

How the Calira

Benchling integration can be used

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Ways to use the Calira - Benchling integration

In this first version of our Calira integration we wanted to make use of Benchlings powerful entity-linking functionality that will enable you to link equipment directly to Results, Benchling Notebook entries, Registry and Workflows, while still enabling you to book that equipment and [manage access](#) via the Calira platform.

As well as key equipment information, you will also be able to access and book each piece of equipment via the Calira individual booking calendar link from the Benchling platform and store up to date maintenance and calibration information which is only refreshed if you refresh the tables it is surfaced in.

We feel that one of the best and most time saving ways to surface the equipment information from Calira on your Benchling platform is to create an [equipment sub-template](#) and a [Workflow schema template](#), and we walk you through how to create those below.


You will also be able to access and book equipment from the [Registry](#), reference it in your [Notebook](#), and add equipment to and book it from [Workflows](#)

Registry

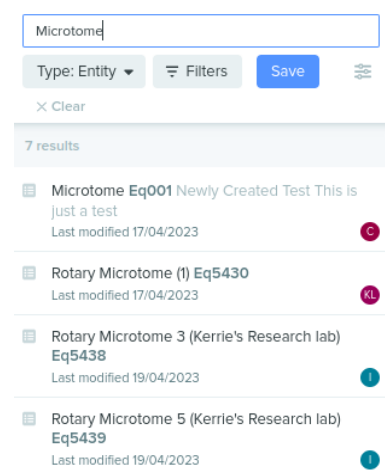
[See video walkthrough](#)

Once you have set up and installed the Calira equipment data and scheduling app on your tenant all of the equipment data you have chosen to share with Benchling will now be available for you to search for in the Registry.

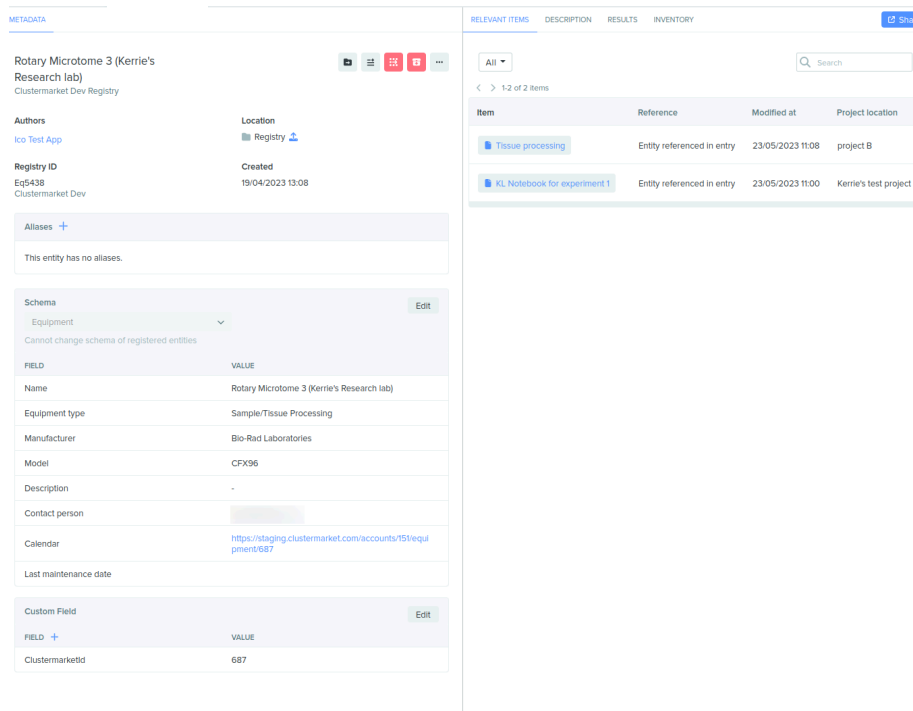
How to find Calira equipment data in your registry

If you select the Registries section in the navigation  a search box will open. Just type the name of the piece of equipment you are searching for in the search box and a list of equipment with that name will be displayed*

**You may notice that next to the name of the listed equipment that matches your search term is the name of the lab it is associated with (in brackets) - this enables any customers who are uploading data from multiple labs within a department or organisation to be able to distinguish if the equipment they have selected is the correct one from the correct lab.*



If you select the piece of equipment you are looking for, its Registry record will open, and from here you can see where it has been referenced in Workflows and Notebook entries, you can add an alias for the equipment and you can also access the booking calendar.



METADATA

Rotary Microtome 3 (Kerrie's Research lab)
Clustermarket Dev Registry

Authors
Kerrie Test App

Location
Registry

Registry ID
Eq5438
Clustermarket Dev

Created
19/04/2023 13:08

Aliases
This entity has no aliases.

Schema
Equipment
Cannot change schema of registered entities

FIELD	VALUE
Name	Rotary Microtome 3 (Kerrie's Research lab)
Equipment type	Sample/Tissue Processing
Manufacturer	Bio-Rad Laboratories
Model	CFX96
Description	-
Contact person	
Calendar	https://staging.clustermarket.com/accounts/551/equipments/587
Last maintenance date	

Custom Field

FIELD	VALUE
Clustermarketid	687

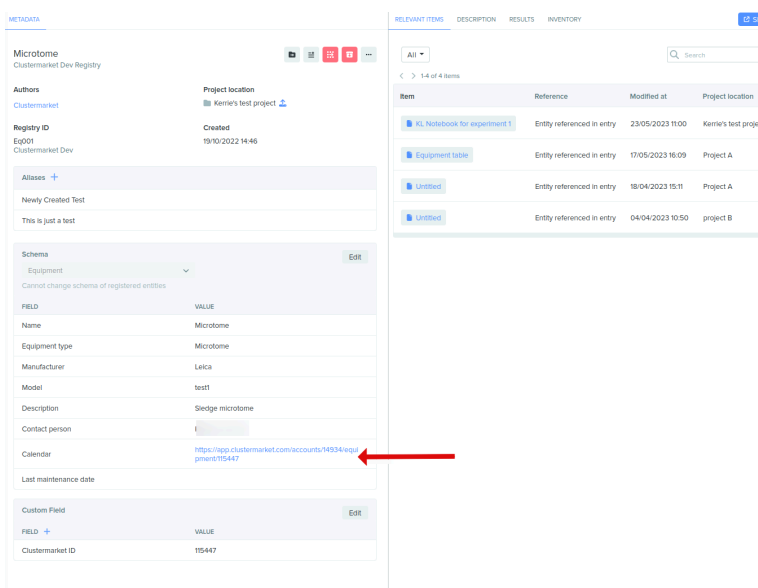
RELEVANT ITEMS

Item	Reference	Modified at	Project location
Tissue processing	Entity referenced in entry	23/05/2023 11:08	project B
KL Notebook for experiment 1	Entity referenced in entry	23/05/2023 11:00	Kerrie's test project

For any additional information, help and support, please check the [Benchling documentation](#).

