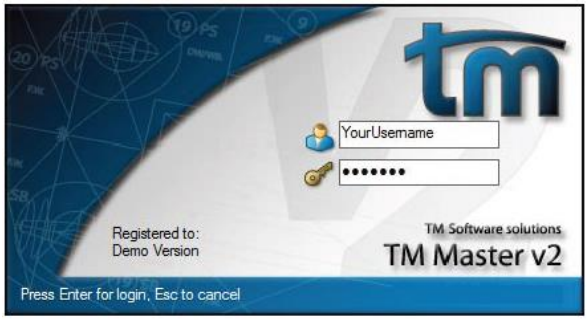
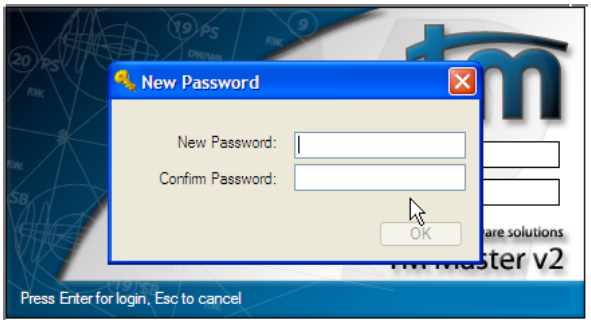
Contents

How to log on TM Master V2?

1. Double click the TM Master V2 program Icon.
2. Enter your user name and your given password.



3. Press [Enter]
4. If this is your first log on to TM Master V2, you can be asked to change your password.



5. Enter your preferred new password, and then repeat it to verify.

The layout of TM Master V2

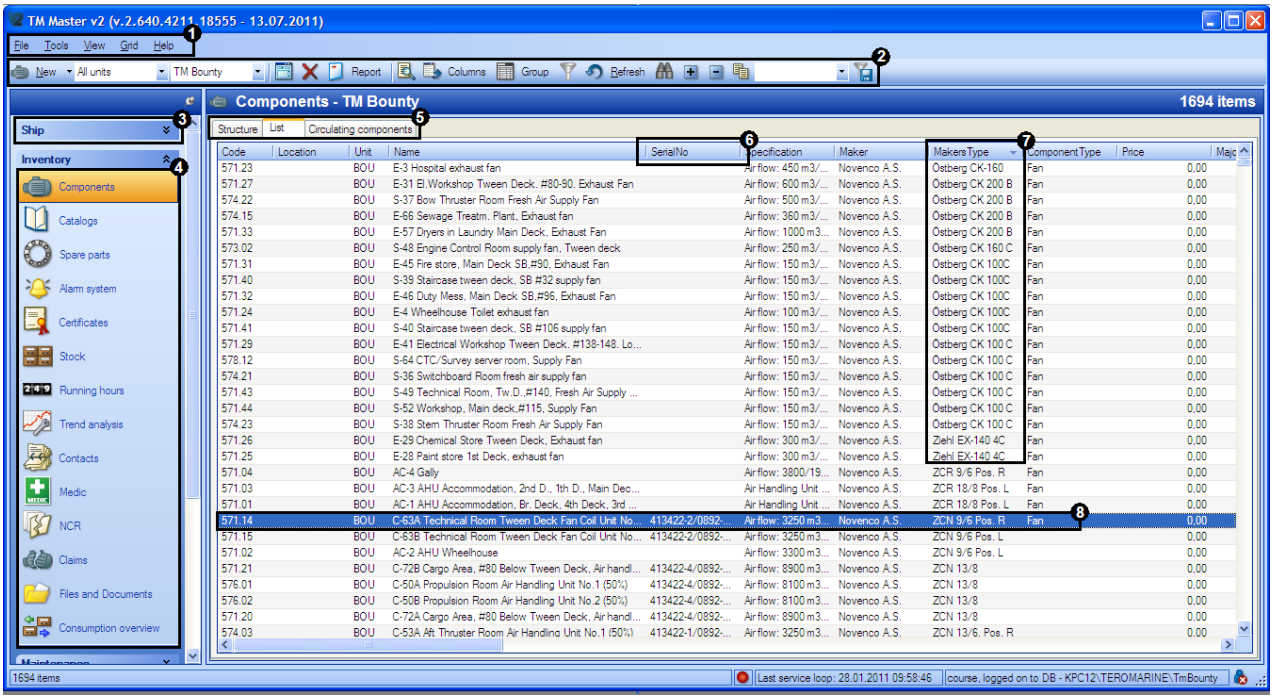


Fig 1. (1)Top Text menu, (2) Top Tool bar, (3) Module group, (4) Modules, (5) View tabs, (6.) Grid Column head, (7) Grid Column, (8), Grid row.

How to use the basic grid tools?

TM Master V2 presents its data to you in lists or tables (similar to any spread sheet software), we refer to these list/table views as “the grid” or “grid view”. Using this grid view allows us to show as much data as possible in one view. But as a user you might not be looking for “...as much data as possible”, you are looking for the information you need. In order for you find this information, we have implemented some basic grid tools. Understanding these tools will enable you to locate the information you need.

These functions applies to almost all grids in the program, an exception worth mentioning is the [Inventory] → [Components] →”Structure” grid, where components are structured, and the filters and groupings only apply to the top levels. But by using the “List” view tab you can apply filters and groupings for all components.

Selecting and opening a row in a form view.

You can select any of the rows by clicking on them. If you double click the item in the list you will open the item, displaying all details in a form, or in some cases you will select them as your chosen item depending on the situation. You can by pressing and holding the [CTRL] key and clicking select more than one row. If you wish to unselect a selected row you can click the item again. You can also click an row holding the [Shift] key and then clicking an item further down or up in the list to select all rows in between the ones you have clicked. By pressing [CTRL] + [A] all rows in the view are selected.

Sorting

By clicking on any of the column heads (Fig 1. (6)) will sort the grid presented alphabetically based upon the values in the column you clicked. By clicking the column head a second time you will reverse the sort. A small arrow (or triangle) next to the column head name indicates the sort order. The arrow will point to the location where you will find the lowest value (top or bottom). You can sort the grid by any of the available columns.

Resize columns

By holding the mouse marker over the column head borders the mouse marker will change its appearance to (↔). This Indicates that you now can click, the left mouse button, hold and drag to resize the column on the left hand side of the mouse marker.

Move columns

If the order of the columns does not suit you, you can change the order the columns are displayed. You do this by clicking and holding the left mouse button, on top of the column head of the column you wish to move. You then drag it horizontally to the desired location. To small red arrows will appear informing you where the column will go when you release the left mouse button.

Remove columns from the grid

If you find that some of the columns displayed in the grid are irrelevant you can remove them from your view. You do this by clicking and holding your left mouse button while hovering over the column head of the column you wish to remove. Then drag your mouse marker up and out of the grid and release.

Add columns to the grid

Columns you remove, as described above, or sometimes additional columns not included in the default view, can be displayed by clicking the  [Columns] button found in the top tool bar (Fig 1 (2)). By clicking it a list of the hidden columns will be displayed. You can add the available columns by either double clicking them or dragging and dropping them into the desired location. To hide the list of hidden columns click the [Columns] button again.

Freezing columns

In some views there are more columns available than what will fit on your screen, to view them you will need to scroll the horizontal scrollbar (found right below the grid). But once you start scrolling the first columns will disappear. Usually the first columns hold key information, and you may want to be able to see the first or the two first columns, while scrolling the rest. By right clicking on the column head of the column you want to stay put, and select “Freeze Column”. If you now scroll the grid using the horizontal scrollbar you will see that the column selected and all columns to the left of it will stay, while the rest of the columns scroll. Right clicking the column head again and selecting “Unfreeze column” will release
the columns.

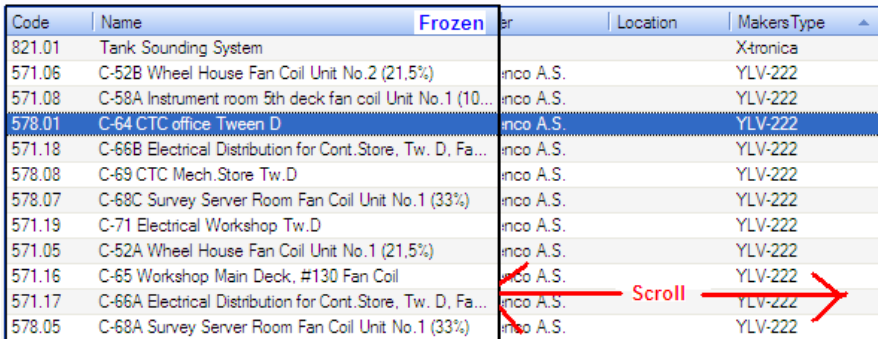


Fig2: Frozen column

Search the grid

While the grid is active (you make a grid active by clicking in it), you can start typing. Once TM Master V2 detects typing when the grid has been made active it will assume that you wish to perform a search, and the “search” dialog will automatically appear.

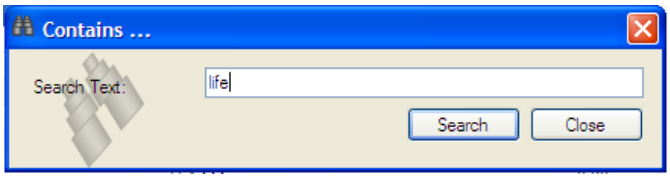


Fig3: Search dialog

You can also access the search dialog by clicking the Search button found in the top menu bar.  . This function will search all of the available columns, for the search string you provide, and it will stop at the first row containing your value. By clicking [Search] in the search dialog again, it will search for the next row containing the value. Once it has search through all your rows it will start searching from the top again.

Filter

Another way to locate the information you are looking for is to use the filter function. You turn it on by clicking the [Filter] button found in the top menu bar. . Once you click this button an off white/light yellow line appear below all the column heads, this is the filter bar. Clicking this line below one of the column head will allow you to type a string that you can filter the grid by. By adding a wildcard (the asterisk (*)) to the front of your filter string, it will show you all rows that ends with the string. Adding the wildcard to the front and the back of your string will display all rows that contain the string entered.

You can filter on any of the columns and use filters on multiple columns at the same time.

Filter Example:

You wish to see a list of all components in a grid that has a name that starts with the word “Pump”.

1. You click the button
2. You click in the, filter bar below the column head named “Name”
3. You type: “***Pump”*** and then press [Enter].

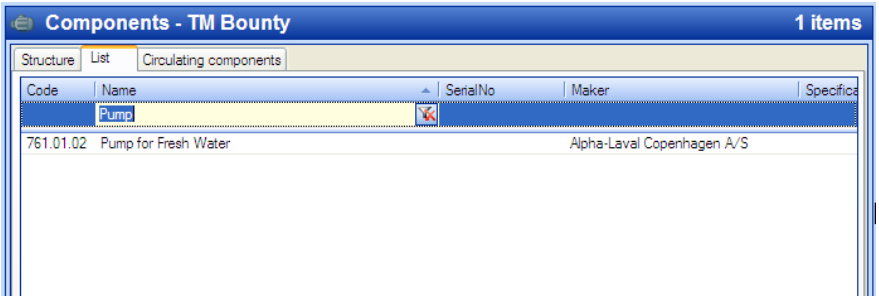


Fig4: Filter (all components starting with the word “Pump”)

All rows that have a value (or name in this case) that starts with the word “Pump” will be displayed, in my example (**Fig4**) it is only one . But you know there are more pumps registered in your system so now if you change the filter string to: “***Pump****” (Asterisk in front and at the end). It will show you all rows or items that contain the word “pump”.

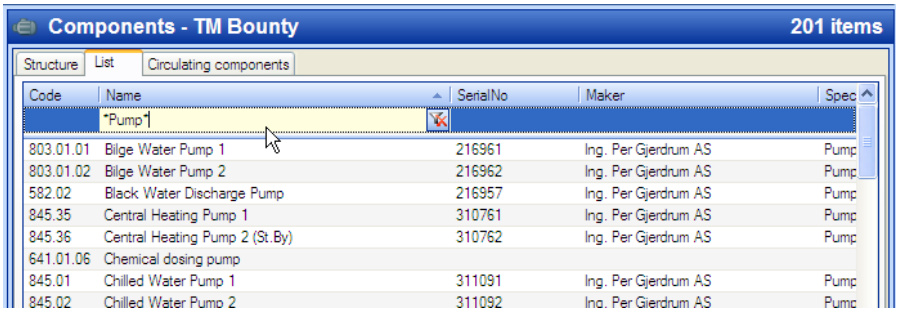


Fig5: Filter (All components containing the word “pump”)

As you can see in this example (**Fig5**) you now have 201 items (rows) in your grid, which all contain the word “pump”. Let say that this list is considered too long, and you only want to see, the rows that contain the word “pump” and is registered with a certain maker, let say “Vickers”. You keep the filter in the “Name” column as it is and click under the column named “Maker” and enter “Vickers” or the 3-4 first letters of the maker’s name. The list in this example (**Fig6**) is now reduced to only 3 items.

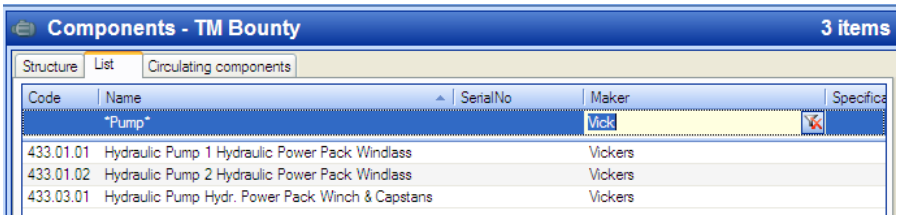


Fig6: Multiple filters (All components containing the word "pump", with a maker starting with "Vick")

Grouping

Another way to locate or rather organize your data is by using the grouping tool. The grouping tool allows you to group the rows on any of the column values. If two rows have the same value in the column you are grouping them on they are put in the same group. TM Master will count all the rows within every group and display the amount in brackets after the group name. You can also create any number of subgroups to your groups.

Grouping Example:

You wish to see a list of all your components supplied by certain makers

1. You click the  [Group] button found in the top menu bar.
   A dark grey line will appear just above the column heads in the grid.

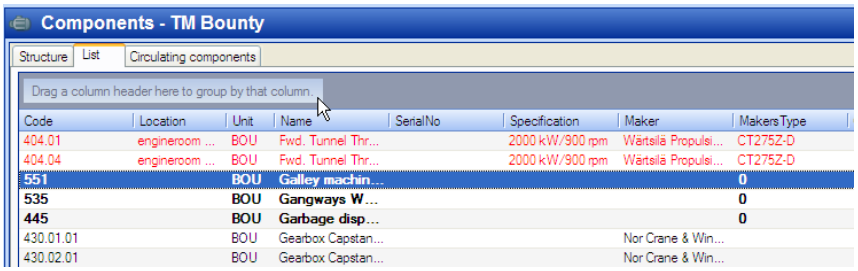


Fig7: Grouping turned on (Dark grey line above column heads)

2. You left click and hold the column head you wish to group your data on.
3. Drag the column onto the grey "grouping banner", two red arrows will indicate when you are holding the column head in the correct area, when you see the red arrows you may release the left mouse button. The list is now grouped on the selected column.

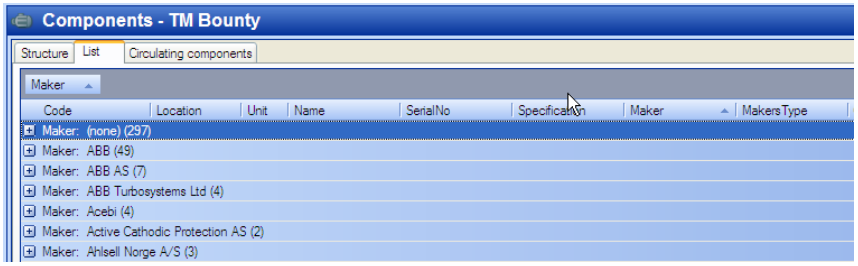


Fig8: List grouped on the column "Maker"

4. A group is displayed in the grid as blue lines with a [+] signs in front. The group name is also displayed followed by the number of rows found within this group.

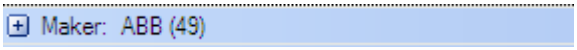


Fig9: Example of a group, displaying the column name, group name and the amount of rows in the group.

5. By clicking the [+] sign it will show you the rows in that group

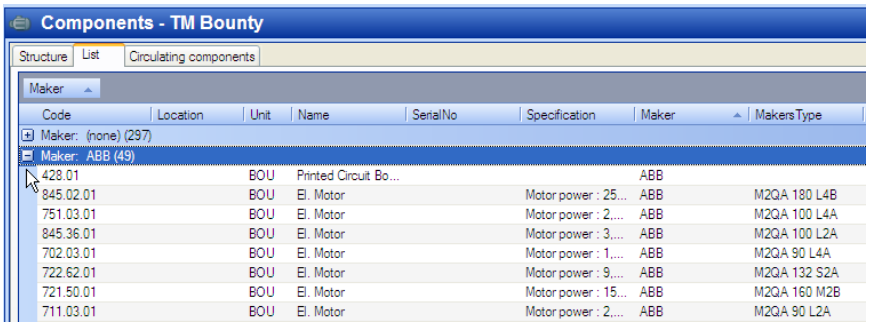


Fig10: Group expanded by clicking the [+] in front of group name, displaying all rows within.

You may expand all or collapse all groups using the  buttons found in the top menu bar
Let's say you now also wish to see how many components you have of certain "maker types" You then keep the grouping you already have on "Maker" , and repeat step 2 to 4 for the "makers type" column

Fig11: A list grouped on "Maker" then sub grouped on "Makers type"

Your components are now grouped on "Maker" then "Makers type" and as you can see in this example, the system also counts the rows of your sub groups and displays it.

Save your grid settings

Some of your grid configurations are only settings you use to get information then and there, but you might find that you keep reusing some of your configuration several times and you would find that setting up the grid again and again is a bit annoying and time consuming. To avoid spending time configuring the grid, you can set it up once and then save the configurations, and easily switch between them. Here is how you do it:

1. Configure your view the way you require.
   (Move, add or remove columns. Filter or group your rows)
2. Then click on the  [Save layout] button found in the top menu bar.
3. Enter a name for your view and click [Ok]
4. You can now switch between the "default" view and the view you just created by using the drop down selector found on the he left hand side of the [Save layout] button.

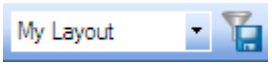


Fig12: View selector

5. To delete any of your saved settings, you will need to go to your personal settings module called “[Your Name]’s place” → [Filters] and delete them. More details on this can be found in the section covering that module group.

Reset your grid

If you wish to reset the grid back to the default configuration, removing all your settings, you can do that by either selecting the “Default” option found in the view selector described in the section above (4), or you can right click anywhere in the grid and select “Reset grid columns”

Copy from the grid

To copy data from the grid to an external program do the following.

1. Select the rows you want to copy
2. A) Press and hold the [CTRL] key and press [C] or
   B) Right click the selected row or rows and select “Copy content to clipboard”
3. Open the program you wish to copy the data to .i.e. MS Excel
4. Paste. By pressing the [CTRL] + [V] or right click and select “Paste”

	A	B	C	D	E	F	G	H
10	In Stock	UOM	Name	Maker	MakersPartNo	Price	Currency	OnOrder
11	8	PCE	Profibus Com Card	LØNNE Scandinavia As	9001934	400	NOK	0
12	7	PCE	TU 831V1	Notrth-Western Ship Repairs	TU831 V1 Base	400	NOK	0
13	9	PCE	Under part (NO)	Telemecanique		400	NOK	0
14	8	PCE	O-ring 13.94*2.62	Wärtsilä Finland Oy, Ship Power	121005	400	NOK	0

Fig13: Data copied from TM Master V2 spare part grid to Excel, the column header names are as you can see also copied

Components and Component groups/systems

Components are virtual representation of all your bits and pieces you find on board a vessel, and are a central part of the system. Here is how you add a component to your system. There are many ways to set up your component structure, and TM Master supports most of them.

TM Master V2 Component structure Terms

System:	This is the term used to describe the top level component group. If you imagine the component structure as a tree, the "system" would represent the root of the tree. (Ref Fig1 → (1))
Component:	Represent an actual component found on board a vessel. (Ref Fig → (2))
Sub group:	Is a structure item representing a group or collection of components, it is not an actual component, but is used to group components in the structure. (Ref Fig 1→ (3))
Sub Component:	Represent an actual component found on board that is linked to a parent component. (Ref Fig1 →(4))

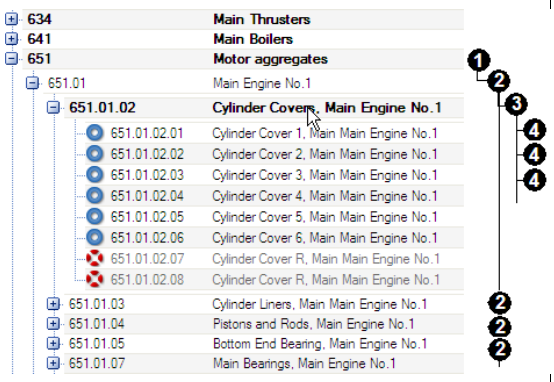


Fig 1: Component Terms and Structure tree

System

In this example we are going to add 4 new ballast pumps to our structure. And we start by referencing our system standard (in this case SFI), and find that ballast pumps are members of the main group or **system** called "**801 - Ballast Systems and Solid ballast**". Since this system is not present in our structure we will need to create it.

How to create a "System" (Top or root level group)

1. Click [Inventory] → [Components] → "Structure" tab.
2. Click the [New] button found on the far left hand side of the top tool menu.
3. Enter the system name in the "Name" field **(Fig2 →(1))**
4. Enter the system number in the "Code" field **(Fig2 →(2))**
5. Tick the "System" check box to indicate that this is a system and not an actual component **(Fig 2 -→(3)**
6. Make sure the field "Parent Comp." **(Fig 2 ->(4))** field is blank. Since we are creating a Root system, we do not want it to have a parent. When creating a component the component will automatically be assigned the component/group selected in the grid in step 2, as its parent.

If a parent component is present, click the […] button and click then the [Select root] button to remove it.

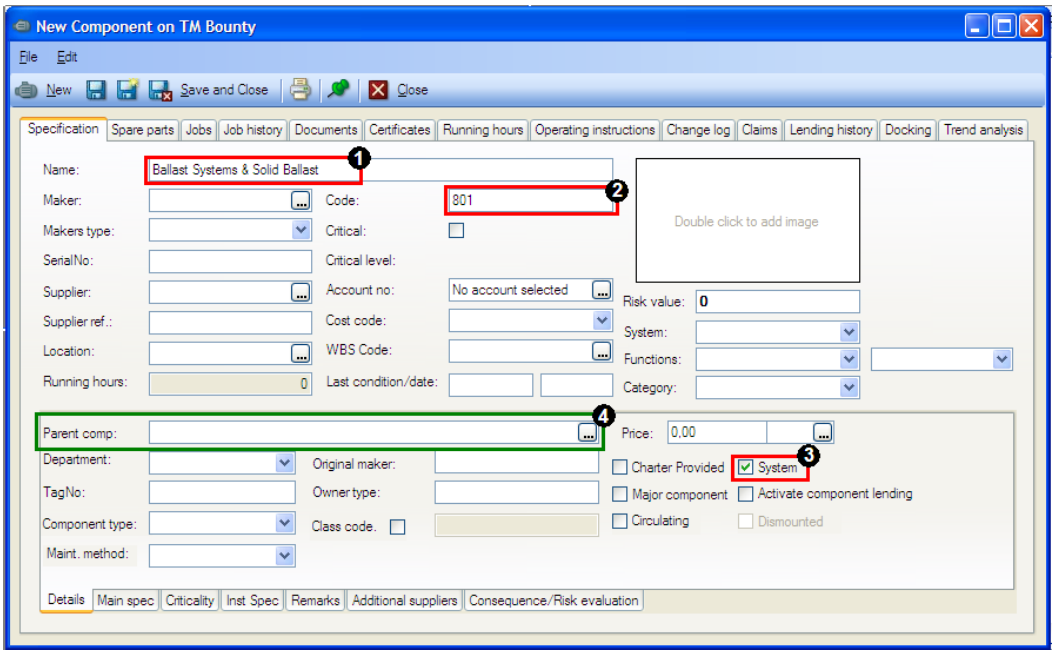


Fig2: New system/group or component dialog

7. Click [Save and Close]

We only use 3 of the available data fields, while creating our group/system. But you can use as many as you require. And as you probably understand or at least will understand, in the eyes of TM Master V2 there is very little difference between a component and a group or system.

As you can see below **(Fig 3)** we now have created a row in the component structure list, with the code "801" and named "Ballast System & Solid Ballast". Since we ticked the "System" check box the font is bold, indicating that this is a "system" or "group" and not an actual component.

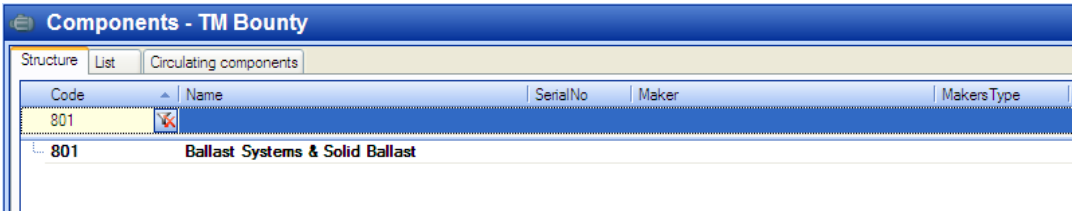


Fig3: A system/group in the component structure

Sub Group

The only real difference between a "System" and a "Sub Group" is that a sub group has a parent component and the "System" does not.

We created in the previous chapter a system called "801 – Ballast Systems & Solid Ballast", where we intend to keep our new ballast pumps. We reference our system standard (SFI in this case) and find that the ballast pumps are grouped in a sub group called "801.01 Ballast Pumps". We decide to recreate the SFI grouping structure by adding this group as well. Here is how we do it.

How to create a sub group

1. Click [Inventory] → [Components] → "Structure" tab.
2. Select the "System" or sub group you wish to attach the new group to.
   (In our case the system "801 – Ballast Pumps & Solid Ballast"
3. Click the [New] button found on the far left hand side in the top tool menu.
4. Enter the sub group name (In our case : "Ballast Pumps")

Initially the "Code" field is coloured red, indicating that the current code is wrong, based upon the parent's code. The parent component is currently the component we selected in step 2.

5. Click the [...] button at the end of the code field to retrieve the parent component code (801).
6. Then type the additional group number (01). Which gives us the component code "801.01"
7. You can tick the "System" check box, to indicate that this is a group and not an actual component. Some companies prefer to only use the "system" check box for the top level, so a company standard should be followed

As you can see in the screen shot below, we now have a sub group called 801.01 Ballast Pumps.

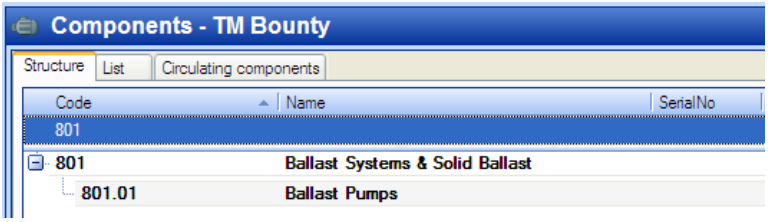


Fig4: A system and a sub group in the component structure.

Components

We are now ready to add the actual pumps to our component structure.
In our example we will go through all the available fields in the component form. You might not have all the required information available, when adding components to the system, but you can add additional information at a later time.

How to create a component?

1. Click [Inventory] → [Components] → "Structure" tab.
2. Select the "System" or sub group you wish to attach the new component to.
   (In our case the system "801.01 – Ballast Pumps"
3. Click the [New] button found on the far left hand side in the top tool menu.
4. Enter the available information. (Please see chapter "Component form details" for more information on the component form.)

How to copy a component?

To save time while implementing components, you can copy single components and components with their sub components. Here is how it it's done.

1. Click [Inventory] → [Components] → "Structure" tab

2. Right click the component you wish to copy
3. Click “Copy Component”
4. Click the desired parent component or group of your new component
5. Right click and select “Paste Component” to make a copy of the copied component only, or select “Past component and subcomponents” if you also want to copy the sub components of the one you copied.

You will need to edit the component specific details, such as serial number code and name, manually but it still will save you some time.

If you have added jobs, spare parts or any other details to your component this will also be copied (**Note!** Any previous job history will of course not be copied)

How to move a component in the component structure?

While adding new component or making changes to the component structure, you will eventually need to move a component in the component structure. Here is how to do it.

1. Click [Inventory] → [Components] → “Structure” tab
2. Double click the component you wish to move (any sub components will also be moved)
3. Click the [...] button in the “Parent Component” field found on the “General tab” (ref Fig5 → v))
4. Chose the component you wish to be the new parent component and click [OK]. If you wish to move the component to the root, click the [Select Root] button.

Once moved you will see that the “Code” is coloured red indicating that, based upon its new parent component code, the existing code does not comply.

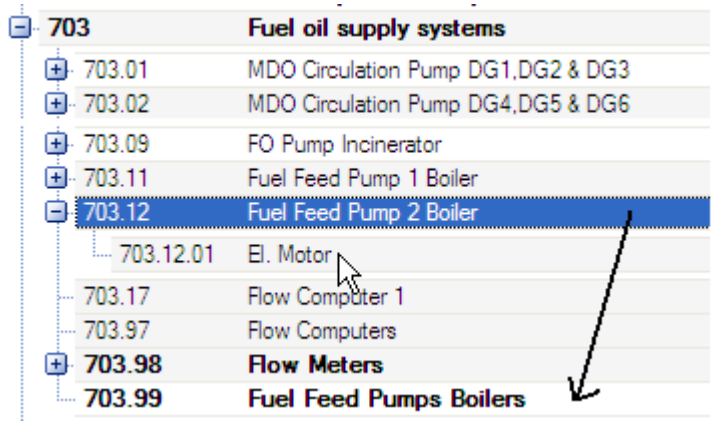
5. Click the [...] button in the “Code” field to retrieve the new parent’s code.
6. Add the additional number for the moved component.

When changing key values on a component, such as the component code you will be asked to enter a reason for your change. This reason is saved along with your change in the [Change log]. For more details on the change log please refer to the chapter “Change log”

7. If the component you moved had sub components, you will be asked if you also want to update the codes for any sub components, if you answer [Yes], the sub components will automatically be given the new parent code. Any additional numbering the sub components had in addition to the parent ID will be kept. If answer [No] the sub components will keep their original code.

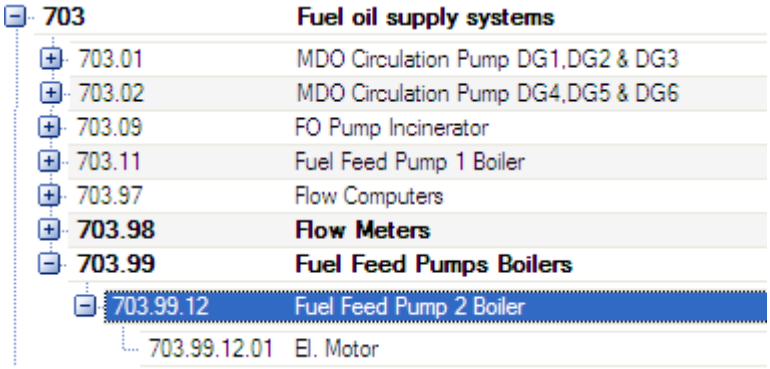
Example of moving components in the component structure:

Let’s say that you wish to move component “703.12 Fuel Feed Pump 2 Boiler” into the group “703.99 Fuel Feed Pump Boilers “, you then open component 703.12 and change its parent component from “703 Fuel oil supply systems” to “703.99 Fuel Feed Pump Boilers”, as described above.



Before the move

After the move you change the code of the moved component to comply with its new parent (703.12 → 703.99.12) you also let the system update the moved components sub component. And as you can see the sub component has been updated from 703.12.**01** → 703.99.12.**01**



FigX2: After the move

How to delete a component?

