



FUSS: 20 years of Free Software in education

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Direzione istruzione e formazione italiana
Provincia Autonoma di Bolzano-Bozen

SFSCON 2025

November 7, 2025



Piano d'azione per lo sviluppo della società dell'informazione in Alto Adige

Link: https://civis.bz.it/downloads/piano_di_azione-es_dtirol_v_3_1_.0.pdf

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FUSS



Free
Upgrade for a digitally
Sustainable
School

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Remembering Prof. Paolo Lorenzi



All students and teachers have the right to use at home the same software tools used at school. They must be able to use, analyze, share and modify it.

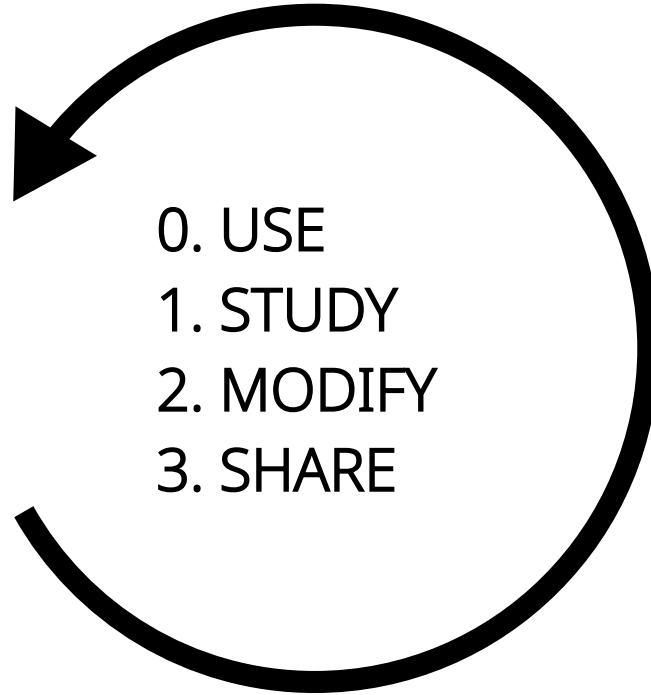
The best way to do this is with Free Software.

Motivated & courageous people



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Which technologies do we want in our schools?



Free Software is like cooking!



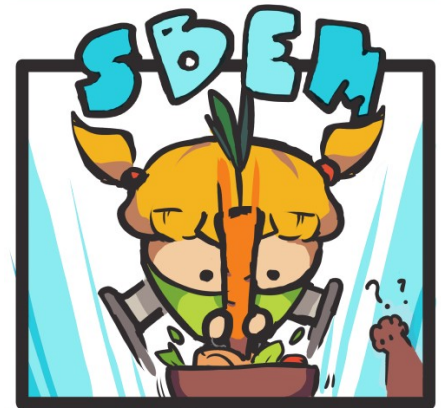
posso provare una ricetta



capire cosa la rende speciale



passarla a chi voglio

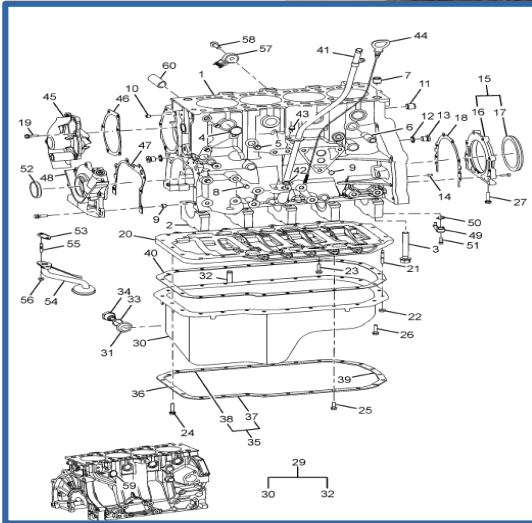


aggiungerci del mio

Thanks to Marco Amato (Zughy) for creating and sharing these cartoons (CC0)

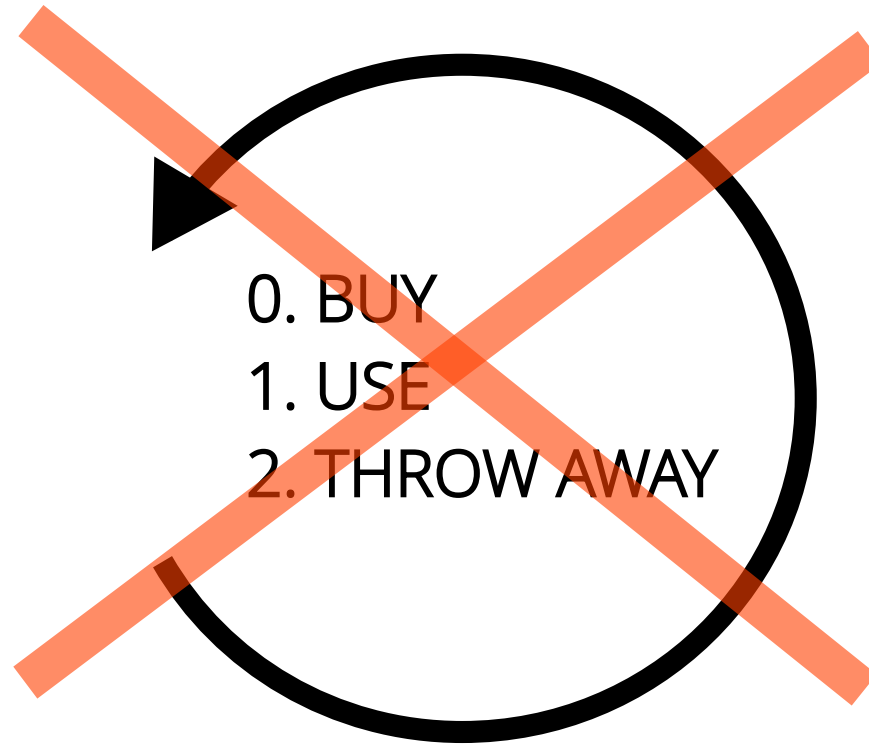
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I want to look under the hood!



