



# Yamcs Studio User Guide

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# **Yamcs Studio User Guide**

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# Chapter 1. Introduction

## 1.1. Overview

### Brief History of Yamcs

Yamcs started as a server software first and foremost. While it initially started as a swiss-army knife to fill gaps in existing traditional mission control systems, it gradually grew to cover the whole spectrum of TM processing and TC commanding. Missions can have very specific software requirements, and often include a varied stack of software. Over the years Yamcs was extended in various ways to play nice with different kinds of TM and TC software.

Along the way, standalone client GUIs were developed as the need arose. This includes Archive Browser, Event Viewer, Packet Viewer and Yamcs Monitor. These tools are being used in many missions.

For many years, however, the main thing that was felt missing from the Yamcs software stack, was a display solution. And this is where Yamcs Studio comes into play.

### Yamcs Studio

Yamcs Studio is a desktop frontend to Yamcs. Its main attraction is its support for operator displays, but it also includes other facets that cover TC commanding and insight into various runtime aspects of Yamcs. Most of our legacy client GUIs have also been ported into Yamcs Studio (with the exception of the Packet Viewer), for an integrated solution.

Yamcs can be made to integrate with display software other than Yamcs Studio (and in fact, this is often the case in long-running missions where Yamcs was added in the mix after the project's initial conception), but there are advantages to working with Yamcs Studio:

- Increased semantical coherence
- Single point of contact
- Opportunities for customisation that covers both server and client
- Integrated views operational views

### Technology

Yamcs Studio is an Eclipse RCP application, and builds upon Open Source software libraries like CS-Studio, Netty, Protobuf and of course our own Yamcs API.

The main programming language is Java 8.

### License

Yamcs Studio follows a similar licensing scheme as Yamcs Server. The core of Yamcs Studio is open-source and licensed under the Eclipse Public License. Mission-specific extensions can be developed on a case-by-case basis and under custom licenses.

We believe that having an open-source core, is not only fun and exciting, but that this increases the quality of our products and benefits all of our customers equally.

## 1.1. Installation

### Install Java 8

You will need Oracle Java 8 installed. We currently recommend the latest [Oracle JDK 8](#).

## Download Yamcs Studio

[Download](#) the latest Yamcs Studio release for your platform. Extract to your preferred location and just launch it. When it asks you to choose a workspace, choose a new directory inside for example your home directory. Workspaces contain displays, scripts and user preferences. By default your workspace will be populated with a few sample projects. These projects contain displays that show simulated parameters as produced by a default-configured Yamcs Server.

## Troubleshooting

Most problems related to starting Yamcs Studio, have to do with Java not being correctly detected, or by trying to launch Yamcs Studio with an old version of Java. Both of these issues are usually resolved by installing Oracle JDK 8.

In case that didn't help, Try defining the `-vm` property in the root `yamcs-studio.ini` file. Refer to [these instructions](#).

## 1.1. First Steps

### Launching Yamcs Studio

When you launch Yamcs Studio for the first time it will ask you to choose a workspace. A workspace is where your resources are stored (e.g. a display file).

With Yamcs Studio, you are always working on one workspace at a time. If you tick the "Remember" option you will no longer be annoyed with this message at startup. Usually workspaces are fairly static, and you can often do with just one of them.

Choose an appropriate location for your workspace (for example, somewhere under your home directory).

Click OK.



If you clicked the "Remember"-option, but you want to switch workspace at a later moment, open `File > Switch Workspace...` from the window menu to choose a different directory.

### Projects

Within a workspace we can have one or more projects, which provides a way to group similar resources together. For many missions, having just one project is more than enough, it's good to have this concept around.

### Opening a display

### Customizing Yamcs Studio

Yamcs Studio inherits much of its look and feel from the Eclipse framework. For non-developers this takes some getting used to

## Chapter 2. Running Displays

### 2.1. Perspectives

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## Chapter 3. Editing Displays

### 3.1. Resource Management

Workspace

Projects

Searching

### 3.1. Rules & Scripts

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## Chapter 4. Views

### 4.1. Archive

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### 4.1. Event Log

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### 4.1. Command Stack

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### 4.1. Command History

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## Chapter 5. Troubleshooting

### 5.1. Capturing Log Output

In case you need to debug an issue with a deployed Yamcs Studio client, it can be useful to capture the logging output. Instructions are specific to the platform.

#### Linux

Launch the `Yamcs Studio` executable from a terminal window while redirecting all output to a file named `log.txt`

```
./Yamcs\ Studio >log.txt 2>&1
```

#### Mac OS X

With `Terminal` navigate into the Yamcs Studio application bundle and launch `./Yamcs Studio` directly from there while redirecting all output to a file named `log.txt`. For example:

```
cd Yamcs\ Studio.app/Contents/MacOS  
./Yamcs\ Studio >log.txt 2>&1
```

#### Windows

With `Command Prompt` navigate into the location where you installed Yamcs Studio and launch `Yamcs Studio.exe` while redirecting all output to a file named `log.txt`. For example:

```
"Yamcs Studio.exe" >log.txt 2>&1
```