

# COMP 1842

## MongoDB in the labs and Home

Matt Prichard

# Introduction



Studio 3T

Demos

Tutorials

Labs

## Power Tools for MongoDB. Tried. Tested. Trusted.

Studio 3T is the professional IDE, client, and GUI for MongoDB.  
The right tools to get more done in MongoDB – on Atlas or anywhere.

[Try Studio 3T for free](#)

# Think...phpMyAdmin for MongoDB

## Discover our MongoDB tools

Pipeline    1. \$project    2. \$match    3. \$group    4. \$sort

**Stage 1 operator:** \$project

**Stage Editor**

Include in the pipeline

```
1 {  
2   _id: 1,  
3   "address.city": 1,  
4   "address.state": 1,  
5   "address.zip": 1,  
6   "transactions": 1  
7 }
```

**Stage Output**

↶ ← → ⌂ ⚙

```
> (1) { "_id" : { "$oid" : "5f0e...  
> (2) { "_id" : { "$oid" : "5f0e...  
> (3) { "_id" : { "$oid" : "5f0e...  
> (4) { "_id" : { "$oid" : "5f0e...  
> (5) { "_id" : { "$oid" : "5f0e...
```

**Aggregation Editor**

Not only can you add, edit, and move aggregation stages but also define operators and check inputs and outputs at each pipeline stage. This makes debugging easier and ensures that your query is accurate each step of the way.

[Learn more →](#)

The screenshot shows the Aggregation Editor interface. At the top, there's a navigation bar with tabs: Pipeline, 1. \$project, 2. \$match, 3. \$group, and 4. \$sort. Below this, a section titled 'Stage 1 operator:' shows '\$project'. The 'Stage Editor' panel contains a checkbox 'Include in the pipeline' which is checked. Below it is a code editor with a JSON pipeline stage: { \_id: 1, "address.city": 1, "address.state": 1, "address.zip": 1, "transactions": 1 }. To the right is the 'Stage Output' panel, which displays the results of the stage as an array of five documents, each with an '\_id' field containing a MongoDB ObjectId. Below the editor is a large button labeled 'Aggregation Editor' with a green border, indicating it is the active tool. Other tools shown include IntelliShell, Visual Query Builder, Export Wizard, Import Wizard, and Query C...

**Aggregation Editor**

IntelliShell

Visual Query Builder

Export Wizard

Import Wizard

Query C...

<https://blogs.gre.ac.uk/cmssupport/application-development/databases/mongodb/>

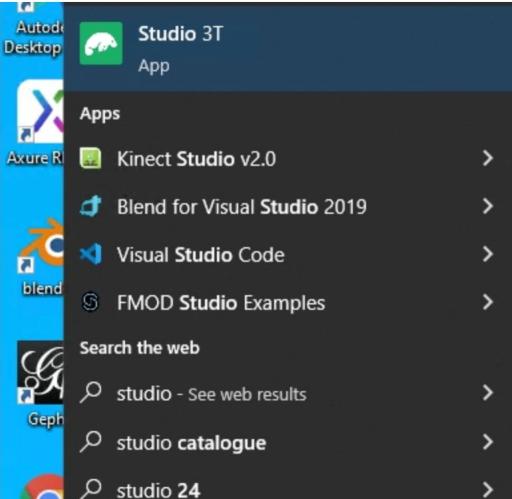
**CMS SUPPORT**  
TECHNICAL SUPPORT FOR STUDENTS IN THE SCHOOL OF COMPUTING AND MATHEMATICAL SCIENCES (CMS)

HOME KING WILLIAM LABS ▾ VIRTUAL DESKTOP ▾ APPLICATION DEVELOPMENT ▾ SYSTEMS ▾ SOFTWARE ▾  
HEALTH AND SAFETY LABS EQUIPMENT ▾ CONTACT US

## MongoDB

### Using Studio 3T to connect to MongoDB

Start Studio3T from the Start Menu as shown:



The screenshot shows the Windows Start Menu with a dark theme. The Studio 3T app icon is highlighted, indicating it is selected. Other visible icons include Autodesk Desktop, Axure RI, blend, and Gephi.

