Planned Task Plugin

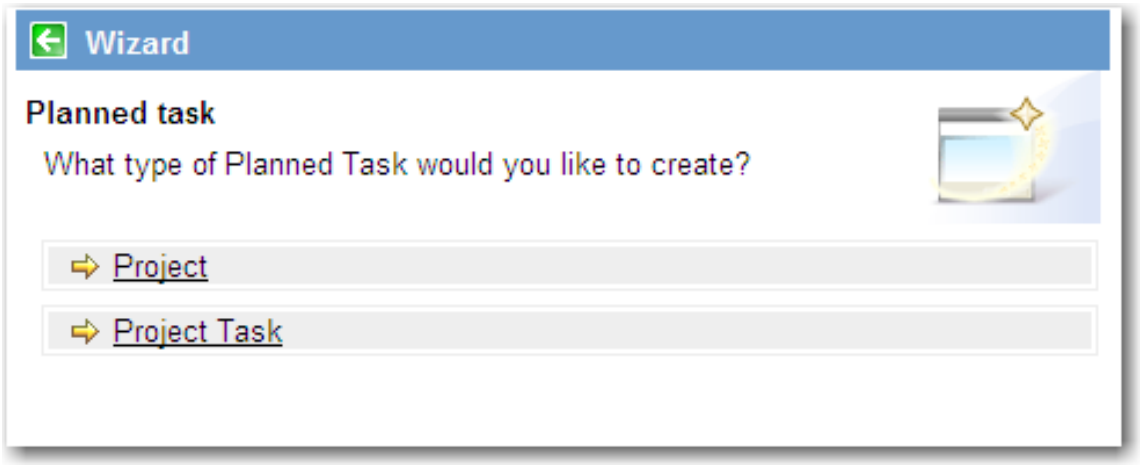
Overview

The Planned Task plugin provides a Planned Task [planned_task] table that extends the Task [task] table. Planned tasks provide additional fields for tasks pertaining to time and effort as part of a planned, multi-stage process.

The Planned Task plugin is included with the Project Management plugin. The Project [pm_project] table extends planned task, but any custom table can be created to extend Planned Task and leverage its fields.

Creating a Planned Task

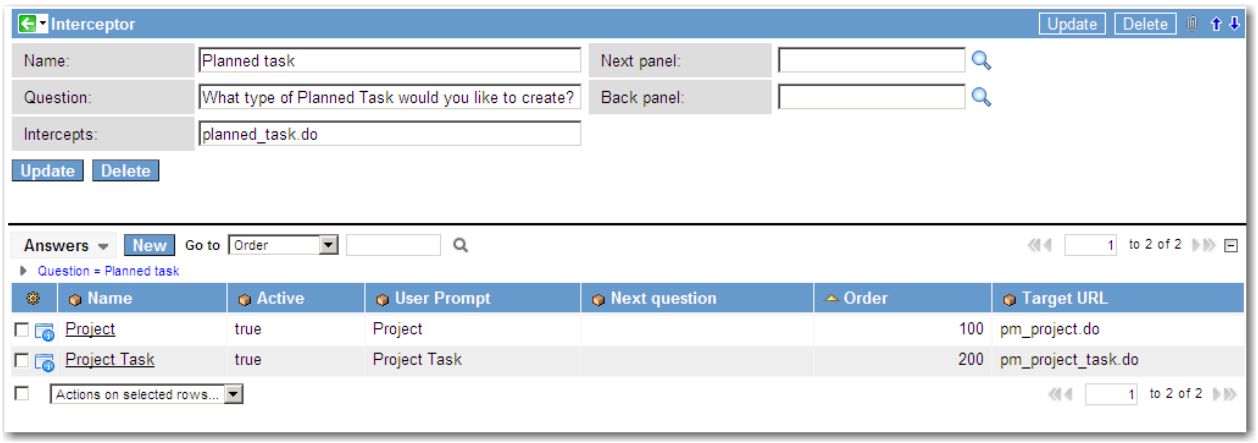
Planned Tasks are not created directly on the Planned Task [planned_task] table. Instead, planned tasks are created on planned task child tables. Clicking the **New** button on the Planned Task record list will launch the Planned Task Interceptor, which prompts the user to select a child table to create the planned task on:



Modifying the Planned Task Interceptor

To modify the planned task interceptor:

1. Navigate to **System Definition > Interceptors** (this module may need to be activated).
2. Select the **Planned Task** Interceptor.
3. The Related List **Answers** specifies what choices are presented, and where the user will be redirected to once they select the choice. Modify the list as desired.



Measuring Time and Effort

The Planned Task [planned_task] table provides standard fields for tracking duration and effort.

Duration measures time from start to end date. Effort measures hours of work exerted on the project.

Duration

- **Planned duration:** the projected length of time for the planned task.
- **Actual duration:** the actual length of time so far for the planned task.
- **Remaining duration:** the **Planned duration** minus the **Actual duration**, which represents the projected length of time left.

Effort

- **Planned effort:** the projected amount of time that will be spent on the planned task.
- **Actual effort:** the actual amount of time that has already been spent on the planned task.
- **Remaining effort:** the **Planned effort** minus the **Actual effort**, which represents the project amount of work left.
- **Percent complete:** the **Actual effort** divided by the **Planned effort**, which estimates the percentage of planned work which has been completed.

Important Planned Task Table Fields

The following table contains a list of important Planned Task fields:

Label	Name	Type	Description
Actual cost	work_cost	currency	The actual cost of the planned task, to be compared with the **Estimated cost**.
Actual duration	work_duration	glide_duration	The actual length of time (from start time to end time) of work on the planned task, to be compared with the **Planned duration**.
Actual effort	work_effort	glide_duration	The actual time spent working, to be compared to the **Planned effort**.
Critical Path	critical_path	boolean	
Estimated cost	cost	currency	An estimation of the cost of the planned task, to be compared with the actual cost.
HTML Description	html_description	html	A description field that accepts HTML mark-up.
Percent Complete	percent_complete	decimal	A percentage of the completed effort. Generated using the **Planned effort** and **Actual effort** fields.
Planned duration	duration	glide_duration	The estimated length of time (from start time to end time) of the planned task.
Planned effort	effort	glide_duration	The estimated amount of time spent working on the planned task.
Planned end date	end_date	glide_date_time	The estimated date and time for the planned task to end.
Planned start date	start_date	glide_date_time	The estimated date and time for the planned task to start.
Remaining duration	remaining_duration	glide_duration	The difference in planned and actual duration, representing the time left for the planned task.
Remaining effort	remaining_effort	glide_duration	The difference in planned and actual effort, representing the amount of work time left for the planned task.
Rollup	rollup	boolean	Read-only field managed by the system that identifies the task as having child tasks. A rollup task will have a number of its fields calculated from the children so those fields will be read-only.

Time constraint	time_constraint	string	A description of time constraints that apply to the planned task.
Top Task	top_task	reference (planned_task)	When different planned tasks are stacked in a hierarchy, this field populates with the highest-level parent task. For example, if Project A has a child Project B, and Project B has a child Project C, then Project C's **Top Task** is Project A. Project A's **Top Task** field will be blank.

