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Deltek Acumen 6.0

User Guide

December 8, 2014

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The information contained in this publication is effective as of the publication date below and is subject to change without notice.

This edition published December 2014.

Contents

Overview

The Deltek Acumen software suite consists of three products:

- Deltek Acumen Fuse®
- Deltek Acumen Risk™
- Deltek Acumen 360™

These products work together to provide the analytics and insight necessary for sound scheduling and successful project execution.

Product Feature Overview	Deltek Acumen Fuse®	Deltek Acumen Risk™	Deltek Acumen 360™	Full Software Suite
Integration with All Major Planning Tools				
Schedule Diagnostics	●			●
DCMA 14 Point Assessment	●			●
Schedule Quality Analysis	●			●
Logic Analysis	●			●
Project Benchmarking	●			●
Schedule Cleansing	●	●	●	●
Schedule Risk Analysis		●		●
Cost Risk Analysis		●		●
Forensic Analysis/Schedule Comparison				
Dashboard Reporting	●	●	●	●
Schedule Acceleration			●	●
Schedule Deceleration			●	●
Customizable Metrics	●			●
Customizable Reports	●	●	●	●

If You Need Assistance

If you need assistance installing, implementing, or using the Acumen products, Deltek makes a wealth of information and expertise readily available to you.

Customer Services

For over 20 years, Deltek has maintained close relationships with client firms, helping with their problems, listening to their needs, and getting to know their individual business environments. A full range of customer services has grown out of this close contact, including the following:

- Extensive self-support options through the Customer Care Connect Web portal.
- Phone and email support from Customer Care analysts
- Technical services
- Consulting services
- Custom programming
- Classroom, on-site, and Web-based training

Find out more about these and other services from the Customer Care Connect site.

Customer Care Connect Site

The Deltek Customer Care Connect site is a support Web portal for Deltek customers who purchase an Ongoing Support Plan (OSP).

The following are some of the many options you have at the Customer Care Connect site:

- Download the latest versions of your Deltek products
- Search Deltek's knowledge base
- Ask questions, exchange ideas, and share knowledge with other Deltek customers through the Deltek Connect Customer Forums
- Display or download product information, such as release notes, user guides, technical information, and white papers
- Submit a support case and check on its progress
- Transfer requested files to a Customer Care analyst
- Use Quick Chat to submit a question to a Customer Care analyst online
- Subscribe to Deltek communications about your Deltek products and services
- Receive alerts of new Deltek releases and hot fixes

If you need assistance using the Customer Care Connect site, the online help available on the site provides answers for most questions

Access Customer Care Connect

To access the Customer Care Connect site, complete the following steps:

1. Go to http://support.deltek.com.
2. Enter your Customer Care Connect **Username** and **Password**.
3. Click **Log In.**

If you do not have a username and password for the Customer Care Connect site, contact your firm's Acumen Administrator.

If you forget your username or password, you can click the **Account Assistance** button on the login screen for help.

Additional Documentation

The following table lists the additional Deltek documentation available for this release. Except where noted, all the user guides and quick reference guides listed in this table are available for download using Deltek Software Manager (DSM), available from the Deltek Customer Care Connect site.

Document Name	Description
Deltek Acumen Technical Installation Guide	This guide contains technical installation and setup information for the staff at your company who maintain the hardware and software required to install Deltek Acumen.
Deltek Acumen API Guide	This guide provides information about the Deltek Acumen API and how to integrate with different platforms to create custom reports.
Deltek Acumen Metric Developers Guide	This document is a reference and guide for Acumen Software users looking to develop and customize advanced metrics within Acumen.
Deltek Acumen RiskBook	This document includes information for setting up and using RiskBook. Most of this information is also included in the User Guide.
Deltek Acumen Historical Release Notes	This document includes information about features and resolved issues from previous releases.

Navigate Through the Acumen Suite

Use the tabs at the top of the software to navigate throughout the product suite. Each tab relates to a particular level of the Acumen schedule maturity framework which is a series of 5 stages that result in a validated, risk-adjusted, and team-approved schedule.

See Improving Project Plans using a Schedule Maturity Framework for more information.

Acumen Suite Tabs

Tab	Description	Available in these Acumen products		
		Fuse	Risk	360
S1 // Projects	Create and maintain project workbooks. Use to import, view, and edit project data.	●	●	●
S2 // Diagnostics	This includes the main Acumen Fuse view and is used to conduct analysis.	●		
S2 // Logic	Advanced logic checks.	●		
S2 // Benchmarking	Comparison of project data to cloud-based database of similar projects.	●		
S3 // Risk	Monte-Carlo risk analysis, risk register, and reporting.		●	
S4// Acceleration	Define acceleration goals and criteria.			●
S5 // Dashboard	Reporting dashboard.	●		
Forensics	Compare multiple snapshots or historical instances of a project(s).	●		●
Metrics	The metric editor for maintaining custom metrics.	●		
Fields	Tab for defining custom field mappings when importing project data.	●	●	●

Navigating Between Tabs

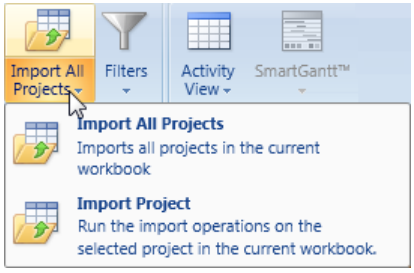
Use the Ribbon Navigation menu bar to navigate between tabs.

You may not see all tabs. The tabs that display depend on the products that you have licensed as well as your security settings.

Menu Items with Additional Options (Shortcut Menu)

Some of the menu items on the tabs have additional options. You can tell which by looking for the down arrow in the bottom right corner of the icon. If an arrow is visible, then that menu item has a drop-down menu with additional options.

When you read the steps in this guide, if it doesn't specifically state to click the down arrow, then you should click on the top portion of the icon to run the process.

Where You Click the Icon	Description
	Click the top portion of the icon to run a process.
	Click the bottom half of the icon, or the drop-down arrow on the bottom right corner of the icon, to display a drop-down menu with additional options.

File Management Features

Click the icon in the top left corner of the product to access the File management features:

- **New** — Create a new workbook.
- **Open** — Open an existing workbook.
- **Save** — Save an existing workbook.
- **Save As** — Save a workbook by entering a file name.
- **Print** — After you have run a Fuse analysis, you can use this option to print, for example, an Executive Briefing report.
- **Close** — Close the current workbook.
- **Deltek Acumen Options** — Open the Deltek Acumen Options dialog box.
- **Exit Deltek Acumen** — Close Acumen. If you have unsaved work, a message displays asking if you want to save your workbook.

Set Deltek Acumen Options

The Deltek Acumen dialog box allows you to set your user preferences and options.

To access the Deltek Acumen Options dialog box, complete the following steps:

1. Click  in the top left corner of the Acumen window.
2. At the bottom of the pane, click **Deltek Acumen Options**.

The Deltek Acumen Options Tabs

General Tab

The General tab allows you to:

- Check for product updates and set Acumen to automatically check when starting
- Set default folders, libraries, and templates
- Set field mapping options
- Install Add-Ins

User Interface Tab

The options on the User Interface tab are as follows:

Analysis tab

- **Default Font Size** — Use this option to set the default font size.
- **Show Long Date Format** — If you select this option, the date format displayed in Acumen changes from **MM/DD/YYYY** to **MM/DD/YYYY HH:MM:SS AM/PM**.
- **Hide Empty Ribbons** — Hide ribbons on the S2 // Diagnostics tab that have no data.
- Calculate Score using metric based score instead of activity based score

Forensics

- **Hide empty Forensic Analyses** — Use this option to hide Forensic Analysis fields that have no variance.

See Viewing the Forensic Analysis Report for more information about these fields.

Scorecard

Set Scorecard upper and lower values.

Fluent UI

Specify the project import options that you want to see on the S1 // Projects tab in the Get External Data From menu.

Language

Set language, date and time formats.

Platforms Tab

Use the Platforms tab to connect to and set options for project management platforms.

General

- **Import Code Field Values as** — Use this option to specify whether you want to import the code field values as a value or description.

Oracle Primavera Project Management P6

- **Calculate Baseline Values From** — Use this option to specify whether you want to calculate baseline values from planned or current values.
- **Web Service Timeout (seconds)** — Use this option to set the number of seconds before the web service times out. The default is 300.

Microsoft Project

- **Activity Comparison Field** — Use this option to specify the field that Acumen Forensics should use to uniquely identify an activity. You can select **UniqueId**, **Id**, **Guid**, or **WBS**.
- **Load MPP files directly without requiring Microsoft Project** — If you do not have Microsoft Project installed, you can select this option to specify that Acumen should import the MPP files directly. Direct loading is faster but less reliable than using Microsoft Project.
- **If the "Acumen ID" field is present, map it to "Id" —** This option modifies the default mapping when Acumen imports a project from Microsoft Project. Microsoft Project does not have an equivalent to Acumen's **ID** field. Selecting this option allows Acumen's ID fields to be preserved when a project is:

    1. Exported from Acumen to a Microsoft Project XML file.
    2. Edited in Microsoft Project.
    3. Exported from Microsoft Project.
    4. Re-imported into Acumen.

    When Acumen exports data for Microsoft Project, it creates a user-defined field called **Acumen ID**. When Acumen imports a project from Microsoft Project, it looks for the user-defined field called **Acumen ID**. If you select this option, values from the **Acumen ID** field are loaded into Acumen's **ID** field, thus preserving the content.
- **Import external activities —** Microsoft project supports cross-project links. A cross-project link is a relationship between an internal activity (an activity in the current project) and an external activity (an activity in another project). If you select this option, Acumen imports the cross-project links and their external activities.

Deltek Open Plan

- **Username / Password** — Enter your username and password in these fields so that you don't have to enter them every time you import an Open Plan project.
- **Import Code Field Definition as** — Use this option to specify whether you want to identify imported Open Plan code field using their description, name, ID, or a prompt. If you select prompt, then you will be asked to specify your choice every time you import a project. You can view the code fields on the Fields tab in the Source fields area.

Deltek RiskBook

When you purchase a RiskBook license, Acumen should automatically be set up to publish a risk register to RiskBook. If you need to manually enable RiskBook in Acumen, you will need to enter your Kona Business token information into these fields.

- Redirect URI
- Client ID
- Client Secret

See The Kona Business Token for steps on how to obtain the information needed in these fields, or contact your Kona Business Administrator or Kona Support (support@kona.com), or you can log a case at: http://support.kona.com/tickets/new.

Contact Us Tab

The Contact Us tab includes:

- A link to the Deltek website.
- The Deltek Headquarters address.
- Email and telephone information for Customer Support and general inquiries.

About Deltek Acumen tab

Use the About Deltek Acumen tab to:

- View the software version number.
- Opt-in to Deltek Acumen Cloud.
- View License Terms.
- Reset your license.

Getting Started

There are three main tasks you need to complete before you can begin analyzing data in Acumen:

All three tasks are performed on the S1 // Projects tab.

See The S1 // Projects Tab for more information about this tab.

Optional steps prior to importing include:

- Add snapshots.
- Convert snapshots to projects.
- Merge multiple data sources into a single dataset.
- Filter project data prior to import.

Acumen Workbooks

Workbooks are the core files within Acumen. They contain all analysis information including:

- Imported project data
- Metric libraries and metrics
- Analysis Views
- Custom field mappings

A single workbook can contain multiple analysis views. For example, you may have an analysis view designed for cost analysis and a second analysis view for risk exposure analysis in the same workbook.

When you open or create a workbook, it displays on the S1 // Projects tab in the Projects pane. The default file name for a new workbook is **Workbook1 (0)**. When you save the workbook, the name in the Projects pane changes accordingly. The number in parenthesis next to the workbook name indicates the number of activities that are contained within the workbook. A new workbook contains no activities until you link to an external data source and import a project.

Workbooks are stored as single files, either on a local or network drive.

Only one workbook can be open at a time within Acumen.

Integrate With Project Management Platforms

Acumen integrates with multiple project management platforms. Each Acumen workbook can contain projects from any of the following platforms:

- MS Project, MS Project Server
- Primavera P6
- Primavera P3
- Oracle Pertmaster/Risk Analysis
- Asta PowerProject
- UN/CEFACT XML
- Deltek Open Plan®
- Deltek Cobra® (Earned Value)
- Deltek Risk+
- ARES PRISM G2
- Phoenix Project Manager
- Safran Project 5

In addition, Acumen provides flexible customizable integration with MS Excel. The Excel integration enables you to import data in almost any format from an Excel spreadsheet.

You can analyze data from any discipline (for example, cost, schedule, risk, earned value, performance) within Acumen.

See Appendix A: External Data Sources to see specific setup information and steps for each external data source.

Workbook File Format

Acumen workbooks use the standard file format; a proprietary, high-performance format that is the recommended format for analyzing large project files. Standard files have an **.afw** file suffix. You can share these files via file sharing, e-mail, and so on, but the content of the file cannot be edited outside of Acumen.

Set the Default Workbook Folder

To set the default workbook folder, complete the following steps:

1. Click  .
2. At the bottom of the pane, click **Deltek Acumen Options**.
3. On the General tab, in the Folders, Libraries and Templates group **Default Workbook Folder** field, browse to and select the default folder.
4. Click **OK**.

Create a New Workbook

To create a new workbook, complete the following steps:

1. Click  .
2. In the drop-down menu, click **New**.

   If you already have a workbook open, you will be asked if you want to save the open workbook before your new workbook is created.

   Acumen adds a new workbook, titled **Workbook1 (0)**, to the S1 // Projects tab Projects pane.

Open an Existing Workbook

To open an existing workbook, complete the following steps:

1. Click .
2. In the drop-down menu, click **Open**.
3. In the Open dialog box, browse for and select the workbook.

   Only one workbook can be open at a time. If you already have a workbook open, you will be asked if you want to save the open workbook before you open a different one.

   Acumen adds the workbook to the S1 // Projects tab Projects pane. The number in parenthesis indicates the number of activities that are contained within the workbook.

Save a Workbook

To save a workbook, complete the following steps:

1. Click .
2. In the drop-down menu, do one of the following:
   - If this is an existing workbook, click **Save**.
   - If this is a new workbook, click **Save** or **Save As**. In the Save As dialog box:
     a. Navigate to your preferred folder.
     b. In the **File name** field, enter a name for the workbook.
     c. Click **Save**.

   The name of the workbook in the S1 // Projects tab Projects pane changes to the new file name.

Link To External Data Sources

After you have created a new workbook, you can link to external data sources using the Get External Data From menu on the S1 // Projects tab. You create links and mappings between your workbook and one or more data sources in order to determine the project data source. Linking is the precursor step to importing the data.

A workbook can have an unlimited number of links to external sources. After an external source is linked, default field mappings are applied between the source data and the Acumen workbook. These mappings are fully configurable.

- See Appendix A: External Data Sources for specific setup and linking information for each data source.
- See Custom Field Mappings for field mapping information.
- See Customize the “Get External Data From” Menu for more information.

Project and Snapshot Links

Links to data sources can either be projects or snapshots within a workbook. During an analysis, it is often useful to reference summated values within a workbook; for example, total workbook cost or duration. If the workbook contains different projects, then such a summation is straightforward. However, if the workbook contains, for example, two versions of the same project, then it is not valid to assume that the total workbook cost is the sum of both projects.

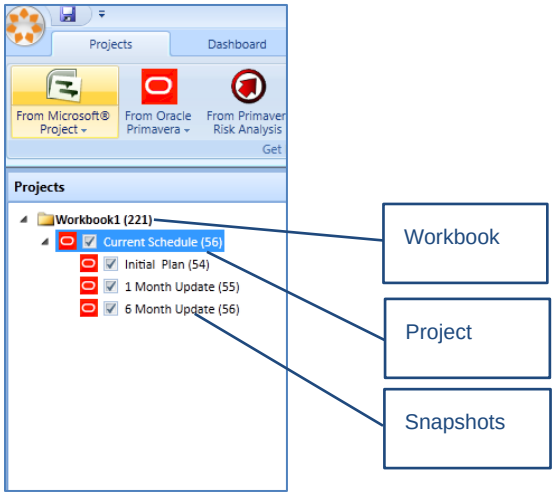
By flagging a project as being a project or a snapshot of a parent project, the analysis engine is able to correctly calculate workbook level totals.

A project link is the most common type of link within a workbook. A project link treats the linked data as a normal project, including all data in workbook summary calculations.

Snapshots are versions of a project file. This enables comparisons between versions of a single project file to be carried out without accidental 'double-dipping' of data during analysis. Snapshot links belong to project links and cannot exist outside of a project link. A snapshot link is used to flag the project data as being a version of the parent project. Not all the data from a snapshot-linked project gets rolled up to the workbook level when the analysis engine calculates workbook-level metrics.

A snapshot of a project does not have to originate from the same source type as that of its parent project. For example, your current schedule may be stored in Primavera P6 whereas a previous version of the project may have been created, and linked to in Acumen, in MS Project.

A project can contain one or more snapshots and a workbook can contain one or more projects.



Create a Project Link

The steps below are general steps for linking to an external data project. See Appendix A: External Data Sources for specific setup information and steps for each data source.

To create a project link in a workbook, complete the following steps:

1. Click .
2. Click **Open** to open an existing workbook or click **New** to create a new workbook.
3. In the Get External Data From menu, select the project data type.

   Depending on the data source selected, you may need to click the down arrow next to the data source menu item and select an option. See Appendix A: External Data Sources for descriptions of the options specific to each data source.

4. In the Open dialog box, select the project(s) to which you want to link and click **Open**.
   - Select a project file, then hold down **SHIFT** to select multiple contiguous project files.
   - Select a project file, then hold down **CTRL** to select multiple non-contiguous project files.

The projects are listed in the Projects pane under the workbook. The zero in parenthesis to the right of each project tells you that no activities have been imported yet for that project. This number will change when you import your project data.

The checkbox next to each project indicates whether the project is included or excluded from ribbon analysis.

See Include/Exclude Projects from Analysis for more information.

5. If needed, repeat steps 3 and 4 to add additional project links to the workbook.
6. After you add your project links, you can choose to:
   - Add snapshots.
   - Convert snapshots to projects.
   - Merge multiple data sources into a single dataset.

   Steps for the above processes are listed below.

You can add and convert snapshots and merge data sources at any time, before and after you import your data.

When you are done, your next step is to import your project data.

Add a Snapshot to a Project

To add a snapshot to an existing project, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Projects pane, select the project to which you want to add a snapshot.

By selecting a project in the list of projects prior to linking to a new source, you are automatically designating the newly linked project to be a (child) snapshot of the selected project.

3. In the Get External Data From menu, select the project data type.

The steps from this point are the same as when you link a project to workbook. See the Create a Project Link topic above for steps.

Convert a Snapshot to a Project

To promote a snapshot to become its own project, complete the following steps:

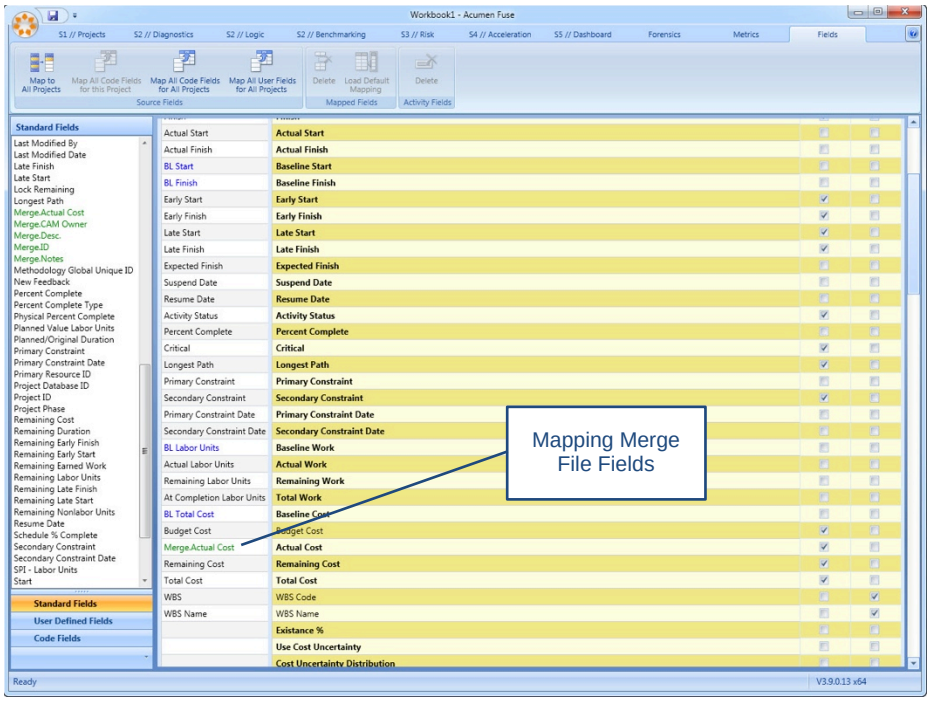
1. Select the S1 // Projects tab.
2. In the Projects pane, select the snapshot.
3. In the Editing menu, click **Convert Snapshot to Project**.

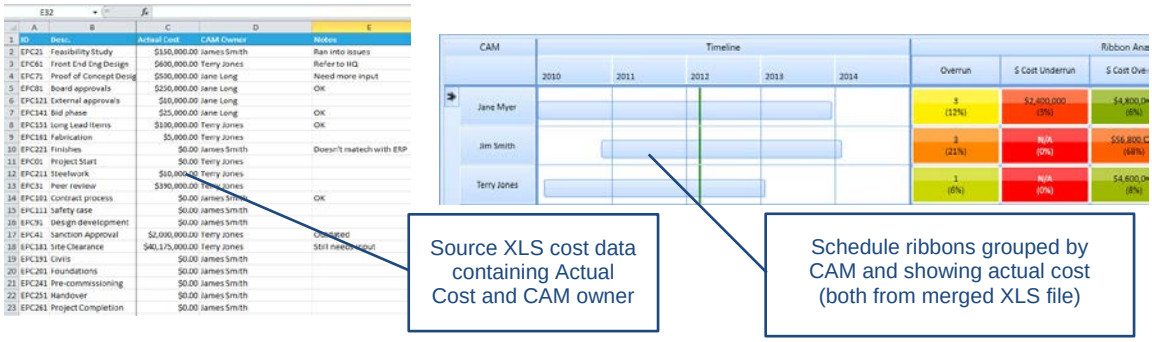
Merge Multiple Data Sources into a Single Dataset

Acumen includes a utility for merging datasets from different sources into a single set of data that can subsequently be analyzed. You can use this integration feature to combine cost and

schedule information. For example, Acumen can merge a cost estimate from Excel with a schedule created in MS Project or Primavera.

Non-standard fields can also be imported/merged by drag-dropping the merge fields into the Acumen field list in the field mapping view. Available mapped fields are displayed in the source field list highlighted in green. The merge file must have a column called ID in order to bind the merge data with activities in the Acumen workbook.





To create a merge file, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Projects pane, select the project or snapshot file to which you want to merge data.
3. Right click on the project and select **Merge with Excel File**.
4. In the Add File dialog box, select the Excel file and click **Open**.
5. In the Excel Merge dialog box:
   a. Select the worksheet you want to merge with the project.
   b. Select the column that matches the ID field in your project.

c. Click **OK**.

6. In the Import menu, click the **Import All Projects** down arrow and select **Import Project** to complete the merge.

The data merge occurs when the parent project data is imported into Acumen. After it is merged, the combined dataset can be exported from Acumen using the **Export to Excel** button in the project workbook view.

Merging is not limited to cost/schedule. Any dataset that has an ID structure that corresponds with the activity IDs in the main dataset can be merged. If the field headings in the XLS merge file correspond to field names in the Acumen file, they will be auto-mapped (merged).

Import Project Data

After you have defined your workbook by linking projects and adding snapshots, you are ready to import the data. You can choose to import all data in a workbook, or only certain projects.

Importing project data will override any existing versions of previously imported data for the project(s) in question.

After import, the project data is stored within the Acumen workbook. Subsequent importing is not necessary to conduct repeated analysis. Reimporting is only required if you want to analyze newly updated data that has changed in the source application.

Filter Project Data Prior to Import

When importing project data, you can use the Import menu **Filters** feature to filter the type of information that is imported into your Acumen workbook. Filters can be applied based on:

- Activity type — Normal, milestone, summary, Level of Effort (LOE)
- Status — Complete, in progress, planned
- Resource assignments

You can apply different filters to each project or snapshot within a workbook.

To import all projects in the workbook, complete the following steps:

1. Select the S1 // Projects tab.
2. (Optional) In the Projects pane, select a project/snapshot and apply filters.
    a. In the Import menu, click **Filters**.
    b. Deselect any filters that you don't want applied to the imported data for the selected project.
    c. Repeat step 2 for each project to which you want to add a filter.
3. In the Import menu, click **Import All Projects**.

    The data is imported and the number in parenthesis to the right of each project displays the number of activities that have been imported for each project.

To import a single project or snapshot, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Projects pane, select the project or snapshot.

3. (Optional) In the Import menu, click **Filters** and deselect any filters that you don't want applied to the imported data for the selected project.
4. In the Import menu, click the **Import All Projects** down arrow and select **Import Project**.

The data is imported and the number in parenthesis to the right of the project displays the number of activities that have been imported for that project.

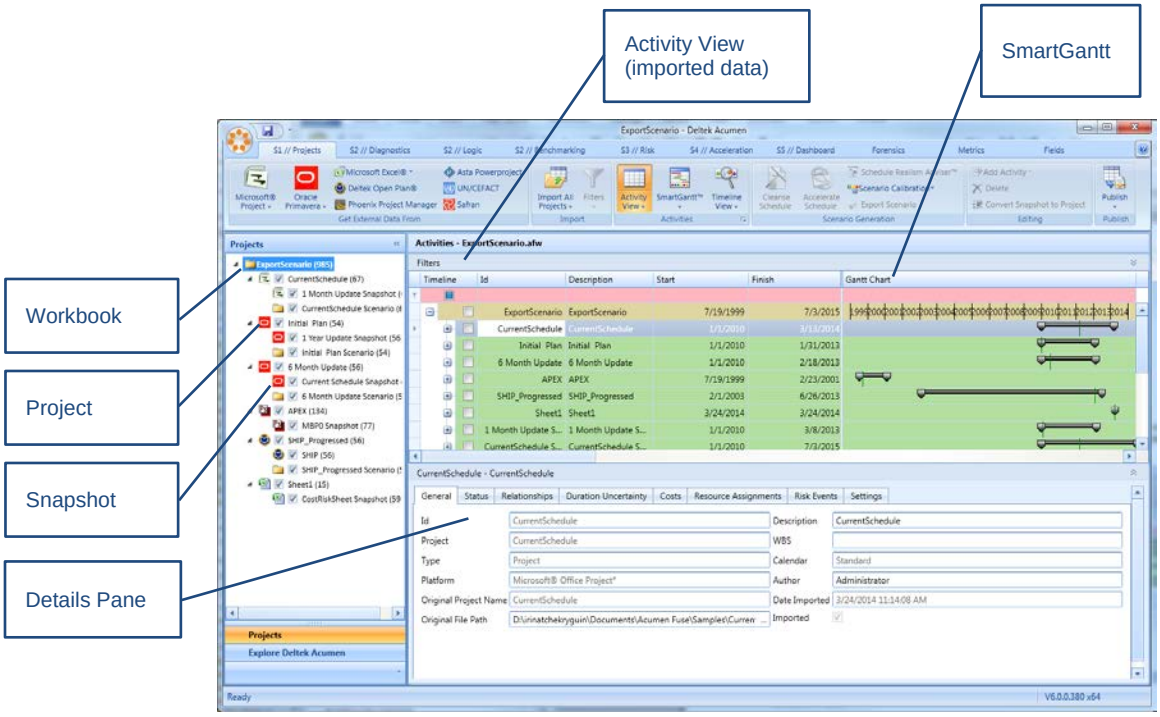
View and Edit the Schedule

The S1 // Projects Tab

Use the S1 // Projects tab to:

- Set up Acumen workbooks
- Link to and import external data
- Manipulate schedules
- Create scenarios

See Getting Started for information about Acumen workbooks, linking to external data sources, and importing projects.



The S1 // Projects tab includes several areas and panes:

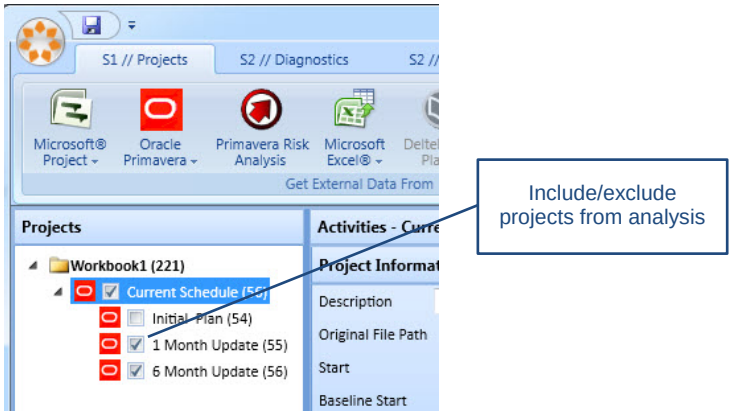
- **Projects Pane**:
  - **Workbook** — Workbooks are the core files within Acumen. They contain all analysis information. See Acumen Workbooks for more information.
  - **Project** / **Snapshot** — Links to data sources can either be projects or snapshots within a workbook. A project link treats the linked data as a normal project, including all data in workbook summary calculations. A snapshot link is used to flag the project data as being a version of the parent project. See Link to External Data Sources for more information.
- **Activity View** — The Activity view is the standard view after importing a project. This view displays all activities, grouped hierarchically by Work Breakdown Structure (WBS),

along with each activity attribute including start/finish dates, remaining duration, calendar, and activity status. See Activity View for more information.

- **SmartGantt** — The gantt chart view allows you to view metric results, activity progress, uncertainty settings, or modification such as activity acceleration, directly on the schedule. See SmartGantt for more information.
- **Details Pane** — Use the tabs in the Details pane to view and edit project, activity, and WBS information. See Edit the Schedule Using the Details Pane for more information.

Include/Exclude Projects from Analysis

While an Acumen workbook can contain an unlimited number of projects and snapshots, you can control which of these projects/snapshots get included in analysis. Use the checkboxes to the right of the project icons in the projects pane to include/exclude projects from analysis.



View Start and Finish Milestones

If your scheduling tool differentiates between start and finish milestones, then when you import a project, Acumen maintains that differentiation for metric analysis. You can see whether a milestone is a start or finish milestone using the Activity Type Ex column.

To add the Activity Type Ex column to see whether a milestone is a start or finish milestone, complete the following steps:

1. Select the S1 // Projects tab.
2. Right-click on an activity column name and click **Show Column Chooser**.
3. Drag the **Activity Type Ex** column from the Column Chooser list to the Activities pane and place it between two existing columns.

   Acumen will remember your selection and display this column the next time you view this project.

4. Close Column Chooser.
5. If you have activity milestones, and as long as your scheduling tool differentiates between start and finish milestones, this column will display **Start Milestone** or **Finish Milestone**.

Customize the “Get External Data From” Menu

You can add or remove icons in the Get External Data From menu so that you only see the import types that you need. The first time you access Acumen, an External Tools for Acumen

dialog box displays where you can select or deselect options. For subsequent changes, use Deltek Acumen Options.

To add or remove icons from the Get External Data From menu, complete the following steps:

1. Log into Acumen.
2. Click  .
3. Click Deltek Acumen Options.
4. Select the User Interface tab.
5. In the Fluent UI group, use the checkboxes to select or deselect a tool. If you deselect it, the tool icon will not display in the Get External Data From group.
6. Click **OK**.

Set Display Units

Workbook duration and work data can be displayed in either days or hours. Irrespective of the display units selected, the analysis engine will always calculate results to the nearest minute.

In addition, you can set the default duration per time period. This is used when converting the default duration units for displaying durations in Acumen.

The Display Settings menu includes the following options:

- **Duration Time Unit** — Hours or Days (default)

  When Acumen imports or exports a risk register, the activity duration field units display in the unit that you have set in this field.

  See Import and Export Risk Registers for more information.

- **Work Time Unit** — Hours (default) or Days
- **Hour Per Time Unit** — Hours/Day (default is 8)
- **Elapsed Durations Time Unit** — Hours, Days, Weeks (default)
- **Culture** — Currency Symbol (default is $)

To set the display units, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Activities menu, click the Activity View down arrow and click (or hover over) **Display Settings**.
3. Select or change settings as needed. The information is saved as soon as you enter it.

Activity View

The Activity view is the standard view after importing a project. This view displays all activities, grouped hierarchically by Work Breakdown Structure (WBS), along with each activity attribute including start/finish dates, remaining duration, calendar, and activity status. Use the scroll bar at the bottom of the screen to view all of the details for each activity or group of activities.

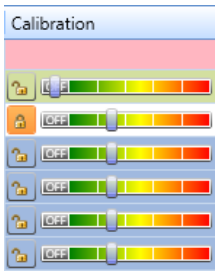
External Activities

If you have imported external activities from Microsoft Project, they display in gray. If you select one, you can see the predecessor/successor information on the Activity Relationships tab.

See Import External Activities in *Appendix A: External Data Sources* for more information.

Calibration

Each activity row includes a duration calibration slider.



By default these sliders have 6 calibration levels:

- **Off** — No calibration applied
- **Dark Green** — Requires Much Less Time
- **Light Green** — Requires Less Time
- **Yellow** — Realistic
- **Orange** —Requires More Time
- **Red** — Requires Much More Time

Padlock

You can use the padlock to the left of the calibration slider to lock the setting for that activity. When you move the calibration slider for a parent activity, the sliders for any child activities that are not locked will move to the same location as the parent activity. Those activities that are locked will remain where they are.

Scenarios

You can only use calibration on scenarios.

To create a scenario, complete the following steps:

1. Select the S1 // Projects tab.
2. Select a project in the Projects pane for which you want to create a scenario.
3. In the Scenario Generation menu, click the **Scenario Calibration** down-arrow then click **Create Scenario**.

You can change the calibration levels by completing the following steps:

1. Select the S1 // Projects tab.
2. In the **Scenario Generation** menu, click **Scenario Calibration » Calibration Template**.

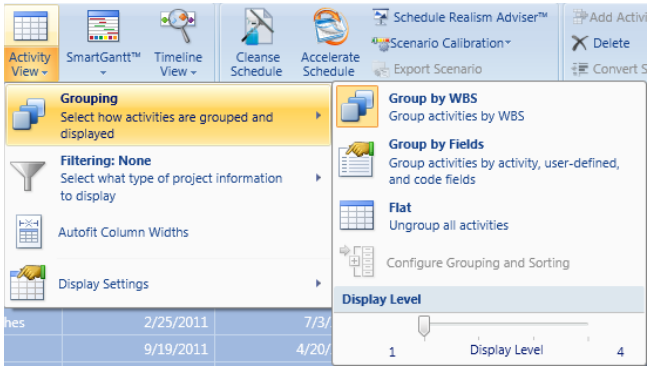
3. Use the Calibration Template Editor to edit the settings/levels.

See Use Calibration to Manipulate the Schedule for more information about calibration.

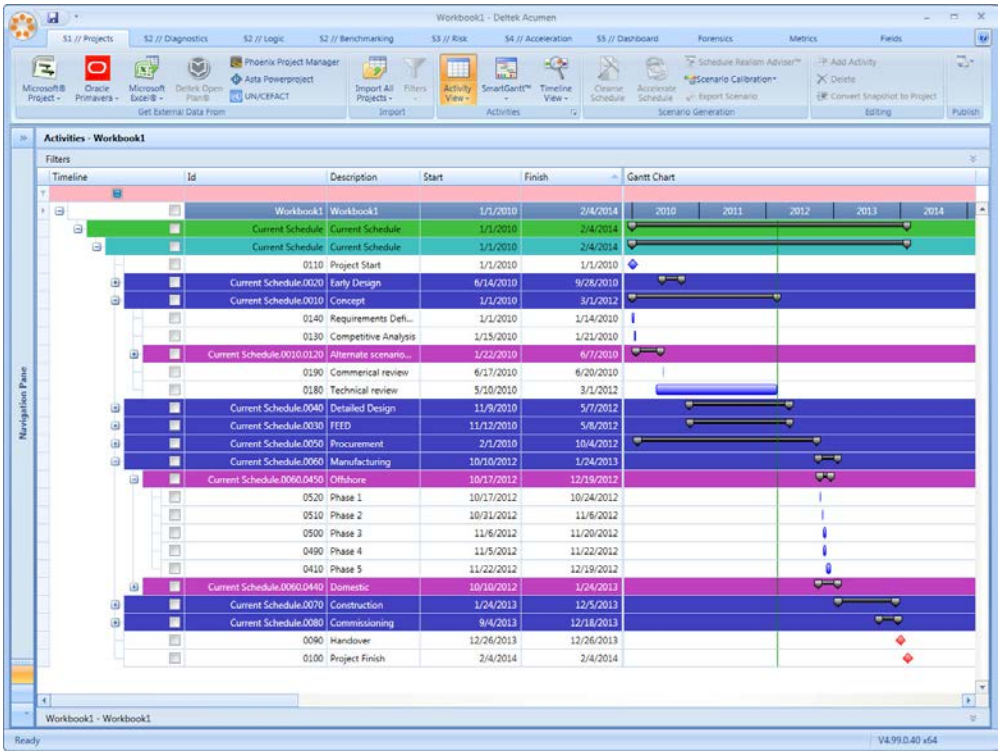
Activity Grouping

To group activities, complete the following steps:

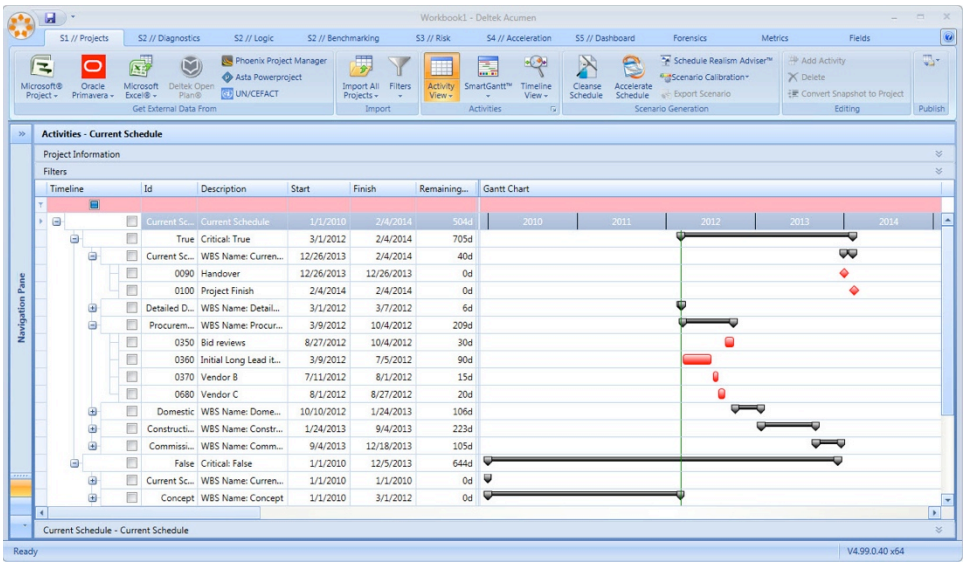
1. Select the S1 // Projects tab.
2. In the **Activities** menu, click the **Activity View** drop-down arrow and select **Grouping**.



3. Select the grouping type:
   - **Group by WBS** — This option displays the activities by the project WBS hierarchy.



- **Group by Fields** — Grouping by fields allows you to create a structure based on existing fields within your project file. For example, you could view all critical activities within a certain contractor by first grouping by Critical/Non-Critical and then by Contractor. The screenshot below shows the view grouped by critical/non-critical and then by WBS.

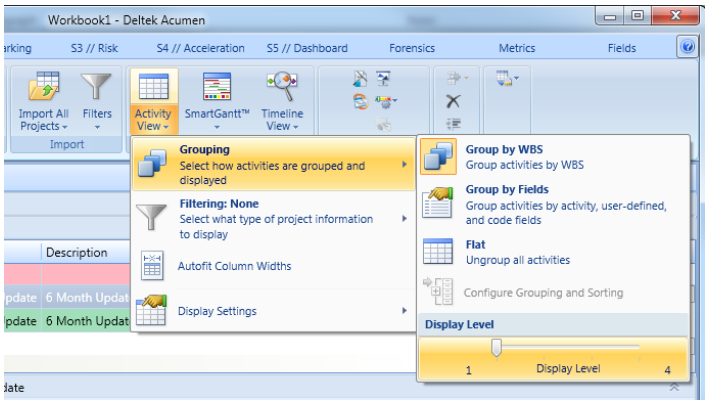


To ungroup activities, complete the following steps:

1. Select the S1 // Projects tab.
2. In the **Activities** menu, click the **Activity View** drop-down arrow and select **Grouping**.
3. Click **Flat**.

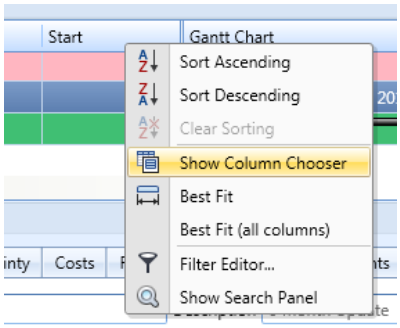
Expand or Collapse Activity Groupings

Expand or collapse the groupings by using the **+** or **–** signs to the left of each row. To expand or collapse the entire project at once, use the Display Level slider (**Activity View » Grouping**).



Add or Remove Columns

You can add or remove columns by right-clicking on any column header and selecting **Show Column Chooser**. In the Column Chooser, click the column you want to add and drag and drop it onto the view.



Change Time Now and Update Progress

You can use the Time Now field on the Details pane Status tab to change Time Now and update activity progress.

To change Time Now, complete the following steps:

1. Select the S1 // Projects tab
2. Select a project in the Activities view.
3. In the Details pane, on the Status tab, click the ellipses in the **Time Now** field.
4. In the Change Time Now and Update Progress dialog box:
    a. Click the **Time Now** drop-down arrow to select a different Time Now.
    b. In the **Activity Progress** group, select whether you want to automatically progress work as planned or reschedule uncompleted work to start after Time Now.
    c. Click **OK**.

    Time Now changes and activities are progressed according to your selections.

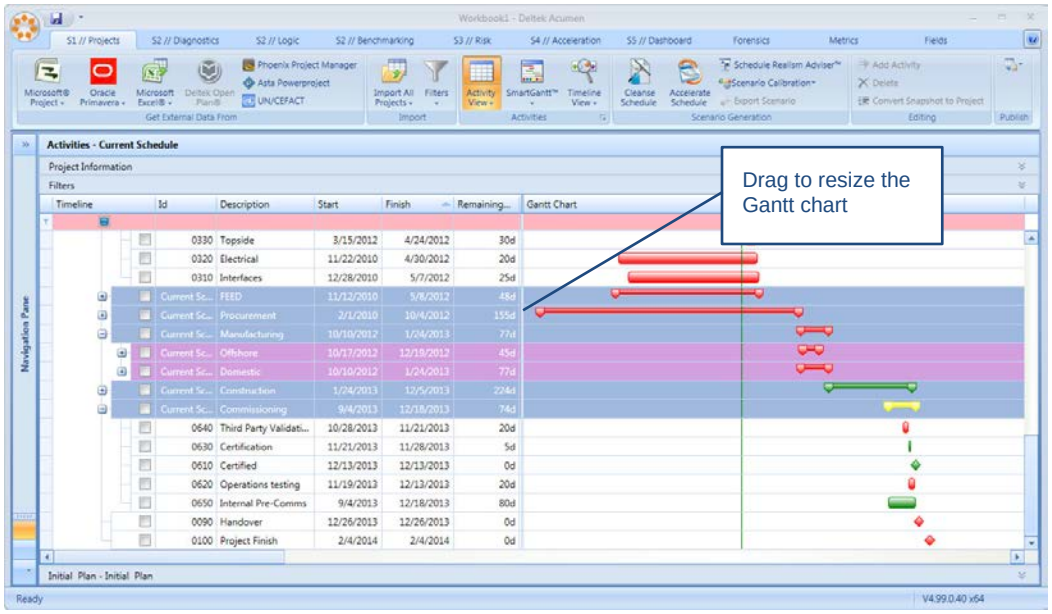
Change the Work Breakdown Structure of an Activity

To change the Work Breakdown Structure of any activity, you must first group activities by WBS then drag and drop the activity into the appropriate WBS grouping.

SmartGantt

In the Activity view, on the right side of the screen, the project displays as a Gantt chart, called the SmartGantt™. The gantt chart view allows you to view metric results, activity progress, uncertainty settings, or modification such as activity acceleration, directly on the schedule.

You can resize the gantt chart by clicking on the left hand border of the Gantt column header and dragging to the left/right.



Top and Bottom Activity Bars

The SmartGantt can display a single bar (top bar) for each activity or two bars for multiple activity attributes. You can also set different options for each bar.

See SmartGantt Options for more information about the options and how to set them.

To display a second (bottom) bar on the gantt chart, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Activities menu, click the **SmartGantt** drop-down arrow.
3. Click the **Bottom Bar** menu option. The bottom bar menu item is highlighted and the bottom bar for each activity displays in the gantt chart.

To remove the second (bottom) bar from the gantt chart, complete the following steps:

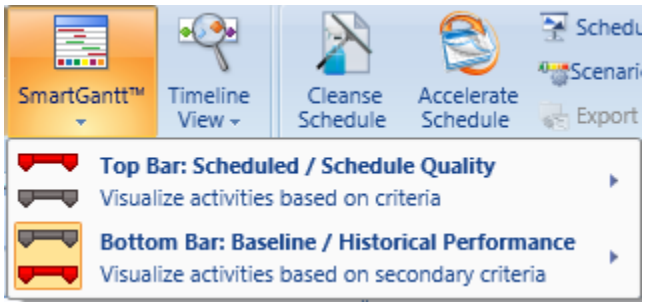
1. Select the S1 // Projects tab.
2. In the Activities menu, click the **SmartGantt** drop-down arrow.
3. Click the **Bottom Bar** menu option. The bottom bar for each activity no longer displays in the gantt chart.

SmartGantt Options

The SmartGantt options allow you to specify how the top and bottom bars display. You can access them from the SmartGantt drop-down menu or by using the SmartGantt Configuration dialog box.

- **The SmartGantt Menu** — The Top Bar and Bottom Bar menu items display the current SmartGantt options. When you hover over either of these menu items, a secondary drop-down menu displays where you can change the options.

  The example below shows that the top bar has been set to display scheduled dates with each activity color based on schedule quality. The bottom bar has been set to display baseline dates with each activity color based on historical performance.



- **The SmartGantt Configuration Dialog Box** — The SmartGantt Configuration dialog box includes the following tabs:
  - **Top Bar Color** — This tab includes schedule and risk mode options and color mapping options for the top SmartGantt bar.
  - **Bottom Bar Color** — This tab includes schedule and risk mode options and color mapping options for the bottom SmartGantt bar. It also includes an option to enable the bottom bar which must be selected in order to use the options on this tab.
  - **Top Bar Date** — This tab includes date mode options and progress and float options for the top SmartGantt bar.
  - **Bottom Bar Date** — This tab includes date mode options and progress and float options for the bottom SmartGantt bar. It also includes an option to enable the bottom bar which must be selected in order to use the options on this tab.
  - **Filters** — This tab allows you to rename or delete custom filters.

See Filter Activities for more information and steps.

To access the SmartGantt options from the SmartGantt drop-down menu, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Activities group menu, click the **SmartGantt** drop-down arrow.

3. Hover over the **Top Bar** or **Bottom Bar** option to display a drop-down menu.

   The menu options are the same for both the **Top Bar** and **Bottom Bar**.

> If you do not have the bottom bar selected to display, it will display as soon as you select an option in its menu.

To access the SmartGantt options from the SmartGantt Configuration dialog box, complete the following steps:

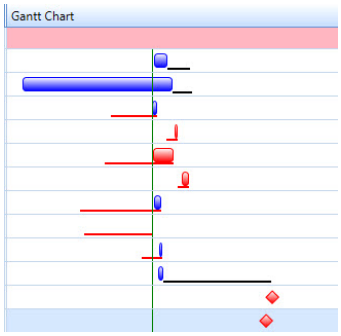
1. Select the S1 // Projects tab.
2. Click the Activities group menu drop-down arrow to display the SmartGantt Configuration dialog box.

   The dialog box also displays when you select the **Metrics** or **Field** color option from the SmartGantt drop-down menu.

The SmartGantt options are described in the following table.

SmartGantt Option	Description
Dates	Select which date to display on the SmartGantt. ▪ **Scheduled** —Current dates for the activities as defined in the schedule. ▪ **Early** —Earliest possible date that the activity can start. ▪ **Late** —Latest possible date that the activity can start. ▪ **Baseline** —Dates defined by the project baseline. ▪ **Original** —Dates as defined in the schedule prior to any modifications such as acceleration. ▪ **Px Dates** — Probabilistic or risk-adjusted dates identified during a project risk analysis.
Color	Select color settings for the activities displayed in SmartGantt. ▪ **Critical/Non Critical** — Show critical activities in red and non-critical activities in blue. ▪ **Schedule Quality** — Show color based on the Fuse Schedule Index. Activities in red are poorly planned (include errors such as missing logic, negative float or insufficient detail) while activities in green are well planned. Yellow or orange activities fall somewhere in-between. ▪ **Historical Performance** — Show color based on the historical performance of each activity. Activities that have been performing poorly are shown in red. Activities that are on time and on budget are shown in green. Yellow or orange activities fall somewhere in-between. ▪ **Metrics** — Show color based on a certain metric from a Fuse analysis. Each activity will be colored based on the thresholds defined by the metric. When you select this option, the SmartGantt Configuration dialog box displays. Use the dropdown arrow next to the **Metric** field on the Top/Bottom Bar Color tab to select a metric. ▪ **Field** — When you select this option, the SmartGantt Configuration dialog

SmartGantt Option	Description
	box displays. Use the dropdown arrow next to the **Field** field on the Top/Bottom Bar Color tab to select a field such as **Activity Status** (or any user-defined field) to use as the basis for coloring each activity. After a field is selected, use the Color Mapping area to define the color mapping. ▪ **Adviser** / **Schedule Realism Adviser** — Color each activity based on suggestions from the Schedule Realism Adviser™. See Schedule Remediation and Acceleration Using Acumen 360 for more information about the Schedule Realism Advisor. ▪ **Risk Inputs** — Color activities based on the uncertainty inputs defined during a risk analysis. This option is only available with Acumen Risk. ▪ **Duration Uncertainty** — Color each activity based on the Duration Uncertainty assigned in Acumen Risk. The colors are defined in the Uncertainty Template found on the S3 // Risk tab. ▪ **Cost Uncertainty** — Color each activity based on the Cost Uncertainty assigned in Acumen Risk. The colors are defined in the Uncertainty Template found on the S3 // Risk tab. See Risk Inputs for more information on uncertainty assignments in Acumen Risk. See The Uncertainty Factor Template for more information about the template. ▪ **Risk Outputs** — The Risk Output options for coloring activities in the SmartGantt are only available with Acumen Risk. A risk analysis must be performed first in order to use these options. ▪ **Criticality** — Color based on how many times the activity fell on the critical path during risk analysis. Red activities have a higher criticality while green activities have a lower criticality. Yellow or orange activities fall somewhere in the middle. ▪ **Duration Contribution** — Color the activities based on how much or how little they impact the risk-adjusted project finish date. Red activities have a higher impact on project finish while green activities have a lower impact. Yellow or orange activities fall somewhere in the middle. ▪ **Risk Range Factor** — Color the activities based on Acumen Risk's simulation of the impact of risk events on the schedule. ▪ **Acceleration** — Color activities based on the acceleration calibration settings. This option is only available with Deltek Acumen 360. The color settings for this option are defined in the calibration template. ▪ See Interactive Acceleration for more information on calibration. ▪ See Calibration for more information about the calibration template.
Display Progress	Select this option to show progress of each activity. A dark line will be added to the activity bar to display activity progress. For example, an activity with 50%

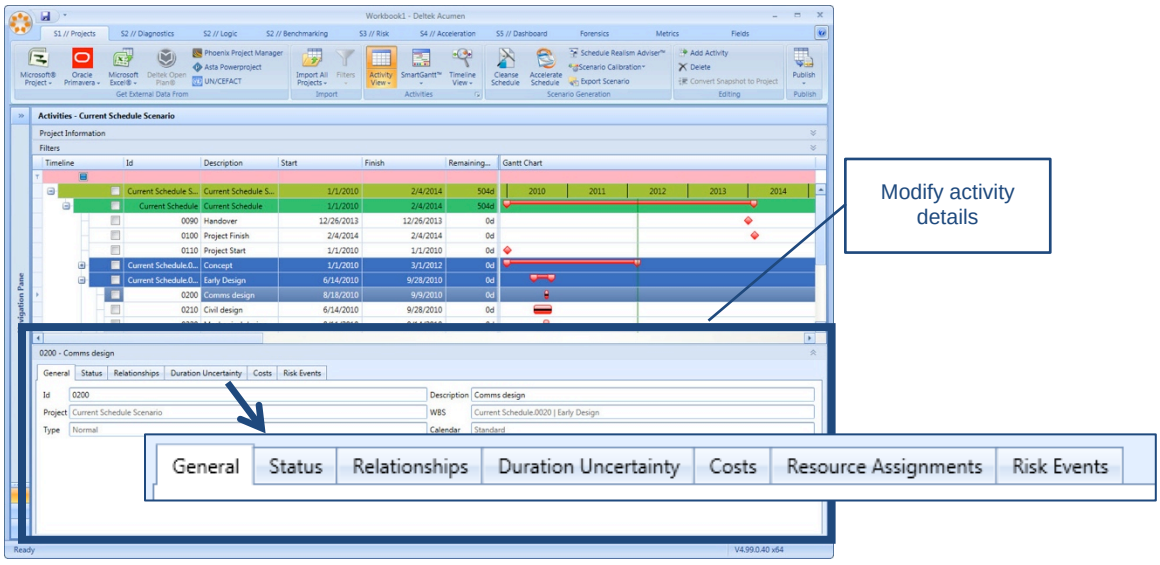
SmartGantt Option	Description
	completion looks like this: 
Display Float	Select this option to display the amount of float on each activity. A black line is added below the activity to indicate positive float. A red line below the activity shows negative float. 

Edit the Schedule Using the Details Pane

Many features of the schedule can be modified directly within the Acumen software suite. Use the tabs in the Details pane to view and edit project, activity, and WBS information. The tabs and information that displays varies depending on your selection in the Activity View.

Deltek recommends that you create a scenario prior to making any edits to the schedule.

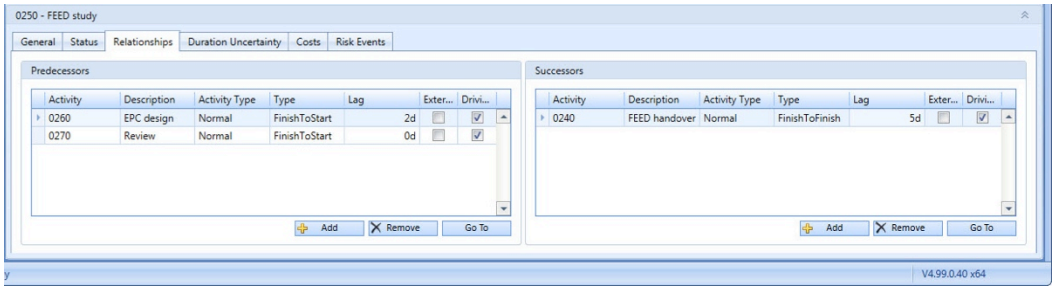
See Schedule Remediation and Acceleration Using Acumen 360 for more information on scenarios.



The Details Pane tabsincludes the following tabs:

- **General** — This tab includes information about the project, including the project name, platform, date it was created, and calendar.

- **Status** — Use this tab to update activity status, suspend or resume an activity, and add or remove constraints.
- **Relationships** — Use this tab to change the relationship type of any activity or add/remove a relationship. Predecessor activities display on the left and any successor activities display on the right.



- **Duration Uncertainty** — This tab displays remaining duration and risk notes.

> See Risk Inputs for more information about duration uncertainty.

- **Costs** — This tab displays the total, actual, and remaining cost for the line selected in the Activity View.
- **Resource Assignments** — This tab displays information about the assigned resources for the selected activity.
- **Risk Events** — This tab displays information about any risk events that have been mapped to the selected activity.

> See Map Risk Events to Activities for more information.

- **Settings** — This tab displays the float type, scheduling mode, and critical activity definition information for the line selected in the Activity View.
- **Acceleration** — If you accelerate the project by clicking **Accelerate Schedule** in the Scenario Generation group, this tab is added to the Details pane. It includes information about the script used, targeted goal, total acceleration, and a graphical representation of how the acceleration changes the project dates.

> See Schedule Remediation and Acceleration Using Acumen 360 for more information on scenarios.

Filter Activities

You can create filters for the Activities View and SmartGantt using metrics or during forensic analysis. You can also create an activity filter using critical path data.

> See Create a SmartGantt Filter Using Critical Path Data for more information.

After the filters have been created, you can apply them to the listed activities.

Create a Filter Using Metrics

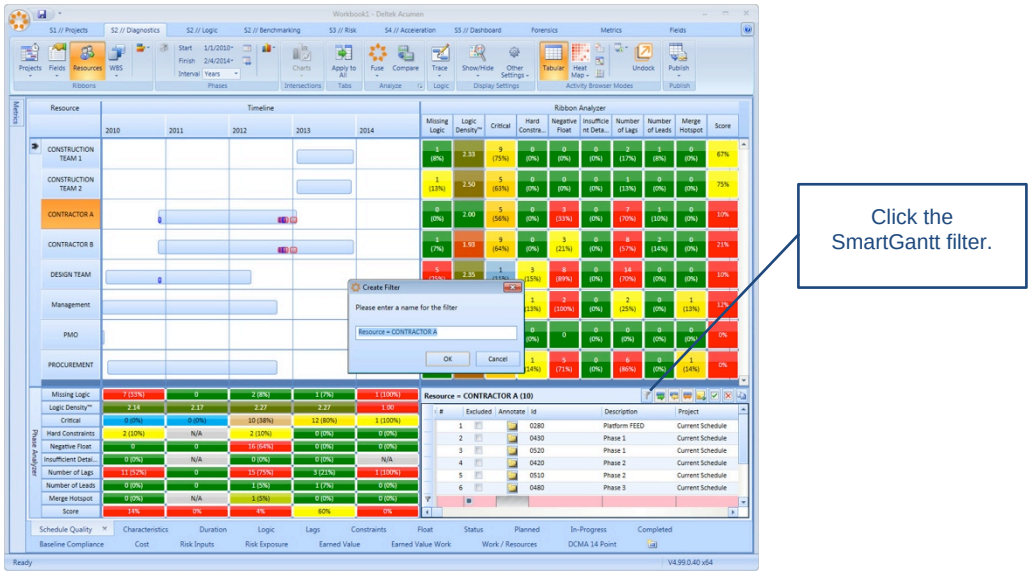
Any metric within Acumen can be used to create a filter for the activities view and SmartGantt.

To create a filter using metrics, complete the following steps:

1. Select the S2 // Diagnostics tab.
2. Click on a metric result at the bottom of the window.

> See Manage Metrics for more information about metrics.

3. In the Activity browser toolbar, click the **SmartGantt filter**.



4. Enter a name for the filter.

Create a Filter Using Forensics

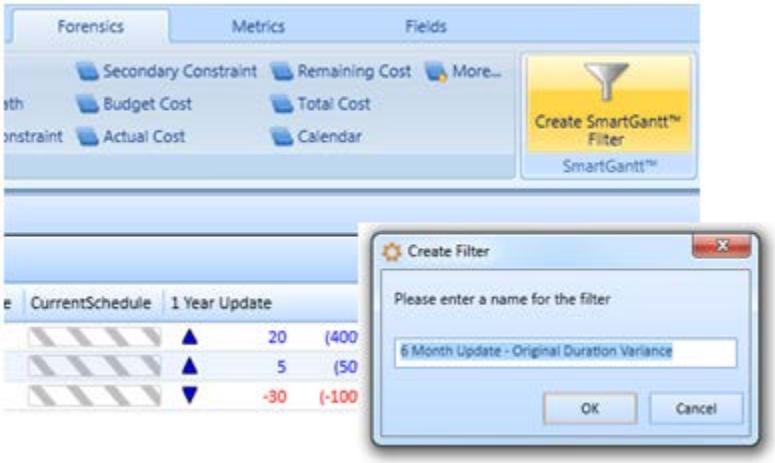
Create a filter for the Activities View and SmartGantt using activities identified during a Forensic Analysis.

> For more information on forensic analysis, see Using Forensics to Identify Additions, Deletions, and Modifications.

To create a filter using forensics, complete the following steps:

1. Select the Forensics tab.
2. In the SmartGantt menu, click **Create SmartGantt Filter** to create a filter for the listed activities.

3. Enter a filter name.



4. Select the S1 // Projects tab.
5. In the **Activities** menu, click **Activity View » Filtering » <Select the newly created filter>**.

   The activities as well as the SmartGantt are removed from the list.

Apply a Filter to the Activity View

To apply a filter to the Activity View, complete the following steps:

1. Select the S1 // Projects tab.
2. In the **Activities** menu, click the **Activity View** drop-down menu and select **Filtering » <Select a filter>**.

Clear the Activity View Applied Filter

To clear filters applied to the Activity View, complete the following steps:

1. Select the S1 // Projects tab.
2. In the **Activities** menu, click the **Activity View** drop-down menu and select **Filtering » None**.

Rename or Delete a Filter

To delete a filter from the Activity View filters list, complete the following steps:

1. Select the S1 // Projects tab.
2. Click the Activities group menu drop-down arrow to display the SmartGantt Configuration dialog box.
3. Select the Filter tab.
4. Click on a filter name.
5. Do one of the following:
   - Edit the name.
   - Click **Delete** to delete the filter.

6. Click **OK**.

See SmartGantt Options for more information about the SmarGantt Configuration dialog box.

Timeline View

Select activities can be added to a graphical timeline view on the projects tab. This is useful when looking at the big picture within a project as well as comparing a project to its respective snapshots or scenarios.

The Timeline View menu includes the following options that you can apply in the Timeline View:

- **Activity Titles** — Select this option to display the title for each activity on the timeline. The information that you display as title depends on the option that you select in the Activity Title Display Mode menu option.
- **Different Colors** — Select this option to use colors to differentiate between activities.
- **Copy to Clipboard** — Select this option to copy the timeline view to the clipboard. You can then paste the view into a different application or email.
- **Activity Title Display Mode** — Use these options to specify the information to be included in the activity title. You can specify whether you want to display the ID and/or description for each activity on the timeline. This only becomes applicable when you select the Activity Titles option.

To add activities to the timeline view and view them, complete the following steps:

1. Select the S1 // Projects tab.
2. In the **Activities menu**, click **Activity View**.
3. To assign activities to the timeline, do one of the following:
   - To select individual activities, use the checkboxes in the Activity View list.
   - To select groups of activities, first create groups.

See Activity Grouping for more information.

   - To select all activities within a group, select the group heading or parent.

4. In the Activities menu, click **Timeline View**.

   Each project/snapshot/scenario is shown in its own timeline.

5. (Optional) In the Activities menu, click the Timeline View drop-down arrow to access the Timeline View options.

6. To scale or zoom, click and drag the left / right bar on the zoom feature at the bottom of the view.

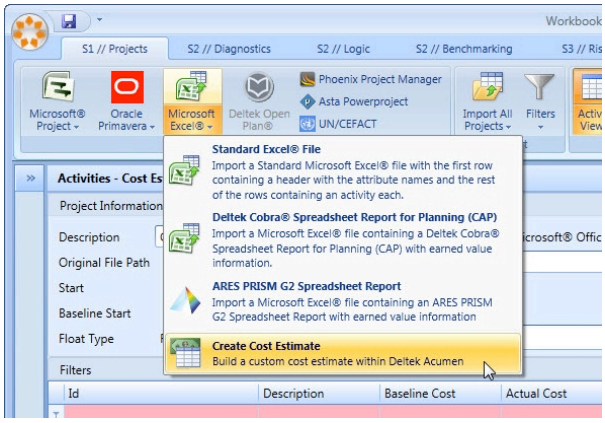
Create a New Cost Estimate

You can create a new cost estimate directly within Acumen Risk in order to perform a cost risk analysis.

You can create a new cost estimate on the S1 // Projects tab as well as the S3 // Risks tab. See Cost Risk Analysis for more information.

To create a new cost estimate directly within Acumen, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Get External Data From menu, select the **Microsoft Excel** drop-down arrow and click **Create Cost Estimate**.



This opens a new cost estimate which will automatically be populated with a single activity called **New Activity**.

3. Edit the activity name and details directly in this view or by using the fields in the Activity Details Pane.

See Edit the Schedule Using the Details Pane for more information.

