

Manual de Debian Edu / Skolelinux Bullseye 11

Fecha de publicación: 28/02/2021

Índice

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

6.4.3.	Instalación modular	10
6.4.4.	Tipos de instalación y opciones	11
6.4.5.	El proceso de instalación	14
6.4.6.	Notas en algunas características	16
6.4.7.	Instalación utilizando memorias USB lugar de CD / Blu-ray	16
6.4.8.	Installation and booting over the network via PXE	16
6.4.9.	Modificar instalaciones PXE	18
6.4.10.	Imágenes personalizadas	18
6.5.	Captura de pantalla del paseo	18
7.	Iniciando	38
7.1.	Pasos mínimos para iniciar	38
7.1.1.	Servicios que corren en el servidor principal	39
7.2.	Introducción a GOsa ²	39
7.2.1.	GOsa ² Login plus Overview	40
7.3.	Gestión de usuarios con GOsa ²	40
7.3.1.	Agregar usuarios	41
7.3.2.	Buscar, modificar y borrar usuarios	41
7.3.3.	Establecer contraseñas	42
7.3.4.	Administración avanzada de usuarios	43
7.4.	Gestión de usuarios con GOsa ²	44
7.5.	Administración de equipos con GOsa ²	45
7.5.1.	Buscar y eliminar computadoras	47
7.5.2.	Modificar equipos existentes / Manejo del grupo de red	48
8.	Printer Management	48
8.1.	Use printers attached to workstations	49
8.2.	Network printers	49
9.	Sincronización del reloj	49
10.	Redimensionando particiones completas	49
11.	Maintenance	49
11.1.	Actualizar el software	49
11.1.1.	Mantente informado sobre actualizaciones de seguridad	50
11.2.	Gestión de las copias de seguridad	50
11.3.	Monitorización del servidor	51
11.3.1.	Munin	51
11.3.2.	Icinga	51
11.3.3.	Sitesummary	52
11.4.	Más información sobre personalizaciones de Debian Edu	52

12. Actualizaciones	52
12.1. Notas generales sobre la actualización	52
12.2. Upgrades from Debian Edu Buster	53
12.2.1. Upgrading the main server	53
12.2.2. Upgrading a workstation	55
12.3. Upgrades from older Debian Edu / Skolelinux installations (before Buster)	55
13. Guías	56
14. Guías para administración general	56
14.1. Seguimiento de /etc usando el sistema de control de versiones git	56
14.1.1. Ejemplos de uso	56
14.2. Redimensionando Particiones	57
14.2.1. Gestión de volúmenes lógicos	57
14.3. Usar ldapvi	57
14.4. Kerberized NFS	57
14.4.1. How to change the default	58
14.5. Standardskriver	58
14.6. JXplorer, una interfaz gráfica para LDAP	58
14.7. ldap-createuser-krb, una herramienta para línea de comando	58
14.8. Using stable-updates	58
14.9. Usar backports para instalar software más reciente	59
14.10 Actualizar con un CD o similar	59
14.11 Automatic cleanup of leftover processes	59
14.12 Instalación automática de actualizaciones de seguridad	59
14.13 Apagado automático de las computadoras durante la noche	60
14.13.1. Como configurar shutdown-at-night	60
14.14 Acceso a servidores Debian-Edu ubicados detrás de un firewall	60
14.15 Installing additional service machines for spreading the load from main-server	61
14.16 HowTos de wiki.debian.org	61
15. Advanced administration howto	61
15.1. Personalizaciones de usuarios con GOSa ²	61
15.1.1. Create Users in Year Groups	61
15.2. Other User Customisations	62
15.2.1. Crear directorios en el directorio home de los usuarios	62
15.2.2. Fácil acceso a dispositivos USB y CD-ROMs/DVDs	63
15.3. Use a dedicated storage server	63
15.4. Restrict ssh login access	64
15.4.1. Setup without LTSP clients	64
15.4.2. Setup with LTSP clients	64
15.4.3. A note for more complex setups	64

16. HowTos for the desktop	65
16.1. Set up a multi-language desktop environment	65
16.2. Reproducir DVDs	65
16.3. Handwriting fonts	65
17. HowTos para clientes en red	65
17.1. Introducción a clientes ligeros y estaciones de trabajo sin disco	65
17.1.1. LTSP client type selection	67
17.1.2. Use a different LTSP client network	67
17.1.3. Add LTSP chroot to support 32-bit-PC clients	67
17.1.4. Configuración del cliente LTSP	67
17.1.5. Sonido con clientes LTSP	67
17.1.6. Use printers attached to LTSP clients	67
17.2. Modifying the PXE setup	67
17.2.1. Configurar el menú PXE	67
17.2.2. Configurar la instalación de PXE	68
17.2.3. Agregar un repositorio personalizado para instalaciones PXE	68
17.3. Changing network settings	68
17.4. Remote Desktop	68
17.4.1. Xrdp	68
17.4.2. X2Go	69
17.4.3. Clientes de escritorio remoto disponible	69
17.5. Wireless clients	70
18. Samba en Debian Edu	70
18.1. Acceder los archivos mediante Samba	70
19. HowTos for teaching and learning	71
19.1. Teaching Programming	71
19.2. Monitoring pupils	71
19.3. Restricting pupils' network access	71
20. HowTos for users	71
20.1. Changing passwords	71
20.2. Running standalone Java applications	71
20.3. Using email	71
20.4. Thunderbird	72
21. Contribuir	72
21.1. Contribute locally	72
21.2. Contribuye a nivel global	72
21.3. Report bugs	72
21.4. Documentación para editores y traductores	72

22. Soporte	73
22.1. Soporte basado en voluntarios	73
22.1.1. in English	73
22.1.2. in Norwegian	73
22.1.3. in German	73
22.1.4. in French	73
22.2. Soporte profesional	73
23. Nuevas características en Debin Edu Bullseye	73
23.1. Manual para Debian-Edu 11 nombre código Bullseye	73
23.1.1. Installation changes	73
23.1.2. Actualizaciones de software	74
23.1.3. Actualizaciones en documentación y traducciones	74
23.1.4. Other changes compared to the previous release	74
23.1.5. Known issues	75
24. Copyright y autores	75
25. Traducciones de este documento	75
25.1. HowTo translate this document	75
25.1.1. Translate using PO files	75
25.1.2. Translate online using a web browser	75
26. Appendix A - The GNU General Public License	75
26.1. Manual para Debian-Edu 11 nombre código Bullseye	75
26.2. GNU GENERAL PUBLIC LICENSE	76
26.3. TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION	76
27. Apéndice B - Aún no hay CD/DVDs vivo de Debian Edu Bullseye	78
27.1. Features of the Standalone image	78
27.2. Features of the Workstation image	78
27.3. Activando el soporte regional y traducciones	78
27.4. Cosas para saber	79
27.5. Problemas conocidos con la imagen	79
28. Apéndice C - Características de publicaciones anteriores	79
28.1. New features for Debian Edu 10+edu0 Codename Buster released 2019-07-06	79
28.1.1. Installation changes	79
28.1.2. Actualizaciones de software	80
28.1.3. Actualizaciones en documentación y traducciones	80
28.1.4. Other changes compared to the previous release	80