- Autodesk Desktop
- Axure RI
- blend
- Gephi
- Studio 3T App
- Apps
  - Kinect Studio v2.0
  - Blend for Visual Studio 2019
  - Visual Studio Code
  - FMOD Studio Examples
- Search the web
  - studio - See web results
  - studio catalogue
  - studio 24

Set up your MongoDB database here, follow the instructions **carefully**.  
  
Your student ‘userid’ is used for all 3 parts of the authentication.

<https://studio3t.com/academy/courses/mongodb-101-getting-started/>

## MongoDB 101: Getting Started

# MongoDB 101: Getting Started

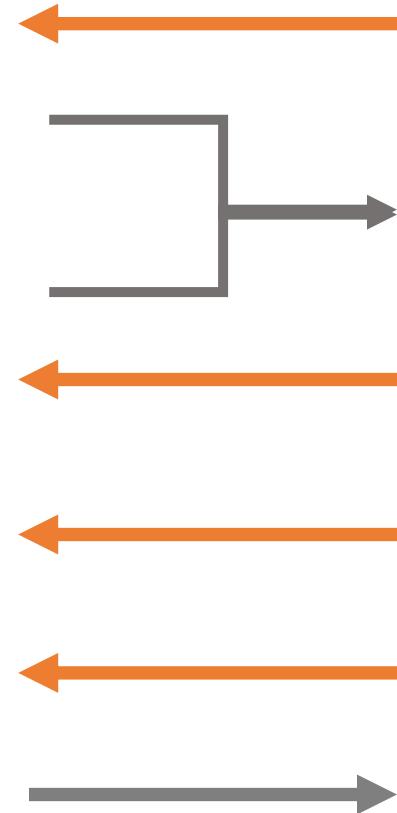
The MongoDB course for beginners

# In the labs do the following tutorials

Course Home

**Expand All**

- Introduction to MongoDB and Studio 3T  
**1 Quiz**
- Introduction to MongoDB Atlas  
**2 Topics**
- Connecting to MongoDB  
**1 Topic | 1 Quiz**
- The MongoDB Basics: Databases, Collections & Documents  
**7 Topics | 2 Quizzes**
- Using SQL in MongoDB Aggregation  
**3 Topics | 1 Quiz**
- Importing and Exporting MongoDB Data  
**3 Topics | 1 Quiz**
- Running MongoDB Queries on the mongo Shell  
**4 Topics | 1 Quiz**
- Course Extras



May be of interest if installing your own version at home

All 7 topics

All 3 topics

First 2 only

Slightly more advanced work if you want it

<https://studio3t.com/academy/courses/mongodb-201-querying-mongodb-data/>

Continue learning in your own with the 2<sup>nd</sup> set of tutorials...for the keen ☺

## MongoDB 201: Querying MongoDB Data

# MongoDB 201: Querying MongoDB Data

Build upon the MongoDB basics

<https://studio3t.com/knowledge-base/articles/common-mongodb-commands/>

# 13 Most Common MongoDB Commands

**Posted on:** 22/01/2019 (**last updated:** 31/08/2021) by Kathryn Vargas

As you get started with MongoDB, it will take some time to learn how to query, so we've compiled a list of the most common MongoDB commands and how they're written.

As an alternative, we also show you how to run them – without typing a single line of code – using **Studio 3T** as a GUI.

<https://docs.mongodb.com/manual/reference/sql-comparison/>

# SQL to MongoDB Mapping Chart

In addition to the charts that follow, you might want to consider the [Frequently Asked Questions](#) section for a selection of common questions about MongoDB.