Add New Activities to a Cost Estimate

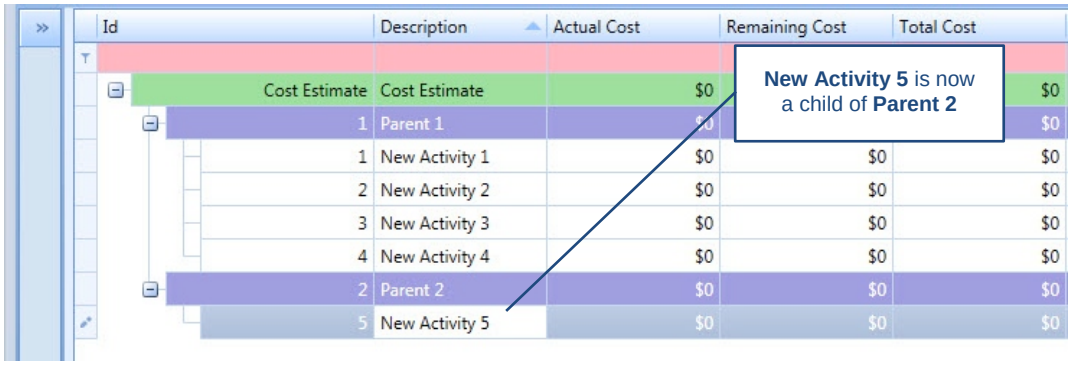
To add a new activity to the cost estimate, complete one of the following steps:

- In the Editing menu, click **Add Activity**.
- Right-click on any row in the Activities View and click **Add Activity**.

Organize Cost Estimate Activities into a Hierarchy or Cost Breakdown Structure

Activities in a cost estimate can be dragged and dropped to create a Cost Breakdown Structure or other hierarchy within the cost estimate. Select any activity or row within the activities view and drag and drop it into the desired grouping.

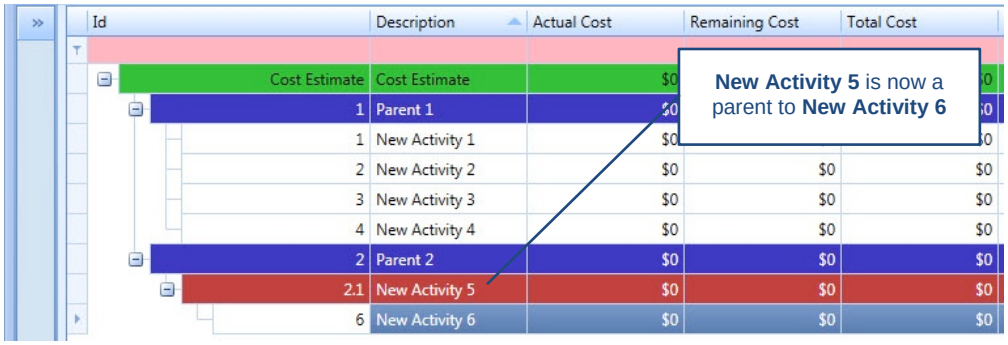
In the example below, **New Activity 5** was dragged onto the row titled **Parent 2**. This makes **New Activity 5** a child of **Parent 2**.



Id	Description	Actual Cost	Remaining Cost	Total Cost
Cost Estimate	Cost Estimate	$0		$0
1	Parent 1	$0		$0
1	New Activity 1	$0	$0	$0
2	New Activity 2	$0	$0	$0
3	New Activity 3	$0	$0	$0
4	New Activity 4	$0	$0	$0
2	Parent 2	$0	$0	$0
5	New Activity 5	$0	$0	$0

You can create any number of hierarchical levels or groups in the cost estimate.

In the example below, **New Activity 5** has been turned into a parent activity by adding a new activity (**New Activity 6**) and dragging it onto the **New Activity 5** row.



Any time an activity, or group of activities, is dragged onto another row, it becomes a child of that row.

Export (Publish) Acumen Projects

The table below lists the formats to which you can export (publish) your Acumen projects.

Acumen Project Format	Available Export Formats	Notes
Microsoft Project MPP	▪ Excel XLS ▪ UN/CEFACT XML ▪ Microsoft Project MPP ▪ Oracle Primavera P6 XER	You must have Microsoft Project installed on your machine if exporting to Microsoft Project MPP.
Microsoft Project XML	▪ Excel XLS ▪ UN/CEFACT XML ▪ Oracle Primavera P6 XER	
Oracle Primavera P6 XER	▪ Excel XLS ▪ UN/CEFACT XML ▪ Microsoft Project XML ▪ Oracle Primavera P6 XER	You can only export to Oracle Primavera P6 XER format if you export an Acumen scenario. The option is grayed out for projects.
Microsoft Excel	▪ Excel XLS	
Deltek Open Plan	▪ Excel XLS ▪ UN/CEFACT XML ▪ Oracle Primavera P6 XER	
Phoenix Project Manager	▪ Excel XLS ▪ UN/CEFACT XML ▪ Microsoft Project XML ▪ Oracle Primavera P6 XER	
Asta Powerproject	▪ Excel XLS ▪ UN/CEFACT XML	
UN/CEFACT XML	▪ Excel XLS ▪ UN/CEFACT XML ▪ Microsoft Project XML ▪ Oracle Primavera P6 XER	
Safran Project	▪ Excel XLS ▪ UN/CEFACT XML ▪ Microsoft Project XML ▪ Oracle Primavera P6 XER	

Print and Export

In addition to publishing your project, you can use the Print and Export option to export the information as it is currently displayed in the Activities View. When you select this option, a Print Preview window displays. You can use this window to search the data, open or save a file, and select the export format, among other things. The following file formats are available:

- PDF
- HTML
- MHT
- RTF
- XLS
- CSV
- Text
- Image
- XPS

To export an Acumen project, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Projects pane, select the project that you want to export.
3. In the Publish menu, click the **Publish** down-arrow and select the format to which you want to export.

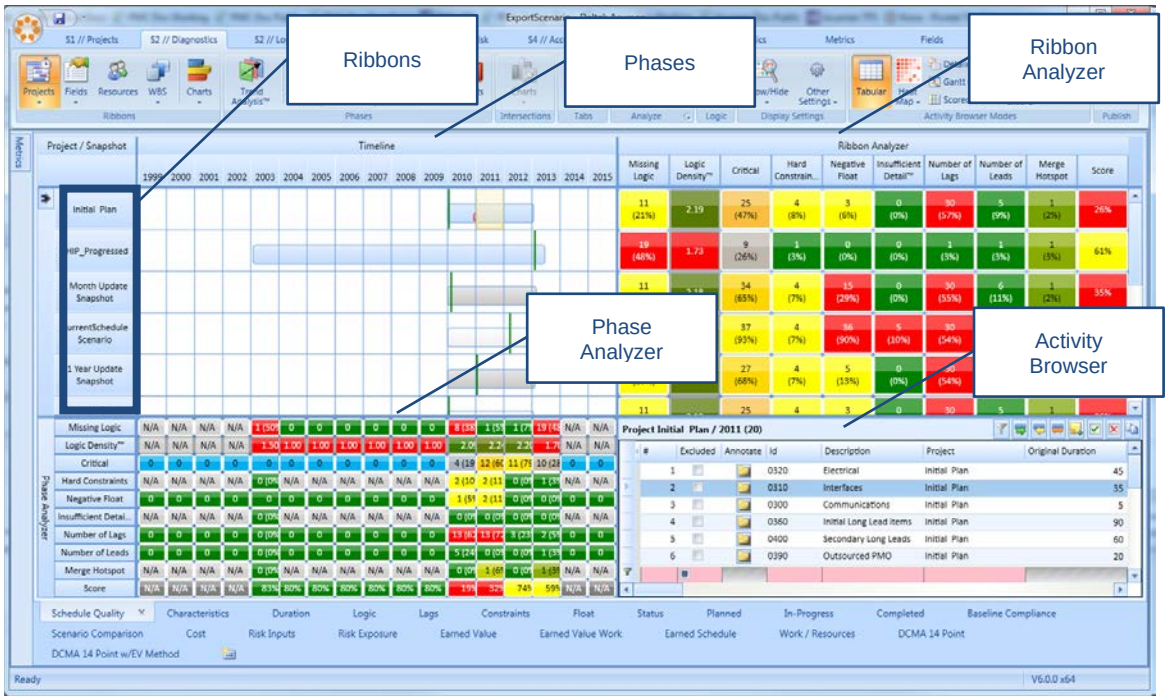
Run Diagnostics with Acumen Fuse

Acumen Fuse is a project diagnostic tool that pinpoints and resolves schedule shortcomings, helping to ensure a sound basis of schedule and a successful execution.

The S2 // Diagnostics Tab

Use the Diagnostics tab to:

- Analyze a single project
- Compare multiple projects within a program/portfolio
- Run trend analysis of a single project over time



The S2 // Diagnostics tab includes several areas and panes:

- **Ribbons** — Ribbons are groupings of activities based on a given criteria. See Ribbon Analysis for more information.
- **Phases** — Phases are user-definable ‘segments’ of time against which an Acumen Fuse analysis is run. See Phases for more information.
- **Ribbon Analyzer** — The ribbon analyzer shows the results from an analysis for each ribbon. See Ribbon Analyzer for more information.
- **Phase Analyzer** — The phase analyzer shows the results from an Acumen Fuse analysis for each phase. See Phase Analyzer for more information.
- **Activity Browser** — The Activity Browser lists specific activities based on a given criteria. See Use the Activity Browser for more information.

The Executive Briefing Report

The Executive Briefing report consolidates information and results that have been generated from an analysis, and presents them in a descriptive briefing without the need for manual interpretation of the data.

You can run this report from the Publish menu on the S2 // Diagnostics tab.

See Executive Briefing in the Reporting Diagnostics Results section of this guide for more information.

Use Acumen for Project Analysis

Acumen uses a combination of ribbons and metrics to run a project analysis. The Acumen engine analyses projects in three dimensions. The table below summarizes each analysis type.

Analysis Type	Summary	Details
Ribbon Analysis	Cross ribbon comparison	Metric analysis by ribbon enabling cross-ribbon comparisons to be drawn. The ribbon analyzer tells you which group of activities (Critical or Non-Critical) has missing logic. See Ribbons for more information.
Phase Analysis	Cross phase comparison	Metric analysis by phase enabling cross-phase comparisons to be drawn. Trending can also be carried out. See Phases for more information.
Intersection Analysis	Specific ribbon/phase analysis	Metric analysis for a specific ribbon/phase intersection enabling pinpointing of project hot spots and problem areas. See Intersection Analysis for more information.
Trend Analysis	Specific project snapshots	Metric analysis for multiple project snapshots across ribbons. See Trend Analysis for more information.

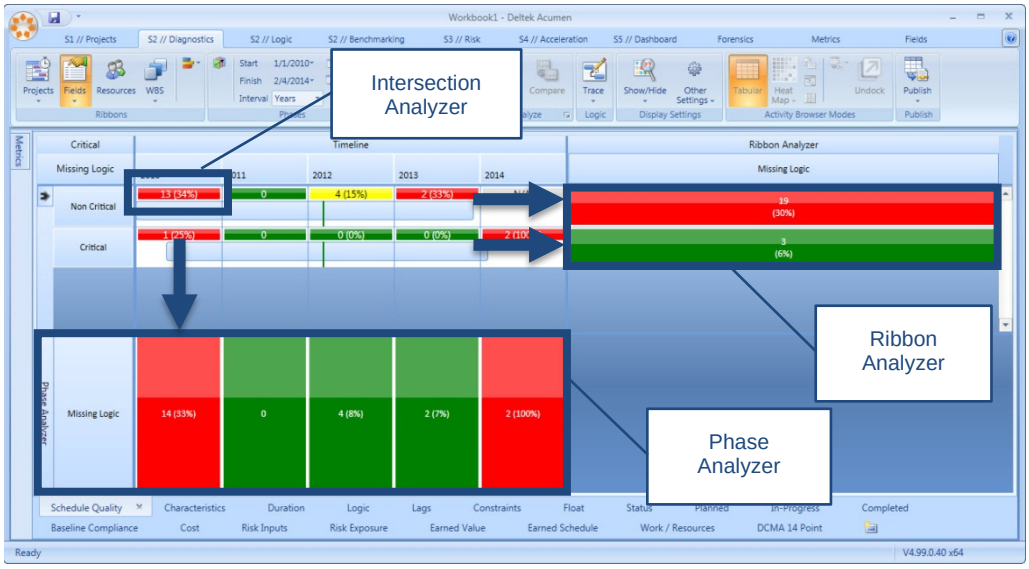
As well as calculating metrics, Acumen Fuse analysis also determines whether or not defined tripwire thresholds have been triggered.

See Tripwires for more information.

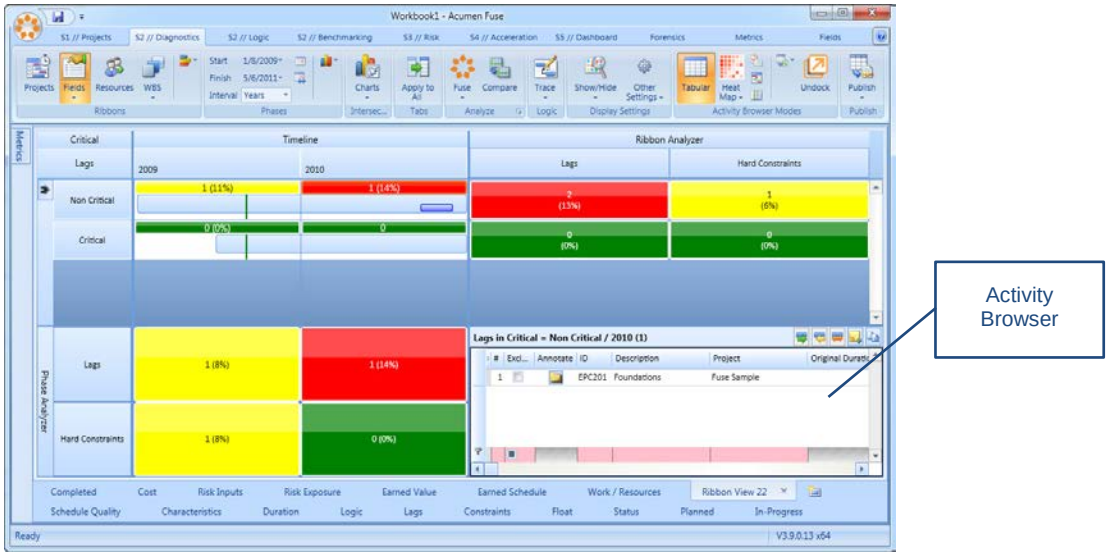
In the example below, the “Missing Logic” metric is being applied to a project.

- The ribbon analyzer tells you which group of activities (Critical or Non-Critical) has missing logic.
- The phase analyzer tells you which time period contains the activities with missing logic.

- The intersection analyzer pinpoints the path and phase.



You can use the Activity Browser to pinpoint which activity(s) are causing the metric tripwire to trigger. The Activity Browser shows activities based on which ribbon, phase, or intersection you click on.



The Acumen Fuse analysis engine can analyze across multiple phases as well as segment data by ribbon. The analysis engine automatically calculates duration, cost, and work across phase boundaries and spreads values accordingly.

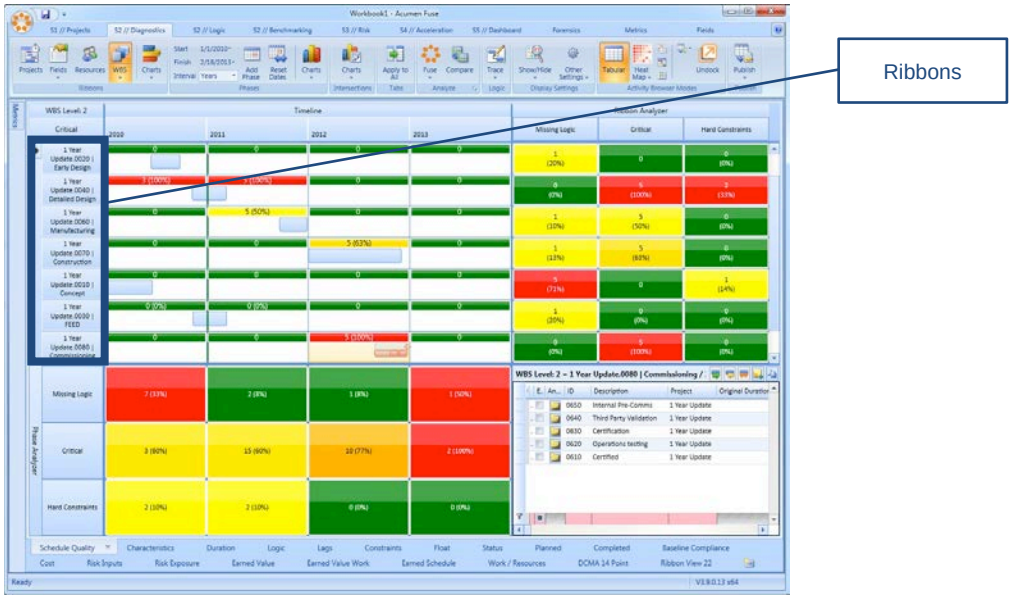
For example, a 60-day activity starting on January 1 will automatically be segmented into 31 days in January, 28 days in February (assuming a non-leap year), and 1 day in March. The costs and work for this activity also get spread accordingly so that when the metric engine is run, results are not only analyzed for the ribbon as a whole but also within each individual phase.

Similarly, the engine determines, for example, within which phase an activity starts. This in turn enables metrics, such as the number of activities starting within a particular fiscal reporting period, to be created.

Ribbon Analysis

Ribbons are groupings of activities based on a given criteria. You can use them to:

- Slice and dice a project into meaningful groups of activities for analysis.
- Flatten and simplify large amounts of project data. That is, reduce large numbers of activities to a more manageable number of ribbons.
- Visualize activities based on common criteria (for example, activity attributes or network path).



A ribbon can be created by something as simple as an activity attribute (for example, type of activity, contractor, or critical/non-critical), a WBS, or a resource, or it can be defined to represent a path through a network between two activities within a project. You can hide activities from within a ribbon.

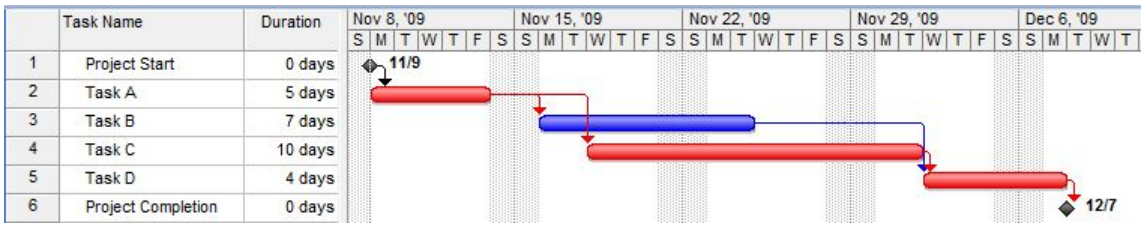
By default, ribbons are grouped by project; however, they can be grouped in multiple ways including activity attribute, resource, and path. If a workbook contains multiple projects, then a separate ribbon will display for each project.

Ribbons are segmented by phases. Acumen Fuse analysis is conducted against ribbons.

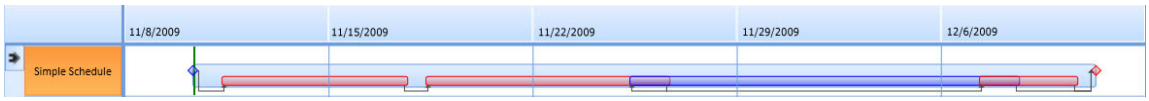
Example of Ribbon Analysis

The example below shows a sample project created in MS Project that contains four activities and two parallel paths.

- Activities A, C, and D all lie on the critical path.
- Activity B contains float and is not on the critical path.

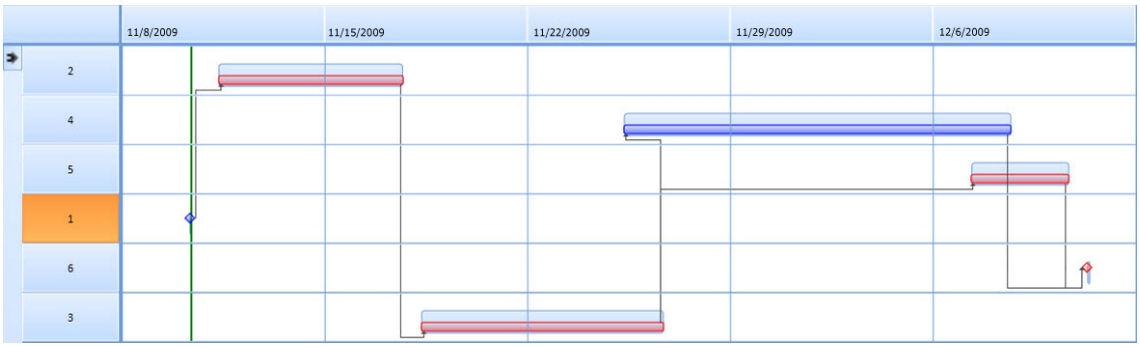


At the summary level, you can create a single ribbon that contains all activities within the project. The example below shows a ribbon view of the same sample project where a single ribbon is created for the entire sample project.



You may want to ribbonize based on whether or not an activity falls on the critical path. The example below shows the same sample project; this time ribbonized by Critical Path. By separating critical and non-critical activities, you are able to get a clearer insight into your project.

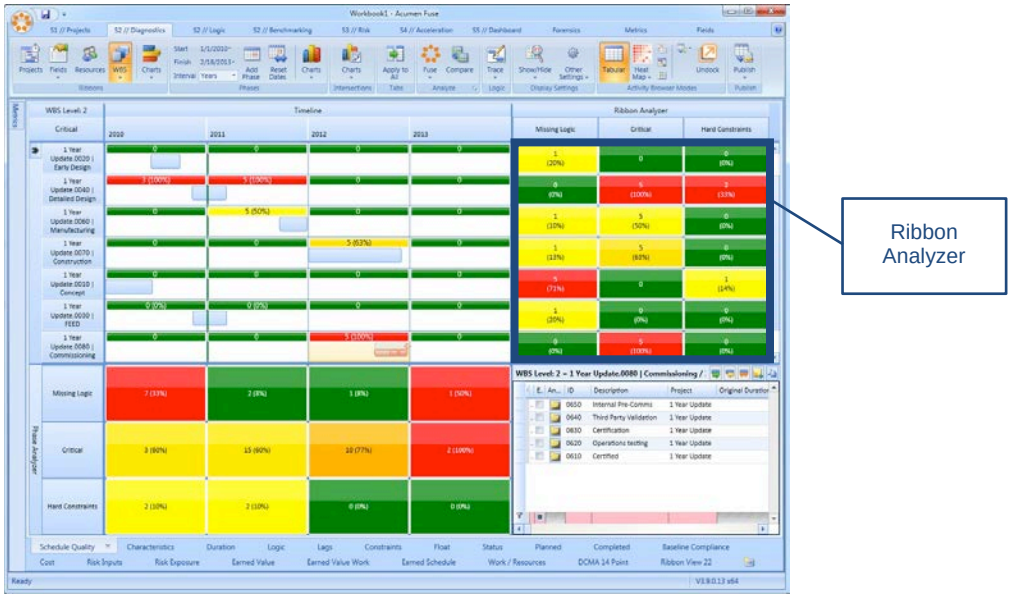
You can take this a step further and create by work breakdown structures (WBS) as shown in the example below.



Ribbonizing by various activity attributes and network paths allows you to run Acumen Fuse analytics in multiple dimensions, providing insight that is not easily available in traditional Gantt chart type reports.

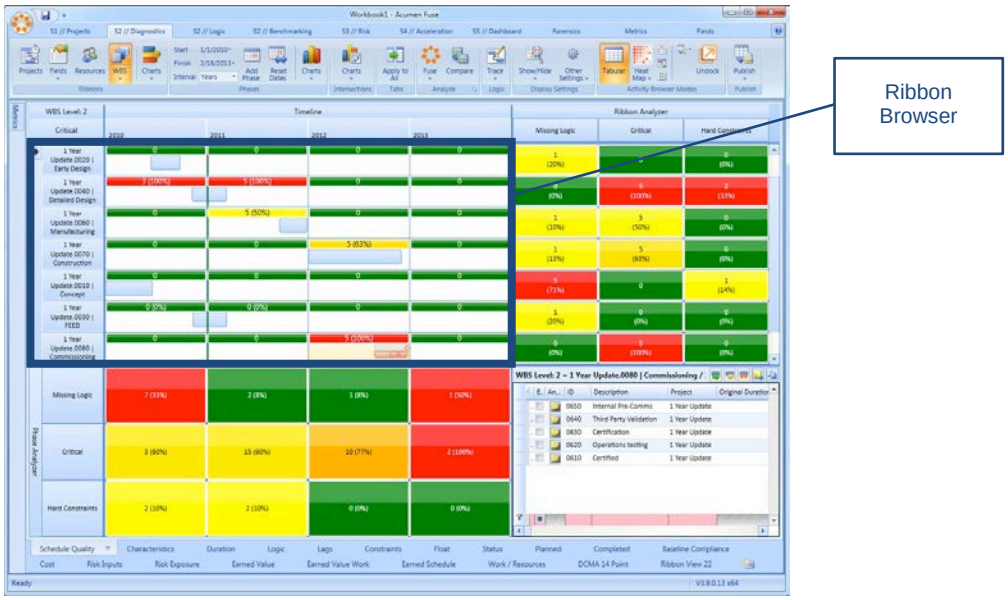
Ribbon Analyzer

The ribbon analyzer shows the results from an analysis for each ribbon. Multiple metrics can be added to the ribbon analyzer. The ribbon analyzer can be displayed as either a table or a chart.



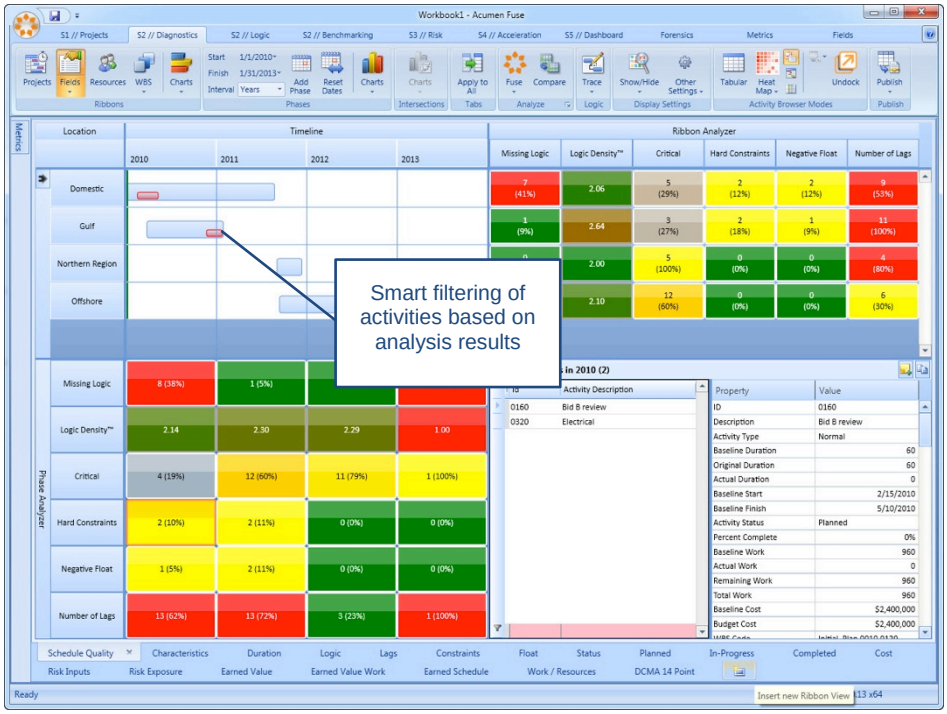
Ribbon Browser

The ribbon browser is the core of the diagnostics tab and is highly customizable. Within the ribbon browser, you create ribbons, segment by phases, and apply metrics.



Smart-Filtering of Ribbons

The Analysis view is a highly interactive view. As you click on the any of analyzer cells, the activities shown within the ribbons are automatically filtered to correspond to the activities in the activity browser.



Use Ribbons to Group Activities

You can group activities based on any attribute (for example, activity status, critical/non-critical, contractor). Ribbons can be created using one of four techniques:

- Project/Snapshot Ribbons
- Field-Based Ribbons
- Resource Ribbons
- WBS-Based Ribbons

In all four instances, the purpose of creating ribbons is to slice and dice the project data in order to run a meaningful analysis.

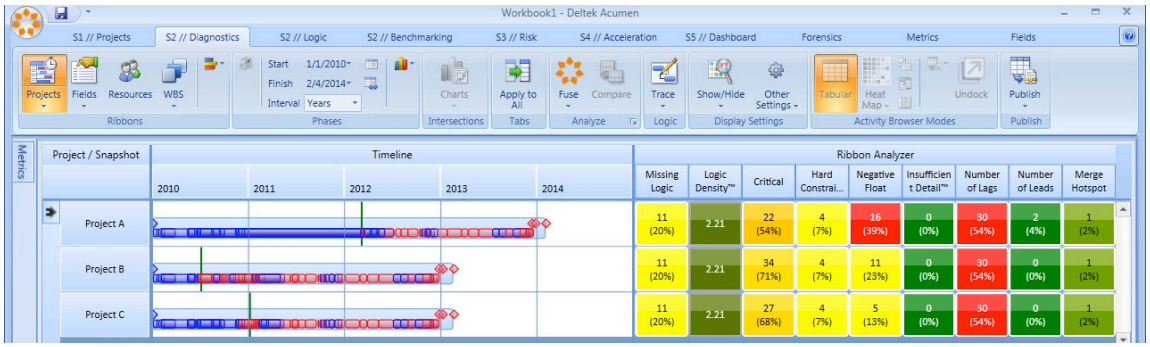
See Ribbon Analysis for more information about ribbons.

Project/Snapshot Ribbons

Project ribbons are the simplest types of ribbons. When you set the ribbon mode to Project/Snapshot, a separate ribbon is created for each project and/or snapshot within the workbook. In the case of a workbook containing a single project, a single ribbon is created. This is the default option when opening an analysis view.

You can use project-based ribbons to run high level analysis against a project or portfolio without drilling down into specific activities or sections of the project(s).

In the example below, the workbook contains multiple projects, each displayed as a separate ribbon.

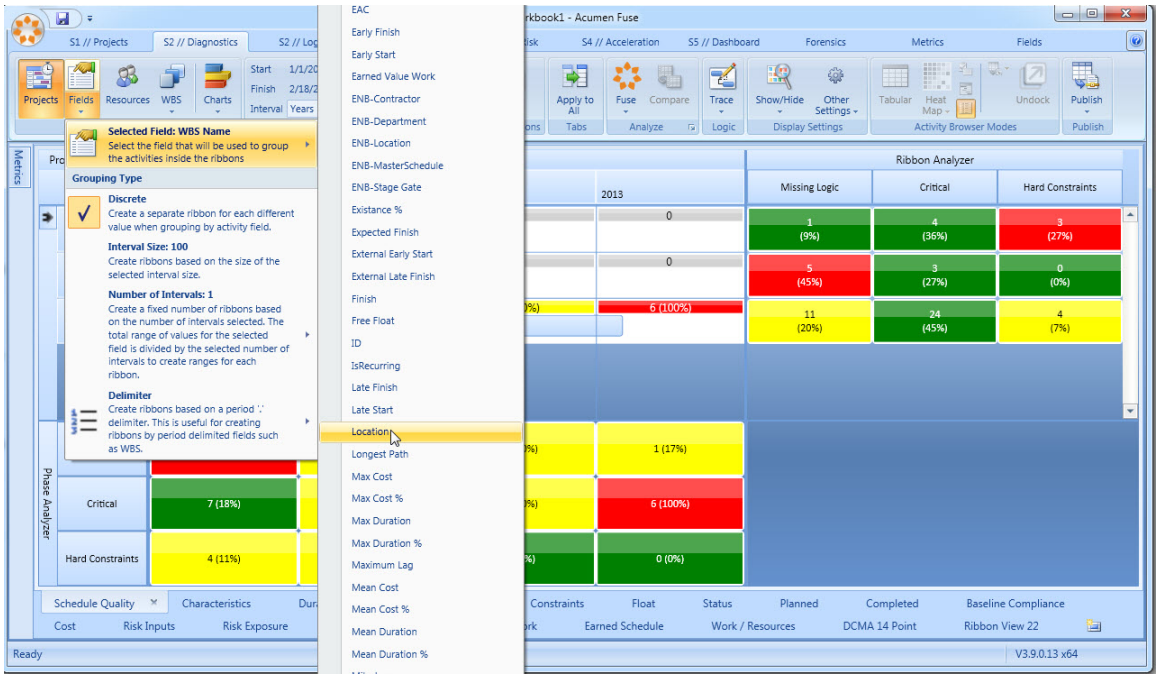


Field-Based Ribbons

Field-based ribbons are very flexible in that ribbons can be defined through any of the imported activity fields. Common examples of field-based ribbons include:

- **Critical path** — Compare analysis results between critical and non-critical activities.
- **Activity type** — Differentiate between normal, summary, and milestone activities.

Example of Selecting a Field-Based Ribbon



In addition to defining ribbons by field, you can further define a field-based ribbon using one of the grouping types in **S2 // Diagnostics » Ribbons » Fields**:

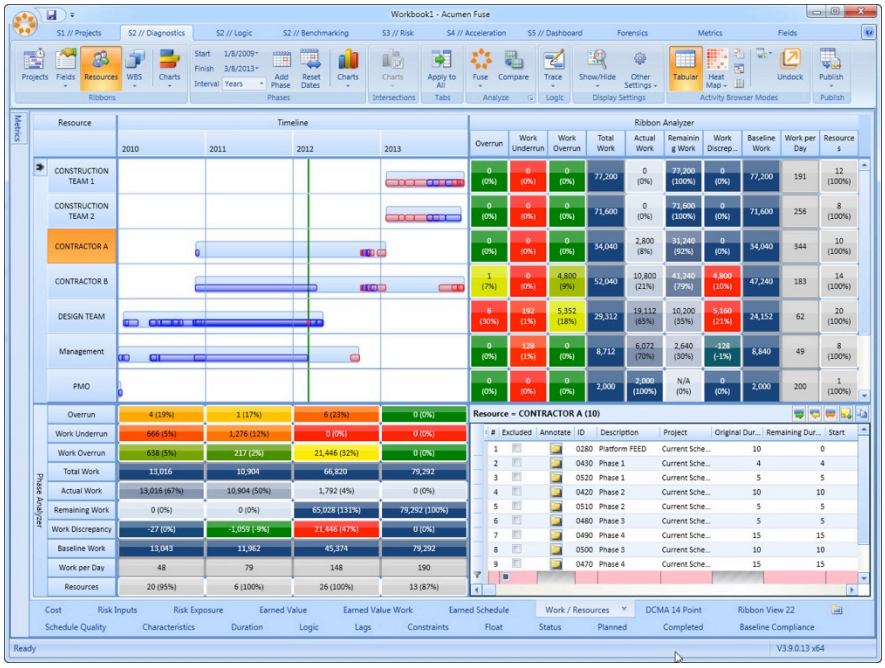
- **Discrete** — A separate ribbon is created for each field value.
- **Interval size** — A variable number of ribbons each defined by a user selected size (for example, cost broken out into multiple ribbons in $50,000 intervals).
- **Number of Intervals** — A fixed number of ribbons are created based on the selected number of intervals. This is useful if creating ribbons by a field that returns, for example, a

percentage. Creating ten intervals would result in ten ribbons representing 0 – 10%, 10 – 20%, 20-30%, and so on, all the way to 90-100%.

- **Delimiter** — Ribbons are created based on period delimiters. This is useful when needing to create ribbons from a WBS or a hierarchical code field that uses delimiters to designate separation of sections (and level) within a hierarchy.

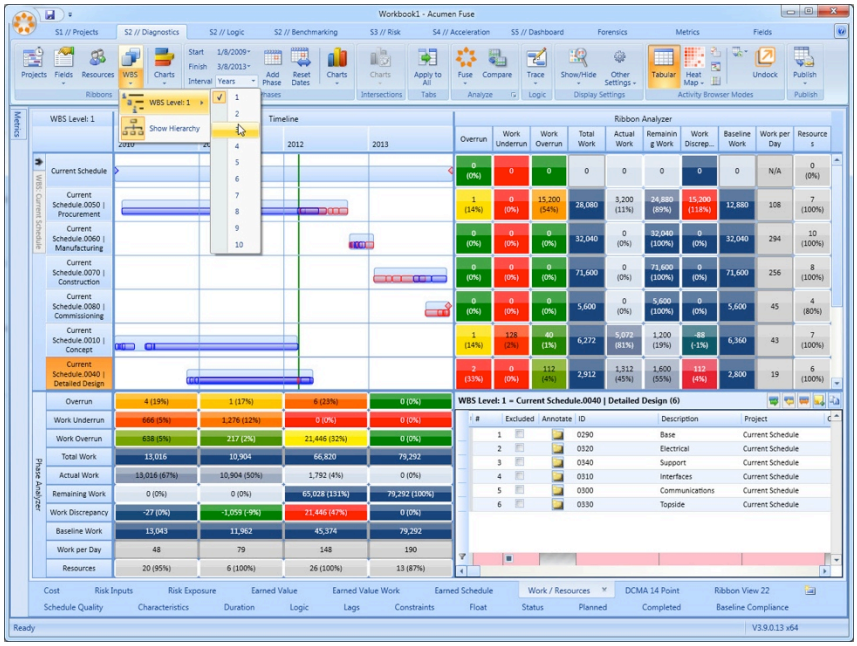
Resource Ribbons

Resource ribbons provide a rotated view of a project from the perspective resources. By creating a separate ribbon per resource, you are able to see who is working on which activities and, more importantly, when. Resource-ribbons provide an excellent insight into cost/schedule performance.



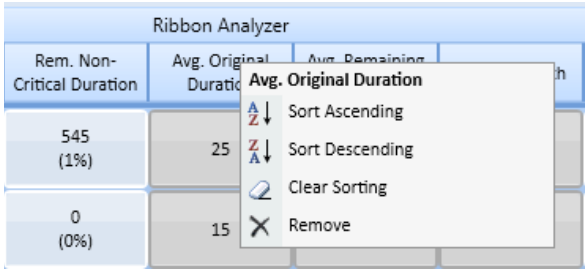
WBS-Based Ribbons

You can use WBS ribbons to group activities by any given level of a project WBS. This is very useful for comparing the quality and performance across WBS elements of a project as well as being able to conduct a project rollup at any level.



Sorting Ribbons

You can sort ribbons by metric results by right-clicking on the metric header and selecting the sort option. This is a good technique for prioritizing results once an analysis has been conducted.



Filter and Drill Down Using Ribbons

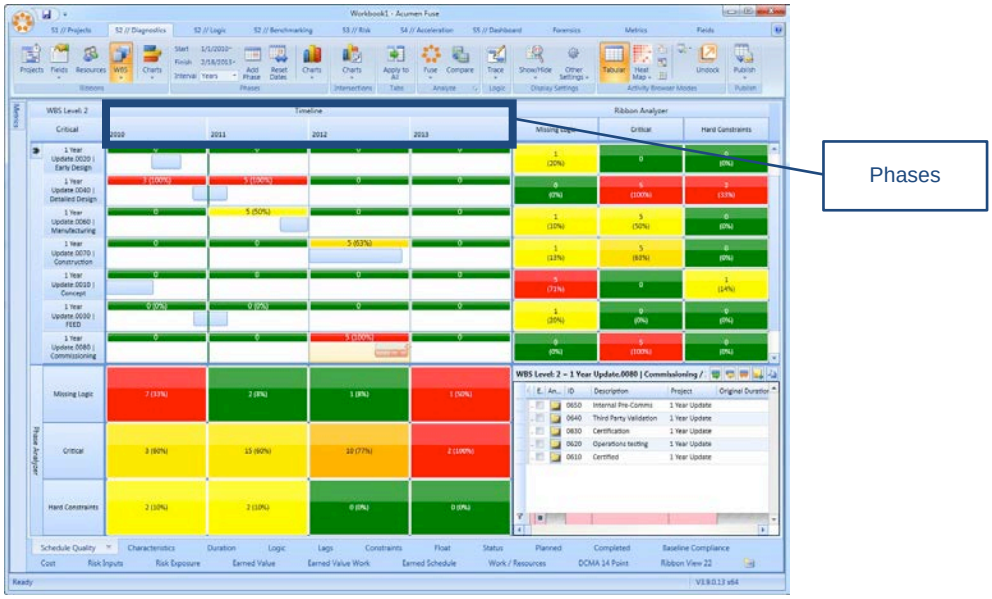
Ribbons can be used as a powerful means of filtering and drilling down into specific sections of an analysis. You can select any ribbon as a filter by double-clicking on the ribbon heading. This filters activities for that specific ribbon, and analysis and results then only pertain to the filtered data set. In addition, filter hierarchies can be created.

In the example below, the data was ribbonized by location, and then filtered by a location called **Domestic**. It was further ribbonized by contractor, and then filtered by contractor **ACom**. Then it was ribbonized by activity status.

Navigation back up through the created hierarchy is straightforward using the vertical navigation strip on the left hand side of the screen. Clicking on the **Home** button takes you back to the unfiltered set of data.

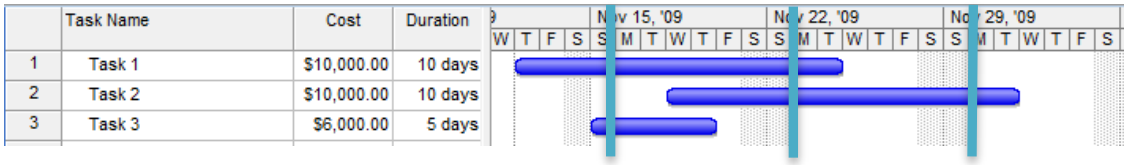
Phases

Phases are user-definable ‘segments’ of time against which an Acumen Fuse analysis is run. Phases can be weeks, days, months, quarters, years, custom periods, or the entire project duration.



For a phase analysis, the Acumen Fuse engine calculates results across ribbons within a specific time slice or phase. This tends to be more complex than a ribbon analysis because activities may span multiple phases.

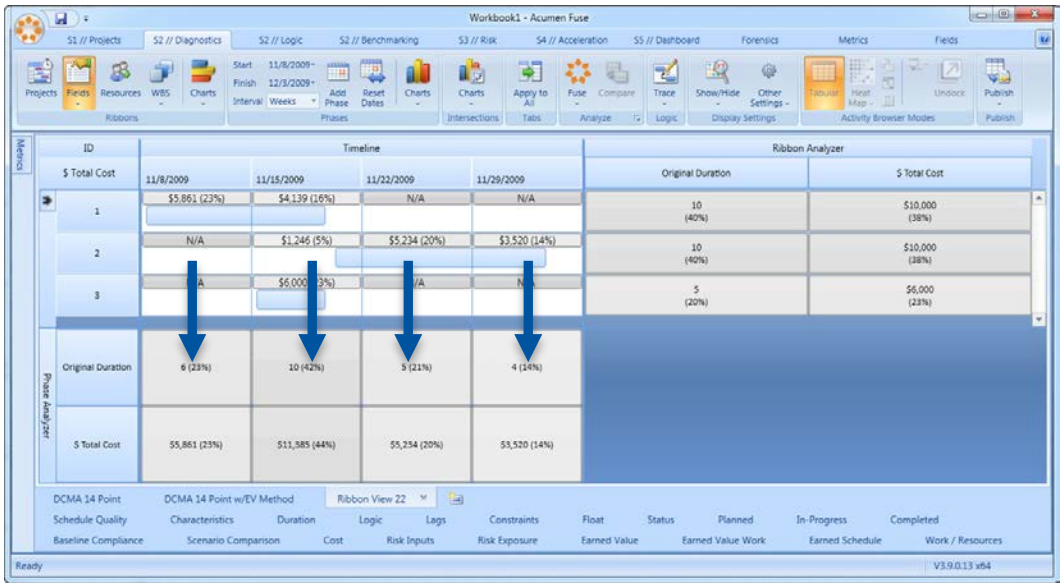
In the example below, a simple project with three activities spans a four-week period.



Analyze Within and Across Defined Phases

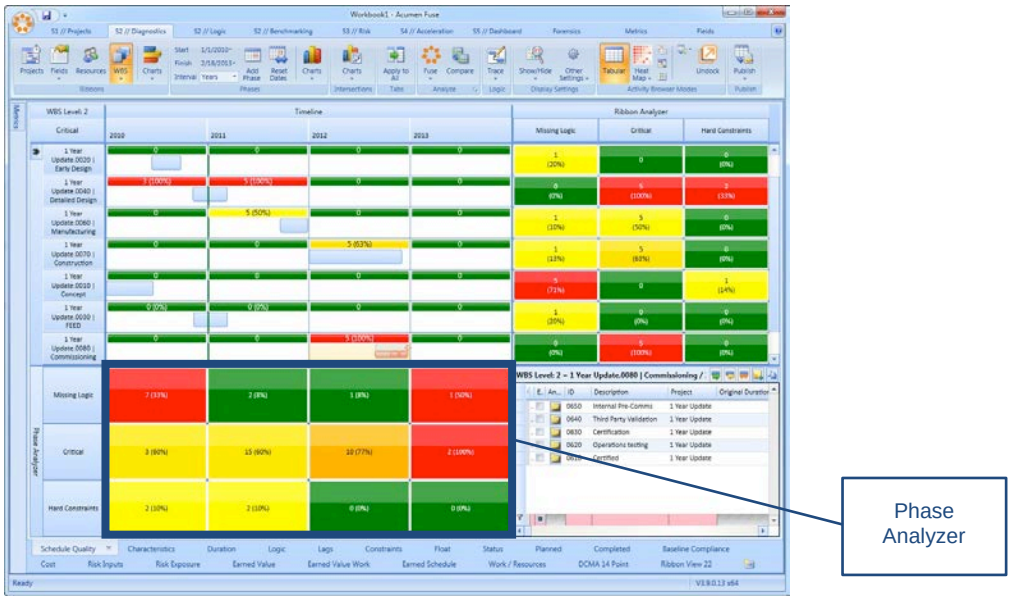
When you analyze the data, and calculate two basic metrics (cost and schedule), the Acumen Fuse engine prorates both duration and cost based on how the activities span across the four periods. This makes phase-based analysis very powerful because you can analyze both within

and across defined phases, accounting for the amount of cost, duration, and work that falls into each phase.



Phase Analyzer

The phase analyzer shows the results from an Acumen Fuse analysis for each phase. You can add multiple metrics to the phase analyzer. The phase analyzer can be displayed as either a table or a chart.



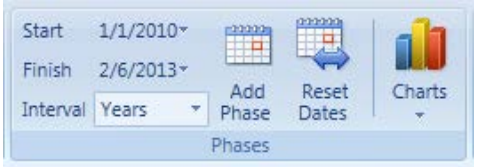
Define Date Ranges and Phases

Ribbons are segmented by phases. Each phase is analyzed separately in the phase analyzer.

By default, Acumen Fuse will create an analysis view that encapsulates the entire project. Phase definition is fully customizable. The start and end of the analysis view can be defined either by a specific date or event (for example, start of project or Time Now).

You can set phase intervals to days, weeks, months, quarters, years or single (representing the entire date range as a single phase).

In addition, you can create custom phases through the use of the **Phases » Add Phase** menu item.

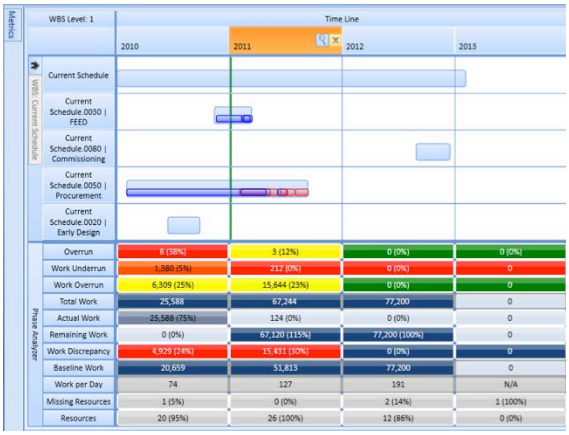


Merge Phases

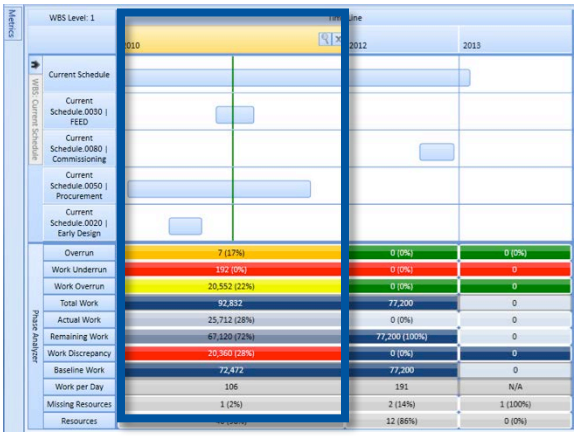
You have the ability to merge phases. For example, two adjacent quarters can be merged into a single half-year segment. This is achieved by deleting a phase boundary.

To merge phases, complete the following steps:

1. Hover over the phase header until the **Delete** icon displays.
2. Click **Delete** to remove the boundary and merge the two phases.

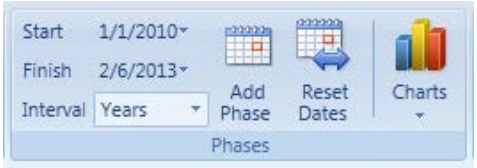


Splitting 2010 and 2011 Phases



Merged 2010 and 2011 Phases

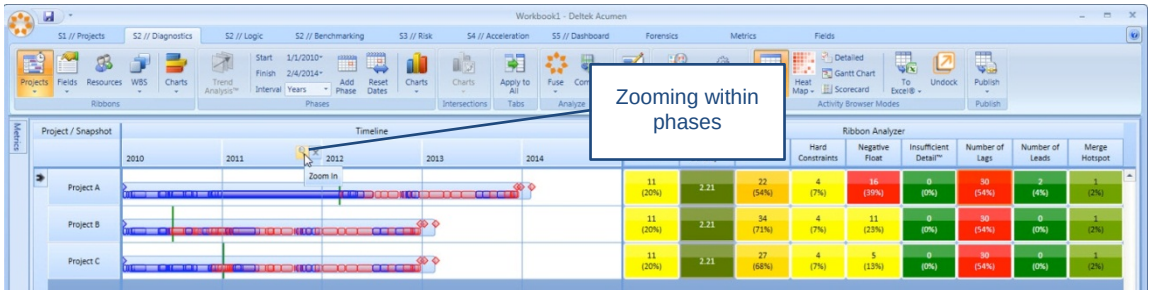
Click the **Phases » Reset Dates** menu item to reset the entire analysis view to include all activities.



Zoom In and Out of Phases

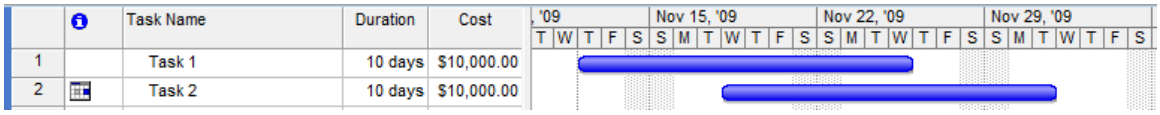
The analysis view provides a quick means of zooming in and out of phases.

- To zoom into a phase, hover over the phase header and click on the magnifying glass icon.
- To zoom out of a phase, hover over the Timeline header and click on the magnifying glass icon.

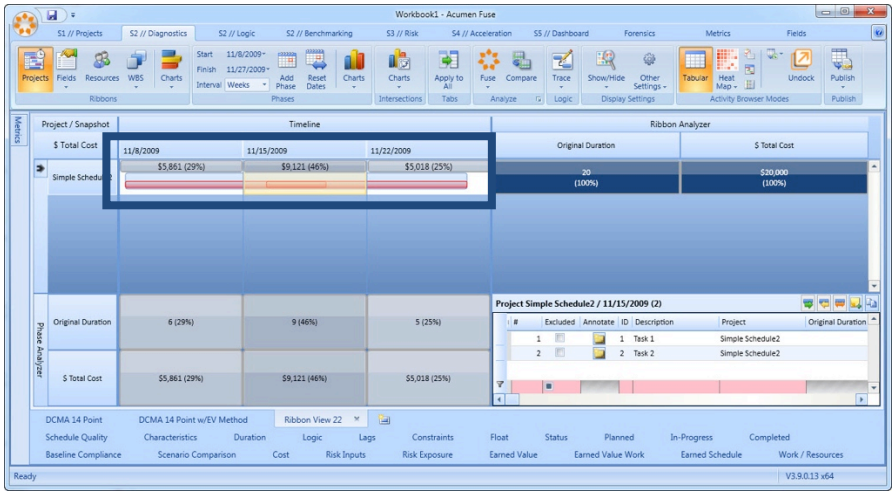


Intersection Analysis

Intersection analysis only includes activities within a specific ribbon within a specific phase. The example below shows two activities in MS Project that overlap with respect to time.

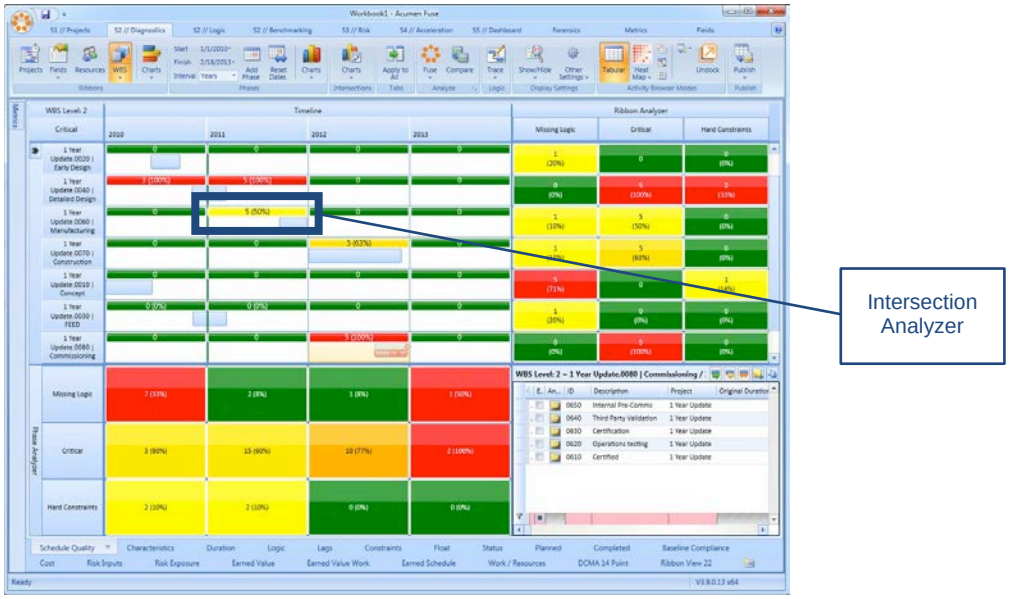


When Acumen analyzes the activities using two metrics (original duration and Total Cost), the assigned metric (Total Cost) for each intersection is calculated separately.



Intersection Analyzer

In addition to running an analysis against a ribbon or phase, Acumen Fuse also enables metric reporting against a single segment within the ribbon browser (that is, for a specific ribbon within a specific phase).



Trend Analysis

You can use the Acumen Fuse trend analysis feature to replace the traditional time-based phases in the diagnostics view with project snapshots.

You need to have a project loaded with at least one snapshot to use this feature.

Similar to a phase analysis, the Acumen Fuse engine calculates results across ribbons within each snapshot.

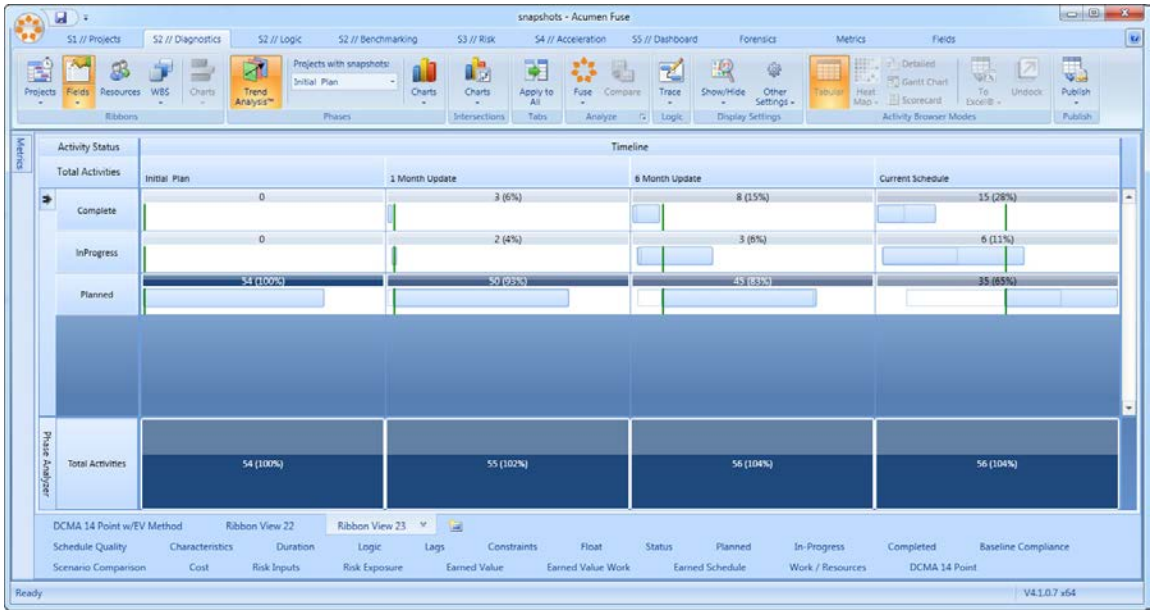
Example of Trend Analysis

The example below shows a trend analysis across the following project snapshots:

- The initial plan
- 1-month update
- 6-month update
- Current schedule

The Total Activities metric has been added to the intersection analyzer and the activities have been grouped by status. In this view you can see the number of activities that are planned, in-progress, or complete for each project snapshot.

The Phase Analyzer shows the total metric result for each snapshot.



Types of Analysis

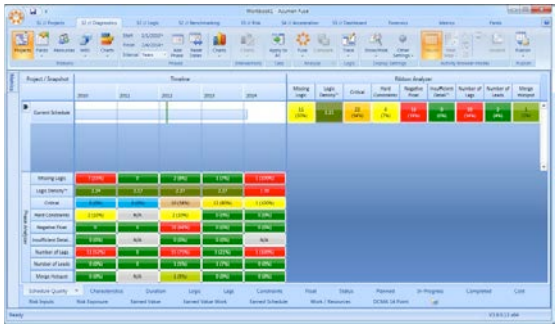
You can use Acumen Fuse to analyze one or more projects within a single workbook. Through the use of ribbons, you are able to perform three main types of analysis:

- Single Project Analysis
- Snapshot Comparison-Trending of a Project over Time
- Multi-Project/Portfolio Analysis

These are described in detail below.

Single Project Analysis

When a workbook contains a single project, you can generate ribbons as a single project ribbon or grouped by field, WBS, or resource. This type of analysis provides a huge amount of slice and dice flexibility within a single project.



Single Project as a Project Ribbon

Single Project Ribbonized by WBS

Snapshot Comparison-Trending of a Project over Time

You can include multiple snapshots of the same project within a workbook in order to run comparisons against a given version of the same project.

See Working with Acumen Workbooks for more information.

To run such an analysis, include the multiple snapshots of the project in a single workbook and then ribbonize by project. This will result in a separate ribbon being created for each of the snapshots. You can then use metric analysis using all three analyzers in the usual way.

Use the Ribbon and Intersection Analyzers to analyze the characteristics of the portfolio.

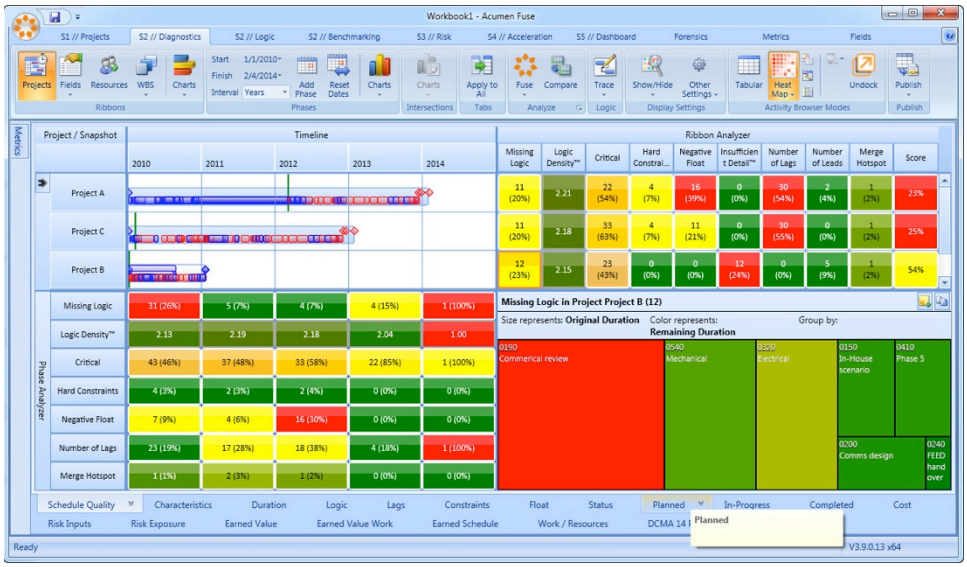
See Ribbons and Intersection Analysis for more information.

Multi-Project/Portfolio Analysis

In a similar manner in which you can analyze multiple snapshots of the same project, you can ribbonize multiple projects within a given program or portfolio.

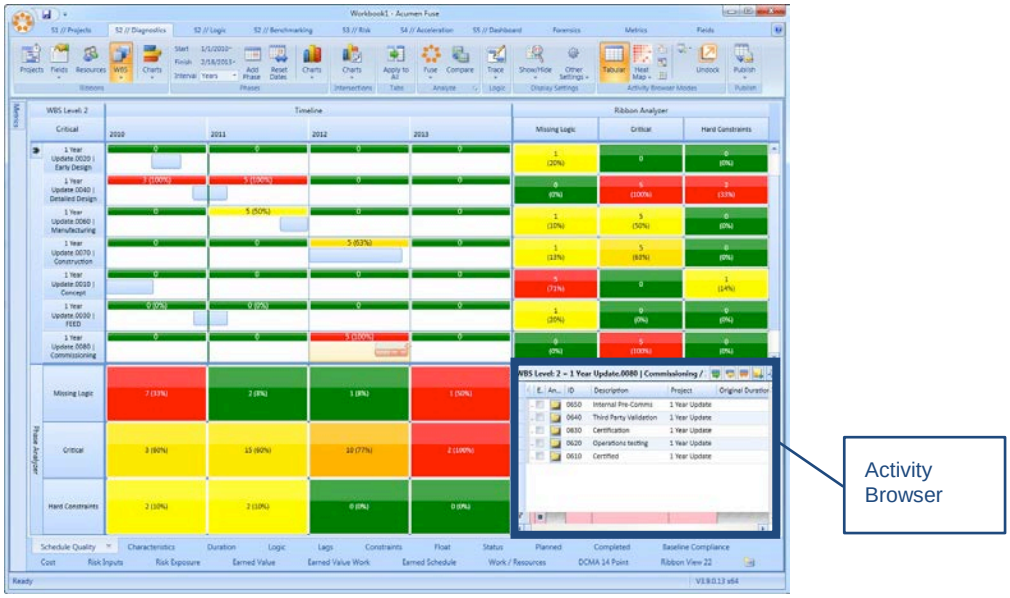
Import multiple projects (even from multiple platforms) into a single workbook and ribbonize by project. Use the Ribbon, Phase, and Intersection Analyzers to analyze the characteristics of the portfolio. You can also use the Comparison Analyzer to compare metric results across projects.

Example of the Portfolio Analysis Mode



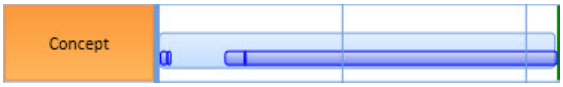
Use the Activity Browser

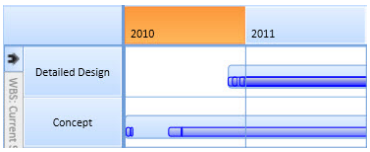
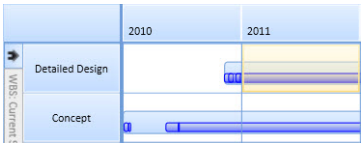
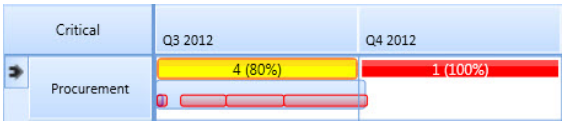
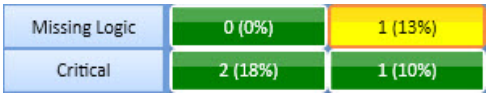
Use the Activity Browser to report specific activities based on a given criteria. The activities shown depend on which segment of the ribbon or analyzer windows are clicked.