28.2. New features for Debian Edu 9+edu0 Codename Stretch released 2017-06-17	81
28.2.1. Installation changes	81
28.2.2. Actualizaciones de software	81
28.2.3. Actualizaciones en documentación y traducciones	82
28.2.4. Other changes compared to the previous release	82
28.3. Más información sobre versiones más anteriores	82

1. Manual para Debian-Edu 11 nombre código Bullseye

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2010, 2012-2013 Norman Garcia



Este es el manual de Debian Edu 11 Bullseye

La versión en <https://wiki.debian.org/DebianEdu/Documentation/Bullseye> 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 aka Skolelinux is a Linux distribution based on Debian providing an out-of-the box environment of a completely configured school network. It implements a client-server approach. Servers and clients are *pieces of software* that interact with one another. Servers provide information required by clients to function. When a server is installed on one machine and its client on a different machine, the machines themselves are referred to as the server and the client, by extension of the concept.

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 GOSa², que una interfaz de usuario web cómoda, o cualquier otro editor de LDAP. Un ambiente de carga por red es preparado usando PXE/**iPXE**, 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/iPXE 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.

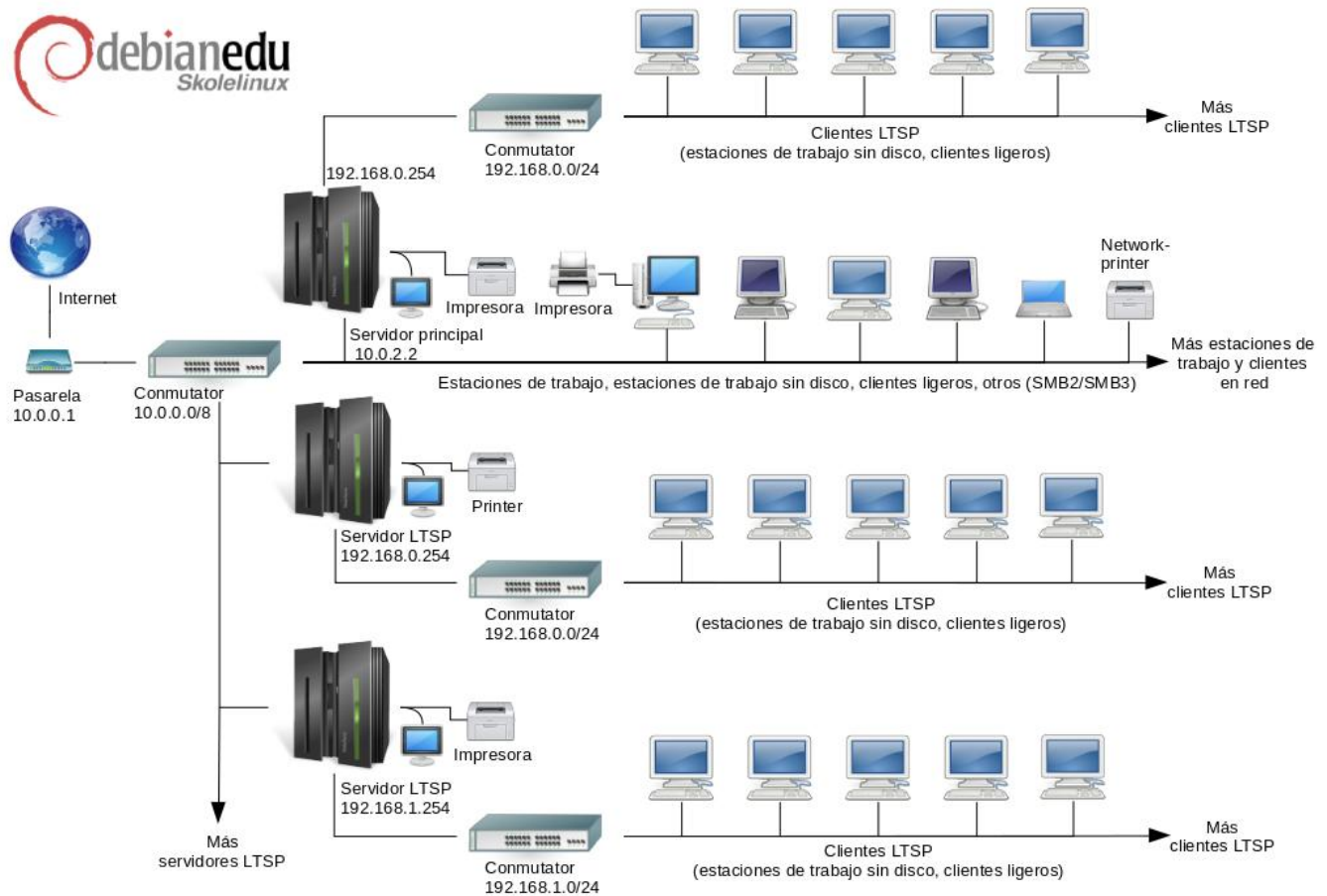
El proyecto Skolelinux fué fundado en Noruega el 2 de julio de 2001, y casi a la vez Raphaël Hertzog iniciaba el proyecto Debian Edu en Francia. Desde el 2003, ambos proyectos trabajaron unidos, aunque los nombres permanecieron separados. "Skole" y (Debian-) "Educativo" son dos términos bien conocidos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

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

3. Arquitectura

3.1. Red

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



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.

DHCP on the LTSP servers only serves a dedicated network on the second interface (192.168.0.0/24 and 192.168.1.0/24 are preconfigured options) and should seldom need to be changed.

La configuración de todas las subredes es almacenada en LDAP.

3.1.2. Servidor principal

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 ²	---
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, reportes de fallas, histórico vía web. Reportes de fallos vía correo.	Munin, Icinga y Sitesummary	sitesummary

Personal files for each user are stored in their home directories, which are made available by the server. Home directories are accessible from all machines, giving users access to the same files regardless of which machine they are using. The server is operating system agnostic, offering access via NFS for Unix clients and via SMB2/SMB3 for other clients.

