Trimble Civil Engineering and Construction

TILOS Guide
Getting Started

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Trimble

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Table of contents

Make a quick start! **3**
- Prerequisites 4
- Recommendation 4

Start and Configure a New Project **5**
- Create a Project from a Template 5
  - Understanding TILOS File Types 5
  - Understanding Project Templates 5
- Review and Edit Project Settings 6
  - Understanding Project Options 8

Review the User Interface (UI) **9**
- TILOS Explorer 10
  - Understanding TILOS Explorer Sections 10
- Menu and Toolbar 11
- Insert Object Toolbar 11
- Preset Toolbar 11
- Working Area (windows, views, and cells) 11
  - Creating and Arranging Windows 12
- Object Properties pane 12

Create an Integrated View and Configure Cells **12**
- Create a New View 12
- Create Additional Cells 13
  - Inserting and Resizing Rows and Columns 14
  - Resizing the Working Area 14
  - Zooming In and Out in a Window 15
  - Understanding Cell Numbering 15
- Configure a Time-Distance Cell 16
  - Using Sub-Projects 16
  - Configuring a Calendar Display Based on Project Duration 18
  - Setting Cell Properties 19
  - Adding Content to a Cell 20
  - Setting View Ranges 20
- Configure Two Distance Cells 20
  - Configuring Master and Dependent Cells 21
- Configure a Time Cell 21

Add Time and Distance Scales to Cells **22**
- Add Two More Time Scales 22
  - Understanding Tokens 24
  - Troubleshooting Scale Labels 25

Add a Distance Scale 26
Troubleshooting Scale Visibility 27

Add Station Points 27
Importing Distance Grid Data 27
Add the Station Point Lines as an Irregular Scale with Text 28
Inserting Charts/Scales that are Smaller than the Cell 30
Check Your Cell Types 30

Insert and Scale a Distance Graphic 30
Insert a graphic 31
Dragging-and-Dropping Graphics 31
Synchronize the Graphic with a Scale 32
Add a Distance Grid to the Graphic Cell 33
Setting the Layer for Objects and Ordering Layers in a Cell 34
Add Additional Lines to the Grid 35

Insert Tasks 37
Inserting Tasks 37
Inserting the same task or object repeatedly (repetitive entry) 38
Creating New Tasks Types “On-the-fly” 42
‘Drawing’ Tasks 43
Understanding Summary and Hammock Task Types 45

Link the Tasks to Each Other 50
Automatically Calculating a Successor’s End Date 50
Defining Task Leads and Lags 54
Linking Tasks 54
Link Categories 54
Creating a Link List 55
View Tasks and Links in a Gantt Chart 55
Using Gantt Charts 55

Label the Tasks 56
Annotating tasks 56
Tip for Annotations 56
Text Fields vs. Annotations 56

Change the Calendar 58
Using Calendars 59

Export and Print the Schedule 61
Export the Schedule to Microsoft Project 61
Print the Schedule 62
Printing Views and Gantt Charts 62

Getting Help and Support **64**
Trimble TILOS Community 64
Technical Hotline 64
Other Contact Information 64

Make a quick start!

Thank you for selecting Trimble TILOS scheduling software. This Getting Started Guide will provide you (as a TILOS beginner) with a set of fundamental skills for creating a linear construction project schedule.

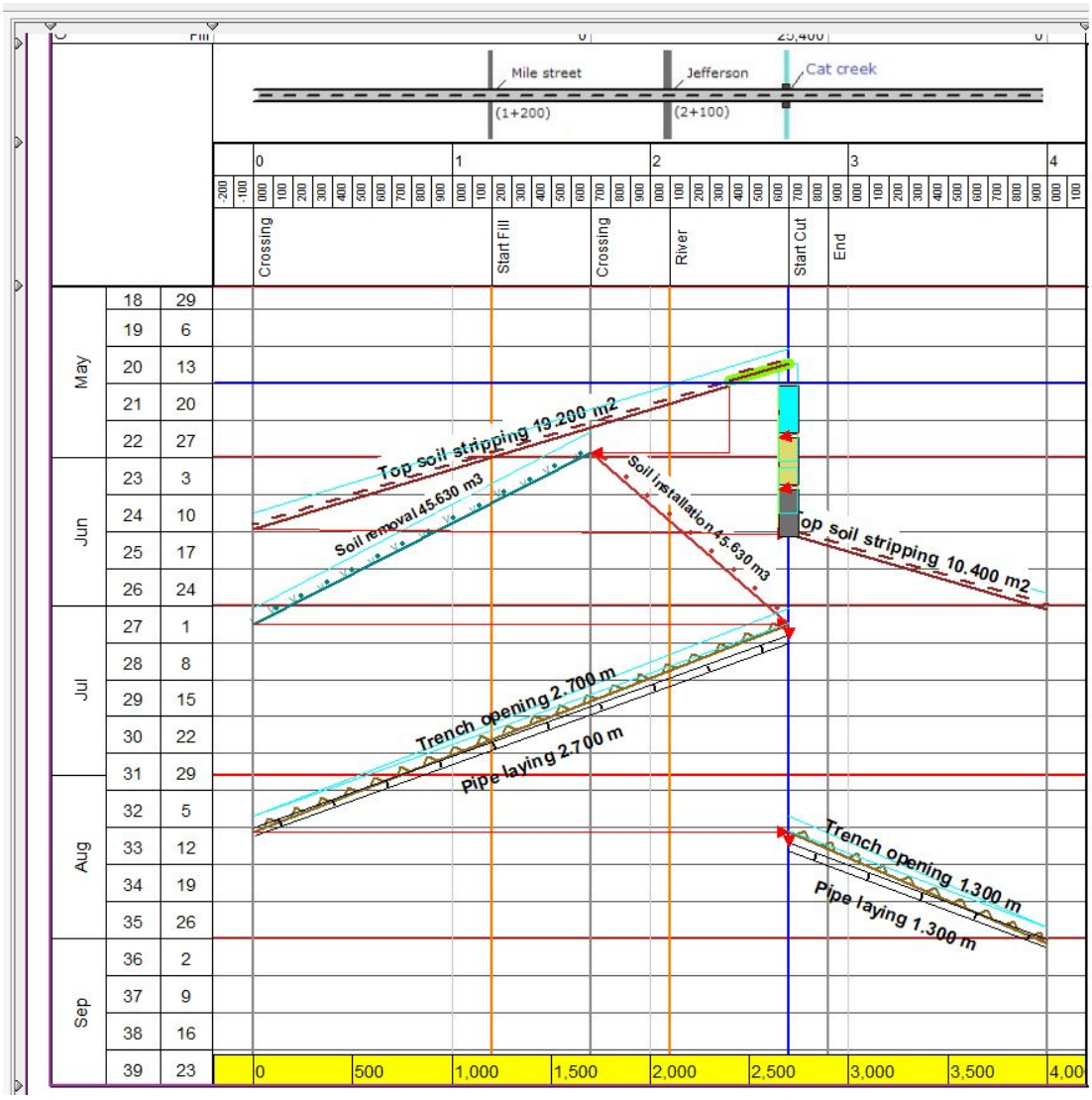
There is a lot of complexity and power in TILOS, but we have simplified this guide to include just the basic, yet a complete, workflow for scheduling a project on your own. Immediately "getting your hands dirty" in this way will help to quickly build your 'mental model' about how TILOS works before you approach the next level of features and functionality.

The guide consists of numbered steps, as well as supporting information that is formatted like this:

> Boxes like this contain supplemental text about the subject you are working through (meaning you can skip it if you just want to get through the steps).

For in-depth, conceptual information, you should (of course) press **F1** to see the context-sensitive TILOS help.

By becoming familiar with TILOS 10.2 and its features through this exercise, plans like the one shown on the next page can be produced in a short period of time. In this exercise, you will start with a template that contains some of the cells you need, but also create some 'from scratch' in a new view so you learn how to do it.



Prerequisites

- TILOS version 10.2 installed
- A standard or higher license; to see what you are licensed for, select **Help > License Manager**. If you are not licensed, contact your dealer for help.

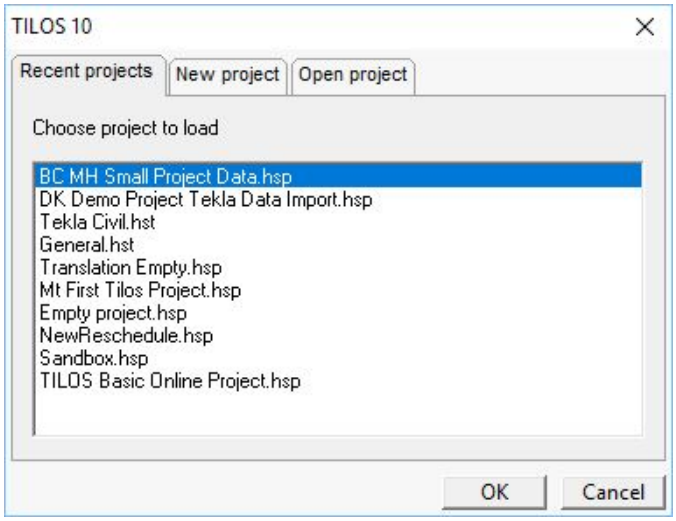
Recommendation

Use two monitors side-by-side, one for this guide and one for the program. Otherwise, you may find it easier to print this document so that you can maximize the program on your monitor. Working from a printed copy also prevents focus issues caused by switching back and forth between the online PDF and the program.

Start and Configure a New Project

Create a Project from a Template

1. Start TILOS.
2. In the startup dialog, click the **New project** tab (or select **File > New** on the menu if you already have the program running).



3. Double-click the **General.hst** template. This template contains the most generic and commonly used project settings.

Understanding TILOS File Types

TILOS uses these specific file formats (by extension):

- **.hst** - This is a TILOS project template file on which your new projects will be based. Using templates with predefined settings and objects can save you additional setup work and time. The most important thing in a project template is the project coordinates for the job's time/distance.
- **.hsp** - This is the standard TILOS project file format. By default, projects are saved to C:\ProgramData\TILOS\TILOS10-Data\Projects\. This path can be changed in TILOS by selecting **Tools > Options > Configuration** on the menu.
- **.hsb** - This is the file format for a project backup file that you create manually.

Understanding Project Templates

Standard template defaults include:

- Pre-defined calendars:

    - **5-days per week**: a 5-day calendar with 8 working hours for every work day and weekends off work.
    - **Nonstop working:** a 7-day calendar with 24 working hours per day.
- Task templates for easily creating new tasks in a time-distance diagram. Task templates save you time by providing default display styles, calculation data, costs, and resources. Once a task has been created from a template, it can be modified with specific properties and data.

Project templates can also contain default:

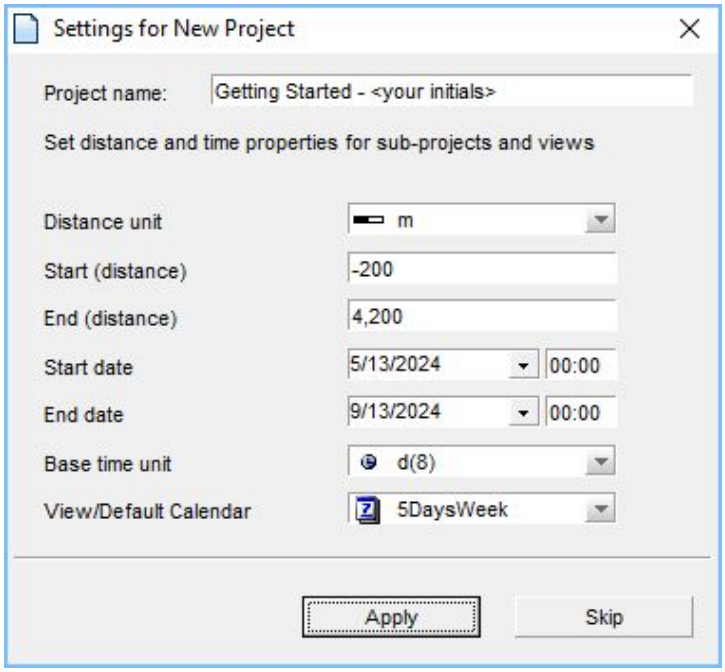
- Project settings
- Calendars
- Views
- Graphic objects (line, rectangle, parallelogram, etc.)
- Line styles
- Auto-text annotations
- Data field definitions
- Task calculation values
- Resource and cost assignments
- Sub-projects

If you consistently use the same setting and/or library objects in many projects, it will save you a lot of time to set these items up in a project and then save it as a template from which to start future projects.

Review and Edit Project Settings

As you begin any project, it is important to review and edit any settings that might affect your data.

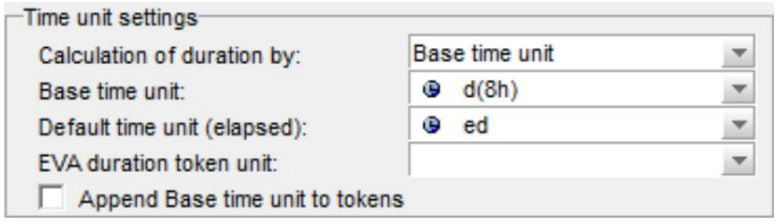
1. In the **Setting for New Project** dialog, enter a project name, and review the defaults.
2. Change the **Start (distance)** and **End (distance)** to **-200** and **4200** to match the data you will insert soon.
3. For the **Start date** and **End date**, click the arrow and select:
    - year **2024**, month **5**, day **13** through
    - year **2024**, month **9**, day **13**



Note: Although these steps will tell you to enter project dates in the international date format of YYYY-MM-DD (ISO 8601), what you see in the program interface depends on your **Windows > Region and Language Settings**. screenshots show dates in MM-DD-YYYY format.

Tip: In your own projects, add a little extra time and space around your actual project start and end dates and distances to make it easier to work in the graphic views. You have just done that here too.

4. Click **Apply** to adjust the views and sub-project in the template to the specified coordinates.
5. Save your new project with the new name.
6. On the menu, select **Tools > Options**.
7. In the **Time Unit Settings**, review the default units for how durations will be displayed and edited. Time data can be entered in **calendar time** or **working time**.



8. Scan the other types of settings on each tab, and close the dialog.

Understanding Project Options

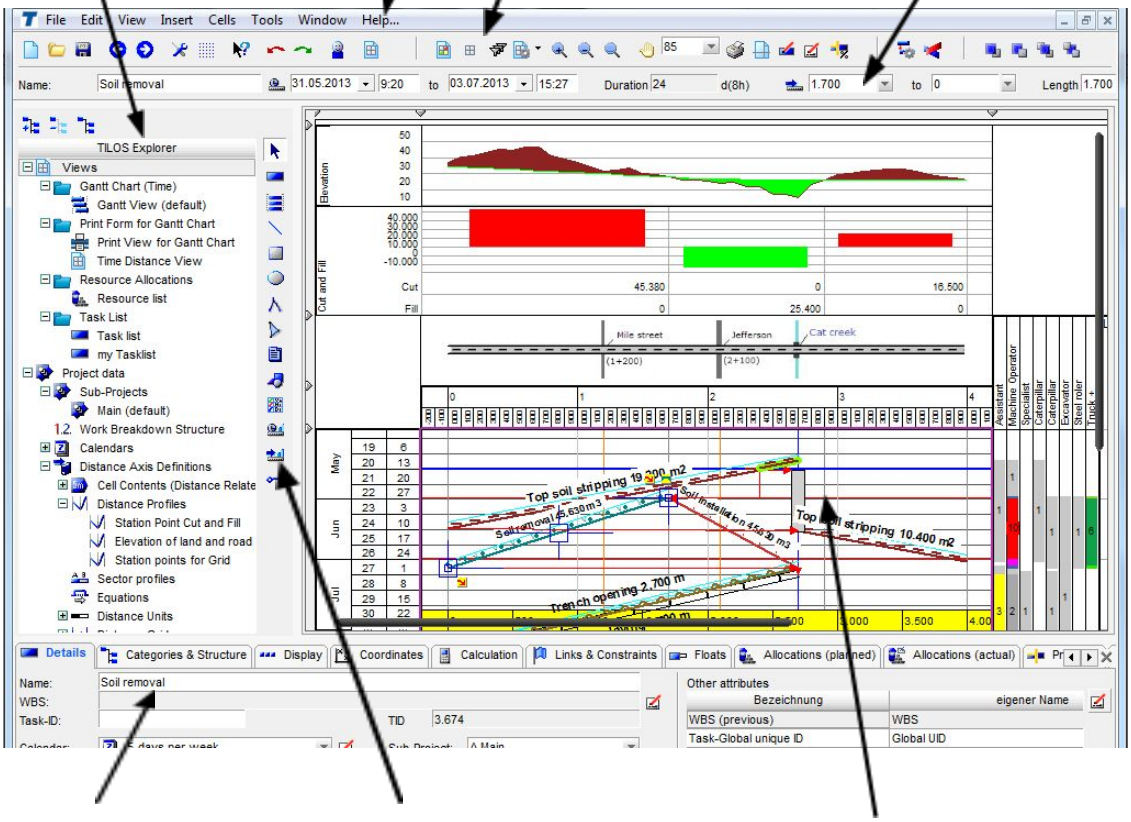
Here are the basic categories of project settings:

- **Project and Project (2)** - Define general project properties, such as the ID, drawing units, time, and day definitions, sub-projects, and views.
- **Task** - Define the options for tasks, for the calculation model, and the display of the work rate time unit.
- **Progress** - Select entry options for progress.
- **Cost** - Define which currency is used as standard and which cost group, e.g., for new resources, is used as the standard.
- **Distance** - Define which distance units are used as the standard and if an equation is used. These settings can be changed later for gaps or data fields.
- **Display** - Globally define how lines are displayed for progress, baselines, Gantt charts, etc.
- **Functions -** Define which additional functions that should be available within the program.
- **Snapping** - Define how time units for calculations and durations are displayed, as well as which distance units are used. Configure a snap grid to help graphically position tasks by time and distance intervals.
- **Tokens** - Define the general rounding settings for the display of tokens in views.
- **Configuration** - Define general system settings that affect the program, not the specific active *.hsp project file.

Review the User Interface (UI)

Even though reviewing UI out of context can feel fruitless, it will help to spend a few minutes understanding the layout of the program. Here are the primary components of the UI:

TILOS Explorer **Menu and Toolbar** **Preset Toolbar**



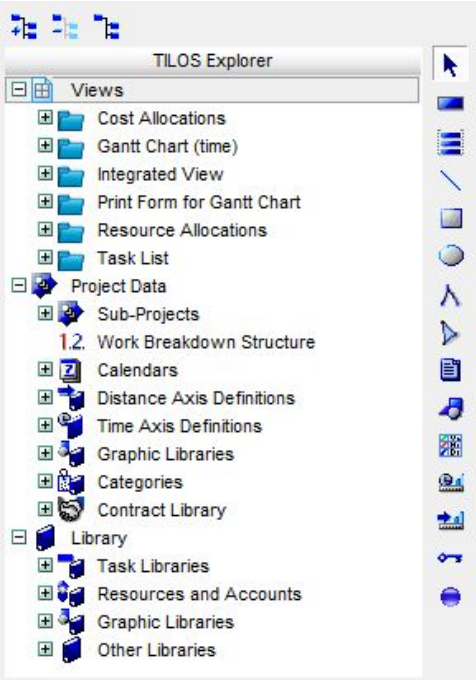
Object Properties pane
(Details Toolbar)

Insert Object Toolbar

Working Area

TILOS Explorer

The **TILOS Explorer** is a tree-like, hierarchical structure (like Microsoft® Windows Explorer) that shows and gives you access to all of the views, data, objects, and templates in your project.



Understanding TILOS Explorer Sections

The top level categories in the explorer include:

- **Views** - This group shows all of the views (time-distance, Gantt chart, list, etc.), that you have created for the project. To open a view in the **Working Area**, double-click it or right-click and select **Open in Active/New Window**.
- **Project Data** - This group shows all data that is specific to the open project, which can include sub-projects, calendars, distance and time axis definitions, graphics, and categories (company and work type), and contractual project info.
- **Library** - This group contains template data and objects that are not project-specific; this includes things like tasks, resources, accounts, and graphics that can be referenced and used by any project, plus definitions of currencies, units, users, filters, and various other data types that can be applied to projects.

Menu and Toolbar

The **Menu** and **Toolbar** give you access each of the common commands and windows in TILOS.

Insert Object Toolbar

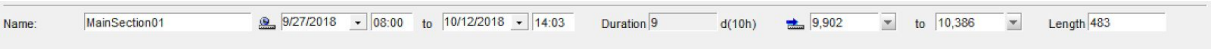
The **Insert Toolbar** allows you to add tasks, shapes, text, graphics, legends, time and distance diagrams, and WPA point features into the active view.

(shown rotated horizontally here)

Preset Toolbar

The **Preset Toolbar** has 3 functions:

- See and edit default values when you create or select an object.
- See and edit the template on which a task is based and also set a default summary task (if applicable) when you create or select a task.
- Control and change task data, such as its name, duration, and coordinates when you select a task.