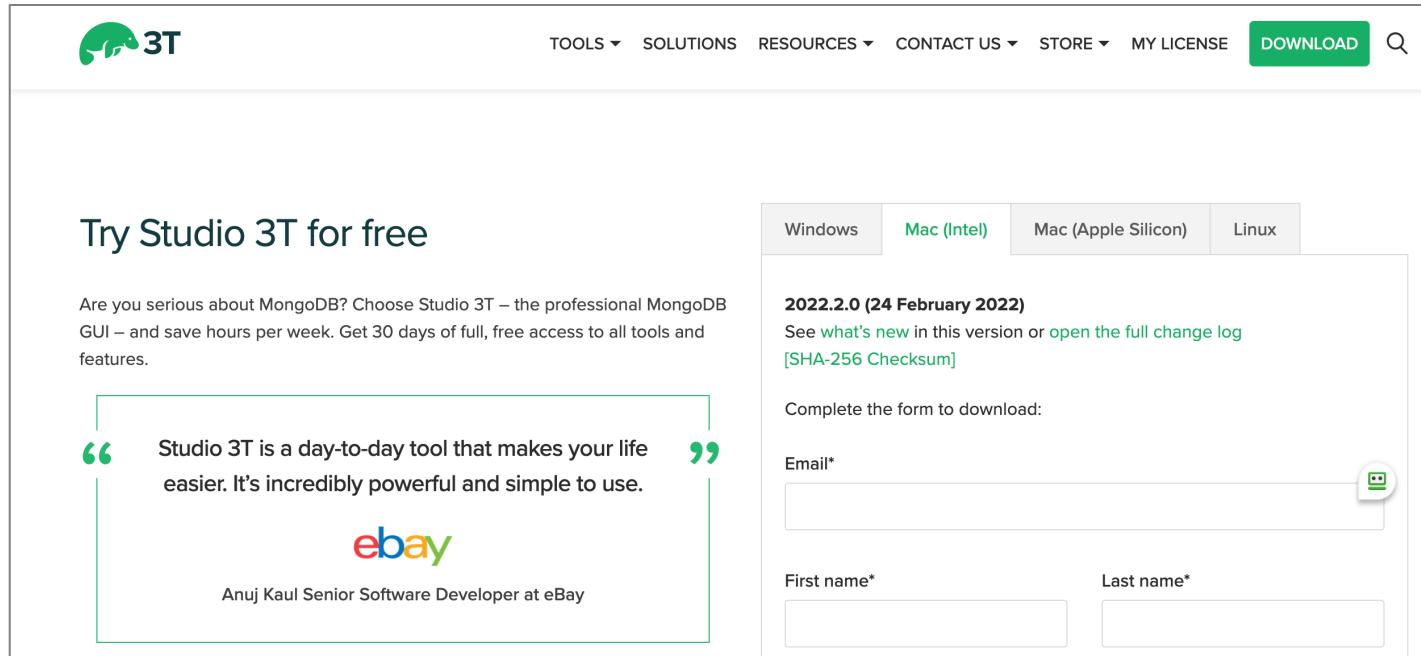
## Terminology and Concepts

The following table presents the various SQL terminology and concepts and the corresponding MongoDB terminology and concepts.



# Installation at home – not trivial

<https://studio3t.com/download/>



The screenshot shows the Studio 3T website's download section. At the top, there's a navigation bar with links for TOOLS, SOLUTIONS, RESOURCES, CONTACT US, STORE, MY LICENSE, and a prominent green DOWNLOAD button. Below the navigation, a banner says "Try Studio 3T for free". A quote from Anuj Kaul, Senior Software Developer at eBay, is displayed: "Studio 3T is a day-to-day tool that makes your life easier. It's incredibly powerful and simple to use." The quote is attributed to "Anuj Kaul Senior Software Developer at eBay". To the right, there are tabs for Windows, Mac (Intel), Mac (Apple Silicon), and Linux, with "Mac (Intel)" currently selected. Below the tabs, the version "2022.2.0 (24 February 2022)" is listed, along with links to "what's new" and the "full change log" [SHA-256 Checksum]. A form is provided for users to enter their email, first name, and last name to download the software.

