Linux Foundation

The **Linux Foundation** is also known as **LF** in short. It is a non-profit automation consortium as a merger among free Standards Group and Open Source Development Labs to standardize Linux. It supports the growth and enhances its technical adoption.

It also promotes and hosts the open-source software project's collaborative development.

It was started in 2000, upon the **Open-Source Development Labs** (in short OSDL) and it has now become the enterprise. It was present at the time Open Source Development Labs incorporated with the Free Standards Group (FSG in short).

The foundation of Linux sponsors the implementation of the lead maintainer that is Greg Kroah-Hartman and Linux creator is Linus Torvalds. It is supported by various members like **Tencent, Samsung, QUALCOMM, Orange SA, Oracle, NEC, Microsoft, Intel, IBM, Huawei, Hitachi, Google, Fujitsu, Facebook, Cisco, VMware, AT&T,** and **developers** around the world as well.

The foundation of Linux has improved its support programs by open source projects, certification and training, and events. The projects which are hosted on the Linux foundation such as Xen Project, Cloud Foundry Foundation, Cloud-Native Computing Foundation, Hyperledger, Open Network Automation Platform (ONAP), Automotive Grade Linux, Kubernetes, Linux kernel project, and many more.
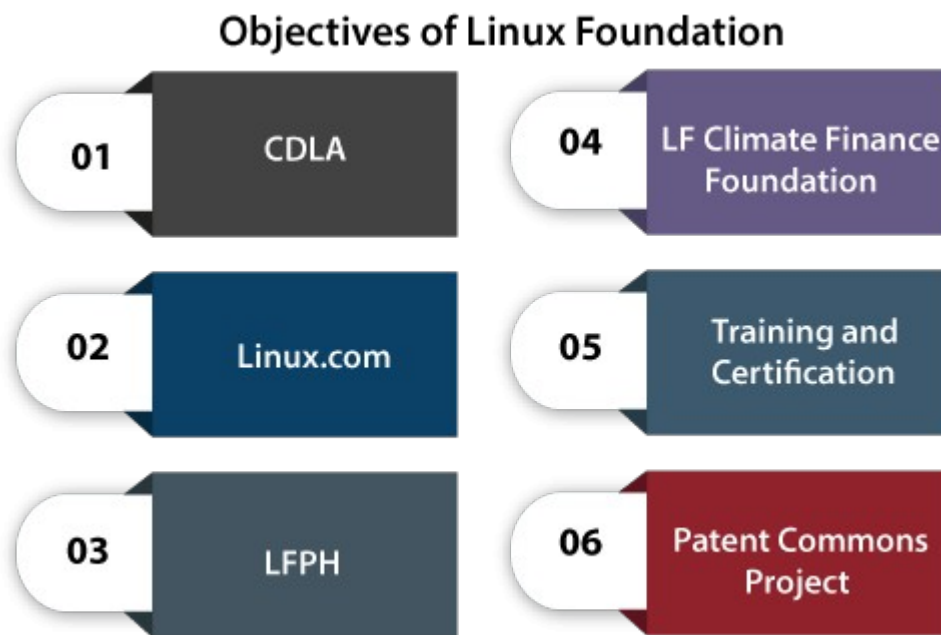
Objectives of Linux Foundation

The foundation of Linux is dedicated to creating sustainable ecosystems across open source projects for accelerating commercial adoption and technology development. Currently, the foundation sponsors the working of the lead maintainer that is Greg Kroah-Hartman and Linux creator that is Linus Torvalds.

It aims to facilitate a neutral home in which the development of the Linux kernel could be accelerated and protected. Also, the foundation hosts various collaborative events between the end-users, industry, software developers, and Linux technical community to resolve pressing problems facing open source and Linux.

The foundation of Linux supports the Linux community by facilitating technical education and information through its various annual events like Open-Source Summit (called LinuxCon formally, inaugurated in 2009 September), Linux Kernel Developers Summit, and Open-Source Leadership Summit. The travel fund of a developer is available.

