

(swap):

```

● () Linux
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.: Astra Linux .
```

- Astra Linux Special Edition .10015-01 (1.7), .10015-10
- Astra Linux Special Edition .10015-17
- Astra Linux Special Edition .10015-37 (7.7)
- Astra Linux Special Edition .10015-03 (7.6)
- Astra Linux Special Edition .10152-02 (4.7)
- Astra Linux Special Edition .10015-01 (1.6)
- Astra Linux Special Edition .10015-16 . 1
- Astra Linux Special Edition .10015-16 . 2
- Astra Linux Special Edition .10265-01 (8.1)
- Astra Linux Common Edition 2.12

① () Linux

SWAP – , (swap area swap space), (), .

Wikipedia .

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⚠ , « » , .

Linux- , , :

1. $\alpha, \beta \in \mathbb{R}, (\alpha, \beta) \neq (0, 0)$; .. ;
2. $\alpha, \beta \in \mathbb{R}, (\alpha, \beta) \neq (0, 0)$.

(hibernation suspend to disk). (,).

: ?

Astra Linux , * , , , * , , * * , , , , *

Astra Linux . , 0 0

```
sudo swapon
```

Astra Linux



filefrag:



```
sudo filefrag -v /example.swap
```

Ext4 e4defrag:



```
sudo e4defrag -v /example.swap
```



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, Astra Linux 2-3 . (hibernation suspend to disk) , , , 2-3, , (.).

vm.swappiness, (), .

```
sudo sysctl vm.swappiness
```

vm.swappiness 60, .. , 60%.

, . vm.swappiness

```
sysctl -w vm.swappiness=<_>
```

, .



vm.swappiness .

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- 63;
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Astra Linux SE , , :

- 3;
- 63;
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Astra Linux SE .

, (. mkswap/swapon/swapoff, swapon()/swapoff()). , , /swap_area :

```
# 1Gb
sudo falldate -l 1G /swap_area

#
sudo chown root:root /swap_area
sudo chmod 600 /swap_area

# ( Astra Linux Special Edition)
# - 3
# - 63
# -
sudo pdpl-file 3:63:-1 /swap_area

#
sudo mkswap /swap_area

#
sudo swapon /swap_area
```

```
, /etc/fstab . (/swap_area):
```

```

i /swap_area  none  swap  sw  0 0

```

$$\vdots$$

- (Astra Linux Special Edition):
 - Ext2/Ext3/Ext4 – `sedel /etc/fstab`;
 - — `swap-wiper . . « » , 8.1`).
- (. [SSD](#)):
 - Ext4 – `discard /etc/fstab`;
 - — `blkdiscard`:

```
sudo blkdiscard /dev/sda5
```

```
swap-wiper, Astra Linux Special Edition , , .
/usr/lib/parsec/bin/swap-wiper . swap-wiper

/etc/parsec/swap_wiper.conf ENABLED=Y, ..

ENABLED=Y , fly-admin-smc, :
```

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 , • (SSD):

 Astra Linux .

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```
( 0 vm.swappiness):
```

```
sysctl -w vm.swappiness=0
```

(-a --all swapoff):

swapoff -a

, , mlock() mlockall():

 #include <sys/mman.h>
int mlock(const void *addr, size_t len);
int munlock(const void *addr, size_t len);
int mlockall(int flags);
int munlockall(void);

mlock() mlockall() , . munlock() munlockall() , . .

man mlock

cgroups, () memory.swappiness . vm.swappiness, —, , , .

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