Planned Task Scripts

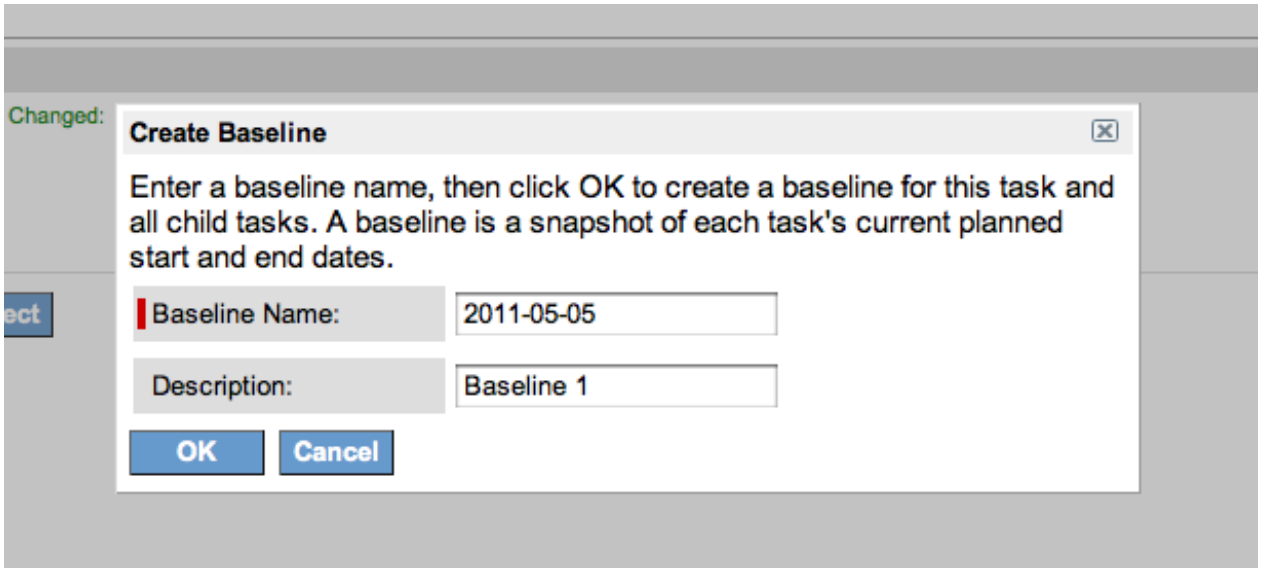
A number of business rules and one script include power the dynamic calculation of crucial Planned Task fields:

Business Rule	Description
Set Actual Work Start Value	Sets the planned task's **Actual Start Date** when State is set to the default work state.
Set Close Data on Inactive	Sets the planned task's close data when task becomes inactive.
Recalculate	Recalculates the planned task schedule fields when one of the schedule fields changes.
Auto close milestones	Automatically closes milestones when they are passed.

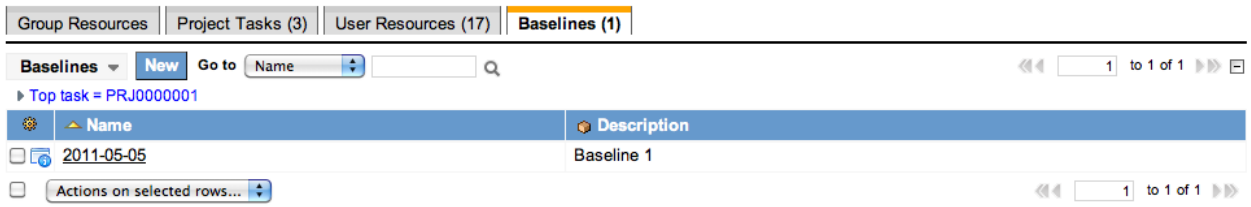
Creating a Baseline

A Planned Task Baseline is a record of the planned task's start and end times at a particular moment in time.

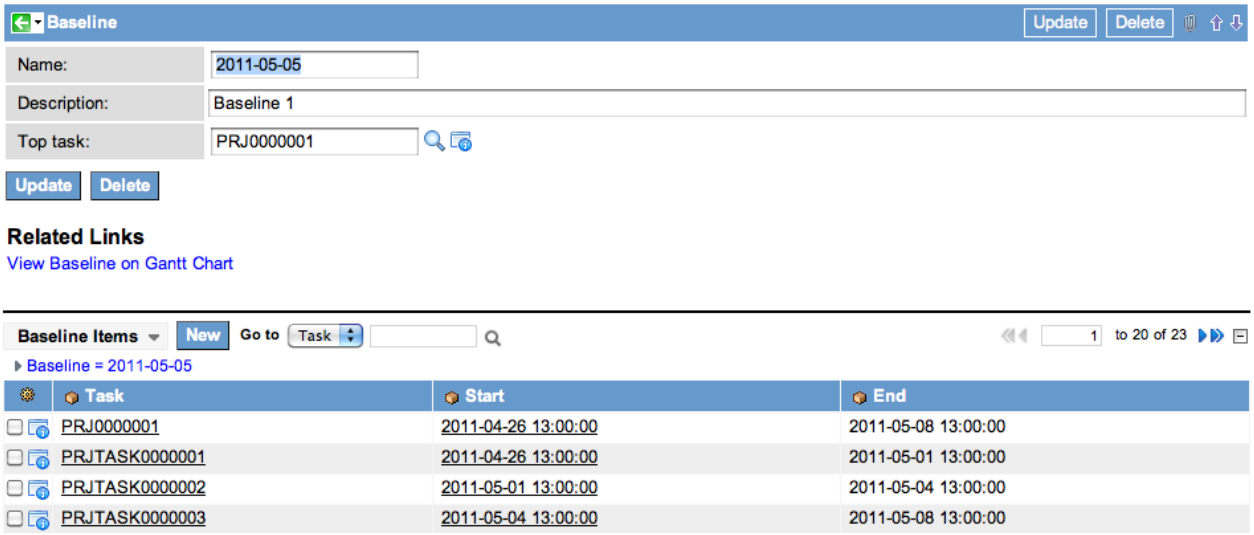
To create a baseline, navigate to the top planned task's form and select the **Create a Baseline** related link:



To view the baseline, personalize the related lists to add a related list of baselines:



Each baseline has a related list of Baseline Items that records every task associated with the top planned task, as well as its start and end times:



The baseline can be viewed on a Gantt Chart using the related link.

Activating the Plugin

The plugin is included in the Project Management plugin.

Planned Task Hierarchy

Note: *This article applies to Fuji and earlier releases. For more current information, see Planned Task Hierarchy* [1] *at* http://docs.servicenow.com **The ServiceNow Wiki is no longer being updated. Visit** http://docs.servicenow.com **for the latest product documentation.**