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.

Information on users and machines can be changed in one central location, and is made accessible to all computers on the network automatically. To achieve this a centralised directory server is set up. The directory will have information on users, user groups, machines and groups of machines. To avoid user confusion there won't be any difference between file groups and network groups. This implies that groups of machines which are to form network groups will use the same namespace as user groups.

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:

- LTSP diskless workstations are using the programs installed on the server.
- The client root filesystem is provided using NFS. After each modification to the LTSP server the related image has to be re-generated; run `debian-edu-ltsp-install --diskless_workstation yes` 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 X2Go, porque la 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. Después, se monta el sistema de archivos vía NFS desde el servidor LTSP, y finalmente el cliente de X2Go se inicia.

3.1.6. Estaciones sin disco

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.

The term "networked clients" is used in this manual to refer to both thin clients and diskless workstations, as well as computers running macOS or 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.

The installation should not ask any questions, with the exception of desired language, location, keyboard and machine profile (Main Server, Workstation, LTSP Server, ...). All other configuration will be set up automatically with reasonable values, to be changed from a central location by the system administrator subsequent to the installation.

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.
- 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.
- 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.
- El requerimiento mínimo de espacio depende del perfil que sea instalado.
 - combinado servidor principal + servidor LTSP: 60 GiB (más espacio adicional para cuentas de usuario).

- servidor LTSP: 40Gb
- 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.
- 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.

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 installation, run `/usr/share/debian-edu-config/tools/configure-edu-gateway --firewall <yes|no>` which will make the following changes:

- 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.
- Install a firewall (optional).

Si necesita algo para un enrutador empotrado, 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 Bullseye](#) before you start installing a system for production use. There is more information about the Debian Bullseye 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 11 nombre código Bullseye

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

- <https://get.debian.org/cdimage/release/current/amd64/iso-cd/>
- <https://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 Bullseye has been released these images will be available for download from:

- <https://get.debian.org/cdimage/release/current/amd64/iso-bd/>
- <https://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 <https://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 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 booted the first time in the correct environment with Internet access.

6.4.2. Desktop environments

Several desktop environments are available:

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

Debian Edu as an international project has chosen to use Xfce as the default desktop environment; 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 environment 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

Help gives some hints on using the installer; see screenshot below.



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 11 (bullseye) installation CD-ROM.
It was built 20210125-02:58; d-i 20210125-00:01:51.

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.
- To install the **GNOME** desktop environment instead of the default **Xfce** desktop environment, replace `xfce` with `gnome` in the `desktop=xfce` parameter.
- To install the **LXDE** desktop environment instead, use `desktop=lxde`.
- To install the **LXQt** desktop environment instead, use `desktop=lxqt`.
- To install the **KDE Plasma** desktop environment instead, use `desktop=kde`.
- To install the **Cinnamon** desktop environment instead, use `desktop=cinnamon`.
- And to install the **MATE** desktop environment instead, use `desktop=mate`.

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 predeterminada, 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).

- Wait again in case of a *combined main server* after rebooting the system. It will spend quite some time generating the SquashFS image for diskless workstations.
- In case of a separate LTSP server, the diskless workstation and/or thin client setup needs some manual steps. For details, see the [Network clients HowTo](#) chapter.

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/ bullseye main
deb http://security.debian.org bullseye-security main
```

6.4.6.3. Nota acerca de de la instalación con CD

A netinst installation (which is the type of installation our CD provides) will fetch some packages from the CD and the rest from the net. The amount of packages fetched from the net varies from profile to profile but stays below a gigabyte (unless you choose to install all possible desktop environments). Once you have installed the main-server (whether a pure main-server or combi-server does not matter), further installation will use its proxy to avoid downloading the same package several times from the net.

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 cat 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 and booting over the network via PXE

For this installation method it is required that you have a running main server. When clients boot via the network, an iPXE menu with installer and boot selection options is displayed. If PXE installation fails with an error message claiming a `XXX.bin` file is missing, then most probably the client's network card requires nonfree firmware. In this case the Debian Installer's `initrd` must be modified. This can be achieved by executing the command: `/usr/share/debian-edu-config/tools/pxe-addfirmware` on the server.

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

```
iPXE boot menu - :10.0.2.2:

Installation:
Install Debian Edu/amd64 (64-Bit)
Install Debian Edu/i386 (32-Bit)

Other options:
Memory test
Enter iPXE configuration
Drop to iPXE shell
Boot from the first local disk

Exit iPXE and continue BIOS boot
```

This is how the iPXE menu looks with the **LTSP Server** profile:

```
iPXE boot menu - :10.0.2.2:

Installation:
Install Debian Edu/amd64 (64-Bit)
Install Debian Edu/i386 (32-Bit)

Boot an image from the network in LTSP mode:
Plain X2Go Thin Client (64-Bit)
Diskless Workstation (64-Bit)

Other options:
Memory test
Enter iPXE configuration
Drop to iPXE shell
Boot from the first local disk

Exit iPXE and continue BIOS boot
```

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 GOSa².

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

6.4.9. 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 `/srv/tftp/debian-edu/install.cfg` y el archivo de preconfiguración `/etc/debian-edu/www/`. 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.

Some settings can not be preseeded because they are needed before the preseeded file is downloaded. These are configured in the PXELINUX-based boot arguments available from `/srv/tftp/debian-edu/install.cfg`. Language, keyboard layout and desktop environment are examples of such settings.

6.4.10. 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 and a PXE boot on the LTSP client network (thin client session screen - and login screen after the session on the right has been clicked).







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



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



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 Back **Continue**



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

During installation of the main server a first user account was created. In the following text this account will be referenced as "first user". This account is special, as the home directory permission is set to 700 (so `chmod o+x ~` is needed to make personal web pages accessible), and the first user can use `sudo` to become 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 GOsa²
3. Add workstations with GOsa².

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 Bullseye](#) 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 GOsa²

GOsa² 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
- NIS Netgroup Administration
- Administración de computadoras
- Administración DNS
- Administración DHCP

Para acceder a GOsa², 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).

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 task-desktop-xfce lightdm education-menus
### after installation, run 'sudo service lightdm start'
### login as first user
```

Desde un navegador web, utilice <https://www.gosa> para acceder a GOsa² e ingrese por primera vez.

- Si está utilizando una computadora nueva con Debian Edu Bullseye, 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 ignórelo.

7.2.1. GOsa² Login plus Overview



After logging in to GOsa² you will see the overview page of GOsa².

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 GOsa².

