

# Fledge - Mature to Stage Three (Impact)

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## Status

- **Presented to the TAC:** January 12, 2022 - [Recording](#)
- **TAC Project Review:**
  - Subgroup Review Meeting: January 25, 2022 - [Recording](#)
  - Subgroup Readout:
- **TAC Vote Approved:**
- **Governing Board Vote Approved:**

## Project Resources

- **Web site:** <https://www.lfedge.org/projects/fledge/>
- **Wiki:** [Fledge Home](#)
- **Analytics:** <https://insights.lfx.linuxfoundation.org/projects/lfedge%2Ffledge/dashboard>
- **Communication & support:** [LF Edge Slack](#), [automatic invite](#) if you have no account there
  - NOTE: Fledge's official Slack channels are all prefixed with "fledge"
- **Mailing Lists and Calendar:** LF Edge groups: <https://lists.lfedge.org/groups>
  - Fledge: <https://lists.lfedge.org/g/fledge>
  - Fledge TSC: <https://lists.lfedge.org/g/fledge-tsc>
- **YouTube playlist:** [https://www.youtube.com/playlist?list=PLgohd895XSUeQyifp-kq\\_xEUqGFLCFGgJ](https://www.youtube.com/playlist?list=PLgohd895XSUeQyifp-kq_xEUqGFLCFGgJ)

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## Stage 3: Impact Stage

### Definition

The Impact Stage is for projects that have reached their growth goals and are now on a self-sustaining cycle of development, maintenance, and long-term support. Impact Stage projects are widely used in production environments and have large, well-established project communities with a number of contributors from at least two organizations.

### Examples

1. Projects that have publicly documented release cycles and plans for LTS.
2. Projects that have themselves become platforms for other projects.
3. Projects that are able to attract a healthy number of committers on the basis of its production usefulness (not simply 'developer popularity').
4. Projects that have several, publicly known, end-user deployments.

### Expectations

Impact Stage projects are expected to participate actively in TAC proceedings, and as such have a binding vote on TAC matters requiring a formal vote, such as the election of a TAC Chair. They receive ongoing financial and marketing support from the Foundation, and are expected to cross promote the foundation along with their activities.

### Acceptance Criteria

To graduate from At Large or Growth status, or for a new project to join as an Impact project, a project must meet the Growth stage plus Impact stage criteria:

#### Stage 2: Growth requirements:

- Development of a growth plan (to include both roadmap of projected feature sets as well as overall community growth/project maturity), to be done in conjunction with their project mentor(s) at the TAC.
- Document that it is being used in POCs.
- Demonstrate a substantial ongoing flow of commits and merged contributions.
- Demonstrate that the current level of community participation is sufficient to meet the goals outlined in the growth plan.
- Demonstrate evidence of, or a plan for, interoperability, compatibility or extension to other LF Edge Projects. Examples may include demonstrating modularity (ability to swap in components between projects).
- Since these metrics can vary significantly depending on the type, scope and size of a project, the TAC has final judgement over the level of activity that is adequate to meet these criteria.
- Receive a two-thirds vote of all TAC representatives that do not abstain the vote and a majority vote of the Governing Board to move to Growth Stage.

#### Stage 3: Impact requirements:

- Have a defined governing body of at least 5 or more members (owners and core maintainers), of which no more than 1/3 is affiliated with the same employer. In the case there are 5 governing members, 2 may be from the same employer.

- Have a documented and publicly accessible description of the project's governance, decision-making, and release processes.
- Have a healthy number of committers from at least two organizations. A committer is defined as someone with the commit bit; i.e., someone who can accept contributions to some or all of the project.
- Demonstrate evidence of interoperability, compatibility or extension to other LF Edge Projects. Examples may include demonstrating modularity (ability to swap in components between projects).
- Adopt the Foundation Code of Conduct.
- Explicitly define a project governance and committer process. This is preferably laid out in a [GOVERNANCE.md](#) file and references a [CONTRIBUTING.md](#) and [OWNERS.md](#) file showing the current and emeritus committers.
- Have a public list of project adopters for at least the primary repo (e.g., [ADOPTERS.md](#) or logos on the project website).
- Other metrics as defined by the applying Project during the application process in cooperation with the TAC.
- Receive a two-thirds vote of all TAC representatives that do not abstain the vote and a majority vote of the Governing Board to move to Impact stage. Projects can move directly from At Large to Impact, if they can demonstrate sufficient maturity and have met all requirements.

