Concerto - Planning Quick Reference Guide

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Why a 2-Tier approach?

Critical Chain Project Management, with the use of buffers, was a quantum leap in improving project management performance. This is the first time where task priorities are objectively calculated. With more organizations adopting CCPM, and with the vast implementation experiences accumulated over the years, some of the shortcomings of the traditional CCPM are:

- Project plans require up front task details which increase the planning cost as more time is now required to build a project network.
- Detailed plans require frequent changes in order to keep the project up to date. Since many of the details put into the original project network become invalid as the project changes over time, the project manager would need to constantly check out the project and amend the changes. This increases execution cost as more re-planning efforts are now required.

Advantages of Concerto 2-Tier Planning Tool

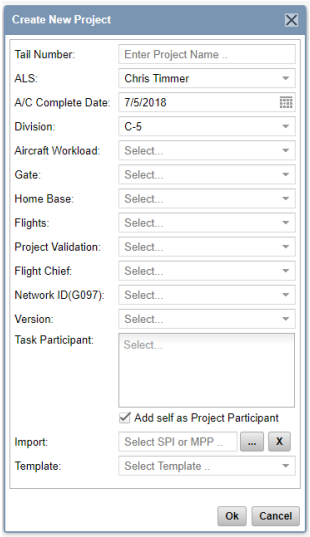
Concerto's new 2-Tier planning tool offers major improvements to overcome the above-mentioned shortcomings:

- Project networks have a simplified architecture. This allows a project plan to be quickly defined.
- As long as the architecture is consistent before and after execution, task level details can be added later without changing the structure of the project.
- Phases can be easily identified to check if they must be treated as constraints for pipelining purposes.
- Tasks can be modeled at a higher level without losing the detail required by resources.
- Project plans are quicker to build, easier to understand, require less re-planning in execution, and are more in line with how projects are actually managed.

Concerto Web Based Planning

Concerto's planning tool opens with the matrix **Project View**. Project architecture, resources and the efforts required for each phase can be quickly modelled.

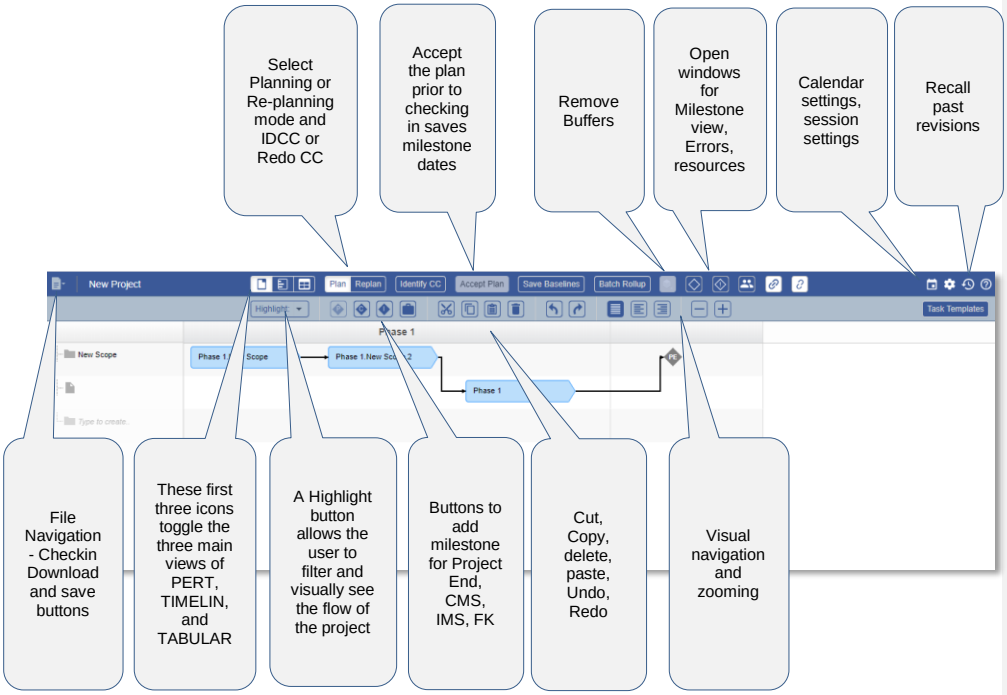
Creating a new project



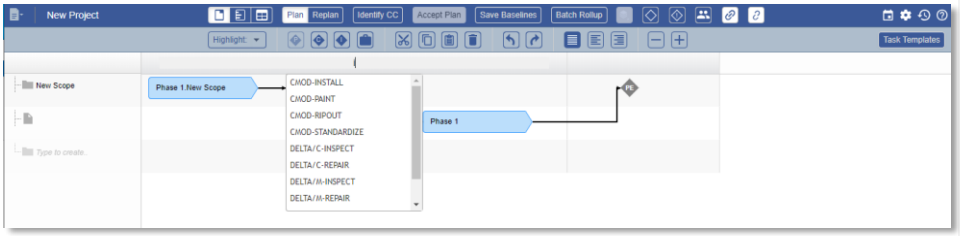
1. Click **Project Mgr** > **Modify** > **Create New Plan**.
   The Create New Project interface displays:
2. Enter the project name and appropriate project specific information or attributes.
   NOTE: These attributes are created for your specific environment and the titles can be edited.
3. To upload a plan from another database or from another planner in SPI or MPP format, click **Import** and upload the plan.
4. You can also select a starting point or a Template to customize, or start a new blank plan.