Objectives of Linux Foundation

Objectives of Linux Foundation

01 CDLA	**04** LF Climate Finance Foundation
02 Linux.com	**05** Training and Certification
03 LFPH	**06** Patent Commons Project

Community Data License Agreement (CDLA)

The Community Data License Agreement is the legal framework to share data which was announced in October 2017. There are mainly two types of licenses of initial CDLA:

○The community data license agreement-Sharing License was created to comprise the copyleft principles in any data license. The CDL puts various terms in position for ensuring that downstream recipients could modify and use that data. Also, they are needed to share the modifications to the data.

○The Community Data License Agreement is quite similar to the permissive open source licenses. In these licenses, the data publisher permits anyone to modify and use and implement what they wish using data without obligations for sharing modifications or changes.

Linux.com

The Linux Foundation introduced that they will take over the Linux.com management through its past owners such as Inc., SourceForge.

The Linux.com site was relaunched in 2009 May 13, shifting away through its past incarnation as any news site for becoming the central source for **Linux documentation, software, information, tutorials, answers around the server, Mobile, embedded areas, and netbook /desktop**.

It contains a directory of Linux hardware and software. Linux.com plans to depend on the community to drive and create the conversation and content similarly Linux itself.

Linux Foundation Public Health (LFPH)

The Linux foundation introduced the LFPH in 2020 during the COVID-19 pandemic. It was a program which was dedicated for supporting and advancing the work led of virus contact tracing by Apple and Google and the notification systems of Bluetooth.

The LFPH is concentrating its effort on the applications of public health such as the first initiative of the effort: the notification app expected for governments wishing to launch the notification networks of the privacy-focused exposure.

LF Climate Finance Foundation

The Linux foundation introduced the LF Climate Finance Foundation in September 2020. It was a newer initiative for encouraging investment in open source and AI-enhanced analytics to define climate changes.

The LFCF plans to create an environment that would use open-source data for helping academia sectors, NGOs, and financial investment to help The exposure of model companies to climate changes. S&P Global, Microsoft, Amazon, Allianz will be the founding number of the initiative.

Training and certification

○The training program of Linux foundation features content and instructors from the open-source communities Linux developer leaders. Various participants get Linux training which is vendor-neutral and made with oversight through Linux development community leaders.

○The in-person and online training programs of the Linux Foundation aim to provide network opportunities, broad, and foundational knowledge.

○In March 2014, the edX and Linux Foundation partnered to facilitate a massive and free open online class entitled introduction to Linux.

○It was the initial within the series of various ongoing free contributions from the organisations whose modern MOOCs catalogue contain intro to DevOps, intro to OpenStack, intro to Cloud Infrastructure Technologies,itro to Apache Hadoop, intro to Cloud Native Software Architecture and Cloud Foundry.

o The Linux Foundation defined a self-paced course developed for helping prepare administrators for the certified OpenStack administrator exam of the OpenStack foundation.

Patent Commons Project

The Patent Commons Project is composed of every patented software that has been made available to the community of open-source. For software to be taken to be inside the commons, the owner of the patent should insure that the developers will not be claimed for infringement.

But, there might be a few limitations on the patented code uses. Initially, the concept was provided substance in 2001 via Red Hat when it launched the Patent Promise.