## Compliance with Requirements

### Stage 2: Growth

Requirement	Evidence
Growth plan	<p>The Fledge project and community plans to create a strong ecosystem around Fledge to attract more users and stimulate community growth by:</p> <ul style="list-style-type: none"> <li>• Making It <b>easy</b> for everyone <b>to use</b> the project through <b>documentation</b>.</li> <li>• Clearly explaining how to <b>contribute</b>.</li> <li>• Building personal relationships, fostering <b>communication</b> and <b>collaboration</b>.</li> <li>• Make people feel included. (mentoring?)</li> <li>• Setting a <b>code of conduct</b>.</li> </ul> <p>The Fledge community has been growing steadily over the years incorporating a diverse set on contributors from various organizations.</p> <ul style="list-style-type: none"> <li>• Recently the <a href="#">Fledge TSC</a> was expanded its voting members to incorporate a diverse representation of organizations.</li> <li>• Growing attendance from a variety of users and contributors.</li> <li>• Demonstrations of new features.</li> </ul> <p>The Fledge community has identified 4 additional organizations focused on Industrial IIoT standards and systems. We intend to grow the Fledge community by engaging all 4 in PoCs, edge strategies and edge contributions. The four organizations are LF Energy, OSDU, CESMII and the Eclipse Foundation.</p> <ul style="list-style-type: none"> <li>• <a href="#">LF Energy</a>: is an open source foundation that focuses on power systems hosted within the Linux Foundation.</li> <li>• <a href="#">OSDU (Open Subsurface Data Universe)</a>: The OSDU Forum is developing an open source, standards based, technology agnostic data platform. Primarily focuses on oil and gas and renewables.</li> <li>• <a href="#">CESMII</a>: Radically accelerate the development and adoption of advanced sensors, controls, platforms, and models, to enable Smart Manufacturing (SM) to become the driving sustainable engine that delivers real-time business improvements in U.S. manufacturing.</li> <li>• <a href="#">Eclipse Foundation</a>: The Eclipse Foundation provides our global community of individuals and organizations with a mature, scalable, and business-friendly environment for open source software collaboration and innovation.</li> </ul> <p>See more under <a href="#">Growth Plan</a>.</p>
Used in PoCs	<p>Several public <a href="#">Use Cases</a> cases have been documented and implemented on PoCs.</p> <p>New ones include:</p> <ul style="list-style-type: none"> <li>• <a href="#">Open Horizon Smart Agriculture SIG</a>: <ul style="list-style-type: none"> <li>• <a href="#">Milestone 1: Table Garden</a></li> <li>• <a href="#">Milestone 2: Outdoor single sensor</a></li> </ul> </li> <li>• <a href="#">FledgePOWER Use Cases</a> <ul style="list-style-type: none"> <li>• <a href="#">Telecontrol network architecture example 1</a></li> <li>• <a href="#">Telecontrol network architecture example 2</a></li> <li>• <a href="#">Demo</a></li> </ul> </li> <li>• <a href="#">Fledge OSDU Slides</a></li> <li>• <a href="#">NIST Team SmartIoT</a></li> <li>• <a href="#">UC Davis Winery of the future - Opus One/UC Davis</a></li> </ul> <p>For further info: <a href="#">Fledge Home</a></p>
Substantial ongoing commits and contributions	<p><a href="#">Fledge LFX Insights (Last 5 Years)</a></p>