The activities that display can originate from any of the following:

- Activities irrespective of Tripwire threshold:
  - A ribbon (cutting across multiple phases) — All activities for a given ribbon.
  - A phase (cutting across multiple ribbons) — All activities for a given phase.
  - An intersection — All activities for a given ribbon within a specific phase.
- Activities that trigger a given tripwire threshold:
  - Ribbon metric results — Activities for a given metric segment within the ribbon analyzer.
  - Phase metric results — Activities for a given metric segment within the phase analyzer.
  - Intersection metric results — Activities for a given metric segment within the intersection analyzer.

Action	Analysis View	Activity Browser Results
Activities irrespective of Tripwire threshold		
Click on a ribbon description		Shows all activities for the selected ribbon

Action	Analysis View	Activity Browser Results
Click on a Phase Header		Shows all activities for the selected phase.
Click on a ribbon/phase intersection		Shows all activities for the selected intersection.
Activities that trigger a given tripwire threshold		
Click on a intersection metric		Shows those activities for the selected intersection that triggered the tripwire.
Click on a ribbon analyzer cell		Shows those activities for the selected ribbon that triggered the tripwire.
Click on a phase analyzer cell		Shows those activities for the selected phase across all ribbons that triggered the tripwire.

Display the Activity Browser

To display the Activity Browser, complete the following steps:

1. Select the S2 // Diagnostics tab.
2. In the **Analyze** menu, click **Fuse** to calculate the metrics.

   If a metric does not have a tripwire formula defined, you cannot use the Activity Browser to view activities. See Tripwires for more information about tripwires and tripwire formulas.

3. Select a project on the Timeline (top left quadrant of the screen).

   The Activity View populates with activity details for that project.

You can also display a snapshot of the Activity Browser as a popup window. This is useful when reporting large quantities of data.

To display a snapshot of the Activity Browser in a separate window, complete the following step:

1. Select the S2 // Diagnostics tab.

2. In the Activity Browser Modes menu, click **Undock**.

   The results display in a separate window.

Customize Columns

You can use the field chooser to select the columns that display. In addition, you can change column order and adjust column width. Acumen saves your selections and the next time you view this project, your customized view displays.

To select or remove columns, complete the following steps:

1. In the Activity View, right-click on a column to view the field chooser.
2. In the field chooser popup dialog box, click on column names to select or remove them. A selected column has a checkmark next to it.
3. Click anywhere outside the popup dialog box to close it.

To adjust column width, complete the following steps:

1. In the Activity View, place your cursor between two columns.

2. Drag left or right to adjust the width.

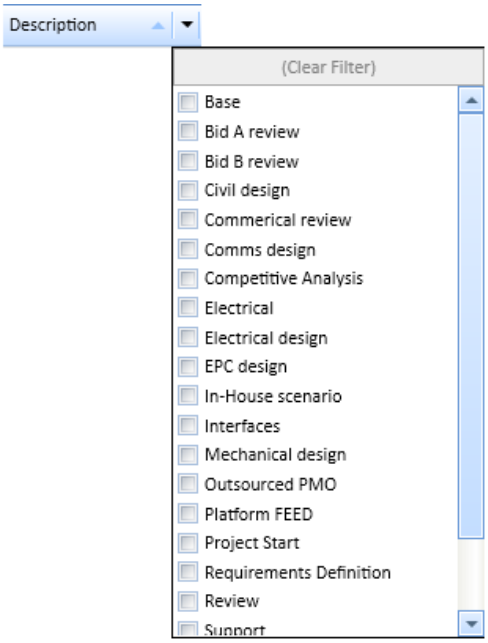
To change column order, complete the following step:

1. Click on a column and drag it left or right to the new location then release.

Sort or Filter Activity List

To sort the activity list, complete the following steps:

1. Hover over the column name by for you want to filter to see the down arrow.
2. Click on the down arrow to display the filter list.

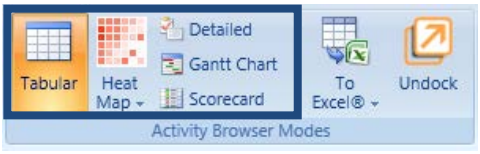


3. Select all fields that should remain in the activity list. Click **(Clear Filter)** to clear all filtering.
4. Click outside the popup dialog box to close it. Only the filters activities display.

Set the View Options

The Activity Browser can display activities in a tabular format, a Gantt chart, scorecard, or detailed view. Click on the Activity Browser View icons to toggle the view mode.

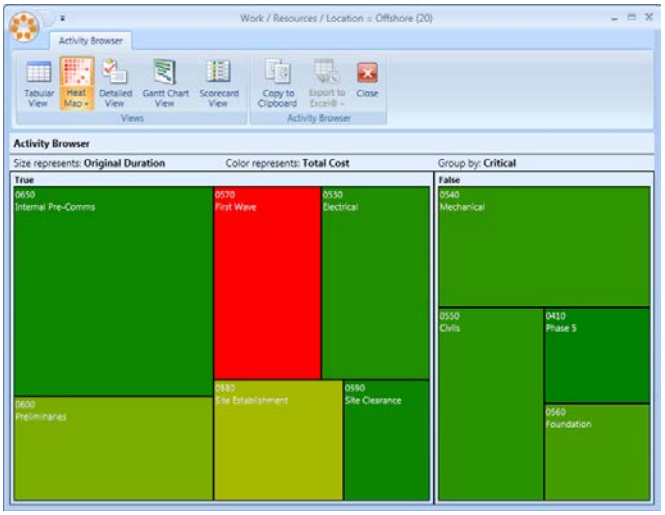
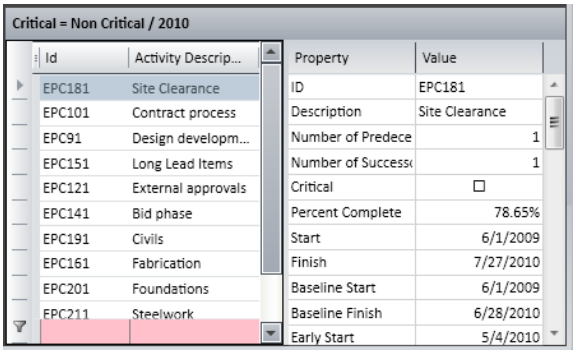
You can select the Activity Browser Modes on the S2 // Diagnostics tab in the Activity Browser Modes menu.

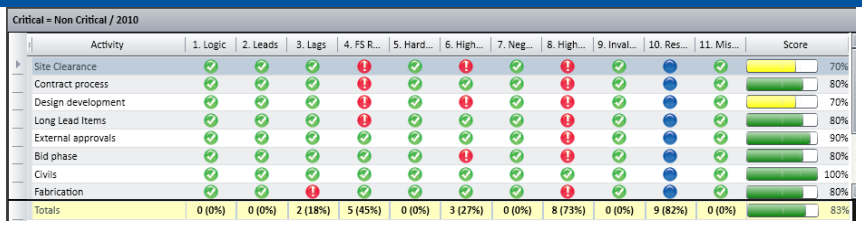


Activity Browser Formats

You can display activities within the Activity Browser in one of five formats:

Activity Browser Format	Example
Tabular mode	
Gantt mode	

Activity Browser Format	Example
Heat map	The heat map mode is an extremely powerful visual aid with regards to reporting results. A heat map report uses relative box size and color to distinguish various attributes of activities. Any activity attribute can be used to define box size, color, and grouping of heat maps charts. In addition, the number of activities shown in a heat map chart can be defined. The heat map example below illustrates: ▪ Size of box showing duration ▪ Color showing Total Cost ▪ Grouped by showing Critical/Non Critical 
Detailed mode	
Scorecard	This view gives the advantage of totaling metric scores directly within the analysis view.

Activity Browser Format	Example
	

Print Activities

To print from the Activity Browser window, complete the following steps:

1. Select the required activities to display.
2. Select tabular view (default mode).
3. Arrange, sort, and group the columns as needed.
4. Click **Print** in the Activity Browser to print the report.

Activity Reporting

You can print results from the Activity Browser in a tabular or scorecard report by clicking on the **Publish** icon.

To report activities, complete one of the following steps:

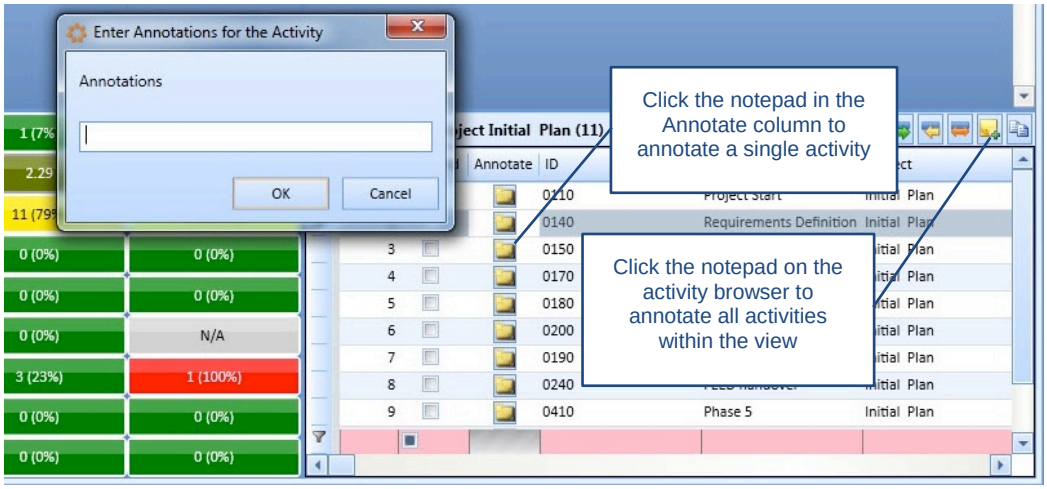
- To report activities, irrespective of tripwire threshold, click on the ribbon or phase or intersection header.
- To report activities that make up the score in the analyzer cells, click on the cell in question.

Adding Annotations to Activities

To add notes or annotations to the metric results, use the notepad icon found in the Activity Browser. You can annotate a single activity or the entire Activity Browser.

- Click the notepad icon next to an individual activity to only add the note to that activity.
- Click the notepad icon in the top right hand corner of the Activity Browser to annotate all activities within the browser.

Multiple annotations can be added to the activities by re-clicking the notepad icon.



View and Interpret Results through Analyzer Windows

After an analysis has been run, you can view results through the three main analyzer windows:

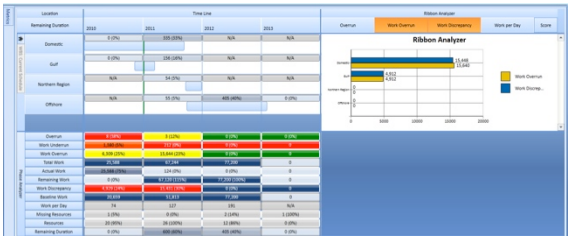
- Ribbon Analyzer
- Phase Analyzer
- Intersection Analyzer

These are used to report totals and numbers of exceptions to tripwire thresholds. Use the Activity Browser to drill down further to determine individual activities causing the tripwires to trigger.

Ribbon Analyzer

The ribbon analyzer displays metric results for each individual ribbon. By default, the results display in a tabular format but can also be viewed as a chart.

Ribbon Analyzer -Tabular View



Ribbon Analyzer – Chart View

Phase Analyzer

The phase analyzer shows metric results for each individual phase. By default, the results are shown in a tabular format but can also be viewed as a chart. The phase analyzer is useful for viewing trending information over time.

Phase Analyzer Tabular View

Phase Analyzer – Chart View

Intersection Analyzer

The intersection analyzer is slightly different to that of the ribbon and phase analyzer in that it can only report one metric at a time. However, in the same manner as ribbons and phases, results can be shown in both a tabular and graphical format. The intersection analysis is the most detailed of the three analyzers as it pinpoints exceptions within ribbons and phases combined.

Intersection Analyzer Tabular View

Intersection Analyzer – Chart View

Analyzer Chart Options

When viewing any of the three analyzers in chart mode, you can modify the chart type by using the **Phases » Charts** options on the S2 // Diagnostics tab. In addition, you can use the **Charts** options to set charts to cumulative and non-cumulative.

When you view analyzer results through the use of charts, the colors of the bars and lines relate to the tripwire threshold colors as defined for the metric in question.

Use Metrics to Analyze Projects

Acumen Fuse uses libraries of metrics to analyze projects. Standard metric libraries pertaining to schedule quality, cost, project performance, risk exposure, earned value, and more are included within the tool. Additional libraries and associated metrics can be created.

Metrics contain formulas and tripwire thresholds.

- Formulas are used to calculate results as part of an analysis.

- Tripwire thresholds are used to flag and filter activities that exceed given thresholds.

Metric results can be numeric (for example, cost or duration) or percentages (for example, percentage of total project duration). Percentages are useful for portraying results within a given context.

Metric formulas are defined using standard MS Excel-based formula syntax.

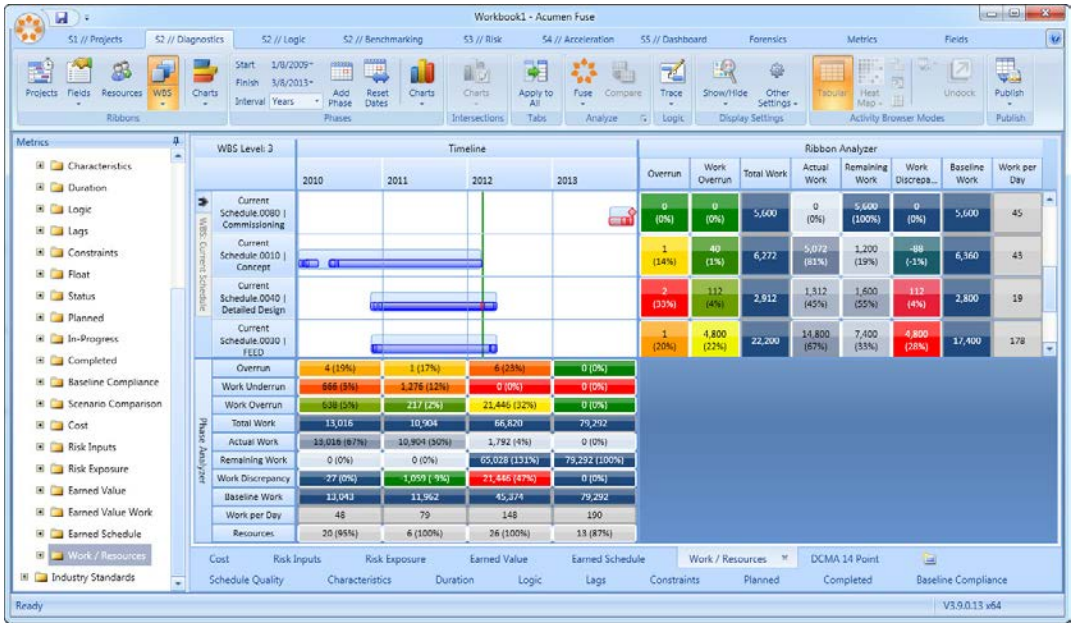
Acumen Fuse includes various metrics libraries including, but not limited to:

- **DCMA 14-Point Schedule Assessment** — Schedule critique
- **Schedule** — Schedule characteristics
- **Cost** — Cost characteristics
- **Performance** — Execution performance relative to a given baseline
- **Plan characteristics** — Nature and complexity of a project plan
- **Risk exposure** — Cost and schedule risk exposure
- **Earned Value** — EV-based performance analysis
- **Earned Schedule** — Schedule-based performance analysis
- **Forensics** — Comparison-based metrics for determining root cause of delay

For more information, see Managing Metrics.

Apply Metrics

By default, the S2 // Diagnostics tab is automatically populated with multiple sub- tabs containing separate views for each of the metric libraries. You can edit each of these views with regards to adding/removing metrics to each of the three analyzers (ribbon, phase, intersection).

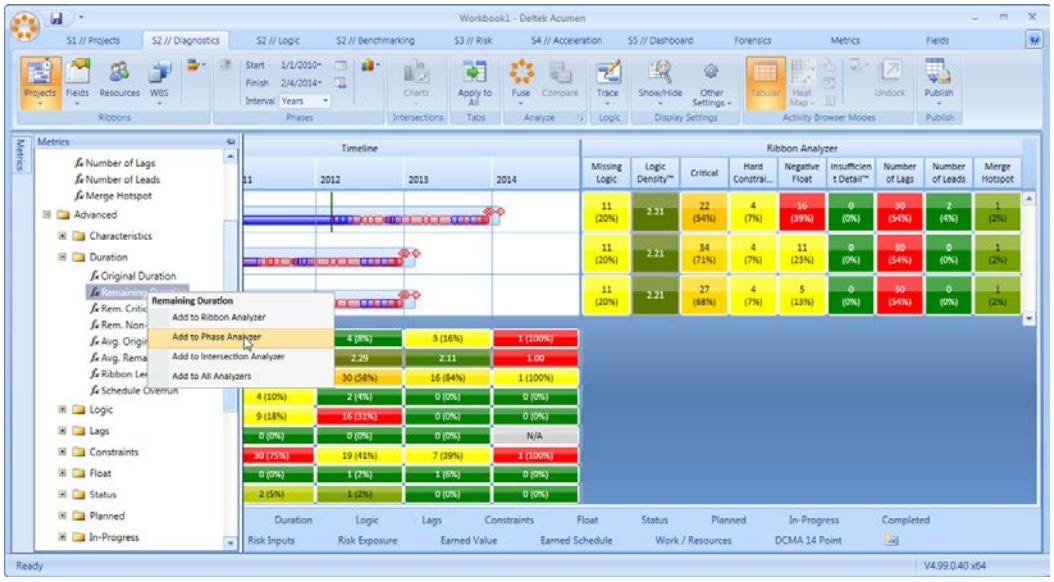


Add a Metric to an Analysis View

You can add metrics to any of the three analyzer windows (ribbon, phase, intersection).

To add a metric, complete the following steps:

1. Click on the Metrics tab on the left hand side of the analysis view to reveal the list of metric libraries and corresponding metrics within each library.
2. Right click on the required metric and select one of the following:
   - Add to Ribbon Analyzer
   - Add to Phase Analyzer
   - Add to Intersection Analyzer
   - Add to All Analyzers



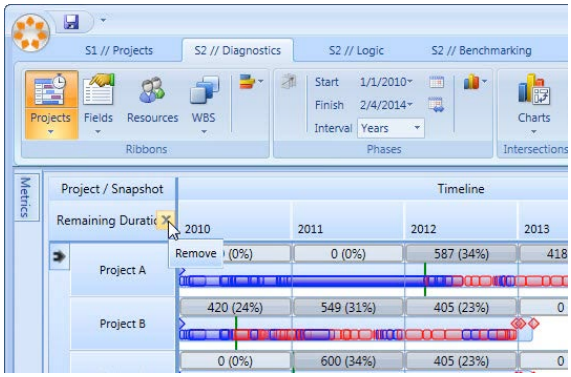
You can add an unlimited number of metrics to the ribbon and phase analyzers. You can only view one metric at a time in the intersection analyzer.

Remove Metrics from an Analysis View

You can remove metrics from the ribbon and phase analyzer by right clicking on the metric title and clicking **Delete**.

To delete the currently applied intersection metric, complete the following steps:

1. Hover over the intersection metric title in the top left hand corner of the view.
2. Click **Delete**.

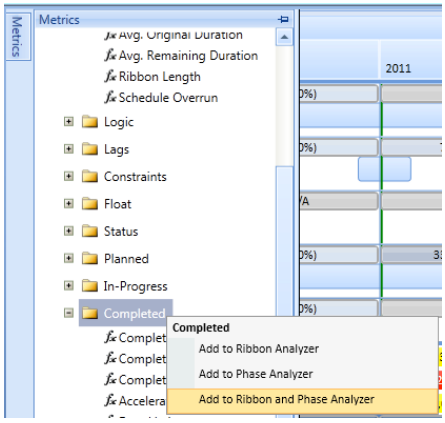


Add an Entire Metric Library to an Analyzer

In addition to adding individual metrics to an analysis view, you can add entire metric libraries to a view in a single action. The process is similar to that of adding individual metrics.

To add a metric library to an analyzer, complete the following steps:

1. Right-click on the desired metric library.
2. Select one of the following:
   - Add to Ribbon Analyzer
   - Add to Phase Analyzer
   - Add to Ribbon and Phase Analyzer



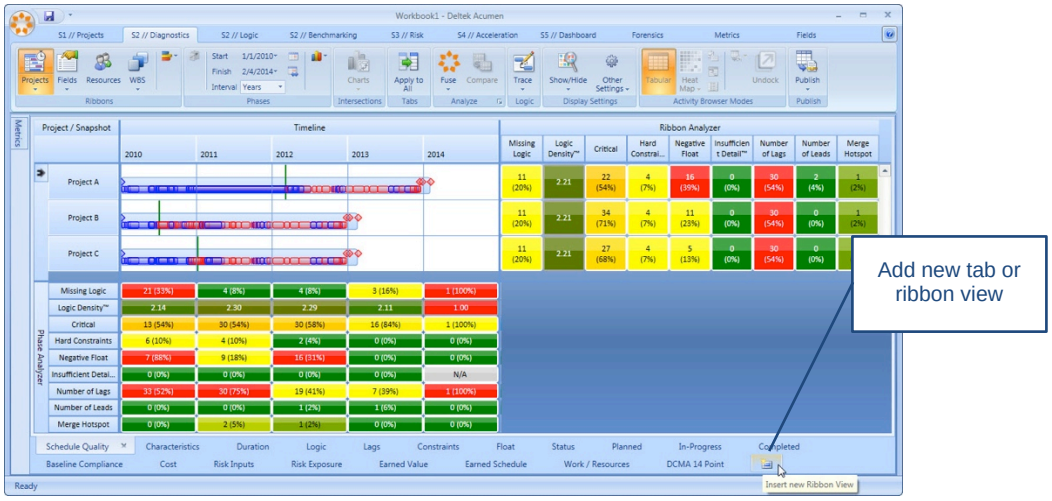
Since you can only view one metric at a time in the Intersection Analyzer, you cannot add a metric library to the Intersection Analyzer. Instead, assign individual metrics as described above. See Intersection Analysis for more information.

Add New Metric Views

You can add new tabs with metrics to an analyzer the same way you add a library.

To add a new tab, complete the following steps:

1. Click the new tab/ribbon icon  located to the right of the last tab.
2. Rename the tab by right-clicking on the tab and selecting **Rename**.



Metric Benchmarking

In addition to calculating metric results in the three analyzer windows, you can also benchmark metric scores against other scores. You can conduct benchmark comparison in three dimensions:

- Compare results between ribbons.
- Compare results between phases.
- Compare results between intersections.

To enable benchmark comparison, complete the following step:

1. Select the S2 // Diagnostics tab.
2. In the Display Settings menu, click the **Other Settings** down-arrow.
3. Click **Benchmark Comparison**.

After it is enabled, click on any of the analyzer cells to run a comparison with the selected ribbon/phase/intersection and the other ribbons/phases/intersections.

Benchmark comparison results are shown through the use of up/down triangular icons.

- Red shading indicates a negative comparison.
- Green shading indicates a positive comparison.

Example of Metric Benchmarking

This example shows benchmark comparison where the **Northern Region** ribbon is the selected base scenario against the comparison analysis being carried out.

Run Logic Analysis Using Logic Trace

In addition to running it from the S2 // Diagnostic tab, you can also run logic trace from the S2 // Logic tab. See Using Logic Trace for more information.

Logic analysis traces the path(s) of activities to and from a given activity. For example, all activity paths leading into a given milestone, or all activities on the path from a project sanction milestone to the end of the project.

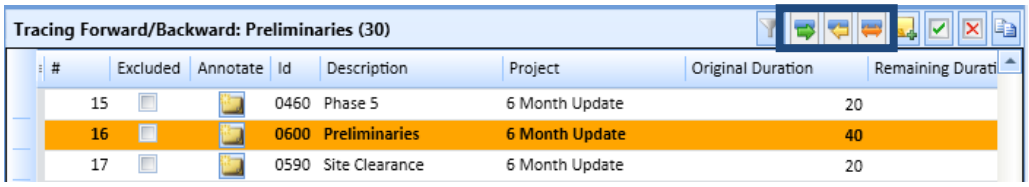
You can use the following tracing modes:

- **Trace Forward** — Trace logic forward starting from the selected activity.
- **Trace Backward** — Trace logic backward starting from the selected activity.
- **Trace Forward / Backward** — Trave logic forward and backward starting from the selected activity.
- **Trace Path** — This traces the paths between any two given activities. That is, it traces the logic from a starting activity until reaching the finishing activity.

When you conduct a logic analysis, the analysis engine and resultant metric results only reflect those activities that are returned in the path analysis.

You trigger logic analysis on the S2 // Diagnostic tab in one of two ways:

- Select an activity then use the ribbon bar Logic menu (**Logic » Trace**).
- Select an activity then use the Logic Trace icons in the Activity Browser. You can use these buttons as a fast-track means of running a logic trace by selecting the activity in question and using the icons to trace forwards, backwards, or in both directions.



Driving Logic

Driving Logic allows you to analysis only those path(s) that are driving the schedule through to completion. This allows you to pinpoint the key activities in a schedule.

By default, the logic trace runs in **Driving Logic Only** mode.

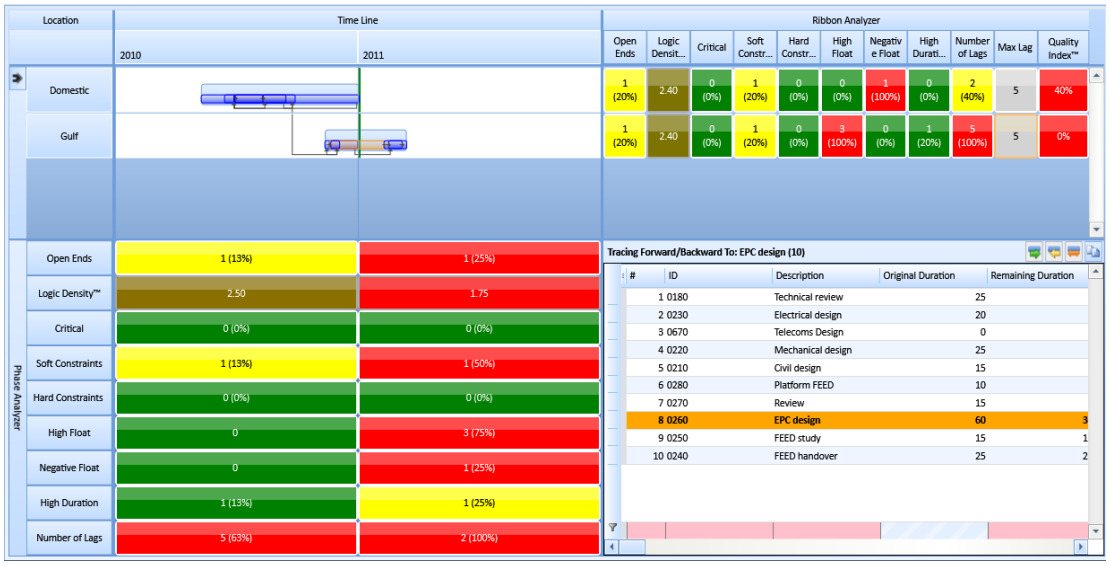
To switch from Driving Logic Mode Only to display all logic, complete the following steps:

1. Select the S2 // Diagnostics tab.
2. In the Logic menu, click the **Trace** down-arrow.
3. Click **Driving Logic Only** to deselect it.

   It has a checkmark to the left of it when it is selected and no checkmark when it is not selected.

Example of Driving Logic Analysis

The screenshot below shows an example of a driving logic analysis looking at all driving activities leading into and stemming from an activity called **EPC Design**. The activities in this path analysis are also shown in the ribbon browser and the results in the ribbon/phase analyzer are reflective of this driving path.



Run a Logic Trace From the S2 // Diagnostics Tab

To run a logic trace using the S2 // Logic tab, see Run a Logic Trace From the S2 // Logic tab.

To run a logic trace, complete the following steps:

1. Select the S2 // Diagnostics tab.
2. In the Project/Snapshot pane, select a project.
3. In the Activity browser, select an activity.
4. Do one of the following:
   - In the Logic group, click the **Trace** down-arrow and select a tracing mode.
   - Click one of the trace logic icons in the Activity browser.

   The trace logic filtered activities display in the Activity browser.
5. (Optional) Click the **Trace** down-arrow and deselect **Driving Logic Only** if you want to display all logic.

To reset the trace, click **Logic » Trace**.

Run a Fuse Analysis

To run a Fuse analysis, complete the following steps:

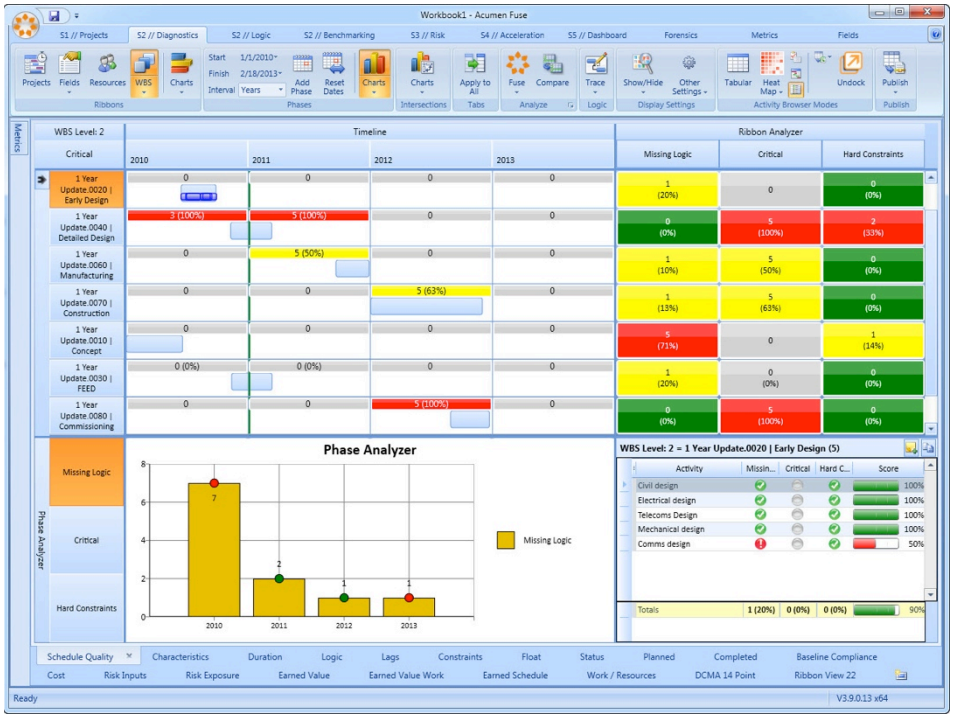
1. Populate your workbook with project data.

   See Working with Acumen Workbooks for more information.

2. Run Acumen Fuse Analysis:
   a. Select the S2 // Diagnostics tab.
   b. Select a pre-defined analysis view using the tabs at the bottom of the screen.
   c. In the Analyze menu, click **Fuse** to run the analysis.
   d. Click on any metric result, ribbon, or phase to view the included activities in the Activity Browser.

Example of Fuse Analysis Results



Exclude Activities From the Analysis

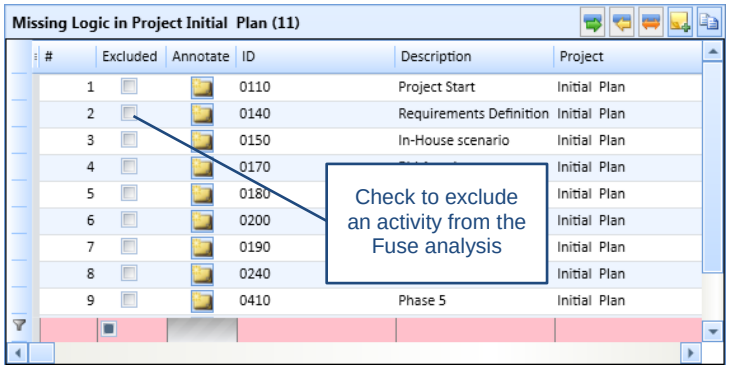
You can filter activities out of the Fuse analysis using the **Excluded** checkboxes within the Activity Browser.

To exclude an activity from the analysis, complete the following steps:

1. On the S2 // Diagnostics tab, run a Fuse analysis, select a metric result, and review the activities included in the Activity Browser.

   See Run a Fuse Analysis for steps.

2. To exclude an activity from the analysis, select the **Excluded** box next to the activity.



3. Re-run the analysis to update the metric results.

Comparison Analysis

The Comparison Analyzer enables you to compare similarities and differences between two scenarios. The scenarios that get compared can originate from multiple origins as well as report in different contexts.

The Comparison Analyzer allows you to:

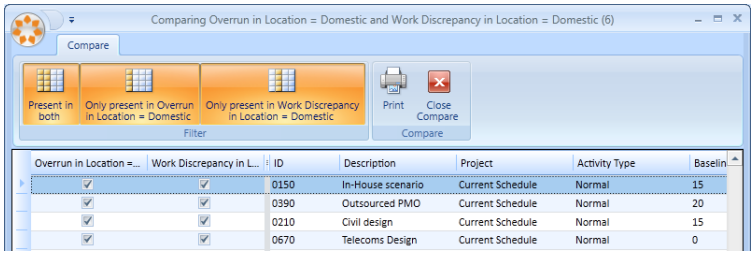
- Compare the same metric across two different ribbons.
- Compare the same metric across two different time periods within either the same ribbon or between different ribbons.
- Compare two different metrics within the same ribbon or phase.
- Compare similarities — Report activities that haven't changed between two scenarios.
- Compare differences — Report activities that have changed between the two scenarios.

Run a Comparison Analysis

To run a comparison, complete the following steps:

1. Select the S2 // Diagnostics tab.
2. Create Scenario A by clicking on one of the following:
   - **Ribbon analyzer cell** — Selects all activities that trigger the tripwire for the selected metric within the selected ribbon (across multiple phases).
   - **Phase analyzer cell** — Selects all activities that trigger the tripwire for the selected metric within the selected phase (across multiple ribbons).
   - **Intersection analyzer cell** — Selects all activities that trigger the tripwire for the selected metric within the selected phase within the selected ribbon.
   - **Phase header** — Selects all activities across all ribbons for the selected phase.*
   - **Ribbon header** — elects all activities across all phases for the selected ribbon.*
3. In the Analyze menu, click **Compare**.
4. Create Scenario B by clicking on any of the same options as described in the above step for Scenario A.

   After selecting Scenario B, the compare analysis will automatically run. The results display in a popup window.



Selecting a scenario from either a phase or ribbon header allows you to select activities for a scenario irrespective of whether the activities trigger a metric tripwire.

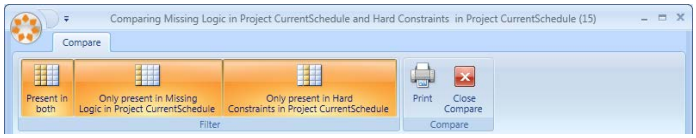
Apply Filters

You can apply three filters in the Comparison Analyzer results window. This enables you to do further analysis comparing similarities and differences within the two scenarios. By default, all three filters are enabled resulting in three sets of data. The filters are cumulative and not exclusive.

- **Present in both** — This filter displays only those activities that are present in both scenarios. In the case of comparing two scenarios against the same metric, this indicates those activities that trigger a metric tripwire in both instances; that is, activities that have not changed between the two scenarios.
- **Only present in <Scenario A>** — This filter displays those activities that are present in the first scenario but not in the second. In the case of comparing two scenarios against the same metric, this reports those activities that triggered the metric tripwire in the first scenario but not in the second. Typically, this is used to show those activities that were an issue in Scenario A that then got addressed and fixed in Scenario B.
- **Only present in <Scenario B>** — Shows those activities that are present in the second scenario but not in the first. In the case of comparing two scenarios against the same metric, this reports those activities that triggered the metric tripwire in the second scenario but not in the first. Typically, this is used to show those activities that weren't an issue in Scenario A that then became an issue in Scenario B.

Comparison Analyzer Printing

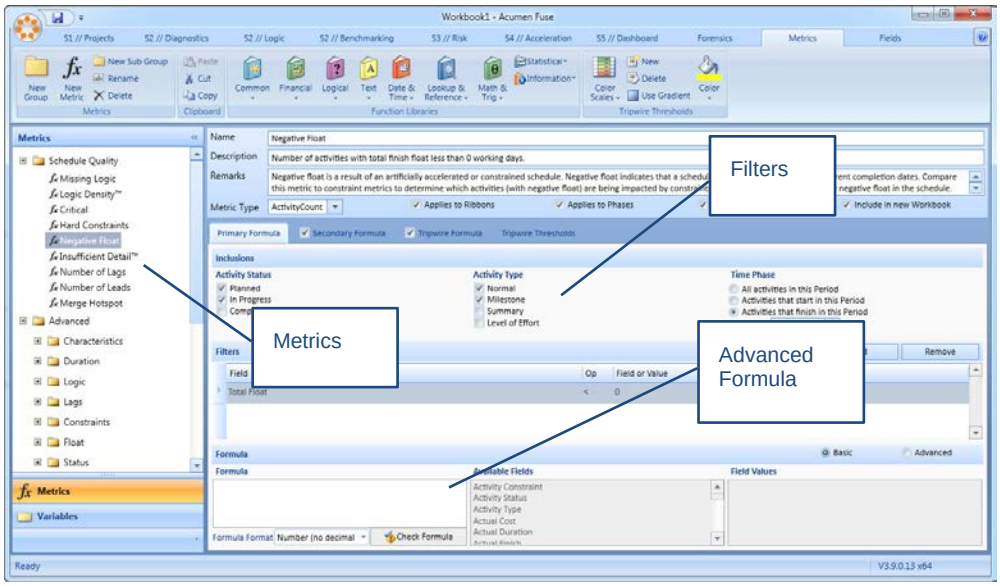
You can print the Comparison Analyzer results by clicking **Print** in the Comparison Analyzer window.



Manage Metrics

The Acumen Fuse analysis engine uses libraries of metrics to run project analytics. These metrics are defined using either basic filters or more advanced formulas that are of the same syntax as those found in MS Excel. Acumen includes several metrics libraries. Metrics can be edited using the metric editor.

The Metrics Tab



Metrics within a Workbook

Each workbook contains its own metric library. Any change you make to metrics or the metric library is made only to the open workbook.

To reuse an updated metric library, complete the following steps:

1. Click then click **Open** to open the updated workbook.
2. Click and in the left-hand pane, click **Save As…**.
3. Save the file.
4. Add projects for analysis.

Building Blocks of Acumen Fuse Metrics

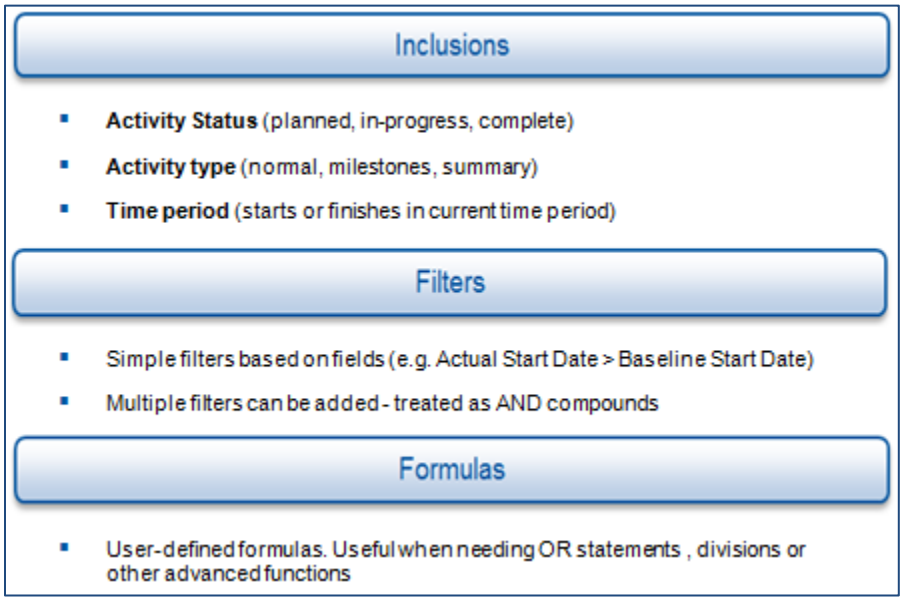
Each metric is made up of a Primary Formula, a Secondary Formula, and Tripwires.

- **Primary Formula** — The primary formula is the formula used to calculate the primary result calculated in the analysis (for example, total cost).
- **Secondary Formula** — The secondary formula is the second of two results that can be displayed for a metric after running an analysis. Typically (although not limited to), the secondary metric is used to show the primary formula as a percentage (for example, cost as a percentage of total project cost). The secondary formula is an optional attribute of a metric. If it is not defined, it will not display in the analyzer windows.

- **Tripwire Formula** — The tripwire formula is (optionally) used to determine the individual exceptions that are listed in the Activity Browser. Metrics that do not contain a Threshold formula cannot be used to display activities in the Activity Browser and also cannot be used in the Comparison Analyzer.
  - **Tripwire Threshold** — A tripwire threshold is a defined value that, if exceeded, causes a metric to be classified as 'triggered'. A metric can have multiple trigger points with corresponding color coding for each interval. The threshold editor enables customizable bandwidths or thresholds to be defined, color coded and described.

Each formula is built using a three-level hierarchy:

- Inclusions — A top-level set of filters to exclude specific activities based on type, status and time period
- Filters — Standard filters that further pinpoint specific activities
- Formula — Advanced custom formulas to further specify advanced criteria sets.



Write Metric Formulas

You can develop Acumen Fuse metrics using a basic or advanced approach, or a combination of the two:

- **Basic** — A filter-based set of metrics that doesn't require detailed formula definition.
- **Advanced** — Detailed formulas used to define a metric beyond a simple filter.

Formulas use array-based formulas in their calculations. These are explained in detail below. The formulas enable you to group and aggregate multiple activities together so that results for a ribbon or phase or intersection can be calculated.

Array Formula Types

Acumen Fuse metric formulas are based on Single Value Result Array formulas. Single Value Result Array formulas work with a series of data (activities), aggregate it (typically using **SUM**, **AVERAGE** or **COUNT**) and return a single value to the (ribbon, phase, or intersection) analyzer.

Array formulas typically return a series of values. For example, in Excel, the formula **=Row(A1:A5)** returns only a single value (the first value in the list). An array formula will return all values for **A1** to **A5**. You usually apply a container function, such as **SUM** or **AVERAGE** or

COUNT, against the results of an array formula. This enables you to apply the function to the list of values and return a single value result.

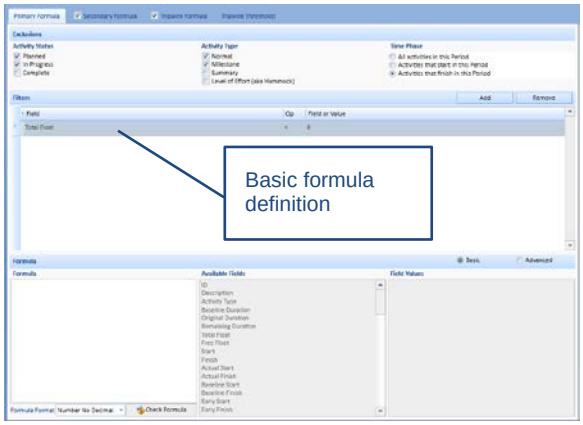
In Acumen Fuse, a ribbon, phase, and intersection all contain one or more activities. In the case of phases and intersections, the activities may span across more than one phase or intersection. Therefore, certain data (for example, duration, work, and cost field types) gets prorated. When metric functions are applied during a Fuse analysis, they are applied to the ribbon, phase, or intersection indirectly being applied to all activities within that segment through the use of an array formula.

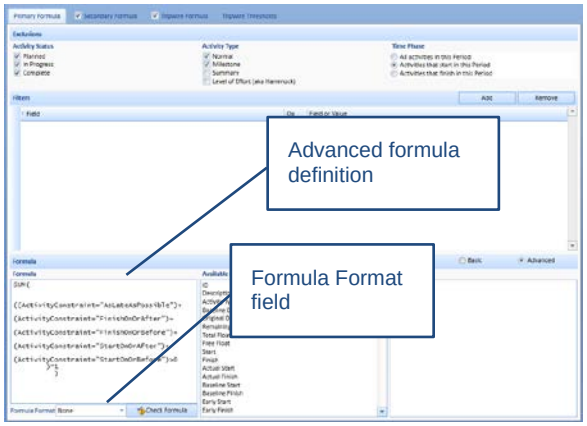
Develop Primary Formulas

Primary formulas can return any type of numeric or text-based result.

To create a Primary formula, complete the following steps:

1. Define inclusions — These are overarching filters that limit which activities get included in the search by type/status/phase.
2. Define Filters — These are the next level of filters further filtering out specific activities. Many metric definitions can be completed by just using inclusions and filters (for example, Critical activities).
3. Add an optional formula — If additional advanced criteria definition is needed, then select the advanced mode and define the function using the advanced metric editor.
4. Select a format from the **Formula Format** field to format primary format results — This applies to both basic and advanced primary formula definitions.



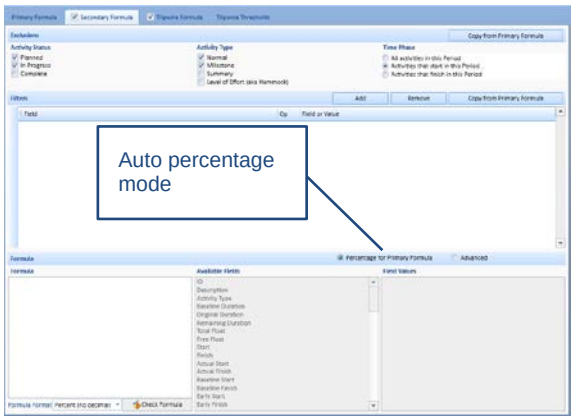


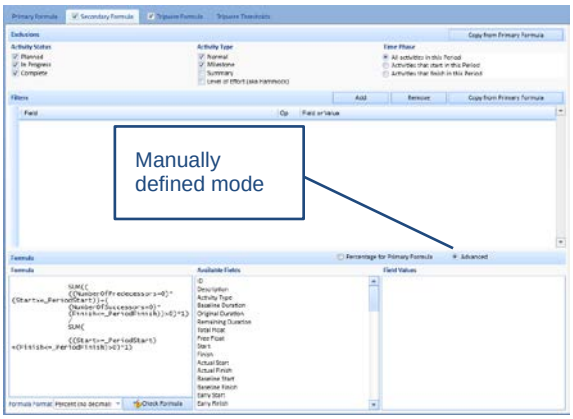
Develop Secondary Formulas

A secondary formula is additional information shown in a ribbon/phase or intersection analysis window. Secondary formulas are defined in a similar way to primary formulas. If you want to use a secondary formula to show a percentage, set the **Format** field to **Percentage**.

There are two ways to create a secondary formula:

- **Simple percentage relative to the primary formula** — If the secondary formula represents a percentage of the primary formula, then you don't need to create complex formulas. Instead, select the relevant inclusions and filters (in order to define the population against which you are going to divide the primary formula in order to calculate the percentage) and then set the mode to **Percentage of Primary Formula**. A simple percentage secondary formula can be auto-calculated in this mode irrespective of whether the primary formula has been defined in basic or advanced mode.
- **Advanced Secondary Formula** — If the required secondary formula is not a simple percentage of the primary formula, then set the mode to **Advanced** and define the inclusions, filters and advanced formula manually.





Tripwires

Tripwires graphically depict when a particular metric threshold is reached. Acumen Fuse tripwires are flexible with regards to the:

- Number of thresholds per metric that can be defined.
- Type of thresholds (absolute and gradient).
- Formulas against which thresholds can be based (primary and secondary).

Tripwire Formulas

The tripwire formula is used to determine the individual exceptions that are listed in the Activity Browser. Tripwire formulas must ultimately return a Boolean in the form of either a **True** or **False** value. The most commonly used function to return this Boolean is an **AND** statement.

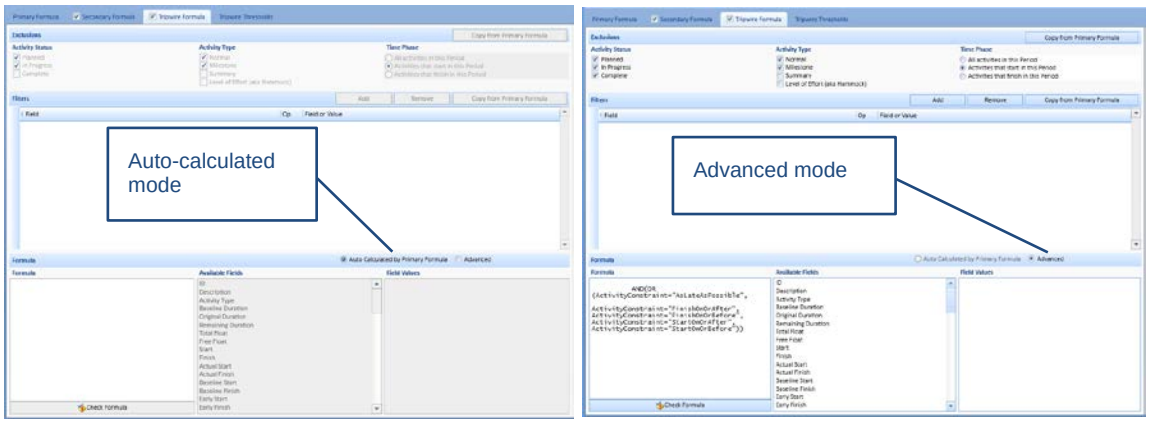
```
AND(ActivityType="Normal", ActivityStatus="Planned")
```

AND functions can contain an unlimited number of conditions.

Tripwire formulas get applied to each activity separately whereas primary and secondary formulas get applied to groupings of activities (depending on the ribbon, phase, or intersection context).

You can create tripwire formulas in one of two ways:

- **Auto Calculated by Primary Formula** — If the primary formula was created using the basic mode, you can opt to automatically create the tripwire formula without defining any inclusions, filters, or formulas for the tripwire definition. Instead, Fuse will automatically create a tripwire formula based on the inclusions and filters defined in the primary formula. This mode cannot be used if the primary formula was created in Advanced mode. In Auto Calculated by Primary Formula mode, the tripwire inclusions and filters options are disabled because they are automatically inherited from the primary inclusions and filters.
- **Advanced** — This mode enables you to manually create inclusions, filters, and advanced functions that together return the required set of activities.



Tripwire Thresholds

Each metric includes an optional set of tripwire thresholds. You use these thresholds to graphically show when a defined threshold is exceeded. Tripwire thresholds can be based on either the primary or secondary formula.

If you enable the secondary formula by selecting the checkbox for the secondary metric, then the tripwire threshold is automatically associated with the secondary metric. If you do not select the checkbox, the tripwire threshold is automatically associated with the primary formula.

Define Tripwire Threshold Scales

You can define tripwire threshold scales as having any number of intervals. To automatically create standard scales, click **Metrics » Tripwire Thresholds » Color Scales**.

This option provides three types of standard scale:

- **Lowest is Better** — Creates a scale where the lowest values are preferable.
- **Highest is Better** — Creates a scale where the highest values are preferable.
- **Ideal Value** — Creates a scale where the middle values are preferable.

You can create varying numbers of interval for each of these scale types.

In addition to using the standard scale types, you can add additional intervals using the Color Scales menu.

Normal and Gradient Scales

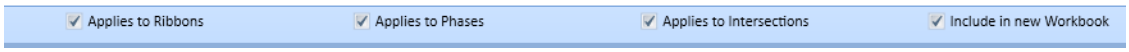
You can define threshold intervals as either normal or gradient. By default, scales are defined as normal. All threshold intervals within a single metric are either normal or gradient-based (they cannot be mixed within a metric).

Normal scales behave in an absolute or binary manner – that is, a metric result either does or does not trigger a threshold.

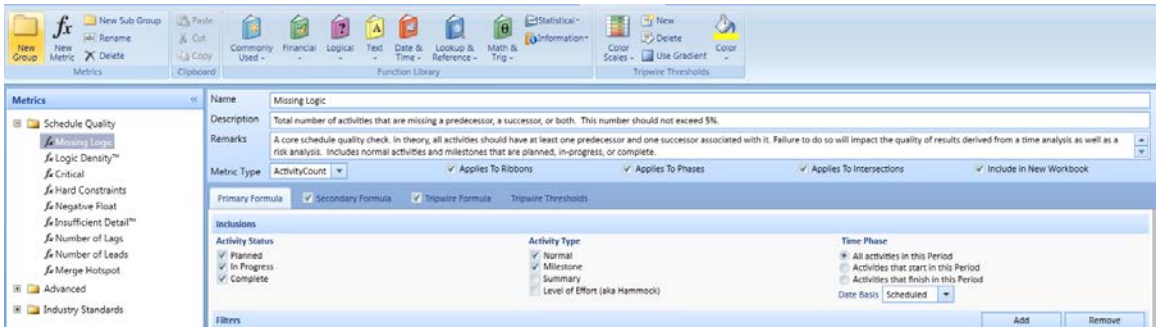
A gradient scale behaves differently, in that a metric result, while falling within a given interval, can be represented as being close to an interval boundary. This type of scale is useful when determining how close a metric result is to a tripwire boundary. When using gradient scales, instead of discrete colors for the intervals being used, gradient scales of color are used (based on where the metric falls in the scale).

Include or Exclude Metrics from Analysis

By default, each metric is available in all three analyzers (ribbon, phase, intersection). Metrics can be excluded from a particular analysis (for example, phase) if, for example, the context is not valid. Use the check boxes in the **Metrics tab » Applies To** menu to Include/exclude metrics from each of the three analyzers.

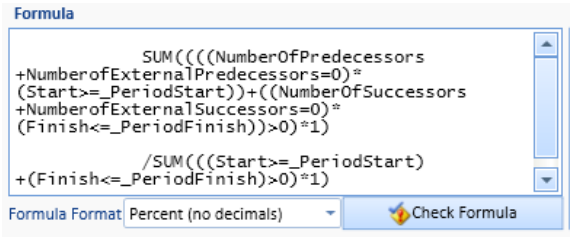


In addition, you can use the **Include in new Workbook** checkbox to define whether a metric gets automatically added to a view upon creation of a new workbook.



Test Metric Formulas

You can click **Check Formula** to validate the syntax of the formula when creating or editing a metric formula. The test calculation is applied to all activities within the workbook.



Common Functions

The Acumen Fuse metric editor supports all MS Excel functions. The most commonly used formulas are grouped in **Metrics » Function Libraries » Common**.

IF Function

The IF function returns one value if the specified condition is TRUE and returns another value if the specified condition is FALSE.

IF(logical_test, value_if_true, [value_if_false])

- **Logical_test** (Required) — Any value or expression that can be evaluated to TRUE or FALSE.
- **Value_if_true** (Required) — The value to be returned if the “logical_test” argument evaluates to TRUE.
- **Value_if_false** (Optional) — The value to be returned if the “logical_test” argument evaluates to FALSE. If omitted then zero is returned.

Example — IF(TaskStatus="Inprogress",1,0) returns 1 if the activity status is equal to InProgress otherwise 0 is returned.

You can write IF statements in shorthand within Acumen Fuse. If the IF function name and *Value_if_true* and *Value_if_false* parameters are omitted, the Acumen Fuse engine will assume that the function is an IF statement returning either a 1 or a 0.

Example — IF(TaskStatus="Inprogress",1,0) can be written in shorthand as (TaskStatus="Inprogress").

SUM Function

The SUM function adds all the numbers specified as arguments.

SUM(number1, [number2], [number3], [number4], ...)

- **number1** (Required) — The first item that you want to add
- **number2**, **number3**, **number4**, **...** (Optional) — The remaining items that you want to add

Example — SUM(ActualCost) returns the sum of the Actual Cost.

AND Function

Returns TRUE if all its arguments evaluate to TRUE; returns FALSE if one or more arguments evaluate to FALSE. Most commonly used in the Tripwire formula.

AND(logical1, [logical2], ...)

- **logical1** (Required) — The first condition that you want to test that can evaluate to either TRUE or FALSE.
- **logical2**, **...** (Optional) — Additional conditions that you want to test that can evaluate to either TRUE or FALSE

Example — AND(ActivityType="Normal", ActivityStatus<>"Complete") returns TRUE if the activity type is “NORMAL” and activity status is not equal to “COMPLETE”.

MAX Function

Returns the largest value in a set of values.

MAX(number1,number2,...)

- **Number1**, **number2**, **...** — are 1 to 255 numbers for which you want to find the maximum value.

Example — MAX(TotalFloat) returns the maximum Total Float.

AVERAGE Function

Returns the average (arithmetic mean) of the arguments.

AVERAGE(number1, [number2],...)

- **number1** (Required) — The first number for which you want the average.
- **number2**, **...** (Optional) — Additional numbers for which you want the average, up to a maximum of 255

Example — AVERAGE(TotalFloat) returns the average Total Float.

COUNTIF Function

Counts the number of occurrences that meet a given criteria.

COUNTIF(range, criteria)

- **Range** (Required) — One or more fields that contain numbers.
- **Criteria** (Required) — A number, expression, or text string that defines which records to be counted. For example, criteria can be expressed as 3, ">3","Normal", or "3".

Example — COUNTIF(TotalFloat,">5") counts the number of activities who have a Total Float value greater than 5.

Types of Fields

When creating metric formulas, you can reference four types of fields:

Field	Description
Activity Fields	Activity fields are the most commonly used type of field in an Acumen Fuse metric formula. All fields that are defined in the field mapping during a project import are exposed as activity fields in the metric editor.
Project Fields	Some project level fields get automatically imported during a project import. These fields are also exposed for use within metric formulas. When a metric is calculated that contains a project field reference, the specific project field value for the activity in question is used. A single metric calculation may contain activities from multiple projects. In this instance, the appropriate project level field value will be used for each activity (for example, Time Now may be different for each of the projects). Project fields include: ▪ Project Start [ProjectStart] ▪ Project Finish[ProjectFinish] ▪ Project Time Now [ProjectTimeNow]
Workbook Fields	Workbook fields are summated values that are calculated at the workbook level (that take into account all activities within the workbook). Workbook fields include:

Field	Description
	▪ Workbook Cost (total) [WorkbookCost] ▪ Workbook Actual Cost [WorkbookActualCost] ▪ Workbook Remaining Cost [WorkbookRemainingCost] ▪ Workbook Budget Cost [WorkbookBudgetCost] ▪ Workbook Budget Duration [WorkbookBudgetDuration] ▪ Workbook Actual Duration [WorkbookActualDuration] ▪ Workbook Remaining Duration [WorkbookRemainingDuration] ▪ Workbook Duration (total) [WorkbookDuration] ▪ Workbook # of Activities [WorkbookNumberofactivities]
Dynamic Fields	Dynamic fields have different values depending on the context within which they are being used within an analysis. **Period Start** and **Period Finish** are both dynamic fields. ▪ **Period Start** — [_PeriodStart] ▪ **Period Finish** — [_PeriodFinish] When **Period Start** and **Period Finish** are being applied to a phase analysis, they relate to the start and finish of the phase in question. When being used within the context of a ribbon, **Period Start** and **Period Finish** relate to the start and end date of the ribbon.

Formulas are generally written within the context of an activity. By further exposing fields outside of the activity context (for example, project and workbook), you are able to model how activities relate to and potentially impact other contexts such as project and workbook.

Template Metric Libraries

In addition to editing a metric library within a given workbook, you can save metric libraries as templates and reused within other Fuse workbooks.

Save a Metric Library as a Template

After a metric library has been customized, you can save it (for reuse) as an XML file that can subsequently be used when creating new workbooks. You can store metric library files on file servers and shared between multiple users.

To save a metric file as a template, complete the following steps:

1. Click  .
2. On the left-hand pane, click **Save as… » Deltek Acumen Metric Library Template**.
3. In the Save As dialog box, navigate to the folder in which you want to save the template and enter a file name.
4. Click **Save**.

Reuse a Metric Library Template

When you reuse a metric library template, it creates a new workbook and automatically inherits the selected metric template library.

To reuse a metric library template, complete the following steps:

1. Click .
2. On the left-hand pane, click **Open**.
3. Select the Fuse metric template file.
4. Click **OK**.

   A new workbook is created that includes the selected metric template library.

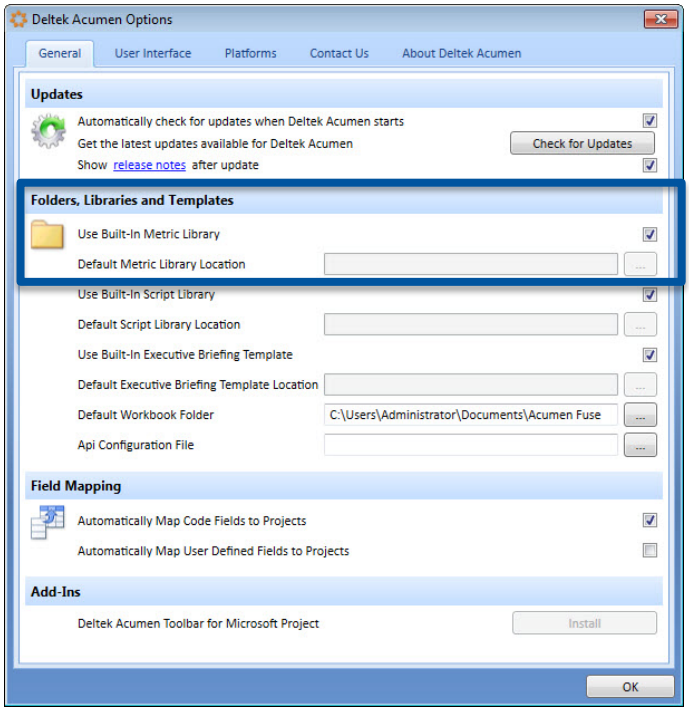
Set a Custom Metric Library as the Default Library

In addition to manually applying custom metric libraries through the steps described above, you can also set a custom metric library to be the standard default library for each newly created workbook.

To set a custom metric library as the default library, complete the following steps:

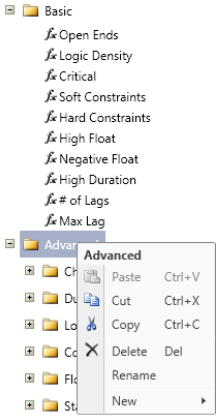
1. Click .
2. On the bottom of the pane, click **Deltek Acumen Options** and select the General tab.
3. In the Folders, Libraries and Templates menu, deselect **Use Built-In Metric Library**.
4. In the **Default Metric Library Location** field, select the custom metric library file that you want to use.

   This will subsequently be applied to all newly created workbooks.



Move, Copy, and Delete Metrics and Metric Libraries

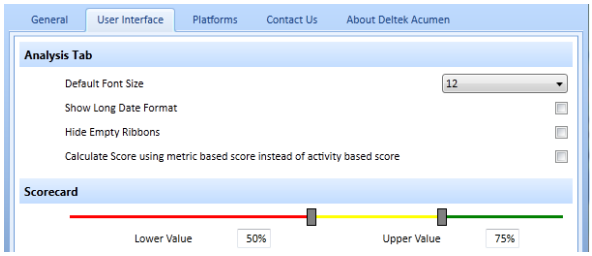
Both metrics and metric libraries can be reconfigured with copy-paste functionality. Using either the Fuse clipboard menu or the right click feature of a metric/metric library, you can copy metrics and move them to different locations within the metric library.



Metric Weightings for Scorecards

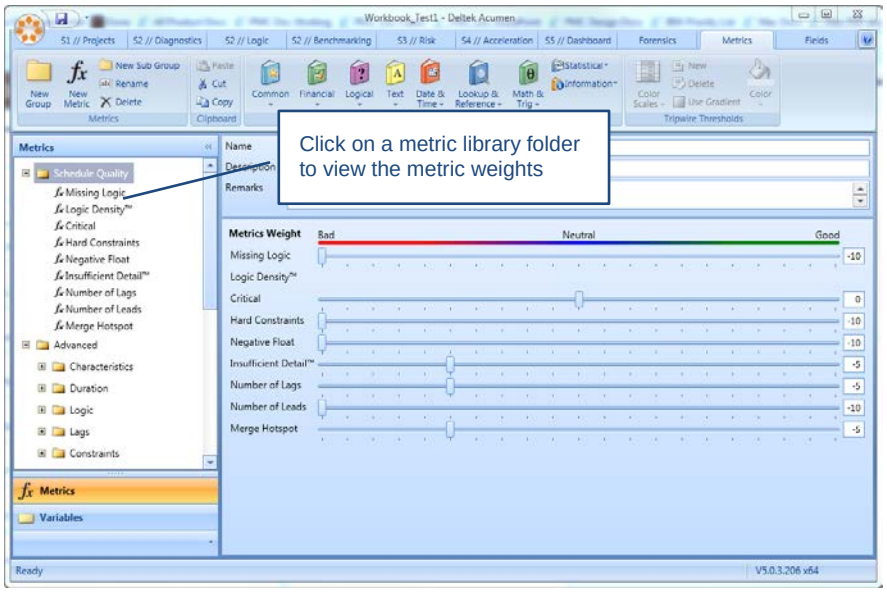
Scorecard totals are calculated using two approaches:

- **Overall scores** (for example, project scores) — This is based on the number of activities within the dataset that fail one or more of the metric tests (irrespective of weighting). You can modify this method on the User Interface tab of the Deltek Acumen Options dialog box to use weighted scores based not just on the number of activities that fail a test but the total number of metrics that fail a test.