While implementing your component structure you may need to delete a component for some reason, and to do that you select the component you wish to delete and click the [Delete] button.

Some limitations apply to the delete function:

- **You can't delete components with sub components.** You will need to delete or move sub components before you can delete the component.

- **You can't delete components with job history.** If you want to "scrap"/remove a component with job history or replace it with a new one we recommend you to create a "System" for scrapped components. .e.g. "999 Scrapped Components" and move the old component to it. If the component has jobs attached to them you will need to delete them or if you want to keep the jobs, change the due date to year 01.01.9999 (the vessel will probably not be around then). It is also recommended that when you replace a component on board that you create a new component in the TM Master v2 structure. If you just change the component details on an existing one to fit the replacement. The old component history will become a part of the new components history, and that is not correct.

Component form Details

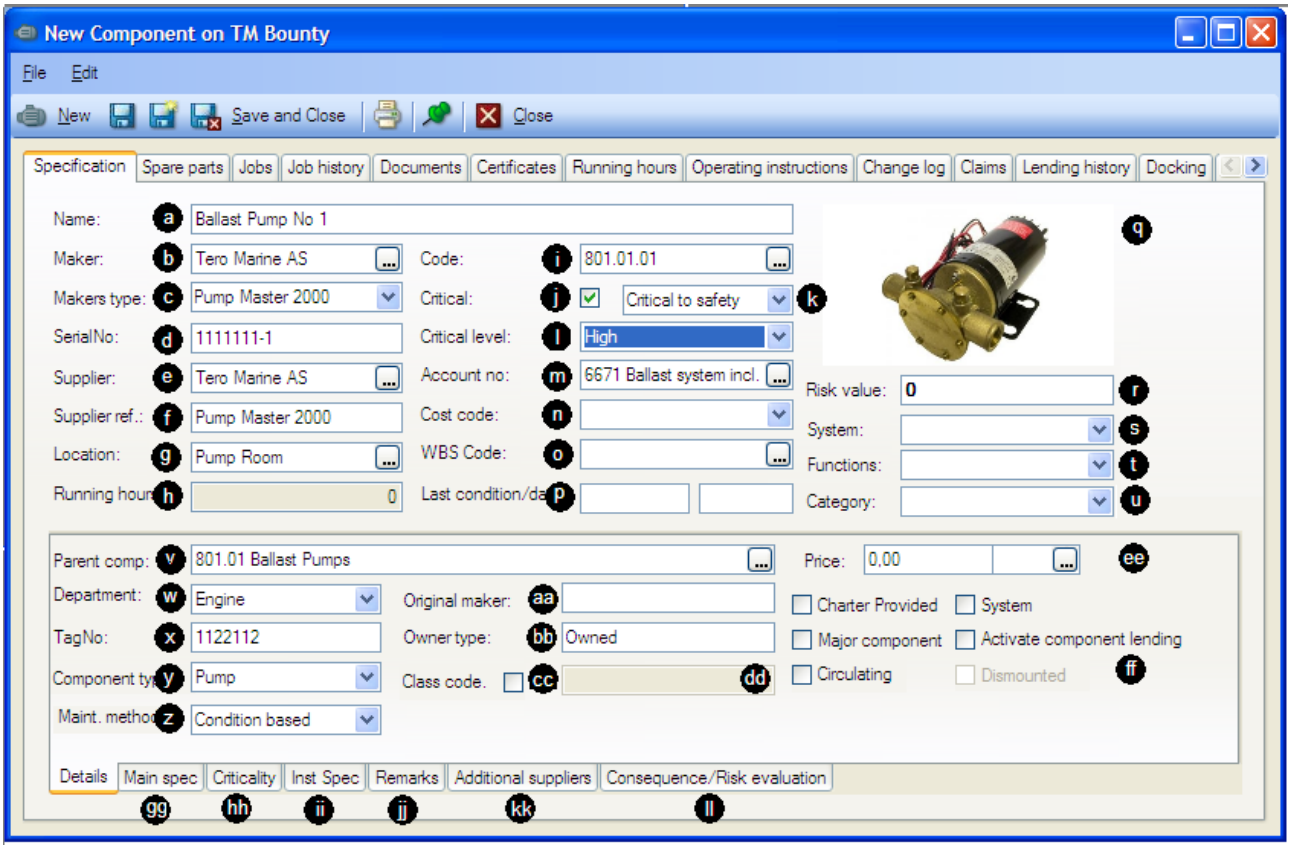


Fig 5: Component details form

a) **Name :** Component name
b) **Maker:** The maker of the component. Select a maker from your address list by clicking the [...] button. A list of all addresses/companies marked as a maker will appear.
c) **Maker's type:** The components maker's type. If a component type or types have been registered for the selected maker previously, these will appear in the drop down. If the maker's type you need is not available type in the correct maker's type.
d) **Serial Number:** The components serial number.
e) **Supplier:** The supplier of the component. Select a supplier from your address list by clicking the [...] button. A list of all your addresses/companies marked as a supplier will appear. How to add a new supplier is described in the chapter : Contacts & Addresses
f) **Suppliers Ref:** The assigned supplier's reference to the component.
g) **Location:** The components location. Click the [...] button to select a previously registered "component location". If the location you need is not in the "Component location" list you can create a new one, by clicking the [New] button found in the list view, then enter the new locations name.
h) **Running hours:** The component's current running hours. You are unable to edit the running hours in this view. Please refer to the chapter "How to update a components running hours" for more information.
i) **Code:** Component code. If the field is coloured red it is because the current code/value is deviating from its parent component. By clicking the [...] button, you will retrieve the parent component's code, and you can enter the remaining component number.

j) **Critical:** Tick the check box if the component is considered to be "critical", once ticked to more fields will become available (listed here as k & l), allowing you to further describe the components criticality.

k) **Criticality type:** What type of criticality applies to this component? The list of available selection can be edited at the office. Please refer to the chapter "Codes" for more information on editing and adding codes. Typical values would be "Critical to Safety", Critical to Production" and "Critical to Environment". "Criticality type" codes can be also be colour coded, so that they will stand out in the component grid (ref : Fig6) How to decide if a component is considered critical, will depend on the vessels class requirements, and based upon your company's policy.

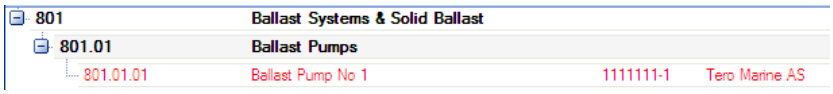


Fig 6: "Criticality" colour coded component

l) **Critical Level:** Allows you to grade the "Criticality". The list of available selection can be edited at the office. Please refer to the chapter "Codes" for more information on editing and adding codes. Typical values would be High, Medium and Low.

m) **Account No:** Here you can assign a default account to the component. This account will be selected as the default account on the orders ordering spare parts for the component.
Click the [...] button to select an account from your account list. Please refer to the chapter Accounts to learn more about adding accounts.

n) **Cost type:** The default cost code on orders created for this component. The list of available selection can be edited at the office. Please refer to the chapter "Codes" for more information on editing and adding codes.

o) **WBS Code:** Code system that is used in relation with SAP PO system.

p) Last condition/date: Here the date of the last performed maintenance on the component will appear, and the "Condition after" assessment. Please refer to the chapter "Maintenance" for more details. You are not able to edit these values in this form.

q) **Image:** Image of the component. To add an image, double click within the frame and select the image. Once the image has been added you can double click it to open the image in full size. To remove the image, right click the image and select "Remove", to change it right click the image and select "Change" and select another image. The image is copied to the servers "System file folder", and will be available to all users opening the component afterwards. Keep in mind that the image may not be replicated to the office/vessel depending on the image file size. Please refer to the chapter "Replication" for more information. If the image exceeds the file size for replication, you will be notified.

r) **Risk Value:** Is a numerical representation of your Risk/Consequence analysis for the component. How this value is set is described in the Chapter :"Risk & Consequence"

s) System :

t) Function:

u) Category:

v) **Parent component:** This is the component; group or system the component is attached to or grouped under. To change parent component, click the [...] button and select the new component, group or system you want this component to be linked to. The component will then be moved in the structure.

w) **Department:** This is used to assign the department that is responsible for the maintenance for this component. The selectable values in this "drop down" are maintained by the office.
Details on how to add, remove or edit selections are described in the chapter "Codes". Common values are Engine, Deck, and Bridge etc.

x) **Tag No.:** If you have an alternate numbering system for your components, you can enter the components alternate code in this field. The Shipyard who built the vessel may have a numbering system of their own, and may require this code if claims are filed etc.

y) **Component type:** You can categorize your components based upon its type. The selectable values in this "drop down" are maintained by the office. Details on how to add, remove or edit selections are described in the chapter "Codes". Common values are Pump, El Motor, Boiler, Fan, etc.

z) **Maintenance method:** Is used to describe the components maintenance scheme. The selectable values in this "drop down" are maintained by the office. Details on how to add, remove or edit selections are described in the chapter "Codes". Common values are Corrective, Planed, Condition Based etc.

aa) **Original Maker:** The company that originally made your component, may not exist anymore due to corporate takeovers etc., if you want to keep the original makers name you can enter it here.

bb) **Owner type:** This field is meant to describe the ownership of the component. It is a free text field. Typical values for this field would be: Hired, Charter provided, Leased etc.

cc) **Class Component:** If this component is considered as a class component tick this check box. If ticked, the field class code (dd) will be activated, allowing you to enter the class code. In order to add class jobs to a component the component has to be a class component.

dd) **Class code:** The class code assigned for the component by your vessels class society. This field is by default inactive, and can be activated by ticking the "Class Component" check box (cc).

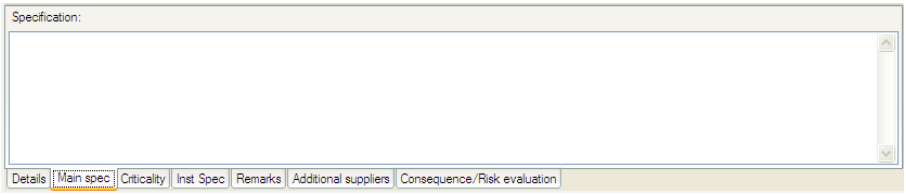
ee) **Price:** Allows you to enter the components value for insurance purposes etc. You can select the price currency in the left "drop down"

ff) **Check boxes**:

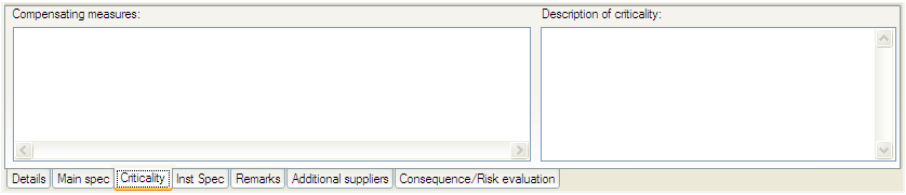
- **Charter provided:** This check box and the "Owner type" field (bb) is meant for the same purpose. To describe the ownership. It is a setting transferred from TM Masterv1.76.
- **Major Component:** A "major" component in this setting is a component that is considered to define the vessels capabilities/functions. A special report is available listing only components that are identified as "major". This report can be used to describe the vessel for any who would like to charter it. A charterer usually does not need a complete inventory of the vessels components. They just require a list of the vessels "Major" components, such as main engine, cranes etc.

- **Circulating components:** A circulating component is a component that can be mounted and dismounted to your system. If a component is dismounted it will no longer receive running hours from its parent component. A typical circulating component would be cylinder covers. In order to mount and dismount a component it must be marked as a circulating component. More details on circulating components can be found in the chapter "Circulating Components"
- **System:** If the "component" is considered a group or a system you should tick this. The difference between an actual component and system or group is described in the Chapter "TM Master V2 Component structure Terms"
- **Activate component lending:** If you wish to be able to lend the components to crew or their next of kin, you may tick this check box. More details on component lending, please refer to the chapter "Component lending".

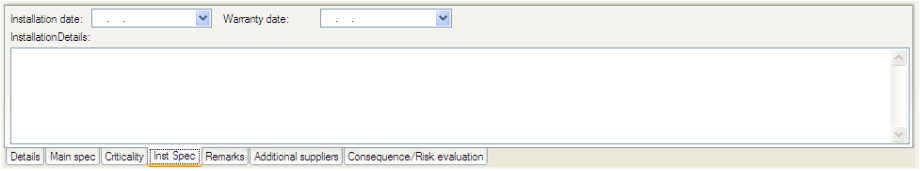
gg) **Main Spec:** A free text field where additional component specifications can be stored. The information entered here is normally also included in the order form, as information on the component any spare part is order to.



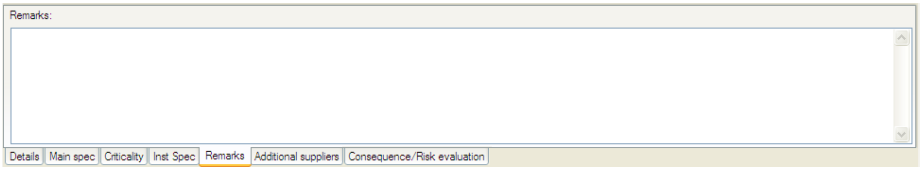
hh) **Criticality:** Additional description of the components criticality and any compensating measures can be entered, if required. The criticality description can be entered directly in this view.



ii) **Inst Spec:** On this tab you can select the installation date for the component, the warranty date of the component and additional installation comments or details.

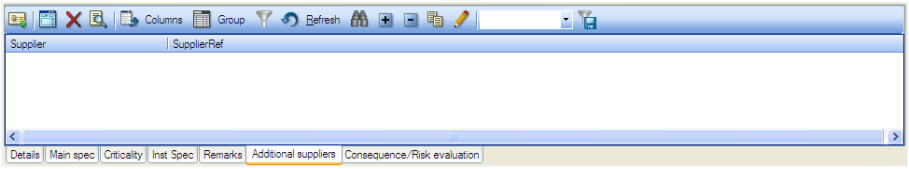


jj) **Remarks:** Free text field to enter any remarks or descriptions that does not fit anywhere else.

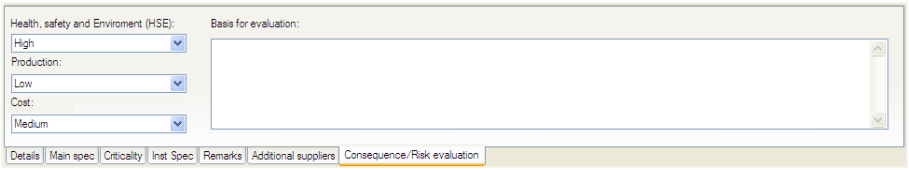


kk) **Additional suppliers:** If you need a record of alternative suppliers for this component, you can add them on this tab. You add an additional supplier by clicking the [Add

supplier] button found on the left hand side of the menu bar on this tab.



ll) **Consequence/Risk evaluation:** On this tab you can rate the component based on the risk involved if this component should break down. You can rate in on risk to "Health, Safety and Environment (HSE)", Production and Cost. The different values available in these drop downs are maintained by the office as codes. Details on how to add, remove or edit selections are described in the chapter "Codes". The office can also assign numerical values to each of the options, and by either adding them together the "Consequence/Risk" related to this component can be displayed as a numerical value. A components "Consequence/Risk" value is displayed on the main form. (ref bullet r)). Your evaluation details can be added in the "Basis of evaluation" field. More details on how to configure and use this function is found in the "Consequence/Risk evaluation" chapter.



Circulating Components

In TM Master v2 the term "Circulating Components" is used for "Spare" components which are on a regular basis are in use and is dismounted and changed when they need maintenance.

A typical example of a circulating component is a Cylinder Cover. To do maintenance on a cylinder cover it is dismounted from the engine and replaced by a spare cylinder cover. Once the cylinder cover is mounted to the engine it should start receiving running hours from the engine, and the dismounted cylinder cover should stop receiving running hours. This is what the "circulating component" functions enable you to do.

Why do we need circulating components?

A circulating component, as for example a cylinder cover, requires maintenance, and usually the maintenance for these components are hour based. So let's say that you overhaul your cylinder covers after 15000 hours of use. A mounted cylinder cover will receive running hours from the engine it is mounted on, once it reaches 15000 hours the overhaul job becomes due and you change the cylinder cover with a spare one (dismounted one). The spare cylinder cover is mounted and it will start receiving hours from the engine.

How to create a circulating component?

In order for you to mount and dismount a component in TM Master V2, you must first configure the component to be a circulating component. This is how it is done.

1. Click [Inventory] → [Components]
2. Double click the component you want to configure to be circulating.

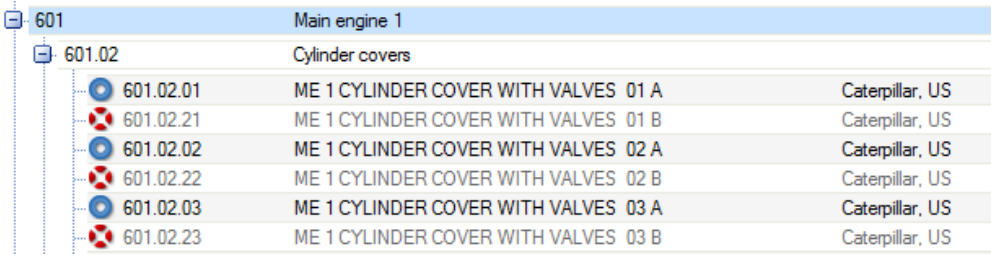
3. The Component properties will appear.
4. Tick the check box “circulating” on the lower right side on the “general” tab
5. Save your changes, the component is now configured to be a circulating component.

A component will by default be set as “Mounted” when the check box “Circulating” is ticked.

What is the difference between a circulating component and a normal component?

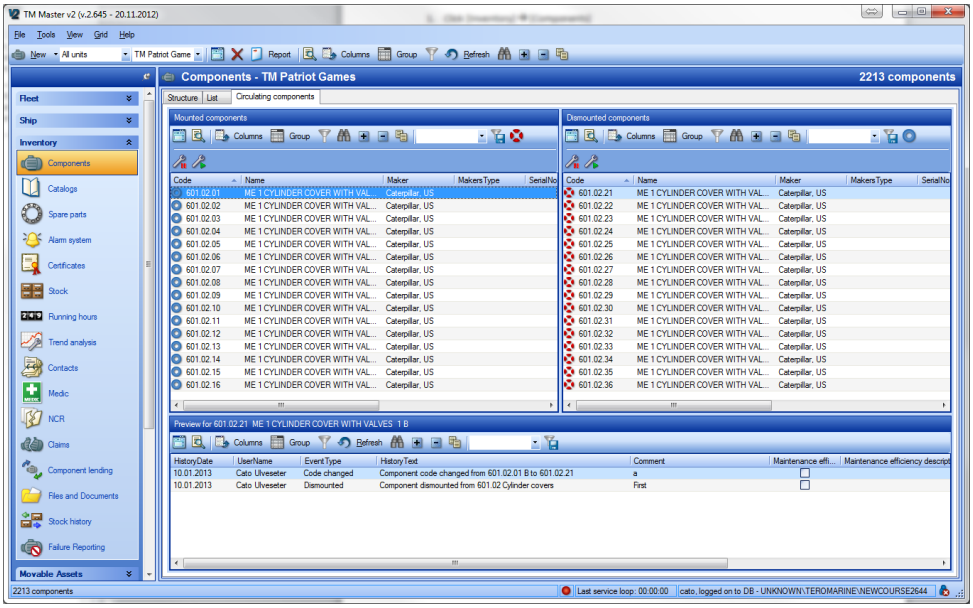
A “Circulating component” has all the functions a regular component has, but it also has some additional ones.

1. Once a component has been configured to be circulating two additional buttons will appear in the top menu of the component form. [Mount] and [Dismount]. One of the buttons will always be inactive, depending on if the component is mounted or not.
2. Two additional fields will appear on the component general tab, just below the “Circulating”, check box. These are “**Mount/dismount date**” and “**Mount position**”.
3. In the component structure circulating components are marked by the same symbols, indicating if it is “mounted” or “dismounted”



Component structure view with mounted and dismounted components.

4. All circulating components will be listed under the “circulating components” list, found on [Inventory] → [Components] →”Circulating Components” tab. On this tab all mounted circulating components are listed on the left and the dismounted on the right. Selecting a component from one of the list will display the mount/dismount history of the selected component in the grid at the bottom.



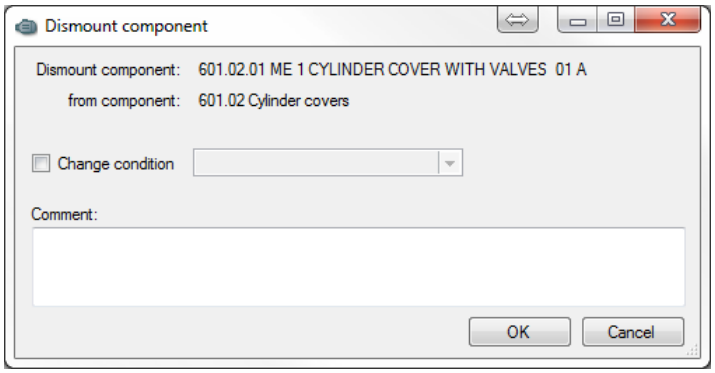
The circulating components tab.

How to dismount a component?

When dismounting a component in TM Master V2, you are disconnecting the component from receiving running hours from its parent component. For more information on how a component receives running hours please see the chapter on “Running hours”.

There are two starting positions for dismounting/mounting components (a or b)

1. a) Click [Inventory] →[Components] → Double click the component you wish to dismount.
   b) Click [Inventory] →[Components] → “Circulating Components” tab and select the mounted component you wish to dismount in the list on the left hand side.
2. Click the [Dismount] button in the top menu.
3. The following dialog will appear:



The dismount component form tells you what component you are about to dismount, and from which component you are dismounting it from

4. You can register the components condition after dismount by ticking the “Change condition” check box and selecting a condition description.
5. Also you can enter additional comments in the “Comment” field
6. Click [OK]

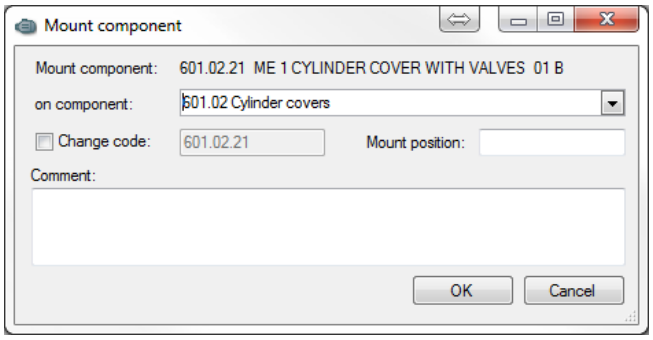
The component has now been dismounted, and will no longer receive running hours from its parent component.

How to mount a component?

When mounting a component the component is attached to a parent component, and will start receiving any running hours the parent receives.

There are two starting positions for dismounting/mounting components (a or b)

1. a) Click [Inventory] →[Components] → Double click the component you wish to dismount.
   b) Click [Inventory] →[Components] → "Circulating Components" tab and select the dismounted component you wish to mount in the list on the right hand side.
2. Click the [Mount] button in the top menu.
3. The following dialog will appear:



The Mount form tells you what component you are about to mount

4. Select the component you wish to mount the circulating component on. Or in other words select the parent component the circulating component should receive its running hours from.
5. You can change the circulating components code if required, by ticking the "change code" check box and then edit the existing code.
6. You can also specify the mount position, by typing it into the "Mount position:" field.
   (i.e. Mount position for a cylinder cover, can be what cylinder it is mounted on)
7. If any comments to the mount, enter them in the comment field.
8. Click [OK]

The component has now been mounted and will start receiving running hours from its parent component.

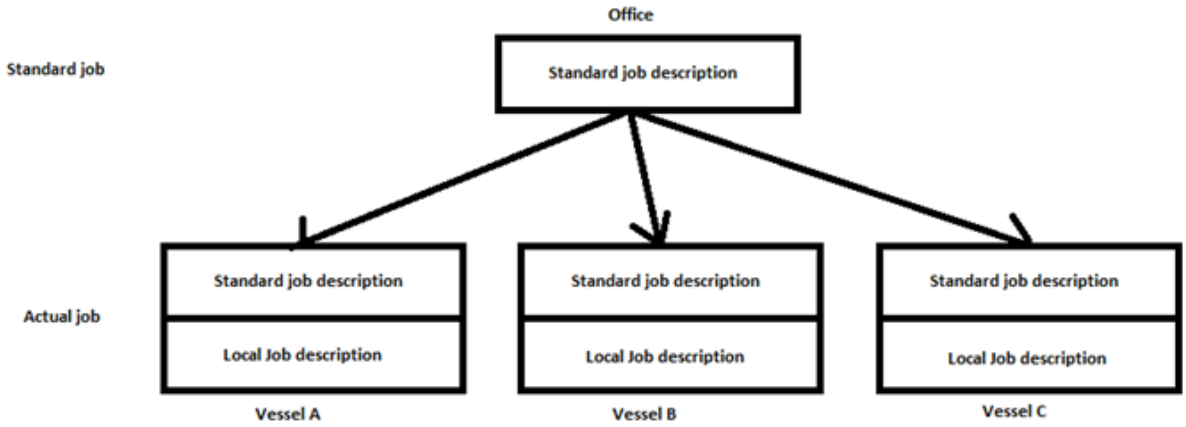
Jobs

Standard jobs

TM Master V2 is a fleet management system, and one of its features is that you can standardize the job descriptions used across the fleet. A job description for one vessel may also apply to other vessels. In the previous version of TM Master (v1.79), and probably in other older maintenance systems, it was/is up to each vessel to enter the job descriptions.

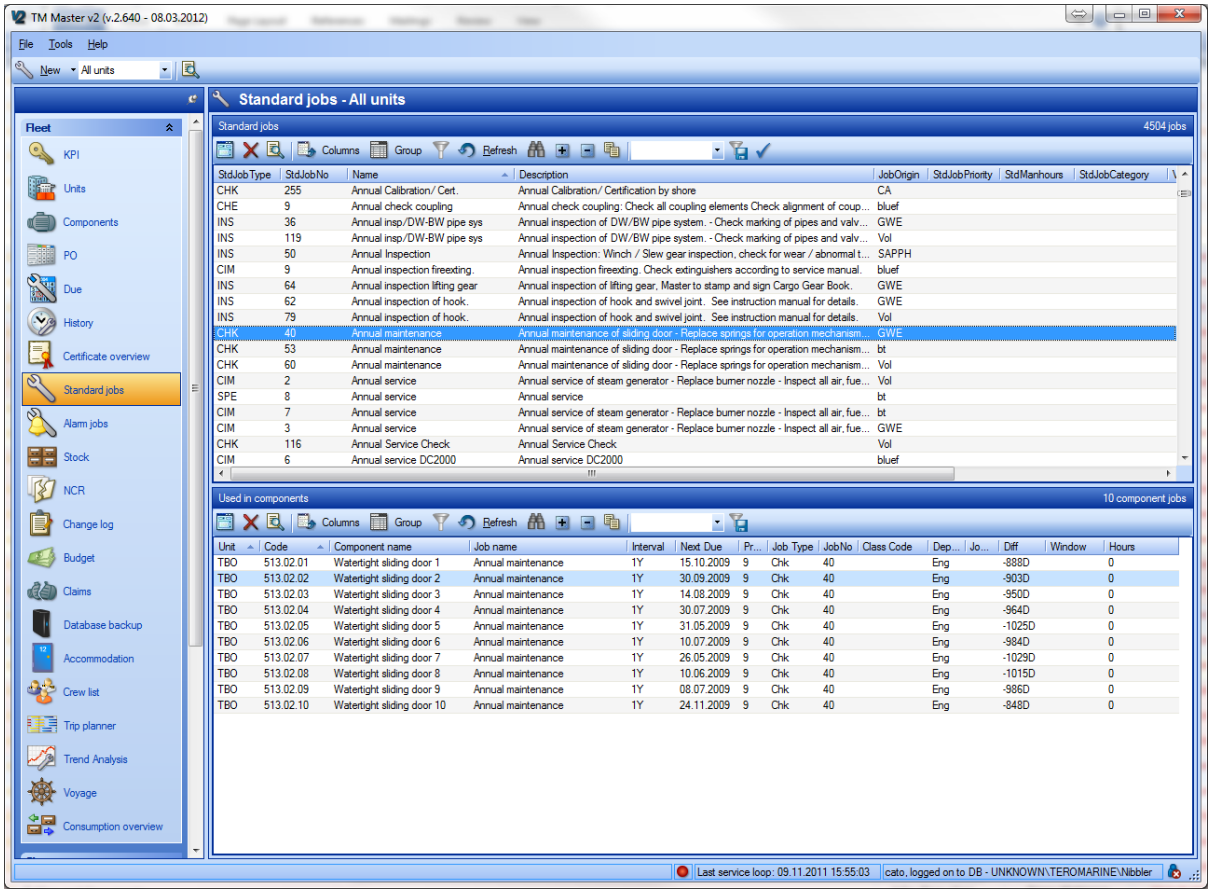
The result can be a lot of different versions of the same jobs, with a slightly difference between them, across the fleet. Some differences are small and cause no problem, but some might even be wrong or incomplete. TM Master V2 will help you to organize and standardize, and keep control of your job descriptions, fleet wide. You will be able to make changes to job descriptions at the office, and all jobs based upon the job description across your fleet will be updated, within minutes.

In TM Master v2 we use the term "Standard job" for a predefined job description or a job template, if you will, which are shared by all vessels in a fleet. There are several ways to use a standard job. You can make them very specific applying to only certain components from one particular maker and type, or you can create a more general job description for simpler jobs, and leave the details for the local job description to the vessels. The Vessel then use the "standard job" as a template when they create jobs, and add a "Local description" to the job with details that may only apply for the job on board that particular vessel.



The "Standard jobs" view at the office.

In the office version of TM Master V2, you will find a module called [Standard Jobs] under the [Fleet] module group. This view will show a list of all standard jobs in the system, in the top window. When you select one of the standard jobs in this window, all actual jobs based upon this standard job, in your fleet, are listed in the window below.

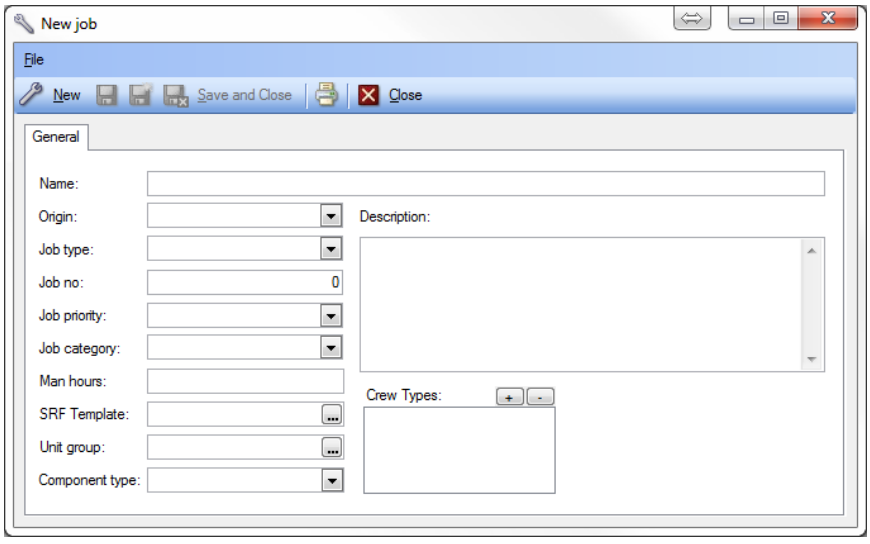


The Standard job view in the Fleet module group.