In 2005, the Patent Comments Project was announced by the Open-Source Development Labs (OSDL). The project core is the online patent commons mention documenting information and library aggregating regarding patent-related pledges and some other types of legal solutions aimed at the open-source software community. The project mentioned 53 patents as of 2015.
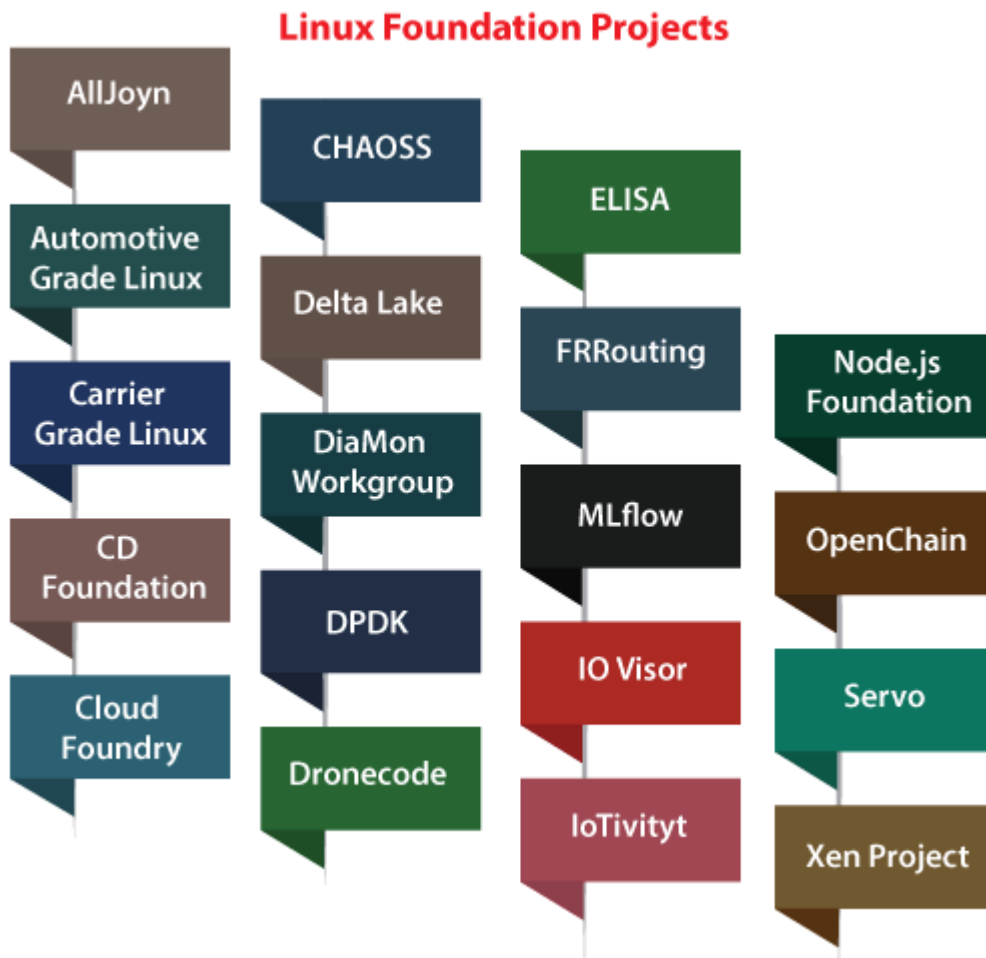
Linux Foundation Projects

Independently, Linux Foundation projects collaborative projects originally are funded project of software that harness the strength of collaborative improvement to fuel the innovation around ecosystems and industries. Thousands of developers and 500+ companies from across the world give to open source software projects.

The total Source code lines available in collaborative projects of the Linux Foundation are **115,013,302** as of 2015 September. The total effort amount needed to retrace the collaborative development steps for the projects is 41,192.25 person-years.

It will take 30 years and 1356 developers for recreating the codebases. The total financial amount of development costs of the Linux Foundation collaborative projects was expected at $5 billion.

A few of the projects are as follows:

Linux Foundation Projects

AllJoyn	CHAOSS	ELISA	
Automotive Grade Linux	Delta Lake	FRRouting	Node.js Foundation
Carrier Grade Linux	DiaMon Workgroup	MLflow	OpenChain
CD Foundation	DPDK	IO Visor	Servo
Cloud Foundry	Dronecode	IoTivityt	Xen Project

AllJoyn

AllJoyn can be defined as the framework of an open-source application for linked devices and services. In 2013, the framework was organized upon the Allseen alliance. Now, the project is sponsored as the independent project of Linux Foundation by the Open Connectivity Foundation (OCF).

Automotive Grade Linux

Automotive-grade Linux is a collaborative open-source project establishing an open and Linux-based environment for the linked car that could serve as a de facto basic for an industry. Initially, concentrated on In-Vehicle Infotainment, heads up display, AGL roadmap contains instrument cluster, autonomous and telemetric driving.

The objectives of AGL are to facilitate:

oThe Linux OS stack of an automotive-focused core that matches the shared and common needs of an automotive ecosystem.

○An open, collaborative, and transparent platform for Tier One Suppliers, Automotive OEMs, and the software and semiconductor software vendors for creating in-vehicle software.

○A fixed Linux distribution that ensures rapid prototyping for those developers who are New to teams or Linux with open source experience.

○A collaborative voice to work with various open-source projects and establishing newer open source solutions.