- **Individual Activity scores** — Based on the weighted results of all metrics being applied to the activity.

In order to calculate these activity scores, the relative weighting for each metric is required. You can view and edit weightings by clicking **Metrics tab » Metrics » <metric library folder>**.



Weightings are based on a +/- 10-point sliding scale. The higher the weighting, the more impact the metric in question has on the scorecard score. By default, metric weightings have been set to the midpoint in the weighting scale (that is, +/- 5 depending on whether a high score is a positive or negative result).

Newly created metrics inherit a neutral score until you edit them. Weightings only apply to activity scores and not project/dataset scores.

Metrics Using Variables

Acumen provides an extremely powerful means of defining metrics against generic fields and values prior to knowing what these values actually are. There are two forms of variables within Acumen:

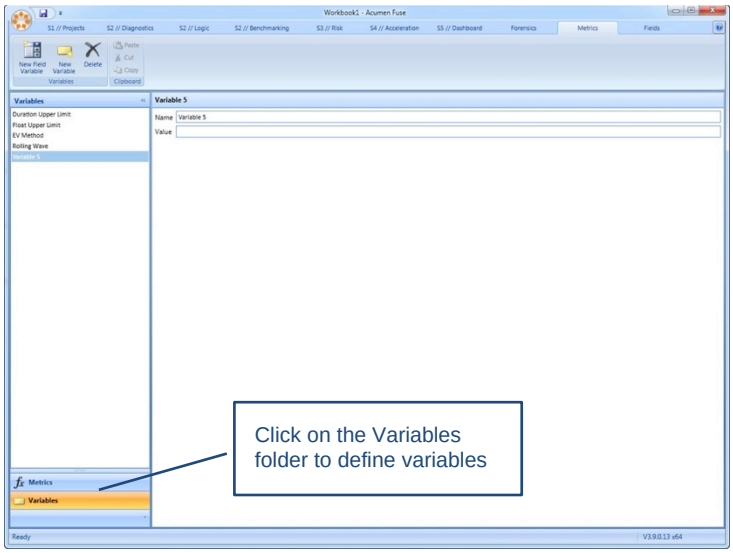
- **Variable Values** — When defining a metric, instead of setting criteria based on a defined value, you can describe a metric in terms of a variable. An example is a custom metric called **High Cost**. At the time of the metric being created, you do not know what this value should be. Instead you can create a variable called, for example, **High Cost Value** and use this in the metric definition. At run-time, when a Fuse analysis is run, the user is prompted to enter a value for this variable which will subsequently be used in the calculations.
- **Variable Fields** — When defining a metric, if a field to be used in a metric definition is unknown, then a variable field can be created. In a similar manner to the variable value concept, when a Fuse analysis is run, the user is prompted for the actual field to be assigned. This is useful when a metric refers to, for example, a user-defined or code field that is not known at the time of creation of the metric.

You can define a metric using variable values, variable fields, or both.

Define Variables

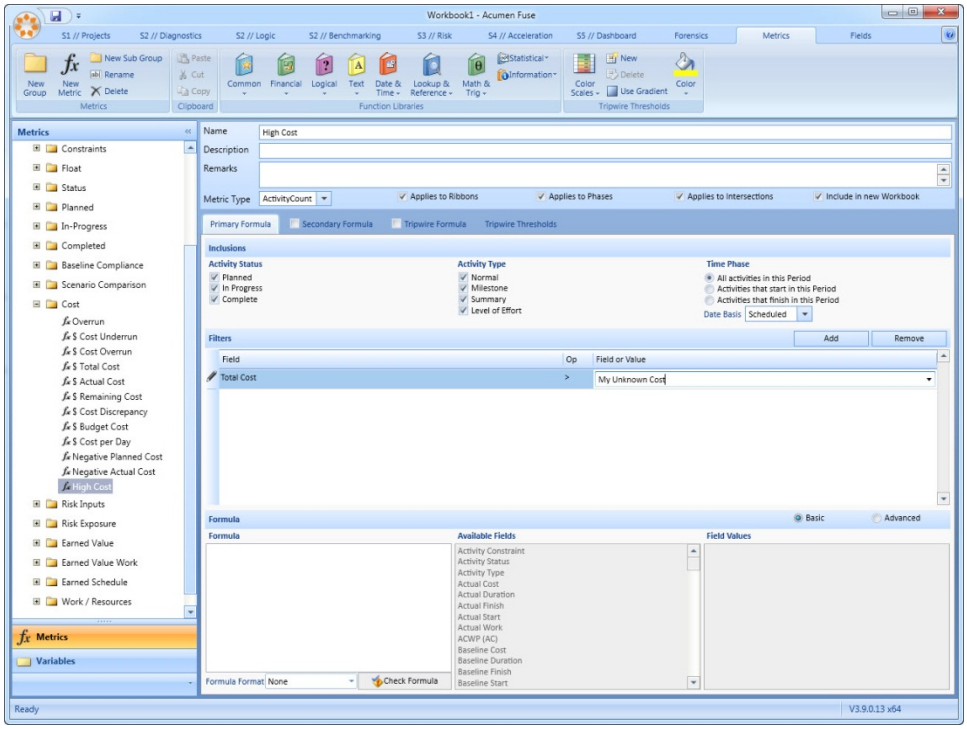
You can define variables on the Metrics tab in the Variables folder. The screenshot below shows an example of a variable called **My Unknown Cost**. You can use this variable in the definition of

the metric. If no value is specified in the **Value** field, the user is prompted for this during a Fuse analysis. Upon entering this value (at run-time), the variable will store and use this value unless altered at a later time by the user.



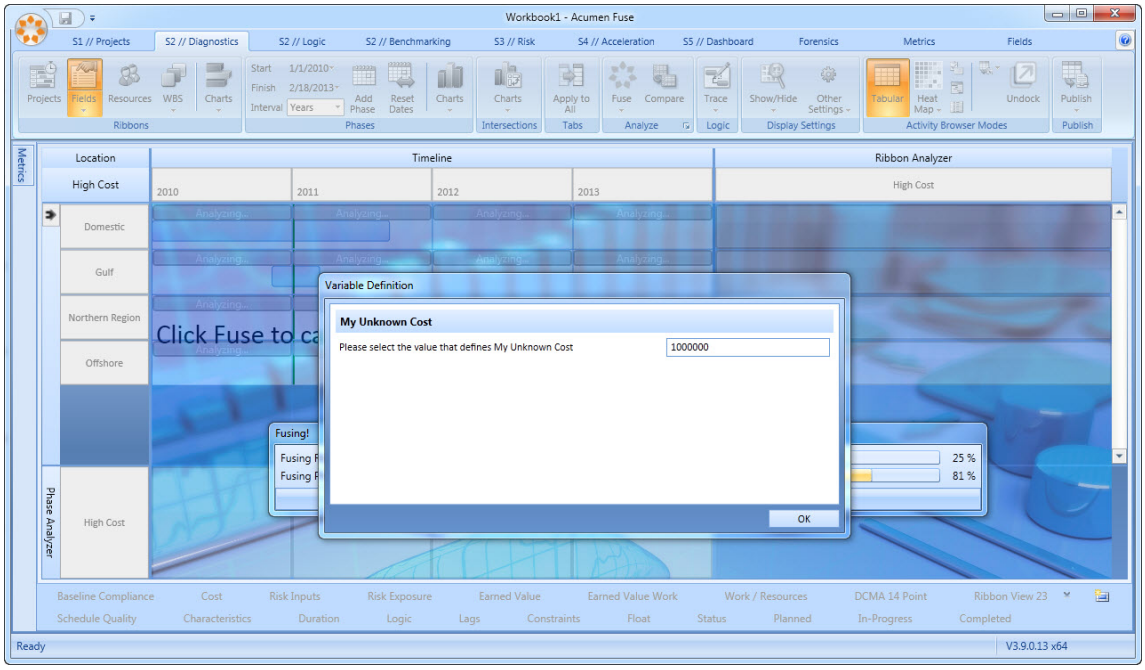
Reference Variables when Defining Metrics

After you have defined a variable, you can reference it when defining a metric in the exact same way a normal defined value is referenced. The screenshot below shows an example of a metric called **High Cost** being defined using the variable **My Unknown Cost**.

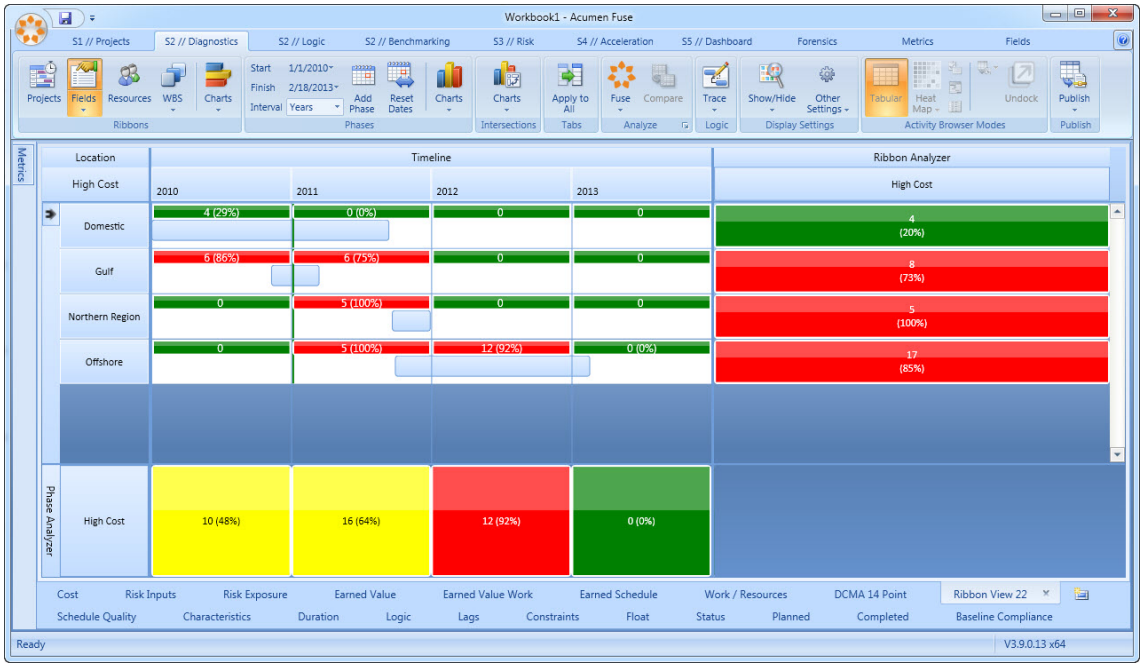


Run a Fuse Analysis using Variables

In the example below, a variable called **My Unknown Cost** has been created and referenced in a custom metric called **High Cost**. When a Fuse analysis is run, if the variable value has not been set, the user is prompted to set a value.



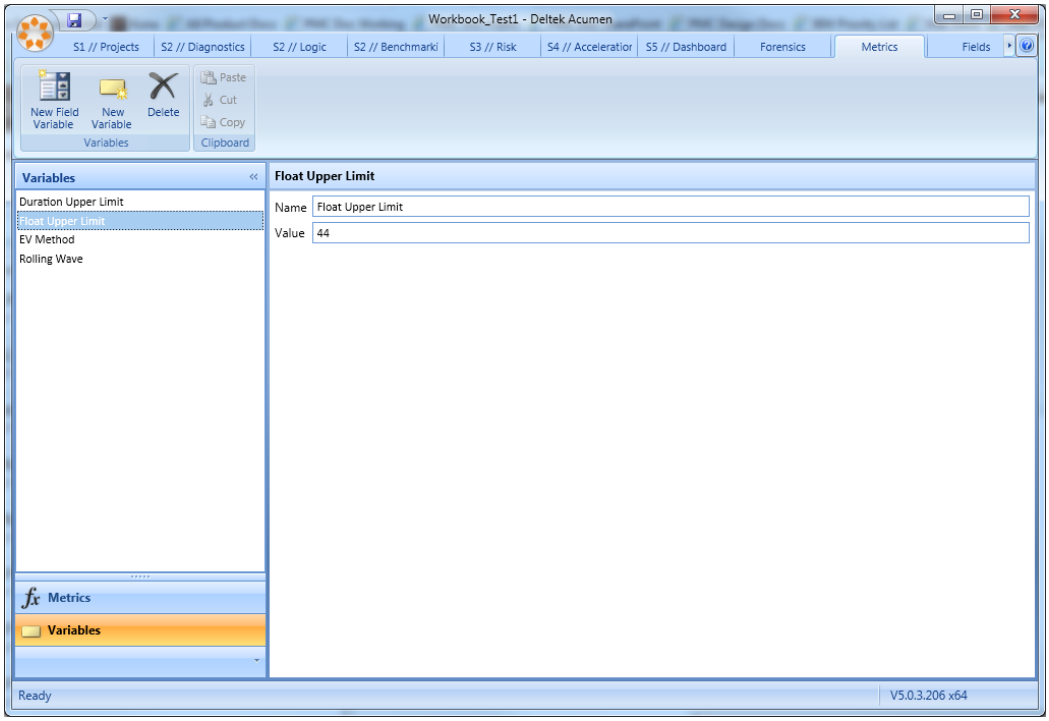
If the user enters a value of $1,000,000 as the variable value at run-time, the results are as follows:



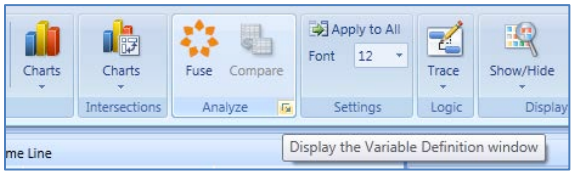
Change the Value of a Variable

To change the value of a variable, do one of the following:

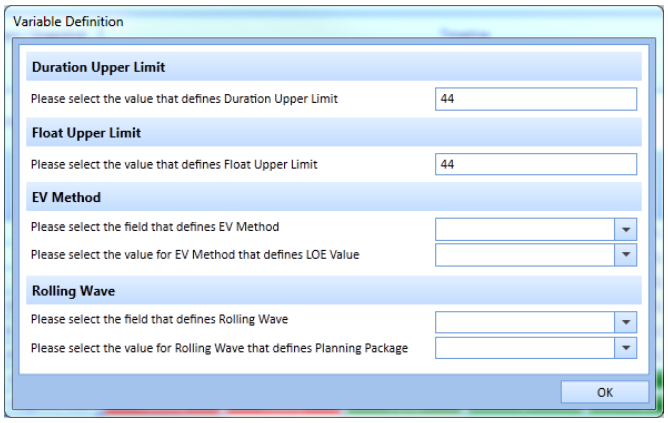
- On the Metrics tab, in the Variables folder, click the name of the variable and enter a new value in the **Value** field.



- On the S2 // Diagnostics tab, in the Analyze menu, click on the expand icon in the bottom-right corner of the Analyze menu item.



  - In the Variable Definition dialog box, edit the variable value as needed.

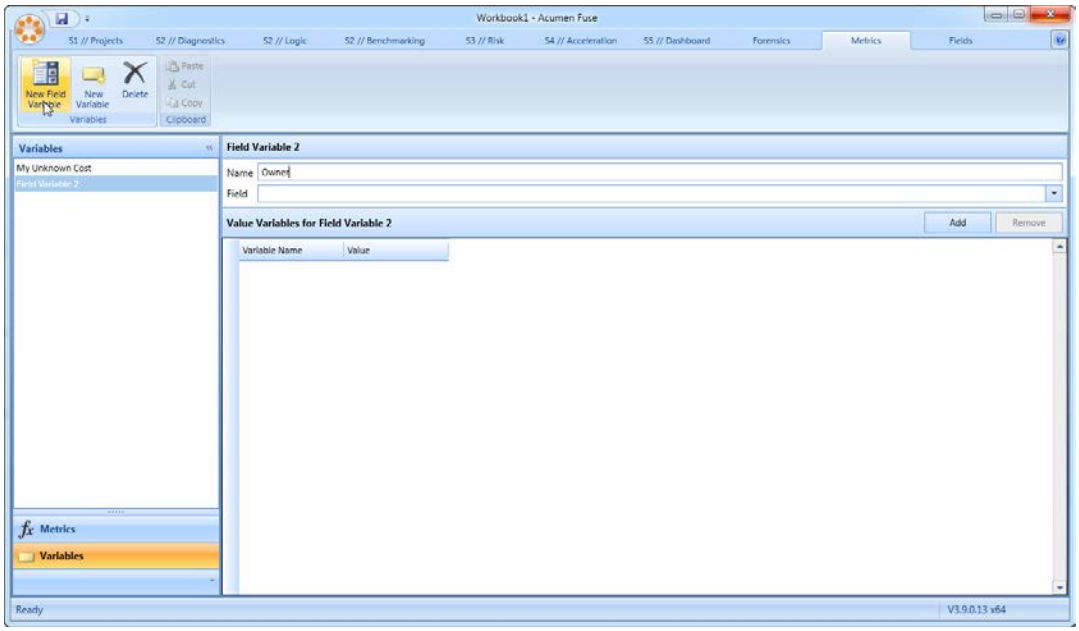


Define and Reference Variable Fields

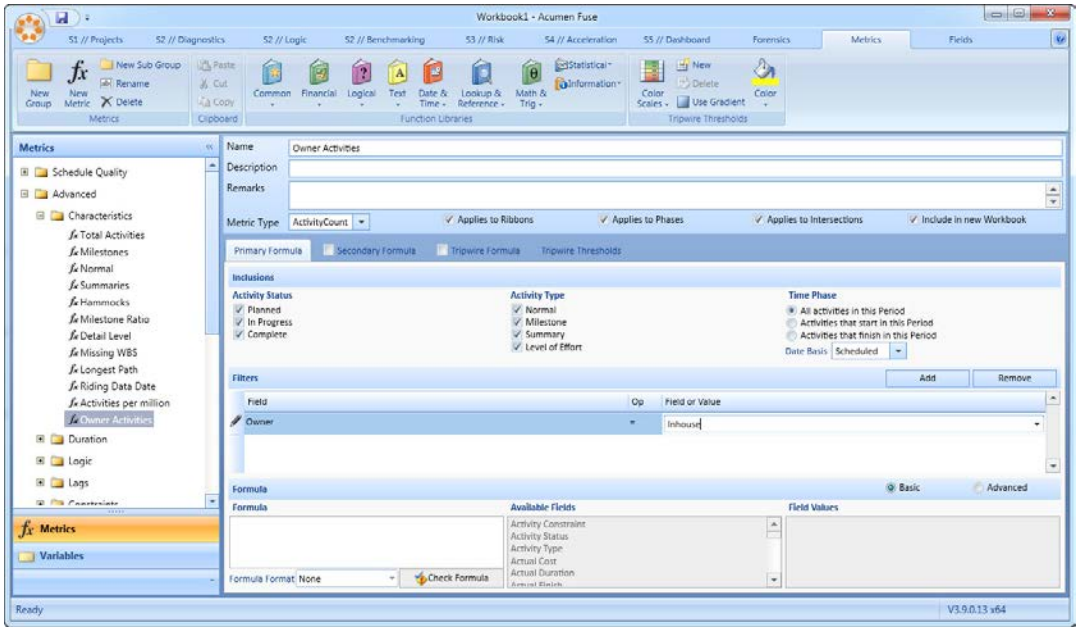
As well as defining, referencing, and analyzing variable values, you can also utilize variable fields. After you have defined a variable field, you can reference it when defining a metric.

Example of Defining and Referencing Variable Fields

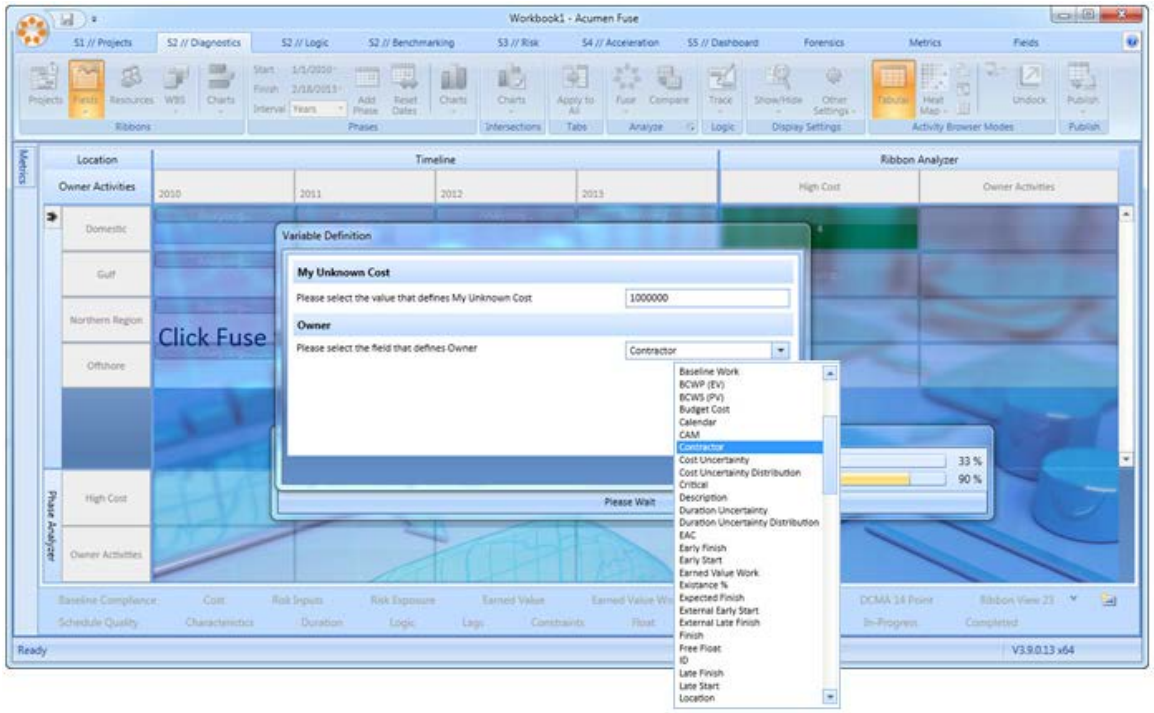
This example shows the definition of a variable (unknown) field called **Owner**.



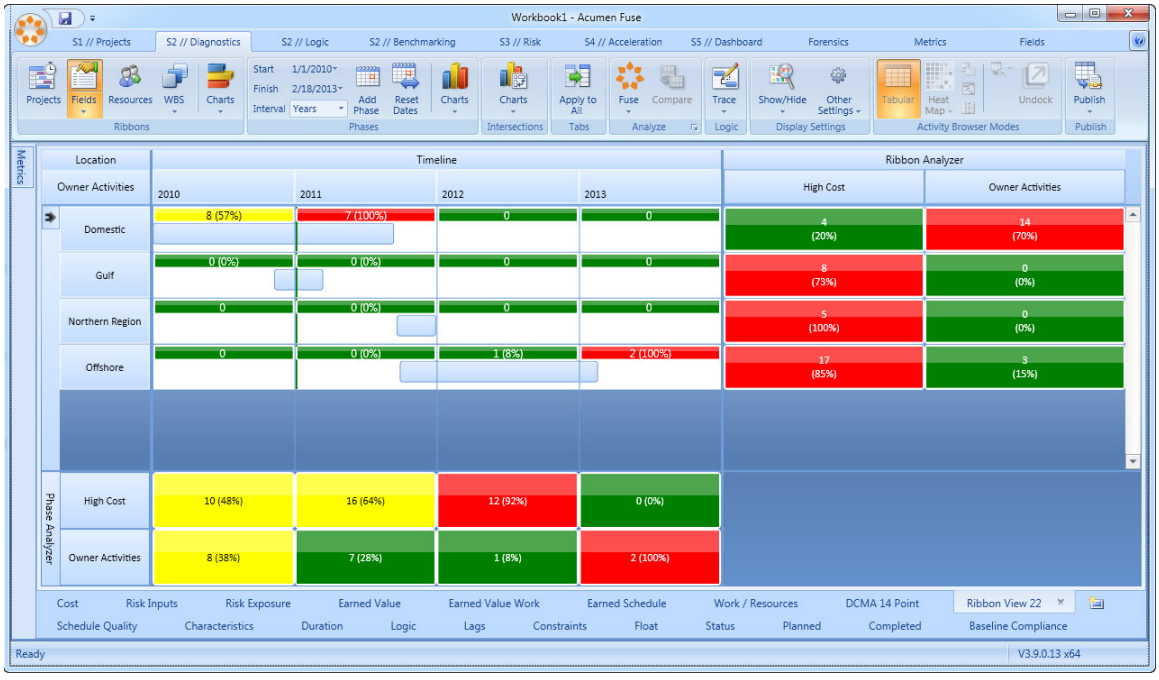
An **Owner Activities** metric is created that references the **Owner** variable field. However, at the time of creating the metric, the exact field name is not known (as it will subsequently be defined as a user defined field of an unknown field name).



The **Owner** variable field is bound to a user-defined field in Primavera called **Contractor**. This means that the metric can be run against any project irrespective of the actual field name used to represent **Owner**.

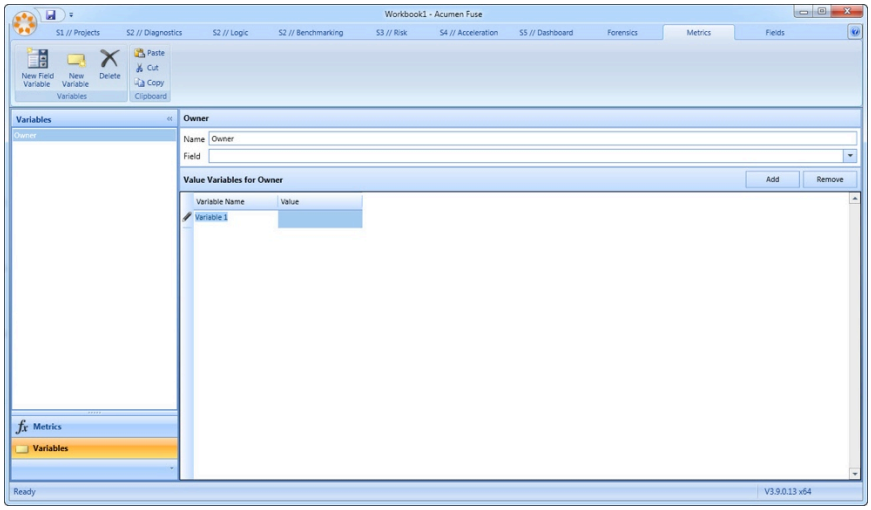


The screenshot below displays the Fuse analysis results when using the **Owner Activities** metric, a count of the number of activities whose user-defined field **Contractor** has a value of **InHouse**.

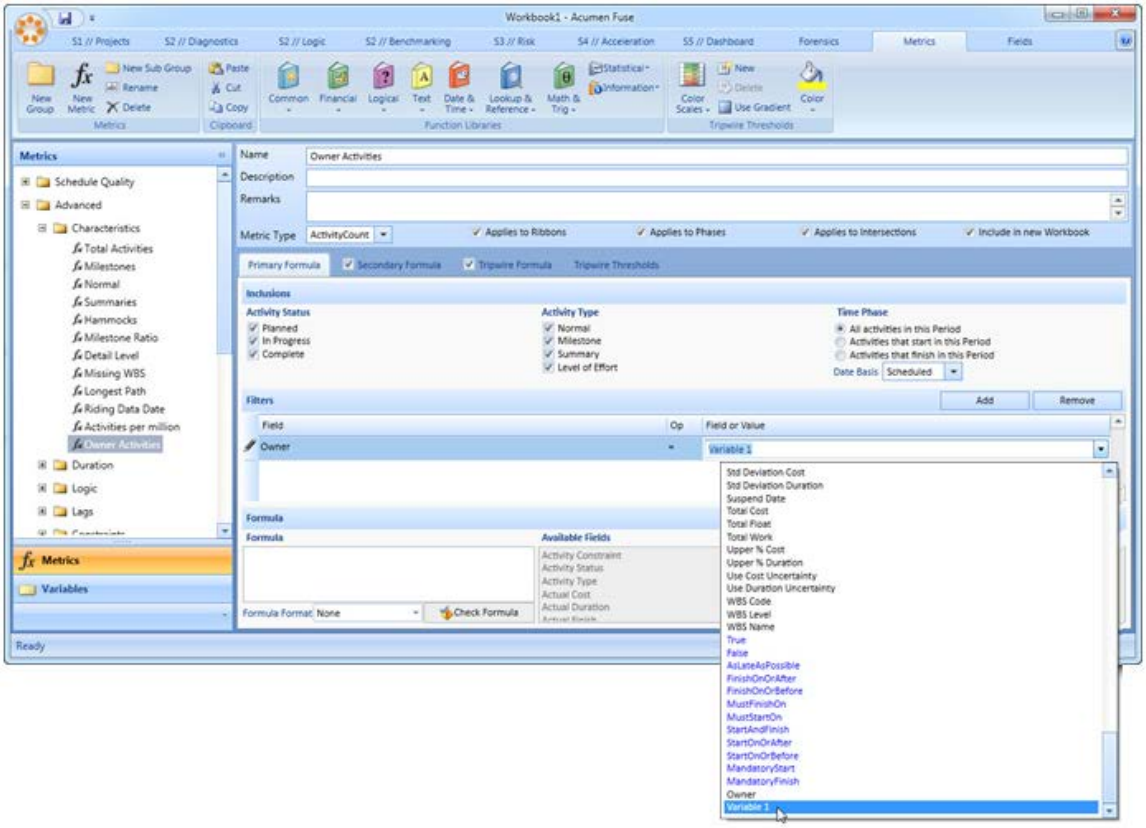


Work with Both Variable Fields and Variable Values

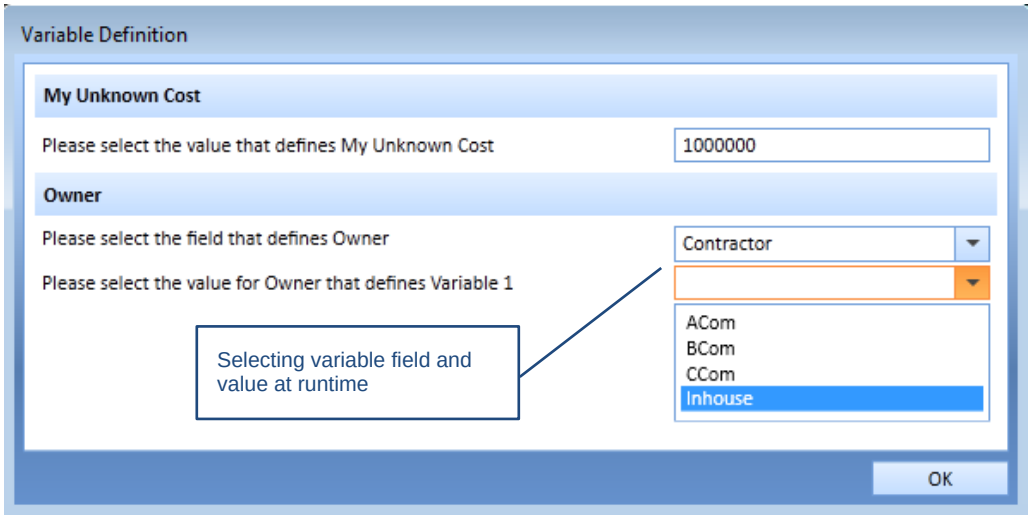
The previous example demonstrated working with either a variable value or field where the field value was known. In some instances, the value of a variable field is not known. In this case, you can use the Variable Field editor to create variable values.

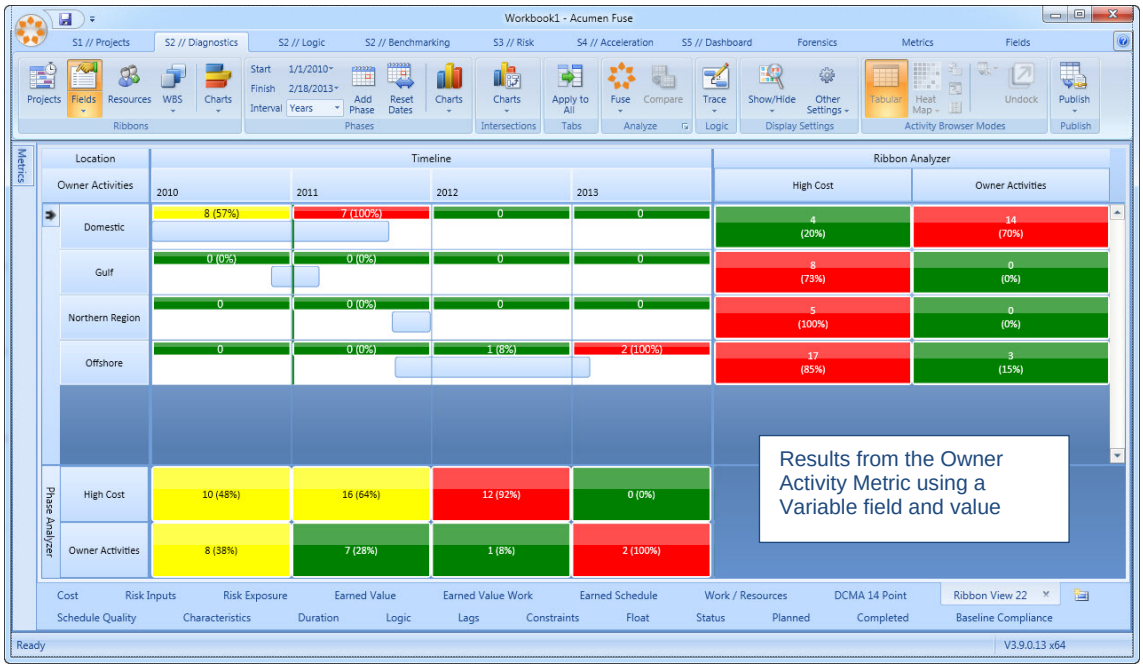


After you have created the variable field and variable value, you can define the metric as shown below.



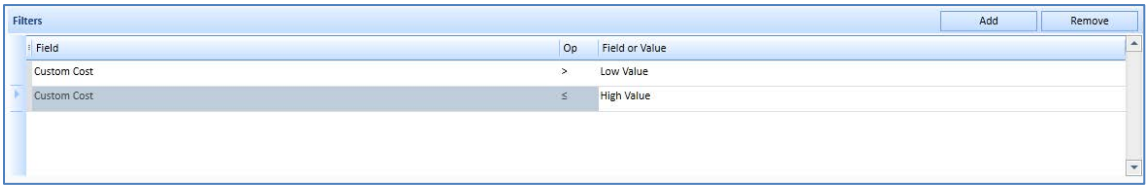
At run-time, the user is prompted to define both the Variable field as well as the variable value.



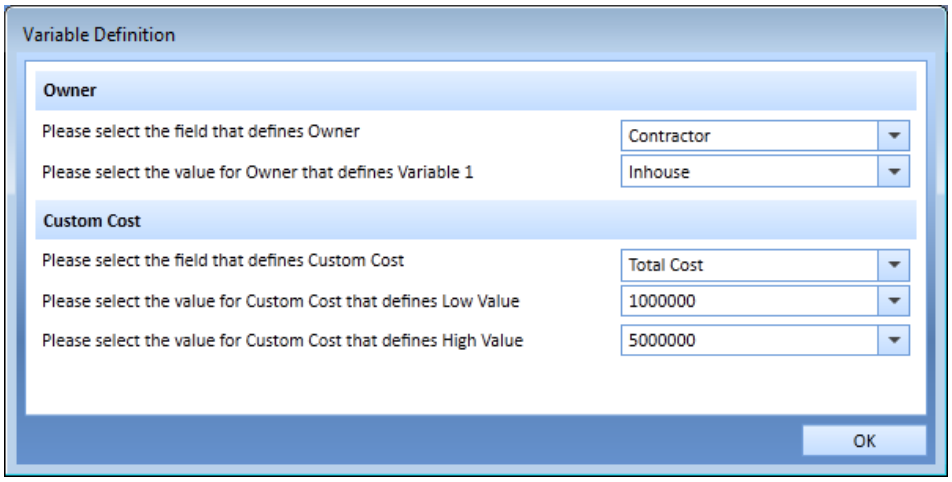


Multiple Variables

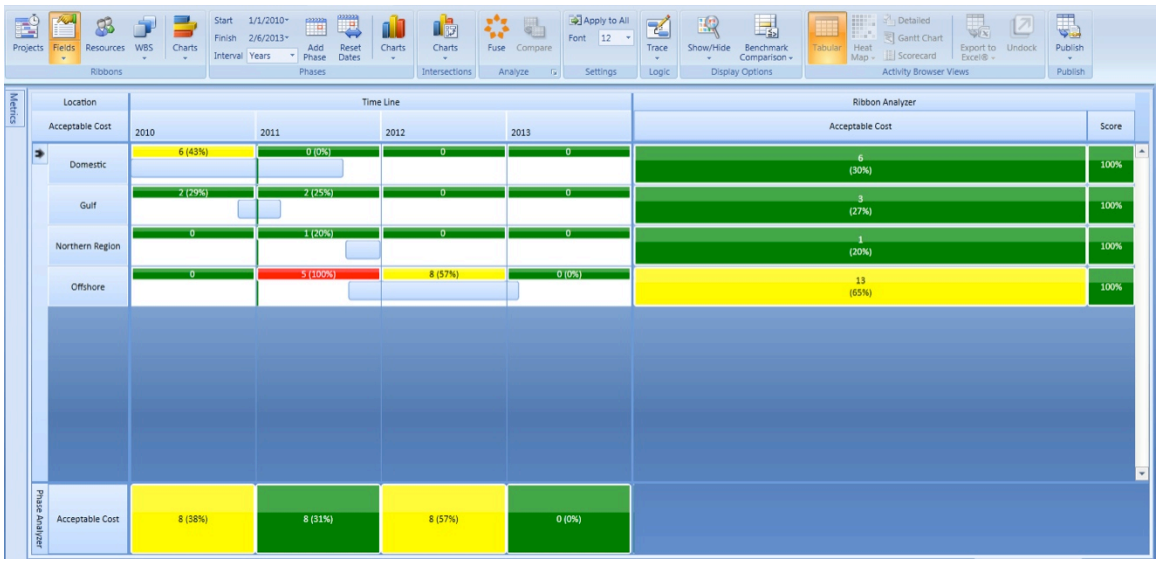
You can create multiple variables against a variable field. For example, you can create a variable field called **Acceptable Cost** that contains two variables — **Low Value** and **High Value**. You then define a metric based on two criteria: The Total Cost being greater than **Low Value**, and less than or equal to **High Value**.



At run-time, the user is prompted for the field that is being used in the calculation as well as the two variable costs being used in the metric calculation.



The results from analysis using a variable field and multiple variable values are as follows:

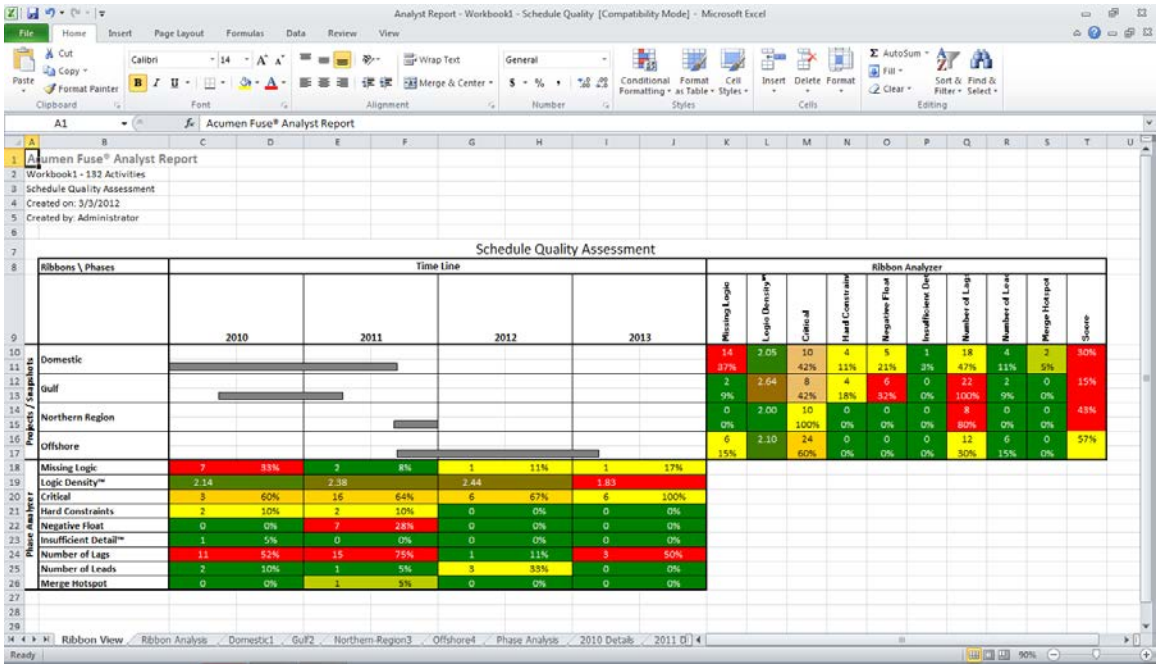


Reporting Diagnostics Results

You can include all components of an Acumen diagnostics check in an MS Excel-based report, including:

- Ribbons
- Ribbon Analyzer
- Ribbon Analyzer Detail
- Phase Analyzer
- Phase Analyzer Detail
- Intersection Analyzer Detail

You can publish all ribbon data to MS Excel through the Publish menu on the S2 // Diagnostics tab. You can also use these editable reports in other applications such as MS PowerPoint.



Executive Briefing Report

The Executive Briefing is one of the most powerful reports within Acumen. It consolidates information and results that have been generated from an analysis, and presents them in a descriptive briefing without the need for manual interpretation of the data.

The report includes three sections:

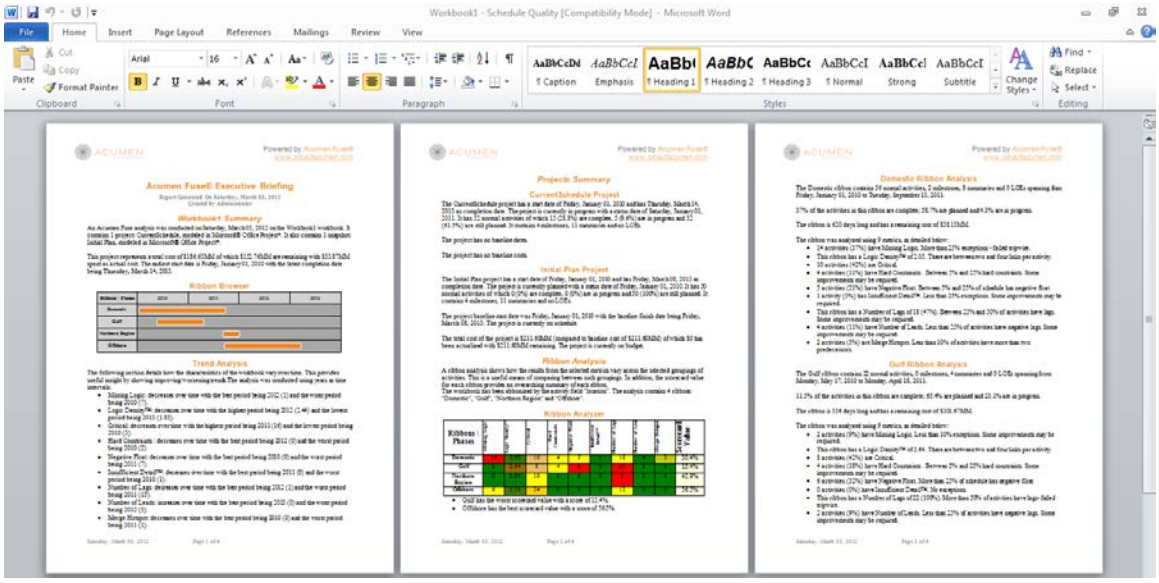
- **Workbook** — Summary of the overall analysis including cost and schedule characteristics.
- **Project** — Project level summary including characteristics, status, areas of concern.
- **Ribbon** — Detailed analysis of each ribbon including trending.

See Appendix C: Executive Briefing Variables and Customization for information about editing the report and a description of the Executive Briefing variables.

Generating the Executive Briefing Report

You can generate the Executive Briefing report from the Publish menu on the S2 // Diagnostics tab as either an editable MS Word document or a ready-to-publish Adobe PDF file.

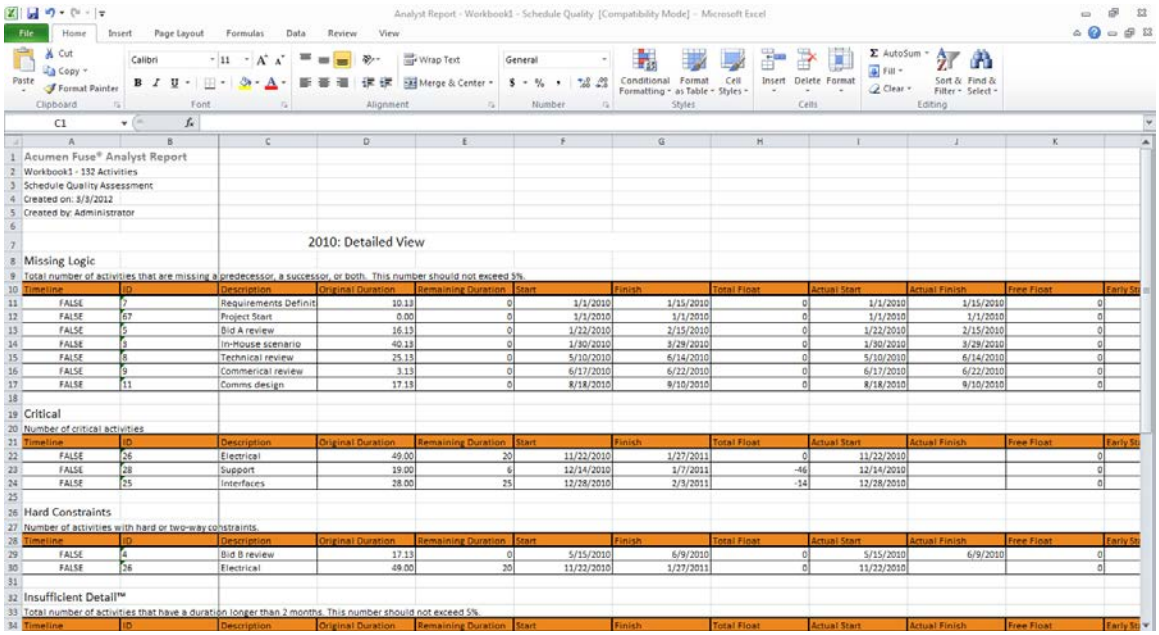
Example of an Executive Briefing Report



Analyst Report

The analyst report is designed to serve as a checklist listing of the individual activities that fail the various metric tests that have been applied to the view.

Example of an Analyst Report



Acumen Fuse® Analyst Report
Workbook1 - 132 Activities
Schedule Quality Assessment
Created on: 3/3/2012
Created by: Administrator

2010: Detailed View

Missing Logic
Total number of activities that are missing a predecessor, a successor, or both. This number should not exceed 5%.

Timeline	ID	Description	Original Duration	Remaining Duration	Start	Finish	Total Float	Actual Start	Actual Finish	Free Float	Early St
FALSE	7	Requirements Definit	10.13	0	1/1/2010	1/15/2010	0	1/1/2010	1/15/2010	0	
FALSE	67	Project Start	0.00	0	1/1/2010	1/1/2010	0	1/1/2010	1/1/2010	0	
FALSE	5	Bid A review	16.13	0	1/22/2010	2/15/2010	0	1/22/2010	2/15/2010	0	
FALSE	3	In-House scenario	40.13	0	1/30/2010	3/29/2010	0	1/30/2010	3/29/2010	0	
FALSE	8	Technical review	25.13	0	5/10/2010	6/14/2010	0	5/10/2010	6/14/2010	0	
FALSE	9	Commerical review	3.13	0	6/17/2010	6/22/2010	0	6/17/2010	6/22/2010	0	
FALSE	11	Comms design	17.13	0	8/18/2010	9/10/2010	0	8/18/2010	9/10/2010	0	

Critical
Number of critical activities

Timeline	ID	Description	Original Duration	Remaining Duration	Start	Finish	Total Float	Actual Start	Actual Finish	Free Float	Early St
FALSE	26	Electrical	49.00	20	11/22/2010	1/27/2011	0	11/22/2010		0	
FALSE	28	Support	19.00	6	12/14/2010	1/7/2011	-46	12/14/2010		0	
FALSE	25	Interfaces	28.00	25	12/28/2010	2/3/2011	-14	12/28/2010		0	

Hard Constraints
Number of activities with hard or two-way constraints.

Timeline	ID	Description	Original Duration	Remaining Duration	Start	Finish	Total Float	Actual Start	Actual Finish	Free Float	Early St
FALSE	4	Bid B review	17.13	0	5/15/2010	6/9/2010	0	5/15/2010	6/9/2010	0	
FALSE	26	Electrical	49.00	20	11/22/2010	1/27/2011	0	11/22/2010		0	

Insufficient Detail™
Total number of activities that have a duration longer than 2 months. This number should not exceed 5%.

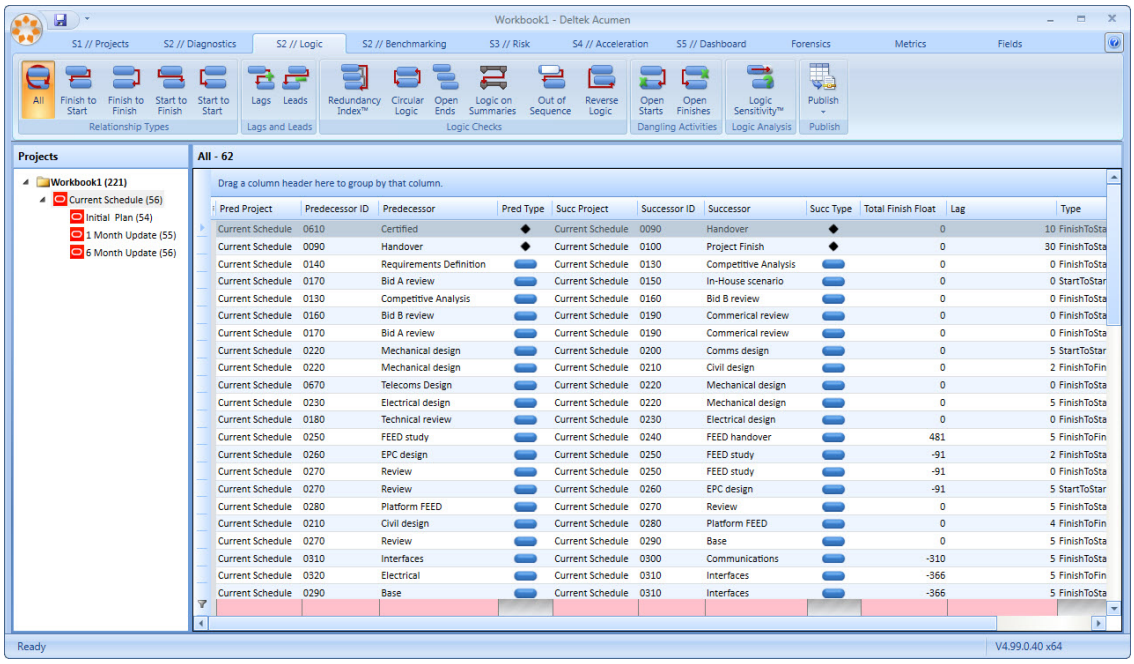
Timeline	ID	Description	Original Duration	Remaining Duration	Start	Finish	Total Float	Actual Start	Actual Finish	Free Float	Early St

Logic Analysis

In addition to using Acumen Fuse to perform diagnostic checks on schedule attributes, Fuse can evaluate relationships between activities.

The S2 // Logic Tab

The logic analysis view is used to run various logic integrity checks against the schedule(s).



Fuse logic analysis provides multiple advanced logic checks on a project (or multiple projects) including:

- Analysis of logic types
- Positive and negative lags (leads)
- Redundant logic
- Circular logic
- Open ends
- Relationships on summaries
- Out of sequence status updates
- Reverse Logic
- Dangling Activities (Open Start and Open Finish)
- Logic Sensitivity™

Positive and Negative Lags and Leads

This analysis pinpoints all relationship links that are carrying a lag. Negative lags (or leads) cause concern within a schedule as they can lead to reverse logic. Likewise, positive lags often result in detail being lost within a schedule during statusing / execution.

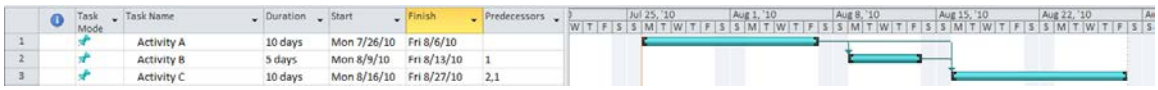
See Reverse Logic for more information.

Redundancy Index

The redundancy index analysis pinpoints redundant logic links within a schedule. This enables you to generate and maintain clean schedules that don't contain redundant or overlapping logic.

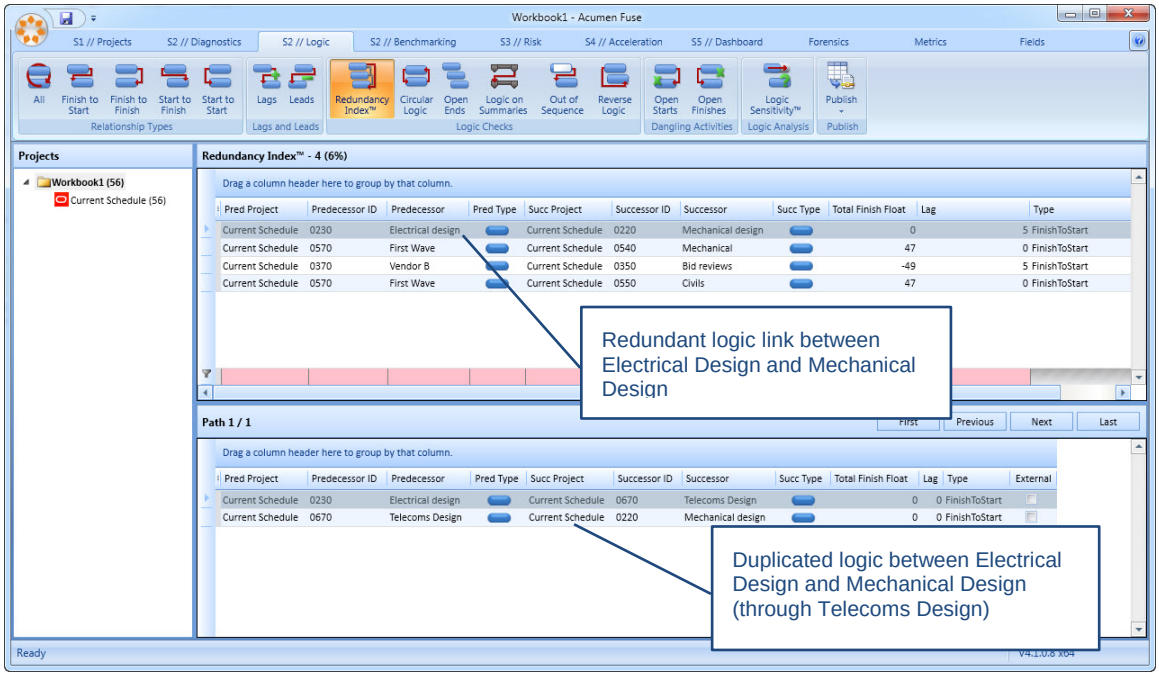
Example of Redundancy Index Analysis

You have three activities (A, B, and C) in sequence with FS logic links. If the schedule in question has a logic link between Activity A and C, then this link is essentially redundant as Activities A and C are already logically tied through Activity B.



To run a Fuse logic analysis, complete the following steps:

1. Select the S1 // Projects tab.
2. Select the workbook, project, or snapshot against which you want to run the analysis.
3. Select the S2 // Logic tab.
4. In the Logic Checks menu, click **Redundancy Index** to run the logic analysis.



Logic Sensitivity

The logic sensitivity check allows you identify how potential delays affect key activities or milestones later in the project.

To run the Logic Sensitivity check, complete the following steps:

1. Select the S2 // Logic tab.
2. In the Logic Analysis menu, click **Logic Sensitivity**.
3. On the Logic Sensitivity screen, enter information into the following fields:
   - **Nudge Activity** — Select any activity or milestone from your project. This activity will be the starting point of the test. A simulation will be run where a delay is added to this activity to see if it impacts an activity or milestone later in the project.
   - **Nudge Duration** — Input the number of days by which you would like to nudge, or delay, the Nudge Activity. By default this number is set at 600 days.
   - **Target Activity** — Select the target activity on which you would like to test the impact.
4. Click **Analyze**.

The example below shows the results of a Logic Sensitivity test where the nudge activity was delayed by 600 days. The test found that 30 days of delay could be added to the nudge activity before any impact was seen on the target activity.

You can also use this interactive view to determine the impact on the target activity at any given amount of nudge. Roll your mouse along the blue line to see the intersecting points.

Use Logic Trace

In addition to running it from the S2 // Logic tab, you can also run logic trace from the S2 // Diagnostics tab. This allows you to slice and dice based on different parameters, and filter using metrics, before you select the activity from which you want to start tracing.

See Running Logic Analysis Using Logic Trace for more information.

Logic analysis traces the path(s) of activities to and from a given activity. For example, all activity paths leading into a given milestone, or all activities on the path from a project sanction milestone to the end of the project.

You can use the following tracing modes:

- **Trace Forward** — Trace logic forward starting from the selected activity.
- **Trace Backward** — Trace logic backward starting from the selected activity.
- **Trace Forward / Backward** — Trave logic forward and backward starting from the selected activity.
- **Trace Path** — This traces the paths between any two given activities. That is, it traces the logic from a starting activity until reaching the finishing activity.

The above options are available on the Logic Trace menu as well as when you right-click on an activity.

When you conduct a logic analysis, the analysis engine and resultant metric results only reflect those activities that are returned in the path analysis.

Driving Logic

Driving Logic allows you to analysis only those path(s) that are driving the schedule through to completion. This allows you to pinpoint the key activities in a schedule.

By default, the logic trace runs in **Driving Logic Only** mode.

To switch from Driving Logic Only mode to display all logic, complete the following steps:

1. Select the S2 // Logic tab.
2. In the Logic Analysis group, click the **Logic Trace** down-arrow.
3. Click **Driving Logic Only** to deselect it.

   It has a checkmark to the left of it when it is selected and no checkmark when it is not selected.

View the SmartGantt and Run a Logic Trace From the S2 // Logic Tab

To run a logic trace using the S2 // Diagnostics tab, see Run a Logic Trace From the S2 // Diagnostics tab.

When you first access the S2 // Logic tab, the Logic Trace menu options are grayed out. You need to display the SmartGantt and select an activity in order for these options to become available.

The Logic Trace menu includes SmartGantt options. See SmartGantt in the *Viewing and Editing the Schedule* topic for detailed information about these options.

To display the SmartGantt and run a Logic Trace, complete the following steps:

1. Select the S2 // Logic tab.
2. Select an activity.
3. Do one of the following:
   - In the Logic Analysis group, click the **Logic Trace** down-arrow and select a tracing mode.
   - Right-click on an activity and select a tracing mode.

   The trace logic filtered activities display in the SmartGantt view.
4. (Optional) Click the **Trace** down arrow and deselect **Driving Logic Only** if you want to display all logic.

Change the Display Level

You can use the Logic Trace grouping feature to roll-up or expand the display.

To change the display level, complete the following steps:

1. Select the S2 // Logic tab.
2. In the Logic Analysis group, click the **Logic Trace** down-arrow.
3. Click **Grouping** then use the **Display Level** slider to roll-up or expand the display.

Group Activities

You can use the Logic Trace drop-down menu to group activities by WBS or by activity fields, user-defined fields, or code fields.

To group activities, complete the following steps:

1. Select the S2 // Logic tab.
2. In the Logic Analysis group, click the **Logic Trace** down-arrow.
3. Click **Grouping** and select a grouping option:
   - **Group by WBS** — Group activities by WBS
   - **Group by Fields** — Group activities by activity fields, user-defined fields, or code fields.
   - **Flat** — Ungroup activities.

Reset a Logic Trace

To reset the logic trace, complete the following steps:

1. Select the S2 // Logic tab.
2. In the Logic Analysis group, click the **Logic Trace** down-arrow.
3. Click **Reset Trace**.

The logic trace filter is cleared.

Save a Logic Trace as a Filter

You can save the current trace as a filter for use as a filter on the S3 // Risk tab.

To save the current trace as a filter, complete the following steps:

1. After running a logic trace, in the Logic Analysis group, click the **Logic Trace** down-arrow and select **Create SmartGantt Filter**.
2. In the Create Filter dialog box, enter a name for the filter.
3. Click **OK**.

   You can use the saved filter on the S3 // Risk tab.

See Using a Filter to Focus on a Certain Subset of Activities for more information.

Additional Logic Checks

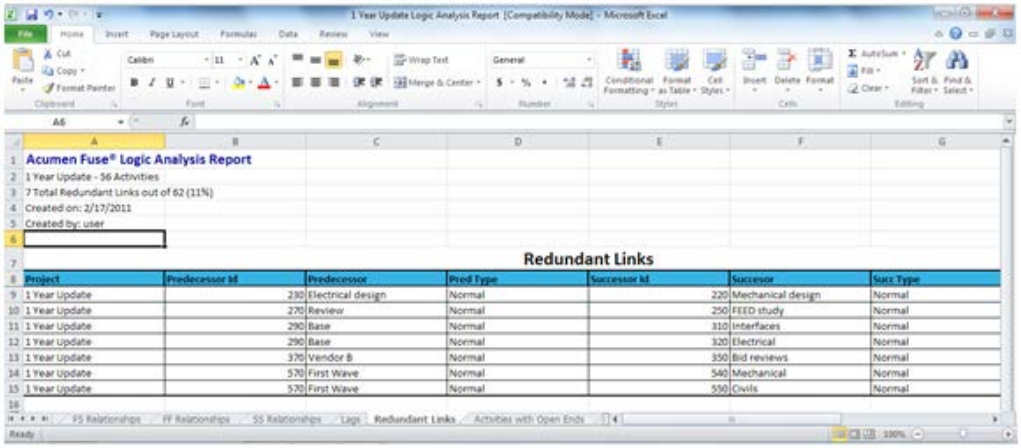
Logic	Description
Circular Logic	Circular logic analysis checks for paths of activities that loop back on themselves. This is a big concern in multi-project environments (for example, multiple Primavera files that reference each other) where circular logic checks can otherwise go undetected.
Open Ends	Open ends analysis checks for any activities that are missing either predecessors or successors, causing the activity to be “open ended.”
Logic on Summaries	While some scheduling tools allow logic links to be added to summary or WBS elements, it is generally accepted best practice to only logic-tie normal activities together so as to retain the ability to re-sort/group activities without having to break the summary logic links.
Out of Sequence	Out of sequence errors occur between activities when the successor activity status contradicts the logic with its predecessor. For example, a successor activity starting before its FS predecessor has started.
Reverse Logic	Reverse logic errors occur when the start of a successor activity starts before the start of the predecessor. Typically caused by negative lags (leads), these reverse logic errors should be avoided at all costs.
Dangling Activities (Open Starts and Open Finishes)	Dangling activities occur as a result of a FF or SF predecessor link (open start) or SS or SF successor link (open finish) and not when there are any missing predecessors or successors. The successor ends up with an open start and the predecessor ends up with an open finish.

Sort and Group Logic Analysis Results

You can sort and group analysis results by dragging the column header above the table to create a grouped list of results. Click on a column header to sort.

Logic Analysis Report

The Logic Analysis report includes a separate tab for each of the Fuse logic analysis checks. Each exception (activity or logic link) is listed in the report.