By double clicking a standard job, the details for the “standard job” is opened in the “standard job” form. If you have the appropriate user rights you can edit the job description, in this view. The changes made to the “standard job” description are replicated to all vessels, and will update the “standard” description for all jobs, that are based upon it, in the fleet. (But not the local job description)

How to add a new standard job from the [Fleet module group] (Office)?

1. Click [Fleet] → [Standard jobs]
2. Click [New] in the left hand side in the top menu.



Empty standard job form

3. Enter your standard job information.
    a. **Name** – Give your standard job a descriptive name. Remember that the users who will create actual jobs will use the name to locate the correct "standard job" to base it upon. Make it easier for them by using a good naming convention.
    b. **Origin** - Select the source for the job. Typical values available would be "Maker", "ISM", "DNV" etc. (Source for the dropdown is the code table "Job Origin")
    c. **Job type** – Select the job type for the standard job. Typical values would be "Check", "Lubrication", "Megger test" etc. (Source for the dropdown is the code table "Job Type")
    d. **Job no** – The system will assign the "job no" based upon the next available job no for the job type you select. You can manually override it if needed
    e. **Job priority** – Select the default job priority for the job, the vessel can manually override this setting when creating the actual job. (Source for the dropdown is the code table "Job Priority")
    f. **Man hours** – Enter the estimated time required for the job, the vessel can manually override this setting when creating the actual job.
    g. **SRF Template** – Here you may select an SRF form to be linked to the job. You will need the "SRF module license" to use the SRF functionality.
    h. **Unit Group** – Select which Unit group this job belong to, if it only applies to some of your vessels (units).
    i. **Component type** – If the job applies only to a certain type of components you can specify this by selecting a component type for the job. Typical values for this drop down are "Pump", "El motor", "Separator" etc. (Source for the dropdown is the code table "Component type")
    j. **Description** – This is the "Standard job description" for the job, this description can only be changed by users with user right to edit "Standard jobs", this
    k. **Crew Type** – Add the different crew types required for the job.
4. Click [Save and Close]

Standard job validation.

Only "Validated" standard jobs are replicated to all vessels. By default new standard jobs created at the office are validated, and replicated to all vessels in the fleet.

You can tell that a standard job has been validated in the [Fleet] → [Standard jobs] grid.
One of the column heads are named "Validated", where validated jobs are check marked.

How to validate a standard job?

1. Click [Fleet] → [Standard jobs]
2. Select the standard job you want to validate in the standard job grid
3. Click the blue check mark ✔ found in the top menu.

Why is it possible to validate and unvalidate standard jobs?

Vessels that have had some sort of previous maintenance system installed, before the vessel starts using TM Master V2, will usually want to keep their previous job history, component and job definitions, and job schedule.

So before the vessel can start using TM Master V2 as their new maintenance system, this existing data needs to be converted into a TM Master V2 format

When new vessels are converted to TM Master V2 and imported to your office database, all the vessels jobs will also be imported, some maintenance system also have some sort of “standard job descriptions”, and for those that do not a new standard job will be created. To avoid all these new “standard jobs” being replicated to all vessels, the new jobs are imported as “not validated”.

You can also allow the vessel to define standard jobs, vessel defined standard jobs are available on the vessel that creates them and it is replicated to the office. Since a standard job created at a vessel is by default set to “invalidated” it does not replicate to other vessels. How to create a “standard job” on board the vessel is discussed under how to create a component job.

TM Master v2 also features a “Job Cleaning” module, which enables you to replace duplicate “invalidated” jobs with validated ones. This tool is quite powerful and will make the job of standardizing and replacing your fleets jobs so much easier. More details on these cleaning tools can be found in the chapter “The cleaning tools”

Component jobs

The term “component jobs” in TM Master V2 applies to the actual jobs created for the components in the system. It is the component jobs that are signed out, and is usually referred to as just “jobs”.

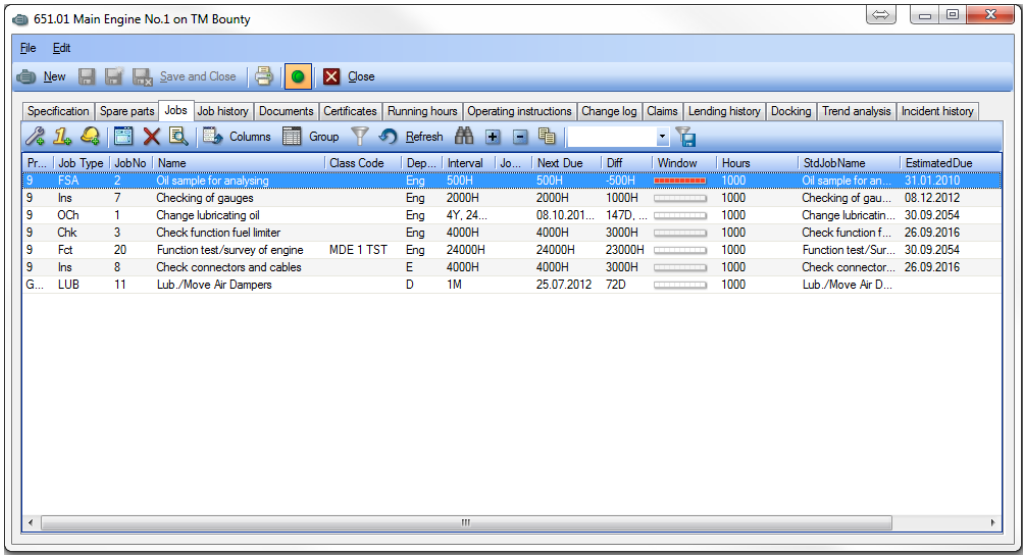
There are 3 different types of component jobs:

Scheduled Jobs: These are recurring jobs, with a date or counter interval. All scheduled jobs are based upon/linked to a standard job.

Corrective actions: These are “one off” jobs with only one specific due date or due counter value (e.g. Running hours) and contain a description of the job to be performed

Service jobs: These are for unforeseen jobs that already have been performed, and a record of the job needs to be entered in the maintenance history. Service jobs are created and signed out in one operation.

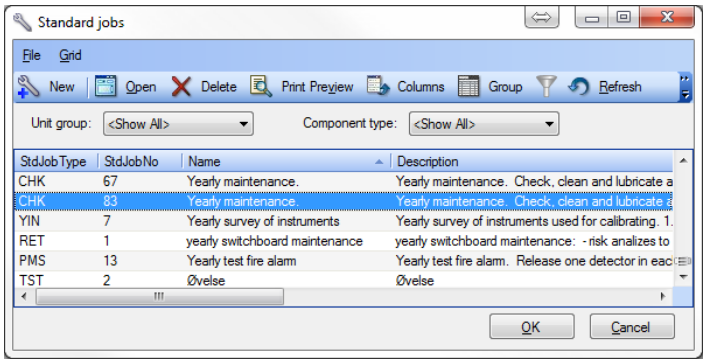
To add one of these jobs you will need to open the component you wish to create the job for, and then click the “Jobs” tab. Here you will find all existing jobs for the selected component.



A component's "Jobs" tab

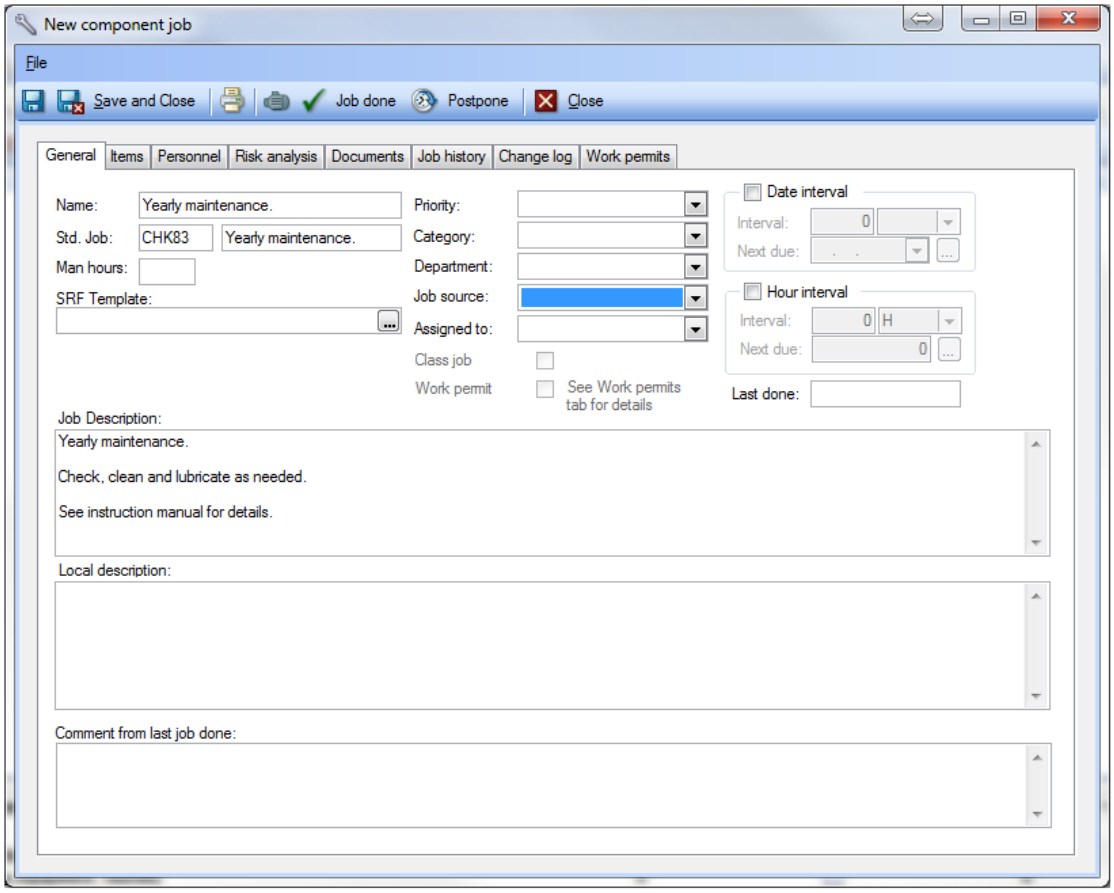
How to create a scheduled job for a component?

1. Click [Inventory] →[Components]
2. Double click the component you wish to create a job for.
3. Click the "Jobs" tab.
4. Click the  [Add job] button.
5. Select the "Standard job" appropriate for the job you want to add.
   If you do not find an appropriate standard job, you can create a new one by clicking the  [New standard job] button. This will require appropriate user rights.



Standard job selector

6. Click [OK]



New Component job form (Scheduled job)

7. Enter relevant information:
   A default value may have been set for some of the fields on the standard job, but you are allowed to change them (except “Job Name”, “Job code” and “Job Description”).
   a. **Man hours:** The estimated man hours required to do the job.
   b. **SRF Template:** Select the relevant SRF template by clicking the […] button. SRF is described in detail in the chapter : SRF Templates
   c. **Priority:** Select the job priority (Source for the dropdown is the code table “Job Priority”)
   d. **Category:** Categorize your job, by selecting a “Job category” (Source for the dropdown is the code table “Job Category”)
   e. **Department:** Assign the department responsible for the job. Assigning a department to your jobs will make it easier for crew to find their jobs in the Due list. (Source for the dropdown is the code table “Department”)
   f. **Job Source:** Allows you to indicate where the job comes from. Typical values would be “Makers user manual”, “ISM Requirement” etc.
   g. **Assigned to:** Select the “Crew type” that is responsible for the job, assigning “crew types” to jobs will make it easier for the different crew to find their jobs in the Due list.
   h. **Class job:** To create a class job the component the job is created for must be marked as a class component. Once the job has been marked as a class job, a field for the jobs class code will become available. By default it will copy the components class code, but it can be changed if required.

i. **Work Permit:** If the job requires a work permit, tick the work permit check box. A work permit must first be attached to the job before, you can turn this on. Adding a work permit is done on the jobs "Work permits" tab.

j. **Date Interval:** To set a date interval for the job, tick the date interval check box.

k. **Interval (Date):** Enter the interval value and select the interval UOM (Days, weeks, months, year)

l. **Next Due (Date):** Indicates the next date it the job will be become due. By default the date is set to "today" + "set interval", but can be set to an earlier date if desired. Once the job is signed out the next due will be set to "sign out date" + "set interval"

m. **Hour interval:** A job can be configured to become due based upon the components running hours. Tick the "Hour Interval" checkbox to set a counter interval. The system will not allow you to set an "hour interval" unless the component, or one of its parents, is set to receive running hours. See chapter "Running hours" for a description to do this.

n. **Interval (Hours):** Enter the amount of running hours for the interval

o. **Next due (Hours):** By default this will be set to "current running hours" + "interval", but can be set to a lower amount if desired. Once the job has been signed out the next due will be set to "Current running hours" + "interval".

p. **Last Done:** This field is not editable by the user directly, but will be updated with the jobs last "sign out date".

q. **Job Description:** This is the "Standard job" description, and it is not editable by users, in order to change this description, you will need to change the "standard job" description. Keep in mind that this job description may be shared with all other vessels, and any changes to it will also affect all other jobs, based upon this standard job.

r. **Local Description:** Since a standard are shared between all vessels you may not be able to add all local considerations in account. The local description can be used to specify the jobs in more detail and taking in account local conditions and adaptations.

s. **Comment from last job done:** When users sign out the job they can enter a comment on the job, the last comment entered for the job will appear in this field.

8. Click [Save & Close], and the job is added to the component.

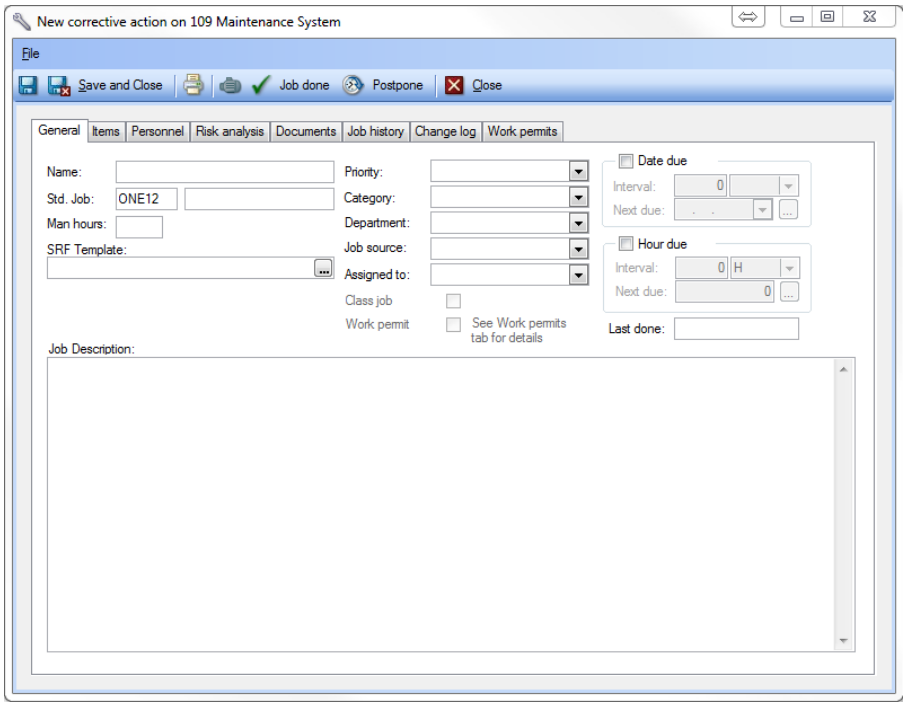
   There are additional features for a job and these features will be discussed after the job types "Corrective action" and "service report" have been discussed.

How to create a corrective action /"one off job" for a component?

The procedure and information entered for a "corrective action" and a regular "scheduled job" is almost the same but there are some minor differences, and I will only point out the differences, in this description. Details omitted can be found in the "How to create a scheduled job?" chapter.

1. Open the component you wish to add a "corrective action" to.
2. Click the "Jobs" tab.
3. Click the  "Create corrective action" button.

Since “Corrective actions” are not based upon a “standard job”, you are not asked to specify the standard job as you do for “scheduled jobs”.



New Corrective action form

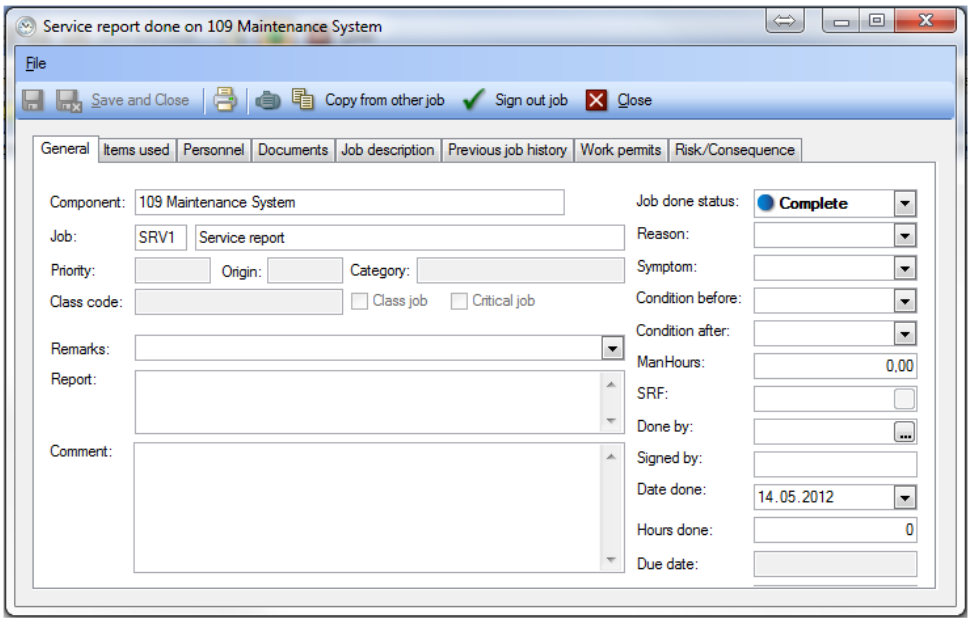
4. Enter the relevant information.
    a. **Name:** Since the job is not based upon a standard job, you will need to enter a name for the job.
    b. **Job Code:** The system will set the job code to “ONE” and number the job.
    c. The functions behind the following fields: Man hours, SRF Template, Priority, Category, Department, Job Source, Assigned to, Class job and Work permit are exactly the same as for “Scheduled jobs” described in the chapter above.
    d. **Date Due:** Set the due date for the job. (Corrective actions do not have an interval)
    e. **Hour Due:** Set the hour due for the job (To set hour due, the component the job is linked to must be configured to receive running hours.
    f. **Job Description:** Enter the job description. As you can see there is no field for the “Standard job” description or the “Comment from last job”.
5. Click [Save and Close], the job has now been added to your component, once it the job is signed out it will disappear from the components job list, and only appear as a history record in the components job history.

There are more features for a corrective action as there are for the scheduled jobs, these will be discussed after the chapter on “How to create a service job?”

How to create a service report for a component?

1. Open the component you wish to add a “Service report” for.
2. Click the “Jobs” tab.

3. Click the  “Create service report” button.



Service report sign out form

4. The following information is set by default
    a. **Component:** This is set to component code + name from the component you create the service report for
    b. **Job No**: which is set using the Job code “SRV” and given the next running number for SRV jobs
    c. **Job name:** By default all service reports are named “Service Report” but users can change this.
    d. The Service report form is almost identical to a regular job sign out. Since the creation of a service report has more in common with a “Job sign out”, the remaining details in the “Service report” form will be discussed in the “Due Jobs” chapter.

5. Enter relevant Sign out data
6. Click [Sign out job] in the top menu bar.
7. The Service report will not appear on the components “Jobs” tab, but goes directly to the job history. However users can “save” an unfinished service report, and it will appear in on the components “Jobs” tab, until it is signed out.

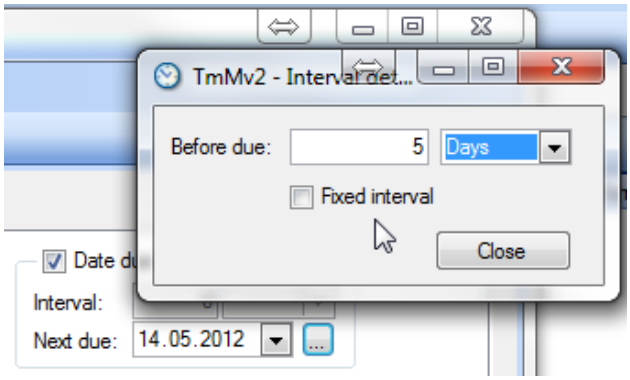
Additional job settings and features.

In the chapter above only the most essential settings for a job have been discussed, but there are more features for the jobs available. They are as follows:

Due Prewarnings and fixed intervals

For some jobs you may want to be alerted ahead of the actual due date. To achieve this simply click the […] button after the “Next Due” field, and enter the number of days ahead you want the job to

appear in the due list. In this dialog you will also find a check box to assign a “Fixed interval”. By ticking this check box the job will become due at the “due date”/”due hours”+ “interval”, regardless of sign out date or hours.



The Prewarning and fixed interval form.

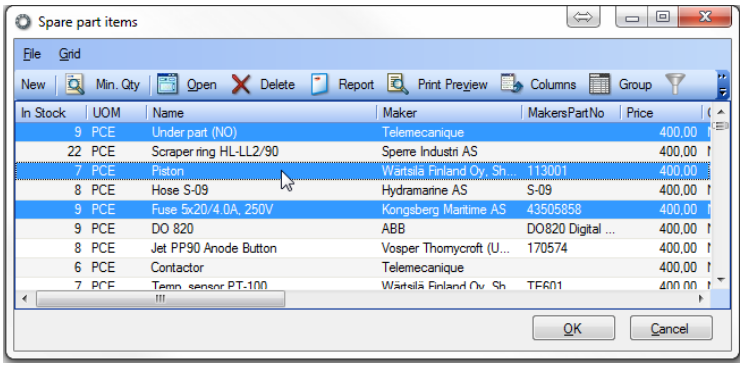
Example: You want the job to be done the 1st of each month, you then set the interval at 1 month, and next due to the 1st next month, then you tick of the fixed interval. If the job is signed out the 3rd, next due will now still be set to the 1st (not 3rd + 1 month as it would without the “fixed interval”). This functionality also applies for prewarnings on “running hour” intervals.

Spare part list for a job.

If certain spare parts are required to execute the job, you can add a spare part list to each individual job. This will make it easy to check if required spares are in stock and simplify the process of register spare part consumption for the job, when signing it out. Also in the future the system will support a fore casting function, which will be able to use this information to estimate your future spare part needs.

How to create a spare part list for a job?

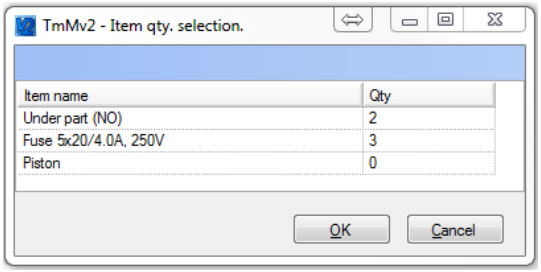
1. Double click the job, you wish to create the spare part list for.
2. Click the “Jobs” tab.
3. Double click the job you wish to add a spare part list to.
4. Click the “Items” tab
5. Click the [Add item] button.



Spare part selector form

6. Select the spares you wish to add to the job spare part list. You can select more than one at the time by pressing and holding the [CTRL] key while selecting.

7. Click [OK]



Item qty. form

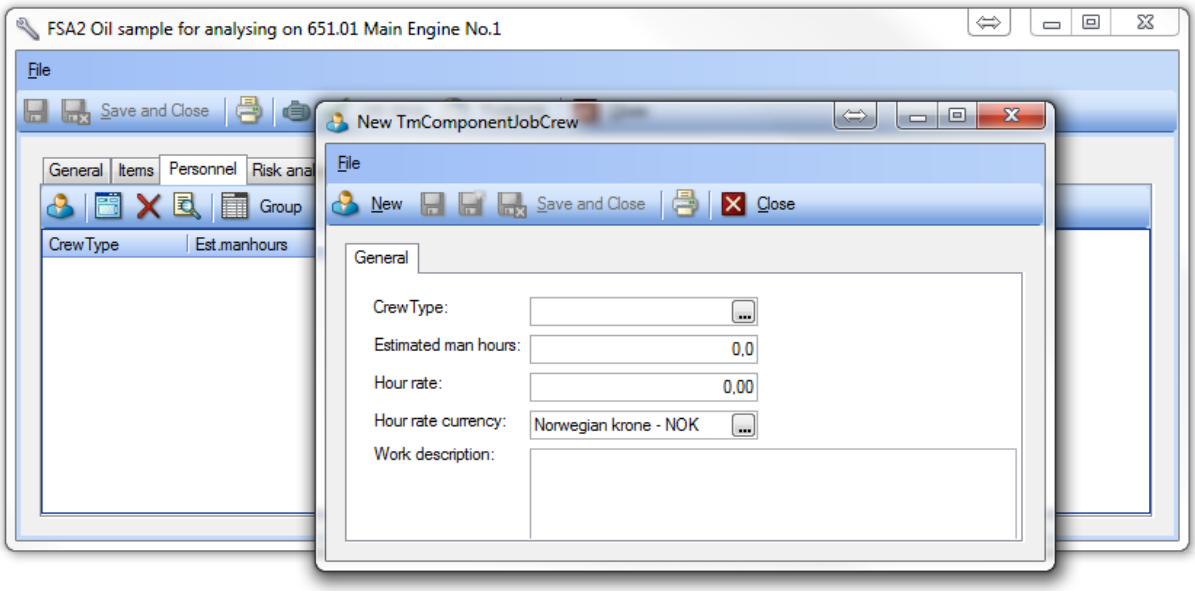
8. Enter the quantity for each spare part required.
9. Click [OK]
10. The spare part(s) have now been linked to the job.

Personnel required when performing a job.

A job may require more than one crew member to contribute, and it is possible to register what personnel (Crew type) is required, an estimate of required man hours, hour cost and a short description of the crew type's job description. In the future TM Master V2 will have a function to for cast personnel requirements and cost, based upon this information.

How to register personnel requirements for a job?

1. Double click the job you wish to add personnel requirements.
2. Click the "Personnel" tab
3. Click the  [Add Personnel] button.



4. Enter the relevant information
    a. **Crew type:** Select the "Crew type" required by clicking the […] button at the end of the field. The source for this dropdown is the "Crew type code" table
    b. **Estimated man hours:** Enter the estimated man hours, required for the job.
    c. **Hour rate:** You can enter the crew member's hour rate. Currently the hour rate is not used for anything, but will in the future be used to for cast cost for maintenance.

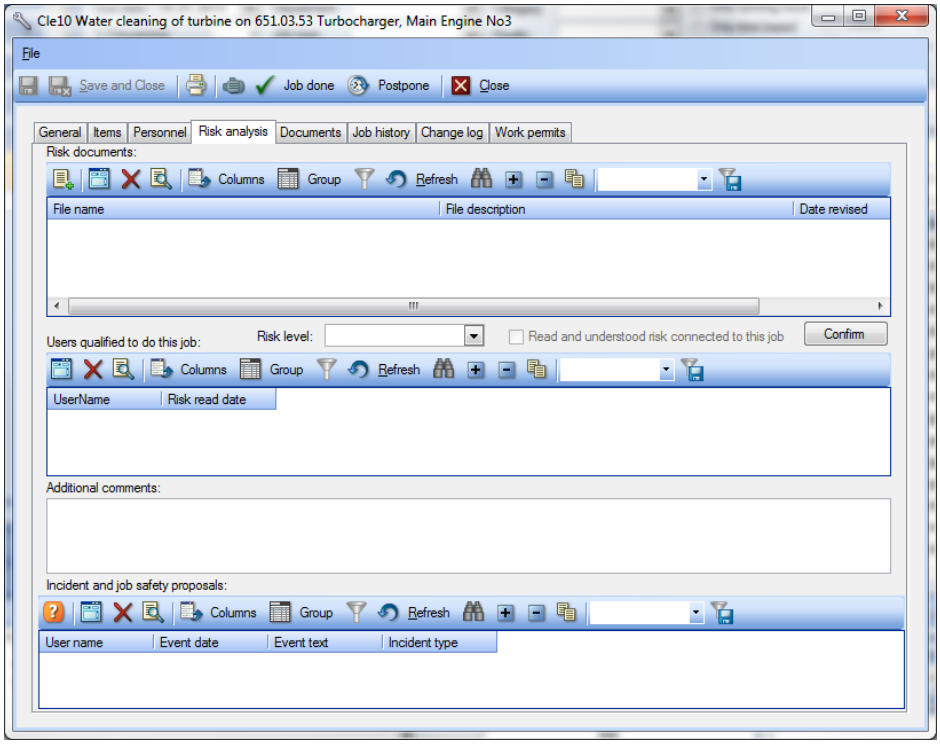
d. **Hour rate currency:** Currency for the hour rate
e. **Work description:** Enter a description of the crew's task.

5. Click [Save and Close]

Risk analysis tab

In the TM Master V2 system there is a function for attaching Risk analysis documents to any Component specific maintenance routine (Component Job). This automatically restricts the process of completing those jobs in the maintenance system until the user has confirmed that they have read the documents. The risk analysis/assessment process which produces the content of the documents should be undertaken externally to the TM Master V2 system.

The risk analysis documents can be any format (.pdf, word, excel etc.), as long as the appropriate program is installed for opening them.



The risk analysis tab found on the component job form.

How to add a risk document to a job?

1. Click the [Add a risk document to this job]
2. Select a "Risk" document from the list
   (See chapter Risk Analysis to add a document to this list)

To be able to sign out any jobs with a "Risk" document attached, the user must first click the [Confirm] button to confirm that he has read and understood the risk document(s). The users who have confirmed reading the document are listed in the list below the document list.

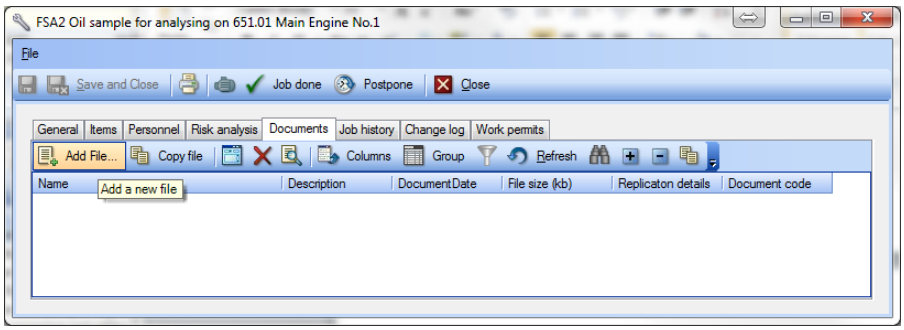
Users can record feedbacks on the documentation or suggest additional safety proposals, at the bottom of the form by clicking the [Add new event] button at the bottom of the form.

Attach documents and files to a job.

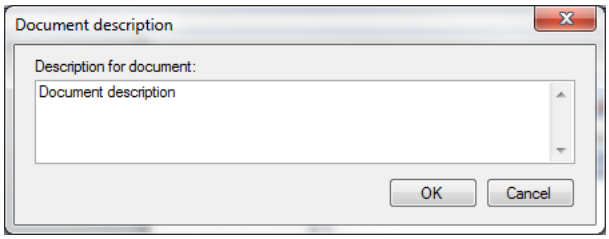
You may have images, drawings and documents that might be useful or required to perform a job, these documents can be attached to the job itself, giving users easy access to this information, when performing or preparing for a job. Any file type can be attached and they will be made available to all users logging on to TM Master V2.

How to attach a file to a job?

1. Double click the job you wish to attach a document or file to.
2. Click the "Documents" tab



3. Click the [Add file..] button
4. Select the file you wish to attach.
5. Click [OK]



6. You can enter a description of the file; by default it uses the attached files name as the description.
7. Click [OK].

The document has now been attached to the job. The attached file is copied onto the "System file folder" on the server, and should be available to all users of the system.