In Debian Edu, account, group, and system information is stored in an LDAP directory. This data is used not only by the main server, but also by the (diskless) workstations, the LTSP servers and other machines on the network. With LDAP, account information about students, teachers, etc. only needs to be entered once. After information has been provided in LDAP, the information will be available to all systems on the whole Skolelinux network.

GOsa² 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 GOsa²/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, workstations, 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) GOsa² le mostrará una vista diferente en el departamento seleccionado (o el nivel básico).

7.3. Gestión de usuarios con GOsa²

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 GOsa² 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.

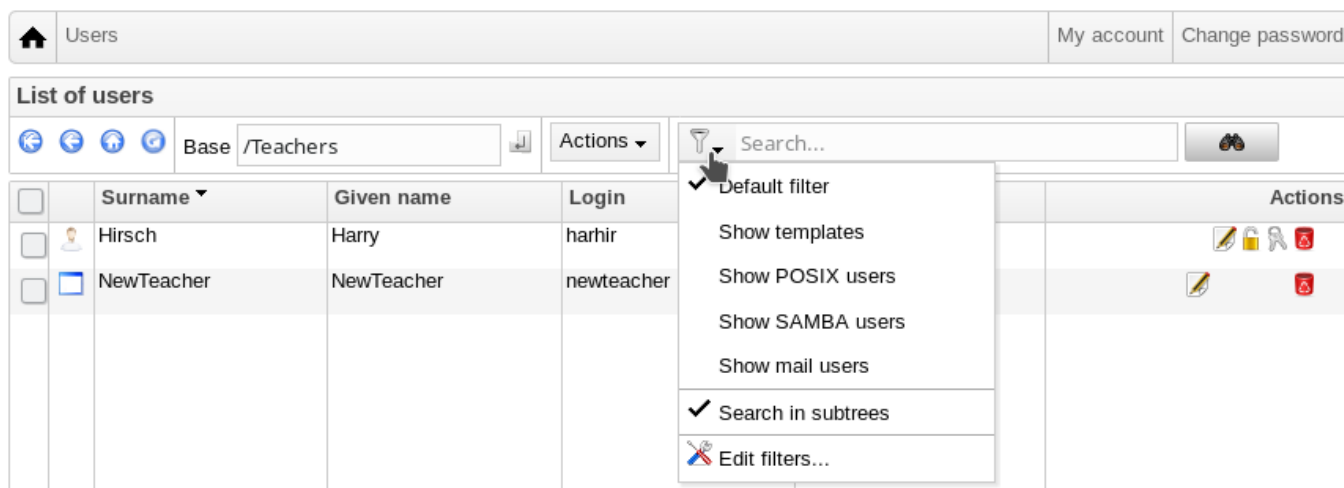
- Lo más importante es el agregar un perfil (nuevoestudiante o nuevoprofesor) y el nombre completo del usuario (ver imagen)
- As you follow the wizard, you will see that GOSa² generates a username automatically based on the real name. It automatically chooses a username that doesn't exist yet, so multiple users with the same full name are not a problem. Note that GOSa² 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 GOSa² 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 GOSa² 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 GOSa² 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 GOSa². If you don't know the exact location of your user account in your tree, change to the base level of the GOSa²/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.

Users
harhir

My account
Change password

Generic
POSIX
ACL
References

Personal information

Change picture...

Last name*

King

First name*

Harry

Login*

harhir

Personal title

Academic title

Date of birth

Sex

Preferred language

Base

/Students

Address

Private phone

Homepage

Password storage

ssha

Certificates

Edit certificates...

Restrict login to

IP or network

Add

7.3.3. Establecer contraseñas

Los estudiantes pueden cambiar sus contraseñas ingresando a GOsa² con sus propios usuarios. Para facilitar el acceso a GOsa², 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 GOsa² 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 GOsa². Ellos poseen una vista con más privilegios y pueden cambiar la contraseña de todas las cuentas de estudiantes. Esto puede ser muy practico 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

Users

My account
Change password

To change the user password use the fields below. The changes take effect immediately. Please memorize the new password, because the user wouldn't be able to login without it.

New password

.....

Repeat new password

Strength

Set password

Cancel

¡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 GOsa² 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 (GOsa² 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 GOsa² 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.

7.4. Gestión de usuarios con GOsa²

Groups

My accountChange password

GenericStartmenuACLReferences

Group name*
class_22_2024

Description
Class 22 graduating in 2024

Base*
/

☐ Force GID

☐ Samba group in domain DEFAULT

System trust
Trust mode disabled

Add

Group members

~

Add

OK

Cancel

Groups

My accountChange password

List of groups

Base /

Actions

Search...

	Name	Description	Properties	Actions
	Students [all students]			
	Teachers [all teachers]			
<input type="checkbox"/>	class_22_2024	Class 22 graduating in 2024		
<input type="checkbox"/>	gosa-admins	GOsa ² 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"/>	pmuster	Group of user pmuster		
<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.

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.

7.5. Administración de equipos con GOsa²

Machine management basically allows you to manage all networked devices in your Debian Edu network. Every machine added to the LDAP directory using GOsa² 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.

Diskless workstations and thin clients work out-of-the-box in case of a *combined main server*.

Workstations with disks (including separate LTSP servers) **have to** be added with GOsa². Behind the scenes, both a machine specific Kerberos Principal (sort of *account*) and a related keytab file (containing a key used as *password*) are generated; the keytab file needs to be present on the workstation to be able to mount users' home directories. Once the added system has been rebooted, log into it as root and run `/usr/share/debian-edu-config/tools/copy-host-keytab`.

To create Principal and keytab file for a system *already configured with GOsa²*, 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*. See the [Network clients HowTo](#) chapter for NFS configuration options.

