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Pobranie najnowszych źródeł kernela

```
root@localhost:~# cd /usr/src
root@localhost:/usr/src# ls
linux-5.17.8/  linux-5.17.8.tar.xz
root@localhost:/usr/src# wget https://cdn.kernel.org/pub/linux/kernel/v5.x/linux-5.18.5.tar.xz
linux-5.18.5.tar.xz 100%[=====>] 123,81M  2,36MB/s    w 58s
2022-06-17 11:16:54 (2,12 MB/s) - zapisano 'linux-5.18.5.tar.xz' [129825940/129825940]
root@localhost:/usr/src#
```

Rozpakowanie plików źródłowych

```
root@localhost:/usr/src# ls
linux-5.17.8/  linux-5.17.8.tar.xz  linux-5.18.5.tar.xz
root@localhost:/usr/src# tar -xvpf linux-5.18.5.tar.xz
linux-5.18.5/virt/lib/Kconfig
linux-5.18.5/virt/lib/Makefile
linux-5.18.5/virt/lib/irqbypass.c
root@localhost:/usr/src# ls
linux-5.17.8/  linux-5.17.8.tar.xz  linux-5.18.5/  linux-5.18.5.tar.xz
root@localhost:/usr/src#
```

**Nowa metoda:**

Przekopiowanie konfiguracji ze starego jądra

```
root@localhost:/usr/src# cd linux-5.18.5
root@localhost:/usr/src/linux-5.18.5# ls -a
./          .mailmap    MAINTAINERS  drivers/    mm/          usr/
../         COPYING     Makefile     fs/         net/         virt/
.clang-format  CREDITS     README      include/    samples/
.cocciconfig   Documentation/ arch/        init/       scripts/
.get_maintainer.ignore Kbuild      block/      ipc/        security/
.gitattributes Kconfig     certs/      kernel/     sound/
.gitignore     LICENSES/   crypto/     lib/        tools/

root@localhost:/usr/src/linux-5.18.5# zcat /proc/config.gz > .config
root@localhost:/usr/src/linux-5.18.5# ls -a
./          .mailmap    Makefile     include/    scripts/
../         COPYING     README      init/       security/
.clang-format  CREDITS     arch/        ipc/        sound/
.cocciconfig   Documentation/ block/      kernel/     tools/
.config        Kbuild      certs/      lib/        usr/
.get_maintainer.ignore Kconfig     crypto/     mm/         virt/
.gitattributes LICENSES/    drivers/    net/
.gitignore     MAINTAINERS fs/          samples/
root@localhost:/usr/src/linux-5.18.5#
```

Użycie skryptu do wygenerowania nowej konfiguracji

```
root@localhost:/usr/src/linux-5.18.5# ./scripts/kconfig/streamline_config.pl > c
onfig_strip
```

```
onfig_strip
using config: '.config'
root@localhost:/usr/src/linux-5.18.5# ls -a
./                .mailmap         Makefile          fs/               samples/
../              COPYING          README            include/          scripts/
.clang-format     CREDITS          arch/             init/             security/
.cocciconfig      Documentation/   block/            ipc/              sound/
.config           Kbuild           certs/            kernel/           tools/
.get_maintainer.ignore Kconfig         config_strip      lib/              usr/
.gitattributes    LICENSES/        crypto/           mm/               virt/
.gitignore        MAINTAINERS      drivers/          net/
root@localhost:/usr/src/linux-5.18.5#
```

Podmienie konfiguracji zachowując starą

```
root@localhost:/usr/src/linux-5.18.5# mv .config config_bak
root@localhost:/usr/src/linux-5.18.5# mv config_strip .config
root@localhost:/usr/src/linux-5.18.5# ls -a
./                .mailmap         Makefile          fs/               samples/
../              COPYING          README            include/          scripts/
.clang-format     CREDITS          arch/             init/             security/
.cocciconfig      Documentation/   block/            ipc/              sound/
.config           Kbuild           certs/            kernel/           tools/
.get_maintainer.ignore Kconfig         config_bak        lib/              usr/
.gitattributes    LICENSES/        crypto/           mm/               virt/
.gitignore        MAINTAINERS      drivers/          net/
root@localhost:/usr/src/linux-5.18.5#
```

Sprawdzenie aktualnie załadowanych modułów

```
root@localhost:/usr/src/linux-5.18.5# lsmod
i2c_core                73728  4 i2c_piix4,psmouse,drm_kms_helper,drm
ac97_bus                16384  1 snd_ac97_codec
intel_cstate            20480  0
video                   45056  0
button                  16384  0
ac                      16384  0
loop                    32768  0
root@localhost:/usr/src/linux-5.18.5#
```