Previous job history

All previous job history for a job is available on the jobs "Job history" tab. The history found in this list is for the selected job only.

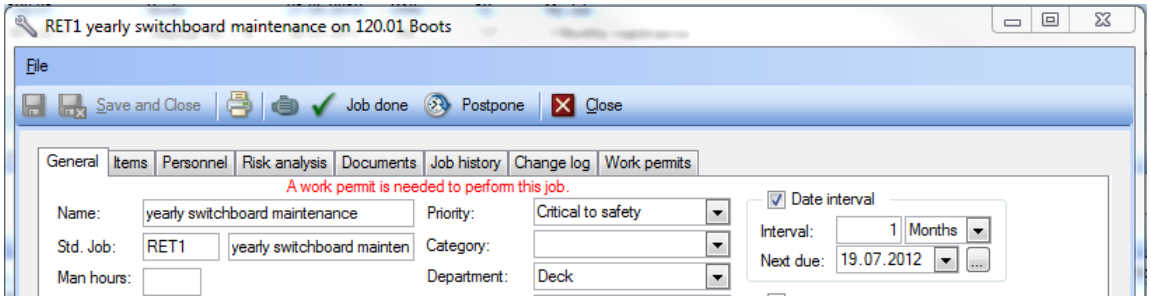
Change log

Changes made to the job are logged in the jobs change history. A change log entry will record the user making the change, date and time for the change and the old value and a reason for the change. A complete list of job changes can be found in the complete system change log. [Ship]→[Change log].

Work permit.

TM Master v2 can be used to handle work permits. If a job is configured to require an approved work permit, users will be informed that a work permit is required, as shown below. The job can't be

signed out before the work permit has been applied for and approved. How to configure a job to require a work permit and more details on this topic is described in a later chapter called “Work Permits”.



An example of a job which requires an approved work permit before it is signed out.

How to copy and paste jobs between components?

Similar components may have similar jobs. So to save time you can copy and paste individual jobs parts or the entire job list from one component to the other.

To copy **some** of the jobs from a components spare part list do the following:

1. Click [Inventory] → [Components] → Double click the component with the job or jobs you wish to copy.
2. Click the “Jobs” tab.
3. Select the jobs from the job list that you want to copy.
   (Press and hold the [CTRL] key to select more than one spare part.)
4. Then right click one of your selected jobs , and select “Copy jobs”
5. Go back to the [Inventory] module and select the component or components you wish to copy the jobs to (Press and hold the [CTRL] key to select more than one component.)
6. Then right click one of the selected component and select “Paste jobs”.

The jobs you have selected and will now be copied the selected component or components.

To copy the **entire job list** from one component to other components do the following.

1. Click [Inventory] → [Components]
2. Right click the component with the job list you wish to copy.
3. Select “Copy jobs”
4. Then select the component or components you wish to copy the job list to.
   (Press and hold the [CTRL] key to select more than one component.)
5. Right click one of the selected components and select “Past jobs”

The job list from the component you copied from has now been added to the component or components you pasted to.

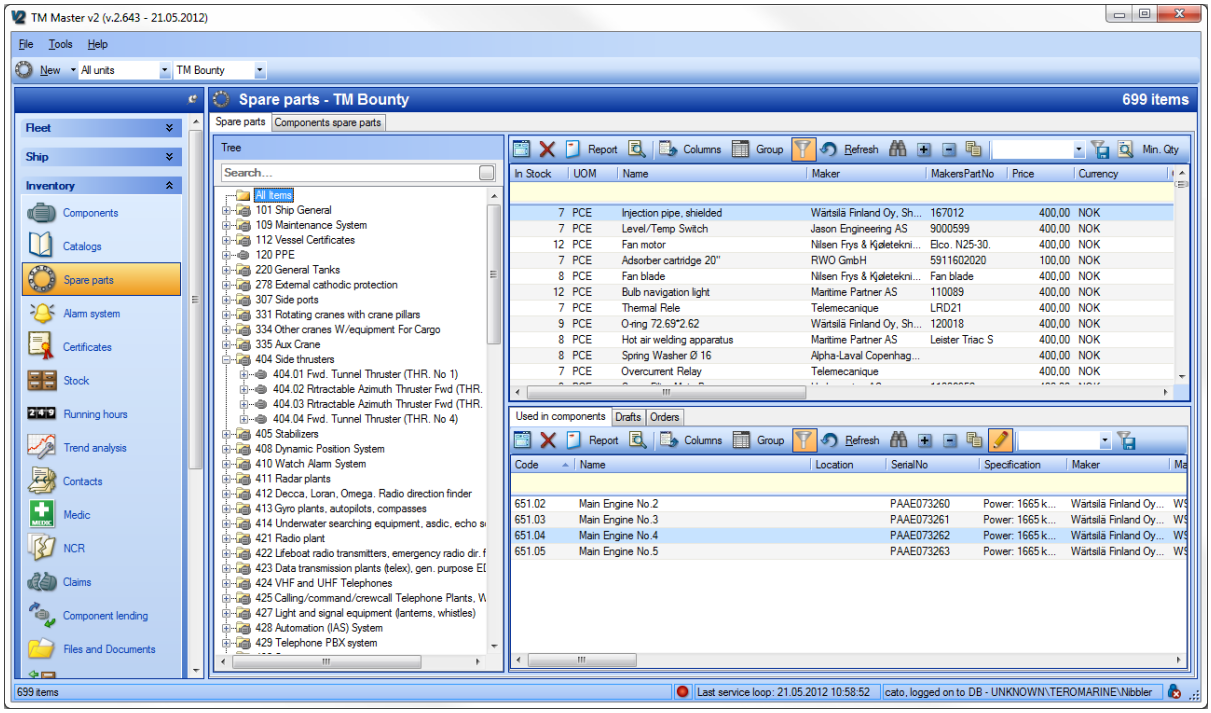
If you copy and paste the entire component, any jobs on the copied components will also be included.

Spare Parts

The spare part view

The [Spare part] module gives you a complete overview of all your vessels spare parts. This view is divided into 3 sections/windows.

- Component tree (left hand side)
- Spare part list/grid (Top right hand side)
- Occurrence view (Bottom right hand side)



The Spare part module.

Component tree.

The component tree is the same structure that you will find in the [Components] module with one exception, which we will come back to. By clicking on one of the components or groups all spares linked directly to it or one of the sub components will be listed in the spare part list/grid. So if you for example click the main engine number one, all spares linked to it or one of the main engine's sub components are listed. By clicking one of the sub components, for example the turbo changer, only the spare parts linked to the turbo charger are listed in the spare part list/grid.

As mentioned there was one exception between the spare part view component structure and the one that is found in the component module. In the spare part structure we have added an "All items" folder at the top of the structure. By clicking the **"All items"** folder all spares in the system (including spare parts that are not linked to any components) are listed in the spare part list/grid.

Spare part list/grid.

The spare part list shown in this view, depend upon which component or group is selected in the component tree view. By using the grids filter and grouping function, you should be able to find any spare parts you are looking for.

By clicking the [Min Qty.] button found in this views top menu bar, the list will be reduced to show only the spares that have gone below or are currently at the spares “Minimum quantity” value.

Occurrence view

This window have 3 different tabs, these are “Used in component”, “Draft” and “Orders”.

Used in component: When selecting a spare part in the spare part list, all components the selected spare part is linked to are shown in this window.

Drafts: This view will let you drag and drop spares from the spare part list/grid into existing drafts. A selection box lets you switch between all existing drafts.

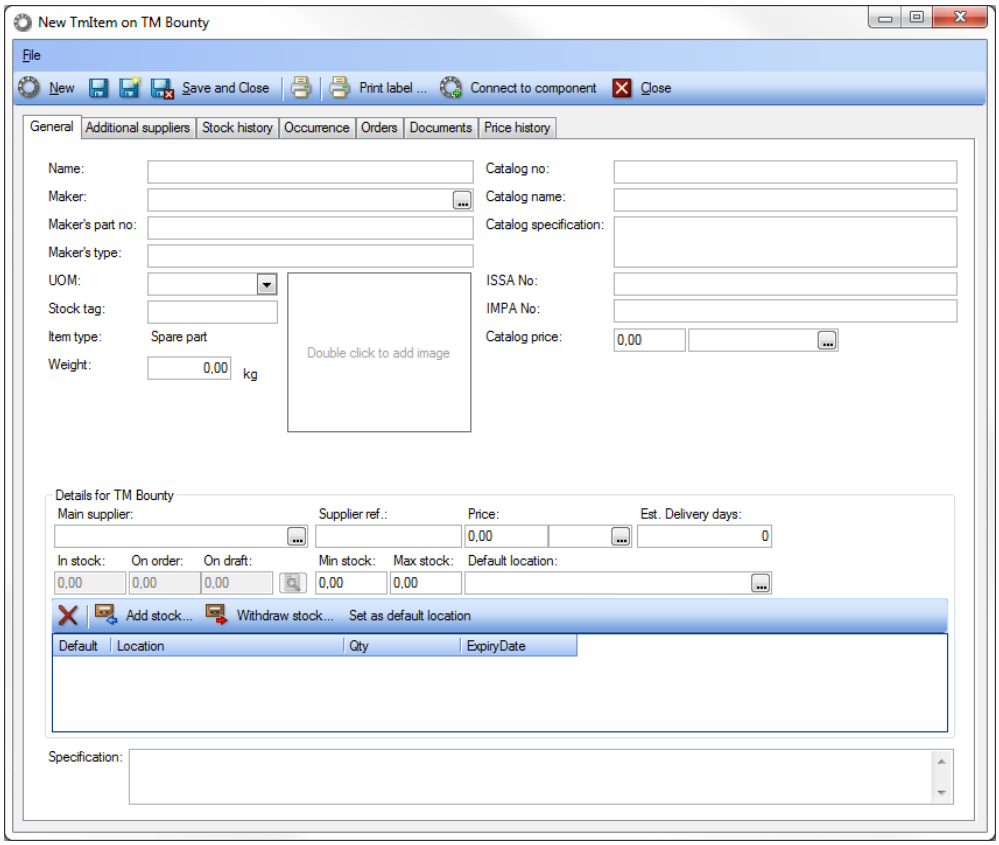
Orders: This view will show all orders containing, the selected spare part.

How to create a new spare part?

1. There are two starting points for the procedure to create a new spare part.
   a) [Inventory] → [Spare parts] → [New] (On the left hand side in the top menu)
   b) [Inventory] → Double click component you want to add a spare part to → “Spare parts tab” → [Create new Spare part].

When using start option b) the spare part is also linked to the component, you create the spare part from. Otherwise the procedure of creating the spare part is identical, as follows.

2. Enter the details you have available on the spare part.



Empty Spare part form

a. **Name:** Enter the name of the spare part. For spare parts where you may have a lot of different versions such as “ball bearings”, it is recommended that you include more information in the name field, such as dimensions etc. so that identifying the spare later will be easier.
b. **Maker:** Select a maker from your contacts marked as makers, by clicking the […] button.
c. **Maker’s part no:** Enter the maker’s part number if available.
d. **Maker’s type:** Enter the maker’s type specification for the spare part.
e. **UOM:** Select the unit of measure (uom), for the spare part.
f. **Stock tag:** This field can be used to store the spare part number you have assigned to it, in a future release of TM Master V2, it will be possible to have TM Master to auto number your spares.
g. **Item type:** TM Master v2 operates with 3 different item types: “Spare parts”, “Consumables”/ “Catalogue item” and “Medic item”
h. **Weight:** Enter the weight of the spare part
i. **Image:** You can add an image to the spare part to make identification later easier, by double clicking within the image box, and then selecting the image from your hard drive.
j. **Catalog no:** Here you can enter the number for the spare part found in either the suppliers or makers catalogue.
k. **Catalog Name:** Enter the name from which the catalogue no (above) is found in
l. **Catalog Specification:** Enter any additional details for the catalogue.
m. **ISSA No:** If the item also can be found in the ISSA Ship Stores catalogue, you can enter the ISSA catalogue number here.
n. **IMPA No:** If the item can be found in the IMPA catalogue, you can enter the IMPA catalogue number here.
o. **Catalog price:** Enter the catalogue price for the item.
Specification: In this free text field you can enter all the other information

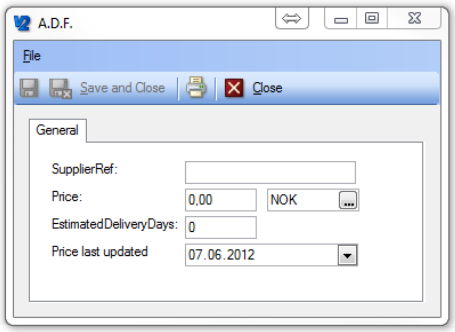
So far you have filled out information on the spare part that will apply for all your “Units”/”Vessels”. All the information entered in the lower part of the form. (Within the section called “Details for [Unit/Vessel name]) is information on the spare part that only applies to the spare in relation with the current unit/vessel.

3. Enter “Details for [Unit/Vessel name]”
    a. Main Supplier: Select the current unit’s main supplier for this spare part by clicking the […] button at the end of the field. Then select a supplier. If you have more than one supplier for the item, you can add these to the “Additional Suppliers” tab (Described in step 4.)
    b. Suppliers Ref: Enter the main suppliers “Suppliers reference” for the item.
    c. Price: Enter the main suppliers price
    d. Currency: Select the main supplier’s currency by clicking the […] button.
    e. Est. Delivery days: Enter the lead days from when the supplier receives the order to the item is delivered.

f. In stock: This Is the current total amount of the item in stock on board the current vessel, this field can't be edited directly. To change the value you must use the [Add stock...] and [Withdraw stock...] functions, explained later.
g. On Order: This is the current total amount of this item, currently part of a purchase order, with the status "On order" to "Completely received".
h. On Draft: This is the current total amount of this item added to a draft, which are orders that have not been set "On order" yet. Once the draft is set to "On Order", the amount set on order will be added to the "On Order" amount.
i. .
j. Min Stock: Here you enter the lowest amount of the item required on board the current vessel. This will help you make sure that you always have at least a minimum of the required spare parts available.
k. Max Stock: Enter the maximum or optimal amount, you see fit, of the item. This value will make the reordering of the item easier. When deciding on the amount that you need to order, you can use the "To max" function, which will calculate the amount of the item required based upon current stock. (Max stock minus current stock = the amount to order)
l. Default location: Select from your stock locations, the primary storage location for the item. When receiving items they will by default be added to this location.

How to add additional suppliers to a spare part?

1. Double click the spare part/item, you wish to add an additional supplier.
2. Click the "Additional supplier" tab
3. Click the  [Add supplier] button found on the left hand side in the menu bar.
   Select the supplier from your suppliers list (Contacts, flagged as suppliers)



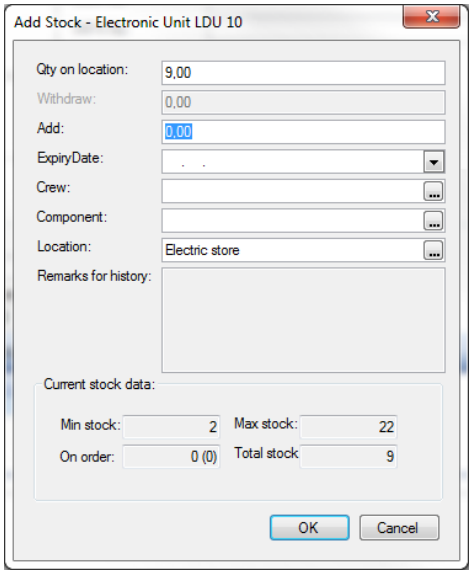
Additional supplier form

4. Enter the additional suppliers "Suppliers ref" for the item.
5. Enter the supplier's price for the item, and select the currency.
6. Enter the suppliers estimated delivery days (lead time)
7. Select the date when this price information is valid (by default it picks todays date)

How to add an amount of items to stock, directly in the item form?

There are several ways to add and withdraw items in stock. One of them is available directly from the item form. You may already have a stock value on the spare when you are adding it to the system and as part of the item registration; you want to also update the stock information.

1. Double click the spare part/item, you wish to edit the stock value for.
2. In the Section "Details for [Unit/Vessel name] click the [Add stock] button.
3. Enter the details for your stock update.
    a. **Qty. on location:** This is your current stock value. (you can' t edit this value directly)
    b. **Withdraw**: This field is not active when you are adding items to stock
    c. **Add:** Enter the amount of items you wish to add to the stock.
    d. **Expiry date:** Select an expiry date, if any.
    e. **Crew:** Select the crew member who is adding the item. (This is recorded in the stock history)
    f. **Component:** Here you can select the component the item is ordered for.
    (Please note that, this will not link the spare to the component, this is only information that will be stored in the stock history)
    g. **Location:** Here you can select the location where the items will be or are stored. By default it is set to the "Default location" if set. You can select additional store locations for the item, by selecting a different location, than the default value.
    h. **Remarks for history:** Enter a remark for the stock update if needed, the remark will be available as part of the stock history.



4. Click [OK]

How to withdraw an amount of items from stock, directly in the item form?

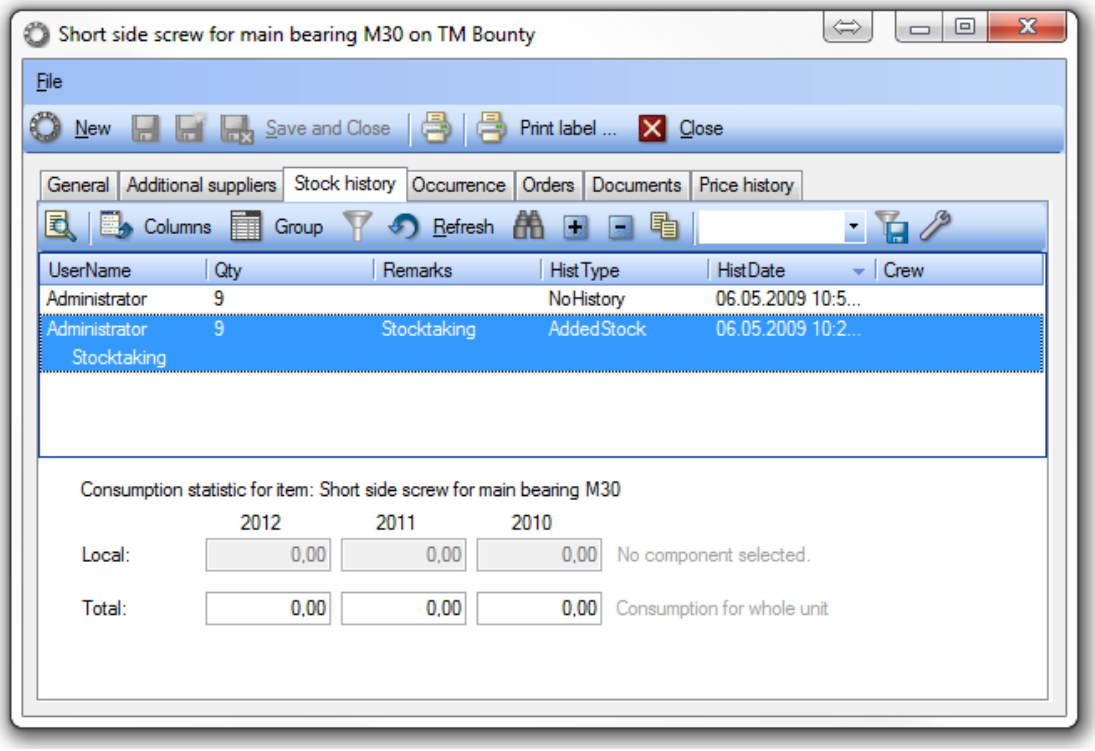
1. Double click the spare part/item, you wish to edit the stock value for.
2. In the Section "Details for [Unit/Vessel name] click the [Withdraw stock] button.
3. Enter the details for your stock update in the "withdraw" form. The form details are the same as explained above in the "How to add an amount."

Additional information found on a Spare part.

Stock history for individual items.

Any changes made to an item's stock is recorded in the items stock history, you can view this stock history by clicking the "Stock History" tab on the item detail form. (Ref. image below).

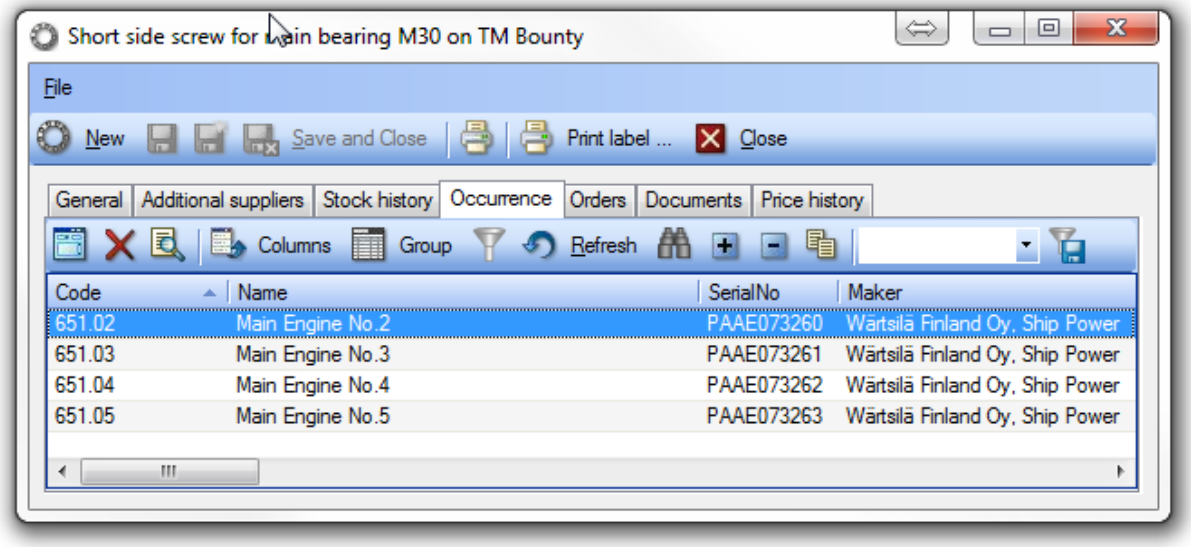
On this tab you can also see the total consumption the last three years, both locally and total. Local consumption in this setting is the consumption of the item in relation to the component it has been opened from. Total is the total consumption of the spare part on the entire unit/vessel.



Stock history tab found on the "Spare part item form"

Occurrence.

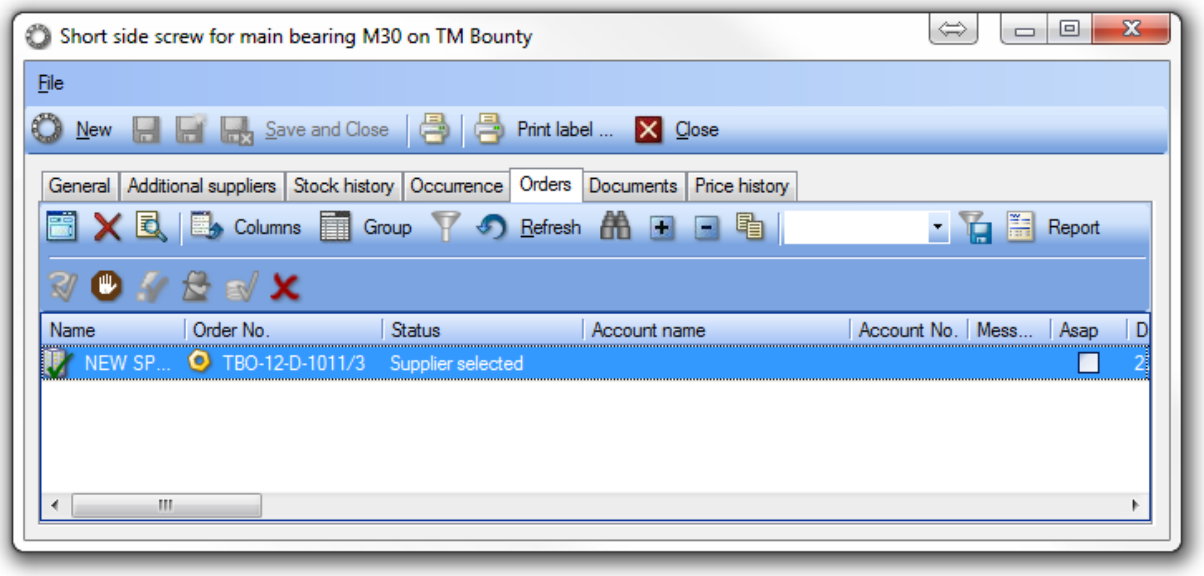
On the "Occurrence" tab, you will find a list of all the components the current spar part is linked to, or in other words a list of all the components that have this spare part in their spare part list.



A spare part's occurrence tab, showing the components it is currently linked to.

Orders.

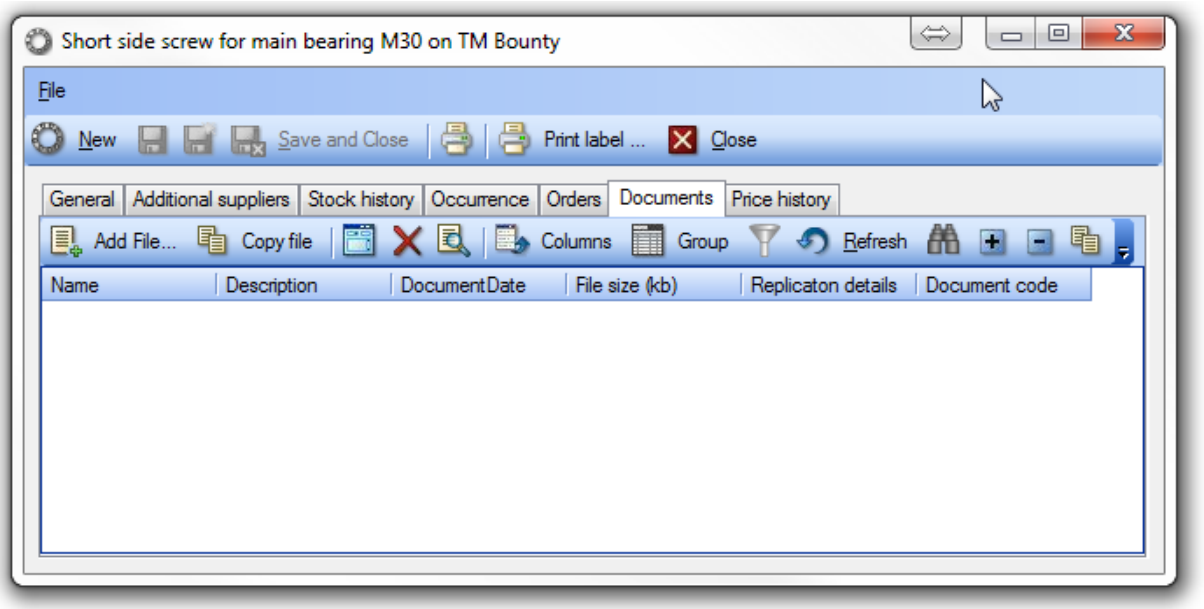
On the "Orders" tab you will find all the orders and drafts this spare part is included, this will make it easier for users to predict when they can expect the items in the "On Order" column will be delivered.



A spare part's "Orders" tab, showing all orders the current item is included.

Documents.

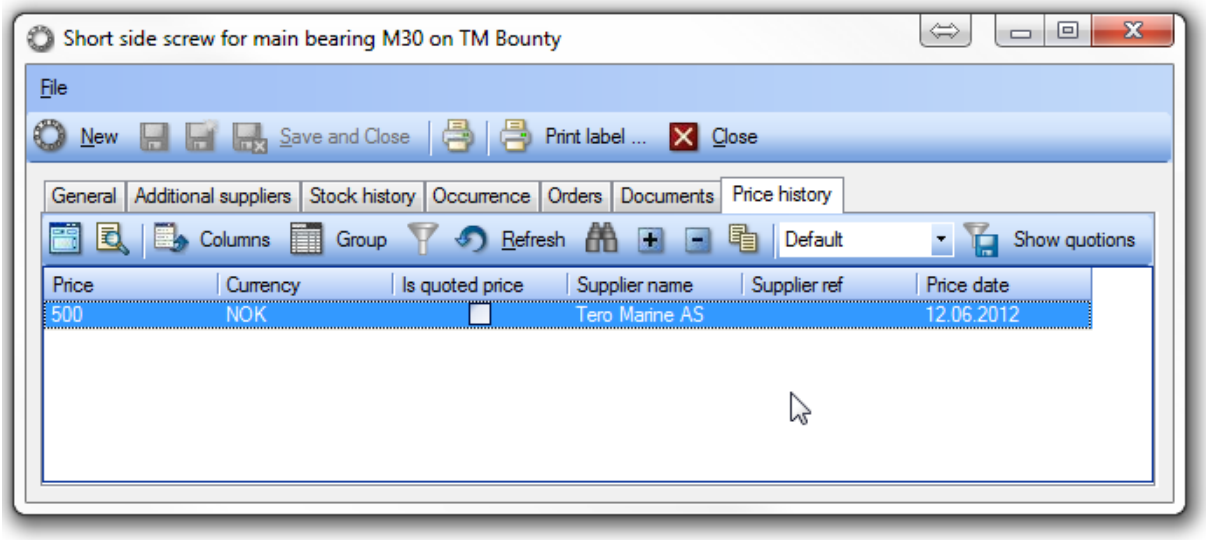
On the "Documents" tab you can attach files and documents that relate to the spare part.
To attach a file click the [Add file] button, then select the file you want to attach. You can enter a short description for the document. By default the "file name" is used as the document description.



A spare part's "Document tab", showing all attached documents

Price History.

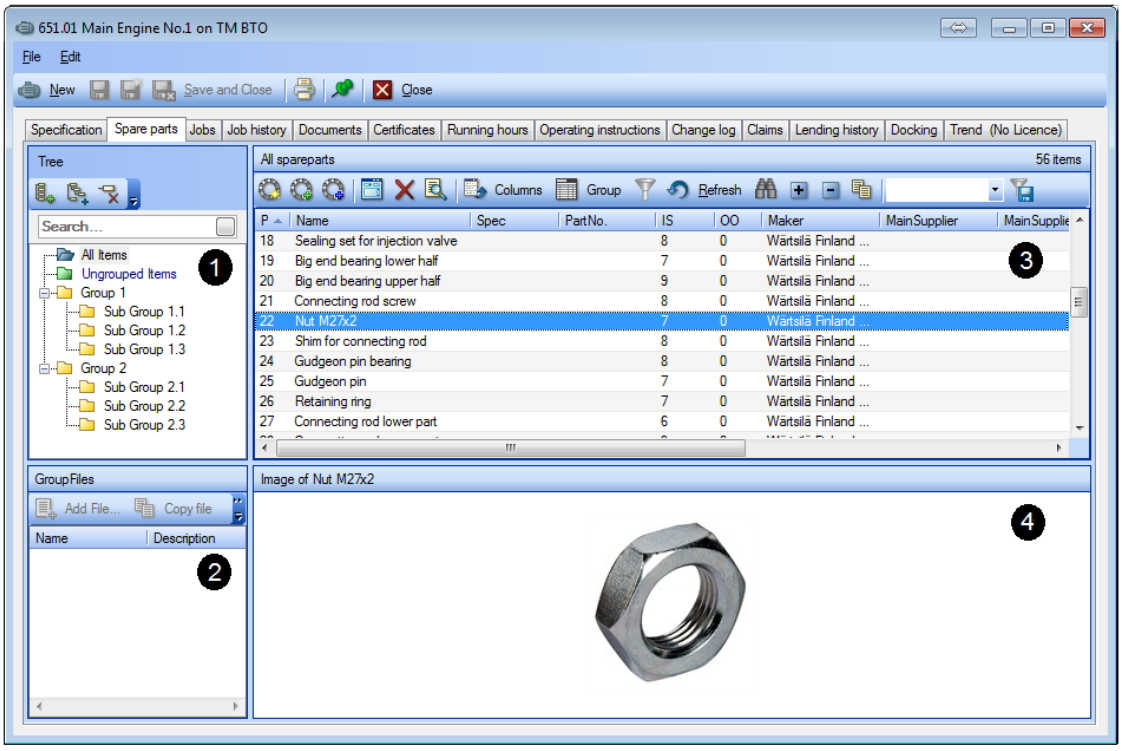
The price history tab will keep track on historical prices for the item, any orders prices or quoted prices for this item will appear in this list. The "Price history" tab currently only work in relation to the TM Procurement module.