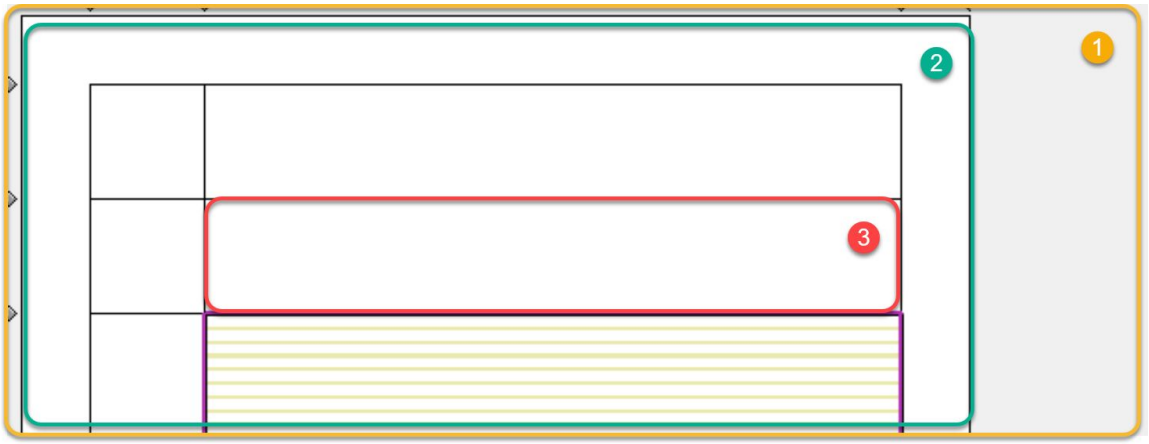


Working Area (windows, views, and cells)

The **Working Area** is where you will perform operations on plans, schedules, tasks, features, and other data. You will find there one or more opened dialog windows.

You can have one or more windows in the working area, each of which can contain different types of views of your project data. Each integrated view consists of cells arranged in rows and columns. Two or more cells can be glued together, which means they can be combined into one larger cell (as you can in Microsoft Excel). The graphic below shows the nesting relationship of windows views, and cells.

1. Window
2. View
3. Cell



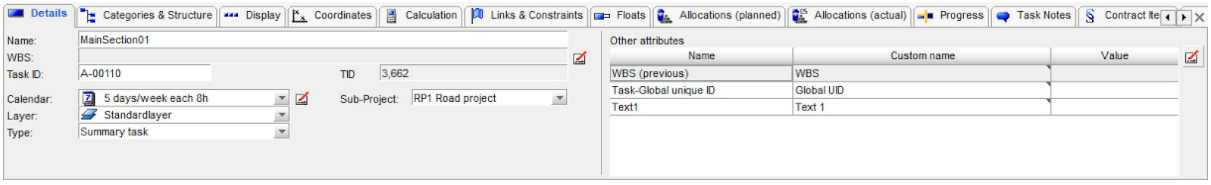
Creating and Arranging Windows

To open a new window in the working area, select **Window > New Window** on the menu. In general, the **Working Area** shows a single window in maximized state. If you have multiple windows open, you can organize them by selecting **Window > Cascade**, **Tile Horizontal**, or **Tile Vertical**.

Object Properties pane

(also known as the Details Toolbar)

The **Object Properties pane** shows the properties of any active object (object selected in the **Working Area**). The tabs and properties shown in this pane change depending on what is selected. This is where you will edit most of your project data.



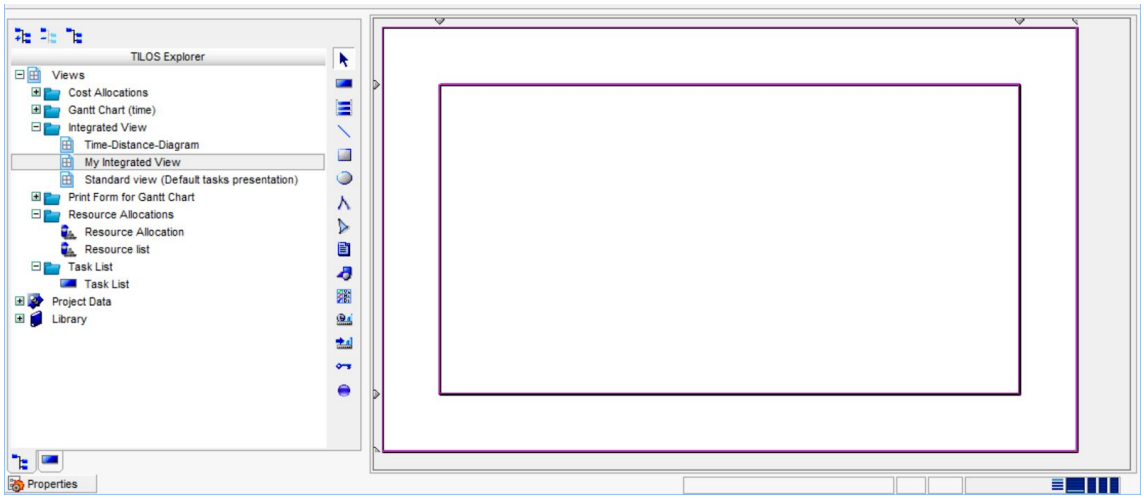
Create an Integrated View and Configure Cells

You can create a variety of view types that will enable you to see, select, and edit your project data in the most efficient way. The integrated view is the most commonly used view type.

Create a New View

1. In the **TILOS Explorer**, right-click **Views** and select **New View**.
2. Enter **My Integrated View** as the **Name** for your view.

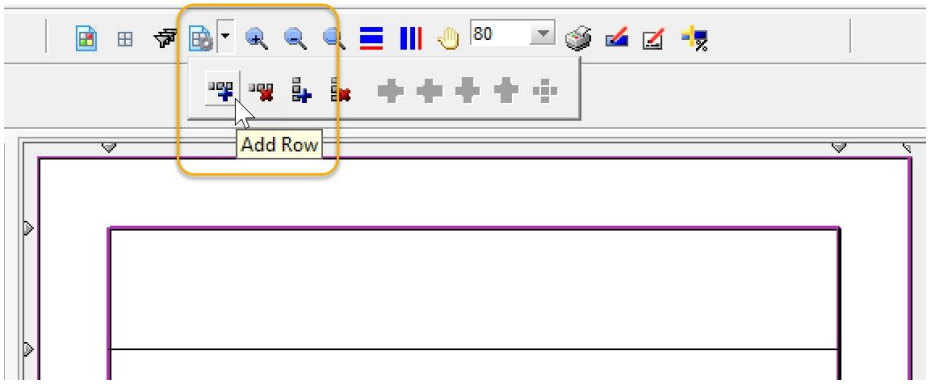
3. Choose **Integrated View** as the **Type**, and click **Open in New Window**. Integrated views are the standard for basic scheduling operations because they can contain a variety of cell types.
4. Click the Properties button at the bottom of your screen to collapse the **Object Properties pane** so you can see the whole view, which should look like this:



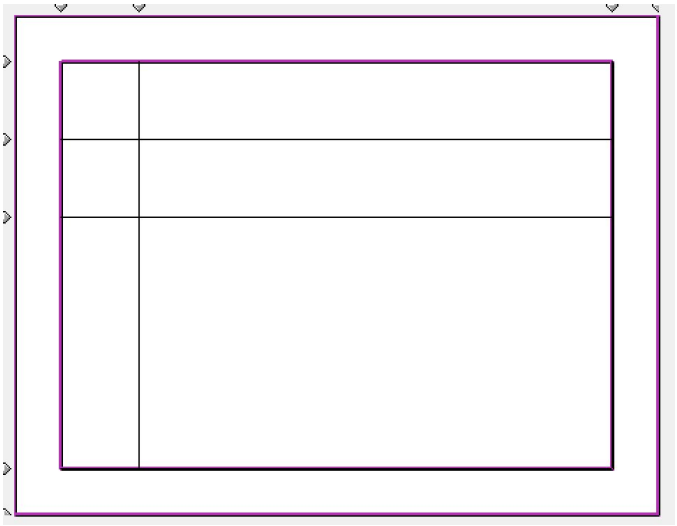
Create Additional Cells

Create several other cells to contain different types of views, scales, and data.

1. Click the outer rectangle (which is a cell also) near the top of the view.
2. On the menu, select **Cells > Row > Add Row** to create a row under the cell you selected.
3. Add another cell in a different way by clicking the **Cells > Add Row** icon on the toolbar.



4. Add a new column in a similar way by selecting **Cells > Column > Add Column** on the menu. Your view should now look like this:



Inserting and Resizing Rows and Columns

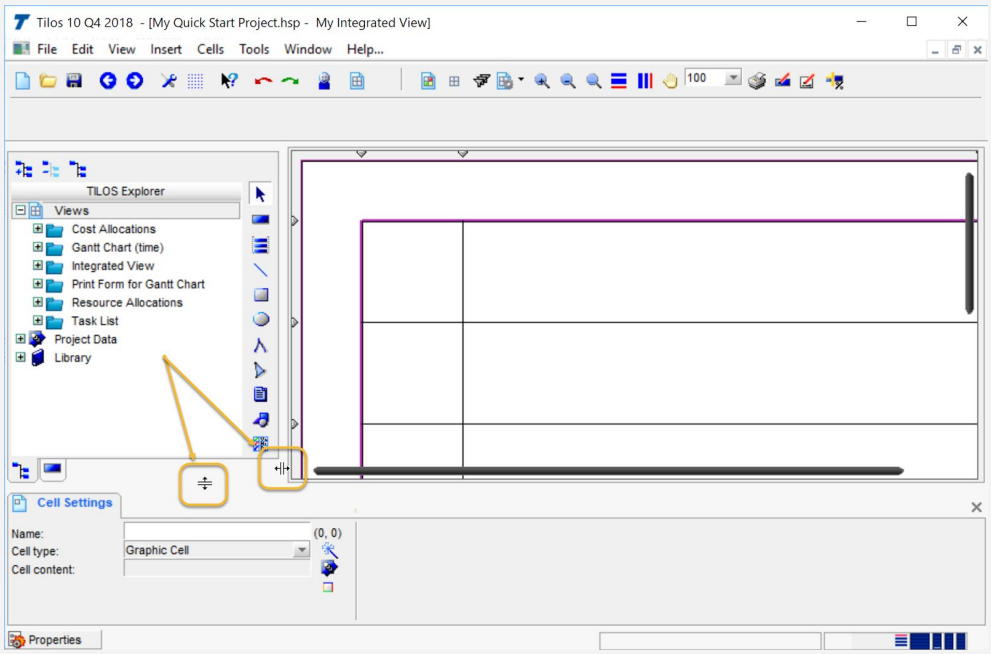
New rows and columns are inserted after the selected row/column. The first and last row or column are borders that cannot be removed. If you want insert a row or column at the beginning of the cell system, select the border cell.

Cells within integrated views can be freely resized, as in Microsoft® Excel, by changing row and column sizes. To enter row and cell heights and widths directly, right-click in the active cell and select **Edit View** to open a **View** dialog where you can enter row and column sizes in cm or inches (configure this in **Tools > Options > Project** tab).

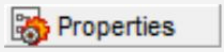
5. Press **Control** on your keyboard and roll the mouse wheel to zoom the view in and out. Press **Shift** and roll the mouse wheel to move the view left and right.
6. Try resizing the columns and rows by clicking-and-dragging any of the small triangles along the edge of the view (shown above). Then resize the cells so your view looks like the graphic again.
7. Click the **Properties** button again, and then the **Redock** icon in the upper-right corner of the floating pane to dock it along the bottom.

Resizing the Working Area

You can resize the working area by hovering in this area and clicking-and-dragging these small handles.



To show the full window, you can also click the **Properties** button in the lower-left corner of the screen to float or hide the **Object Properties pane**.

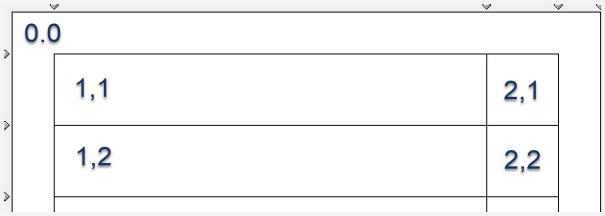


Zooming In and Out in a Window

You can zoom in and out of the window by pressing **Control** and rolling the mouse wheel up and down.

Understanding Cell Numbering

It is important to understand cell numbering as you will see it when doing a variety of things, such as linking cells to each other in master-dependent relationships. This is how cells are numbered.



The toolbar also gives you these options:

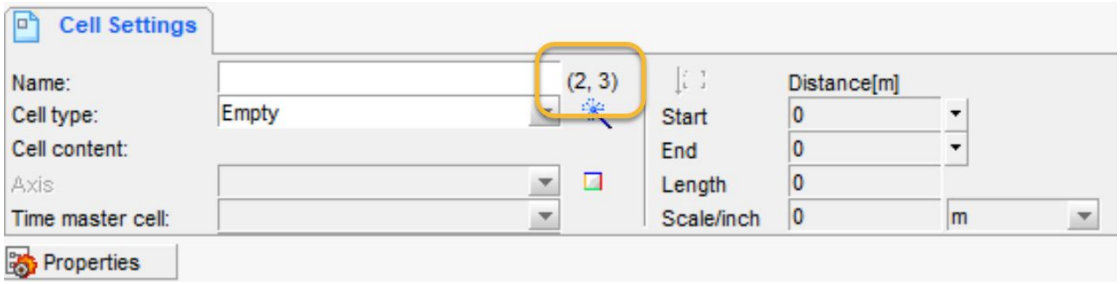
- **Display Page Width** - Click this icon to resize the view scale so that the full width is visible.

- **Display Page Height** - Click this icon to resize the view scale so that the full height is visible.

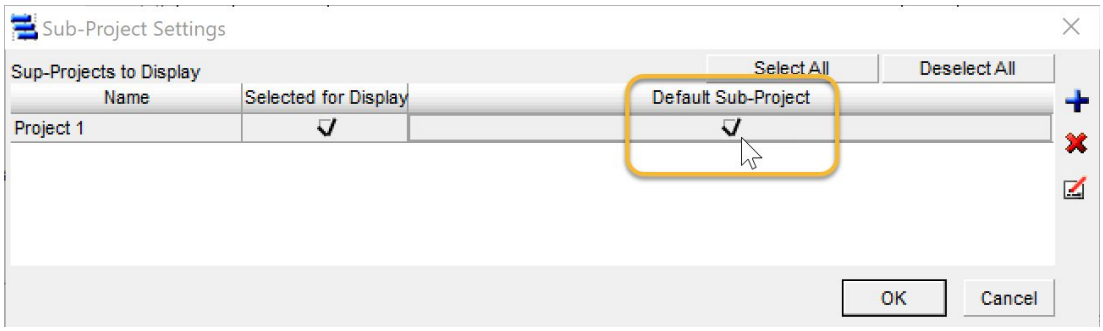
Configure a Time-Distance Cell

This is the cell that will contain your tasks.

1. Select the larger cell in position 2,3 (3rd column, 4th row) by clicking in it.
2. Notice that the **Cell Settings** tab in the **Object Properties pane** at the bottom of your screen shows the cell position number (this pane is where you will configure any selected object).



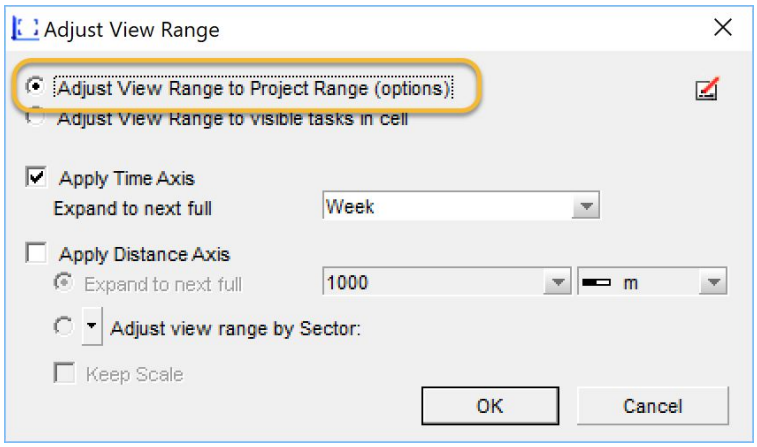
3. Next to the **Cell type** field, click the **Cell Wizard** icon. Using wizards is the easiest way to configure cells and other types of objects in TILOS.
4. In the **Cell type** list, select **Time-Distance Cell**, and click **OK**.
5. In the **Sub-Project Settings** dialog, check the **Default Sub-Project** box for **Project 1**.



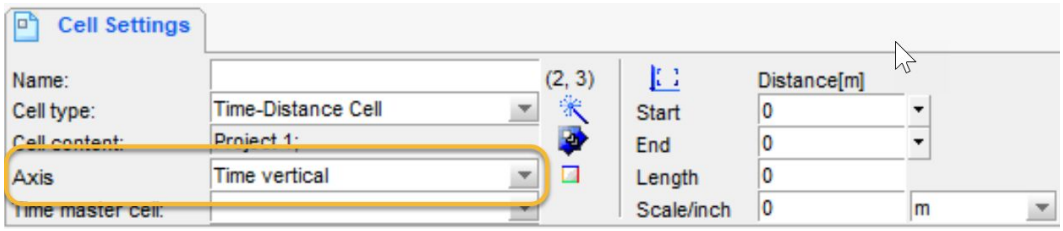
Using Sub-Projects

Each TILOS project file contains one default sub-project (needed in order to create task data). To organize the work on more complex construction projects, you may find it helpful to separate the work into multiple, additional sub-projects, each of which contains related tasks. Alternately, each section of a construction project can be defined as a sub-project and displayed in a view's cell.

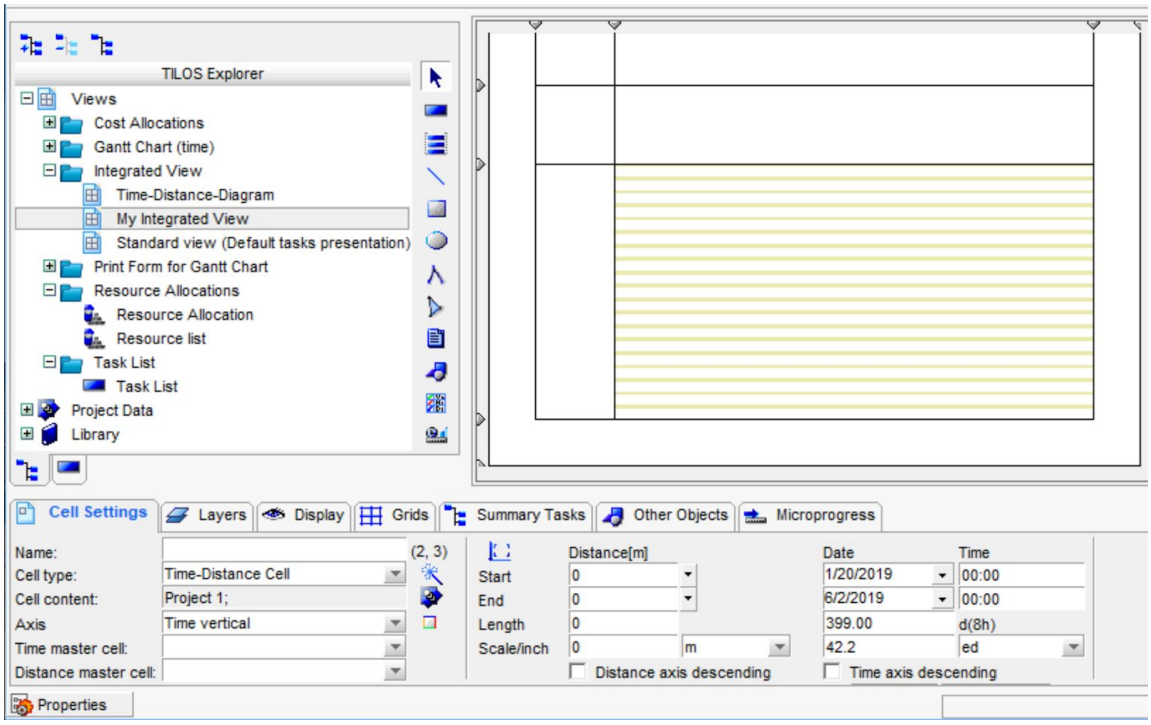
6. Click **OK** and answer **Yes** to adjust the view range to the project extents.
7. Accept the defaults in the **Adjust View Range** dialog and click **OK** to adjust the time and distance range of the cell and apply a time axis by week. The view range is set by the projects coordinates, but may be changed at any time to show only a certain portion of the project.



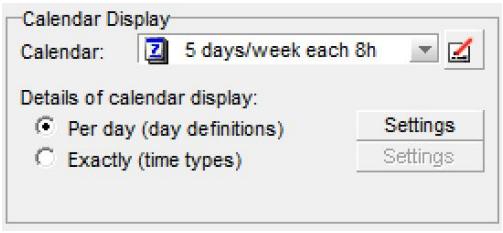
8. In the **Axis** list on the **Cell Settings** tab, select/confirm **Time vertical** to align the calendar along the Y axis; distance will be aligned along the X axis.