To add a machine, use the GOsa² 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 GOsa² 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 `sitesummary2ldaphdhcp` script can be used to automatically add machines to GOsa². 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, `sitesummary2ldaphdhcp -h` shows usage information. Please note, that the IP addresses shown after usage of `sitesummary2ldaphdhcp` 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:~# sitesummary2ldaphdhcp -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

<p>Workstation name*</p> <input type="text" value="ws01.intern"/> <p>Description</p> <input type="text"/> <p>Location</p> <input type="text"/> <p>Base*</p> <input type="text" value="/"/>	<p>Mode</p> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Activated ▾</div> <p>Syslog server</p> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">default ▾</div> <hr/> <p><input type="checkbox"/> Inherit time server attributes NTP server</p> <div style="border: 1px solid #ccc; padding: 5px; min-height: 100px;">ntp</div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <div style="border: 1px solid #ccc; padding: 2px 5px;">tjener ▾</div> <div style="border: 1px solid #ccc; padding: 2px 10px;">Add</div> <div style="border: 1px solid #ccc; padding: 2px 10px;">Delete</div> </div>
--	---

Network settings

<p>IP-address</p> <div style="display: flex; align-items: center;"> <input style="flex-grow: 1;" type="text" value="10.0.0.2"/> </div> <p>MAC-address*</p> <div style="display: flex; align-items: center;"> <input style="flex-grow: 1;" type="text" value="22:11:33:44:55:ff"/> <div style="border: 1px solid #ccc; padding: 2px 10px; margin-left: 5px;">Auto detect</div> </div> <hr/> <p><input checked="" type="checkbox"/> Enable DHCP for this device </p> <p>Parent node</p> <div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; padding: 2px 10px; flex-grow: 1;">(tjener) dhcp ▾</div> <div style="border: 1px solid #ccc; padding: 2px 10px; margin-left: 5px;">Edit settings</div> </div>	<p><input checked="" type="checkbox"/> Enable DNS for this device</p> <p>Zone</p> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">TJENER/intern ▾</div> <p>TTL</p> <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div> <p>DNS records</p> <div style="text-align: right; margin-top: 5px;"> <div style="border: 1px solid #ccc; padding: 2px 10px;">Add</div> </div>
---	---

Please select the desired NIS Netgroups

Base / Search...

<input type="checkbox"/>	Common name ▾	Description
<input checked="" type="checkbox"/>	Students [all students]	
<input checked="" 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 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 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"/>	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

- all-hosts
- 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
- workstation-hosts

Currently the NetGroup functionality is used for:

- **Resizing partitions** (fsautoresize-hosts)
 - Los equipos con Debian Edu en este grupo, automáticamente acondicionarán las particiones LVM que estén próximas a quedarse sin espacio disponible.
- **Shutdown machines at night** (shutdown-at-night-hosts and shutdown-at-night-wakeup-hosts-blacklist)
 - Los equipos con Debian Edu en este grupo, se apagarán automáticamente por las noches para ahorrar energía.
- **Managing printers** (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.
- **Blocking Internet access** (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.

8. Printer Management

For centralized printer management point your web browser to <https://www.intern: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 the first user is allowed but this can be changed by adding users to the GOSa² printer-admins group.

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.

8.2. Network printers

It is recommended to disable all self-advertising features in the used network printers. Instead, assign a fixed IP address with `GOsa2` and configure them as `AppSocket/HP JetDirect` network printers.

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 dialip 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 needs to be modified. Add comment ("`#`") marks in front of the `server` entries. After this, the NTP server needs to be restarted by running `service 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 full-upgrade`.

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




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 `LC_ALL=C cf-agent -D installation`.



It is important to run `debian-edu-ltsp-install --diskless_workstation yes` after LTSP server upgrades to keep the SquashFS image for diskless clients menu in sync.



After a point release upgrade of a system with *Main Server* or *LTSP Server* profile, `debian-edu-pxeinstall` needs to be run to update the PXE installation environment.

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 full-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.

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

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

Icinga system and service monitoring is available from <https://www.icingaweb2/>. The set of machines and services being monitored is automatically generated using information collected by the sitesummary system. The machines with the profile Main-server and LTSP-server receive full monitoring, while workstations and thin clients receive simple monitoring. To enable full monitoring on a workstation, install the `nagios-nrpe-server` package on the workstation.

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 %):

The partition (`/usr/` in the example) is too full. There are in general two ways to handle this: (1) remove some files or (2) increase the size of the partition. If the partition is `/var/`, purging the APT cache by calling `apt clean` might remove some files. If there is more room available in the LVM volume group, running the program `debian-edu-fsautoresize` to extend the partitions might help. To run this program automatically every hour, the host in question can be added to the `fsautoresize-hosts` netgroup.

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

New package are available for upgrades. The critical ones are normally security fixes. To upgrade, run 'apt upgrade && apt full-upgrade' as root in a terminal or log in via ssh to do the same.

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.

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 Bullseye](#) 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.

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.

Make sure to also read the information about the current Debian Stable release in its [installation manual](#).

It may also be wise to wait a bit and keep running Oldstable for a few weeks longer, so that others can test the upgrade and document any problems they experience. The Oldstable release of Debian Edu will receive continued support for some time after the next Stable release, but when Debian [ceases support for Oldstable](#), Debian Edu will necessarily do the same.

12.2. Upgrades from Debian Edu Buster



Be prepared: make sure you have tested the upgrade from Buster in a test environment or have backups ready to be able to go back.

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 Buster to Bullseye upgrade, see: <https://www.debian.org/releases/bullseye/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 full-upgrade
```

- Cleanup the package cache:

```
apt clean
```

- To avoid a possible squid file permission pitfall, run

```
rm -f /etc/squid/conf.d/debian-edu.conf
```

- Prepare and start the upgrade to Bullseye (new security entry):

```
sed -i 's/buster/bullseye/g' /etc/apt/sources.list
sed -i 's#/debian-security bullseye/updates# bullseye-security#g' /etc/apt/sources.list
export LC_ALL=C          # optional (to get English output)
apt update
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 the local version currently installed' unless stated differently below; in most cases hitting return will be fine.
 - restart services: Choose yes.

- base-passwd: Choose yes.
- Samba server and utilities: Choose 'keep the local version currently installed'.
- Kerberos servers: Enter 'kerberos' and hit 'OK'.
- /etc/default/slapd: Choose N.
- openssh-server: Choose 'keep the local version currently installed'.
- /etc/cups/cups-files.conf: Choose N.
- /etc/munin/munin.conf: Choose N.
- Apply and adjust configuration:

```
cf-agent -v -D di,installation
```

- Setup and configure the Icinga2 web interface:
 - Run `apt install icinga2-ido-mysql`, always choose **No** if asked by debconf.
 - Ignore an error message about the *icingadb* existence.
 - Run `/usr/share/tools/edu-icinga-setup`
- Get the new Debian Edu Homeworld artwork:

```
apt install debian-edu-artwork-homeworld
apt purge debian-edu-artwork-buster      # unless Buster artwork should be kept as an ↵
alternative
```