Zbudowanie pliku konfiguracyjnego kernela z konfiguracją z poprzedniej wersji (nie pytał o żadne nowe pola).

```
root@localhost:/usr/src/linux-5.18.5# make olddefconfig
```

```
HOSTCC  scripts/basic/fixdep
HOSTCC  scripts/kconfig/conf.o
HOSTCC  scripts/kconfig/confdata.o
HOSTCC  scripts/kconfig/expr.o
LEX      scripts/kconfig/lexer.lex.c
YACC     scripts/kconfig/parser.tab.[ch]
HOSTCC  scripts/kconfig/lexer.lex.o
HOSTCC  scripts/kconfig/menu.o
HOSTCC  scripts/kconfig/parser.tab.o
HOSTCC  scripts/kconfig/preprocess.o
HOSTCC  scripts/kconfig/symbol.o
HOSTCC  scripts/kconfig/util.o
HOSTLD   scripts/kconfig/conf
#
# configuration written to .config
#
root@localhost:/usr/src/linux-5.18.5#
```

Kompilacja jądra

```
root@localhost:/usr/src/linux-5.18.5# make -j4 bzImage
```

```
MKPIGGY arch/x86/boot/compressed/piggy.S
AS       arch/x86/boot/compressed/piggy.o
LD       arch/x86/boot/compressed/vmlinux
ZOFFSET arch/x86/boot/zoffset.h
OBJCOPY  arch/x86/boot/vmlinux.bin
AS       arch/x86/boot/header.o
LD       arch/x86/boot/setup.elf
OBJCOPY  arch/x86/boot/setup.bin
BUILD    arch/x86/boot/bzImage
Kernel: arch/x86/boot/bzImage is ready  (#1)
root@localhost:/usr/src/linux-5.18.5#
```

Budowa modułów jądra

```
root@localhost:/usr/src/linux-5.18.5# make -j4 modules
```

```
LD [M]  net/802/p8022.ko
LD [M]  net/802/psnap.ko
LD [M]  net/802/stp.ko
LD [M]  net/8021q/8021q.ko
LD [M]  net/ipv6/ipv6.ko
LD [M]  net/llc/llc.ko
LD [M]  net/rfkill/rfkill.ko
LD [M]  net/wireless/cfg80211.ko
LD [M]  sound/ac97_bus.ko
LD [M]  sound/core/snd-pcm.ko
LD [M]  sound/core/snd-timer.ko
LD [M]  sound/core/snd.ko
LD [M]  sound/pci/ac97/snd-ac97-codec.ko
LD [M]  sound/pci/snd-intel8x0.ko
LD [M]  sound/soundcore.ko
root@localhost:/usr/src/linux-5.18.5#
```

## Instalacja modułów

```
root@localhost:/usr/src/linux-5.18.5# make modules_install
INSTALL /lib/modules/5.18.5-smp/kernel/sound/ac97_bus.ko
INSTALL /lib/modules/5.18.5-smp/kernel/sound/core/snd-pcm.ko
INSTALL /lib/modules/5.18.5-smp/kernel/sound/core/snd-timer.ko
INSTALL /lib/modules/5.18.5-smp/kernel/sound/core/snd.ko
INSTALL /lib/modules/5.18.5-smp/kernel/sound/pci/ac97/snd-ac97-codec.ko
INSTALL /lib/modules/5.18.5-smp/kernel/sound/pci/snd-intel8x0.ko
INSTALL /lib/modules/5.18.5-smp/kernel/sound/soundcore.ko
DEPMOD /lib/modules/5.18.5-smp
root@localhost:/usr/src/linux-5.18.5#
```

## Sprawdzenie zainstalowanych modułów

```
root@localhost:/usr/src/linux-5.18.5# ls /lib/modules/5.18.5-smp/
build@                               modules.builtin.bin      modules.softdep
kernel/                             modules.builtin.modinfo  modules.symbols
modules.alias                       modules.dep              modules.symbols.bin
modules.alias.bin                  modules.dep.bin          source@
modules.builtin                    modules.devname
modules.builtin.alias.bin          modules.order
root@localhost:/usr/src/linux-5.18.5#
```