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Which technologies are not welcome?



Canned food ...



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Why using free technologies in schools?



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FUSS 12



IT lab – Middle school “Ada Negri”, Bolzano



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Free-Software-friendly equipment



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Some numbers from the schools in Italian language in South Tyrol

16.000 students

2.000 teachers

74 schools

5.000 PCs and notebooks

65 servers

3.000 packages installed on every PC

200 educational software packages

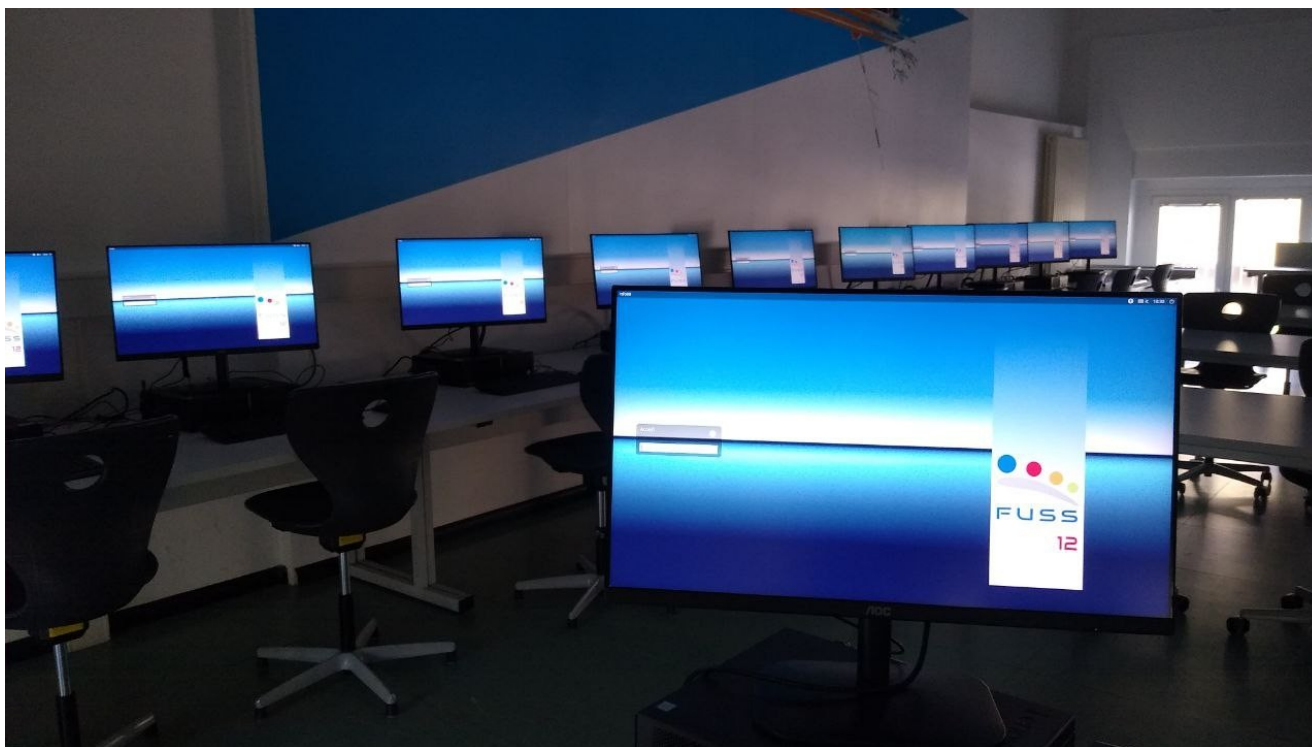
FUSS at the Music School “Vivaldi” - Bolzano



https://fuss.bz.it/post/2021-03-01_scuola-di-musica-vivaldi/

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FUSS al Liceo Scientifico “Toniolo”



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FUSS at the Institute “E. Cornaro” - Jesolo



https://fuss.bz.it/post/2020-09-20_istituto-cornaro-jesolo/

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FUSS at the Liceo “N. Rodolico” - Florence



LICEO
SCIENTIFICO e LINGUISTICO

<https://www.lsnr.it>

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FUSS at the Istituto Comprensivo “Ilaria Alpi” - Milan



*With the kind support of
PC-Doktor-BZ*

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FUSS in Kindergardens (III Circolo Bolzano)

