

How to set up the Clustermarket – Benchling integration.

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Clustermarket – Benchling integration overview

We have developed an app in partnership with Benchling that will allow you and your team to surface your Clustermarket equipment data with a Clustermarket booking calendar link in the Benchling platform. Utilising the powerful entity-linking functionality on the Benchling platform you will be able to link equipment directly to Results or other entities created in Benchling. Similarly, you can add equipment entity links directly to Workflows. You can also reference equipment in your notebook text entries simply by typing “@” followed by the equipment name.

Our app will allow you to:

- Select what equipment data to share from which labs in your organisation
- Utilise Clustermarket as your source of truth for equipment and bookings in the Benchling platform
- Access equipment booking calendars directly from your Benchling Notebook, Registry, or Workflows
- Create Subtemplates containing relevant equipment Lookup tables to easily generate or add into notebook entries across the Benchling tenant that can then be converted into Workflow entries
- Reference equipment in your notebook text entry using the @-mentioning capabilities
- Add equipment to Workflows and structured tables
- Generate workflow tasks from equipment tables
- Automatically sync equipment data to Benchling from Clustermarket when adding, editing or deleting equipment on the Clustermarket platform

Getting started

To install this integration you will require the following:

- Please ask the Benchling customer support team [support@benchling.com] to enable the features for the Clustermarket app.
 - Benchling apps
 - Global apps
 - App interactivity
 - Developer console
- You will need a Clustermarket Enterprise account and licences to Benchling's Notebook and Registry, plus any additional features you'd like to utilise with the equipment (ex. Workflows)
- You must be a Benchling Tenant Admin and a Clustermarket Admin to set up the integration
- You must have Admin access to your Benchling Registry

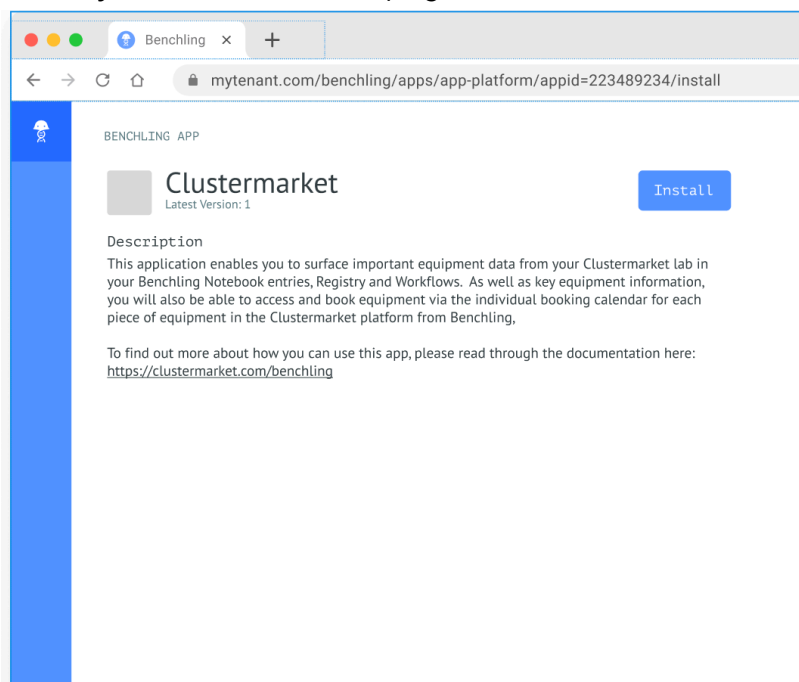
Accessing the app and setting it up on my Benchling Tenant

The app is available for you here:

https://<tenant_subdomain>.benchling.com/app-catalog/apps/appdef_H3rsZ4ndbM/install

***you will need to replace <tenant_subdomain> with your own Benchling domain details.**

1. Make sure you have spoken to the Benchling Customer Services team and have the following Features turned on for your tenant.
 - a. Benchling apps
 - b. Global apps
 - c. App interactivity
 - d. Developer console
2. If you copy the link above and add in your tenant subdomain then paste this into your browser, when you hit return you will be asked to log into your Benchling tenant you will be taken to a page that looks like this:



3. If you reach a 404 error page when trying to access the app, please check the following:
 - a. Ensure you are logged in as the Tenant Admin
 - b. Ensure the developer console is enabled

- i. Navigate to your profile icon at the bottom of the screen



- ii. Click on Tenant admin console
- iii. Click on the three dots at the end of the organisation listing you want to enable the app for



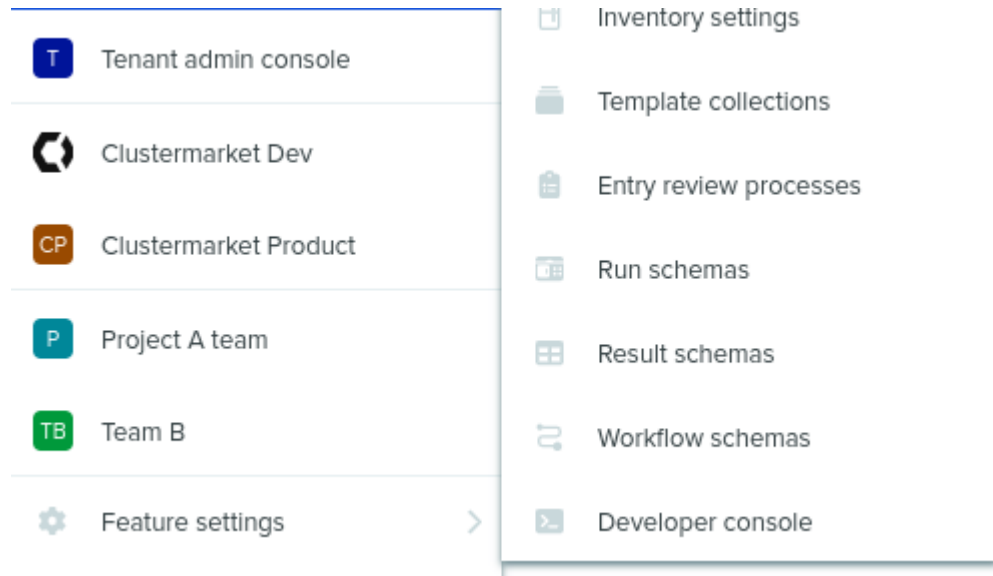
- iv. Click on Manage application access

Manage application access

- v. Enable access rights for the Developer platform

Results	Full
Inventory	Full
Lab Automation	Full
Insights	Full
Developer Platform	Full

- vi. Click save
- vii. Refresh the page and click on your profile icon again
- viii. Hover on feature settings, you should now see the Developer Console in your feature settings listing



ix. Try step 2 again

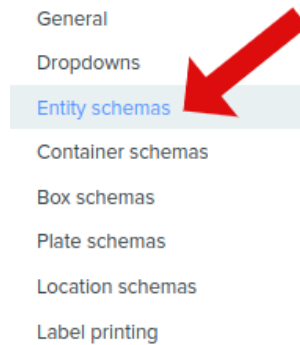
4. Click on the install button at the top right of the page and our app will be installed on your tenant. Next, you will need to set up the schema that will allow the equipment data from Clustermarket to be correctly mapped to the Entity fields in the registry, the details for how to do this are outlined on the next page.