Download and install the studio 3T GUI ( there are others but we have this in the labs). With this you can connect to the Atlas Cloud or Localhost

# Set up an Atlas cloud account

<https://www.mongodb.com/atlas>

The screenshot shows the MongoDB Atlas landing page. At the top, there's a navigation bar with the MongoDB logo, a search icon, 'Sign In', and a prominent green 'Try Free' button. Below the navigation, the text 'MONGODB ATLAS' is displayed. The main content features a large title 'MongoDB Atlas. The multi-cloud application data platform.' followed by a subtitle: 'An integrated suite of cloud database and data services to accelerate and simplify how you build with data.' To the right of the text, there are two sections: 'Cluster' and 'Serverless'. Each section contains a box with four metrics: 'Read' (radio button), 'Write' (radio button selected), 'Connections', 'Network In', 'Network Out', and 'Disk Usage'. Below the 'Serverless' section is a 'Connect To Your Database' button with a right-pointing arrow. At the bottom left, there are 'Try Free' and 'Contact sales' buttons.

MongoDB. Products Solutions Resources Company Pricing

Try Free

MONGODB ATLAS

# MongoDB Atlas. The multi-cloud application data platform.

An integrated suite of cloud database and data services to accelerate and simplify how you build with data.

Try Free Contact sales →

Cluster

Serverless

Read Write Connections Network In Network Out Disk Usage

Read Write Connections Network In Network Out Disk Usage

Connect To Your Database →

# My Atlas cloud account

The screenshot shows the MongoDB Atlas web interface. At the top, there's a navigation bar with 'matt's Org - 2019-12...' (dropdown), 'Access Manager' (dropdown), 'Billing' (link), 'All Clusters' (link), 'Get Help' (dropdown), and a user profile 'matt'. Below the navigation is a header with 'Project 0' (dropdown), 'Atlas' (selected tab, highlighted in green), 'Realm' (link), 'Charts' (link), and user icons.

The main content area is titled 'MATT'S ORG - 2019-12-22 > PROJECT 0 > DATABASES'. It shows 'Cluster0' details: VERSION 5.0.6 and REGION AWS Ireland (eu-west-1). The left sidebar has tabs for 'DEPLOYMENT' (selected), 'Database' (highlighted in green), 'Data Lake', 'DATA SERVICES' (selected), 'Triggers', 'Data API' (with a 'PREVIEW' button), and 'SECURITY' (selected) with sub-options 'Database Access', 'Network Access', and 'Advanced'.

The 'Collections' tab is selected in the top navigation bar. It displays 'DATABASES: 1' and 'COLLECTIONS: 1'. A 'myFirstDatabase.matt' collection is shown with storage size 424KB, total documents 3122, and indexes total size 124KB. The collection has tabs for 'Find', 'Indexes', 'Schema Anti-Patterns (0)', 'Aggregation', and 'Search Indexes (1)'. A 'FILTER' bar contains the query '{ field: 'value' }'. Below it, a 'QUERY RESULTS 1-20 OF MANY' section shows a single document:

```
_id: ObjectId("5d34c59c098c00453a233bea")
fsa_id: 523718
name: "1 Town Hall Square"
> address: Object
> location: Object
local_authority: "Vale of Glamorgan"
```

This was quite (*very*) fiddley

Finally, if all goes well you can connect to Atlas from the GUI on your machine. I used the video on the next slide

The screenshot shows the Studio 3T Ultimate for MongoDB interface. The title bar reads "Studio 3T Ultimate for MongoDB - TRIAL LICENSE". The top menu bar includes icons for Connect, Collection, IntelliShell, SQL, Aggregate, Map-Reduce, Compare, Schema, Reschema, Tasks, Export, Import, Data Masking, SQL Migration, and Users.

