

# Computer Aided Design for Modelers

## Introduction

The basic CAD tools and software  
you will need.

# Software - Screen Recorder Pro

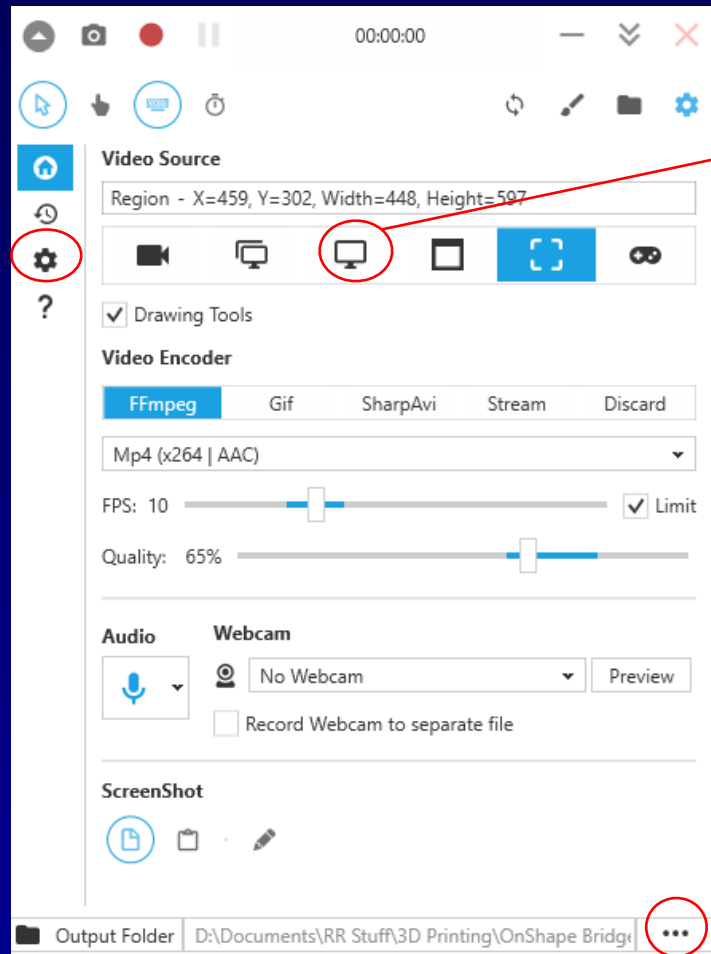
You will need a means of taking screen shots or if you desire, recording a video of the presentations.

At the beginning of each presentation I will show images with dimensions of the parts we will be building. At a minimum you will want copies of these slides for reference as you work.

It is a free download from the Microsoft Store.

