewing in the Risk Plotter worksheet at the conclusion of the run. Risk summary plots and Top Ten/Program plots are also copied into a separate, saved PowerPoint file during the Risk Plotter run on user request. Detailed risk plots are accessible only from within Excel since they involve interactive use of Excel features.

4.1 Risk Summary Plots

Risk summary plots are the primary product generated by Risk Plotter. An example is shown in [Figure 22](#) below. The plot provides several pieces of information for each risk in both textual and graphical formats.

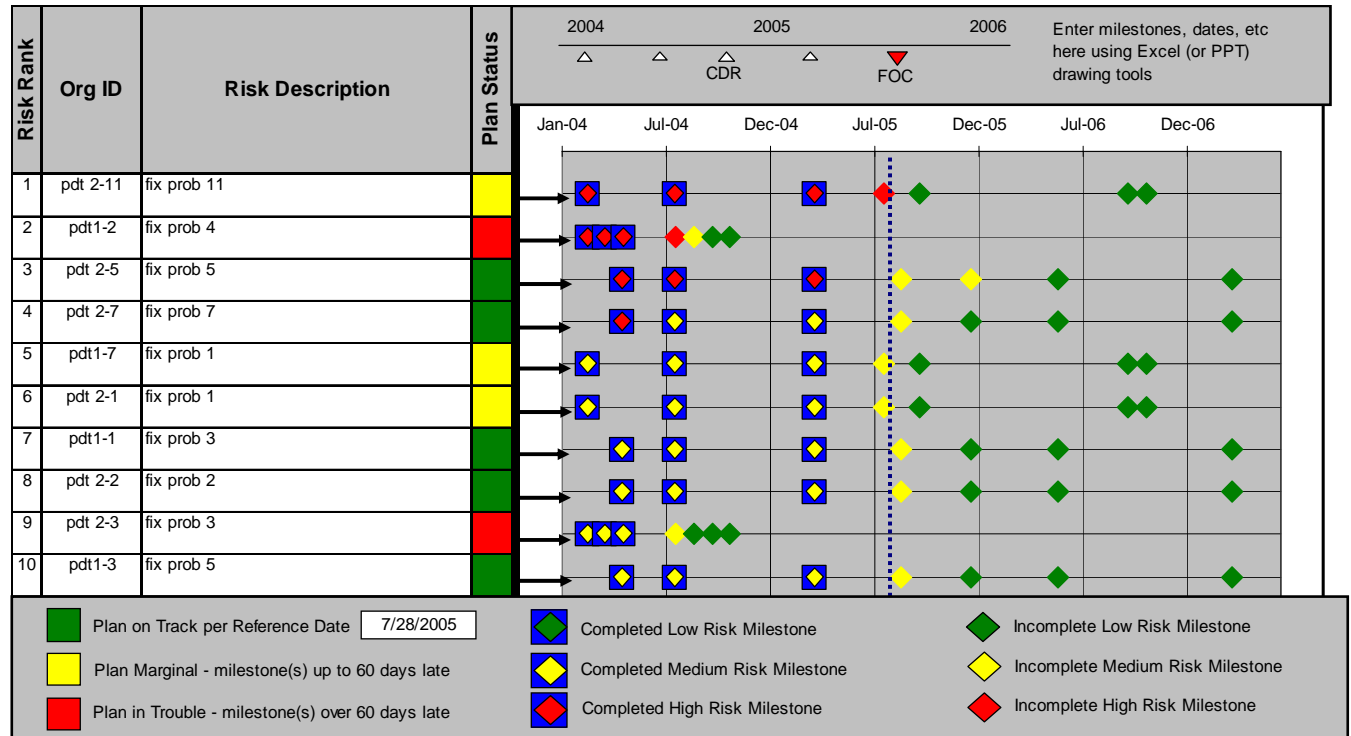


Figure 22: Example Risk Summary Plot

The textual information that is provided includes, from left to right:

- 1) Risk Rank: The rank order of the risk in the Org in the Org with 1 indicating the highest ranked risk and increasing until the final risk with the lowest rank is reached
- 2) Org ID: Used as a risk identifier. It includes the name of the Org that the risk belongs to followed by the ID number for the risk in that Org.
- 3) Risk description: This field contains descriptive text indicating the general content of the risk

The graphical information that is provided includes:

- 1) Plan Status: A measure of the current status of the risk burn down plan. As noted in the legend, a green color indicates that the plan is proceeding according to schedule. A yellow status indicates that the plan is performing marginally with at least one milestone is up to 60 days late. A red status indicates that at plan is in trouble with at least one risk over 60 days late.
- 2) Risk Milestone Burn-down Timeline: A schedule/timeline showing the complete and incomplete risk milestones as a function of time is shown on the plot. The completed milestones are indicated with a blue box surrounding a colored diamond. The diamond color represents the risk level at that particular milestone and is determined by using the risk color matrix input by the user as described in [Section 3.1.2](#). The milestones that are marked as colored diamonds only are not yet completed. **The current risk level for any given risk shown in a plot is the color of the last completed milestone.**
- 3) Reference Date: The burn down timeline includes a dashed vertical line which is located at the reference date on the timeline. The reference date is also depicted in the legend at the bottom of the plot.

4.2 "Top Ten"/Program Plots

The Top Ten/Program risk summary plot shows exactly the same information as described in [Section 4.1](#) above. The only difference is that the Top Ten/Program worksheet contains the plots of the highest ranked risks on the program. See [Section 3.1.2](#) for information on exactly what data is contained in this worksheet.

4.3 Detailed Risk Plot

Risk Plotter also provides the user with the capability to perform a more detailed examination of specific risks. To utilize this function, the user simply clicks on the "Details" button that is located next to the particular risk of interest on either the Org or Top Ten/Program worksheets as seen if [Figure 23](#) below.

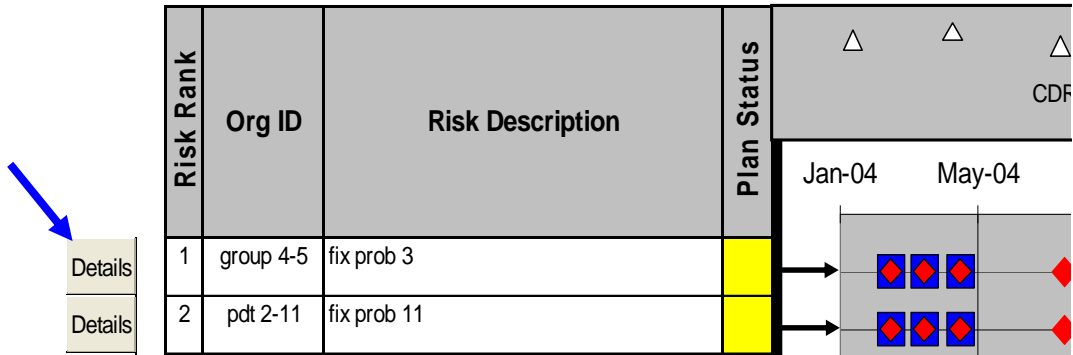


Figure 23: Details Button for Risk Analysis

When the "Details" button is clicked, the user is moved to a new worksheet called "Details". The worksheet contains a risk analysis chart showing the full details of the milestones for that risk which was selected. An example is shown in [Figure 24](#) below.