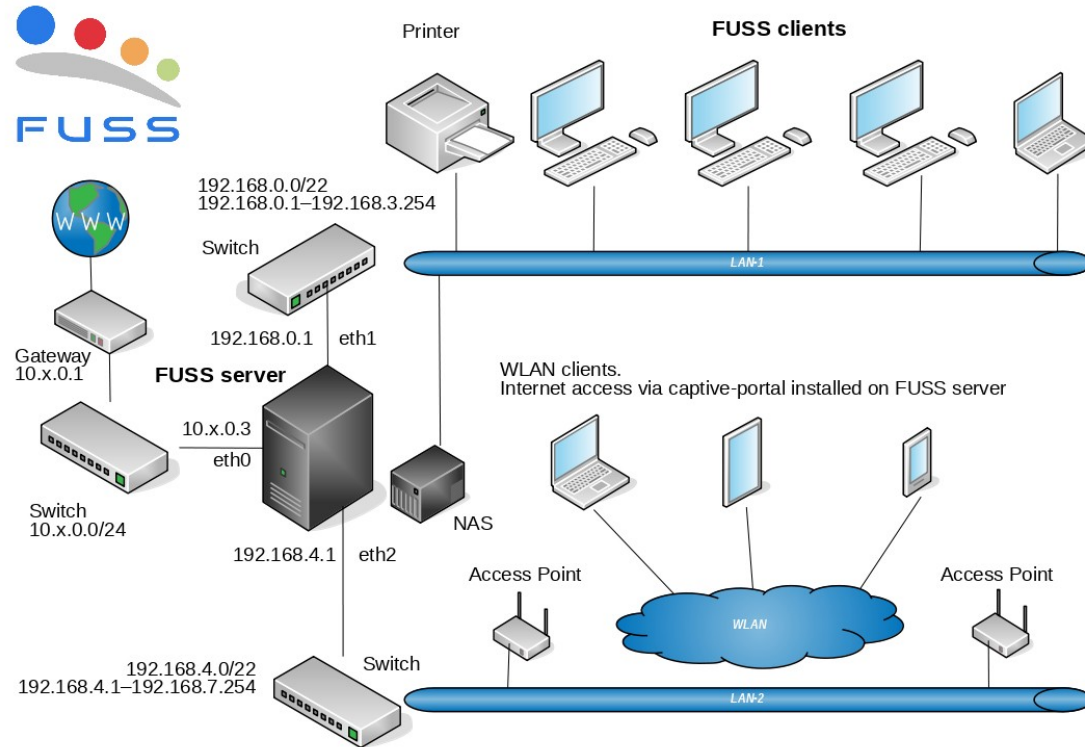


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FUSS Team

- **FUSS Lab:** @Italian School Department; governance, distribution release, tests, software selection.
4 persons – Paolo Dongilli, Andrea Bonani, Claudio Cavalli with the cooperation of Fabio Furciniti as school inspector for STEAM.
- **Technological Partner:** Truelite Srl
- **FUSS Technicians:** @IT Department; server, PC and network maintenance:
9 technicians (7 FTE)
- **FUSS Technical Contact Person (Teacher):** @School: 1st level support
74 teachers for 74 school buildings.

Typical School Network Topology



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Server Virtualization with Proxmox VE

The screenshot displays the Proxmox VE 7.4-3 web interface. The top navigation bar includes the Proxmox logo, version information, a search bar, and links for Documentation, Create VM, Create CT, and a user profile dropdown. The main content area is divided into a left sidebar with navigation options (Datacenter, Summary, Notes, Shell, System, Network, Certificates, DNS, Hosts, Options, Time, Syslog) and a main panel showing system statistics for node 'mala'.

The main panel displays the following system statistics:

- Package versions:** mala (Uptime: 13 days 13:24:59)
- CPU usage:** 0.28% of 8 CPU(s)
- Load average:** 0.09, 0.05, 0.03
- RAM usage:** 42.60% (7.47 GiB of 17.54 GiB)
- / HD space:** 26.17% (7.68 GiB of 29.36 GiB)
- IO delay:** 0.00%
- KSM sharing:** 0 B
- SWAP usage:** 0.47% (19.12 MiB of 4.00 GiB)
- CPU(s):** 8 x Intel(R) Xeon(R) CPU E5620 @ 2.40GHz (1 Socket)
- Kernel Version:** Linux 5.15.107-1-pve #1 SMP PVE 5.15.107-1 (2023-04-20T10:05Z)
- PVE Manager Version:** pve-manager/7.4-3/9002ab8a
- Repository Status:** Proxmox VE updates (Non production-ready repository enabled!)

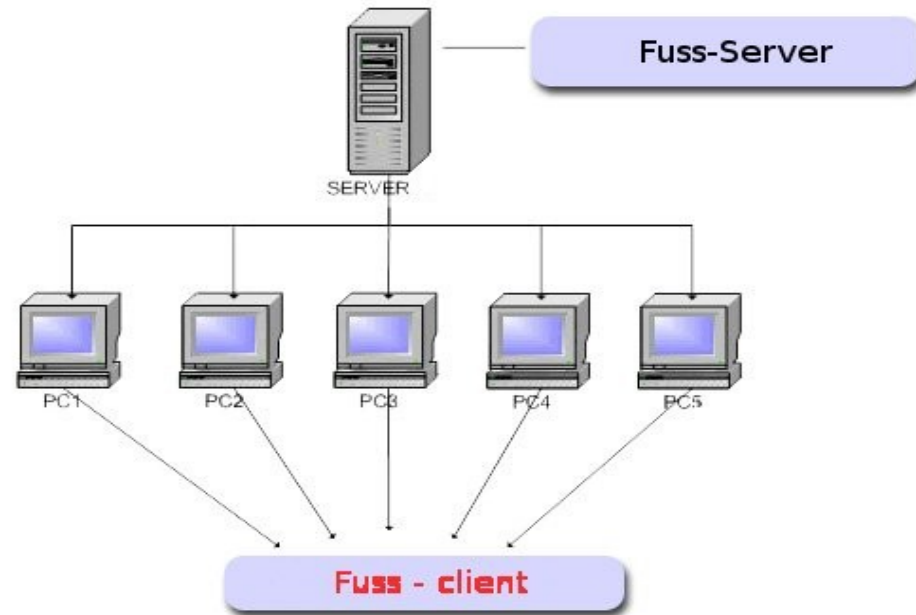
The bottom section shows a table of tasks:

Start Time ↓	End Time	Node	User name	Description	Status
Jun 12 02:49:12	Jun 12 02:49:17	mala	root@pam	Update package database	OK
Jun 11 05:03:43	Jun 11 05:03:48	mala	root@pam	Update package database	OK

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FUSS Server and FUSS Client

- DHCP server (*is-dhcp-server*)
- DNS server (*bind*)
- Web server (*apache2*)
- Firewall (*firewall service*)
- Unattended Client Cloning (*fuss-fucc*)
- LDAP for network users and groups (*slapd*)
- Kerberos authentication (*krb5*)
- Distribution of policies regarding permissions towards all clients (*octofussd, octofuss-client*)
- HTTP Proxy/Cache server (*squid*)
- (VOIP as PBX (private branch exchange) with possibility to interconnect some schools)
- Content filter (*e2guardian*)
- Domain Controller (*samba*)
- Printer sharing (*cups*)
- Backup (*fuss-backup*)
- WiFi (*freeradius*)



- Autoconfiguration of FUSS clients (*fuss-client*)

FUSS Server and FUSS Client

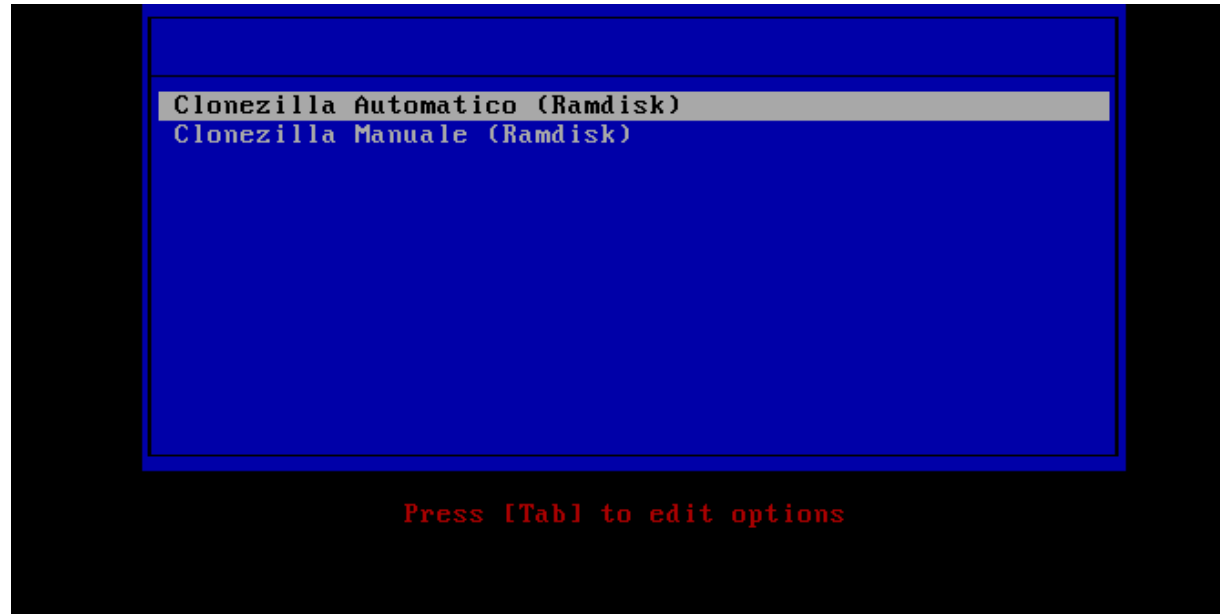
Setup using



Ansible is a suite of software tools that enables infrastructure as code. It is open-source and the suite includes software provisioning, configuration management, and application deployment functionality - [https://en.wikipedia.org/wiki/Ansible_\(software\)](https://en.wikipedia.org/wiki/Ansible_(software))

FUCC – FUSS Unattended Clonezilla Cloning

Devised by **Donato Florio** to speed-up PC installation (just pressing **F12**).



Welcome!

Server information

Organization configured in octofussd	My organization
Current kernel version	4.9.0-3-amd64
Total ram size in megabytes	7987

Filesystems



Load



Fuss News

Octofuss - Nuova release Octonet 0.2.23

La nuova release include un cambiamento nell'assegnazione dei permessi agli utenti: quando questo vengono creati, hanno assegnati come default tutti permessi tranne l'amministrazione delle stampanti e l'accesso tramite captive portal.

Valido per creazione di singolo utente, in massa oppure per importazione tramite CSV.

By Christopher R. Gabriel on 2017-07-11T12:11:05Z

Octofuss - Nuova release Octonet 0.2.19

La release include un nuovo strumento per la conversione dei file LDIF generati da backup LDAP per la conversione in file CSV pronto all'importazione.

Utile in caso di reinstallazione di un Server FUSS migrando le definizioni degli utenti e relativi gruppi.

