

# **Manual de Debian Edu / Skolelinux Buster 10+edu0 Manual**

---

**Fecha de publicación: 25/04/2021**

# Índice

|  |           |
|--|-----------|
| <b>1. Manual para Debian-Edu 10+edu0 Codename Buster</b>                       | <b>1</b>  |
| <b>2. Acerca de Debian Edu y Skolelinux.</b>                                   | <b>1</b>  |
| 2.1. Un poco de historia, y el porqué de dos nombres                           | 2         |
| <b>3. Arquitectura</b>   | <b>2</b>  |
| 3.1. Red   | 3         |
| 3.1.1. La configuración de red predeterminada                                  | 3         |
| 3.1.2. Servidor principal (tjener)   | 4         |
| 3.1.3. Servicios que corren en el servidor principal                           | 4         |
| 3.1.4. LTSP server(s)  | 5         |
| 3.1.5. Clientes ligeros  | 6         |
| 3.1.6. Estaciones sin disco  | 6         |
| 3.1.7. Clientes en red.  | 6         |
| 3.2. Administración  | 6         |
| 3.2.1. Instalación   | 7         |
| 3.2.2. Configuración del acceso al sistema de archivos                         | 7         |
| <b>4. Requisitos</b>   | <b>7</b>  |
| 4.1. Requisitos de hardware  | 7         |
| 4.2. Hardware conocido que funciona  | 8         |
| <b>5. Requerimientos para una instalación de red</b>                           | <b>8</b>  |
| 5.1. Configuración por defecto   | 8         |
| 5.2. Enrutador de Internet   | 9         |
| <b>6. Instalación y opciones de descarga</b>                                   | <b>10</b> |
| 6.1. Donde encontrar información adicional                                     | 10        |
| 6.2. Descargar un medio de instalación para Debian Edu 10+edu0 Codename Buster | 10        |
| 6.2.1. amd64 or i386   | 10        |
| 6.2.2. Imagen ISO netinst por i386 o amd64                                     | 10        |
| 6.2.3. Imagen ISO BD para arquitectura i386 y amd64                            | 10        |
| 6.2.4. Verification of downloaded image files                                  | 11        |
| 6.2.5. Fuentes:  | 11        |
| 6.3. Solicite un CD / DVD por correo   | 11        |
| 6.4. Instalacion de Debian Edu   | 11        |
| 6.4.1. Escenarios de instalación del servidor principal                        | 11        |
| 6.4.2. Desktop choice  | 12        |

|            |  |           |
|------------|--|-----------|
| 6.4.3.     | Instalación modular . . . . .  | 12        |
| 6.4.4.     | Tipos de instalación y opciones . . . . .                                  | 12        |
| 6.4.5.     | El proceso de instalación . . . . .  | 16        |
| 6.4.6.     | Notas en algunas características . . . . .                                 | 18        |
| 6.4.7.     | Instalación utilizando memorias USB lugar de CD / Blu-ray . . . . .        | 18        |
| 6.4.8.     | Installation over the network (PXE) and booting diskless clients . . . . . | 19        |
| 6.4.9.     | Imágenes personalizadas . . . . .  | 21        |
| 6.5.       | Captura de pantalla del paseo . . . . .                                    | 21        |
| <b>7.</b>  | <b>Iniciando</b>   | <b>49</b> |
| 7.1.       | Pasos mínimos para iniciar . . . . .                                       | 49        |
| 7.1.1.     | Servicios que corren en el servidor principal . . . . .                    | 50        |
| 7.2.       | Introducción a GOsa <sup>2</sup> . . . . .                                 | 50        |
| 7.2.1.     | GOsa <sup>2</sup> Login plus Overview . . . . .                            | 51        |
| 7.3.       | Gestión de usuarios con GOsa <sup>2</sup> . . . . .                        | 52        |
| 7.3.1.     | Agregar usuarios . . . . .   | 52        |
| 7.3.2.     | Buscar, modificar y borrar usuarios . . . . .                              | 53        |
| 7.3.3.     | Establecer contraseñas . . . . .   | 53        |
| 7.3.4.     | Administración avanzada de usuarios . . . . .                              | 54        |
| 7.4.       | Gestión de usuarios con GOsa <sup>2</sup> . . . . .                        | 56        |
| 7.4.1.     | Gestión de grupos en la linea de comando . . . . .                         | 57        |
| 7.5.       | Administración de equipos con GOsa <sup>2</sup> . . . . .                  | 57        |
| 7.5.1.     | Buscar y eliminar computadoras . . . . .                                   | 60        |
| 7.5.2.     | Modificar equipos existentes / Manejo del grupo de red . . . . .           | 60        |
| <b>8.</b>  | <b>Printer Management</b>  | <b>61</b> |
| 8.1.       | Use printers attached to workstations . . . . .                            | 61        |
| <b>9.</b>  | <b>Sincronización del reloj</b>  | <b>61</b> |
| <b>10.</b> | <b>Redimensionando particiones completas</b>                               | <b>62</b> |
| <b>11.</b> | <b>Maintenance</b>   | <b>62</b> |
| 11.1.      | Actualizar el software . . . . .   | 62        |
| 11.1.1.    | Mantente informado sobre actualizaciones de seguridad . . . . .            | 62        |
| 11.2.      | Gestión de las copias de seguridad . . . . .                               | 63        |
| 11.3.      | Monitorización del servidor . . . . .                                      | 63        |
| 11.3.1.    | Munin . . . . .  | 63        |
| 11.3.2.    | Icinga . . . . .   | 64        |
| 11.3.3.    | Sitesummary . . . . .  | 65        |
| 11.4.      | Más información sobre personalizaciones de Debian Edu . . . . .            | 65        |

|  |           |
|--|-----------|
| <b>12. Actualizaciones</b>   | <b>65</b> |
| 12.1. Notas generales sobre la actualización   | 65        |
| 12.2. Actualizar desde Debian-Edu Stretch  | 66        |
| 12.2.1. Upgrading the main server  | 66        |
| 12.2.2. Upgrading a workstation  | 67        |
| 12.2.3. Upgrading LTSP chroots   | 68        |
| 12.2.4. Recreating an LTSP chroot  | 68        |
| 12.2.5. Add additional LTSP chroot to support 64-bit-PC clients                              | 68        |
| 12.3. Actualizar desde instalaciones antiguas de Debian-Edu / Skolelinux (antes que Stretch) | 69        |
| <b>13. Guías</b>   | <b>69</b> |
| <b>14. Guías para administración general</b>   | <b>69</b> |
| 14.1. Seguimiento de /etc usando el sistema de control de versiones git                      | 69        |
| 14.1.1. Ejemplos de uso  | 70        |
| 14.2. Redimensionando Particiones  | 70        |
| 14.2.1. Gestión de volúmenes lógicos   | 70        |
| 14.3. Installing a graphical environment on the main-server to use GOSa <sup>2</sup>         | 70        |
| 14.4. Usar ldapvi  | 71        |
| 14.5. Kerberized NFS   | 71        |
| 14.5.1. How to enable it   | 71        |
| 14.6. Standardskriver  | 72        |
| 14.7. JXplorer, una interfaz gráfica para LDAP   | 72        |
| 14.8. ldap-createuser-krb, una herramienta para línea de comando                             | 72        |
| 14.9. Using stable-updates   | 72        |
| 14.10 Usar backports para instalar software más reciente                                     | 72        |
| 14.11 Actualizar con un CD o similar   | 73        |
| 14.12 Automatic cleanup of leftover processes  | 73        |
| 14.13 Instalación automática de actualizaciones de seguridad                                 | 73        |
| 14.14 Apagado automático de las computadoras durante la noche                                | 73        |
| 14.14.1. Como configurar shutdown-at-night   | 74        |
| 14.15 Acceso a servidores Debian-Edu ubicados detrás de un firewall                          | 74        |
| 14.16 Installing additional service machines for spreading the load from main-server         | 74        |
| 14.17 How Tos de wiki.debian.org   | 75        |

|   |           |
|---|-----------|
| <b>15. Advanced administration howto</b>                                  | <b>75</b> |
| 15.1. Personalizaciones de usuarios con GOsa <sup>2</sup>                 | 75        |
| 15.1.1. Create Users in Year Groups                                       | 75        |
| 15.2. Other User Customisations   | 76        |
| 15.2.1. Crear directorios en el directorio home de los usuarios           | 76        |
| 15.2.2. Fácil acceso a dispositivos USB y CD-ROMs/DVDs                    | 76        |
| 15.3. Use a dedicated storage server                                      | 77        |
| 15.4. Restrict ssh login access   | 78        |
| 15.4.1. Setup without LTSP clients  | 78        |
| 15.4.2. Setup with LTSP clients   | 78        |
| 15.4.3. A note for more complex setups                                    | 78        |
| <b>16. HowTos for the desktop</b>   | <b>79</b> |
| 16.1. Set up a multi-language desktop environment                         | 79        |
| 16.2. Reproducir DVDs   | 79        |
| 16.3. Handwriting fonts   | 79        |
| <b>17. HowTos para clientes en red</b>                                    | <b>79</b> |
| 17.1. Introducción a clientes ligeros y estaciones de trabajo sin disco   | 79        |
| 17.1.1. LTSP client type selection  | 80        |
| 17.2. Configurar el menú PXE  | 81        |
| 17.2.1. Configurar la instalación de PXE                                  | 81        |
| 17.2.2. Agregar un repositorio personalizado para instalaciones PXE       | 81        |
| 17.2.3. Changing the PXE menu on a combined (main and LTSP) server        | 81        |
| 17.2.4. Separate main and LTSP server                                     | 82        |
| 17.2.5. Use a different LTSP client network                               | 82        |
| 17.2.6. Add LTSP chroot to support 32-bit-PC clients                      | 82        |
| 17.3. Changing network settings   | 82        |
| 17.4. LTSP en detalle   | 83        |
| 17.4.1. Configuración del cliente LTSP en LDAP (y lts.conf)               | 83        |
| 17.4.2. Force all LTSP clients to use LXDE as default desktop environment | 83        |
| 17.4.3. Desktop autoloader  | 83        |
| 17.4.4. Load-balancing LTSP servers                                       | 84        |
| 17.4.5. Sonido con clientes LTSP  | 85        |
| 17.4.6. Use printers attached to LTSP clients                             | 85        |
| 17.4.7. Use NFS instead of NBD  | 85        |
| 17.4.8. Upgrading the LTSP environment                                    | 86        |
| 17.4.9. Slow login and security   | 86        |
| 17.5. Connecting Windows machines to the network / Windows integration    | 86        |

|   |           |
|---|-----------|
| 17.5.1. Joining a domain . . . . .  | 86        |
| 17.6. Remote Desktop . . . . .  | 87        |
| 17.6.1. Xrdp . . . . .  | 87        |
| 17.6.2. X2Go . . . . .  | 87        |
| 17.6.3. Clientes de escritorio remoto disponible . . . . .  | 88        |
| <b>18. Samba en Debian Edu</b>  | <b>88</b> |
| 18.1. Cómo empezar . . . . .  | 88        |
| 18.1.1. Acceder los archivos mediante Samba . . . . .   | 88        |
| 18.2. Domain Membership . . . . .   | 89        |
| 18.2.1. Windows hostname . . . . .  | 89        |
| 18.3. First Domain Logon . . . . .  | 89        |
| <b>19. HowTos for teaching and learning</b>   | <b>89</b> |
| 19.1. Teaching Programming . . . . .  | 89        |
| 19.2. Monitoring pupils . . . . .   | 90        |
| 19.3. Restricting pupils' network access . . . . .  | 90        |
| <b>20. HowTos for users</b>   | <b>90</b> |
| 20.1. Changing passwords . . . . .  | 90        |
| 20.2. Java . . . . .  | 90        |
| 20.2.1. Running standalone Java applications . . . . .  | 90        |
| 20.3. Using email . . . . .   | 90        |
| 20.3.1. Thunderbird . . . . .   | 91        |
| 20.3.2. Obtener un ticket Kerberos para leer correos en las estaciones de trabajo sin disco . . . . . | 91        |
| 20.4. Volume control . . . . .  | 91        |
| <b>21. Contribuir</b>   | <b>91</b> |
| 21.1. Contribute locally . . . . .  | 91        |
| 21.2. Contribuye a nivel global . . . . .   | 91        |
| 21.3. Documentación para editores y traductores . . . . .   | 91        |
| <b>22. Soporte</b>  | <b>92</b> |
| 22.1. Soporte basado en voluntarios . . . . .   | 92        |
| 22.1.1. in English . . . . .  | 92        |
| 22.1.2. in Norwegian . . . . .  | 92        |
| 22.1.3. in German . . . . .   | 92        |
| 22.1.4. in French . . . . .   | 92        |
| 22.2. Soporte profesional . . . . .   | 92        |

|   |           |
|---|-----------|
| <b>23. New features in Debian Edu Buster</b>                                  | <b>92</b> |
| 23.1. New features for Debian Edu 10+edu0 Codename Buster                     | 92        |
| 23.1.1. Installation changes  | 92        |
| 23.1.2. Actualizaciones de software   | 93        |
| 23.1.3. Actualizaciones en documentación y traducciones                       | 93        |
| 23.1.4. Other changes compared to the previous release                        | 93        |
| 23.1.5. Known issues  | 94        |
| <b>24. Copyright y autores</b>  | <b>94</b> |
| <b>25. Traducciones de este documento</b>                                     | <b>94</b> |
| 25.1. HowTo translate this document   | 94        |
| 25.1.1. Translate using PO files  | 94        |
| 25.1.2. Translate online using a web browser                                  | 95        |
| <b>26. Appendix A - The GNU General Public License</b>                        | <b>95</b> |
| 26.1. Manual para Debian-Edu 10+edu0 Codename Buster                          | 95        |
| 26.2. GNU GENERAL PUBLIC LICENSE  | 95        |
| 26.3. TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION         | 95        |
| <b>27. Appendix B - no Debian Edu Live CD/DVDs for Buster yet</b>             | <b>98</b> |
| 27.1. Features of the Standalone image  | 98        |
| 27.2. Features of the Workstation image                                       | 98        |
| 27.3. Activando el soporte regional y traducciones                            | 98        |
| 27.4. Cosas para saber  | 98        |
| 27.5. Problemas conocidos con la imagen                                       | 99        |
| 27.6. Download  | 99        |
| <b>28. Apéndice C - Características de publicaciones anteriores</b>           | <b>99</b> |
| 28.1. New features for Debian Edu 9+edu0 Codename Stretch released 2017-06-17 | 99        |
| 28.1.1. Installation changes  | 99        |
| 28.1.2. Actualizaciones de software   | 99        |
| 28.1.3. Actualizaciones en documentación y traducciones                       | 99        |
| 28.1.4. Other changes compared to the previous release                        | 100       |
| 28.2. New features for Debian Edu 8+edu0 Codename Jessie released 2016-07-02  | 100       |
| 28.2.1. Installation changes  | 100       |
| 28.2.2. Actualizaciones de software   | 100       |
| 28.2.3. Actualizaciones en documentación y traducciones                       | 101       |
| 28.2.4. Other changes compared to the previous release                        | 101       |
| 28.3. New features in Debian Edu 7.1+edu0 Codename Wheezy released 2013-09-28 | 101       |
| 28.3.1. User visible changes  | 101       |

|   |     |
|---|-----|
| 28.3.2. Installation changes . . . . .                            | 101 |
| 28.3.3. Actualizaciones de software . . . . .                     | 101 |
| 28.3.4. Actualizaciones en documentación y traducciones . . . . . | 102 |
| 28.3.5. LDAP related changes . . . . .                            | 102 |
| 28.3.6. Other changes . . . . .                                   | 102 |
| 28.3.7. Known issues . . . . .                                    | 102 |
| 28.4. Más información sobre versiones más anteriores . . . . .    | 102 |
| 28.4.1. More information on even older releases . . . . .         | 103 |



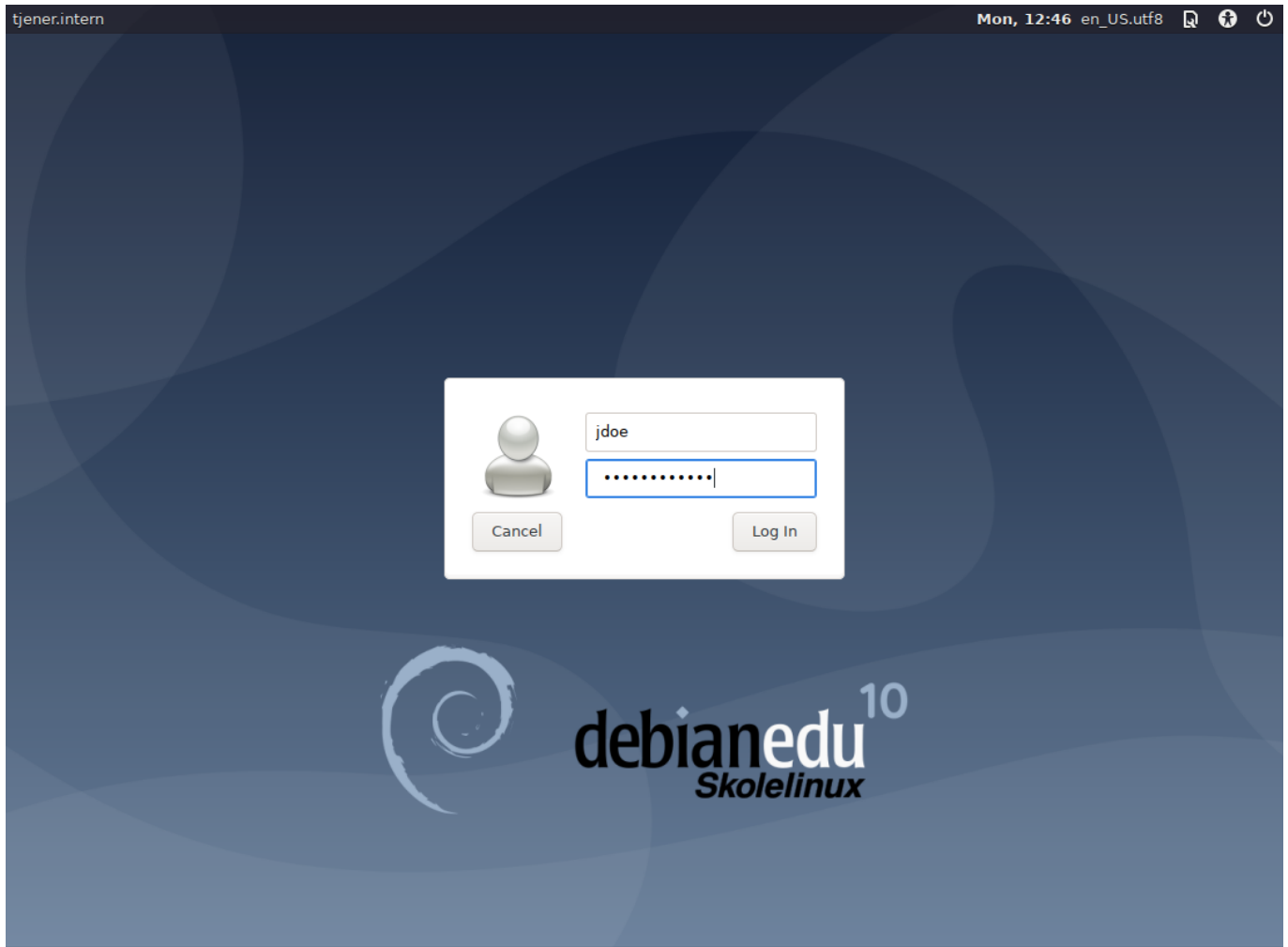
# 1. Manual para Debian-Edu 10+edu0 Codename Buster

## Traducción:

2007 José L. Redrejo Rodríguez

2009-2012, 2015 Rafael Rivas

2010, 2012-2013 Norman Garcia



Este es el manual de Debian Edu 10+edu0 Codename Buster

La versión en <https://wiki.debian.org/DebianEdu/Documentation/Buster> es un wiki actualizado frecuentemente.

Las **Traducciones** son parte del paquete `debian-edu-doc` que puede ser instalado en un servidor web, y que está disponible [online](#).

## 2. Acerca de Debian Edu y Skolelinux.

Debian Edu a.k.a Skolelinux es una distribución basada en Debian, proporcionando un ambiente "fuera de la caja", completamente configurado para una red escolar.

The chapters about **hardware and network requirements** and about the **architecture** contain basic environment details.

Inmediatamente después de la instalación, el servidor de la escuela ejecutará todos los servicios necesarios para que la red escolar sea funcional (vea el siguiente capítulo **detalles de la arquitectura de esta configuración**), y estará lista para agregar

usuarios y equipos vía GOsa<sup>2</sup>, que una interfaz de usuario web cómoda, o cualquier otro editor de LDAP. Un ambiente de carga por red es preparado usando PXE, así, después de la instalación inicial del servidor principal desde CD, Blu-ray o unidad USB, las otras computadoras pueden ser instaladas a través de la red, esto incluye "estaciones de trabajo itinerantes" (pueden ser llevadas fuera de la red escolar, usualmente laptops o netbooks) y carga por PXE para computadoras sin disco duro como los tradicionales clientes ligeros.

Múltiples aplicaciones educativas como GeoGebra, Kalzium, KGeography, GNU Solfege y Scratch, han sido incluidas en el escritorio predeterminado, el cual puede fácilmente ser extendido casi ilimitadamente, vía el universo Debian.

## 2.1. Un poco de historia, y el porqué de dos nombres

Debian Edu / Skolelinux es una distribución de Linux, hecha por el proyecto Debian Edu. Siendo una distribución **mezclada de Debian** es un sub-proyecto oficial de **Debian**

Lo que esto significa, es que Skolelinux es una versión de Debian que proporciona un ambiente "out of the box" de una red escolar completamente configurada.

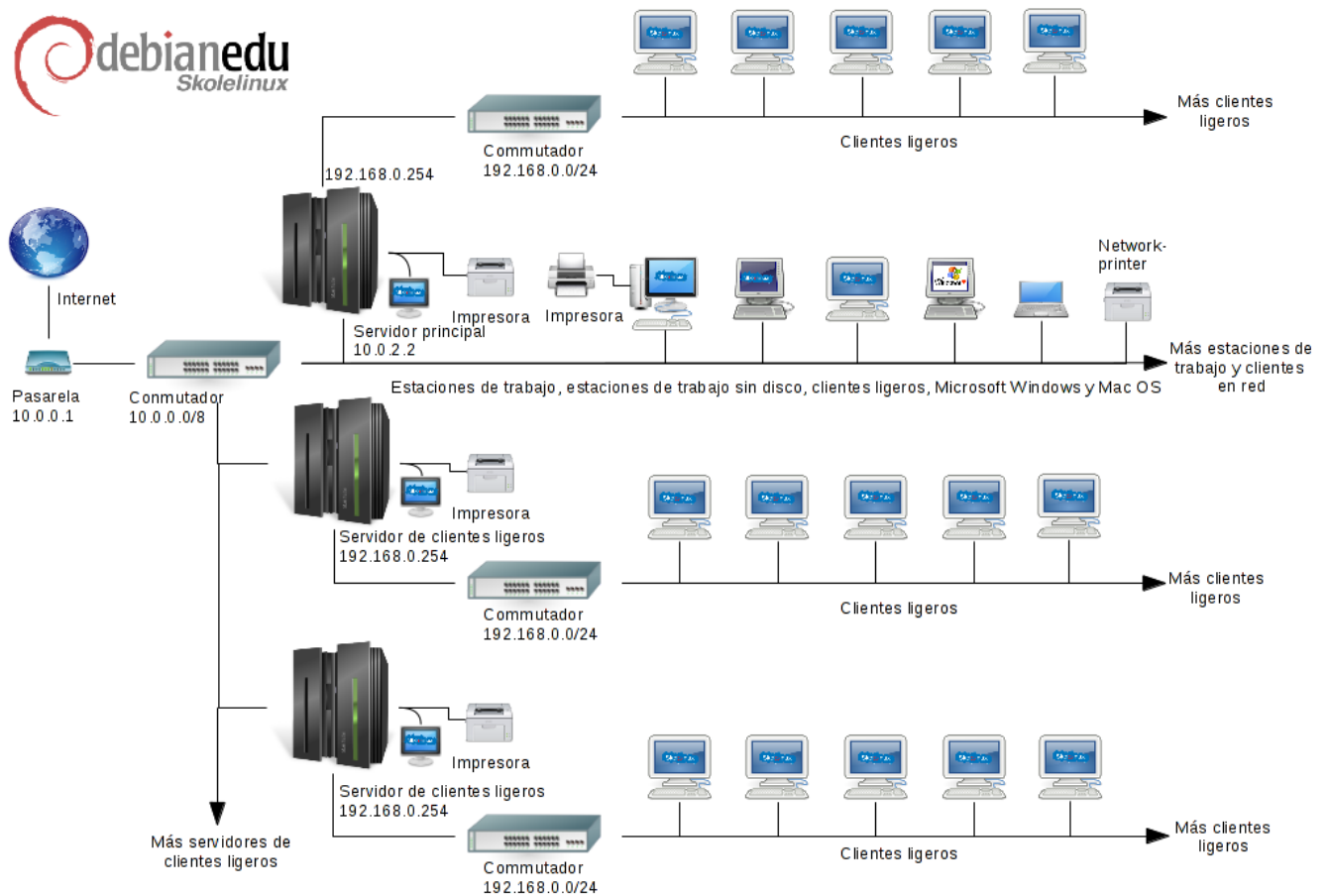
El proyecto Skolelinux fué fundado en Noruega el 2 de julio de 2001, y casi a la vez Raphaël Hertzog iniciaba el proyecto Debian Edu en Francia. Desde el 2003, ambos proyectos trabajaron unidos, aunque los nombres permanecieron separados. "Skole" y (Debian-) "Educativo" son dos términos bien conocidos en estas regiones.