Creating a blank plan

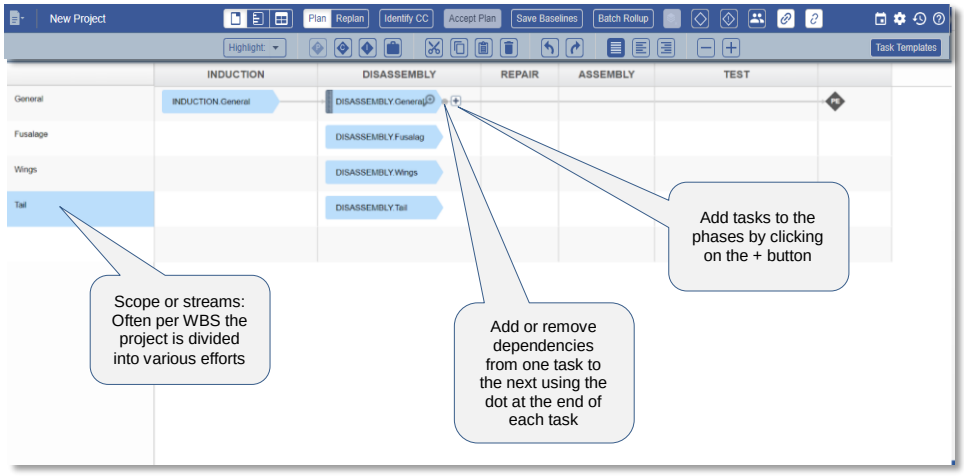
1. While creating a project, if you choose to start from scratch a blank plan opens:



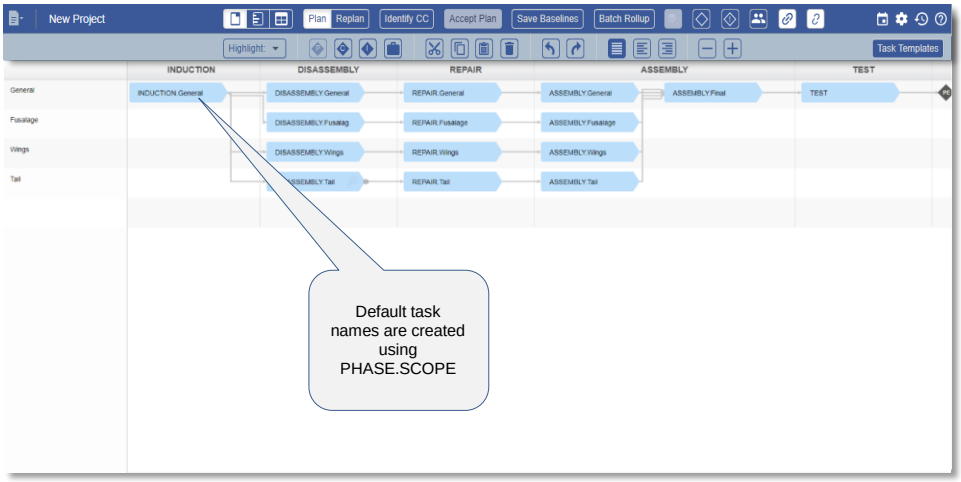
Add phases to your plan.
NOTE: Phase names should be set in the resource file as virtual resources to be available in the dropdown for the phase names.



2. Add tasks within the phases with dependencies. You can drag and drop multiple tasks.



Complete your plan.
If you drag/cut any tasks, auto-links are deleted and only manual links are retained.