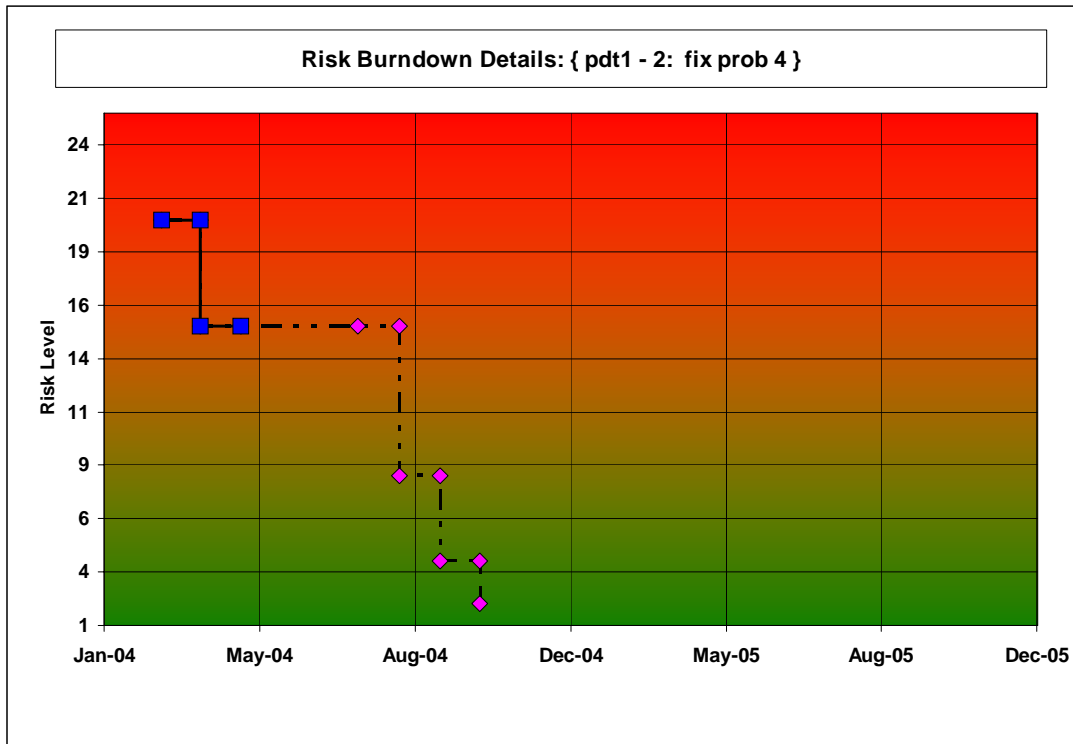


Figure 24: Detailed Risk Plot Example

The purpose of the Detailed Risk Plot is to show the milestone performance and risk burn down performance for one risk. All milestones within the plot date range are shown with the vertical axis representing the level of the risk and the horizontal axis representing time. The risk level for each milestone is computed by using the risk probability and consequence at that milestone along with the user input risk flag selections from Section 3.1.2. The date range of the plot is based on the user input date range defined in Section 3.1.1. The background of the plot is color shaded from red (high risk) to green (low risk).

Milestone performance can be assessed by examining the scheduled and completed milestones. Milestones that have been completed are shown as blue squares and are connected via a solid line. Scheduled milestones are shown as magenta diamonds and are connected via a dashed line. Milestones that completed late, i.e. after their scheduled completion date, will therefore show up as both a blue square and a magenta diamond offset from each other. Note that the example above does not have any late milestones. Risk burn down performance can be assessed by simply examining how the risk level has been reduced over time.

Two additional functional capabilities exist on the Details sheet. The user can toggle both the date span and the milestone description labels by pressing the appropriate toggle buttons to the left of the chart as seen in [Figure 25](#) below.