Actualmente, el sistema es utilizado en muchos países alrededor del mundo.

## 3. Arquitectura

Esta sección del documento describe la arquitectura de red y los servicios proporcionados por una instalación Skolelinux.

### 3.1. Red



La figura es un esquema propuesto de la topología de red. La configuración predeterminada de Skolelinux asume que hay un (y sólo uno) servidor principal, y permite incluir tanto servidores LTSP (con clientes ligeros y/o estaciones sin disco asociados) como estaciones de trabajo. El número de estaciones de trabajo puede ser tan grande o pequeña como se quiera (desde ninguno a muchísimos). Lo mismo para los servidores LTSP, cada uno de los cuales está en una red separada, de forma que el tráfico entre los clientes ligeros y su servidor no afecte al resto de los servicios de red. LTSP se explica en detalle en [el capítulo relacionado con HowTo](#)

La razón por la que sólo puede haber un servidor principal en cada red es que el servidor principal proporciona DHCP, y sólo puede haber una máquina haciendo eso en cada red. Es posible trasladar servicios del servidor principal a otras máquinas configurando el servicio en otra máquina, y posteriormente, actualizando la configuración de DNS para que apunte al alias DNS de ese servicio a la máquina correcta.

In order to simplify the standard setup of Skolelinux, the Internet connection runs over a separate router, also called gateway. See the [Internet router](#) chapter for details how to set up such a gateway if it is not possible to configure an existing one as needed.

#### 3.1.1. La configuración de red predeterminada

El DHCP en el servidor «Tjener» sirve la red 10.0.0.0/8, en la que recibirá un menú de PXE boot donde podrá seleccionar si instalar un servidor nuevo / estación de trabajo, iniciar un cliente delgado, estación sin disco, prueba de memoria o iniciar desde disco local.

This is designed to be modified; for details, see [the related HowTo](#) chapter.

El servicio DHCPD en los servidores LTSP únicamente ofrece una red dedicada en la segunda interfaz (las opciones preconfiguradas son 192.168.0.0/24 y 192.168.1.0/24) y raramente necesitan ser cambiadas.

La configuración de todas las subredes es almacenada en LDAP.

### 3.1.2. Servidor principal (tjener)

Una red Skolelinux necesita un servidor principal (también llamado "tjener" que significa "servidor" en Noruego) que por defecto tenga la dirección IP 10.0.2.2 y sea instalado seleccionando el perfil servidor principal. Es posible (pero no requerido) seleccionar e instalar también los perfiles de servidor LTSP y estación de trabajo al perfil de servidor principal.

### 3.1.3. Servicios que corren en el servidor principal

Con la excepción del control de los clientes ligeros, todos los servicios se configuran inicialmente en un ordenador central (el servidor principal). Debido a razones de rendimiento, el servidor(es) LTSP debe ser una máquina separada (aunque se pueden instalar juntos en la misma máquina los perfiles de servidor principal y servidor LTSP). Todos los servicios tienen un nombre de DNS y se ofrecen únicamente sobre IPv4. Los nombres de DNS para los servicios hacen fácil el traslado a máquinas individuales de cada uno de ellos. Tan sólo hay que parar el servicio en el servidor principal, y cambiar la configuración de DNS para apuntar a la nueva ubicación del servicio (que, evidentemente, debe configurarse antes en esa máquina).

Para garantizar la seguridad, siempre que se transmitan contraseñas por la red, se hace en canal encriptado. Por tanto, no se envía ninguna contraseña en texto plano.

Abajo se encuentra una lista de los servicios que se tienen por defecto en una red Skolelinux, con el nombre de DNS en cada servicio. Si es posible, todos los archivos de configuración harán referencia al servicio por su nombre (sin el nombre del dominio), haciendo más fácil para las escuelas el cambio de dominio (si se tiene un dominio DNS) o la dirección IP que utilizan.

| Tabla de servicios                                     |                         |                        |
|--|-------------------------|------------------------|
| Descripción de servicios                               | Nombre común            | Nombre de servicio DNS |
| Registros centralizados                                | rsyslog                 | syslog                 |
| Sistema de Nombre de Dominio                           | DNS (BIND)              | domain                 |
| Configuración automática de equipos                    | DHCP                    | bootps                 |
| Sincronización de reloj                                | NTP                     | ntp                    |
| Directorios de usuarios vía sistema de archivos de red | SMB / NFS               | homes                  |
| Correo Electrónico                                     | IMAP (Dovecot)          | postoffice             |
| Servicio de Directorio                                 | OpenLDAP                | ldap                   |
| Administración de usuarios                             | GOsa <sup>2</sup>       | ---                    |
| Servidor Web   | Apache/PHP              | www                    |
| Respaldo Central                                       | sl-backup, slbackup-php | backup                 |
| Caché Web  | Proxy (Squid)           | webcache               |
| Impresión  | CUPS                    | ipp                    |
| Inicio de sesión remoto seguro                         | OpenSSH                 | ssh                    |
| Configuración Automática                               | CfEngine                | cfengine               |

| Servidor(es) LTSP   | LTSP                        | ltsp        |
|---|-----------------------------|-------------|
| Network Block Device Server   | NBD                         | ---         |
| Monitoreo de servicios y equipos,<br>reportes de fallas, histórico vía web.<br>Reportes de fallos vía correo. | Munin, Icinga y Sitesummary | sitesummary |

Cada usuario almacena sus archivos personales en su directorio home que está disponible en el servidor. Los directorios Home están accesibles desde todas las máquinas, dando a los usuarios acceso independientemente del puesto que estén usando. El servidor opera sin importar el sistema operativo. Ofrece tanto NFS para clientes UNIX, como SMB para Windows y clientes Macintosh.

Por defecto, el correo está configurado para envío local (dentro de la escuela), aunque se puede configurar el envío a todo Internet si la escuela tiene una conexión a Internet fija. Los clientes están configurados para enviar correo al servidor (usando 'smarthost'), y los usuarios pueden [acceder a su correo personal](#) mediante IMAP.

Todos los servicios usan el mismo nombre de usuario y contraseña, gracias a la base de datos centralizada para autenticación y autorización de usuarios.

Para incrementar el rendimiento al acceder frecuentemente a los mismos sitios de internet hay un proxy que cachea localmente los archivos (Squid). Junto al bloqueo de tráfico web en el router este también permite el control de acceso a Internet individualmente para cada puesto.

La configuración de red en los clientes se hace automáticamente con DHCP. Los clientes normales reciben direcciones IP en el rango privado 10.0.0.0/8, y los clientes LTSP se conectan a su servidor LTSP mediante la subred separada 192.168.0.0/24 (esto asegura que el tráfico de los clientes LTSP no interfiera con el resto de los servicios de red).

El registro de sucesos está centralizado, de forma que todas las computadoras envían sus mensajes al servidor. El servicio syslog está configurado para aceptar sólo mensajes entrantes desde la red local.

Por defecto, el servidor de DNS está configurado con un dominio para uso interno (\*.intern), contra un servidor de DNS real ("externo") que puede configurarse. El servidor de DNS actúa como un caché de DNS, de forma que todos los puestos de la red pueden usarlo como su servidor de DNS principal.

Los alumnos y profesores pueden publicar sitios web. El servidor web proporciona mecanismos para autenticar los usuarios, y para limitar el acceso a páginas individuales y subdirectorios a ciertos usuarios y grupos. Los usuarios pueden crear páginas web dinámicas, ya que el servidor web puede ejecutar programas del lado del servidor.

La información sobre las computadoras y los usuarios se puede cambiar en una ubicación central y es accesible a todos los ordenadores de la red automáticamente. Para conseguirlo, hay un servidor de directorio centralizado. El directorio tendrá información sobre los usuarios, grupos, máquinas y grupos de máquinas. Para evitar confusión entre los usuarios no habrá ninguna diferencia entre los grupos de archivos, listas de correo y grupos de red. Esto implica que los grupos de máquinas que tengan que estar en grupos de red, tienen el mismo tipo de nombre que los grupos de usuarios y listas de correo.

La administración de los usuarios y servicios se hace mediante web, y sigue estándares establecidos. Son funcionales en los navegadores que incluye Skolelinux. Es posible delegar algunas tareas a usuarios o grupos de usuarios mediante los sistemas de administración.

Para evitar algunos problemas con NFS, y hacer más simple la depuración de errores, es necesario sincronizar los relojes de todas las máquinas. Para lograr esto, el servidor Skolelinux tiene configurado un servidor NTP, y todas las estaciones y clientes se configuran para sincronizar sus relojes con el servidor. El servidor debe sincronizar su propio reloj mediante NTP con alguna de las máquinas disponibles en Internet para asegurarse de que toda la red tenga la hora correcta.

Las impresoras se conectan donde sean necesarias, bien directamente en la red, o conectadas a un servidor, estación de trabajo o servidor LTSP. El acceso a las impresoras se puede controlar para los usuarios de acuerdo con el grupo al que pertenezcan, y puede hacerse con cuota y control de acceso a las impresoras.

### 3.1.4. LTSP server(s)

Una red Skolelinux puede tener muchos servidores LTSP, que pueden ser instalados seleccionando el perfil servidor LTSP.

EL servidor LTSP está configurado para recibir los registros de los clientes ligeros y reenviarlos al servidor central.

Please note:

- Thin clients are using the programs installed on the server.
- Diskless workstations are using the programs installed in the server's LTSP chroot.
- For LTSP clients a more lightweight desktop environment should be used; this can be set at installation time, see the [Installation chapter](#) for details.
- The client root filesystem is provided using NBD (Network Block Device). After each modification to the LTSP chroot the related NBD image has to be re-generated; run `ltsp-update-image` on the LTSP server.

### 3.1.5. Clientes ligeros

Una configuración de cliente ligero permite a un PC ordinario funcionar como un terminal (X). Esto significa que la computadora arranca desde el servidor a través de la red (usando network-PROM o PXE) sin usar el disco duro local. La configuración de cliente ligero ahora usa LTSP ha dejado de apoyar.

Los clientes delgados son una buena forma de usar máquinas viejas, de poca capacidad, ya que los programas se ejecutan en el servidor LTSP. Funciona así: El servicio usa DHCP y TFTP para conectarse a la red y arrancar desde la red. Luego, el sistema de archivos se monta desde el servidor LTSP usando NBD, y finalmente se inicia el sistema X Window. El administrador de pantalla (LDM) se conecta al servidor LTSP vía SSH con X-forwarding. De esta manera todos los datos son encriptado en la red.

### 3.1.6. Estaciones sin disco

For diskless workstations the terms "stateless workstations", "lowfat clients" or "half-thick clients" are also used. For the sake of clarity this manual sticks to the term "diskless workstations".

Una estación sin disco, ejecuta todas las aplicaciones localmente, sin necesidad de un S.O instalado. Esto significa que las máquinas cliente arrancan vía PXE sin ejecutar el software instalado en un disco duro local.

Las estaciones sin disco son una forma excelente para reutilizar hardware reciente, con el mismo costo bajo de mantenimiento que los clientes ligeros. Las aplicaciones son administradas y mantenidas en el servidor, sin necesidad de instalaciones en los clientes. Los directorios de los usuarios y las configuraciones de sistema son almacenadas en el servidor.

### 3.1.7. Clientes en red.

El término "clientes en red" es usado en este manual para referirse tanto para clientes delgados, como terminales sin disco, o equipos utilizando MacOS o Windows.

## 3.2. Administración

Todas las máquinas Linux que se instalan con el instalador de Skolelinux se pueden administrar desde una computadora central, es decir el servidor. Se puede acceder a todas las máquinas por SSH y, por tanto hay acceso completo a todos los puestos. Como root primero es necesario ejecutar `kinit` para obtener un TGT de Kerberos.

Toda la información de los usuarios se guarda en un directorio LDAP. Las actualizaciones de las cuentas de usuario se hacen contra esta base de datos, que es la que usan los clientes para autenticarse.

---

### 3.2.1. Instalación

Actualmente hay dos medios de instalación: instalación por red y BD. Ambos medios pueden ser cargados desde memorias USB.

La idea es poder instalar un servidor desde cualquier medio una sola vez e instalar los demás clientes por la red arrancando mediante la red.

Solo la instalación en red necesita acceso a Internet durante la instalación.

La instalación no debería hacer ninguna pregunta, con la excepción del idioma deseado (p. ej. Noruego, Español, etc) y el perfil de la máquina (servidor principal, puesto normal, servidor LTSP, ...). Todas las demás configuraciones se harán automáticamente con valores razonables, y el administrador del sistema las podrá cambiar desde un sitio centralizado después de la instalación.

### 3.2.2. Configuración del acceso al sistema de archivos

Cada cuenta de usuario de Skolelinux tiene asignada una sección del sistema de archivos en el servidor de archivos. Esta sección (directorio home) contiene los archivos de configuración del usuario, documentos, correos electrónicos y páginas web. Algunos de los archivos deberían tener acceso de lectura para otros usuarios del sistema, algunos podrían ser de lectura para todos a través de Internet, y algunos no deberían ser accesibles por nadie que no fuera el usuario.

Para asegurar que todos los discos serán utilizados para directorios de datos de los usuarios o directorios compartidos, pueden poseer nombres únicos entre todas los ordenadores durante la instalación al ser montados como `/skole/host/directory/`. Inicialmente, un directorio es creado en el servidor de archivos, `/skole/tjener/home0/` en el que todas las cuentas de usuarios son creadas. Más directorios pueden ser creados cuando sea necesario acomodar grupos de usuarios particulares o patrones particulares de uso.

Para habilitar el acceso compartido de archivos según el sistema de permisos de UNIX, los usuarios necesitan ser parte de un grupo compartido adicional (como "students") así como al grupo inicial al que pertenecen de manera predeterminada. Si los usuarios tienen una umask apropiado para hacer artículos de nueva creación para compartir archivos en grupos accesibles (002 o 007), y si los directorios que están trabajando en son setgid para asegurar que los archivos hereden el grupo de la propiedad correcta, el resultado es controlada entre el miembros de un grupo.

The initial access settings for newly created files are a matter of policy. The Debian default umask is 022 (which would not allow group-access as described above), but Debian Edu uses a default of 002 - meaning that files are created with read access for everybody, which can later be removed by explicit user action. This can alternatively be changed (by editing `/etc/pam.d/common-session`) to a umask of 007 - meaning read access is initially blocked, necessitating user action to make them accessible. The first approach encourages knowledge sharing, and makes the system more transparent, whereas the second method decreases the risk of unwanted spreading of sensitive information. The problem with the first solution is that it is not apparent to the users that the material they create will be accessible to all other users. They can only detect this by inspecting other users' directories and seeing that their files are readable. The problem with the second solution is that few people are likely to make their files accessible, even if they do not contain sensitive information and the content would be helpful to inquisitive users who want to learn how others have solved particular problems (typically configuration issues).

## 4. Requisitos

Hay diferentes formas de usar una solución Skolelinux. Puede instalarse en un sólo PC o en una amplia región con muchas escuelas operadas centralmente. Esta variedad de configuraciones hace una gran diferencia en la forma de configurar las cosas dependiendo de los elementos de red, servidores y puestos de cliente.

### 4.1. Requisitos de hardware

El propósito de los diferentes perfiles es explicado en el capítulo [Arquitecturas de red](#).



If LTSP is intended to be used, take a look at the [LTSP Hardware Requirements wiki page](#).

- Las computadoras ejecutando Debian Edu / Skolelinux deben tener procesadores, ya sea de 32 bits (Debian arquitectura 'i386', procesadores más antiguos son compatibles 686) o 64 bits (arquitectura Debian «amd64») procesadores x86.
- At least 12 GiB RAM for 30 thin clients and 20 GiB RAM for 50-60 thin clients are recommended for the main and LTSP server profiles.
- Los clientes delgados pueden funcionar con 256 MB de RAM y 400 MHz de procesador, aunque se recomienda más RAM y procesadores de mayor velocidad.
  - Swapping over the network is automatically enabled for LTSP clients; the swap size is 512 MiB, and if you need more you can tune this by editing `/etc/ltsp/nbdswpd.conf` on tjener to set the SIZE variable.
  - If your diskless workstations have hard drives, it is recommended to use them for swap as it is a lot faster than network swapping.
- Para estaciones de trabajo, terminales tontas e instalaciones individuales, PC's con velocidad de 1500 MHz y 1024 Mb de RAM son los requerimientos mínimos, para ejecutar navegadores modernos y LibreOffice 2048 Mb de RAM son recomendados.
  - On workstations with little RAM the spell checker might cause LibreOffice to hang if the swap space is also too small. If this happens frequently the spell checker can be disabled by system administrators.
- El requerimiento mínimo de espacio depende del perfil que sea instalado.
  - combinado servidor principal + servidor LTSP: 70 GiB (más espacio adicional para cuentas de usuario).
  - servidor LTSP: 50Gb
  - Estación de trabajo, o independiente: 30 Gb
- Los servidores LTSP necesitan dos tarjetas de red cuando la arquitectura de red por defecto es usada.
  - eth0 conectada a la red principal (10.0.0.0/8),
  - eth1 is used for serving LTSP clients (192.168.0.0/24 as default), but **others are possible**.
- Las laptops son estaciones de trabajo móviles, por lo que tienen los mismos requerimientos de las estaciones de trabajo regulares.

## 4.2. Hardware conocido que funciona

Una lista de hardware probado esta en <https://wiki.debian.org/DebianEdu/Hardware/> . Esta lista no está completa



<https://wiki.debian.org/InstallingDebianOn> es un esfuerzo para documentar el proceso de instalación, configuración y uso de Debian en hardware específico. Por lo tanto los potenciales compradores sabrán si su hardware es soportado y los propietarios podrán saber como obtener el máximo de sus equipos.

An excellent database of hardware supported by Debian is online at <http://kmuto.jp/debian/hcl/>.

## 5. Requerimientos para una instalación de red

### 5.1. Configuración por defecto

Se aplican las siguientes reglas cuando se usa la arquitectura de red por defecto:

- Necesita exactamente, un servidor principal, el tjener.
- Puede tener hasta cientos de estaciones de trabajo en la red principal.



- Puede tener muchos servidores LTSP en la red principal; dos subredes diferentes son preconfiguradas (DNS, DHCP) en LDAP, aunque pueden agregarse más.
- Puede tener cientos de clientes ligeros y/o estaciones de trabajo sin disco en cada red de servidores LTSP.
- Puede tener cientos de otras computadoras que tendrán direcciones IP asignadas de manera dinámica.
- Para acceder a Internet necesita un enrutador/pasarela (ver más abajo).

## 5.2. Enrutador de Internet

Un enrutador/pasarela conectado a Internet en la interfaz externa y con la dirección IP 10.0.0.1 y máscara de red 255.0.0.0 en la interfaz interna, es necesario para conectarse a internet.

El enrutador no debería ejecutar un servidor DHCP, puede ejecutar un servidor DNS, aunque no es necesario y no será usado.

In case you already have a router but are unable to configure it as needed (eg because you are not allowed to do so, or for technical reasons), an older computer with two network interfaces can be turned into a gateway between the existing network and the Debian Edu one.

A simple way is to install Debian Edu on this computer; select 'Minimal' as profile during installation.

After the installation:

- Adjust the `/etc/network/interfaces` file.
- Change the hostname permanently to 'gateway'.
- Remove superfluous scripts.
- Enable IP forwarding and NAT for the 10.0.0.0/8 network.
- As an option install a firewall and / or a traffic shaping tool.

```
#!/bin/sh
# Turn a system with profile 'Minimal' into a gateway/firewall.
#
sed -i 's/auto eth0/auto eth0 eth1/' /etc/network/interfaces
sed -i 's/dhcp/static/' /etc/network/interfaces
sed -i 's/post-up/d' /etc/network/interfaces
echo 'address 10.0.0.1' >> /etc/network/interfaces
echo 'dns-nameservers 10.0.2.2' >> /etc/network/interfaces
echo 'dns-domain intern' >> /etc/network/interfaces
hostname -b gateway
hostname > /etc/hostname
rm -f /etc/dhcp/dhclient-exit-hooks.d/hostname
rm -f /etc/dhcp/dhclient-exit-hooks.d/wpad-proxy-update
rm -f /etc/dhcp/dhclient-exit-hooks.d/fetch-ldap-cert
rm -f /etc/network/if-up.d/wpad-proxy-update
sed -i 's/domain-name,/' /etc/dhcp/dhclient-debian-edu.conf
sed -i 's/domain-search,/' /etc/dhcp/dhclient-debian-edu.conf
service networking stop
service networking start
sed -i 's#NAT=#NAT="10.0.0.0/8"#' /etc/default/enable-nat
service enable-nat restart
# You might want a firewall (shorewall or ufw) and traffic shaping.
#apt update
#apt install shorewall
# or
#apt install ufw
#apt install wondershaper
```

Si necesita algo para un enrutador empujado, o un punto de acceso le recomendamos usar [OpenWRT](#), así podrá usar también el firmware original. Utilizar el firmware original es más fácil, utilizar OpenWRT le proporciona más opciones y control. Revise la web de OpenwRT para una lista completa del [hardware soportado](#).

Es posible usar una configuración diferente de red (existe un [proceso documentado](#) para hacer esto), pero si usted no tiene una infraestructura de red preexistente, le recomendamos abstenerse de hacerlo, y mantener la configuración predeterminada de la [arquitectura de red](#).

## 6. Instalación y opciones de descarga

### 6.1. Donde encontrar información adicional

We recommend that you read or at least take a look at the [release notes for Debian Buster](#) before you start installing a system for production use. There is more information about the Debian Buster release available in its [installation manual](#).

Please give Debian Edu/Skolelinux a try, it should just work. 😊

It is recommended, though, to read the chapters about [hardware and network requirements](#) and about the [architecture](#) before starting to install a main server.



Asegúrese de leer el capítulo [Iniciando con Debian Edu](#) de este manual, ya que explica como iniciar sesión por primera vez.

### 6.2. Descargar un medio de instalación para Debian Edu 10+edu0 Codename Buster

#### 6.2.1. amd64 or i386

amd64 and i386 are the names of two Debian architectures for x86 CPUs, both are or have been build by AMD, Intel and other manufacturers. amd64 is a 64-bit architecture and i386 is a 32-bit architecture. New installations today should be done using amd64. i386 should only be used for old hardware.

#### 6.2.2. Imagen ISO netinst por i386 o amd64

The netinst iso image can be used for installation from CD/DVD and USB flash drives and is available for two Debian architectures: amd64 or i386. As the name implies, internet access is required for the installation.

Once Buster has been released these images will be available for download from:

- <http://get.debian.org/cdimage/release/current/amd64/iso-cd/>
- <http://get.debian.org/cdimage/release/current/i386/iso-cd/>

#### 6.2.3. Imagen ISO BD para arquitectura i386 y amd64

Esta imagen ISO tiene un tamaño aproximado de 5 GB y puede utilizarse para la instalación de máquinas amd64 o i386, también sin acceso a Internet. Al igual que la imagen netinst puede ser instalada en memorias USB o discos de tamaño suficiente.

Once Buster has been released these images will be available for download from:

- <http://get.debian.org/cdimage/release/current/amd64/iso-bd/>
- <http://get.debian.org/cdimage/release/current/i386/iso-bd/>

#### 6.2.4. Verification of downloaded image files

Detailed instructions for verifying these images are part of the [Debian-CD FAQ](#).

#### 6.2.5. Fuentes:

Sources are available from the Debian archive at the usual locations, several media are linked on <http://get.debian.org/cdimage/release/current/source/>

### 6.3. Solicite un CD / DVD por correo

Para quienes que no poseen una conexión a Internet rápida, nosotros podríamos enviarle un CD o DVD por el precio del mismo y su envío. Solamente envíe un correo a [cd@skolelinux.no](mailto:cd@skolelinux.no) podremos discutir acerca de los detalles del pago (del disco y el envío). 😊 Recuerde incluir la dirección a la que desea le sea enviado su CD / DVD dentro del email.