3. Add subtasks, resources and duration.

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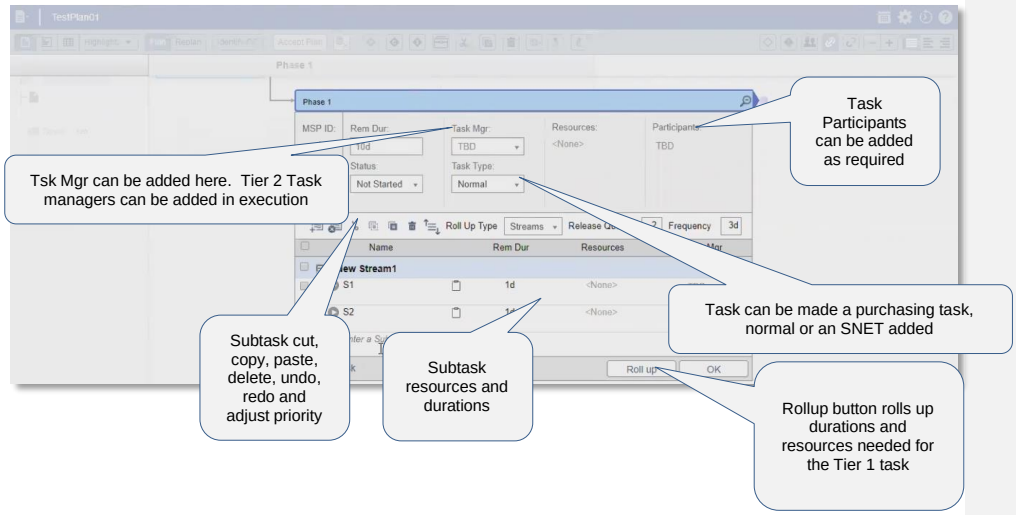
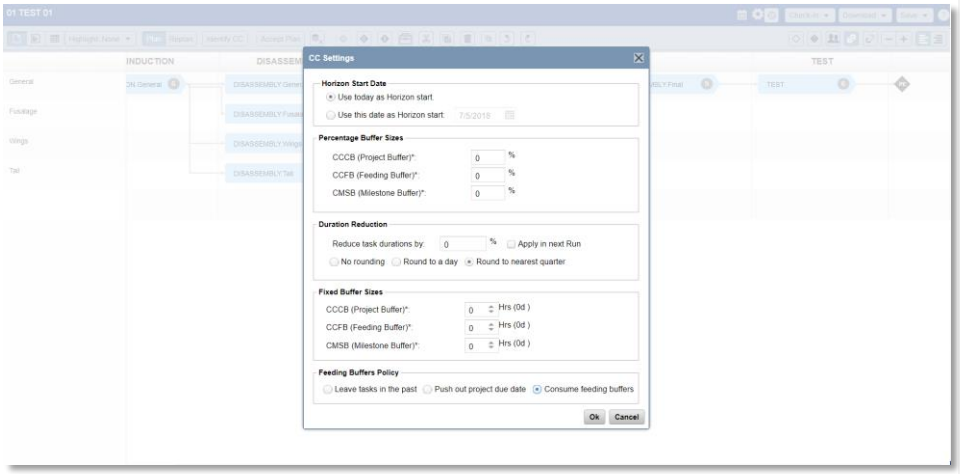
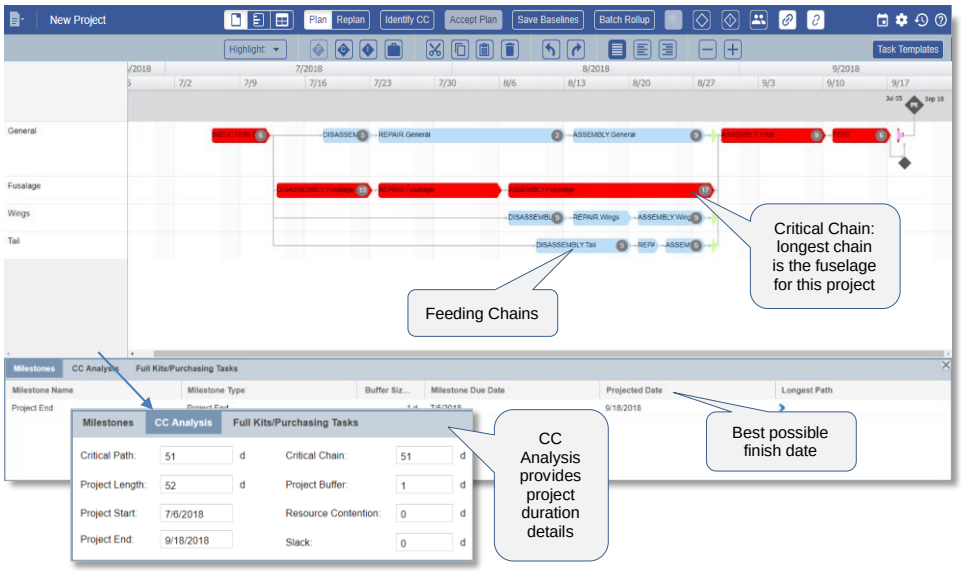


4. Check the **Settings**.
   NOTE: Initial settings can be set to run without buffers to check overall plan duration and phase sequencing.
5. Set buffers to 0 for the first run.
6. Click **OK** to save the settings for this run.

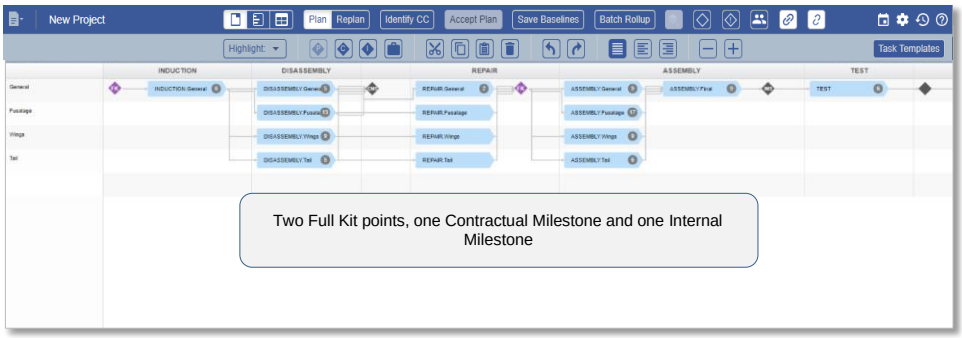


7. Click **Identify CC**.
   NOTE: By default, the Timeline View opens and shows the critical chain of the project highlighted. In the lower half window, the milestone view opens.

