



2020

Developer Contributions Report



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2020 Contributor Report

Executive Summary

This report summarizes the contributions to open source projects within Dronecode Foundation's umbrella during 2020. We put together the information with collaboration from the Linux Foundation and our Technical Steering Committee.

Our goal is to celebrate the thousands of contributions by individuals and organizations actively participating in our open-source projects, pushing commits, answering questions, generating supporting content, and participating in our events.

Contributions are the lifestream of our open-source projects, kept alive and moving by our thriving community. Below are the key insights of the report. We hope you find it as insightful as we do.



"Our development community has been standing together and intensified the remote collaboration, in a year that was different from anything we have ever experienced and where the world has endured complete disruption. We have an increased focus on industrial adoption, with more features contributed around safety and regulatory compliance. Our corporate members like NXP and new members like Microsoft are reflecting this trend."

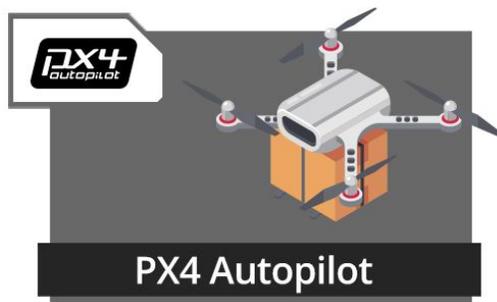
Dr. Lorenz Meier

Chairman of Dronecode Foundation,

Co-Founder and CEO of Auterion.

Open Source Projects

This report is focused on four main projects, PX4 Autopilot, QGroundControl, MAVSDK and MAVLink, they are represented by a large number of smaller repositories, which have been included in the report. Open source projects tend to outgrow a single repository. Once the simple needs increase, the need for dependencies, supporting projects, and tooling grows exponentially.



PX4 Autopilot

Founded in 2011 by Dr. Lorenz Meier, it's the centerpiece of our ecosystem, maintained by a small team of dedicated developers. The project has a BSD license, and aims to power any type of vehicle, from cargo drones to ground vehicles and submersibles.

- **Website:** <https://px4.io>
- **Source:** <https://github.com/px4/px4-autopilot>
- **License:** [BSD 3-Clause License](#)

QGroundControl

QGC in short, was originally created as the reference implementation and UI for the MAVLink protocol, it has grown to become a fully fledged mission planner, with a complete set of features that allow you to configure, tune, and update any MAVLink compliant drone. QGC is available for download on Android, iOS, Windows, Linux and macOS.



- **Website:** <http://qgroundcontrol.com>
- **Source:** <https://github.com/mavlink/qgroundcontrol>
- **License:** [Dual Licensed, Apache 2.0, GPL v3](#)



MAVSDK

The project aims to provide a simple API for managing MAVLink based drones, providing access to critical flight telemetry, and giving you full control over operations through a simple and easy to use API available in multiple languages. C++, Swift, Python, Java, and others.

- **Website:** <http://mavsdk.io/>
- **Source:** <https://github.com/mavlink/mavsdk>
- **License:** [BSD 3-Clause](#)

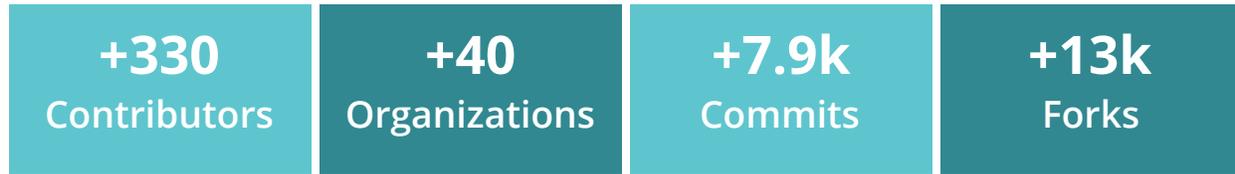
MAVLink

MAVLink is the de facto messaging protocol for drones, being used by vendors everywhere. It provides a very lightweight messaging protocol for efficient telemetry, there are multiple generators for the most commonly used programming languages, and also defines a set of microservices for systems such as mission planning, camera control, and for configuration of parameters, etc.