# Screen Recorder Pro

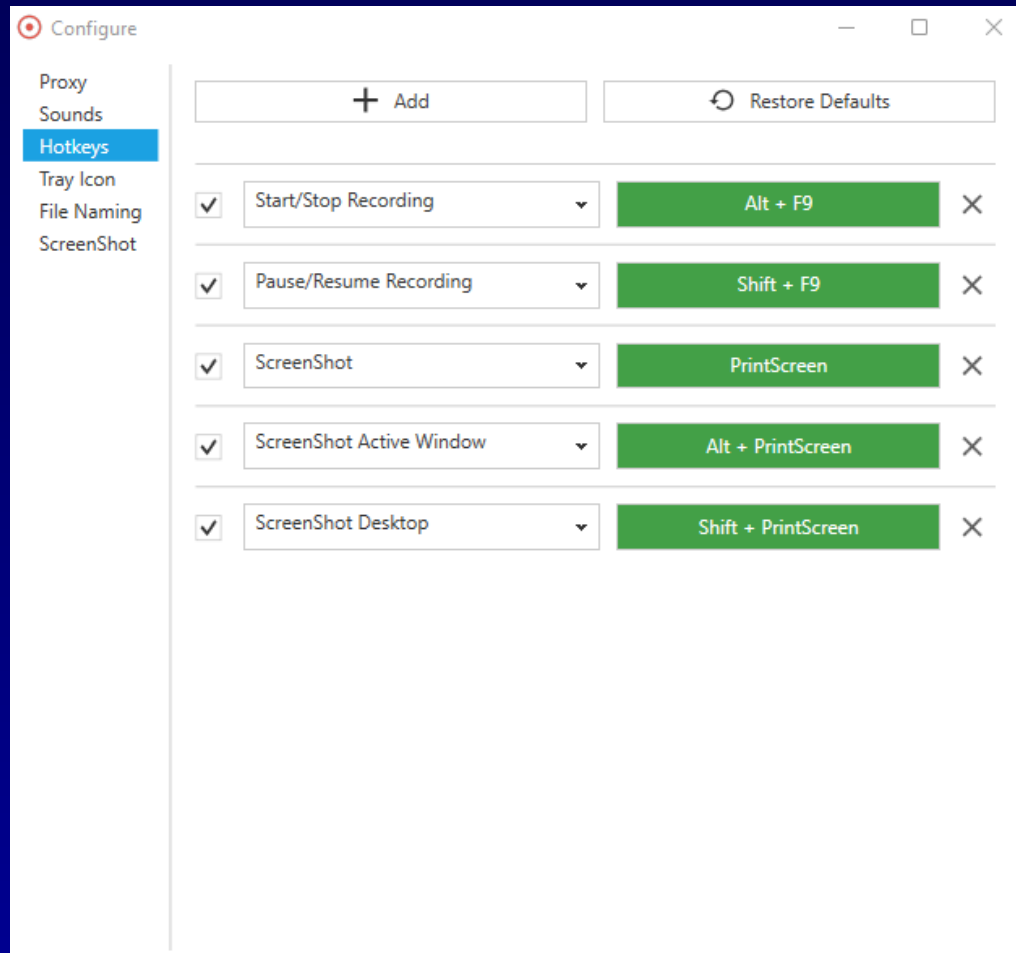
Configure



Select Full Screen

Select Folder

# Screen Recorder Pro Configure



# Free CAD Systems I Evaluated

- FreeCAD – Open Source. Easy to use but still has some bugs. It's worth exploring to see if you like it.
- Fusion360 – Very capable system, but the interface is confusing to new users.
- OnShape – Easy to use interface. Files are stored on a public server so I can help with any problems you may have.

# Setup Free Account – onshape.com

The screenshot shows the Onshape website homepage. At the top, there is a navigation bar with the Onshape logo and links for PRODUCT, SOLUTIONS, PRICING, RESOURCES, and BLOG. A green 'REQUEST A TRIAL' button is located in the top right corner. The main content area features the headline 'Connect, Collaborate & Create Better Products in the Cloud' and a sub-headline 'Onshape is the only Software-as-a-Service (SaaS) product development platform that combines CAD, built-in PDM, real-time collaboration tools, and business analytics.' Below this, there are three buttons: 'PRODUCT REVIEW', 'WATCH HOW IT WORKS', and 'GET ONSHAPE FOR EDUCATION'. A central image shows a screenshot of the Onshape software interface with a network diagram. At the bottom, there is a section titled 'TRUSTED BY THOUSANDS OF COMPANIES:' with logos for TREK, Garrett, NVIDIA, musictribe, KICHLER, phil&teds, and SYNAPSE. A chatbot icon is in the bottom right corner with a notification bubble.

onshape.com/en/

PRODUCT SOLUTIONS PRICING RESOURCES BLOG

## Connect, Collaborate & Create Better Products in the Cloud

Onshape is the only Software-as-a-Service (SaaS) product development platform that combines CAD, built-in PDM, real-time collaboration tools, and business analytics.

PRODUCT REVIEW WATCH HOW IT WORKS

STUDENTS AND EDUCATORS GET ONSHAPE FOR EDUCATION

TRUSTED BY THOUSANDS OF COMPANIES:

TREK Garrett ADVANCING MOTION NVIDIA musictribe KICHLER phil&teds adaptuniver SYNAPSE

Are you interested in learning more about Onshape for your company?

74°F Partly sunny 1:10 PM 5/28/2022

# At Bottom of Home Page

The screenshot shows the Onshape website home page. At the top, there is a navigation bar with the Onshape logo and links for PRODUCT, SOLUTIONS, PRICING, RESOURCES, and BLOG. A green button labeled "REQUEST A TRIAL" is positioned in the top right corner. Below the navigation bar is a large blue banner with the text "Interested in speeding up your Product Design Process?" and a central button labeled "REQUEST A DEMO".

The footer section is divided into five columns:

- Product**: Features & Benefits, Education Plans, Plans & Pricing, ROI Calculator, App Store, Custom Features, What's New.
- Learn**: Courses & Training, Resource Center, Tech Tips, Customers & Case Studies, Videos, eBooks & Whitepapers, Documentation, User Group Network.
- Support**: Get Support, Forum, Service Status, Changelog.
- About**: About Us, Channel Partners, Partner Applications, Blog, Events, Careers, Contact Us.

