

Your Voyage Starts in the SHIRE.

SHIRE (SOFTWARE & HARDWARE INTEGRATION RUNTIME ENVIRONMENT) is an open-source, software-only simulation environment that emulates satellite flight hardware and interfaces, so teams can develop, integrate, and test an end-to-end mission from day one.

www.github.com/VoyagerTechnologies-Public/shire

INTEGRATE FLIGHT SOFTWARE BEFORE FLIGHT
HARDWARE ARRIVES

Start Earlier

Give every engineer a repeatable mission environment before physical hardware is available.

Test Fearlessly

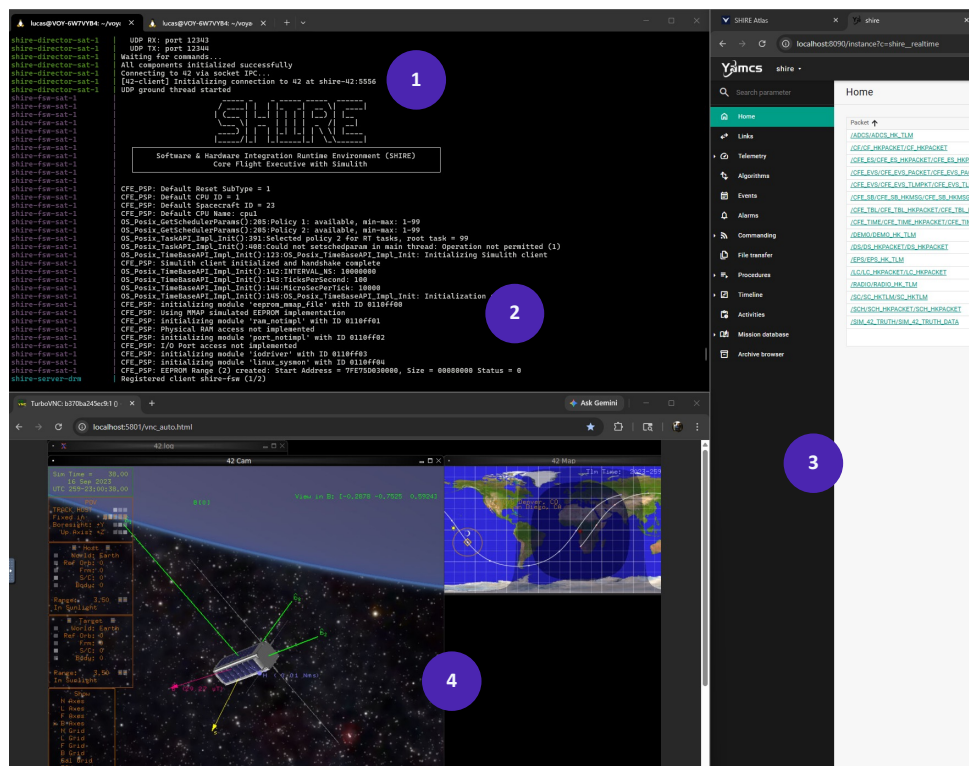
Exercise nominal, off-nominal, fault detection, and correction scenarios on demand.

Scale Confidently

Move from one component to a vehicle or constellation without changing the integration model.

ONE ENVIRONMENT CONNECTS SOFTWARE, SIMULATION, & GROUND

Command, observe, accelerate, pause, and repeat the same scenario across the synchronized stack.



1. SHIRE Director

Loads simulators, connects components, and orchestrates the environment.

2. Flight software

NASA's core Flight System (cFS) runs against simulated flight hardware and interfaces.

3. Ground software

YAMCS provides command, telemetry, and CDFP file transfer.

4. NASA GSFC's 42

Supplies the orbital environment, vehicle dynamics, and sensor inputs.

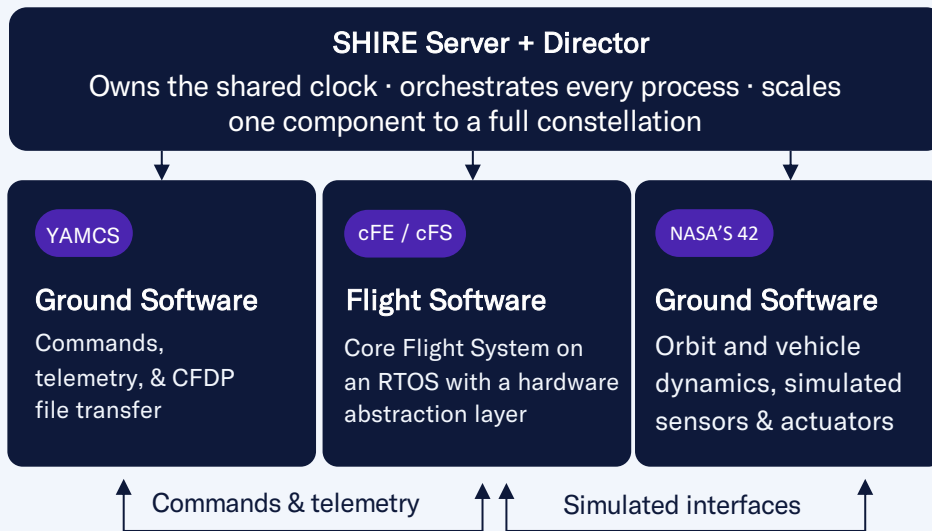
A Design Reference Mission The Whole Team Can Run.

SHIRE connects flight software, spacecraft dynamics, components, and ground systems inside one synchronized environment. Teams can develop against a realistic mission long before the full hardware stack exists.

WHAT SHIRE CONTROLS

One Stack. One Clock.

Every process advances on one clock inside a single environment you fully control.



SHIRE governs time, data, dynamics, and faults across the whole mission — from nominal to off-nominal runs.

MODULAR BY DESIGN

Build the Mission One Component at a Time

Each component is a self-contained repository with everything a developer needs to exercise, test, and run a subsystem.

ADCS Attitude Determination & Control

GPS, IMU, magnetometer, and star-tracker inputs used to control the vehicle with simulated magnetorquer bars and reaction wheels.

RADIO Command & Telemetry

Exercise spacecraft command and telemetry in transmit, receive, or duplex operating modes.

EPS Electrical Power System

Model power generation, battery storage, and distribution to the spacecraft's other subsystems.

DEMO Reference Payload

Use a demonstration instrument as a working template for building and integrating new SHIRE components.



From day one to flight —
and back again.

Clone the open-source baseline.
Join the fellowship community of missions.
Build toward flight with Voyager Technologies.

www.github.com/VoyagerTechnologies-Public/shire