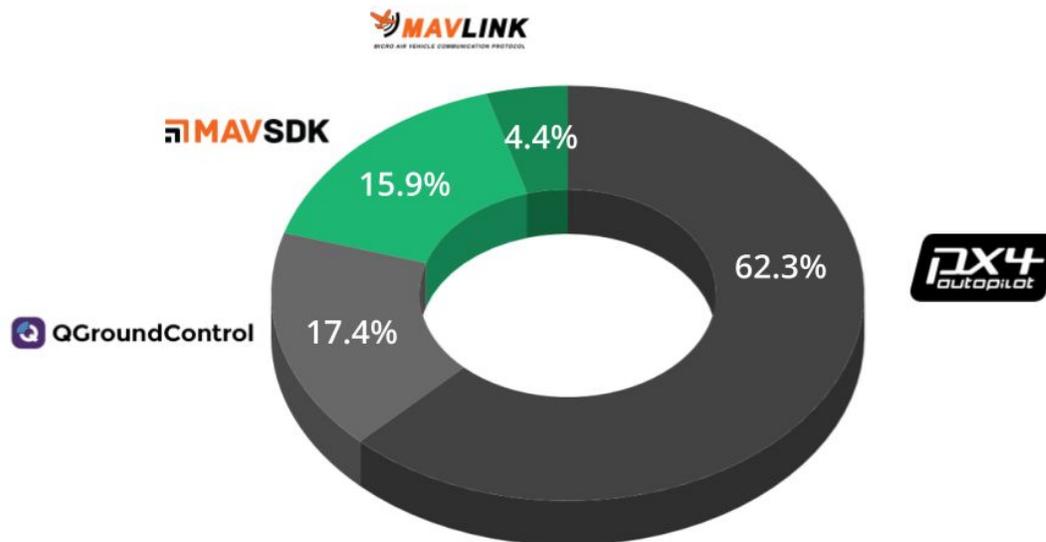
- **Website:** <https://mavlink.io>
- **Source:** <https://github.com/mavlink/mavlink>
- **License:** [MIT for message definitions, \(L\)GPLv3 for the generators](#)

Total Contributions



Top Level Distribution of Contributions

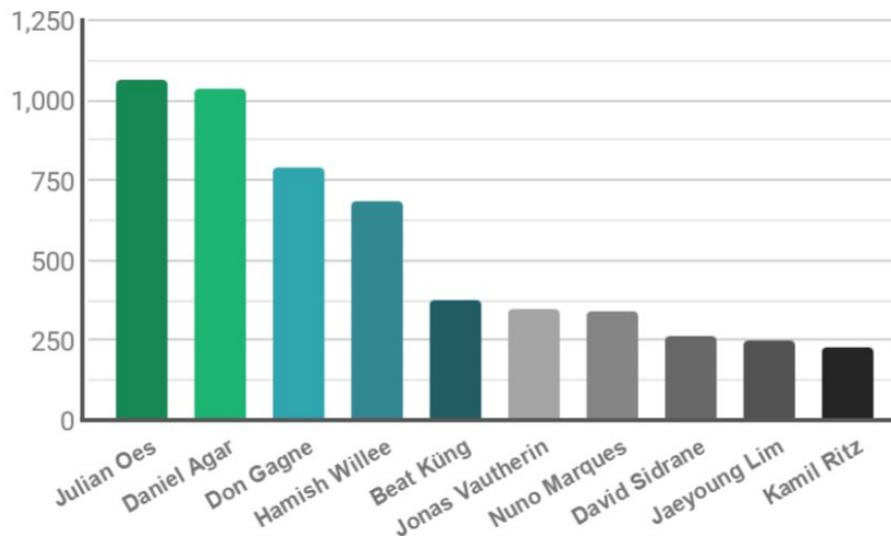
From our top-level projects, the PX4 Autopilot remains the centerpiece with the most contributions. This creates an exciting waterfall effect, with most PX4 features having counterparts on the other projects, reflected in a noteworthy increase in commits for all projects. It's also imperative to note that while the MAVLink project remains very active, it's been stable for a while and only sees new feature contributions.