The left sidebar displays the database structure:

- > localhost:27017 [direct]
- < atlas-fg5ke9-shard-0 [replica set: atl]
- > Replica Set Members
- > admin
- > local
- < myFirstDatabase
  - > Collections (1)
    - > matt
  - > Views (0)
  - > GridFS Buckets (0)
  - > System (0)

The main workspace shows a connection to "atlas-fg5ke9-shard-0" with the user "mattMongo". The current database is "myFirstDatabase". The "Result" tab is selected, displaying a table with the following data:

_id	fsa_id	name	address	location	local_authority
5d34c59c098c0	523718	1 Town Hall Squ	{ 4 fields }	{ 4 fields }	Vale of Glamorgan
5d34c59c098c0	522955	1209 Branch Cw	{ 4 fields }	{ 4 fields }	Torfaen
5d34c59c098c0	499241	147 Club	{ 4 fields }	{ 4 fields }	Cardiff
5d34c59c098c0	499245	4th Glamorgan F	{ 4 fields }	{ 4 fields }	Cardiff
5d34c59c098c0	519221	5th Welch Old C	{ 4 fields }	{ 4 fields }	Rhondda Cynon
5d34c59c098c0	495966	A Touch of Class	{ 4 fields }	{ 4 fields }	Blaenau Gwent
5d34c59c098c0	502502	ABADAM ARMS	{ 4 fields }	{ 4 fields }	Carmarthenshire
5d34c59c098c0	497849	Aber & Senghen	{ 4 fields }	{ 4 fields }	Caerphilly
5d34c59c098c0	497850	Aber Hotel	{ 4 fields }	{ 4 fields }	Caerphilly
5d34c59c098c0	504225	ABERAERON SP	{ 4 fields }	{ 4 fields }	Ceredigion

At the bottom of the interface, there are status bars for "Operations", "Count Documents", and a timer.

<https://studio3t.com/knowledge-base/articles/connect-to-mongodb-atlas/>

The screenshot shows a video player interface. In the top left corner is the Studio 3T logo, which is a green circle with white text. To its right is the title "How to Connect to MongoDB Atlas using Studio 3T". On the far right are three icons: a copy link icon, a refresh icon, and a navigation icon. Below the title, the video content is visible. It features a large green button with the text "Connect Studio 3T to Atlas" in white. Above this button, the words "Studio 3T" are written in white. Below the button, the words "a tutorial" are also in white. At the bottom of the video area, there is a "MORE VIDEOS" button. At the very bottom of the screen, there is a control bar with icons for back, forward, and volume, along with a timestamp showing "0:00 / 2:25". To the right of the timestamp are icons for settings, YouTube, and a share button.

How to Connect to MongoDB Atlas using Studio 3T

Copy link    3/21

Studio 3T

**Connect Studio 3T to Atlas**

a tutorial

MORE VIDEOS

0:00 / 2:25

YouTube

MongoDB on  
localhost

# Install the free community edition of MongoDB

The screenshot shows the MongoDB Documentation website. The top navigation bar includes links for Products, Solutions, Resources (which is underlined in green), Company, Pricing, and a search icon. On the left, there's a sidebar for the MongoDB Manual, version 5.0 (current), with sections for Introduction, Installation, and Install MongoDB Community Edition (which is highlighted with a green background). The main content area shows the breadcrumb path: Docs Home → Develop Applications → MongoDB Manual, and the title "Install MongoDB Community Edition". It describes the documents as providing instructions to install MongoDB Community Edition. Below this, there are three sections: "Install on Linux", "Install on macOS", and "Install on Windows", each with a brief description.

MongoDB Documentation

Products Solutions Resources Company Pricing

Docs Home → Develop Applications → MongoDB Manual

## Install MongoDB Community Edition

These documents provide instructions to install MongoDB Community Edition.

**Install on Linux**  
Install MongoDB Community Edition and required dependencies on Linux.

**Install on macOS**  
Install MongoDB Community Edition on macOS systems from MongoDB archives.

**Install on Windows**  
Install MongoDB Community Edition on Windows systems and optionally start MongoDB as a Windows service.

<https://docs.mongodb.com/manual/administration/install-community/>

On my Mac I had to install various prerequisites from the command line.

Good luck windows users 😞 About an hour later it was all done !! 😞

Install MongoDB Community Edition

### Prerequisites

Ensure your system meets each of the following prerequisites. You only need to perform each prerequisite step once on your system. If you have already performed the prerequisite steps as part of an earlier MongoDB installation using Homebrew, you can skip to the [installation procedure](#).