AGL technology

AGL published the first release on June 30, 2014. Primarily, it was for demo applications and based on Tizen IVI. AGL developed the initial reference environment with the Unified Code Base distribution. The initial UCB publication, known as **Agile Albacore** was published in 2016 January and leverages software elements from GENIVI Alliance, Tizen, and AGL.

Version 2.0 of UCB existed in 2016 July and it was called Brilliant Blowfish. It included various new features such as the application framework, audio routing, video playback, and rear seat display.

Version 3.0 of UCB was published in 2017 January and it was called Charming Chinook. AGL plans for supporting other use cases like telematics systems and instrument clusters.

Carrier Grade Linux

The main purpose of the CGL workgroup is to an alliance with network equipment carriers and providers for gathering requirements and generates several vacations that the vendors of Linux distribution can implement.

It also serves for using and implemented needs to foster establishment project that would assist within these requirements of upstream integration.

CD Foundation

The **Continuous Delivery Foundation** performs as the vendor-neutral home of various fastest-developing projects for continuous delivery such as Tekton, Spinnaker, Jenkins X, and Jenkins. It supports the practitioners of DevOps with the open model, industry guidelines, portability focus, and training.

Cloud Foundry

It is a multi-cloud and open-source plate form as a service what which is managed by them cloud foundry foundation. The Cloud Foundry Foundation was developed as a non-profit and independent Linux Foundation Project in January 2015.

Cloud Native Computing Foundation

The Cloud Native Computing Foundation was founded in 2015. It exists for helping growing container technology and aligning the tech industry across its evolution. The Cloud Native Computing Foundation was launched with Kubernetes 1.0, which was shared to the foundation via Google as the seed technology.

CHAOSS

CHAOSS stands for **Community Health Analytics Open-Source Software**. In Los Angeles, it was launched in 2017 as an open-source Summit North America. This project aims to facilitate security metrics, health, and transparency for open source projects.

Code Aurora Forum

Code Aurora Forum can be defined as companies' consortium with projects providing the wireless industrial of mobile.

Core Embedded Linux Project

The Core Embedded Linux Project was started in 2003. It facilitates a vendor-neutral position develop core embedded Linux automations beyond the projects of Linux foundation.

Core Infrastructure Initiative

This project was launched on 2014, 25 April in the heartbleed wake to support and fund open-source and free software projects which are critical to the Internet functioning.

Delta Lake

It is a layer of open-source storage that gets the transactions of ACID to big data and Apache Spark workload.

DiaMon Workgroup

It works to improve interoperability among the open-source tools. It develops Linux-based **monitoring, login, profiling**, and tracing features. This project aims to enhance this improvement by making it efficient to work together on basic pieces.

DPDK

This project stands for **Data Plane Development Kit**. It contains libraries for accelerating workloads of CPU architecture-running packet processing. "DPDK can develop the performance of packet processing by up to ten times" according to Intel.

Dronecode

Dronecode was started in 2014 and it began as a collaborative and open-source project to unite future and current open source drone initiatives upon the Linux foundation.

EdgeX Foundry

EdgeX Foundry was detected in 2017. It works as a framework of a vendor-neutral interoperability. This project is hosted in the operating system and hardware agnostic reference environment. It seeks to make an ecosystem accelerating IoT deployment, uniting the marketplace, and plug and play elements.

ELISA

This project was begun to make it efficient for enterprises to certify and build Linux safety-critical kernel-based applications. The members of this project are working in collaboration to maintain and define a basic set of processes and tools that could help enterprises illustrate that the Linux-based systems match the essential safety needs for the certification.

FOSSology

Mainly, FOSSology Is a project committed to the toolkit and software system of an open-source license compliance. Various users are capable to **execute, export, copyright, and license control** scans through the command line. A web UI and database facilitates compliance workflow.

FRRouting

FRRouting is a suite of IP routing protocols for Linux and UNIX environments. It combines the protocol daemons for **RIP, PIM, OSPF, LDP, IS-IS,** and **BGP**.

GraphQL Foundation

The GraphQL project was transferred from Facebook to the established GraphQL Foundation in 2018 November 7. It was hosted by a non-profit Linux Foundation.