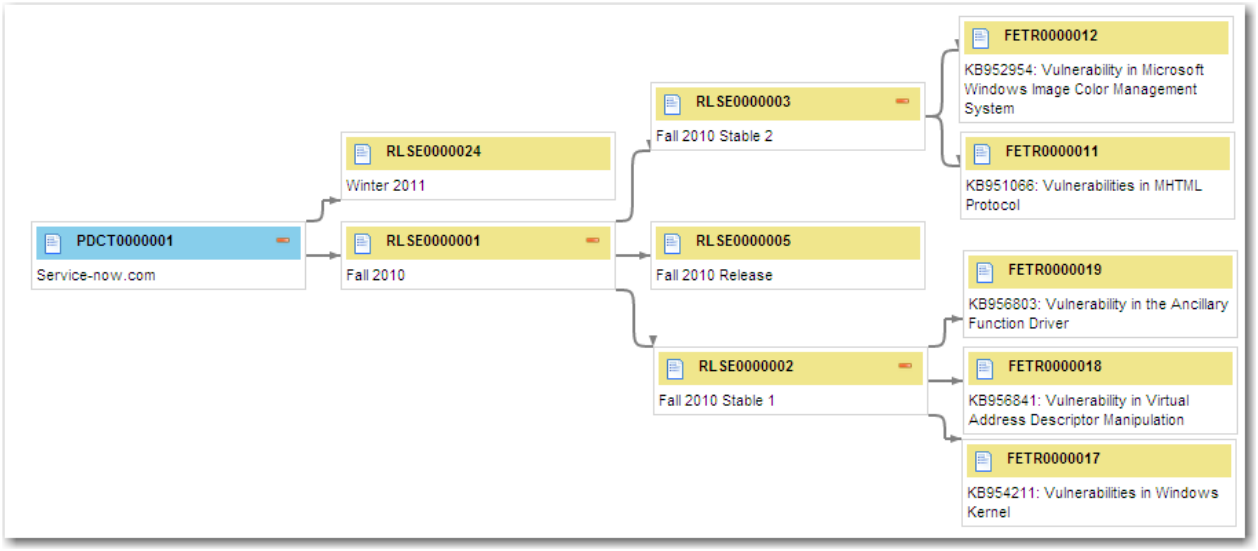
Overview

The **Task Hierarchy** tool available for Planned Task displays the relationship between parent and child planned tasks. Out-of-box, the **Task Hierarchy** tool is available in both Project and Release management.

Using the Planned Task Hierarchy

Different **Planned Task** tables have different UI actions to launch the task hierarchy:

- To view a Project's hierarchy, navigate to the use the **Task hierarchy** context menu action.
- To view a Product's hierarchy in Release v2, navigate to the product and click the **Product hierarchy** related link.
- To view a Release's hierarchy in Release v2, navigate to the release and click the **Release hierarchy** related link.



Adding the Hierarchy to Other Planned Task Tables

The Task Hierarchy can be added to any planned task table by:

1. Navigating to **System UI > UI Actions**.
2. Selecting one of the existing Task Hierarchy UI Actions (e.g. **Task hierarchy** if Project Management is activated).
3. Change the table to the desired table and rename the UI Action if appropriate, and insert.

The hierarchy should now be available as a UI Action on the new table's form.

References

[1] https://docs.servicenow.com/bundle/jakarta-servicenow-platform/page/administer/task-table/task/t_PlannedTaskHierarchy.html

Gantt Chart

Note: *This article applies to Fuji and earlier releases. For more current information, see Gantt Chart* [1] *at* http://docs.servicenow.com **The ServiceNow Wiki is no longer being updated. Visit** http://docs.servicenow.com **for the latest product documentation.**

Overview

The Gantt chart is a visual representation of a project timeline that shows start and end dates of tasks, and the dependencies between tasks. Use the Gantt chart to add and delete tasks, change task dates and dependencies, and assess the progress of the overall project.

Key Concepts and Terms for This Topic

- **Critical path:** linked project tasks that determine how long the project takes to complete.
- **Project portfolio Gantt chart:** a read-only Gantt chart available for a group of projects organized into a portfolio.

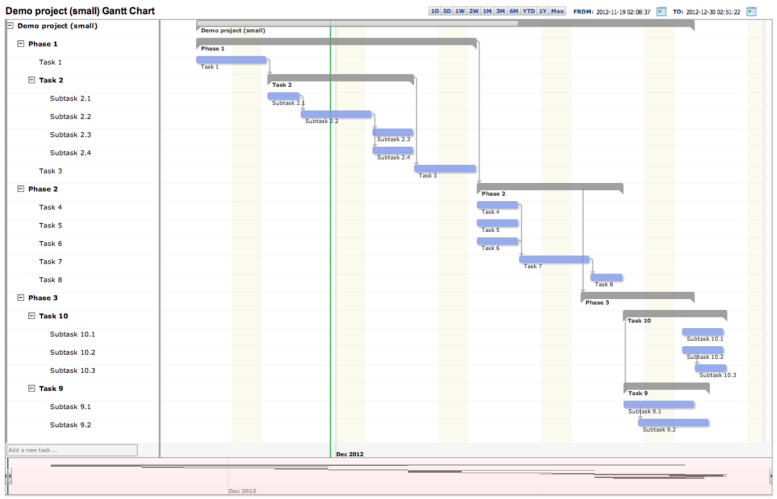
Using the Gantt Chart

The Gantt chart is a visual representation of the project showing tasks, the amount of time to complete the tasks, and dependencies between the tasks.

Navigating Through the Gantt Chart

1. Open a project.
2. Under **Related Links**, click **Gantt Chart**.

   The Gantt chart shows the project and tasks. Any nested projects (and associated tasks) are also shown within the hierarchical structure. Each task is labeled by its short description and is represented by a line proportional to the task's duration.
3. Change the perspective:
   - Move the slider at the bottom of the chart right or left to scroll across the chart, or adjust the end points of the slider to change the magnification. A narrow slider zooms in on the tasks and provides a more detailed view of the task relationships. A wide slider pulls the view out and makes more of the Gantt chart visible on the screen.
   - Click a time interval, such as **1M** for one month, from the options above the chart. The time interval zooms the chart in or out starting with the current time and date, which is signified by a vertical green line.
   - Specify a time interval by selecting **From** and **To** dates above the chart.



The Gantt chart for a demo project that has not yet started

On the Gantt chart, the following items are also available:

- The Project outline: a pane that lists all project tasks in a hierarchy.
- The project schedule: vertical light-brown bars in the background that show time periods that are not part of the work schedule. For example, the graphic above shows the Gantt chart for a project with the **8-5 weekdays excluding holidays** schedule specified. The vertical light-brown bars are weekends and holidays. Use this information when setting task start dates, end dates, and dependencies so that you do not schedule a task to begin or end on non-work days.

Creating a Dependency in the Gantt Chart

To create a dependency between two tasks:

1. Click and hold a task.
2. Drag to a new task. A line appears showing the new relationship.
3. In the message that appears, confirm the new dependent relationship.
4. Continue connecting tasks for all dependencies in the project.

To edit a relationship:

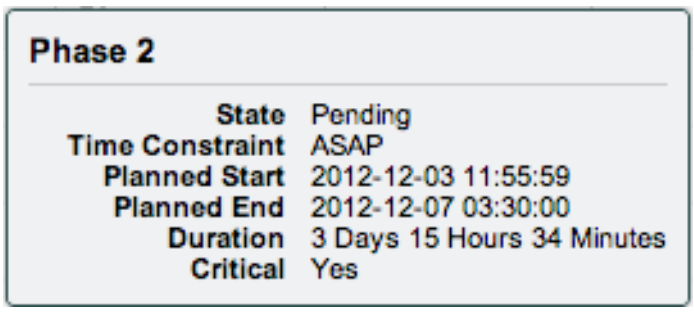
1. Double-click the connector between tasks.
2. Use the **Planned Task Relationship** dialog box to define the order of tasks and the lag time between tasks.
   - The relationship **Type** for planned tasks is **Predecessor of::Successor of** and should not be changed.
   - When a **Lag** value exists, ServiceNow recalculates the critical path accordingly.

Viewing Information About a Task in the Gantt Chart

View full task information in either of these ways:

- Double-click a task bar to open the project task record and view or edit the form.
- For a brief summary of the task, point to a task bar to display a tooltip.

  Administrators can configure the information shown in the tooltip.