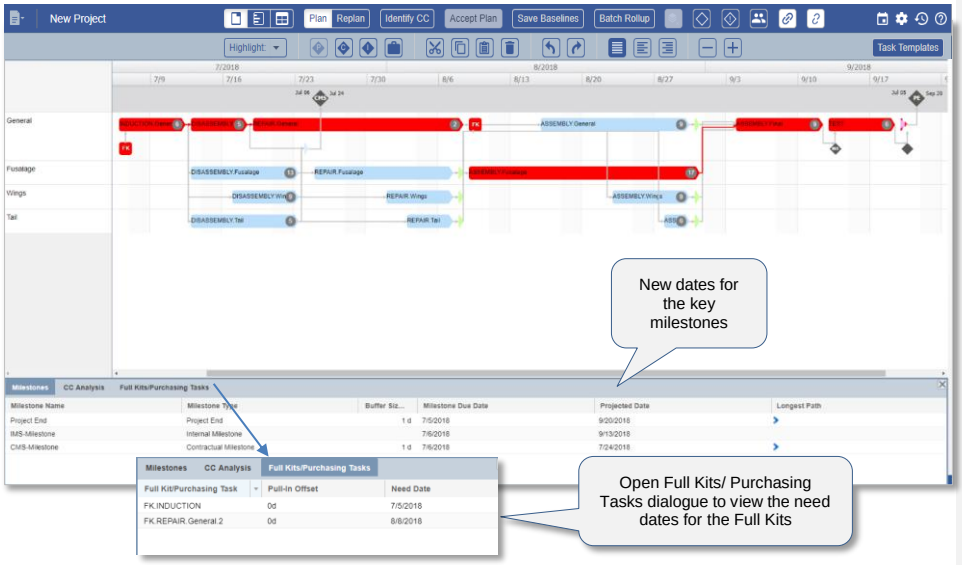


8. Add in key milestones as required:

- Full Kit at the start of a project or prior to a phase that required a lot of integration like prior to assembly in this project.
- Add CMS or Contractual Milestones to dates that cannot be missed.
- Insert IMS or Internal Milestones between a phase to indicate when the next phase starts. We will insert one prior to flight test so the flight test crew gets an indicator when the aircraft arrives at the flight test facility.



9. Identify CC with the same settings.



NOTE: If the cycle time is not satisfactory, then work with the team to decide how to reduce durations through focusing more capacity on the tasks.

10. If the cycle time is satisfactory, open the Settings dialogue and prepare to insert buffers in the correct locations.

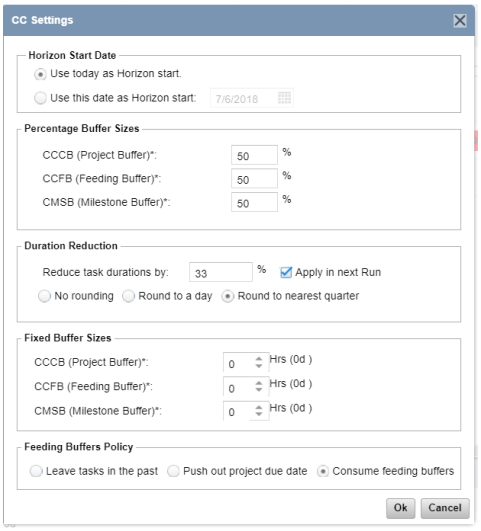
Setting buffers

To set buffers, perform the following:

1. In the CC Setting dialog box, set the buffers to 50%.

2. Take a 1/3 duration reduction in the overall project.
   Rounding to the nearest quarter reduces rounding errors if desired.
   NOTE: You can select **Feeding Buffers Policy** > **Consume feeding buffers** here. We will review the risk after the next Identify CC run.
3. Click **OK** and select Identify CC.

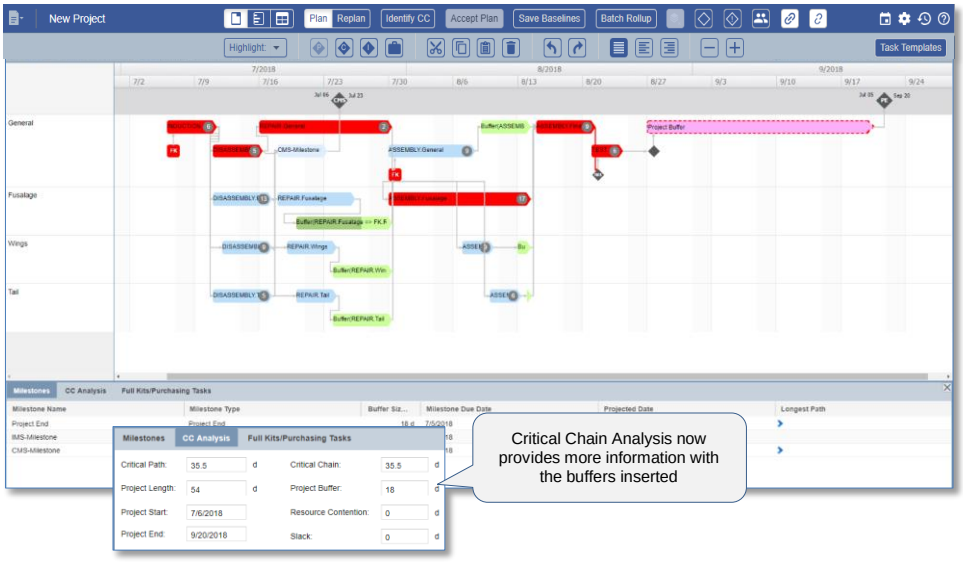
Buffers are now inserted for the project end, the CMS, and for the feeding chains.



Managing project cycle time

In the example that we have taken, we can see that the overall project cycle time remains the same. One feeding buffer has consumption and the team needs to decide if they can assume the risk. You can choose one of the following options:

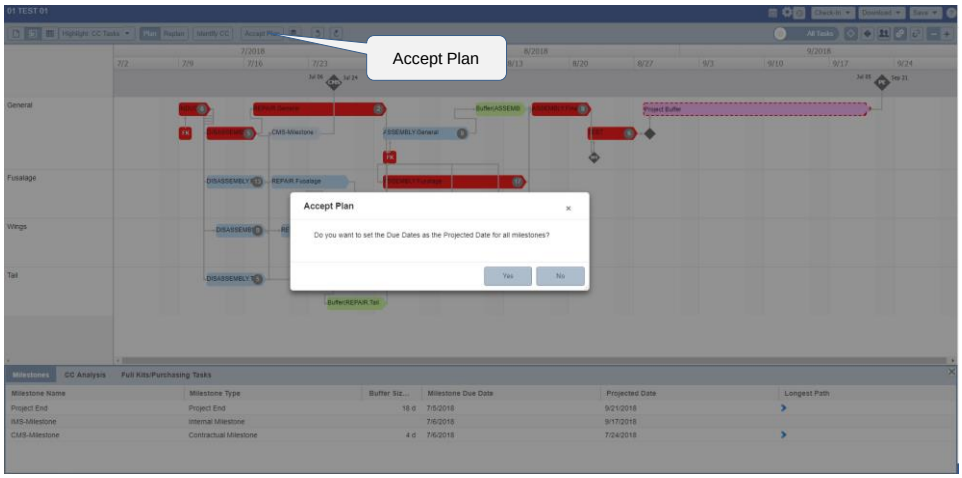
- Increase the overall length of the project
- Reduce the duration of the chain leading to the partially consumed buffer (preferred)
- Assume the risk and leave it with just a small amount of the remaining buffer



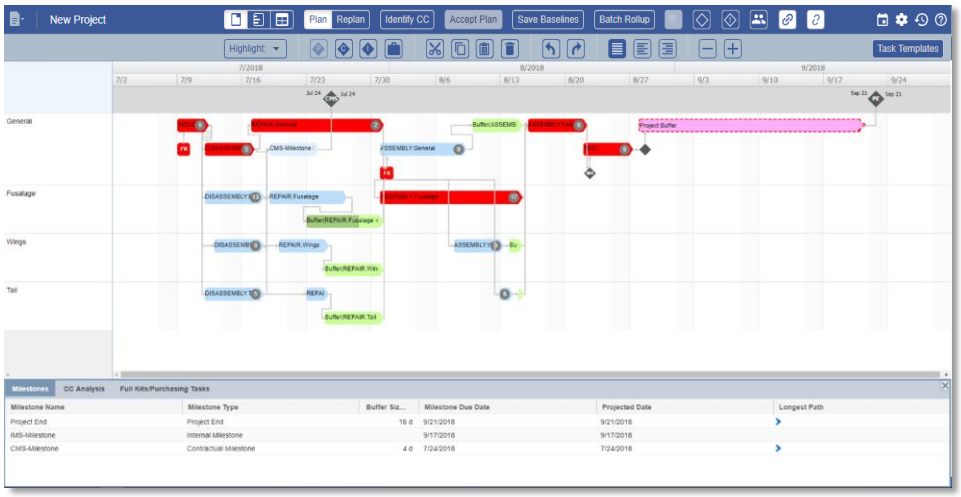
If a plan is good and acceptable, it is time to add it to the database.

Accepting a plan

1. Click **Accept Plan** to copy the projected calculated dates to the milestone dates within the project plan.
2. Answer **Yes** if you want to copy the **Due Dates** for all the milestones.



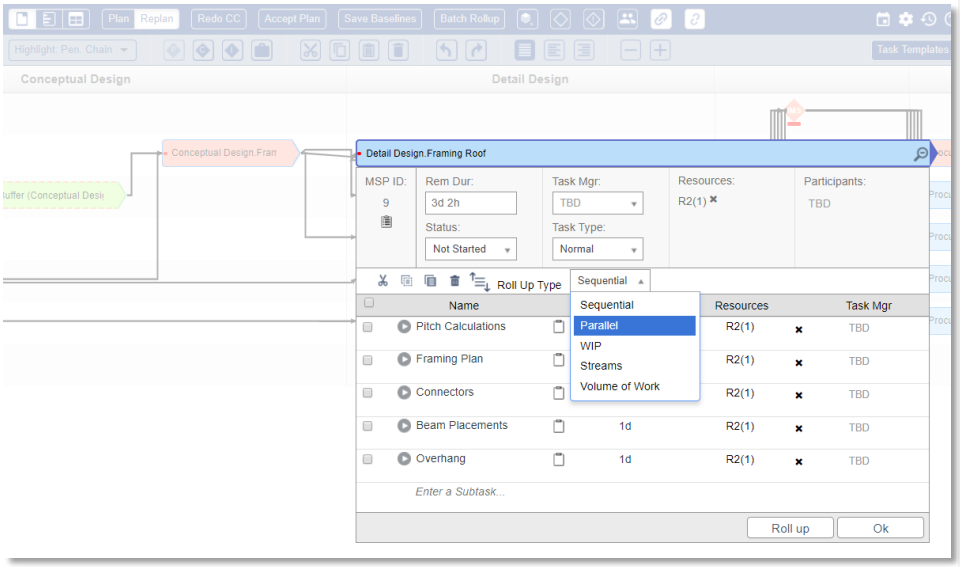
3. Click **Check-In** to Check in the project.
4. Once the check-in is complete, close the planning window.



Using Subtasks to Detail Out Task Requirement during Execution

In the real world, the details of a project are usually not known during the early stages. However, a rough project plan is required in order to serve as a guiding principle for execution. By allowing details to be filled in later, the Project Manager can focus on high level goals that are essential to the organization's business objective.

Through the subtask functionality, the Project Manager can define detailed workflow for each high-level task with additional breakdown of required duration, require resources and manager within the encapsulated main task and phase without altering the project structure. This results in less effort and less frequent re-planning. This structure forces the lower-level sub-tasks to stay together in execution for them to occur in planning. A detailed flow is added later when more information becomes available.