Booking via an Entity record

To book equipment from an Entity record, search for the equipment you want to book and then open the record. In the schema section of the Entity record you will see a link to the booking calendar:



METADATA

Microtome
Clustermarket Dev Registry

Authors
Clustermarket

Project location
Kerrie's test project

Registry ID
Eq001
Clustermarket Dev

Created
19/10/2022 14:46

Aliases
Newly Created Test
This is just a test

Schema
Equipment
Cannot change schema of registered entities

FIELD	VALUE
Name	Microtome
Equipment type	Microtome
Manufacturer	Leica
Model	test1
Description	Sledge microtome
Contact person	
Calendar	https://app.clustermarket.com/accounts/14934/equipments/15447
Last maintenance date	

Custom Field

FIELD	VALUE
Clustermarket ID	15447

RELEVANT ITEMS

Item	Reference	Modified at	Project location
KL Notebook for experiment 1	Entity referenced in entry	23/05/2023 11:00	Kerrie's test project
Equipment table	Entity referenced in entry	17/05/2023 16:09	Project A
Untitled	Entity referenced in entry	18/04/2023 15:11	Project A
Untitled	Entity referenced in entry	04/04/2023 10:50	project B

Just click on the link and the Calira login page will open in a new tab, then once logged in you will see the equipment booking calendar and will be able to book time on the equipment.

Notebook

[See video walkthrough](#)

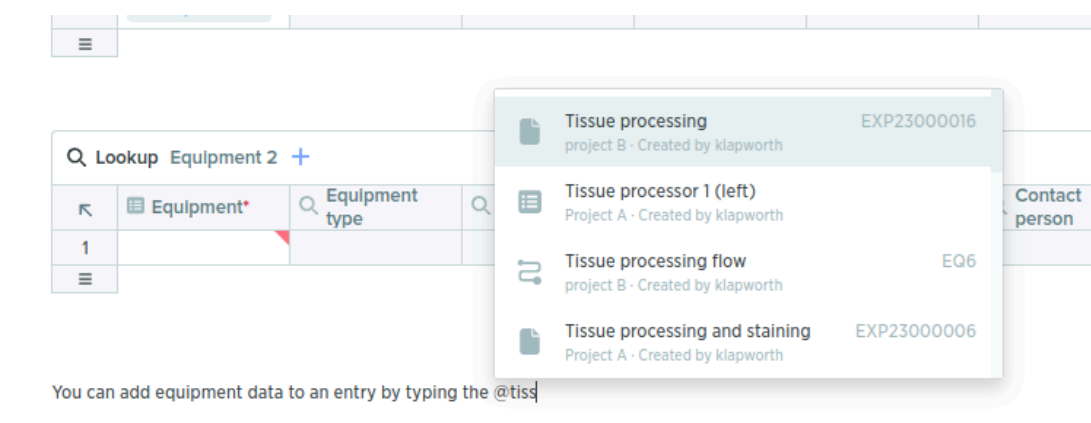
There are a number of ways you can use the Calira app to surface equipment data, and easily book equipment in Calira via a Notebook entry, these include text entries, workflow references, and sub-template Lookup tables.

Maintenance and calibration data

You can choose which data you want to surface about your equipment in the tables within your Notebooks, including maintenance/calibration data - this data will automatically update for equipment when a calibration or maintenance event has occurred in Calira, however it will only update in a table if you chose to refresh the table. You will be able to tell that the data has changed as a purple triangle will appear in the table next to the data that has been updated and a note will appear when you hover over the triangle explaining what has changed - as long as you don't update the table, the maintenance date will remain as the date of the event when you added the equipment to the table.

Add Calira equipment data via Text entries

You do not need to use a look-up table for the equipment information, if you want to reference a specific piece of equipment, or a [Workflow](#) that has been built using the equipment data, you can do so simply by typing the @ symbol in front of the equipment name, and then select the equipment from the list that appears:



When you select the equipment from the list it shows as an Entity link in your entry, which can be clicked on to show the Entity information, including the booking calendar link which you can use to book the equipment on Calira. If you select the Workflow, it will also display as a link that will take you to the Workflow.

You can add equipment data to an entry by typing the @ symbol in front of the name of the equipment or workflow you are looking for [Embedding studio \(Kerrie's Research lab\)](#)

For any additional information, help and support, please check the [Benchling documentation](#).

Booking from an equipment entry in your Notebook text

If you have referenced a piece of equipment in the text of your Notebook anywhere using the @ symbol, then you will be able to click on that entry and the entity record will open, from which you will be able to locate and click on the Calendar link as shown [here](#).

You can add equipment data to an entry by typing the @ symbol in front of the name of the equipment or workflow you are looking for [Embedding studio \(Kerrie's Research lab\)](#)

[Tissue processing flow](#)



How to create an Equipment Lookup table Sub-template


One of the quickest and easiest ways to add an equipment Lookup table to your Notebook is by creating a Sub-template. A Sub-template can then be inserted into any notebook as a Lookup table as many times as you need. To create a Sub-template you may have to ask the Benchling customer support team to enable this functionality.