9. Click in your new time-distance cell. Now your view should look like this, and more property tabs will be visible. The colored bars across the cell denote weekend time based on the default calendar for the project.



10. Click the **Display** tab, and confirm these calendar and display options for the selected time-distance cell of the view.

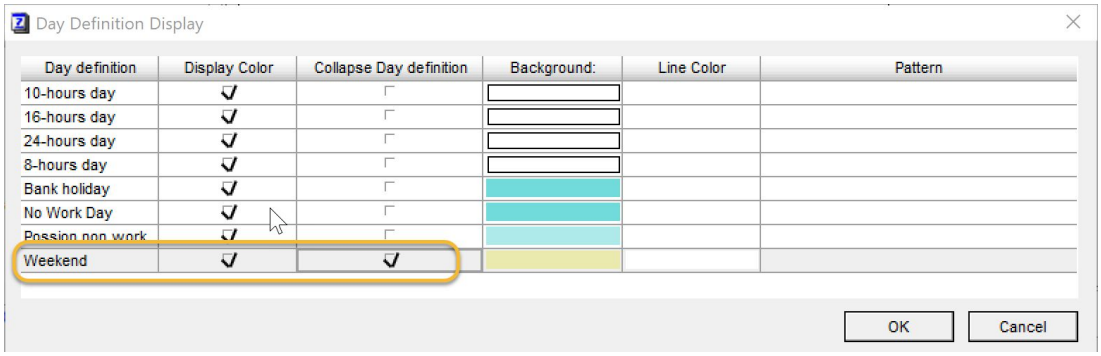


Configuring a Calendar Display Based on Project Duration

On your projects, use **Per Day** for long projects that span months or years. The task lines will not break within the daily working time patterns (e.g., working breaks at night).

Use **Exactly** for short and detailed views that span only 2 or 3 days. The task line gets broken with the daily working time patterns (broken for the night breaks).

13. In the same section, click **Settings** and and check the **Collapse Day Definition** box in the **Weekend** row to collapse the weekend time from the time axis.



14. Click **OK**. The horizontal bars for the weekends you saw before are now hidden.

Setting Cell Properties

Cells organize and segregate different types in a view. There are many different cell types. including:

- **Time-distance cell**: Used to show a time-distance diagram with tasks that span a time axis and a distance axis.
- **Time cell**: Used to show time-related data only, such as time scales.
- **Distance cell**: Used to show distance related data only, such as distance sketches, diagrams, or scales.
- **Gantt chart cell (Time):** Used to show project data as a Gantt chart within a view. The axis shows time, like used in Gantt charts.

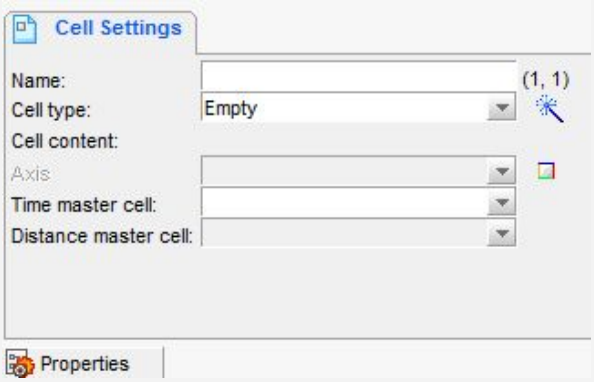
These other cell types are used for more advanced scenarios not covered in this guide:

- **Gantt chart cell (Distance):** Used to show project data as a bar chart within a view. The axis shows location.
- **Distance cell with Y-Axis (2-axis cell):** Used for work phase planning with the Work Phase Assistant. This call can host an area map and point and line features.
- **Graphic cell:** Used to show graphic data only, such as company logos and stamps, in border cells.
- **Mass Haulage Diagram:** Used to show mass haulage data (mass areas and mass haulages) with cut and fill areas.
- **Dashboard:** This cell type is used to show a dashboard with task values in a table.
- **Dashboard (allocations):** Used to show a dashboard for resource and cost data.

Adding Content to a Cell

To display existing cell content in a cell, select a cell type and the requested cell content.

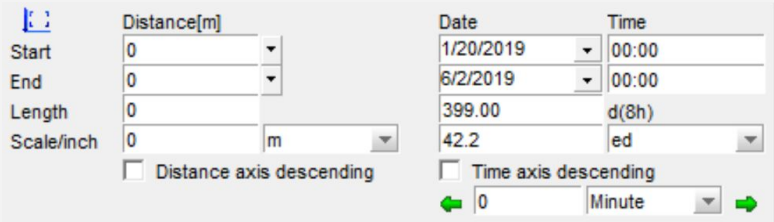
To create a NEW cell content (chart objects), click the Cell wizard icon.



Based on cell type, different items are offered. In this way, planning is independent from the presentation. Within one project, you can have different views (days planning mode/ hours planning mode and partial views for selected distance sections). The system's flexibility is practically unlimited.

Setting View Ranges

For each cell, you can set the visible area of the project in the **Cell Settings** tab:



The scale is calculated by the width of the cell and the cell ranges. If you have a complex cell system and change the range of the main central time-distance cell, then you also need to adjust the surrounding cells.

Configure Two Distance Cells

These are the cells that will contain a distance graphic of the project site and a distance scale, respectively.

1. Click in the smaller cell (2,1) two cells above the one you just configured.
2. On the **Cell Settings** tab in the **Object Properties pane**, click the **Cell Wizard** icon again.
3. In the **Cell type** list, select **Distance Cell**, and click **OK**.

4. Confirm that the **Display EXISTING Cell content (distance-related)** option is selected.
5. Select **Distance drawing** in the **Cell content** list, and click **OK**.
6. Click **OK** in the **Select Master Cell** dialog to use the time-distance cell as the **Distance master cell** for this new distance cell. Since your view contains only one time-distance cell, this master cell is pre-selected.

Configuring Master and Dependent Cells

Master cells provide the time and/or distance scales to dependent cells, depending on the cell type. The master can be time-distance or Gantt chart cells in the same row or column as the dependent cell.
A master cell provides the range in time or/and distance to the dependent cell, depending on that cell's type.
If a cell has a master cell defined, its coordinates cannot be edited independently; their scale is taken from the master cell.

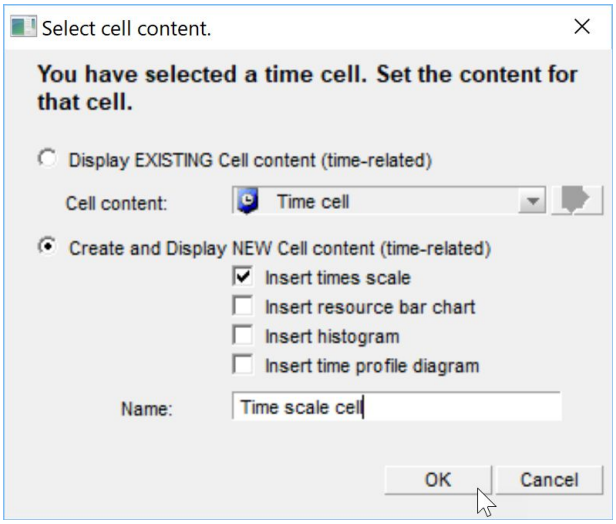
7. Click the cell **(2,2)** just above the main time-distance cell to select it.
8. Click the **Cell wizard** icon on the **Cell settings** tab.
9. Select **Distance Cell** and click **OK**.
10. Choose **Create and display NEW cell content** and check the **Insert distance scale** box.
11. Shorten the name to **Distance Scale Cell** and click **OK**.
12. In the **Distance master cell** list, select the previously defined time-distance cell **<(2,3)>**.

Configure a Time Cell

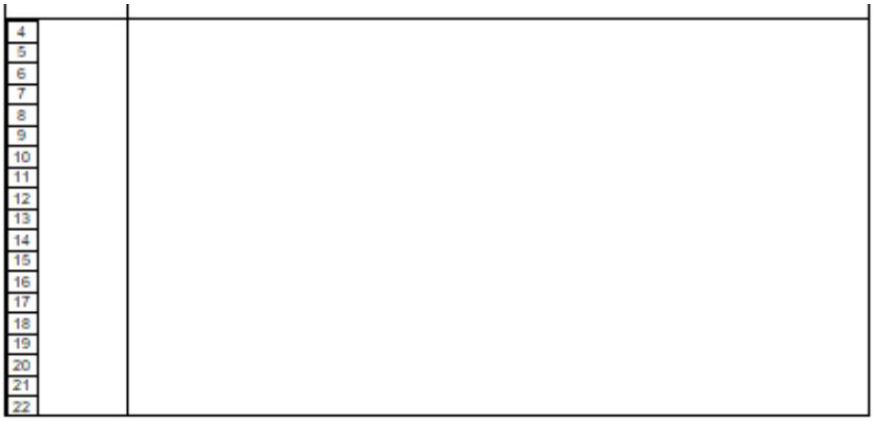
This is the cell that will contain month, week, and day time scales.

1. Click the cell to the left of the main cell **(1,3)** to select it.

2. On the **Cell Settings** tab, click the **Cell Wizard** icon again, and choose **Time cell**, and click **OK**.
3. Select **Create and Display NEW Cell content,** check the **Insert times scale** box.



4. Shorten the name to just **Time Scale Cell**, and click **OK**.
5. In the **Select Master Cell** dialog, select/confirm the previously defined time-distance cell **<(2,3)>** as the **Time master cell** and click **OK**.
6. Your time cell should look like this, with one scale already in it:



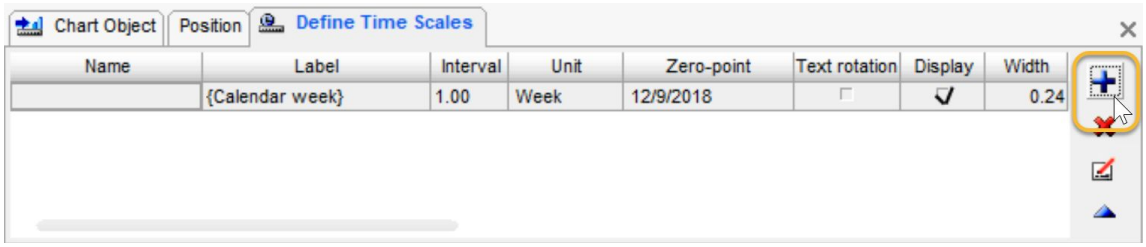
Add Time and Distance Scales to Cells

Now prepare one of the vertical cells to display additional time scales, and prepare a horizontal cell to display a distance scale. These will give chronological and spatial context to the tasks you will create soon.

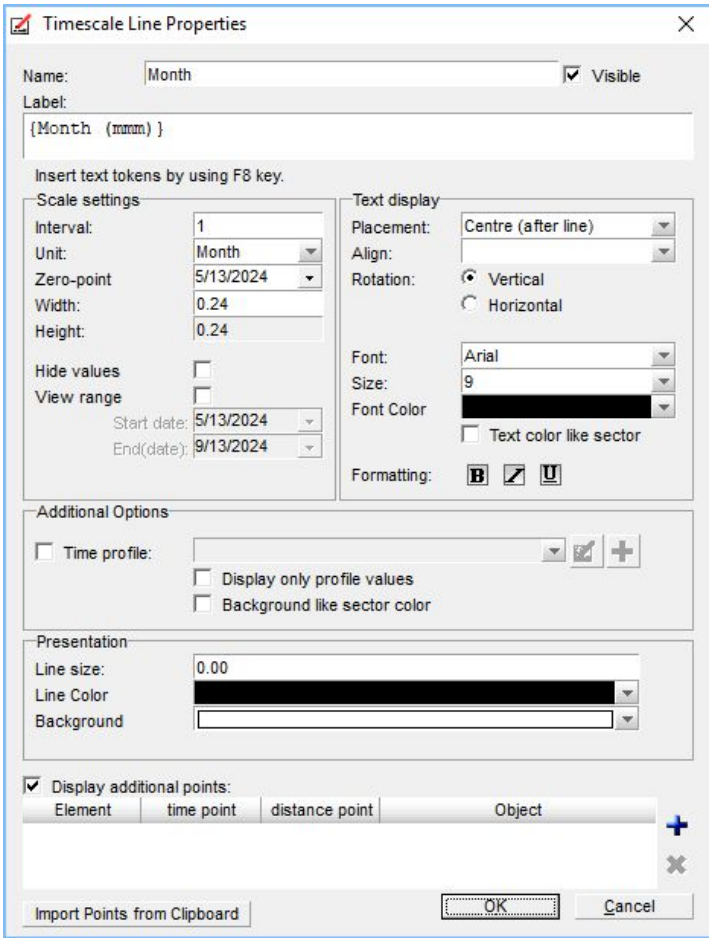
Add Two More Time Scales

1. Select the time cell with the scale and click the **Define Time Scales** tab. One label {Calendar week} has already been created.

2. Click the **Add Line** icon to insert a new line.



3. Set the properties (except for the **Label**) shown below in the **Time Scale Line Properties** dialog.

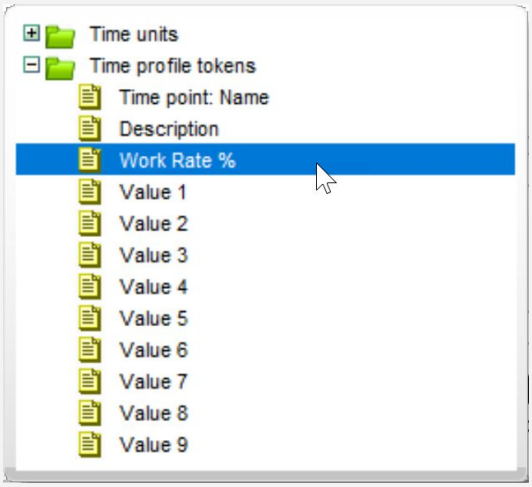


Reminder: In these screenshots, the MM/DD/YYYY date format is used, so 12/9/2020 would be the 9th of December, not the 12th of September (as it would be in some parts of the world).

4. For the **Label**, delete **{Calendar week}**, and press **F8** to open the time tokens list.
5. Select **Time units > Month (mmm)** as the label. This will create a second time scale with a three-character label for the months.
6. Click **OK** to close the dialog.

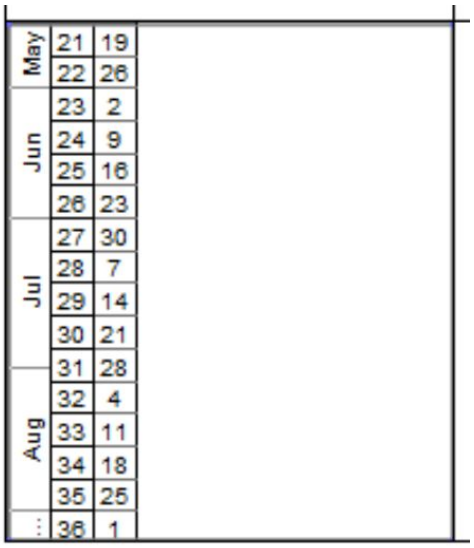
Understanding Tokens

Tokens are used to insert and control the display of various types of data, such as date, distance, time, scales, duration, etc.



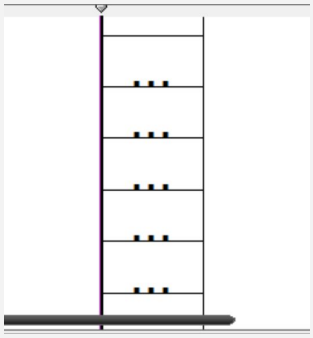
Wherever you are in a text field with a value in curly brackets (e.g., {Calendar week}) you can press **F8** to access a list of applicable tokens that can be used there. In addition, you can define your own custom tokens for unique data types not represented in the list.

7. Use steps 1- 6 above to create a time scale for **Time units > Day (dd)** with a horizontal **Rotation**.
8. Back on the **Define Time Scales** tab, double-click the first cell (Name for Calendar week) and enter the name **Week**.
9. Then select the **Month** row and click the **Move Up** icon to move it to the top so the scale looks like this.



Troubleshooting Scale Labels

If your scale labels ever look like this (dots instead of characters), it means that there is not enough room to display the label text.

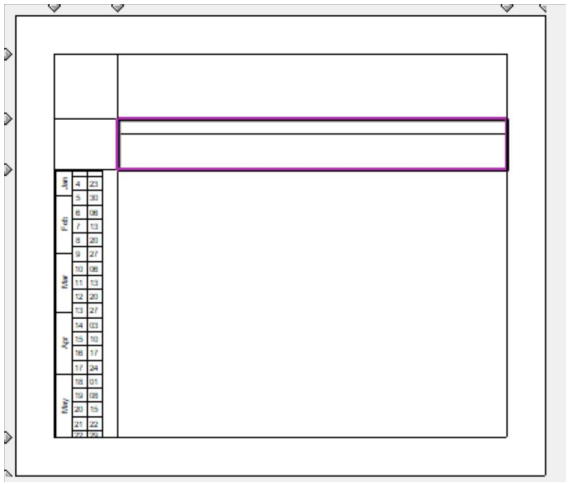


To fix this, you can:

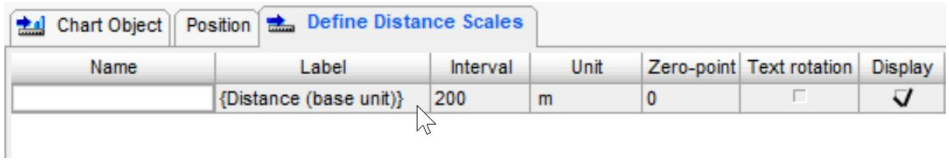
- Widen the cell by clicking-and-dragging the arrows along the edge of the view or
- Select the scale cell, click the **Define Time Scales** tab, double-click the name of the label that is not appearing, and make sure that **Rotation** is set correctly in the **Text Display Group**.
- Make sure the unit is set to match the label, e.g., if the label is **Month**, the unit should be **Month**.
- Edit the token in the dialog mentioned above to be shorter, e.g., change {Day {dddd}} to {Day {d}} where d is the number of characters allowed in the label (which matches Microsoft Excel).
    - d =3
    - dd = 03
    - ddd = Mo
    - dddd = Monday

Add a Distance Scale

1. Click the distance cell (2,2) above the master time-distance cell again.



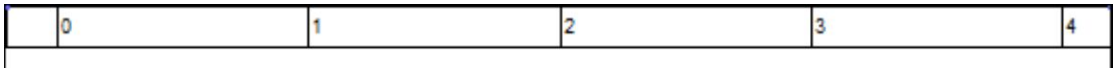
2. Click the **Define Distance Scales** tab. One {Distance (base unit)} label has already been created.



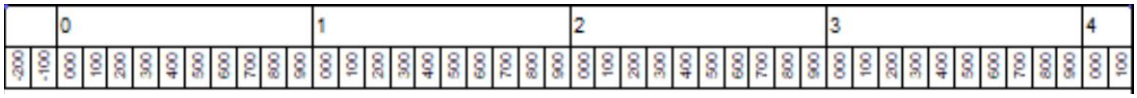
3. Click in the row and type **Kilometers**.
4. Double-click the row to open the **Distance Scale Line Properties** dialog.

   The **Label** is already populated with the **{Distance (base unit)}** token, which is dependent on the selected unit, e.g., 1000 m or 1000 km, depending on the distance unit you are using.

5. Delete this entry, press **F8**, and select **Distance > m**.
6. Set the **Interval** to **1000**, which means 1 line will be drawn in the cell every 1000 m.
7. Click **OK** and the scale will look like this.



7. Click the **Add Line** icon to create an additional distance scale.
8. Add **Meters in Kilometers** for the **Name**.
9. Delete the **Label**, press **F8**, and select **Distance > m in km**.
10. Set the **Interval** to **100**, which means 1 line will be drawn every 100 m.
11. For the **Distance unit**, select **m in km**, which means the fraction part of meter in 1 kilometer.
12. Set the **Text Display > Size** to **6**, and the **Rotation** to **Vertical**.
13. Click **OK**. The distance scale should look like this:



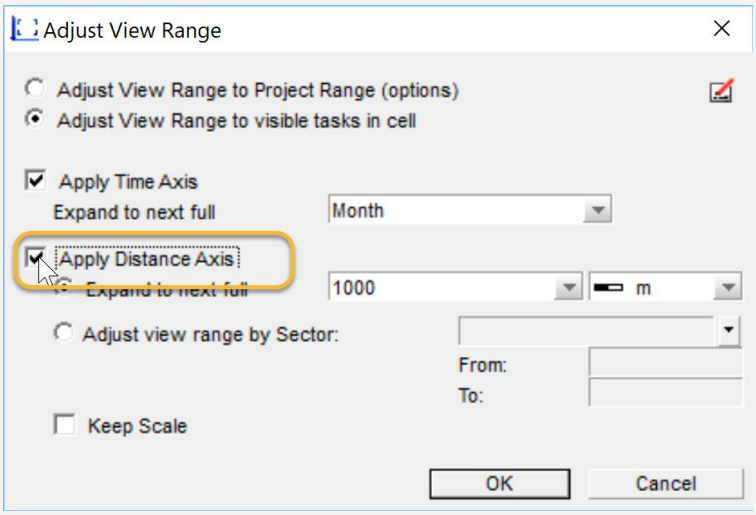
If it does not, confirm that your values match these and fix any that do not.