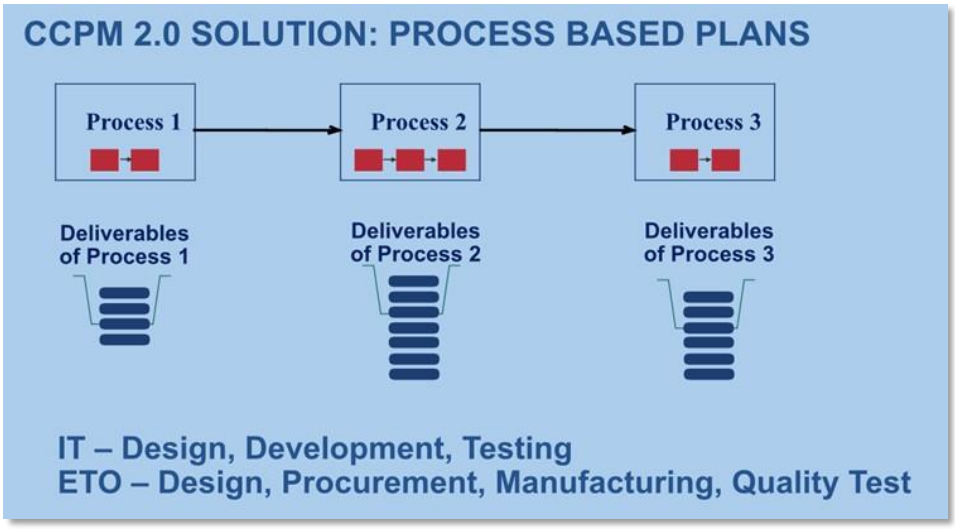
The **Rollup Duration** selection dropdown allows users to define subtasks workflow and the aggregated duration is correctly reflected on **Task List**.
In this example, task "Detail Design: Framing Roof" has 5 subtasks with duration of 1 day each or 5 days. The cut duration is 3d 2h. In the **Task List's** view, when the **Task Manager** expands the subtask view, the rollup duration of 3d 2h from the five sequentially defined subtasks are reflected next to the main task's remaining duration (3d 2h).

In most cases, subtasks under a specific task should normally be modeled as either parallel or sequential. This revised design is to simplify execution and prevent unnecessarily complex modeling.

NOTE: Should custom dependency be required for the subtasks, the user must create additional regular tasks to accommodate the more elaborate dependency design. Additional options for modelling include WIP, Streams, and Volume of work for MRO environments

Case Study: 2-Tier Modeling in ETO Environment

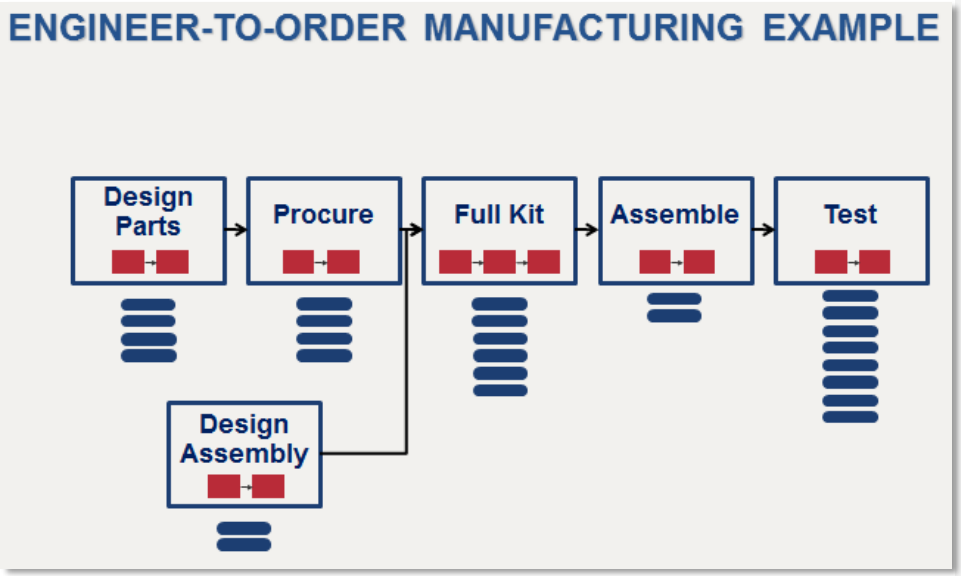
2-Tier modelling can be applied to many different types of project environments, such as ETO, MRO, NPD, EPC, IT/Software, and Engineering involving hardware design and manufacturing.



In these environments, you may have to order many parts for manufacturing to start after the initial design. Instead of creating tasks for each order, you can group all the long-lead tasks and short-lead time tasks together, and manage the details in the subtasks. This is the basic idea of 2-Tier planning.

Instead of individual tasks you must think about how a project must go through a set of processes. And for the overall project plan, what is needed, and what are the dependencies between the processes, the tasks in each of the processes.

The tasks inside the processes can change. Dependencies between the tasks might change also. You can either capture it or leave it up to the managers to decide during execution. This creates additional flexibility, which was missing in the traditional CCPM.



In most projects, 15-20% of the work is in the critical path and the remaining 80% is the volume of the work. There is a lot of flexibility in how this work can be performed. Using subtasks help in exploiting this flexibility. Some points to consider are:

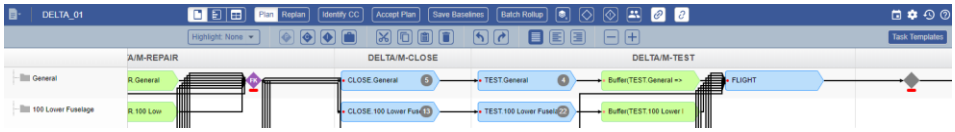
- Keep the sequence flexible until you get started on the work.
- Start only what you can finish as you are taking up only smaller chunks of work.
  When there is change in scope, you can avoid wasted time and capacity in ongoing unfinished work. Scope changes can also be quickly added as required.
- Capture all the details in the plan but keep the overall plan simple.
  With simpler plans, it's easy to update and manage. You don't need the remaining duration update for each item which may not be reliable. What is important is whether the item is complete.