Task summary

Adding Tasks

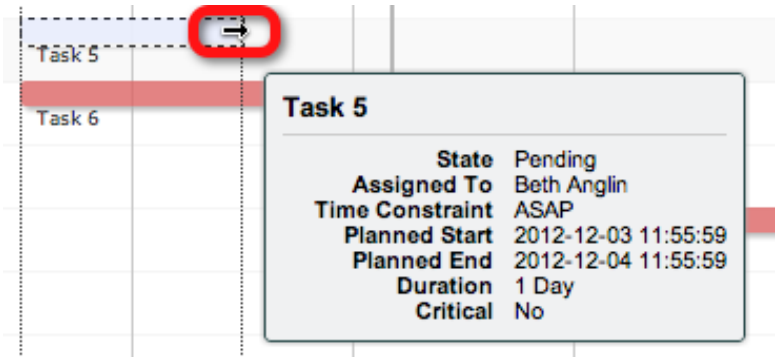
To add tasks to a project in the Gantt chart:

1. Navigate to the Gantt chart for the appropriate project.
2. Enter a name for the new task in the **Add a new task** field and press **Enter**.
3. From the left tab, drag the task name to the desired location in the task hierarchy.
4. Double-click the task bar and configure a duration in the Project Task form.
5. Click **Update**.
6. Create dependent relationships between tasks as appropriate.

Editing Tasks

Use the Gantt chart to quickly change task attributes, such as start and end time, rather than opening every Task form and modifying field values one by one. From the Gantt chart, you can modify the following:

- **Planned start date:** move the task along the timeline to change the start time and to impose a **Time constraint** of **Start on a specific date**. You can also drag a task to change its start date if the task **Time constraint** is set to **Start on a specific date** (not **Start ASAP**) and the task has not yet started. The start date of a task cannot be modified if the task already started (has an actual start date), the task has already ended (has an actual end date), or the task time constraint is set to **Start ASAP**.
- **Planned end date:** drag the right edge of the task bar to extend the planned end date. You can only extend the planned of date for tasks that are not parent tasks and have not yet ended.



Modifying the planned end date of a task

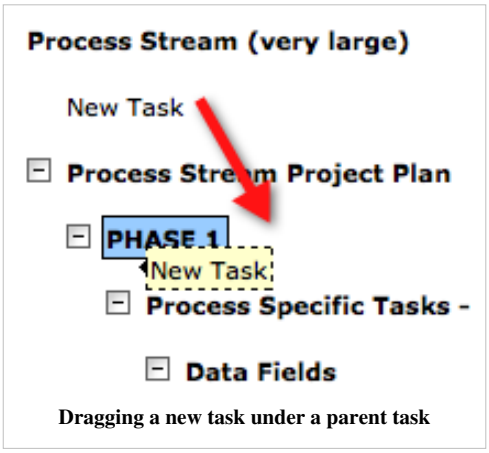
- **Dependencies**: To edit or delete a dependency, double-click an existing dependency connector line between two tasks and make the changes in the Planned Task Relationship dialog box. The relationship **Type** for planned tasks is **Predecessor of::Successor of** and should not be changed.
- **Lag time**: Lag time is the interval between the end of a predecessor task and the start of a successor task. The default setting is 0. To edit the lag time, double-click a connector and make the changes in the Planned Task Relationship dialog box.
- **Resources**: To change a user resource for an existing task or add a resource to a new task, double-click the task bar and edit the **Assigned to** field in the Project Task form.

Editing Parent-Child Relationships

On the left pane, drag a task onto another task to change the parent-child relationship. The task that you dragged becomes the child task. Edit the task just like any other task.

Note the following:

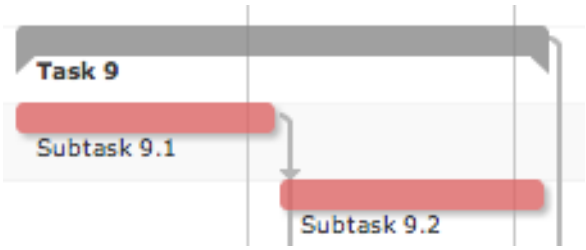
- New tasks have the **Time Constraint** field set to **Start ASAP**. If the task becomes a child task, the **Time Constraint** value stays **Start ASAP**, but the **Planned start date** becomes the start date of the parent task.
- You can further adjust the child task's start or end date with the dragging tool, but you can adjust the start date of the task only if the **Time Constraint** value is *not* **Start ASAP**.
- If a child task is scheduled to start on a date earlier than the parent task, the **Time Constraint** changes to **Start ASAP**.
- If you drag the end date of the child task past the end date of the parent task, the end date of the parent task automatically extends to the same end date.



Dragging a new task under a parent task

The Critical Path

The critical path is highlighted in red on the Gantt chart to differentiate critical path tasks from standard tasks in blue and rollup tasks in gray. Not all tasks are part of the critical path, only those tasks that directly affect the finish date. Use the critical path to determine which tasks are driving the finish date. If schedule adjustments are necessary, consider making resource or other changes to those tasks on the critical path. In the following screenshot, the two child tasks are part of the critical path.



The critical path appears in red

The Portfolio Gantt Chart

In addition to the project Gantt chart, the Project application offers a read-only project portfolio Gantt chart that shows the projects in each portfolio. One bar appears for each project in the portfolio.

References

[1] https://docs.servicenow.com/bundle/jakarta-it-business-management/page/product/project-management/concept/c_GanttChart.html

Task Resources

Note: *This article applies to Fuji and earlier releases. For more current information, see Task Resources* [1] *at* http://docs.servicenow.com **The ServiceNow Wiki is no longer being updated. Visit** http://docs.servicenow.com **for the latest product documentation.**'

Overview

Resources are the individuals assigned to perform tasks and subtasks in Project Management. You can manage your resources with resource plans in the Resource Management application, starting with the Dublin release.

In versions prior to the Dublin release, or if you are not using the Resource Management application, you can select resources from users or groups. **Skills** can be defined for individuals and for entire groups, ensuring that capable people are available for each project task. Because of the way in which Project Management is integrated into the task table, resources use basic ITIL task management processes. SLAs, approvals, and reporting are built in, just as they are for Incident Management and Change Management. A project task appears in a user's queue like any other task and does not indicate that it is a part of a project.

Prerequisites

Before you perform the procedures in this page, be sure you have completed the **Gantt Chart** for your project, showing task relationships and durations.

Adding User Resources

The User Resources record enables an administrator to associate a user with the project, with a project responsibility, and a percentage allocation. This percentage allocation checks against the project's schedule and calculates the amount of hours the percentage allocation represents. These hours are then used to determine whether this resource can continue to work project tasks, or if the resource is *out of time* for the project.

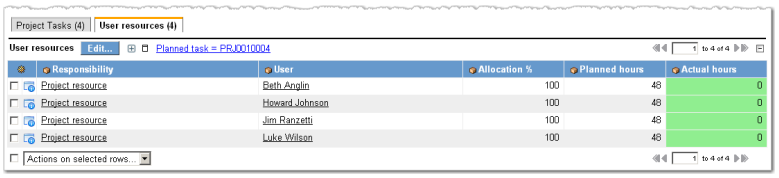
You add resources to a project in the **User resources** Related List in a project form. After selecting the project's resources, you attach those resources to their tasks in the **Resource Timeline**. Only one resource is assigned to a task at a time.