### 6.4. Instalacion de Debian Edu

When you do a Debian Edu installation, you have a few options to choose from. Don't be afraid; there aren't many. We have done a good job of hiding the complexity of Debian during the installation and beyond. However, Debian Edu is Debian, and if you want there are more than 57,000 packages to choose from and a billion configuration options. For the majority of our users, our defaults should be fine. Please note: if LTSP is intended to be used, choose a lightweight desktop environment.

#### 6.4.1. Escenarios de instalación del servidor principal

A. Typical school or home network with Internet access through a router providing DHCP:

- Installation of a main server is possible, but after reboot there will be no internet access (due to primary network interface IP 10.0.2.2/8).
- See the [Internet router](#) chapter for details how to set up a gateway if it is not possible to configure an existing one as needed.
- Connect all components like shown in the [architecture](#) chapter.
- The main server should have Internet connection once bootet the first time in the correct environment.

B. Typical school or institution network, similar to the one above, but with proxy use required.

- Add 'debian-edu-expert' to the kernel command line; see further below for details how this is done.
- Some additional questions must be answered, the proxy server related one included.

C. Network with router/gateway IP 10.0.0.1/8 (which does not provide a DHCP server) and Internet access:

- As soon as the automatic network configuration fails (due to missing DHCP), choose manual network configuration.
  - Enter 10.0.2.2/8 as host IP
  - Enter 10.0.0.1 as gateway IP
  - Enter 8.8.8.8 as nameserver IP unless you know better
- The main server should just work after the first boot.

D. Offline (no Internet connection):

- Use the BD ISO image.
  - Make sure all (real/virtual) network cables are unplugged.
  - Choose 'Do not configure the network at this time' (after DHCP failed to configure the network and you pressed 'Continue').
  - Update the system once bootet the first time in the correct environment with Internet access.
-

### 6.4.2. Desktop choice

- KDE and GNOME both have good language support, but too big a footprint for both older computers and for LTSP clients.
- MATE is lighter than the two above, but is missing good language support for several countries.
- LXDE has the smallest footprint and supports 35 languages.
- LXQt is a lightweight desktop (language support similar to LXDE) with a more modern look and feel (based on Qt just like KDE).
- Xfce has a slightly bigger footprint than LXDE but a very good language support (106 languages).

Debian Edu as an international project has chosen to use Xfce as the default desktop; see below how to set a different one.

### 6.4.3. Instalación modular

- When installing a system with profile *Workstation* included, a lot of education related programs are installed. To install only the basic profile, remove the *desktop=xxxx* kernel command line param before starting the installation; see further below for details how this is done. This allows one to install a site specific system and could be used to speed up test installations.
- Please note: If you want to install a desktop afterwards, don't use the Debian Edu meta-packages like e.g. [education-desktop-mate](#) because these would pull in all education related programs; rather install e.g. [task-mate-desktop](#) instead. One or more of the new school level related meta-packages *education-preschool*, *education-primaryschool*, *education-secondaryschool*, *education-highschool* could be installed to match the use case.
- For details about Debian Edu meta-packages, see the [Debian Edu packages overview](#) page.

### 6.4.4. Tipos de instalación y opciones

*Menú de arranque del instalador en hardware de 64 bits*



*Instalador gráfico* usa el instalador GTK donde puede usar el ratón.

**Instalar** realiza la instalación en modo texto.

**Opciones avanzadas** > brinda un submenú con opciones más detalladas que puede elegir

**Ayuda** brinda algunos consejos sobre como usar el instalador; ver la captura de pantalla a continuación.



**Regresar..** lo lleva de nuevo al menú principal.

**Instalación experta gráfica** le da acceso a todas las opciones disponibles en modo gráfico.

**Modo de rescate gráfico** lo convierte en un disco de rescate para tareas de emergencia.

**Instalación automática gráfica** necesita un archivo preconfigurado.

**Instalación experta** le da acceso a todas las opciones disponibles en modo texto.

**Modo de rescate** lo convierte en un disco de rescate para tareas de emergencia.

**Instalación automática** en modo texto; necesita un archivo preconfigurado.

*Help screen*

```

Welcome to Debian GNU/Linux! F1

This is a Debian 10 (buster) installation CD-ROM.
It was built 20190211-05:11; d-i 20190209-00:03:13.

HELP INDEX

KEY      TOPIC

<F1>     This page, the help index.
<F2>     Prerequisites for installing Debian.
<F3>     Boot methods for special ways of using this CD-ROM
<F4>     Additional boot methods; rescue mode.
<F5>     Special boot parameters, overview.
<F6>     Special boot parameters for special machines.
<F7>     Special boot parameters for selected disk controllers.
<F8>     Special boot parameters for the install system.
<F9>     How to get help.
<F10>    Copyrights and warranties.

Press F2 through F10 for details, or ENTER to boot: _
```

Esta pantalla de ayuda se explica por si sola y habilita las teclas <F> en el teclado para tener ayuda más detallada en los temas descritos.

*Add or change boot parameters for installations*

In both cases, boot options can be edited by pressing the TAB key in the boot menu; the screenshot shows the command line for **Graphical install**.



- Puede utilizar un servicio proxy HTTP existente en la red para agilizar la instalación del servidor principal desde CD. Agregue `mirror/http/proxy=http://10.0.2.2:3128/` como un parámetro adicional de carga.
- Si ya tiene instalador el perfil de servidor principal en una computadora, futuras instalaciones se podrían hacer vía PXE, ya que utilizará automáticamente el proxy del servidor principal.
- Para instalar el escritorio **GNOME** en lugar del escritorio **Xfce**, agregue `desktop=gnome` a los parámetros de carga del kernel.
- Para instalar el escritorio **LXDE**, agregue `desktop=lxde` a los parámetros de carga del kernel.
- Para instalar el escritorio **LXQt**, agregue `desktop=lxqt` a los parámetros de carga del kernel.
- Para instalar el escritorio **KDE Plasma**, agregue `desktop=kde` a los parámetros de carga del kernel.
- Para instalar el escritorio **MATE**, agregue `desktop=mate` a los parámetros de carga del kernel.

#### 6.4.5. El proceso de instalación

Recuerde los **requerimientos del sistema** y asegúrese que tenga al menos dos tarjetas de red (NIC) si planea configurar un servidor de clientes ligeros.

- Elige el idioma (para la instalación y el sistema instalado).
- Elige un lugar que normalmente sería el lugar donde vives.
- Seleccione una disposición de teclado (la predeterminada para su país es la mejor opción).



- Elige el(los) perfil(es) de la siguiente lista:

- **Main Server**

- Este es el servidor principal (tjener) para su escuela, el cual provee todos los servicios preconfigurados listos para trabajar. ¡Usted solo debe instalar un servidor principal por escuela! este perfil no incluye una interfaz gráfica para el usuario. Si usted desea una interfaz gráfica, debe seleccionar la opción de estación de trabajo, o servidor LTSP para agregarla.

- **Workstation**

- Una computadora que inicia desde su disco duro, y funciona con todos los programas y dispositivos localmente como una computadora común, pero el usuario será autenticado por el servidor principal, donde los archivos de los usuarios y las configuraciones para escritorio son guardados.

- **Roaming workstation**

- Same as workstation but capable of authentication using cached credentials, meaning it can be used outside the school network. The users' files and profiles are stored on the local disk. For single user notebooks and laptops this profile should be selected and not 'Workstation' or 'Standalone' as suggested in earlier releases.

- **Servidor LTSP**

- Un servidor para clientes ligeros (y estaciones sin disco), también suele ser llamado servidor LTSP. Clientes sin disco duro, inician y utilizan aplicaciones desde el servidor. Estas computadoras necesitan al menos, dos tarjetas de red, mucha memoria e idealmente más de un procesador o núcleo. Vea el capítulo relacionado a **clientes de red** para mayor información en este tema. Seleccionar este perfil también habilita el perfil de estación de trabajo (aún si no es seleccionado), un servidor LTSP siempre puede ser utilizado como estación de trabajo.

- **Standalone**

- Una computadora común que puede funcionar sin un servidor (esto quiere decir, que no necesita estar en la red). Incluye laptops.

- **Minimal**

- Este perfil instalará los paquetes básicos y configurará la computadora para integrarse en la red Debian Edu, pero sin ningún servicio ni aplicaciones. Es útil como plataforma para servicios simples manualmente migrados desde el servidor principal.

Los perfiles **Servidor principal**, **Estación de trabajo** y **Servidor LTSP** son preseleccionados. Estos perfiles pueden ser instalados en una misma computadora si desea instalar el llamado *servidor principal combinado*. Esto significa que el servidor principal será un servidor LTSP y también será usado como una estación de trabajo. Esta es la opción predefinida, ya que asumimos que la mayoría de la gente lo querrá. Tenga en cuenta que debe tener dos tarjetas de red instaladas en la computadora que se va a usar como servidor principal combinado o como servidor de clientes ligeros para que pueda ser útil después de su instalación.

- Seleccione "sí" o "no" para particionamiento automático. Este consciente que al seleccionar sí, se eliminarán todos los datos en el disco duro!, al seleccionar no, se requerirá más trabajo y necesitará que las particiones requeridas sean creadas y tengan suficiente espacio.
- Por favor, seleccione "sí" para enviar información a <https://popcon.debian.org/> para permitirnos saber que paquetes son populares y deberían de mantenerse para futuras versiones. Usted no está obligado a hacerlo, pero es la manera más fácil de que colabore. 😊
- Espere. Si en los perfiles seleccionados se incluye Servidor LTSP, entonces el instalador tardará un poco más al final "Finalizando la instalación - Ejecutando debian'edu'profile'udeb...."
- Después de introducir la contraseña de root, se le solicitará crear una cuenta de usuario normal "para tareas no administrativas". Para Debian Edu esta cuenta de usuario es muy importante: es la cuenta que se usará para administrar la red Skolelinux.



La contraseña para este usuario **debe** tener una longitud de **al menos 5 caracteres** y **y debe ser diferente** del nombre de usuario **username**, de lo contrario, el ingreso al sistema no será posible (aunque el instalador acepte una contraseña menor).

- Sonríe :)

#### 6.4.6. Notas en algunas características

##### 6.4.6.1. Nota sobre equipos portátiles.

Most likely you will want to use the 'Roaming workstation' profile (see above). Be aware that all data is stored locally (so take some extra care over backups) and login credentials are cached (so after a password change, logins may require your old password if you have not connected your laptop to the network and logged in with the new password).

##### 6.4.6.2. Nota sobre instalaciones con imagen USB / Blu-ray

Después de instalar desde una imagen USB / Blu-ray, `/etc/apt/sources.list` contendrá fuentes de esa imagen. Si tiene conexión a Internet, le sugerimos agregar las siguientes líneas para que las actualizaciones de seguridad disponible se puedan instalar:

```
deb http://deb.debian.org/debian/ buster main
deb http://security.debian.org/ buster/updates main
```

##### 6.4.6.3. Nota acerca de de la instalación con CD

Una instalación por red (que es el tipo de instalación que ofrece nuestro CD) tomará algunos paquetes del CD y el resto lo tomará de Internet. El monto de paquetes tomados desde la red varia de perfil en perfil pero se mantiene menor a un gigabyte (al menos que elija instalar todos los escritorios posibles). Una vez que tiene instalado el servidor principal (ya sea un servidor principal o un servidor combinado), futuras instalaciones usarán el proxy para prevenir la descarga de los mismos paquetes muchas veces desde Internet.

##### 6.4.6.4. Notes on LTSP Server installations using only Thin-Clients

Providing the kernel boot parameter `edu-skip-ltsp-make-client` makes it possible to skip one step which converts the LTSP chroot from a thin-client chroot into a combined thin-client/diskless workstation chroot.

This is useful in certain situations, such as if you want a pure thin client chroot or if there is already a diskless chroot on another server, which can be rsynced. For these situations skipping this step will cut down the installation time considerably.

Except for the longer installation time there is no harm in always creating combined chroots, which is why this is done by default.

#### 6.4.7. Instalación utilizando memorias USB lugar de CD / Blu-ray

Es posible copiar directamente las imágenes `.iso` de CD/DVD/BD a una unidad USB (también conocido como "memoria USB") e iniciar desde ellos. Solamente ejecute un comando como este, ponga el nombre del archivo y la ruta al dispositivo que desee instalar.

```
sudo cp debian-edu-amd64-XXX.iso > /dev/sdX
```

To determine the value of X, run this command before and after the USB device has been inserted:

```
lsblk -p
```

Please note that copying will take quite some time.

Dependiendo de la imagen seleccionada, la unidad USB se comportará como un CD o Blu-ray.

#### 6.4.8. Installation over the network (PXE) and booting diskless clients

Para este método de instalación es necesario que el servidor principal esté encendido. Cuando los clientes cargan a través de la red principal, un nuevo menú PXE con un instalador y opciones de selección de carga se mostrará. Si la instalación PXE falla con un mensaje de error mencionando que un archivo XXX.bin no se encuentra, es más probable que la tarjeta de red del cliente requiera un firmware no libre. En este caso el initrd del instalador de Debian debe ser modificado. Esto se puede lograr ejecutando el comando `/usr/share/debian-edu-config/tools/pxe-addfirmware` en el servidor.

This is how the PXE menu looks with the **Main-Server** profile only:



This is how the PXE menu looks with the **Main Server** and **LTSP Server** profiles:



To install a desktop environment of your choice instead of the default one, press TAB and edit the kernel boot options (like explained above).

Esta configuración permite iniciar a las estaciones sin disco y clientes ligeros a través de la red principal. A diferencia de las estaciones de trabajo y servidores LTSP las estaciones de trabajo sin disco no necesitan ser agregadas a LDAP con GOSa<sup>2</sup>.

Más información acerca de los clientes de red puede ser encontrada en el capítulo [clientes de red](#).

#### 6.4.8.1. Modificar instalaciones PXE

La instalación PXE utiliza un archivo de preconfiguración para debian-installer, que puede ser modificado y solicitar más paquetes para instalar.

Una línea como esta debe ser agregada a `tjener:/etc/debian-edu/www/debian-edu-install.dat`

```
d-i pkgsel/include string my-extra-package(s)
```

La instalación PXE usa el archivo `/var/lib/tftpboot/debian-edu/install.cfg` y el archivo de preconfiguración `/etc/debian-edu/install.cfg`. Estos archivos pueden modificarse para ser ajustados a la configuración usada durante la instalación y así evitar las preguntas cuando se realicen instalaciones por red. Otra manera de lograr esto es agregar configuraciones extras a los archivos `/etc/debian-edu/pxeinstall.conf` y `/etc/debian-edu/www/debian-edu-install.dat.local` y ejecutar `/usr/sbin/debian-edu-pxeinstall` para actualizar los archivos generados.

Más información puede ser encontrada en el [manual del instalador Debian](#).

Para desactivar o cambiar el uso del proxy cuando instale vía PXE, necesita cambiar las líneas que contengan `mirror/http/proxy`, `mirror/ftp/proxy` y `preseed/early_command` en el archivo `tjener:/etc/debian-edu/www/debian-edu-install.dat`. Para desactivar el uso de proxy cuando instale, anteponga el signo '#' al inicio de las primeras dos líneas y elimine `"export http_proxy="http://webcache:3128"; "` de la última línea.

Algunas configuraciones no pueden preconfigurarse porque son necesarias antes que el archivo de preconfiguración sea descargado. Estas son configuradas en los argumentos de carga PXELinux-based disponibles en `/var/lib/tftpboot/debian-edu/install`. Idioma, disposición del teclado y escritorio son algunas de estas configuraciones.

#### 6.4.9. Imágenes personalizadas

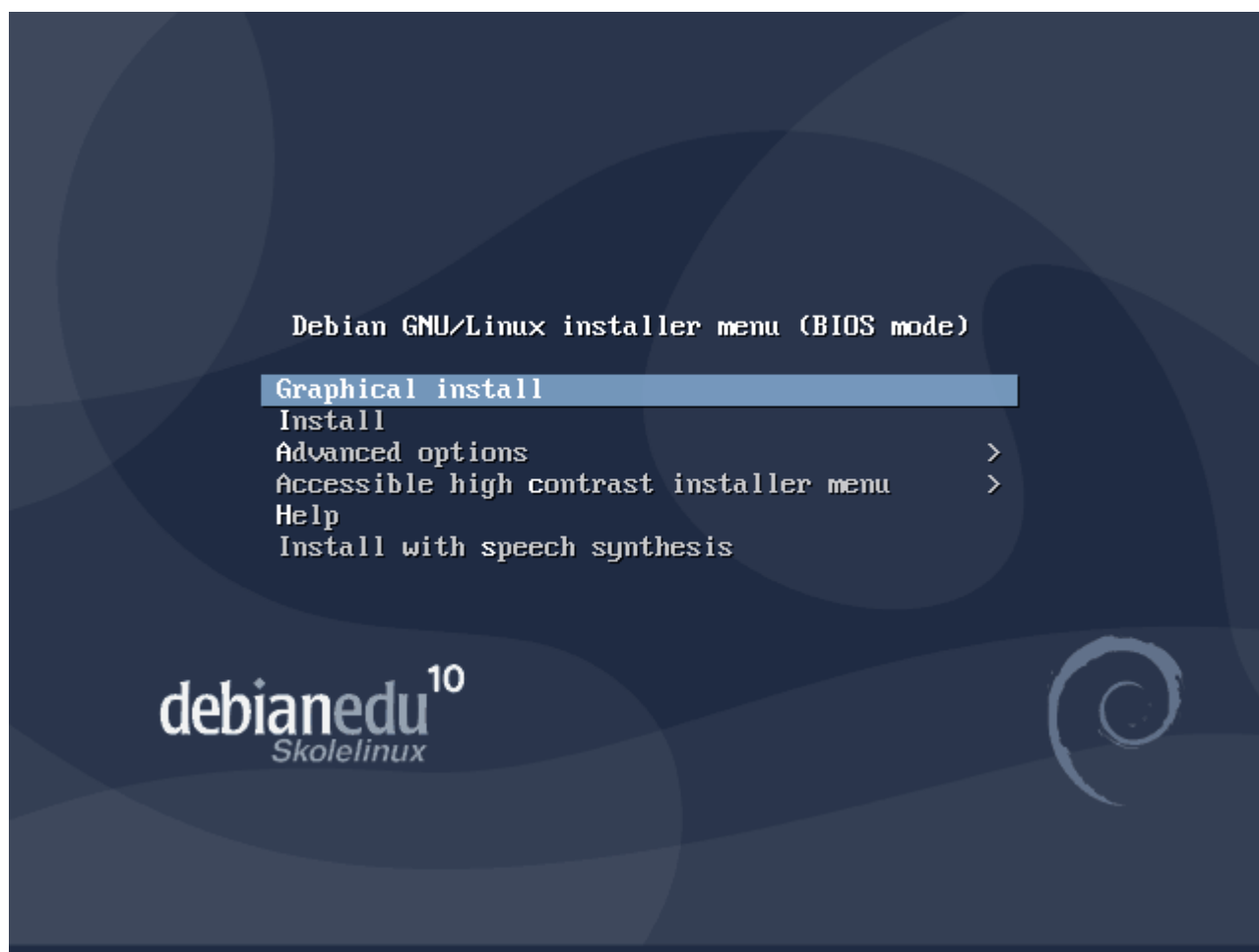
Crear CDs, DVDs o Blu-rays personalizados es bastante fácil, ya que se utilizamos el **Debian Installer**, el cual es de diseño modular, y posee otras características útiles. La **Preconfiguración** le permite definir las respuestas a las preguntas realizadas regularmente.

Así que todo lo que necesitas hacer es crear un archivo de preconfiguración con sus respuestas (esto se describe en el apéndice del manual del instalador de Debian) y **remasterizar el CD/DVD**

### 6.5. Captura de pantalla del paseo

El modo de texto y modo gráfico de instalación son idénticos, sólo la apariencia es diferente. El modo gráfico le ofrece la oportunidad de utilizar un ratón y por supuesto, el modo gráfico se ve mucho mejor y más moderno. A menos que el hardware presente problemas con el modo gráfico, no hay razón para no usarlo.

So here is a screenshot tour through a graphical 64-bit Main Server + Workstation + LTSP Server installation and how it looks at the first boot of the main server, a PXE boot on the workstation network and on the LTSP client network:







### Select your location

The selected location will be used to set your time zone and also for example to help select the system locale. Normally this should be the country where you live.

This is a shortlist of locations based on the language you selected. Choose "other" if your location is not listed.

*Country, territory or area:*

Ireland

Israel

New Zealand

Nigeria

Philippines

Seychelles

Singapore

South Africa

United Kingdom

**United States**

Zambia

Zimbabwe

other

Screenshot

Go Back

Continue













### Choose Debian Edu profile

Profiles determine how the machine can be used out-of-the-box:

- **Main Server:** reserved for the Debian Edu server. It does not include any GUI (Graphical User Interface). There should only be one such server on a Debian Edu network.
- **Workstation:** for normal machines on the Debian Edu network.
- **Roaming Workstation:** for single user machines on the Debian Edu network which some times travel outside the network.
- **LTSP Server:** includes 'Workstation' and requires two network cards.
- **Standalone:** for machines meant to be used outside the Debian Edu network. It includes a GUI and conflicts with other profiles.
- **Minimal:** fully integrated into the Debian Edu network but contains only a basic system without any GUI.

*Profile(s) to apply to this machine:*

☒ **Main Server**

☒ **Workstation**

☐ **Roaming Workstation**

☒ **LTSP Server**

☐ **Standalone**

☐ **Minimal**

Screenshot

Continue





**Really use the automatic partitioning tool?**

**This will destroy the partition table on all disks in the machine. REPEAT: THIS WILL WIPE CLEAN ALL HARD DISKS IN THE MACHINE! If you have important data that are not backed up, you may want to stop now in order to do a backup. In that case, you'll have to restart the installation later.**

*Really use the automatic partitioning tool?*

☐ No

☒ Yes

Screenshot

Continue



**Participate in the package usage survey?**

The system may anonymously supply the distribution developers with statistics about the most used packages on this system. This information influences decisions such as which packages should go on the first distribution CD.

If you choose to participate, the automatic submission script will run once every week, sending statistics to the distribution developers. The collected statistics can be viewed on <http://popcon.debian.org/>.

This choice can be later modified by running "dpkg-reconfigure popularity-contest".

*Participate in the package usage survey?*

☐ No

☒ Yes

Screenshot

Continue



### Set up users and passwords

You need to set a password for 'root', the system administrative account. A malicious or unqualified user with root access can have disastrous results, so you should take care to choose a root password that is not easy to guess. It should not be a word found in dictionaries, or a word that could be easily associated with you.

A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.

The root user should not have an empty password. If you leave this empty, the root account will be disabled and the system's initial user account will be given the power to become root using the "sudo" command.

Note that you will not be able to see the password as you type it.

*Root password:*

●●●●●●●●

☐ Show Password in Clear

Please enter the same root password again to verify that you have typed it correctly.

*Re-enter password to verify:*

●●●●●●●●

☐ Show Password in Clear

Screenshot

Go Back

Continue





### Set up users and passwords

**A user account will be created for you to use instead of the root account for non-administrative activities.**

**Please enter the real name of this user. This information will be used for instance as default origin for emails sent by this user as well as any program which displays or uses the user's real name. Your full name is a reasonable choice.**

*Full name for the new user:*

Screenshot

Go Back

Continue



### Set up users and passwords

Select a username for the new account. Your first name is a reasonable choice. The username should start with a lower-case letter, which can be followed by any combination of numbers and more lower-case letters.