### Install Xcode Command-Line Tools

Homebrew requires the Xcode command-line tools from Apple's Xcode.

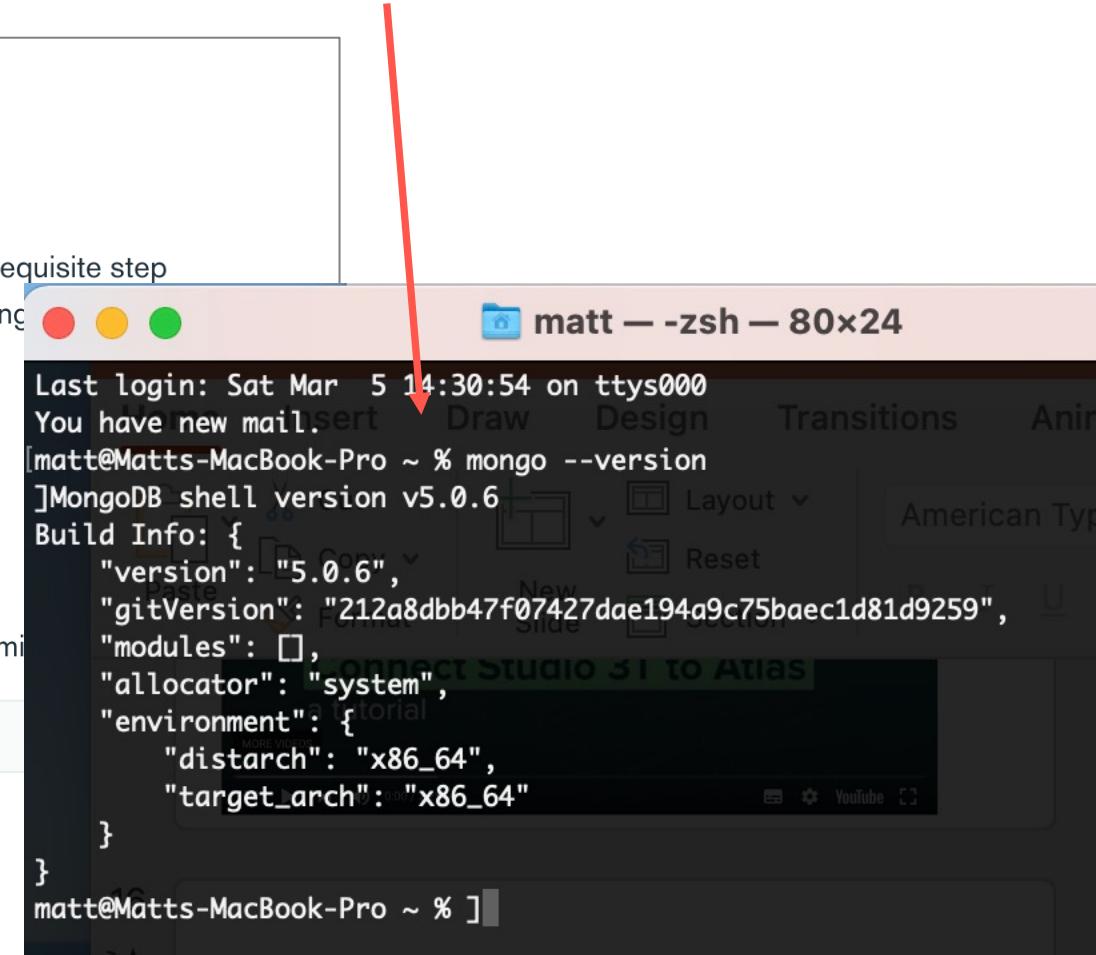
- Install the Xcode command-line tools by running the following command in your macOS Terminal:

```
xcode-select --install
```