## Przekopiowanie obrazu jądra do katalogu boot

```
root@localhost:/usr/src/linux-5.18.5# cp arch/x86/boot/bzImage /boot/vmlinuz-cnewm-5.18.5-smp
root@localhost:/usr/src/linux-5.18.5# ls /boot/
README.initrd@      initrd.gz
System.map@         inside.bmp
System.map-custom-5.17.8-smp  inside.dat
System.map-generic-5.15.19    map
System.map-generic-smp-5.15.19-smp  onlyblue.bmp
System.map-huge-5.15.19      onlyblue.dat
System.map-huge-smp-5.15.19-smp  slack.bmp
boot.0800            tuxlogo.bmp
boot_message.txt     tuxlogo.dat
config@              vmlinuz@
config-custom-5.17.8-smp  vmlinuz-cnewm-5.18.5-smp
config-generic-5.15.19    vmlinuz-custom-5.17.8-smp
config-generic-smp-5.15.19-smp  vmlinuz-generic@
config-huge-5.15.19      vmlinuz-generic-5.15.19
config-huge-smp-5.15.19-smp  vmlinuz-generic-smp@
elilo-ia32.efi*        vmlinuz-generic-smp-5.15.19-smp
elilo-x86_64.efi*      vmlinuz-huge@
grub/                 vmlinuz-huge-5.15.19
initrd-custom-5.17.8-smp.gz  vmlinuz-huge-smp@
initrd-tree/          vmlinuz-huge-smp-5.15.19-smp
root@localhost:/usr/src/linux-5.18.5#
```

## Przekopiowanie tablicy symboli to katalogu boot

```

root@localhost:/usr/src/linux-5.18.5# cp System.map /boot/System.map-cnewm-5.18.5-smp
root@localhost:/usr/src/linux-5.18.5# ls /boot/
README.initrd@      initrd.gz
System.map@         inside.bmp
System.map-cnewm-5.18.5-smp  inside.dat
System.map-custom-5.17.8-smp  map
System.map-generic-5.15.19    onlyblue.bmp
System.map-generic-smp-5.15.19-smp  onlyblue.dat
System.map-huge-5.15.19      slack.bmp
System.map-huge-smp-5.15.19-smp  tuxlogo.bmp
boot.0800             tuxlogo.dat
boot_message.txt      vmlinuz@
config@               vmlinuz-cnewm-5.18.5-smp
config-custom-5.17.8-smp  vmlinuz-custom-5.17.8-smp
config-generic-5.15.19    vmlinuz-generic@
config-generic-smp-5.15.19-smp  vmlinuz-generic-5.15.19
config-huge-5.15.19      vmlinuz-generic-smp@
config-huge-smp-5.15.19-smp  vmlinuz-generic-smp-5.15.19-smp
elilo-ia32.efi*        vmlinuz-huge@
elilo-x86_64.efi*      vmlinuz-huge-5.15.19
grub/                 vmlinuz-huge-smp@
initrd-custom-5.17.8-smp.gz  vmlinuz-huge-smp-5.15.19-smp
initrd-tree/

```

Przekopiowanie pliku konfiguracyjnego kernela do katalogu boot

```

root@localhost:/usr/src/linux-5.18.5# cp .config /boot/config-cnewm-5.18.5-smp
root@localhost:/usr/src/linux-5.18.5# ls /boot/
README.initrd@      initrd-tree/
System.map@         initrd.gz
System.map-cnewm-5.18.5-smp  inside.bmp
System.map-custom-5.17.8-smp  inside.dat
System.map-generic-5.15.19    map
System.map-generic-smp-5.15.19-smp  onlyblue.bmp
System.map-huge-5.15.19      onlyblue.dat
System.map-huge-smp-5.15.19-smp  slack.bmp
boot.0800            tuxlogo.bmp
boot_message.txt     tuxlogo.dat
config@              vmlinuz@
config-cnewm-5.18.5-smp  vmlinuz-cnewm-5.18.5-smp
config-custom-5.17.8-smp  vmlinuz-custom-5.17.8-smp
config-generic-5.15.19    vmlinuz-generic@
config-generic-smp-5.15.19-smp  vmlinuz-generic-5.15.19
config-huge-5.15.19      vmlinuz-generic-smp@
config-huge-smp-5.15.19-smp  vmlinuz-generic-smp-5.15.19-smp
elilo-ia32.efi*        vmlinuz-huge@
elilo-x86_64.efi*      vmlinuz-huge-5.15.19
grub/                 vmlinuz-huge-smp@
initrd-custom-5.17.8-smp.gz  vmlinuz-huge-smp-5.15.19-smp
root@localhost:/usr/src/linux-5.18.5# █

```

Utworzenie linku symbolicznego dla nowej tablicy symboli

```

root@localhost:/usr/src/linux-5.18.5# cd /boot
root@localhost:/boot# rm System.map
root@localhost:/boot# ln -s System.map-cnewm-5.18.5-smp System.map