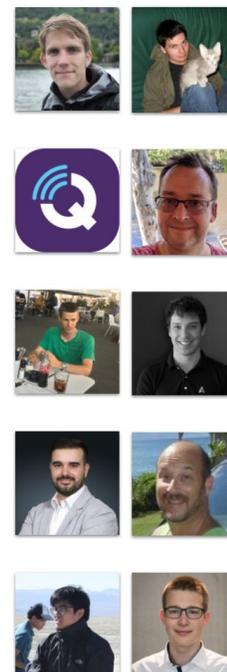
| Project | Commits | Contributors | Organizations | Repositories |
|----------------|--------------|--------------|---------------|--------------|
| PX4 Autopilot | 4,956 | 193 | 34 | 23 |
| QGroundControl | 1,380 | 53 | 9 | 11 |
| MAVSDK | 1,260 | 35 | 8 | 11 |
| MAVLink | 353 | 50 | 14 | 4 |
| | 7,949 | 331 | | |

Top 10 Contributors

The top ten contributors combined managed **more than 75%** of the total contributions last year. What's more, they were not only pushing new features, they took on mentoring, helped with documentation, fixed critical issues, participated in coordination calls, and helped represent our community at international events.



| Contributors | Commits | Organization |
|--|---------|------------------------|
| <u>Julian Oes</u> | 1,064 | Auterion |
| <u>Daniel Agar</u> | 1,039 | Individual Contributor |
| <u>Don Gagne</u> | 789 | Individual Contributor |
| <u>Hamish Willee</u> | 685 | Auterion |
| <u>Beat Küng</u> | 377 | Auterion |
| <u>Jonas Vautherin</u> | 349 | Auterion |
| <u>Nuno Marques</u> | 342 | Auterion |
| <u>David Sidrane</u> | 262 | Auterion |
| <u>Jaeyoung Lim</u> | 247 | Auterion |
| <u>Kamil Ritz</u> | 232 | Auterion |

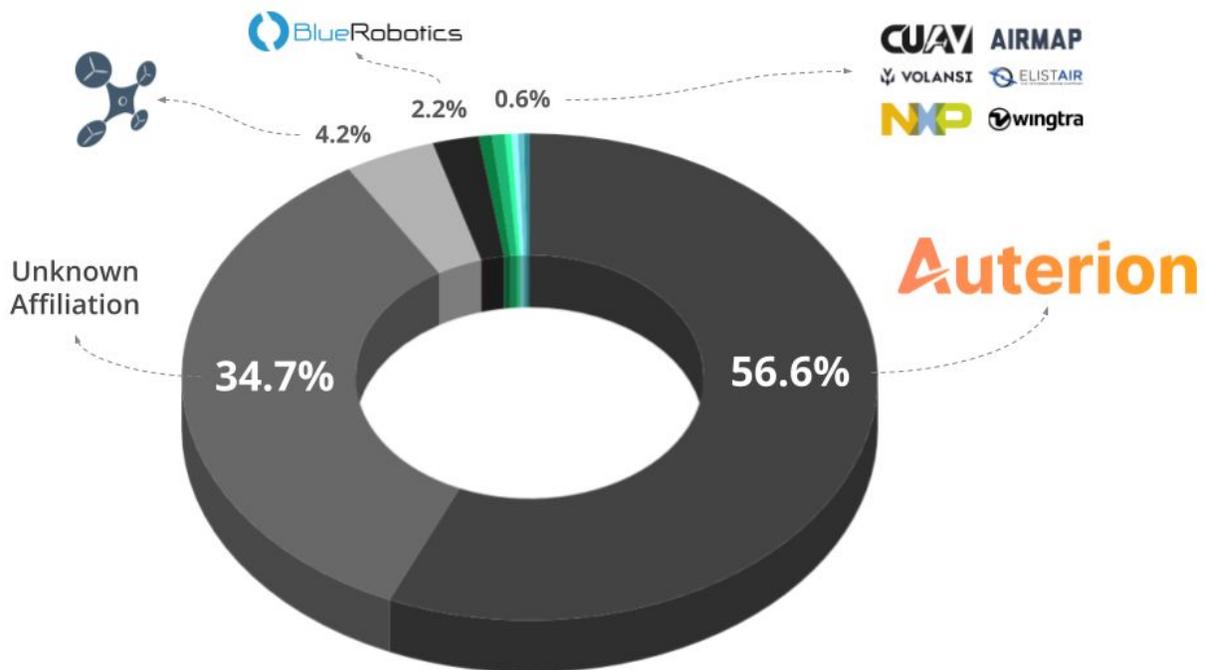


Contributing Organizations

Contributions to all of our projects are made available thanks to organizations committed to open source core values. These companies align their internal roadmaps and work with the open-source communities to advance the Drone Industry. It's important to note the extraordinary steps some of the top contributing companies take by setting internal policies that allow their engineers to devote time to work on open-source projects and participate in public forums.