- Cope with new LTSP and related changes, run:

```
rm -f /etc/default/tftpd-hpa          # to remove no longer needed modifications
rm -rf /var/lib/tftpboot              # to remove no longer used tftp base directory
dpkg-reconfigure -p low tftpd-hpa    # first prompt: keep ''tftp'' as system account, second ↵
    : change TFTP root directory to  ''/srv/tftp''
                                     # third: keep address and port, last one: enter '-- ↵
                                     secure'' as additional option

service tftpd-hpa restart
rm -rf /opt/ltsp                      # cleanup old LTSP base directory
# The next steps will need quite some execution time.
debian-edu-ltsp-install --arch amd64 --diskless_workstation no thin_type bare  # if 64-Bit ↵
    thin client support is wanted
debian-edu-ltsp-install --arch i386 --diskless_workstation no thin_type bare  # if 32-Bit ↵
    thin client support is wanted
debian-edu-ltsp-install --diskless_workstation yes      # to create diskless workstation image ↵
    from the server's file system
debian-edu-pxeinstall                    # to add PXE installation files and ↵
    related iPXE menu items
```

- Cope with move to iPXE - modify DHCP settings in LDAP, e.g. using an editor like `ldapvi`. Make sure, DHCP related entries match those contained in the `/etc/ldap/gosa-server.ldif` file. Entries concerned are:
 - 60 `cn=dhcp,cn=tjener,ou=servers,ou=systems,dc=skole,dc=skolelinux,dc=no`
 - 81 `cn=intern,cn=dhcp,cn=tjener,ou=servers,ou=systems,dc=skole,dc=skolelinux,dc=no`
 - 83 `cn=subnet00.intern,cn=dhcp,cn=tjener,ou=servers,ou=systems,dc=skole,dc=skolelinux,dc=no`
 - 85 `cn=subnet01.intern,cn=dhcp,cn=tjener,ou=servers,ou=systems,dc=skole,dc=skolelinux,dc=no`

- Cope with GOsa changes - use new gosa.conf, fix LDAP access:
 - `cp /etc/gosa/gosa.conf /etc/gosa/gosa.conf.buster # backup`
 - `cp /usr/share/debian-edu-config/gosa.conf.template /etc/gosa/gosa.conf # new gosa.conf file`
 - Search for `adminPassword` and `snapshotAdminPassword` in `/etc/gosa/gosa.conf` and replace `$GOSAPWD` with the random password found in `/etc/gosa/gosa.conf.orig` for those entries.
 - `rm /etc/gosa/gosa.secrets`
 - Run `gosa-encrypt-passwords`
 - Run `service apache2 restart`
- Cope with Kerberos encryption type changes:
 - `cp /etc/krb5kdc/kdc.conf_non-edu /etc/krb5kdc/kdc.conf`
 - `sed -i 's/#supported_encetypes/supported_encetypes/' /etc/krb5kdc/kdc.conf`
 - Run `service krb5-admin-kdc restart`
- Cope with Samba changes:
 - Add first user's Samba account: `smbpasswd -a <first username>`. Once users change their password, the related Samba account will be created.
- Check if the upgraded system works:

Reboot; log in as first user and test

- if the GOsa² 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. If not yet done, configure the machine to use Kerberos for mounting home directories, see the [getting started](#) chapter for details.

12.3. Upgrades from older Debian Edu / Skolelinux installations (before Buster)

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

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

Using `etckeeper`, all files in `/etc/` are tracked using [Git](#) as a version control system.

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. 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`.

14.4. Kerberized NFS

Using Kerberos for NFS to mount home directories is a security feature. As of Bullseye, LTSP clients won't work without Kerberos. 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` is a good choice and has been chosen as default.

14.4.1. How to change the default

Servidor principal

- login as root
- run `ldapvi -ZD '(cn=admin)'`, search for `sec=krb5i` and replace it with `sec=krb5` or `sec=krb5p`.
- edit `/etc/exports`: adjust these existing entries for `/srv/*` accordingly:

```
/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`

Workstation, esp. any separate or additional LTSP server

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

14.5. 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.

14.6. 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
```

14.7. 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.

14.8. Using stable-updates

Since the Squeeze release in 2011, Debian has included packages formerly maintained in 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.

14.9. 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 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/ bullseye-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 install -t bullseye-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.

14.10. Actualizar con un CD o similar

If you want to upgrade from one version to another (for example from Bullseye 11.1 to 11.2) 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 update
apt full-upgrade
```

14.11. 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.

14.12. 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/`.

14.13. 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 `ssh` connection command to work with X2Go 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.

14.13.1. 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 `GOsa2` 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
```

14.14. 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.

14.15. 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/GOSA²) en el servidor principal.

14.16. HowTos de wiki.debian.org

FIXME: The HowTos from <https://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.)

- <https://wiki.debian.org/DebianEdu/HowTo/AutoNetRespawn>
- <https://wiki.debian.org/DebianEdu/HowTo/BackupPC>
- <https://wiki.debian.org/DebianEdu/HowTo/ChangeIpSubnet>
- <https://wiki.debian.org/DebianEdu/HowTo/SiteSummary>
- https://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 GOSA²

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 (home0/2024, home0/2026, etc). We want to create the users by csv import.

(como root en servidor principal)

- Make the necessary year group directories

```
mkdir /skole/tjener/home0/2024
```

(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 (2024) and Description fields (students graduating in 2024), leave the Base field as is (should be '/Students'). Save it clicking 'Ok'. Now the new department (2024) should show up below /Students. Click it.

■ Grupo

Choose 'Groups' from the main menu; 'Actions'/'Create/Group. Enter group name (leave 'Base' as is, should be /Students/2024) and 'Ok' to save it.

■ 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 and POSIX tabs, maybe take screenshots to have information ready for the new template.

Now change to /Students/2024 in the Base field; choose Create/Template and start to fill in your desired values, first the Generic tab (add your new 2024 group under Group Membership, too), then add the POSIX 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 an X2Go thin client, the media is automatically mounted and it is possible to access it browsing the related folder on the Xfce desktop.

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.

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.

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 diskless client setup doesn't use ssh connections. Update the SquashFS image on the related LTSP server after the ssh setup has been changed is enough.

X2Go thin clients are using ssh connections to the related 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 X2Go clients were attached to the backbone network `10.0.0.0/8`, 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.

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-linuxex` (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

Un término genérico para clientes ligeros y estaciones de trabajo sin disco es *cliente LTSP*.



Starting with Bullseye, LTSP is quite different from the previous versions. This concerns both setup and maintenance. As one main difference, the SquashFS image for diskless workstations is now generated from the LTSP server file system. Also, thin clients are no longer supported.

In case of a separate or an additional LTSP server required information for setting up the LTSP client environment isn't complete at installation time. Setup can be done once the system has been added with GOsa².

For information about LTSP in general, see the [LTSP homepage](#). On systems with *LTSP server* profile, `man ltsp` provides more information.