```

```

root@localhost:/boot# ls
README.initrd@          initrd-tree/
System.map@             initrd.gz
System.map-cnewm-5.18.5-smp  inside.bmp
System.map-custom-5.17.8-smp  inside.dat
System.map-generic-5.15.19    map
System.map-generic-smp-5.15.19-smp  onlyblue.bmp
System.map-huge-5.15.19      onlyblue.dat
System.map-huge-smp-5.15.19-smp  slack.bmp
boot.0800                 tuxlogo.bmp
boot_message.txt          tuxlogo.dat
config@                  vmlinuz@
config-cnewm-5.18.5-smp    vmlinuz-cnewm-5.18.5-smp
config-custom-5.17.8-smp   vmlinuz-custom-5.17.8-smp
config-generic-5.15.19     vmlinuz-generic@
config-generic-smp-5.15.19-smp  vmlinuz-generic-5.15.19
config-huge-5.15.19        vmlinuz-generic-smp@
config-huge-smp-5.15.19-smp  vmlinuz-generic-smp-5.15.19-smp
elilo-ia32.efi*           vmlinuz-huge@
elilo-x86_64.efi*         vmlinuz-huge-5.15.19
grub/                    vmlinuz-huge-smp@
initrd-custom-5.17.8-smp.gz  vmlinuz-huge-smp-5.15.19-smp
root@localhost:/boot#

```

Wywołanie komendy generującej komendę dla utworzenia dysku ram

```

root@localhost:/boot# /usr/share/mkinitrd/mkinitrd_command_generator.sh -k 5.18.5-smp
#
# mkinitrd_command_generator.sh revision 1.45
#
# This script will now make a recommendation about the command to use
# in case you require an initrd image to boot a kernel that does not
# have support for your storage or root filesystem built in
# (such as the Slackware 'generic' kernels').
# A suitable 'mkinitrd' command will be:
mkinitrd -c -k 5.18.5-smp -f ext4 -r /dev/sdal -m ext4 -u -o /boot/initrd.gz
root@localhost:/boot#

```

Wywołanie wygenerowanego polecenia ze zmienianą nazwą pliku

```

root@localhost:/boot# mkinitrd -c -k 5.18.5-smp -f ext4 -r /dev/sdal -m ext4 -u
-o /boot/initrd-cnewm-5.18.5-smp.gz
48835 bloków
/boot/initrd-cnewm-5.18.5-smp.gz created.
Be sure to run lilo again if you use it.
root@localhost:/boot#

```



```

root@localhost:/boot# ls
README.initrd@          initrd-tree/
System.map@             initrd.gz
System.map-cnewm-5.18.5-smp  inside.bmp
System.map-custom-5.17.8-smp  inside.dat
System.map-generic-5.15.19    map
System.map-generic-smp-5.15.19-smp  onlyblue.bmp
System.map-huge-5.15.19      onlyblue.dat
System.map-huge-smp-5.15.19-smp  slack.bmp
boot.0800                 tuxlogo.bmp
boot_message.txt          tuxlogo.dat
config@                  vmlinuz@
config-cnewm-5.18.5-smp    vmlinuz-cnewm-5.18.5-smp
config-custom-5.17.8-smp   vmlinuz-custom-5.17.8-smp
config-generic-5.15.19     vmlinuz-generic@
config-generic-smp-5.15.19-smp  vmlinuz-generic-5.15.19
config-huge-5.15.19        vmlinuz-generic-smp@
config-huge-smp-5.15.19-smp  vmlinuz-generic-smp-5.15.19-smp
elilo-ia32.efi*           vmlinuz-huge@
elilo-x86_64.efi*         vmlinuz-huge-5.15.19
grub/                     vmlinuz-huge-smp@
initrd-cnewm-5.18.5-smp.gz  vmlinuz-huge-smp-5.15.19-smp
initrd-custom-5.17.8-smp.gz
root@localhost:/boot#

```

Edycja lilo.conf

```

root@localhost:/boot# nano /etc/lilo.conf
# End LILO global section
# Linux bootable partition config begins
image = /boot/vmlinuz
  root = /dev/sdal
  label = "Slackware 15"
  read-only

image = /boot/vmlinuz-custom-5.17.8-smp
  root = /dev/sdal
  initrd = /boot/initrd-custom-5.17.8-smp.gz
  label = "kernel-custom"
  read-only

image = /boot/vmlinuz-cnewm-5.18.5-smp
  root = /dev/sdal
  initrd = /boot/initrd-cnewm-5.18.5-smp.gz
  label = "kernel-cnewm"
  read-only
# Linux bootable partition config ends