*Username for your account:*

Screenshot

Go BackContinue



### Set up users and passwords

**A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.**

*Choose a password for the new user:*

●●●●●●●●●●

☐ Show Password in Clear

**Please enter the same user password again to verify you have typed it correctly.**

*Re-enter password to verify:*

●●●●●●●●●●

☐ Show Password in Clear

Screenshot

Go Back

Continue













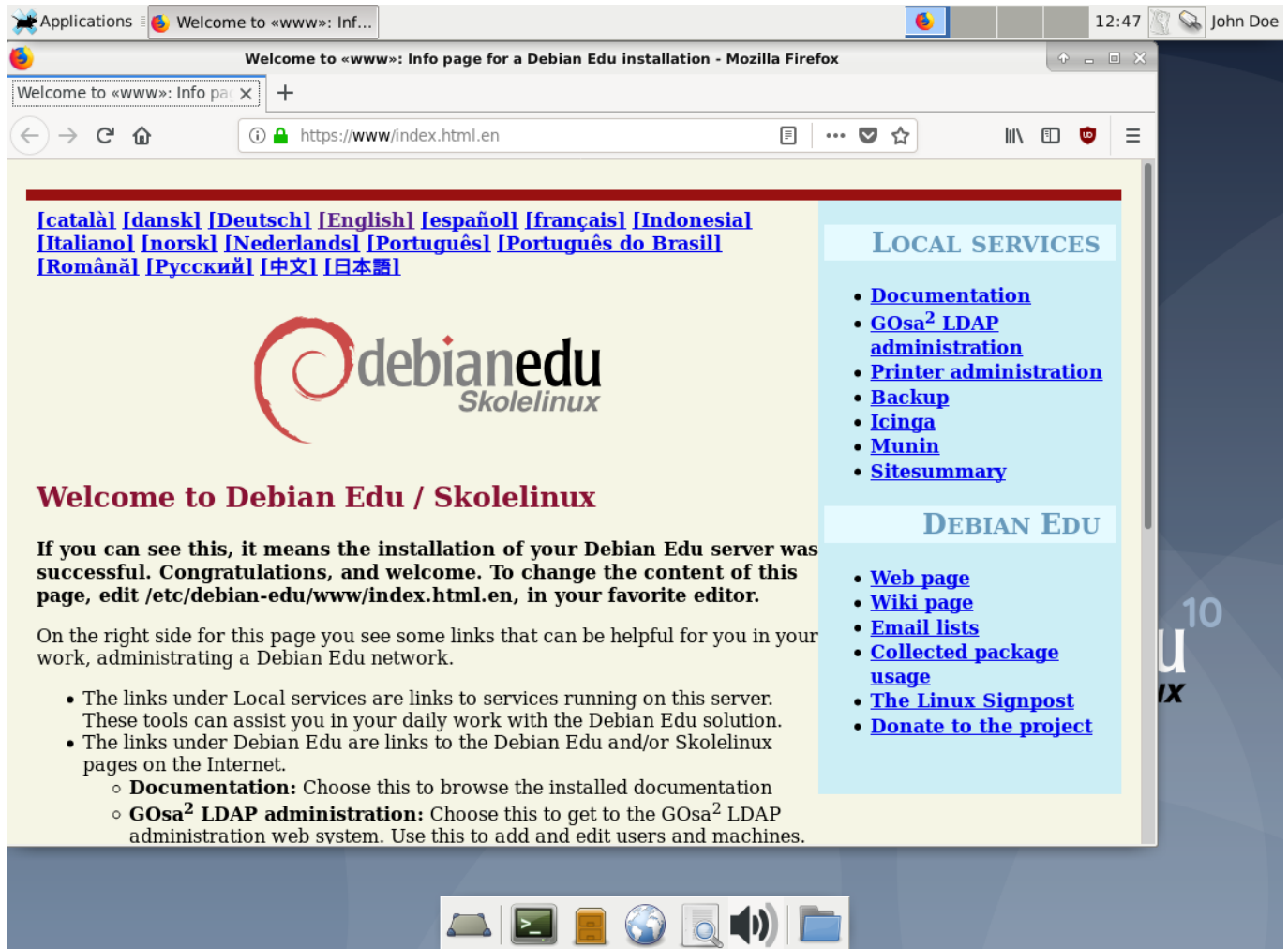




















## 7. Iniciando

### 7.1. Pasos mínimos para iniciar

Durante la instalación del servidor principal, fue creada una primera cuenta de usuario. A continuación, esta cuenta se llamará "primer usuario". Esta cuenta es especial, ya que no existe una cuenta de Samba (puede agregarse vía GOsa<sup>2</sup>), los permisos para el directorio del usuario están establecidos en 700 (es necesario ejecutar `chmod o+x ~` para que el sitio web personal sea accesible), el primer usuario puede usar `sudo` para convertirse en root.

See the information about Debian Edu specific [file system access configuration](#) before adding users; adjust to your site's policy if needed.

Después de la instalación, las primeras cosas que necesita hacer como usuario son:

1. Entra en el servidor.
2. Agregar usuarios con GOsa<sup>2</sup>
3. Agregar estaciones de trabajo con GOsa<sup>2</sup> - clientes ligeros y estaciones de trabajo sin disco pueden ser usados directamente sin ser agregados.

Como agregar usuarios y estaciones de trabajo es descrito con más detalle a continuación. Por favor, lea este capítulo completamente. Abarca como realizar estos pasos mínimos correctamente, además de otras cosas que probablemente todos necesitan hacer.

There is additional information available elsewhere in this manual: the [New features in Buster](#) chapter should be read by everyone who is familiar with previous releases. And for those upgrading from a previous release, make sure to read the [Upgrades](#) chapter.



If generic DNS traffic is blocked out of your network and you need to use some specific DNS server to look up internet hosts, you need to tell the DNS server to use this server as its "forwarder". Update `/etc/bind/named.conf.options` and specify the IP address of the DNS server to use.

El capítulo [HowTo](#) describe más trucos, pistas y algunas preguntas de uso frecuente.



### 7.1.1. Servicios que corren en el servidor principal

Hay varios servicios ejecutándose en el servidor principal que se pueden gestionar con una interfaz web. Describiremos estos servicios a continuación.

## 7.2. Introducción a GOsa<sup>2</sup>

GOsa<sup>2</sup> es una herramienta de administración web, que le ayudará a administrar algunas de las partes importantes de su configuración de Debian Edu. Podrá administrar (agregar, modificar o eliminar) estos principales grupos:

- Administración de usuarios
- Administración de grupos

- Administración de grupos de red NIS
- Administración de computadoras
- Administración DNS
- Administración DHCP

Para acceder a GOsa<sup>2</sup>, necesita el servidor principal Skolelinux y una computadora con un navegador web, puede ser el mismo servidor principal si se instaló como un servidor combinado (servidor principal + servidor LTSP + estación de trabajo).

Desde un navegador web, utilice <https://www.gosa> para acceder a GOsa<sup>2</sup> e ingrese por primera vez.

- Si está utilizando una computadora nueva con Debian Edu Buster, el certificado de seguridad del sitio web será reconocido por el navegador.
- Caso contrario, obtendrá un mensaje de error sobre certificado SSL equivocado. Si sabe que solamente usted se encuentra conectado a la red, acepte e ignórela.

For general information on GOsa<sup>2</sup> have a look at: <https://oss.gonicus.de/labs/gosa/wiki/documentation>.

### 7.2.1. GOsa<sup>2</sup> Login plus Overview



After logging in to GOsa<sup>2</sup> you will see the overview page of GOsa<sup>2</sup>.

Next, you can choose a task in the menu or click any of the task icons on the overview page. For navigation, we recommend using the menu on the left side of the screen, as it will stay visible there on all administration pages offered by GOsa<sup>2</sup>.

En Debian Edu, la información del sistema, grupos y cuentas de usuario es guardada en un directorio de LDAP. Esta información es utilizada no solo por el servidor principal, sino también por las estaciones sin disco, los servidores LTSP y las computadoras con Windows en la red. Con LDAP, la información sobre los estudiantes, docentes y demás, solo necesita ser ingresada una vez. Una vez que la información ha sido ingresada en LDAP, estará disponible para todos los sistemas en toda la red Skolelinux.

GOsa<sup>2</sup> es una herramienta de administración que usa LDAP para almacenar su información y provee una estructura jerárquica por departamento. Para cada "departamento" puede agregar cuentas de usuario, grupos, sistemas, grupos de red y demás. En dependencia de la estructura de su institución, puede usar la estructura en GOsa<sup>2</sup>/LDAP para transferir su estructura organizacional al árbol de datos LDAP del servidor principal Debian Edu.

A default Debian Edu main server installation currently provides two "departments": Teachers and Students, plus the base level of the LDAP tree. Student accounts are intended to be added to the "Students" department, teachers to the "Teachers" department; systems (servers, Skolelinux workstations, Windows machines, printers etc.) are currently added to the base level. Find your own scheme for customising this structure. (You can find an example how to create users in year groups, with common home directories for each group in the [HowTo/AdvancedAdministration](#) chapter of this manual.)

En dependencia de la tarea que desee realizar (administrar usuarios, grupos, sistemas, etc) GOsa<sup>2</sup> le mostrará una vista diferente en el departamento seleccionado (o el nivel básico).

### 7.3. Gestión de usuarios con GOsa<sup>2</sup>


En primer lugar, haga clic en "Usuarios" en el menú de navegación de la izquierda. El lado derecho de la pantalla cambiará para mostrar una tabla con las carpetas de departamento para "Estudiantes" y "maestros" y la cuenta GOsa<sup>2</sup> Administrador (el primer usuario creado). Por encima de esta tabla se puede ver un campo llamado *Base* que le permite navegar a través de su estructura de árbol (mueva el ratón sobre esa zona y aparecerá un menú desplegable) y seleccione una carpeta de base para sus operaciones previstas (por ejemplo, la adición de un nuevo usuario).

#### 7.3.1. Agregar usuarios

Al lado de ese elemento de navegación de árbol se puede ver el menú "Acciones". Mueva su ratón sobre este ítem y un submenú aparecerá en la pantalla; seleccione "Crear", y luego "Usuario". Desde aquí será guiado por el asistente de creación de usuarios.

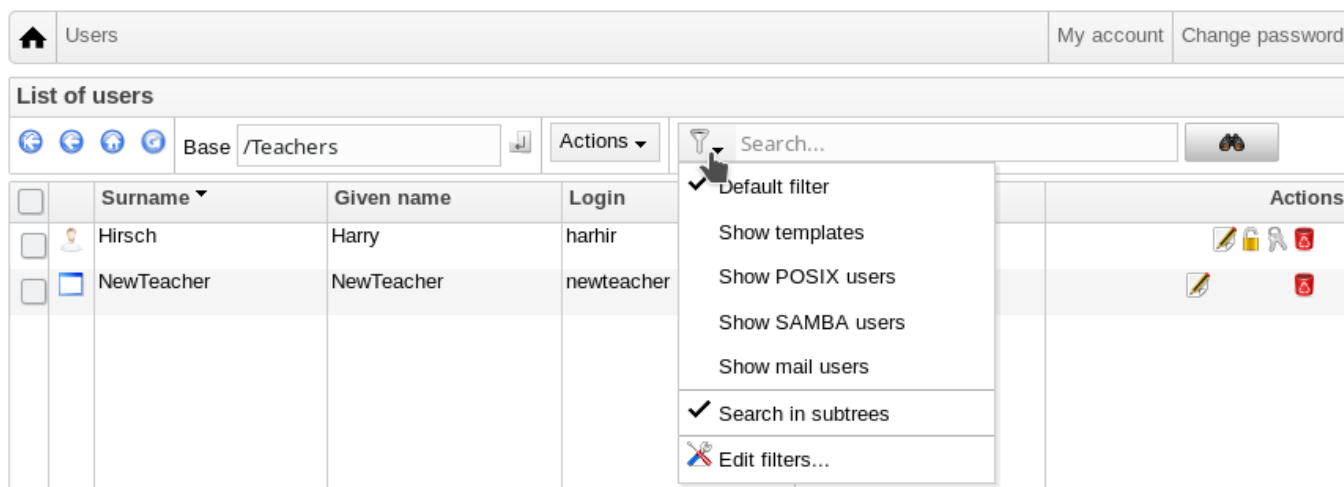
- Lo más importante es el agregar un perfil (nuevoestudiante o nuevoprofesor) y el nombre completo del usuario (ver imagen)
- As you follow the wizard, you will see that GOsa<sup>2</sup> generates a username automatically based on the real name. It automatically chooses a username that doesn't exist yet, so multiple users with the same full name are not a problem. Note that GOsa<sup>2</sup> can generate invalid usernames if the full name contains non-ASCII characters.
- If you don't like the generated username you can select another username offered in the drop-down box, but you do not have a free choice here in the wizard. (If you want to be able to edit the proposed username, open `/etc/gosa/gosa.conf` with an editor and add `allowUIDProposalModification="true"` as an additional option to the "location definition".)
- When the wizard has finished, you are presented with the GOsa<sup>2</sup> screen for your new user object. Use the tabs at the top to check the completed fields.

After you have created the user (no need to customise fields the wizard has left empty for now), click on the "Ok" button in the bottom-right corner.

As the last step GOsa<sup>2</sup> will ask for a password for the new user. Type that in twice and then click "Set password" in the bottom-right corner.  Some characters may not be allowed as part of the password.

If all went well, you can now see the new user in the user list table. You should now be able to log in with that username on any Skolelinux machine within your network.

### 7.3.2. Buscar, modificar y borrar usuarios



To modify or delete a user, use GOSa<sup>2</sup> to browse the list of users on your system. On the middle of the screen you may open the "Filter" box, a search tool provided by GOSa<sup>2</sup>. If you don't know the exact location of your user account in your tree, change to the base level of the GOSa<sup>2</sup>/LDAP tree and search there with the option marked "Search in subtrees".

When using the "Filter" box, results will immediately appear in the middle of the text in the table list view. Every line represents a user account and the items farthest to the right on each line are little icons that provide actions for you: edit user, lock account, set password and remove user.

Una nueva página se mostrará donde podrá modificar la información pertinente al usuario directamente, cambiar su contraseña y modificar la lista de grupos a los que pertenece.

The screenshot shows the user profile page for 'harhir'. The top navigation bar includes 'Users', 'harhir', 'My account', and 'Change password'. Below the navigation bar are tabs for 'Generic', 'POSIX', 'Samba', 'ACL', and 'References'. The 'Personal information' section is active, displaying a form with fields for: Last name (King), First name (Harry), Login (harhir), Personal title, Academic title, Date of birth, Sex, Preferred language, and Base (/Teachers). There is a placeholder for a profile picture with a 'Change picture...' button. To the right, there are fields for Address, Private phone, Homepage, Password storage (set to 'ssha'), and Certificates (with an 'Edit certificates...' button). At the bottom right, there are fields for 'Restrict login to' and 'IP or network'.

### 7.3.3. Establecer contraseñas

Los estudiantes pueden cambiar sus contraseñas ingresando a GOSa<sup>2</sup> con sus propios usuarios. Para facilitar el acceso a GOSa<sup>2</sup>, un acceso directo llamado Gosa se encuentra en el menú escritorio (o en configuración del sistema). Una sesión de

estudiante tendrá una versión mínima de GOsa<sup>2</sup> que solamente le brinda acceso a la hoja de información del usuario y a la opción de cambio de contraseña.

Los profesores que ingresan con sus propios nombres de usuarios, tienen privilegios especiales en GOsa<sup>2</sup>. Ellos poseen una vista con más privilegios y pueden cambiar la contraseña de todas las cuentas de estudiantes. Esto puede ser muy práctico durante clases.

Para establecer una nueva contraseña para el usuario

1. Busque el usuario que desea modificar, tal como se explicó anteriormente
2. Haga clic en la flecha al final del usuario
3. En la siguiente página, puede escribir la nueva contraseña

**¡Tenga cuidado con las consecuencias a la seguridad, debido a la facilidad de las contraseñas!**

### 7.3.4. Administración avanzada de usuarios

Es posible crear usuarios masivamente con GOsa<sup>2</sup> usando un archivo CSV, que puede ser creado con un software de hoja de cálculo (`localc` por ejemplo). Se deben proveer, al menos, datos para los siguientes campos: uid, last name (sn), first name (givenName) y password. Asegúrese de no duplicar datos en el campo uid. Note que la revisión de duplicados debe incluir los registros ya existentes en LDAP (que puede ser obtenido ejecutando `getent passwd | grep tjener/home | cut -d":" -f1` en la línea de comando).

These are the format guidelines for such a CSV file (GOsa<sup>2</sup> is quite intolerant about them):

- Use "," como separador de campos
- Do not use quotes
- El archivo CSV **no debe** contener un encabezado (no debe tener el nombre de la columna)
- El orden de los campos no es relevante, y puede ser definido en GOsa<sup>2</sup> durante la importación masiva

Los pasos para importe masivo son:

1. Haga clic en el enlace "LDAP Manager" en el menú de navegación a la izquierda
2. Haga clic en la pestaña "Importar" al lado derecho de la pantalla
3. Busque en su disco local el archivo CSV con la lista de usuarios que desea importar
4. Eliga una plantilla de usuarios disponible que se aplicará durante la importación masiva (como NewTeacher o NewStudent)

5. Haga clic en el botón "Importar" en la esquina inferior derecha

Es una buena idea el hacer pruebas antes, de preferencia con un archivo CSV con usuarios ficticios, que pueden ser eliminados después.

Same applies to the password management module, which allows to reset a lot of passwords using a CSV file or to re-generate new passwords for users belonging to a special LDAP subtree.

The screenshot shows the GOsa2 web interface. On the left is a sidebar with 'Administration' and 'Addons' sections. The 'Administration' section includes links for Directory structure, Users, Groups, Access control, Object groups, Sudo rules, NIS Netgroups, and Systems. The 'Addons' section includes Preferences, LDAP tools, and Password Management (which is highlighted). The main content area is titled 'Reset Passwords' and contains the following elements:

- A header bar with a home icon, 'Welcome to GOsa', and links for 'My account' and 'Change password'.
- A sub-header 'Reset Passwords'.
- A paragraph: 'With the GOsa2 Password Management Add-On you can mass reset user passwords in various ways.'
- A section titled 'Configure password reset options' with the instruction: 'Please configure options for this run of resetting user credentials.'
- Two radio button options:
  - Selected:** 'Upload a credentials file (CSV format).'
    - File format:** CSV, comma-separated, no quotes, two columns: <uid>, <userPassword>
    - Text: 'Select CSV file for uploading:' followed by a 'Browse...' button and 'No file selected.'
  - Reset passwords of accounts in a certain organizational unit of the LDAP tree.
    - Text: 'Change passwords for accounts in this OU subtree:' followed by a dropdown menu showing 'skole - Debian-Edu'.
    - Text: 'Length of auto-generated passwords:' followed by a dropdown menu showing '12'.
- A button at the bottom right: 'Review upcoming password resets'.

## 7.4. Gestión de usuarios con GOsa<sup>2</sup>

Groups

My account

Change password

Generic

Startmenu

ACL

References

Group name\*

class\_22\_2018

Description

Class 22 start in 2018

Base\*

/Students

☐ Force GID

☒ Samba group

in domain

SKOLELINUX

System trust

Trust mode

disabled

~

Add

Group members

~

Add

OK

Cancel

Groups

My account

Change password

List of groups

Base /

Actions

Search...

|                          | Name                    | Description   | Properties | Actions |
|--------------------------|-------------------------|---|------------|---------|
|                          | Students [all students] |   |            |         |
|                          | Teachers [all teachers] |   |            |         |
| <input type="checkbox"/> | admins                  | All system administrators in the institution        |            |         |
| <input type="checkbox"/> | class_22_2018           | Class 22 start in 2018                              |            |         |
| <input type="checkbox"/> | domain-admins           | SAMBA Domain Administrators                         |            |         |
| <input type="checkbox"/> | domain-users            | SAMBA Domain Users                                  |            |         |
| <input type="checkbox"/> | gosa-admins             | GOsa <sup>2</sup> Administrators                    |            |         |
| <input type="checkbox"/> | jradmins                | All junior admins in the institution                |            |         |
| <input type="checkbox"/> | nonetblk                | Users that should be unaffected by network blocking |            |         |
| <input type="checkbox"/> | printer-admins          | Printer Operators                                   |            |         |

La gestión de grupos es muy similar a la gestión de usuarios.

Puede ingresar un nombre y una descripción por grupo. Asegúrese de elegir el nivel correcto en el árbol LDAP cuando cree un nuevo grupo.



By default, the appropriate Samba group isn't created. If you forgot to check the Samba group option during group creation, you can modify the group later on.

Adding users to a newly created group takes you back to the user list, where you most probably would like to use the filter box to find users. Check the LDAP tree level, too.

Los grupos incluidos en el manejo de grupos, son también grupos regulares de Unix, así que pueden utilizarse también para los permisos de archivos.

#### 7.4.1. Gestión de grupos en la línea de comando

```
# Muestra el mapeo existente entre grupos UNIX y Windows.
net groupmap list

# Agrega un grupo nuevo o faltante:
net groupmap add unixgroup=GRUPO_NUEVO type=domain ntgroup="GRUPO_NUEVO_GRUPO"\
    comment="DESCRIPCIÓN DEL GRUPO NUEVO"
```

### 7.5. Administración de equipos con GOsa<sup>2</sup>

Machine management basically allows you to manage all networked devices in your Debian Edu network. Every machine added to the LDAP directory using GOsa<sup>2</sup> has a hostname, an IP address, a MAC address and a domain name (which is usually "intern"). For a fuller description of the Debian Edu architecture see the [architecture](#) chapter of this manual.

Esta configuración permite iniciar a las estaciones sin disco y clientes ligeros a través de la red principal. A diferencia de las estaciones de trabajo, las estaciones de trabajo sin disco no necesitan ser agregadas a LDAP con GOsa<sup>2</sup>, pero pueden agregarse.

To add a machine, use the GOsa<sup>2</sup> main menu, systems, add. You can use an IP address/hostname from the preconfigured address space 10.0.0.0/8. Currently there are only two predefined fixed addresses: 10.0.2.2 (tjener) and 10.0.0.1 (gateway). The addresses from 10.0.16.20 to 10.0.31.254 (roughly 10.0.16.0/20 or 4000 hosts) are reserved for DHCP and are assigned dynamically.

To assign a host with the MAC address 52:54:00:12:34:10 a static IP address in GOsa<sup>2</sup> you have to enter the MAC address, the hostname and the IP; alternatively you might click the *Propose ip* button which will show the first free fixed address in 10.0.0.0/8, most probably something like 10.0.0.2 if you add the first machine this way. It may be better to first think about your network: for example you could use 10.0.0.x with x>10 and x<50 for servers, and x>100 for workstations. Don't forget to activate the just added system. With the exception of the main server all systems will then have a matching icon.

If the machines have booted as thin clients/diskless workstations or have been installed using any of the networked profiles, the `sitesummary2ldapdhcp` script can be used to automatically add machines to GOsa<sup>2</sup>. For simple machines it will work out of the box, for machines with more than one mac address the actually used one has to be chosen, `sitesummary2ldapdhcp -h` shows usage information. Please note, that the IP addresses shown after usage of `sitesummary2ldapdhcp` belong to the dynamic IP range. These systems can then be modified to suit your network: rename each new system, activate DHCP and DNS, add it to netgroups (see screenshot below for recommended netgroups), reboot the system afterwards. The following screenshots show how this looks in practice:

```
root@tjener:~# sitesummary2ldapdhcp -a -i ether-22:11:33:44:55:ff
info: Create GOsa machine for am-2211334455ff.intern [10.0.16.21] id ether-22:11:33:44:55: ff. ↵
```

Enter password if you want to activate these changes, and ^c to abort.

```
Connecting to LDAP as cn=admin,ou=ldap-access,dc=skole,dc=skolelinux,dc=no
enter password: *****
root@tjener:~#
```

Administration

Directory structure

Users

Groups

Access control

Object groups

Sudo rules

NIS Netgroups

Systems

Addons

Preferences

LDAP tools

Password Management

Systems

My account

Change password

List of systems

Base /

Actions

Search...

|                          | Name                    | Description                            | Release | Actions |
|--------------------------|-------------------------|--|---------|---------|
| <input type="checkbox"/> | Students [all students] |  |         |         |
| <input type="checkbox"/> | Teachers [all teachers] |  |         |         |
| <input type="checkbox"/> | am-2211334455ff         |  |         |         |
| <input type="checkbox"/> | gateway                 |  |         |         |
| <input type="checkbox"/> | tjener                  | Main server; modify only if 100% sure. |         |         |

Systems

am-2211334455ff

My account

Change password

Generic

NIS Netgroup

ACL

References

Properties

Workstation name\*

am-2211334455ff

Description

Location

Base\*

/

Mode

Activated

Syslog server

default

☐ Inherit time server attributes NTP server

ntp

tjener

Add

Delete

Network settings

IP-address

10.0.16.21

Propose IP

MAC-address\*

22:11:33:44:55:ff

Auto detect

☐ Enable DHCP for this device

☐ Enable DNS for this device

Systems

am-2211334455ff

[My account](#)
[Change password](#)

[Generic](#)
[NIS Netgroup](#)
[ACL](#)
[References](#)

### Properties

Workstation name\*

Description

Location

Base\*

Mode

Syslog server

☐ Inherit time server attributes NTP server
 

ntp
 

tjener
 Add
 Delete

### Network settings

IP-address

MAC-address\* 

Auto detect

☒ Enable DHCP for this device
 

Parent node 

Edit settings

☒ Enable DNS for this device
 

Zone

TTL

DNS records 

Add

Systems

ws01.intern

unconfigured

[My account](#)
[Change password](#)

### Please select the desired NIS Netgroups

Base /
 

Search...

| <input type="checkbox"/>            | Common name                              | Description   |
|-------------------------------------|--|---|
| <input type="checkbox"/>            | Students [all students]                  |   |
| <input type="checkbox"/>            | Teachers [all teachers]                  |   |
| <input type="checkbox"/>            | all-hosts                                | All netgroup members  |
| <input type="checkbox"/>            | cups-queue-autoflush-hosts               | Flush CUPS print queues automatically every night                 |
| <input type="checkbox"/>            | cups-queue-autoreenable-hosts            | Re-enable CUPS print queues automatically every hour              |
| <input checked="" type="checkbox"/> | fsautoresize-hosts                       | Run debian-edu-fsautoresize automatically                         |
| <input type="checkbox"/>            | ltsp-server-hosts                        | All LTSP-servers  |
| <input type="checkbox"/>            | netblock-hosts                           | Hosts where network blocking should be enabled                    |
| <input type="checkbox"/>            | printer-hosts                            | All machines with a printer                                       |
| <input type="checkbox"/>            | server-hosts                             | All servers   |
| <input checked="" type="checkbox"/> | shutdown-at-night-hosts                  | Enable shutdown-at-night automatically                            |
| <input type="checkbox"/>            | shutdown-at-night-wakeup-hosts-blacklist | Don't wake up systems in this netgroup via shutdown-at-night tool |
| <input type="checkbox"/>            | winstation-hosts                         | All MS Windows workstations                                       |
| <input checked="" type="checkbox"/> | workstation-hosts                        | All workstations  |

A cronjob updating DNS runs every hour; `su -c ldap2bind` can be used to trigger the update manually.