Acumen Fuse® Logic Analysis Report

1 Year Update - 56 Activities

7 Total Redundant Links out of 62 (11%)

Created on: 2/17/2011

Created by: user

Redundant Links

Project	Predecessor Id	Predecessor	Pred Type	Successor Id	Successor	Succ Type
1 Year Update	230	Electrical design	Normal	220	Mechanical design	Normal
1 Year Update	270	Review	Normal	250	FEED study	Normal
1 Year Update	290	Base	Normal	310	Interfaces	Normal
1 Year Update	290	Base	Normal	320	Electrical	Normal
1 Year Update	370	Vendor B	Normal	350	Bid reviews	Normal
1 Year Update	570	First Wave	Normal	540	Mechanical	Normal
1 Year Update	570	First Wave	Normal	550	Civils	Normal

Use Forensics to Identify Additions, Deletions, and Modifications

The Acumen Forensic Analyzer provides a flexible means of comparing differences and pinpointing changes made to two or more schedules, cost estimates, or risk models.

You can use the analysis to compare:

- Updated revisions of schedules (for example, monthly updates)
- Differences between, for example, contractual baseline schedules and as-builts during dispute resolution or lessons learned exercises.
- Differences (and integrity) in the same schedule developed on different platforms (for example, MS Project and Primavera).

Analytics include:

- Added or removed activities
- Changed activity status
- Changed calendar definitions
- Modified logic links
- Added or changed constraints
- Updated or changed resources and resource assignments
- Updated activity costs
- Updated progress and earned value
- Changed critical/longest path activities
- Added or modified activity attributes (for example, activity type, status, % complete, actual duration, remaining cost, risk)

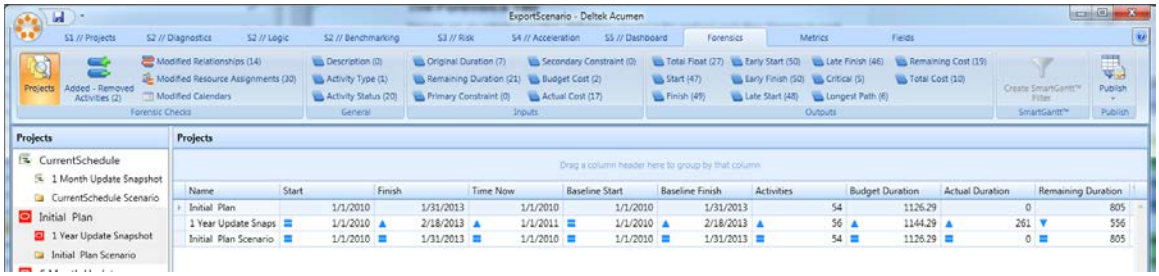
Absolute and percentage variances are shown for each of the comparison snapshots (compared to the base schedule being compared against).

Forensic analysis can be used for:

- Ongoing project surveillance
- Schedule import/export integrity support
- Contractor performance tracking
- Claims avoidance/evaluation
- Expert witness testimony

The Forensics Tab

You can run an unlimited number of forensic checks in the analysis including changes to code and user-defined fields. You can add, sort, and group results and then publish to, for example, PDF and MS Excel.



For Microsoft Project files, you can use the **Activity Comparison Field** on the Platforms tab of the Deltek Acumen Options dialog box to specify the field that Forensics should use to uniquely identify an activity. The options are: **UniqueID**, **ID**, **Guid**, **WBS**.

Set up a Forensic Analysis

A forensic analysis requires at least two projects within a workbook. In addition, one of the two projects must be designated as a snapshot against the primary project.

See Snapshot Links for more information.

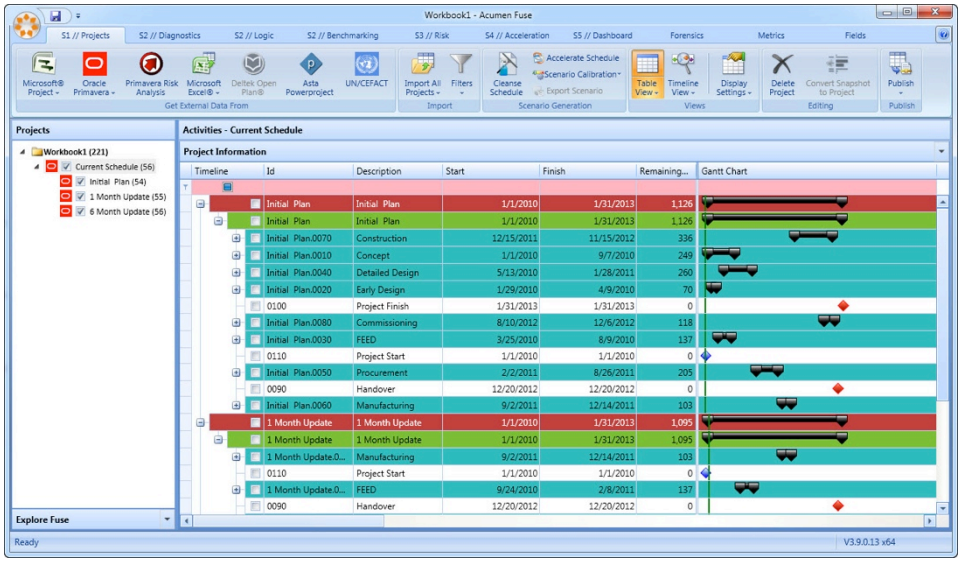
To create a hierarchy for forensic analysis, complete the following steps:

1. Click .
2. On the left-hand pane, click **New** to create a new workbook.
3. On the S1 // Projects tab, use one of the Get External Data From menu items to add a primary project to the workbook.
4. Select the primary project and then click one of the Get External Data menu items to add a snapshot(s) to the parent primary project.
5. In the Import menu, click **Import All Projects** to complete the import.

Example of a Workbook Ready for Forensic Analysis

The screenshot below shows a workbook containing a single primary project with two snapshot projects (last month and last year snapshots) assigned. This hierarchy provides the basis for running a forensic analysis.

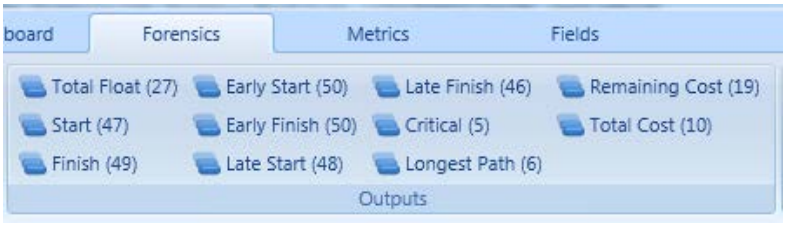
There is no limit to the number of snapshots that can you can assign to a parent project and subsequently analyze using the forensic analyzer.



View the Forensic Analysis Report

After running a forensic analysis, each field listed in the ribbon area of the Forensics tab displays a number in parenthesis. This indicates the number of variances relating to that specific analysis. For example, if the Outputs group displays **Total Float (27)**, that means that there are twenty-seven total float variances between the projects that were analyzed. You can click on the field to view variance details in the pane below.

Example of Number of Variances Indicated Next To Each Field



Hide Forensic Analysis Fields With No Variance

You can hide all forensic analysis fields in the ribbon area of the Forensics tab that have no variance. This allows you to more easily see those areas with variance.

To hide the forensic analysis fields with no variance, complete the following steps:

1. Click .
2. Click **Deltek Acumen Options**.

3. On the User Interface tab, select **Hide Forensic Analysis Fields With No Variance**.
4. Click **OK**.

Sort and Group a Forensic Analysis Report

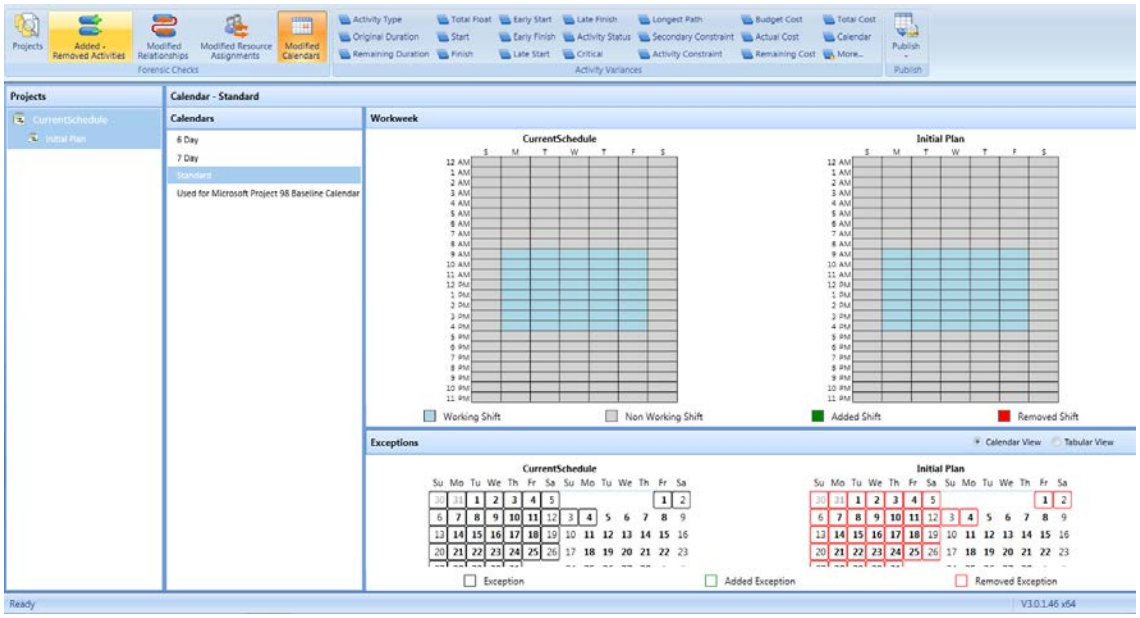
The results are shown in a tabular format which can be modified using sorts, groupings, and custom columns.

- Sort data by clicking on a field header.
- Group data by drag-dropping a grouping field from the table header to the top of the table to create a grouping.

Calendar Definition Forensics

The calendar forensics analysis integrates multiple versions of a schedule, identifying changes to the calendar definition. This includes changes to standard working/non-working time as well as changes to exceptions (for example, holidays). In addition, it can interrogate changes to calendar assignments on activities.

Example of Calendar Definition Forensic Analysis



Modify Reporting Criteria

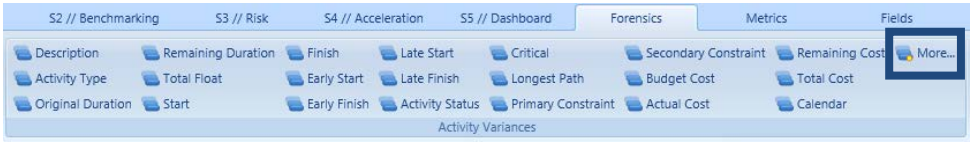
You can add additional criteria and columns to the Forensic analysis using the Fields tab.

See Fields Tab for more information.

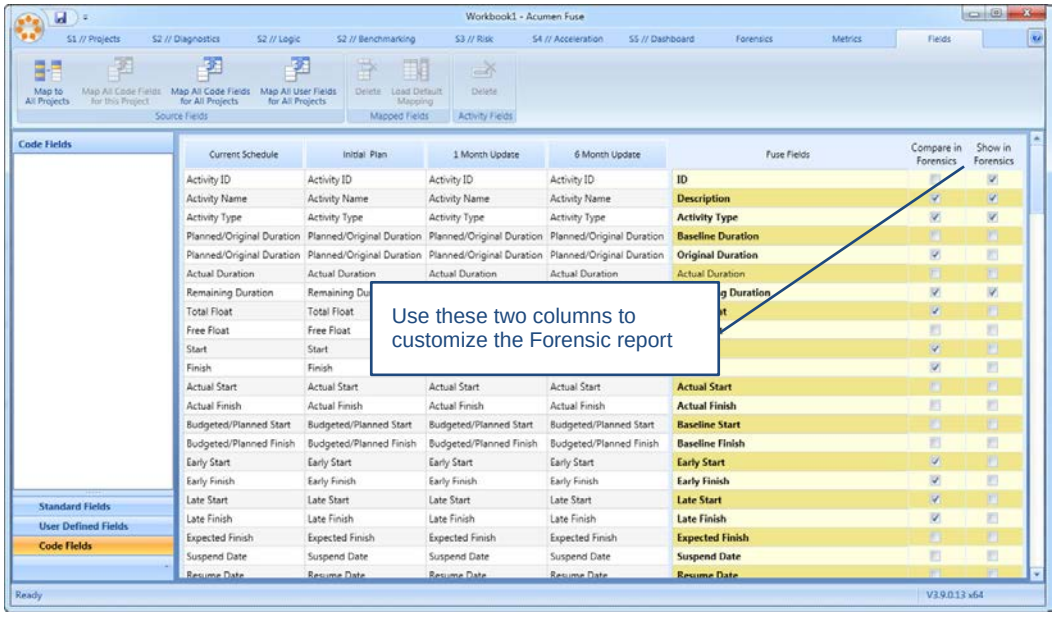
To modify criteria and/or columns, complete the following steps:

1. To access the Fields options, do one of the following:

- Select the Fields tab.
- On the Forensics tab, in the Activity Variances menu, click **More**.



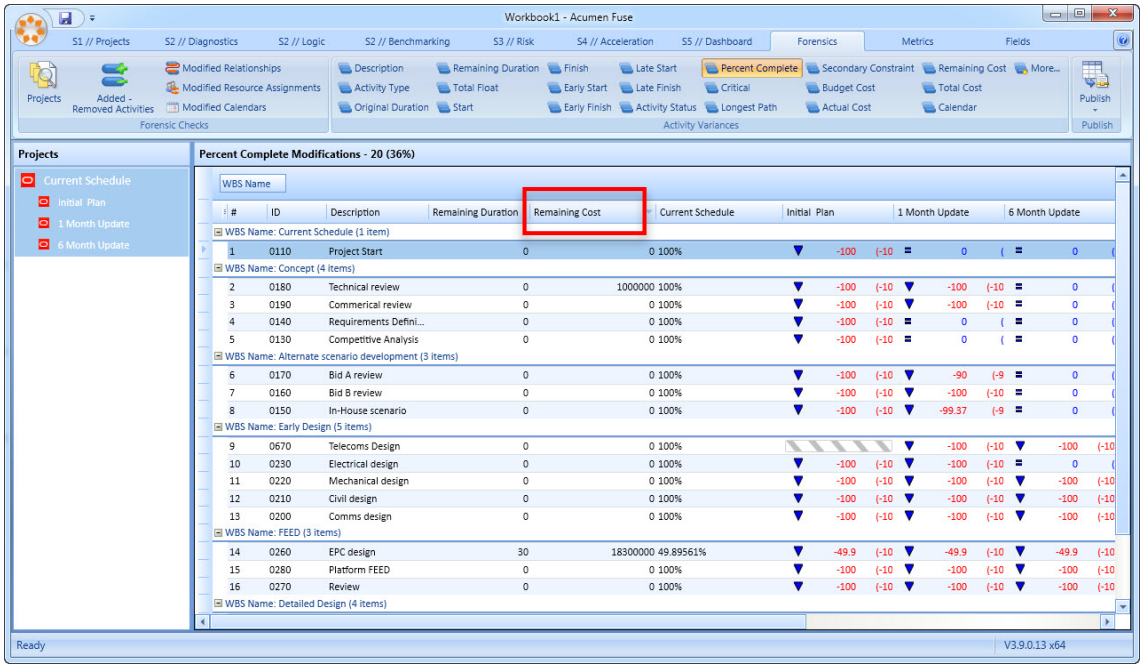
2. In the fields view, scroll to the right and use the last two columns to customize the Forensic report:
   - **Compare in Forensics** — Creates a new Forensic view that compares differences between the snapshots for the given field
   - **Show in Forensics** — Adds the selected column to all activity-based forensic reports (which can then be used for sorting and grouping)



The fields are added to the applicable field group on the Forensics tab.

Example of a Forensic Comparison with Customized Columns and Criteria

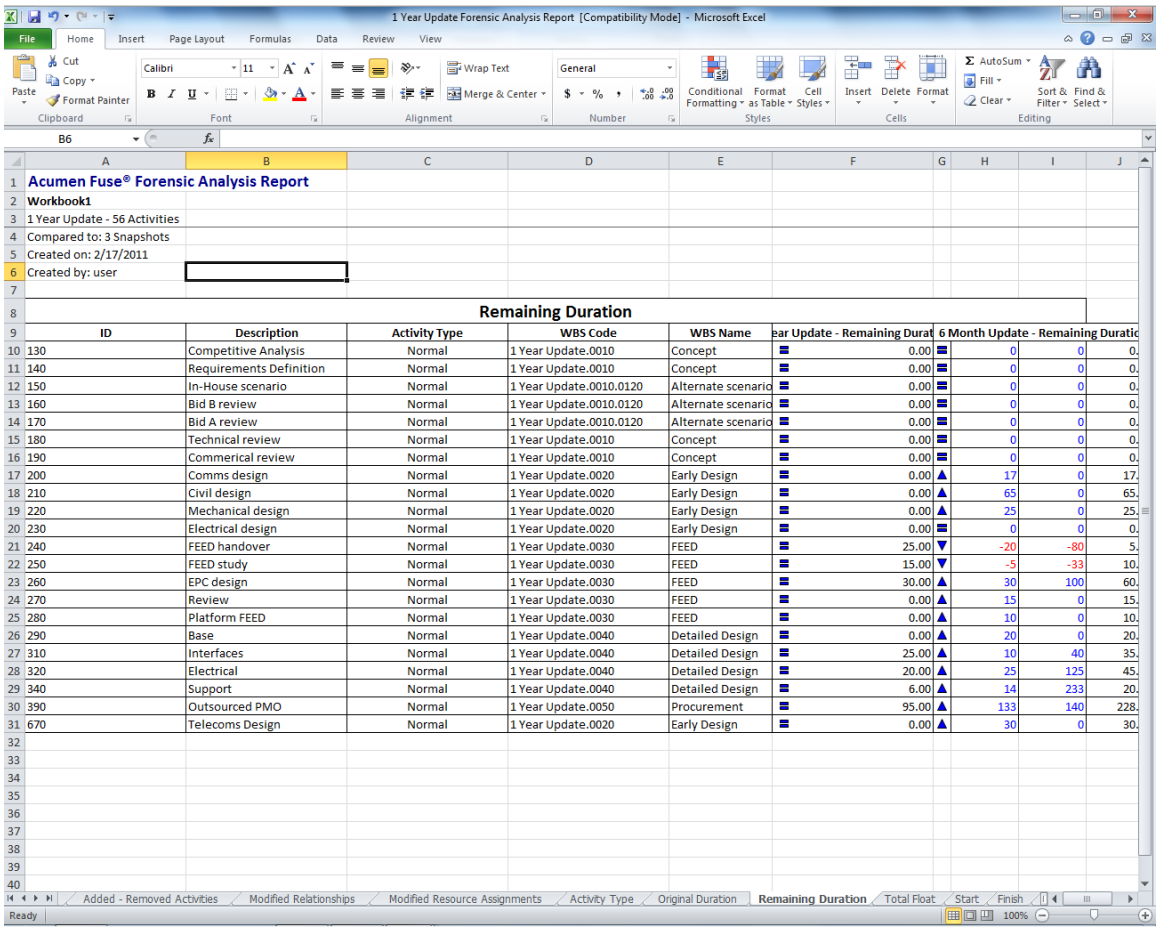
The example below shows a forensic comparison (percent complete) with an additional column added (remaining cost). There is no limit to the number of additional comparisons and/or fields that you can add including custom fields and Code fields.



Generate a Forensics Analyst Report

The forensics analyst report is generated as a Microsoft Excel file. A separate tab is automatically created in the Excel workbook for each forensic check.

Example of an Analyst Report



1 Year Update Forensic Analysis Report [Compatibility Mode] - Microsoft Excel

Acumen Fuse® Forensic Analysis Report

Workbook1

1 Year Update - 56 Activities

Compared to: 3 Snapshots

Created on: 2/17/2011

Created by: user

Remaining Duration

ID	Description	Activity Type	WBS Code	WBS Name	ear Update - Remaining Durat	6 Month Update - Remaining Duratic		
130	Competitive Analysis	Normal	1 Year Update.0010	Concept	0.00	0	0	0.
140	Requirements Definition	Normal	1 Year Update.0010	Concept	0.00	0	0	0.
150	In-House scenario	Normal	1 Year Update.0010.0120	Alternate scenario	0.00	0	0	0.
160	Bid B review	Normal	1 Year Update.0010.0120	Alternate scenario	0.00	0	0	0.
170	Bid A review	Normal	1 Year Update.0010.0120	Alternate scenario	0.00	0	0	0.
180	Technical review	Normal	1 Year Update.0010	Concept	0.00	0	0	0.
190	Commerical review	Normal	1 Year Update.0010	Concept	0.00	0	0	0.
200	Comms design	Normal	1 Year Update.0020	Early Design	0.00	17	0	17.
210	Civil design	Normal	1 Year Update.0020	Early Design	0.00	65	0	65.
220	Mechanical design	Normal	1 Year Update.0020	Early Design	0.00	25	0	25.
230	Electrical design	Normal	1 Year Update.0020	Early Design	0.00	0	0	0.
240	FEED handover	Normal	1 Year Update.0030	FEED	25.00	-20	-80	5.
250	FEED study	Normal	1 Year Update.0030	FEED	15.00	-5	-33	10.
260	EPC design	Normal	1 Year Update.0030	FEED	30.00	30	100	60.
270	Review	Normal	1 Year Update.0030	FEED	0.00	15	0	15.
280	Platform FEED	Normal	1 Year Update.0030	FEED	0.00	10	0	10.
290	Base	Normal	1 Year Update.0040	Detailed Design	0.00	20	0	20.
310	Interfaces	Normal	1 Year Update.0040	Detailed Design	25.00	10	40	35.
320	Electrical	Normal	1 Year Update.0040	Detailed Design	20.00	25	125	45.
340	Support	Normal	1 Year Update.0040	Detailed Design	6.00	14	233	20.
390	Outsourced PMO	Normal	1 Year Update.0050	Procurement	95.00	133	140	228.
670	Telecoms Design	Normal	1 Year Update.0020	Early Design	0.00	30	0	30.

Added - Removed Activities | Modified Relationships | Modified Resource Assignments | Activity Type | Original Duration | Remaining Duration | Total Float | Start | Finish

Ready

To export forensic analysis results to MS Excel, complete the following step:

1. Select the S1 // Projects tab.
2. In the Publish menu, click **Publish** to export Acumen Forensic Analysis results to Microsoft Excel.

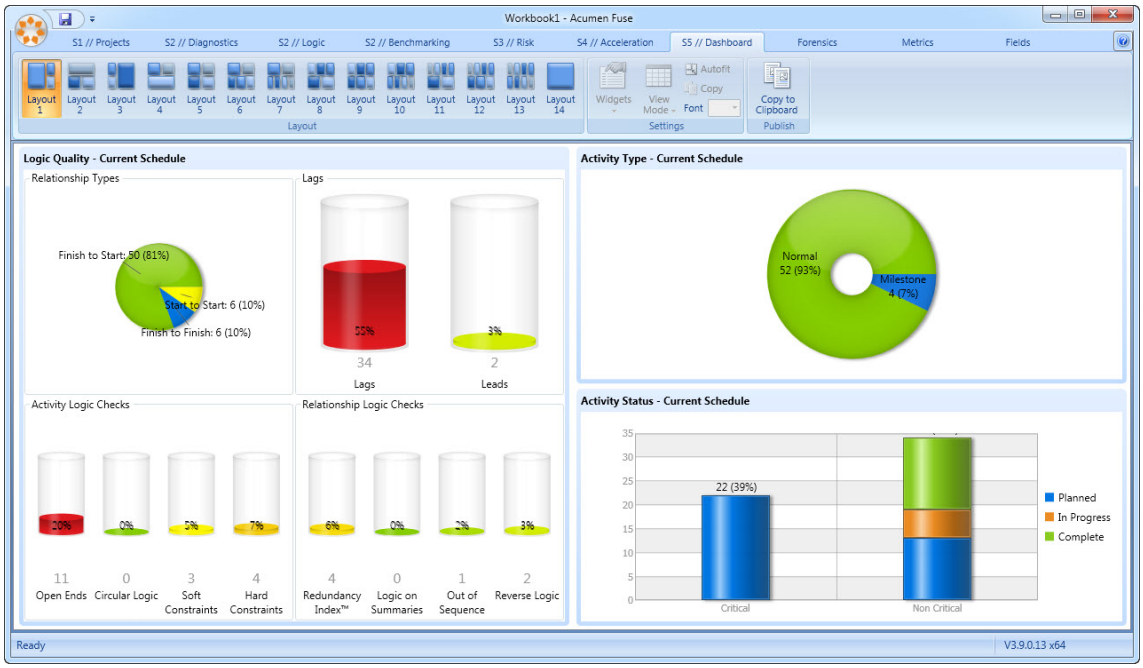
Use the Acumen Dashboard

The Acumen dashboard provides an interactive overview of project(s) status; schedule quality, metrics, forensics, and changes made over time. You can run the dashboard in the context of an entire workbook or you can select a specific project from the project view.

The S5 // Dashboard Tab

The dashboard comprises two types of customizable widgets:

- General widgets
  - Project Status
  - Activity Status
  - Forensics
  - Logic Quality
  - Status Overview
- Analysis widgets
  - Customizable widgets driven by the diagnostics metrics/views



To copy all widgets within the dashboard to the clipboard, complete the following step:

1. Select the S5 // Dashboard tab.
2. In the **Publish** menu, click **Copy to Clipboard**.

Diagnostics (Analysis) Widgets

You can incorporate results from an analysis created in the diagnostics view into the dashboard through diagnostic widgets. You can add multiple widgets to a single dashboard. After you select a diagnostic widget, you can customize it using the **S5 // Dashboard tab » Settings** menu items:

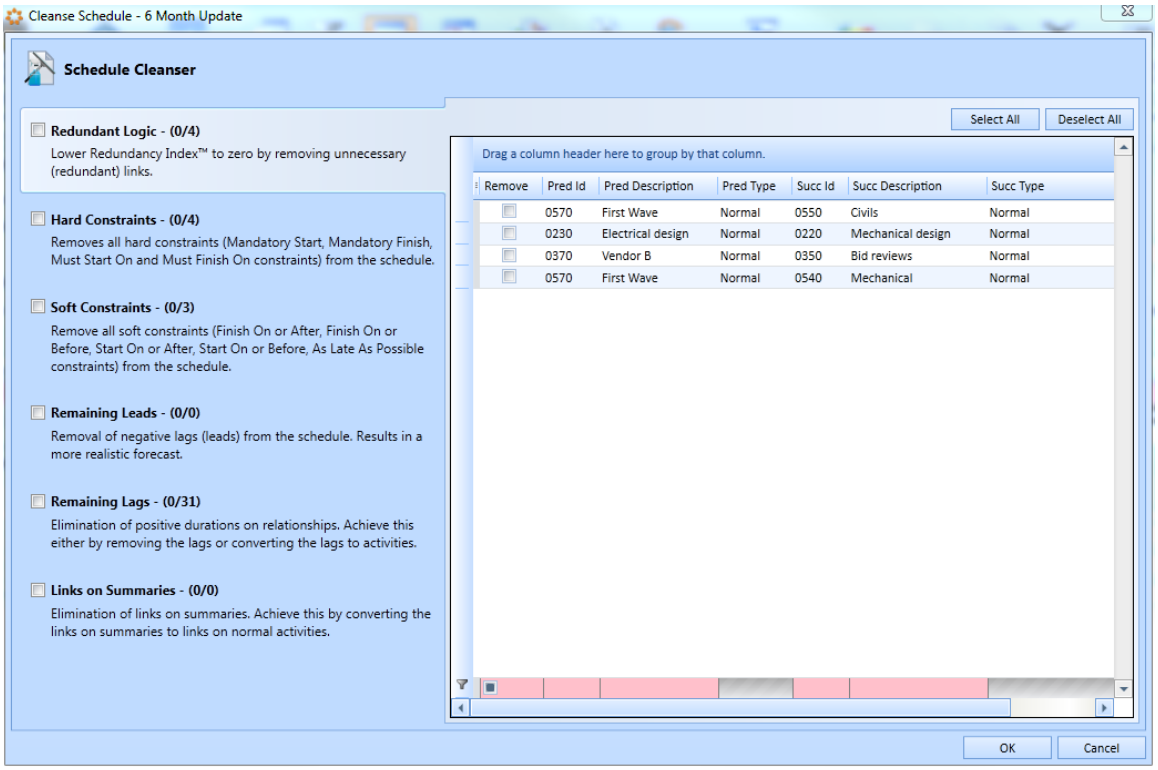
- **View mode** — Group by ribbons or metrics and display in horizontal or vertical mode
- **Auto Fit** — Automatically fits the data within the widget to the window, eliminating scrolling.
- **Copy** — Copies the current widget to the clipboard
- **Font** — Control of the font within the Widget

Cleanse and Resolve Flaws in a Schedule

Use the Schedule Cleanser™ to cleanse and resolve flaws in a schedule. It allows you to specify how you want the schedule to be cleansed. The options are as follows:

- **Redundant Logic** — Lower redundancy Index to zero by removing unnecessary (redundant) links.
- **Hard Constraints** — Removes all hard constraints (Mandatory Start, Mandatory Finish, Must Start On and Must Finish On) from the schedule.
- **Soft Constraints** — Remove all soft constraints (Finish On or After, Finish On or Before, Start On or After, Start On or Before, As Late As Possible) from the schedule.
- **Remaining Leads** — Removal of negative lags (leads) from the schedule. This results in a more realistic forecast.
- **Remaining Lags** — Elimination of positive durations on relationships. Achieve this either by removing the lags or converting the lags to activities.
- **Links on Summaries** — This feature converts relationships that involve summary activities into equivalent relationships by connecting only non-summary activities. This is helpful because only “real” work in the schedule has relationships and summary activities can potentially be removed.
  - If the predecessor is a summary, then:
    1. Acumen searches within the WBS in which the summary predecessor is located for activities that have no successors within that WBS.
    2. The same type of relationships between these group of activities and the successor activity of the original link are created.
    3. The original link is removed.
  - If the successor is a summary, then:
    1. Acumen searches within the WBS in which the summary successor is located for activities that have no predecessors within that WBS.
    2. The same type of relationships between these group of activities and the predecessor activity of the original link are created.
    3. The original link is removed.
  - If both the predecessor and successor are summaries, then the above steps are combined.

If a relationship of the same type is already being created, then the existing relationship is kept and its lag is updated if the newer lag is bigger.



If the checkbox next to a cleanse option is:

- **Cleared** — None of the items for that option are included in the cleanse.
- **Selected** — All items for that option are included in the cleanse.
- **Shaded** — Some but not all of the items for that option are included in the cleanse.

When you click on a cleanse option, the list of related issues displays in the right pane, allowing you to include all, none, or only certain items.

You can include or exclude individual activities. In addition, lags (durations on relationships) can either be removed or converted to activities.

The numbers in the parenthesis next to each cleanse option tell you how many items you have included for that option. For example, (2/4) means that you have included two out of four possible items.

Scenarios

When you run a schedule cleanse, the system creates a scenario instead of updating the source schedule file. A scenario is very similar to a snapshot and is a schedule created directly within Acumen. Scenarios can be compared to their respective parent projects using the forensic analyzer and analysis views.

See Snapshot Links for more information.

Run a Schedule Cleanse

To run a schedule cleanse on MS Project and Primavera P6 schedules, complete the following steps:

1. Select the S1 // Projects tab.
2. Select the project that you want to cleanse.
3. To create a scenario, do one of the following:
    a. Right-click on the project and select **Create Scenario**.
    b. In the Scenario Generation menu, click **Cleanse Schedule**.
4. On the Cleanse Schedule dialog box, select the desired cleanse options.

    Click on a specific cleanse option to see the list of related issues in the right pane.

    You can include or exclude individual activities. In addition, lags (durations on relationships) can either be removed or converted to activities.
5. Click **OK** to create a cleanse scenario.

    The scenario is listed in the S1 // Projects tab Projects tree under the selected project.

Publish a Scenario to MS Project and Primavera

After a cleansed scenario has been created, you can publish it back to its original format (MS Project or Primavera).

To publish a scenario, complete the following step:

1. To export the scenario, do one of the following:
    - Right-click on the scenario in the Projects tab tree view and select the export option.
    - Select the scenario then, in the Scenario Generation menu, click **Export Scenario**.

    The published file is scheduled/CPM-time analyzed in Acumen before being published and therefore has updated early/late dates, float, and so on.

The Acumen Application Programming Interface (API)

You can use the Acumen Application Programming Interface (API) for:

- Custom reporting
- Integration with 3rd party applications
- Exporting schedule data to custom formats
- Integrating with web-services
- Integrating with third party reporting tools such as Crystal reports
- Publishing results to portals such as MS SharePoint

You can add all of these custom reports/applications into Acumen and launched them through custom Publish menu items.

Example of a Custom API Integration

See the *Deltek Acumen API Guide* for more information.

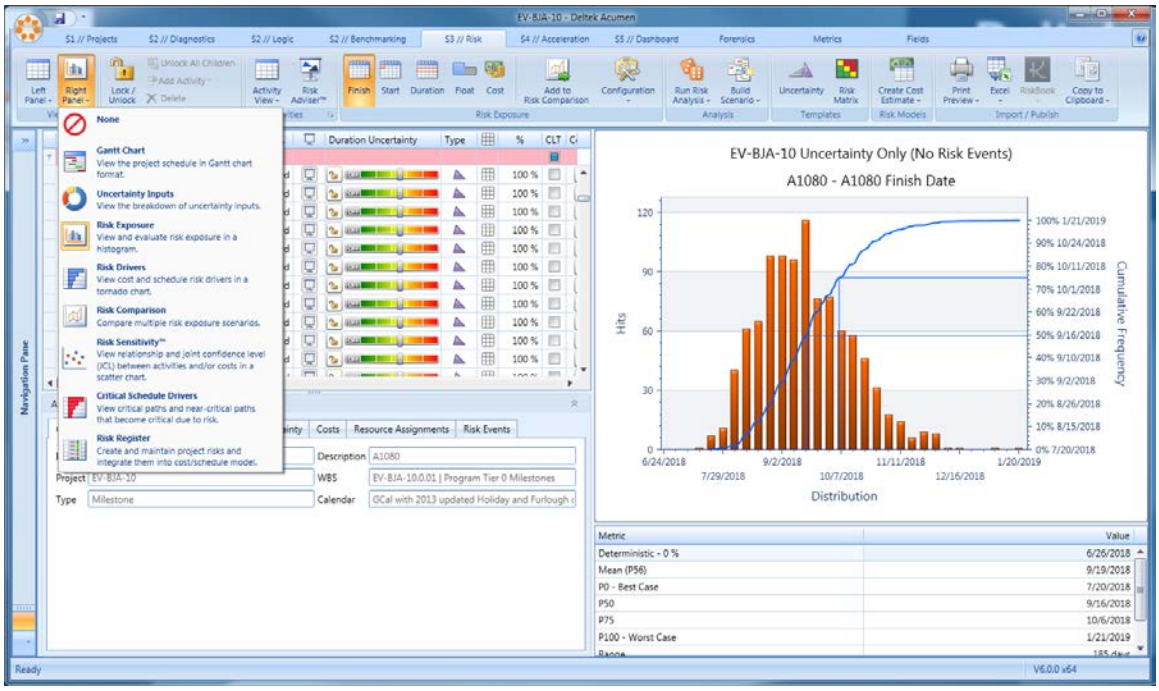
Project Risk Analysis

Acumen Risk is an advanced risk analysis tool for managing both cost and schedule risk exposure within a project (or multiple projects). It incorporates utilities such as Monte-Carlo simulation and an integrated project risk register, together with risk approaches such as Uncertainty Factors™ and Risk Contribution™ reporting.

Acumen Risk is designed for planners, schedulers, risk analysts, and risk workshop facilitators. It is created for ease of use with meaningful reporting that doesn't rely upon complex statistical interpretation. That is, it is designed for project teams wanting to determine their cost and schedule risk exposure together with establishing a sound plan for risk exposure reduction.

The S3 // Risk Tab

Acumen Risk is part of the Acumen suite and can work either alongside, or apart from, Acumen Fuse and Acumen 360. As part of the Acumen platform, all common platform capabilities, such as importing from multiple scheduling tools and running forensics, are included in Acumen Risk.



You can use the S3 // Risk tab to (among other things):

- View, assign, import, and export uncertainty values.
- View, import, and export risk registers.
- Perform cost and schedule risk analysis.
- Determine the most common critical paths.
- Report, publish, and print risk results.

Left and Right Panel Views

You can use the Views menu on the S3 // Risks tab to select different views for the left and right panel.

Left Panel

View	Description	Related Topic
Activities	View the project schedule and set duration uncertainties.	See Risk Inputs for more information.
Risk Register	Create and maintain project risks and integrate them into cost/schedule model.	See Risk Register for more information.

Right Panel

View	Description	Related Topic
None	If this option is selected then the view selected in the Left Panel menu displays in the entire Acumen window.	N/A
Gantt Chart	View the project schedule in Gantt chart format.	See SmartGantt for more information and settings for this view.
Uncertainty Inputs	View the breakdown of uncertainty inputs.	See Risk Inputs for more information.
Risk Exposure	View and evaluate risk exposure in a histogram.	See Report Risk Exposure for more information.
Risk Drivers	View cost and schedule risk drivers in a tornado chart.	See Report Risk Drivers for more information.
Risk Comparison	Compare multiple risk exposure scenarios.	See Risk Comparison for more information.
Risk Sensitivity	View relationship and joint confidence level (JCL) between activities and/or costs in a scatter chart.	See Risk Sensitivity for more information.
Critical Schedule Drivers	View critical paths and near-critical paths that become critical due to risk.	See View the Most Common Critical Paths for more information.
Risk Register	Create and maintain project risks and integrate them into cost/schedule model.	See Risk Register for more information.

Import Cost/Schedule Data into Acumen Risk

The starting point for a risk analysis is to import a cost/schedule file from, for example, MS Project, Primavera, or MS Excel. Use the standard file import options within the Acumen platform to import data for a risk analysis.

See Linking and Importing Projects for more information.

You can conduct a risk analysis on both projects and snapshots within Acumen Risk.

Update an Existing Risk Model with a Modified Schedule

If you are working on a risk model and have assigned uncertainties and risk events, Acumen Risk supports a subsequent import of an updated cost/schedule file while still retaining your assigned uncertainty/risk values. This allows you to run a risk analysis on updated schedules without having to re-create the risk model upon each subsequent update.

Re-import the schedule/cost file from within the Projects view by clicking the **Import** button.

Use a Filter to Focus on a Certain Subset of Activities

Use the activity view filter to view a certain subset of activities to which you can apply risks or uncertainties.

To use the Activity View filter, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Activities group, click the **Activity View** down-arrow.
3. Click **Filtering** then select a filter.

Trace Logic filters that have been saved will display in this filter list. See Save a Logic Trace as a Filter for more information.

Learn More About Risk Analysis

The topics that follow include detailed information about:

- Risk inputs
- Risk register
- Running a risk analysis
- Risk reporting
- Cost risk analysis
- Building a risk adjusted schedule
- Analyzing risk results

Risk Inputs

For activities that are in progress or have not yet started, when you run a risk analysis, Acumen calculates a range of uncertainty values for each activity. The values that get calculated depend on the distribution type selected.

View Activity Uncertainty Values

You can view and edit activity uncertainty values and options in two places in the S3 // Risk tab Activity view:

- In the grid using the uncertainty values columns.

  If you can't see one or more of the columns, right-click on a column and use the Column Chooser to add the applicable columns to the grid.

- On the Duration Uncertainty tab below the grid.

Distribution Types

Acumen includes three distribution types when modeling uncertainty. You can see the distribution type in the Type column of the Risk activity view.

The uncertainty values are displayed using both an absolute and a percentage value. If you change the one value, Acumen automatically recalculates the other. For example, if you change the percentage value, Acumen will automatically recalculate the absolute value as soon as you move off the field, and vice versa.

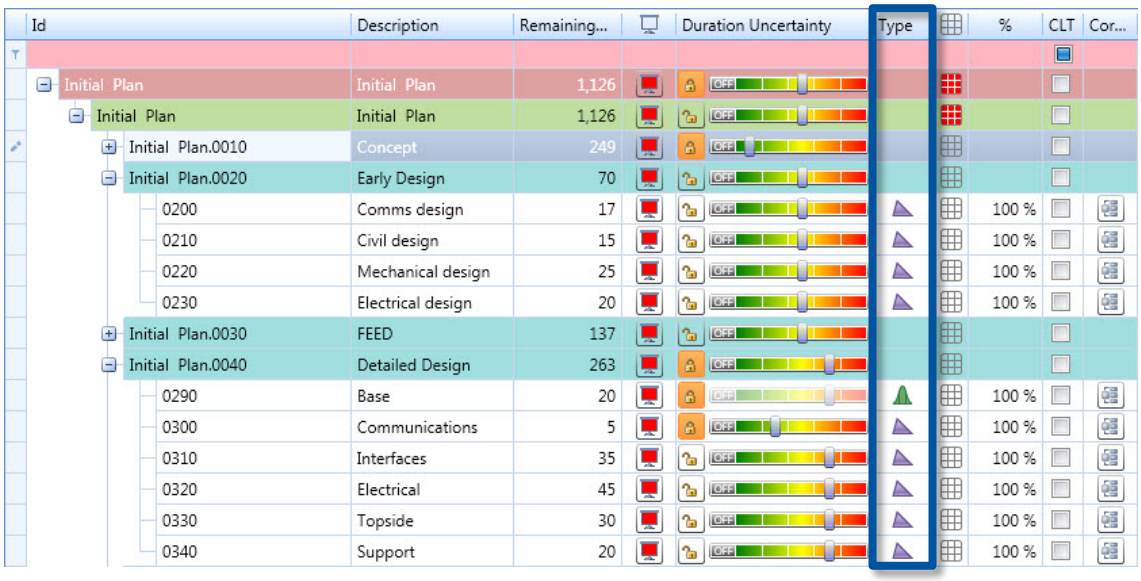
You can change the values and options for each distribution type both on the grid or on the Duration Uncertainty tab.

- Triangle — This type calculates minimum, most likely, and maximum remaining duration and is the default type. These values can be seen in the following columns:
  - Min Duration
  - Most Likely Duration
  - Max Duration
  - Min Duration %
  - Most Likely Duration %
  - Max Duration %
- Normal — This type calculates a mean remaining duration and can be seen in the following columns:
  - Mean Duration
  - Mean Duration %

  The normal curve includes a standard deviation option that controls the width of the bell curve. The default is 1.
- Uniform — This type calculates a minimum and maximum remaining duration and can be seen in the following columns:
  - Min Duration

- Max Duration
- Min Duration %
- Max Duration %

You can define the distribution type for each activity in the activities view or include this as part of the Uncertainty template set up.



Disable Uncertainty for Specific Activities

You can disable uncertainty values for any activity row using the Use Duration Uncertainty column. Deselet the checkbox to disable uncertainty for the selected activity.

If you can't see the Use Duration Uncertainty column, right-click on a column and use the Column Chooser to add it to the grid.

Assign Uncertainty

Assigning uncertainty is the first step when developing a risk model. Uncertainty is typically driven by unknown scope or complexity of work. You can assign uncertainty using one of two modes:

- Graphically assign using the Uncertainty Factor™ sliders.
- Manual data entry of minimum, most likely, and maximum ranges.

Deltek recommends that the Uncertainty Factor approach is used for developing risk models. It provides a fast, consistent, and validated means of risk-loading a model, avoiding potential errors in data entry.

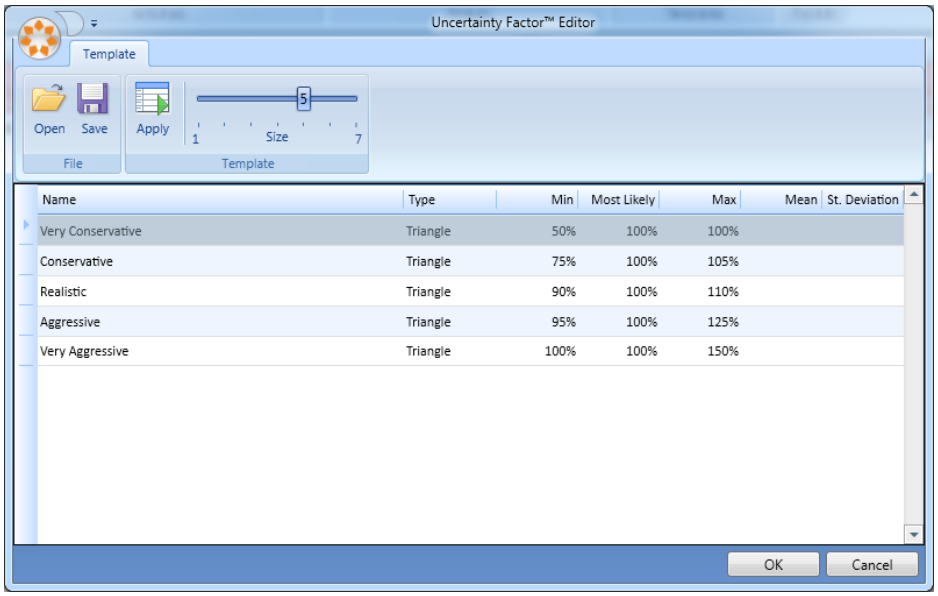
The Uncertainty Factor Template

Prior to applying uncertainties to the risk model, you should first define the Uncertainty Factor template. An Uncertainty Template is used by the project team to describe the degree of buy-in and confidence in the underlying durations and costs in the risk model. You can configure it to model a varying number of uncertainty categories.

You should not use an uncertainty template for modeling the potential impact of risk events. This is covered through the use of the risk register.

To define Uncertainty Factor templates, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Templates menu, click **Uncertainty Template**.



3. Use the Size slider to set the desired number of categories.
4. Enter or edit **Name** and **Type**.
5. Enter or edit **Min**, **Most Likely**, and **Max** percentages.

   These percentages are used when applying the template to the risk model.

> Deltek recommends that you use the standard 5-point scale using the default Acumen Risk Workshop categories and associated percentage values.

6. Click **Save** to save the template.

   This allows you to re-apply it to other risk models or apply it during different phases of the project lifecycle.
7. If you loaded a new template, or made changes to an existing template, click **Apply** to have the changes reflected in the Risk model.

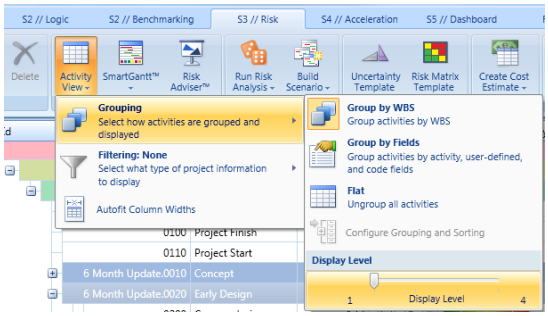
Set the Uncertainty Loading Level

After the Uncertainty Factor template has been defined, you need to set the level at which you are going to conduct your risk workshop/risk loading.

To set the Uncertainty Loading level, complete the following steps:

1. Select the S3 // Risk tab.

2. In the Activities menu, click the **Activity View** down-arrow then hover over **Grouping** to display a sub-menu where you can adjust the **Display Level** slider.



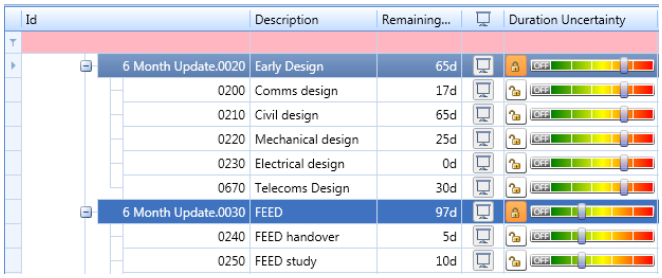
3. Set the level based on the level at which you want to risk load your risk model.

Setting the risk loading level is a means of making the risk loading process practical, avoiding the need to manually risk load every single activity within your potentially large schedule. The next section describes how, irrespective of the level you set, the risk loading process actually applies risk and uncertainty to the entire schedule.

Define Uncertainty Factors

After the risk loading level has been set, you can define your Uncertainty Factors to your risk model.

To define the uncertainty factors, use a top down approach using the Uncertainty Factor sliders in the spreadsheet view.



As you assign an uncertainty factor value to any given parent node, all children nodes automatically inherit the same applied Uncertainty Factor category. This top-down inheritance approach results in an extremely fast means of applying uncertainties to large schedules.

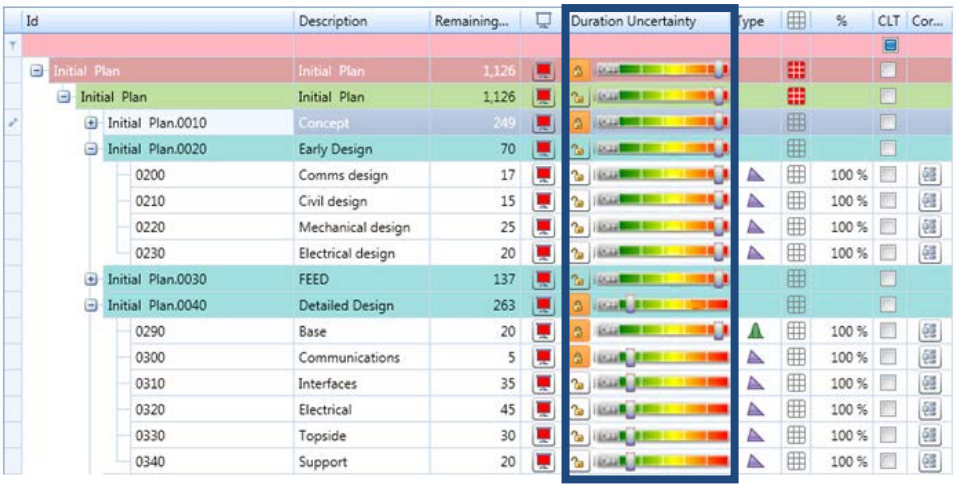
Each time you set a node, it, and its children, become locked so that any subsequent manipulation of uncertainty values higher up in the schedule hierarchy does not impact the explicit change that you made at the node level.

Example of Using Assigned Uncertainty

The screenshot below shows an example of a project that is using the standard Acumen 5-point scale.

The project as a whole has been set to **Very Aggressive** and thus all activities within the entire project inherited a **Very Aggressive** ranking. However, Detailed Design has been overridden as **Very Conservative** therefore all Detailed Design activities, except Base, are set to **Very Conservative**. Base has been singled out as being **Very Aggressive**.

Any subsequent changes to the Detailed Design group (at the group level) won't impact the Base activity until that activity has its padlock icon released.



Id	Description	Remaining...	Duration Uncertainty	Type	%	CLT	Cor...
Initial Plan	Initial Plan	1,126					
Initial Plan	Initial Plan	1,126					
Initial Plan.0010	Concept	249					
Initial Plan.0020	Early Design	70					
0200	Comms design	17			100 %		
0210	Civil design	15			100 %		
0220	Mechanical design	25			100 %		
0230	Electrical design	20			100 %		
Initial Plan.0030	FEED	137					
Initial Plan.0040	Detailed Design	263					
0290	Base	20			100 %		
0300	Communications	5			100 %		
0310	Interfaces	35			100 %		
0320	Electrical	45			100 %		
0330	Topside	30			100 %		
0340	Support	20			100 %		

This hierarchical approach to uncertainty loading allows you to build risk models in a timely manner.

You can also adopt manual uncertainty loading by entering three-point estimates and associated distribution types (triangular, normal, uniform). If an activity is manually loaded, the Uncertainty Factor slider turns grey and is locked until the slider is re-activated by sliding the slider.

The Risk Adviser

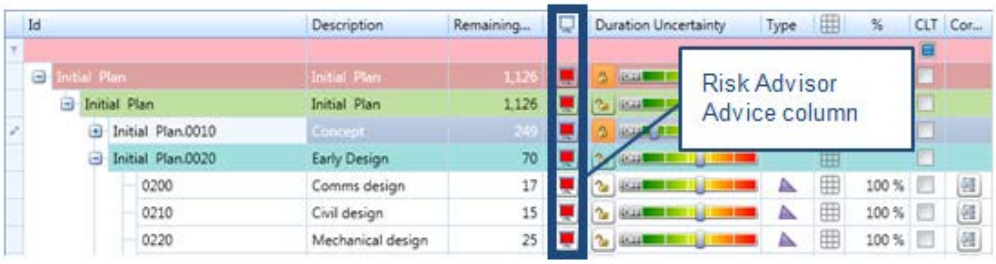
The Risk Adviser™ helps to speed up the uncertainty assignment process by suggesting uncertainty ranges for each activity based on a given criteria.

To set up the Risk Advisor, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Activities menu, click **Risk Advisor**.
3. On the Risk Advisor dialog box, select one of the four options:
   - **Schedule Quality** — This option presents uncertainty assignments based on the Fuse Schedule Index score for each activity and activity grouping. By default, a score of lower than 10% will warrant a Very Aggressive assignment. Conversely, a score of greater than 75% will lead to a conservative uncertainty assignment.
   - **Historical Performance** — This mode compares the baseline plan to the current schedule and looks for discrepancies. The greater the variance between the two, the more aggressive that activity will be flagged.
   - **Metric** — Select any Acumen metric to use as the basis for uncertainty assignments.
   - **Field** — Select any field from the project to use as the basis for uncertainty assignments.
4. Click **Calculate Advice**.

   After the Risk Adviser has calculated the advice, the recommendations are displayed in the Activities view.

5. Click the **Risk Advisor** icon next to any activity or activity grouping to implement the recommended uncertainties.



Import and Export Activity Uncertainty Data

You can export uncertainty values for all in-progess and planned activities to an Excel spreadsheet. You might do this if you want to send the spreadsheet to someone for review, or if you want to edit the values in a spreadsheet format instead of in Acumen.

When you have completed your edits, you can import the data back into Acumen. When you reimport the data, you have the option to import either the absolute or percentage values. The value type that you select is imported and the other is calculated after import. For example, if you elect to import the absolute values, then after the import completes, the percentage values are calculated.

Use an Activity Uncertainty Spreadsheet

You can use the spreadsheet to change values, activity descriptions, and uncertainty types. If you change an absolute value, the equivalent percentage value field is automatically recalculated.

In addition to the three distibution types (triangle, normal, and uniform), the spreadsheet includes a **None** option in the Uncertainty Type column. Select this option to disable uncertainty for the selected activity. This has the same affect as deselection the checkbox in the Use Duration Uncertainty column in the Activity view in Acumen.

In order to prevent errors when importing the spreadsheet back into Acumen, note the following:

- **Min Duration**, **Most Likely Duration**, and **Maximum Duration** fields must be ascending amounts/percentages.

  For example, **Min Duration %** = **90**, **Most Likely Duration %** = **100**, **Max Duration %** = **103**.
- The columns and column headings must remain the same. Do not remove or add any columns or edit any column headings.
- Keep the column format the same. For example, don't replace the numbers in the **Min Remaining Duration** column with letters.
- Don't change any of the activity ID's.

Tip: If you want to create a new activity uncertainty spreadsheet in Excel, Deltek recommends renaming an existing activity uncertainty spreadsheet and deleting the data so that the formatting is correct and errors are prevented when you import the data into Acumen.

Export Activity Uncertainty Data to a Spreadsheet

To export activity uncertainty data to a spreadsheet, complete the following steps:

1. Select the S3 // Risk tab.

2. In the Views menu, click **Left Panel » Activities**.
3. In the Import / Publish menu, click the **Excel** down-arrow and select **Export Activity Uncertainty**.
4. Using the Save As dialog box, save the spreadsheet.

   The file name defaults to **<project name> Activity Uncertainty**; however, you can change that file name if desired.

Excel opens with the spreadsheet displayed.

Import Activity Uncertainty Data into Acumen

To import activity uncertainty data into Acumen, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, click **Left Panel » Activities**.
3. In the Import / Publish menu, click the **Excel** down-arrow and select **Import Activity Uncertainty**.
4. In the Open dialog box, select the spreadsheet and click **Open**.
5. On the Import Activity Uncertainty dialog box, specify whether you want to import absolute or percentage values.

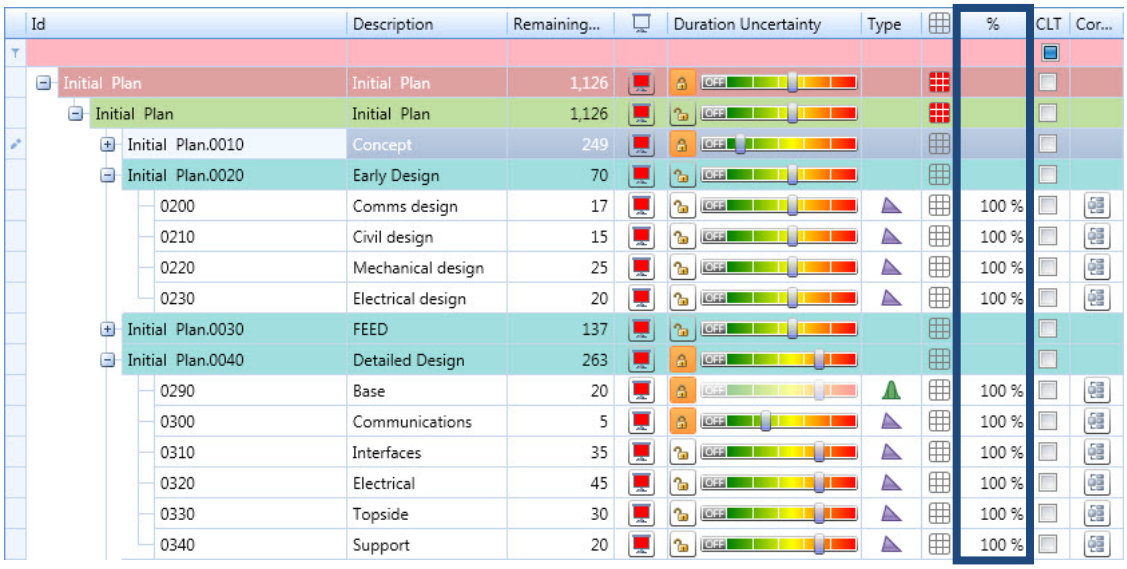
   If you select:

   - **Absolute** — Percentage values are calculated after import.
   - **Percentage** — Absolute values are calculated after import.
   - **Cancel** — The import is cancelled.

The data imports into Acumen and displays on the S3 // Risk tab in the Activity view. If there were any errors, a dialog displays listing details of each error. Rows with errors are not imported into Acumen.

Modeling Task Existence

Acumen Risk provides a means of modeling task existence. If you are not 100% certain that a task is going to happen in your schedule, you can assign a probability to the task to reflect this confidence level(for example, Re-work).

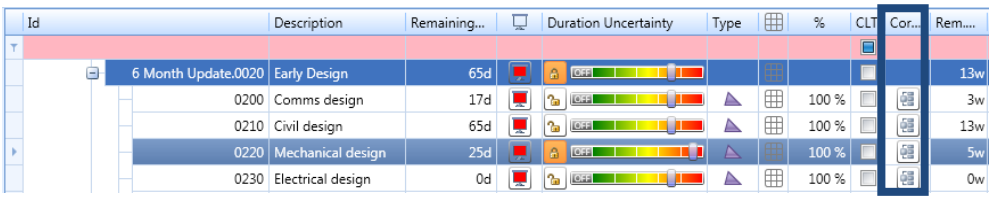


Activity Correlation

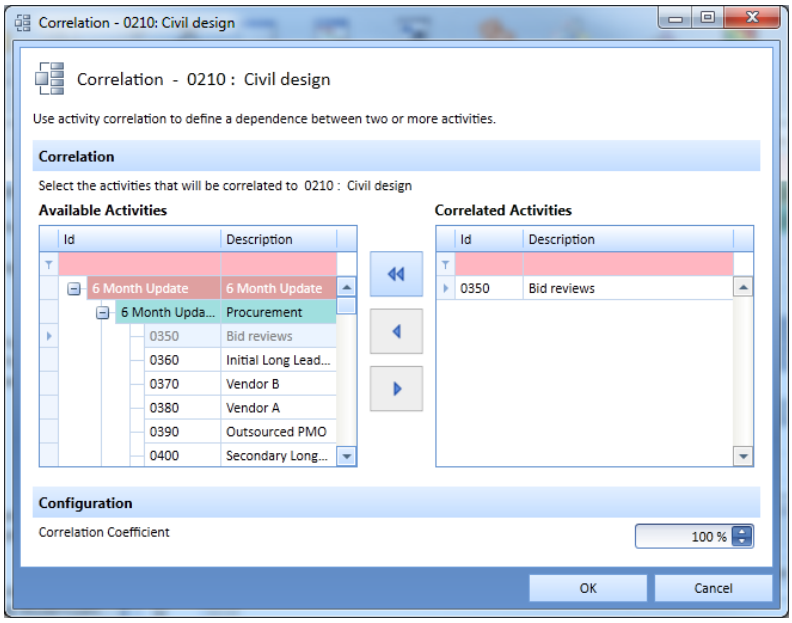
Use this option to select activities within the schedule that may impact one another.

To correlate the uncertainty of one activity to another, complete the following steps:

1. Select the S3 // Risk tab.
2. Click the **Correlation** icon  next to the “driving activity.”



3. On the Correlation dialog box, select the activities that should be correlated to the driving activity.



4. Click **OK**.

   The uncertainty of the driving activity will be correlated with any other activity to which it has been linked.

Correlation Column Symbols

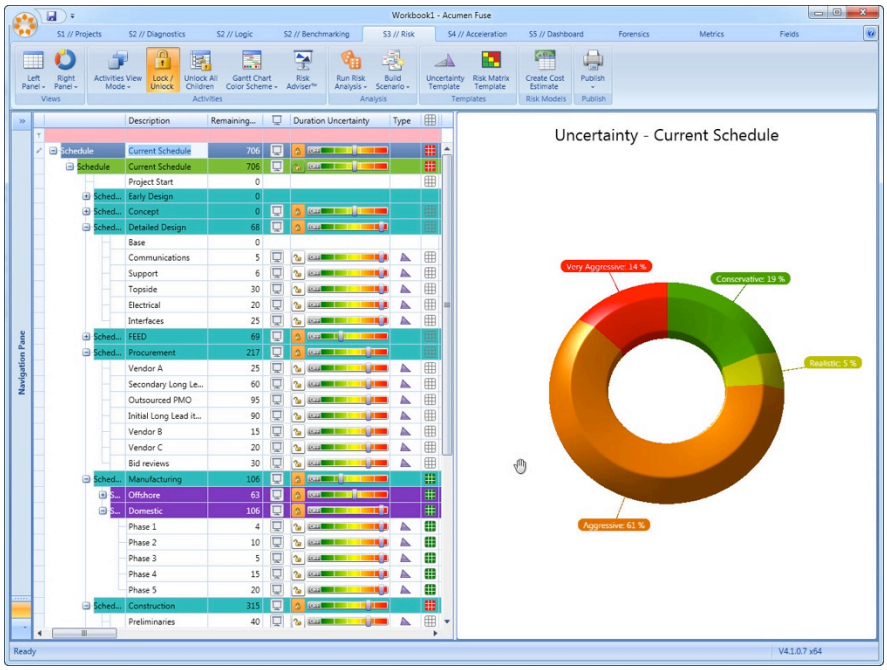
Each symbol in the activity correlation column relates to a correlation option.

Activity	Activity Correlation Settings
	No correlation has been applied to this activity.
	This activity is a “driving activity” for other correlated activities.
	This activity has been included in a set of “driven activities” linked to a “driving activity.
	This activity is a “driving activity” linked to other activities and has also been selected as a “driven activity” by another driver.

View Uncertainty Distributions

During the Uncertainty loading process, the Gantt chart colors activities based on their uncertainty ranking. In a similar manner, you can use the Uncertainty Inputs view to interactively see the distribution of uncertainties as you develop the risk model.

To see the Uncertainty Inputs view, click **S3 // Risk » Views » Right Panel » Uncertainty Inputs**.



Risk Register

Risk events are discrete events (threats or opportunities) that carry both a probability and a potential cost/schedule impact to the project. They are typically captured and modeled in a risk register.

When you perform a risk analysis, you start by entering the risks into the risk register and assessing the probability of the risk occurring as well as the impact that you feel it will have on the schedule and cost. Acumen uses the probability indicator, together with either the cost or schedule risk impact (whichever is higher), to score and color-code the risk. The color coding allows you to easily see the different risk levels and the scoring allows you to prioritize risks.