Note: *You can add resources to **tasks** at the time the tasks are created. However, the best practice is to add multiple resources to the project through the Related List and then use the Timeline to make assignments, particularly for large projects. Resource allocation on large projects usually involves frequent adjustments.*

To create user resources from a project:

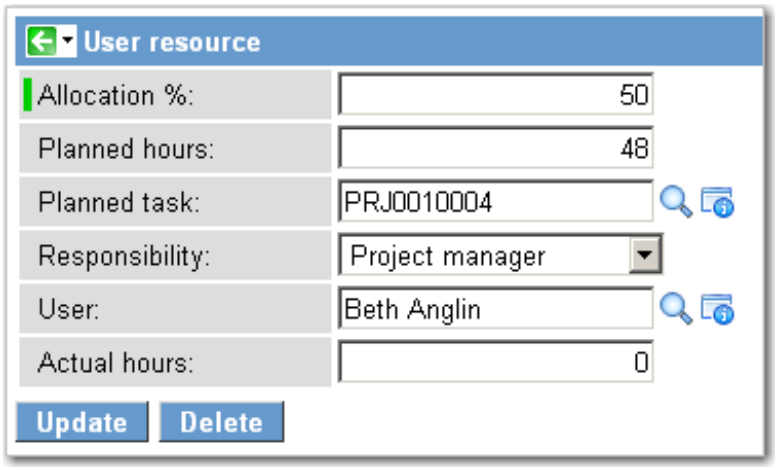
1. Click **Edit** in the **User resources** Related List.
2. In the slushbucket of users that appears, select the resources for the project and save the choices.

   The **User resource** list is populated with starting values of 100% allocation and zero hours.



The User Resources related list

3. Click a link in the **Responsibility** column to open the User resource record.
4. Configure the resource's **Planned hours** and **Responsibility** (if different from **Project resource**).



Configuring a user resource

5. Update the record and configure the next resource.

   The totals in the **Actual hours** column can be updated manually or automatically from the resource's **Time Card**.

User Resources with Costing Add-on

The **Project Management v2 Costing Add-on plugin** adds an additional column called **Actual Cost** to the **User Resources** Related List. The platform calculates the **Actual Cost** of a resource by multiplying the **Actual Hours** consumed by the *labor rate* for the resource on the **Labor Rate Card** that applies to the user.

Adding Group Resources

The **Group Resources** Related List in the Project form enables an administrator to associate ServiceNow groups with a project to facilitate resource planning. The following process illustrates how a large organization might use group resources to plan a project:

1. The project is created and the group resources are estimated, providing details for project review and approvals.
2. The project is approved, and the tasks are created without user resources being assigned. All that is necessary at this stage is to assign each task to a group that has the necessary skills.
3. Group managers review the work requirements and select the appropriate person to work on the task.

Note: *When a project task has a group in the **Assignment group** field, the list of users in the **Assigned to** field in the Project Task form is filtered on the members of the assigned group.*

Add group resources to projects at the task level and select the user resource to assign to the task at the same time. All group resources assigned to project tasks appear in the **Group Resources** Related List in the Project form.

1. Navigate to *Project* > *Projects* > *Pending* and select a Project.
2. In the Project record, select the **Project Tasks** Related List.
3. Select a task from the list.
4. Select a group from the **Assignment group** field.

   If the **Skills Management Plugin** is activated, an assignment group with pre-configured skills can be assigned to this task. For details, see **Assigning Skills to Tasks**.
5. Select a user from the **Assigned to** field.

The selection list in this field is filtered on the members of the assignment group selected, ensuring that the user has the necessary skills required for the task.

6. Click **Update**.

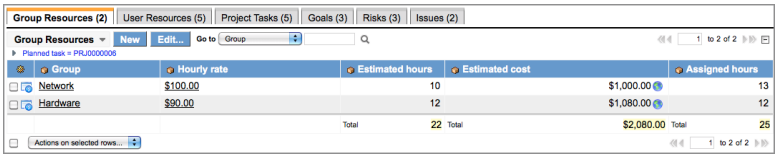
   In the Project form, the selected groups appear in the Group Resource Related List.

Group Resource Related List

The fields provided in the **Group Resources** Related List depend on whether or not the Project Management v2 Costing Add-on plugin is installed.

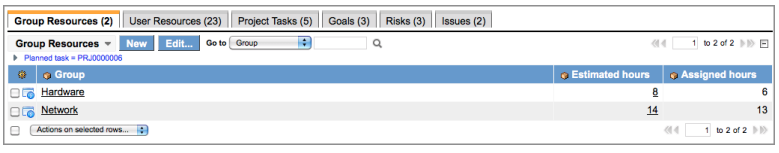
Field	Input Value
Group	Name of an assignment group defined for a task in this project. All members of an assignment group are available to work on a task and inherit any **skills** assigned to the group.
Hourly rate	Defines the hourly rate for members of this group, as defined in the Group record. This field requires the **Project Management v2 Costing Add-on plugin**. The hourly rate is multiplied by the **Estimated hours** for the group to estimate project costs.
Estimated hours	Estimated number of effort hours needed from this group to complete the project. This field is used during project planning to estimate resource requirements. The estimated hours are multiplied by the **Hourly rate** of the group to estimate project costs. This field is found on the **Group resource** form. Use one of the following methods to access this form: • If the Project Management v2 Costing Add-on plugin is installed, click the link in the **Hourly rate** column. • If the Project Management v2 Costing Add-on plugin is NOT installed, click the link in the **Estimated hours** column.
Estimated cost	Total of a group's **Hourly rate** multiplied by the **Estimated hours**. The total of each group's estimated cost is the estimated cost of the project. This field requires the **Project Management v2 Costing Add-on plugin**. For more information, see **Managing Project Costs**.
Assigned hours	The total of the hours assigned to each group from the **Planned effort** field in a Project Task form. This field is only visible in the Advanced View. Assigned hours represent specific time estimates on the task level that will differ from the **Estimated hours**.

The following illustrates the Group Resources related list when the Costing Add-on is activated:



Group Resources related list with Costing Add-on

The following illustrates the Group Resources related list without the Costing Add-on:



Group Resources related list without the Costing Add-on

Resource Timelines

The following updates were added to the User Resources timeline in the Spring 2010 Stable 2 release:

- Improved rendering performance, particularly for projects with a large number of items.
- Visual improvements including summary pane overlay bevel, timeline drop shadow, font adjustments, and preview mask coloring tweaks.
- Capability to split the timeline into multiple frames.
- Quick range selection buttons and start/end time view adjustment.
- Inner segments for Timeline Span elements on the timeline, useful for % complete on Gantt Charts or travel time for Field Service Management visual dispatching.

- Auto-refresh capability.

Note: *For more details and API documentation on the new features please see: Schedule Page Spring 2010 Stable 2 Updates*

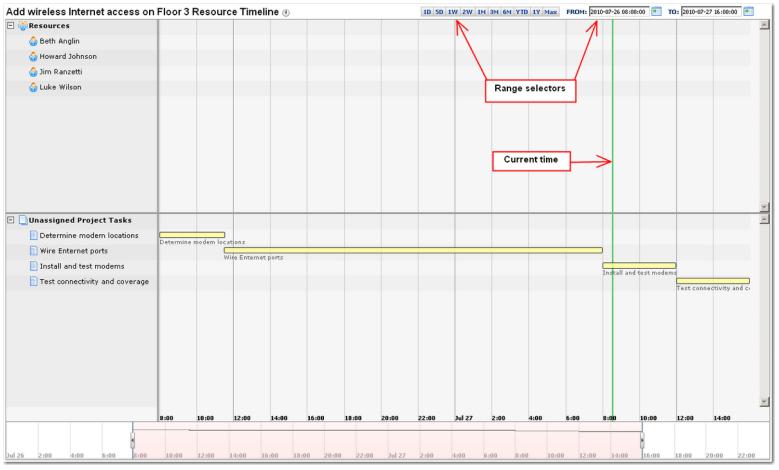
The *Resource Timeline* is a graphical, interactive map that establishes the relationships of tasks and sub-tasks to user resources for a project. Create the timeline after you identify the resources and tasks for the project. You must establish the relationships manually between the unassigned tasks and the free resources.