### 7.5.1. Buscar y eliminar computadoras

Buscar computadoras para ser eliminadas, es bastante similar a buscar usuarios para eliminar, por lo que esa información no se repite aquí.

### 7.5.2. Modificar equipos existentes / Manejo del grupo de red

After adding a machine to the LDAP tree using `GOsa2`, you can modify its properties using the search functionality and clicking on the machine name (as you would with users).

The format of these system entries is similar to the one you already know from modifying user entries, but the fields mean different things in this context.

For example, adding a machine to a `NetGroup` does not modify the file access or command execution permissions for that machine or the users logged in to that machine; instead it restricts the services that machine can use on your main-server.

La instalación por defecto proporciona la Grupo de Red

- `cups-queue-autoflush-hosts`
- `cups-queue-autoreenable-hosts`
- `fs-autoresize-hosts`
- `ltsp-server-hosts`
- `netblock-hosts`
- `printer-hosts`
- `server-hosts`
- `shutdown-at-night-hosts`
- `shutdown-at-night-wakeup-hosts-blacklist`
- `winstation-hosts`
- `workstation-hosts`

Actualmente, la funcionalidad de `NetGroup` se utiliza para

- NFS.
  - The home directories are exported by the main-server to be mounted by the workstations and the LTSP servers. For security reasons, only hosts within the `workstation-hosts`, `ltsp-server-hosts` and `server-hosts` `NetGroups` can mount the exported NFS shares. So it is rather important to remember to configure these kinds of machines properly in the LDAP tree using `GOsa2` and to configure them to use static IP addresses from LDAP.



Recuerde configurar las estaciones de trabajos y los servidores LTSP de manera correcta con `GOsa2`, o sus usuarios no tendrán acceso a sus directorios personales. Las estaciones de trabajo sin disco y los clientes ligeros no usan NFS, por lo que no necesitan ser configurados.

- `fs-autoresize`
    - Los equipos con Debian Edu en este grupo, automáticamente acondicionarán las particiones LVM que estén próximas a quedarse sin espacio disponible.
  - `shutdown at night`
-

- Los equipos con Debian Edu en este grupo, se apagarán automáticamente por las noches para ahorrar energía.
- CUPS (cups-queue-autoflush-hosts and cups-queue-autoreenable-hosts)
  - Debian Edu machines in these groups will automatically flush all print queues every night, and re-enable any disabled print queue every hour.
- netblock-hosts
  - Debian Edu machines in this group will be allowed to connect to machines only on the local network. Combined with web proxy restrictions this might be used during exams.

Another important part of machine configuration is the 'Samba host' flag (in the 'Host information' area). If you plan to add existing Windows systems to the Skolelinux Samba domain, you need to add the Windows host to the LDAP tree and set this flag to be able to join the Windows host to the domain. For more information about adding Windows hosts to the Skolelinux network see the [HowTo/NetworkClients](#) chapter of this manual.

## 8. Printer Management

For Printer Management point your web browser to <https://www:631>. This is the normal CUPS management interface where you can add/delete/modify your printers and can clean up the printing queue. By default only root is allowed but this can be changed: Open `/etc/cups/cups-files.conf` with an editor and add one or more valid group names matching your site policy to the line containing `SystemGroup lpadmin`. Existing GOSa<sup>2</sup> groups that might be used are `gosa-admins` and `printer-admins` (both with the first user as member), `teachers` and `jradmins` (no members after installation).

### 8.1. Use printers attached to workstations

The package *p910nd* is installed by default on a system with the *Workstation* profile.

- Edit `/etc/default/p910nd` like this (USB printer):
  - `P910ND_OPTS="-f /dev/usb/lp0"`
  - `P910ND_START=1`
- Configure the printer using the web interface <https://www.intern:631>; choose network printer type AppSocket/HP JetDirect (for all printers regardless of brand or model) and set `socket://<workstation ip>:9100` as connection URI.

## 9. Sincronización del reloj

The default configuration in Debian Edu is to keep the clocks on all machines synchronous but not necessarily correct. NTP is used to update the time. The clocks will be synchronised with an external source by default. This can cause machines to keep the external Internet connection open if it is created when used.



Si usa conexión dialup o ISDN y paga por minuto, es posible que desee cambiar esta configuración predeterminada.

To disable synchronisation with an external clock, the file `/etc/ntp.conf` on the main-server and all clients and LTSP chroots need to be modified. Add comment ("`#`") marks in front of the `server` entries. After this, the NTP server needs to be restarted by running `/etc/init.d/ntp restart` as root. To test if a machine is using the external clock sources, run `ntpq -c lpeer`.

## 10. Redimensionando particiones completas

Because of a possible bug with automatic partitioning, some partitions might be too full after installation. To extend these partitions, run `debian-edu-fsautoresize -n` as root. See the "Resizing Partitions" HowTo in the [administration HowTo chapter](#) for more information.

## 11. Maintenance

### 11.1. Actualizar el software

This section explains how to use `apt-get upgrade`.

Using `apt-get` is really simply. To update a system you need to execute two commands on the command line as root: `apt-get update` (which updates the lists of available packages) and `apt-get upgrade` (which upgrades the packages for which an upgrade is available).

It is also a good idea to upgrade using the C locale to get English output which in cases of problems is more likely to produce results in search engines.

```
LC_ALL=C apt-get update ; LC_ALL=C ltsp-chroot apt-get update
LC_ALL=C apt-get upgrade -y
LC_ALL=C ltsp-chroot -m apt-get upgrade -y
cf-agent -D installation # On upgrades of debian-edu-config
ltsp-chroot -m cf-agent -D installation # On upgrades of debian-edu-config
ltsp-update-kernels # If a new kernel was installed
ltsp-update-image
```



After upgrading the `debian-edu-config` package, changed Cfengine configuration files might be available. Run `ls -ltr /etc/cfengine3/debian-edu/` to check if this is the case. To apply the changes, run `cf-agent -D installation`.



It is important to run `ltsp-update-kernels` if a new kernel was installed in the LTSP chroot, to keep the kernel and kernel modules in sync. The kernel is handed out via TFTP when the machine does PXE boot, and the kernel modules are fetched from the LTSP chroot.



Run `ltsp-update-image` to re-generate the NBD image(s).

También es buena idea instalar `cron-apt` y `apt-listchanges` y configurarlos para que le envíe corre electrónico.

`cron-apt` will notify you once a day via email about any packages that can be upgraded. It does not install these upgrades, but does download them (usually in the night), so you don't have to wait for the download when you do `apt-get upgrade`.

Automatic installation of updates can be done easily if desired, it just needs the `unattended-upgrades` package to be installed and configured as described on [wiki.debian.org/UnattendedUpgrades](http://wiki.debian.org/UnattendedUpgrades).

`apt-listchanges` can send new changelog entries to you via email, or alternatively display them in the terminal when running `apt` or `apt-get`.

#### 11.1.1. Mantente informado sobre actualizaciones de seguridad

Running `cron-apt` as described above is a good way to learn when security updates are available for installed packages. Another way to stay informed about security updates is to subscribe to the [Debian security-announce mailinglist](#), which has the benefit of also telling you what the security update is about. The downside (compared to `cron-apt`) is that it also includes information about updates for packages which aren't installed.

## 11.2. Gestión de las copias de seguridad

For backup management point your browser to <https://www.slbackup-php>. Please note that you need to access this site via SSL, since you have to enter the root password there. If you try to access this site without using SSL it will fail.



Note: the site will only work if you temporarily allow ssh root login on the backup server (main server 'tjener' by default).

By default tjener will back up /skole/tjener/home0, /etc/, /root/.svk and LDAP to /skole/backup which is under the LVM. If you only want to have spare copies of things (in case you delete them) this setup should be fine for you.



Tome en cuenta que este esquema de respaldo no le protege de daños en el disco duro.

If you want to back up your data to an external server, a tape device or another hard drive you'll have to modify the existing configuration a bit.

Si quieres restaurar un directorio, la mejor opción es usar la línea de comandos:

```
$ sudo rdiff-backup -r <date> \
  /skole/backup/tjener/skole/tjener/home0/user \
  /skole/tjener/home0/user_<date>
```

Esto pondrá el contenido de /skole/tjener/home0/user para <date> en el directorio /skole/tjener/home0/user\_<date>.

Si desea restablecer un archivo, debería de ser capaz de seleccionar el archivo (y la versión) de la interfaz web y descargar solamente ese archivo.

Si desea deshacerse de los respaldos viejos, elija "Maintenance" en el menú de la página respaldo y seleccione la instantánea más vieja que desee conservar:

## 11.3. Monitorización del servidor

### 11.3.1. Munin

Los reportes de Munin están disponible en <https://www.munin/>. Le provee gráficos de medición en una vista diaria, semanal, mensual y anual. Además le provee ayuda al administrador de sistemas al momento de buscar cuellos de botella y el origen de problemas en el sistema.

La lista de computadoras monitoreadas por Munin es automáticamente generada, basada en la lista de hosts reportados a sitesummary. Todos los hosts con el paquete munin-node instalado son registrados para ser monitoreados por Munin. Normalmente tomará un día desde que la computadora es instalada hasta que Munin inicie a monitorear, debido a la orden de ejecución de las tareas del cron. Para acelerar el proceso, ejecute sitesummary-update-munin como usuario root en el servidor sitesummary (generalmente el servidor principal). Esto actualizará el archivo /etc/munin/munin.conf.

El conjunto de mediciones es automáticamente generado en cada computadora usando el programa munin-node-configure, que prueba los complementos disponibles en /usr/share/munin/plugins/ y realiza los enlaces simbólicos de los complementos relevantes a /etc/munin/plugins/.

Información sobre Munin está disponible en <http://munin.monitoring.org/>.

### 11.3.2. Icinga

El sistema y servicio de monitoreo Icinga está disponible en <https://www.icinga/>. La lista de computadoras y servicios monitoreados es generada automáticamente con información obtenida de sitesummary. Las computadoras con perfil de servidor principal y servidor de clientes ligeros son monitoreadas completamente, mientras que los clientes ligeros y las estaciones de trabajo son monitoreadas básicamente. Para habilitar el monitoreo completo en una estación de trabajo, instale el paquete `nagios-nrpe-server` en la estación de trabajo.

El usuario es `icingaadmin` y la contraseña por defecto es `skolelinux`. Por razones de seguridad, evite usar la misma contraseña para el usuario `root`. Para cambiar la contraseña, usted puede ejecutar el siguiente comando como usuario `root`:

```
htpasswd /etc/icinga/htpasswd.users icingaadmin
```

Por defecto Nagios no envía correos electrónicos. Esto se puede cambiar reemplazando `notify-by-nothing` por `host-notify-by-email` y `notify-by-email` en el archivo `/etc/icinga/sitesummary-template-contacts.cfg`

El archivo de configuración de Icinga usado es `/etc/icinga/sitesummary.cfg`. El cron job de `sitesummary` genera `/var/lib/sitesummary/icinga-generated.cfg` con la lista de equipos y servicios por monitorear.

Revisiones extras de Nagios pueden ser puestas en el archivo `/var/lib/sitesummary/icinga-generated.cfg.post` para que sean incluidas en el archivo generado.

Información sobre Icinga está disponible en <https://www.icinga.com/> o en el paquete `icinga-doc`.

#### 11.3.2.1. Advertencias comunes de Icinga y como manejarlas

Aquí hay instrucciones sobre como manejar las advertencias más comunes de Icinga.

##### 11.3.2.1.1. DISK CRITICAL - free space: /usr 309 MB (5 % inode=47 %):

La partición (`/usr/` en el ejemplo) está llena. Existen dos maneras para resolver esto: (1) elimine algunos archivos o (2) aumente el tamaño de la partición. Si la partición es `/var/`, purgando el caché de APT ejecutando `apt-get clean` debería eliminar algunos archivos. Si hay más espacio disponible en el volumen LVM, ejecutar el programa `debian-edu-fsautoresize` para aumentar las particiones debería ayudar. Para ejecutar este programa cada hora, el equipo debe de ser añadido al grupo de `red fsautoresize-hosts`.

##### 11.3.2.1.2. APT CRITICAL: 13 packages available for upgrade (13 critical updates).

Hay nuevos paquetes disponibles para actualizar. Los paquetes críticos normalmente son mejoras de seguridad. Para actualizar, ejecute `'apt-get upgrade && apt-get dist-upgrade'` como usuario `root` en una consola o ingrese por SSH y haga lo mismo. En los servidores LTSP, recuerde actualizar también el chroot LTSP ejecutando `ltsp-chroot apt-get update && ltsp-chroot apt-get upgrade`.

If you do not want to manually upgrade packages and trust Debian to do a good job with new versions, you can configure `unattended-upgrades` to automatically upgrade all new packages every night. This will not upgrade the LTSP chroots.

To upgrade the LTSP chroot, one can use `ltsp-chroot apt-get update && ltsp-chroot apt-get upgrade`. On 64-bit servers, one will have to add `-a i386` as an argument to `ltsp-chroot`. It is a good idea to update the chroot when updating the host system.

##### 11.3.2.1.3. WARNING - Reboot required : running kernel = 2.6.32-37.81.0, installed kernel = 2.6.32-38.83.0

El kernel en ejecución es más viejo que el kernel más actual instalado, y un reinicio del equipo es necesario para ejecutar el kernel más nuevo instalado. Normalmente esto es urgente, ya que los nuevos kernels corrigen fallos de seguridad en Debian Edu.



#### 11.3.2.1.4. WARNING: CUPS queue size - 61

The printer queues in CUPS have a lot of jobs pending. This is most likely because of a unavailable printer. Disabled print queues are enabled every hour on hosts that are member of the cups-queue-autoreenable-hosts netgroup, so for such hosts no manual action should be required. The print queues are emptied every night on hosts that are member of the cups-queue-autoflush-hosts netgroup. If a host have a lot of jobs in their queue, consider adding this host to one or both of these netgroups.

#### 11.3.3. Sitesummary

Sitesummary es usado para obtener información de cada computadora y enviarla al servidor principal. La información obtenida se encuentra disponible en `/var/lib/sitesummary/entries/`. Scripts en `/usr/lib/sitesummary/`, están disponibles para generar reportes.

Un reporte sencillo de sitesummary sin de talles se encuentra disponible en <https://www/sitesummary/>.

Documentación sobre sitesummary se encuentra disponible en <https://wiki.debian.org/DebianEdu/HowTo/SiteSummary>

### 11.4. Más información sobre personalizaciones de Debian Edu

Más información sobre personalizaciones de Debian Edu útil para administradores de sistema puede encontrarse en el capítulo [Administración](#) y en el capítulo [Administración avanzada](#)

## 12. Actualizaciones



Before reading this upgrade guide, please note that live updates to your production servers are carried out at your own risk. **Debian Edu/Skolelinux comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.**

Please read this chapter and the [New features in Buster](#) chapter of this manual completely before attempting to upgrade.

### 12.1. Notas generales sobre la actualización

Upgrading Debian from one distribution to the next is generally rather easy. For Debian Edu this is unfortunately not yet true as we modify configuration files in ways we shouldn't. (See Debian bug [311188](#) for more information.) Upgrading is still possible but may require some work.

In general, upgrading the servers is more difficult than the workstations and the main-server is the most difficult to upgrade. The diskless machines are easy, as their chroot environment can be deleted and recreated, if you haven't modified it. If you have, the chroot is basically a workstation chroot anyway, so rather easy to upgrade.

Si quiere asegurarse de que después de la actualización todo va como antes, debería probarlo en un sistema de pruebas o en un sistema configurado igual que su servidor en producción. Ahí puede probar la actualización sin riesgo y ver si todo funciona como debiera.

Asegúrese de leer la información sobre la versión estable de Debian actual en el [manual de instalación](#).

También sería inteligente esperar un poco y seguir con la versión anterior durante algunas semanas más, para que otros prueben la actualización y documenten algunos problemas que experimenten. La versión estable anterior de Debian Edu continuará recibiendo soporte por algún tiempo después de la publicación de la siguiente versión estable, pero cuando Debian [cese el soporte a la versión estable anterior](#), Debian Edu hará lo mismo.

## 12.2. Actualizar desde Debian-Edu Stretch



Prepárese: asegúrese de haber probado la actualización desde Stretch en un entorno de prueba o tener un respaldo listo para poder volver.

Please note that the following recipe applies to a default Debian Edu main server installation (desktop=xfce, profiles Main Server, Workstation, LTSP Server). (For a general overview concerning stretch to buster upgrade, see: <https://www.debian.org/releases/buster/releasenotes>)

Don't use X, use a virtual console, log in as root.

If apt finishes with an error, try to fix it and/or run `apt -f install` and then `apt -y full-upgrade` once again.

### 12.2.1. Upgrading the main server

- Start by making sure the current system is up-to-date:

```
apt update
apt upgrade
```

- Cleanup the package cache:

```
apt clean
```

- Make sure you have enough disk space. On both `/usr` and `/var` about 5 GiB free space will be needed temporarily. See the related [manual chapter](#) for more information.
- Prepare and start the upgrade to Buster:

```
sed -i 's/stretch/buster/g' /etc/apt/sources.list
export LC_ALL=C          # optional (to get English output)
apt update
apt purge atftpd         # needed because tftpd will be installed
apt install libcurl4      # needed to replace libcurl3
apt install apache2       # needed first to avoid additional work later on
apt full-upgrade
```

- `apt-list-changes`: be prepared for a lot of NEWS to read; press `<return>` to scroll down, `<q>` to leave the pager. All information will be mailed to root so that you can read it again (using *mailx* or *mutt*).
- Read all debconf information carefully, choose 'keep your currently-installed version' unless stated differently below; in most cases hitting return will be fine.
  - restart services: Choose yes.
  - ntp: Choose N.
  - smb
  - dovecot
  - grub
- Apply and adjust configuration:

```
cf-agent -I -D installation
```

- Get the new Debian Edu Buster artwork:

```
apt install debian-edu-artwork-buster
```

- Enable PHP 7.3 support:

```
apt purge php7.0*  
a2enmod php7.3  
a2enconf php7.3-cgi  
service apache2 restart
```

- Adjust GOsa<sup>2</sup> access (changed encryption method):

- backup `/etc/gosa/gosa.conf.orig`
- replace the long (hashed) password in `/etc/gosa/gosa.conf` with the short (random) password from `/etc/gosa/gosa.conf.orig` (for both *adminPassword* and *snapshotAdminPassword*)
- remove `/etc/gosa/gosa.secrets`
- execute `gosa-encrypt-passwords`
- execute `service apache2 reload`

- After reboot, do some more cleanup:

```
apt purge linux-image-4.9.0-*  
apt purge linux-headers-4.9.0-*  
apt --purge autoremove
```

- Check if the upgraded system works:

Reboot; log in as first user and test

- if the GOsa<sup>2</sup> gui is working,
- if one is able to connect LTSP clients and workstations,
- if one can add/remove a netgroup membership of a system,
- if one can send and receive internal email,
- if one can manage printers,
- and if other site specific things are working.

### 12.2.2. Upgrading a workstation

Do all the basic things like on the main-server and without doing the things not needed.

### 12.2.3. Upgrading LTSP chroots

Make sure you have enough disk space. LTSP uses Network Block Device (NBD). The NBD image file size is about 4 GiB (default installation). If the image is updated, another 4 GiB for a temporary file are needed.

Also please note that the default LTSP architecture was i386 for Stretch. See below how to create a chroot for 64-bit-PCs (amd64).

```
ltsp-chroot -m -a i386 apt update
ltsp-chroot -m -a i386 apt -y full-upgrade
sed -i 's/stretch/buster/g' /opt/ltsp/i386/etc/apt/sources.list
ltsp-chroot -m -a i386 apt update
ltsp-chroot -m -a i386 apt -y full-upgrade
ltsp-chroot -m -a i386 apt -f install
ltsp-chroot -m -a i386 apt -y full-upgrade
```

- Cleaning up:

```
ltsp-chroot -m -a i386 apt --purge autoremove
```

- Update LTSP support on the server side:

```
ltsp-update-kernels
ltsp-update-sshkeys
ltsp-update-image
```

To save disk space, `ltsp-update-image -n` could be used instead; see `man ltsp-update-image`.

### 12.2.4. Recreating an LTSP chroot

On the LTSP server(s) the LTSP chroot could also be recreated. The new chroot will still support both thin-clients and diskless workstations. Please note: As of Buster, the LTSP chroot arch defaults to the one used for the server side.

Remove `/opt/ltsp/i386` (or `/opt/ltsp/amd64`, depending on your setup). If you have enough disk space, consider backing it up.

See `ltsp-build-client --help` and `ltsp-build-client --extra-help` for more information about options. The file `/etc/ltsp/ltsp-build-client.conf` contains some useful (commented) options.

Recreate the chroot by running `ltsp-build-client` as root.

### 12.2.5. Add additional LTSP chroot to support 64-bit-PC clients

At least 20 GiB additional disk space on `/opt` is required.

- Run `"ltsp-build-client --arch amd64"` to create chroot and NBD image.
- Use `"ldapvi -ZD '(cn=admin)'"` to replace `i386` with `amd64` (dhcp statements in LDAP for one dedicated network).
- Run `"service isc-dhcp-server restart"`.
- Edit `/etc/debian-edu/pxeinstall.conf` (set `ltsparch=amd64`).
- Run `'debian-edu-pxeinstall'` to regenerate the PXE menu.
- Run `'service nbd-service restart'` to serve the new NBD file.

## 12.3. Actualizar desde instalaciones antiguas de Debian-Edu / Skolelinux (antes que Stretch)

To upgrade from any older release, you will need to upgrade to the Stretch based Debian Edu release first, before you can follow the instructions provided above. Instructions are given in the [Manual for Debian Edu Stretch](#) about how to upgrade to Stretch from the previous release, Jessie. Likewise the Jessie manual describes how to upgrade from Wheezy.

## 13. Guías

- Guía para [Administración general](#).
- Guía para [Administración avanzada](#).
- Guía para [el escritorio](#).
- Guía para [clientes en red](#).
- Guía para [Samba](#).
- Guía para [enseñar y aprender](#).
- HowTos for [users](#)

## 14. Guías para administración general

Los capítulos [Iniciando](#) y [Mantenimiento](#) describen como empezar con Debian Edu y como realizar el trabajo de mantenimiento básico. Las guías en estos capítulos, tienen también trucos y recomendaciones más "avanzadas".

### 14.1. Seguimiento de /etc usando el sistema de control de versiones git

Con la introducción de `etckeeper` en Debian Edu Squeeze (las versiones anteriores utilizaban `etcinsv` el cual fué removido de Debian), todos los archivos en `/etc/` son seguidos utilizando [git](#) como sistema de control de versiones.

Esto hace posible ver cuando un archivo es agregado, modificado o eliminado, también ver lo que se cambió si el archivo es un archivo de texto. El repositorio de git es guardado en `/etc/.git/`.

Cualquier cambio, es registrado cada hora, permitiendo tener un histórico de la configuración para ser extraído y revisado.

To look at the history, the command `etckeeper vcs log` is used. To check the differences between two points in time, a command like `etckeeper vcs diff` can be used.

Revise la salida de `man etckeeper` para más información.

Lista de comandos útiles:

```
etckeeper vcs log
etckeeper vcs status
etckeeper vcs diff
etckeeper vcs add .
etckeeper vcs commit -a
man etckeeper
```

### 14.1.1. Ejemplos de uso

En un sistema recién instalado pruebe esto para ver todos los cambios realizados desde que el sistema fue instalado:

```
etckeeper vcs log
```

Vea que archivos no están siendo seguidos, o los que no están actualizados:

```
etckeeper vcs status
```

To manually commit a file, because you don't want to wait up to an hour:

```
etckeeper vcs commit -a /etc/resolv.conf
```

## 14.2. Redimensionando Particiones

In Debian Edu, all partitions other than the `/boot/` partition are on logical LVM volumes. With Linux kernels since version 2.6.10, it is possible to extend partitions while they are mounted. Shrinking partitions still needs to happen while the partition is unmounted.