Creating an equipment schema

[See video walkthrough](#)

Once you have the app installed on your tenant you will need to set up the schema for the app.

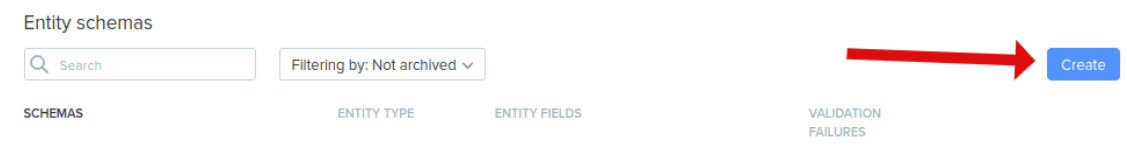
1. Click on your account logo in the bottom left side of the navigation bar
2. Click on feature settings
3. Select entity schemas



INVENTORY SETTINGS

- General
- Label printing

4. If you have the correct permissions on your tenancy you should now see a create button on the top right corner of the page



5. Click on the create button and work through the following steps:
 - a. Give your schema the prefix: **EQ**
 - b. In the Name section please add: **Equipment**
 - c. In the Entity type section select: **Custom Entity** from the dropdown list
 - d. Do not add any constraints
 - e. Add the following 8 Entity fields (Click the blue + button in the table next to the Entity fields title)
 - i. Name
 - ii. Equipment type
 - iii. Manufacturer
 - iv. Model
 - v. Description
 - vi. Contact person
 - vii. Last maintenance date
 - viii. Calendar
 - f. Mark all of the fields as required and leave all other sections on the table as they are
 - g. In the Containable type dropdown select: **None**
 - h. Available registration Naming options: **Leave the first 3 boxes ticked**

Your schema should now look like the image below:

Prefix* ⓘ

Eq

☐ Use Registry ID as display label

☐ Include Registry ID in chips

[Example](#) [Example ID](#)

Name*

Equipment

Name template ⓘ

[Set name template](#)

Entity type* ⓘ

Custom Entity ▼

Constraint +

This schema does not have a constraint

Entity fields +	Required	Multi-select	Parent link	Definition
Name	✓			Aa Text
Equipment type	✓			Aa Text
Manufacturer	✓			Aa Text
Model	✓			Aa Text
Description	✓			Aa Text
Contact person	✓			Aa Text
Calendar	✓			Aa Text
Last maintenance date	✓			Aa Text
Show archived fields (1)				

Containable Type* ⓘ

None ▼

- Available Registration Naming Options* ⓘ
- ☒ Generate new registry IDs
 - ☒ Generate registry IDs based on entity names
 - ☒ Generate new registry IDs and replace name with registry ID
 - ☐ Generate new registry IDs, rename according to name template, and keep old name as alias
 - ☐ Generate new registry IDs, and replace name according to name template

- Click on the next button and ensure you add the Clustermarket equipment data and scheduling app to the Access policies of the schema as an Admin - if this is not done then the connection will fail. You can find the app by searching for it in the Manage collaborators box at the top of the page.
- Then select the users, teams, organisations you want to be able to access the equipment data and set their access policies for the data.

Entity Schemas /
Live Equipment data

ENTITY SETTINGS **ACCESS POLICIES** RELEVANT TEMPLATES VALIDATION FAILURES

Manage collaborators

All users can view objects of schemas by default. Granting additional access policies will control where schemas are listed in the product, who can create and edit schema objects, and who can manage schema access. [Learn more](#)

Collaborators

User / App / Organization / Team	Access policies
Clustermarket Dev	CREATE
Admins of Clustermarket Dev	ADMIN
Clustermarket equipment data & scheduling	ADMIN
	ADMIN

Update Collaborators

Registering Entities

Users with the Create or Admin Access Policy can register objects of this schema. The registered objects of this schema will have permissions that are Registry-based.

8. Click create
9. Navigate back to the feature settings menu and click on the General link at the top of the page which will show you a permissions list. The app needs to be added to this list.
10. Check to see if the Clustermarket equipment data & scheduling app is listed

General settings



Permissions

Manage collaborators

Collaborators


User / App / Organization / Team	Access policies
Members of Clustermarket Dev	WRITE
Bug_fix.testapp	ADMIN
Clustermarket equipment data & scheduling	ADMIN
Histo test v.2	READ
Project A team	READ
Admins of Project A team	READ
StagingVesL_org.testapp	ADMIN
Staging.midnightjob.testapp	ADMIN
Benchling Support	ADMIN
Francisco Ralo	ADMIN
Kerrie Lapworth	ADMIN

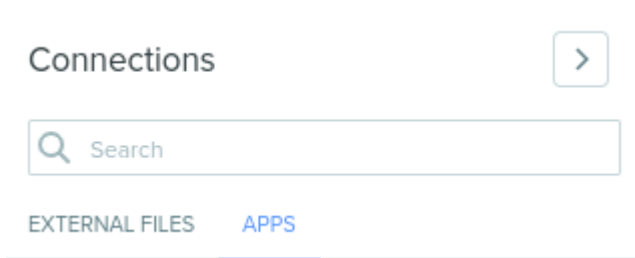
Update collaborators

11. If not, please search for it in the manage collaborations search box at the top of the page and give the app Admin rights

Adding the equipment schema to the Clustermarket app

Now you have created your equipment schema you will need to add this to the app configuration.

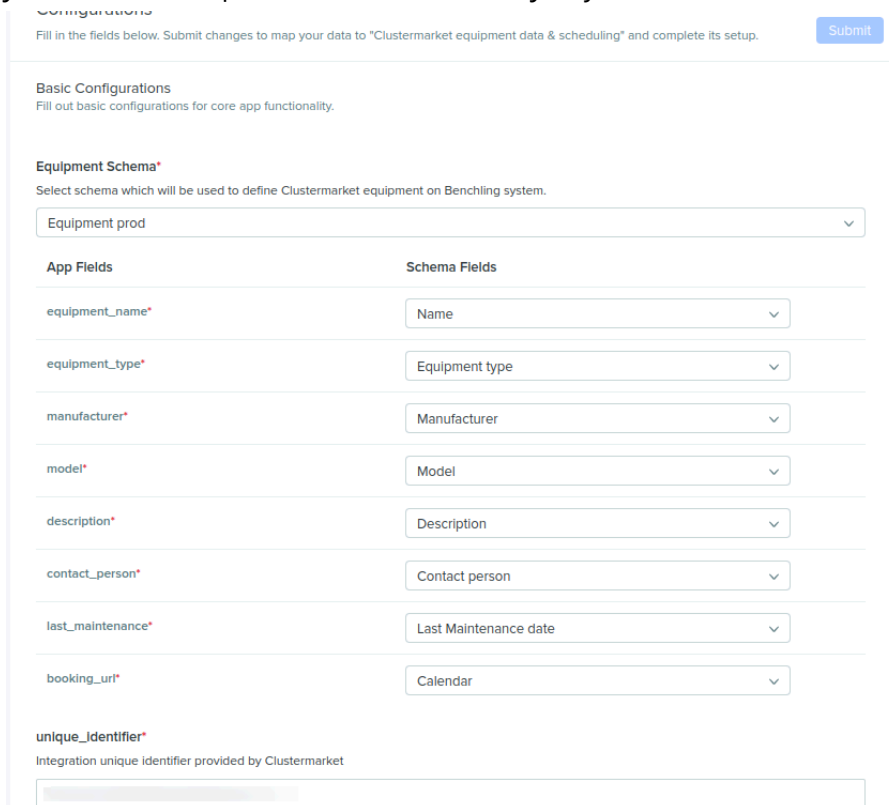
1. Select the Connections button  from the left navigation menu
2. Then click on the APPS link under the search box. If the Clustermarket app is not listed, just search for it via the search box



3. Click on the Clustermarket equipment data and scheduling app
4. Click on the configuration tab in the top navigation



5. In the Equipment schema dropdown select the Equipment schema you have just created, this will pull in the App fields we send over from Clustermarket, which you can now map to the schema fields you just created



Equipment Schema*

Select schema which will be used to define Clustermarket equipment on Benchling system.