At the bottom left of the footer, the text "© 2014 - Present. Onshape Inc." is visible. In the center, the "Sign Up" link is circled in red, with "Security", "Legal", and "Privacy Center" links nearby. A chat bubble in the bottom right corner asks, "Are you interested in learning more about Onshape for your company?". The Windows taskbar at the very bottom shows the date as 5/28/2022 and the time as 1:10 PM.

# OnShape Sign Up

Sign up | Onshape Cloud Product

onshape.com/en/sign-up

Apps Electronics Search News Tools Shopping Investments Portfolio Verizon RR Stuff Software Healthcare Materials Home - Dropbox Reference Defense Family Maps Google Onshape

EN Create a Student Account SIGN IN

onshape

PRODUCT SOLUTIONS PRICING RESOURCES BLOG

REQUEST A TRIAL

## Onshape is the complete all-in-one product development platform.

Sign up below to get started with one of our solutions for professionals, students, or hobbyists.

Onshape Professional

Onshape Education

Onshape for Makers

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# On Shape Sign Up

The screenshot shows the Onshape sign-up page with three main sections:

- Onshape Professional**: Our commercial-tier plans will help your business speed up your time-to-market and also better protect your intellectual property. Onshape Professional unlocks private documents, formal release management, company-wide admin tools, enhanced data management, and other productivity features. Request your **PROFESSIONAL TRIAL** →
- Onshape Education**: Onshape's free Education Plan is the best CAD solution for academic settings. Onshape Edu gives students and educators access to everything from the basics to the more advanced tools, including multi-part design, configurations, simultaneous sheet metal tools, standard content, and managed in-context design. Verification required. Request your **EDUCATION ACCOUNT** →
- Onshape for Makers**: Onshape proudly supports the maker community with professional-grade CAD, available free for non-commercial projects in an open-source public work space. Request your **PUBLIC MAKER PLAN** →

The **PUBLIC MAKER PLAN** link is circled in red. The page also features a navigation bar with links for PRODUCT, SOLUTIONS, PRICING, RESOURCES, and BLOG, and a green **REQUEST A TRIAL** button in the top right corner. The browser address bar shows [onshape.com/en/sign-up](https://onshape.com/en/sign-up). The Windows taskbar at the bottom shows the date as 5/28/2022 and the time as 1:16 PM.

# OnShape Free

Onshape Free Plan | Onshape

onshape.com/en/products/free

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onshape PRODUCT SOLUTIONS PRICING RESOURCES BLOG

REQUEST A TRIAL

## Onshape Free

**Onshape Free extends fully capable modern CAD tools to non-professional designers.**

At no cost, hobbyists, makers, and others who are willing to freely share their designs can pursue their projects without the hassles commonly found in old CAD systems. Onshape is accessible from any device, never loses data, and makes sharing and collaboration easy. For the ability to create private design data, see [Onshape Professional](#).

GET STARTED

### The Power of a Modern CAD Platform

Onshape saves you time with Parametric Modeling 2.0, a fundamentally better way to model using multi-pad design.

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# OnShape Sign Up

The screenshot shows a web browser window with the OnShape sign-up page. The browser's address bar contains the URL: `cad.onshape.com/signup2?basicdataid=DefaultProductSignUpForm1&extendeddataid=DefaultProductSignUpForm2&enable_cookie=check&approveUser=yes&referringWwwFormUrl=https%2F%2Fwww.onshape.com%2Fproducts%2Ffree&mostr...`. The browser's taskbar at the bottom shows various application icons and the system tray with a weather forecast of 75°F and rain, and the date 5/28/2022.

The OnShape logo is centered at the top of the page, with the text "Get started with Onshape" below it. The main content area is a sign-up form titled "Step 1 Basic contact information". The form includes the following fields and elements:

- A "First name" input field with a red "X" error indicator.
- A "Last name" input field.
- An "Email" input field.
- A dropdown menu labeled "- What best describes you? -".
- A checkbox with the text: "By checking this box, I agree to be contacted by Onshape in relation to Onshape's products and services which may be of interest to me and I acknowledge that I can withdraw my consent at any time, as outlined in Onshape's Privacy Policy."
- A "GET STARTED" button.
- A progress indicator with three steps: "1 Get started" (active), "2 Create account", and "3 Activate email".
- A link: "Already have an Onshape account? [Sign in.](#)"