It is a good idea to avoid creating very large partitions (over, say, 20GiB), because of the time it takes to run `fsck` on them or to restore them from backup if the need arises. It is better, if possible, to create several smaller partitions than one very large one.

The helper script `debian-edu-fsautoresize` is provided to make it easier to extend full partitions. When invoked, it reads the configuration from `/usr/share/debian-edu-config/fsautoresizetab`, `/site/etc/fsautoresizetab` and `/etc/fsautoresizetab`. It then proposes to extend partitions with too little free space, according to the rules provided in these files. If run with no arguments, it will only show the commands needed to extend the file system. The argument `-n` is needed to actually execute these commands to extend the file systems.

The script is executed automatically every hour on every client listed in the `fsautoresize-hosts` netgroup.

When the partition used by the Squid proxy is resized, the value for cache size in `etc/squid/squid.conf` needs to be updated as well. The helper script `/usr/share/debian-edu-config/tools/squid-update-cachedir` is provided to do this automatically, checking the current partition size of `/var/spool/squid/` and configuring Squid to use 80 % of this as its cache size.

### 14.2.1. Gestión de volúmenes lógicos

Logical Volume Management (LVM) enables resizing the partitions while they are mounted and in use. You can learn more about LVM from the [LVM HowTo](#).

To extend a logical volume manually you simply tell the `lvextend` command how large you want it to grow to. For example, to extend `home0` to 30GiB you use the following commands:

```
lvextend -L30G /dev/vg_system/skole+tjener+home0
resize2fs /dev/vg_system/skole+tjener+home0
```

To extend `home0` by additional 30GiB, you insert a '+' (`-L+30G`)

## 14.3. Installing a graphical environment on the main-server to use GOsa<sup>2</sup>

If you (probably accidentally) installed a pure main-server profile and don't have a client with a web-browser handy, it's easy to install a minimal desktop on the main server using this command sequence in a (non-graphical) shell as the user you created during the main server's installation (first user):

```
$ sudo apt update
$ sudo apt install education-desktop-xfce lightdm
### after installation, run 'sudo service lightdm start'
### login as first user
```

## 14.4. Usar ldapvi

**ldapvi** es una herramienta para editar la base de datos LDAP con un editor de texto en la línea de comandos.

Lo siguiente necesita ser ejecutado:

```
ldapvi --ldap-conf -ZD '(cn=admin)'
```

Nota: **ldapvi** usará el editor de texto predeterminado. Ejecutar `export EDITOR=vim` en el intérprete de comandos puede configurar el entorno para tener un clon de `vi` como editor.

To add an LDAP object using **ldapvi**, use object sequence number with the string `add` in front of the new LDAP object.



**Advertencia:** **ldapvi** es una herramienta poderosa. Sea cuidadoso y no dañe la base de datos de LDAP, la misma advertencia aplica para **JXplorer**.

## 14.5. Kerberized NFS

Using Kerberos for NFS to mount home directories is a security feature. The levels *krb5*, *krb5i* and *krb5p* are supported (*krb5* means Kerberos authentication, *i* stands for integrity check and *p* for privacy, i.e. encryption); the load on both server and workstation increases with the security level, *krb5i* might be a good choice.

For new systems added with **GOsa<sup>2</sup>**, Kerberos host keytab files are generated automatically.

To create one for a system already configured with **GOsa<sup>2</sup>**, log in on the main server as root and run

```
/usr/share/debian-edu-config/tools/gosa-modify-host <hostname> <IP>
```

**Please note:** host keytab creation is possible for systems of type *workstations*, *servers* and *terminals* but not for those of type *netdevices*. Also, LTSP clients are using *sshfs* to mount home directories, so there's nothing to do for diskless workstations.

### 14.5.1. How to enable it

#### Servidor principal

- login as root
- run `ldapvi -ZD '(cn=admin)'`, search for `sec=sys` and replace it with `sec=krb5i`
- edit `/etc/exports`: uncomment/adjust/comment existing entries for `/srv/*`; make sure they look like this:

```
/srv/nfs4      gss/krb5i(rw, sync, fsid=0, crossmnt, no_subtree_check)
/srv/nfs4/home0 gss/krb5i(rw, sync, no_subtree_check)
```

- execute `exportfs -r`
- run `exportfs` to control if *gss/krb5i* is active for both entries.

#### Workstation

- login as root.
- execute `/usr/share/debian-edu-config/tools/copy-host-keytab`

## 14.6. Standardskriver

This tool allows to set the default printer depending on location, machine, or group membership. For more information, see </usr/share/doc/standardskriver/README.md>.

The configuration file `/etc/standardskriver.cfg` has to be provided by the admin, see </usr/share/doc/standardskriver/ex> as an example.

## 14.7. JXplorer, una interfaz gráfica para LDAP

If you prefer a GUI to work with the LDAP database, check out the `jxplorer` package, which is installed by default. To get write access connect like this:

```
host: ldap.intern
port:636
Security level: ssl + user + password
User dn: cn=admin,ou=ldap-access,dc=skole,dc=skolelinux,dc=no
```

## 14.8. ldap-createuser-krb, una herramienta para línea de comando

`ldap-createuser-krb` is a small command line tool to create LDAP users and set their passwords in Kerberos. It's mostly useful for testing, though.

## 14.9. Using stable-updates

Since the Squeeze release in 2011, Debian has included packages formerly maintained in [volatile.debian.org](http://volatile.debian.org) in the [stable-updates suite](#).

While you can use `stable-updates` directly, you don't have to: `stable-updates` are pushed into the stable suite regularly when stable point releases are done, which roughly happens every two months.

## 14.10. Usar backports para instalar software más reciente

You are running Debian Edu because you prefer the stability of Debian Edu. It runs great; there is just one problem: sometimes software is a little bit more outdated than you like. This is where [backports.debian.org](http://backports.debian.org) steps in.

Backports are recompiled packages from Debian testing (mostly) and Debian unstable (in a few cases only, e.g. security updates), so they will run without new libraries (wherever this is possible) on a stable Debian distribution like Debian Edu. **We recommend you to pick out individual backports which fit your needs, and not to use all backports available there.**

Usar backports es sencillo:

```
echo "deb http://deb.debian.org/debian/ buster-backports main" >> /etc/apt/sources.list
apt-get update
```

After which one can install backported packages easily, the following command will install a backported version of *tuxtype*:

```
apt-get install -t buster-backports tuxtype
```

Backports are automatically updated (if available) just like other packages. Like the normal archive, backports has three sections: main, contrib and non-free.



## 14.11. Actualizar con un CD o similar

If you want to upgrade from one version to another (for example from Buster 10.1+edu0 to 10.3+edu1) but you do not have Internet connectivity, only physical media, follow these steps:

Inserte el CD/DVD/Disco Blu-ray/Dispositivo USB en la unidad y use el comando `apt-cdrom`:

```
apt-cdrom add
```

Para citar el manual de referencia de `apt-cdrom`(8):

- `apt-cdrom` se utiliza para añadir un disco óptico nuevo a la lista de fuentes disponibles de APT. `apt-cdrom` examina la estructura del disco, corrige los posibles errores de grabación y verifica los ficheros de índice.
- Se requiere utilizar `apt-cdrom` para añadir los discos al sistema APT, no se puede hacer manualmente. Además, debe insertar y analizar cada disco de un conjunto de discos por separado, para poder detectar los posibles errores de grabación.

Luego ejecute estos dos comandos para actualizar el sistema:

```
apt-get update  
apt-get upgrade
```

## 14.12. Automatic cleanup of leftover processes

`killer` es un script hecho en perl que elimina trabajos en segundo plano. Trabajos en segundo plano son definidos como procesos que pertenecen a usuarios que no tienen una sesión activa en la computadora. Se ejecuta cada hora por un cron.

## 14.13. Instalación automática de actualizaciones de seguridad

`unattended-upgrades` is a Debian package which will install security (and other) upgrades automatically. If installed, the package is preconfigured to install security upgrades. The logs are available in `/var/log/unattended-upgrades/`; also, there are always `/var/log/dpkg.log` and `/var/log/apt/`.

## 14.14. Apagado automático de las computadoras durante la noche

It is possible to save energy and money by automatically turning client machines off at night and back on in the morning. The package will try to turn off the machine every hour on the hour from 16:00 in the afternoon, but will not turn it off if it seems to have users. It will try to tell the BIOS to turn on the machine around 07:00 in the morning, and the main-server will try to turn on machines from 06:30 by sending wake-on-lan packets. These times can be changed in the crontabs of individual machines.

Some considerations should be kept in mind when setting this up:

- The clients should not be shut down when someone is using them. This is ensured by checking the output from `who`, and as a special case, checking for the LDM ssh connection command to work with LTSP thin clients.
- To avoid blowing electrical fuses, it is a good idea to make sure all clients do not start at the same time.
- There are two different methods available to wake up clients. One uses a BIOS feature and requires a working and correct hardware clock, as well as a motherboard and BIOS version supported by `nvrwakeup`; the other requires clients to have support for wake-on-lan, and the server to know about all the clients that need to be woken up.

#### 14.14.1. Como configurar shutdown-at-night

On clients that should turn off at night, touch `/etc/shutdown-at-night/shutdown-at-night`, or add the hostname (that is, the output from `'uname -n'` on the client) to the netgroup "shutdown-at-night-hosts". Adding hosts to the netgroup in LDAP can be done using the GOSa<sup>2</sup> web tool. The clients might need to have wake-on-lan configured in the BIOS. It is also important that the switches and routers used between the wake-on-lan server and the clients will pass the WOL packets to the clients even if the clients are turned off. Some switches fail to pass on packets to clients that are missing in the ARP table on the switch, and this blocks the WOL packets.

To enable wake-on-lan on the server, add the clients to `/etc/shutdown-at-night/clients`, with one line per client, IP address first, followed by MAC address (ethernet address), separated by a space; or create a script `/etc/shutdown-at-night/clients-generator` to generate the list of clients on the fly.

Aquí tiene un ejemplo de `/etc/shutdown-at-night/clients-generator` para usar con `sitesummary`:

```
#!/bin/sh
PATH=/usr/sbin:$PATH
export PATH
sitesummary-nodes -w
```

An alternative if the netgroup is used to activate shutdown-at-night on clients is this script using the netgroup tool from the `ng-utils` package:

```
#!/bin/sh
PATH=/usr/sbin:$PATH
export PATH
netgroup -h shutdown-at-night-hosts
```

#### 14.15. Acceso a servidores Debian-Edu ubicados detrás de un firewall

To access machines behind a firewall from the Internet, consider installing the package `autossh`. It can be used to set up an SSH tunnel to a machine on the Internet that you have access to. From that machine, you can access the server behind the firewall via the SSH tunnel.

#### 14.16. Installing additional service machines for spreading the load from main-server

En la instalación predeterminada, todos los servicios están ejecutándose en el servidor principal, tjener. Para mover algunos servicios a otra computadora de manera sencilla, existe un perfil *mínimo* de instalación disponible. Instalar con este perfil le proporcionará una computadora, que es parte de la red de Debian Edu, pero que no cuenta con un servicio ejecutándose (todavía)

Estos son los pasos que se deben seguir para configurar un servicio dedicado en una computadora:

- Instale el perfil *mínimo* usando la opción de carga *debian-edu-expert*.
- Instale los paquetes del servicio.
- Configure el servicio.
- Deshabilite el servicio en el servidor principal.
- Actualice el servicio DNS (via LDAP/GOSa<sup>2</sup>) en el servidor principal.

## 14.17. HowTos de wiki.debian.org

FIXME: The HowTos from <http://wiki.debian.org/DebianEdu/HowTo/> are either user- or developer-specific. Let's move the user-specific HowTos over here (and delete them over there)! (But first ask the authors (see the history of those pages to find them) if they are fine with moving the howto and putting it under the GPL.)

- <http://wiki.debian.org/DebianEdu/HowTo/AutoNetRespawn>
- <http://wiki.debian.org/DebianEdu/HowTo/BackupPC>
- <http://wiki.debian.org/DebianEdu/HowTo/ChangeIpSubnet>
- <http://wiki.debian.org/DebianEdu/HowTo/SiteSummary>
- [http://wiki.debian.org/DebianEdu/HowTo/Squid\\_LDAP\\_Authentication](http://wiki.debian.org/DebianEdu/HowTo/Squid_LDAP_Authentication)

## 15. Advanced administration howto

In this chapter advanced administration tasks are described.

### 15.1. Personalizaciones de usuarios con GOSA<sup>2</sup>

#### 15.1.1. Create Users in Year Groups

In this example we want to create users in year groups, with common home directories for each group (home0/2014, home0/2015, etc). We want to create the users by csv import.

*(como root en servidor principal)*

- Make the necessary year group directories

```
mkdir /skole/tjener/home0/2014
```

*(como primer usuario en Gosa)*

- Departamento

Main menu: goto 'Directory structure', click the 'Students' department. The 'Base' field should show '/Students'. From the drop box 'Actions' choose 'Create'/'Department'. Fill in values for Name (2014) and Description fields (students graduating in 2014), leave the Base field as is (should be '/Students'). Save it clicking 'Ok'. Now the new department (2014) should show up below /Students. Click it.

- Grupo

Elije "Groups" del menú principal; "Actions"/Create/Group. Escriba el nombre del grupo (deje "Base", debería estar en /Students/2014) y haga clic en la caja de selección de la izquierda de "Samba group". "ok" para guardar.

- Plantilla

Choose 'users' from the main menu. Change to 'Students' in the Base field. An Entry `NewStudent` should show up, click it. This is the 'students' template, not a real user. As you'll have to create such a template (to be able to use csv import for your structure) based on this one, notice all entries showing up in the Generic, POSIX and Samba tabs, maybe take screenshots to have information ready for the new template.

Now change to /Students/2014 in the Base field; choose Create/Template and start to fill in your desired values, first the Generic tab (add your new 2014 group under Group Membership, too), then add POSIX and Samba account.

- Importar usuarios

Elija su nueva plantilla cuando importe el archivo csv; probarlo con pocos usuarios es lo recomendable.

## 15.2. Other User Customisations

### 15.2.1. Crear directorios en el directorio home de los usuarios

Con este script, el administrador puede crear directorios en cada directorio personal de usuario y establecer los permisos de acceso y propiedad.

In the example shown below with `group=teachers` and `permissions=2770` a user can hand in an assignment by saving the file to the folder "assignments" where teachers are given write access to be able to make comments.

```
#!/bin/bash
home_path="/skole/tjener/home0"
shared_folder="assignments"
permissions="2770"
created_dir=0
for home in $(ls $home_path); do
    if [ ! -d "$home_path/$home/$shared_folder" ]; then
        mkdir $home_path/$home/$shared_folder
        chmod $permissions $home_path/$home/$shared_folder
        #set the right owner and group
        #"username" = "group name" = "folder name"
        user=$home
        group=teachers
        chown $user:$group $home_path/$home/$shared_folder
        ((created_dir+=1))
    else
        echo -e "the folder $home_path/$home/$shared_folder already exists.\n"
    fi
done
echo "$created_dir folders have been created"
```

### 15.2.2. Fácil acceso a dispositivos USB y CD-ROMs/DVDs

When users insert a USB drive or a DVD / CD-ROM into a (diskless) workstation, a popup window appears asking what to do with it, just like in any other normal installation.

When users insert a USB drive or a DVD / CD-ROM into a thin client there is only a notify-window showing up for a few seconds. The media is automatically mounted and it is possible to access it browsing to the `/media/$user` folder. This is quite difficult for many non experienced users.

It is possible to have the default KDE "Plasma" file manager Dolphin showing up if KDE "Plasma" (or LDXE, if installed in parallel to KDE "Plasma") is in use as desktop environment. To configure this, simply execute `/usr/share/debian-edu-config/1` enable on the terminal server. (When using GNOME, device icons will be placed on the desktop allowing easy access).

In addition the following script could be used to create the symlink "media" for all users in their home folder for easy access to USB drives, CD-ROM / DVD or whatever media is connected to the thin client. This might come in handy if users want to edit files directly on their plugged in media.

```
#!/bin/bash
home_path="/skole/tjener/home0"
shared_folder="media"
permissions="775"
created_dir=0;
for home in $(ls $home_path); do
    if [ ! -d "$home_path/$home/$shared_folder" ]; then
        ln -s /media/$home $home_path/$home/$shared_folder
        ((created_dir+=1))
    else
        echo -e "the folder $home_path/$home/$shared_folder already exists.\n"
    fi
done
echo "$created_dir folders has been created"
```

### 15.2.2.1. Advertencia sobre medios removibles en servidores LTSP



**Warning:** When inserted into an LTSP server USB drives and other removable media cause popup messages on remote LTSP clients.

If remote users acknowledge the popup or use `pmount` from the console, they can even mount the removable devices and access the files.

## 15.3. Use a dedicated storage server

Take these steps to set up a dedicated storage server for user home directories and possibly other data.

- Add a new system of type `server` using `GOsa2` as outlined in the [Getting started](#) chapter of this manual.
  - This example uses `'nas-server.intern'` as the server name. Once `'nas-server.intern'` is configured, check if the NFS export points on the new storage server are exported to the relevant subnets or machines:

```
root@tjener:~# showmount -e nas-server
Export list for nas-server:
/storage          10.0.0.0/8
root@tjener:~#
```

Here everything on the backbone network is granted access to the `/storage` export. (This could be restricted to `netgroup` membership or single IP addresses to limit NFS access like it is done in the `tjener:/etc/exports` file.)

- Add automount information about `'nas-server.intern'` in LDAP to allow all clients to automatically mount the new export on request.
  - This can't be done using `GOsa2`, because a module for automount is missing. Instead, use `ldapvi` and add the required LDAP objects using an editor.

```
ldapvi --ldap-conf -ZD '(cn=admin)' -b ou=automount,dc=skole,dc=skolelinux,dc=no
```

When the editor shows up, add the following LDAP objects at the bottom of the document. (The `"/&"` part in the last LDAP object is a wild card matching everything `'nas-server.intern'` exports, removing the need to list individual mount points in LDAP.)

```
add cn=nas-server,ou=auto.skole,ou=automount,dc=skole,dc=skolelinux,dc=no
objectClass: automount
cn: nas-server
automountInformation: -fstype=autofs --timeout=60 ldap:ou=auto.nas-server,ou= ↵
    automount,dc=skole,dc=skolelinux,dc=no

add ou=auto.nas-server,ou=automount,dc=skole,dc=skolelinux,dc=no
objectClass: top
objectClass: automountMap
ou: auto.nas-server

add cn=/,ou=auto.nas-server,ou=automount,dc=skole,dc=skolelinux,dc=no
objectClass: automount
cn: /
automountInformation: -fstype=nfs,tcp,rsize=32768,wsiz=32768,rw,intr,hard,nodev, ↵
    nosuid,noatime nas-server.intern:/&
```

- Add the relevant entries in `tjener.intern:/etc/fstab`, because `tjener.intern` does not use automount to avoid mounting loops.
  - Create the mount point directories using `mkdir`, edit `'/etc/fstab'` as adequate and run `mount -a` to mount the new resources.

- Enable access in case diskless workstations are used. This is a special case, because sshfs is used instead of NFS and automount:
  - Create the mount point directories in the LTSP diskless client's root (default `/opt/ltsp/i386/`) as well.  
Add a line containing `'LOCAL_APPS_EXTRAMOUNTS=/storage'` to `/opt/ltsp/i386/etc/ltsp.conf` (example).  
Create a link in each user's home dir like `'ln -s /storage Storage'` to help users find the resources.

Now users should be able to access the files on 'nas-server.intern' directly by just visiting the `'/tjener/nas-server/storage/'` directory using any application on any workstation, LTSP thin client or LTSP server, and visiting `~/Storage` in case an LTSP diskless client is used.

## 15.4. Restrict ssh login access

There are several ways to restrict ssh login, some are listed here.

### 15.4.1. Setup without LTSP clients

If no LTSP clients are used a simple solution is to create a new group (say `sshusers`) and to add a line to the machine's `/etc/ssh/sshd_config` file. Only members of the `sshusers` group will then be allowed to ssh into the machine from everywhere.

Managing this case with GOSa is quite simple:

- Create a group `sshusers` on the base level (where already other system management related groups like `gosa-admins` show up).
- Add users to the new group `sshusers`.
- Add `AllowGroups sshusers` to `/etc/ssh/sshd_config`.
- Execute `service ssh restart`.

### 15.4.2. Setup with LTSP clients

The default LTSP client setup uses ssh connections to the LTSP server. So a different approach using PAM is needed.

- Enable `pam_access.so` in the LTSP server's `/etc/pam.d/sshd` file.
- Configure `/etc/security/access.conf` to allow connections for (sample) users `alice`, `jane`, `bob` and `john` from everywhere and for all other users only from the internal networks by adding these lines:

```
+ : alice jane bob john : ALL
+ : ALL : 10.0.0.0/8 192.168.0.0/24 192.168.1.0/24
- : ALL : ALL
#
```

If only dedicated LTSP servers are used, the `10.0.0.0/8` network could be dropped to disable internal ssh login access. Note: someone connecting his box to the dedicated LTSP client network(s) will gain ssh access to the LTSP server(s) as well.

### 15.4.3. A note for more complex setups

If LTSP clients were attached to the backbone network `10.0.0.0/8` (combi server or LTSP cluster setup) things would be even more complicated and maybe only a sophisticated DHCP setup (in LDAP) checking the vendor-class-identifier together with appropriate PAM configuration would allow to disable internal ssh login.

## 16. HowTos for the desktop

### 16.1. Set up a multi-language desktop environment

To support multiple languages these commands need to be run:

- Run `dpkg-reconfigure locales` (as root) and choose the languages (UTF-8 variants).
- Run these commands as root to install the related packages:

```
apt update
/usr/share/debian-edu-config/tools/install-task-pkgs
/usr/share/debian-edu-config/tools/improve-desktop-l10n
```

Users will then be able to choose the language via the LightDM display manager before logging in; this applies to Xfce, LXDE and LXQt. GNOME and KDE both come with their own internal region and language configuration tools, use these. MATE uses the Arctica greeter on top of Lightdm without a language chooser. Run `apt purge arctica-greeter` to get the stock Lightdm greeter.

If LTSP diskless clients are used the above steps need to be done inside the LTSP chroot as well. LDM supports all desktop environments. First use *Preferences* to choose the language, then login.

### 16.2. Reproducir DVDs

`libdvdcss` is needed for playing most commercial DVDs. For legal reasons it's not included in Debian (Edu). If you are legally allowed to use it, you can build your own local packages using the `libdvd-pkg` Debian package; make sure `contrib` is enabled in `/etc/apt/sources.list`.

```
apt update
apt install libdvd-pkg
```

Answer the debconf questions, then run `dpkg-reconfigure libdvd-pkg`.

### 16.3. Handwriting fonts

The package `fonts-linux` (which is installed by default) installs the font "Abecedario" which is a nice handwriting font for kids. The font has several forms to be used with kids: dotted, and with lines.

## 17. HowTos para clientes en red

### 17.1. Introducción a clientes ligeros y estaciones de trabajo sin disco



Default for new Debian Edu Buster installations: LTSP clients are using the same architecture as the LTSP server, i.e. 64-bit-PC (aka amd64) or 32-bit-PC (aka i386).



Please keep in mind to use the correct architecture for all commands referred to below.

Un término genérico para clientes ligeros y estaciones de trabajo sin disco es *cliente LTSP* **LTSP is the Linux Terminal Server Project.**

#### Cliente ligero

A thin client setup enables an ordinary PC to function as an (X-)terminal, where all software runs on the LTSP server. This means that this machine boots via PXE without using a local client hard drive.

## Estaciones de trabajo sin disco

A diskless workstation runs all software locally. The client machines boot directly from the LTSP server without a local hard drive. Software is administered and maintained on the LTSP server (inside of the LTSP chroot), but it runs on the diskless workstation. Home directories and system settings are stored on the server too. Diskless workstations are an excellent way of reusing older (but powerful) hardware with the same low maintenance cost as with thin clients.

LTSP defines 320MB as the default minimum amount of RAM for diskless workstations. If the amount of RAM is less, the machine will boot as thin client. The related LTSP parameter is `FAT_RAM_THRESHOLD` with the default value 300. So if (for example) the clients should only boot as diskless workstations if they have 1 GB RAM, add `FAT_RAM_THRESHOLD=1000` to `lts.conf` (or set this in LDAP). Unlike workstations diskless workstations run without any need to add them with `GOsa2`, because LDM is used to login and connect to the LTSP server.

### LTSP client firmware

LTSP client boot will fail if the client's network interface requires a non-free firmware. A PXE installation can be used for troubleshooting problems with netbooting a machine; if the Debian Installer complains about a missing `XXX.bin` file then non-free firmware has to be added to the `initrd` used by LTSP clients.