The `debian-edu-ltsp-install` tool is a wrapper script for `ltsp image`, `ltsp kernel` and `ltsp ipxe`. It is used to setup and configure diskless workstation support; in addition thin clients (both 64-Bit and 32-Bit PC) are supported using X2Go. See

`man debian-edu-ltsp-install` or the script content to see how it works. All configuration is contained in the script itself (here documents) to facilitate site specific adjustments.

Please note that the *ltsp* tool has to be used carefully. For example, `ltsp image /` would fail to generate the SquashFS image in case of Debian machines (these have a separate `/boot` partition by default), and `ltsp ipxe` would fail to generate the iPXE menu correctly (due to Debian Edu's thin client support).

Examples how to use the wrapper script *debian-edu-ltsp-install* instead:

- `debian-edu-ltsp-install --arch amd64` creates 64-bit diskless workstation support.
- `debian-edu-ltsp-install --arch amd64 --dist bullseye --thin_type bare` creates diskless workstation and 64-bit thin client support.
- `debian-edu-ltsp-install --arch i386 --diskless_workstation no --thin_type bare` creates additional 32-bit thin client support.
- `debian-edu-ltsp-install --diskless_workstation yes` updates the diskless workstation SquashFS image.
- `debian-edu-ltsp-install --diskless_workstation no --thin_type bare` (re-)creates 64-bit thin client support.

Besides *bare* (smallest thin client system), also *display* and *desktop* are available options. The *display* type offers a shutdown button, the *desktop* type runs Firefox ESR in kiosk mode on the client itself (more local RAM and CPU power required, but server load reduced).

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, but runs on the diskless workstations. 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 costs as with thin clients.

Unlike workstations diskless workstations run without any need to add them with GOSa².

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.

Debian Edu still supports the use of thin clients to enable the use of very old hardware.

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 LTSP server's `initrd`.

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

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

# Decide which package has to be installed for the network interface(s).
# Most probably this will be firmware-linux-nonfree.
apt -y -q install <package name>

# Update the SquashFS image for diskless workstations.
debian-edu-ltsp-install --diskless_workstation yes
```

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).

In both cases *diskless workstation* or *thin client* can be chosen from the iPXE menu. After waiting for 5 seconds, the machine will boot as diskless workstation.

The default boot menu item and its default timeout can both be configured in `/etc/ltsp/ltsp.conf`. A timeout value of `-1` is used to hide the menu. Run `debian-edu-ltsp-install --diskless_workstation no` for any changes to take effect.

17.1.2. 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.

17.1.3. Add LTSP chroot to support 32-bit-PC clients

Run `debian-edu-ltsp-install --arch i386 --diskless_workstation no --thin_type bare`. See `man debian-edu-ltsp` for details about thin client types.

17.1.4. Configuración del cliente LTSP

Run `man ltsp.conf` to have a look at available configuration options. Or read it online: <https://ltsp.org/man/ltsp.conf/>

17.1.5. 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.

17.1.6. Use printers attached to LTSP clients

- Attach the printer to the LTSP client machine (both USB and parallel port are supported).
- Configure the LTSP client with `GOsa²` to use a fixed IP address.
- Configure the printer using the web interface `https://www.intern: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.

17.2. Modifying the PXE setup

PXE stands for Preboot eXecution Environment. Debian Edu now uses the **iPXE** implementation for easier LTSP integration.

17.2.1. Configurar el menú PXE

The iPXE menu item concerning system installations is generated using the script `debian-edu-pxeinstall`. It allows some settings to be overridden using the file `/etc/debian-edu/pxeinstall.conf` with replacement values.

17.2.2. Configurar la instalación de PXE

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.

17.2.3. 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`

17.3. 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. Remote Desktop

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

17.4.1. 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)"
XRDUPSTREAM_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 $TMP/xrdp-$XRDUPSTREAM_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
```

17.4.2. 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](#).

17.4.3. 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.

17.5. Wireless clients

The *freeRADIUS* server could be used to provide secure network connections. For this to work, install the *freeradius* and *winbind* packages on the main server and run `/usr/share/debian-edu-config/setup-freeradius-server` to generate a basic, site specific configuration. This way, both EAP-TTLS/PAP and PEAP-MSCHAPV2 methods are enabled. All configuration is contained in the script itself to facilitate site specific adjustments. See [the freeRADIUS homepage](#) for details.

Additional configuration is needed to

- enable/disable access points via a *shared secret* (`/etc/freeradius/3.0/clients.conf`).
- allow/deny wireless access using LDAP groups (`/etc/freeradius/3.0/users`).
- combine access points into dedicated groups (`/etc/freeradius/3.0/huntgroups`)



End user devices need to be configured properly, these devices need to be PIN protected for the use of EAP (802.1x) methods. And most important: users need to be educated to install the freeradius CA certificate on their devices to be sure to connect to the right server. This way the password can't be caught in case of a malicious server. The site specific certificate is available on the internal network.

- <https://www.intern.freeradius-ca.pem> (for end user devices running Linux)
- <https://www.intern.freeradius-ca.crt> (Linux, Android)
- <https://www.intern.freeradius-ca.der> (macOS, iOS, iPadOS, Windows)

Please note that configuring end user devices will be a real challenge due to the variety of devices. For Windows devices an installer script could be created, for Apple devices a mobileconfig file. In both cases the freeRADIUS CA certificate can be integrated, but OS specific tools are needed to create the scripts.

18. Samba en Debian Edu

Samba is now configured as *standalone server* with modern SMB2/SMB3 support and usershares enabled, see `/etc/samba/smb-debian-edu.conf` on the main server. This way non-admin users are enabled to provide shares.

As Samba has dropped the insecure SMB1 protocol, the option to setup Samba as NT4-style PDC is gone.

For site specific changes, copy `/usr/share/debian-edu-config/smb.conf.edu-site` to the `/etc/samba` directory. The settings in *smb.conf.edu-site* will override those contained in *smb-debian-edu.conf*.

Please note:

- By default, home directories are read only. This can be changed in `/etc/samba/smb.conf.edu-site`.
- Samba passwords are stored using `smbpasswd` and are updated in case a password is changed using `GOsa2`.
- To temporarily disable a user's Samba account, run `smbpasswd -d <username>`, `smbpasswd -e <username>` will re-enable it.
- Running `chown root:teachers /var/lib/samba/usershares` on the main server will disable usershares for 'students'.