At this point, you should have a project record containing tasks and a list of resources to associate with those tasks.

1. Click the **Resource Timeline** Related Link in the project record.

   The Timeline displays two panes: *Resources* and *Unassigned Project Tasks*. You can resize the panes by dragging the dividing line that separates them. The tasks are arranged in the proper order (as defined in the **Gantt Chart**) and with the proper durations. In this example, the duration for the second task, **Wire Ethernet ports**, extends over two days, yet is configured for 8 hours. This is because we specified a project schedule of **8-5 weekdays**, and the time slot for that task must span the off-work hours between the days.

   NOTE: The **Schedule** field in the Project form is optional and visible only in the **Advanced** view of the form.



The resource timeline

2. Use the pink slider at the bottom of the timeline to change the perspective.

   a. Move the slider from right to left to view all the tasks on a long timeline.

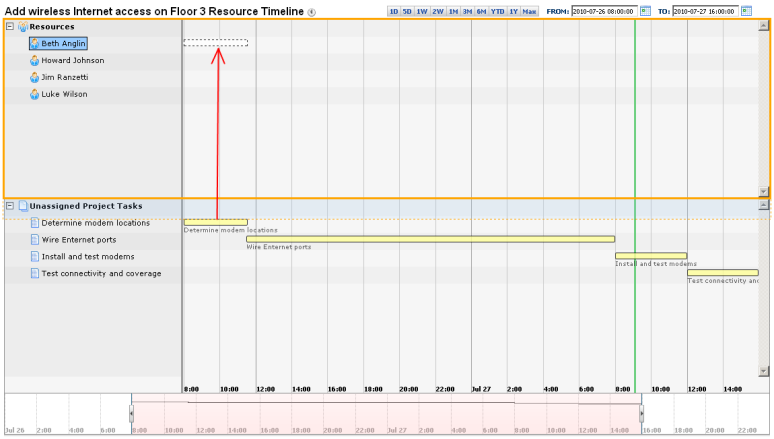
   b. Adjust the end points of the slider to change the magnification.

      A narrow slider zooms in on the tasks and provides a more detailed view of complex timelines. A wide slider pulls the view out and makes more of the timeline visible on the screen.

3. Use the Range Selectors at the top of the timeline to change the perspective.

   The increments go from one day to one year. To limit the timeline to the length of the current project, click **Max**. The green, vertical line is the current time and sweeps across the resource timeline automatically.

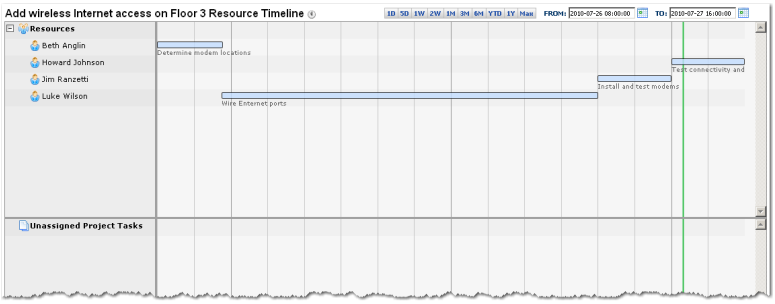
4. To assign a task to a resource, drag the task bar from the *Unassigned Project Tasks* pane up until the resource's name is highlighted, and then release the task bar.



Assigning a task to a user

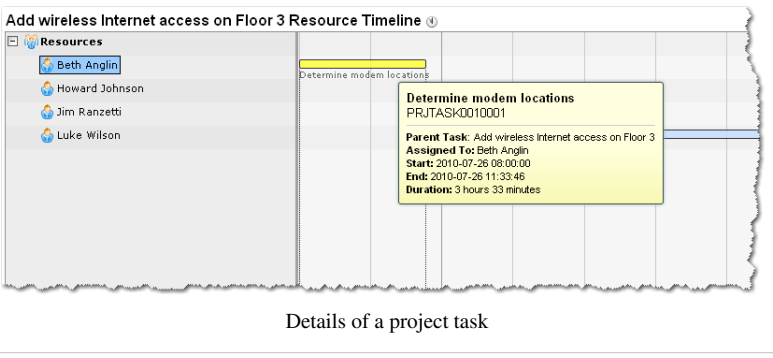
5. To *unassign* a task to a resource, grab the task bar with the mouse and move it back down into the *Unassigned Project Tasks* list. A dialog box appears asking you to confirm the action.
6. Click **OK**.
7. Assign the remaining tasks to resources.

   When you are done, the *Unassigned Project Tasks* pane is empty, and all the tasks are aligned with their resources.



Assigned project tasks on the timeline

8. To view the specifics of a task, hover the cursor over the task bar in the Timeline.



Details of a project task

9. To edit or delete a task record, double-click on the bar.

   The task record shows a log of all resource assignments for that task in the **Activity** field.

What Do I Do Next?

If you have finished selecting user resources for your project and have assigned tasks to the resources in the timeline, you are ready to **start the project**.

Using Task Resources with Other Planned Tasks

If the Project Management v2 Plugin is activated, the Task Resources related lists and timeline are available on any planned task, using the method detailed above.

References

[1] https://docs.servicenow.com/bundle/jakarta-it-business-management/page/product/project-management/concept/c_TaskResources.html

Managing Planned Tasks in Project

Note: *This article applies to Fuji and earlier releases. For more current information, see Project Task Relationship and Dependencies* [1] *at* http://docs.servicenow.com **The ServiceNow Wiki is no longer being updated. Visit** http://docs.servicenow.com **for the latest product documentation.**

Overview

Project management enables you to create child tasks that are nested under a parent task and successor tasks that are dependent on the completion of a predecessor task. This page explains how to create such relationships and dependencies.

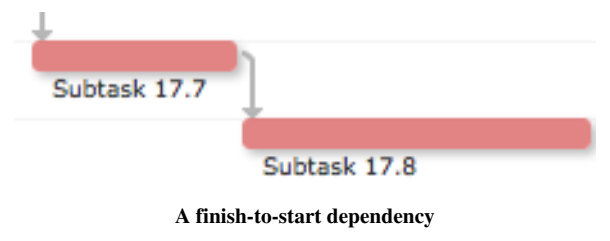
To create and edit portfolios, projects, and tasks, users must have the project_manager role in their user profile record. See Installed with Project Management for more information on roles in the Project application.

Key Concepts and Terms for This Topic

- **Predecessor task:** a project task that, upon completion, is followed by another task. A predecessor task has a dependent relationship with its successor task.
- **Successor task:** a project task that cannot start until another task finishes. The successor task has a dependent relationship with its predecessor task.
- **Lag time:** a manually specified time break between predecessor and successor tasks. Configure a lag time, if necessary, when creating a predecessor-successor dependency.