<p>Community participation meets growth plan goals</p>	<p>Two main industrial communities in energy verticals have been the main focus but not limited to:</p> <ul style="list-style-type: none"> <li>• <a href="#">LF Energy</a>: is an open source foundation that focuses on power systems hosted within the Linux Foundation.</li> <li>• <a href="#">OSDU (Open Subsurface Data Universe)</a>: The OSDU Forum is developing an open source, standards based, technology agnostic data platform. Primarily focuses on oil and gas and renewables.</li> <li>• <a href="#">NIST Team SmartIoT</a></li> <li>• <a href="#">UC Davis Winery of the future - Opus One/UC Davis</a></li> </ul> <p>More information on past and ongoing collaboration can be found here: <a href="#">Cross-LF Edge Collaboration</a>, <a href="#">Fledge Roadmap 2020/2021</a> and <a href="#">Fledge Home</a>.</p> <h2>Achievements</h2> <h3>FledgePOWER</h3> <p><a href="#">FledgePOWER</a> is a multi-protocol translation gateway for power systems based on the industrial IoT LF Edge project. This cross foundation collaboration between <a href="#">LF Edge</a> and <a href="#">LF Energy</a> ensures strong cooperative governance and technical alignment between the two communities. FledgePOWER aims to build and grow a community of end-users, developers, utilities, and other players to collaborate to solve current and future challenges in the energy space. Further information can be found on:</p> <ul style="list-style-type: none"> <li>• <a href="#">Architecture</a></li> <li>• <a href="#">Community</a></li> <li>• <a href="#">Ongoing Work</a></li> <li>• <a href="#">Roadmap</a></li> <li>• <a href="#">Use Cases</a></li> </ul> <ul style="list-style-type: none"> <li>• <a href="#">Telecontrol network architecture example 1</a></li> <li>• <a href="#">Telecontrol network architecture example 2</a></li> <li>• <a href="#">Demo</a></li> </ul> <h3>OSDU Edge</h3> <p>OSDU has selected Fledge and EVE as the edge stack architecture for <a href="#">OSDU Edge</a>. Meeting <a href="#">OSDU Edge</a> requirements with <a href="#">LF Edge</a> projects mitigating lock-in through vendor-neutral governance and interoperable solutions.</p> <p>The architecture was successfully demoed to OSDU members in October, 2021.</p> <ul style="list-style-type: none"> <li>• <a href="#">Fledge OSDU Slides</a></li> </ul> <p>See more under <a href="#">Growth Plan</a>.</p>
<p>Evidence of interoperability, compatibility with other LF Edge projects</p>	<p>The latest Fledge collaboration includes:</p> <ul style="list-style-type: none"> <li>• <a href="#">Open Horizon Smart Agriculture SIG</a>: The Smart Agricultural special interest group is optimizing agriculture with technology, and using Fledge in the following use cases: <ul style="list-style-type: none"> <li>• <a href="#">Milestone 1: Table Garden</a></li> <li>• <a href="#">Milestone 2: Outdoor single sensor</a></li> </ul> </li> <li>• <a href="#">Project EVE</a> <ul style="list-style-type: none"> <li>• <a href="#">Fledge OSDU Slides</a></li> </ul> </li> </ul> <p>More information on past and ongoing collaboration can be found here: <a href="#">Cross-LF Edge Collaboration</a>, <a href="#">Fledge Roadmap 2020/2021</a> and <a href="#">Fledge Home</a>.</p>

## Stage 3: Impact

Requirement	Evidence
<p>Governing body of at least 5, no more 1/3 from same employer</p>	<p>The <a href="#">Technical Steering Committee (TSC)</a> has expanded its voting members to 6 as follows:</p> <ul style="list-style-type: none"> <li>• <b>Mark Riddoch - Dianomic - Chair</b></li> <li>• Tom Arthur - Dianomic</li> <li>• Daniel Lazaro - OSIsoft now part of AVEVA</li> <li>• Benoit Jeanson - RTE</li> <li>• Robert Raesemann - Raesemann Enterprises</li> <li>• Mike Styer - Google</li> </ul>

Documented governance, decision-making, release processes

Fledge is an independent open-source project and not controlled by any single company. To emphasize this Fledge is governed under the Linux Foundation Edge and has graduated through the different [Project Stages: Definitions and Expectations](#). Fledge is currently a Stage 2 project under this framework. For more information go to the [Governance](#) section.

The following documented processes are in place:

- [Repository Approval Policy](#)
- [TSC Email Votes](#)
- [Technical Steering Committee \(TSC\)](#)

Healthy number of committers from at least two orgs

### Organization Engagement

The percentage of commits coming from affiliated contributors, unaffiliated contributors and independent contributors. Affiliated Contributors are the ones who are contributing (or have contributed) to the project on behalf of an organization while for Unaffiliated contributors the organization association is still 'Unknown'. Individual Contributors are those who are contributing to the project at an individual capacity and have no affiliations to any organization.