Hyperledger

This project is an open-source and global effort based across developing cross-industry blockchain automation. It is backed by technology and manufacturing leaders, supply chain, IoT, banking, and finance. The project is the fastest growing of the foundation to date and it is also boasting 115+ members since 2016. Brian Behlendorf (co-founder of the

Apache Software Foundation) joined this project as an executive director in May 2016.

MLflow

MLflow can be defined as an open-source environment to handle the life cycle of ML including central model registry, deployment, reproducibility, and experimentation.

IO Visor

It is the developer's community and an open-source project that would make a new way to share, develop, and innovate networking and IO functions. It would advance networking and IO technologies for addressing new needs defined by **Network Function, Virtualization, Software-Defined Networking, Internet of things, and Cloud Computing**.

IoTivity

This project is a framework of OSS enabling smooth device-to-device connectivity to help the Internet of things as it develops. While open connectivity foundation and also an alliance connected in 2016 October, the IoT projects of all (IoTivity and AllJoyn respectively) would continue performing upon the Linux Foundation. These two projects will

interact for supporting future standards of the OCF specifications along with an individual implementation of IoTivity.

JanusGraph

JanusGraph helps to continue the open-source development of the database of TitanDB graph. The shared graph database that was published in 2012 originally for enabling users to detect connections between use data sets consisted of billions of ages and vertices.

JS Foundation

This project was available from 2016 to 2019. JS Foundation was developed in the 2016 year during the Dojo Foundation connection with JQuery Foundation. The JS Foundation united with the Node.js Foundation for forming a new OpenJS Foundation along with a mission to improve the healthy development of the web ecosystem and JavaScript as a whole.

Linux Standard Base

The LSB or Linux Standard Base is the joint project by various Linux distributions upon the organizational framework of the Linux Foundation for standardizing the file system hierarchy or software system structure using the Linux operating system. It is based on a single UNIX specification, POSIX specification, and various other types of open standards.

Long Term Support Initiative

The Long Term Support Initiative is a project supported or created **by Renesas Electronics, Qualcomm Atheros, Panasonic, NEC, LG Electronics, Hitachi, Toshiba, Sony, and Samsung** Electronics that hosted the Linux Foundation. It focuses on maintaining a basic Linux base to use in several products of consumer electronics.

Node.js Foundation

This project was available from 2015 to 2019. The Node.js Foundation united with the JS Foundation in 2019 for forming a new OpenJS Foundation.

ODPi

ODPi stands for **Open Data Platform Initiative**. It can host various open-source projects that enhance the delivery and development of big data solutions. This project focuses to provide well-defined open data and open source technologies that execute around distributed devices. ODPi promotes these types of technologies through various certification programs and other styles of marketing across the world.

ONOS

The **Open Network Operating System** is the open-source community along with an agenda bringing the assurance of software-defined networking for various providers of communication service to enable the network more agile for data centre and mobile applications with improved economics for providers and users.

OpenBMC

This project is an open-source and collaborative project whose objective is to generate the open-source implementation of the BMC firmware stack.

Open Container Initiative

CoreOS & Docker launched the open container initiative in collaboration with the Linux Foundation for creating a group of industry standards within the open around container runtime and formats in 2015.

OpenChain

This project focuses to describe easy open source software compliance within the software supply chains. The main output is the reference to specification to good open source compliance. It has become the IEC/ISO 5230:2020 standard. Other outputs are the general self-certification scheme that enterprises could submit for testing the conformance

with standard.

OpenDaylight

OpenDaylight project is an open leading **SDN platform**. It aims for accelerating the Network Functions Virtualisation and Software-Defined Networking adoption in research networks, enterprises, and service providers.

OpenJS Foundation

In 2019, this project was detected from a Node.js Foundation and JS Foundation merger. The OpenJS Foundation project contains a stated mission that is to advance the healthy development of the web ecosystem and JavaScript by facilitating a neutral enterprise to host the fund and project activities that profit the ecosystem as a whole.

It is composed of 29 types of open-source JavaScript projects such as **webpack, Node.js, JQuery, Dojo,** and **Appium**. It also has some founding members that are: Joyent, GoDaddy, PayPal, IBM, Microsoft, and Google.