18.1. Acceder los archivos mediante Samba

Connections to a user's home directory and to additional site specific shares (if configured) are possible for devices running Linux, Android, macOS, iOS, iPadOS, Chrome OS or Windows. Other devices like Android based ones require a file manager with SMB2/SMB3 support, also known as LAN access. [X-plore](#) or [Total Commander with LAN plugin](#) might be a good choice.

Use `\\tjener\<username>` or `smb://tjener/<username>` to access the home directory.

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 [Epopotes](#) or [Veyon](#) to supervise their students. See also: [Epopotes Homepage](#) and [Veyon Homepage](#).

19.3. Restricting pupils' network access

Some schools use [Squidguard](#) or [e2guardian](#) to restrict Internet access.

20. HowTos for users

20.1. Changing passwords

Casa usuario debería cambiar su contraseña usando GOSa². Para hacerlo, solo use un navegador web y vaya a <https://www.gosa/>.

Using GOSa² to change the password ensures that passwords for Kerberos (`krbPrincipalKey`), LDAP (`userPassword`) and Samba (`sambaNTPassword`) 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 GOSa² (LDAP) password. So after you changed your password at the login prompt, you really should also change it using GOSa².

20.2. 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](#).

20.4. 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'

21. Contribuir

21.1. Contribute locally

Actualmente hay equipos locales en Noruega, Alemania, la región de Extremadura en España, Taiwan y Francia. Contribuidores y usuarias "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

A nivel internacional estamos organizados en varios [equipos](#) que trabajan en distintas áreas.

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 <https://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. Report bugs

Debian Edu uses the Debian [Bug Tracking System \(BTS\)](#). View existing bug reports and feature requests or create new ones. Please report all bugs against the package [debian-edu-config](#). Take a look at [How To Report Bugs](#) for more information on bug reporting in Debian Edu.

21.4. 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 <https://wiki.debian.org/DebianEdu/Documentation/Bullseye/> 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

- <https://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

- <https://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 <https://wiki.debian.org/DebianEdu/Help/Professional>

23. Nuevas características en Debin Edu Bullseye

23.1. Manual para Debian-Edu 11 nombre código Bullseye

23.1.1. Installation changes

- New version of Debian Installer from Debian Bullseye, see its [installation manual](#) for more details.
 - New artwork based on the [Homeworld theme](#), the default artwork for Debian 11 Bullseye.
 - The Debian Installer doesn't support LTSP chroot setup anymore. In case of a combined server installation ('Main server' + 'LTSP server' profiles), setting up thin client support (now using X2Go) happens at the end of the installation. Generating the SquashFS image for diskless client support (from the server's file system) is done at first boot.
For separate LTSP servers, both steps have to be done via a tool after first boot inside the internal network when enough information is available from the main server.
-

23.1.2. Actualizaciones de software

- Todo lo nuevo en Debian 11 Bullseye, por ejemplo:
 - Linux kernel 5.10
 - Desktop environments KDE Plasma 5.20, GNOME 3.38, Xfce 4.16, LXDE 10, MATE 1.24
 - Firefox-ESR 78.6 and Chromium 87.0
 - LibreOffice 7.0
 - Educational toolbox GCompris 1.0
 - Music creator Rosegarden 20.12
 - GOsa 2.74
 - LTSP 21.01
 - Debian Bullseye includes more than 57000 packages available for installation.
- More information about Debian 11 Bullseye is provided in the [release notes](#) and the [installation manual](#).

23.1.3. Actualizaciones en documentación y traducciones

- The profile choice page is available in 29 languages, of which 22 are fully translated.
- The Debian Edu Bullseye Manual is fully translated to Dutch, French, German, Italian, Japanese, Norwegian Bokmål and Simplified Chinese.
 - Partly translated versions exist for Danish and Spanish.
 - On weblate, work is in progress for translations to Polish, Portuguese (PT), Romanian, Swedish and Traditional Chinese.

23.1.4. Other changes compared to the previous release

- Improved TLS/SSL support on the internal network. On clients, the root certificate for the Debian Edu-CA is located inside the certificate bundle for the whole system.
 - New LTSP, re-written from scratch, dropping thin client support. Thin clients are now supported using X2Go.
 - Netboot is provided using iPXE instead of PXELINUX to be compliant with LTSP.
 - The `/srv/tftp` directory is now used as netboot base instead of `/var/lib/tftpboot`.
 - After a point release upgrade of a system with *Main Server* or *LTSP Server* profile, `debian-edu-pxeinstall` needs to be run to update the PXE installation environment.
 - DuckDuckGo is used as default search provider for both Firefox ESR and Chromium.
 - Chromium uses the internal website instead of Google as default startpage.
 - On diskless workstations, the Kerberos TGT is available after login automatically.
 - New tool added to set up freeRADIUS with support for both EAP-TTLS/PAP and PEAP-MSCHAPV2 methods.
 - Samba is configured as 'standalone server' with support for SMB2/SMB3; domain joining is gone.
 - The GOsa² web interface doesn't show Samba related entries because Samba account data are no longer stored in LDAP.
 - Debian Installer's graphical mode is used for PXE installations (instead of text mode).
 - Central CUPS print server `ipp.intern`, users belonging to the printer-admins group are allowed to administrate CUPS.
 - Icinga administration via the web interface is restricted to the first user.
-

23.1.5. Known issues

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

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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-bullseye/> for more information.

Please report any problems.

26. Appendix A - The GNU General Public License

26.1. Manual para Debian-Edu 11 nombre código Bullseye

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END OF TERMS AND CONDITIONS

27. Apéndice B - Aún no hay CD/DVDs vivo de Debian Edu Bullseye



Debian Edu Live CD/DVDs for Bullseye 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)

La lista completa de los códigos locales esta disponible en `/usr/share/i18n/SUPPORTED`, pero únicamente los locales con UTF-8 son soportados por la imagen «live». No todas las traducciones locales tienen instalación. Las distribuciones de teclados pueden ser encontradas en `/usr/share/keymaps/amd64/`.

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 

28. Apéndice C - Características de publicaciones anteriores

28.1. New features for Debian Edu 10+edu0 Codename Buster released 2019-07-06

28.1.1. 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.

28.1.2. 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](#).

28.1.3. 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.

28.1.4. 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 GOsa²-Plugin *Password Management*.
- Unusable options have been removed from the GOsa² 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.

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

28.2.1. 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.

28.2.2. 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](#).

28.2.3. 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.

28.2.4. 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 GOSa² 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.

28.3. Más información sobre versiones más anteriores

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

- Debian Edu 8+edu0 Codename Jessie publicado el 02-07-2016.
- Debian Edu 7.1+edu0 Codename Wheezy publicado el 28-09-2013.
- 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 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](#).