Additional Details when Building the Project Plan

The planning window offers the following three views:

- Project View
- Timeline View
- Table View

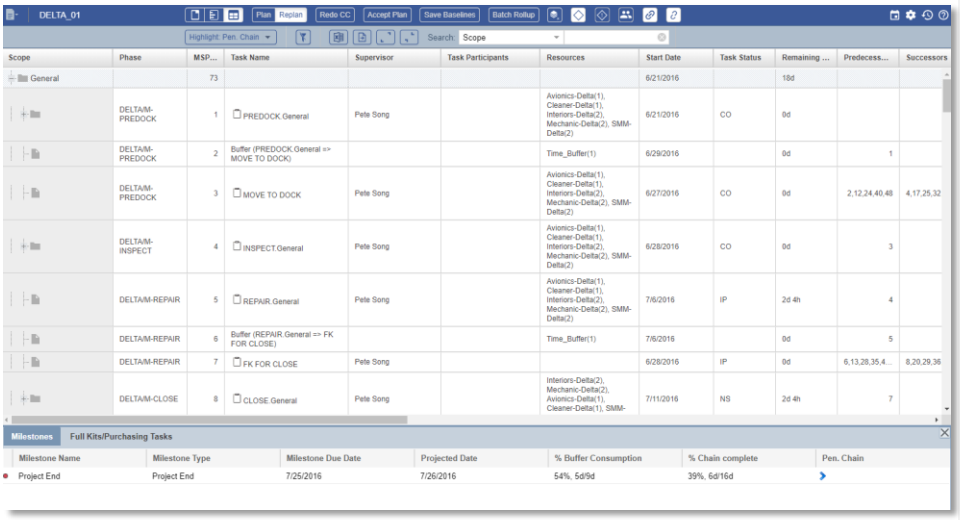
In the Project View, each named row denotes a stream of work. You can insert child rows to every row. The parent row is named, and the child row is unnamed.
The columns are designed to parse major phases within a project. Planning and re-planning functions are controlled by the *Plan*/*Re-plan* tab. Selection choice will toggle the Identify CC or Redo CC buttons:



The full Project View is a powerful tool, enabling the Project Designer to quickly build the plan. After filling in the details such as assigning resources and duration, the Timeline View can quickly give planned task and milestone schedules. The Project Designer can easily grasp the big picture, as well as the feasibility of the newly designed project plan.

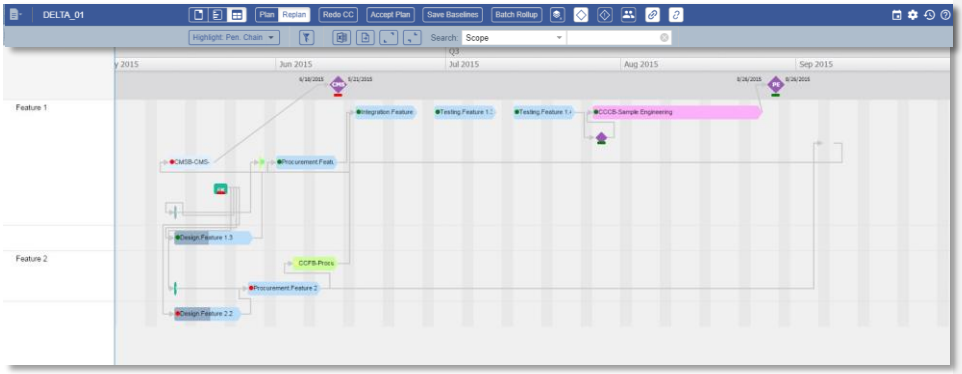
Drop down menu at the end of each phase's header allows use to insert or remove a milestone/FK task as well as setting tasks properties for that phase.

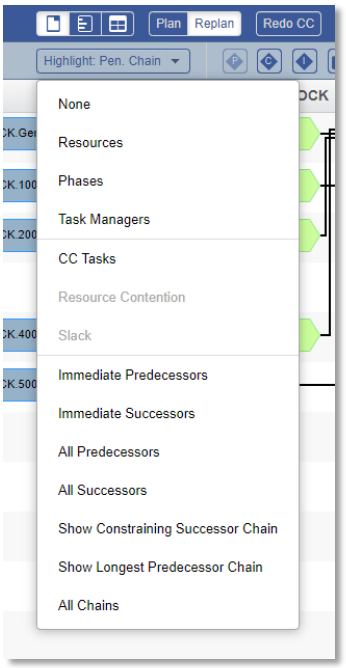
The Table View offers data oriented, skimming through capability for users to review project data, as well as input data efficiently. Instead of assigning resources and duration for each task in the Project View individually, once the project architecture has been defined, the Project Designer can quickly switch to the Table View and input the required task assignments, duration, and any other task data before running Identify Critical Chain.



CCPM Network Analysis Tools

You can convert your plan to a Critical Chain Project Network in both Project and Timeline Views.