Name	Label	Interval	Unit	Zero-point	Text rotation	Display	Text placement	Text alignment	Width	Height	Line width	Font Size
Kilometers	{km}	1,000	m	0	☐	☑	After line	Centre	0.24	0.24	0.00	8
Meters in kilometers	{m in km}	100	m in km	0	☑	☑	After line	Centre	0.24	0.24	0.00	6

Troubleshooting Scale Visibility

If the scale you add does not appear in the cell, try these things:

- Drag the cell's sizing triangles to expand the cell's height and/or width.
- On the **Cell Settings** tab for the master (usually time-distance) cell, make sure that the **End** distance value matches/exceeds the length of the scale.
- Also on the aforementioned tab, click the **Adjust View Range** icon and check the **Apply Distance Axis** box.



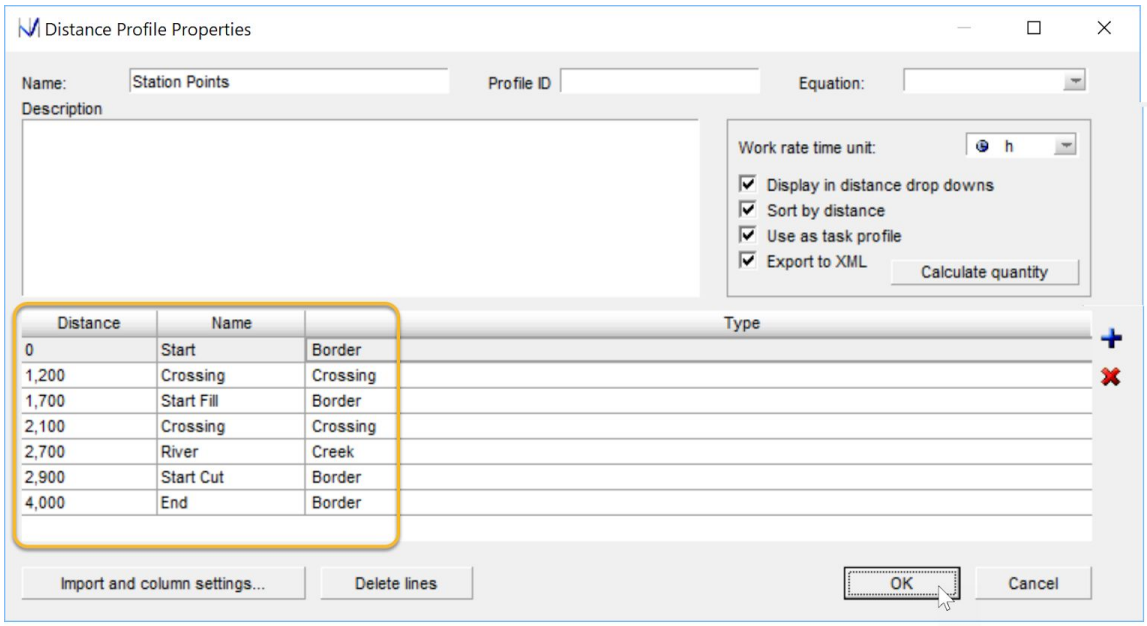
Add Station Points

To assist with positioning tasks on the distance axis, also define station points that you can add to the distance scale cell. You can also import/export such locations via your computer clipboard.

Importing Distance Grid Data

Grid data can also be imported using the **Import and Column Setup** button. For example, the data for this grid is stored in a Microsoft Excel file called Road map.xls in the Addon folder of application data of your TILOS installation.

1. In **TILOS Explorer**, expand **Project Data > Distance Axis Definitions**, and double-click **Distance Profiles**.
2. Click the **Add Line** icon to add a new row.
3. Double-click the new row in the chart and enter the **Name** as **Station Points**.
4. Confirm that the **Display in distance drop-downs** box is checked so that the station points you add will will be selectable as coordinates for tasks.
5. Click the **Add Line** icon in the dialog seven times so you can add several station points to the list.
6. In the station point rows, enter these values:



Tip: When selecting types in the list, you can type the type the first few letters to jump to the entry.

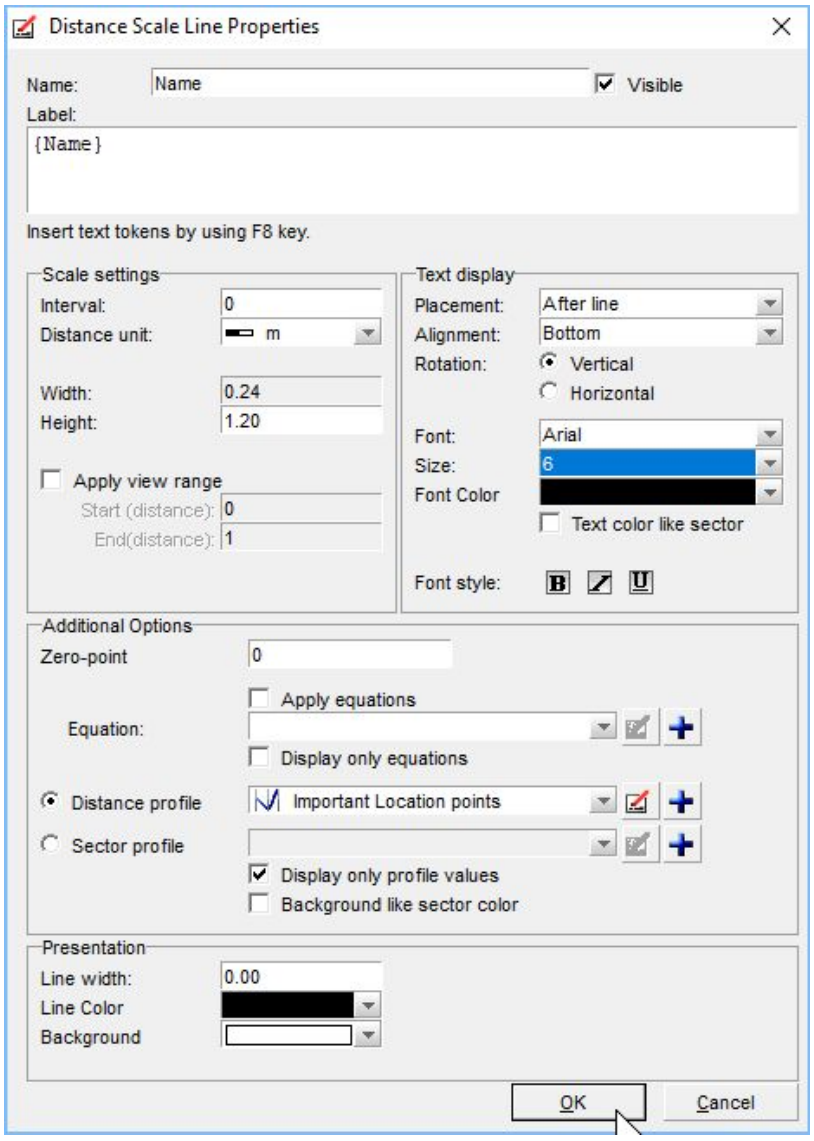
7. Click **OK** to close the dialog.

Add the Station Point Lines as an Irregular Scale with Text

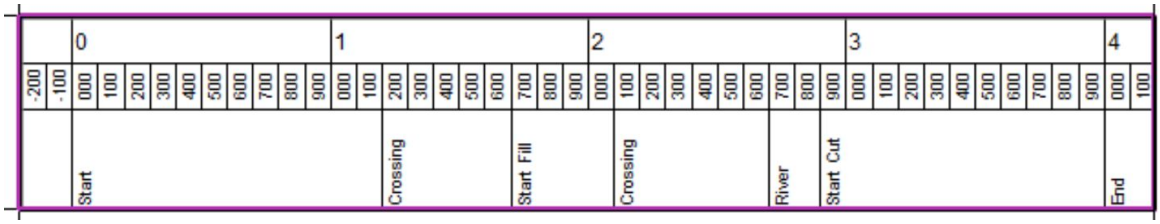
Now return to the distance cell to add the scale for these station points as an irregular (non-linear) distance scale.

1. In **TILOS Explorer**, return to **Views > Integrated View** and double-click **My Integrated View**.
2. Select the distance cell with scales and click the **Define Distance Scales** tab again.
3. Add a new row to re-open the **Distance Scale Line Properties** dialog.
4. In the **Name** field, enter **Station Points**.

5. Delete **{Distance (base unit)}** from the **Label** field, press **F8**, and select **Distance Profile Tokens > Name**.
6. Set the **Height** = **1.2**.
7. Set the **Alignment** to **Bottom**.
8. Set the **Rotation** to **Vertical**.
9. Set the **Text Display > Size** to **6**.
10. In the **Additional Options** group, select/confirm the **Distance profile** option, and choose **Station points** in the list of profiles.
11. Check the **Display only profile values** box to hide regular values.



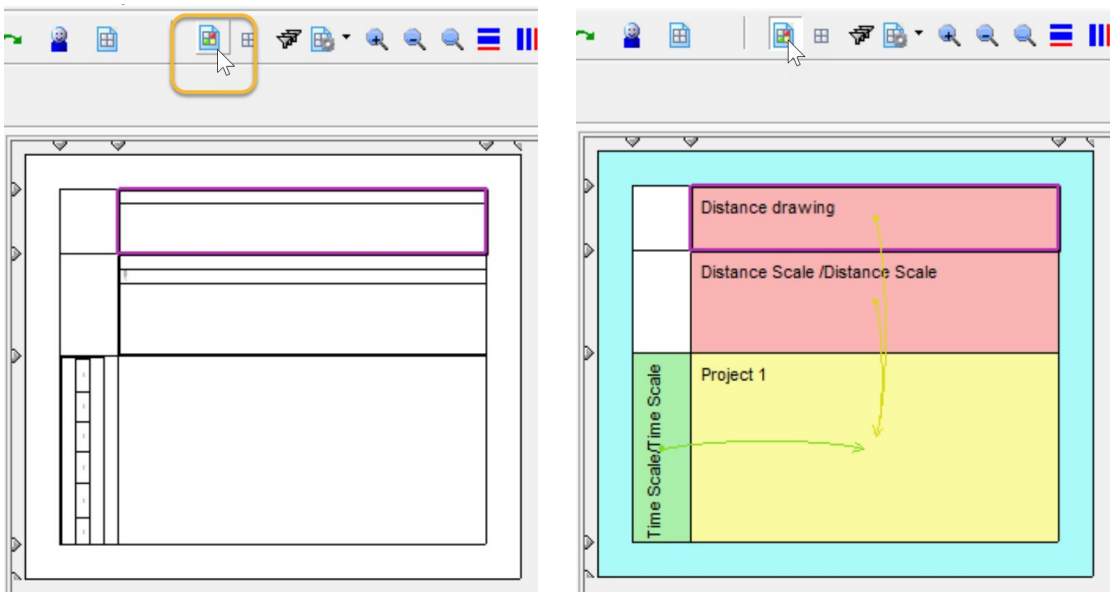
12. Click **OK**. The distance scale in the time-distance cell should look like this:



> ### Inserting Charts/Scales that are Smaller than the Cell
>
> The scales you have created so far are based on chart objects that covers an entire cell. You can also insert smaller charts directly into cells, as you would other graphics.

Check Your Cell Types

1. Confirm that you have laid out your cells properly by clicking the **Display View Map** icon on the toolbar.



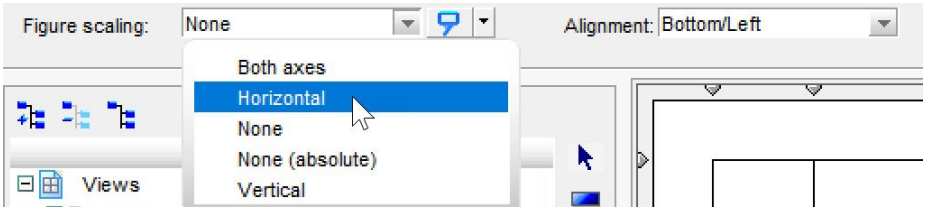
   In this image, the yellow arrows point from the dependent cells to their master cell.
2. Click the icon again when you are done to return to the standard view.

Insert and Scale a Distance Graphic

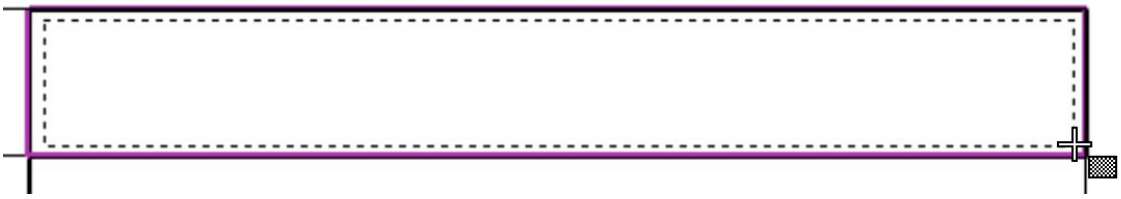
To give context to your project data, add a distance graphic (e.g., a sketch showing the job site). You have already defined the cell above the distance scale as a distance cell so you can add a distance graphic to it.

Insert a graphic

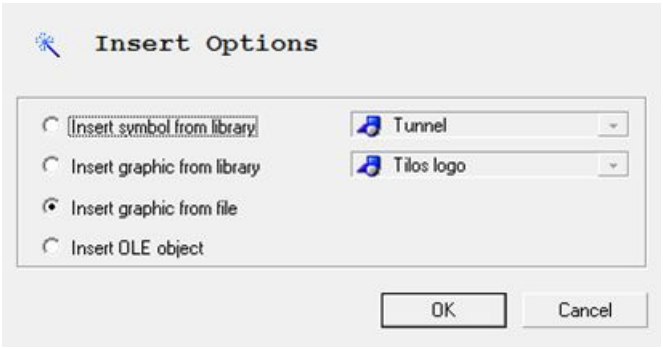
1. Select the distance cell **(2,1)** near the top of the view.
2. On the **Insert Object Toolbar** (along the left side of the active window), click the **Insert Graphic Object** icon.
3. On the **Preset Toolbar**, select **Horizontal** in the **Figure scaling** list. This ensures that on changing distance scales or showing only part of the project, the graphic will always be adjusted.



4. In the cell, click-and-drag to draw a rectangle where you want to insert the graphic. You do not have to be exact because you will adjust the image with other tools.



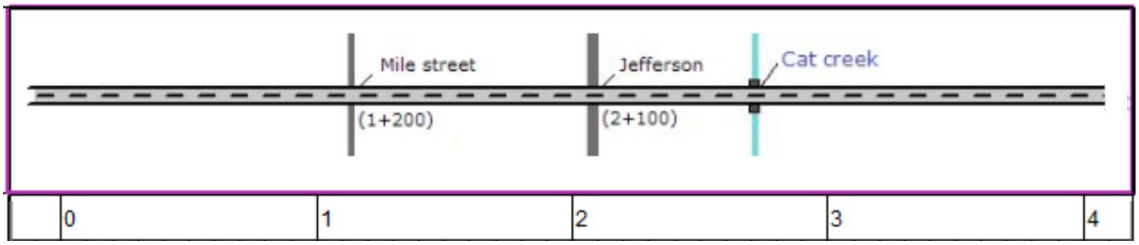
5. In the **Insert Graphic Object** dialog, select **Insert Graphic from File** to import a file, and click **OK**.



Dragging-and-Dropping Graphics

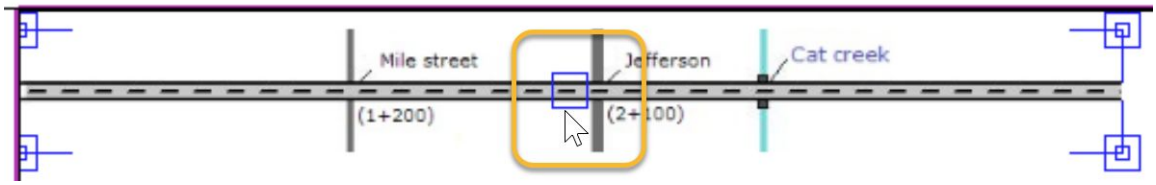
You can also insert graphics by dragging-and-dropping them from a graphic library to cells in the same way you can insert them into the Library from Windows Explorer.

6. Browse to the TILOS data folder and select the **Road map.jpg** file. Refer to **Tools > Options > Configuration** tab to find out where your data installation is (the default is **C:\ProgramData\TILOS\TILOS102-Data\AddOn**).



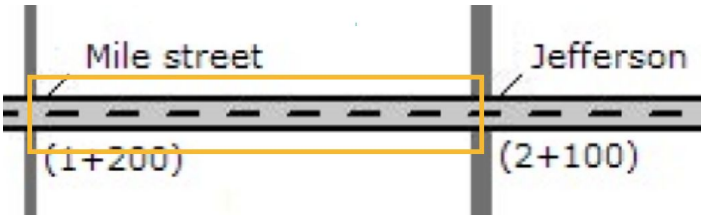
7. In the **Object Properties pane**, click the **Position** tab, and check the **Keep proportions** box to ensure that your graphic retains its aspect ratio. The size of the graphic is controlled by the distance scale, based on the **Horizontal scale** setting after insertion.

   If you accidentally deselect the graphic, you can reselect it by right-clicking and then clicking the blue square in the center.

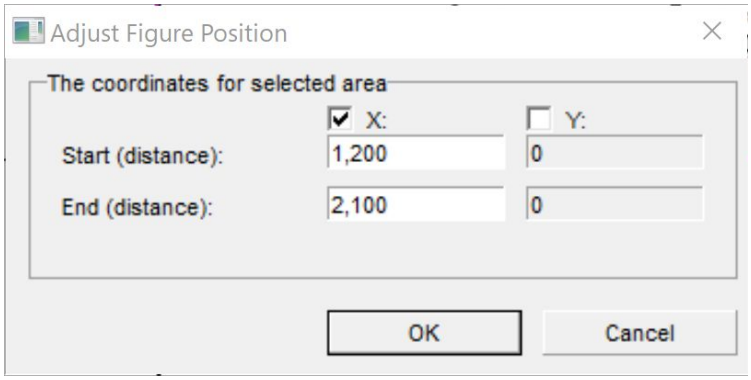


Synchronize the Graphic with a Scale

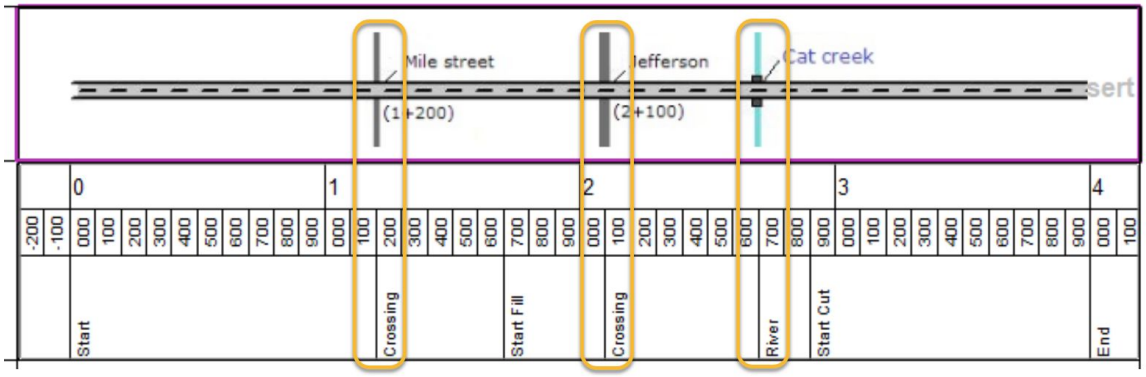
1. With the graphic selected, select **Distance** in the **Scaling** list on the **Position** tab.
2. Click **Adjust position**, read the message, and click **Close**.
3. Zoom in (Control + mouse wheel forward) if needed, position the cursor at **Miles street**, and click-and-drag a rectangle (guided by the ruler-band line) to **Jefferson street**.



4. In the **Adjust Figure Position** dialog, check the **X** box and enter the station numbers from both streets (as shown in drawing) for the **Start (distance)** and **End (distance)**.



5. Click **OK** to adjust the graphic. This operation changes both the graphic's horizontal scale and height, so you may have to adjust the cell height as well.