By Christopher R. Gabriel on 2017-06-30T20:41:55Z

Users

- Users & Groups
- User authorization
- Disk Quotas

Hosts

- DHCP leases
- Managed Hosts
- Queue of host actions

Upgrade Manager

Network

- Switchboard
- Content filter
- Firewall
- Network Printers
- Script manager

Shares

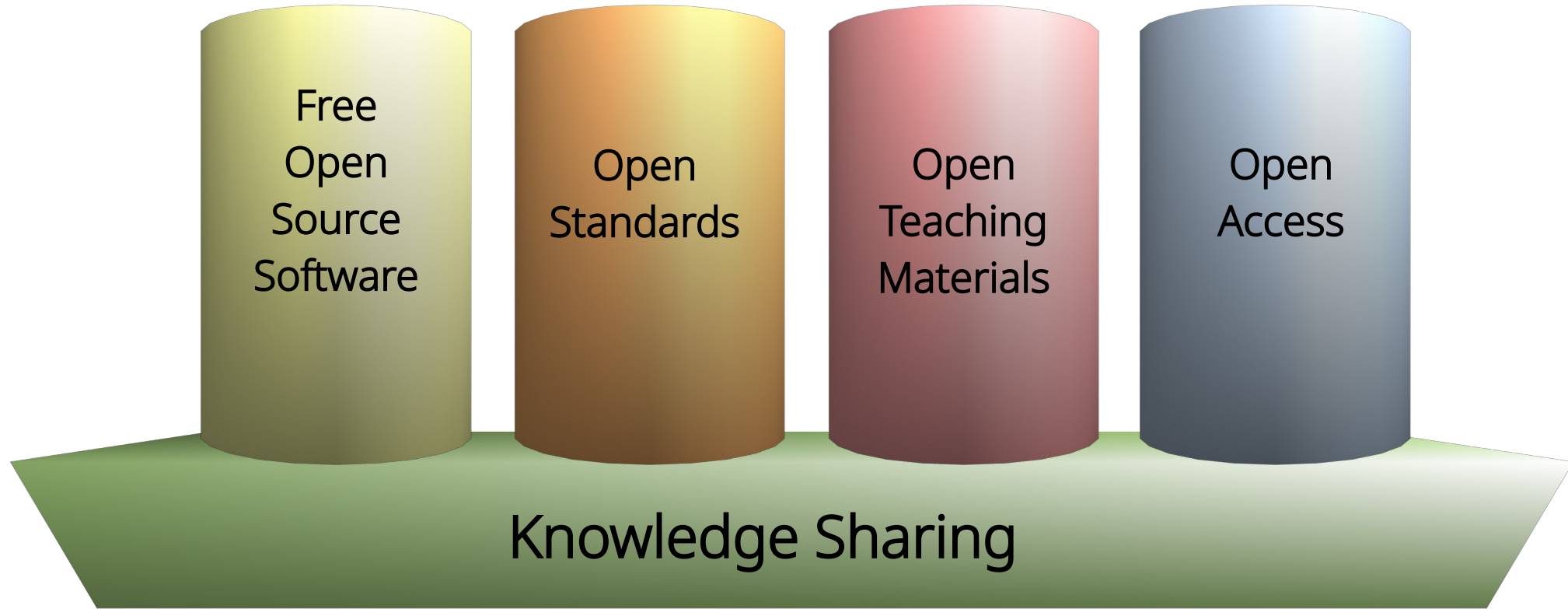
- Samba Service

GLPI

GLPi (Gestionnaire Libre de Parc Informatique) is an open-source IT asset management and issue tracking system. It's a web-based application that helps organizations manage their IT infrastructure, including hardware, software, and peripherals. GLPI allows users to track inventory, manage maintenance, and resolve issues through a ticketing system - <http://www.glpi-project.org/>



FUSS - A Digital Sustainability Project



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... a recognized public value