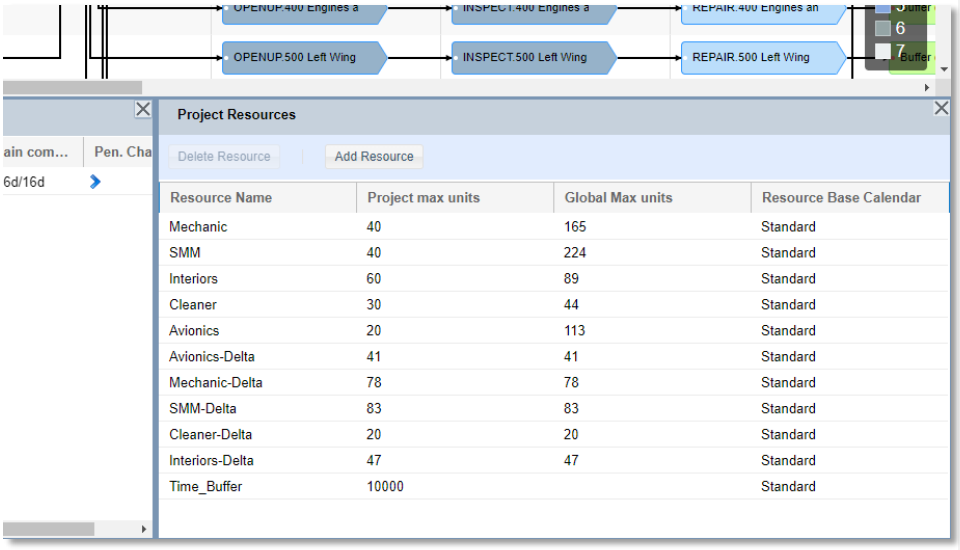


Under the Highlight button, there are tools available to analyze and perform network optimization. To utilize these tools, you must first select the task or buffer in question and then choose the relevant drop-down menu option.

Once the selected option is executed, the tasks are highlighted in an orange color.

Global Resource Integration

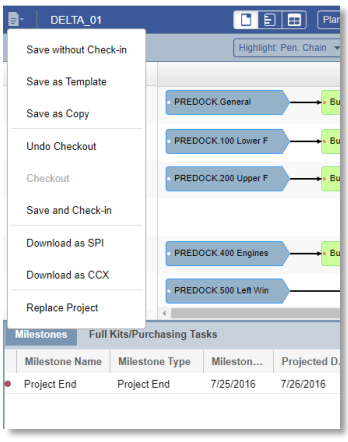
The Project Designer is no longer required to create or maintain his or her own local resource sheet. Once a Global Resource File has been created and added to Concerto, any plan created by this new planner will benefit from a pre-populated resource drop-down list when assigning resources to a task. In addition, should a new resource need to be added, the Project Designer has the privilege to create new resources, which also becomes available globally for all projects. This design eliminates the need for Project Designers to create or maintain separate local resources list, which ensures consistency of resource naming and integrity of resource max units.



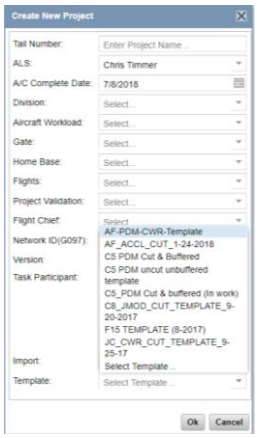
Modeling changes when creating IMS, CMS and Full Kit using the new planning tool

In MS Project, full Kit tasks must be inserted between 2 tasks. In the new planning module, Full Kit tasks normally are inserted between 2 phases or prior to a phase.
In MS Project, CMS can only have single predecessor dependency. In the new planner module, CMS can have multiple predecessors. This adds flexibility to the project design.

Global Template Depository



A project can be saved as a template through the Concerto Web Interface and shared across the organization. To save a project as template, select **Save As Template**.



When creating a new project, the Project Designer can choose a template from the template drop-down list to design the project from. This can then be used as an independent project or it can also be saved as a template after editing.
Selecting no template would load a default project with 1 task, PE milestone and 1 link connecting them.
Project Attributes are not copied from the template. It is the same as what the user enters in the new project dialog.

Using Global Template Depository

You must first save a project as a template. The project snapshot is saved as another project and will be marked as a template (shown in the *Modify Project* screen under the file type column).
When you click **Modify Project** > **Create New Project**, the new project dialog opens which contains a Template dropdown. By default, a division is selected and the templates for that division are loaded in the dropdown. If a user selects a different Division, the Template drop-down will be updated to display the templates from that newly selected division.
NOTE: If you are creating a project for the first time, you will not have any templates to select while creating the project.

Checking out and editing projects

On clicking **Checkout**, template is checked out in the Planning screen. You can edit the checked out project. The following options are available for editing the template:

- Save As Copy: Click the button to save the changes made in the template
- Save As Template: Save the current template with a different name
- Identify CC : Run IDCC on the template after editing it
- CC Settings: This option is also provided while editing the template
- Save and Check-in : Changes are saved and the template becomes available to other users. And if you go to the Modify screen (or click refresh), the Undo Checkout option is not visible as the lock is already removed after clicking the Check In button in the new UI.
- Undo Checkout: The template becomes available to other users for editing (changes will not be reverted)
- EDIT CHECKOUT: This link is required along with ***undo-checkout*** so that if you

accidentally close the Project Planning UI tab, he/she can open it again from the Modify Project screen. It will work the same way as Checkout except that it will not check for project locks.

- SET STATUS: You are not allowed to change the status of the Templates. The status of the Templates will always be *In Plan*.
- VIEW PROJECT LINK: Opens the template network in the Planning Screen as Read Only.