Create a Sub-template equipment table following the Benchling documentation here: [Reusing content with sub-templates](#) or follow the steps below:


1. Click on your profile in the bottom left navigation and select feature settings
2. Under the Lab Notebook Setting section click on Template collections

INVENTORY SETTINGS

General

 Label printing

LAB NOTEBOOK SETTINGS

 Template collections



3. If you already have a collection that would be suitable to add an equipment table Sub-template too, please feel free to use that, otherwise create a collection for the Sub-template by clicking on the Create template collection button on the right side of the page

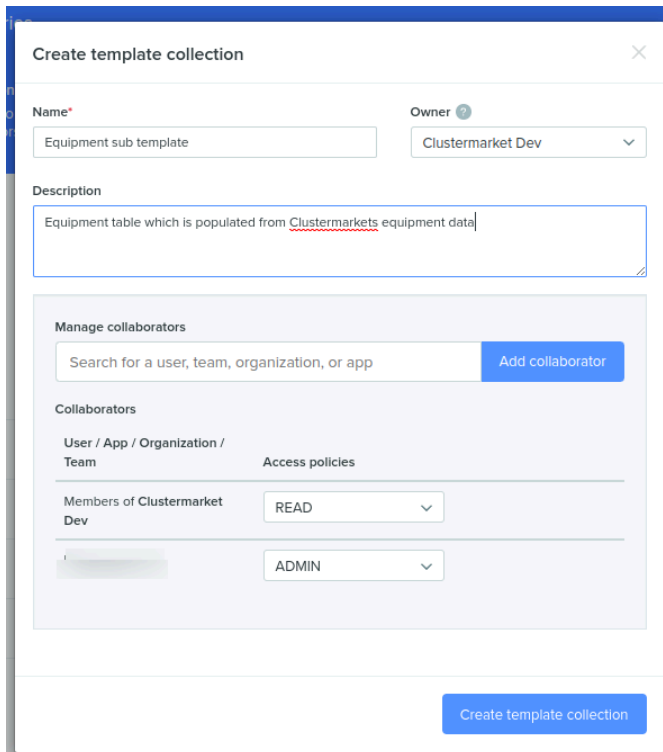
My collections

 Search

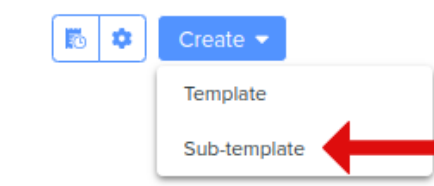
<< < > >> 1-4 of 4 template collections

 [Create collection](#)

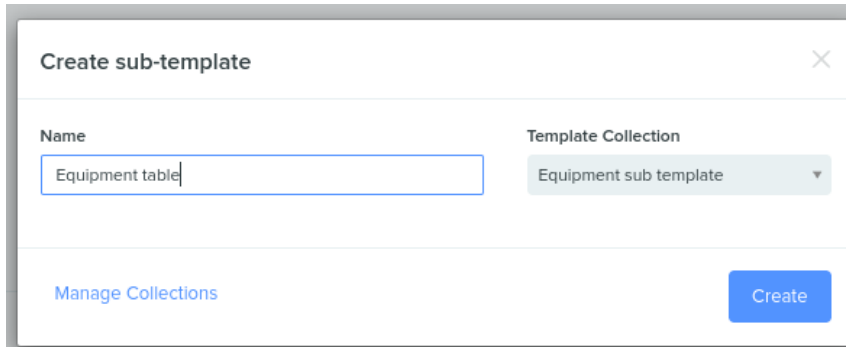
- The Create template collection modal will open



- Name the collection and provide a description of what type of templates will be in the collection
- Now select the people/organisations and projects you want to be able to use the template
- Click on the Create button and your collection page will open
- Now click on the create dropdown button on the right of the page and select Sub-template



- In the modal that opens give the Sub-template a name and click on the create button



Create sub-template

Name:

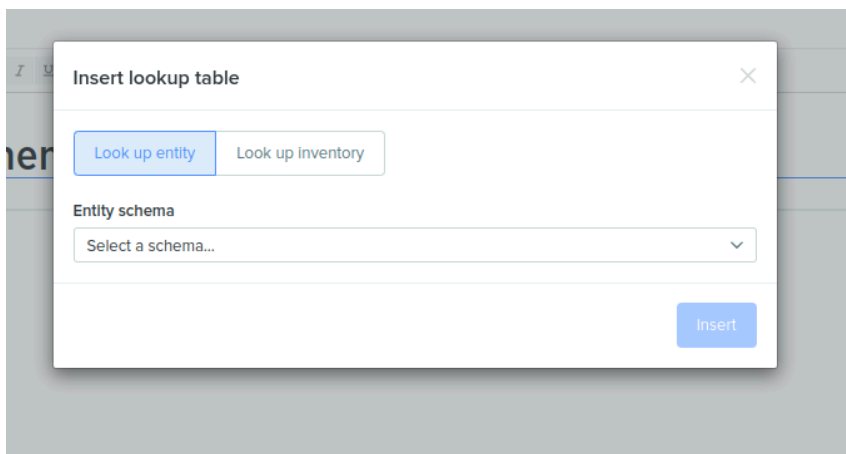
Template Collection:

[Manage Collections](#) [Create](#)

10. This will open a template page titled Equipment table
11. From the menu at the top of the page click on the insert button and select Lookup table from the bottom of the menu that opens



12. A new modal will appear, make sure the Look up entity option is selected at the top of the modal and then select your equipment schema from the Entity schema dropdown



Insert lookup table

[Look up entity](#) [Look up inventory](#)

Entity schema:

[Insert](#)