We would also like to point out that most of our community organizations are contributing code and participating in special interest groups and workgroups. In those groups, they define the groundwork for future software and hardware standards, some of which materialize in upstream contributions, while others in open hardware standards. Ultimately to the greater benefit of the community and industry.

Distribution of Contributions



Top 10 Contributing Organizations

We also want to give a special mention to **Auterion**. They have been one of the main driving forces on our open source community since its inception, not only as a Platinum member to the Dronecode Foundation but also as the top contributor, with a staggering 56.6% of total commits, investing the engineering resources to lead in most of the core areas of our community. Allowing everyone to leverage their advancements for the greater good of the industry.

| Organizations | Commits | Authors |
|--|---------|---------|
| <u>Auterion</u> | 4,420 | 41 |
| Unknown Affiliation | 2,709 | 240 |
| <u>Drone Solutions</u> | 328 | 1 |
| <u>Blue Robotics Inc</u> | 169 | 2 |
| <u>CUAV Tech Inc. co., Ltd.</u> | 47 | 4 |
| <u>AirMap, Inc.</u> | 46 | 2 |
| <u>Volansi</u> | 24 | 1 |
| <u>Elistair</u> | 23 | 1 |
| <u>NXP Semiconductors Netherlands B.V.</u> | 22 | 3 |
| <u>Wingtra AG</u> | 21 | 2 |

Auterion



 BlueRobotics

CUAV

AIRMAP

 VOLANSI

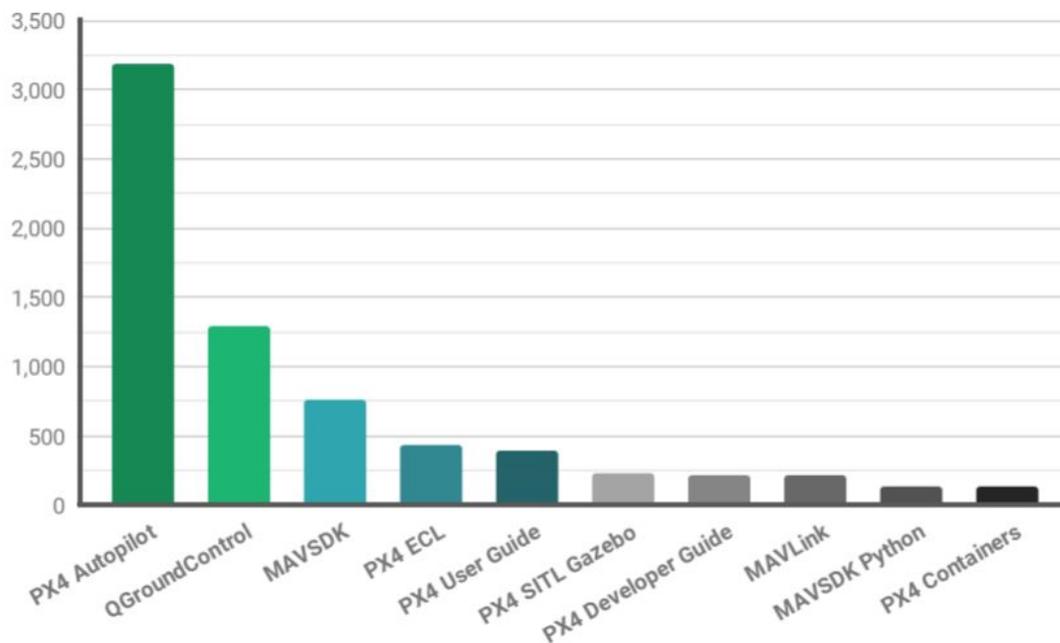
 ELISTAIR
THE TETHERED DRONE COMPANY

NXP

 wingtra

Top 10 Repositories

This report shows the diverse ecosystem of components under the umbrella of the four top-level projects. With notable mentions for up and coming projects such as the SITL Gazebo and PX4 Containers, which overtook essential advancements in the last year, thanks to their maintainers' most extraordinary efforts.