En este caso, ejecute los siguientes comandos en un servidor LTSP.

```
# First get information about firmware packages
apt-get update && apt-cache search ^firmware-

# Decide which package has to be installed for the network interface(s).
# Most probably this will be firmware-linux-nonfree.
# Things have to take effect in the LTSP chroot for architecture amd64.
ltsp-chroot -a amd64 apt-get update
ltsp-chroot -d -a amd64 apt-get -y -q install <package name>

# copy the new initrd to the server's tftpboot directory and update the NBD image.
ltsp-update-kernels
ltsp-update-image
```

As a shorter alternative -- installing all available firmware and updating the tftpboot directory -- you could execute:

```
/usr/share/debian-edu-config/tools/ltsp-addfirmware
```

### 17.1.1. LTSP client type selection

Cada servidor LTSP tiene dos tarjetas de red: una configurada en la subred principal 10.0.0.0/8 (compartida con el servidor principal), y otra que forma una subred local 192.168.0.0/24 (una subred para cada servidor LTSP).

En la subred principal tendrá el menú PXE completo; la subred separada para cada servidor LTSP le permite seleccionar solo clientes sin discos y ligeros LTSP.

Using the default PXE menu on the main subnet 10.0.0.0/8, a machine could be started as diskless workstation or thin client. By default clients in the separate subnet 192.168.0.0/24 will run as diskless workstations if the amount of RAM is sufficient. If all clients in this LTSP client subnet should run as thin clients, the following has to be done.

```
(1) Open the file /opt/ltsp/amd64/etc/ltsp/update-kernels.conf with an editor
and replace the line
CMDLINE_LINUX_DEFAULT="init=/sbin/init-ltsp quiet"
with
CMDLINE_LINUX_DEFAULT="init=/sbin/init-ltsp LTSP_FATCLIENT=False quiet"
(2) Execute 'ltsp-chroot -a amd64 /usr/share/ltsp/update-kernels'
(3) Execute 'ltsp-update-kernels'
(4) Execute 'ltsp-update-image'
```



## 17.2. Configurar el menú PXE

La configuración PXE se genera usando el script `debian-edu-pxeinstall`. Se permite que algunas configuraciones sean reconfiguradas agregando el archivo `/etc/debian-edu/pxeinstall.conf` con los valores que desea reemplazar.

### 17.2.1. Configurar la instalación de PXE

The PXE installation option is by default available to anyone able to PXE boot a machine. To password protect the PXE installation options, a file `/var/lib/tftpboot/menupassword.cfg` can be created with content similar to this:

```
MENU PASSWD $4$NDk00TUzNTQ1NTQ5$7d6KvA1VCJKRKcijtVSPfveuWPM$
```

The password hash should be replaced with an MD5 hash for the desired password.

The PXE installation will inherit the language, keyboard layout and mirror settings from the settings used when installing the main-server, and the other questions will be asked during installation (profile, popcon participation, partitioning and root password). To avoid these questions, the file `/etc/debian-edu/www/debian-edu-install.dat` can be modified to provide preselected answers to debconf values. Some examples of available debconf values are already commented in `/etc/debian-edu/www/debian-edu-install.dat`. Your changes will be lost as soon as `debian-edu-pxeinstall` is used to recreate the PXE-installation environment. To append debconf values to `/etc/debian-edu/www/debian-edu-install.dat` during recreation with `debian-edu-pxeinstall`, add the file `/etc/debian-edu/www/debian-edu-install.dat.local` with your additional debconf values.

More information about modifying PXE installations can be found in the [Installation](#) chapter.

### 17.2.2. Agregar un repositorio personalizado para instalaciones PXE

For adding a custom repository add something like this to `/etc/debian-edu/www/debian-edu-install.dat.local`:

```
#add the skole projects local repository
d-i apt-setup/local1/repository string http://example.org/debian stable main ↵
    contrib non-free
d-i apt-setup/local1/comment string Example Software Repository
d-i apt-setup/local1/source boolean true
d-i apt-setup/local1/key string http://example.org/key.asc
```

y luego ejecute una vez `/usr/sbin/debian-edu-pxeinstall`

### 17.2.3. Changing the PXE menu on a combined (main and LTSP) server

The PXE menu allows network booting of LTSP clients, the installer and other alternatives. The file `/var/lib/tftpboot/pxelinux` is used by default if no other file in that directory matches the client, and out of the box it is set to link to `/var/lib/tftpboot/debian-edu/pxelinux`.

If all clients should boot as diskless workstations instead of getting the full PXE menu, this can be implemented by changing the symlink:

```
ln -s /var/lib/tftpboot/debian-edu/default-diskless.cfg /var/lib/tftpboot/pxelinux.cfg/ ↵
    default
```

If all clients should boot as thin clients instead, change the symlink like this:

```
ln -s /var/lib/tftpboot/debian-edu/default-thin.cfg /var/lib/tftpboot/pxelinux.cfg/default
```

See also the PXELINUX documentation at <http://syslinux.zytor.com/wiki/index.php/PXELINUX> .

#### 17.2.4. Separate main and LTSP server

For performance and security considerations it might be desired to set up a separate main server which doesn't act as LTSP server.

To have ltspserver00 serve diskless workstations on the main (10.0.0.0/8) network, when the main server is not a combined server, follow these steps:

- copy the ltsp directory from /var/lib/tftpboot on ltspserver00 to the same directory on the main server.
- copy /var/lib/tftpboot/debian-edu/default-diskless.cfg to the same directory on the main server.
- edit /var/lib/tftpboot/debian-edu/default-diskless.cfg to use the IP address of ltspserver00; the following example uses 10.0.2.10 for the IP address of ltspserver00 on the main network:

```
DEFAULT ltsp/amd64/vmlinuz initrd=ltsp/amd64/initrd.img nfsroot=10.0.2.10:/opt/ltsp/amd64 ←  
init=/sbin/init-ltsp boot=nfs ro quiet ipappend 2
```

- set the symlink in /var/lib/tftpboot/pxelinux.cfg on the main server to point to /var/lib/tftpboot/debian-edu/default-diskless.cfg

As an alternative, you could use ldapvi, search for 'next server tjener' and replace tjener with ltspserver00.

#### 17.2.5. Use a different LTSP client network

192.168.0.0/24 is the default LTSP client network if a machine is installed using the LTSP profile. If lots of LTSP clients are used or if different LTSP servers should serve both i386 and amd64 chroot environments the second preconfigured network 192.168.1.0/24 could be used as well. Edit the file /etc/network/interfaces and adjust the eth1 settings accordingly. Use ldapvi or any other LDAP editor to inspect DNS and DHCP configuration.

#### 17.2.6. Add LTSP chroot to support 32-bit-PC clients

In case LTSP server and chroot are 64-bit-PC, it is still possible to support older 32-bit systems. At least 20 GiB additional disk space on /opt would be required.

- Run `ltsp-build-client --arch i386 --squashfs-image` to create chroot and NBD image.
- Use `ldapvi -ZD '(cn=admin)'` to replace amd64 with i386 (dhcp statements in LDAP for one dedicated network).
- execute `service isc-dhcp-server restart`
- Run `service nbd-server restart` to serve the new NBD file.

### 17.3. Changing network settings

The debian-edu-config package comes with a tool which helps in changing the network from 10.0.0.0/8 to something else. Have a look at /usr/share/debian-edu-config/tools/subnet-change. It is intended for use just after installation on the main server, to update LDAP and other files that need to be edited to change the subnet.



Note that changing to one of the subnets already used elsewhere in Debian Edu will not work. 192.168.0.0/24 and 192.168.1.0/24 are already set up as LTSP client networks. Changing to these subnets will require manual editing of configuration files to remove duplicate entries.

There is no easy way to change the DNS domain name. Changing it would require changes to both the LDAP structure and several files in the main server file system. There is also no easy way to change the host and DNS name of the main server (tjener.intern). To do so would also require changes to LDAP and files in the main-server and client file system. In both cases the Kerberos setup would have to be changed, too.

## 17.4. LTSP en detalle

### 17.4.1. Configuración del cliente LTSP en LDAP (y `lts.conf`)

To configure specific LTSP clients with particular features, you can add settings in LDAP or edit the file `/opt/ltsp/amd64/etc/lts.conf`. Please note that `ltsp-update-image` has to be run after each change to `lts.conf`. The image update isn't needed if `lts.conf` is copied to the `/var/lib/tftpboot/ltsp/amd64/` directory.



We recommend to configure clients in LDAP (and not edit `lts.conf` directly, however, configuration webforms for LTSP are currently not available in GOSa<sup>2</sup>, you have to use a plain LDAP browser/explorer or `ldapvi`), as this makes it possible to add and/or replace LTSP servers without losing (or having to redo) configuration.

The default values in LDAP are defined in the `cn=ltspConfigDefault,ou=ltsp,dc=skole,dc=skolelinux,dc=no` LDAP object using the `ltspConfig` attribute. One can also add host specific entries in LDAP.

Run `man lts.conf` to have a look at available configuration options.

The default values are defined under `[default]`; to configure one client, specify it in terms of its MAC address or IP address like this: `[192.168.0.10]`.

Example: To make the thin client `ltsp010` use 1280x1024 resolution, add something like this:

```
[192.168.0.10]
X_MODE_0 = 1280x1024
X_HORZSYNC = "60-70"
X_VERTREFRESH = "59-62"
```

somewhere below the default settings.

To force the use of a specific xserver on an LTSP client, set the `XSERVER` variable. For example:

```
[192.168.0.11]
XSERVER = nvidia
```

If a thin client comes up with a black screen the use of a specific color depth might help. For example:

```
[192.168.0.12]
X_COLOR_DEPTH=16
```

Depending on what changes you make, it may be necessary to restart the client.

To use IP addresses in `lts.conf` you need to add the client MAC address to your DHCP server. Otherwise you should use the client MAC address directly in your `lts.conf` file.

### 17.4.2. Force all LTSP clients to use LXDE as default desktop environment

Make sure that LXDE is installed on the LTSP server; then add these lines below `[default]` in "`lts.conf`":

```
LDM_SESSION=LXDE
LDM_FORCE_SESSION=true
```

### 17.4.3. Desktop autoloader

This tool preloads the default Desktop environment (and programs of your choice). It is only useful for diskless clients. The setup is site specific, also some technical skills are required.

- Read about it: run `ltsp-chroot cat /usr/share/doc/desktop-autoloader/README.Debian`

At least two files need to be edited. Available `<editor>` choices are: `vi`, `nano`, `mcedit`.

- `run ltsp-chroot <editor> /etc/cron.d/desktop-autoloader`
- `run ltsp-chroot <editor> /etc/default/desktop-autoloader`

If the setup is complete, update the NBD image running `ltsp-update-image` and test it.

#### 17.4.4. Load-balancing LTSP servers

##### 17.4.4.1. Part 1

It is possible to set up the clients to connect to one of several LTSP servers for load-balancing. This is done by providing `/opt/ltsp/amd64/usr/share/ltsp/get_hosts` as a script printing one or more servers for LDM to connect to. In addition to this, each LTSP chroot needs to include the SSH host key for each of the servers.

First of all, you must choose one LTSP server to be the load-balancing server. All the clients will PXE-boot from this server and load the Skolelinux image. After the image is loaded, LDM chooses which server to connect to by using the `"get_hosts"` script. You will decide later how this is done.

The load-balancing server must be announced to the clients as the `"next-server"` via DHCP. As DHCP configuration is in LDAP, modifications have to be done there. Use `ldapvi --ldap-conf -ZD '(cn=admin)'` to edit the appropriate entry in LDAP. (Enter the main server's root password at the prompt; if `VISUAL` isn't set, the default editor will be `nano`.) Search for a line reading `dhcpStatements: next-server tjener`. `Next-server` should be the IP address or hostname of the server you chose to be the load-balancing server. If you use hostname you must have a working DNS. Remember to restart the DHCP service.

Now you have to move your clients from the 192.168.0.0 network to the 10.0.0.0 network; attach them to the backbone network instead of the network attached to the LTSP server's second network card. This is because when you use load-balancing, the clients need direct access to the server chosen by LDM. If you leave your clients on the 192.168.0.0 network, all of the clients' traffic will go through that server before it reaches the chosen LDM server.

##### 17.4.4.2. Part 2

Now you have to make a `"get_hosts"` script which generates a list of server names for LDM to connect to. The parameter `LDM_SERVER` overrides this script. In consequence, this parameter must not be defined if the `get_hosts` is going to be used. The `get_hosts` script writes on the standard output each server IP address or host name, in random order.

Edit `"/opt/ltsp/amd64/etc/lts.conf"` and add something like this:

```
MY_SERVER_LIST = "xxxx xxxx xxxx"
```

Replace `xxxx` with either the IP addresses or hostnames of the servers as a space-separated list. Then, put the following script in `/opt/ltsp/amd64/usr/lib/ltsp/get_hosts` on the server you chose to be the load-balancing server.

```
#!/bin/bash
# Randomise the server list contained in MY_SERVER_LIST parameter
TMP_LIST=""
SHUFFLED_LIST=""
for i in $MY_SERVER_LIST; do
    rank=$RANDOM
    let "rank %= 100"
    TMP_LIST="$TMP_LIST\n${rank}_${i}"
done
TMP_LIST=$(echo -e $TMP_LIST | sort)
for i in $TMP_LIST; do
    SHUFFLED_LIST="$SHUFFLED_LIST $(echo $i | cut -d_ -f2)"
done
echo $SHUFFLED_LIST
```

### 17.4.4.3. Part 3

Now that you've made the "get\_hosts" script, it's time to make the SSH host key for the LTSP chroots. This can be done by making a file containing the content of /opt/ltsp/amd64/etc/ssh/ssh\_known\_hosts from all the LTSP servers that will be load-balanced. Save this file as /etc/ltsp/ssh\_known\_hosts.extra on all load-balanced servers. The last step is very important because ltsp-update-sshkeys runs every time a server is booted, and /etc/ltsp/ssh\_known\_hosts.extra is included if it exists.



If you save your new host file as /opt/ltsp/amd64/etc/ssh/ssh\_known\_hosts, it will be erased when you reboot the server.

There are some obvious weaknesses with this setup. All clients get their image from the same server, which causes high loads on the server if many clients are booted at the same time. Also, the clients require that server to be always available; without it they cannot boot or get an LDM server. Therefore this setup is very dependent on one server, which isn't very good.

Your clients should now be load-balanced!

### 17.4.5. Sonido con clientes LTSP

LTSP thin clients use networked audio to pass audio from the server to the clients.

LTSP diskless workstations handle audio locally.

### 17.4.6. Use printers attached to LTSP clients

- Attach the printer to the LTSP client machine (both USB and parallel port are supported).
- Configure this machine to run a printer in lts.conf (default location: /opt/ltsp/amd64/etc/lts.conf), see the LTSP manual /usr/share/doc/ltsp/LTSPManual.html#printer for details.
- Configure the printer using the web interface <https://www:631> on the main server; choose network printer type AppSocket/HP JetDirect (for all printers regardless of brand or model) and set socket://<LTSP client ip>:9100 as connection URI.

### 17.4.7. Use NFS instead of NBD

To speed up customizing and testing an LTSP chroot NFS could be used.

```
# Switch from NBD --> NFS:
sed -i 's/default ltsp-NBD/default ltsp-NFS' /opt/ltsp/$(dpkg --print-architecture)/boot/ ↵
    pxelinux.cfg/ltsp
sed -i 's/ontimeout ltsp-NBD/ontimeout ltsp-NFS/' /opt/ltsp/$(dpkg --print-architecture)/ ↵
    boot/pxelinux.cfg/ltsp
ltsp-update-kernels
```

```
# Switch from NFS --> NBD:
ltsp-update-image
sed -i 's/default ltsp-NFS/default ltsp-NBD' /opt/ltsp/$(dpkg --print-architecture)/boot/ ↵
    pxelinux.cfg/ltsp
sed -i 's/ontimeout ltsp-NFS/ontimeout ltsp-NBD/' /opt/ltsp/$(dpkg --print-architecture)/ ↵
    boot/pxelinux.cfg/ltsp
ltsp-update-kernels
```

### 17.4.8. Upgrading the LTSP environment

It is useful to upgrade the LTSP environment with new packages fairly often, to make sure security fixes and improvements are made available. To upgrade, run these commands as user root on each LTSP server:

```
ltsp-chroot -a amd64 # this does "chroot /opt/ltsp/amd64" and more, ie it also prevents ↩
    daemons from being started
apt update
apt upgrade
apt full-upgrade
exit
ltsp-update-image
```

#### 17.4.8.1. Installing additional software in the LTSP environment

To install additional software for an LTSP client you must perform the installation inside the chroot of the LTSP server.

```
ltsp-chroot -a amd64
## optionally, edit the sources.list:
#editor /etc/apt/sources.list
apt update
apt install $new_package
exit
ltsp-update-image
```

### 17.4.9. Slow login and security

Skolelinux has added several security features on the client network preventing unauthorised superuser access, password sniffing, and other tricks which may be used on a local network. One such security measure is secure login using SSH, which is the default with LDM. This can slow down some client machines which are more than about fifteen years old, with as little as a 160 MHz processor and 32 MB RAM. Although it's not recommended, you can add a line to `/opt/ltsp/amd64/etc/lts.conf` containing:

```
LDM_DIRECTX=True
```



**Warning:** The above protects initial login, but all activities after that use unencrypted networked X. Passwords (except the initial one) will travel in cleartext over the network, as well as anything else.

Note: Since such fifteen-year-old thin clients may also have trouble running newer versions of LibreOffice and Firefox due to pixmap caching issues, you may consider running thin clients with at least 128 MB RAM, or upgrade the hardware, which will also give you the benefit of being able to use them as diskless workstations.

## 17.5. Connecting Windows machines to the network / Windows integration

### 17.5.1. Joining a domain

For Windows clients the Windows domain "SKOLELINUX" is available to be joined. A special service called Samba, installed on the main server, enables Windows clients to store profiles and user data, and also authenticates the users during the login.



Joining a domain with a Windows client requires the steps described in the [Debian Edu Buster Samba Howto](#).

Windows will sync the profiles of domain users on every Windows login and logout. Depending on how much data is stored in the profile, this could take some time. To minimise the time needed, deactivate things like local cache in browsers (you can use the Squid proxy cache installed on the main server instead) and save files into the H: volume rather than under "My Documents".

## 17.6. Remote Desktop

Choosing the LTSP server profile or the combined server profile also installs the *xrdp* and *x2goserver* packages.

### 17.6.1. Xrdp

Xrdp uses the Remote Desktop Protocol to present a graphical login to a remote client. Microsoft Windows users can connect to the LTSP server running xrdp without installing additional software - they simply start a Remote Desktop Connection on their Windows machine and connect.

Additionally, xrdp can connect to a VNC server or another RDP server.

Xrdp comes without sound support; to compile the required modules this script could be used.

```
#!/bin/bash
# Script to compile / recompile xrdp PulseAudio modules.
# The caller needs to be root or a member of the sudo group.
# Also, /etc/apt/sources.list must contain a valid deb-src line.
set -e
if [[ $UID -ne 0 ]] ; then
    if ! groups | egrep -q sudo ; then
        echo "ERROR: You need to be root or a sudo group member."
        exit 1
    fi
fi
if ! egrep -q ^deb-src /etc/apt/sources.list ; then
    echo "ERROR: Make sure /etc/apt/sources.list contains a deb-src line."
    exit 1
fi
TMP=$(mktemp -d)
PULSE_UPSTREAM_VERSION="$(dpkg-query -W -f='${source:Upstream-Version}' pulseaudio)"
XRDP_UPSTREAM_VERSION="$(dpkg-query -W -f='${source:Upstream-Version}' xrdp)"
sudo apt -q update
# Get sources and build dependencies:
sudo apt -q install dpkg-dev
cd $TMP
apt -q source pulseaudio xrdp
sudo apt -q build-dep pulseaudio xrdp
# For pulseaudio 'configure' is all what is needed:
cd pulseaudio-$PULSE_UPSTREAM_VERSION/
./configure
# Adjust pulseaudio modules Makefile (needs absolute path)
# and build the pulseaudio modules.
cd $TMP/xrdp-$XRDP_UPSTREAM_VERSION/sesman/chansrv/pulse/
sed -i 's/^PULSE/#PULSE/' Makefile
sed -i "/#PULSE_DIR/a \
PULSE_DIR = $TMP/pulseaudio-$PULSE_UPSTREAM_VERSION" Makefile
make
# Copy modules to Pulseaudio modules directory, adjust rights.
sudo cp *.so /usr/lib/pulse-$PULSE_UPSTREAM_VERSION/modules/
sudo chmod 644 /usr/lib/pulse-$PULSE_UPSTREAM_VERSION/modules/module-xrdp*
# Restart xrdp, now with sound enabled.
sudo service xrdp restart
```

### 17.6.2. X2Go

X2Go enables you to access a graphical desktop on the LTSP server over both low bandwidth and high bandwidth connections from a PC running Linux, Windows or macOS. Additional software is needed on the client side, see the [X2Go wiki](#) for more information.

Please note that the *killer* package should best be removed on the LTSP server if X2Go is used, see [890517](#).

### 17.6.3. Clientes de escritorio remoto disponible

- `freerdp-x11` is installed by default and is capable of RDP and VNC.
  - RDP - the easiest way to access Windows terminal server. An alternative client package is `rdesktop`.
  - VNC client (Virtual Network Computer) gives access to Skolelinux remotely. An alternative client package is `xvncviewer`.
- `x2goclient` is a graphical client for the X2Go system (not installed by default). You can use it to connect to running sessions and start new ones.
- **Citrix ICA client** [HowTo](#) to access Windows terminal server from Skolelinux.

## 18. Samba en Debian Edu



Please read the information provided on the Samba wiki about supported Windows versions, needed registry patches and other procedures before proceeding.

[https://wiki.samba.org/index.php/Joining\\_a\\_Windows\\_Client\\_or\\_Server\\_to\\_a\\_Domain](https://wiki.samba.org/index.php/Joining_a_Windows_Client_or_Server_to_a_Domain)

[https://wiki.samba.org/index.php/Required\\_Settings\\_for\\_Samba\\_NT4\\_Domains](https://wiki.samba.org/index.php/Required_Settings_for_Samba_NT4_Domains)

Samba has been fully prepared for use as an NT4-style domain controller. After a machine has joined the domain, this machine can be fully managed with GOSa<sup>2</sup>.

### 18.1. Cómo empezar

This documentation presumes that you have installed the Debian Edu main server and also a Debian Edu workstation. We presume that you have already created some users that can login and use the Debian Edu workstation. We also presume that you have a Windows workstation at hand, so you can test access to the Debian Edu main server from a Windows machine.

Después de la instalación del servidor principal de Debian Edu, `\\TJENER` debería ser visible desde computadoras con Windows. El dominio de Debian Edu en Windows es `SKOLELINUX`. Utilice una computadora con Windows (o Linux con `smbclient`) para explorar su entorno de red de Windows/Samba.

1. INICIO -> comando ejecutar.
2. Escriba `\\TJENER` y presione enter.
3. -> a Windows Explorer window should open and show the netlogon share on `\\TJENER`, and maybe printers you already have configured for printing under Unix/Linux (CUPS queues).

#### 18.1.1. Acceder los archivos mediante Samba

Cuentas de usuarios de estudiantes y profesores que han sido configuradas mediante GOSa<sup>2</sup> pueden ingresar a `\\TJENER\HOMES` o `\\TJENER\<username>` y acceder a sus directorios personales con computadoras Windows que **no** se han unido al dominio `SKOLELINUX`.

1. INICIO -> comando ejecutar.
2. Escriba `\\TJENER\HOMES` o `\\TJENER\<username>` y presione enter.
3. Escriba su datos de usuario y contraseña en la ventana de autenticación que aparece.
4. -> una ventana de explorador de Windows se abrirá y le mostrará los archivos y directorios en su directorio personal de Debian Edu.

Por defecto, solamente `[home]` y `[netlogon]` son exportadas; más ejemplos para estudiantes y profesores sobre como compartir pueden encontrarse en `/etc/samba/smb-debian-edu.conf` en el servidor principal de Debian Edu.



## 18.2. Domain Membership

To use Samba on TJENER as a domain controller, your network's Windows workstations have to join the SKOLELINUX domain provided by the Debian Edu main server.

The first thing you have to do is to enable the SKOLELINUX\Administrator account. This account is not intended for day-to-day usage; its current main purpose is to add Windows machines to the SKOLELINUX domain. To enable this account log on to TJENER as the first user (created during main server installation) and run this command:

```
■ $ sudo smbpasswd -e Administrator
```

The password of SKOLELINUX\Administrator has been preconfigured during the main server's installation. Please use the system's root account when authenticating as SKOLELINUX\Administrator.