Equipment prod

App Fields	Schema Fields
equipment_name*	Name
equipment_type*	Equipment type
manufacturer*	Manufacturer
model*	Model
description*	Description
contact_person*	Contact person
last_maintenance*	Last Maintenance date
booking_uri*	Calendar

unique_identifier*

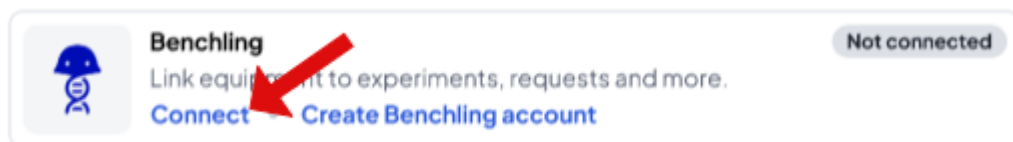
Integration unique identifier provided by Clustermarket

6. You will see an empty field at the bottom of the page called Unique_identifier, to get this information you will need to open a new tab and navigate to the Clustermarket site.

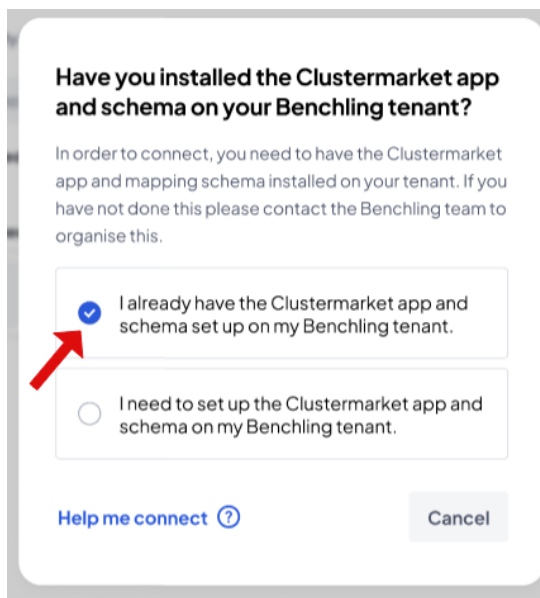
Linking your Clustermarket equipment data to your Benchling tenant

To complete the set-up of the Clustermarket app and send your equipment data over to your Benchling tenant, you now need to log in to your Clustermarket site:

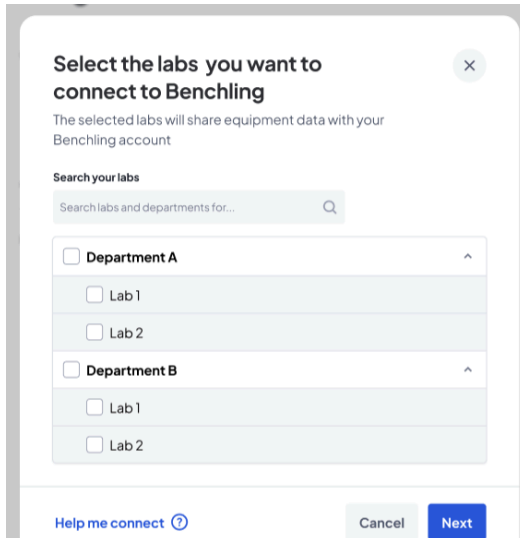
1. Navigate to the integration section of your Clustermarket lab/Organisation
2. Select the Benchling integration from the list
3. Click on the connect button



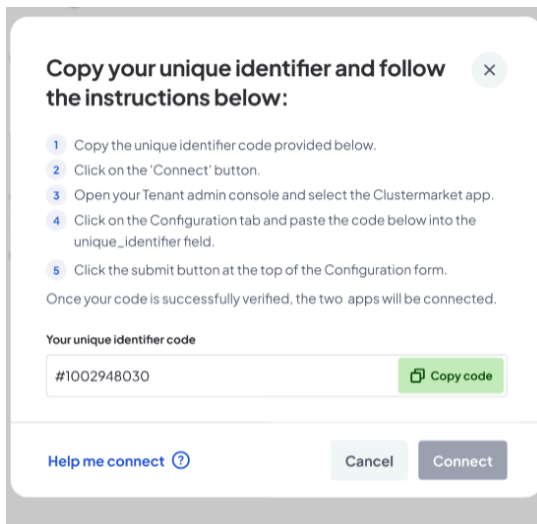
4. Select the 'I already have the Clustermarket app and schema set up' option in the modal



5. Select which of your labs you want to share equipment data from



6. Click Next
7. You will now see a modal with a unique identifier code



8. Copy to code and go back to your Benchling tenancy (or click on the connect button to log in to Benchling)
9. Open the app configuration page again and paste the code you have just copied on the Clustermarket site into the unique_Identifier section of the page

Configurations
Fill in the fields below. Submit changes to map your data to "Clustermarket Bookit Development" and complete its setup. [Submit](#)

Basic Configurations
Fill out basic configurations for core app functionality.

Equipment Schema*
Select schema which will be used to define Clustermarket equipment on Benchling system.

Equipment

App Fields	Schema Fields
equipment_name*	Name
equipment_type*	Equipment type
manufacturer*	Manufacturer
model*	Model
description*	Description
contact_person*	Contact person
booking_url*	Calendar

unique_identifier*
Integration unique identifier provided by Clustermarket

MTE3LjEwNyMyMDIzLTA0LT01DE2OjA3OjxjFVUGw== ←

10. Click on the submit button at the top of the page.
11. Now click on the General tab at the top of the page and then click the Activate button on the right side of the page
12. Navigate back to the Clustermarket site and click Connect

This has now triggered an automated flow that will send the equipment data from the labs you selected on Clustermarket over to your Benchling tenancy and create each piece of equipment as an Entity in your registry.

Ways to use the Clustermarket - Benchling integration

In this first version of our Clustermarket 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 Clustermarket platform.