```

Lilo

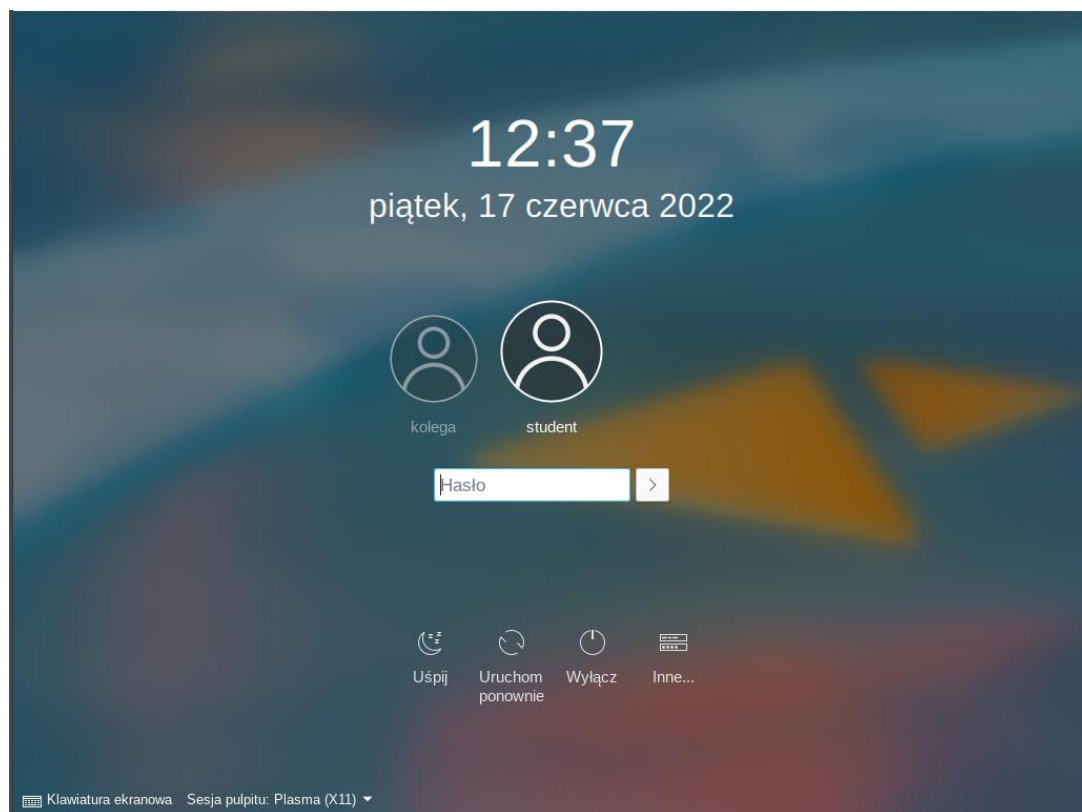
```

root@localhost:/boot# lilo
Warning: LBA32 addressing assumed
Added Slackware_15 *
Added kernel-custom +
Added kernel-cnewm +
One warning was issued.
root@localhost:/boot#

```

## Reboot

```
one warning was issued.  
root@localhost:/boot# reboot
```





## Stara metoda

Przekopiowanie pliku konfiguracyjnego

```
root@localhost:/usr/src# ls
kernels/          linux-5.17.8.tar.xz  linux-5.18.5.tar.xz
linux-5.17.8/     linux-5.18.5/
root@localhost:/usr/src# cd linux-5.18.5
root@localhost:/usr/src/linux-5.18.5# ls -a
./                .mailmap          MAINTAINERS       drivers/          mm/              usr/
../              COPYING           Makefile          fs/              net/            virt/
.clang-format     CREDITS           README            include/          samples/
.cocciconfig      Documentation/    arch/            init/            scripts/
.get_maintainer.ignore Kbuild          block/          ipc/            security/
.gitattributes    Kconfig          certs/          kernel/          sound/
.gitignore        LICENSES/        crypto/         lib/            tools/
root@localhost:/usr/src/linux-5.18.5#
```

```
root@localhost:/usr/src/linux-5.18.5# zcat /proc/config.gz > .config
root@localhost:/usr/src/linux-5.18.5# ls -a
./                .mailmap          Makefile          include/          scripts/
../              COPYING           README            init/            security/
.clang-format     CREDITS           arch/            ipc/            sound/
.cocciconfig      Documentation/    block/          kernel/          tools/
.config          Kbuild          certs/          lib/            usr/
.get_maintainer.ignore Kconfig        crypto/         mm/            virt/
.gitattributes    LICENSES/        drivers/         net/
.gitignore        MAINTAINERS      fs/            samples/
root@localhost:/usr/src/linux-5.18.5#
```

Polecenie do stworzenia pliku config z aktualnymi modułami – stara metoda

```
root@localhost:/usr/src/linux-5.18.5# make localmodconfig
```

Wszystkie opcje jakie się wyświetlają na domyślne.

```
using config: '.config'
*
* Restart config...
*
* Timers subsystem
*
Timer tick handling
  1. Periodic timer ticks (constant rate, no dynticks) (HZ_PERIODIC)
> 2. Idle dynticks system (tickless idle) (NO_HZ_IDLE)
choice[1-2]: 2
Old Idle dynticks config (NO_HZ) [Y/n/?] y
High Resolution Timer Support (HIGH_RES_TIMERS) [Y/n/?] y
Clocksource watchdog maximum allowable skew (in µs) (CLOCKSOURCE_WATCHDOG_MAX_SKEW_US) [100] (NEW)
```