13. Click Insert
14. You will now see a table on your template page with only the first column showing and labelled



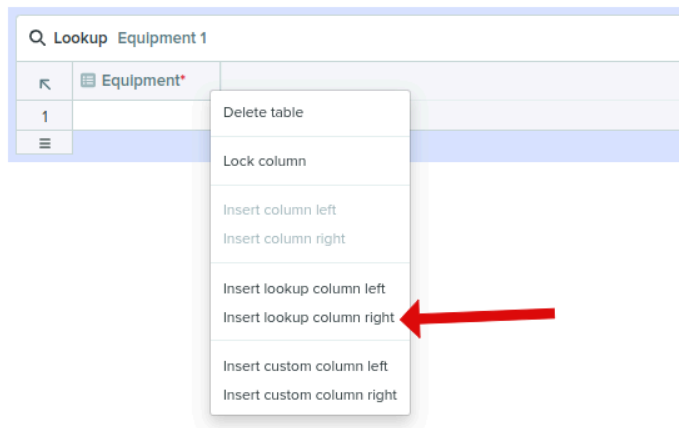
Q Lookup Equipment 1

	Equipment*
1	

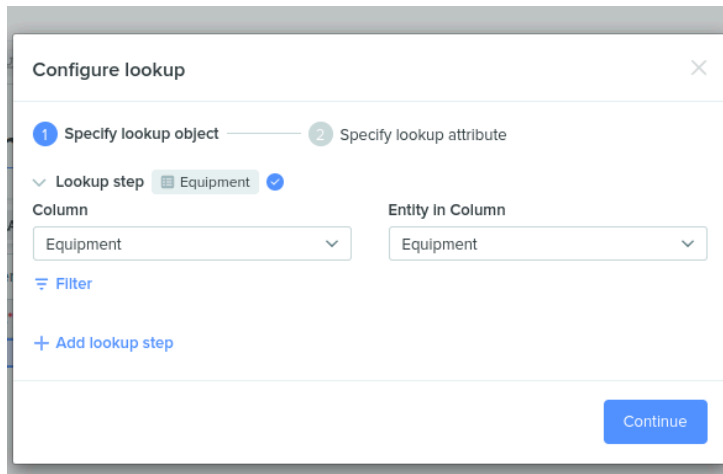
15. If you hover in the area next to the right side of the first column title a chevron will appear

Equipment table

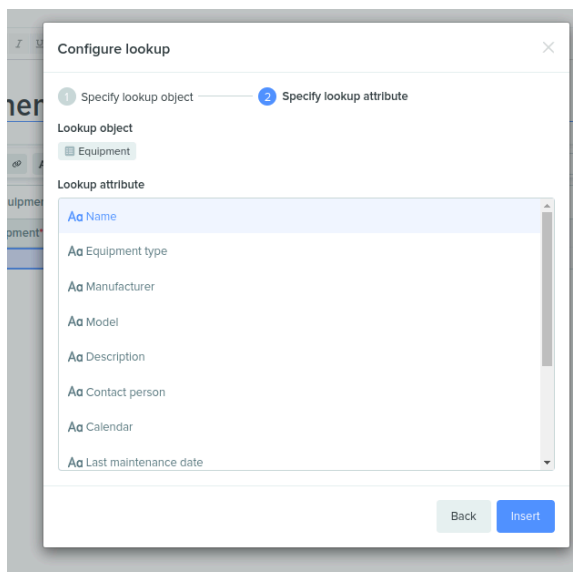
DAY 1



16. Click on the chevron and select 'Insert lookup column right'
17. A new modal will appear click on the continue button



18. This will open a table in the modal from the schema for you to select from, choose the next attribute you want to add to the table and click insert



19. Repeat steps 13–15 until you have all of the look-up columns you require in the table

Equipment table

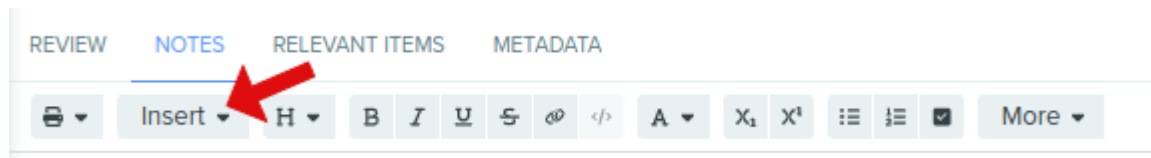
Q Lookup Equipment 1									
	Equipment*	Name	Equipment type	Manufacturer	Model	Description	Contact person	Last maintenance date	Calendar
1									

20. Your Sub-template is now complete.

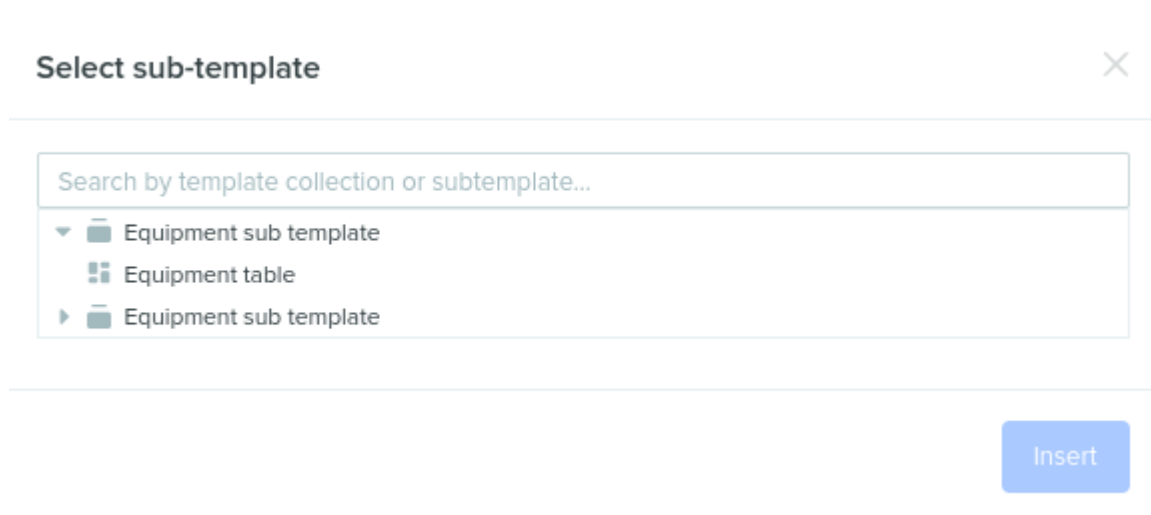
Using an Equipment sub-template with Calira data

If you have chosen to create an equipment table via the sub-templates, this can simply be added into any Notebook entry from the top navigation.

Select the Insert option from the top navigation of your Notebook entry and click on the [Sub-template option](#). This will open a modal from which you can search for and select the sub-template you want to use.