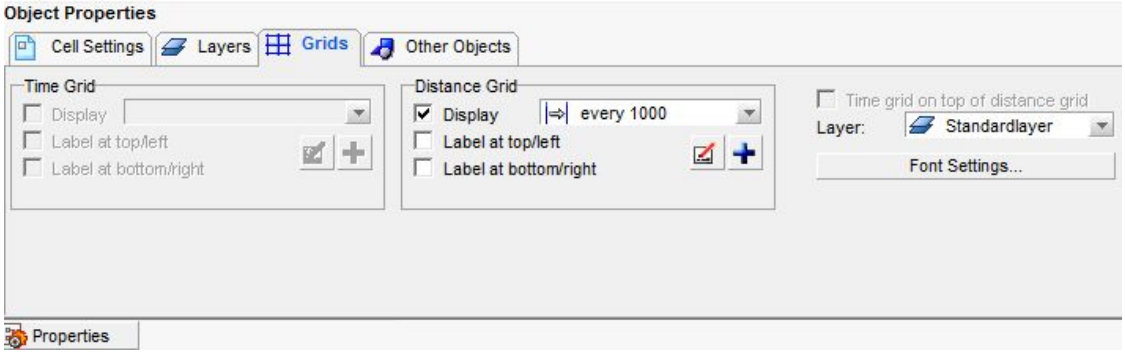


6. Notice how the streets/crossings and river/creek now line up.

Add a Distance Grid to the Graphic Cell

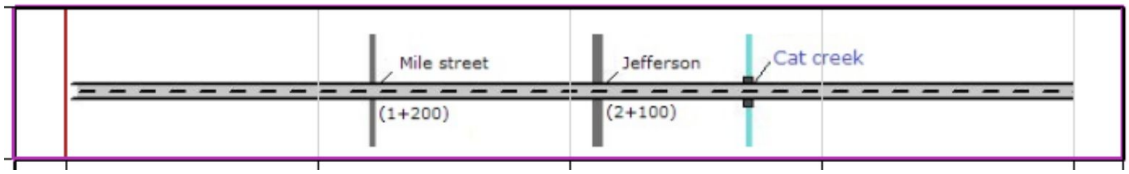
Overlay your map graphic with distance grid lines.

1. Click in the cell with the graphic to select the cell.
2. Click the **Grids** tab in the **Object Properties pane**.



3. In the **Distance Grid** section, check the **Display** box to make the grid visible.
4. For the **Distance Grid**, select **Every 1000 / Location Points**. The grid appears behind the map graphic.

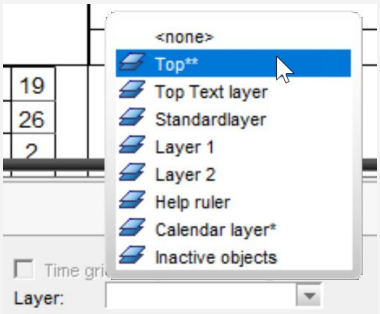
5. Select **Top Text Layer** in the **Layer** list to bring the grid forward in the graphical 'stack order'.
6. Select the **Road map** graphic and change the layer to **Standard layer**. The same grid as shown in the main cell is now visible in the distance cell.



Setting the Layer for Objects and Ordering Layers in a Cell

Layers control the visibility and selectability of data in views. Layers are like transparent sheets placed one on top of another in a graphical 'stack order'; the upper-most/top layer is in the foreground. To change the visibility and/or order of objects on a layer and layers in a cell:

1. Pick each object/piece of data in the cell and make sure it is assigned to an appropriate layer in the **Layer** list.

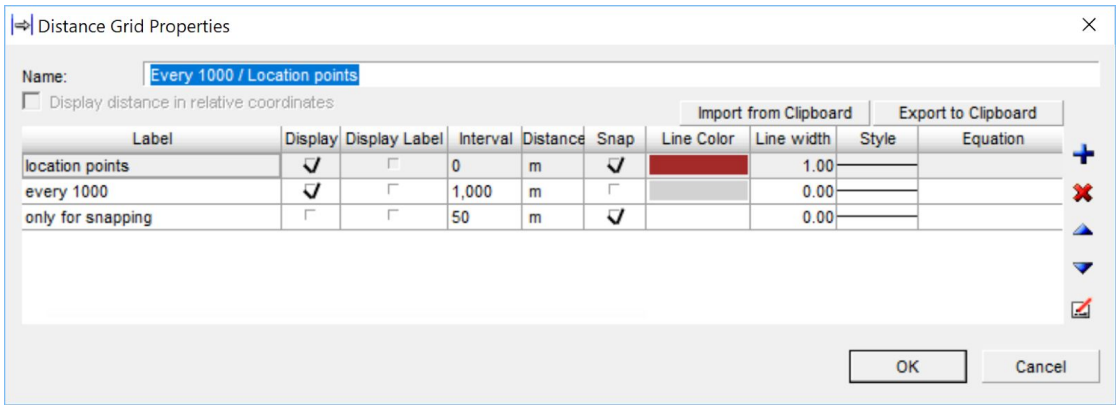


2. Select the cell border and click the **Layers** tab.
3. Check boxes to control the visibility and selectability of the data one each layer as needed.
4. Use the blue buttons on the right side of the pane to:
   - **Move Up/Down** - Move selected layers in the list (stack order) to bring some objects to the foreground and push others to the background.
   - **Synchronize Layers** - Open a dialog that enables you to:
     i. Get the order of the layers from your Library.
     ii. Set all cell layers in the view like the current cell.
     iii. Set Visible and Printable for all non-system layers.
     iv. Toggle all visible layers to be printable.
     v. Toggle all printable layers to be visible.

- **Display Only Used Layers** - Hide layers that are not in use in the selected cell.

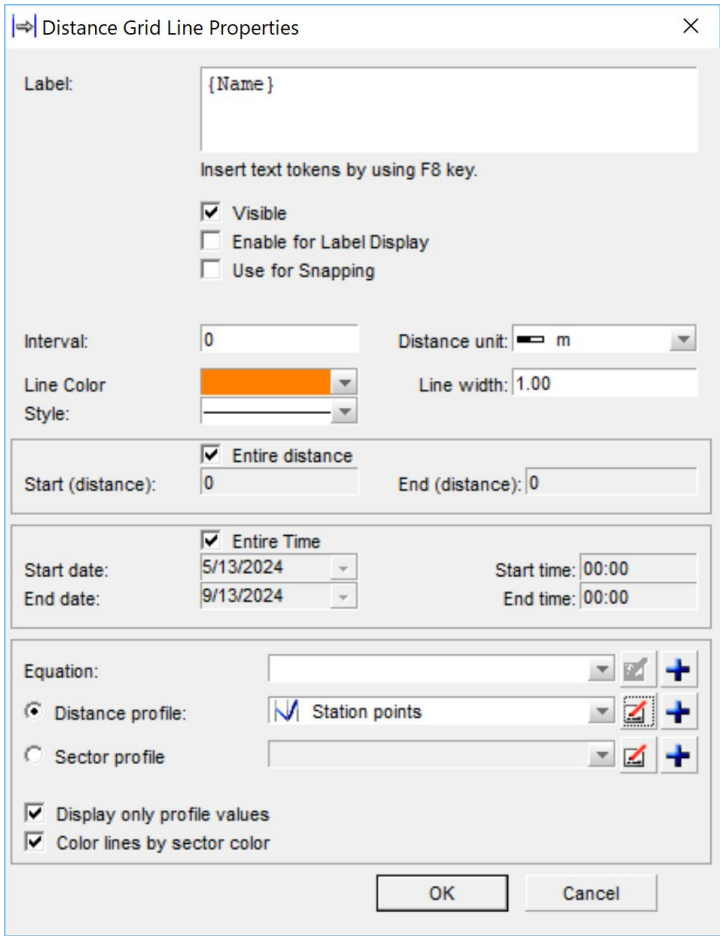
Add Additional Lines to the Grid

1. Deselect the graphic and select the distance cell that contains it again.
2. Click the **Edit** icon in the **Distance Grid** section.
3. Add another grid line by clicking the **Add Line** icon.

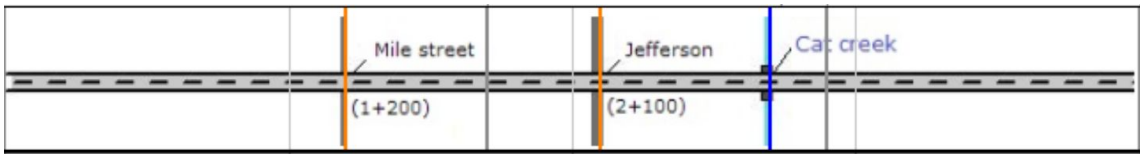


4. Press **F8** and select **Distance Profile Tokens > Name** for the **Text expression**. This will print the name of the grid line.
5. Confirm that the **Visible** box is checked.
6. Change the **Line color** to orange.
7. Confirm the **Distance profile** option, and select the **Station points** profile in the list.
8. Check the **Display only profile values** box and the **Color lines by sector color** box. The colors are defined using the color of the sector type (from the Library) according to

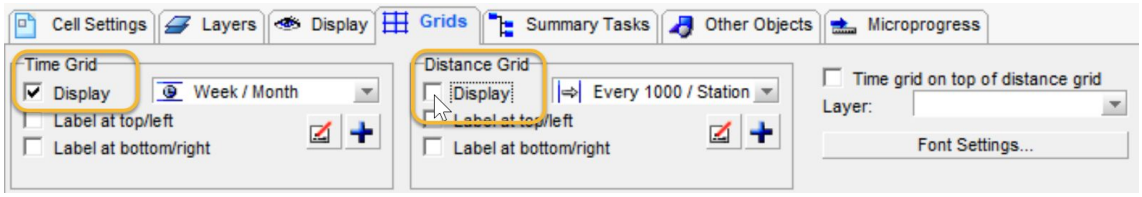
the sector type in the **Distance profile > Station Points**.



9. Click **OK** and **OK** again to see this additional grid in the distance cell.



You can control the display of grids for each cell individually by checking/unchecking the **Display** boxes on the **Grids** tab in the **Properties pane**.



Insert Tasks

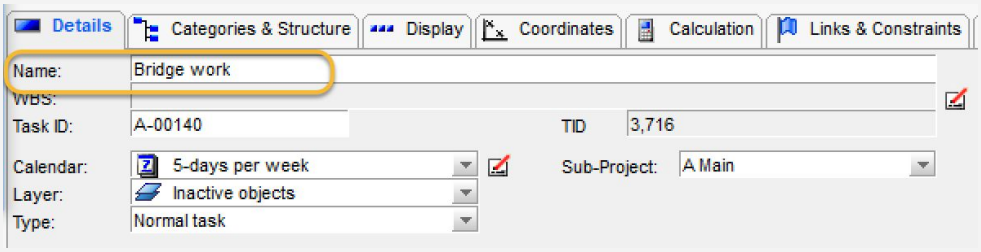
Tasks are at the center of building a project schedule. Tasks can be entered into a time-distance cell, entered in a Gantt chart cell (text or bars panel), or entered directly into the Task List for a sub-project.

Inserting Tasks

- **Calendars**: If you are using a default **5-days per week** calendar, the task's line is automatically broken on weekends and holidays (no work), indicating no work progress. This can be changed using the display settings for the cell. Select the cell. In the **Object Properties pane** at the bottom of the screen, click the **Display** tab, and change the **Calendar** option.

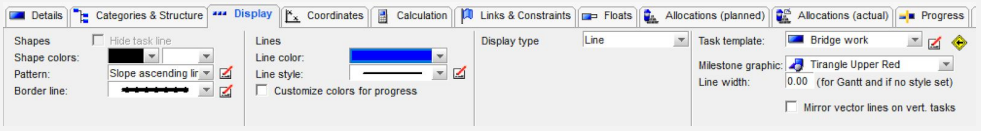
- **Snapping**: When inserting tasks, you can also use snapping to accurately place the start and end points based on constant time and/or distance intervals, as well as specified grid lines. On the **Main Menu**, select **Tools > Options > Snapping** tab.

- **Naming**: Enter the **Name** of the task in the **Object Properties pane > Details tab** (or on the **Preset Toolbar**).



- **Layer**: Every task has a **Layer** assignment. Layers determine both the depth arrangement (stack order), visibility, and selectability of objects. The layer assignment for new tasks is the default layer if no layer was defined in the library for the template. The layer can be changed on the **Object Properties pane > Details** tab.

- **Appearance**: If you want to change a line's presentation, select the **Display** tab in **Object Properties pane**.



Of course, many other task properties can be changed on the **Object Properties** pane, including:

- **Sub-project**: Every task is created as part of a sub-project. The sub-project assignment for new tasks is the default sub-project.
- **Figures**: Changing the figures for the task does not affect the data in the template, although the task can still be linked to the template. The different task types are explained in the appendix.
- **Calculations**: On the Calculation tab, every task may have the Quantity or Work rate values assigned.

Inserting the same task or object repeatedly (repetitive entry)

To add multiple tasks or objects one after the other, click the desired insertion tool icon (e.g., Insert Task) and then the **Lock Insert Tool** icon to keep the active insertion type active.

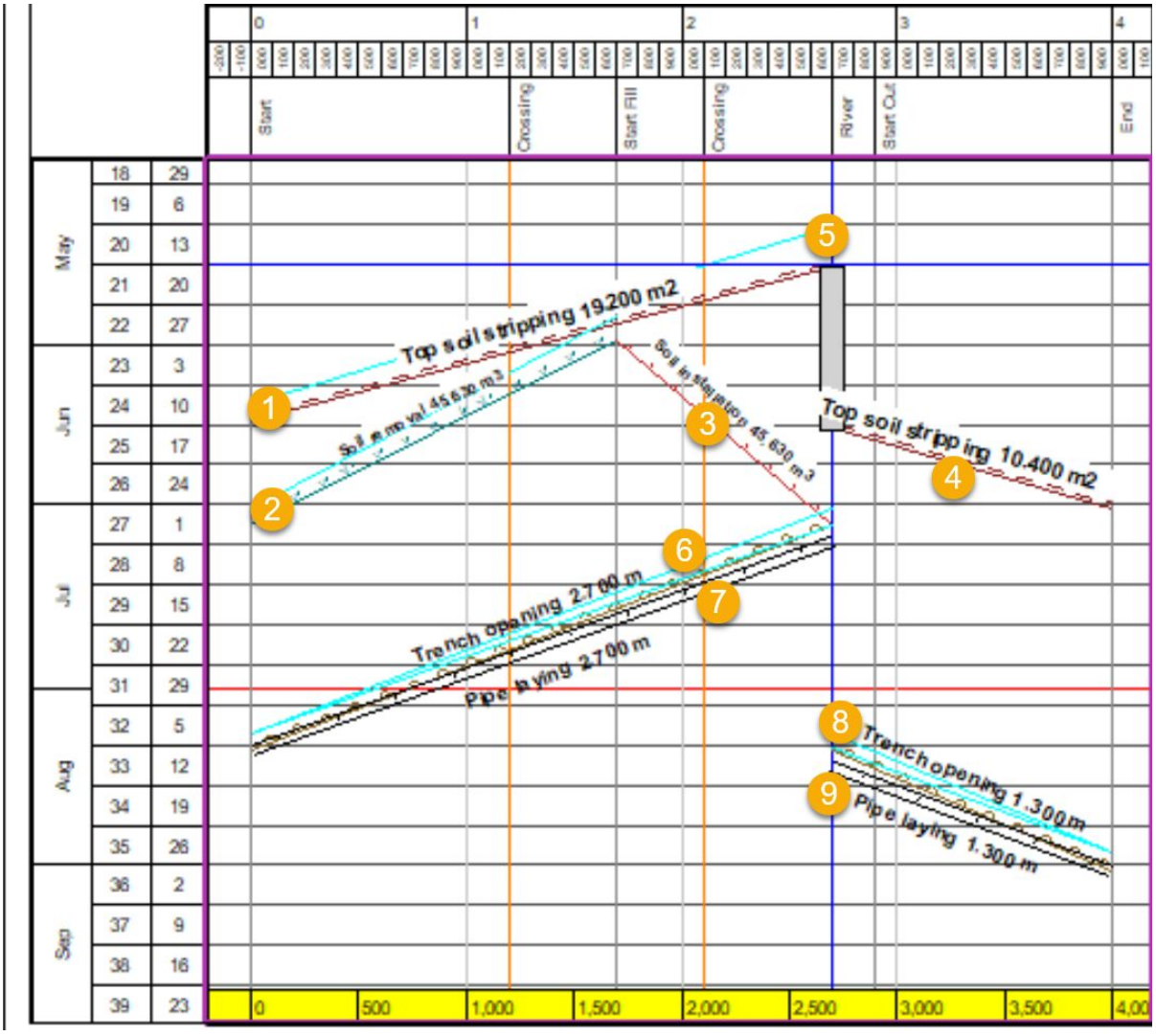
To change the default task template, press Escape to deselect the newly added task. The Preset Toolbar will then show the list of task templates.

- **Drag and Drop Task Types to Create a Template Type and/or a Schedule -** You can quickly create a schedule by dragging and dropping task types from the Task Templates library to a Gantt chart. When you drop the task type, a task is created with its start date at the location of your cursor. The reverse is also true: you can drag a unique task from a Gantt chart to the Task Template library to create a new task type template.
- **Add a New Task using the Insert Key -** You can add a task into a Gantt chart by selecting a task template, picking an existing row in the chart, and pressing the Insert keyboard key. The new task is created (using the selected template) above the selected task in the chart (as it is in MS Project).
- **Work with Task List and Time Distance View in Parallel** - The interaction between a time-distance view and a task list includes a Task List tab beneath the TILOS Explorer. When you are in a time-distance cell, you can click the tab to see a list of all visible tasks in the cell (with the same filter applied). When you select tasks in the list, the same ones are then selected in the view. If the task is outside the extents of the view's visible area, you are prompted to change the extents. If the task is within the extents, the view is scrolled to it. These features make it easier to select tasks and change them in the time-distance view using the task list.
- **Specify a Default Summary Task -** You can select a default summary task for the selected task template in the Preset toolbar so that each task is automatically associated with a summary when it is created.

In this section, you will **insert these tasks**: (you may want to print this for reference)

Task	Task Template	D/M/Y Dates	M/D/Y Dates	Distance
1	Earthworks > Topsoil stripping	20/5/24 - 14/6/24	5/20/24 - 6/14/24	2700 - 0
2	Earthworks > Soil removal	31/5/24 - 3/7/24	5/31/24 - 7/3/24	1700 - 0
3	Earthworks > Soil installation	31/5/24 - 3/7/24	5/31/24 - 7/3/24	1700 - 2700
2	Earthworks > Soil removal	31/5/24 - 3/7/24	5/31/24 - 7/3/24	1700 - 0
4	Earthworks > Topsoil stripping	17/6/24 - 1/7/24	6/17/24 - 7/1/24	2700 - 4000
5	Canalisation > Culvert	20/5/24 - 17/6/24	5/20/24 - 6/17/24	2650 - 2750
	Canalisation > Culvert > River Bed	20/5/24 - 28/5/24	5/20/24 - 5/28/24	2650 - 2750
	Canalisation > Culvert > Walls	29/5/24 - 6/6/24	5/29/24 - 6/6/24	2650 - 2750
	Canalisation > Culvert > Deck	7/6/24 - 17/6/24	6/7/24 - 6/17/24	2650 - 2750
6	Canalisation > Trench opening	3/7/24 - 12/8/24	7/3/24 - 8/12/24	2700 - 0
7	Canalisation > Pipe laying	5/7/24 - 12/8/24	7/5/24 - 8/12/24	2700 - 0
8	Canalisation > Trench opening	12/8/24 - 2/9/24	8/1/242 - 9/2/24	2700 - 4000
9	Canalisation > Pipe laying	14/8/24 - 2/9/24	8/14/24 - 9/2/24	2700 - 4000

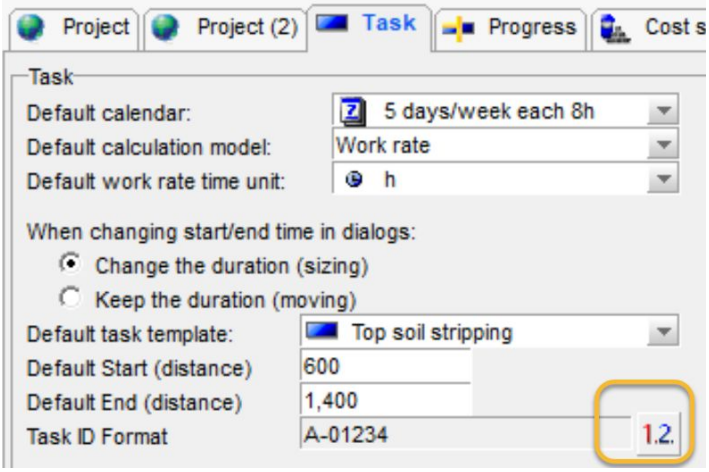
To look like this:



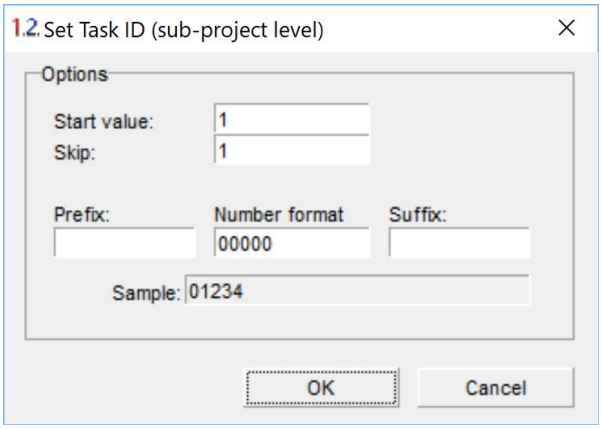
Before you add tasks to your project set up the task ID scheme.