| # | Repositories | Commits | Authors | Organizations |
|----|-------------------------------------|---------|---------|---------------|
| 1 | PX4 Autopilot | 3,191 | 135 | 29 |
| 2 | QGroundControl | 1,289 | 53 | 7 |
| 3 | MAVSDK | 758 | 35 | 8 |
| 4 | PX4 ECL | 436 | 25 | 6 |
| 5 | PX4 User Guide | 389 | 37 | 11 |
| 6 | PX4 SITL Gazebo | 236 | 35 | 11 |
| 7 | PX4 Developer Guide | 222 | 38 | 5 |
| 8 | MAVLink | 217 | 43 | 14 |
| 9 | MAVSDK Python | 136 | 10 | 4 |
| 10 | PX4 Containers | 129 | 6 | 4 |



Data and Sources



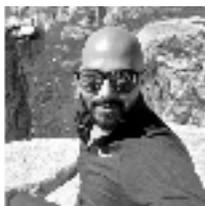
All of the data used in this report is publicly available on **GitHub**, on more than 40 repositories, and was put together using **LFX Insights**, the Linux Foundation tool, which allowed us to get a 360 view of our projects, tracking critical metrics across our community. It enabled us to do a deep breakdown of contributions over time through a simple dashboard, providing high-level trends for our projects.

We encourage you to take advantage of the tool and play with the available dashboards for the Dronecode Foundation.

<https://insights.lfx.linuxfoundation.org/projects/dronecode/dashboard>

LFX Insights from The Linux Foundation

“Insights is a multi-tenant highly available and scalable analytics platform that provides complete visibility into an open source project health and performance. The tool is free for all the Linux Foundation projects. The platform currently hosts more than 350 open source projects across many different foundations within the Linux Foundation community. Many projects have already been using LFX Insights for reporting their community stats and enable maintainers to have better visibility into their community across the various tools they use.”



Sachin Gupta

Technical Product Manager for LFX Insights

The Linux Foundation

Contributing

Our open-source projects are open to anyone interested in participating, and the maintainer teams adhere to **contribution guidelines** available on our documentation. Each project has a maintainer team responsible for the codebase's technical direction, helping onboard newcomers, triaging new issues, and reviewing contributions. The maintainers, also known as the "Dev Teams," host recurrent public calls to interact with the community and discuss the roadmap and latest developments, **you can locate the next call on our open calendar**.

Code of Conduct

In addition to our contribution guidelines, we adopted a **code of conduct** that outlines the community rules and behavior expectations. It's meant to help you know how to be an amiable and professional contributor and community member. This code aims to foster an open, inclusive, and welcoming environment for everyone in our community.

Participating in the Community

Anyone is welcome to join our ever-growing community. We are always looking to help and are eager to collaborate. There are multiple opportunities to participate at every level. Regardless of your expertise, there's room for you. You can participate in our frequent public calls, join our events, or simply collaborate on our Forums and Slack. Feel free to say hi! There's always a friendly community member waiting to greet you.

- **Future Events:** **<https://www.dronecode.org/calendar/>**
- **Slack:** **<http://slack.px4.io>**
- **Forums:** **<https://discuss.px4.io>**

About Dronecode Foundation

The Dronecode Foundation, a Linux Foundation project, promotes innovation through open source and open standards in the drone industry. It fosters collaboration to enable widespread adoption of open source technologies and helps accelerate the development of the PX4 Autopilot and the surrounding open source projects. www.dronecode.org

Supported by our Members

Auterion



Become a Member

The easiest way to contribute back to the community, and start participating in the multiple efforts from the Foundation, is to reach out to our team, we can help you identify the best way to get you started in open source. **[Explore Membership Opportunities](#)**

Follow Dronecode for further updates.

- **[Twitter](#)**
- **[LinkedIn](#)**
- **[Facebook](#)**

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