Once you are done with your administrative work make sure to disable the SKOLELINUX\Administrator account again:

```
■ $ sudo smbpasswd -d Administrator
```

### 18.2.1. Windows hostname

Make sure your Windows machine has the name that you want to use in the SKOLELINUX domain. If not, rename it first (and then reboot). The NetBIOS host name of the Windows machine will later on be used in GOsa<sup>2</sup> and cannot be changed there (without breaking the domain membership for this machine).

## 18.3. First Domain Logon

Debian Edu ships some logon scripts that pre-configure the Windows user profile on first logon. When logging on to a Windows workstation that has joined the SKOLELINUX domain for the first time the following tasks are run:

1. copy the user's Firefox profile to a separate location and register that with Mozilla Firefox on Windows
2. set up Web-Proxy and start page in Firefox
3. set up Web-Proxy and start page in IE
4. add a MyHome icon to the Desktop that points to drive H: and opens Windows Explorer on double-click

Other tasks are run on every logon. For further information on this, please refer to the `/etc/samba/netlogon` folder on your Debian Edu main server.

## 19. HowTos for teaching and learning

All Debian packages mentioned in this section can be installed by running `apt install <package>` (as root).

### 19.1. Teaching Programming

[stable/education-development](#) is a meta package depending on a lot of programming tools. Please note that almost 2 GiB of disk space is needed if this package is installed. For more details (maybe to install only a few packages), see the [Debian Edu Development packages](#) page.

## 19.2. Monitoring pupils



**Warning:** make sure you know the status of the laws about monitoring and restricting computer users' activities in your jurisdiction.

Some schools use control tools like [Epopetes](#) or [Veyon](#) to supervise their students. See also: [Epopetes Homepage](#) and [Veyon Homepage](#).

To get full Epopetes support, these steps are required.

```
# Run on a combi server (and on each additional ltsp server):
apt update
apt install epoptes
ltsp-chroot -m --arch amd64 apt update
ltsp-chroot -m --arch amd64 apt install epoptes-client
ltsp-chroot -m --arch amd64 apt install ssvnc
# If disk space matters, use 'ltsp-update-image -n' instead.
ltsp-update-image
```

## 19.3. Restricting pupils' network access

Some schools use [Squidguard](#) or [Dansguardian](#) to restrict Internet access.

## 20. HowTos for users

### 20.1. Changing passwords

Casa usuario debería cambiar su contraseña usando GOSa<sup>2</sup>. Para hacerlo, solo use un navegador web y vaya a <https://www.gosa/>.

Using GOSa<sup>2</sup> to change the password ensures that passwords for Kerberos (krbPrincipalKey), LDAP (userPassword) and Samba (sambaNTPassword and sambaLMPassword) are the same.

Changing passwords using PAM is working also at the GDM login prompt, but this will only update the Kerberos password, and not the Samba and GOSa<sup>2</sup> (LDAP) password. So after you changed your password at the login prompt, you really should also change it using GOSa<sup>2</sup>.

### 20.2. Java

#### 20.2.1. Running standalone Java applications

Standalone Java applications are supported out of the box by the OpenJDK Java runtime.

### 20.3. Using email

All users can send and receive mails within the internal network; certificates are provided to allow TLS secured connections. To allow mail outside the internal network, the administrator needs to configure the mailserver `exim4` to suit the local situation, starting with `dpkg-reconfigure exim4-config`.

Every user who wants to use Thunderbird needs to configure it as follows. For a user with username `jdoe` the internal email address is [jdoe@postoffice.intern](#).

### 20.3.1. Thunderbird

- Start Thunderbird
- Click 'Skip this and use my existing email'
- Enter your email address
- Don't enter your password as Kerberos single sign on will be used
- Click 'Continue'
- For both IMAP and SMTP the settings should be 'STARTTLS' and 'Kerberos/GSSAPI'; adjust if not detected automatically
- Click 'Done'

### 20.3.2. Obtener un ticket Kerberos para leer correos en las estaciones de trabajo sin disco

If working on a diskless workstation, you don't have a Kerberos TGT by default. To get one, click the credentials button in the system tray. Enter your password and the ticket will be granted.

## 20.4. Volume control

On thin clients, `pavucontrol` or `alsamixer` (but not `kmix`) can be used to change audio volume.

On other machines (workstations, LTSP servers, and diskless workstations), `kmix` or `alsamixer` can be used.

## 21. Contribuir

### 21.1. Contribute locally

Actualmente hay equipos locales en Noruega, Alemania, la región de Extremadura en España, Taiwan y Francia. Contribuidores y usuarios "aislados" existen en Grecia, Holanda, Japan y otros lugares.

El **capítulo de soporte** contiene explicaciones y enlaces a recursos localizados, ya que *contribuir* y *apoyar* son dos lados de la misma moneda.

### 21.2. Contribuye a nivel global

Internationally we are organised into various **teams** working on different subjects.

Most of the time, the **developer mailing list** is our main medium for communication, though we have monthly IRC meetings on #debian-edu on irc.debian.org and even, less frequently, real gatherings, where we meet each other in person. **New contributors** should read our <http://wiki.debian.org/DebianEdu/ArchivePolicy>.

A good way to learn what is happening in the development of Debian Edu is to subscribe to the **commit mailinglist**.

### 21.3. Documentación para editores y traductores

¡Este documento necesita de su ayuda! No está finalizado todavía: si lo lee, notará varias líneas que dicen POR CORREGIR. Si usted sabe lo que se necesita corregir, considere compartir su conocimiento con nosotros.

The source of the text is a wiki and can be edited with a simple webbrowser. Just go to <http://wiki.debian.org/DebianEdu/Documentation/Buster/> and you can contribute easily. Note: a user account is needed to edit the pages; you need to **create a wiki user** first.

Another very good way to contribute and to help users is by translating software and documentation. Information on how to translate this document can be found in the **translations chapter** of this book. Please consider helping the translation effort of this book!

## 22. Soporte

### 22.1. Soporte basado en voluntarios

#### 22.1.1. in English

- <http://wiki.debian.org/DebianEdu>
- <https://lists.skolelinux.org/listinfo/admin-discuss> - support mailing list
- #debian-edu on irc.debian.org - IRC channel, mostly development related; do not expect real time support even though it frequently happens 😊

#### 22.1.2. in Norwegian

- <https://lists.skolelinux.org/listinfo/bruker> - support mailing list
- <https://lists.skolelinux.org/listinfo/linuxiskolen> - mailing list for the development member organisation in Norway (FRISK)
- #skolelinux en irc.debian.org - canal IRC para soporte en Noruego

#### 22.1.3. in German

- <http://lists.debian.org/debian-edu-german> - support mailing list
- <https://www.skolelinux.de> - official German representation
- #skolelinux.de en irc.debian.org - canal IRC para soporte en Alemán

#### 22.1.4. in French

- <http://lists.debian.org/debian-edu-french> - support mailing list

### 22.2. Soporte profesional

Lists of companies providing professional support are available from <http://wiki.debian.org/DebianEdu/Help/ProfessionalHelp>

## 23. New features in Debian Edu Buster

### 23.1. New features for Debian Edu 10+edu0 Codename Buster

#### 23.1.1. Installation changes

- This is the first time Debian Edu installation images are available at <https://cdimage.debian.org>, thus these are official Debian images.
  - New version of debian-installer from Debian Buster, see its [installation manual](#) for more details.
  - New artwork based on the [futurePrototype theme](#), the default artwork for Debian 10 Buster.
  - New default desktop environment Xfce (replacing KDE).
  - New CFEngine configuration management (replacing unmaintained package cfengine2 with cfengine3); this is a major change, for details see [the official CFEngine documentation](#).
  - The architecture of the LTSP chroot now defaults to the server one.
-

### 23.1.2. Actualizaciones de software

- Everything which is new in Debian 10 Buster, eg:
  - Linux kernel 4.19
  - Desktop environments KDE Plasma Workspace 5.14, GNOME 3.30, Xfce 4.12, LXDE 0.99.2, MATE 1.20
  - Firefox 60.7 ESR and Chromium 73.0
  - LibreOffice 6.1
  - Educational toolbox GCompris 0.95
  - Music creator Rosegarden 18.12
  - GOsa 2.74
  - LTSP 5.18
  - Debian Buster includes more than 57000 packages available for installation.
- More information about Debian 10 Buster is provided in the [release notes](#) and the [installation manual](#).

### 23.1.3. Actualizaciones en documentación y traducciones

- Translation updates for the templates used in the installer. These templates are now available in 76 languages, of which 31 are fully translated. The profile choice page is available in 29 languages, of which 19 are fully translated.
- The Debian Edu Buster Manual is fully translated to French, German, Italian, Danish, Dutch, Norwegian Bokmål and Japanese.
  - Partly translated versions exist for Polish, Spanish, Simplified Chinese and Traditional Chinese.

### 23.1.4. Other changes compared to the previous release

- The BD ISO image can be used for offline installations again.
- New school level related meta-packages *education-preschool*, *education-primaryschool*, *education-secondaryschool* and *education-highschool* are available. None of them is installed by default.
- Some packages rather belonging to preschool or primaryschool level (like *gcompris-qt*, *childsplay*, *tuxpaint* or *tuxmath*) are no longer installed by default.
- Site specific modular installation. It is now possible to install only those educational packages that are actually wanted. See the [installation](#) chapter for more information.
- Site specific multi-language support. See the [Desktop](#) chapter for more information.
- LXQt 0.14 is offered as a new choice for the desktop environment.
- New GOsa<sup>2</sup>-Plugin *Password Management*.
- Unusable options have been removed from the GOsa<sup>2</sup> web interface.
- New netgroup available to exclude systems belonging to the *shut-down-at-night-hosts* netgroup from being woken up.
- New tool Standardskriver (Default printer). See the [Administration](#) chapter for more information.
- New tool Desktop-autoloader. It allows performance improvements for LTSP diskless clients. See the [NetworkClients](#) chapter for more information.
- Improved TLS/SSL support inside the internal network. A RootCA certificate is used to sign server certificates and user home directories are configured to accept it at account creation time; besides Firefox ESR, also Chromium and Konqueror can now use HTTPS without the need to allow insecure connections.

- Kerberized `ssh`. A password isn't needed anymore for connections inside the internal network; root needs to run `kinit` first to enable it.
- Kerberized NFS. It is now possible to use more secure home directory access, see the [Administration](#) chapter for more information.
- Added configuration file `/etc/debian-edu/pxeinstall.conf` with examples to make site specific changes easier.
- Added configuration file `/etc/ltsp/ltsp-build-client.conf` with examples to make site specific changes easier.
- New tool `/usr/share/debian-edu-config/tools/edu-ldap-from-scratch`. It allows to re-generate the LDAP database just like it has been right after the main server installation. The tool might also be useful to make site specific changes easier.
- With *X2Go server* now available in Debian, the related packages are now installed on all systems with Profile *LTSP-Server*.
- Support for running Java applets in the Firefox ESR browser has been dropped upstream.
- Support for nonfree flash has been dropped from the Firefox ESR browser.
- Like it has been before Stretch, Debian 10 doesn't install the `unattended-upgrades` package by default, see the [Maintenance](#) chapter for more information about security upgrades.

#### 23.1.5. Known issues

- see [the Debian Edu Buster status page](#).

## 24. Copyright y autores

This document is written and copyrighted by Holger Levsen (2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019), Petter Reinholdtsen (2001, 2002, 2003, 2004, 2007, 2008, 2009, 2010, 2012, 2014), Daniel Heß (2007), Patrick Winnertz (2007), Knut Yrvin (2007), Ralf Gesellensetter (2007), Ronny Aasen (2007), Morten Werner Forsbring (2007), Bjarne Nielsen (2007, 2008), Nigel Barker (2007), José L. Redrejo Rodríguez (2007), John Bildoy (2007), Joakim Seeberg (2008), Jürgen Leibner (2009, 2010, 2011, 2012, 2014), Oded Naveh (2009), Philipp Hübner (2009, 2010), Andreas Mundt (2010), Olivier Vitrat (2010, 2012), Vagrant Cascadian (2010), Mike Gabriel (2011), Justin B Rye (2012), David Prévot (2012), Wolfgang Schweer (2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019), Bernhard Hammes (2012) and Joe Hansen (2015) and is released under the GPL2 or any later version. Enjoy!

If you add content to it, **please only do so if you are the author. You need to release it under the same conditions!** Then add your name here and release it under the "GPL v2 or any later version" licence.

## 25. Traducciones de este documento

Versions of this document translated into German, Italian, French, Danish, Dutch, Norwegian Bokmål and Japanese are available. Incomplete translations exist for Spanish, Polish, Portuguese and Simplified Chinese. There is an [online overview of shipped translations](#).

### 25.1. HowTo translate this document

#### 25.1.1. Translate using PO files

As in many free software projects, translations of this document are kept in PO files. More information about the process can be found in `/usr/share/doc/debian-edu-doc/README.debian-edu-buster-manual-translations`.

### 25.1.2. Translate online using a web browser

Some language teams have decided to translate via Weblate. See <https://hosted.weblate.org/projects/debian-edu-documentation/debian-edu-buster/> for more information.

Please report any problems.

## 26. Appendix A - The GNU General Public License

### 26.1. Manual para Debian-Edu 10+edu0 Codename Buster

Copyright (C) 2007-2018 Holger Levsen <[holger@layer-acht.org](mailto:holger@layer-acht.org)> and others, see the [Copyright chapter](#) for the full list of copyright owners.

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

### 26.2. GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA. Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

### 26.3. TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

**0.** This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

**1.** You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

**2.** You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- **a)** You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
- b)** You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
- c)** If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

**3.** You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

- **a)** Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- b)** Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c)** Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

**4.** You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

**5.** You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.



**6.** Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

**7.** If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

**8.** If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

**9.** The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

**10.** If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

## **NO WARRANTY**

**11.** BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

**12.** IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## **END OF TERMS AND CONDITIONS**

---

## 27. Appendix B - no Debian Edu Live CD/DVDs for Buster yet



Debian Edu Live CD/DVDs for Buster are not available at the moment.

### 27.1. Features of the Standalone image

- XFCE desktop
- All packages from the Standalone profile
- Todos los paquetes de la tarea «laptop»

### 27.2. Features of the Workstation image

- XFCE desktop
- All packages from the Workstation profile
- Todos los paquetes de la tarea «laptop»

### 27.3. Activando el soporte regional y traducciones

To activate a specific translation, boot using `locale=ll_CC.UTF-8` as a boot option, where `ll_CC.UTF-8` is the locale name you want. To activate a given keyboard layout, use the `keyb=KB` option where `KB` is the desired keyboard layout. Here is a list of commonly used locale codes:



| Lenguaje (Región)        | Valores local | Distribución del teclado |
|--------------------------|---------------|--------------------------|
| Noruego (Bokmål)         | nb_NO.UTF-8   | no                       |
| Noruego (Nynorsk)        | nn_NO.UTF-8   | no                       |
| Alemán                   | de_DE.UTF-8   | de                       |
| Francés (Francia)        | fr_FR.UTF-8   | fr                       |
| Griego (Grecia)          | el_GR.UTF-8   | el                       |
| Japonés                  | ja_JP.UTF-8   | jp                       |
| Sami del Norte (Noruega) | se_NO         | no(smi)                  |

A complete list of locale codes is available in `/usr/share/i18n/SUPPORTED`, but only the UTF-8 locales are supported by the live images. Not all locales have translations installed, though. The keyboard layout names can be found in `/usr/share/keymaps/i386/`.

### 27.4. Cosas para saber

- The password for the user is "user"; root has no password set.

## 27.5. Problemas conocidos con la imagen

-  There are no images yet 

## 27.6. Download

The image would be (but currently isn't) available via [FTP](#), [HTTP](#) or rsync from <ftp.skolelinux.org> under `cd-buster-live/`.


# 28. Apéndice C - Características de publicaciones anteriores

## 28.1. New features for Debian Edu 9+edu0 Codename Stretch released 2017-06-17

### 28.1.1. Installation changes

- New version of debian-installer from Debian Stretch, see its [installation manual](#) for more details.
- The "Thin-Client-Server" profile has been renamed to "LTSP-Server" profile.
- New artwork based on the "[soft Waves](#)" theme, the default artwork for Debian 9 Stretch.

### 28.1.2. Actualizaciones de software

- Everything which was new in Debian 9 Stretch, eg:
  - Linux kernel 4.9
  - Desktop environments KDE Plasma Workspace 5.8, GNOME 3.22, Xfce 4.12, LXDE 0.99.2, MATE 1.16
    - KDE Plasma Workspace is installed by default; to choose one of the others see this manual.
  - Firefox 45.9 ESR and Chromium 59
    - Iceweasel has been re-renamed to Firefox! 
  - Icedove has been re-renamed to Thunderbird and is now installed by default.
  - LibreOffice 5.2.6
  - Educational toolbox GCompris 15.10
  - Music creator Rosegarden 16.06
  - GOsa 2.7.4
  - LTSP 5.5.9
  - Debian Stretch includes more than 50000 packages available for installation.
  - More information about Debian 9 Stretch is provided in the [release notes](#) and the [installation manual](#).

### 28.1.3. Actualizaciones en documentación y traducciones

- Translation updates for the templates used in the installer. These templates are now available in 29 languages.
  - The Debian Edu Stretch Manual is fully translated to German, French, Italian, Danish, Dutch, Norwegian Bokmål and Japanese. The Japanese translation was newly added for Stretch.
    - Partly translated versions exist for Spanish, Polish and Simplified Chinese.
-

#### 28.1.4. Other changes compared to the previous release

- Icinga replaces Nagios as monitoring tool.
- kde-spectacle replaces ksnapshot as screenshot tool.
- The free flash player gnash is back again.
- Plymouth is installed and activated by default, except for the 'Main Server' and 'Minimal' profiles; pressing ESC allows to view boot and shutdown messages.
- Upon upgrade from Jessie the LDAP data base has to be adjusted. The sudoHost value 'tjener' has to be replaced with 'tjener.intern' using GOSa<sup>2</sup> or an LDAP editor.
- The 32-bit PC support (known as the Debian architecture i386) now no longer covers a plain i586 processor. The new baseline is the i686, although some i586 processors (e.g. the "AMD Geode") will remain supported.
- Debian 9 enables unattended upgrades (for security updates) by default for new installations. This might cause a delay of about 15 minutes if a system with a low uptime value is powered off.
- LTSP now uses NBD instead of NFS for the root filesystem. After each single change to an LTSP chroot, the related NBD image must be regenerated (ltsp-update-image) for the changes to take effect.
- Concurrent logins of the same user on LTSP server and LTSP thin client are no longer allowed.

### 28.2. New features for Debian Edu 8+edu0 Codename Jessie released 2016-07-02

- read the release announcement on [www.debian.org](http://www.debian.org): [Debian Edu / Skolelinux Jessie — a complete Linux solution for your school](#).

#### 28.2.1. Installation changes

- New version of debian-installer from Debian Jessie, see [installation manual](#) for more details.

#### 28.2.2. Actualizaciones de software

- Everything which is new in Debian 8 Jessie, eg:
  - Linux kernel 3.16.x
  - Desktop environments KDE Plasma Workspace 4.11.13, GNOME 3.14, Xfce 4.10, LXDE 0.5.6
    - new optional desktop environment: MATE 1.8
    - KDE Plasma Workspace is installed by default; to choose one of the others see this manual.
  - the browsers Iceweasel 31 ESR and Chromium 41
  - LibreOffice 4.3.3
  - Educational toolbox GCompris 14.12
  - Music creator Rosegarden 14.02
  - GOSa 2.7.4
  - LTSP 5.5.4
  - new boot framework: systemd. More information is available in the Debian [systemd wiki page](#) and in the [systemd manual](#).
  - Debian Jessie includes about 42000 packages available for installation.
  - More information about Debian 8 Jessie is provided in the [release notes](#) and the [installation manual](#).

### 28.2.3. Actualizaciones en documentación y traducciones

- Translation updates for the templates used in the installer. These templates are now available in 29 languages.
- Two manual translations have been completed: Dutch and Norwegian Bokmål.
- The Debian Edu Jessie Manual is fully translated to German, French, Italian, Danish, Dutch and Norwegian Bokmål. A partly translated version exists for Spanish.

### 28.2.4. Other changes compared to the previous release

- *squid*: Shutdown and reboot of the main server takes longer than before due to a new default setting `shutdown_lifetime 30 seconds`. As an example the delay could be set to 10 seconds by appending the line `shutdown_lifetime 10 seconds` to `/etc/squid3/squid.conf`.
- *ssh*: The root user is no longer allowed to login via SSH with password. The old default `PermitRootLogin yes` has been replaced with `PermitRootLogin without-password`, so ssh-keys will still work.
- *slbackup-php*: To be able to use the slbackup-php site (which uses root logins via ssh), `PermitRootLogin yes` has to be set temporarily in `/etc/ssh/sshd_config`.
- *sugar*: As the Sugar desktop was removed from Debian Jessie, it is also not available in Debian Edu jessie.

## 28.3. New features in Debian Edu 7.1+edu0 Codename Wheezy released 2013-09-28

### 28.3.1. User visible changes

- Updated artwork and new Debian Edu / Skolelinux logo, visible during installation, in the login screen and as desktop wallpaper.

### 28.3.2. Installation changes

- New version of debian-installer from Debian Wheezy, see [installation manual](#) for more details.
- The DVD image was dropped, instead we added a USB flash drive / Blu-ray disc image, which behaves like the DVD image, but is too big to fit on a DVD.

### 28.3.3. Actualizaciones de software

- Everything which is new in Debian Wheezy 7.1, eg:
    - Linux kernel 3.2.x
    - Desktop environments KDE "Plasma" 4.8.4, GNOME 3.4, Xfce 4.8.6, and LXDE 0.5.5 (KDE "Plasma" is installed by default; to choose GNOME, Xfce or LXDE: see manual.)
    - Web browser Iceweasel 17 ESR
    - LibreOffice 3.5.4
    - LTSP 5.4.2
    - GOsa 2.7.4
    - CUPS print system 1.5.3
    - Educational toolbox GCompris 12.01
    - Music creator Rosegarden 12.04
    - Image editor Gimp 2.8.2
    - Virtual universe Celestia 1.6.1
-

- Virtual stargazer Stellarium 0.11.3
- Scratch visual programming environment 1.4.0.6
- New version of debian-installer from Debian Wheezy, see [installation manual](#) for more details.
- Debian Wheezy includes about 37000 packages available for installation.
- More information about Debian Wheezy 7.1 is provided in the [release notes](#) and the [installation manual](#).

#### 28.3.4. Actualizaciones en documentación y traducciones

- Translation updates for the templates used in the installer. These templates are now available in 29 languages.
- The Debian Edu Wheezy Manual is fully translated to German, French, Italian and Danish. Partly translated versions exist for Norwegian Bokmål and Spanish.

#### 28.3.5. LDAP related changes

- Slight changes to some objects and acls to have more types to choose from when adding systems in GOsa. Now systems can be of type server, workstation, printer, terminal or netdevice.

#### 28.3.6. Other changes

- New Xfce desktop task.
- LTSP diskless workstations run without any configuration.
- On the dedicated client network of LTSP servers (default 192.168.0.0/24), machines run by default as diskless workstations if they are powerful enough.
- GOsa gui: Now some options that seemed to be available, but are non functional, are greyed out (or are not clickable). Some tabs are completely hidden to the end user, others even to the GOsa admin.

#### 28.3.7. Known issues

- Using KDE "Plasma" on standalone and roaming workstations, at least Konqueror, Chromium and Step sometimes fail to work out-of-the box when the machines are used outside the backbone network, proxy use is required to use the other network but no wpad.dat information is found. Workaround: Use Iceweasel or configure the proxy manually.

### 28.4. Más información sobre versiones más anteriores

The following Debian Edu releases were made further in the past:

- Debian Edu 6.0.7+r1 nombre código "Squeeze" publicado el 03-03-2013
- Debian Edu 6.0.7+r1 nombre código "Squeeze" publicado el 03-03-2013
- Debian Edu 5.0.6+edu1 nombre código "Lenny", publicado el 05-10-2010
- Debian Edu 5.0.4+edu0 "Lenny" publicado el 08-02-2010
- Debian Edu "3.0 Terra" publicado el 12-05-2007
- Debian Edu "3.0r0 Terra" publicado el 22-07-2007. Basado en Debian 4.0 Etch publicación en 2007-04-08
- Debian Edu 2.0, released el 14-03-2006. Basado en Debian 3.1 Sarge publicado el 06-06-2005.
- Debian Edu "1.0 Venus" publicado el 20-06-2004. Basado en Debian 3.0 Woody publicado el 19-07-2002

A complete and detailed overview about older releases is contained in [Appendix C of the Jessie manual](#); or see the related release manuals on the [release manuals page](#).

---

#### 28.4.1. More information on even older releases

More information on even older (pre-)releases can be found at <http://developer.skolelinux.no/info/cdbygging/news.html>.