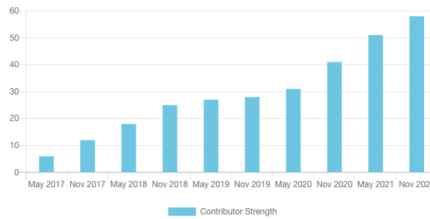
#### Key Insights

- A Total of 13 organizations participated in code commits during the last 5 Years.
- 1 organizations contributed to 50% of the total commits during the last 5 Years.
- An average of 22.14 commits were contributed by individual contributors during the last 5 Years.
- An average of 0.33 commits were contributed by unaffiliated contributors during the last 5 Years.

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### Contributor Strength

The growth in the aggregated count of unique contributors analyzed during the selected time period. A contributor is anyone who is associated to the project by means of a commit or any activity on Pull Requests / Changesets.



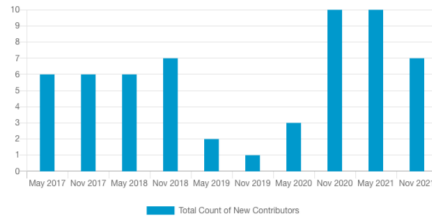
#### Key Insights

- The contributor strength **increased** by **866%** during the last 5 Years.
- The contributor strength grew the most between the time period **May 2020 and Nov 2020** during the last 5 Years.
- The average contributor strength was **30** during the last 5 Years.

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### New Contributor Growth

A new contributor is defined as someone who performed their first code activity during the selected time period.



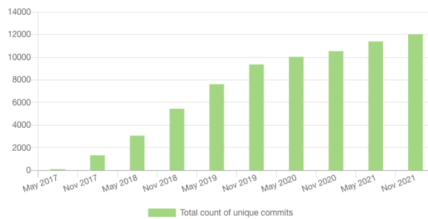
#### Key Insights

- New code contributors **increased by 16%** during the last 5 Years.
- The average count of new contributors was 5 during the last 5 Years.
- The highest growth in the number of new contributors joining the project was seen between May 2020 - Nov 2020 during the last 5 Years.
- The most decline in the number of new contributors joining the project was seen between Nov 2018 - May 2019 during the last 5 Years.

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### Commits Growth

The growth in terms of the aggregated count of total number of unique commits during the selected time period.



#### Key Insights

- An average of 7.10K commits were pushed by active code contributors during the last 5 Years.

DLFX Insights

[Community Trends \(5 years\)](#)

[Technical Metrics \(5 years\)](#)

[Collaboration Metrics \(5 years\)](#)

[Community Leaderboard \(5 years\)](#)

Evidence of interoperability, compatibility with other LF Edge projects

The latest Fledge collaboration includes:

- [Open Horizon Smart Agriculture SIG](#): The Smart Agricultural special interest group is optimizing agriculture with technology, and using Fledge in the following use cases:
  - [Milestone 1: Table Garden](#)
  - [Milestone 2: Outdoor single sensor](#)
- [Project EVE](#)
  - [Fledge OSDU Slides](#)

More information on past and ongoing collaboration can be found here: [Cross-LF Edge Collaboration](#) and here [Fledge Roadmap 2020/2021](#).

Adopt LF Code of conduct

The Fledge community adheres to the [LF Code of Conduct](#) as described here: [Code of Conduct](#)

Explicitly define a project governance and committer process

The Fledge community has defined and documented the following [Repository Approval Policy](#) as well as the committer process here: [CONTRIBUTING.md](#) and project [Governance](#).

Public list of project adopters

The Fledge [Community](#) welcomes contributions of all types; documentation, code changes, new plugins, scripts, just simply reports of the way you use Fledge or suggestions of features you would like to see within Fledge. A public list of project adopters can be found [here](#).

For a complete list: [Fledge Home](#).

<p>&gt;= 2/3 approval vote of TAC &amp; majority of Governing Board</p>	
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