As well as key equipment information, you will also be able to access and book each piece of equipment via the Clustermarket 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 Clustermarket 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](#)

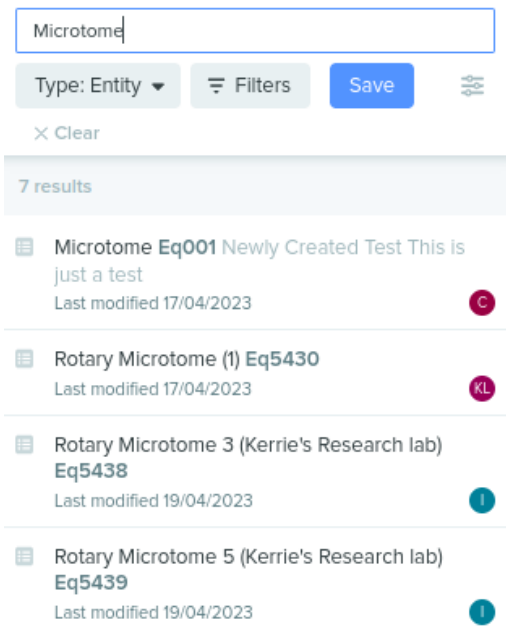
Registry

[See video walkthrough](#)

Once you have set up and installed the Clustermarket 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 Clustermarket 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*



Microtome

Type: Entity Filters Save

× Clear

7 results

- Microtome Eq001 Newly Created Test This is just a test
Last modified 17/04/2023
- Rotary Microtome (1) Eq5430
Last modified 17/04/2023
- Rotary Microtome 3 (Kerrie's Research lab) Eq5438
Last modified 19/04/2023
- Rotary Microtome 5 (Kerrie's Research lab) Eq5439
Last modified 19/04/2023

**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

Ico Test App

Registry ID

Eq5438
Clustermarket Dev

Location

Registry

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/151/equipment/687>

Last maintenance date

Custom Field

FIELD

VALUE

Clustermarketid

687

RELEVANT ITEMS

DESCRIPTION

RESULTS

INVENTORY

Share

All

Search

< > 1-2 of 2 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

Registry ID

Eq001

Clustermarket Dev

Project location

Kerrie's test project

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/equipment/115447
Last maintenance date	

Custom Field

FIELD	VALUE
Clustermarket ID	115447

RELEVANT ITEMS

DESCRIPTION

RESULTS

INVENTORY

All

Search

< > 1-4 of 4 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 Clustermarket 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 Clustermarket app to surface equipment data, and easily book equipment in Clustermarket via a Notebook entry, these include text entries, workflow references, and sub-template Lookup tables.

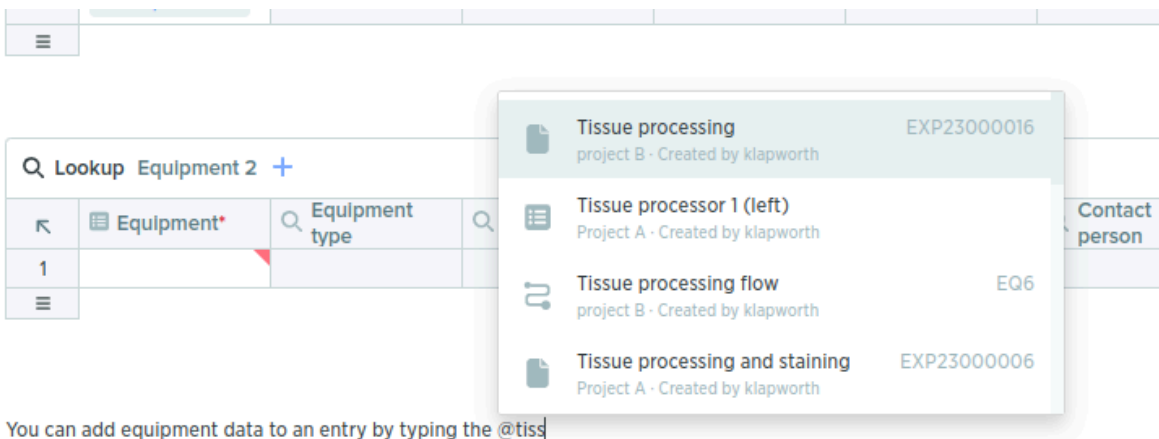
Maintenance and calibration data

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 Clustermarket, 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 Clustermarket 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:



The screenshot shows a table with a dropdown menu open. The dropdown menu lists several equipment items:

- Tissue processing (EXP23000016)
- Tissue processor 1 (left) (Project A - Created by klapworth)
- Tissue processing flow (EQ6)
- Tissue processing and staining (EXP23000006)

Below the dropdown menu, there is a text input field with the text: "You can add equipment data to an entry by typing the @tiss".

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 Clustermarket. 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 \(Kerrie's Research lab\)](#)

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

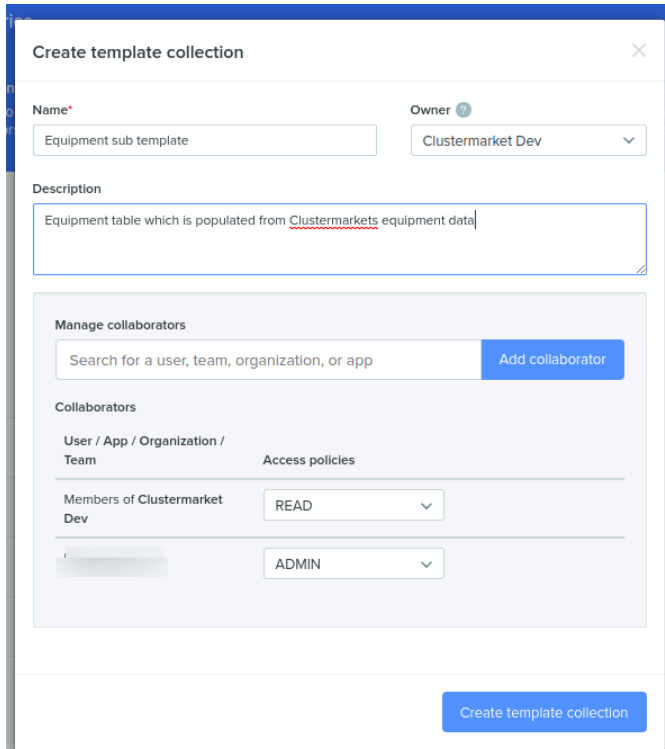
3. If you already have a collection that would be suitable to add an equipment table Sub-template too, please feel free to use that, otherwise create a collection for the Sub-template by clicking on the Create template collection button on the right side of the page

My collections

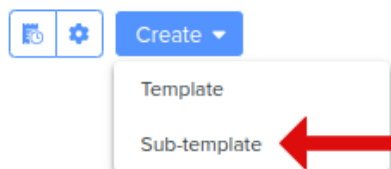
<< < > >> 1-4 of 4 template collections

 [Create collection](#)

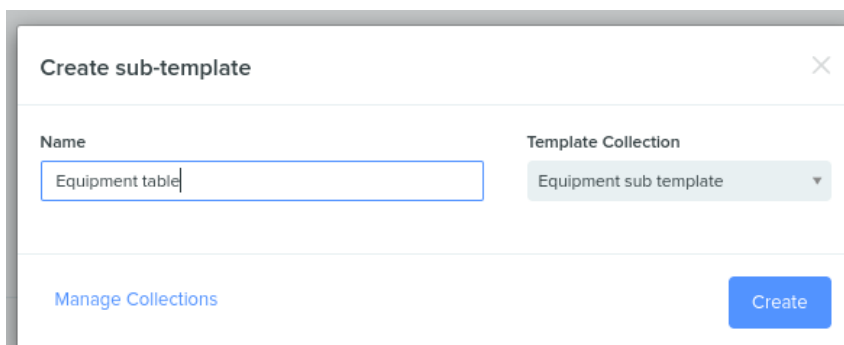
4. The Create template collection modal will open