Select the template you want to insert into your notebook entry and click insert.



This will then add the sub-template into your Notebook .

In the equipment column, just start typing the name of the equipment you want to add to the table and a list will appear from which you can select the piece of equipment you need, and when selected all of the columns will be auto-populated with data from Calira:

Equipment table

EXP23000022
Source template

In progress

TUESDAY, 06/06/2023

Q Lookup Equipment 1 +									
	Equipment*	Name	Equipment type	Manufacturer	Model	Description	Contact person	Last maintenance date	Calendar
1	tissue processor (histology lab 1)	Tissue processor (histology lab 1)	processor	eppendorf	xcs 123	tissue processor		12/05/2022	reserve
2	Embedding studio (Kerrie's Research lab)	Embedding studio (Kerrie's Research lab)	Sample/Tissue Processing	Pelco	13000	-			https://staging.clustermarket.com/accounts/151/equipment/683
3	Rotary Microtome 1 (Kerrie's Research lab)	Rotary Microtome 1 (Kerrie's Research lab)	Sample/Tissue Processing	Bio-Rad Laboratories	CFX96	-			https://staging.clustermarket.com/accounts/151/equipment/684
4	Tissue flotation water bath 1 (Kerrie's Research lab)	Tissue flotation water bath 1 (Kerrie's Research lab)	Sample/Tissue Processing	Leica	LMD6	-			https://staging.clustermarket.com/accounts/151/equipment/685
5	Small slide warmer 1 (Kerrie's Research lab)	Small slide warmer 1 (Kerrie's Research lab)	Microscopy & Imaging	Illumina	MiSeq	-			https://staging.clustermarket.com/accounts/151/equipment/694
6	H&E staining machine (Kerrie's Research lab)	H&E staining machine (Kerrie's Research lab)	Sample/Tissue Processing	Leica	STELLARIS	-			https://staging.clustermarket.com/accounts/151/equipment/701
7	Confocal Microscope (Kerrie's Research lab)	Confocal Microscope (Kerrie's Research lab)	Microscopy & Imaging	Leica	STELLARIS	-			https://staging.clustermarket.com/accounts/151/equipment/680

If you click on the entry in the Equipment column the Registry entry for that piece of equipment will open.

If you click on the calendar link in the Calendar column for the equipment you will be redirected to the Calira site and the booking calendar for that piece of equipment.

The data for maintenance date and type will not change once added to the table unless you choose to refresh the table. You will know if something has changed in relation to the equipment data in a table because the row with changes will have a purple triangle in the corner which will inform you about the update when hovered over.

Booking from an equipment sub-template

When you create a equipment lookup table template, as long as you have added a lookup column for the calendar, then the booking calendar link will automatically populate in the table when you add the equipment name:

Q Lookup Equipment 1 +									
	Equipment*	Name	Equipment type	Manufacturer	Model	Description	Contact person	Last maintenance date	Calendar
1	tissue processor (histology lab 1)	Tissue processor (histology lab 1)	processor	eppendorf	xcs 123	tissue processor		12/05/2022	reserve
2	Embedding studio (Kerrie's Research lab)	Embedding studio (Kerrie's Research lab)	Sample/Tissue Processing	Pelco	13000	-	L		https://staging.clustermarket.com/accounts/151/equipment/683

Simply click on the link for the piece of equipment you wish to book and the booking calendar on the Calira platform will open for you to book (you may need to login to your Calira account first).

**If you do not have permission to use the equipment in the lab you have selected or certain equipment, you will not be able to use the booking calendar to reserve that equipment.*

Workflows

[See video walkthrough](#)

Workflow are a fantastic way to utilise the Calira app in Benchling, if you are building out an experiment workflow, you can add in any equipment you need for each step of the flow and access the Calira booking link for each piece of equipment that can be used to book the equipment directly on the Calira platform.

Creating a Workflow schema that includes Calira equipment data

To create an equipment Workflow task schema that you can use for your workflow, just follow the steps below.

1. Click on your profile in the bottom left navigation and select feature settings
2. Click on the task schema section under Workflow schemas
3. Click on the blue create button on the right side of the page
4. A page will open to enable you to create the Task schema, fill out the following detail at the top of the page:
 - a. Task group prefix
 - b. Name
 - c. ID prefix

RESULT SCHEMAS

Result schemas

WORKFLOW SCHEMAS

Task schemas

DEVELOPER CONSOLE

Apps

Events

- d. You will need to choose which folders you want the workflow to be available in and any instructions you want to add

Workflow task definition

1 Task

Task group prefix*

Name*

Owner*

ID prefix*

Execution type*

Status lifecycle*

Execution template*

Default task group folder

Default execution entry folder

Responsible team

Assignee ☒ Can set assignee on task creation

Flowchart only ☐ Can only be used as part of a flowchart

Instructions

Task fields +	Required	Multi-select	Definition
This schema does not have any task fields			

2 Output

ID prefix*

Output fields +	Required	Multi-select	Definition
This schema does not have any output fields			

Output → task lookup

[Remove output schema](#)
Output schema cannot be removed after the task schema is created.

- e. In the task field, if you want to include equipment data for a task step
- f. Add the total number of equipment fields you may need for a task (for example, if you are processing a tissue sample to prep it for taking sections, you will need both a tissue processor and an embedding centre).
5. When you add the task field, give it a name and define if it is a required field, then in the definition column, click on the dropdown, then select Entity, and then select your Equipment Schema

Instructions

None

Task fields +	Required	Multi-select	Definition
Name			Aa Text
Equipment required 1			Equipment
Equipment required 2			Equipment

Insert a field

Search

- Aa Text >
- # Number >
- Date >
- Attachment
- Entity >
- Inventory >
- Computed field (snapshot)

6. Once you have added any other fields you want in your workflow, click on the create button.
7. This is now ready to use as a template.


For any additional information, help and support, please check the Benchling documentation here: [Configuring workflow execution templates](#)

How to use a workflow with Calira equipment data


Once you have created your [Workflow task schema](#), it is easy to use wherever you can create new content.

