Introduction to the GSF

Building a trusted ecosystem of people, standards, tooling and best practices for green software.
Who am I?

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About Our Foundation
Why do we need a Foundation?

Enable Collaboration
Gives organisations clarity regarding patent rights, IP, copyright with shared work and agreed methods of coming to a decision.

Trusted Ecosystem
Create an ecosystem of standards, tooling and best practices which can be trusted by enterprises, governments and the public.

Increased Market Size
Increases the demand for people, services, and products that support the creation and maintenance of green software.
Mission
Change how we build so there are zero harmful environmental effects.

Vision
We are building a trusted ecosystem of people, standards, tooling and best practices for creating and building green software.

Who we serve
Primarily software practitioners. Secondarily leaders, policy makers, students, and anyone in software adjacent roles.

We need changes in Tech culture, Knowledge, and Tooling so that the environmental effects from software are made a priority, studied, taught & understood, and easy to act upon.
Structure

Linux Foundation

Steering Committee

Standards WG
Policy WG
Open Source WG
Community WG
The Year in Green Software

- First newsletter
- First translation
- First elections
- GSF Global Summit 2022
- State of Green Software Project
- GSF Speakers Bureau
- CarbonHack22
- COP27 event
- SCI approved and submitted to ISO
- Green Software for Practitioners course
- GSF Patterns catalog
Representing the Global Software Industry

Our steering members

accenture  avanade

BCG  GAMMA  GitHub  Globant

intel  Microsoft  NTT DATA  Trusted Global Innovator  thoughtworks  UBS

Our general members

amadeus  aveva  university of bristol  Container Solutions

electricity maps  epam  futurewei technologies  Goldman Sachs  intesa sanpaolo  nri

kering  leaders for climate action  luise  nike unicef  the explorers  The Green Web Foundation

openuk  roost  SDIA  texas state university  time for the planet  Supercritical  synGenio AG  università di salento

virtasant  vmware  watttime
We are Growing

For profit: 26

Member organizations: 40

Non profit: 10

Academia: 4

Total number of countries represented: 190+

Growth of membership: from 26 to 40

Individual members: 970

6 languages

15+ projects
Our Projects
Measuring:
What you can't measure, you can't improve
Measuring Software Emissions

**The Software Carbon Intensity (SCI)**

We were able to release V1.0 of our Software Carbon Intensity (SCI) specification this year. The SCI is one of the core pieces for reducing carbon emissions in software. It allows measuring emissions and modeling ways on how to reduce them. The next steps include use cases and case studies, some of which are already in process. We are also working on submitting the SCI for ISO certification. Version 2.0 is anticipated for release in 2023.

\[
SCI = \left( \frac{E \times I}{M} \right) \text{ per R}
\]

- **Carbon emitted per kWh of energy, gCO2/kWh**
- **Carbon emitted through the hardware that the software is running on**
- **Energy consumed by software in kWh**
- **Functional Unit; this is how software scales, for example per user or per device**
Our Green Software Practitioners course went live in November 2022. It aims to fill the void in green software education. This free online course covers the basics of green software, and participants can get trained up quickly, acquiring the necessary knowledge at their own pace. It intends to establish a minimum and consistent level of understanding for developers. The certificate of completion ensures recognition for the knowledge gained in decarbonizing software.
State of Green Software Report

On November 10th, we announced the launch of our SOGS survey. It is the most comprehensive survey to ever be conducted on the topic of green software. There is a great need for information on the green software ecosystem, which the SOGS report will cover. We intend to conduct the survey on an annual basis, revealing best practices, industry metrics, cutting-edge developments and more.
Green Software Patterns

Our Patterns catalog is an online open-source consolidated database of green software patterns categorized by field of engineering, technology and domain. Anyone can submit a pattern, triggering a detailed review process by the foundation’s experts, who will look specifically at that pattern’s ability to reduce carbon emissions. As of this year, we have a collection of the first batch of patterns which were reviewed and approved by the GSF. We anticipate publishing more patterns on a quarterly basis going forward.
Speakers Bureau

We were also able to announce the launch of our Speakers Bureau during COP27. Recognizing the demand for expert presenters in the green software arena, the website caters to different geographies and languages. It features a catalog of speakers in green software and facilitates the search and booking of the most knowledgeable practitioners in the field.

There are currently 80 speakers registered, all subject-matter experts willing to speak about green software at industry and corporate events. An extended version of the Speakers Bureau with added features is slated for release in 2023.
Our Events
GSF Global Summit 2022

In June we held our first global summit, in which we shared our vision of changing how software is built and how to make sustainability a core priority in software development. Meetup members in 14 different countries participated in the 12-day event with various regional sessions, in-person, hybrid and virtual, culminating in the global closing ceremonies. The Global Summit stands for learning and collaboration across the continents.

It was amazing to see how so many like-minded individuals converged to talk about green software in an interactive and energizing setting. The GSF was able to provide educational content and networking opportunities for technologists looking to be more sustainable in their work.

One of the core messages was the promotion of using the Software Carbon Intensity (SCI) approach to measure carbon emissions in software. It gives developers an actionable tool to hard-wire carbon reduction into their applications.

If you have missed any of the events, session recordings can be found here! New events will be accessible through our Meetup page.
CarbonHack22

On October 13th we kicked off our first ever hackathon with winners announced on November 10th during the COP27 Decarbonization Day. We engaged developers from around the globe to build the best carbon aware application using our Carbon Aware SDK. There were 51 projects entries and a total of 395 participants. The total prize money from our sponsors amounted to US$100,000.

CarbonHack lays the foundation for continued innovation and development in green software. Adding carbon aware features to an application means we can eliminate part of its carbon footprint and reduce greenhouse gas emissions. The winner of this year’s contest developed a plugin that enables carbon-aware scheduling of AI training jobs on geographically distributed clients. Many other groundbreaking projects were submitted.
Decarbonize Software at COP27

Coinciding with COP27, we held our Decarbonize Software Event, promoting the most relevant developments in green computing. We shared the advancement of our Training and Patterns projects, the Speakers Bureau, SCI, Carbon Aware SDK and the State of Green Software report. There were a number of panel discussions on a variety of green software topics and we announced the winners of CarbonHack22.
Reducing Emissions:
Carbon Elimination, Avoidance and Removal
Great Things are Planned

Q1 2023
GSF Annual Report

Q2 2023
State of Green Software Report

Q3 2023
TEDx GSF

Q4 2023
CarbonHack23 - COP28
Join Us!

If you want to join us on our journey, head to
https://grnsft.org/report/join-us