1. On the toolbar, click the **Options** icon, and select the **Task** tab.

2. Next to the **Task ID Format** field, click the **Generate ID** icon.

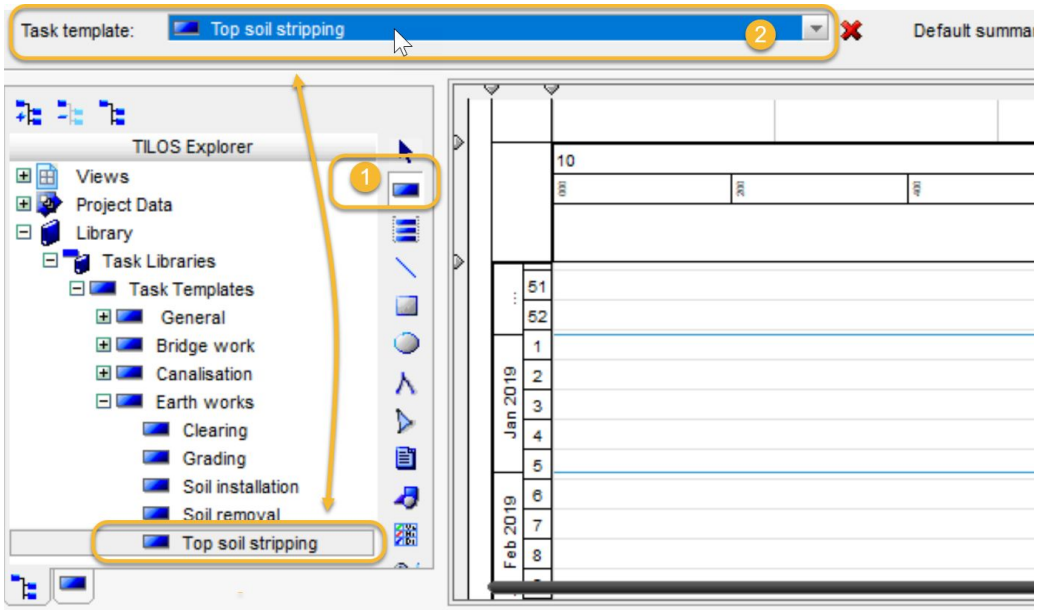


3. Set these values in the **Set Task ID** dialog so the tasks you add next will be numbered 1 through 9.



4. Click **OK** and **OK** again to close the **Options** dialog.
5. Select the time-distance cell.
6. On the **Insert Object Toolbar**, click the **Insert Task** icon.
7. On the **Preset Toolbar**, select **Earthworks > Topsoil stripping** as the **Task template** to use for the new task. This can also be set by clicking a task template in the **TILOS**

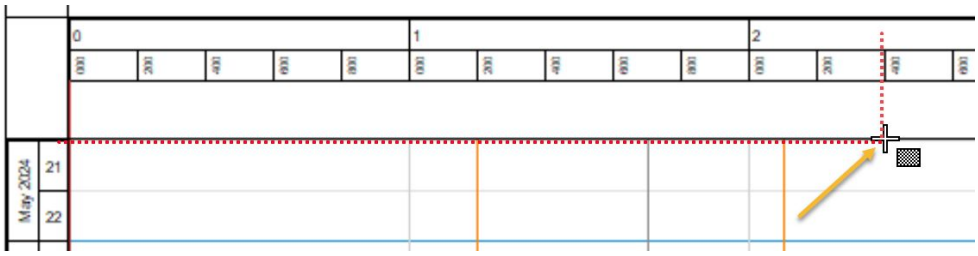
Explorer > Library > Task Libraries > Task Templates before you insert a task.



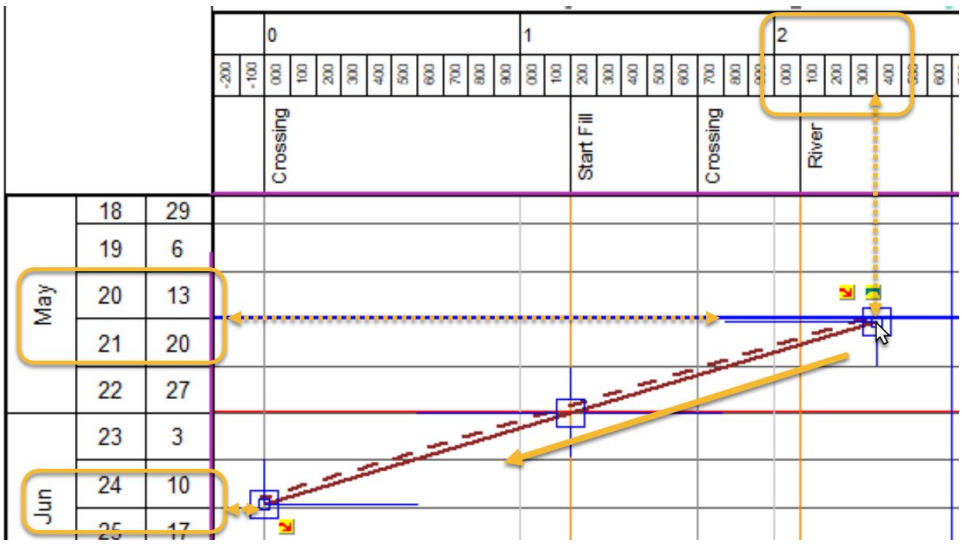
Creating New Tasks Types "On-the-fly"

If the library does not contain the type of task you need, you can always select **<None>** in the **Task template** list to create a task without using a template (or use any other template and change the task individually later).

8. Insert **Task 1 - Topsoil Stripping**.
    a. Place your cursor over the task's starting point near the **intersection of May 20th on the time axis and and 2700 (River) on the distance axis**.



    b. Click-and-drag from **right to left** to draw a line to the task's end position near the **intersection of June 14th on the time axis and and 0 on the distance axis**.



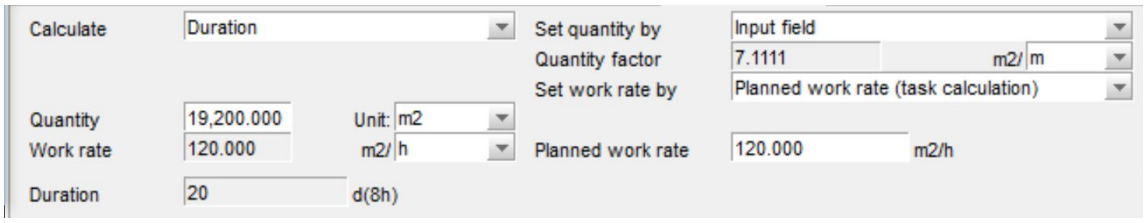
Tip: You can also look at the lower-right corner of the TILOS window to cursor's cell coordinates.

'Drawing' Tasks

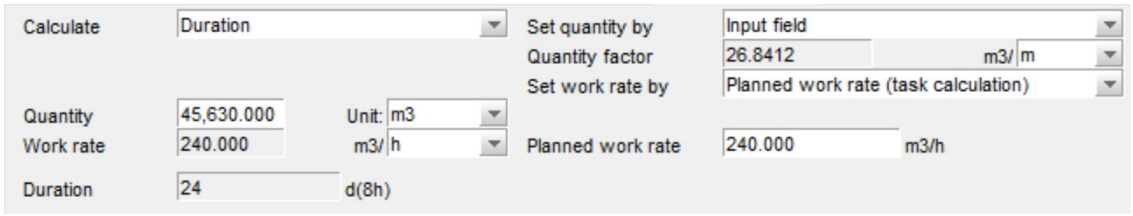
It is important to note that whether a task is drawn from left-to-right or from right-to-left determines the start and end coordinates; the end date of a task must always later than the beginning of the task. If you need to change the direction of the task afterward, click **Change of direction** on the **Coordinates** tab.
When inserting tasks, do not worry too much about start and end dates. You can draw the tasks roughly according to a graphical plan and then edit later with exact dates and coordinates.
The dates in the table below are taken after rescheduling the final project, so do not be concerned if they differ from your input. The task templates to select in the preset toolbar can be located in different subdirectories (e.g. Earthworks and Canalisation).

c. Click the **Coordinates** tab, and adjust (if needed) the **Start** and **End** dates and coordinate to match your targeted values (**May 20** - **June 14** and meters **2700** - **0**).
When you release, the task stays selected and can be edited in the **Object Properties** pane.

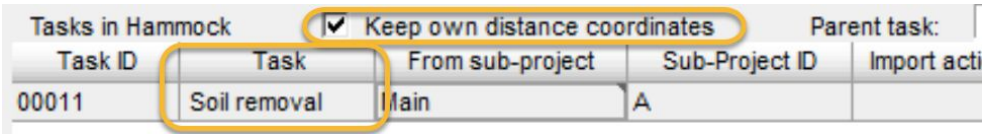
d. Click the **Calculation** tab in the **Object Properties pane**.
e. Enter these values for Task 1:



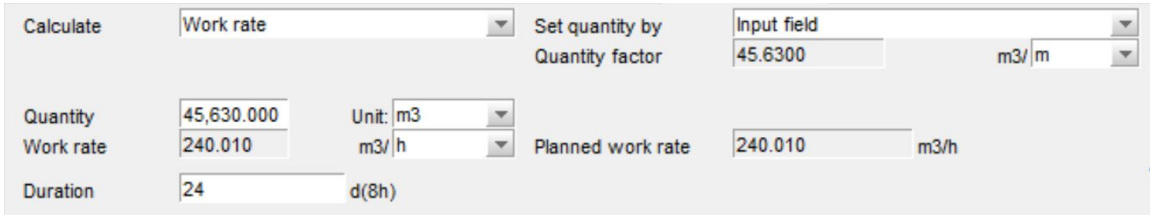
6. Insert **Task 2 - Soil removal** in the same way using data from the chart on page 39. When you insert tasks in these steps, remember to check the task template on the **Preset Toolbar** first, and adjust the dates and start and end locations on the **Coordinates** tab afterwards.
    a. On the **Calculation** tab, enter these values for Task 2:



7. Insert **Task 3** from the chart as well.
    a. Click the **Details** tab and set the **Type** to **Hammock task**.
    b. Select the **Categories & Structure** tab, and check/confirm the **Keep own Distance Coordinates** box to ensure that the hammock does NOT take the distance coordinates from the assigned tasks; it keeps its own location.
    c. Click the **Add Task to Hammock** icon next to the **Tasks in Hammock** grid and select **Soil removal** in the first row of the **Task** column. Your task's ID number may differ if you have created other tasks before this.



    The hammock task monitors **Task 2 - Soil removal** task.
    d. On the **Calculations** tab, enter these values for Task 3:



Understanding Summary and Hammock Task Types

Summary and hammock tasks enable you to associate individual tasks into groups. The primary difference between summary and hammock tasks is that all tasks assigned to a hammock task keep their placement in the project structure and copies of the tasks are created one level below the hammock task. Changes in these tasks are reflected to their copies and vice versa. Tasks inside a hammock task should only be deleted if the original task should also be deleted, which is done automatically. Otherwise, with the task selected you can simply remove tasks to the right of the table on the **Categories & Structure** tab.

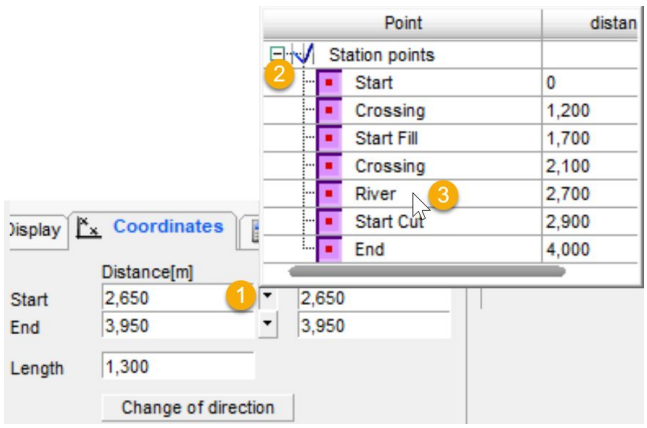
Summary Task

- A summary task summarizes individual tasks within a sub-project.
- The summary task displays the total distance and time range of all sub tasks.
- Summary tasks can be hidden or shown.
- You can either display the summary task with task details (opened) or the summary task only (closed).
- The display of a closed summary task depends on the chosen task template, e.g. rectangle.
- Costs and resources can be allocated to a summary task.

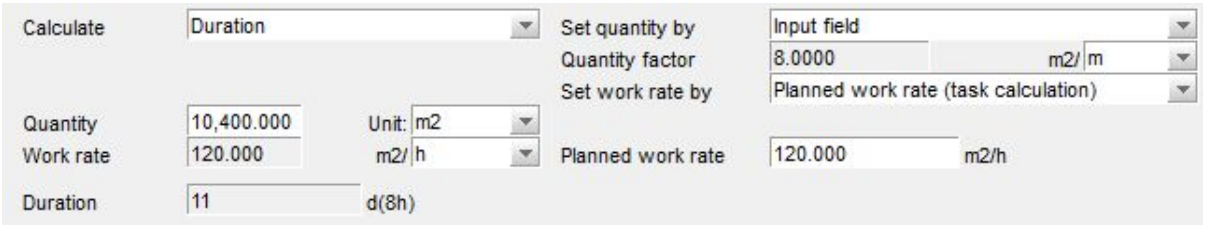
Hammock Task

- Using hammock tasks, you can create relations to tasks in different sub-projects.
- The display of a hammock task depends on the chosen task template.
- Costs and resources can be allocated to a hammock task.

8. Insert **Task 4** by selecting the coordinate at the river from the **Station points** distance profile:
    a. Draw the task in the general area shown in the chart.
    b. On the **Coordinate** tab, click the arrow next to the **Start Distance**.
    c. Expand the **Station points** group.
    d. Select **River** to start the task at 2700. Now if the River station point is moved, the task will be adjusted accordingly.

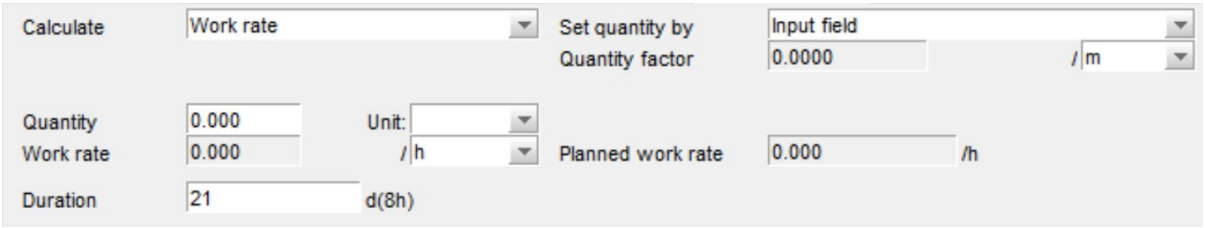


e. On the **Calculations** tab, enter these values for Task 4:

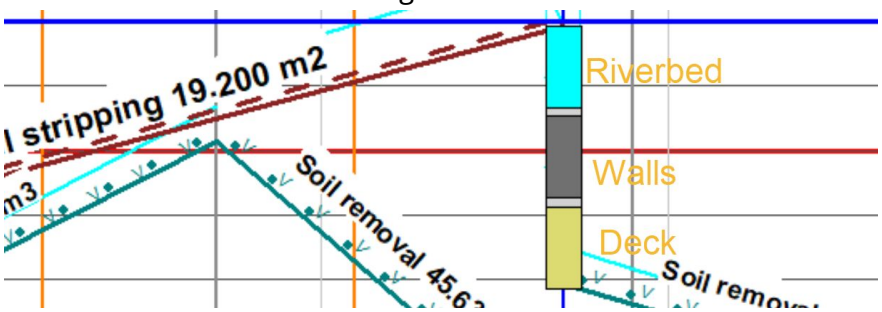


The quantity shown on the **Calculation** tab is smaller than for **Task 1 - Topsoil Stripping** because the distance is shorter.

9. Insert **Task 5** as a summary task for a culvert. As a summary task, it will contain three sub-tasks linked to each other.
    a. In the **TILOS Explorer**, expand **Library > Task Libraries > Task Templates > Canalisation > Culvert**. Review how Culvert has three available sub-tasks: **Deck**, **River bed**, and **Walls**.
    b. Before you insert the task, select **Canalisation > Culvert** on the **Preset Toolbar**.
    c. Draw and adjust the task's coordinates as shown in the chart.
    d. On the **Details** tab, set the **Type** to **Summary task**.
    e. On the **Calculations** tab, confirm these values for Task 5:



f. Create the three subtasks using the values from the chart.



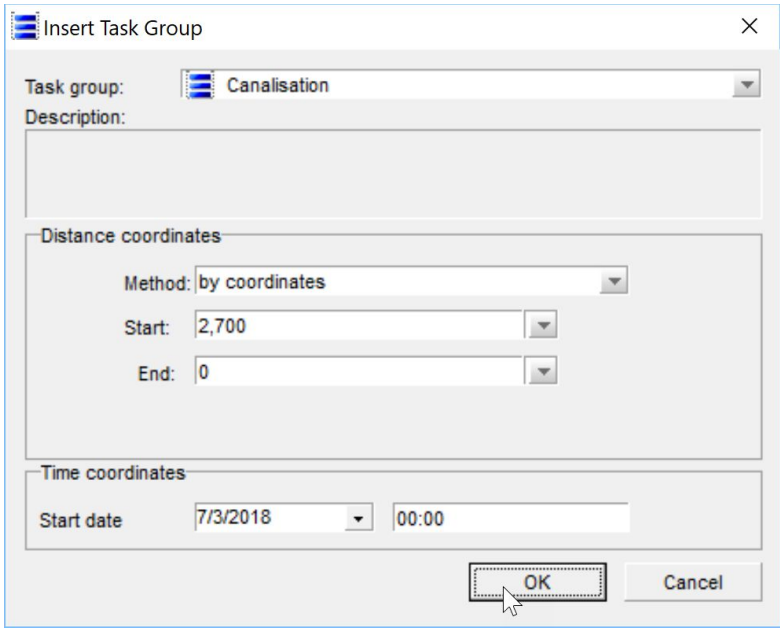
g. Press **Control** and select each of the sub-tasks you just created.
h. In the **Object Properties** pane, click the **Categories & Structure** tab.
i. On the right side, select **Culvert** in the **Parent task** list.

10. Insert **Task 6** and **Task 7** using the **Insert Task Group** function.

a. Click the **Insert Task Group** icon on the **Insert Object Toolbar**.
b. Draw a box approximately when/where the tasks will be performed.

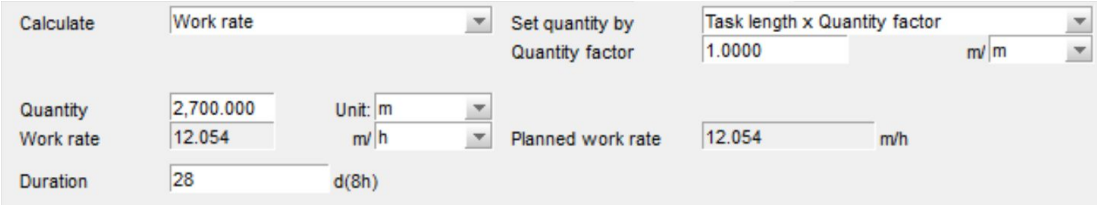
c. In the **Insert Task Group** dialog, select **Canalisation** as the **Task group**.
d. In the **Distance coordinates > Method** list, select **by coordinates**.
e. Enter **2700** and **0** for the **Start** and **End** coordinates.
f. Enter the **Time coordinates > Start date** from the chart **(7/3)**. Do not worry that Tasks 6 and 7 have different start dates; this difference is defined in the

task group template being used.