A spare parts "Price History", showing historic prices from previous orders and quotes.

Connecting spare parts to components.

In the previous chapters we have discussed components and spare parts in details, it now time to discuss the relations between spare parts and components. In TM Master V2 each individual component (or component group) can have its own spare part list.



The component's spare part list view. 1) Spare part group tree 2) Spare part group files 3) Spare part grid 4) Spare part image.

How to add a spare part to a component's spare part list?

Every component has its own spare part list, and a spare part can be linked to any number of components. Linking spare parts to the components will allow you first of all to see a list of spare

parts a component is using, and you will be able to select a spare part and see a list of all the components using this spare part. Here is how you add a spare part to a component's spare part list.

1. Click [Inventory] → [Components] →Double click the component you wish to add spare parts to.
2. Click the "Spare parts" tab.
3. Click one of the [Add spare part] buttons
    a.  [Add New Spare Part]
    Using this button you can create an entirely new spare part.
    b.  [Add Existing Spare part]
    Using this button, you will be able to select one or more spare part in the vessels spare part list/stock
    c.  [Add spare part from item list]
    Using this button, you will be able to select one or more spare parts from the entire item list. (At the office this will enable users to select spare parts from spare part lists of all the vessels in the fleet)
4. If you create a new spare part (option a.)follow the steps provided in the chapter "How to create a new spare part?" For the other options (b. and c.) proceed with the steps below.
5. Select a spare part or more you wish to link to this component. You can select more than one spare part, by pressing and holding the [CTRL] key while selecting.
6. Click [OK]

How to remove a spare part from a component spare part list?

1. Select the spare part or parts you wish to remove (Press and hold the [CTRL] key to multi select)
2. Click the  [Remove spare part from component list] button

How to organize a spare part list in groups and sub groups?

The spare part list on some components can contain a lot of spare parts, and the need to organize the list of spares may arise. How one decides to organize them differs from company to company, and maybe from component to component.

The spare part group structure for a component can be seen on the components "spare part" tab, ref previous image marked:  By default 2 groups are already available in the group tree structure: All items and ungrouped items.

Selecting "All items" will list all spare parts linked to the component in the grid to the top left, regardless of which group they belong or don't belong to. Selecting "Ungrouped items" will list all items not currently in a group

To get to the spare part list view on a component do the following:

1. Click [Inventory] → [Components] →Double click the component you wish to add groups to.
2. Click the "Spare parts" tab.

The procedure to create a group is as follows:

3. Click the [Add root node to tree]
4. Enter the name for the group.

To create a sub group:

5. Select the group you wish to add a sub group to.
6. Click the [Add sub group to tree]
7. Enter a name for the sub group.

To delete a group or sub group:

1. Select the group you wish to delete
2. Click the [Delete node] button.
3. If the group you are deleting contains any spare parts, you will be given the option to delete the linked spares inn that group or set them to “ungrouped”

To add a spare part to a group:

1. Click and hold one or more spare parts in the spare part grid ❸
2. Then drag the item/items to the group you want to add it/them.

It is possible to attach files (documents, images, drawings etc.) to a spare part group/sub group.

To attach a file to a group:

1. Select the group you wish to attach a file to (“All items” and “Ungrouped” not available)
2. Click the [Add file...] button. Found in the Group files section. ❷
3. Select the file you wish to add, click ok.

If an image has been assigned to a spare part, selecting the spare part in the spare part grid, ❷ the image will be displayed in the section below ❹

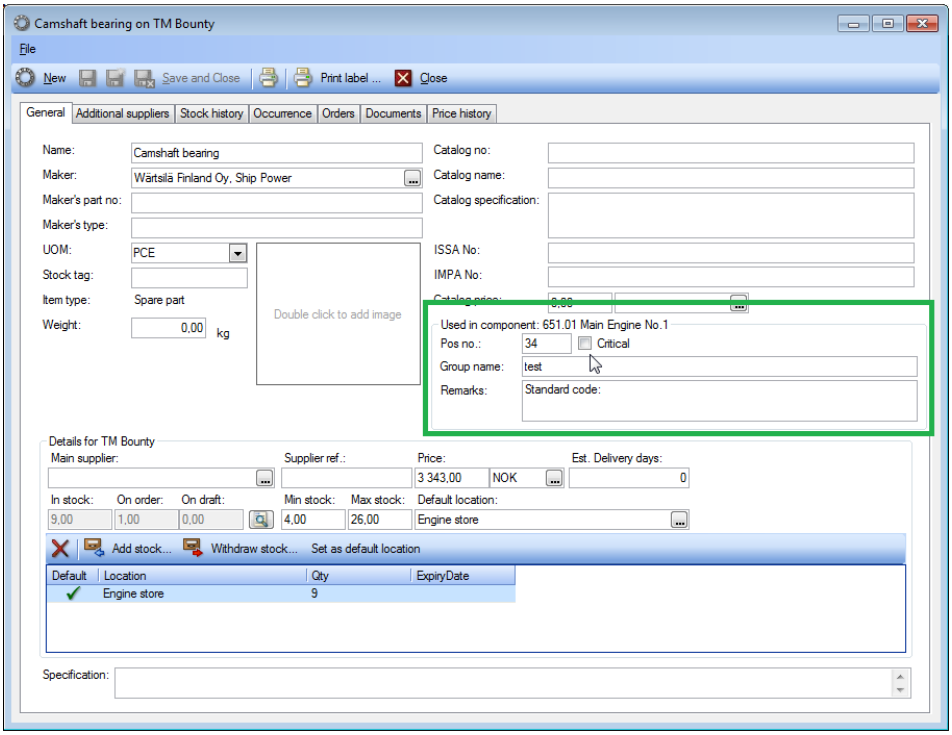
The component specific spare part fields.

Once a spare part has been linked to a component, additional fields will become available on the spare part details form. Please be aware that to get access to these additional fields you must open the spare part from a components spare part list. The additional fields describe the spare parts relation to each individual component.

To get access to these fields for a spare part do the following.

1. Click [Inventory] → [Components] → Double click the component with the spare part.
2. Click the “Spare parts” tab.
3. Double click the spare part in the spare part list.

4. You should now see the fields as shown in the image below.



Spare part form with the spare part-component relation fields included (marked by green frame)

5. The new available fields are as follows:
    a. **Pos.no:** This field is for a position number, usually a position number from a drawing of the component.
    b. **Critical:** If the spare part is considered critical on this particular component you should tick the critical check box. In TM Master V2 it is not possible to set a spare part as "critical" on its own. A spare part can only be tagged critical when in relation to a component. And the spare part is only considered critical for that particular component it has been tagged as "critical".
    c. **Group Name:** This field will show what spare part group the spare part is included in. This field can't be edited directly. How to group spare parts is described in the previous chapter "How to organize a spare part list in groups and sub groups?"
    d. **Remarks:** This is a free text field where you can enter a description/remark to the spare part – component relation

How to copy and paste spare parts between components?

Similar components can use some or all of the same spare parts. So to save time you can copy and paste individual spare parts or the entire spare part list from one component to the other.

To copy **some** of the spare parts from a components spare part list do the following:

7. Click [Inventory] → [Components] → Double click the component with the spare part.
8. Click the "Spare parts" tab.
9. Select the spare parts from the spare part list that you want to copy.
   (Press and hold the [CTRL] key to select more than one spare part.)
10. Then right click one of your selected spare parts, and select "Copy Spare parts"

11. Go back to the [Inventory] module and select the component or components
    (Press and hold the [CTRL] key to select more than one component.)
12. Then right click one of the selected component and select “Paste Spare parts”.

The spare parts you have selected and any group the spare parts where in and the component specific fields will be copied the selected component or components.

To copy the **entire spare part list** from one component to other components do the following.

6. Click [Inventory] → [Components]
7. Right click the component with the spare part list you wish to copy.
8. Select “Copy Spare parts”
9. Then select the component or components you wish to copy the spare part list to.
   (Press and hold the [CTRL] key to select more than one component.)
10. Right click one of the selected components and select “Past Spare parts”

The spare parts you have selected and any group the spare parts where in and the component specific fields will be copied the selected component or components.
Note! Empty spare part groups are not copied.

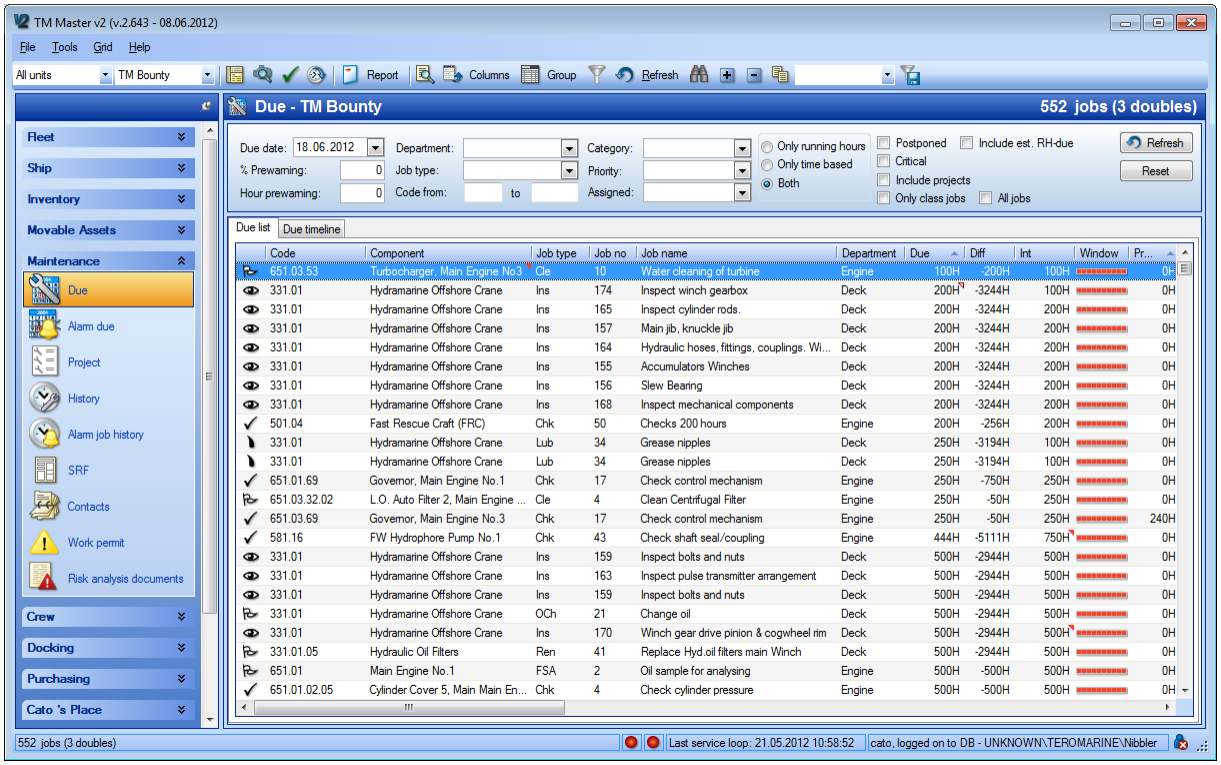
If you copy the entire component, any spare part information related to the copied component will also be included.

The “Due list”.

It is possible to see which jobs are due and sign them out directly from the component job list.
But it would be cumbersome and time consuming to check each individual component for due jobs, every day. So in order to make it less cumbersome and to ensure that users don’t miss any of the due jobs, we have added the [Due] list view to the program.

The due list will give users a complete overview of all jobs in the system, and help them to locate the due jobs that they are supposed to do and sign out.

To navigate to the “Due” list click [Maintenance] → [Due]



The "Due" list in Tm Master V2

The Due list consist of two main sections, at the top you will find the job filter bar, and below that you will find the due list grid where jobs will be listed.

How to use the "Due" list filter bar?

The due list filter bar

Users familiar with our previous version of TM Master (v.1.79) will probably recognize the filter bar. This is one of the features that have been almost directly transferred into our new version of TM Master (v2).

[Refresh]: In order to retrieve any due jobs or apply any of the filters set in the "due filter bar" you will need to click the [Refresh] button found on the far right hand side, in the filter bar. You can use as many of the filters as you wish to narrow the job list to exactly the jobs you are looking for.

[Reset]: To reset the filter settings back to default, you can select and delete each individual filter, or you can click the [Reset] button, found to the far right (under the [Refresh] button) to reset the filter to its default settings.

Job count in Due header ribbon

You will find the total amount of jobs listed in the due list at any time in the header ribbon, if a job has both a running hour interval and a date interval that are due they will be listed twice in the due list. These jobs will appear as "doubles" in the total count.

Due date: By default the only value set in the filter bar is todays date, so if you do not make any changes to the filter bar, but simply click the [Refresh] button all jobs currently due today or already overdue will be listed in the due job grid. By setting the “Due date” ahead in time, all jobs that will are or become due within that date will be listed.

% Prewarning: Using the prewarning filters will also list jobs which almost are due. Entering a percentage numerical value in this field and clicking the [Refresh] button will list all the jobs that are due within the entered percentage. Keep in mind that the percentage for a yearly job is much higher than for a weekly job, so even if the job appears in the Due list using this filter it may be weeks or months until they become due.

Hour prewarning: This filter will only apply to jobs which has an interval based upon running hours. Enter a numerical value will list all the current due jobs, and the running hour jobs that are due within the set running hour Prewarning value.

Department: In this filter setting a list of all departments can be found. Selecting a department and then clicking the [Refresh] button will list all Due jobs that have been assigned to this department.

Job type: In this selection box all the systems different job types are listed, selecting a job type and then clicking the [Refresh] button will list all due jobs of the selected type.

Code from – to: Will enable you to filter jobs on certain components. If only the due jobs on the main engines are of interest enter the lowest component code (.e.g. 651) and the next component code of no interest (e.g. 652). Click [Refresh] and only due jobs for the components within the given range are listed in the due list.

Category: This selection box will list all the systems “Job categories”, and selecting one and clicking the [Refresh] button will list only due jobs in the selected category.

Priority: This selection box will list all the systems “Priorities”, and selecting one and clicking the [Refresh] button will list only due jobs with the selected priority.

Assigned: This selection box will list all the systems “Crew types”, and selecting a “crew type” in this selection box and clicking [Refresh] will list all due jobs that has been assigned to the selected crew type.

Interval type selector: By default both hour and date interval jobs are included in the due list. By ticking either “Only running hours” or “Only time based” you can exclude one of the interval types from the due list.

Postponed: Ticking this check box and clicking the [Refresh] button will list all jobs that have been postponed. If you look at the “Due date” filter selector, when this filter setting has been ticked, you will see that the due date setting has been deactivated. So using this filter will show all postponed jobs regardless of their due date.

Critical: Ticking this filter setting will list only due jobs that are considered “Critical”

Include projects: Using this will also include “Due Projects” in the due list. More details on projects are found in the chapter “Projects”.

Only Class jobs: Using this filter setting will only list due class jobs.

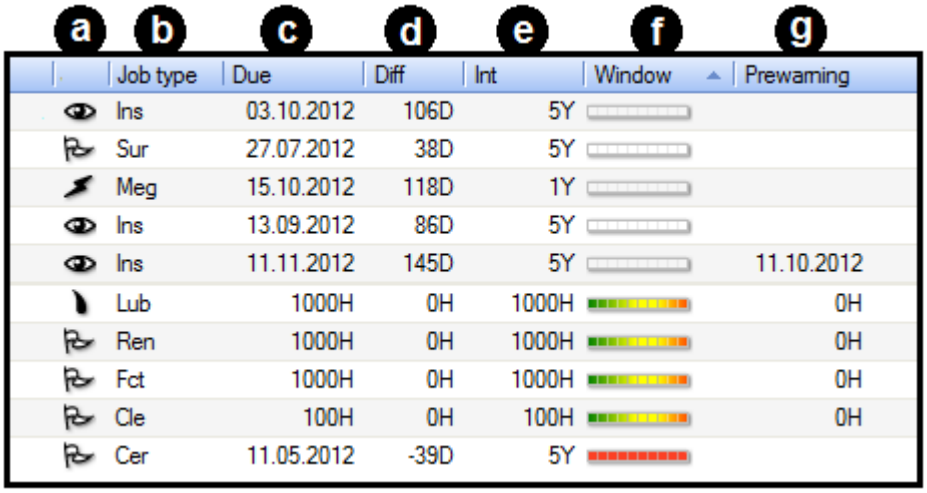
Include est. RH-due: When adding running hours to a component, the system will calculate the average daily use for that component. By using this average value the system will try to predict the date when running hour jobs will become due. By ticking this setting in the filter bar, jobs that have an estimated due date will also be included in the due list, if the estimated due is within the selected "Due date".

All jobs: Ticking this check box will deactivate all other filter settings and all jobs found in the system regardless of due date will be listed.

In addition to these filters, users can of course also use the filter functions and grouping functions that applies to all grids within Tm Master v2.

Key Columns in the due list.

Most of the columns found in the grids are, found as fields on the item listed and should be rather easy to identify. The due list is no exception but there are some of the columns that might be good to explain in details, since they are key columns in this grid.



	Job type	Due	Diff	Int	Window	Prewarning
	Ins	03.10.2012	106D	5Y		
	Sur	27.07.2012	38D	5Y		
	Meg	15.10.2012	118D	1Y		
	Ins	13.09.2012	86D	5Y		
	Ins	11.11.2012	145D	5Y		11.10.2012
	Lub	1000H	0H	1000H		0H
	Ren	1000H	0H	1000H		0H
	Fct	1000H	0H	1000H		0H
	Cle	100H	0H	100H		0H
	Cer	11.05.2012	-39D	5Y		

An excerpt of the due list, in this example the "All jobs" check box have been ticked, which explains why it also includes jobs that are not currently due.

a. This column a graphical representations for the job type in column b).
Not all job types have their own symbol. Each company to add their own job types, and we have not made symbols for them all. The ones that are available are:

- INS – Inspection jobs.
- CHK – Check jobs.
- LUB – Lubricate jobs.
- MEG – "Megger" test.
- OVH – Overhaul jobs.
- Any other job types will be represented by the flag symbol.

b. **Job type:** This is the job type code for the job.
(Only Included in the screen shot to illustrate the link to the job symbols)

c. **Due:** This is the current due. For calendar scheduled job the job due is a represented as a date. For running hour jobs the due is an hour value.

d. **Diff:** This column shows the difference between the due date or counter value and todays value. For calendar based job it is the number of days the job is overdue or till its due.(.e.g. 86D = 86 days) (Overdue values will be presented as negatives)

e. **Interval (Int.):** is the job interval calendar scheduled jobs can have intervals of (D = days, W=weeks, M= months, Y= years) Counter based jobs have intervals based on hours of use.

f. **Window:** This column contains a graphical representation of job due status. The following symbols are used :

Under 10% of interval until due

10-19% of interval until due

20-29% of interval until due

30-39% of interval until due

40-49% of interval until due

50-59% of interval until due

60-69% of interval until due

70-79% of interval until due

80-89% of interval until due

90-99% of interval until due

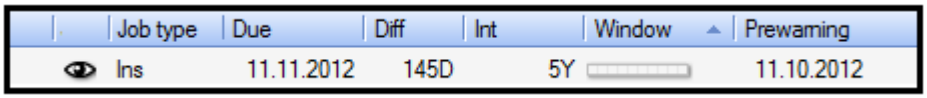
Due

Overdue

Normally you would only see the “Due” and “Overdue” window symbol in the due list. In order for the jobs with any of the other symbols to appear in the due list they would require users to either set the “Due date” filter setting ahead in time or that a prewarning value has been set for the job.

g. **Prewarning:** This is a manual set prewarning value. A job with a prewarning value will appear in the due list, before it is actually due.

- For a date scheduled job, this column will show the date for when the job will appear in the due list. This date is calculated based upon the actual due date minus the set prewarning value. For example if you look at the inspection (INS) job displayed below. You will see that the due date is 11.11.2012 and the prewarning date is set to 11.10.201. This means that this job has a prewarning value of “1 month”

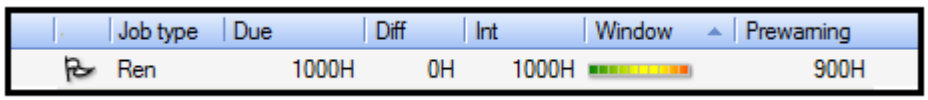


	Job type	Due	Diff	Int	Window	Prewarning
	Ins	11.11.2012	145D	5Y		11.10.2012

An example of a calendar scheduled due job with a 1 month prewarning value.

- For a counter based job, the prewarning value will be the amount of hours, required for the job to appear in the due list. The prewarning value is calculated in the same manner as for date scheduled jobs. Due counter value minus set prewarning value. For example if you look at the job displayed below, where the

interval (Int.) is 1000 hours and the prewarning is set to 900H, which means the job has a prewarning value of 100 hours.

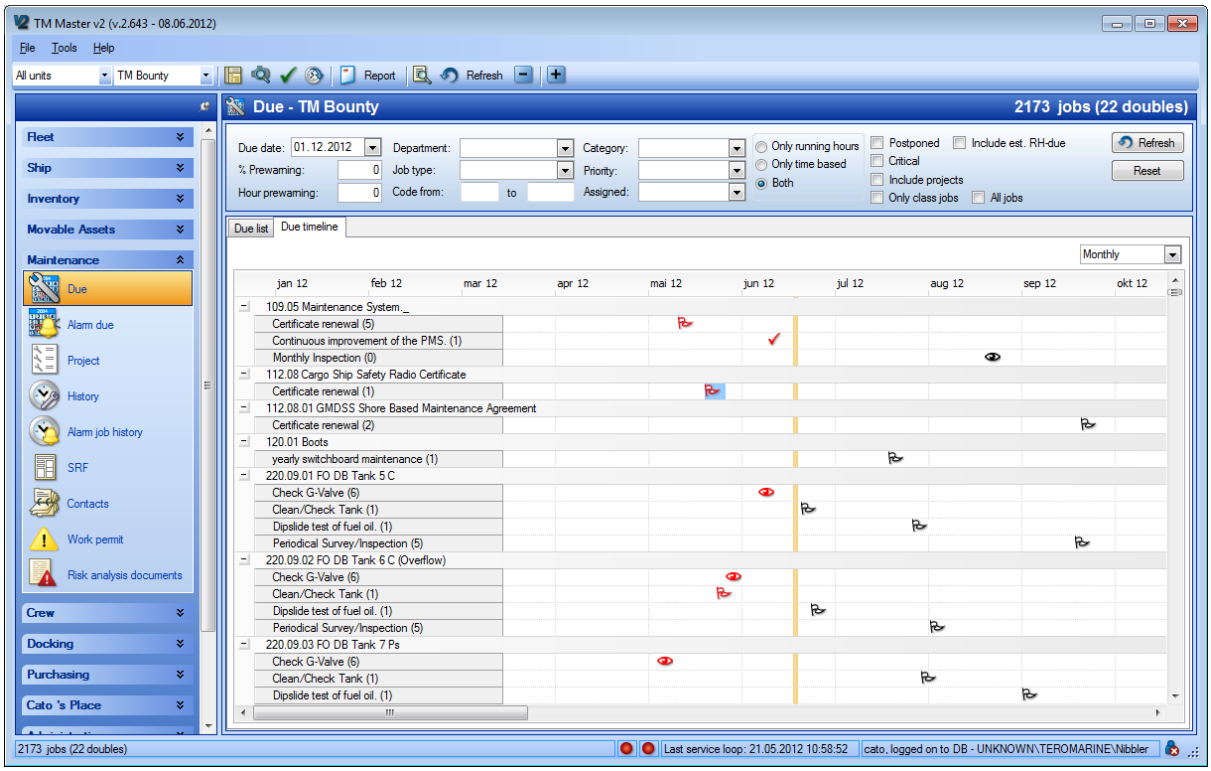


An example of a counter based due job with a 100 Hour prewarning value.

How to add, change and remove prewarning settings is described in the previous chapter: "Due Prewarnings and fixed intervals"

The Due list time line view.

At the top of the due grid you will find a tab named "Due timeline". By clicking this tab all jobs currently in the due list will be shown spread across a time line. As shown below.
To navigate to this view click [Maintenance] → [Due] → "Due time line" tab.



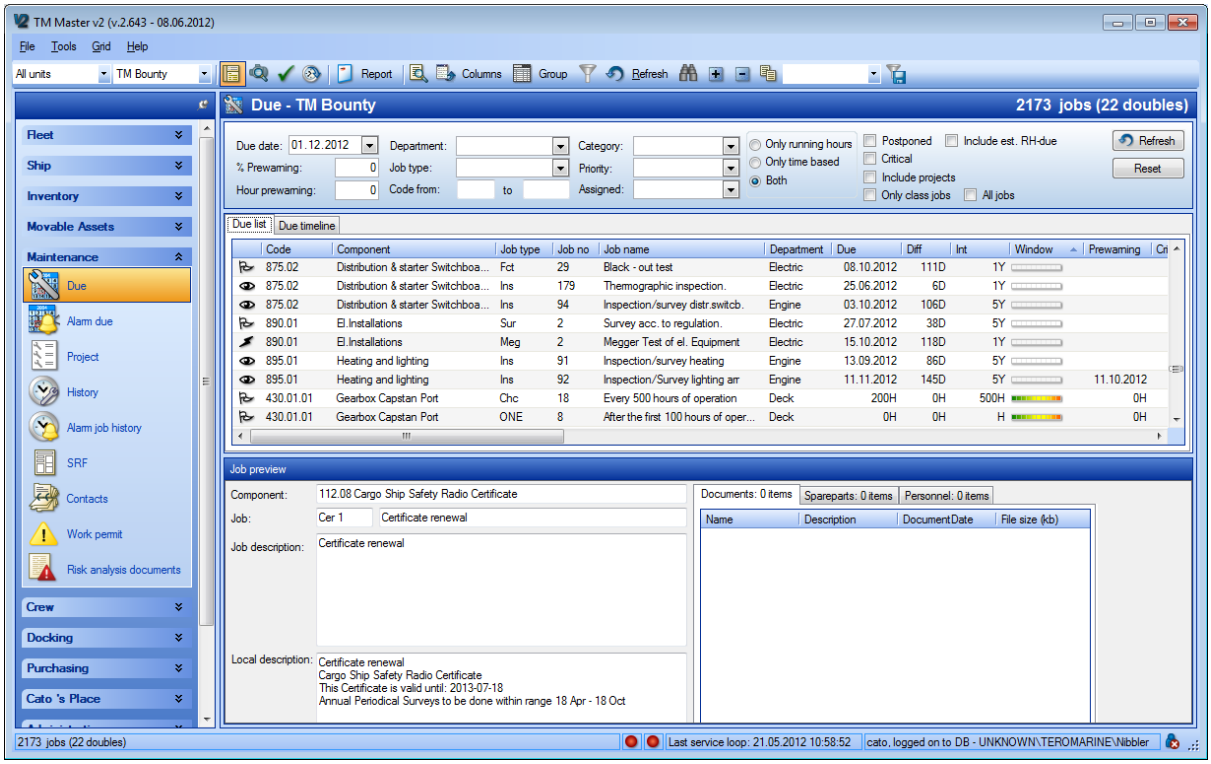
The "Due Time line view"

Time line resolution: A selector to change the time line resolution can be found in the top right hand side of the view. You can switch between "Year", "Month" and "Weeks".
Jobs: The jobs are grouped by the component they apply to, and are listed vertically on the left hand side of the view. By clicking the [-] or [+] symbol in front of the component name you can expand or collapse the groups of jobs, showing or hiding the jobs for the component.
Due: The job type symbol is used to indicate when or where on the timeline the jobs are due.
Red symbols indicate overdue jobs, black symbols for upcoming jobs. Only the next due for each job is displayed. Holding the mouse marker above the symbol, will present a tool tip with more details.
Today: The yellow vertical line indicates todays date.

The Job preview pane function.

Double clicking a job in the “Due list” will open the job details and description for the job. If you are browsing through a lot of the jobs, this can become rather cumbersome. To avoid forcing users to double click every job they want to preview we have added the Job preview pane function.

To activate the job preview pane click the  [Show job preview] button found in the top menu. This will add a new section to the due list with the job preview as shown in image below. The job presented in this view depends on the job selected in the due list. So using this preview you can easily brows trough the jobs in the list.



The due list with the “Job preview pane” activated.

The job details available in this preview are: Component code and name, job type, number, standard job description and local description. In additions 3 tabs are shown on the right hand side, listing documents attached to the job, the spare part list for this job, and any personnel distinct job descriptions. The number of entries on each tab is displayed as part of the tab name, saving you the time to manually check the tabs for additional information.

If the job has been postponed, a 4th tab will also be available, called “Postpone reason”, where you will find, as the tab name indicates, the reason given when the job was postponed.

The  [Show job preview] button is a “toggle” button, which means the preview pane will remain visible until the button is clicked again.

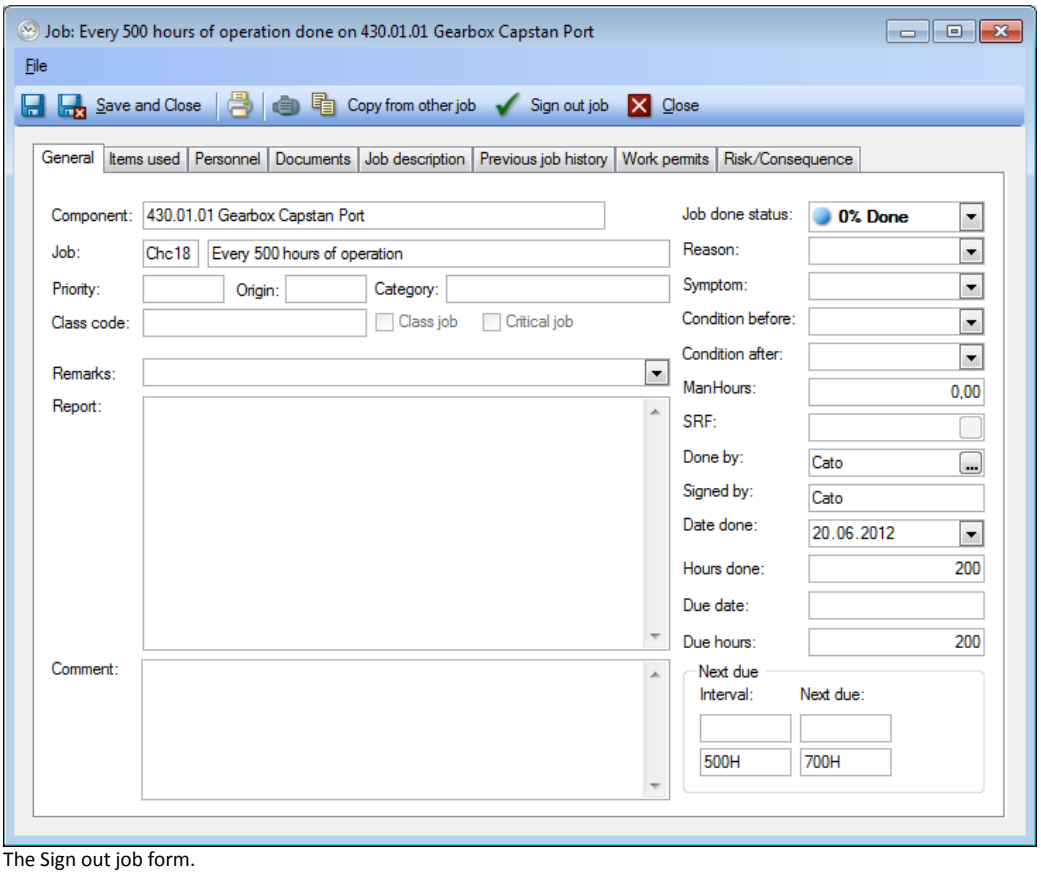
The "Open job's component details" function

Next to the [Show job preview] button, you will find the [Open component] button. By selecting a job in the due list and clicking this button will open the detail form for the component the selected job applies to.