Po kilkudziesięciu enterach – koniec.

```
Test module for BPF/performance analysis of module address (TEST_MODULE_ADDR) [N/m/?] n
Test user/kernel boundary protections (TEST_USER_COPY) [N/m/?] n
Test BPF filter functionality (TEST_BPF) [N/m/?] n
Test blackhole netdev functionality (TEST_BLACKHOLE_DEV) [N/m/?] n
Test find_bit functions (FIND_BIT_BENCHMARK) [N/m/y/?] n
Test firmware loading via userspace interface (TEST_FIRMWARE) [N/m/y/?] n
sysctl test driver (TEST_SYSCTL) [N/m/y/?] n
udelay test driver (TEST_UDELAY) [N/m/y/?] n
Test static keys (TEST_STATIC_KEYS) [N/m/?] n
kmod stress tester (TEST_KMOD) [N/m/?] n
Test memcat_p() helper function (TEST_MEMCAT_P) [N/m/y/?] n
Test heap/page initialization (TEST_MEMINIT) [N/m/y/?] n
Test freeing pages (TEST_FREE_PAGES) [N/m/y/?] n
Test floating point operations in kernel space (TEST_FPU) [N/m/y/?] n
Test clocksource watchdog in kernel space (TEST_CLOCKSOURCE_WATCHDOG) [N/m/y/?] n
] n
#
# configuration written to .config
#
root@localhost:/usr/src/linux-5.18.5#
```

Sprawdzenie załadowanych modułów

```
root@localhost:/usr/src/linux-5.18.5# lsmod
agpgart          40960  1 intel_agp,intel_gcc,ccm,dm
video            45056  0
ac               16384  0
button           16384  0
loop             32768  0
root@localhost:/usr/src/linux-5.18.5#
```

Zbudowanie pliku konfiguracyjnego

```
root@localhost:/usr/src/linux-5.18.5# make olddefconfig
#
# No change to .config
#
root@localhost:/usr/src/linux-5.18.5#
```

## Kompilacja obrazu jądra

```
root@localhost:/usr/src/linux-5.18.5# make -j4 bzImage
```

```
CC      arch/x86/boot/cpu.o
RELOCS  arch/x86/boot/compressed/vmlinux.relocs
HOSTCC  arch/x86/boot/compressed/mkpiggy
CC      arch/x86/boot/compressed/cpuflags.o
CC      arch/x86/boot/compressed/early_serial_console.o
CC      arch/x86/boot/compressed/kaslr.o
CC      arch/x86/boot/compressed/acpi.o
CC      arch/x86/boot/compressed/misc.o
LZMA     arch/x86/boot/compressed/vmlinux.bin.lzma
MKPIGGY arch/x86/boot/compressed/piggy.S
AS       arch/x86/boot/compressed/piggy.o
LD       arch/x86/boot/compressed/vmlinux
ZOFFSET arch/x86/boot/zoffset.h
OBJCOPY arch/x86/boot/vmlinux.bin
AS       arch/x86/boot/header.o
LD       arch/x86/boot/setup.elf
OBJCOPY arch/x86/boot/setup.bin
BUILD   arch/x86/boot/bzImage
Kernel: arch/x86/boot/bzImage is ready  (#1)
root@localhost:/usr/src/linux-5.18.5#
```

## Kompilacja modułów

```
root@localhost:/usr/src/linux-5.18.5# make -j4 modules
```

```
LD [M]  sound/core/snd-timer.ko
LD [M]  sound/core/snd.ko
LD [M]  sound/pci/ac97/snd-ac97-codec.ko
LD [M]  sound/pci/snd-intel8x0.ko
LD [M]  sound/soundcore.ko
root@localhost:/usr/src/linux-5.18.5#
```

## Instalacja modułów

```
root@localhost:/usr/src/linux-5.18.5# make modules_install
```

```
INSTALL /lib/modules/5.18.5-smp/kernel/sound/pci/ac97/snd-ac97-codec.ko
INSTALL /lib/modules/5.18.5-smp/kernel/sound/pci/snd-intel8x0.ko
INSTALL /lib/modules/5.18.5-smp/kernel/sound/soundcore.ko
DEPMOD  /lib/modules/5.18.5-smp
root@localhost:/usr/src/linux-5.18.5#
```

## Sprawdzenie zainstalowanych modułów

```
root@localhost:/usr/src/linux-5.18.5# ls /lib/modules/5.18.5-smp/
build@          modules.builtin.bin      modules.softdep
kernel/         modules.builtin.modinfo  modules.symbols
modules.alias   modules.dep              modules.symbols.bin
modules.alias.bin modules.dep.bin          source@
modules.builtin modules.devname
modules.builtin.alias.bin modules.order
root@localhost:/usr/src/linux-5.18.5#
```