REPUBBLICA
DIGITALE



**Digital Skills and
Jobs Coalition**



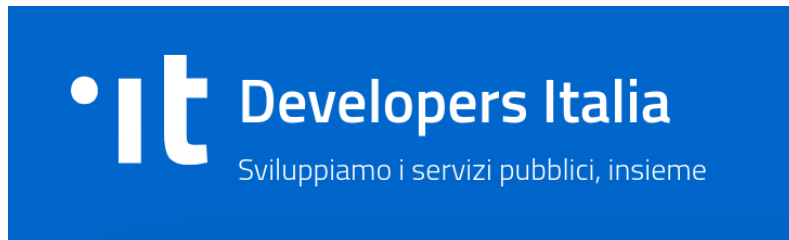
Public Money

Public Code

publiccode.eu



Digital
Public
Goods
Alliance



**EUROPEAN
PARENTS'
ASSOCIATION**

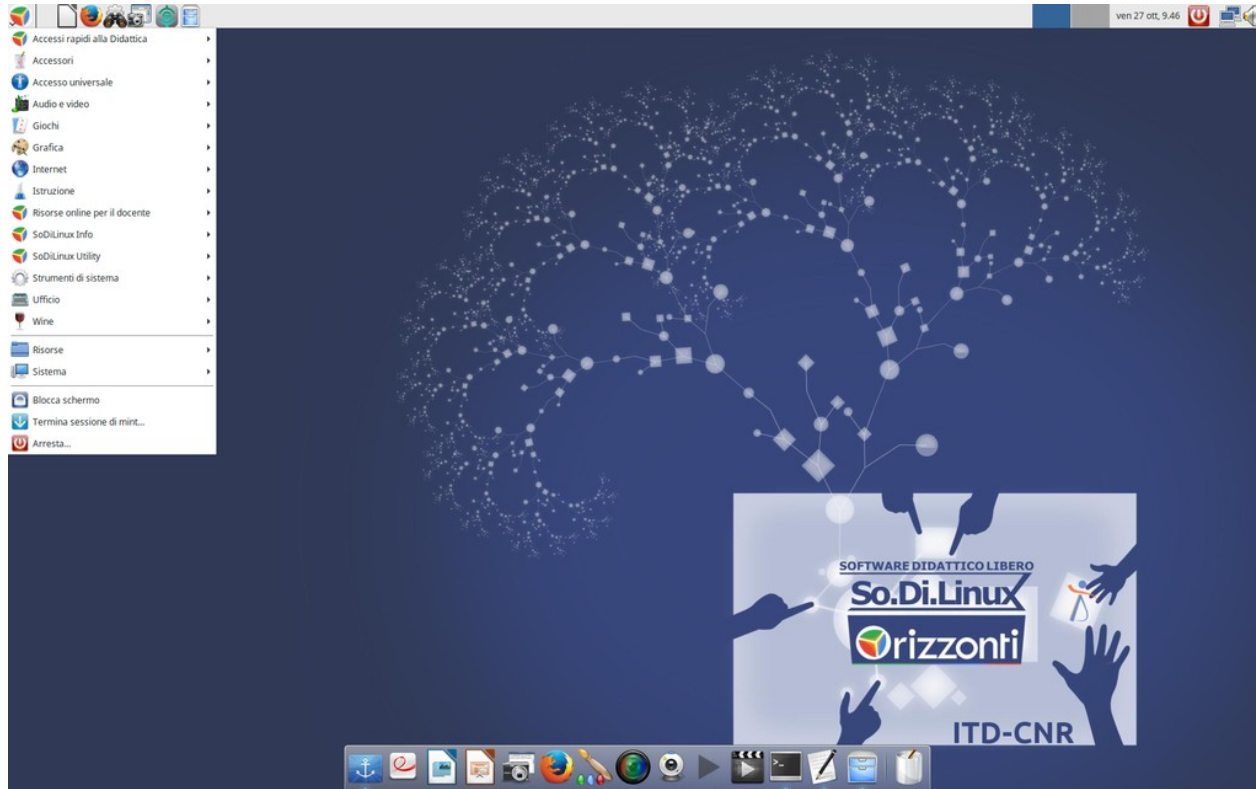


FÜR EIN NACHHALTIGES SÜDTIROL
PER UN ALTO ADIGE SOSTENIBILE

South-Tyrolean Network
for Sustainability

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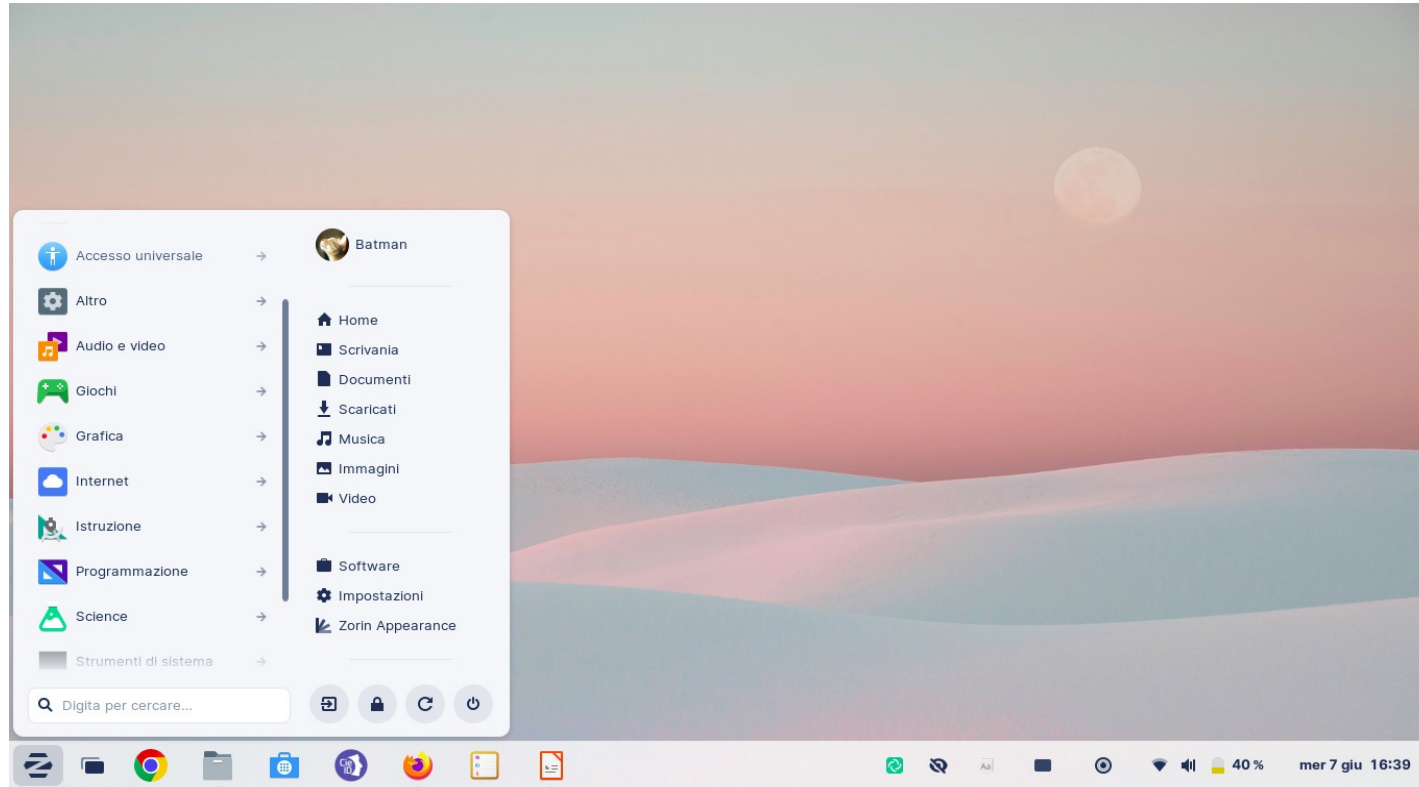
So.Di.Linux - Software Libero per la Didattica