All details on signing out a job.

There are three different starting points to start the sign out procedure, from the [Due] module, as described in step 1.

1. At least one of following procedure can be done from any grid that lists jobs.
   a) Select the job in the Due list. Click the [Sign out job] button in the top menu bar.
   b) Right click the job, and select "Sign out job"
   c) Double click the job. Click the [Sign out job] in the top menu in the job details form
2. The following form will appear:



The Sign out job form.

3. The following fields are displayed on this form:
   The first fields (a,b,c,d,e,f,g and h) in this form are information on the job and can't be edited in this form.

b) **Component:** This is the "code" and "name" on the component the job applies to.
c) **Job:** Consist of 2 fields one with the job type code and job type number, the second one displays the name of the job.
d) **Priority:** Displays the jobs priority
e) **Origin:** Displays the job's origin

f) **Category:** Displays the job's category
g) **Class code:** If the job has a class code it will be displayed here.
h) **Class job:** If the job is a class job, this check box will be ticked.
i) **Critical job:** If the job is considered critical, this check box will be ticked.

The rest of the fields in this form can be edited, and are a part of the sign out of the job, not all fields are by default required. But settings are available to make some or all of the fields mandatory. (See the chapter on "System settings" for more information)

j) **Remark:** Select one of the predefined remarks, or type a remark, this is sort of the "heading" of rest of the job sign out.
k) **Report:** This is a free text field and should be used to enter a complete description of what has been done during the execution of this job. Remember the job history will be more useful later if an accurate description is entered.
l) **Comment:** In certain cases you might want to leave a note or comment to the next crew member that will be signing out the job. A comment left in this this field will appear in this field on next sign out.
m) **Job done status:** The selection in this drop down box can be used to indicate your current job progress. The sign out form can be saved at any time, and doing so will leave the job in the due list partly signed out. If you select one of the other values than 0%, a progress symbol will also appear in the due list (in column called "Status") on this job (. . . .)You can complete the sign out later by selecting the job in the due list, and click the ✓ [Sign out job] button as described in step 1. There is a selection for 100% done or "Complete" ●, selecting this status will **NOT** sign the job out, it is just used for information as the other statuses. Not all crew members need to be allowed to actually sign the job out, but they can be allowed to fill the "Sign out" form with information, when the job is ready to be signed out, they can select "Complete", and save the job sign out. This will make it easy for the person(s) who are allowed to actually signing it out to find the "done but not signed out" jobs in the due list.
n) **Reason:** Select the reason this job was signed out/performed. If the job was done for other reasons than it being planned or scheduled, this might be useful information later when and if an analysis of the history is performed.
o) **Symptom:** Select a "symptom" that resulted in that the job was performed/signed out, if any. This could be useful information later on.
p) **Condition before:** Select an option in this list that best describe the components condition before the job was performed. This is information is used in the "maintenance efficiency" module.
q) **Condition after:** Select an option in this list that best describe the components condition after the job was performed. This is information is used as basis for the analysis in the "Maintenance efficiency" module.
r) **Man-hours:** Enter the amount of man hours used performing the job.
s) **Done by:** By default the user signing out the job will be listed as "done by", but it is possible to sign out jobs on behalf of other crew members. Clicking the […] button in this field will bring up a list off all registered crew members.

t) **Signed by:** Will pick up the name of the user signing out the job, this can't be manually edited in this form.

u) **Date done:** Select the date the job was done. Can be set back in time. (but not forward). By default it is set to today's date.

v) **Hours done:** Enter the running hours for the component, when the job was done. By default it is set to the current running hours for the component the job is linked to.

w) **Due Date:** This is the actual due date for the job. This field is not editable. If the job's schedule is not calendar based this field will be empty.

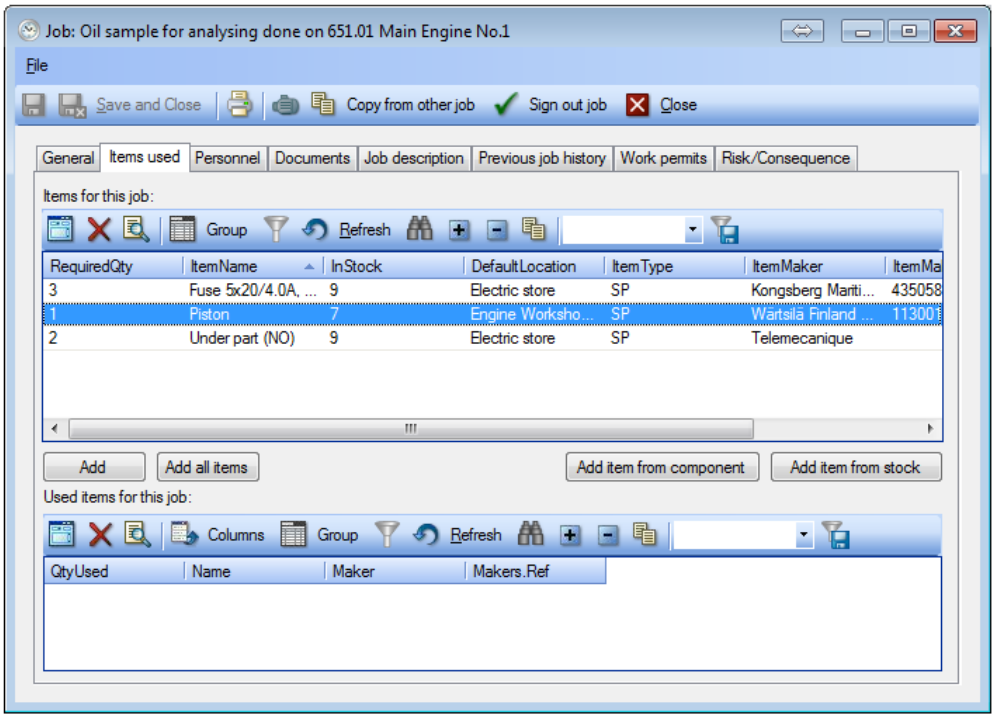
x) **Due Hours:** This is the actual due hour value. This field is not editable. If the job's schedule is not counter based this field will be empty

y) **Next due:** Here the job's interval and next due values are displayed. This field is not editable in this view. If the job is not a counter based job this field will be empty.

Items used when executing a job.

Some jobs requires a number of spare parts in order to be done, if the spare part is registered as part of the job sign out, you will update the spare part stock and link the consumption to the sign out.

4. Click the "Items used" tab on the "Sign out job" form.



The "Item used tab found in the "Sign out job" form.

5. Click one of the [Add..] buttons to add spares to the sign out record and withdraw them from stock

   a. **[Add]:** If spares have been added to the job's spare part list, these items will be listed in the top grid in this view. Select one or more spares in the list and click [Add]. (Press and hold [CTRL] key to multi select)

   b. **[Add all items]:** Clicking this will add all spares from the job's spare part list to the "Used items for this job" list.

c. **[Add item from component]:** If there are no spares in the job's spare part list, you can click this button to add spares from the job's component spare part list. (Press and hold [CTRL] key to multi select)
d. **[Add item from stock]:** If the job or the component has a spare part list, you can click use this button, which will allow you to select any of the spare part in your stock (Press and hold [CTRL] key to multi select)

6. Once you a spare part to the "Used items for the job" list, you will be prompted to enter the amount of the spare part used and which location the spare was withdrawn from.
7. The stock for the selected spares is now withdrawn from the stock, and the withdrawal is linked to the job and the jobs component in the consumption history for the spares.

Personnel resources required to execute the job.

Some jobs require more personnel resources than the "Assigned to" indicates. It is possible to enter a detailed description of each involved crew members tasks, while executing the job.

8. Click the "Personnel" tab.
9. Click the  [Add personnel] button add a description on a crew members task.
10. Select "Crew type", enter individual man Hours, hour rate, and description of the crew members task.

Attaching a document, image or any other file to a job sign out record.

11. Click the "Documents" tab
12. Click the  [Add file button…], and select the file from one of your computers available disks and click [OK]
13. Enter a description of the document, when you are prompted to, by default the description is a copy of the files name.

Sign out job

14. Once you have entered required data in the sign out form, and you want to sign out the job, click the ✓ [Sign out job] button, found in the top menu bar. The signed out job is now saved to the maintenance history. You can open this history record (your sign out) and edit it or cancel it within 30 days of the sign out date. After the 30 days the record is locked, and no changes can be made to it. More details on this can be found in the chapter "Maintenance history".

Additional functions and information available on the "job sign out" form.

There are some additional functions and tabs available in the job sign out, these are as follows:

a. **[Copy from other job]**  : Clicking this button during a sign out, you can select from the previous sign out records, and copy it to the current sign out. If the sign out information is exactly the same as a previous sign out, you don't need to retype it. You can also copy a previous record and then modify it to fit the current sign out.
b. **"Job description"** tab: Contains the job description for the job (Standard and Local). This description is saved along with the history record. Reviewing the history later

on, you will be able to see the job description as it was at the time of the sign out, even if changes to the job description are done.

c. **"Previous job history"** tab: Here you will find all previous sign out's for the current job.
d. **"Work permit" tab:** Is where you apply for work permits if the job requires it. More details on work permits can be found in the chapter "Work Permit."
e. **"Risk/Consequence" tab:** This tab lists any risk/consequence documentation added to the job. Some jobs may require users to confirm that they have read and understood the documentation, before they are allowed to sign out a job. More details on this can be found in the chapter:" Risk Analysis Documents"

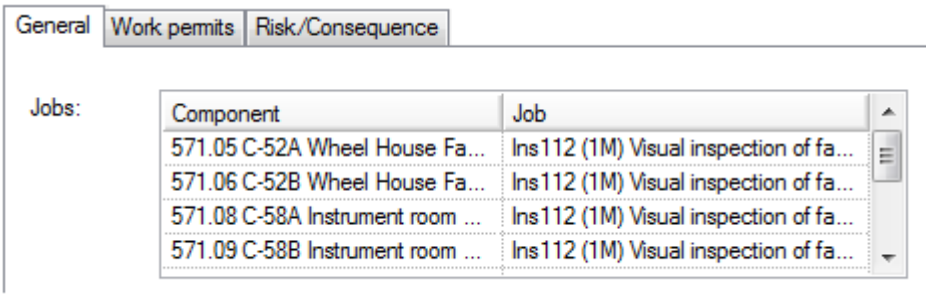
How to multi sign out jobs?

Some jobs, such as check and inspection jobs can be quite tedious to sign out. And the information you enter on these jobs might be identical and you end up spending more time signing the jobs out than it is required to perform the jobs. To allow you to save time in these cases you can sign out several jobs in one sign out. Certain restrictions do apply, the jobs must be of the same type (job type) and counter jobs can't be multi signed. The system can also be configured to restrict multi sign based upon the job criticality and priority.

To multi sign out jobs do the following

1. Select the jobs you want to multi sign out (Press and hold the [CTRL] key while selecting)
2. Click the ✓ [Sign out job] button found in the top menu, or right click and select "Job done"
3. The "Job sign out" form will open as with normal sign outs, with some small differences:
   a) The job information fields (Job name, job code, component) have been replaced with a list of the jobs included in the sign out.
   b) Only the "General", "Work permit" and "Risk and Consequence" tabs are available

   So when multi signing jobs, you can't attach documents, withdraw spares, or register personnel tasks.



Job details when multi signing jobs, (excerpt from the "sign out job" form)

4. Enter "Sign out" information as you would for a single job, keep in mind that this information will be entered for all the selected jobs.
5. Click the [Multi sign jobs] button to sign the jobs out.
6. Confirm the sign out for each individual job by clicking [OK].

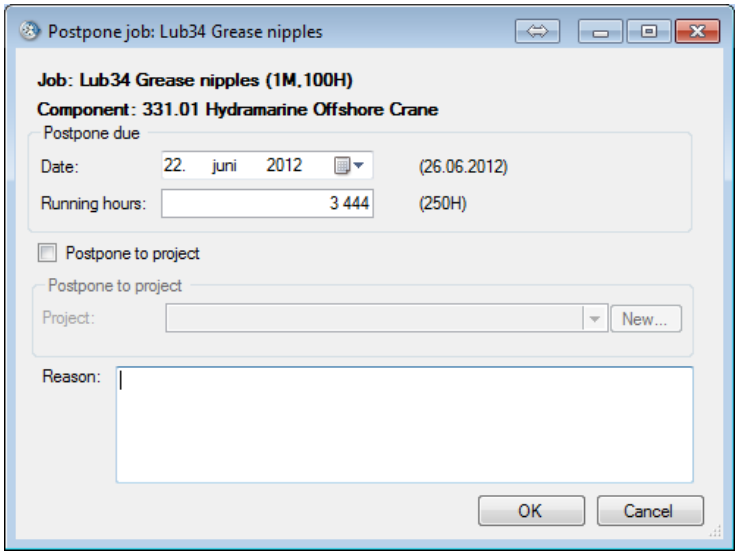
Postponing jobs

Not all jobs can be performed at the given due date, so there is a need to be able to postpone jobs. This chapter will describe all features on postponing jobs.

How to postpone a job to a different due date or due counter value?

There are two different starting points to start the postpone procedure

1. At least one of following procedure can be done from any grid that lists jobs.
   a) Select the job in the Due list. Click the [Postpone job] button in the top menu bar.
   b) Double click the job. Click the [Postpone job] in the top menu in the job details form.



The "postpone job" detail form

2. Select a date you wish to postpone the job to or if it's a counter job enter the new due counter value. The original Due values are shown within parentheses.
3. Enter a reason for the postponement. It is mandatory to enter a reason for why the job is being postponed.
4. Click [OK].

The job has now been postponed to the new values. If you started the postponement process from the due list you will still see the job in the Due list, tagged with a yellow ball in the status column. Once you click [Refresh], it should disappear from the due list, not appearing before the counter values or new due date is reached.

A job history record for the postponement of the job is created in the job history.

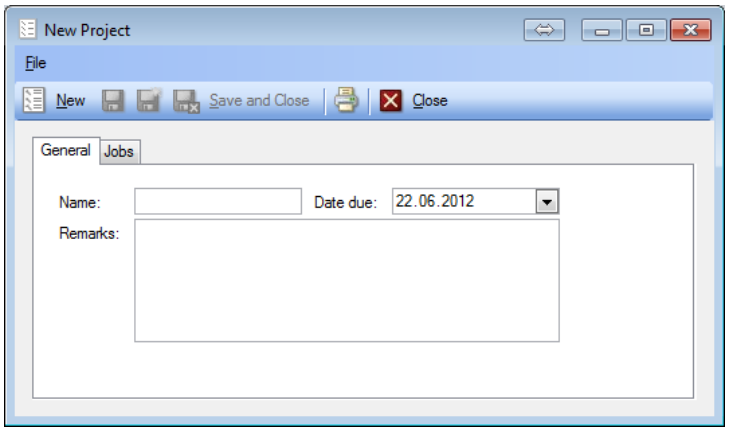
How to postpone to a project?

Some of a vessel's jobs may require special conditions to be performed. The vessel might need to be put in a dry dock, or it may be depending on other jobs to be performed first etc. To assist you in such cases TM Master v2 allows jobs to be postpone to a "Project". A project is a list of jobs grouped together with a common due date.

1. At least one of following procedure can be done from any grid that lists jobs.

   a) Select the job in the Due list. Click the [Postpone job] button in the top menu bar.

   b) Double click the job. Click the [Postpone job] in the top menu in the job details form.
2. Tick the “Post pone to project” check box.
3. Select an existing project or create a new one, by clicking the [New...] button.



The “Create new project” form

4. Enter a name and description for the project.
5. Select a Due date for the project.
6. Click [Save and Close].
7. The name for the project should now be shown in the “Project” field.
8. Enter a reason for the postponement and click [OK].

The job has now been postponed to the project and has the same “Due date” as the project.
You can review your projects in the [Maintenance] →[Project] module. More details on this module can be found in the chapter “Project”

How to multi postpone jobs?

If more than one of the jobs in the due list are to be postponed to the same project or due date, you can select them all and postpone them all in one go. Here is how to do it:

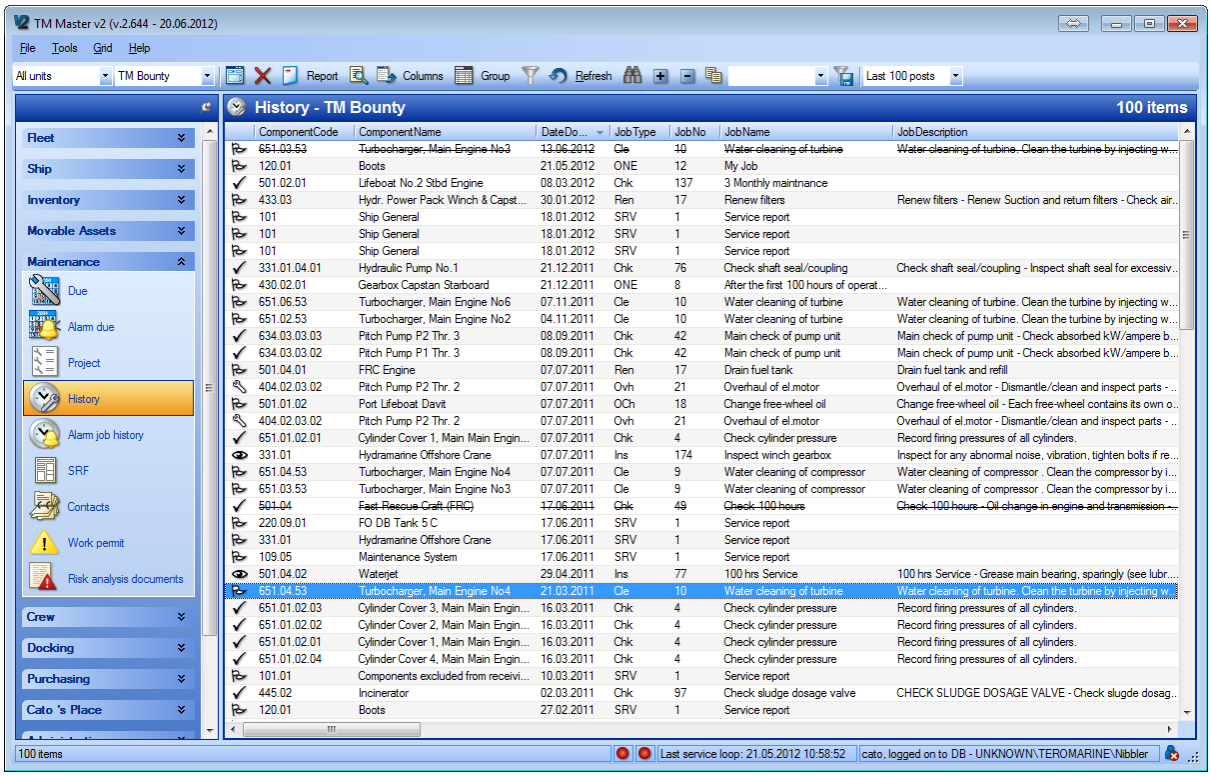
1. Select the jobs you wish to postpone, by holding the [CTRL] key while selecting
2. Click the [Postpone job] button in the top menu bar.
3. Enter the required information for the postponement (same as for regular postpone)
4. Click [OK], and confirm the postponement for each individual job.

Not all jobs are allowed to multi postpone. Running hour jobs can’t be multi postponed.
And it is possible to configure the system not to allow multi postpone based upon the jobs “Criticality” and “Priority”.

Maintenance History

All jobs signed out are added to the maintenance history. The Maintenance history can be found in many areas of TM Master V2, as mentioned in the previous chapters. A history tab can be found on each individual component details form which lists maintenance history e for that particular component. A similar history list can be found on the “Job” details form but this is a list of history

records that only apply to the current job. Finally we have a complete history list listing all history records. The full history list can be open by clicking [Maintenance] →[History].



The History module.

The history module consists of one single grid view, where all history records can be reviewed. By default only the 100 last records are listed. A “time scope” selector can be found on the right hand side in the top menu. The following selections are available in this selector.

- Last 100 posts (default)
- Last 30 days
- Last 6 months
- Last 12 months
- This year
- Last Year
- All

Some of these scopes can consist of several thousand records and retrieving all this information from the database may take some time, so you may need to wait awhile for all the records to appear. Using the Gird tools (Search, order, filter and group) you should be able to locate the history records you are looking for fairly easy.

How to edit history records?

It is possible to edit and the history records within 30 days after the sign out date. After the 30 days the record is locked down, and any changes required must be entered as “service reports” where you refer to the locked records. Users also need special user rights to edit history records.
To edit a history record, do the following:

1. Click [Maintenance] → [History]

2. Double click the record you wish to edit.
3. The job is now opened in the “Sign out job” form, and you can make your changes to any of the required fields.
4. When done click [Save & Close]

How to cancel a history record?

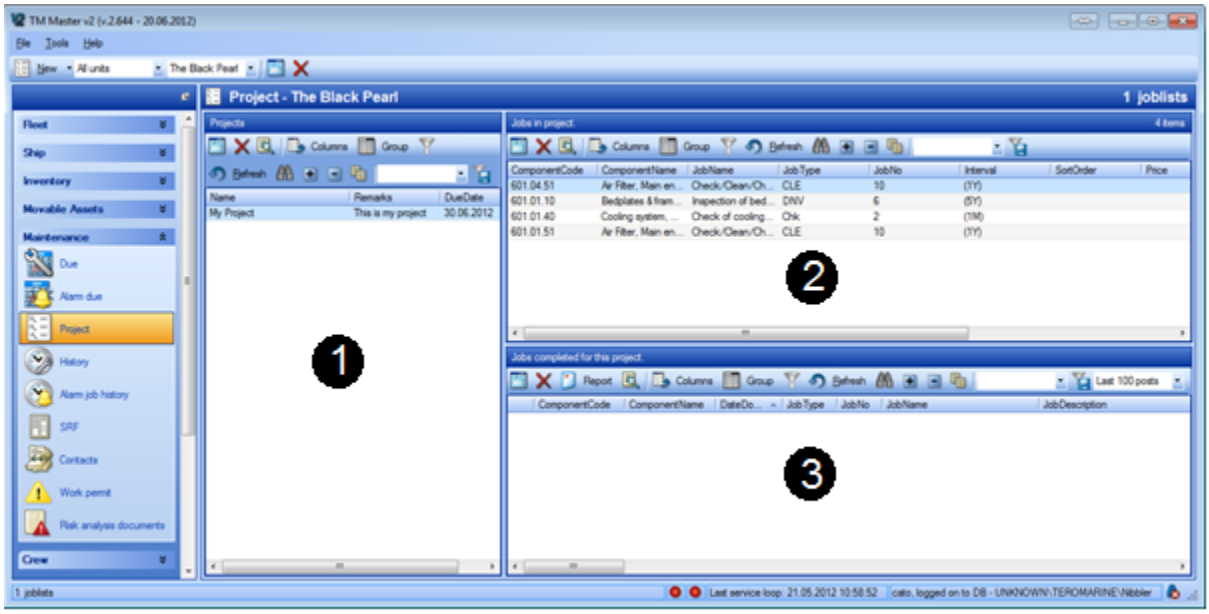
There are a lot of similar jobs on similar components in the due list, and once in a while mistakes are made and the wrong jobs are signed out, due to human error. As long as this is discovered within the 30 days after the sign out date, a history record can be cancelled. When cancelling a history record, the job is put back in the due list, with its original due date. To cancel a history record, do the following:

1. Click [Maintenance] → [History]
2. Double click the record you wish to cancel.
   The job is now opened in the “Sign out job” form.
3. Click the  [Cancel job done] button found in the top menu.
4. Enter the reason for cancelling the job, and click [OK]

The job is now re-entered to the due list with its original due date. The history record will still remain in the history, but record has now marked with a “~~strikethrough~~” line, and the reason given for the cancelation can be found in the top of the “job report” field.

Project

A Project in TM Master V2 is a list of jobs grouped together with a common due date. Projects are maintained and kept track of in the [Projects] module. To get to the projects module, click [Maintenance] →[Projects].



The Project module view. (1) Projects list, (2) Active jobs list (3) Project job history

All of a unit's projects are listed in the view to the left (1), selecting a project will list all the active jobs in the top right grid (2) and any signed out project jobs in the lower right grid (3)

To add jobs to a project you must postpone it to a project as described in "How to postpone to a project". Active jobs (jobs not signed out) in a project are listed in the top right grid. Jobs in a project are signed out within the "Project Module". Signing out jobs from a project is identical to signing out other jobs.

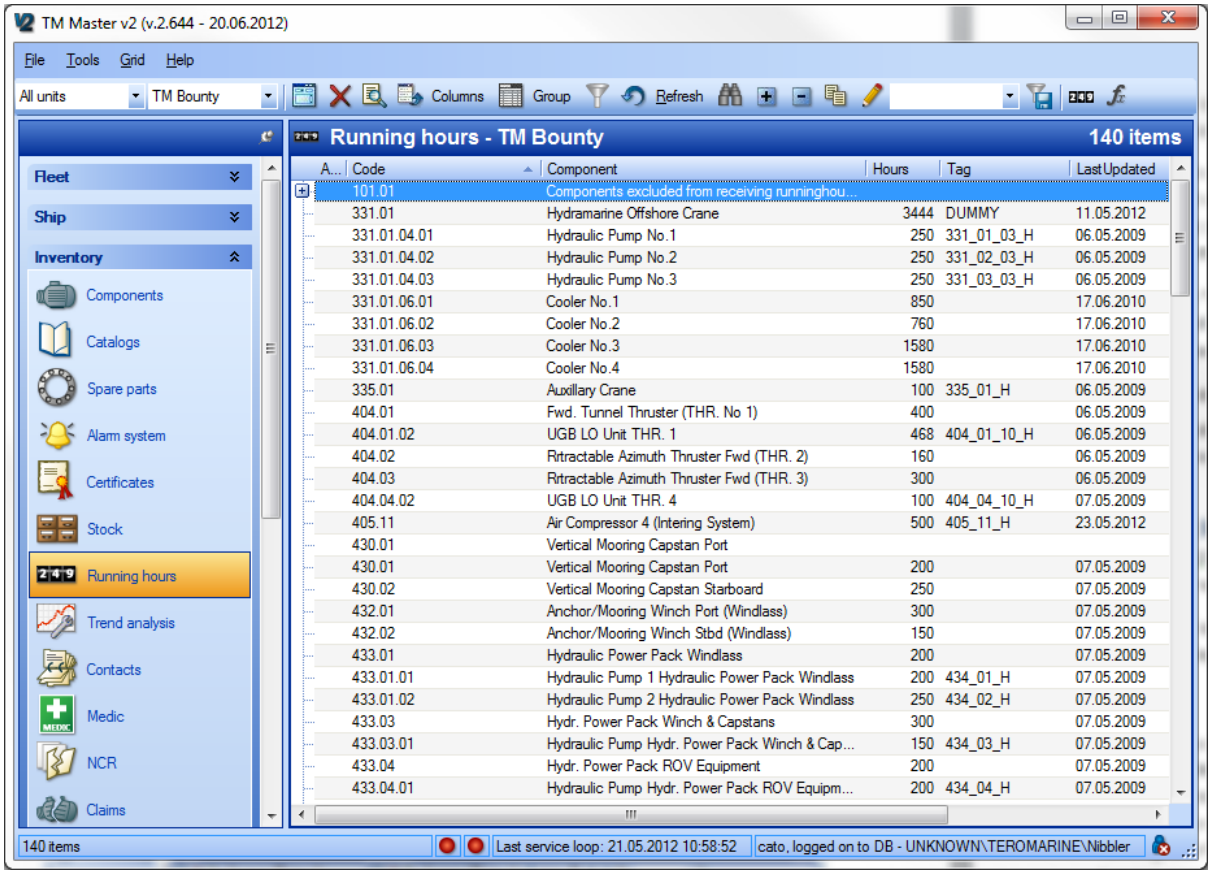
Jobs that are "signed out" from a project are added to the project's job history, and can be seen in the lower grid on the right hand side. Any history records for the signed out jobs in a project are of course also available as part of the entire maintenance history, found in the [History] module.

To remove jobs from a project, you simply postpone the job to a date or counter value, by double clicking the job, and then click the [Postpone job] button. Details on postponing jobs are described in a previous chapter.

Running hours

TM Master v2 supports to types of intervals, date based and counter (running hours) based.
This chapter will discuss the details on the counter based interval in details.

To review all components in the system currently added to the running hour list, you will need to go to the [Running hours] module. (Click [Inventory] → [Running hours])

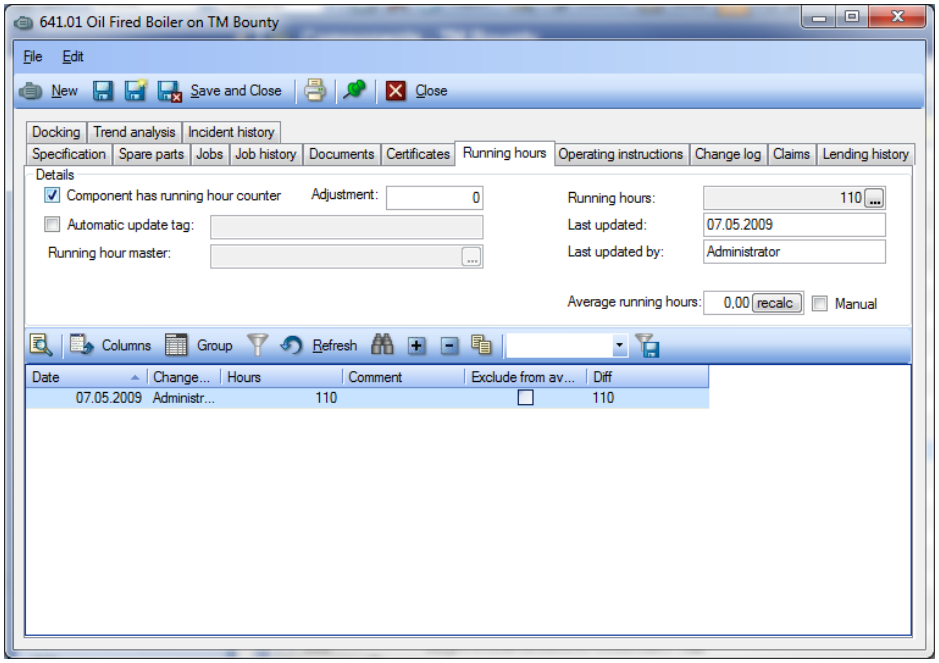


The running hour's list, listing all components configured to receive running hours

How to add a component to the running hour list?

To be able to add a job with a counter based interval, you must first configure the component to receive hours. There are several different ways to do this, and all will be addressed in this section. If the component has its own running hour counter, you should add the component to the running hour list directly, in the following manner.

1. Click [Inventory] → [Components] → double click the component you wish to add the running hour counter list → Click the "Running hours" tab.



The "Running hours" tab on a component.

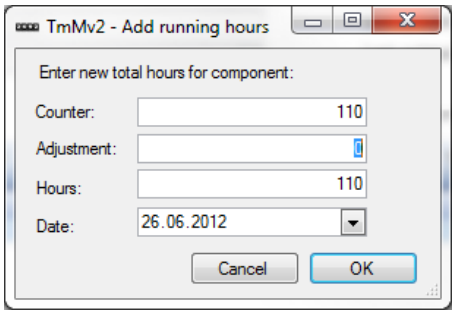
2. Tick the "Component has running hours counter" check box.
3. Click [Save and Close]
4. Go back to the [Running hours] module. (Click [Inventory] → [Running hours]) If you don't see your newly added component click the [Refresh] button, and it should appear.

How to update running hours manually?

Once a component has been added to the running hour list you can start adding running hours to it. There are two different approaches to this:

Add running hours, directly on a component.