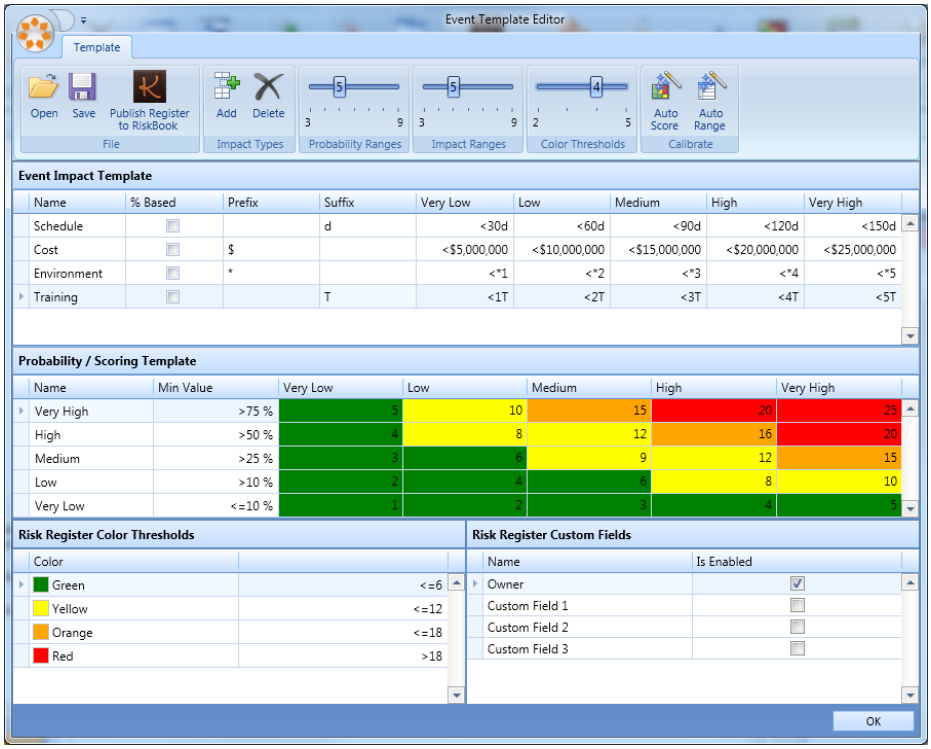
View the Risk Register

To view the risk register, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, click **Risk Register** from either the **Left Panel** or **Right Panel** menu.

Define the Risk Scoring Matrix

Before defining risks, you need to define how you want risks to be scored when running a risk analysis. You do this in the the Event Template Editor. After defining the probability and impact values, the template can then be saved and re-applied to other projects and snapshots.



Access the Event Template Editor

To access the risk matrix Event Template Editor, complete the following steps:

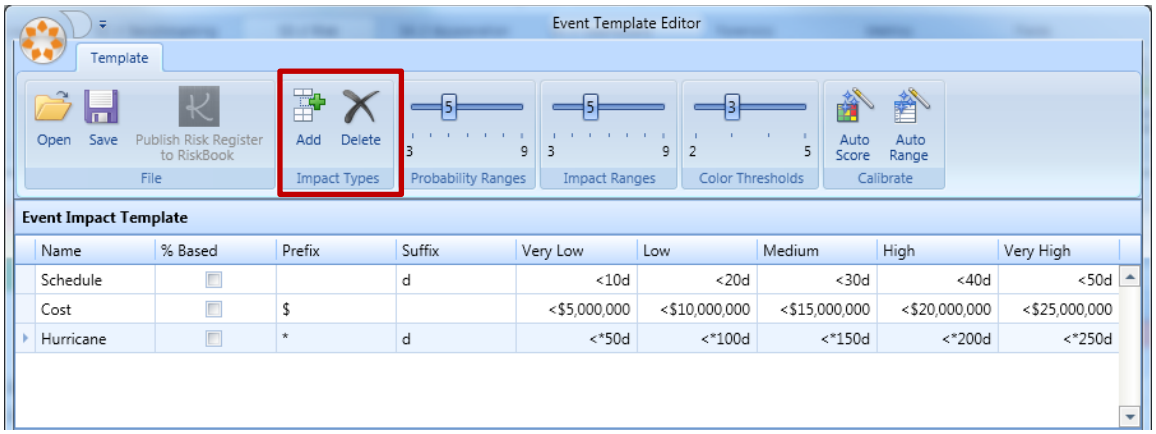
1. Select the S3 // Risk tab.
2. In the Templates menu, click **Risk Matrix** to display the Event Template Editor.

Add, Edit, and Delete Custom Impact Types

You can add, edit, and delete custom event impacts and include a custom prefix and/or suffix. The impact units will display in either days or hours, depending on your Duration Time Unit setting.

You cannot edit the default cost and schedule impact types.

See Set Display Units for information about changing your display from days to hours and vice versa.



To add a custom impact type, complete the following steps:

1. Select the **S3 // Risk** tab.
2. In the Templates menu, click **Risk Matrix**.
3. On the Event Template Editor dialog box, click **Impact Types » Add**.

   A new impact type is added to the bottom of the list.
4. In the Name column, overwrite **New Impact** with the name that you want for the new impact.
5. In the Prefix and Suffix columns, enter data as needed.
6. Edit the Very Low through Very High columns as needed.
7. Click **OK**.

To delete a custom impact type, complete the following steps:

1. Select the **S3 // Risk** tab.
2. In the Templates menu, click **Risk Matrix**.
3. On the Event Template Editor dialog box, select the imact type you wish to remove.
4. Click **Impact Types » Delete**.
5. Click **OK**.

To edit a custom impact type, complete the following steps:

1. Select the **S3 // Risk** tab.
2. In the Templates menu, click **Risk Matrix**.
3. On the Event Template Editor dialog box, click on a custom impact type and edit the fields as needed.
4. Click **OK**.

Edit the Probability / Scoring Template

The risk register uses the information in the Probability / Scoring grid to score and color code the risk events. Set probability percentages and score ranges (in the Very Low to Very High columns) that will help you to assess and prioritize risks. Use the color thresholds (described in the next topic) to adjust the color ranges as needed.

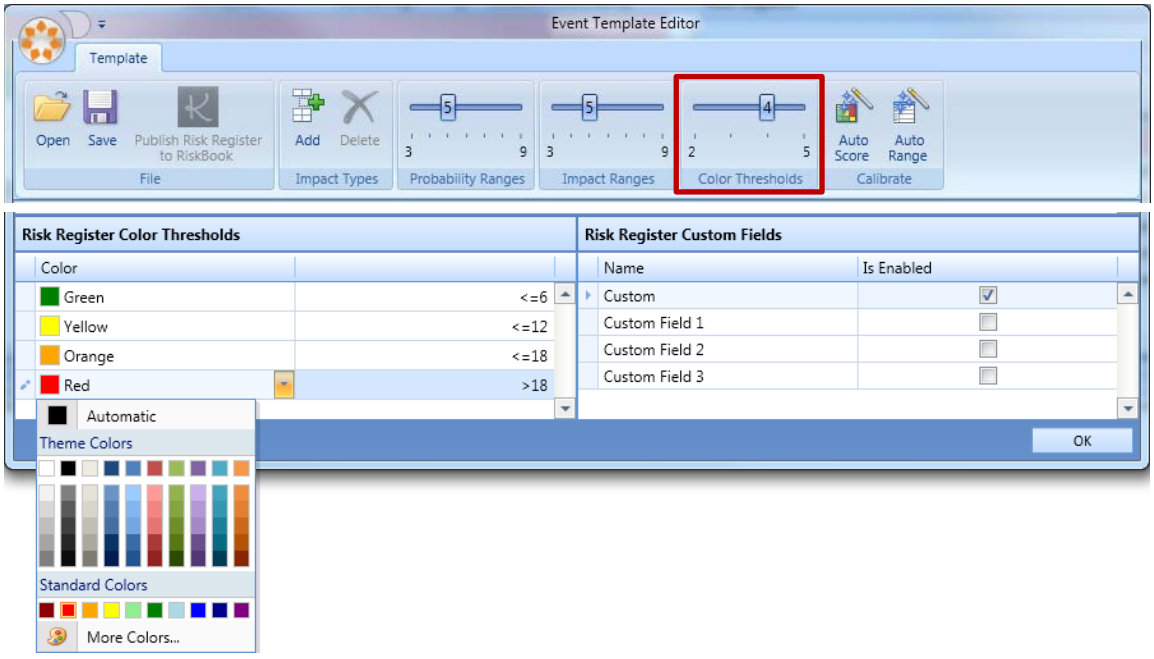
Probability / Scoring Template

Name	Min Value	Very Low	Low	Medium	High	Very High
Very High	>75 %	5	10	15	20	25
High	>60 %	4	8	12	16	20
Medium	>25 %	3	6	9	12	15
Low	>10 %	2	4	6	8	10
Very Low	<=10 %	1	2	3	4	5

You can edit all cells in this grid. To edit a cell, click in the cell and enter the new data.

Increase or Decrease Number of Color Threshold Options

You can use the color thresholds slider to increase or decrease the number of color thresholds between 2 and 5. In addition you can use the color palette to select each threshold color.



Use User-Defined Fields in the Risk Register

You can add up to 10 user-defined fields to the risk register. For example, if you have a risk event relating to a possible strike, you may want to add an email field that contains the Human Resources manager's email address. These user-defined fields are included when you import/export the risk register.

To add a user-defined field to the risk register, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Templates menu, click **Risk Matrix**.
3. On the Event Template Editor dialog box, in the Risk Register Custom Fields area:
    a. Highlight the text on a line in the Name column and enter the name of the custom field that you want to add.
    b. Select the **Is Enabled** checkbox in the same line to add that custom field to the risk register.
4. Click **OK** to close the template editor.

In the Risk Register view, scroll to the right to view the custom fields which display after all other fields.

To remove a user-defined field from the risk register, access the Event Template Editor and deselect the **Is Enabled** checkbox for that field.

Automatic Calibration

Use the Auto Score and Auto Range features in the Event Template Editor Calibrate menu for automatic calibration.

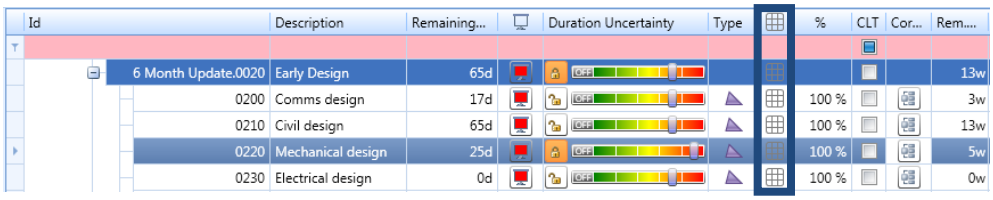
- **Auto Score** — Use to automatically set the values in the Probability/Scoring matrix.
- **Auto Range** — Use to automatically set the impact values based on the duration and the cost of the workbook.

Create Risk Events

After the risk matrix has been defined, you can add risk events to the risk register.

To add risk events to the register, complete the following steps:

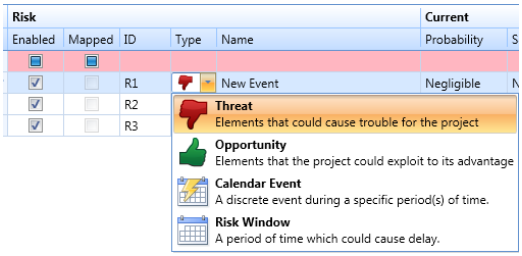
1. To create a new risk event:
   - Click on the risk matrix icon from within the main spreadsheet view. This will automatically create a new risk event as well as link it to the activity from which you clicked.



   - Manually add a risk event from within the risk register.

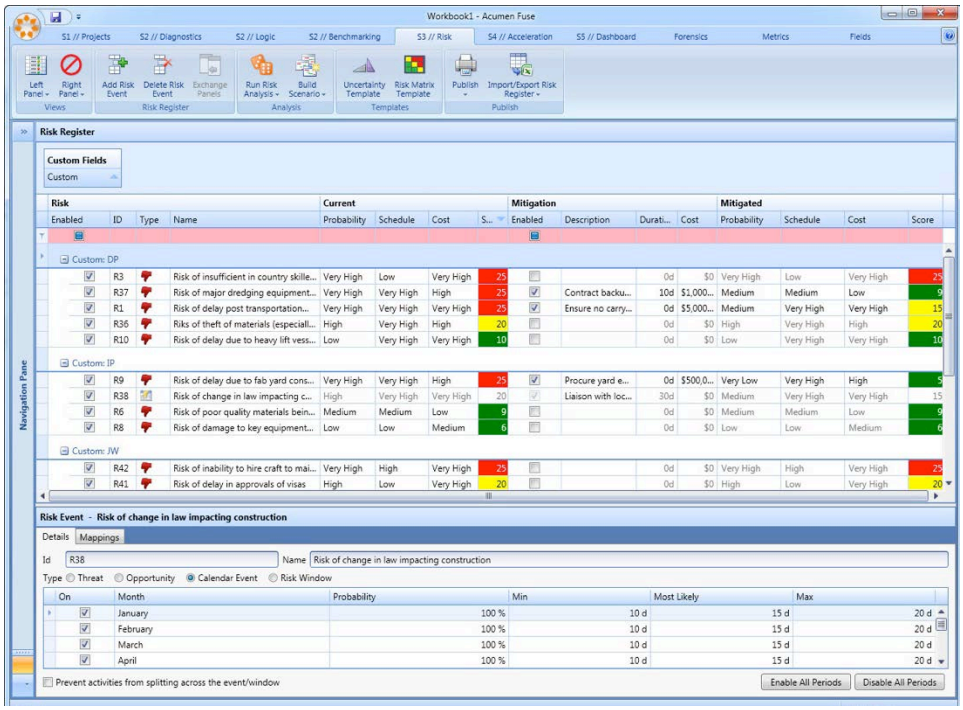
> See Mapping Risk Events to Activities for additional information about manually added risks.

2. Define the following required risk attributes as well as any others you wish to define:
   - **ID** — The Risk ID.
   - **Probability** — Chance of the risk event happening.
   - **Schedule** — Direct impact on the activity/schedule.
   - **Cost** — Direct cost impact on the activity/cost estimate in question.
   - **Type** — Is it a threat, opportunity, calendar event, or risk window?



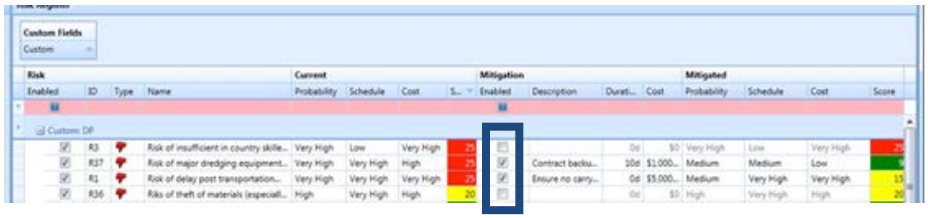
Acumen Risk includes the following risk event types:

- **Threat** — A threat is any event that may negatively impact the project. This risk can carry a probability of occurrence, the likely impact on schedule and/or cost.
- **Opportunity** — An opportunity is any event that may positively impact the project. This risk can carry a probability of occurrence, a schedule impact and a cost impact.
- **Calendar Event** — A calendar event is a discrete risk event that is tied to a certain period of time. This risk carries a time period (months of the year in which it could occur) as well as a probability of occurrence for each month. In addition, the minimum/most likely/ and maximum impacts can be included.
- **Risk Window** — A risk window is a time period that may cause a delay for the project. This risk carries a minimum/most likely/maximum time period of occurrence.

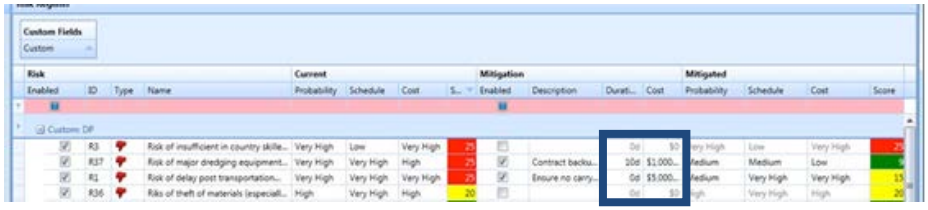


3. Select the **Mitigation** column option to compare the current risk exposure state and a target state assuming mitigation is carried out.

   A risk event can carry both a Current and Mitigated State.



4. If needed, enter mitigation duration and cost overhead.



As part of defining a mitigated state for a risk, Acumen Risk can also calculate the cost/benefit of executing a mitigation plan. In order for this to be calculated, a duration and cost overhead of mitigation needs to be defined against the risk event.

Subsequently, when running a risk analysis, alternate scenarios can be generated either accounting for, or ignoring both the impact and/or overhead of executing mitigation.

Map Risk Events to Activities

Risk events need to be mapped to activities/cost elements in order to be included in the risk model. If you used a **Risk Matrix** icon to create a new risk, the risk is automatically mapped and no manual mapping is required.

If you manually created a risk event in the risk register, then it needs to be mapped back to an activity or group of activities. Risks can be mapped to both individual activities as well as groups/summaries/WBS elements.

If you map a risk event to, for example, a parent WBS element, then all children activities automatically get mapped as well. This provides a very fast means of mapping to summary groups of activities yet still retains accuracy of the model itself.

You can complete manual risk mapping either from a risk to activity(s) or activity to risk(s) perspective.

Absolute Mapping

The way Acumen Risk assigns risk impact across multiple activities depends on whether or not you use absolute mapping:

- No absolute mapping — Risk is spread across multiple activities. If you map a risk event to a parent activity with no absolute mapping, the impact of the risk event gets spread across all children activities and is pro-rated based on the relative duration/cost of the children.
- Using absolute mapping — Total risk is allocated to each activity. If you map a risk event to a parent activity and use absolute mapping, the total impact of the risk event gets allocated to each child activity.

Example of Spreading Risk vs. Allocating Total Risk to Multiple Activities

You have the following activities:

Activity	Remaining Duration
Activity A	17d
Activity B	65d

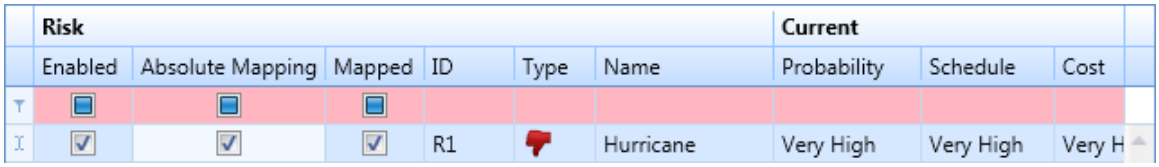
You map a high probability risk with a very high schedule impact to Activity A. In the Risk Matrix Template, **Very High Impact** is set to 120-150 days.

Activity	Remaining Duration	Minimum Duration	Maximum Duration
Activity A	17d	120d	150d

If you map that same risk to Activity B, the risk impact is spread over the two activities.

Activity	Remaining Duration	Minimum Duration	Maximum Duration
Activity A	17d	25d	31d
Activity B	65d	95d	119d

If you map the risk to multiple activities and click the Absolute Mapping option next to the risk, the entire risk impact is allocated to each activity.



Activity	Remaining Duration	Minimum Duration	Maximum Duration
Activity A	17d	120d	150d
Activity B	65d	120d	150d

Using Absolute Mapping

You select absolute mapping using the Absolute Column in the Risk Register view on the S3 // Risks tab.

After mapping a risk to multiple activities, select the checkbox in the Absolute Column next to the risk for which you want to use absolute mapping. You can see the changes in the Minimum and Maximum Duration columns on the Mappings tab.

Manually Map a Risk to Multiple Activities

To manually map a risk to multiple activities, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, click:
   - **Left Panel » Risk Register**
   - **Right Panel » Activities**
3. In the Risk Register (left pane), select the risk that you wish to map.
4. In the Activities panel (right pane) Mapped column, select the checkbox next to the activities you wish to map to the selected risk.

   After mapping has been applied, you have the option to override mapped activities using the Mappings tab beneath the Risks (left pane).

5. (Optional), In the Risk Register (left pane) Absolute Mapping column, select the checkbox next to the risk(s) for which you want to use absolute mapping. Absolute mapping is applied to all activities that are mapped to that risk.

Manually Map an Activity to Multiple Risks

To manually map an activity to multiple risks, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, click:
   - **Left Panel » Activities**
   - **Right Panel » Risk Register**
3. In Activities (left pane), select the activity that you wish to map.
4. In the Risk Register (right pane) Mapped column, select the checkbox next to the risks you wish to map to the selected activity.

   After mapping has been applied, you have the option to override the mapped impacts using the Risk Events tab beneath the activities (left pane).
5. (Optional), In the Risk Register (right pane) Absolute Mapping column, select the checkbox next to the risk(s) for which you want to use absolute mapping.

Import and Export Risk Registers

Acumen Risk allows you to import and export risk registers to and from Microsoft Excel.

When Acumen imports or exports a risk register, the activity duration field units display in the unit that you have set in the Display Settings **Duration Time Unit** field. For example, if your **Duration Time Unit** field is set to **Hours** and you import a risk register with activity duration fields in days, Acumen will convert the activity duration fields to hours. Conversely, if your **Duration Time Unit** field is set to days, and the spreadsheet you are importing displays duration fields in hours, Acumen will convert the fields to display in days.

Risk Register Import/Export Activity Durations

When Acumen imports or exports a risk register, the activity duration field units display in the unit that you have set in the Display Settings **Duration Time Unit** field. For example, if your **Duration Time Unit** field is set to **Hours** and you import a risk register with activity duration fields in days, Acumen will convert the activity duration fields to hours. Conversely, if your **Duration Time Unit** field is set to days, and the spreadsheet you are importing displays duration fields in hours, Acumen will convert the fields to display in days.

See Set Display Units for more information.

To export a risk register, complete the following steps:

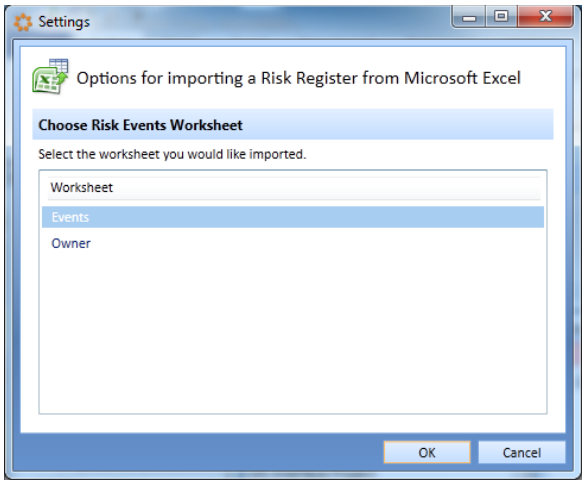
1. Select the S3 // Risk tab.
1. In the Views menu, make sure that **Risk Register** is selected in the Left or Right panel.
2. In the Import / Publish menu, click the **Excel** down-arrow and select **Export Risk Register to Excel**.

3. In the Save As dialog box, navigate to the preferred folder and enter a **File Name**.
4. Click **Save**.

After being exported, you can edit/add/remove risks outside of Acumen Risk and then subsequently import them back into the Acumen Risk risk register.

To import a risk register, complete the following step:

1. Select the S3 // Risk tab.
2. In the Views menu, make sure that **Risk Register** is selected in the Left or Right panel.
3. In the Import / Publish menu, click the **Excel** down-arrow and select **Import Risk Register from Excel**.
4. Browse to and select the risk register you wish to import and click **Open**.
5. If the workbook that you select contains more than one risk register worksheet, a Settings dialog box displays. Select the worksheet you want to import and click **OK**.



Use RiskBook for Risk Register Collaboration

When you create risk events in Acumen, you may want others to review them and to provide input about the risk levels and impacts. You now have the option to publish your risk register and risk scoring matrix to RiskBook; an Acumen Add-on that uses Kona's cloud-based social collaboration and productivity features.

When you publish a risk register to RiskBook, Kona creates a space for that risk register. A new space is created for each risk register that you publish to RiskBook. All the risks that were in the risk register are published to the Kona space and can be viewed on the Risks tab. You can click on a risk and see a complete risk breakdown, including the values that the risk register owner entered for probability, as well as schedule and cost impacts.

As the owner of the Kona space, you can invite people to the space to add comments and to share their opinions about the risks. For example, you may have listed a very high risk probability whereas others may feel the probability is a medium risk.

In addition, you can use the other Kona tabs, such as the Conversations and Tasks tabs, to discuss the risks and to add tasks for others to complete. For example, you may add a task requiring each person in the space to add their own scores to the risk items.

As with other Kona spaces, you have the option to set up space templates. For example, you may want to create a template that includes standard tasks relating to risk register. When you publish to RiskBook, you can select the template which Kona then uses when creating the space.

After everyone has provided feedback, you can export the risk register to an XML file format which can then be imported back into Acumen. You can then compare your original risk register with the collaborative version and make any needed adjustments.

The Acumen RiskBook license includes a Kona Business Account.

The Kona Business Token

The Kona Business Token includes three fields (**Redirect URL**, **Client ID**, and **Client Secret**) and is used to link Acumen to Kona. You will need this information if you need to manually enable RiskBook in Acumen (see next topic).

You must be a Kona Business Account Administrator in order to obtain the Kona Business Token.

To obtain the Kona Business Token, complete the following steps:

1. From Kona, click **Accounts** in the left sidebar.
2. Click the Account name.
3. Click **Edit Account** in the upper right portion of the screen.
4. Click the Integrations tab.
5. If Acumen is listed, skip to step 8, otherwise continue with step 6.
6. Click **Add applications** and complete the fields:
   - Application Name — Enter Acumen.
   - Redirect URL — Enter https://www.deltek.com.
7. Click **Done**.

   The Acumen **Client ID**, **Client Secret**, and **Redirect URL** are listed on the tab.
8. Do one of the following:
   a. Copy and paste each field entry into the corresponding field in Acumen:
      i. Click .
      ii. At the bottom of the pane, click **Deltek Acumen Options**.
      iii. On the Platforms tab, paste each field entry into the corresponding field.
   b. Email the information to another user.

Enable RiskBook in Acumen

When you purchase a RiskBook license, Acumen should automatically be set up to publish a risk register to RiskBook. If the **Publish Risk Register to RiskBook** icon on the S3 // Risk tab is grayed out, you may need to manually enable RiskBook.

To manually enable RiskBook, complete the following steps:

1. In Acumen, click  .
2. On the bottom of the pane, click **Deltek Acumen Options**.
3. On the Platforms tab, in the **Kona by Deltek** group, complete the following fields (this set of fields is known as the Kona Business Token):
   - **Redirect URL**
   - **Client ID**
   - **Client Secret**

   If you do not know the Kona Business token information that needs to be entered, please contact your Kona Business Administrator or Kona Support (support@kona.com), or you can log a case at: http://support.kona.com/tickets/new.
4. Click **OK** to save the information and close the dialog box.

Publish a Risk Register to RiskBook

In order to publish a risk register to RiskBook, you need to be a member of the Kona Business Account.

If you do not have a Kona account, contact your administrator, or Kona Support at support@kona.com, to request that they add you to the Kona Business Account. An email will then be sent to you with details about setting up your account.

To publish a risk register to RiskBook, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, make sure that **Risk Register** is selected in the Left or Right panel.
3. Use the risk register to create your risk events.

   If you enter an email in the risk register Owner Email column, and the user is a member of the Kona Business account, then when the risk register is published to RiskBook, the user will get an email inviting them to the space.

   See Risk Register for more information.
4. In the Import / Publish menu, click the RiskBook down-arrow and select **Publish Register to RiskBook**.

   If this option is grayed out, see Enable RiskBook for more information.
5. Do one of the following:
   - If you have set up a RiskBook space before, skip this step.

     If you have changed your password, you will need to re-authenticate by following the directions in **Step 3** below.

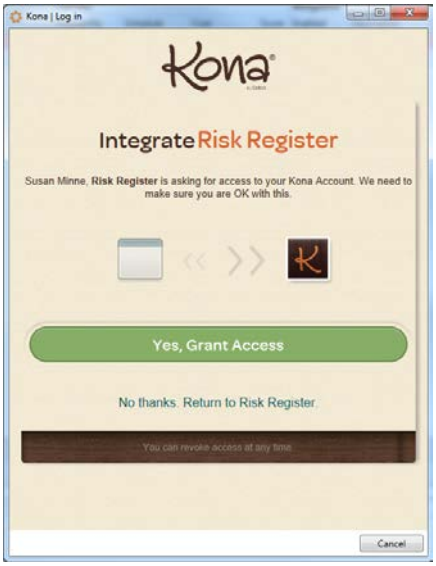
- If this is your first time setting up a RiskBook space, or if you have changed your password:

  i. On the Kona Log In screen, enter your Kona login details.

  > If you are a Kona Business Account administrator logging into your account for the first time, click the question mark icon to display the reset password screen where you can set up your own password.

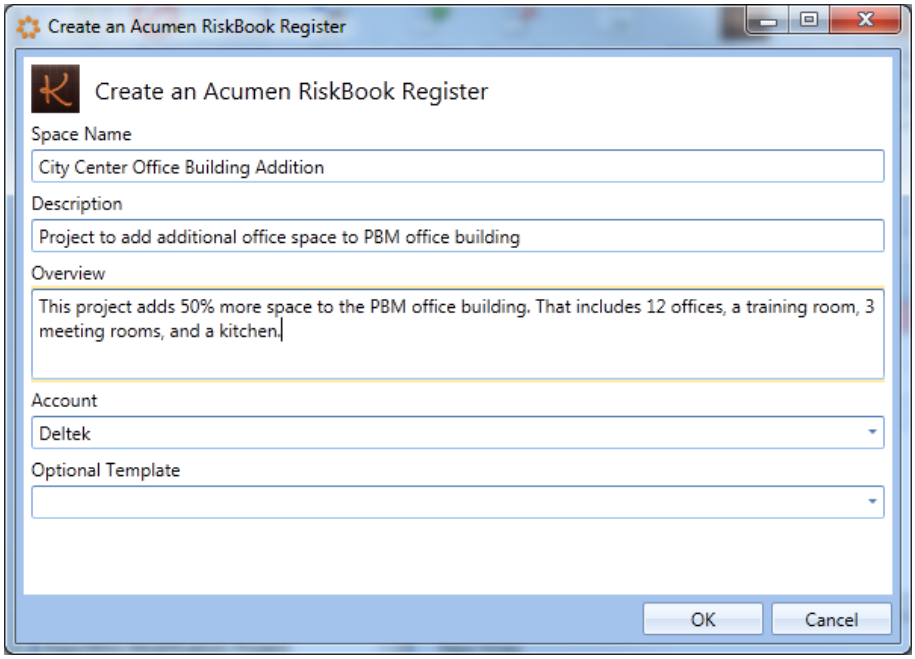
  ii. Click **Log In**.

  iii. On the Kona Integrate Risk Register screen, click **Yes, Grant Access** to allow Risk Register to access your Kona account.



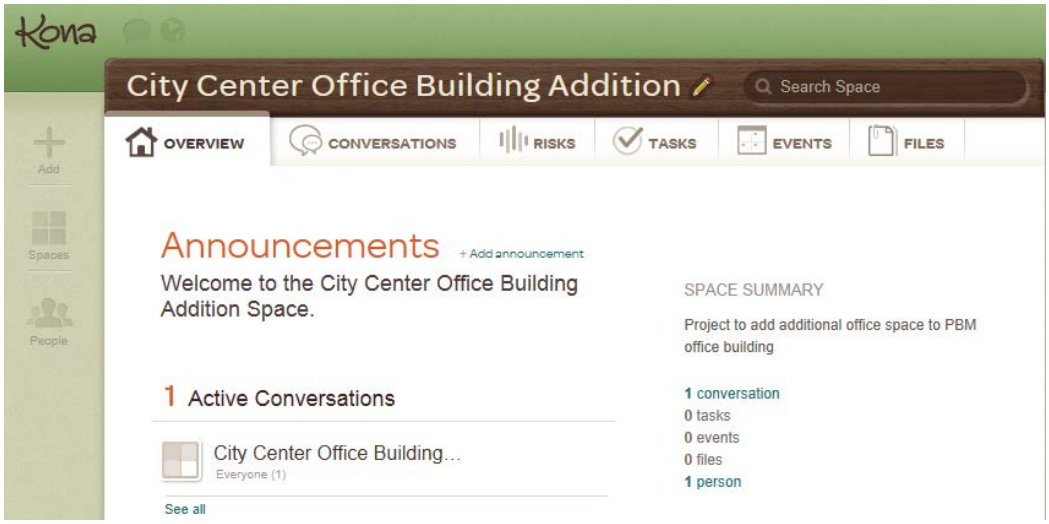
  > You only need to perform this login step the first time you access RiskBook or if you change your password. Acumen retains your Kona login information so that, when you create another RiskBook space, you won't need to enter your login details or grant access to Kona again.

6. On the Create an Acumen RiskBook Register screen, complete the fields.

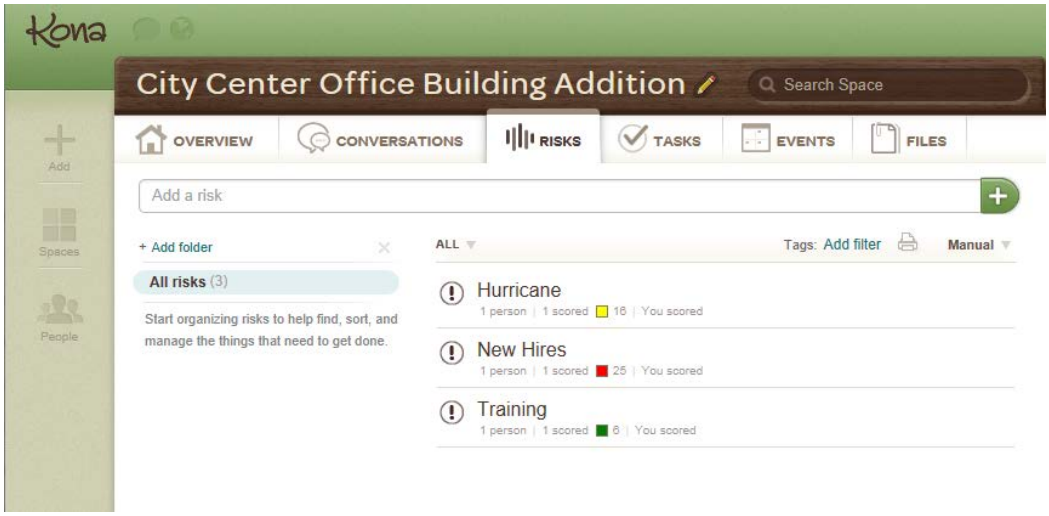


- **Space Name** — Enter the name of your RiskBook space.
- **Description** — Enter a description of the space.
- **Overview** — Use this field to describe the purpose for the space.
- **Account** — If you have more than one Kona account, select the account that Kona should use when creating the space.
- **Optional Template** — If you have set up Kona templates, use this field to select a template to apply to the space. If this field is blank, then no template is applied.

7. Click **OK**.
8. Kona opens a browser window or a browser tab (depending on your browser settings) and creates the space.



9. The Risks tab lists all the risks from the published risk register.

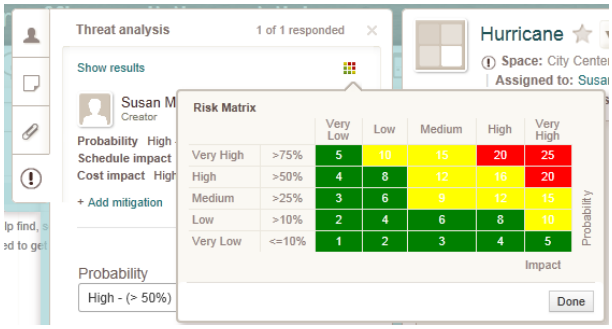


Start Using RiskBook

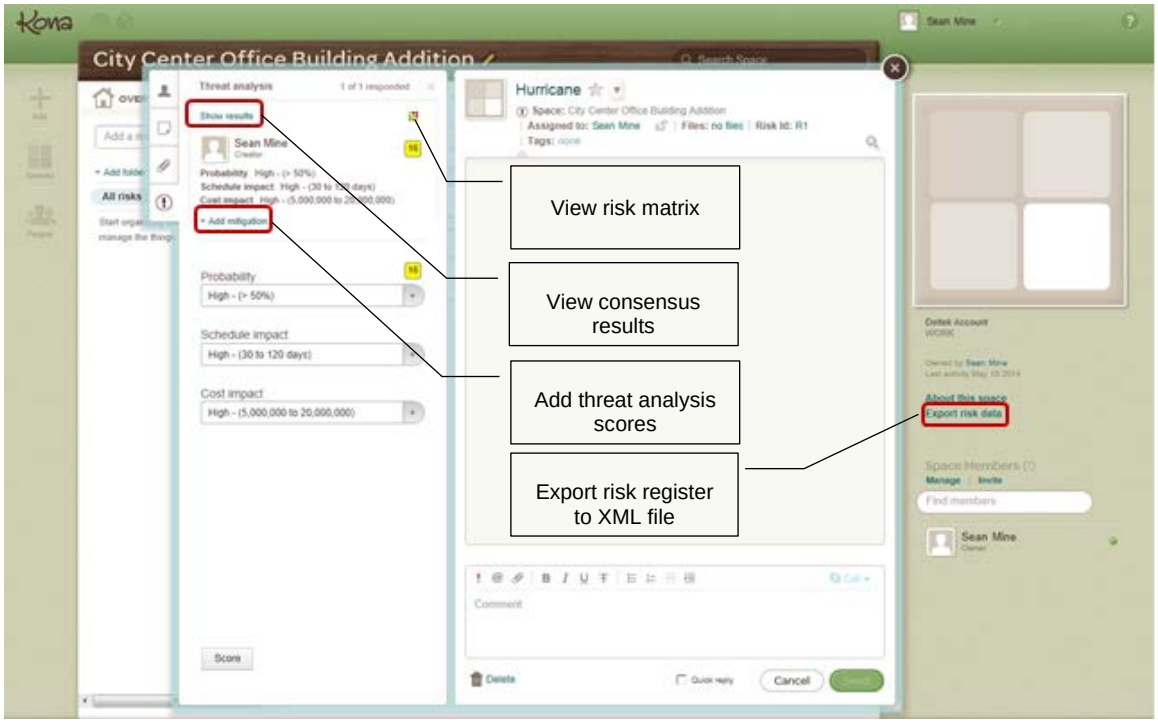
After you create the RiskBook space, you can invite people to the space to start conversations and get input on the risk register.

Open a risk to:

- View details about the risk register owner's threat analysis score.
- View or add comments.
- View consensus results, including a breakdown for each category.
- Add your own threat analysis scores.
- View the risk matrix that the risk register owner set up.



Example of a RiskBook Risk



Export Risk Register from RiskBook

After everyone has provided feedback, you can export the risk register to an XML file.

To export the risk register from RiskBook, complete the following steps:

1. In RiskBook, click **Export risk data**.

   You must be in a specific space to export. You cannot export from My Kona as that is a cross space/project area.

   The export may take several minutes to complete. When complete, the number on your Kona notifications icon will increase by 1.

   The exported risk register is attached to the RiskBook space as a spreadsheet file. The file name is the same as the risk register Kona space name.

2. Use the Files tab to open or download the file.

Import a Risk Register From RiskBook

When you import a risk register from RiskBook into Acumen, you can import the owners values or the consensus values.

The owner is the person who created the risk. The owner may not be the same person for all risks listed in a risk register. For example, Risk 1 may have been created by John and Risk 2 may have been created by Sam. The owner's values are the values for probability schedule and cost impact that the owner entered for the risk.

The consensus values are the average values of all the votes cast in RiskBook for probability schedule and cost impact for the selected risk register.

To import a risk register from RiskBook, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, make sure that **Risk Register** is selected in the Left or Right panel.
3. In the Import / Publish menu, click the **RiskBook** down-arrow and select **Import Register from RiskBook**.
4. On the Import a Deltek RiskBook Register dialog box:
   a. In the **Account** field, select the account.
   b. In the **Risk Register** list, select the risk register you want to import.
   c. Select **Owners Values** or **Consensus Values**.
   d. Click **OK**.

The values and scores are brought from RiskBook into the Acumen Risk Register.

Compare Owner and Consensus Values

You can use risk comparison to compare what the owner thinks about the risks to what the rest of the team thinks. In order to do so, you must run risk analysis twice; once with the owner results and once with the consensus results.

To compare the owner and consensus results, complete the following steps:

1. Import the consensus version of the risk register.

   It makes no different whether you import the owner or consensus risk register first.

   See Import a Risk Register from RiskBook for steps.

2. Select the S3 // Risk tab.
3. In the Views menu, click **Left Panel » Activities**.
4. In the Views menu, click **Right Panel » Risk Register**.
5. Using both panels, map activities to risks.

   See Mapping Risk Events to Activities for more information.

6. In the Analysis menu, click **Run Risk Analysis**.

   After the analysis completes, the right-pane displays a risk histogram.

   See Reporting Risk Exposure for more information about the risk histogram.

7. In the Views menu, click **Right Panel » Risk Comparison**.

   The Risk Comparison chart displays the consensus curve.

   See Risk Comparison for more information.

8. (Optional) In the right pane, on the Curves tab in the Name column, rename the scenario.
9. Import the owner version of the risk register (or consensus version if you first imported the owner version).

See Import a Risk Register from RiskBook for steps.

10. A message displays asking if you want to keep the mappings. Click **Yes** if you don't want to remap activities to risks.
11. In the Analysis menu, click **Run Risk Analysis**.
12. After the analysis completes, the right-pane displays the risk histogram.
13. In the Views menu, click **Right Panel » Risk Comparison**.

    The Risk Comparison chart displays the owner and consensus curves in different colors.
14. (Optional) In the right pane, on the Curves tab in the Name column, rename the scenario.

Run A Risk Analysis

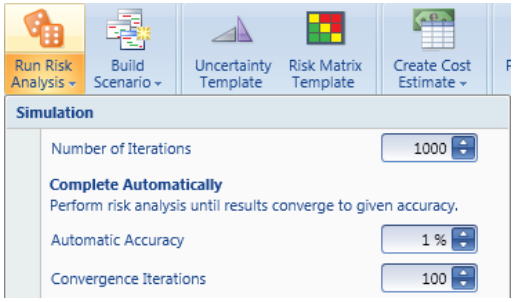
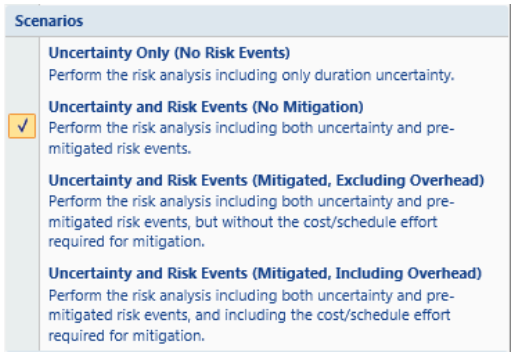
Acumen Risk uses a Monte Carlo simulation engine as the basis of its risk analytics. The engine is fast and flexible with the most common and appropriate settings enabled by default.

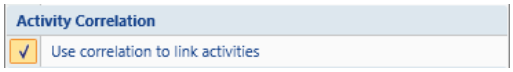
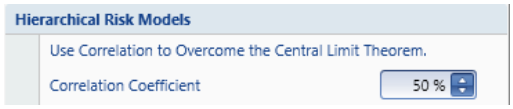
Risk Analysis Options

To access the risk analysis options, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Analysis group, click the **Run Risk Analysis** down-arrow.

The risk analysis options are described in the table below.

Run Risk Analysis Option	Description
Simulation Options 	Acumen Risk provides options for setting the number of simulation options. While 1,000 iterations is adequate for most schedules with an order of magnitude of 1,000 activities, you have the option to change the specific number of iterations. If you select **Complete Automatically**, Acumen Risk will automatically determine the number of iterations to run based on a given level of accuracy (as defined in the **Automatic Accuracy** option).
Scenarios 	Multiple scenarios can be generated in Acumen Risk. Four different analysis modes can be run: ▪ **Uncertainty only** — The risk model only takes into account uncertainty and ignores any risk event impact ▪ **Uncertainty and Risk Events (No mitigation)** — The risk model accounts for uncertainty and risk events but excludes any mitigating impacts ▪ **Uncertainty and Risk Events (mitigated excluding overhead)** — The risk model accounts for uncertainty and risk events in their mitigated state but ignores the cost/schedule overhead of achieving this mitigation. ▪ **Uncertainty and Risk Events (mitigated including overhead)** — The risk model accounts for uncertainty and risk events in their mitigated state and takes into account the cost/schedule overhead of achieving this mitigation.

Run Risk Analysis Option	Description
	All four scenarios can be applied to the base risk model or used in conjunction with creating alternate scenarios.
Interaction 	Run a risk analysis in three modes: ▪ **Automatic** — Runs the analysis without screen interaction. Benefits from multi-threading (very fast). ▪ **Interactive** — Provides real-time screen updates during the analysis. ▪ **Diagnose** — Allows you to manually step through each iteration.
Repeatability 	Acumen Risk includes the option to use repeated risk analysis giving the exact same results. This is achieved through fixed seed. This option is on by default.
Activity Correlation 	Correlate uncertainty outcomes between activities that have been previously set up via the correlate command. By setting a correlation, you estimate how closely the uncertainty distribution of one activity is followed by others. Negative correlation means that if one value is sampled high, the other tends to be sampled low and vice versa for positive correlation. See Activity Correlation for more information.
Historical Risk Models 	The Correlation Coefficient allows you to use correlation as a means of overcoming the Central Limit Theorem on activities that have been previously set up via the CLT check box. By setting the correlation coefficient, the uncertainty distributions of the checked activities follow the values of their summaries in a similar manner as they would when using manual correlation.
Cost/Schedule Integration 	Use this option when running cost risk models and should be enabled if the impact of schedule delay is to be taken into account in the cost model.

Create Multiple Scenario Risk Models

To create multiple scenario risk models, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Analysis menu, click the **Build Scenario** down-arrow and select **Create Copy**.

   Acumen Risk creates a copy of the currently selected risk model, enabling you to run what if… analysis using different settings such as different scenarios analysis options.

Determine the Most Common Critical Paths in a Schedule

When you run risk analysis and include uncertainties and risk events, each simulation may have a different critical path. Activities that are critical in your deterministic schedule may not be the same as those identified in the statistical model.

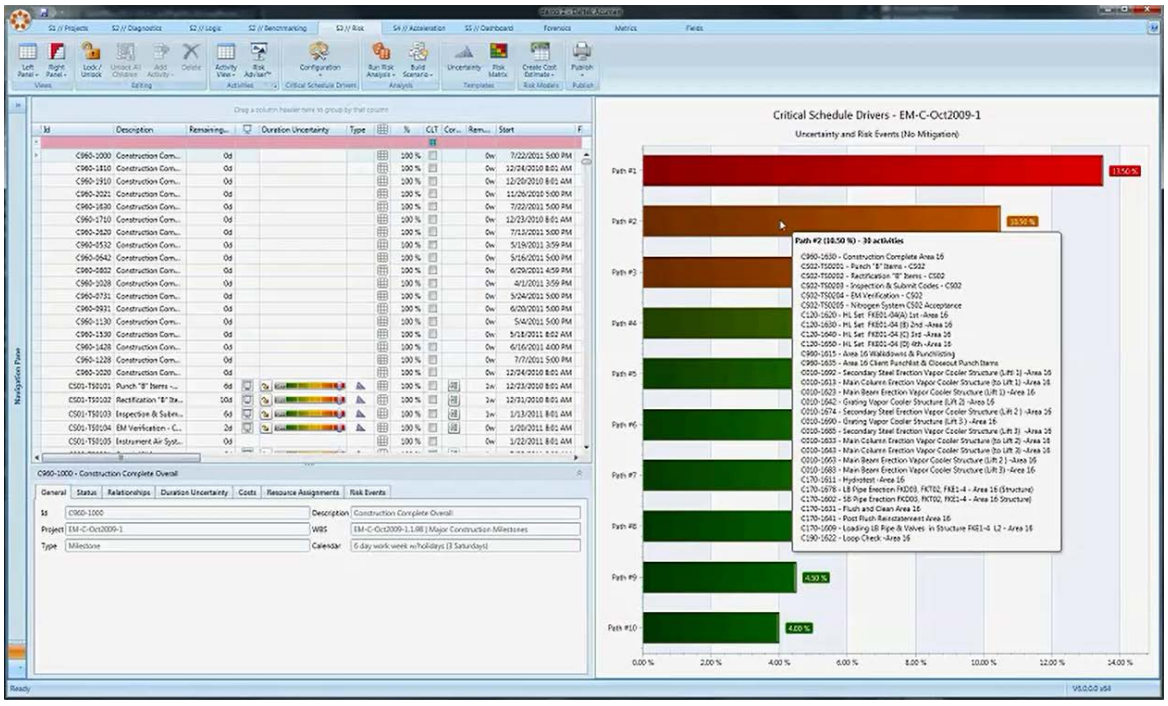
Instead of looking at the critical path on the activity level, you can run simulations on the entire project. Each time a simulation is run, Acumen notes the critical path. As you run more and more simulations, some of the paths get repeated and those most common critical paths are the ones you may want to see.

Acumen uses a Critical Schedule Driver tornado chart to display the most common critical paths. The percentage that displays to the right of each bar is how often, as a percentage, the path is most critical. For example, if you run 200 iterations and the Path 1 bar displays a percentage of 13%, it means that Path 1 was the critical path in 26 (13%) of the 200 iterations.

If you hover over a bar, you can see the list of activities that make up that path. You can create a SmartGantt filter using this information and use it to view the activities and make any needed adjustments.

Example of a Critical Schedule Driver Tornado Chart

This example shows a list of the critical paths, listed from most common to least common. The activities that make up the second most common path are displayed.



View the Most Common Critical Paths

To view the most common critical paths, complete the following steps:

1. Select the S1 // Projects tab.
2. Import your project into Acumen or select the project in the Projects pane.

   See Importing Project Data for more information and steps on how to import project data.

3. Select the S3 // Risk tab.
4. In the Analysis menu, click the **Run Risk Analysis** down-arrow to set the risk analysis options and run risk analysis.

   See Running a Risk Analysis for more information on the Risk Analysis options.

5. In the Views menu, click **Right Panel » Critical Schedule Drivers**.

   Acumen calculates the most common critical paths and displays them in the right pane.

   This calculation is not driven by the selected activity but is instead calculated at the project level.

6. In the Critical Schedule Drivers menu, click **Configuration** to select the number of critical paths you wish to display in the right pane.

Create a SmartGantt Filter Using Critical Path Data

Create a SmartGantt Filter Using a Critical Path

To create a SmartGantt filter using a critical path, complete the following steps:

1. On the S3 // Risk tab, click on a critial path in the tornado chart and select **Create SmartGantt Filter** from the menu that displays.

   See *View the Most Common Critical Paths* above for steps to view the critical path.

2. In the Create Filter dialog box, enter a filter name and click **OK**.

   The filter is added to the Activity view filtering menu (**Activities menu » Activity View » Filtering**).

   See Filter Activities for more information including using, editing, and deleting activity filters.

Create and Apply a SmartGantt Filter Using a Critical Path

To create and apply a SmartGantt filter using a critical path, complete the following steps:

1. On the S3 // Risk tab, click on a critial path in the tornado chart and select **Create and Apply SmartGantt filter** from the menu that displays.

See *View the Most Common Critical Paths* above for steps to view the critical path.

2. In the Create Filter dialog box, enter a filter name and click **OK**.

   The filter is applied to the activities in the Activity view and is also added to the Activity view Filtering menu (**Activities menu » Activity View » Filtering**).

See Using a Filter to Focus on a Certain Subset of Activities for steps on how to use the filter to view a subset of activities to which you can apply risks or uncertainties.

Build A Risk-Adjusted Schedule

You can generate scenarios based on risk inputs and outputs.

Scenarios Based on Risk Inputs

Creating scenarios based on risk inputs is useful when needing to re-calibrate a schedule based on the project's team uncertainty rankings. You can achieve this using one of the following modes:

- PERT Method — This option uses the PERT algorithm ((max+4*most likely+min)/6 to re-calibrate the schedule/cost model.
- Distribution Median — This option takes the median value between min, most likely and max to re-calibrate the schedule/cost model.

See Risk Inputs for more information.

To create a risk-adjusted schedule based on risk inputs, complete the following steps:

1. Select the S3 // Risk tab.
2. With the project selected in the Projects pane, in the Analysis menu, click **Build Scenario**.
3. Select **Scenario Based on Risk Inputs**, then select either **PERT** or **Distribution** Median.
4. In the Analysis menu, click **Run Risk Analysis**.

Scenarios Based on Risk Outputs

This option creates a scenario based on the outputs of a risk analysis. You can create a scenario based on any P-Value from the risk analysis. After creating the scenario, you can publish the risk-adjusted schedule back to the scheduling tool or use it as the basis for building a new risk model.

See Run a Risk Analysis for more information.

To create a risk-adjusted schedule based on risk outputs, complete the following steps:

1. Select the S3 // Risk tab.
2. With the project selected in the Projects pane, in the Analysis menu, click **Build Scenario**.
3. Select **Scenario Based on Risk Outputs**, then edit the **P Schedule** value if needed.
4. In the Analysis menu, click **Run Risk Analysis**.

Cost Risk Analysis

Create a new Cost Estimate

You can create a new cost estimate directly within Acumen Risk in order to perform a cost risk analysis.

To create a new cost estimate, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Risk Models menu, click **Create Cost Estimate**.

   This opens a new cost estimate that will automatically be populated with a single activity called **New Activity**.
3. Edit the activity name and details directly in this view or by using the fields in the Activity Details Pane.

   See Edit the Schedule Using the Details Pane for information about the fields on the Details Pane tabs.
4. To add a new activity to the cost estimate, do one of the following:
   - In the Editing menu, click **Add Activity**.
   - Right-click on any row in the Activities view and click **Add Activity**.

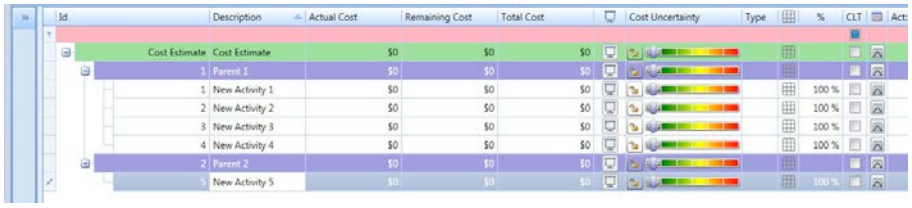
Organize Activities into a Hierarchy or Cost Breakdown Structure

You can drag and drop any activity or row within the Activities view to create a cost breakdown structure or other hierarchy within the cost estimate.

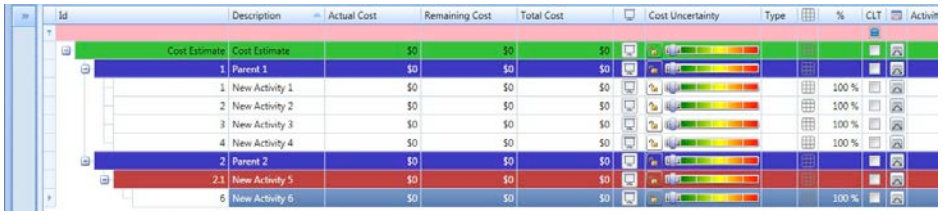
You can create any number of hierarchical levels or groups in the cost estimate. Any time an activity, or group of activities, is dragged onto another row, it becomes a child of that row.

Example of Creating a Hierarchy

1. **New Activity 5** is dragged onto the row titled **Parent 2**. This makes **New Activity 5** a child of **Parent 2**.



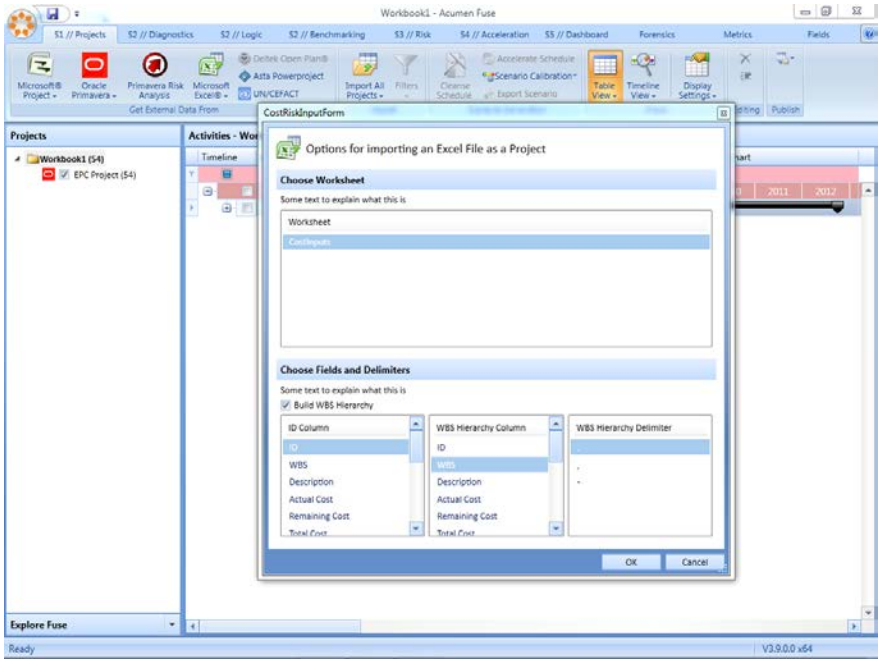
2. **New Activity 5** becomes a parent activity when we add a new activity (**New Activity 6**) and drag it onto the **New Activity 5** row.



Import an Existing Cost Estimate

Acumen Risk includes an Excel-based template called **CostRiskTemplate.xls** located within the Samples folder. You should use this as the template file for importing cost estimates into Acumen Risk.

After the cost estimate is populated into the template file, you can import it into Acumen Risk using the normal Excel import feature.

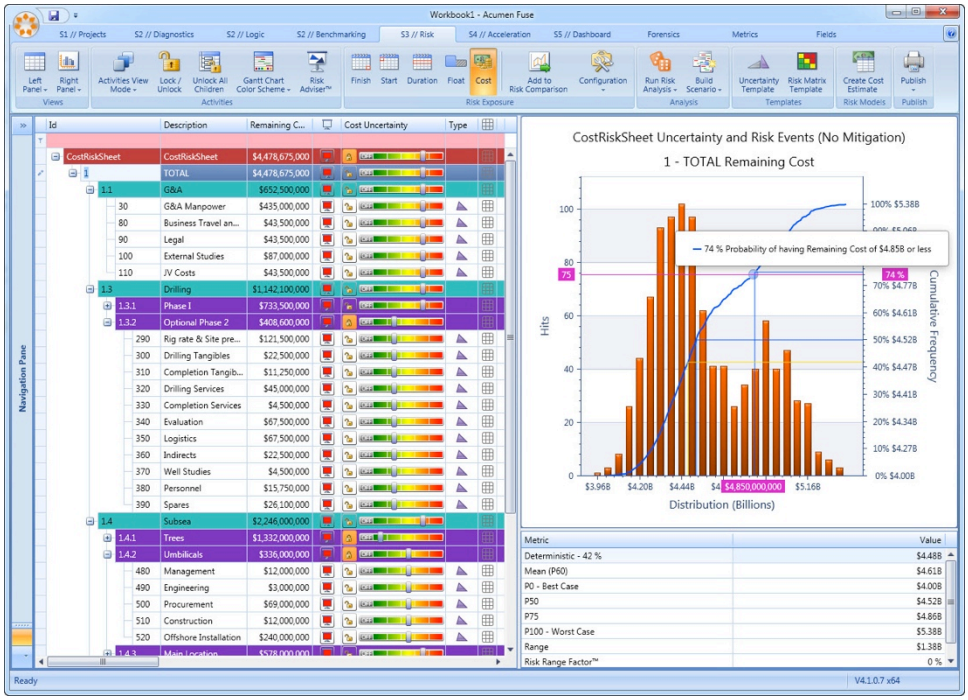


After the cost estimate is imported into Acumen Risk, follow the normal procedure for building your cost model with uncertainty and risk events (same procedure as building a schedule risk model).

See Assigning Uncertainty and Creating Risk Events for more information.

You can run reports, such as Risk Exposure, Risk Drivers, and Comparison Analyzer against cost models.

Example of Cost Risk Analysis Results



The Cost Contribution Metric in the Risk Driver report shows the biggest cost risk drivers in terms of cost rather than percentages, providing useful executive reporting.

See Reporting Risk Drivers for more information.

Link Cost and Schedule Risk Models

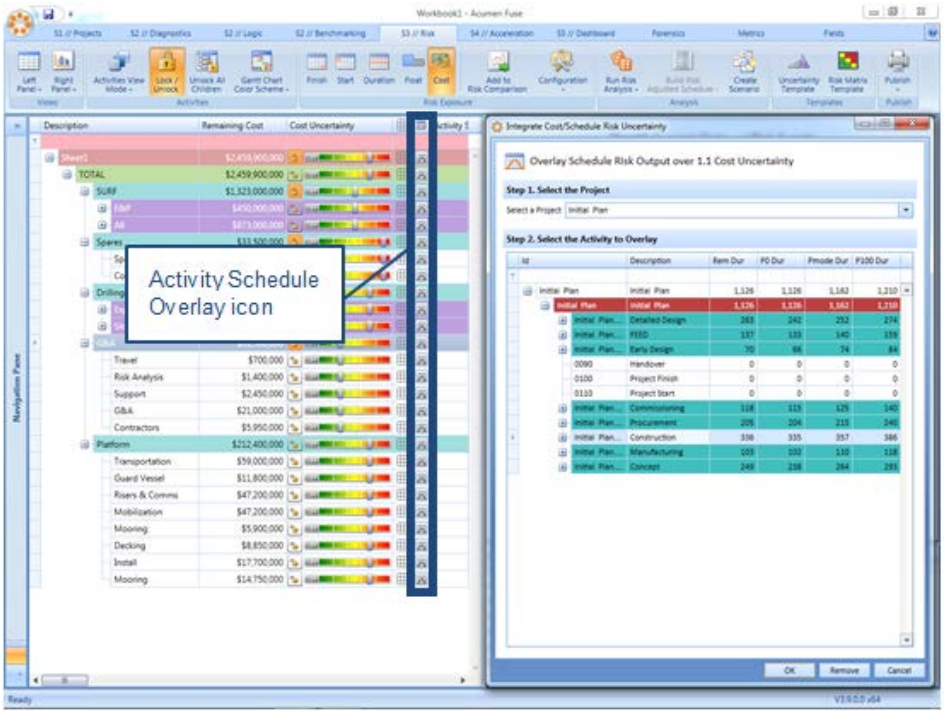
Acumen Risk provides a fast and effective means of linking cost and schedule risk models together. Some cost elements, such as labor or project management, are often dependent. Acumen Risk offers a means of linking the schedule risk exposure from either the project as a whole, or from specific activities, to specific cost elements within your cost risk model.

This approach eliminates the need for having to cost or resource-load a schedule in order to conduct a truly integrated cost/schedule risk analysis.

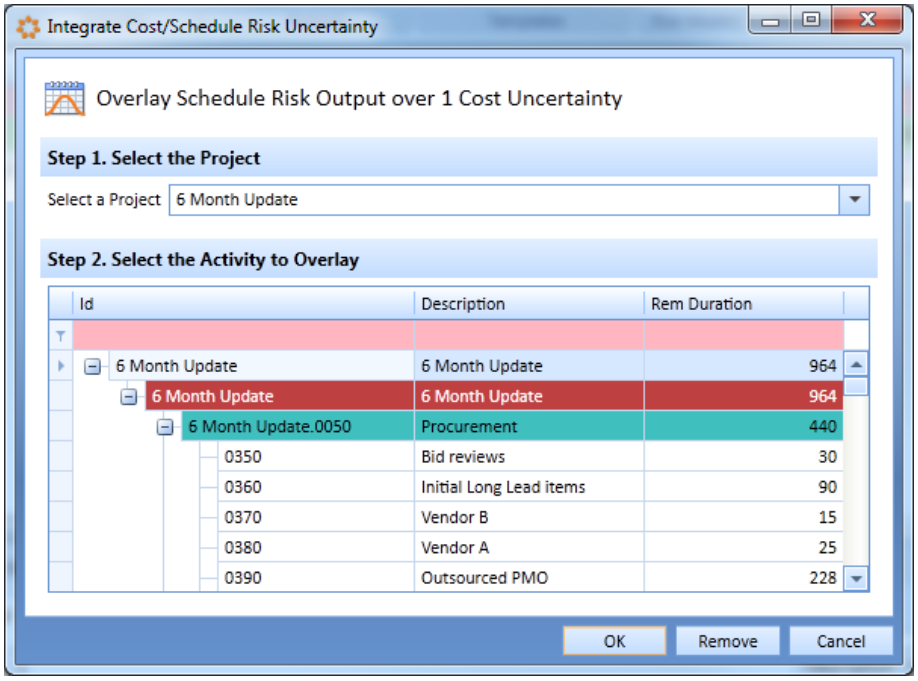
To set up cost/schedule integration, complete the following steps:

1. Build and analyze your schedule risk model.
2. Build your cost risk model applying uncertainties and risk events.
3. Select the S3 // Risk tab.