<https://sodilinux.itd.cnr.it/>

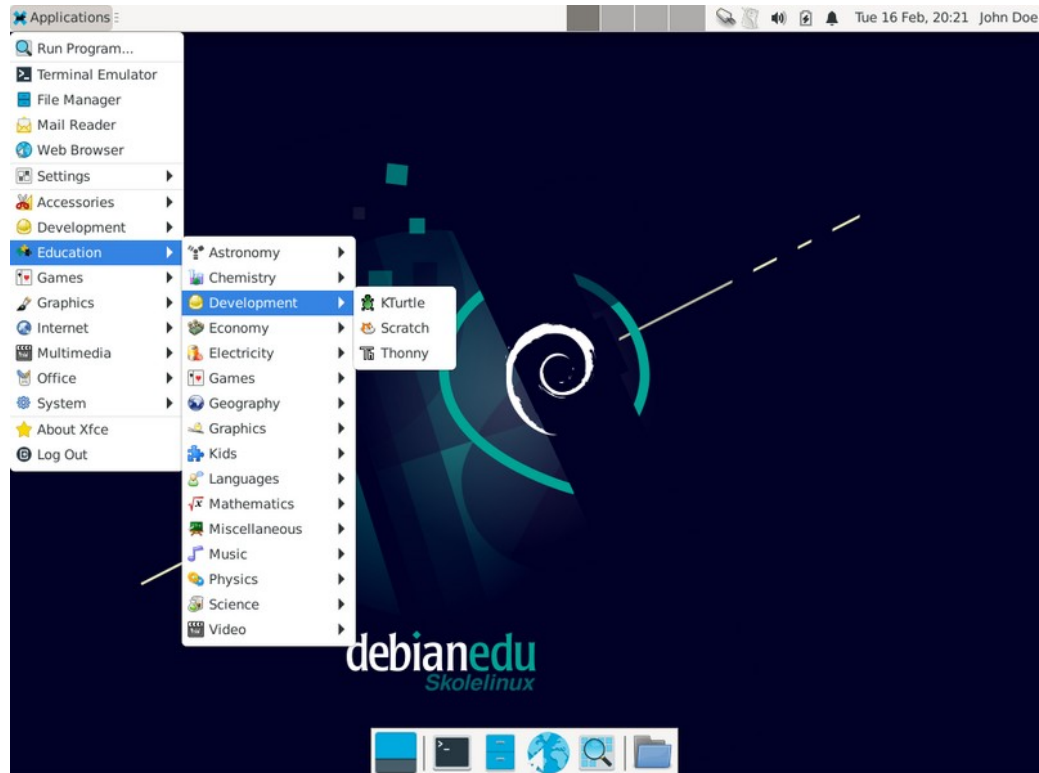
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Zorin OS



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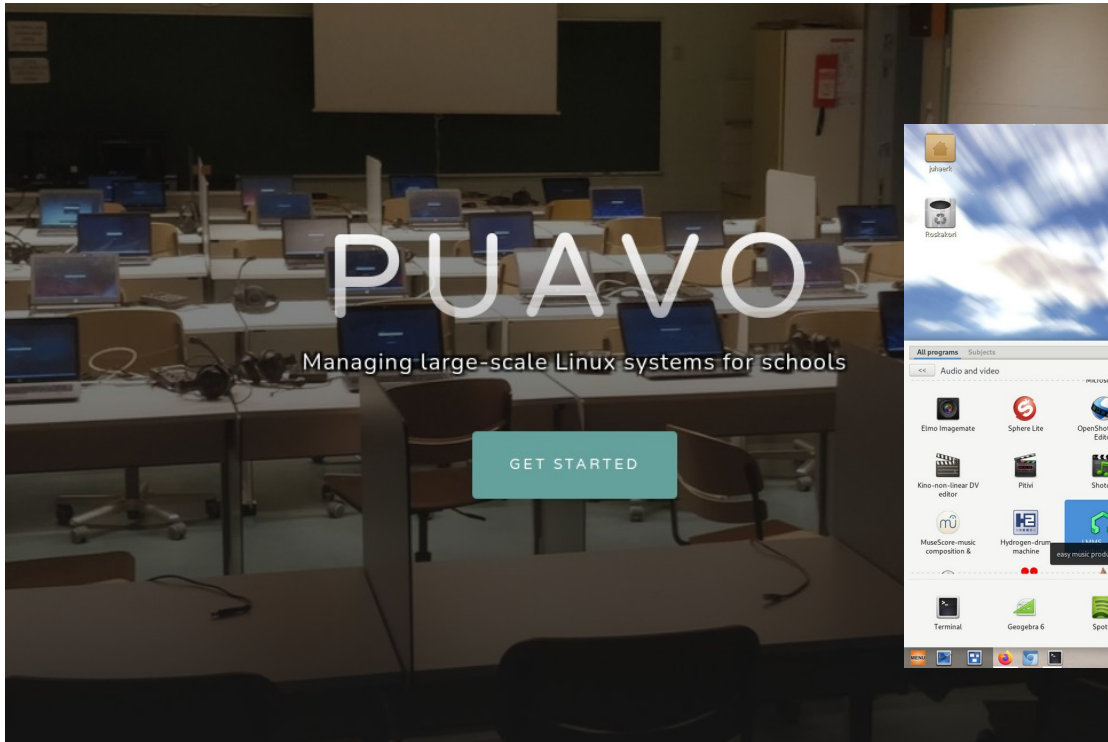
DebianEdu - Skolelinux