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onshape | Product Development

onshape.com/en/

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EN Create a Student Account SIGN IN

onshape® PRODUCT SOLUTIONS PRICING RESOURCES BLOG

**REQUEST A TRIAL**

## Connect, Collaborate & Create Better Products in the Cloud

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**PRODUCT REVIEW** **WATCH HOW IT WORKS**

**STUDENTS AND EDUCATORS**  
**GET ONSHAPE FOR EDUCATION**

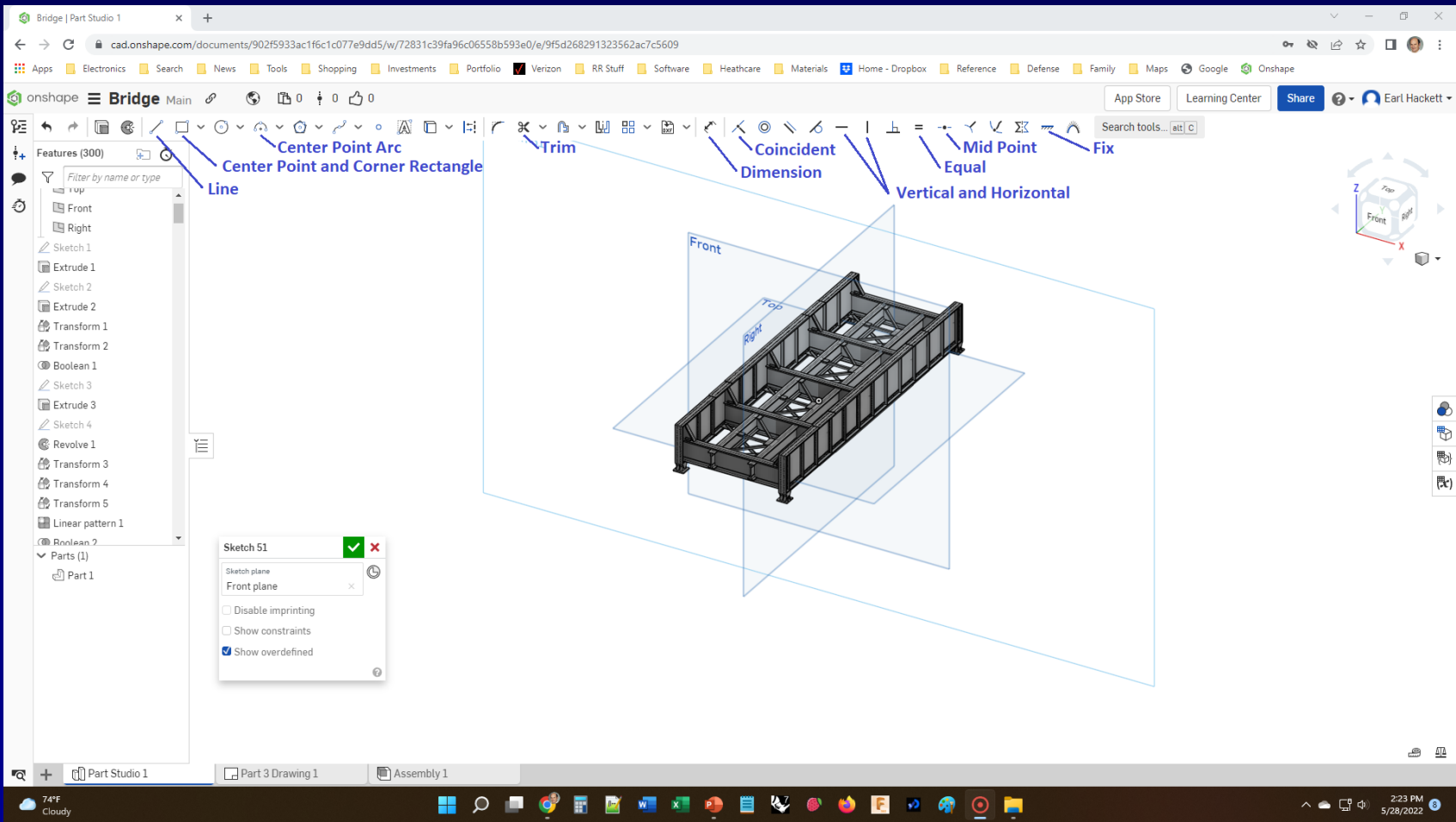
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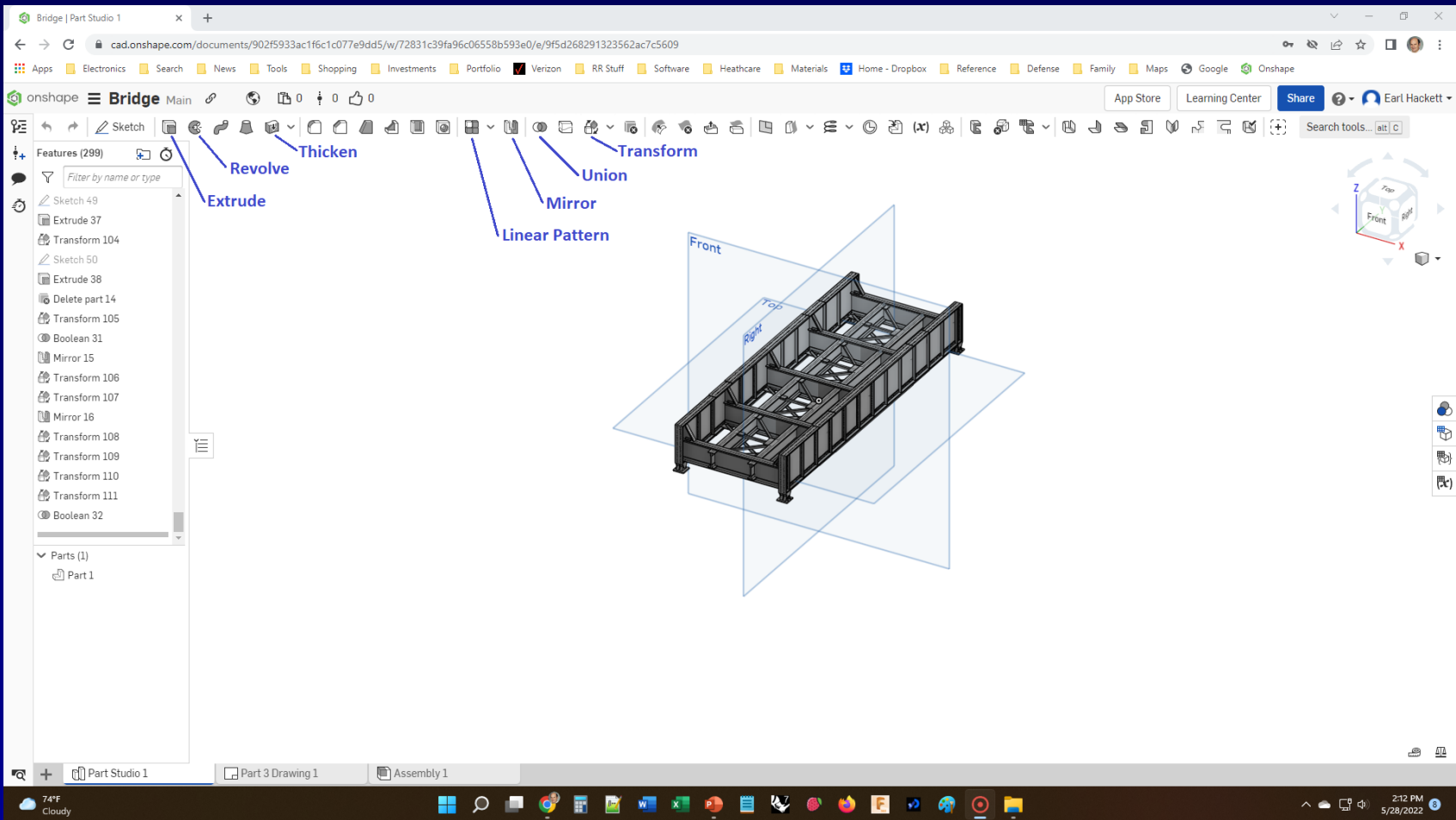
# Sketch Tools



# Sketch Tools

- Line
- Rectangle
- Center Point Arc
- Dimension
- Coincident

# Solid Tools



# Solid Tools

- Extrude
- Revolve
- Linear Pattern
- Mirror
- Boolean Union
- Transform



# Lesson Topics

1. Main girder and outside stiffeners
2. Mirror stiffeners and add cover plates
3. Floor beams and stringers
4. Cross bracing
5. 3D printing

## <Print Screen> to Record HELP email

For the duration of this series I have established an email address where you can write for help:

[ntbridge924@gmail.com](mailto:ntbridge924@gmail.com)

For instructional purposes, OnShape is an excellent vehicle. Your work is on a public server and the history keeps track of everything you do so I (hopefully) can track down where you erred.

Remember: Save your work under a unique name so I can find it!

Time to Kick the Tires