4. In the Activity view, click on one of the **Activity Schedule Overlay** icons in the Activity Schedule Overlay column.



5. In the Integrate Cost/Schedule Risk Uncertainty dialog box, select a project and the desired activities from the schedule model to apply schedule impact to specific cost elements (or the cost estimate as a whole).



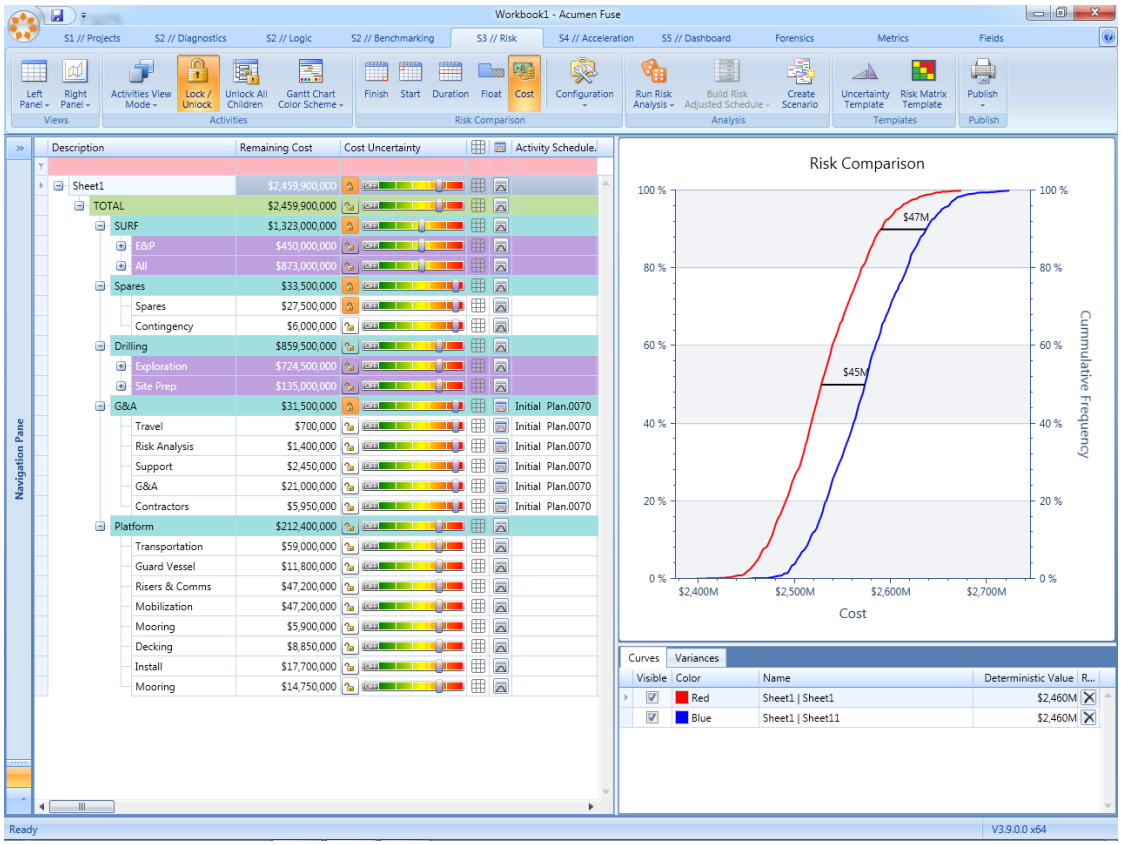
6. In the Analysis menu, click the **Run Risk Analysis** down-arrow and confirm that the **Account for cost of schedule risk impact** Cost/Schedule Integration option is selected.

7. In the Analysis menu, click **Run Risk Analysis** to run the cost risk analysis.

You can use the Risk Comparison Report to analyze the additional impact of schedule risk exposure on your cost risk estimate.

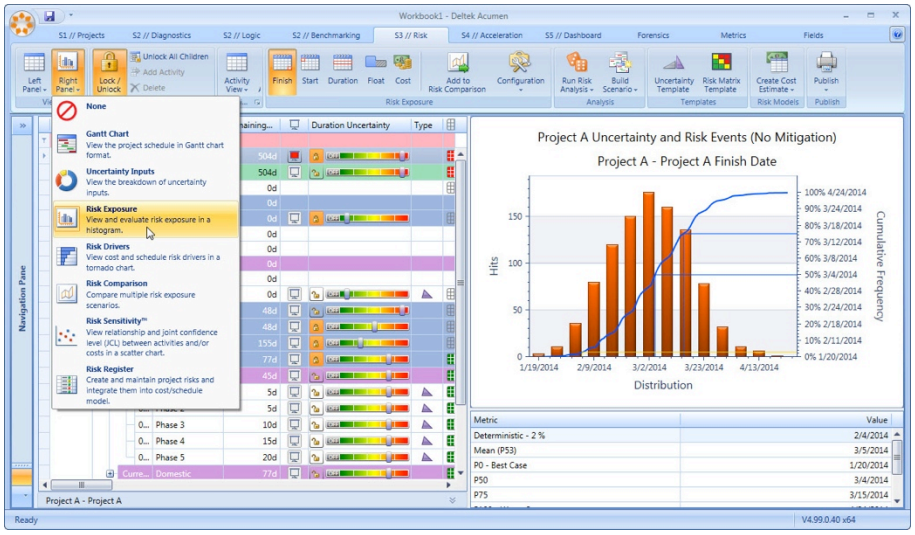
See Risk Comparison (Comparing Results) for more information.

Example of a Risk Comparison Report



Risk Reporting

You can display reports from a risk analysis by using the view options in the Left Panel and Right Panel menus. In addition, reports can be printed or copy/pasted to another tool.



Report Risk Exposure (Risk Histogram)

Use the risk histogram to report risk exposure. It is driven by the activity or summary that you select in the activity panel. The histogram displays both a cumulative and non-cumulative chart showing the distribution of duration, cost, float, start, or finish dates for the selected activity.

To access the risk histogram, complete the following steps:

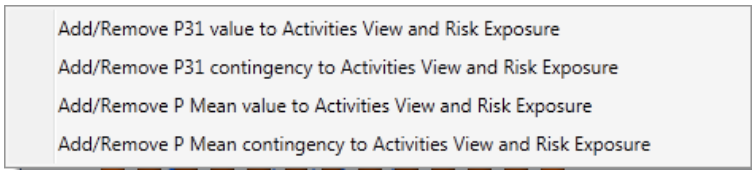
1. Select the S3 // Risk tab.
2. In the Views menu, click **Right Panel » Risk Exposure**.

Probability Values and Contingency

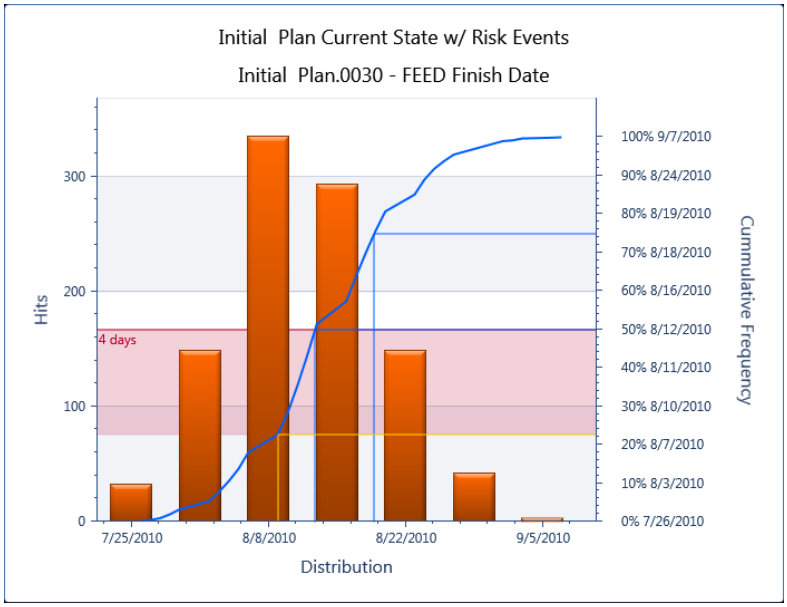
You can add probability values (P-values) to the chart by clicking in the chart in the desired location and selecting one of the Add/Remove P-value options. Each time you add a new P-value to the chart, Acumen Risk automatically adds the P-value data to the table beneath the histogram as a column to the main activity spreadsheet.

In addition, you can graphically plot contingency (the difference between a deterministic value and a P-value) by clicking in the chart in the desired location and selection one of the Add/Remove contingency options. Positive contingency is highlighted in red, negative contingency (that is, when your estimate has too much contingency built into it) is highlighted in green.

Example of the Add/Remove Options



Example of a Risk Exposure Report with Positive Contingency Highlighted



To adjust the risk exposure options, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, click **Right Panel » Risk Exposure**.
3. In the Risk Exposure menu, click **Configuration**.
   - To adjust the percentage increments, click **Cumulative Axis Increment Size** and select a different percentage.
   - To adjust the duration units, click **Hits Bar Width** and select a different duration unit.

Report Risk Drivers (Risk Tornado)

Use the risk tornado chart to display the key drivers within a risk model. Acumen Risk uses a metric known as Schedule or Cost Contribution Factor™ that reports drivers in terms of actual cost and duration rather than abstract relative percentage-based metrics.

The Acumen Risk tornado also differentiates between logic, uncertainty, and risk events when reporting key risk drivers. In addition, it can be configured to report risk drivers at any level of the cost/schedule hierarchy, bringing more meaning to executive risk reporting.

To access the risk tornado chart and report risk drivers, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, click **Right Panel » Risk Drivers**.
3. In the Activity pane, click on either a summary activity or an individual activity.
   - If a summary activity is selected, then the Risk Drivers tornado will only report activities within the selected summary.

- If an individual activity is selected, then Acumen Risk will report only activities leading up to that given activity.

Report Criticality

Criticality is a traditional risk metric reporting how often an activity (or group of activities) falls on the critical path. It is an indication of how stable the critical path is as a result of risk and uncertainty. While it is a useful measure of stability of critical path, it is not a sound measure of which activities most impact risk exposure. For this, use the Cost/Schedule Contribution™ Factor (see *Reporting Schedule and Cost Contribution* below).

To report criticality, complete the following steps:

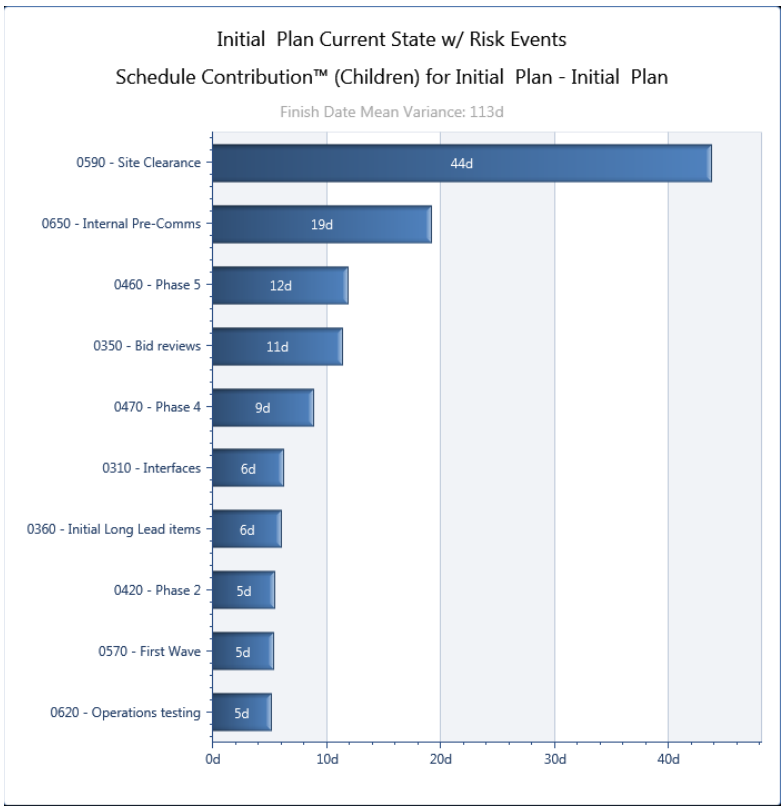
1. If the Risk Drivers view is not already displayed:
    a. Select the S3 // Risk tab.
    b. In the Views menu, click **Right Panel » Risk Drivers**.
2. Click **Risk Drivers » Criticality**.

Report Schedule and Cost Contribution

Schedule and Cost Contribution™ are two risk metrics that report the actual schedule/cost impacts on any given activity (or group) in terms of currency and duration.

The Schedule Contribution tornado shows which activities are the biggest risk drivers on the selected activity and, more importantly, it reports in terms of duration.

Example of Schedule Contribution



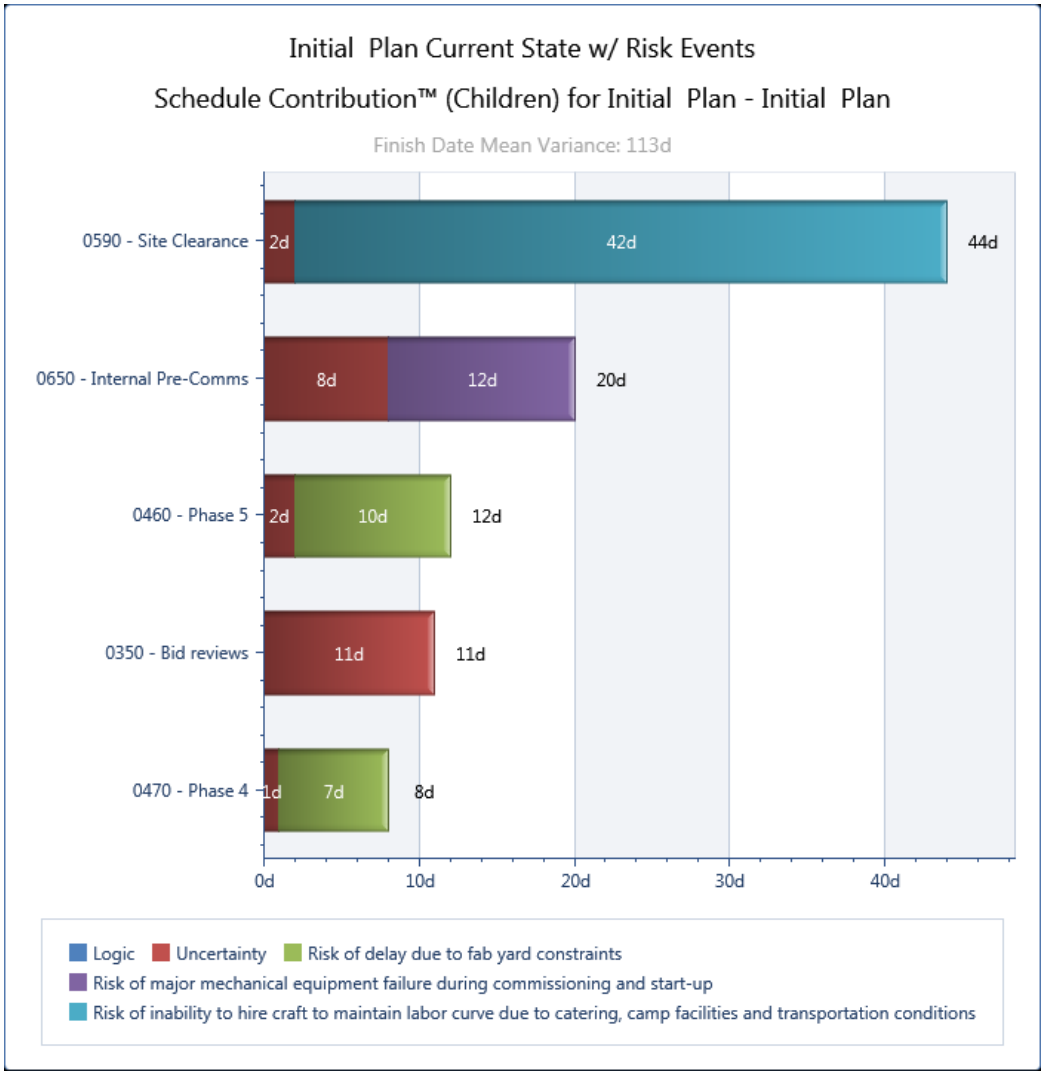
To view schedule or cost contribution, complete the following steps:

1. If the Risk Drivers view is not already displayed:
    a. Select the S3 // Risk tab.
    b. In the Views menu, click **Right Panel » Risk Drivers**.
2. In the Risk Drivers menu, click one of the following:
    - To view schedule contribution, click **Schedule Contribution**.
    - To view cost contribution, click **Cost Contribution**.

Risk Drivers Report Configuration

You can configure the Risk Drivers chart to display either summary bars or segmented bars differentiating between logic, uncertainty, and risk events. In detailed mode, you can determine the specific driver behind each activity's contribution to the overall risk exposure profile. In this mode, Acumen Risk reports whether the risk exposure is a result of preceding logic, the uncertainty of the activity itself, or risk events impacting the activity.

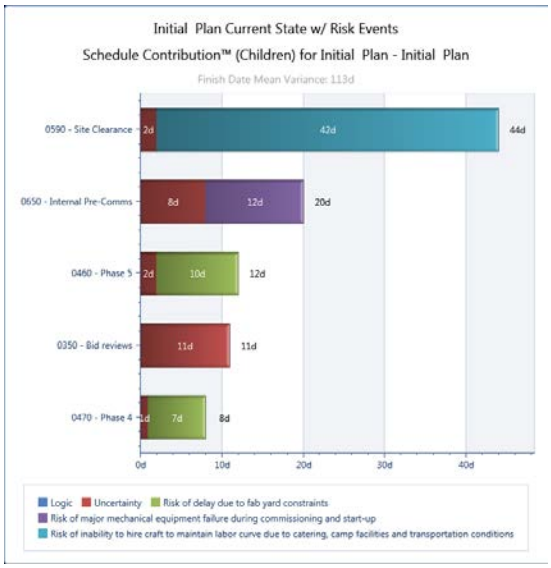
Example of a Detailed Risk Drive Report



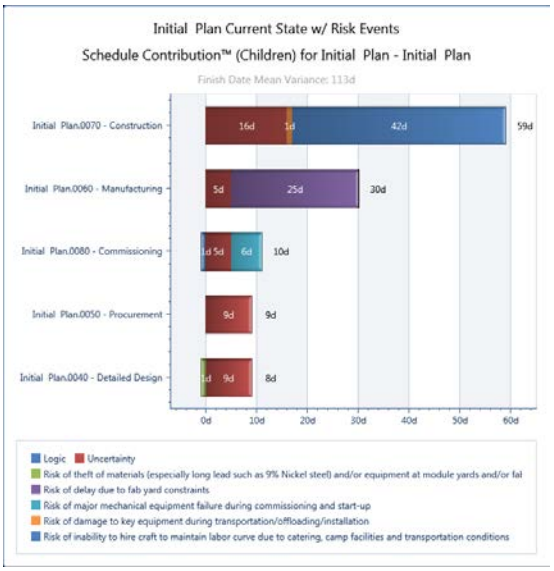
Set the Display Level

The Risk Driver report has the ability to roll up the tornado chart to any given level within the project hierarchy. This provides flexible reporting as well as eliminating the generation of reports with inconsistent levels of detail within it.

Example of a Detailed and Summary Risk Driver Report



Detailed Risk Driver Report



Summarized report

To access the display level, complete the following steps.

1. If the Risk Drivers view is not already displayed:
    a. Select the S3 // Risk tab.
    b. In the Views menu, click **Right Panel » Risk Drivers**.
2. In the Risk Drivers menu, use the **Display Level** slider to adjust the display.

Report Risk Event Drivers

In addition to reporting cost and schedule contribution by activity, you can configure the Risk Drivers report to report the risk events contributing significantly to risk exposure.

To display the risk events contributing significantly to risk exposure, complete the following steps:

1. If the Risk Drivers view is not already displayed:
    a. Select the S3 // Risk tab.
    b. In the Views menu, click **Right Panel » Risk Drivers**.
2. In the Risk Drivers menu, click **Configuration » Mode**.
3. Select **Events** to view the risk events driving risk exposure.

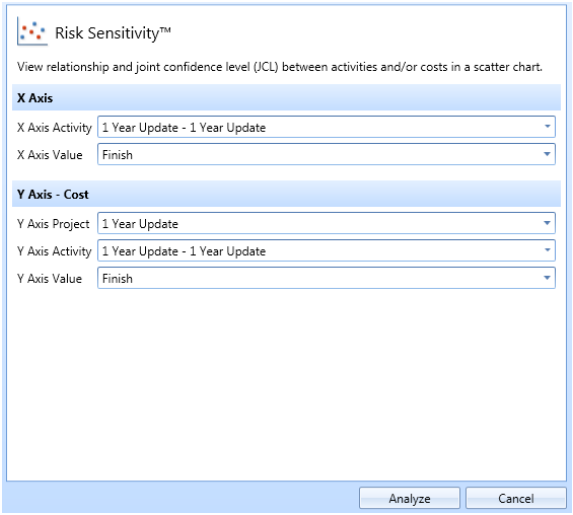
Risk Sensitivity

You can use the Risk Sensitivity™ report to evaluate the relationship between durations and/or costs by creating a scatter chart showing their interaction.

To use the Risk Sensitivity report, complete the following steps:

1. Select the S3 // Risk tab.
2. In the Views menu, click **Right Panel » Risk Sensitivity**.
3. On the Risk Sensitivity configuration screen, select activities and values for each activity to view their relationship.

   The X-axis and Y-axis must be defined in order to use the Risk Sensitivity report.



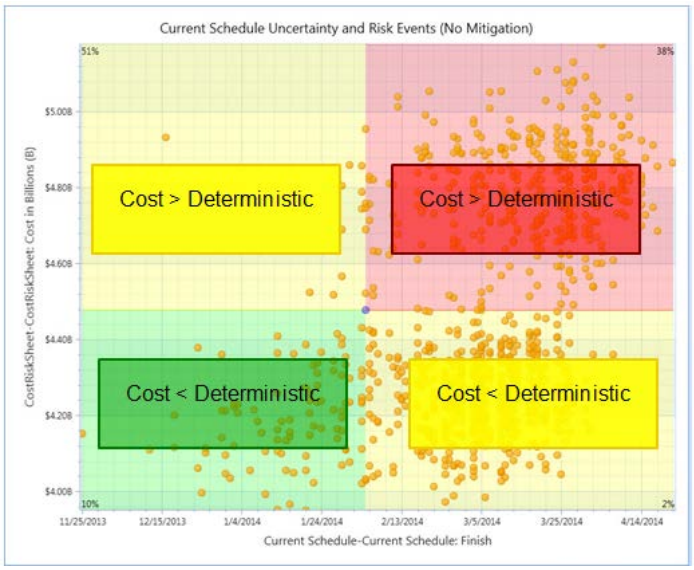
4. Click **Analyze** to create the Risk Sensitivity report.

The Risk Sensitivity Report

The Risk Sensitivity report includes several values and views:

- **Deterministic Value** — The Deterministic Value displays as a blue marker on the report. Use the **Deterministic value** checkbox to turn it on or off.
- **Deterministic Quadrants** — The Deterministic Quadrants provide further insight into the probability of meeting deterministic durations and/or costs. Use the **Deterministic Quadrants** checkbox to add/remove the quadrants from the report.

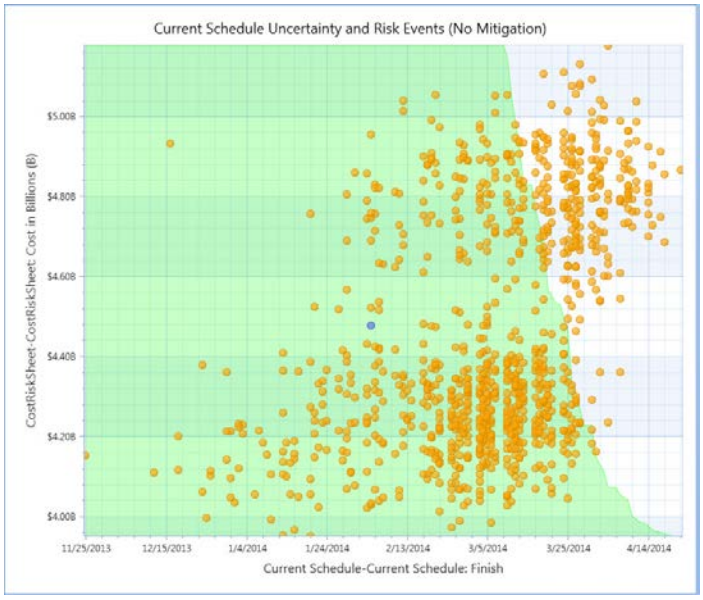
The example below shows a Risk Sensitivity report where the X-axis is Finish Date and the Y-Axis is Cost. The top left quadrant shows that during the analysis, 51% of the time, Cost was greater than deterministic while the Finish Date was earlier.



- **Joint Confidence Level (JCL)** — Gain insight into the probability of meeting cost and schedule commitments using the Joint Confidence Level (JCL) curve. It displays the combined probability of both axis, for example, Cost and Finish Date, at any P-Value.

  You can turn the JCL view on or off, as well as set the P-Value for the JCL curve, using the **Joint Confidence Level (JCL)** field at the bottom of the report.

  The example below shows a Risk Sensitivity Report Showing Joint Confidence Level (JCL)



- **Configure** — Click the **Configure** button to return to the configuration screen to enter new values.

Risk Comparison (Comparing Results)

Use Risk Comparison to compare multiple risk exposure scenarios.

Add Scenarios

To add scenarios to the Risk Comparison chart, complete the following step:

1. Whilst viewing a risk histogram, in the Risk Exposure menu, click **Add to Risk Comparison**.

See Reporting Risk Exposure (Risk Histogram) for more information about risk histograms and how to view them.

There is no limit to the number of scenarios that you can add.

Risk Comparison Reporting

To view a risk comparison report, complete the following step:

1. Select the S3 // Risk tab.
2. In the Views menu, click **Right Panel » Risk Comparison**.

From within the Risk Comparison Chart, you can rename and annotate scenarios by clicking on a given P or Confidence level within the chart itself. Variances are shown in the table beneath the chart.

Publish and Print Results

You can export risk reports to other tools, either as charts or as raw data.

To export a risk driver report, complete the following steps:

1. Select the S3 // Risk tab.
2. Use one of the options in the Import / Publish menu to export, copy, or print the risk driver report.

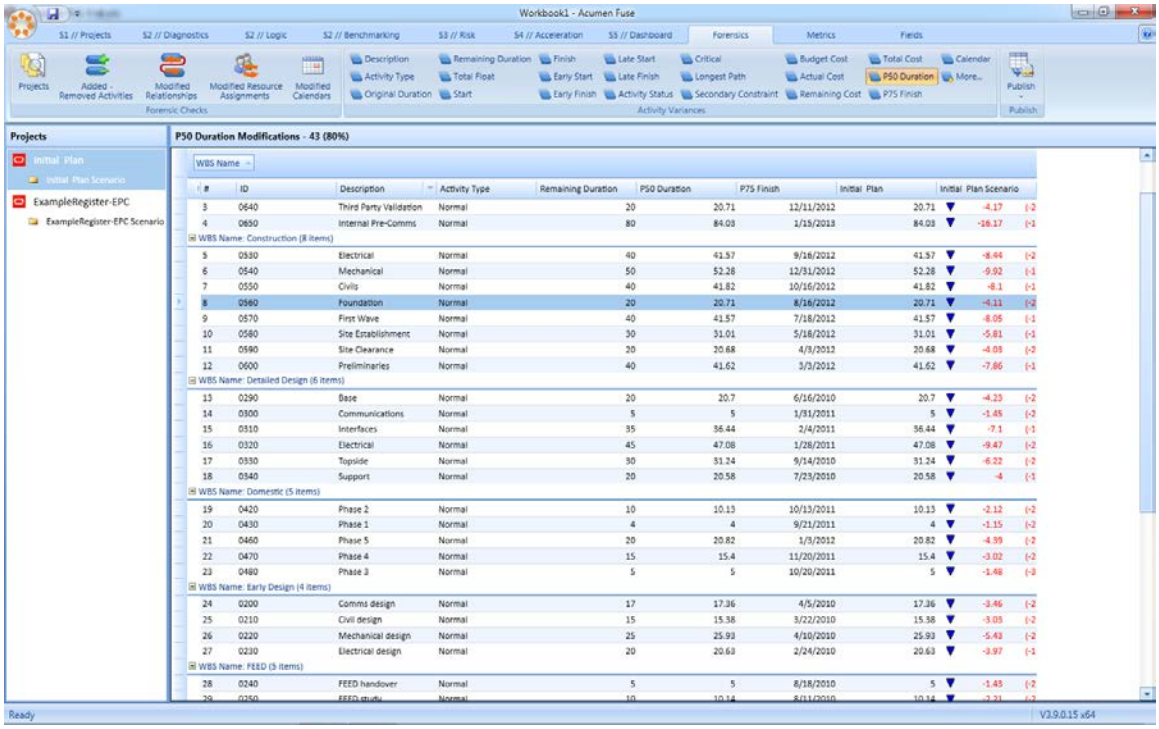
Analyze Risk Results

Forensics

You can use the Acumen Forensic analyzer to compare alternate scenarios built during a risk analysis. This is useful when needing to report differences in risk exposure such as P50 Durations between alternate scenarios.

See Using Forensics to Identify Additions, Deletions, and Modifications for more information about forensic analysis.

Example of Forensics Comparing Risk Models



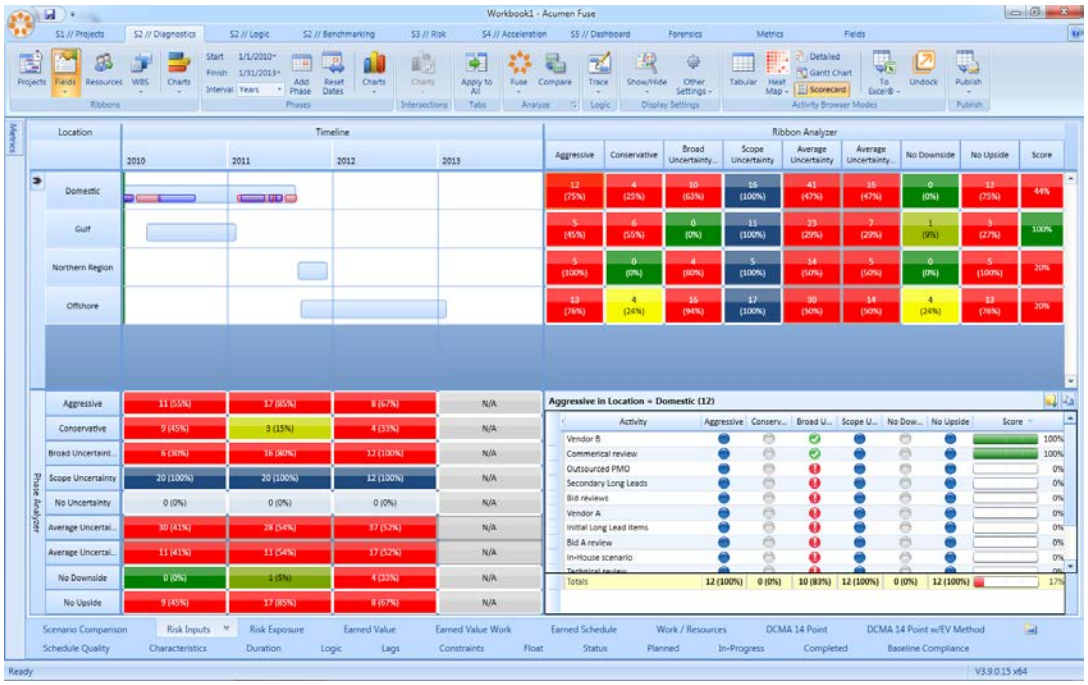
Diagnostics and Risk Metrics

Acumen includes two risk metric libraries — Risk Inputs and Risk Exposure. Risk Input includes metrics that provide analytics around how the risk model has been put together as well as insight into the team's perception of risk and uncertainty.

Risk Inputs Metrics	Risk Exposure Metrics
Aggressive	High Criticality
Conservative	Avg Criticality
Erroneous Risk Event	Schedule Risk Hot Spots
Broad Uncertainty Range	Hidden Critical Paths
Scope Uncertainty	Average Duration Risk Contribution
No Uncertainty	High Contingency
Average Uncertainty	Average Cost Risk Contribution
Average Uncertainty Range	
Wrong Uncertainty Range	
No Downside	
No Upside	

See Running Diagnostics with Acumen Fuse for more information.

Example of Fuse Metric Analysis on Acumen Risk Results



Schedule Remediation and Acceleration Using Acumen 360

Acumen 360™ is a schedule remediation and acceleration product. You use it to accelerate or compress project schedules to meet faster completion deadlines or to get a delayed project back on track. In addition, 360 can be used to hypothesize acceleration options or model potential delays.

You can also accelerate a project schedule from the S1 // Projects tab by clicking **Accelerate Schedule** in the Scenario Generation group.

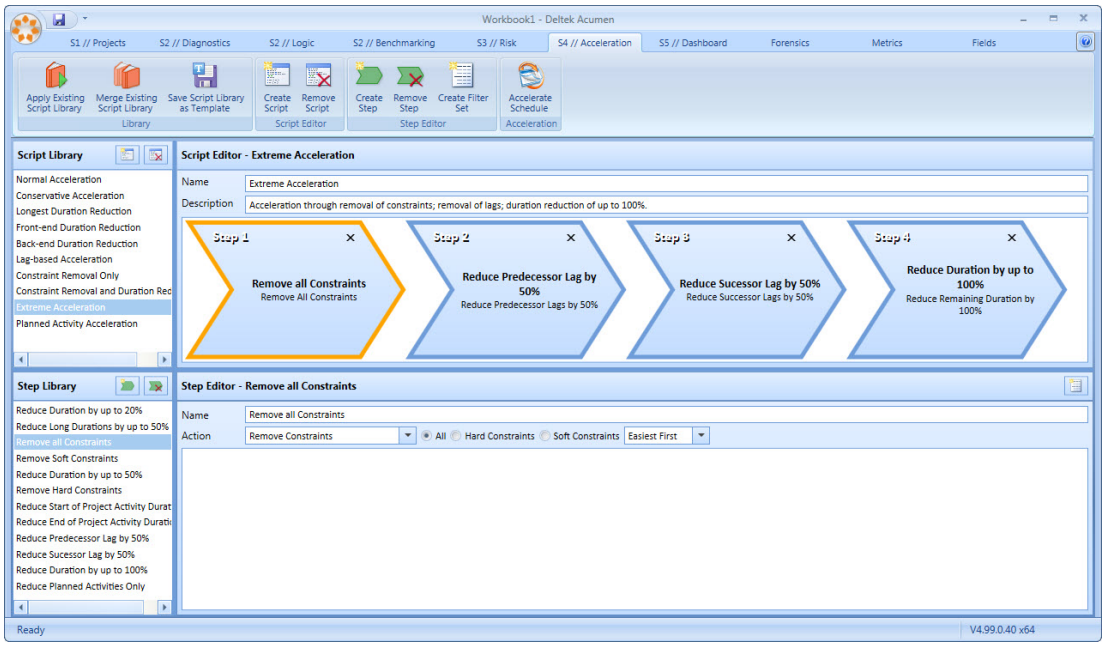
Acumen 360 runs a CPM simulation running hundreds of iterations, progressively accelerating the project towards a defined goal using sets of user-definable criteria.

There are three acceleration options:

- **Automatic, Goal-Based** — Define the acceleration target and let Acumen 360 automatically generate the schedule scenario that meets that goal.
- **Targeted** — Define the acceleration goal and the criteria for acceleration (for example, accelerate construction activities by 50%).
- **Interactive** — Accelerate or decelerate individual activities or groups of activities using the duration calibration sliders.

The S4 // Acceleration Tab

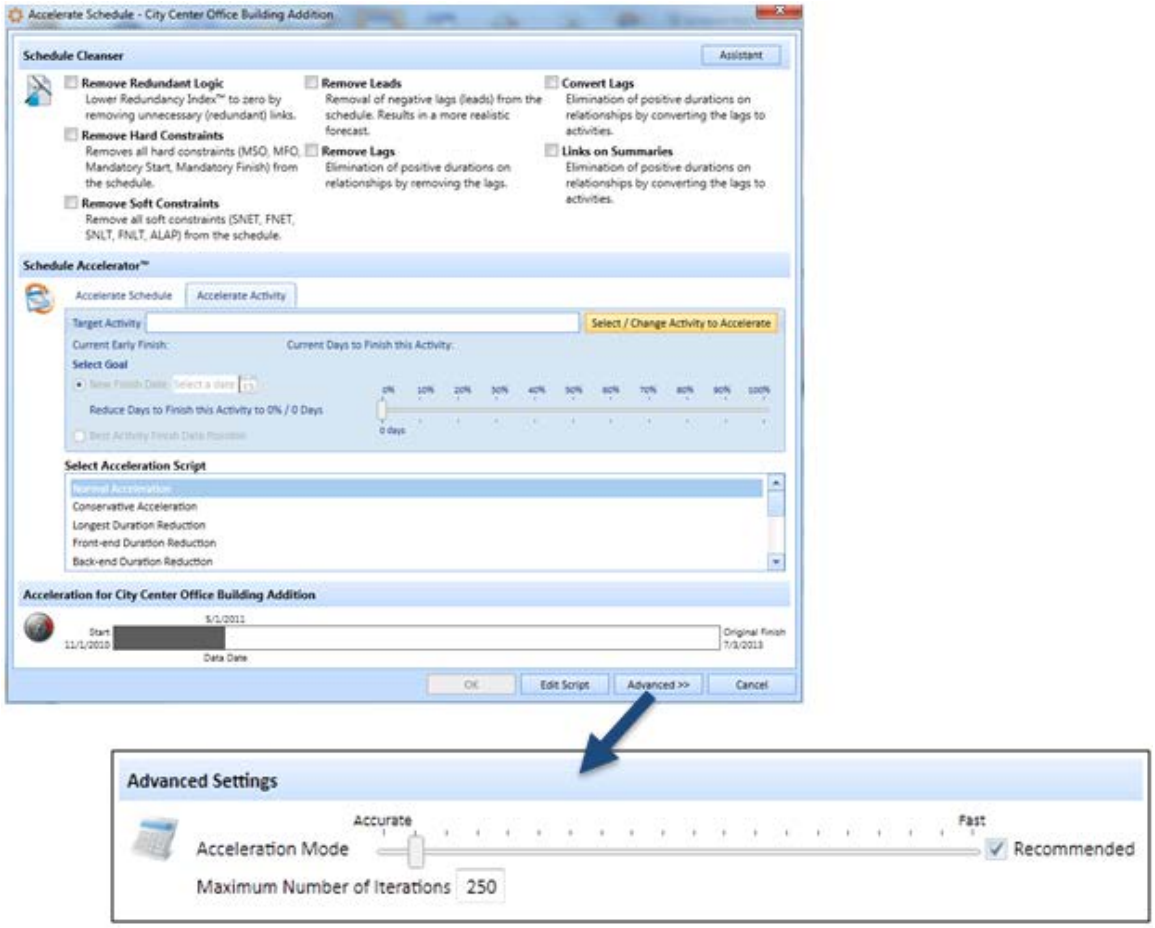
The S4 // Acceleration tab includes a script library/editor and a step library/editor.



Advanced Acceleration Settings

Acumen 360 automatically determines the appropriate level of granularity to apply during an analysis. This is calculated based on the complexity of logic, number of activities, remaining duration, and aggressiveness of the acceleration.

Click **Advanced >>** on the Accelerate Schedule dialog box to manually override the level applied so that an even more accurate, or alternately, a faster but less accurate model can be run.



Automatic Goal-Based Acceleration

Use automatic goal-based acceleration to define the acceleration target and let Acumen 360 automatically generate the schedule scenario that meets that goal.

Define a Goal

You can define a goal in Acumen 360 in several ways:

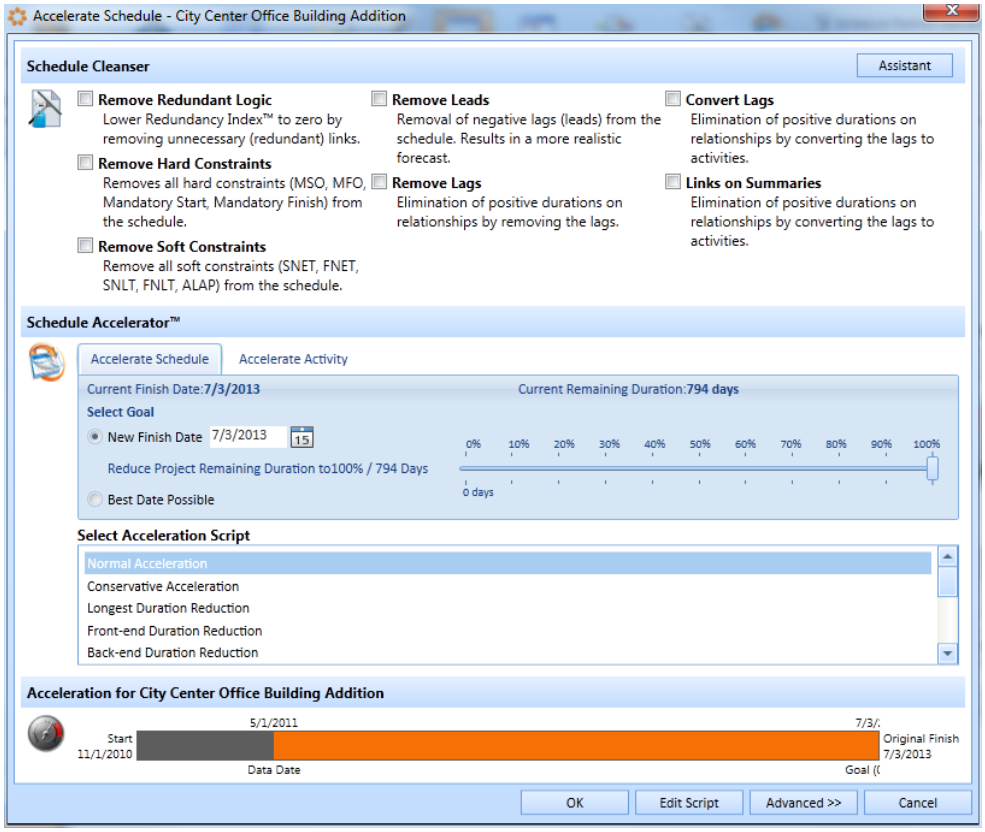
- Define the number of acceleration days.
- Define a target goal date.
- Define an acceleration percentage.
- Let Acumen 360 determine the best possible date.

Run an Automatic Project Goal-Based Acceleration

To define a goal relative to the end of the project, complete the following steps:

1. Select the **S4 // Acceleration** tab.
2. In the Acceleration menu, click **Accelerate Schedule**.
3. On the Accelerate Schedule dialog box, in the Schedule Accelerator group:
    a. Select the Accelerate Schedule tab.
    b. Use the goal options (date field or sliding scale) to set the target goal for the acceleration.

See Advanced Acceleration Settings for information about the advanced options.



4. Click **OK** to run the simulation.
5. Compare the results using forensics, timeline, and analysis views.

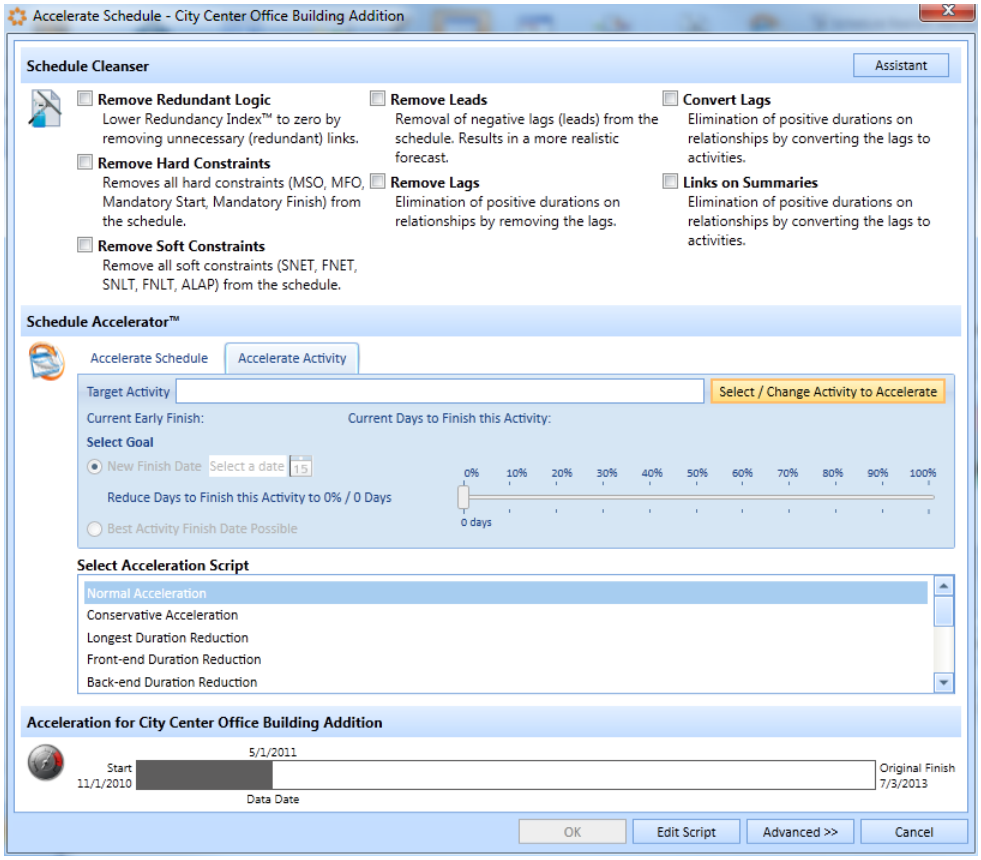
Run an Automatic Activity Goal-Based Acceleration

To define an acceleration goal for a specific activity, complete the following steps:

1. Select the S4 // Acceleration tab.

2. In the Acceleration menu, click **Accelerate Schedule**.
3. On the Accelerate Schedule dialog box, in the Schedule Accelerator group:
    a. Select the Accelerate Activity tab.
    b. Click **Select / Change Activity to Accelerate** to select the activity against which the acceleration needs to be conducted (for example, accelerate completion of construction).
    c. Use the goal options (date field or sliding scale) to set the target goal for the activity acceleration.

See Advanced Acceleration Settings for information about the advanced options.



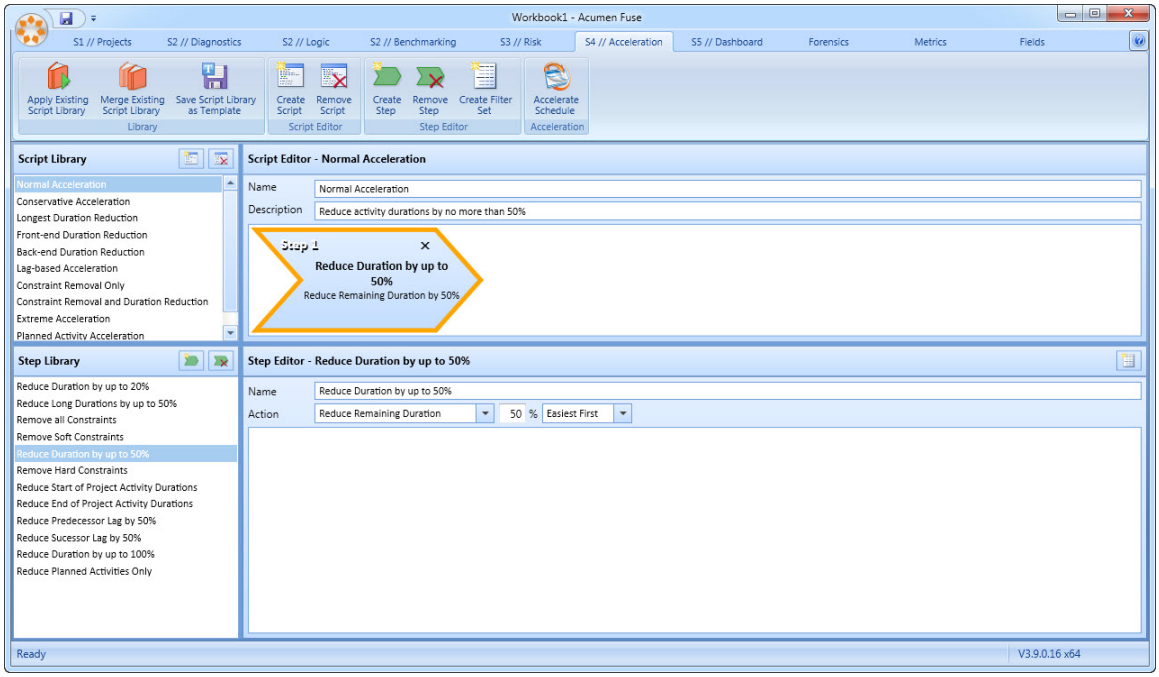
4. Click **OK** to run the simulation.
5. Compare the results using forensics, timeline, and analysis views.

Targeted Acceleration

Use targeted acceleration to define the acceleration goal and the criteria for acceleration.

Define Criteria Sets (Scripts)

Criteria Sets are contained in scripts. Scripts contain steps which are the definitions for rules and filters for the analysis.



Acumen allows you to:

- Edit scripts on the S4 // Acceleration tab or by clicking **Edit Script** on the Accelerate Schedule dialog box.
- Export scripts from a workbook and re-used them within other workbooks.
- Merge scripts with other script libraries using the merge feature.
- Set a default script.

To set the default script, complete the following steps:

1. Click  .
2. On the bottom of the pane, click **Deltek Acumen Options**.
3. In the Deltek Acumen Options dialog box, select the General tab.
4. Click  in the **Default Script Library Location** field to select and set the default script.

Define Steps

Use the Steps Editor to define steps. Steps define how a schedule optimization is conducted. A step can define the following:

- Reduce duration

- Reduce predecessor lag
- Reduce successor lag
- Change calendar
- Remove constraints

A step also defines the priority for applying the acceleration action. This can be defined as:

- **Earliest** — Earliest activities in the selection.
- **Latest** — Latest activities in the selection.
- **Longest** — Longest duration activities.
- **Easiest** — Acumen determines the activities with the “least amount of resistance” during the acceleration simulation.

Define Filters within Steps

Use filters to control the activities to which the steps get applied. A single step can contain one or more filter sets.

- A single filter set can be a compound filter (that is, “AND” statements).
- Multiple filters within a step enable “OR” set of filters to be created.

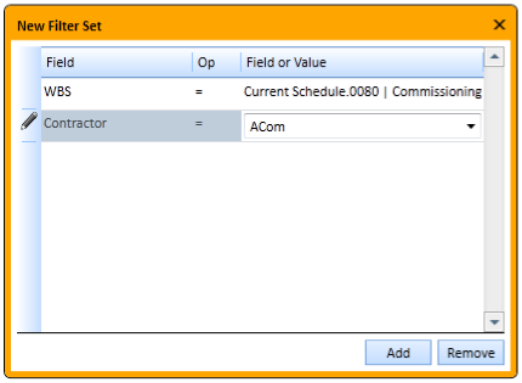
This allows you to generate hybrid and hierarchical AND/OR filter sets.

To define a filter, complete the following steps:

1. Select the S4 // Acceleration tab.
2. In the Step Editor menu, click **Create Filter Set**.
3. In the New Filter Set dialog box, define the field and associated value(s) within the filter.

   The most common filter use is to create a filter by WBS. If selecting a WBS, then all activities within the selected WBS are included (that is, the selected WBS is assumed to be the parent).

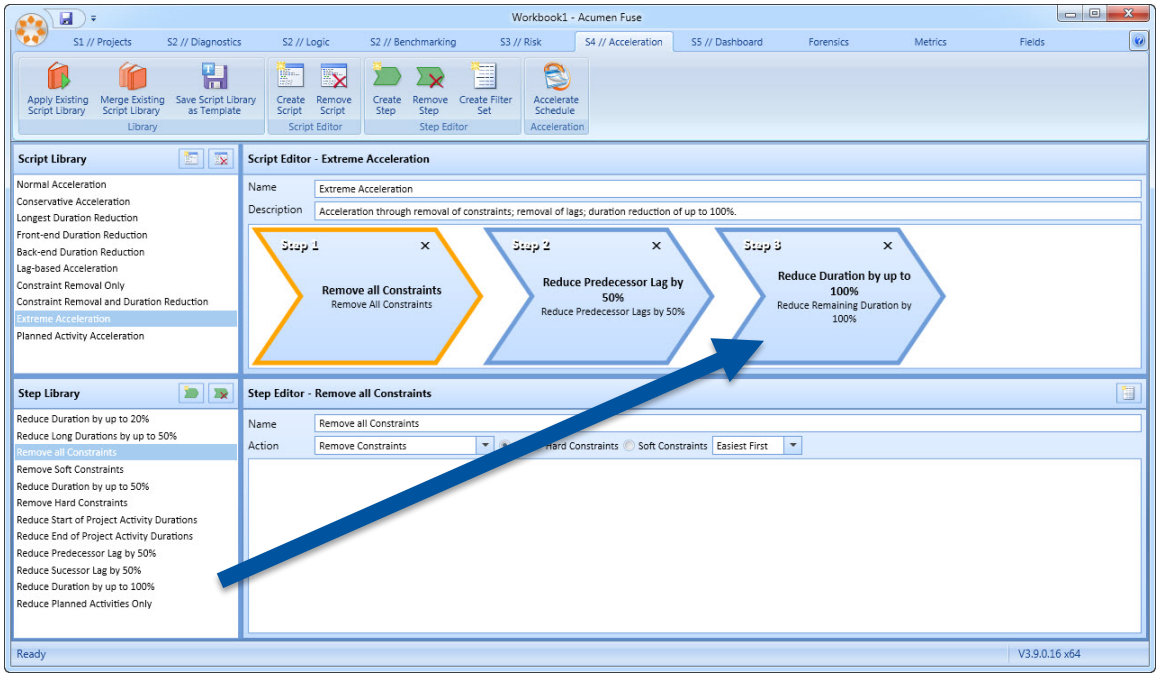
   For example, the filter set below shows a filter that defines all activities within the WBS grouping called **Commissioning** where the contractor is **ACom**.



4. Click **Add** to add additional filters.

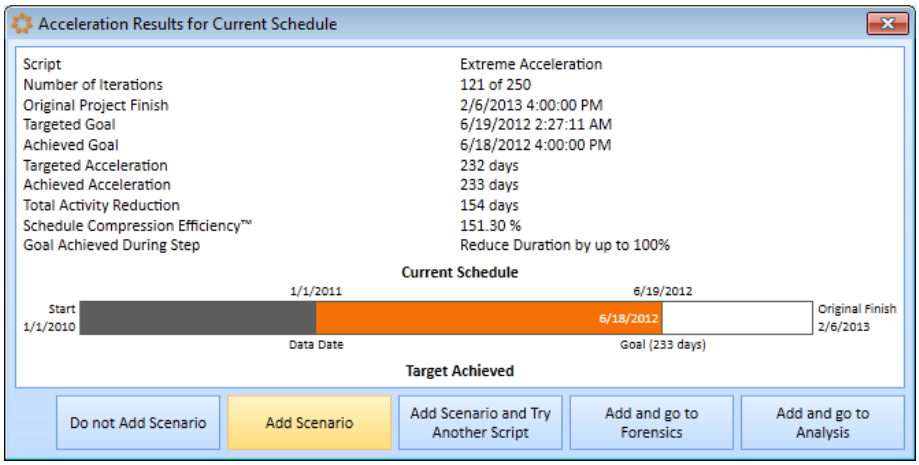
Work with Script Templates

You apply steps to a script by “drag-dropping” the steps from the step library into the script timeline. The timeline defines the order in which the steps are applied during the simulation. Drag the steps within the timeline to rearrange them.



Example

The following shows an example of the results from an Acumen 360 targeted acceleration.



The results show:

- Number of iterations run — Either the maximum number of runs or the number needed to reach the goal or the number of runs before the criteria in the script were exhausted.
- Original, targeted and achieved goal dates.
- Targeted and achieved acceleration.
- Total activity reduction — Total number of activity days reduced.

- Schedule Compression efficiency™ — An index showing how efficient the acceleration is (see white paper on Acumen website for further explanation of this metric).
- The results window also shows whether or not the target has been completely or partially achieved.

After an analysis has been run, you can choose to do one of the following:

- Add the scenario.
- Add the scenario and try another script.
- Add the scenario and view the changes in forensics.
- Add the scenario and compare in the analysis view.

See Using Forensics to Identify Additions, Deletions, and Modifications and Project Risk Analysis for more information.

Run a Targeted Acceleration

To run a targeted acceleration, complete the following steps:

1. Select the S4 // Acceleration tab.
2. In the Acceleration menu, click **Accelerate Schedule** to display the Accelerate Schedule dialog box.
3. (Optional) In the Schedule Cleanser group, select schedule cleanse options prior to running an analysis. This will enable the simulation to create a more naturally flowing and realistic schedule.
4. In the Schedule Accelerator group:
    a. Select the goal (activity or project) options.
    b. Select an acceleration script.
        - If needed, click **Edit Script** to edit the selected script or to create a new one.

See Advanced Acceleration Settings for information about the advanced options.

5. Click **OK** to run the simulation.

Interactive Acceleration

The interactive acceleration mode of Acumen 360 allows you to accelerate or decelerate activities and immediately view the impact on the rest of the schedule.

You can calibrate each individual activity or use the grouping options to calibrate groups of activities.

See Viewing and Editing the Schedule for more information about setting up the Project view.

Calibration applied to a parent row automatically cascades down to the children of that row. To set exceptions, or activities that do not follow their parent, re-set the calibration slider on that

activity. The activity is locked, which you can see by looking at the lock icon next to that activity. If you next adjusted the calibration of the parent, all activities would follow except for the locked activity.

See Calibration for more information about this feature.

Example 1

In the example below, the parent activity has been set to **Requires Less Time** which has changed the Remaining Duration and Finish Dates for the parent and all child activities.

Description	Start	Finish	Remaining...	Calibration
MASTER_ExternalS...	4/30/2014	6/16/2014	34d	
M1	5/28/2014	6/3/2014	5d	
M1.1	5/28/2014	6/4/2014	6d	
M.2	6/10/2014	6/16/2014	5d	

Description	Start	Finish	Remaining...	Calibration
MASTER_ExternalS...	4/30/2014	6/2/2014	24d	
M1	4/30/2014	5/5/2014	4d	
M1.1	5/27/2014	6/2/2014	4d	
M.2	5/26/2014	5/30/2014	4d	

Example 2

This example shows how calibration settings cascade down to child activities. Manufacturing, and all of its children, has been set to **Requires More Time**. Phase 2 has been flagged as an exception and set as **Realistic**.

Manufacturing	10/1/2012	2/4/2013	126	
Offshore	10/9/2012	1/7/2013	90	
Phase 1	10/9/2012	10/17/2012	6	
Phase 2	10/23/2012	10/30/2012	5	
Phase 3	10/30/2012	11/14/2012	12	
Phase 4	10/30/2012	11/23/2012	19	
Phase 5	11/23/2012	1/7/2013	25	
Domestic	10/1/2012	2/4/2013	126	

Use Calibration to Manipulate the Schedule

To calibrate the schedule, complete the following steps:

1. Select the S1 // Projects tab.
2. Set up your project view to apply acceleration or deceleration to activity groups.

See Viewing and Editing the Schedule for more information.

3. Create a scenario for calibration.
4. (Optional) In the Activities menu, click the **Activity View** down-arrow then click **Grouping** and use the display level slider to roll-up or expand the project schedule.
5. Use the Activity view Calibration column sliders to move durations.

   For example:

   - To see the impact of the selected activity taking less time than planned, set it to Light Green (Requires Less Time).
   - To see the impact of the selected activity taking more time than planned, set it to Orange (Requires More Time).

   The Gantt chart will adjust to the new setting and the finish dates of that activity and any successor activities will change.

See Advanced Acceleration Settings for information about the advanced options.

The Schedule Realism Adviser

The Schedule Realism Adviser™ provides suggestions for calibrating each activity based on a given criteria.

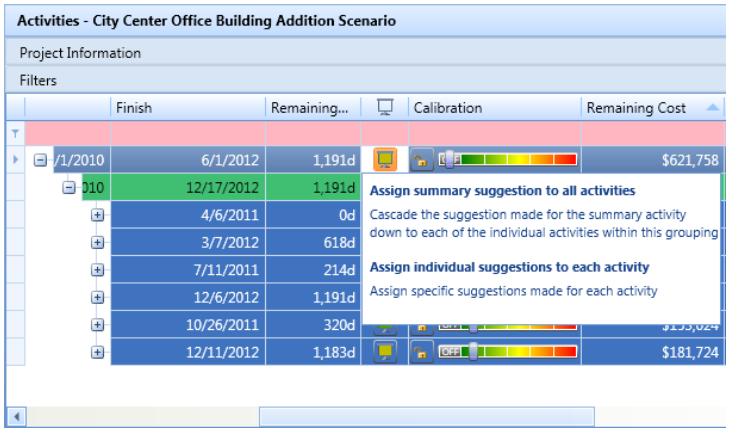
To define how the advisor should calculate suggestions, complete the following steps:

1. Select the S1 // Projects tab.
2. In the **Scenario Generation** menu, click **Schedule Realism Advisor**.
3. In the Schedule Realism Advisor dialog box, select from the following options:
   - **Schedule Quality** — This mode presents uncertainty assignments based on the Fuse Schedule Index score for each activity and activity grouping. By default, an activity with a score lower than 10% will be flagged as needing more time than planned. Conversely, an activity with a score greater than 75% will be flagged as needing less time than planned.
   - **Historical Performance** — This mode compares the baseline plan to the current schedule and looks for discrepancies in order to suggest which activities should be accelerated.
   - **Metric** — Select any metric from Fuse to use as the basis for acceleration suggestions.
   - **Field** — Select any field from the project to use as the basis for acceleration suggestions.
4. Click **Calculate Advice**.

   After the Schedule Realism Adviser has calculated the advice, the recommendations are shown in the activities view.

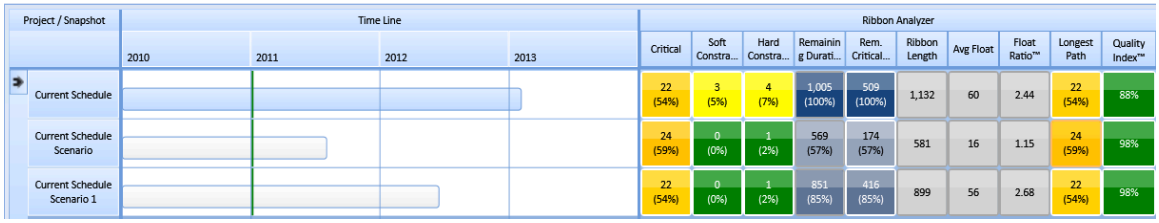
5. Click the icon next to any activity or activity grouping to implement the recommended calibration settings.

   You can choose to assign the summary suggestion to all activities or assign individual suggestions to each activity.



Analyze the Results

You can analyze the newly created scenarios using any of the standard analysis features within Acumen Fuse including Forensics, timeline view and the Fuse diagnostics view. Acumen 360 includes a metric library called “Scenario Comparison” that contains a set of metrics pertaining to scenario comparison analysis.



Publish Scenarios

You can publish Acumen 360 scenarios to MS Project and Primavera using the Publish **Publish** button on the S1 // Project tab or by right-clicking on the project name.

Project Scoring and Ranking (Benchmarking)

The benchmarking view provides a means of comparing project analytics against a global database of similar projects.

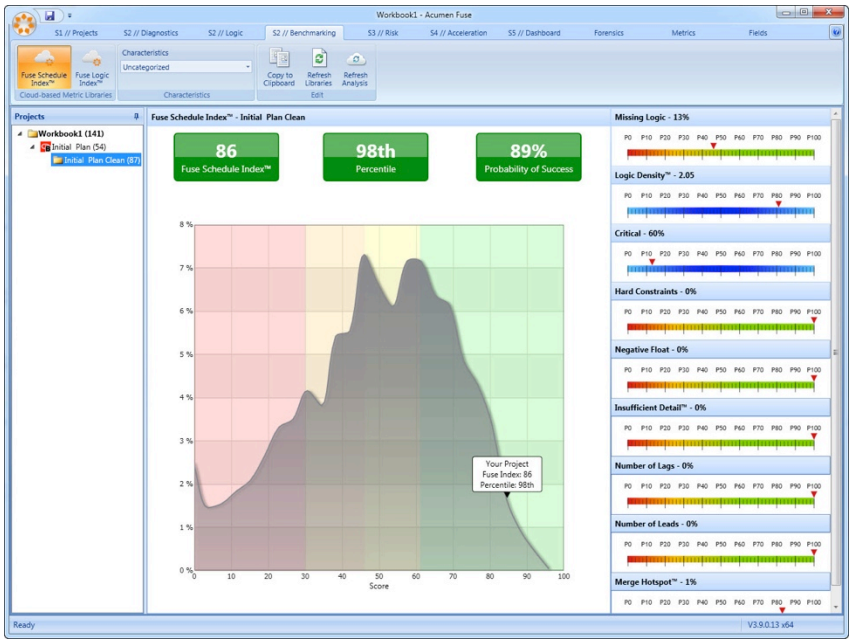
This view performs a benchmark analysis of the project including:

- Standardized project scoring using the Fuse Schedule Index™.
- Benchmarking against other projects across the world using Acumen Cloud™.
- Forecasting of project success; that is, what the likelihood is of an on-time, on-budget project completion.