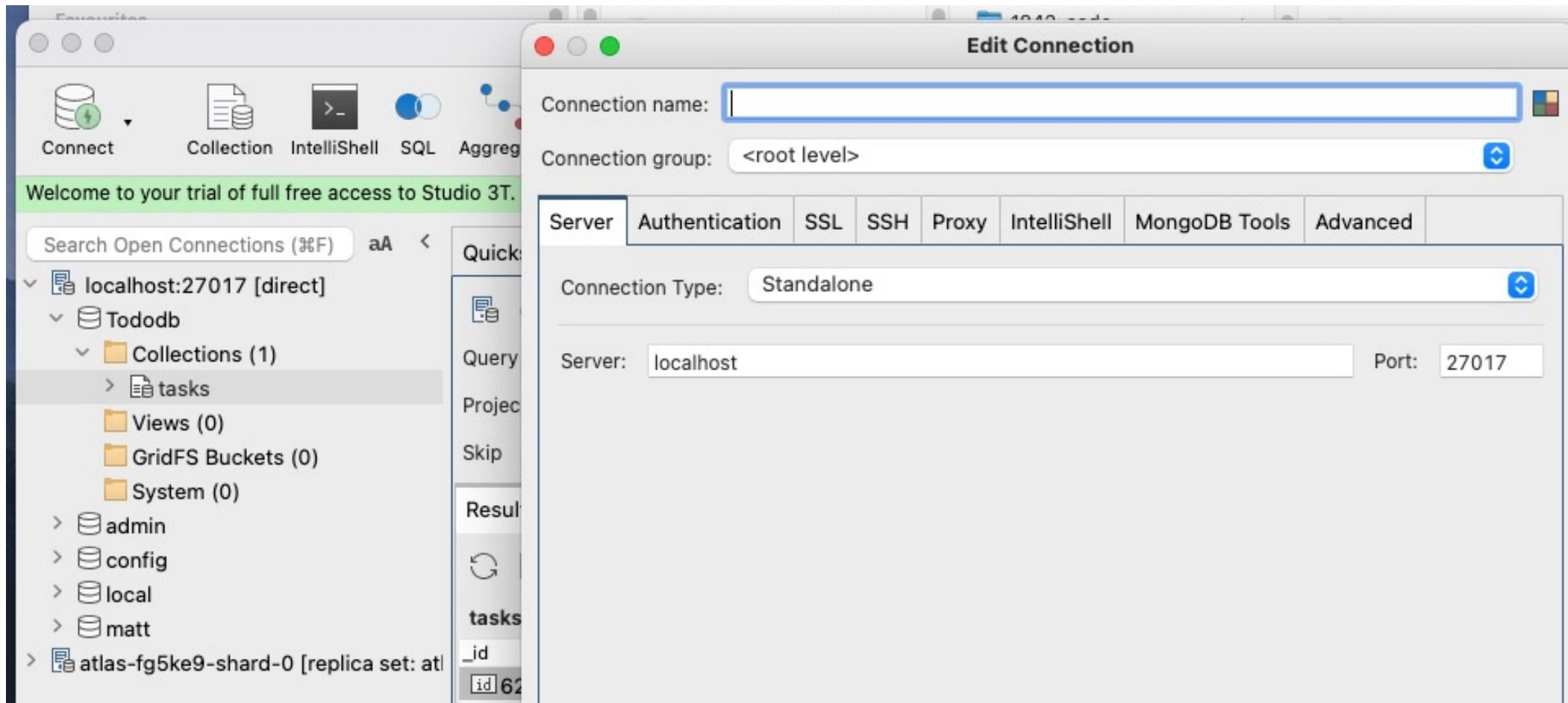
### Install Homebrew

macOS does not include the Homebrew `brew` package by default.

- Install `brew` using the official [Homebrew installation instructions](#).



# Connecting to localhost mongoDB from the GUI



<https://studio3t.com/knowledge-base/articles/connect-to-mongodb/#connect-to-a-standalone-connection-e-g-mongodb-localhost>

# Compass free GUI instead of studio 3T



MongoDB

Products Solutions Resources Company Pricing

Try Free

# Compass. The GUI for MongoDB.

Compass is an interactive tool for querying, optimizing, and analyzing your MongoDB data. Get key insights, drag and drop to build pipelines, and more.