<https://wiki.debian.org/DebianEdu/>

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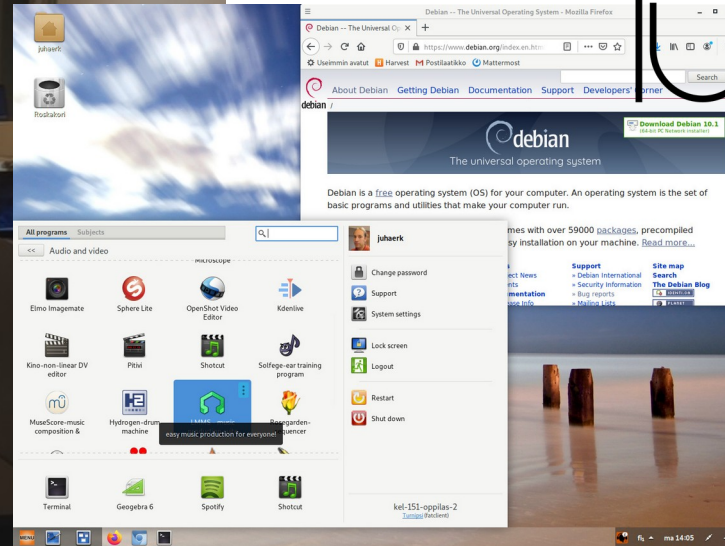
Puavo



PUAVO

Managing large-scale Linux systems for schools

GET STARTED



Puavo

OS

<https://puavo.org/>

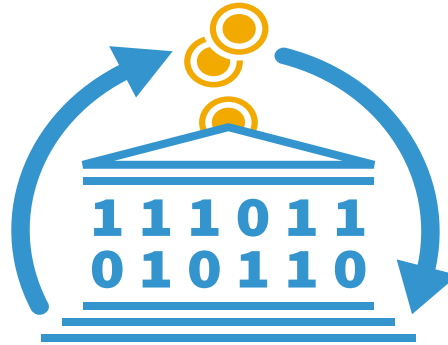
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Almost 200 software packages in FUSS



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FUSS Project supports the “Public Money – Public Code” initiative



Public Money

Public Code

fsfe.org

<https://publiccode.eu/>

Public Money – Public Code “ratified” by Italian National Law

National law:

CAD – Codice dell’Amministrazione Digitale

(Decreto Legislativo 7 marzo 2005, n. 82)

Artt. 68 e 69

+

Guidelines for the acquisition and reuse of software in the PA

<https://www.agid.gov.it/it/design-servizi/riuso-open-source/linee-guida-acquisizione-riuso-software-pa>

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FUSS

Since its inception in 2005, FUSS has been following these regulations to the letter (since before they were enacted).

Code and documentation can be found here:

<https://fuss.bz.it>

<https://iso.fuss.bz.it>

<https://gitlab.fuss.bz.it/fuss>

Financial aspects

Year	Description	Costs
2004	Microsoft and other software licenses	€ 312,000.00
2005	initial migration + development	€ 316.815,00
2006	migration + maintenance	€ 125.750,00
2007	dev + maintenance	€ 8.000,00
2008	dev + maintenance	€ 23.800,00
2009	dev + maintenance	€ 16.280,00
2010	dev + maintenance	€ 15.600,00
2011	dev + maintenance	€ 11.699,40
2012	dev + maintenance	€ 15.846,89
2013	dev + maintenance	€ 5.368,33
2014	dev + maintenance	€ 15.168,24
2015	dev + maintenance	€ 17.100,41
2016	dev + maintenance	€ 0,00
2017	dev + maintenance	€ 35.136,00
2018	dev + maintenance	€ 18.060,00
2019	dev + maintenance	€ 42.667,00
2020	dev + maintenance	€ 14.640,00
2021	dev + maintenance	€ 26.137,77
2022	dev + maintenance	€ 37.453,51
2023	dev + maintenance	€ 44.679,40
2024	dev + maintenance	€ 36.989,96
2025	dev + maintenance	€ 33.070,54
TOTAL 2005 – 2025		€ 860.262,45

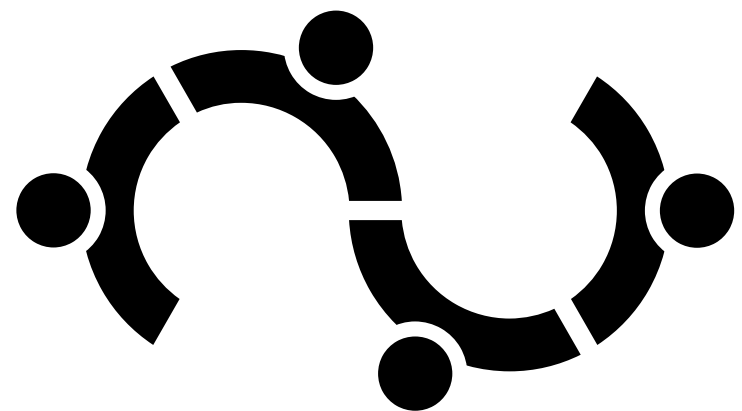
In the past **20 years (2005-2025)** we invested **€ 860.262**

From 2007 to 2022 (16 years) the investment in Free Software was less **than what** we spent just in **2004** for Microsoft licenses and other proprietary software.

€ 303.000 vs € 312.000

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The SchoolSwap Initiative



SCHOOLSWAP

<https://schoolswap.bz.it/>

A sustainable PC to study and work.



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The SwapToLearn Initiative



Südtiroler Vinzenzgemeinschaft
SwapToLearn-Helfergruppe



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Thanks to all institutions, associations, companies, citizens endorsing FUSS!



<https://fuss.bz.it/page/profuss/>

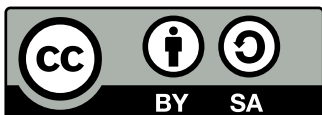
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Thanks for your attention

Further info:

<http://fuss.bz.it>

info@fuss.bz.it



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