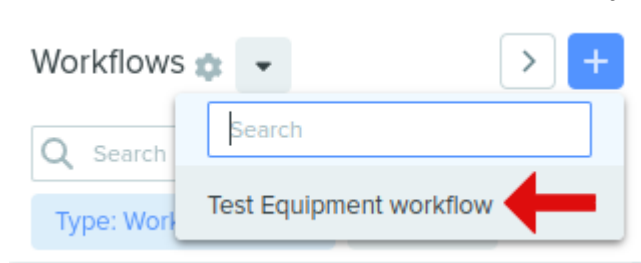
In the main left navigation, you can create a new Workflow using the schema by clicking on the plus symbol or Workflow symbol.



If you click on the  symbol, then you will need to hover over the Workflows section of the list that appears and then select the schema you created.



If you click on the Workflow symbol  then you will need to click on the + symbol at the top of the column that opens and select your Workflow template from there:

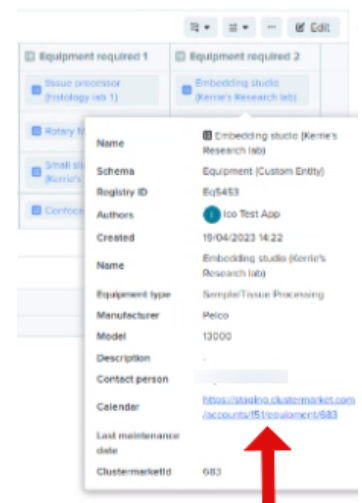


For any additional information, help and support, please check the Benchling documentation here: [Workflows](#)

Booking equipment from a Workflow

If you have created a Workflow schema that utilises your Calira equipment data, then you can also easily book that equipment on the Calira site via the Workflow task table.





Simply click on the link for the equipment in the Workflow task table, and then click on the Calira calendar link that shows in the pop up that appears. This will open the Calira site at the equipment booking calendar, so you can make your booking.



Creating a workflow from a lookup table

If you have created a Lookup table with a list of equipment that you want to use for a workflow it is very simple to do this. Find the equipment table you want to use, and then click on the Create workflow tasks in the top right of the table:

Q Lookup Equipment 2 +

Equipment*	Name	Equipment type	Manufacturer	Model	Description	Contact person	Last maintenance date	Calendar
------------	------	----------------	--------------	-------	-------------	----------------	-----------------------	----------

Select the workflow schema you have created that includes equipment data from the dropdown list.

This will open a create task group modal as shown on the next page.

Create task group: Test Equipment workflow

Folder

Project A

Watchers

Kerrie Lapworth X

Set watchers

Instructions

None

Tasks

Table

Form

Tasks Test Equipment workflow +

	Assignee	Name	Equipment required 1	Equipment required 2	
1	Unassigned		Test Equipment-901 (Equipment_ben)		
2	Unassigned		Tissue processor 1 (left) (Kerrie's Research lab)		
3	Unassigned		Embedding studio (Kerrie's Research lab)		
4	Unassigned		Rotary Microtome 5 (Kerrie's Research lab)		
5	Unassigned		Tissue flotation water bath 5 (Kerrie's Research lab)		

Outputs Test Equipment workflow

	Results	
1	--	

Create

Confirm the workflow has everything you need and click create. This will then open the workflow task group page for you to action.

To book equipment from the workflow on the Calira platform, just hover over the relevant equipment entry, which will then display the entity record for the equipment

including the Calira booking calendar link, which you can just hover over and click on to book that piece of equipment.

Worklists

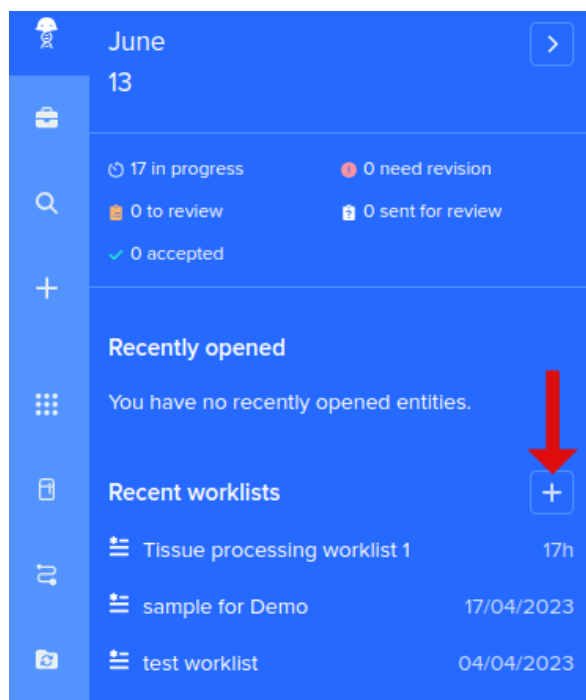
Equipment data can also be used to create Worklists, which you can then use to populate tables, and which can be shared with other users on your tenancy. So if, for example, you often use the same series of equipment for an experiment, you can create a Worklist of these pieces of equipment and quickly add them to a Workflow task table or Notebook table.

There are a few ways you can create a Worklist:

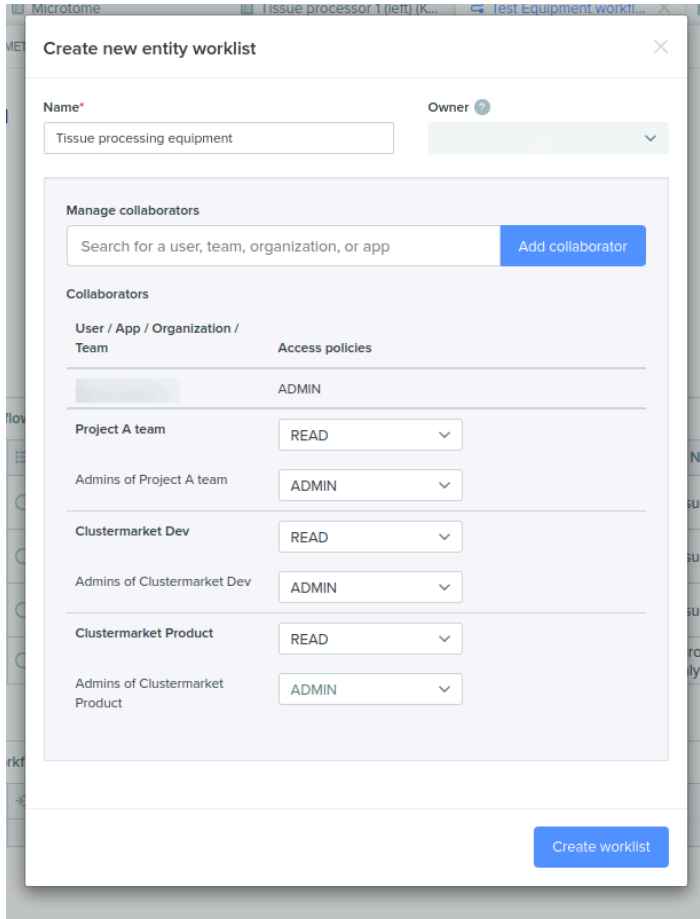
Creating a worklist from the homepage

[See video walkthrough](#)

To create a Worklist from the homepage screen, click on the Benchling icon at the top left of the page, this will open the blue daily navigation bar, then click on the + button next to the Recent worklists section of the navigation.



From the list that shows, select **Create entity worklist** and a modal will open for you to name the Worklist and give the various permissions you want to that Worklist.



Create new entity worklist

Name* Owner ▼

Manage collaborators

Add collaborator

Collaborators

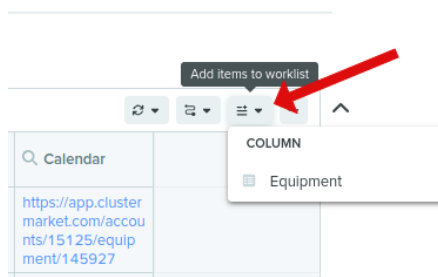
User / App / Organization / Team	Access policies
	ADMIN
Project A team	READ
Admins of Project A team	ADMIN
Clustermarket Dev	READ
Admins of Clustermarket Dev	ADMIN
Clustermarket Product	READ
Admins of Clustermarket Product	ADMIN

Create worklist

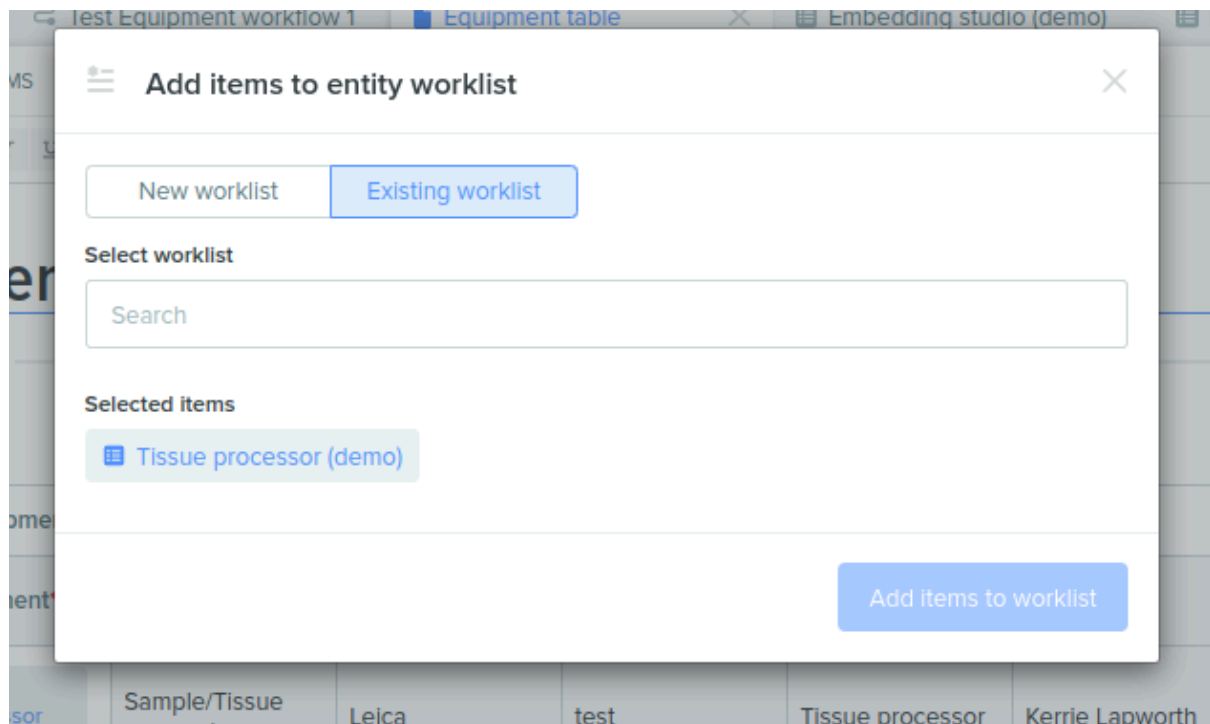
Once you have given your Worklist a name and set all the permissions for it, click on the Create worklist button, and the Worklist will have been created (see below for adding equipment to the Worklist)

Creating or adding to a Worklist from a table or a Workflow

You can create or add to a Worklist from any table in a Notebook or Workflow very simply. When you have populated your table or Workflow, in the top left of the table you will see several icons, Click on the icon that looks like a list and select Equipment from the column option from the dropdown:




This will open a new modal window from which you can create a New worklist or select to add to an Existing worklist you have created.

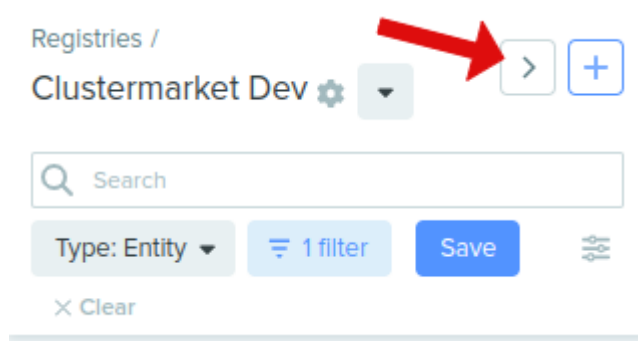


Simply select a Worklist you have already created or create a new Worklist and the items in the equipment table or Workflow table will be added to the Worklist and can be used to populate future tables and Workflows saving you time and effort.