The following topics describe these in more detail.

Deltek Acumen Cloud

Acumen Cloud™ is a web-based repository of results generated from running Fuse analyses. Acumen Cloud is included as part of an Acumen Fuse license and is an optional module activated through an end-user opt-in process as part of installation.



To manually opt-in or out of Acumen Cloud, complete the following steps:

1. Click .
2. On the bottom of the pane, click **Deltek Acumen Options**.
3. On the About Deltek Acumen tab, click **Opt-in to enjoy the benefits of Deltek Acumen Coud™**.
4. Click **OK**.

Project Benchmarking

The above diagram shows the flow of data during a benchmark analysis. First, the analysis on your project is conducted locally within Acumen. The results of the analysis are then securely (using Secure Socket Layer/SSL) and anonymously sent to a cloud-based repository called Deltek Acumen Cloud.

The project schedule itself is not sent to the cloud.

Acumen Cloud does not store project-specific attributes such as project name, type, owner, author, and so on. Instead, only the resultant score from running a Fuse analysis is stored. This data is then used to compare against other calculated project scores also stored in the cloud.

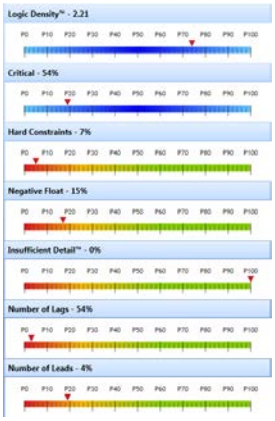
Scoring, Benchmarking, and Forecasting

An Acumen Cloud analysis generates three results:

- **Scoring** — A standardized score in the form of an index is generated. This score is based on a standard set of metrics that cannot be editing or re-weighted by an end-user. By adopting this standardization, projects can be anonymously compared using the same scoring system. As a target, you should aim for 75 and above with any Fuse Index score.
- **Benchmarking** — While Fuse Indices give good insight into the quality of a plan, being able to compare how your project ranks with other similar projects is even more valuable. Acumen Cloud automatically calculates where in the population your project lies. This is presented in the form of a percentile. For example, you rank in the top 60th percentile.
- **Forecasting** — Based on years of project benchmarking, Acumen is now able to deliver true benchmarking in the form of forecasting project success. This is achieved by comparing your project score to other completed projects with a similar score and examining how they fared with regards to on-time completion. Based on an established correlation between quality of plan and chance of execution success, Acumen Cloud is able to forecast the probability of your project having an on-time completion.

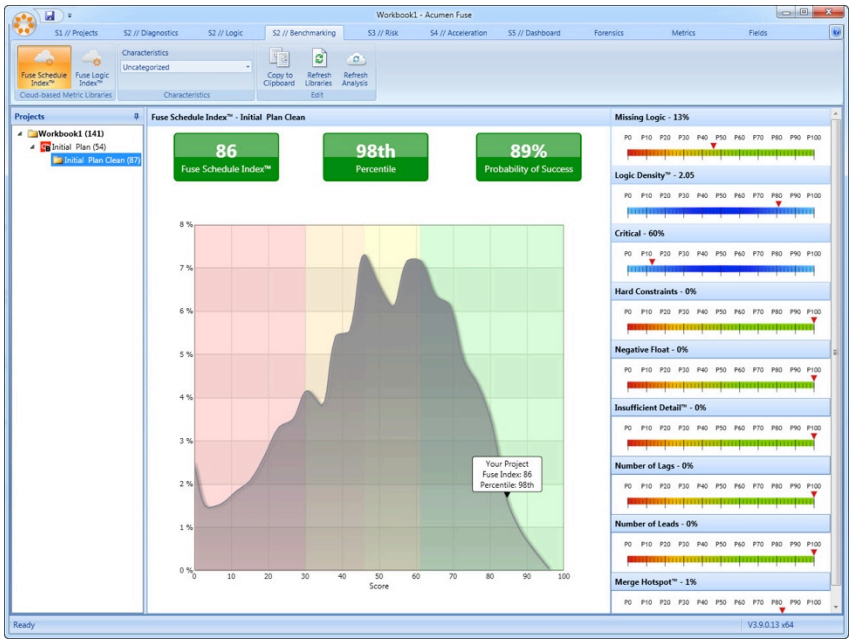
Metric Percentile Analysis

As well as generating overarching Indices, Acumen Cloud also analyses how you rank with regards to each individual metric score. The percentile analyzer shows not only each metric score, but in addition, the red indicator shows how you rank against the rest of the population. This is very useful when pinpointing root cause of a poor Index score.



Fuse Schedule Index

You can use the Fuse Schedule Index™ to score projects with regards to their quality of plan.



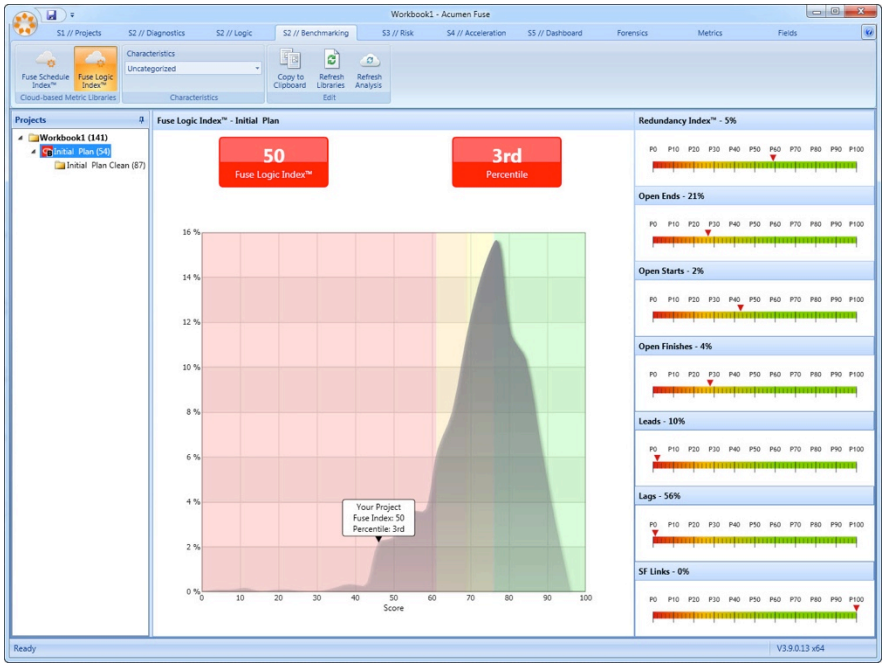
The Fuse Schedule Index is based upon nine core metrics that all pertain to the overarching quality of a plan. Each of these nine metrics are weighted according to importance to quality.

Metric	Description
Missing Logic	In theory, all activities should have at least one predecessor and one successor associated with them. Failure to do so will impact the quality of results derived from a time analysis as well as a risk analysis. This number should not exceed more than 5%.

Metric	Description
Logic Density™	This metric calculates the average number of logic links per activity. An average of less than 2 indicates that there is logic missing within the schedule. An average greater than 4 indicates overly complex logic, with a high likelihood of redundant links. Therefore, Logic Density™ should be between 2 and 4.
Critical	While a highly critical schedule is not necessarily a sign of poor scheduling, it can indicate a highly risky schedule. Use this metric as a point of reference.
Hard Constraints	Hard, or two-way constraints, such as ‘Must Start On’ or ‘Must Finish On’ should be avoided. Use of such constraints can lead to inaccurate finish dates and a lack of insight into the impact of schedule changes, risk events, and earlier delays.
Negative Float	Negative float is a result of an artificially accelerated or constrained schedule, and is an indication that a schedule is not possible based on the current completion dates.
Insufficient Detail™	Activities with a high duration relative to the life of the project are an indication of poor schedule definition. Detail should be added to the schedule.
Number of Lags	A lag is a duration applied to a logic link often used to represent non-working time between activities such as concrete curing. Lags tend to hide detail within the schedule and cannot be statused like normal activities; therefore, lags should be converted to actual activities with durations.
Number of Leads	A lead, also known as a negative lag, is often used to adjust the successor start or end date relative to the logic link applied. This is a poor practice as it can result in the successor starting before the start of the predecessor.
Merge Hotspot	Also known as merge bias, a merge hotspot is an indication as to how complex the start of an activity is. If the number of links is greater than two, there is a high probability that the activity in question will be delayed due to the cumulative effect of all links having to complete on-time in order for the activity to start on time.

Fuse Logic Index

The Fuse Logic Index™ is a cloud-based metric library that gives insight into the logic quality of a schedule. Logic is viewed as one of the most important underpinnings of a schedule.

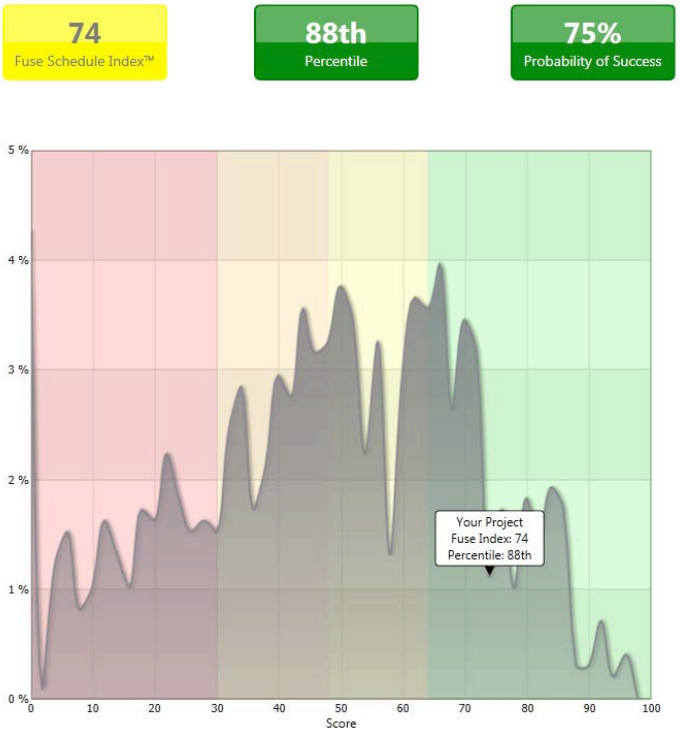


Metric	Description
Redundancy Index™	A redundant, or unnecessary logic link, is a link between two activities made redundant by an additional, often more complex, logic link between the same two activities. A high Redundancy Index is a sign of an overly complex schedule which should be simplified.
Open Ends	A high number of activities missing a predecessor, a successor, or both, signals a poorly developed plan. This number should be less than 5% of the schedule.
Open Starts	If the start of the successor activity is left open, with the predecessor activity tied to the finish of the successor, the result is an open start or :dangling activity.”
Open Finishes	If the finish of the predecessor activity is left open, with the predecessor tied by its start to the successor, the result is an open finish or “dangling activity.”
Leads	A lead, also known as a negative lag, is often used to adjust the successor start or end date relative to the logic link applied. This is not good practice as it can result in the successor starting before the start of the predecessor.
Lags	A lag is a duration applied to a logic link often used to represent non-working time between activities, for example, concrete curing. Lags tend to hide detail within the schedule and cannot be statused like normal

Metric	Description
	activities; therefore, they should be converted to actual activities with durations.
SF Links	A high number of SF links is indicative of a well-developed plan.

Example of an Acumen Cloud Analysis

An example of a project that scores 74 against the Fuse Schedule Index, ranking in the top 88th percentile of the population resulting in a 75% chance of completion on time.



Run an Acumen Cloud Benchmarking Analysis

To run an Acumen Cloud benchmark analysis, complete the following steps:

1. Select the S2 // Benchmarking tab.
2. Select a metric library to use for the analysis.

Acumen Cloud analysis is automatically triggered when a different project is selected from the project browser on the left-hand side of the view.

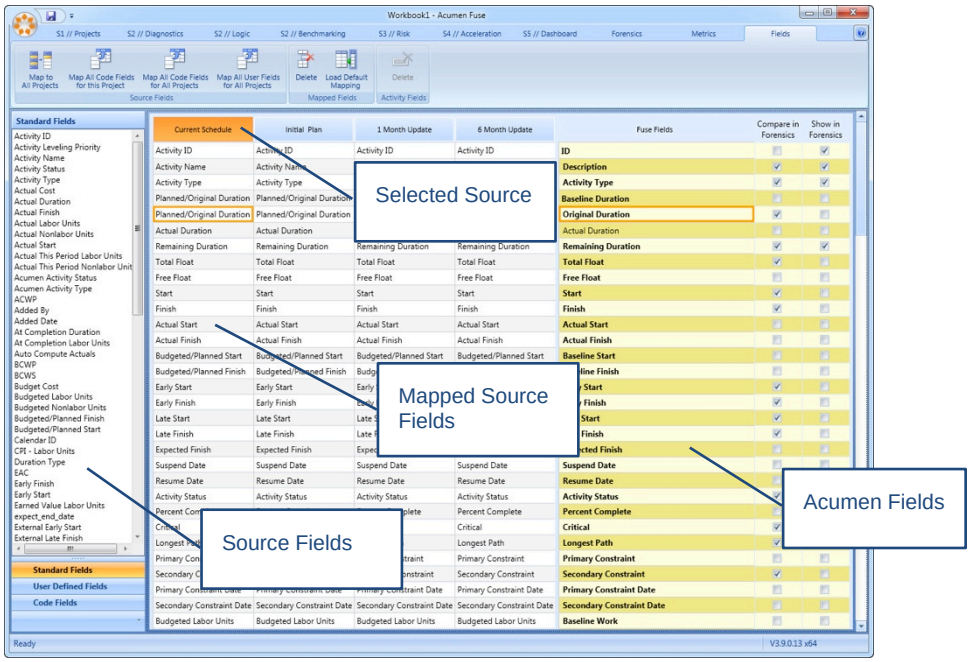
If the same project is repeatedly analyzed, Acumen will update the score in the cloud for this project; it will not create multiple separate entries.

Aim for an index and percentile score of 75 or above. The Acumen Cloud histogram is color-coded (red, orange, yellow and green). The color segments represent the 25th percentile, 50th percentile, and the 75th and above percentile.

Fields Tab

Use the fields tab to map fields from the various source projects to corresponding fields in the Acumen Fuse workbook. Field mapping is flexible in that an individual Acumen Fuse field can get its data from any source project field. Further, the mappings between source projects may be different, for example, **Baseline Start** may come from **Start1** in Project A and **BaselineStartDate** in Project B (all within the same workbook).

You can map standard fields, user-defined fields, and code fields. Default mappings for all the supported platforms are included.



See Appendix B: Standard Field Mappings for a list of the standard field mappings for each of the supported platforms.

The Fields Tab Menu Options

- Source Fields
  - **Map to All Projects** — If your workbook contains multiple projects or snapshots, you can use the **Map to All Projects** menu option to map a single field (standard, user, code) to all projects or snapshots with a single click instead of repeating the field mapping process manually for each project.
  - **Map All Code Fields for this Project** — If you need to map all code fields from a source project or snapshot, you can use the **Map All Code Fields for this Project** menu option to assign all code fields to the workbook in a single click.

    By default, all code fields are auto-mapped during an import. This feature can be disabled in the Deltek Acumen Options dialog box.
  - **Map All Code Fields for All Projects** — If you need to map all code fields from a source project or snapshot to multiple projects, you can use **Map All Code Fields for all Projects** to assign all code fields for all the projects in the workbook in a single

click. Acumen will map all common codes within each source file to all projects within the workbook.

By default, all code fields are auto-mapped during an import. This feature can be disabled in the Deltek Acumen Options dialog box.

- **Map All User Fields for All Projects** — If you need to map all user fields from a source project/snapshot to multiple projects, you can use **Map All User Fields for all Projects** to assign all user fields to the workbook in a single click.

  By default, all user fields are not mapped during an import. This feature can be enabled in the Deltek Acumen Options dialog box.

- Mapped Fields
  - **Delete —** Select a mapped field, then click **Delete** to delete the mapped field from the list of fields. The Acumen field is not removed from the product, only deleted from the list.
  - **Load Default Mapping** — Click **Load Default Mapping** to reset field mappings within a workbook.
- Activity Fields
  - **Delete** — Select an activity field then click **Delete** to remove the field and all of its associated field mappings.
- Templates
  - **Open** — Use this option to open a saved mapping template.
  - **Save** — Use this option to save a mapping as a template. The template will save as an XML file with **.fieldmap** appended to the filename. For example, if the project is called **Schedule1**, then the filename is **Schedule1.fieldmap.xml**.

Field Mapping Context

Each workbook contains its own field-mapping template. Each project or snapshot within a workbook also has its own mapping values back to the fields within the workbook template.

Mapped Fields and Metrics

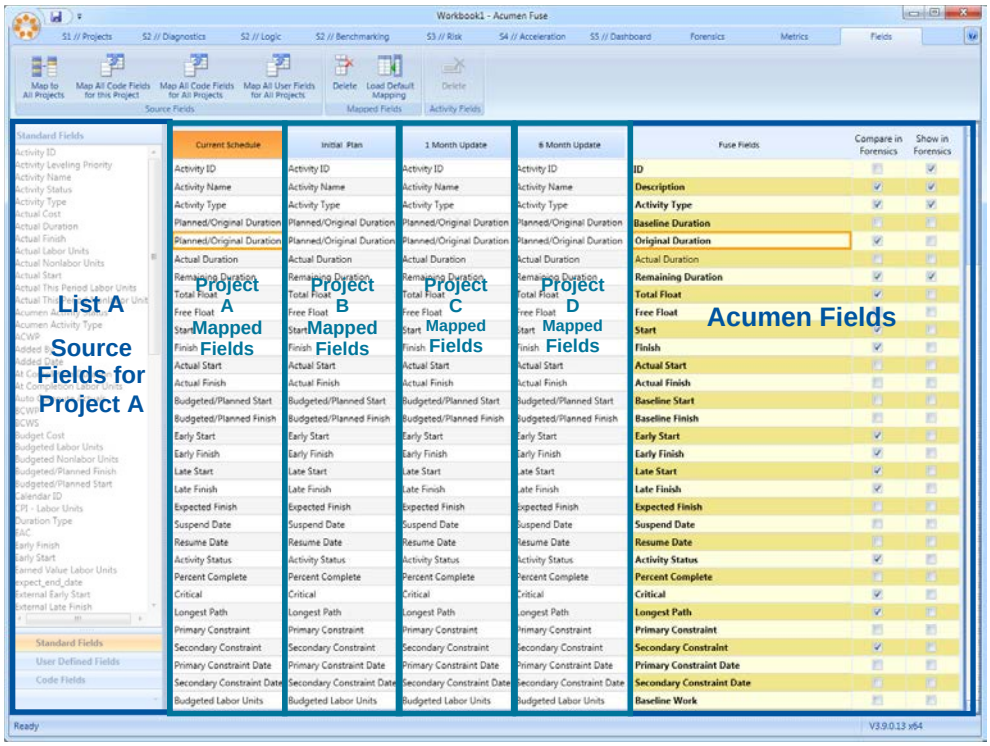
In order for metrics to produce valid calculations, the fields referenced in the metric definition must be present in the workbook. The default field mapping templates include the required fields for the standard metric libraries to be run.

Custom Field Mappings

In addition to being able to import from multiple platforms, you can also customize which fields are imported into a workbook. Each supported platform (for example, MS Project and Primavera) has default field mapping templates. These defaults mean that, unless you need to change the default behavior of an import, you can import project data without manually having to create or maintain field mappings.

See Appendix B: Standard Field Mappings for a list of the standard field mappings for each of the supported platforms.

However, if you want to change the way fields are imported and/or want to import additional fields that are not part of the standard field mapping templates, then you can use the field-mapping feature to achieve your custom imports.



The right-hand side column contains a list of Acumen fields. These fields are available during an analysis and can be referenced by metric formulas. You can click on the field name to edit it; however, you cannot edit the bold field names but you can assign customized mappings to them.

The center columns are the currently mapped fields. There is a separate column shown for each of the projects/snapshots within a workbook.

Acumen field mapping provides the flexibility to have different custom mappings from each of your data sources map to a common field — in effect, standardizing data from multiple platforms that may have very different data schemas.

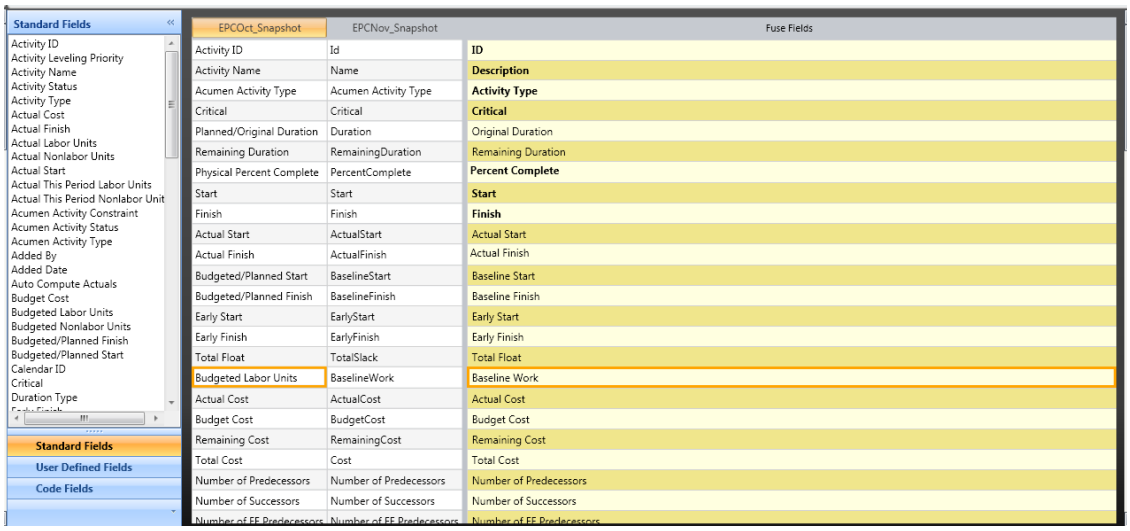
When linking to a data source, default mappings are assigned based on the platform type.

Example of Field Mapping

The example below shows two projects within a workbook (Project A and Project B).

- Project A is a Primavera P6 project
- Project B is a Microsoft Project project

For the Acumen field called **Baseline Work**, the corresponding default field for Project A (Primavera file) is **Budgeted Labor Units** whereas in Project B, the same field is known as **BaselineWork**. Based on the default mappings, Acumen normalizes these fields even though the field names are actually different. Within your workbook, this field is then referred to as **Baseline Work**.



Edit Field Mappings

To edit field mappings, complete the following steps:

1. Select the data source.

   Before you can map a field, Acumen has to retrieve all the available fields for the project in question.

   a. To update the available field list, click on the desired project which would be either of the two columns showing Project A and Project B.

2. Select the desired field.

   The source fields are grouped into Standard, User Defined, and Code fields.

   b. Click on the relevant header to reveal the fields for the required field type.

3. Assign the field.

   Drag and drop the selected field to an existing Acumen field or a blank row to create a new field in your workbook.

Edit Field Names

When adding a new source field to your list of fields, Acumen, by default, adopts the same field name as that of the source. However, you can rename fields by editing the field name directly within the table. The exception to this rule is the list of Acumen fields that are highlighted in bold type (ID, Description, Critical, Percent Complete, Start, Finish).

Delete Fields

You can delete any of the non-bold type faced Acumen fields.

To delete an Acumen field, complete the following steps:

1. Click on the field you want to delete.
2. In the **Activity Fields** menu, click **Delete**.

Delete Field Mappings

You can delete field mappings without deleting the field itself. This is useful when you no longer want to import a specific field that has previously been mapped.

To delete a field mapping, complete the following steps:

1. Click on the mapped source field you want to delete.
2. In the **Mapped Fields** menu, click **Delete**.

Field Mapping Templates

When you complete field mapping, you can save it as a mapping template. You can import a saved template back into field mapping and apply it to a single project or all projects.

Save a Mapping Template

To save a field mapping as a template, complete the following steps:

1. On the Fields tab, select the project whose mapping you want to save as a template.
2. In the **Templates** menu, click **Save**.
3. In the Save dialog box, select a folder and click **Save**.

   You can change the project name; however, **.fieldmap.xml** is appended to any name you use.

Import a Mapping Template

To import a mapping template, complete the following steps:

1. On the Fields tab, select the project to which you want to apply the template. If you are applying the template to all projects, then skip this step.
2. In the **Templates** menu, click **Open**.
3. Select the template you wish to apply and click **Open**.
4. On the Apply field mapping template dialog box, select one of the following options:
   - **<selected project>** — This is the name of the currently selected project on the Fields tab. Select this option to apply the template to this project only.
   - **All** — Select this option to apply the template to all projects listed on the Fields tab.
   - **Cancel** — Select this option to cancel the import process.

Minimum Fields Required

In order to draw activities and ribbons in the ribbon analyzer view, only the **Start** and **Finish** fields need to contain valid data. In reality though, in order to obtain useful results from the analysis, the standard default mapped fields should be populated.

Work with Different Field Types

The custom field mapping enables fields of different types to be matched with each other. During analysis, Acumen determines how to treat a field (type) based on the data and context within which it is being used. Such flexibility allows, for example, a user-defined number field to be mapped as a text field in Acumen.

Appendix A: External Data Sources

This topic provides information specific to each of the following data sources that Acumen supports:

- Microsoft Project
- Oracle Primavera
- Microsoft Excel
- Deltek Open Plan
- Phoenix Project Manager
- Asta PowerProject
- UN/CEFACT
- Safran Project

- See the Compatibility Matrix in the *Deltek Acumen Installation Guide* for version information.
- See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

Microsoft Project

Acumen links to Microsoft Project (MSP) files using your installed copy of MS Project or by directly reading an **.MPP** file (without needing MS Project installed on your computer).

MS Project linking supports:

- Cost, schedule, risk, and earned value integration by default.
- Custom field mapping (normal, code, and user-defined fields).

When you import a project from Microsoft Project, Acumen also imports the **Estimated** and **Manual** fields.

See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

Import External Activities

In Microsoft Project, you can link an activity in another project as a predecessor or successor to an activity in your current project. These external activities display in gray in your current Microsoft project.

You can import these external activities as part of an MS Project import by setting the **Import external activities** option on the Platforms tab in the Deltek Acumen Options dialog box. The external activities display in gray in the Activities view of the S1 // Projects tab. If you select one, you can see the predecessor/successor information on the Activity Relationships sub-tab.

These external activities are excluded from analysis by default; however, you can include them by deselecting the option in the Excluded column next to the activity in the Activity browser pane of the S2 // Diagnostics tab.

See Exclude Activities from Analysis for more information.

Set Microsoft Project Platform Options

To set the Microsoft Project platform options, complete the following steps:

1. Click .
2. At the bottom of the pane, click **Deltek Acumen Options**.
3. On the Platforms tab, in the Microsoft Project group, set your preferred options:
   - Activity Comparison Field
   - Load MPP files directly without requiring Microsoft Project
   - If the “Acumen ID” field is present, map it to “Id”
   - Import External activities

   See Platforms Tab in the *Setting Deltek Acumen Options* topic for field descriptions.
4. Click **OK**.

Microsoft Project “Get External Data From” Menu Options

This topic describes the Microsoft Project options in the Get External Data From menu on the S1 // Projects tab.

To access the Microsoft Project menu in the Get External Data From group, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Get External Data From menu, click the down-arrow on the bottom right corner of the Microsoft Project menu item.

The following options display:

- **Microsoft Project** — Use this option to create a link to a Microsoft Project .MPP file. When you select it, an Open dialog displays, allowing you to select the .MPP file.
- **Active Microsoft Project** — Use this option to create a link to a project that you currently have open in MS Project.
- **Create Microsoft Project MPP Project** — Use this option to create a new project in the workbook.

  When you select it, a Create Microsoft Project Schedule dialog box displays. Enter a project name, select Time Now and click **OK**. Acumen creates a new project with start and finish milestones and adds it to the list in the Projects pane.

Oracle Primavera

This topic describes options, dialog boxes, and steps specific to Oracle Primavera projects.

See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

Primavera P6

Acumen includes direct integration to Primavera P6 through web-services (v8.2 and v8.3). This means that all P6 8.2 and 8.3 users can link directly to Primavera to analyze their projects.

In addition, Acumen analyzes Oracle Primavera P6 XER and XML files. XER files are the standard means of exporting data outside of a P6 database. You do not need P6 installed on your computer to link and import XER or XML files into Acumen.

Primavera P6 linking supports custom field mapping (normal, code, and user defined fields).

You can import a single project or multiple projects from Primavera P6 web services.

Acumen uses profiles to connect to P6 Web Services servers. The system can store multiple profiles that include the address, user name, password, and so on. When you import a Primavera P6 file through web services, you have the option to:

- Use your current profile (Acumen remembers the last profile used).
- Select a different profile.
- Add, edit, or delete profiles.

Set Oracle Primavera Platform Options

To set the Oracle Primavera platform options, complete the following steps:

1. Click  .
2. At the bottom of the pane, click **Deltek Acumen Options**.
3. On the Platforms tab, in the Oracle Primavera Project Management P6 group, set your preferred options:
   - Calculate Baseline Values From
   - Web Service Timeout (seconds)

   See Platforms Tab in the *Setting Deltek Acumen Options* topic for field descriptions.
4. Click **OK**.

Oracle Primavera “Get External Data From” Menu Options

This topic describes the Oracle Primavera options in the Get External Data From menu on the S1 // Projects tab.

To access the Oracle Primavera menu in the Get External Data From group, complete the following steps:

1. Select the S1 // Projects tab.

2. In the Get External Data From menu, click the down-arrow on the bottom right corner of the Oracle Primavera menu item.

The following options display:

- Import
  - **Single Project from a P6 XER file** — Use this option to import a single P6 project from an XER file. After you select the file, a Select a Primavera P6 Project dialog box displays, allowing you to select the project you want to import.
  - **Multiple Projects from a P6 XER file** — If the XER contains multiple projects, you can use this option to import all projects contained in the XER file.
  - **All Projects from a P6 XER file as a single Project** —Use this option to import all projects contained in an XER file as a single project.
  - **Project from a P6 XML file** — Use this option to import a P6 project that has been stored in the Primavera XML file.
  - **Single or Multiple Projects from P6 Web Services** — Use this option to import single or multiple P6 projects using web services.

    See Link to Single or Multiple P6 Projects Through Web Services for more information and steps.

  - **Project from a P3 file** — Use this option to import a Primavera P3 (with a **dir.p3** suffix) file.
  - **Primavera Risk Analysis** — Use this option to import data from an Oracle Primavera Risk Analysis or Pertmaster plan.

    See Primavera Risk Analysis for more information.

- Create Schedule
  - **Create New Primavera XER P6 Schedule** — Use this option to create a new XER P6 schedule.
- Baseline
  - **Assign / Change Baseline** — Use this option to assign or change a baseline.
  - **Assign / Change Baseline and Add Snapshot** — Use this option to assign or change a baseline and add a snapshot.
  - **Clear Baseline** — Use this option to delete a previously set baseline.

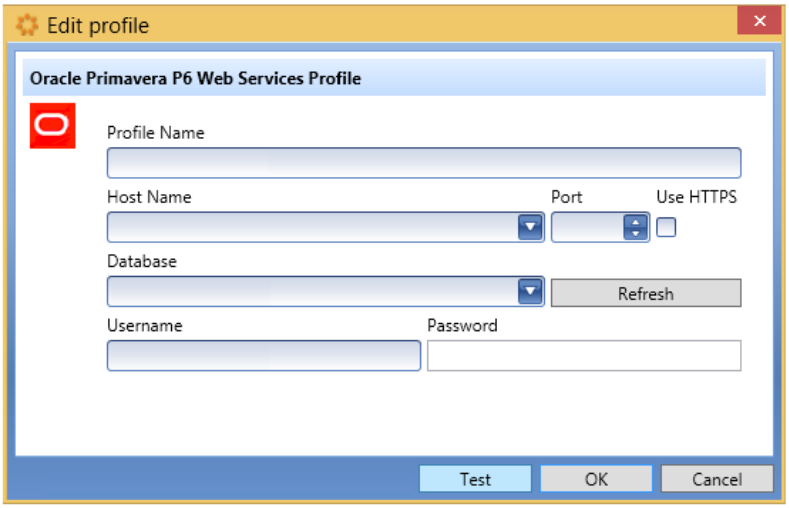
    See Add a Baseline to Primavera P6 Workbooks for more information.

- XER File Encoding
  - **Set Text Encoding** — XER files do not include any information about what is being used to encode the files. If the file you are importing does not use standard encoding (for example, it uses Russian instead of English), use this option to set the text encoding prior to importing the data.

Link to Single or Multiple P6 Projects Through Web Services

To link to a Primavera P6 file through web services, complete the following steps:

1. Click .
2. Click **Open** to open an existing workbook or click **New** to create a new workbook.
3. Select the S1 // Projects tab.
4. In the Get External Data From menu, click the **Oracle Primavera** drop-down arrow, and select **Single or Multiple Projects from P6 Web Services**.
   - If you already have at least one profile defined, the Project Selection dialog box displays. If this is the case, skip to step 6.
   - If you do not have any profiles defined, the Edit Profile dialog box displays. Continue to step 3.
5. On the Edit Profile dialog box, enter or select the following information:
   - Profile Name
   - Host Name and Port
   - Use HTTPS
   - Database
   - Username and Password

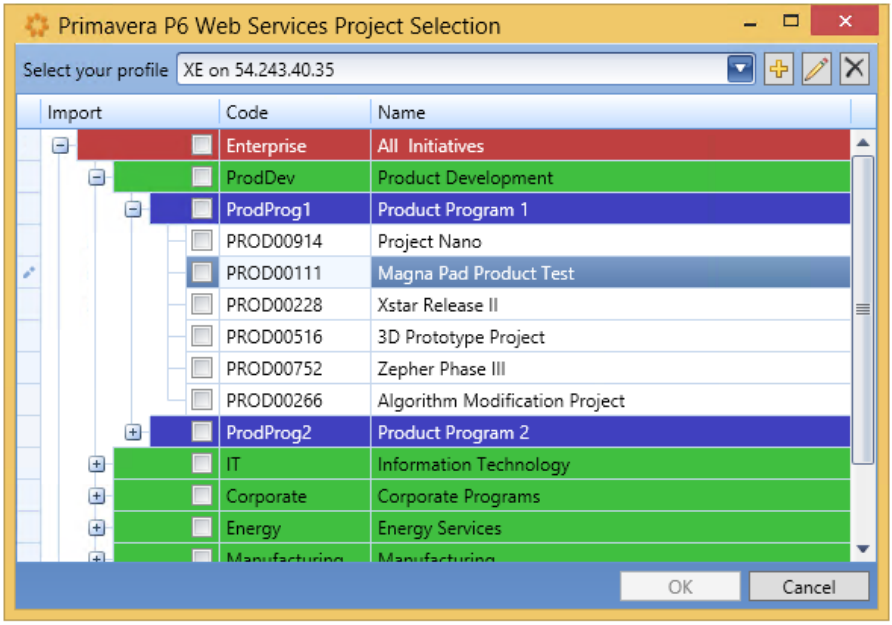


6. Click **Test** to confirm that the information is correct.
7. Click **OK** to accept the settings.

   The Edit Profile dialog box closes and the Primavera P6 Web Services Project Selection dialog box displays.
8. On the Project Selection dialog box, for your profile, do one of the following:
   - Keep your current profile (Acumen displays the last profile you used).
   - Use the **Select your profile** field to select a different profile.
   - Click **Add** to add a new profile using the Edit Profile dialog box.

- Click  **Edit** to edit the existing profile using the Edit Profile dialog box.
- Click  **Delete** to delete the currently selected profile in which case you will need to select or add a profile before continuing.

9. In the Import column, place a check next to each project you want to import.



10. Click **OK** to close the dialog box.
11. Acumen adds links to these projects in the Projects pane.

7. After you add your project links, you can choose to:
   - Add snapshots to projects.
   - Convert snapshots to projects.
   - Merge multiple data sources into a single dataset.

You can add and convert snapshots and merge data sources at any time, before and after you import your data.

When you are done, your next step is to import your project data.

See Link to External Data Sources and and Import Projects for information about:

- Adding and converting snapshots.
- Merging multiple data sources into a single dataset.
- Importing your project data.

Add a Baseline to Primavera P6 Workbooks

XER files exported from Primavera P6 do not contain associated baseline project data. This is a challenge when running metrics within Acumen that compare baseline data with the current schedule. To overcome this, you can assign a given P6 baseline schedule to a P6 schedule that has been brought into an Acumen workbook.

This process merges a baseline dataset with the current project dataset overcoming the issue of baselines not natively being saved as part of an XER export from P6.

To assign a P6 baseline to a P6 schedule, complete the following steps:

1. Select the S1 // Projects tab.
2. Do one of the following:
   - In the Projects pane, right-click on the P6 project and select **Set/Change Baseline**.
   - Select the P6 project in the Projects pane then, in the Get External Data from menu, click **Oracle Primavera » Assign / Change Baseline**.
3. In the Open dialog box, select the P6 XER that you want to set as the baseline project.

   After it is assigned, a black **B** () displays on the Primavera P6 file icon in the Projects panel of the workbook to show that it has an assigned baseline.
4. Import the project data to import both the project and baseline files together.

Baselines can be reassigned, assigned, added, or deleted by right-clicking on the Primavera project.

Set Baseline and Add Snapshot

A Primavera file can be assigned as both a snapshot and a baseline in a single step. To do this, right-click on the parent project and select **Set Baseline and Add Snapshot**.

Primavera Risk Analysis

Acumen uses your installed copy of Risk Analysis (V8.x and higher), formerly known as Pertmaster, to link directly to Primavera Risk Analysis files. You must have Risk Analysis installed on your PC in order to link and to import **.plan** files from a Risk Analysis file.

If you don't have Risk Analysis installed, you can:

- Natively read **.plnx** files into Acumen
- Import **.plnx** files generated in Risk Analysis

In addition to importing cost and schedule data, Acumen imports both risk input and risk output data from your Risk Analysis file. This enables you to conduct advanced risk-based analytics.

Risk Analysis linking supports custom field mapping.

You cannot run risk analysis on files imported from Primavera Risk Analysis.

Microsoft Excel

This topic describes options and information specific to Microsoft Excel files , Deltek Cobra's CAP report, and ARES PRISM G2 data.

See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

Microsoft Excel

Acumen's interface with Microsoft Excel provides an open and flexible means of linking to external data. Any data that can be stored as an XLS or XLSX file can be imported into Acumen for analysis.

When you link to an Excel file, an Options dialog box displays. Use the fields in this dialog box to:

- Select the worksheet from the Excel file that you want to import.
- Create mappings between the columns in the XLS spreadsheet and the fields within your Acumen workbook. Excel fields are auto-mapped to Acumen fields if the field names are consistent between the two applications.

Deltek Cobra CAP Earned Value Data

You can link to detailed phase-based Earned Value (EV) data from Deltek Cobra®'s Excel-based CAP report. Importing a CAP report into Acumen enables Earned Value metrics to be run during an analysis.

Outputs from an EV analysis (for example, CPI, SPI, SV, CV) are not imported from the CAP report. Instead, these calculations are carried out directly within Acumen and are included in the Earned Value metrics.

Cobra linking in Acumen does not support custom field mapping.

Earned Value metric analysis is not limited to Cobra data. EV data can originate from any of the supported platforms and be imported into an Acumen workbook through custom field mapping.

ARES PRISM G2

You can link to detailed phase-based Earned Value (EV) data from ARES PRISM^{G2}. This is a very flexible means of analyzing time-phased cost data.

PRISM linking in Acumen does not support custom field mapping.

Microsoft Excel "Get External Data From" Menu Options

This topic describes the Microsoft Excel options in the Get External Data From menu on the S1 // Projects tab.

To access the Microsoft Excel menu in the Get External Data From group, complete the following steps:

1. Select the S1 // Projects tab.
2. In the Get External Data From menu, click the down-arrow on the bottom right corner of the Microsoft Excel menu item.

The following options display:

- **Standard Excel File** — Use this option to import a standard Microsoft Excel file with the first row containing a header with the attribute names and the rest of the rows each containing an activity.
- **Deltek Cobra Spreadsheet Report for Planning (CAP)** — Use this option to import a Microsoft Excel file containing a Deltek Cobra Spreadsheet Report for Planning (CAP) with earned value information.
- **ARES PRISM G2 Spreadsheet Report** — Use this option to import a Microsoft Excel file containing an ARES PRISM G2 spreadsheet report with earned value information.

- **Create Cost Estimate** — Use this option to create a custom cost estimate within Acumen.

See Create a Cost Estimate for more information.

Deltek Open Plan

Acumen links to Open Plan files directly through your installed copy of Open Plan. You must have Open Plan® installed on your computer in order to link to, and to import from, an Open Plan file. In addition, you must have a valid Open Plan login in order to select a project for linking.

Open Plan linking supports custom field mapping (normal, code, and user-defined fields).

See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

Set Open Plan Platform Options

To set the Open Plan platform options, complete the following steps:

1. Click  .
2. At the bottom of the pane, click **Deltek Acumen Options**.
3. On the Platforms tab, in the Deltek Open Plan group, set your preferred options:
   - Username
   - Password
   - Import Code Field Definition as

See Platforms Tab in the *Setting Deltek Acumen Options* topic for field descriptions.

4. Click **OK**.

Phoenix Project Manager

Import CPM schedules directly from Phoenix Project Manager for use in project analysis and acceleration in the full Acumen software suite.

See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

Asta PowerProject

Acumen links to Asta PowerProject schedules that have been saved in the Asta PowerProject database format (MS Access files with **.mdb** suffixes). You must have Microsoft Access Database Engine in order to import these files.

These files do not contain float values for activities, therefore if float-based analysis is required for an Asta PowerProject in Acumen, the following steps must be carried out before importing the **.mdb** file.

To allow for float-based analysis, complete the following steps:

1. Load the project file in PowerProject.
2. Click **Tools » User Field Manager.**
3. Click **Object Type » Bar » Add » Integer** and name the newly created field, for example, **TotalFloatUserField**.
4. On the column header, right click and select **Add column » Float » Total Float**.
5. On a column header, right click and select **Add column » User » <field>**, for example, **TotalFloatUserField**.
6. Copy the **Total Float** field data to the user field (for example, **TotalFloatUserField**):
    a. Select the Total Float column header and copy (**CTRL+C** or **Edit » Copy**).
    b. Navigate to the user field and paste the data (**CTRL+V** or **Edit » Paste**).
7. Save the file as an Asta PowerProject database MDB file.

You will now be able to read the MDB file directly in Acumen.

To reference the **Total Float** field, after it is imported, map the **User Field** representing **Total Float** to the Acumen **Total Float** field in the field mapping view.

See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

UN/CEFACT XML Schedule Files

Acumen links to schedule files that use the UN/CEFACT XML Schema (IPMR Format 6 v1.0). This schema is an emerging standard being driven by organizations like DCMA. You can link to, and import from, a UN/CEFACT XML file without having a scheduling tool installed on your computer.

UN/CEFACT linking does not support custom field mapping.

See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

Safran Project

Acumen links to Safran Project 5 through exported Safran Project (**.SP**) files. You can link to, and import from, a Safran Project file without having Safran Project installed on your computer.

See Link to External Data Sources and and Import Projects for general linking and importing information and steps.

Import Activities with Constraints

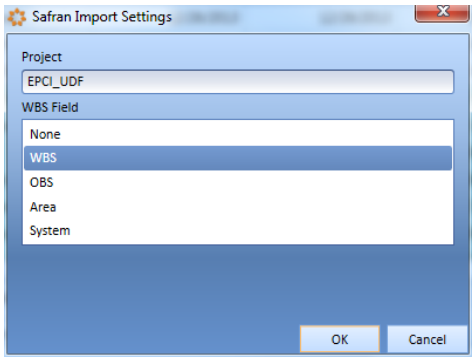
Every Safran activity has one field for each type of constraint. Acumen allows a maximum of two constraints on an activity. The third and subsequent constraints are ignored. When you import from Safran, Acumen loads constraints in the order shown below.

Constraint Type	Safran Field
Must Start On	Fixed Start Date
Must Finish On	Fixed Finish Date
Start On Or After	Target Start Early
Finish On Or After	Target Complete Early
Start On Or Before	Target Start Late
Finish On Or Before	Target Complete Late
As Late As Possible	As Late As Possible

Safran Outline Codes

When you import a Safran project:

- If the selected project has no outline code defined, Acumen doesn't create a WBS.
- If the selected project has one outline code defined, Acumen assumes that field is the WBS.
- If the selected project has more than one outline code defined, then during import, a Safran Import Settings dialog box displays where you can select the project outline code that you want as the WBS.



Error and Warning Log

If there are any errors during the import, a Log dialog box displays that includes information about the warning or error. You can click **Copy to Clipboard** to copy the information to your clipboard for further review, or click **OK** to close the Log dialog box.

Appendix B: Standard Field Mappings

Acumen includes standard field mappings for each of the supported platforms. These are listed below. You can create additional custom field mappings using the Fields tab.

Acumen Field	Microsoft Project®	Primavera P6	Primavera Risk	Deltek Cobra®	Deltek Open Plan®	UN/CEFACT	Safran
Activity Status	Status	Activity Status	Calculated	NA	Progress Type	Calculated	NA
Activity Type	Calculated	Activity Type	Task Type	Calculated	Activity Type	ProjectScheduleTask.TypeCode	Calculated
Actual Cost	Actual Cost	Calculated	Cost[Actual]	NA	Calculated	NA	Calculated
Actual Duration	Actual Duration	Actual Duration	NA	NA	NA	NA	Calculated
Actual Finish	Actual Finish	Actual Finish	Actual Finish	NA	Actual Finish	ActualScheduledBasePeriod.Finish	Calculated
Actual Start	Actual Start	Actual Start	Actual Start	NA	Actual Start	ActualScheduledBasePeriod.Start	Calculated
ACWP (AC)	ACWP	ACWP		ACWP (AC)	NA	NA	
Baseline Finish	Baseline Finish	Planned Finish	Baseline Finish	NA	Baseline Finish	TargetScheduledBasePeriod.Finish	Baseline Early Finish
Baseline Start	Baseline Start	Planned Start	Baseline Start	NA	Baseline Start	TargetScheduledBasePeriod.Start	Baseline Early Start
Baseline Work	Baseline Work	Budgeted Labor Units	Calculated	NA	NA	NA	NA
BCWP (EV)	BCWP	BCWP(EV)	Calculated	BCWP (EV)	Calculated	NA	NA
BCWS (PV)	BCWS	Calculated	NA	BCWS (PV)	NA	NA	NA
Budget Cost	Baseline Cost	Calculated	Cost[Budget]	NA	Calculated	NA	NA
CAM-EAC	NA	NA	NA	CAM-EAC	NA	NA	NA
Critical	Critical	Critical	Critical	NA	Critical_Activity	ProjectScheduleTask.CriticalPathIndicator	Calculated
Description	Name	Activity Name	Description	Description	Activity Desc.	ProjectScheduleTask.Description	Description
EAC	EAC	EAC	NA	EAC	NA	NA	NA
Early Finish	Early Finish	Early Finish	Early Finish	NA	Early Finish	EarliestScheduledBasePeriod.Finish	NA

Acumen Field	Microsoft Project®	Primavera P6	Primavera Risk	Deltek Cobra®	Deltek Open Plan®	UN/CEFACT	Safran
Early Start	Early Start	Early Start	Early Start	NA	Early Start	EarliestScheduledBasePeriod.Start	Early Start
ETC	NA	NA	NA	ETC	NA	NA	NA
Finish	Finish	Finish	Finish	Calculated	Early Finish	CurrentScheduledBasePeriod.Finish	Calculated
Free Float	Free Float	Free Float	Free Float	NA	Free Float	Free Float	Free Float
ID	ID	Activity ID	ID	ID	Activity ID	ProjectScheduleTask.Name	Activity Name
Late Start	Late Start	Late Start	Late Start	NA	Late Start	Late Start	Late Start
Late Finish	Late Finish	Late Finish	Late Finish	NA	Late Finish	Late Finish	Late Finish
LIKELY	NA	NA	NA	LIKELY	NA	NA	NA
Longest Path	Critical	Longest Path	Critical	NA	Critical	NA	Calculated
MOD	NA	NA	NA	MOD	NA	NA	NA
Number of Lags	Calculated	Calculated	Calculated	NA	Calculated	ProjectScheduleTaskRelationship.LagTimeMeasure	NA
Number of Leads	Calculated	Calculated	Calculated	NA	Calculated	Calculated	NA
Number of FF Predecessors	Calculated	Calculated	Calculated	NA	Calculated	Calculated	NA
Number of Predecessors	Calculated	Calculated	Calculated	NA	Calculated	Calculated	NA
Number of SF Predecessors	Calculated	Calculated	Calculated	NA	Calculated	Calculated	NA
Number of SS Predecessors	Calculated	Calculated	Calculated	NA	Calculated	Calculated	NA
Number of Successors	Calculated	Calculated	Calculated	NA	Calculated	Calculated	NA
Original Duration	Duration	Original Duration	Original Duration	NA	Original Duration	TotalDurationMeasure	Duration
OTB	NA	NA	NA	OTB	NA	NA	NA
P50 Cost	NA	NA	P50 Cost	NA	NA	NA	NA
P50 Finish	NA	NA	P50 Finish	NA	NA	NA	NA

Acumen Field	Microsoft Project®	Primavera P6	Primavera Risk	Deltek Cobra®	Deltek Open Plan®	UN/CEFACT	Safran
P50 Start	NA	NA	P50 Start	NA	NA	NA	NA
P80 Cost	NA	NA	P80 Cost	NA	NA	NA	NA
P80 Finish	NA	NA	P80 Finish	NA	NA	NA	NA
P80 Start							NA
Percent Complete	% Complete	Calculated	Percent Complete	NA	Calculated	ProjectScheduleTask.CalculatedCompletionPercent	NA
PLAN_ACC	NA	NA	NA	PLAN_ACC	NA	NA	NA
Primary Constraint	Constraint Type	Primary Constraint	Primary Constraint	NA	Calculated	Primary Constraint	Calculated
Primary Constraint Date	Constraint Date	Primary Constraint Date	Primary Constraint Date	NA	Calculated	Primary Constraint Date	Calculated
Project Finish	Finish Date	Finish	Data Date	NA	Scheduled Finish	NA	NA
Project Start	Start Date	Start	Start	NA	Project Start	NA	NA
Project Time Now	Status Date	Data Date	Finish	NA	Time Now	NA	NA
Remaining Cost	Remaining Cost	Calculated	Cost[Remaining]	NA	ETC	NA	Calculated
Remaining Duration	Remaining Duration	Remaining Duration	Remaining Duration	NA	Computed Remaining Dur.	ProjectScheduleTask.RemainingDurationMeasure	Remaining Duration Analyzed
REPLAN	NA	NA	NA	REPLAN	NA	NA	NA
Risk Input - Duration Description	NA	NA	Calculated		NA	NA	NA
Risk Input - Duration LowerPcent	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Duration Max	NA	NA	Risk input-Duration Maximum	NA	NA	NA	NA
Risk Input - Duration Mean	NA	NA	Risk input-Duration Mean	NA	NA	NA	NA
Risk Input - Duration Min	NA	NA	Risk input-Duration Minimum	NA	NA	NA	NA
Risk Input - Duration	NA	NA	Risk Input - Duration	NA	NA	NA	NA

Acumen Field	Microsoft Project®	Primavera P6	Primavera Risk	Deltek Cobra®	Deltek Open Plan®	UN/CEFACT	Safran
MostLikely			MostLikely				
Risk Input - Duration MostLikelyPcent	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Duration Notes	NA	NA	Risk Input - Duration Notes	NA	NA	NA	NA
Risk Input - Duration Risk Distribution	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Duration RiskFunction	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Duration RiskId	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Duration RiskOn	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Duration Shape	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Duration StdDeviation	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Duration UpperPcent	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic Description	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic Notes	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic RiskFunction	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic RiskId	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic RiskOn	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic Links Description	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic Links Notes	NA	NA	Risk Input - Probabilistic Links Notes	NA	NA	NA	NA

Acumen Field	Microsoft Project®	Primavera P6	Primavera Risk	Deltek Cobra®	Deltek Open Plan®	UN/CEFACT	Safran
Risk Input - Probabilistic Links RiskFunction	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic Links RiskId	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Probabilistic Links RiskOn	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Task Existence Description	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Task Existence Notes	NA	NA	Risk Input - Task Existence Notes	NA	NA	NA	NA
Risk Input - Task Existence RiskFunction	NA	NA	Risk Input - Task Existence Function	NA	NA	NA	NA
Risk Input - Task Existence RiskId	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Task Existence RiskOn	NA	NA	Calculated	NA	NA	NA	NA
Risk Input - Task Existence Probability	NA	NA	Risk Input - Task Existence	NA	NA	NA	NA
Risk Output - CostSensitivity	NA	NA	Risk Output - CostSensitivity	NA	NA	NA	NA
Risk Output - CostStdDeviation	NA	NA	Risk Output - CostStdDeviation	NA	NA	NA	NA
Risk Output – CriticalityIndex	NA	NA	Risk Output – CriticalityIndex	NA	NA	NA	NA
Risk Output – DurationCruciality	NA	NA	Risk Output - Duration Cruciality	NA	NA	NA	NA
Risk Output - DurationStdDeviation	NA	NA	Risk Output - DurationStdDeviation	NA	NA	NA	NA
Risk Output – DurationSensitivity	NA	NA	Risk Output – DurationSensitivity	NA	NA	NA	NA
Risk Output – MeanCost	NA	NA	Risk Output – MeanCost	NA	NA	NA	NA

Acumen Field	Microsoft Project®	Primavera P6	Primavera Risk	Deltek Cobra®	Deltek Open Plan®	UN/CEFACT	Safran
Risk Output – MeanDuration	NA	NA	Risk Output – MeanDuration	NA	NA	NA	NA
Risk Output - MeanFinish	NA	NA	Risk Output - MeanFinish	NA	NA	NA	NA
Risk Output – MeanStart	NA	NA	Risk Output – MeanStart	NA	NA	NA	NA
Risk Output - PercentageTaskExisted	NA	NA	Risk Output - % Iterations Existed	NA	NA	NA	NA
Risk Output - ScheduleSensitivityIndex	NA	NA	Risk Output - ScheduleSensitivityIndex	NA	NA	NA	NA
Secondary Constraint	NA	Secondary Constraint	NA	NA	Calculated	Secondary Constraint	Calculated
Secondary Constraint Date	NA	Secondary Constraint Date	NA	NA	Calculated	Secondary Constraint Date	Calculated
Start	Start	Start	Start	Start	Early Start	CurrentScheduledBasePeriod.Start	Calculated
Total Cost	Cost	Calculated	Cost[Total]	NA	Calculated	NA	NA
Total Float	Total Slack	Total Float	TotalFinshFloat	NA	Total Float	ProjectScheduleTask.TotalFloatDurationMeasure	Total Float
WBS Code	Outline Number	WBS	Work Breakdown Structure	WBS Code	NA	NA	NA
WBS Name	Outline Number	WBS Name	Work Breakdown Structure	WBS Name	NA	NA	NA
WORST	NA	NA	NA	WORST	NA	NA	NA

Appendix C: Executive Briefing Variables and Customization

This topic includes information about customizing the Executive Briefing report.

See Executive Briefing in the Reporting Diagnostics Results section of this guide for more information about the report.

Customizing the Executive Briefing Report

The **ExecutiveBriefingTemplate.xml** file is located in the **Acumen » Templates** folder. It is a hard-coded report which means that you cannot add or edit elements, or move a variable to a different element; however, you can make changes to the "regular text." In addition, you can remove any of the fields in parenthesis in which case they will not display in the report.

For example, the following is a line from the **ExecutiveBriefingTemplate.xml** file:

- <MultipleProjectIntroduction>The {NumberOfProjects} projects in the workbook represent</MultipleProjectIntroduction>

You cannot delete the entire line; however, you can delete **{NumberOfProjects}** and you can delete or edit **The** and **projects in the workbook represent**.

Executive Briefing Variables

The tables below include decriptions of the variables that make up each XML Element of the Executive Briefing Report.

XML Element	Variable	Description
GenerationDate	GenerationDate	Date and time of the system at the time of the report creation.
Author	Author	Author of the workbook.
WorkbookSubtitle	WorkbookName	Name of the workbook.
FirstSummaryPart	GenerationDate	Date and time of the system at the time of the report creation.
	WorkbookName	Name of the workbook.
	ProjectQuantity	Number of projects in the workbook.
	Plural	Converts the "project" word to plural in case that there is more than one project in the workbook.
	ListOfProjects	Creates a list of all the projects in the workbook with their respective source platform.
FirstSummarySecondPart	SnapshotQuantity	Number of snapshots in the workbook.

XML Element	Variable	Description
	SnapshotPlural	Converts the “snapshot” word to plural in case that there is more than one snapshot in the workbook.
	ListOfSnapshots	Creates a list of all the snapshots in the workbook with their respective source platform.
ProjectName	ProjectName	Name of the current project.
ProjectsWithApp	ProjectNames	Names of all the projects for the current source platform separated by a comma.
	PlatformApplication	Name of the source platform.
MultipleProjectIntroduction	NumberOfProjects	Total number of projects.
SecondSummaryPart	Introduction	Uses the SingleProjectIntroduction or the MultipleProjectIntroduction XML element depending on the number of projects in the workbook.
	TotalCost	Total cost of the workbook.
	RemainingCost	Remaining cost of the workbook.
	ActualCost	Actual cost of the workbook.
	EarlierStartDate	Earliest start date included in the workbook.
	LatestCompletionDate	Latest completion date included in the workbook.
ProjectSubtitle	ProjectName	Name of the current project.
ProjectSummary	ProjectName	Name of the current project.
	StartDate	Start date of the current project.
	ProjectCompletionDateSentence	Uses the ProjectCompletionDate XML element to add the completion date of the project if the project has a completion date.
	Status	Indicates the status of the current project.
	StatusDateSentence	Uses the ProjectStatusDate XML element to add the status date of the project if it has one.
ProjectCompletionDate	CompletionDate	Indicates the completion date of the

XML Element	Variable	Description
		current project.
ProjectStatusDate	StatusDate	Indicates the status date of the current project.
ProjectNormalActivitiesSummary	NumberOfNormalActivities	Number of normal activities in the current project.
	NormalPlural	Converts the word “activity” to plural depending on the number of activities in the schedule.
	NumberOfCompletedActivites	Indicates the number of normal completed activities in the current project.
	CompletedActivitiesPercentage	Indicates the percentage of completed activities in the current project.
	CompletedPlural	Types the word “is” or “are” depending on the number of completed activities.
	NumberOfInProgressActivites	Indicates the number of normal in-progress activities in the current project.
	InProgressActivitiesPercentage	Indicates the percentage of in-progress activities in the current project.
	InProgressPlural	Types the word “is” or “are” depending on the number of in-progress activities.
	NumberOfPlannedActivites	Indicates the number of normal planned activities in the current project.
	PlannedActivitiesPercentage	Indicates the percentage of planned activities in the current project.
	PlannedPlural	Types the word “is” or “are” depending on the number of planned activities.
ProjectOtherActivitiesSummary	NumberOfMilestones	Number of milestones in the current project.
	MilestonesPlural	Converts the word “milestone” to plural if the number of milestones is > 1.
	NumberOfSummaries	Number of summaries in the current project.
	SummariesPlural	Converts the word “summary” to plural if the number of summaries is > 1.

XML Element	Variable	Description
	NumberOfLoes	Number of LOEs (Hammocks) in the current project.
	LoesPlural	Converts “LOE” to “LOEs” if the number of LOEs is > 1.
ProjectDateComparison	BaselineStart	Baseline start of the current project.
	BaselineFinish	Baseline finish of the current project.
	ProjectDatesStatus	Indicates if the project is ahead, behind or on schedule.
	StatusDates	Indicates the number of days the project is behind/ahead.
ProjectCostComparison	TotalCost	Total cost of the project.
	BaselineCost	Baseline cost of the project.
	ActualCost	Actual cost of the project.
	RemainingCost	Remaining cost of the project.
	ProjectCostStatus	Indicates if the project is over, under or on budget.
	StatusCost	Indicates the amount the project is over/under budget.
RibbonAnalysis	RibbonBy	Indicates the criteria used for the ribbons in the current ribbon view.
	NumberOfRibbons	Number of ribbons in the current ribbon view.
	RibbonPlural	Converts the word “ribbon” to plural if there is more than one ribbon.
	ListOfRibbons	Lists all the ribbons in the current ribbon view.
ScorecardAnalysis	RibbonNames	List of ribbons for the current score.
	Plural	Types “ribbon” or “ribbons” depending on the current scorecard.
	TypeOfValue	Types “worst” or “best” depending on the current scorecard.
	Score	Current scorecard score.
SingleRibbonScorecard	Score	Currrent scorecard score.

XML Element	Variable	Description
TrendSummary	Interval	The time interval used in the current ribbon view.
TrendAnalysis	MetricName	The current metric being used for trend anaylsis.
	Trend	Indicates if the current metric “increases”, “decreases” or “remains constant”.
	TrendPeriods	Uses the TrendPeriods XML element to indicate trend values.
TrendPeriods	Highest	Types “best” or “highest” depending on the metric definition.
	HighestPeriod	Indicates the phase where the value for the metric is higher/better.
	HighestValue	Indicates the highest value for the metric.
	Lowest	Types “worse” or “lowest” depending on the metric definition.
	LowestPeriod	Indicates the phase where the value for the metric is lowest/worse.
	LowestValue	Indicates the lowest value for the metric.
RibbonSubtitle	RibbonName	Name of the current ribbon.
SpecificRibbonSummary	RibbonName	Name of the current ribbon.
	NumberOfNormalActivities	Number of normal activities in the current ribbon.
	PluralNormal	Converts the word “activity” to plural depending on the number of activities in the ribbon.
	NumberOfMilestones	Number of milestones in the current ribbon.
	PluralMilestones	Converts the word “milestone” to plural if the number of milestones is > 1.
	NumberOfSummaries	Number of summaries in the current ribbon.
	PluralSummaries	Converts the word “summary” to plural if the number of summaries is > 1.

XML Element	Variable	Description
	NumberOfLoes	Number of LOEs (Hammocks) in the current ribbon.
	PluralLoes	Converts “LOE” to “LOEs” if the number of LOEs is > 1.
	StartDate	Start date of the ribbon.
	FinishDate	Finish date of the ribbon.
SpecificRibbonPercentages	CompletedPercentage	Percentage of completed activities inside current ribbon.
	PlannedPercentage	Percentage of planned activities inside ribbon.
	InProgressPercentage	Percentage of in-progress activities inside ribbon.
SpecificRibbonDurationCost	DaysLong	Total number of days the ribbon spans.
	RemainingCost	Sum of the remaining cost of the activities included in the current ribbon.
SpecificRibbonAnalysisMetrics	Quantity	Number of metrics used to analyze the current ribbon.
RibbonActivityCountMetricEvaluation	BaseValue	Indicates the result of the primary formula for the current metric.
	Plural	Converts the word “activity” to plural if the BaseValue is > 1.
	SecondaryValue	Indicates the result of the secondary formula for the current metric.
	SecondPlural	Types “has” or “have” depending on BaseValue.
	MetricName	Name of the current metric.
	TripwireDescription	Indicates the tripwire description for the current value of the metric.
RibbonActivityAttributeMetricEvaluation	BaseValue	Indicates the result of the primary formula for the current metric.
	Plural	Converts the word “activity” to plural if the BaseValue is > 1.
	SecondaryValue	Indicates the result of the secondary formula for the current metric.

XML Element	Variable	Description
	SecondPlural	Types “is” or “are” depending on BaseValue.
	MetricName	Name of the current metric.
	TripwireDescription	Indicates the tripwire description for the current value of the metric.
RibbonCountMetricEvaluation	BaseValue	Indicates the result of the primary formula for the current metric.
	MetricName	Name of the current metric.
	SecondaryValue	Indicates the result of the secondary formula for the current metric.
	TripwireDescription	Indicates the tripwire description for the current value of the metric.
RibbonValueMetricEvaluation	BaseValue	Indicates the result of the primary formula for the current metric.
	MetricName	Name of the current metric.
	SecondaryValue	Indicates the result of the secondary formula for the current metric.
	TripwireDescription	Indicates the tripwire description for the current value of the metric.

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