## Skopiowanie obrazu jądra

```
root@localhost:/usr/src/linux-5.18.5# cp arch/x86/boot/bzImage /boot/vmlinuz-col
dm-5.18.5-smp
```

## Skopiowanie mapy symboli

```
root@localhost:/usr/src/linux-5.18.5# cp System.map /boot/System.map-coldm-5.18.5-smp
```

## Skopiowanie konfiguracji

```
root@localhost:/usr/src/linux-5.18.5# cp .config /boot/config-coldm-5.18.5-smp
```

```
root@localhost:/usr/src/linux-5.18.5# ls /boot/
README.initrd@          initrd-custom-5.17.8-smp.gz
System.map@             initrd-tree/
System.map-cnewm-5.18.5-smp  initrd.gz
System.map-coldm-5.18.5-smp  inside.bmp
System.map-custom-5.17.8-smp  inside.dat
System.map-generic-5.15.19    map
System.map-generic-smp-5.15.19-smp  onlyblue.bmp
System.map-huge-5.15.19      onlyblue.dat
System.map-huge-smp-5.15.19-smp  slack.bmp
boot.0800                 tuxlogo.bmp
boot_message.txt          tuxlogo.dat
config@                   vmlinuz@
config-cnewm-5.18.5-smp    vmlinuz-cnewm-5.18.5-smp
config-coldm-5.18.5-smp    vmlinuz-coldm-5.18.5-smp
config-custom-5.17.8-smp    vmlinuz-custom-5.17.8-smp
config-generic-5.15.19     vmlinuz-generic@
config-generic-smp-5.15.19-smp  vmlinuz-generic-5.15.19
config-huge-5.15.19        vmlinuz-generic-smp@
config-huge-smp-5.15.19-smp  vmlinuz-generic-smp-5.15.19-smp
elilo-ia32.efi*            vmlinuz-huge@
elilo-x86_64.efi*          vmlinuz-huge-5.15.19
grub/                     vmlinuz-huge-smp@
initrd-cnewm-5.18.5-smp.gz  vmlinuz-huge-smp-5.15.19-smp
```

## Utworzenie linku symbolicznego do nowej tablicy znaków

```
root@localhost:/usr/src/linux-5.18.5# cd /boot/
root@localhost:/boot# rm System.map
root@localhost:/boot# ln -s System.map-coldm-5.18.5-smp
ln: nie udało się utworzyć dowiązania symbolicznego './System.map-coldm-5.18.5-smp': Plik istnieje
root@localhost:/boot# ln -s System.map-coldm-5.18.5-smp System.map
```

```
root@localhost:/boot# ls
README.initrd@          initrd-custom-5.17.8-smp.gz
System.map@             initrd-tree/
System.map-cnewm-5.18.5-smp  initrd.gz
System.map-coldm-5.18.5-smp  inside.bmp
System.map-custom-5.17.8-smp  inside.dat
System.map-generic-5.15.19    map
System.map-generic-smp-5.15.19-smp  onlyblue.bmp
System.map-huge-5.15.19      onlyblue.dat
System.map-huge-smp-5.15.19-smp  slack.bmp
boot.0800                 tuxlogo.bmp
boot_message.txt          tuxlogo.dat
config@                   vmlinuz@
config-cnewm-5.18.5-smp    vmlinuz-cnewm-5.18.5-smp
config-coldm-5.18.5-smp    vmlinuz-coldm-5.18.5-smp
config-custom-5.17.8-smp    vmlinuz-custom-5.17.8-smp
config-generic-5.15.19     vmlinuz-generic@
config-generic-smp-5.15.19-smp  vmlinuz-generic-5.15.19
config-huge-5.15.19        vmlinuz-generic-smp@
config-huge-smp-5.15.19-smp  vmlinuz-generic-smp-5.15.19-smp
elilo-ia32.efi*            vmlinuz-huge@
elilo-x86_64.efi*          vmlinuz-huge-5.15.19
grub/                     vmlinuz-huge-smp@
initrd-cnewm-5.18.5-smp.gz  vmlinuz-huge-smp-5.15.19-smp
root@localhost:/boot#
```

## Wygenerowanie polecenia dla stworzenia dysku ram

```
root@localhost:/boot# /usr/share/mkinitrd/mkinitrd_command_generator.sh -k 5.18.5-smp
#
# mkinitrd_command_generator.sh revision 1.45
#
# This script will now make a recommendation about the command to use
# in case you require an initrd image to boot a kernel that does not
# have support for your storage or root filesystem built in
# (such as the Slackware 'generic' kernels').
# A suitable 'mkinitrd' command will be:

mkinitrd -c -k 5.18.5-smp -f ext4 -r /dev/sdal -m ext4 -u -o /boot/initrd.gz
root@localhost:/boot#
```