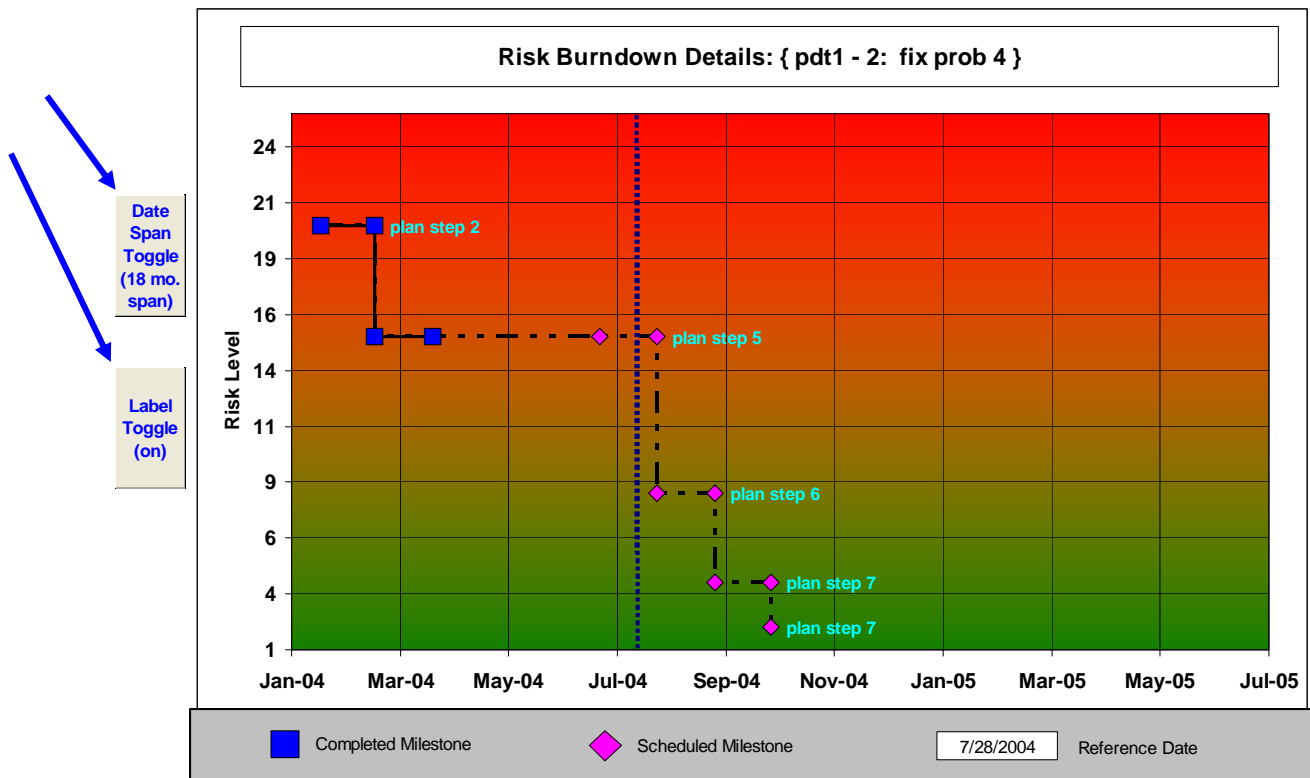


Figure 25: Date and Label Toggle Switches

The date span toggle changes the horizontal axis date range from the one supplied by the user in the User Input worksheet to one that is 18 months long; beginning 6 months prior to the reference date and ending 12 months after the reference date. This allows for a more detailed look at the risk near term milestones.

The label toggle puts milestone description information onto the chart next to the appropriate milestone. Note that due to Excel limitations, milestone descriptions are only put on the chart for milestones that occur at a point where the risk level changes, i.e. at a step. Milestones that do not change the risk level will not have labels applied. The plot below shows the previous plot but with the date range and labels toggled.

4.4 PowerPoint Slides

Risk Plotter provides the user with the ability to automatically copy the risk summary and Top Ten/Program plots into a PowerPoint presentation. Before using this option when running Risk Plotter, the user should define and save a PowerPoint template file (a .pot file). The template file, as described in [Section 4.4.1](#) below, is used as the default background/format for the PowerPoint presentation package containing the risk summary and Top Ten/Program plots.

4.4.1 PowerPoint Template File

Risk Plotter uses a PowerPoint template file as the default background/format for the PowerPoint presentation. This template should exist prior to running Risk Plotter. When building the template, the user should keep in mind the following assumptions. Risk Plotter expects that any classification headers, header graphics, slide title text box and associated graphic underline, etc. are all located in the top 1.5 inches of the chart. At the bottom of the slide, Risk Plotter expects that the footer classification levels, page numbering, etc. occur in the bottom 0.75 inches of the chart. No information should be located on the slide between the header and footer areas. The template may include a title slide, i.e. a title master, however Risk Plotter does NOT add any title slides. When the user has finished building the template, simply save it as a template in a known folder using the "Save As" command. If the user does not select a template for the chart background, Risk Plotter will simply load the charts into a blank presentation.

Note that the Risk Plotter software delivery includes a sample PowerPoint template that can be used and/or modified by the user for their application.

5.0 Troubleshooting, Limitations and Constraints

Almost all Risk Plotter© run-time issues can be attributed to input data file format problems, missing data or outright data entry errors. The first step in solving a run-time problem should be a re-examination of the risk input data file for missing data, empty data fields that should have values, data outside allowable limits, etc. Additionally, ensure that the data format is correct as described earlier. Correcting the erroneous input data and/or format should usually solve the problem.

The user should be aware of the following Risk Plotter limitations and constraints:

- 1) Risk Plotter ignores any data past column Y in the risk input data sheet. If information is located to the right of column Y in the risk input data sheet, the user will get a message indicating that data is present in that area but will be ignored. Risk Plotter only supports up to 9 layers of nested risks.
- 2) The 'Reserved' worksheet is vital to Risk Plotter running properly. The user should use extreme caution when changing information on this sheet! To avoid inadvertent changes, the worksheet is hidden and protected. However, if changes are necessary, the user can unhide and unprotect the worksheet and make the changes as described in [Section 3.3](#).
- 3) The user can change the column locations of the risk input data that Risk Plotter should use. This is done by changing table values on the Reserved worksheet. DO NOT change any of the table values listed in the orange colored columns.
- 4) Risk Plotter is set up to handle a maximum of ~250 milestones per individual risk. This limitation only applies to the use of the "Details" plots. If more than ~250 milestones exist, Risk Plotter will ignore the later ones.
- 5) Risk Plotter is set up to plot risk data for a maximum of 500 different Organizations. If more than 500 Organizations are required, contact the code author for support (see Technical Support below).
- 6) Risk Plotter assumes that all risks in an Org have the same parent Org. Entering different parent Orgs for risks in a single Org will result in anomalous behavior!
- 7) Risk Plotter expects all the milestones for a given risk to be grouped together in ascending date order (i.e. from earliest to latest) in successive rows in the input data sheet. If this is not done, then the outputs may be anomalous.
- 8) One significant bug that the author has not found a solution for occurs when the user tries to run Risk Plotter on a widescreen format (16:9) monitor. For widescreen monitors, Excel and Windows will automatically resize some graphic objects. This