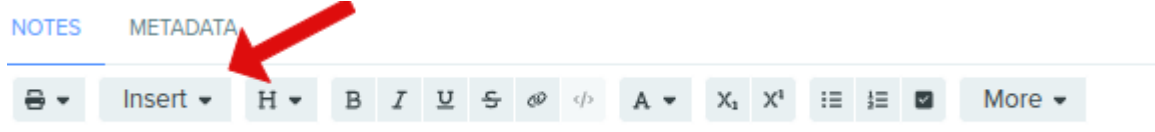
5. Name the collection and provide a description of what type of templates will be in the collection
6. Now select the people/organisations and projects you want to be able to use the template
7. Click on the Create button and your collection page will open
8. Now click on the create dropdown button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



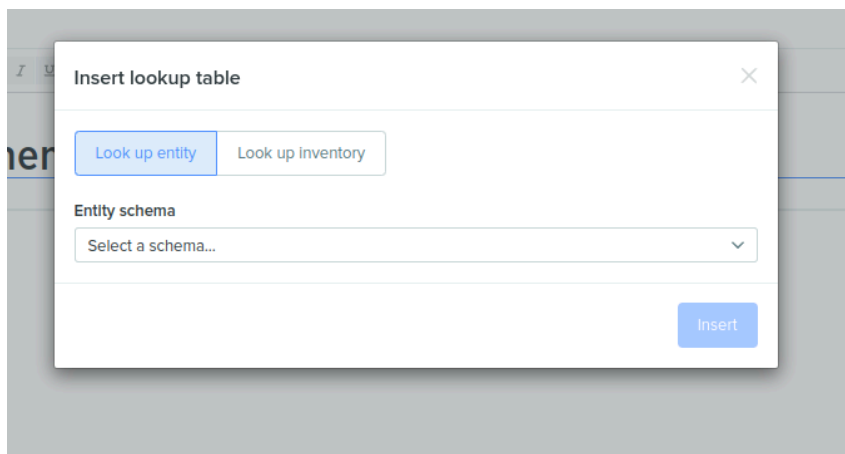
9. In the modal that opens give the Sub-template a name and click on the create button



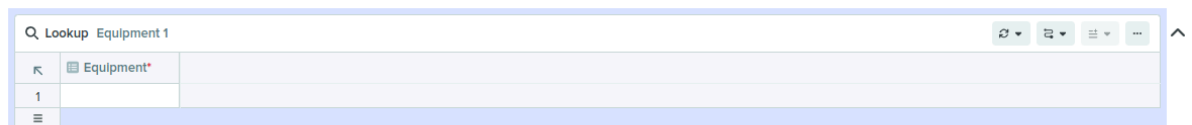
10. This will open a template page titled Equipment table
11. From the menu at the top of the page click on the insert button and select Lookup table from the bottom of the menu that opens



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



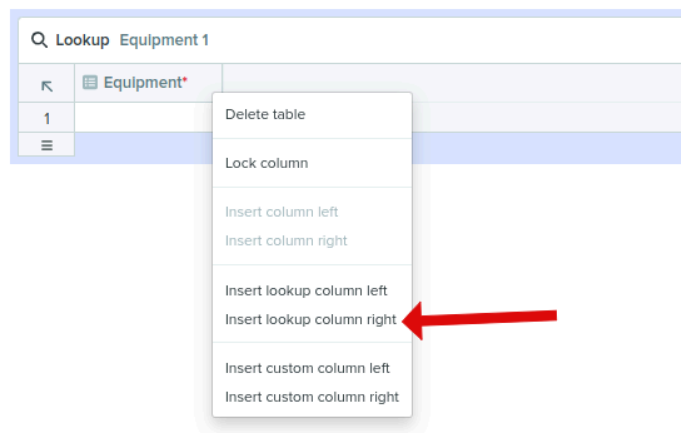
13. Click Insert
14. You will now see a table on your template page with only the first column showing and labelled



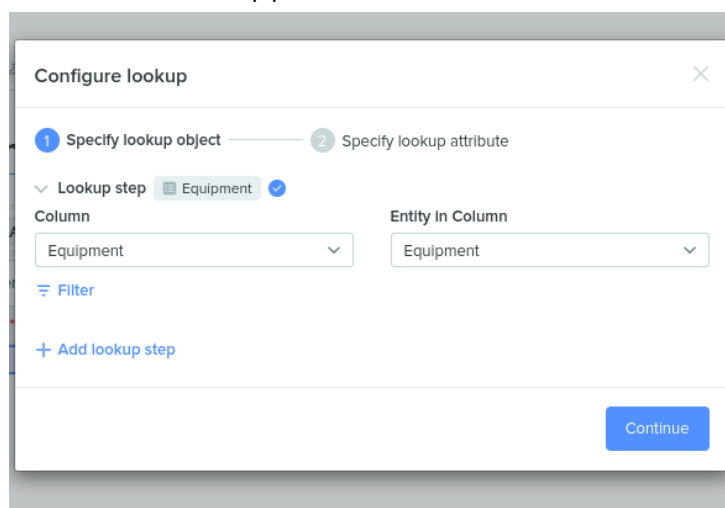
15. If you hover in the area next to the right side of the first column title a chevron will appear

Equipment table

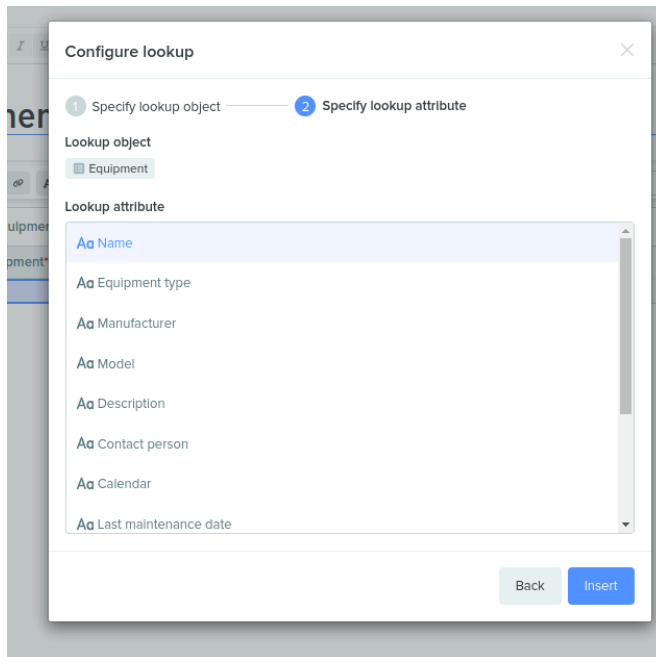
DAY 1



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

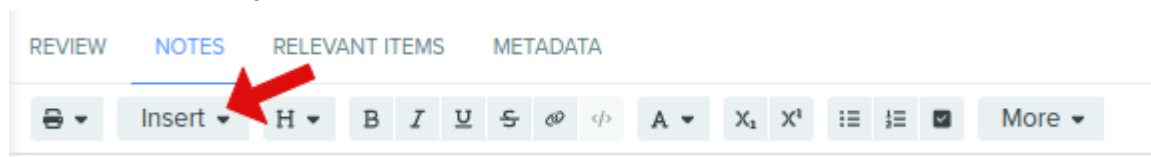
Q Lookup Equipment 1									
	Equipment*	Name	Equipment type	Manufacturer	Model	Description	Contact person	Last maintenance date	Calendar
1									

20. Your Sub-template is now complete.

Using an Equipment sub-template with Clustermarket 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.