Download Now

Read the docs →

<https://www.mongodb.com/products/compass>

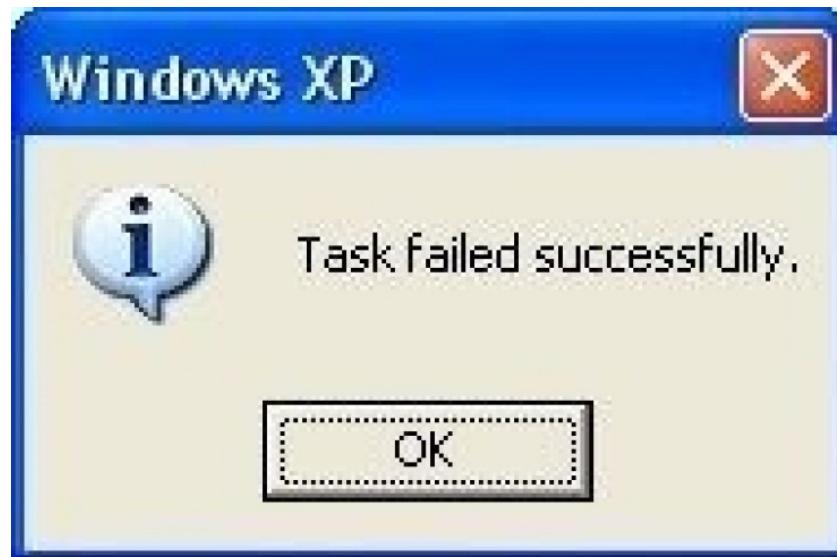
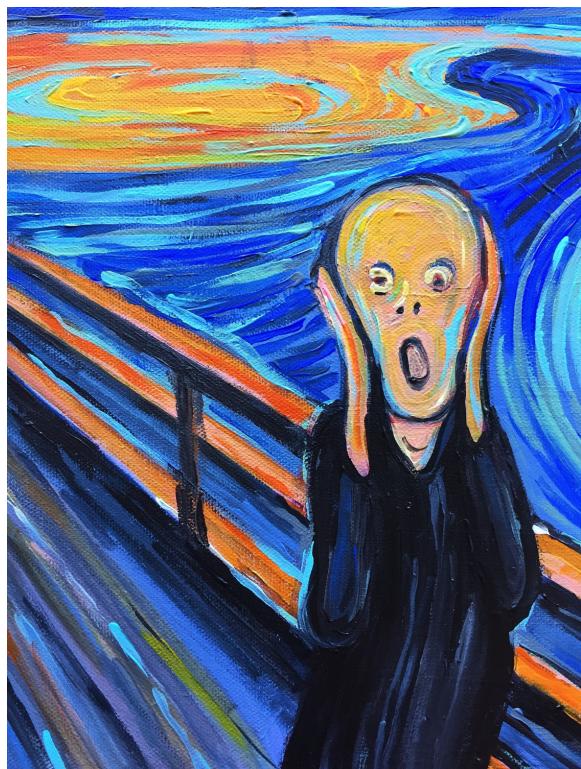
# Compass free GUI instead of studio 3T

The screenshot shows the MongoDB Compass application window. The title bar reads "MongoDB Compass - localhost:27017/matt.names". The left sidebar lists databases and collections, with "matt.names" selected. The main pane displays the "Documents" tab for the "matt.names" collection, showing five documents. The first document's details are visible:

```
_id: ObjectId('62398c0b67137d937053efe4')
firstName: "matt"
lastName: "test"
```

Below the document list are buttons for "ADD DATA" and "EXPORT COLLECTION". The top right shows "5 DOCUMENTS" and "1 INDEXES". The bottom right shows navigation controls (1-5 of 5) and a search bar.

In the end it might just be easier to  
work on Virtual desktop. I have been.



# Labs

Work through slides 4, 5 and 6

See lab task doc on Moodle for CW upload requirements, there are 12 small tasks to work through.