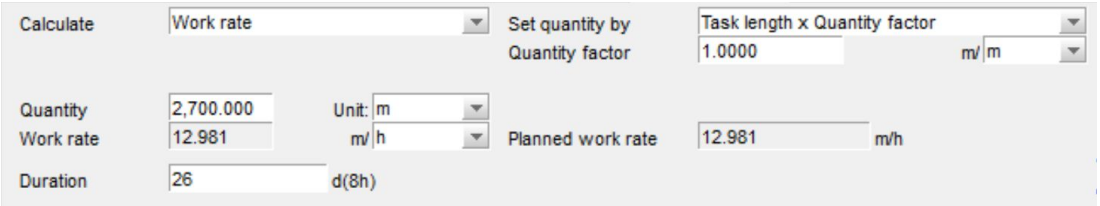


g. Click **OK**. Using this method, you have created two tasks at once.

h. On the **Calculations** tab, enter these values for Task 6:

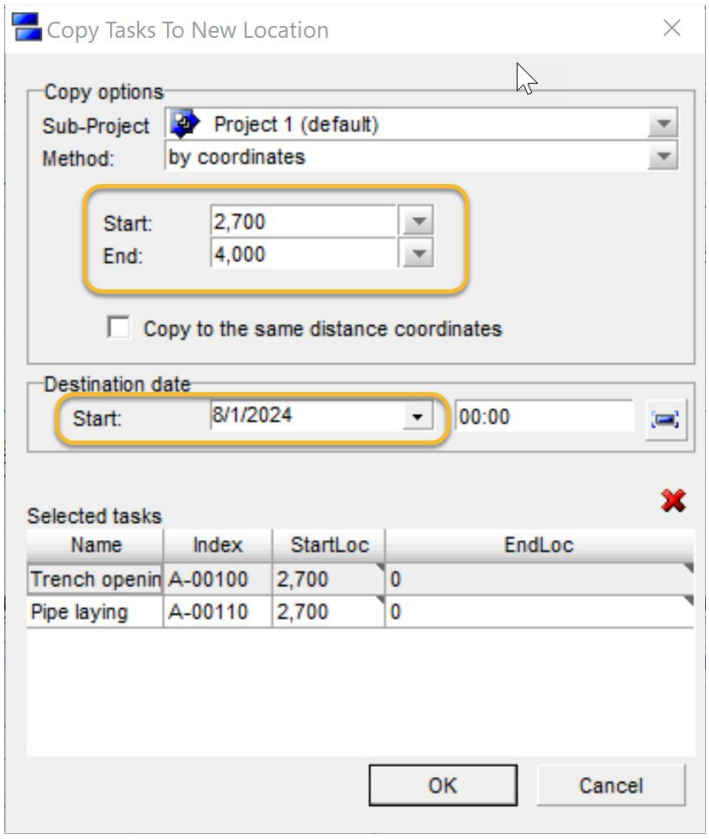


i. On the **Calculations** tab, enter these values for Task 7:



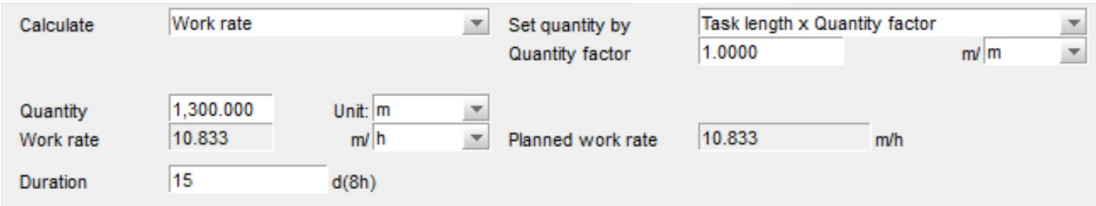
11. Create **Task 8 - Trench Opening** and **Task 9 - Pipe Laying** by copying previous tasks.
    a. The previous tasks should still be selected, but if not press **Control** and select **Task 6** and **Task 7**.
    b. Right-click and select **Task Creation > Copy Task**.
    c. Enter **2700** and **4000** as the **Start** and **End** coordinates for the two additional tasks.

d. Select **August 1** as the **Destination date > Start**.

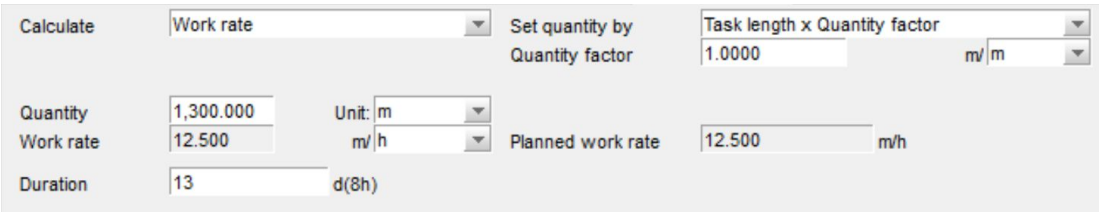


e. Click **OK**, and check the tasks in your view against the view on page 37 to make sure your view matches the intended plan.

f. On the **Calculations** tab, enter these values for Task 8:

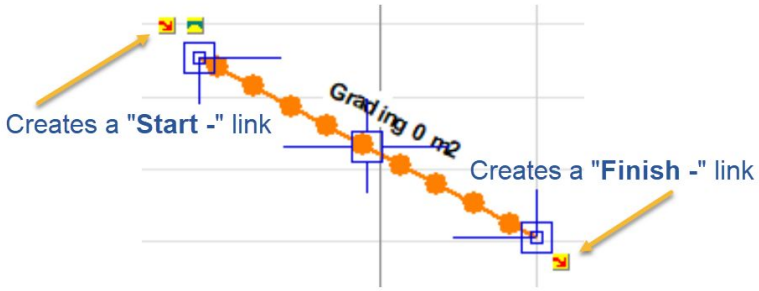


g. On the **Calculations** tab, enter these values for Task 9:



Link the Tasks to Each Other

If you have defined a sequence of tasks and you want its logical dependencies to be kept even if one of the tasks is moved, you can ensure that by defining task links.

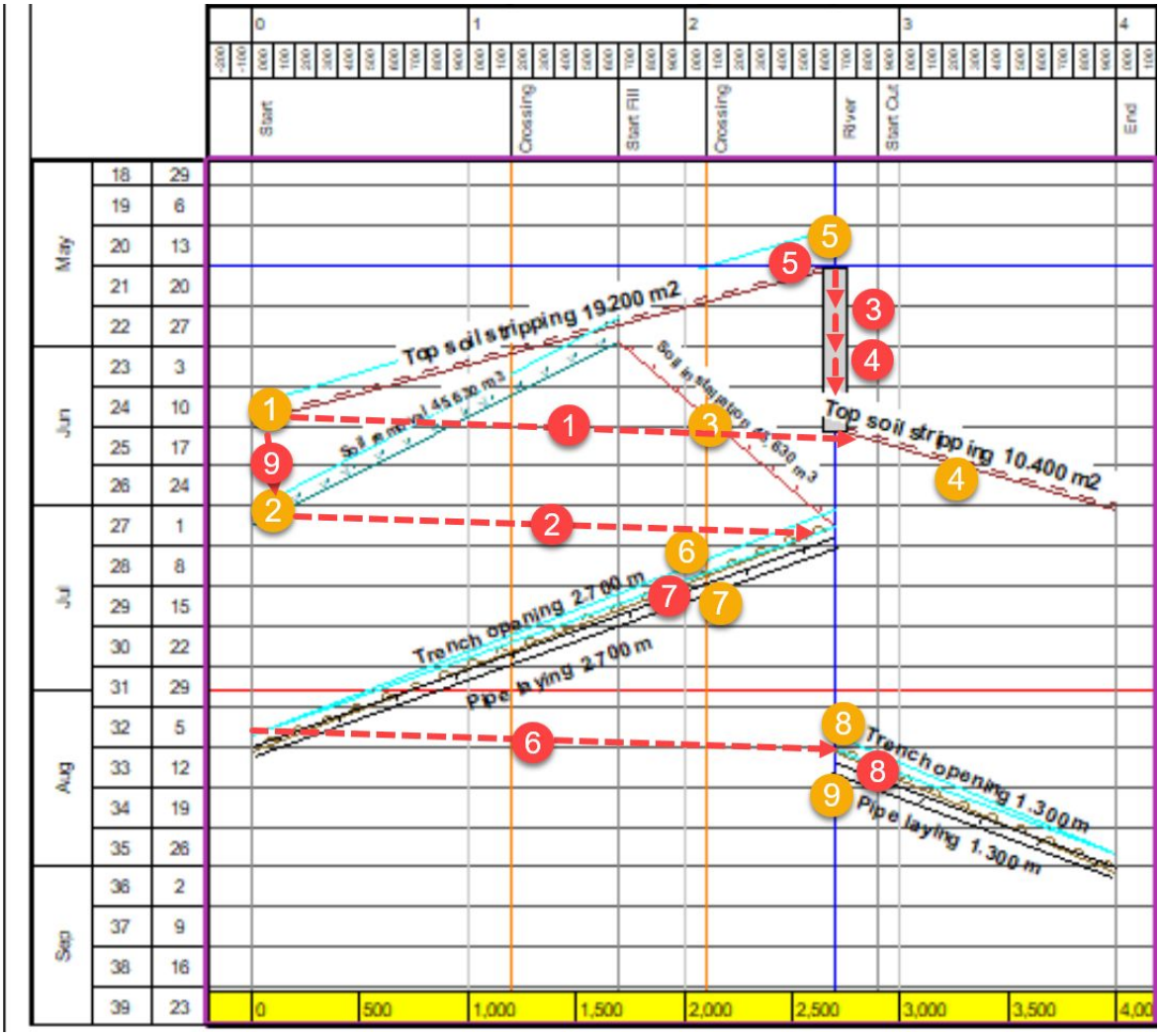


Automatically Calculating a Successor's End Date

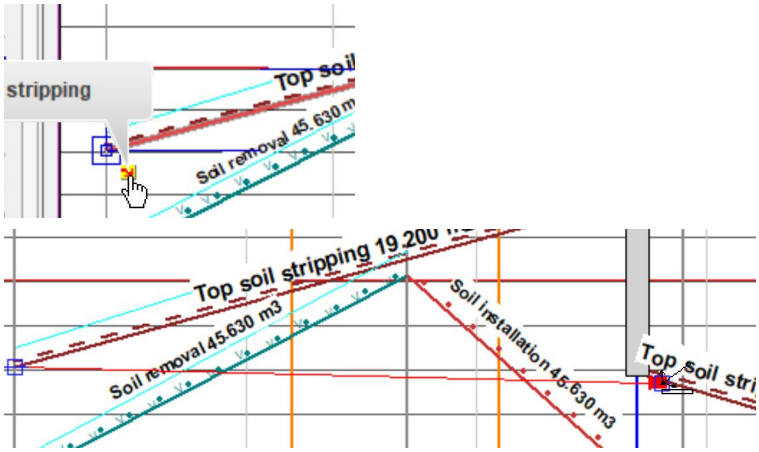
Linking tasks so they have the same duration and end date - When using a **Finish to Finish** link between two tasks, you can base one or more successor task end dates on their predecessor task's end date. Enable the **Calculate successor end date** option for the link when you want a master task to control when parallel tasks end; the other tasks will finish at the same time as the master task. If you change the duration of one task and then reschedule, the second task is changed in duration to meet the same end date as the predecessor. You can also add lead or lag times to make the successor to make it end before or after the end of the predecessor.

Now you will create these links between tasks:

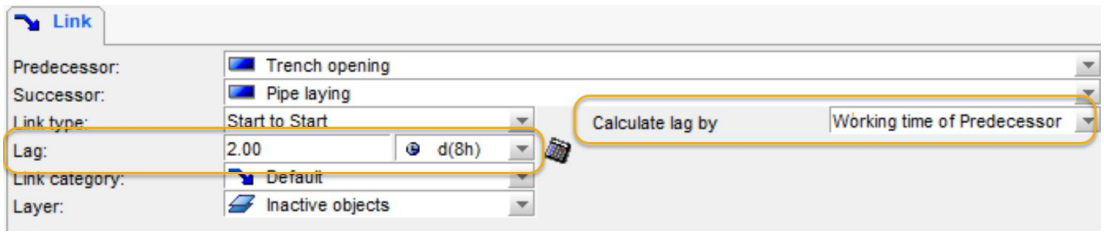
#	Predecessor (from task)	Successor (to task)	Link Type	Lag
1	Task 1 - Topsoil Stripping	Task 4 - Topsoil Stripping	Finish to Start	0
2	Task 2 -Soil Removal	Task 6 - Trench Opening	Finish to Start	0
3	Sub-task - Walls	Sub-task - Deck	Finish to Start	0
4	Sub-task - River Bed	Sub-task - Walls	Finish to Start	0
5	Task 1 - Topsoil Stripping	Task 5 - Culvert	Start to Start	0
6	Task 6 - Trench Opening	Task 8 - Trench Opening	Finish to Start	0
7	Task 6 - Trench Opening	Task 7 - Pipe Laying	Start to Start	2 days
8	Task 8 - Trench Opening	Task 9 - Pipe Laying	Start to Start	2 days
9	Task 1 - Topsoil Stripping	Task 2 - Soil Removal	Start to Start	400 m



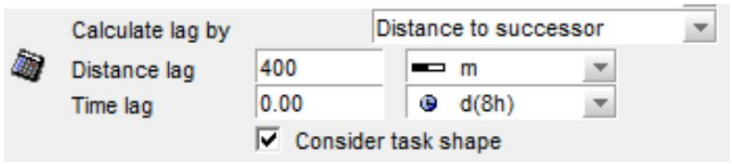
1. Link Task 1 to Task 4.
    a. Select **Task 1 - Topsoil Stripping** in the view.
    b. Click-and-drag the red arrow on the lower-left end (finish) to the top-left corner (start) of **Task 4 - Topsoil Stripping**. Release when you see the anchor symbol appear over the target task. This will place the link at the start of the target summary task to create a **Finish to Start** link.



5. Link Task 2 to Task 6.
    a. Select **Task 2 - Soil removal** and create a link by clicking-and-dragging the link arrow from the lower-left end (finish) of **Task 2 - Soil removal** to the upper-right end (start) of **Task 6 - Trench Opening**.
6. Use a different method to link Task 1 to Task 5.
    a. Right-click **Task 1 - Topsoil stripping** and select **Create Successor** in the context menu.
    b. In the **Successor** list, select **Task 5 - Culvert**.
    c. In the **New Link** dialog, select **Start to Start** as the **Link type**.
7. Link **Task 6 - Trench opening** to **Task 8 - Trench opening** with a **Finish to Start** link. Make sure to choose **Working time of predecessor** in the **Calculate lag by** list.
8. Link **Task 6 - Trench opening** to **Task 7 - Pipe laying** with a **Start to Start** link.
    a. On the **Link** tab, enter **2.00** in the **Lag** field to delay the start of task the successor task by 2 days.



9. Link **Task 8 - Trench opening** to **Task 9 - Pipe laying** with a **Start to Start** link.
    a. Add a lag of 2 days in the same way as above
10. Link **Task 1 - Topsoil stripping** to **Task 2 - Soil removal** with a **Start to Start** link.
    a. In the **Calculate lag by** list, select **Distance to successor**.



    b. Enter **400 m** for the **Distance lag** value. This keeps the production sequence between the two tasks always at a distance of 400 m.

Defining Task Leads and Lags

The ability to define leads and lags by distance is a feature unique to TILOS!
When you create a link, it always uses the same settings (such as lead or lag) as the last link created (not the link changed just prior).

11. Select the time-distance cell, and click the **Reschedule tasks** icon or press **F9** to reschedule. The reschedule operation recalculate the tasks' time data. Review the plan so you can see the result of adding the lags.

Linking Tasks

If tasks are very close to one another, the neighbouring tasks may get linked to one another, when dropping link end with the mouse. In this case check the links predecessor and successor by selecting the link and check its attributes in the **Object Properties pane**.
You may also create links by:

- Select a task and select the **Links & Constraints** tab in the **Object Properties pane**. Here you may create a predecessor or a successor for the task.
- Select the **View Link list** (If no Link exists, create one with clicking the right mouse button on **View** > **New View**, choose **Link list** as **View type** and name the list, a folder named **Link List** is created in the Explorer containing your newly created link list), the list is shown in the main window, use symbol to create a new link, choose predecessor and successor.

Link Categories

This option allows you to assign links to a category, by which the shape and color of the link is defined. Link category also allows you to exclude tasks from reschedule.

- Alternatively, you may add or edit links on:
  - The **Links & Constraints** tab, displayed when you select a task in the view. You may define here the predecessor and successor tasks.
  - The links list for the sub-project.
  - Select 2 or more tasks and then use the Right Mouse Button function: **Link unlinked tasks**.
- On the **Links & Constraints** tab you may also set the constraints. Constraints are tasks' fixed Start and End dates (times). They will be adjusted while rescheduling only within the set constraints.
- Unlinked tasks do not change their coordinates when you use the **reschedule algorithm**. They only interact with the report date. All unperformed tasks are moved beyond the report date. See more information at: **Tools > Options - Task Tab**.

Creating a Link List

You may find it helpful to create a list of links in your project by:

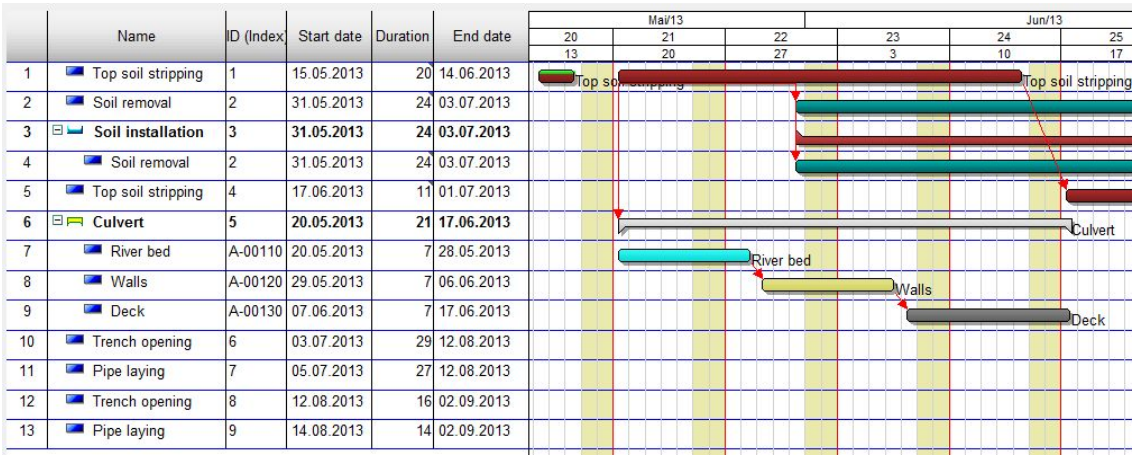
1. Right-click **Views** in the **TILOS Explorer** and select **New View**.
2. Name the view **Link List**.
3. Select **Link List** as the **Type of view**.
4. Click **Open in New Window**.

#	Link	Predecessor Task ID	Predecessor	Successor Task ID	Successor	Link type	Lag	Driving Link
1	Top soil stripping-->Top soil stripping	1	Top soil stripping	4	Top soil stripping	Finish to Start	0.00	☑
2	Soil removal-->Trench opening	2	Soil removal	6	Trench opening	Finish to Start	0.00	☐
3	Walls-->Deck	A-00120	Walls	A-00130	Deck	Finish to Start	0.00	☑
4	River bed-->Walls	A-00110	River bed	A-00120	Walls	Finish to Start	0.00	☑
5	Top soil stripping-->Culvert	1	Top soil stripping	5	Culvert	Start to Start	0.00	☑
6	Trench opening-->Trench opening	6	Trench opening	8	Trench opening	Finish to Start	0.00	☑
7	Trench opening-->Pipe laying	6	Trench opening	7	Pipe laying	Start to Start	2.00	☑
8	Trench opening-->Pipe laying	8	Trench opening	9	Pipe laying	Start to Start	2.00	☑
9	Top soil stripping-->Soil removal	1	Top soil stripping	2	Soil removal	Start to Start	9.17	☑

View Tasks and Links in a Gantt Chart

Project data (like tasks and links) can also be viewed as a Gantt chart (schedule bar chart).

1. In **TILOS Explorer**, expand **Views > Gantt Chart (time)**, and double-click the Gantt View (default) to open it in the active view.



	Name	ID (Index)	Start date	Duration	End date
1	Top soil stripping	1	15.05.2013	20	14.06.2013
2	Soil removal	2	31.05.2013	24	03.07.2013
3	**Soil installation**	**3**	**31.05.2013**	**24**	**03.07.2013**
4	Soil removal	2	31.05.2013	24	03.07.2013
5	Top soil stripping	4	17.06.2013	11	01.07.2013
6	**Culvert**	**5**	**20.05.2013**	**21**	**17.06.2013**
7	River bed	A-00110	20.05.2013	7	28.05.2013
8	Walls	A-00120	29.05.2013	7	06.06.2013
9	Deck	A-00130	07.06.2013	7	17.06.2013
10	Trench opening	6	03.07.2013	29	12.08.2013
11	Pipe laying	7	05.07.2013	27	12.08.2013
12	Trench opening	8	12.08.2013	16	02.09.2013
13	Pipe laying	9	14.08.2013	14	02.09.2013

2. Review the layout of the chart and return to the Integrated View > Time Distance View when you are done.

Using Gantt Charts

To create a new Gantt chart, right-click **Views** in the explorer, select **New View**, and set the **Type of view** to **Gantt Chart (time)** or **Gantt Chart (location)**.
In the subsequent **Sub-Project Settings** dialog, you can select the sub-projects you want to see in the Gantt chart. You can create new tasks in a Gantt chart in the same way as in a time-distance diagram.

Label the Tasks

Now you will add additional text labels (annotations) at the start, middle, end of the tasks based on text tokens. In the steps below, you will see the drawing method for adding a text annotation to the Topsoil stripping task. There are task templates that are already annotated with the information „NAME, Quantity, Quantity Unit“ (e.g. Topsoil Stripping, 21600 m²) in the TILOS library. In the following, you will add additional information.