Select sub-template



Search by template collection or subtemplate...

- ▼  Equipment sub template
-  Equipment table
- ▶  Equipment sub template


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 Clustermarket:

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 Clustermarket 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 Clustermarket platform will open for you to book (you may need to login to your Clustermarket 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

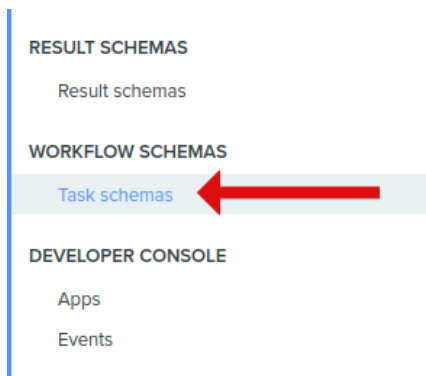
[See video walkthrough](#)

Workflow are a fantastic way to utilise the Clustermarket 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 Clustermarket booking link for each piece of equipment that can be used to book the equipment directly on the Clustermarket platform.

Creating a Workflow schema that includes Clustermarket 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
 - d. You will need to choose which folders you want the workflow to be available in and any instructions you want to add

Create task schema

1 Task

Task group prefix*

Name*

Owner*

Clustermarket Dev

ID prefix*

T

Execution type*

Entry

Status lifecycle*

Entry

Execution template*

Configure

Default task group folder

Choose Folder

Default execution entry folder

Choose Folder

Responsible team

Search for 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*

O

Output fields +

Required

Multi-select

Definition

This schema does not have any output fields

Output → task lookup

Configure the lookup after the task schema is created.

Remove output schema

Output schema cannot be removed after the task schema is created.

Create

- 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

☐

☐

Aa Text

Search

Aa Text

Number

Date

Attachment

Entry

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 Clustermarket equipment data


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

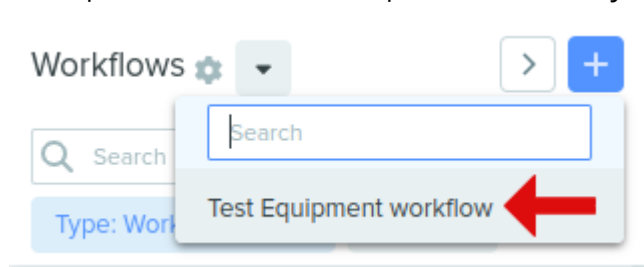
In the main left navigation, you can create a new Workflow using the schema by clicking on the plus symbol or Workflow symbol.



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:

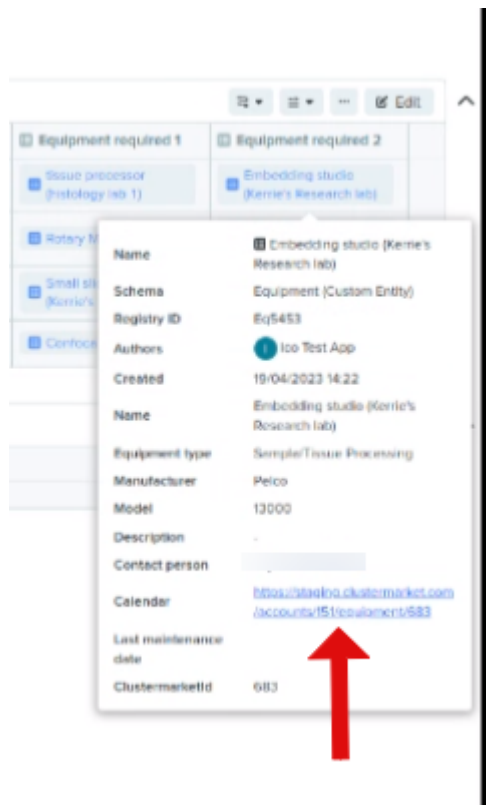


For any additional information, help and support, please check the Benchling documentation here: [Workflows](#)

Booking equipment from a Workflow

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

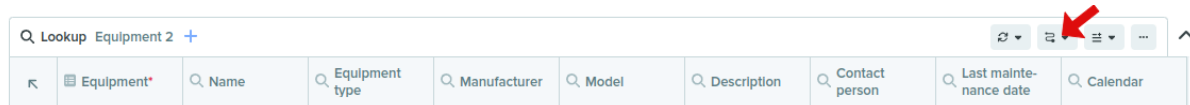
Simply click on the link for the equipment in the Workflow task table, and then click on the Clustermarket calendar link that shows in the pop up that appears:



This will open the Clustermarket 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:



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	Aq 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		
	Aq 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 Clustermarket platform, just hover over the relevant equipment entry, which will then display the entity record for the equipment including the Clustermarket 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

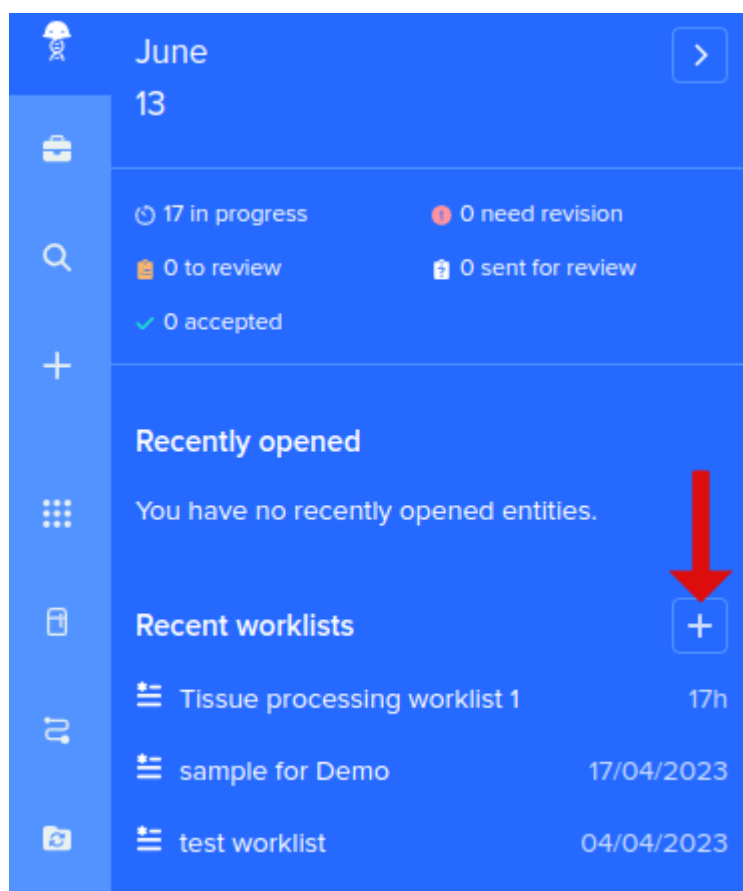
a Worklist of these pieces of equipment and quickly add them to a Workflow task table or Notebook table.