  The system applies the project schedule in the v3 application (available starting with the Dublin release). For the v2 application, the system converts lag time to hours and does not consider the project schedule when applying lag time.
- **Parent task:** a project task with smaller tasks, referred to as child tasks, underneath it. Child tasks break down the work of a parent task into more manageable subsets. Certain fields for child tasks, such as planned end date, roll up and affect the same field in the parent task.
- **Child task:** a project task that is a subset of a larger task. Child task start dates cannot occur before the start date of the parent task.
- **Rollup task:** another term for a parent task in the context of aggregating child task items, such as effort or resources, into a larger parent task calculation. All fields on rollup task forms are read-only in the v3 application.
- **Roll down:** state changes roll down from the project to project tasks, and from parent tasks to child tasks in the v3 application.

Task Dependencies



A finish-to-start dependency

A task dependency is created when one task is forced to start after another task finishes. For example, subtask 17.8 can only start when the **State** field of subtask 17.7 changes to **Closed**. The Project application only supports this kind of dependency, referred to as a finish-to-start dependency.

Creating a Task Dependency

The easiest way to create a task dependency is with the Gantt chart.

Another option is to use related lists to create dependencies:

1. If the successor task does not already exist, navigate to the project form and create it.

   Do not create the task from the predecessor task form. Doing so creates a parent-child relationship.
2. Navigate to the predecessor task.
3. Configure the related lists for the Project Task form and add **Planned Task Relationship > Parent**. Do not select **Predecessor of** or **Successor of**.

   This adds the **Planned Task Relationships** related list to the Project Task form. This related list shows successor tasks.
4. In the **Planned Task Relationships** related list, click **New**.
5. On the Planned Task Relationship form, click the lookup icon and select the appropriate successor task.
6. Verify that the relationship **Type** is **Predecessor of::Successor**. *Do not* change this relationship type.
7. Enter the **Lag** time, if any, in either days or hours.
   - In the v3 application, the lag time takes the project schedule into consideration. If the lag time is 10 hours and the default schedule of an 8-hour work day is in use, the lag time pushes the task to the following day to cover the additional hours.
   - In the v2 application, the system converts the lag time to total hours. Therefore, a lag value of **1** day is equivalent to 24 hours. The lag time does not take the project schedule into consideration.
8. Click **Submit**.

Task Time Constraints

The Project Task form includes a the **Time Constraint** field: either **Start ASAP** or **Start on specific date**.

- If the successor task is set to **Start ASAP**:

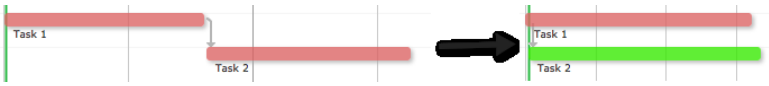
  The successor task appears on the Gantt chart as starting immediately after the predecessor completes without any lag time. However, the successor task can start on a later date if it has a value in the **Lag** field. To enter a lag value, double-click the relationship line in the Gantt chart and enter a **Lag** value. Alternatively, open the the predecessor task and enter a **Lag** value for the successor task in the **Planned Task Relationships** related list.
- If the successor task is set to a **Start on Specific Date** that is *later* than the finish date of the predecessor:

  The successor task starts at the time specified. On the Gantt chart, a lag appears just as if you set the **Lag** value on the relationship. However, the actual **Lag** value is not actually modified.
- If the successor task is set to a **Start on Specific Date** that is *earlier* than the finish date of the predecessor:

  ServiceNow changes the successor task time constraint to **Start ASAP** and the task starts immediately after the predecessor finishes, unless a **Lag** value exists.

State Changes on Tasks in Dependencies

Dependencies do not affect the ability to change the state of predecessor or successor tasks. For example, if a project is already in progress, you can still change a successor task to **Work in Progress** even if the predecessor task has not finished. Also modify the successor task to start on specified date that is earlier than the planned end date of the predecessor. Although this would violate the dependency for planning purposes, ServiceNow provides this kind of flexibility in modifying the project. You can also perform actions like closing a successor task, and then opening a predecessor task. Although you are allowed to make these kinds of modifications to predecessors and successors, the related project tasks and the way they are represented in the Gantt chart might show unexpected results.



A successor task prematurely changed to Work in Progress

Modifying Dependencies

To modify an existing dependency from the Gantt chart:

1. Double click the relationship line in the Gantt chart.
2. Enter a different task in the **Successor** task field.

To modify an existing dependency from a related list:

1. Open the Project Task form for the successor task and click the existing predecessor task in the **Planned task relationships** related list.
2. Enter a different task in the **Successor** field.

Removing Dependencies

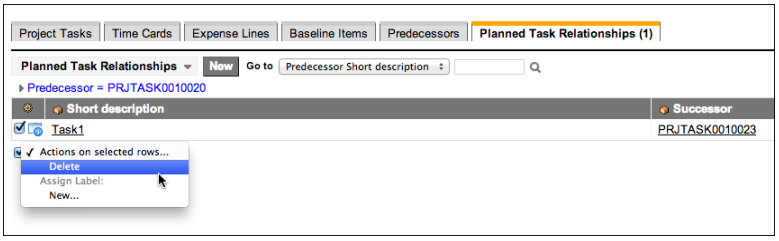
Remove a dependency that is no longer necessary from either the Gantt chart or the Project Task form. Removing the dependency also deletes the dependency record in the Planned Task Relationship table.

To remove a dependency from the Gantt chart:

1. Double-click the relationship.
2. In the **Planned Task Relationship** form, click **Delete**.

To remove a dependency from the Project Task form:

1. Open the predecessor task in the Project Task form and go to the **Planned Task Relationships** related list.
2. Select the check box beside the relationship being removed.
3. On the **Actions on selected rows** menu, select **Delete**.



Deleting the relationship record

Parent-Child Task Relationships

If a task is relatively large and requires several users with different skills to manage, break the task into subtasks and create parent-child relationships. A child task should be a relatively smaller, manageable size of work. When you group child tasks together under a parent, values such as **Estimated cost** aggregate and roll up to the parent task. So the parent task takes on the form of a *summary task* or *rollup task* for its child tasks. **Planned start date** and **Planned end date** rollup occurs when you create child tasks: the duration of the parent automatically adjusts to *cover* its child tasks.

A parent-child relationship is different from a dependency relationship. In a dependency, one task must finish before another begins. In a parent-child relationship, any number of tasks can be nested under a parent task with or without any dependencies. When you create a parent-child relationship, the parent task number is saved in the **Parent** field in the Project Tasks table. All project management tasks have a parent: either another project task or the project itself.

Creating a Parent-Child Task Relationship

The easiest method is to create parent-child relationships is on the Gantt chart.

To create parent-child relationships with related lists:

1. Navigate to the parent task in the relationship.
2. In the **Project Tasks** related list, click **New**.

   The same Project Task form appears for all tasks regardless of the parent-child relationship.
3. Create the task and click **Submit**.

   The newly created task becomes the child task in the relationship.

To help remember what the parent of any task is, view the breadcrumb at the top of the Project Task form. It is also helpful to configure the form layout to include the **Parent** field.

The Parent field. In this example the project is the parent.