Annotating tasks

In addition to tasks, you can also insert independent graphic objects into a plan for illustration and explanation.

In TILOS, the easiest way to insert task annotations is to right-click a task, and select **Add Task Annotation**.

Tip for Annotations

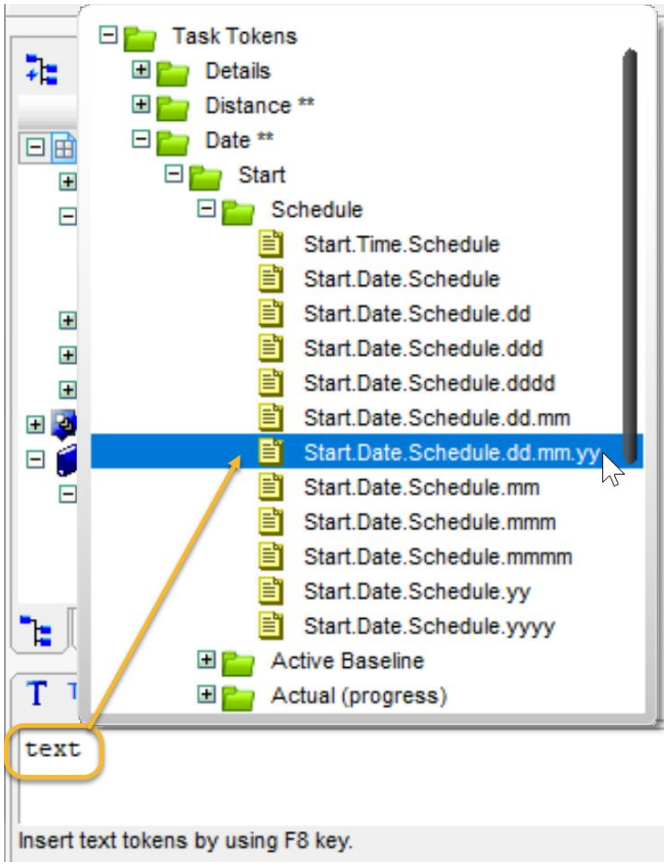
When an object or task is selected, you can edit its settings in the **Object Properties Pane**.

Text Fields vs. Annotations

Text fields are independent of any object. Annotations are tied to objects and get the text they display from the objects by using tokens.

1. Right-click **Task 1 - Topsoil stripping** and select **Add Task Annotation**.
2. Click **OK** to close the dialog.
3. On the **Text field** tab in the **Object Properties pane**, delete the word **text** and press **F8** to see the available text tokens.

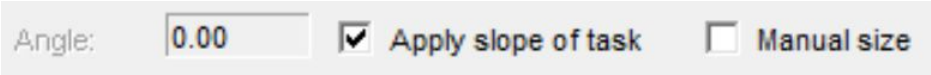
4. Select **Task Tokens > Date > Start > Schedule > Start.Date.Schedule.dd.mm.yy** to annotate the scheduled start date in the DD.MM.YY format.



5. Add any other tokens you need to give information on the task. For example, you could add:
    - Name
    - Distance
    - Quantity
    - % complete

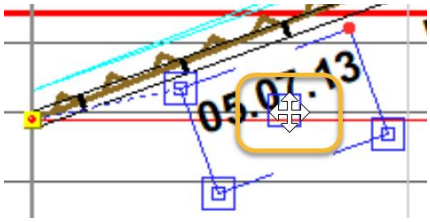
    You can also enter non-token (free text) in annotations.

6. On the **Text Field** tab, also:
    a. Check the **Apply slope of task** box to align the annotation to the task's angle.
    b. Uncheck the **Manual size** box so the program will calculate an appropriate size for the text box.



7. Click back in the view to see the text change. Now that you have annotated the start date of your task, you can fill in more and different information in the same text field by entering a space and selecting one or more additional tokens.

8. If necessary click-and-drag the center handle to move the annotation closer to the line.

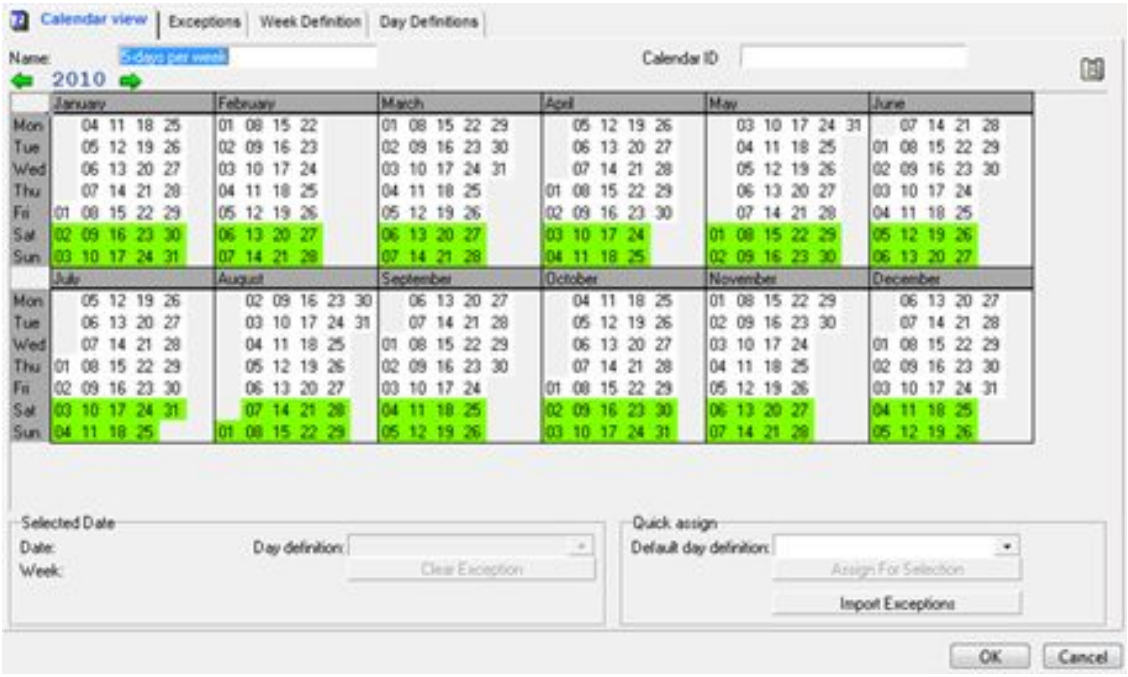


9. Repeat these steps to add, connect, and edit annotations to the remaining tasks.

Change the Calendar

These steps will give you a generic idea of how you can change the calendar in this project as well as in your own projects. If you reschedule after making calendar changes, you will see the effects.

1. In **TILOS Explorer**, expand **Project Data**, right-click **Calendars**, and select **New Calendar.**



2. Press **Control** and pick multiple days to select them. You can also click-and-drag a box around adjacent days to select them.
3. Select a **Day definition** in the **Day Definition list**. This definition is assigned to all of the selected days.
4. Enter exceptions...
5. Select **Clear Exception** to remove the special settings from that day. Exceptions are printed in the color set in the day definition.
6. Click **OK**. The tasks and views are adjusted to the new calendar settings.

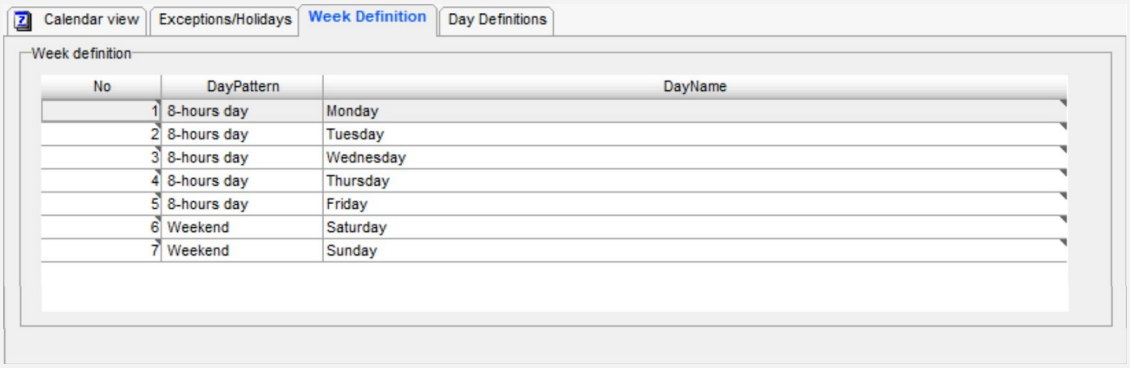
Using Calendars

Calendars are used for:

- Controlling the presentation colors and patterns of views
- Calculating the duration of tasks based on working time and non-working time. Every task can use one calendar. Default calendars for new tasks are set in **Tools > Options > Project (2)**.
- If you select **Tools > Options > Project** tab, and check the **Advanced calendar interface** box, you can add more complex work definitions. Without this option selected, you will see a **Week definition** tab in the calendar dialog. With this option enabled, you will see a **Periods** tab.

A calendar consists of:

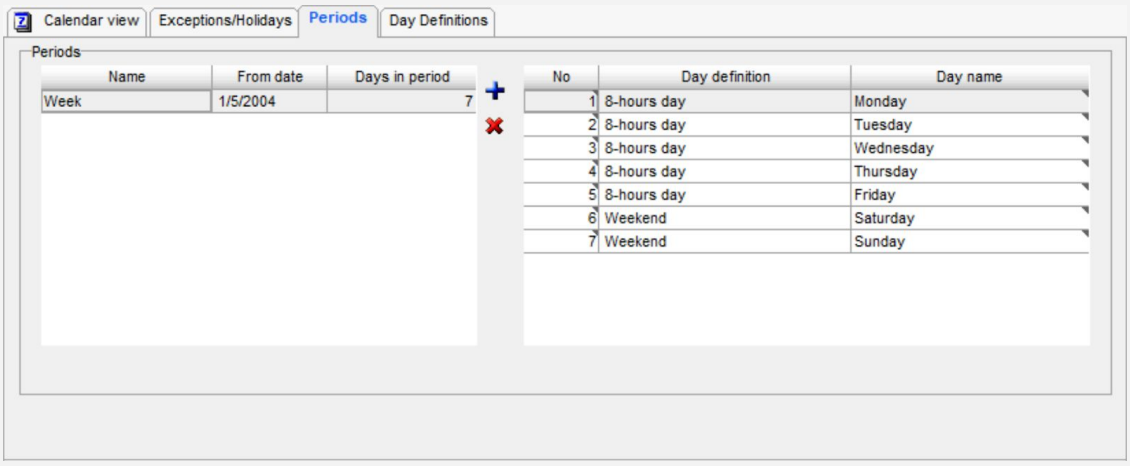
- **Periods:** This tab lets you set up more complex work definitions like periodically changing working times in winter and summer, or a 14 day shift with 10 days working and 4 days free.
  Note: This is the recommended method; using the non-advanced/week definition calendar could lead to problems with the start day of the week.



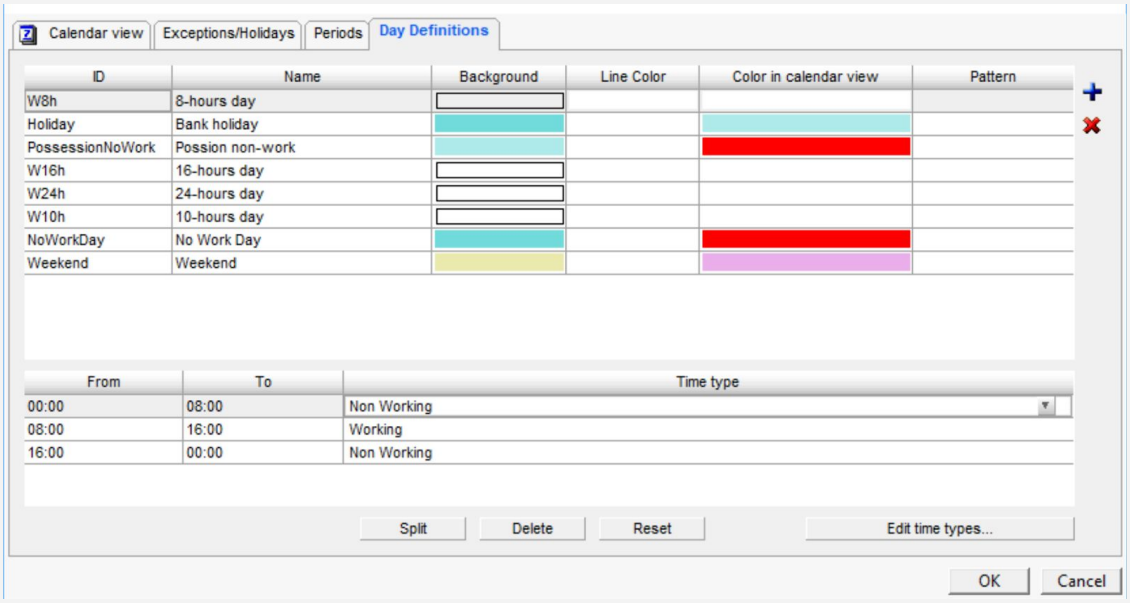
No	DayPattern	DayName
1	8-hours day	Monday
2	8-hours day	Tuesday
3	8-hours day	Wednesday
4	8-hours day	Thursday
5	8-hours day	Friday
6	Weekend	Saturday
7	Weekend	Sunday

Or

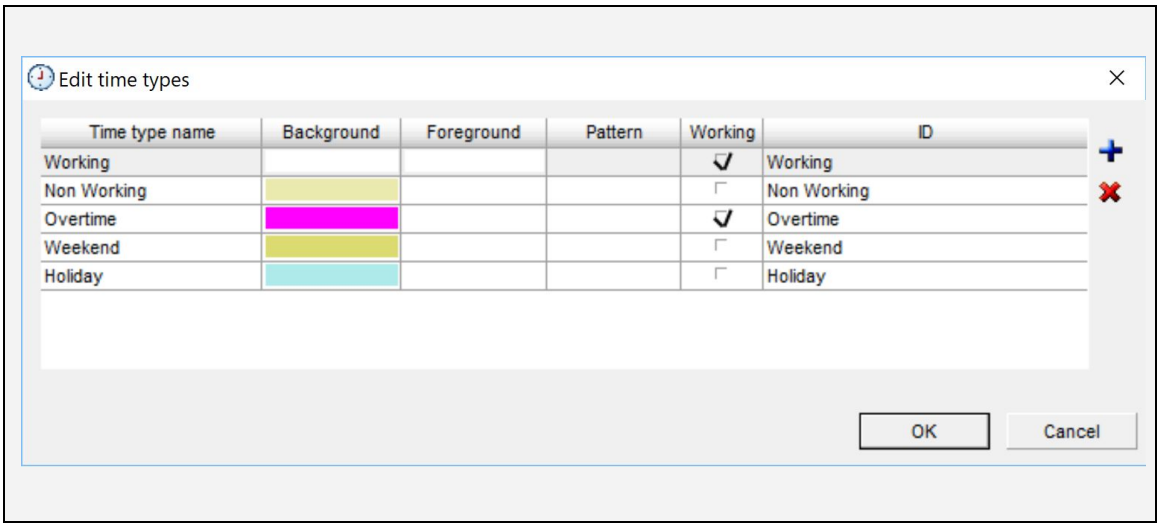
- **Week definitions:** In the simple calendar definition, you set up which days of a week are working days and which are non-working days. This is done considering the day definitions.



- **Day definitions**: This defines the working time and non-working time during the days. The day definition refers to the time types, which define whether a selected time span is working time or not.



- **Time types** with minutes precision (Work or Non-work). Set the presentation color and pattern for the presentation in a view.



Export and Print the Schedule

Export the Schedule to Microsoft Project

1. Select **File > Export** on the ribbon.
2. Select the **MS Project (XML)** file format, and click **Next**.
3. Click **Select**, browse to a location where you want to save the file, name the file **Getting Started**, and click **Save**.
4. click **Next**.
5. To export additional data, check these boxes:
    - **Export links** - Maintain predecessor and successor dependencies between the exported tasks.
    - **Export resource allocation** - Include used resources and maintain their relationships to tasks
    - **Export only used library items** - Exclude unused library data types from the exported file.
    - **Export calendars** – Include TILOS calendars so you can use them in MSP.
6. To map data fields (tokens) between TILOS and MS Project by editing the exchange profile, click **Additional Settings**.
    i. Click + to add a row.
    ii. Click in a cell under **TILOS Field** and use the drop-down arrow to select from available data types.
    iii. Click in the adjoining **MS Project Field** cell and select the field to which you want to map the TILOS data (e.g., data fields that map from TILOS token to MSP token).
    iv. Check/uncheck boxes to define which data types to export and make available for re-import from MSP.

7. Click **OK** when you are done.
8. Click **Finish**. These settings will be remembered for the next time you use the wizard. When you open the exported file in MS Project, you will see the same data (tasks, links, dates, names, summary tasks, progress, resources, etc.) as in TILOS. You can make changes in MSP, save as Project's native XML Format (*.xml), and re-import the file into TILOS. In MS Project, your user-defined fields show the TILOS-names in brackets.

Print the Schedule

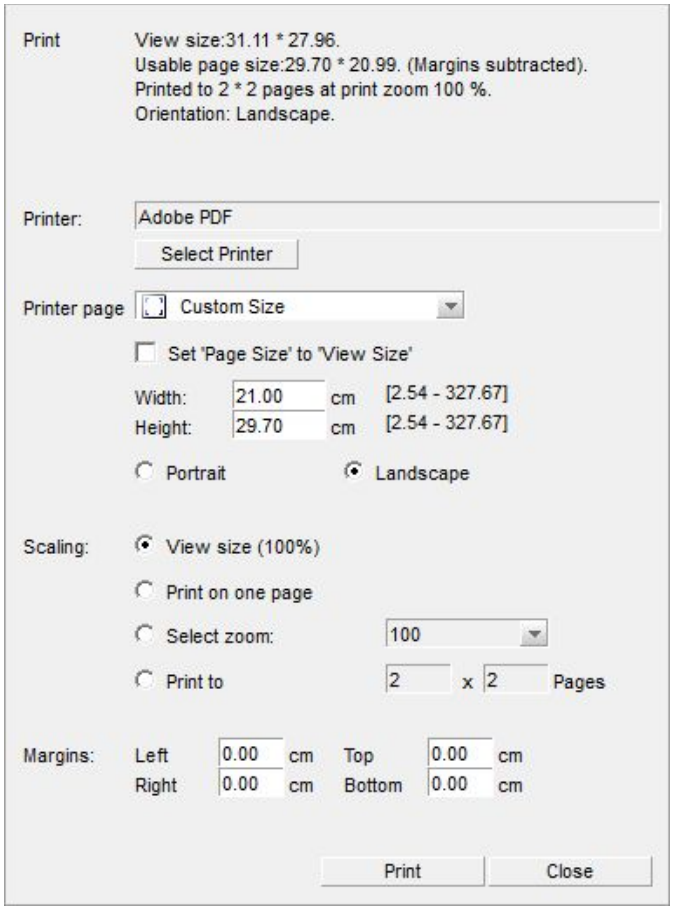
With TILOS, you may print plans in almost any size and orientation. In the view, you may display your plan in the desired time and distance scale while keeping their appropriate proportions.
If some object do not appear in your printed output, they may be assigned to a layer that has the the Visible (printout) option disabled. This print visibility option can be set independently for each cell.

Printing Views and Gantt Charts

You can find the Print command on the **File** menu, as well as on the toolbar, View toolbar, and context menus from various views). The Print pane includes all of the printer and page setup options you need to define and print most charts, lists, and other views. Gantt charts are printed using the same Print pane interface and settings as printing integrated views and others.

1. In the **TILOS Explore**r, double-click the **Time Distance Vie**w to re-open it.
2. Click the **Prin**t icon on the toolbar.
3. In the **Print** pane, click **Select Printer**, choose the **Adobe PDF** printer, and click **OK**.
4. Make various changes to see the effects (such as how the blue, dashed pagination line change) in the preview:
    a. Select different formats in the **Printer page size** list.
    b. Toggle between the **Portrait** and **Landscape** options.

c. Choose different **Scaling** options.



5. When you are ready, click **Print** and save the PDF so you can compare the results to your plan.

Congratulations! You have completed the TILOS Getting Started Guide.

Getting Help and Support

For more information, please use these resources:

Note on TILOS websites - All content from TILOS.org has been moved to the Trimble TILOS product site and the TILOS Community. TILOS downloads can now be found on the Downloads page in the community.

Trimble TILOS Community

Search for the latest content, ask a question, see answers to other user questions, start a discussion, or post your own helpful content.
https://community.trimble.com/community/find-answers/civil-engineering-and-construction/scheduling

Technical Hotline

- Hours:
  - Monday to Thursday: 08.30 am - 5:30 pm (GMT +1)
  - Friday: 08.30 am - 1:00 pm (GMT +1)
- Phone: +49 721 - 4647 - 2829 (Europe)
- Email: TILOS@trimble.com

When contacting the hotline, please be prepared the following information:

- Your software product ID
- Your company name and address
- The current software version
- Which operating system (OS) you are working on and the assigned User Rights

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