Servo

Servo project is a browser engine created for taking benefit of the concurrency features and memory safety properties of a Rust programming language.

Xen Project

The team of Xen Project is an open-source and global community that improves the Xen ARM, Xen Cloud Platform, Linux PVOPS framework contributions, and Xen Hypervisor.

Community administration

The Linux Foundation manages its IT infrastructure and conferences like the Linux Plumbers Conference and Linux Kernel Summit for the Linux Kernel community. Also, it hosts the Technical Advisory Board, which is composed of several Linux Kernel developers. One of the developers is assigned to look out for the Linux Foundation board.

○**Community developer travel fund**

The Linux Foundation announced the Community Developer Travel Fund to fund earning developers to increase technical collaboration and problem solving in the open-source community. Sponsorships are accessible to pick up community developers along with open-source development achievement proven track records who can't receive funding to visit technical functions from employers.

○**Goodwill Partnership**

The Linux Foundation launched a collaboration with Goodwill Central Texas to support several disadvantaged individuals from inordinate communities and a

range of backgrounds to receive the training they require to begin new and profitable progress in Linux IT.

○Community specification

The Linux Foundation launched an initiative permitting open-source communities to make open standards using methods and tools inspired by several open-source developers in July 2020.

○Open Compliance Program

The open compliance program of the Linux Foundation offers a program array for open-source software compliance. In this initiative, the focus is to assist and educate developers (and their enterprises) on license requirements to establish programs without agitation. The program is composed of self-administered training modules primarily. However, it is also meant to contain automated tools to programmatically help recognize license compliance problems.

○Core infrastructure initiative

It is a project handled by the Linux Foundation that allows technical companies, esteemed developers, and industry stakeholders to collaboratively fund and identify important open-source projects in the requirement of the assistant. The organization launched financial support of nearly 5 lakh dollars for three new projects in June 2015 to better help important security components of the global information infrastructure.

Core infrastructure initiative announced its Best Practice Badge program to highlight awareness of program governance and development process steps that will support projects that include better security results in May 2016. In May 2017, the core infrastructure initiative issued its 100th badge to the passing project.

Certificate and Training

The Training Program of the Linux Foundation offers content and instructors from the leaders of the Linux open-source communities and developers. Participants get Linux training that's vendor-neutral and made with oversight from Linux development community leaders. The in-person and online training programs of the Linux Foundation focus on delivering networking opportunities, and foundation and broad knowledge.

○The edx and Linux Foundation partnered to provide a free, online, open, and massive class titled Linux introduction in March 2014. It was the first in the series of free ongoing offerings from both enterprises whose current MOOCs catalog contains Intro to OpenStack, Intro to Cloud

Infrastructure Technologies, Intro to Apache, Intro to Cloud Native Software Architecture and Cloud Foundry, and Intro to DevOps.

○The Linux Foundation announced a self-paced course developed to support prepare administrators for the Certified OpenStack Administrator exam of the OpenStack Foundation in December 2015.

○In December 2015, it was introduced that the Linux Foundation would be awarded to persons who pass both the Linux Foundation Certified System Administrator exam and the Microsoft Exam 70-533 on Azure certification as a part of the collaboration with Microsoft.

○In early 2017, it was introduced that the Linux Foundation would start providing an Inclusive Speaker Orientation course in collaboration with the National Center for Women & Information Technology at the annual Open Source Leadership Summit. The free course was developed to provide participants with "practical skills to promote inclusivity in their presentations".

○The Linux Foundation published a free serverless computing course in September 2020. It's taught by the founder of OpenFaaS, Alex Ellis.

The Linux Foundation has announced a 40% hike in demand for an online course in 2020 at the time of the coronavirus pandemic and the consistent social-distancing measures among several other organizations with the same offerings.

Patent Commons Project

It is composed of every patented software present for the open-source community. The patent owner must ensure that developers will not be accused of infringement for software to be taken to be in the commons. So, there may be a few limitations on the patent code usage. First, the concept was provided substance in 2001 by Red Hat when it released its Patent Promise.

This project was published on 15 November 2005 by the OSDL (Open Source Development Labs). The project core is a reference library of an online patent common merging and documenting details of patent-related pledges and many legal solutions conducted in the open-source software community. The project mentioned 53 patents as of 2015.