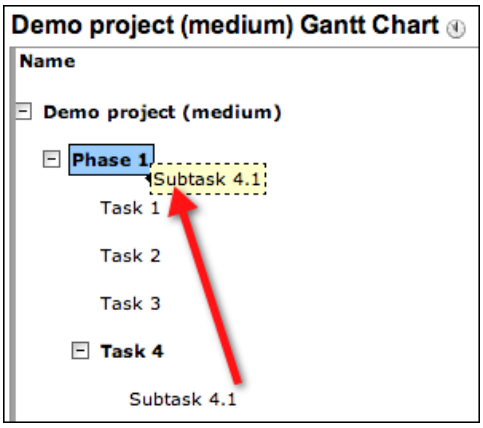
Changing the Parent Task

To change the parent of a child task:

1. Navigate to the child task in the relationship.
2. Configure the form to add the **Parent** field, if needed.
3. In the **Parent** field, select the new parent task for this child task. To have the task stand alone in the project, select a project instead of a task.

Modifying Parent-Child Relationships

To modify a parent-child relationship by using the Gantt chart, drag a child task to any other task (no matter whether it is a child or parent task). If you drag a child task up to the project name, it becomes a standalone task and is no longer considered a child task.



Moving a child task

To modify a parent-child relationship from a related list:

1. Navigate to the child task in the relationship.
2. Configure the form to add the **Parent** field if needed.
3. In the **Parent** field, select the new task that you want the child task assigned to. To have the task stand alone in the project, select a project instead of a task.

Unlike a dependency, a parent-child relationship is not saved as a record in any table. The only modification that takes place when a parent-child relationship is modified is the **Parent** field in the child task record.

Time Constraints in Parent-Child Relationships

- If a child task is set to **Start ASAP**, the child task starts at the same time the parent task starts (as long as it does not have dependencies with other child tasks).
- If the parent task is set to **Start ASAP** and child tasks are set to **Start on specific date**, the earliest child task start date determines the start date of the parent (assuming no other dependencies). In this case, the parent's **Time constraint** field remains **Start ASAP** but the actual start date is changed to the start date of the earliest child task.
- If both the parent and first child task are set to **Start on specific date** but the first child starts later than the parent, the parent start date remains **Start on Specific Date** but the actual start date is pushed to the start date of the child. For example, if the parent task starts on October 1 and the earliest child task starts on October 2, the **Planned start date** of the parent is changed to October 2.
- Child precedence also applies to end dates. If the child task's estimated end date is later than the parent task's end date, the parent task's estimated end date extends to cover the child. For actual values, a parent has the same start date as the earliest start date of its children and the latest actual end date as the latest end date of its children, assuming the child tasks are **Closed Complete**. If the child tasks are not in the **Closed Complete** state, the actual end date of the parent is empty.
- For the planned start date of the parent task:
  - The planned start date is the earliest planned start date of all the children that do not have an actual start date.
  - If all child tasks have actual start dates, the parent task's planned start date is set to the actual start date.
- For the planned end date of the parent task, the latest planned end date or actual end date of the child tasks determines the parent's planned end date.

Dependencies with Parent or Child Tasks

Options exist to create predecessor-successor relationships between child tasks with different parents, between two different parent tasks, or between a child task and another parent task. However, if the predecessor task finishes after the successor task starts, creating a dependency between child tasks that have different parents is not allowed.

Parent-Child (Rollup) Task Calculations

Rollups involve date changes, state changes, and value calculations.

- Date changes involve modifying the planned start or end date of a parent task based on those values in child tasks.
- State changes involve modifying the state of the project record or parent task records if all child records are set to a certain state.
- Calculations involve summing the values of child tasks and then automatically updating the parent to reflect a new total.

Rollups work differently on these fields in the v3 application (available starting with the Dublin release):

- **Planned Start date:** set to read only for parent tasks. Remains editable for the project record (also considered the top-level task).
- **Planned End Date:** becomes read only.
- **Planned Duration:** becomes read only.
- **Actual Start Date:** becomes read only.
- **Actual end date:** becomes read only.
- **State:** becomes read only.

Duration Rollups

Rollups are calculated for the following:

- **Planned duration and planned effort:** the sum of all planned duration and planned effort values for all child tasks.
- **Actual duration and actual effort:** the sum of all actual duration and actual effort values. Actual duration and actual effort values are calculated when all child tasks are in the **Closed Complete** state. Actual effort values can include rollups from time cards.

Note: *Verify that the time card property* ***Update the task's 'Actual effort' based on the hours entered in the time card*** *is enabled. Navigate to* ***Time cards > Administration > Properties*** *to enable this property.*

Cost Rollups

Cost calculations roll up when the the Project Management Costing Add-on is active.

- **Estimated cost:** the sum of all cost estimates at the beginning of a project. Estimated costs of child tasks roll up to parent tasks and to the project.
- **Actual cost:** by default for the project, the sum of all costs of all the project's expense lines, which are typically associated with a a time card and a labor rate. To track costs, define rate cards for the task and labor expenses. These rate cards automatically generate expense lines showing actual expenditures, which are associated with the projects. If rate cards are defined, the task expense lines are generated as each project task closes, and labor expense lines are generated when time cards are approved. Expense lines are visible in the **Expense Lines** related list, which requires the **Advanced view** on a both Project and Project Task forms.

For actual costs of child tasks to properly roll up to the project and be added to project expense lines, the following must be true:

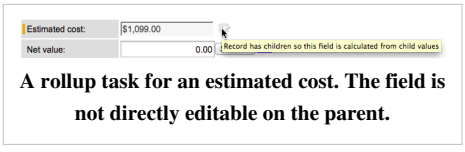
- The com.snc.project.rollup.cost property must be set to **true**. To enable this property, navigate to **Project > Administration > Properties** and select the **Enable project cost rollup** check box.
- The glide.cost_mgmt.process_task_top_task property must be set to false. To enable this property, navigate to **Financial Management > Admin > Properties** and select the **When creating a task expense line should the system also create expense lines for the task's top task** check box.
- The glide.cost_mgmt.calc_actual_cost property must be set to true. To enable this property, navigate to **Financial Management > Admin > Properties** and select the **For planned tasks types, calculate the actual cost field using the total of expense lines for the task** check box.

Enabling Cost Rollup Calculations

To use rollup calculations:

1. Navigate to **Project > Administration > Properties**.
2. **Select Enable project cost rollup** and click **Save**.

Rollup values are read-only on forms. Point to the icon beside the field for a tooltip message.



A rollup task for an estimated cost. The field is not directly editable on the parent.

Project State Rollups and Roll Downs

Project task states roll up. The state of parent tasks becomes read only in the v3 application, and changes automatically when you change the states of child tasks.

Project task states can roll up if:

- The state of the child task is manually changed and there are no other conditions on the parent task.
- The state of the child task is changed to **Work in Progress** or **Closed**. These states roll up to the parent. **Pending** and **Open** do not roll up to the parent task.

Project states can also roll down in the v3 application. If you change the state of a project to closed, all tasks under it change to the default closed value (**Closed Complete**). If a closed project or closed task is reopened, all tasks under it change as follows:

- Project or parent changed from closed to **Pending** or **Open**: child tasks change to **Open**.
- Project or parent changed from closed to **Work in Progress**:
  - Child tasks with a **Start on** date that has passed are changed to start **ASAP** and the state is changed to **Work in Progress**.
  - Child tasks with a **Start on** date that has not yet passed retain the same start on date but the state is changed to **Open**.

References

[1] https://docs.servicenow.com/bundle/jakarta-it-business-management/page/product/project-management/concept/c_ProjectTaskRelationDepend.html

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