## Wykonanie polecenia

```
root@localhost:/boot# mkinitrd -c -k 5.18.5-smp -f ext4 -r /dev/sdal -m ext4 -u
-o /boot/initrd-coldm-5.18.5-smp.gz
48835 bloków
/boot/initrd-coldm-5.18.5-smp.gz created.
Be sure to run lilo again if you use it.
root@localhost:/boot#
```

## Edycja lilo

```
root@localhost:/boot# nano /etc/lilo.conf
# End LILO global section
# Linux bootable partition config begins
image = /boot/vmlinuz
  root = /dev/sdal
  label = "Slackware 15"
  read-only

image = /boot/vmlinuz-custom-5.17.8-smp
  root = /dev/sdal
  initrd = /boot/initrd-custom-5.17.8-smp.gz
  label = "kernel-custom"
  read-only

image = /boot/vmlinuz-cnewm-5.18.5-smp
  root = /dev/sdal
  initrd = /boot/initrd-cnewm-5.18.5-smp.gz
  label = "kernel-cnewm"
  read-only

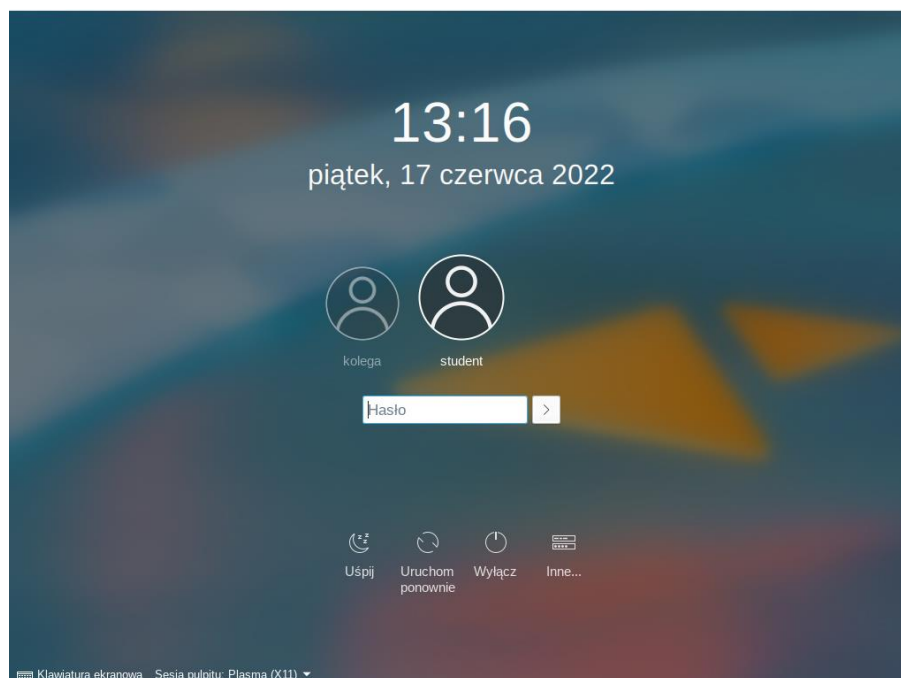
image = /boot/vmlinuz-coldm-5.18.5-smp
  root = /dev/sdal
  initrd = /boot/initrd-coldm-5.18.5-smp.gz
  label = "kernel-coldm"
  read-only
# Linux bootable partition config ends
```

## Lilo

```
root@localhost:/boot# lilo
Warning: LBA32 addressing assumed
Added Slackware_15  *
Added kernel-custom  +
Added kernel-cnewm  +
Added kernel-coldm  +
One warning was issued.
root@localhost:/boot#
```

## Reboot

```
root@localhost:/boot# reboot
```





## **Wnioski:**

W nowej metodzie nie pytał mnie o żadne nowe pola podczas generowania pliku konfiguracyjnego. W starej zaś pytał i było ich bardzo dużo, więc wybierałem domyślne opcje, gdyż zajęłoby to dużo czasu, żeby zrozumieć za co poszczególne są odpowiedzialne, a na stronach często są tylko szczątkowe informacje o niektórych opcjach. Czasy kompilacji jądra dla obu metod były bardzo podobne i wynosiły około 6 minut, zaś czasy budowy modułów około minuty dla obu metod. Może to, że pracowałem na 4 wątkach i lepszym sprzęcie, aż tak przyspieszyło w porównaniu z czasem z zajęć. Nowa metoda wydaje się być dla mnie wygodniejsza.