Adding equipment entities to a Worklist from the Registry

To add equipment data to a Worklist from the Registry, select the Registry from the left

navigation  and extend the column that opens using the chevron at the top.



This will extend the search area and display more details about your Entities and provide you with some additional functions. Select the equipment you want to add to the Worklist by clicking in the tick boxes to the left of the equipment IDs, then click on the Worklist icon as shown in the image below:

Registries / Clustermarket Dev Saved Searches

Search Type: Entity 1 filter Save Clear

< > 14 of 6 items

ID	Name	Inventory	Aliases	Modified	Authors	Validation Errors	Name	Equipment ty...	Manufacturer
<input checked="" type="checkbox"/> Eqs459	Microtome (demo)	No inventory availa...		13/06/2023			Rotary microtome	Equipment	Leica
<input checked="" type="checkbox"/> Eqs458	Embedding studio (d	No inventory availa...		13/06/2023			Embedding studio	Equipment	leica
<input checked="" type="checkbox"/> Eqs457	Tissue processor (de	No inventory availa...		13/06/2023			Tissue processor	Sample/Tissue pro...	Leica
<input type="checkbox"/> Eqs454	Test Equipment Benc	No inventory availa...		25/04/2023	Clustermarket Boo...		Test Equipment Be...	Other	Test Manufacturer
<input type="checkbox"/> Eqs455	3D printer Benchling	No inventory availa...		25/04/2023	Clustermarket Boo...		3D printer Benchl...	3D Printer	Anycubic

When the Worklist modal opens, select if you want to create a New worklist or add it to an existing one, then save your choices.

Test Equipment workflow 1 Equipment table Embedding studio (demo)

MS

er

ome

ent

sor

Sample/Tissue

Leica

test

Tissue processor

Kerrie Lapworth

Add items to entity worklist

Select worklist

Search

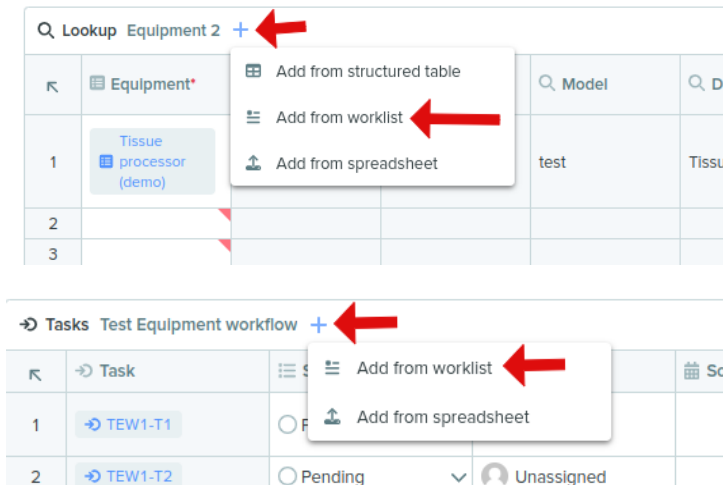
Selected items

☒ Tissue processor (demo)

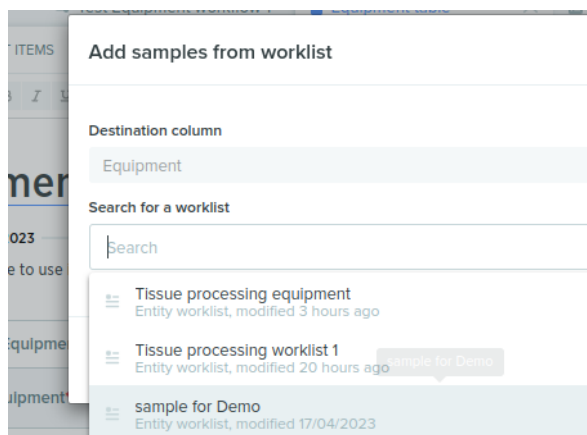
Populating a table or Workflow from a Worklist

Once you have created a Worklist, it is very easy to use it to populate a table or Workflow.

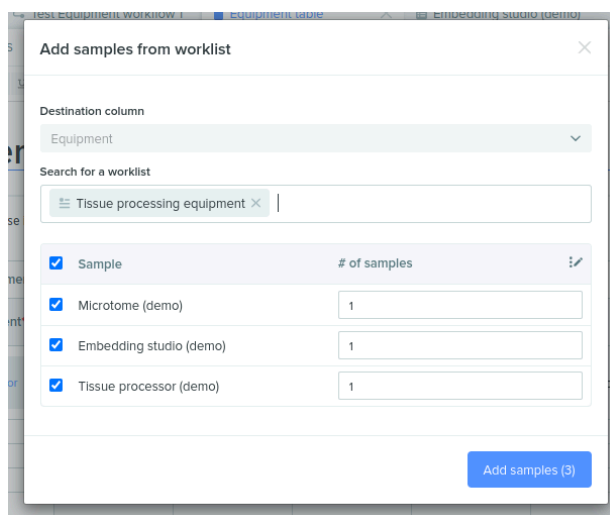
In a Notebook, add the equipment Sub-template to your Notebook, in a Workflow task table select to edit the task table and then select the + symbol next to the table title, this will open a dropdown list from which you select **Add from a worklist**



This will trigger a modal to open from which you can select the Worklist you want to use to populate the table



Select the number of each of the pieces of equipment you want to add to the table and then click on the add samples button



These pieces of equipment will now be added to your table with all of the related data.

For any additional information, help and support, please check the Benchling documentation here: [Worklists](#)

Booking Permissions

All permissions for accessing and booking equipment continue to be managed via the Calira site, so even if one of your team accesses and references equipment in the Benchling platform, they will not be able to access or book it unless they have been given permission to do so.