1. Click [Inventory] → [Components] → double click the component you wish to add the running hour counter list → Click the "Running hours" tab.
2. Click the […] button in the "Running hours" field on the top right hand side.



The add counter value form

3. Enter the counter value.
4. The "Adjustment value" is a pre-set value which is added to your entry. This may be hours from a previous counter that has been replaced.
   More details on this setting can be found in the chapter "Running hour counter pre-set adjustment."
5. Enter the date for the counter value. If you need to back date it.
6. Click [OK].

a) Update the running hours directly in the running hour list.

1. Click [Inventory] → [Running hours]

2. Click on the [Edit in grid] button located in the top menu in the.
   You should now see that the column "Hours" has now been opened for editing.

3. Click the row for the component you wish to update, and enter the new value.
   You should always enter the total new value of running hours.

   The component running hours have now been updated. To close the column "hours" for editing click the [Edit in grid] button again.

How to configure TM Master V2 to import hours from an external counter system?

TM Master v2 can be configured to import running hours from external running hour counter systems. Here is how to do it:

1. You need to configure your running hour counter system to export the running hours, to a folder on your network, where users of TM Master V2 can reach them. Consult your supplier of your counter system on how to do this.

System Settings in TM Master V2

2. Log on TM Master v2 using an admin account.
3. Click [System] → [Settings] →"General" tab
4. Select the running hour counter system, which is exporting the hour file.
5. Select the path to where the counter file is placed.

Enter the counter systems tag/code on the corresponding components in TM Master V2.

To enable TM Master V2 to import the correct hours to the correct component, TM Master will need to know the name, code or tag that the counter system uses to identify where the hours belong.

6. Double click the component in the hours list (or component module]
7. Click the "Running hours" tab.
8. Tick the "Automated update tag" check box.
9. Enter the tag that identifies this components running hours in the import file.
10. Click [Save]

The steps 6-10 must be done for all the components that will import running hours.

How to import running hours?

Once TM Master has been configured to import running hours, users still need to initialize the import.

1. Click [Inventory] → [Running hours]
2. Click the [Import running hours] button found in the top menu bar.
3. A preview of the hour values, users are about to import will appear.
4. Click [OK] and the components will be updated with the latest hour values.

Running hours on sub components.

Some of your components, due to their complexity and size, may be organized in several different sub groups and contain hundreds of smaller bits and pieces. A good example for such a component is a vessels main engine. (An example is shown in the image blow). Here you have the main engine group: 651.01, and a whole range of sub groups: cylinder covers, cylinder lines, fuel feed pumps etc. When the main engine is running, all sub components are also running and should receive running hours.

Updating the running hours for all these components manually would be a very time consuming task. So to make it a bit more manageable, when hours are added to a component in the running hour list, all of the sub components are, by default, also updated with the same amount of hours.

In our main engine example, only the component 651.01 needs to be added to the running hour list, and once you add hours to it all the cylinder covers, cylinder lines, and fuel feed pumps etc. which are contained within the structure of "651.01 Main Engine No 1", will receive the same amount of hours.

Components may have different starting points in time in regards of hours used. Some sub components may have been replaced with new ones. The new ones will of course have 0 running hours at the time the component is installed, and then start to accumulate hours from its parent component. So how do, the system, keep track of all the sub components hours when, in theory at least, all could have been installed at different points in time? The answer to this is simple.

When updating a parent components hours, for example, from 1200 to 1400 hours. This will not set the running hour value for sub components to 1400 as was set on to the parent. The sub component are updated with only the "difference" between the parents previous value and the new one, so in this case they will be updated with "+200" hours.

		Before		After
Code	Name	Running hours		Running hours
651	**Motor aggregates**	**0**		**0**
651.01	Main Engine No.1	1200	1400	1400
651.01.02	Cylinder Covers, Main Engine No.1	1200	+200	1400
651.01.03	Cylinder Liners, Main Main Engine No.1	1200	+200	1400
651.01.03.01	Cylinder Liner 1, Main Engine No.1	1200	+200	1400
651.01.03.02	Cylinder Liner 2, Main Engine No.1	1200	+200	1400
651.01.03.03	Cylinder Liner 3, Main Engine No.1	1200	+200	1400
651.01.03.04	Cylinder Liner 4, Main Engine No.1	400	+200	400
651.01.03.05	Cylinder Liner 5, Main Engine No.1	700	+200	900
651.01.03.06	Cylinder Liner 6, Main Engine No.1	700	+200	900
651.01.04	Pistons and Rods, Main Engine No.1	1200	+200	1400
651.01.05	Bottom End Bearing, Main Engine No.1	1200	+200	1400

An example of a running hour update. Here the new counter value of 1400 hours is added to the 651.01 Main Engine No1.
The sub components are updated with the difference between the old and new value.

So, what if one of the sub components and its sub components have a separate hour counter, and should not follow the parent component? The answer to this is also simple. Just add the sub

component, with the separate counter, to the running hour list as a separate component. Any component included in the running hour list will not receive any updates from any of its parents. The components in the running hour list expect to be directly updated. Sub components that are not in the running hour list will only receive updates from its nearest parent component.

Code	Name	Running hours		Running hours
651	**Motor aggregates**	**0**		**0**
651.01	Main Engine No.1	1400	1500	1500
651.01.02	Cylinder Covers, Main Engine No.1	1400	+100	1500
651.01.03	Cylinder Liners, Main Main Engine No.1	1400	+100	1500
651.01.04	Pistons and Rods, Main Engine No.1	1400	+100	1500
651.01.05	Bottom End Bearing, Main Engine No.1	1400	+100	1500
651.01.07	Main Bearings, Main Engine No.1	1400	+100	1500
651.01.26	Fuel Pumps, Main Engine No.1	1400	1550	1550
651.01.26.01	H.P. Fuel Pump 1, Main Engine No.1	1400	+150	1550
651.01.26.02	H.P. Fuel Pump 2, Main Engine No.1	1400	+150	1550
651.01.26.03	H.P. Fuel Pump 3, Main Engine No.1	1400	+150	1550
651.01.26.04	H.P. Fuel Pump 4, Main Engine No.1	1400	+150	1550
651.01.26.05	H.P. Fuel Pump 5, Main Engine No.1	1400	+150	1550
651.01.26.06	H.P. Fuel Pump 6, Main Engine No.1	1400	+150	1550

This is an example of a sub component of a running hour receiving component, with its own counter. 100 hours are added to 651.01 all sub components receive +100 hours except the one with its own counter 651.01.26. In this example I have added 150 hours on the sub component (651.01.26), and its sub components are updated with +150 hours

The Running hour master functions.

In some cases there is a need to configure components that are not part of the hour receiving components structure (system) to also receive the hour updates. This can be due to a different component structure philosophy than described earlier or that you do have components from other systems that should receive running hours based upon another system's component usage.

This is made possible in TM Master v2 by using the "Running hour Master" function.

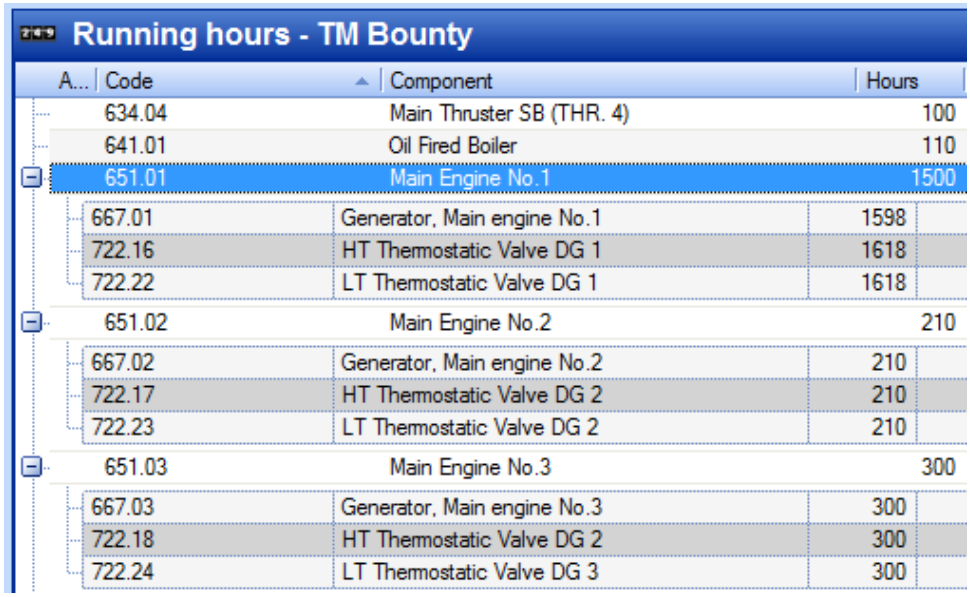
To configure a component, that is not a part of the running hour receiving component structure (system) do the following:

1. Click [Inventory] → [Components] → double click the component you wish to add the running hour counter list → Click the "Running hours" tab.
2. Click the […] button in the field called "Running hour master"
3. Select the running hour receiving component it should get it updates from.
   (Please note only components already in the running hour list are listed)

Any running hours added to the selected "Master" will now also be added to this component and its sub components. Components with a running hour master will not receive any hours from any of its parents (if any of their parents receives hours), only its master.

Keeping track of which component is following which master is not easy, and can be time consuming, if you had to open each individual component to check. This is why components that

have a running hour master, is also listed in the running hour list. Any component in the running hour list that has a [+] sign in front of the component name has a running hour “slave”.
Click the [+] to show them. (ref. image below)



Running hours - TM Bounty

A...	Code	Component	Hours
	634.04	Main Thruster SB (THR. 4)	100
	641.01	Oil Fired Boiler	110
	651.01	Main Engine No.1	1500
	667.01	Generator, Main engine No.1	1598
	722.16	HT Thermostatic Valve DG 1	1618
	722.22	LT Thermostatic Valve DG 1	1618
	651.02	Main Engine No.2	210
	667.02	Generator, Main engine No.2	210
	722.17	HT Thermostatic Valve DG 2	210
	722.23	LT Thermostatic Valve DG 2	210
	651.03	Main Engine No.3	300
	667.03	Generator, Main engine No.3	300
	722.18	HT Thermostatic Valve DG 2	300
	722.24	LT Thermostatic Valve DG 3	300

The running hours view, showing some components that have been configured as running hour masters and their “slaves”.

Running hour update history.

Every running hour update to a component will be recorded in the running hour history.
This history is available on the lower part of the running hour tab, on each individual component.

Average running hours

TM Master V2 calculates an average daily usage for all components that receive running hours. This average usage is used to estimate due dates for running hour jobs. By ticking the “Include RH Est.”(Include Running hours estimates) in the [Due] list, these jobs will appear.

Running hour restrictions and controls.

When entering running hours TM Master V2 checks the values entered are “valid”.
The checks it performs are the following:

1. If the value entered is between the last entered value and the total number of hours passed since the last entry +12 hours, the system will accept them.

2. If the entered value is lower than the previous entered value, the system will ask the user to confirm the value, and request a reason for why you want to reduce the running hours. The reason given will be listed in the running hour history for the component.

3. If the entered value exceeds what’s physically possible + 12 hours since last entry the system will ask the user to confirm the value, and request a reason for why you want to adjust the running hours to the unexpected value. The reason given will be listed in the running hour history for the component.

The “restrictions” will not stop you from enter what it assumes are wrong values, they will only make you aware that you are entering a value lower or higher than it expects, and ask you to confirm that you really want to enter the value. So if you need to adjust the running hour value for any of your components so they fit the real counter value, you can.

Recalculate the running hour average.

Making such adjustments, as mentioned above, will affect the daily running hour average. To avoid these adjustments to affect your daily running hour average, you can double click the update in the running hour history list and tick the “Exclude from average” check box. Save your change and then click the [Recalc.] button in the average running hour field, on the component’s “running hours” tab to recalculate it without including the adjustment you just removed.

You will find a recalculate average button  for all components in the menu bar in the [Running hour] module. This will recalculate the average value for all components in the list (and sub components of the components in the list)

How the daily running hour value is calculated.

The formula for the running hour average is as follows.

Average running hours : (LRHAvrg * 0.4) + (LRHDiff / NDaysSLE * 0.6)

LDRHAvrg	= Last Weighted Daily Running Hour Average.
LRHDiff	= Last Running Hour Difference entered.
NDaysSLE	= Number of days since last entry

As you probably see this “average” is not the real average but a weighted one (or a “moving average”). This is done In order to make the daily average responsive to changes in use.

For each entry the system calculates the mean between the existing average and the new entry’s average. The new entry’s average is weighted 60% and the existing 40%. This way, newer readings will have larger impact on the mean value. This makes the mean more responsive to changes in day to day usage. Which again, lead to a more correct representation of the components current usage, than with the use of a normal “average”.

As you can see in the example below the “real” average = 5,19 but since the use of the component has dropped the last 60 days, the weighted average reflects this much faster at “0,83”. The more entries added to the system the more unresponsive the real average will be to changes.

	Last Weighted Running hour Average	Weighted at 40%	Weighted Value for old average (40%)	Last Running hour Difference	Number of Days since last entry	Average Use for period	Weighted at 60 %	New Weighted Average	Total Running hour value	Total Number of days	Real Average
Entry 1	0,00	0,4	0,00	200	20	10	0,6	6,00	200	20	10,00
Entry 2	6,00	0,4	2,40	200	20	10	0,6	8,40	400	40	10,00
Entry 3	8,40	0,4	3,36	200	20	10	0,6	9,36	600	60	10,00
Entry 4	9,36	0,4	3,74	100	20	5	0,6	6,74	700	80	8,75
Entry 5	6,74	0,4	2,70	100	20	5	0,6	5,70	800	100	8,00
Entry 6	5,70	0,4	2,28	10	20	0,5	0,6	2,58	810	120	6,75
Entry 7	2,58	0,4	1,03	10	20	0,5	0,6	1,33	820	140	5,86
Entry 8	1,33	0,4	0,53	10	20	0,5	0,6	0,83	830	160	5,19
				830	160						5,19

Example of how the "Daily Running hour average" is calculated.

Manually set the average usage value.

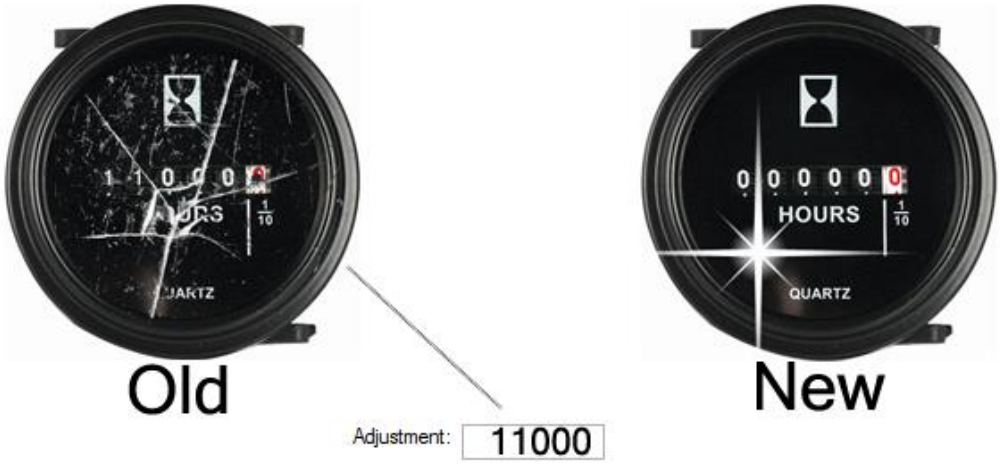
If you for some reason don't want the average to be calculated, you can manual set an estimated average value, by ticking the "manual" check box found on the components "Running hour" tab, and enter the average value. This "average" will not be affected by later counter readings, until the tick in the "Manual" check box is removed.

Running hour counter pre-set adjustment.

In some cases the counter for a component stops working properly or not at all. This counter then needs to be replaced with a new one. Certain counters can be adjusted so that the counter value for the old counter can be transferred to the new counter. The new counter will then continue counting from the point where the old one stopped.

But if you are not able to change the start point for the new counter, you can enter the old counter value in the field called "Adjustment" found on the "Running hours" tab, on the component form. When hours from the new counter is imported or entered manually the adjustment is automatically

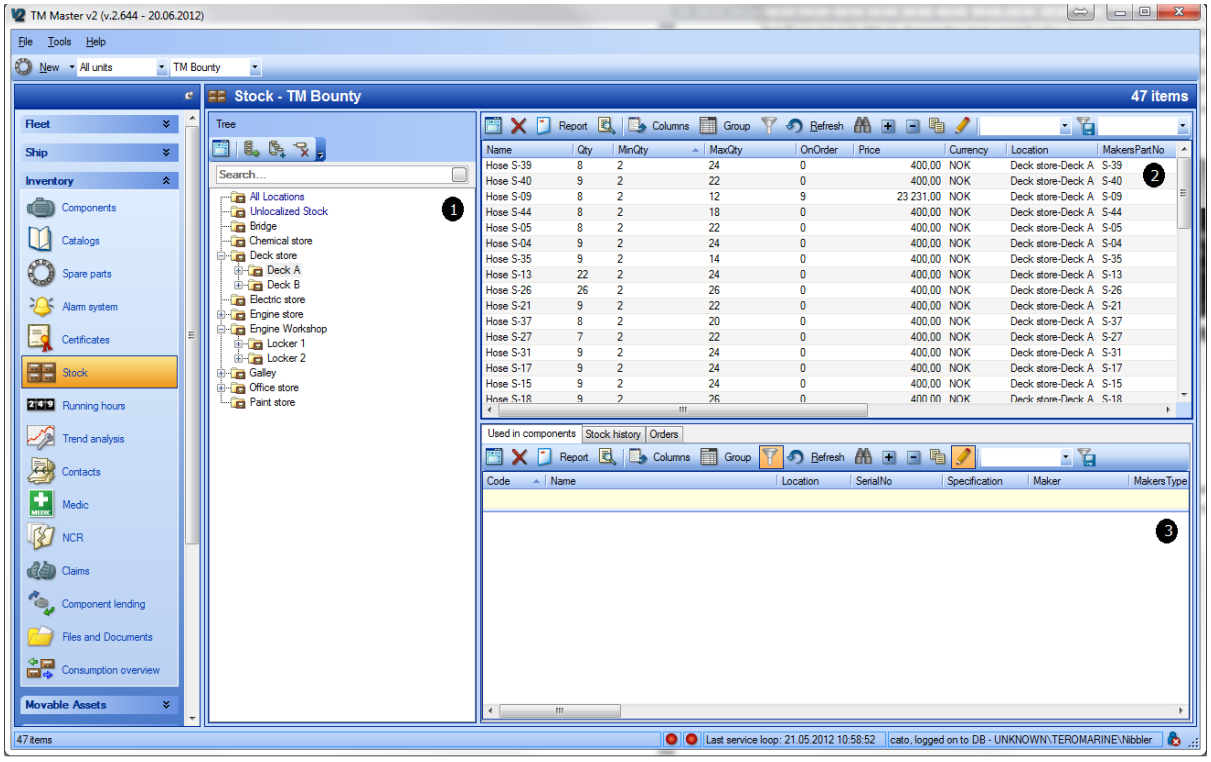
added to the counter value. This allows you to enter/import the actual reading of the new counter, without resetting your jobs counter dues or manually calculate the components actual hours before they are entered in TM Master V2.



“Adjustment” + Counter reading from new counter = Component’s actual running hours

Stock

The stock module keeps track of all your stock locations and your items (Spare parts & catalogue items).Catalogue items and spare part will only appear in the stock list, if the spare part or the catalogue item have or have had a registered stock amount.



This is an example of the stock module view.

The stock module view consists of three main windows.

1. **The Stock location tree**: You can recreate all your storage locations using folders and sub folders. By default there is 2 location folders, “All items” and “Un localized Stock”. Selecting the “All items” folder will list all stock in the item view (2). Selecting the “Un localized Stock” will list all stock that currently is not assigned to a location.
2. **Item list view**: This list will show you all items on the selected location in the stock location tree.
3. **Occurrence view**: This view will list details on the selected item in the item list. The view has three different information tabs. The **“Used in component”** tab will list all components which has the currently selected spare part in their spare part lists. The **“Stock history”** tab lists the selected items stock history details. The **“Orders”** tab will list any orders the selected spare part is included in.

How to add stock locations and sub locations?

1. Click [Inventory] → [Stock]
2. Click the  [Add root node to three] button to add a top folder/location.
3. Enter a name for the location.

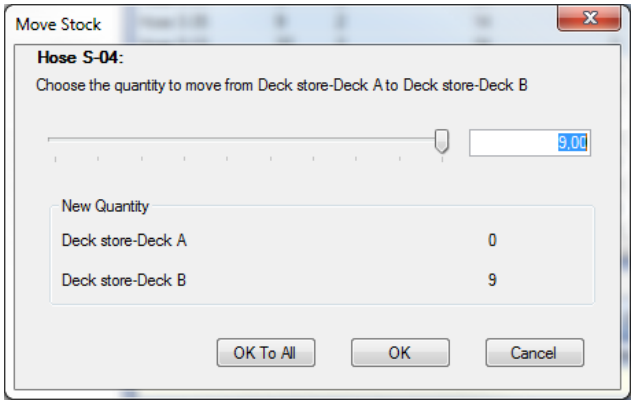
To add a sub location to an existing location:

4. Select the location in the tree view you wish to add a sub location to
5. Click the  [Add sub node to three].
6. Enter a name for the sub location.

Existing location and sub location can be moved by drag and drop.

How to add stock items (spare parts and catalogue items) to a location?

1. Click [Inventory] → [Stock]
2. Select the item or items you wish to assign to a location or move to different location.
   (Press and hold the [CTRL] key to multi select)
3. Left click and hold on one of the selected items and hold.
4. Drag the item or items to the desired location in the location tree.
   The system will prompt for the quantity of the items you wish to move.



5. Enter the amount, or use the slider to set the amount, and click [OK]
   If more than one item was dragged and dropped, the system will prompt for each individual item. To move all items to the new location, click [OK To All]

How to do a stock count update?

After a stock count on a location you might need to update quantities for certain items. The easiest and fastest way to do this is to use the [Mass update] function in the stock module.

1. Click [Inventory] → [Stock]
2. Select the location you wish to update item quantities for.
3. Click the  [Mass update stock] button found in the item list (2) menu bar.
4. A prompt asking for the stock history text will appear. Either user the default value “Stock taking” or enter a more appropriate description.
5. The quantity column in the grid is now opened for editing.
6. Update the items quantity.
7. All changes will be recorded in the stock history.

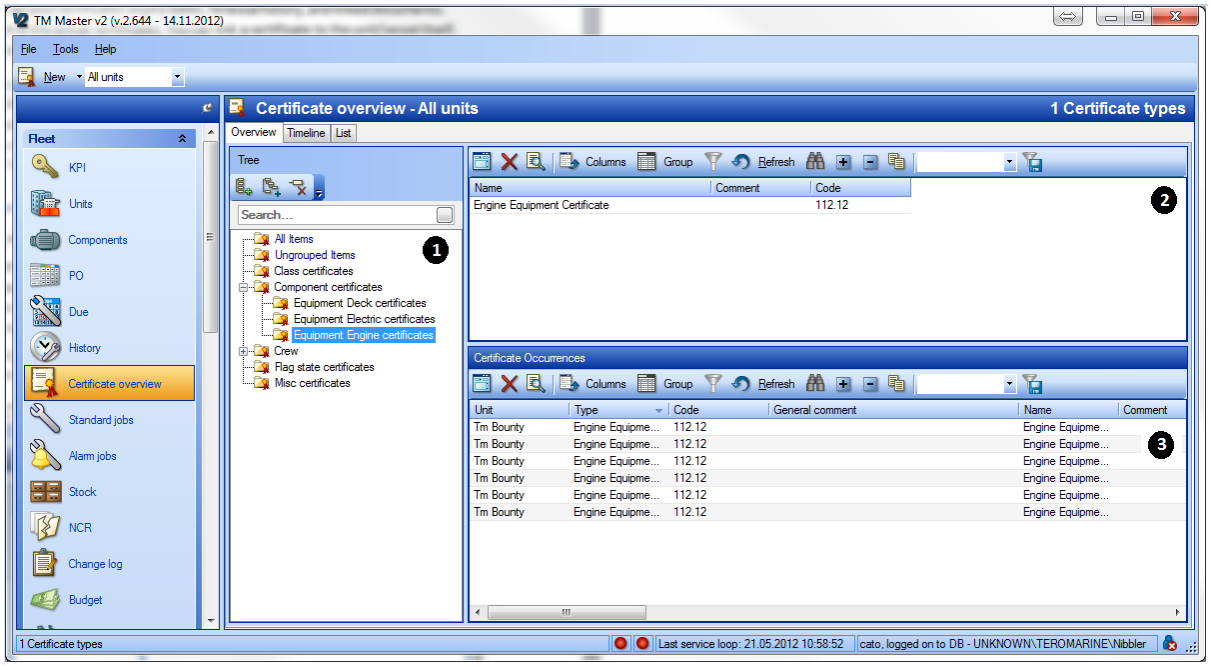
How to list all items below the minimum stock value?

To list all items that have gone below the items configured minimum value, do the following.

1. Click [Inventory] → [Stock]
2. Select the location you wish to view items from. (Select "All items" to get a complete overview)
3. To the farthest left in the" Item list" view tool bar select "List Min. stock"
4. A list of all items with a quantity below the set min value will be listed.

Certificates

TM Master V2 is a fleet management system and the certificate module will help you keep a consistent certificate structure across your entire fleet. The certificate module in TM Master v2 is able to keep track of all your certificates expiry dates, renewal history, and linked documents. (.i.e. Scanned version of the actual certificate). You can link a certificate to the unit/vessel itself, individual components and crew members.



The Fleet certificate module 1) Certificate tree view 2) Certificate types 3) Actual certificates based upon selected certificate type.

The certificate module window is divided into 3 parts.

1. The Certificate structure/tree
2. This view lists all the certificate types found in the selected group in the certificate tree view.
3. This view lists all the actual certificates which are based upon the selected certificate type.

Certificate structure

The first you should do in order to start using the certificate module is to decide on how to organize your certificates. If you already have a way of organizing your certificates, manual in binders or in another system, you should be able to recreate your current structure using the tree structure in the certificate module. This structure will be available on board all vessels. Creating and editing the structure is only possible at the office.

How to create a certificate group structure?

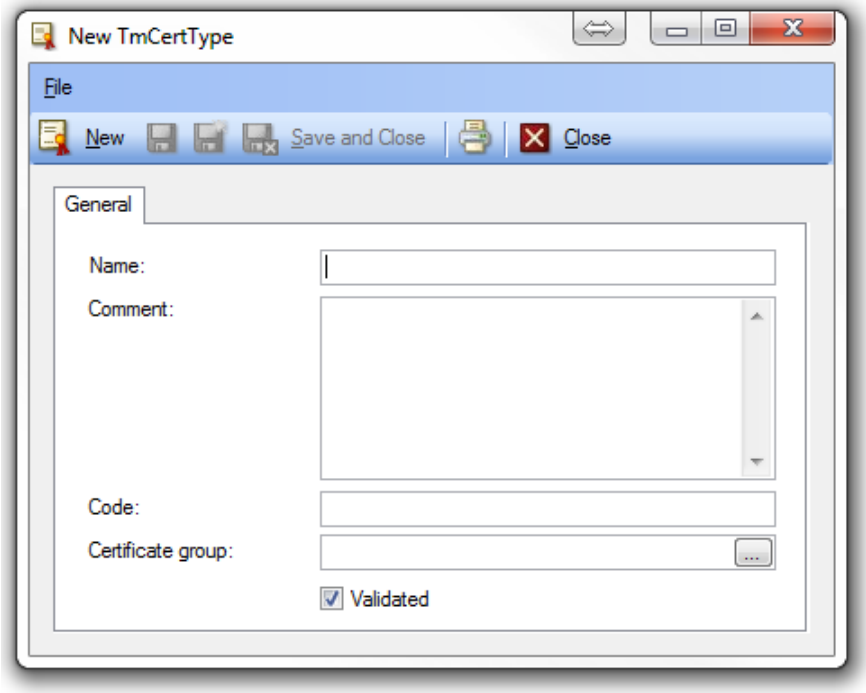
1. Click [Fleet] → [Certificate overview]
2. Create a root folder by clicking the [Add root node] button
3. Enter the desired name for the node/folder
4. Create a sub node/folder by first selecting the root node/folder you wish to add the sub node/folder to.
5. Click the [Add sub node] button.
6. Give the sub folder a name.

Certificate type

In the [Fleet] → [Certificate overview] you first need to define the different types of certificates you need. It is important to note that you must define the type of certificate first, and then you can create actual certificate based upon that type. As an example a "Health Certificate" can be a type of certificate. Creating Certificate types can be done both at the office and on board, but certificate types created on board are not validated, and will only replicate back to the office. The certificate type created on board will not be replicated to other vessels before it has been validated at the office.

How to create a Certificate type?

1. Click [Fleet] → [Certificate overview].
2. Click [New] on the left hand side in the top menu bar.
3. Fill in the certificate type values



a. **Name:** Enter a descriptive name for the certificate type.
b. **Comment:** Add a comment or a description of the certificate if required. This text will be available as the "General Comments for these certificates" field on the actual certificate
c. **Code:** This is a free text field and can contain numbers and letters, and can be used to number your certificate types.
d. **Certificate group:** Here you can select what group the certificate should belong to.
e. **Validated:** Only validated certificate types are replicated to vessels. Certificate types created on board are not validated (not possible to validate on board) and only replicate to the office, but not to other vessels. Once the certificate is validated in the office (box checked) the certificate type is replicated to other vessels.

How to create an actual certificate?

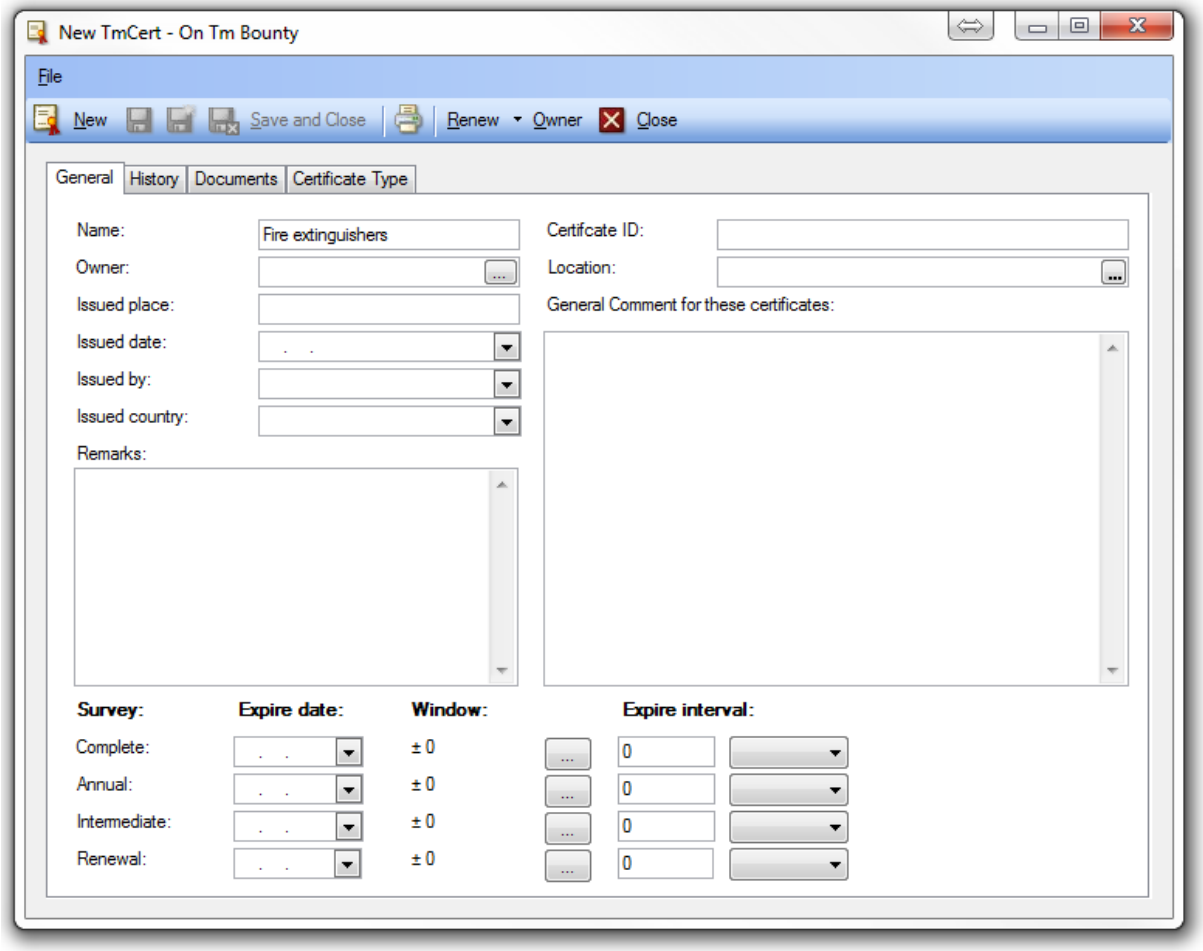
There are several ways to create a certificate. It is the same procedure but different entry points. As mentioned previously TM Master v2 has 3 different “owner” types: Crew, Component and Unit., and you can create the certificate on the “Certificate” tab on the “owner” of the certificate. The different entry points are described in step 1.