resizing occurs on the completed milestones on the plots, making the completed milestone markers distorted and/or invisible. To work around this problem, either run at the maximum supported resolution on the widescreen monitor or run Risk Plotter on a machine with a standard aspect ratio (4:3) monitor.

6.0 Technical Support

Risk Plotter©, version 7.3, software is delivered in a "use as is" state. Users requiring technical support can obtain it by contacting Integrity Applications Incorporated (IAI) at the address below. The cost of that technical support will depend on the type user support required along with the expected duration of support. Purchase and Support fees are as described in [Section 6.2](#).

Risk Plotter© is a software tool that generates graphical displays of risk management information quickly in PowerPoint slide and Excel formats. Risk Plotter© is primarily a display and analysis tool, generating plots of risk milestone data, providing schedule, risk level, risk status and risk rank information in an easy to use, intuitive display. Risk information can be managed and grouped in a variety of ways, providing the user with the flexibility required to meet their risk management needs. The program is written in the Visual Basic for Applications (VBA) language and requires that Microsoft Excel and PowerPoint are available on the machine used to run Risk Plotter©.

Most Risk Plotter© run problems/errors can be traced to the risk input data file that is generated by the user. Often, that file is not in the format that Risk Plotter© expects. Please ensure that the risk input data file has been double checked for errors prior to contacting tech support.

In the event that this does not solve the problem, contact tech support. **Email is the preferred method** for technical support since problem assessment often requires examination of the risk input data file. If possible, please attempt to email the following items/information to the address listed in [Section 6.1](#) below:

- 1) risk input data file
- 2) any Risk Plotter error messages that are written to the screen during a run
- 3) Risk Plotter software version number
- 4) what computer operating system (NT, XP, etc.) is being used
- 5) which version of Excel and PowerPoint is being used
- 6) contact information (name and phone number) for tech support to respond to

Risk Plotter© was written in Microsoft® Excel and PowerPoint from MSOffice® 2002 and developed using the Windows XP environment. Contact IAI for problems/bugs related to different versions of Excel, PowerPoint or the operating system.

6.1 Tech Support Contact Information:

Company: Integrity Applications Incorporated
Address: 5160 Parkstone Drive
Suite 260
Chantilly, VA 20151
email: riskplotter@integrity-apps.com (preferred contact mechanism)
Telephone: 703-378-8672 and follow the prompts

6.2 Risk Plotter Support and Purchasing Fee Schedules

Technical Support Fee Schedule	
Support Type	Rate
Program enhancements & upgrades	TBD
General support contract (40 hrs./year)	\$2,500

Figure 26: Technical Support Fee Schedule

Risk Plotter©, version 7.3, Purchase Schedule	
Organization	Rate
U.S. Government or Assignees	\$50 per copy
Non-profit Organizations	\$2500 per copy
Commercial Organizations	\$5000 per copy

Figure 27: Risk Plotter Purchase Schedule

7.0

End Use License Agreement (EULA)

IMPORTANT - READ CAREFULLY:

This End-User License Agreement ("EULA") is a legal agreement between you (the purchaser of the license) and Integrity Applications Incorporated (IAI) of the Risk Plotter© software (the "SOFTWARE"), version 7.3, dated 20 December 2005. The SOFTWARE includes computer software, and printed materials. The terms of this printed paper EULA, which may accompany the SOFTWARE, supersede the terms of any on-screen EULA. By installing, copying, downloading, accessing or otherwise using the SOFTWARE, you agree to be bound by the terms of this EULA. If you do not agree to the terms of this EULA, you may not use, copy or distribute the SOFTWARE, and you should promptly contact IAI for instructions on return of the unused product(s) for a refund in accordance with IAI's return policies.

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