There are a few ways you can create a Worklist:

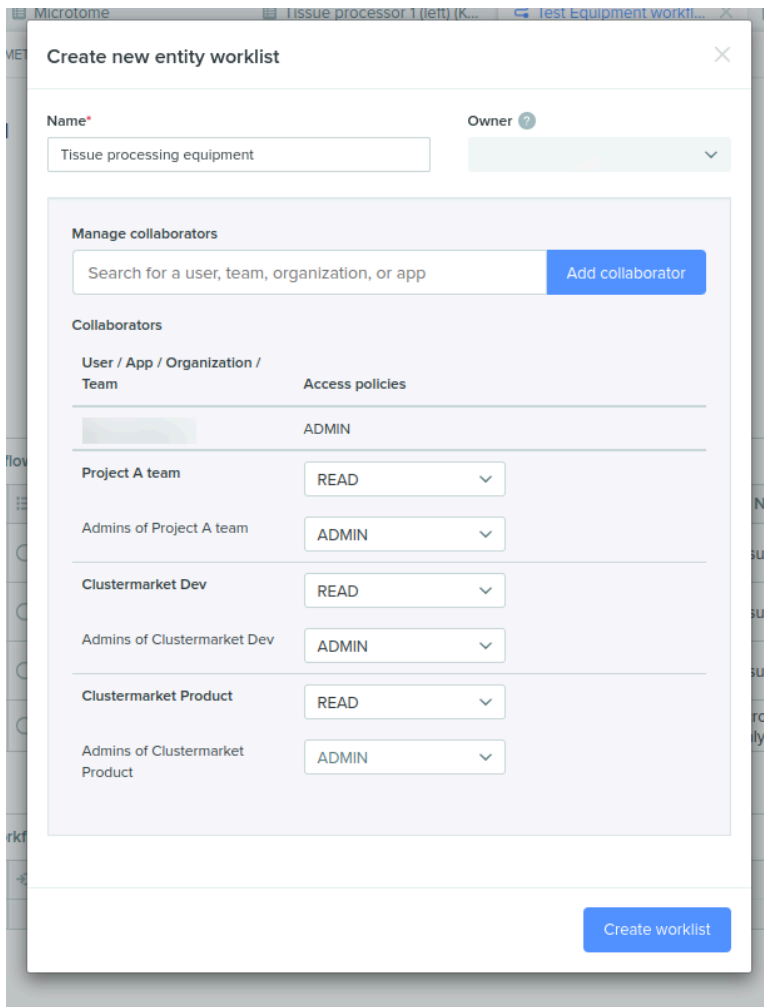
Creating a worklist from the homepage

[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.



Microtome | Tissue processor 1 (lett) (K... | Test Equipment workli...

Create new entity worklist

Name* Owner ▼

Manage collaborators

Add collaborator

Collaborators

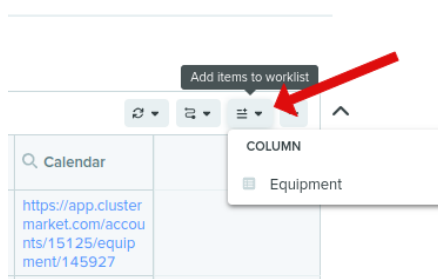
User / App / Organization / Team	Access policies
	ADMIN
Project A team	READ ▼
Admins of Project A team	ADMIN ▼
Clustermarket Dev	READ ▼
Admins of Clustermarket Dev	ADMIN ▼
Clustermarket Product	READ ▼
Admins of Clustermarket Product	ADMIN ▼

Create worklist

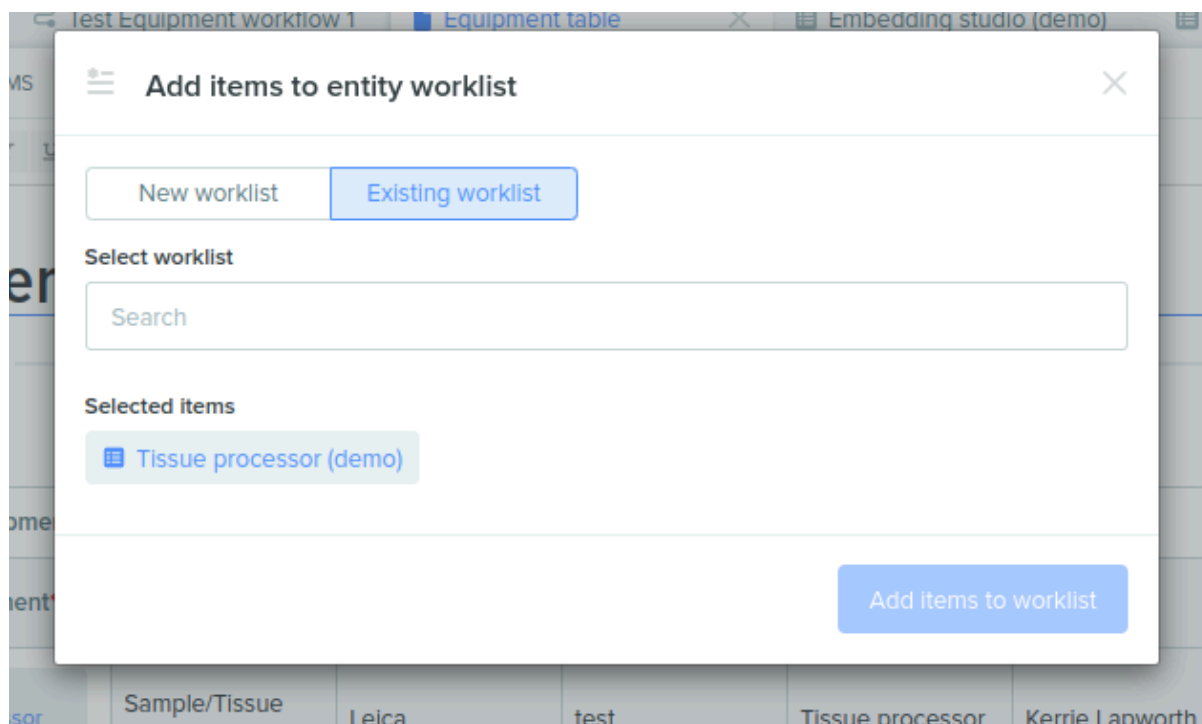
Once you have given your Worklist a name and set all the permissions for it, click on the Create worklist button, and the Worklist will have been created (see below for adding equipment to the Worklist)

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.

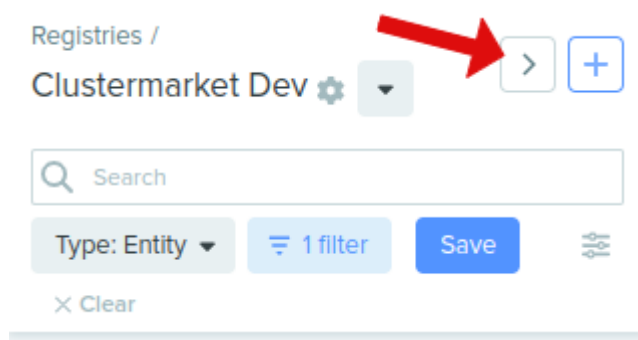


Simply select a Worklist you have already created or create a new Worklist and the items in the equipment table or Workflow table will be added to the Worklist and can be used to populate future tables and Workflows saving you time and effort.