1. One of the following entry points can be used:

    a. Unit/vessel (Office only): [Fleet] → [Units] → “Double click unit” → “Certificate tab”

    a. Unit/vessel (On board) : [Ship] → [Details] → “Certificate” tab
    b. Component: [Inventory] → [Components] → Double click component → “Certificate” tab
    c. Crew: [Crew]→[Crew list] → Double click crew member → “Certificate” tab
    d. A certificate can also be created in the [Inventory] → [Certificate] module, but then you will need to specify the owner when the certificate is created.

2. Click the [New certificate] button.
3. Select the certificate type you want to create.
4. Fill in the certificate detail.



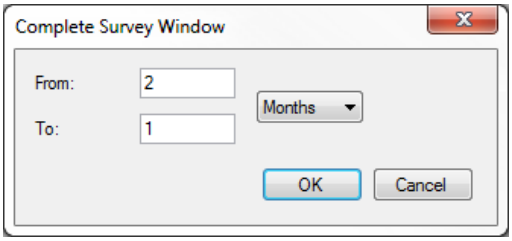
This is the (actual) Certificate form.

a) **Name:** The name is picked up from the certificate type, but can be edited if required.

b) **Owner:** Depending on your entry point, the owner can be pre-set, but can be changed by clicking the […] button, and then selecting the owner type. Then specify the actual component, crew member or unit/vessel.
c) **Issue Place:** Enter the location (city/area) where the certificate has been issued.
d) **Issue date:** Certificate issue date.
e) **Issued by:** Who has issued the certificate (the source for this dropdown is the code list "Certificate issued by")
f) **Issued country:** Select the country where the certificate has been issued in.
g) **Remarks:** This is a free text field where any additional information, not covered by the other fields in the certificate form.
h) **Certificate ID:** Enter the certificates ID number, if available.
i) **Location:** Select the storage location for the original certificate by clicking the […] button. The source for this list is the same location structure you find in the stock module.
j) **General Comments for these certificates:** Here you will find any comment/description entered for the certificate type.

5. Enter the expiry date(s) and enter an expiry interval. Depending on certificate requirement use the survey/renewal that is most suitable.

a. **Expiry date:** This is the next expiry (next due) for this survey/renewal
b. **Window:** Usually it is possible to perform a survey/renewal within a period before and after the actual expiry. By clicking the […] button under "window" you can enter how many days, weeks, months or years before and after the expiry is allowed.



The renewal window form

c. **Expiry interval:** After the first expiry, the next expiry date will be calculated based upon the set interval. Intervals can be set to a given number of days, weeks, months or years.

Survey & Renewal Intervals

A certificate can have up to 3 different surveys intervals and one renewal interval. The interval to use depends upon the requirement of each individual certificate. The 3 different "Surveys" are: Complete, Annual & Intermediate. For certificates which require actual renewals, such as class certificates the "Renewal" interval is used.

The "Certificate history" tab

The certificate history tab will keep track of all certificate renewals history.

The "Documents" tab

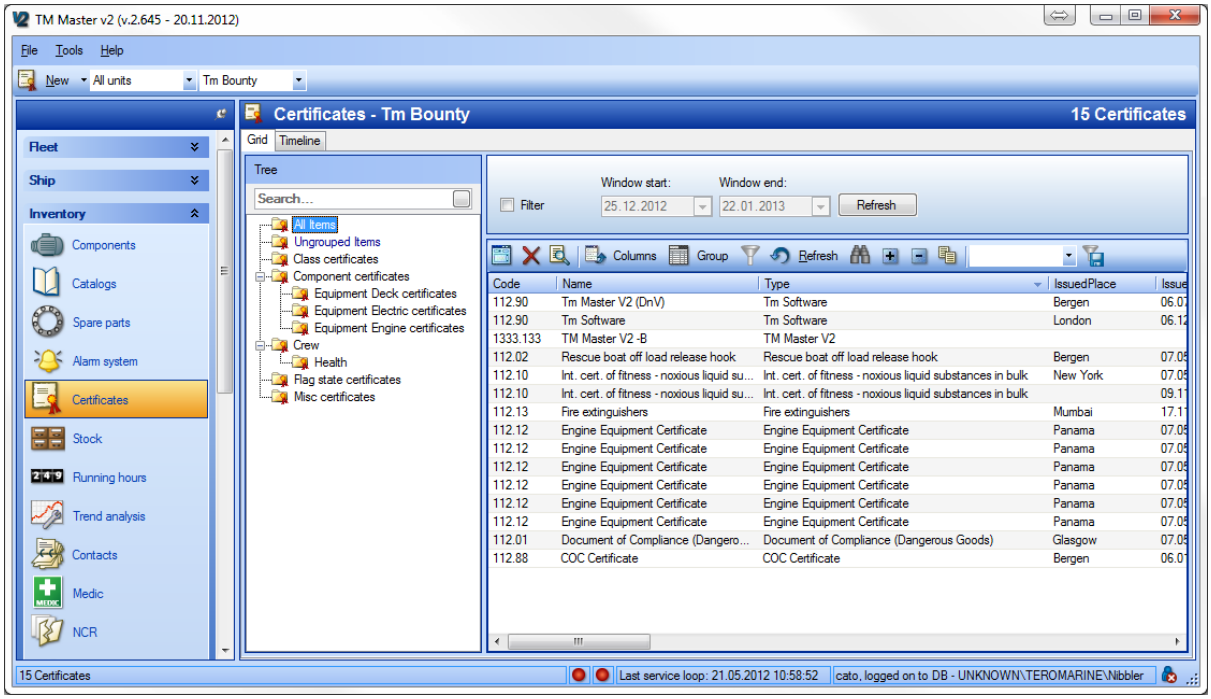
The document tab works like all other documents tab in the program and allows you to attach document and other files to the certificate. By attaching a scanned version of the original certificate you can create a digital certificate archive.

The “Certificate type” tab

On the certificate type tab you will find the central certificate type information for the certificate. Certificate type is described in a previous chapter.

Certificate overview and renewal due list

Within the [Inventory] module group, gives users an overview off all registered certificates. The view is divided in to parts. On the left the certificate structure tree is shown, on the right a list off the certificates within the selected certificate group on the left. Selecting the top level “All items” will list all certificates registered for the vessel.



The certificate overview

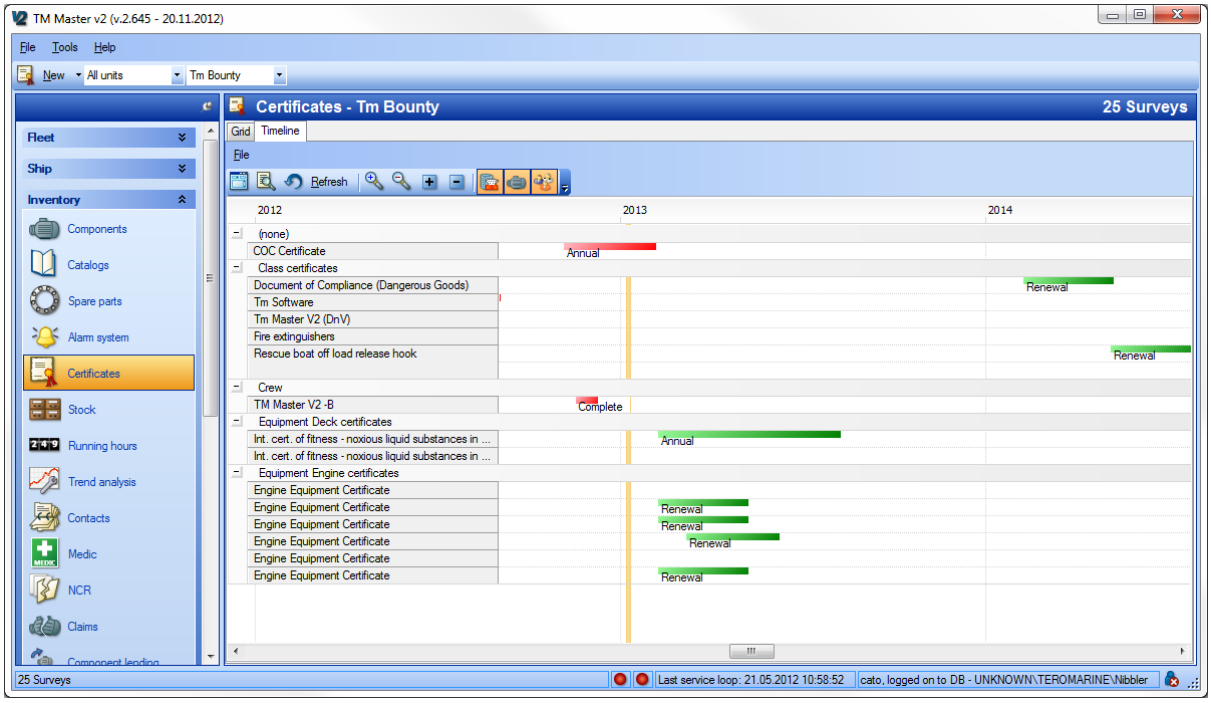
How to locate certificates that need a renewal?

There are two functions to help you locating the certificates that will or have expired.

..using the filter view?

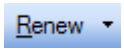
1. Click [Inventory] → [Certificates]
2. Tick the “Filter” check box found on the “ribbon” above the grid menu on the left hand side.
3. Select a date range, by selecting a start date and an end date, for the system to check for expiring certificates.
4. Click [Refresh]

..using the timeline view?

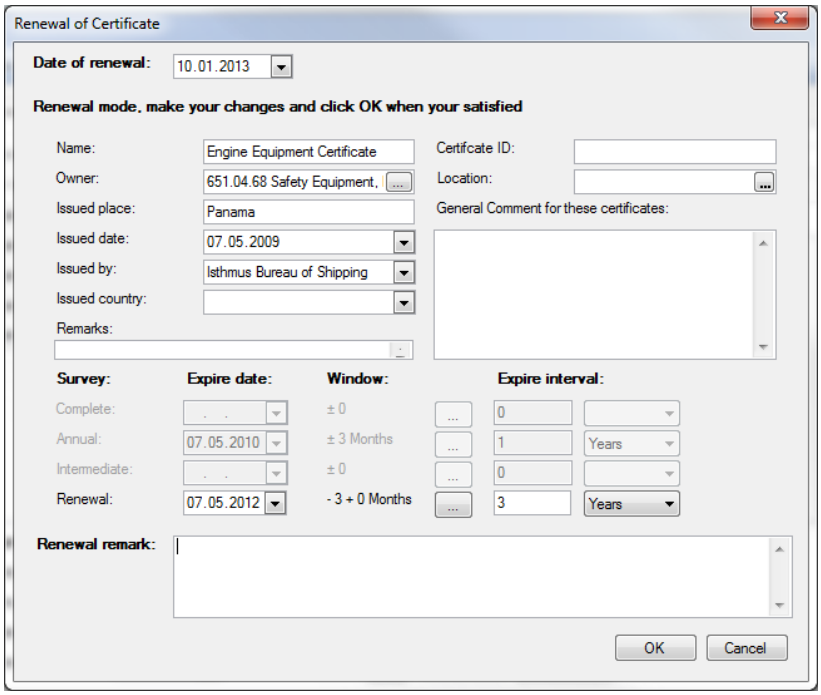


1. Click [Inventory] → [Certificates] → "Time line" tab.
   The certificates are listed vertically, grouped by the certificate group they are included in. Horizontally you will find the timeline, the yellow vertical line represent today. The certificate expiry windows are represented by coloured lines. Certificates not yet overdue are green. Once the expiry date has been exceeded the line turn red.
2. To open the certificate for renewal, you can double click the coloured line.
3. In the menu bar you will find 3 toggle buttons where you can show/hide certificate based upon the certificate owner. (Vessel, Component and Crew)

How to sign out a certificate survey/ renew a certificate?

1. Click [Inventory] → [Certificate]
2. Locate the certificate you want to renew.
3. Double click the certificate you want to renew, to open it.
   This can be done from any grid where certificates are listed and from the timeline view.
4. Click the [Renew] 

menu item, and select the survey expired that you want to renew. The following form will appear.



The certificate renewal form

5. Select the “Date of renewal”
6. Enter a “Renewal remark” if any, and click [OK].

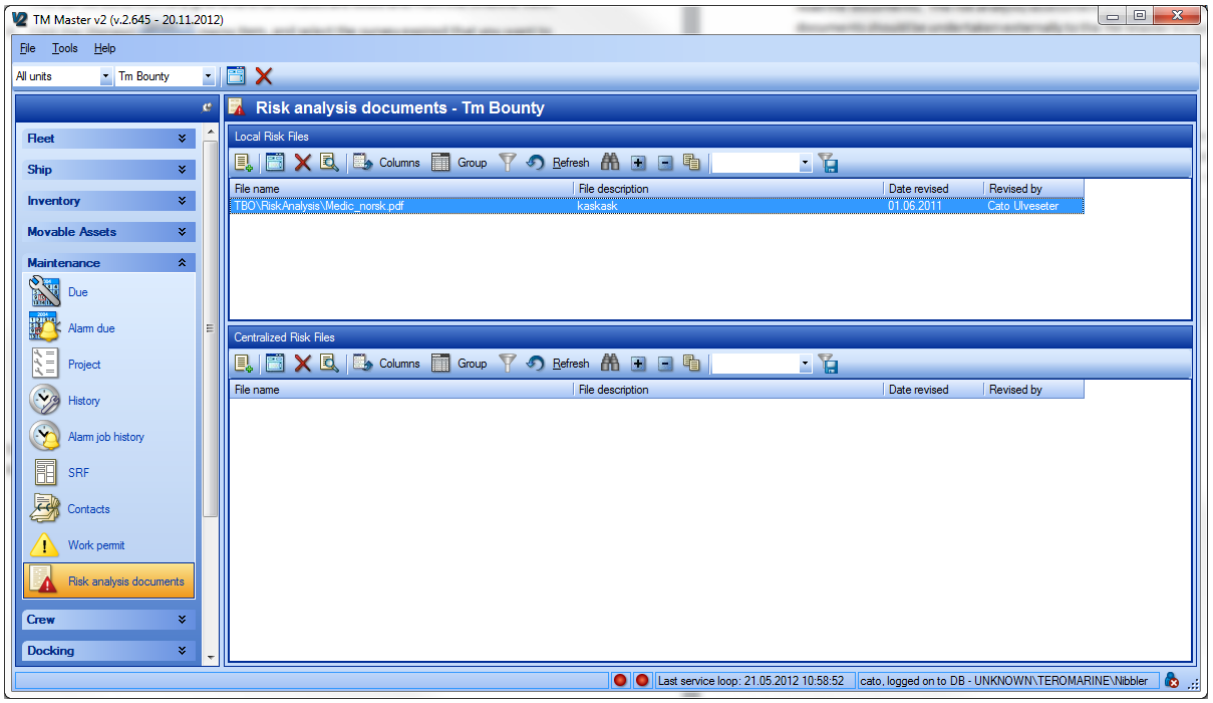
Risk Analysis Documents

In the TM Master V2 system there is a function for attaching Risk analysis documents to any Component specific maintenance routine (Component Job). This automatically restricts the process of completing those jobs in the maintenance system until the user has confirmed that they have read the documents. The risk analysis/assessment process which produces the content of the documents should be undertaken externally to the TM Master V2 system.

The risk analysis documents can be any format (pdf, word, excel etc.), as long as the appropriate program is installed for opening them.

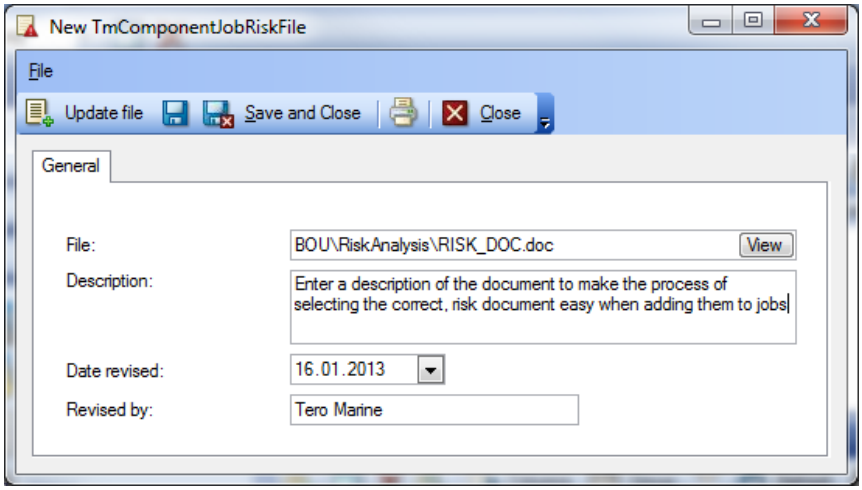
How to add a Risk Analysis document to the system?

The first stage is to set up the appropriate risk analysis documents in the central list which is split into two panes - centralized risk files (available to the fleet) and local risk files (specific to the vessel). When adding a file, a description can be added as well as a revision date. Any files added here will be available to add to any component job.



This is an example of the "Risk Analysis document" module.

1. Click [Maintenance] → [Risk Analysis Documents]
2. Click the :
   a. **[Add a new local risk document]** in the upper pane to add a risk document to a specific vessel only.
   b. **[Add a new centralized risk document]** in the lower pane to add a risk document to all vessels in the fleet.
3. Select the file you want to add. (Any file format can be selected .pdf, .doc, .xls etc.)
4. Enter a description of the file. The description can be of assistance later when you will link the document to jobs.
5. You can select a different revision date if required, the default value is set as "today"
6. "Revised by" is set to the name of the user adding the file.



Add new risk document form.

How to replace/update a "Risk Analysis" document?

1. Click [Maintenance] → [Risk Analysis Documents]
2. Double click the document you want to update/replace
3. Click the [Update file] button, in the document details form.
4. Select the updated/new document you want to replace the old with.

The updated document is replicated to the specific vessel using it if it is a "local" document or to the entire fleet if it is a centralized document. All jobs linked to the old document will be linked to the new updated document.

How to link a Risk analysis document to a job?

To link a risk analysis document to a job you will need to open the job requiring the document, and add it using the "Add risk document" tab found on the job form. For more details on how to do this please refer to the chapter describing the Risk document tab.

Work Permit

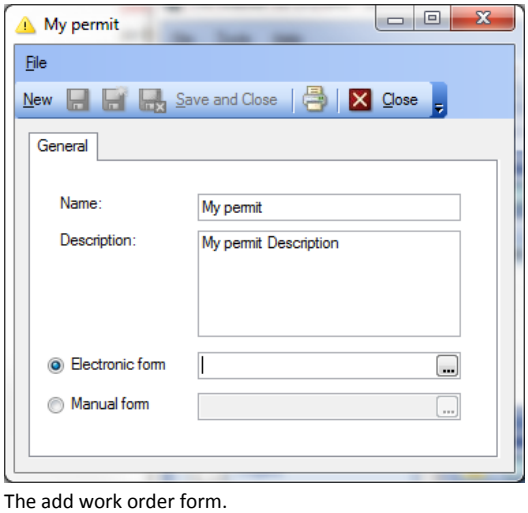
In the TM Master system there are two different work permit formats, Electronic and Manual.

Electronic: This must be either a word template or an excel template file type, but can have any design you wish. Nothing is printed to paper.

Manual: This format is designed to accommodate any existing work permit system that the user's company is currently using, either paper based or an electronic printable file such as a word document or a .pdf file.

The first stage is to set up the appropriate files (if available) in the central list as work permits and to give them names.

How to add a work permit to TM Master v2?

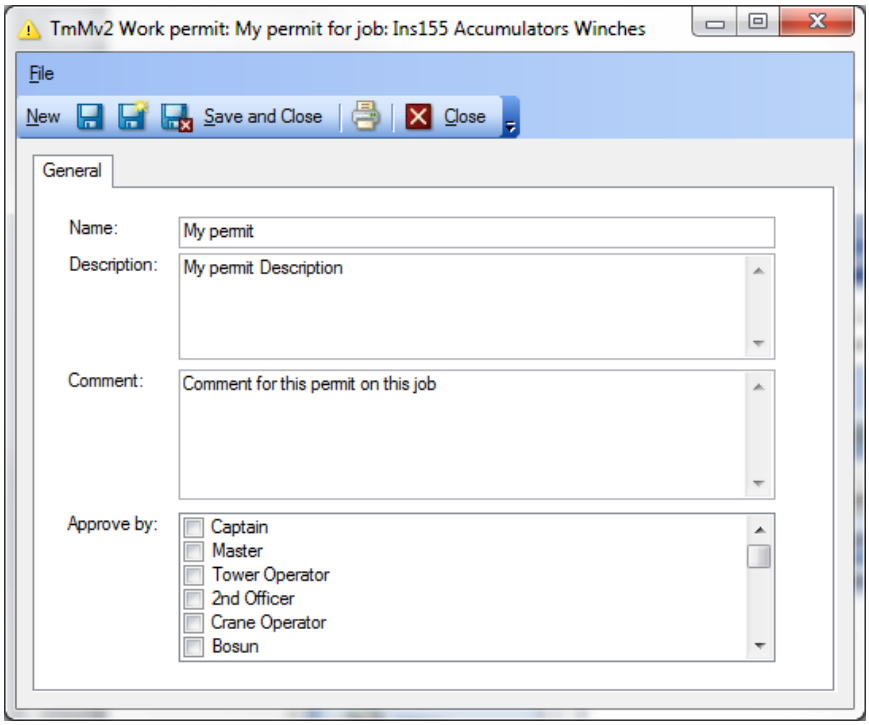
1. Click [Maintenance] →[Work Permit]
2. Click the :
    a. **[Add a new local work order]** in the upper pane to add a work order to a specific vessel , the vessel is selected in the vessel/unit selector found in the top menu
    b. **[Add a new centralized work order]** in the lower pane to add a risk document to all vessels in the fleet.
3. Enter the name of the work order document
4. Enter a short description of the work order, the description and name may help identifying the correct work order later on when users will be linking the document to jobs.
5. If this is an electronic form click the […] button, at the end of the "electronic form field, and then select the work order form you wish to add.
6. If this is a "manual form", tick the manual form tick box, and then click the […] button at the end of the "manual form" field and select the work order form you wish to add.
7. 

The add work order form.

After you have added work order (permit) forms to the system, (and you have the appropriate user right) you can commence adding work permits to any component job (maintenance routine) you wish, and you may add as many to each individual component job as you wish.

How to configure a job to require a work permit?

1. Open the job form by double clicking the job either in the “Due” list or in the “Jobs” tab found on the component form.
2. Click the “Work permit” tab, found on the job form.
3. Click the [Add work permit] button.
4. Select the correct work order/permit form, from the available forms list.
5. The following form will appear.



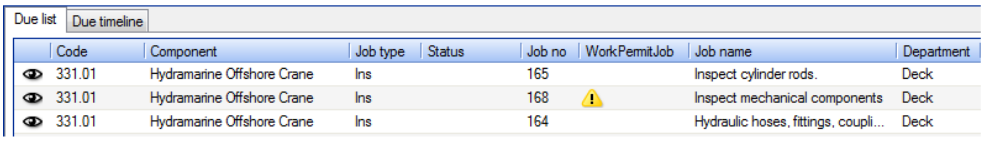
6. The fields “**Name”** and “**Description**” are the name and description given to the form when it was attached to the system (ref: How to add a work permit? Step 3 & 4) and can’t be changed here.
7. You can add a comment that will apply to this work permit linked to the current job.
8. Then you need to select the crew type that should be able to approve the work permit. Any user signed on as that crew type will then be able to approve the work permit.
   (In order for the work permit system to work, TM Master v2 users will need to be linked to their crew record, how to do this is described in the How to…? for crew found in the “Help” menu)

Once a work permit has been linked to a job, users will not be able to sign the job out before they have applied and the application has been approved.

How to identify jobs configured to require a work permit?

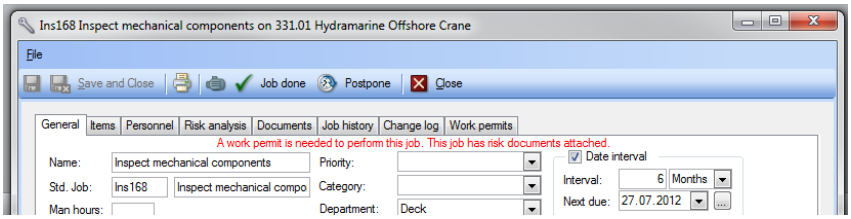
The jobs requiring a work permit can be identified in the following manner:

1. Jobs in the “Due” list are marked by the work permit icon



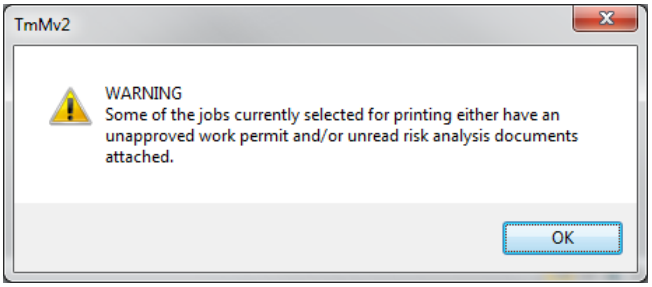
The Due list

2. The job detail form has a notification of the work permit requirement.



The job detail form

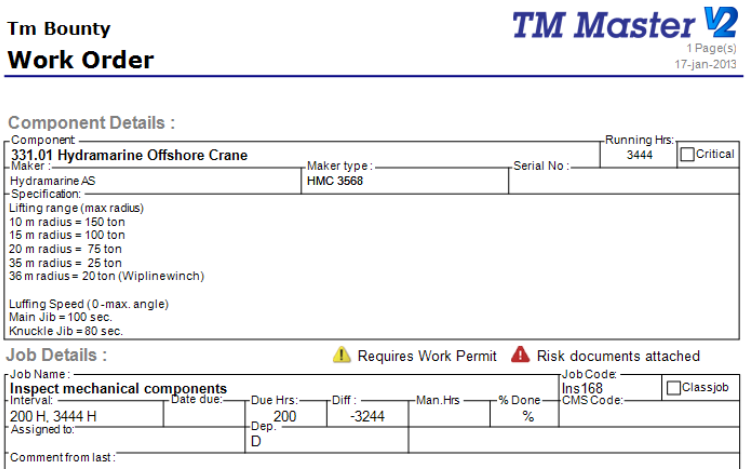
3. When printing any of the job reports are printed, and a job requiring a work permit is included in the report the user is informed about this.



The work permit required warning

4. The jobs requiring work permit are marked in all of the job reports.

(This will require that all the latest versions of the job reports have been imported)

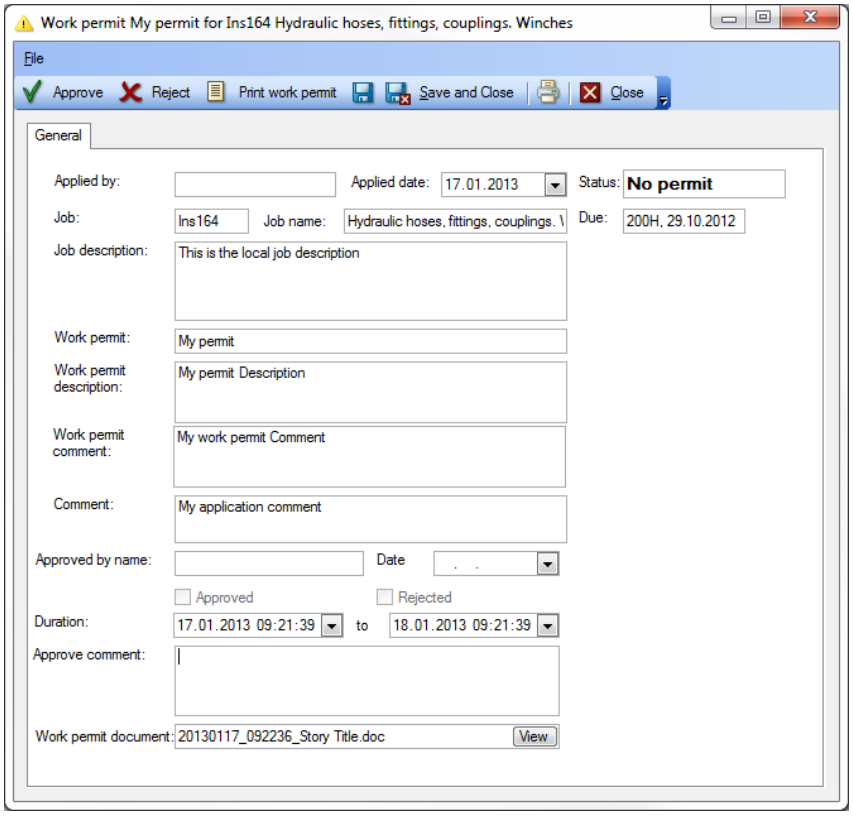


The work order report

How to apply for a work permit?

Before any user can sign out a job requiring a work permit, the user will need to apply for a work permit and get that application approved. The following steps describe how to apply for a permit.

1. Open the job requiring the permit, by double clicking it, either in the “Due” list or on the components job tab.
2. Click the “Work permit” tab.
3. Click the [Apply for work permit] button. The following form will appear.



This is an example of a “digital” “work permit” application form.

4. The following details are shown in the work permit application form.
   None of the following fields can be edited in this form.
   a. **Applied by:** Here the name of the user creating the application will appear.
   b. **Applied date:** The date the application is created.
   c. **Status:** Current work permit application status.
   d. **Job:** Job code, job name and the jobs due date or hour value.
   e. **Job description:** The local job description
   f. **Work permit:** This is the work permit name.
   g. **Work permit description:** This is the description of the work permit, given at the time the work permit was added to TM Master v2
   h. **Work permit comment:** This is the work permit comment added when the permit was linked to the current job.
5. Add any comment regarding the current work permit application.

Depending on what type of work permit this is “Electronic” or “Manual” the following steps will differ slightly.

Electronic work permit:

6. Click the **[Add]** button at the end of the “Work permit document”, this will create a document based upon the work permit template and link it to the current permit application. You will see a file name appear in the field “[Date]_[Time]_[Doc.Name].doc” etc.
7. Click the **[View]** button. (The **[Add]** button now has changed its text and is **now named [View].)**
   The work permit document will now be opened in the program it belongs to.
8. Fill in the work permit document.
9. [Save] and close the work permit document.
10. Click [Save and close] the work permit form in TM Master v2.

Manual work permit:

6. Click the **[Open]** button, found at the end of the “Work permit form” field to open the manual work permit form.
7. Print the work permit form if not editable.
8. Fill out the work permit.
9. Save and attach the document