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

1-6 of 6 items

ID	Name	Inventory	Aliases	Modified	Authors	Validation Errors	Name	Equipment ty...	Manufacturer
Eq5459	Microtome (demo)	No inventory avalla...		13/06/2023			Rotary microtome	Equipment	Leica
<input checked="" type="checkbox"/> Eq5458	Embedding studio (d	No inventory avalla...		13/06/2023			Embedding studio	Equipment	leica
<input checked="" type="checkbox"/> Eq5457	Tissue processor (de	No inventory avalla...		13/06/2023			Tissue processor	Sample/Tissue pro...	Leica
Eq5454	Test Equipment Benc	No inventory avalla...		25/04/2023	Clustermarket Boo...		Test Equipment Be...	Other	Test Manufacturer
Eq5455	3D printer Benchling	No inventory avalla...		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)

Add items to entity worklist

Select worklist

Search

Selected items

☒ Tissue processor (demo)

Sample/Tissue Leica test Tissue processor Kerrie Lapworth

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**

Q Lookup Equipment 2 +

	Equipment*	Model	De
1	Tissue processor (demo)	test	Tissu
2			
3			

Modal options:

- Add from structured table
- Add from worklist
- Add from spreadsheet

Tasks Test Equipment workflow +

	Task		Sch
1	TEW1-T1		
2	TEW1-T2	Pending	Unassigned

Modal options:

- Add from worklist
- Add from spreadsheet

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

Add samples from worklist

Destination column

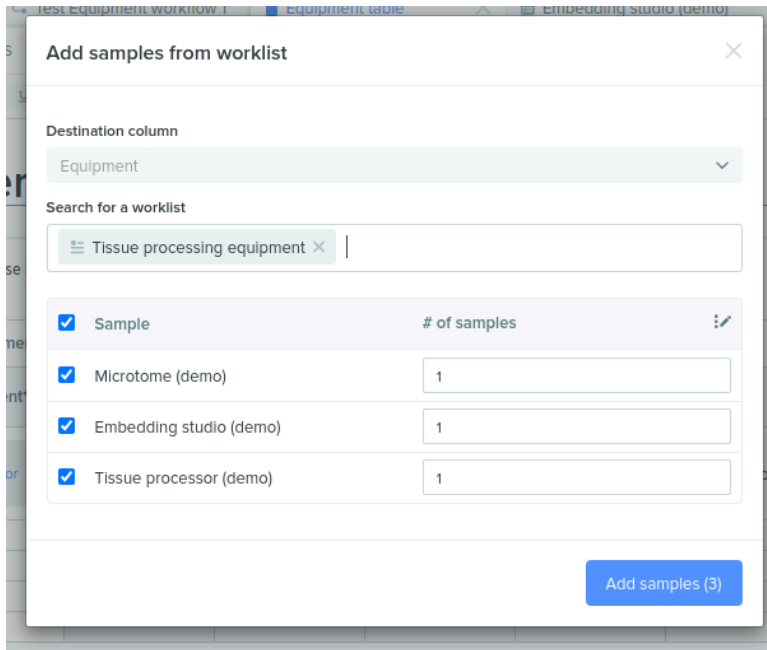
Equipment

Search for a worklist

Search

- Tissue processing equipment
Entity worklist, modified 3 hours ago
- Tissue processing worklist 1
Entity worklist, modified 20 hours ago
- sample for Demo
Entity worklist, modified 17/04/2023

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



Add samples from worklist

Destination column
Equipment

Search for a worklist
Tissue processing equipment

<input checked="" type="checkbox"/> Sample	# of samples
<input checked="" type="checkbox"/> Microtome (demo)	1
<input checked="" type="checkbox"/> Embedding studio (demo)	1
<input checked="" type="checkbox"/> Tissue processor (demo)	1

Add samples (3)

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 Clustermarket 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.

FAQ's

How do I set up a Clustermarket account?

To utilise this integration, you will need a Clustermarket enterprise account. Please fill out and submit the form on this page of the Clustermarket site to request a demo and discuss the Benchling integration: <https://clustermarket.com/book-a-demo>

How do I set up a Benchling Tenant?

To set up a Benchling tenant, please email: support@benchling.com and ask to speak to someone about setting up an account.

Why do I have to request for the Features to be enabled on my Benchling tenant?

Feature enablement requests are an internal change that require internal Benchling teams to access a gated customer tenant. Benchling requires explicit requests and permission from the customer to enable these features and ensure protection of your tenant.

Where do I find the integration?

To find the integration app please see this [section](#) at the top of the document, and then follow the rest of the set-up steps. For additional support in regards to using the Benchling platform, their help centre documentation and video's can be found here: <https://help.benchling.com/hc/en-us>

Why is the connect button for the Benchling integration greyed out?

This occurs if you do not have the correct admin permissions on the Clustermarket platform – if your lab is a member of an organisation, you must ask your Organisation Admin to connect the integration. This is because an organisation will have multiple labs that can share equipment data with your Benchling tenant and they will need to decide which labs should do so.

If you are not part of an organisation and have Admin rights to your Clustermarket account please contact support@clustermarket.com so we can help resolve the issue for you.

I am getting errors when I try to install the integration, who can help me?

Benchling 404 error


If you receive a 404 error when trying to connect to the Benchling Global app store, this is most likely because one of the feature settings for your account has not been set, please contact your benchling customer support team or start a live chat on your benchling tenant and request they confirm the following features are enabled on your account:

- Benchling apps
- Global apps
- App interactivity
- Developer console

Clustermarket errors

If you receive an error message when trying to connect the Benchling integration from the Clustermarket platform, please can you first check the following on the Benchling platform:

1. In your Benchling tenant, navigate to the feature settings menu from your profile icon and click on the General link at the top of the page which will show you a permissions list. The app needs to be added to this list.
2. Check to see if the Clustermarket equipment data & scheduling app is listed

General settings 

Permissions

Manage collaborators

Search for a user, email, team, organization, or app Add collaborator

Collaborators	Access policies
User / App / Organization / Team	
Members of Clustermarket Dev	WRITE
Bug_fix.testapp	ADMIN
Clustermarket equipment data & scheduling	ADMIN
Hristo test v.2	READ
Project A team	READ
Admins of Project A team	READ
Staging.Vesi_org.testapp	ADMIN
Staging.midnightjob.testapp	ADMIN
Benchling Support	ADMIN
Francisco Ralo	ADMIN
Kerrie Lapworth	ADMIN

Update collaborators

3. If not, please search for it in the manage collaborations search box at the top of the page and give the app Admin rights

If you continue to experience errors after trying to connect from the Clustermarket platform, please email support@clustermarket.com with details on the error message you are seeing, and we will work with you to resolve the problem.

My schema's not working, who can I talk to for support?

If you have any problems with the activation of your app on the Benchling platform, please contact the Benchling customer services team who will be able to help you resolve any issues. There is a small chat icon in the bottom right of your Benchling tenant, where you can request help

My equipment data is not syncing, who can help me?

If you are having any issues with syncing your data from Clustermarket to Benchling please contact support@clustermarket.com who will help you to resolve the issue.

What happens when I remove the integration?

If you decide to stop using the application, we will run a 'soft archive' which will enable you to retain the equipment data in your tenancy, but you will no longer be able to add new equipment or book the equipment from your Benchling tenancy on the Clustermarket site.