Todays lecture overview

- User file system.
- File manipulation.
- File attributes.

1

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inode file   data blocks   logical
file image

directory

first inode

name.x ●

extension inode

3
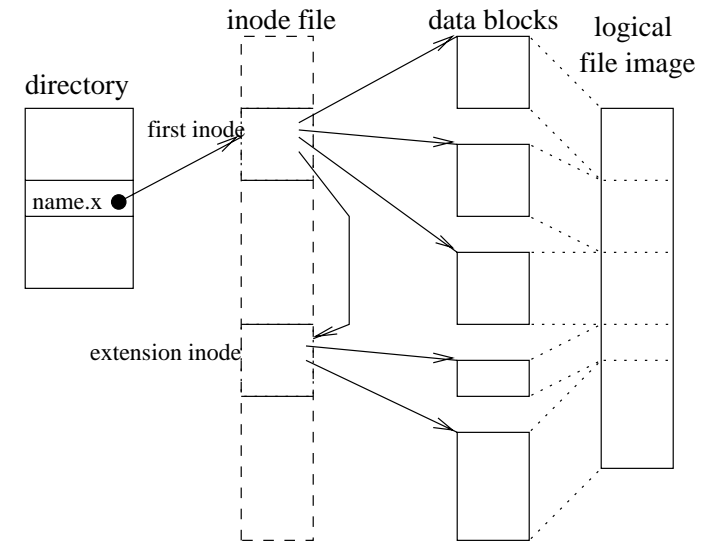
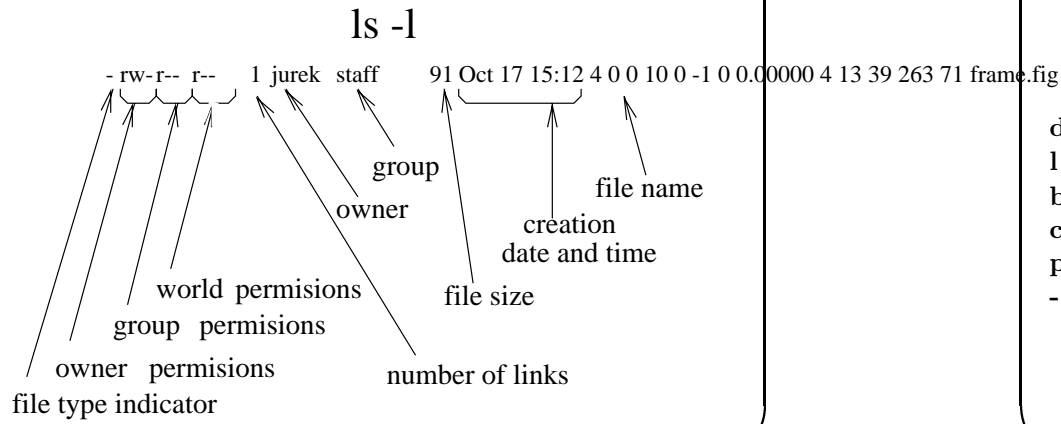## User file system

user

file

system
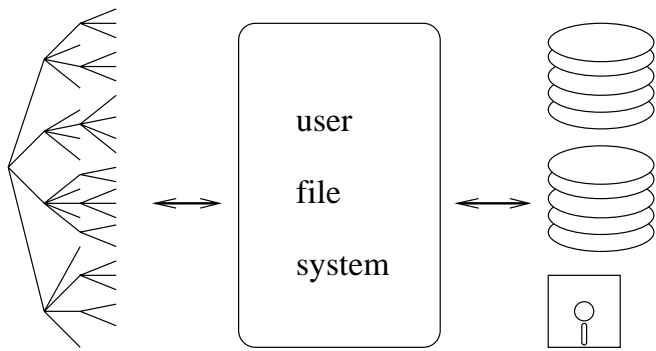
2

Special directories

/ – root directory
. – this directory
.. – parent directory
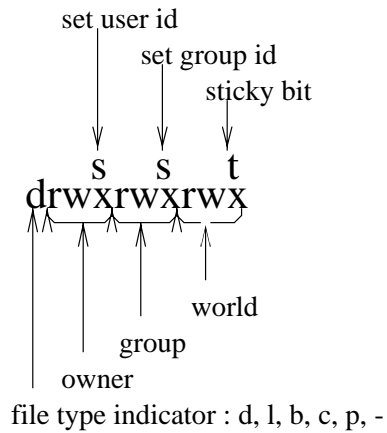/dev – links to device special files
/devces – device special files

4

File attributes

ls -l

- rw-r-- r--   1 jurek staff   91 Oct 17 15:12 4 0 0 10 0 -1 0 0.00000 4 13 39 263 71 frame.fig

group

owner

file name

creation
date and time

file size

world permisions

group   permisions

number of links

owner permisions

file type indicator

5

File types

d – directory
l – symbolic link
b – block special file
c – character special file
p – pipe
- – ordinary file

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File permissions

set user id

set group id

sticky bit

s   s   t
drwxrwxrwx

world

group

owner

file type indicator : d, l, b, c, p, -

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File permissions

r – read
w – write
x – execute
s – set uid og gid file
t – sticky bit

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File manipulation commands

ls – list contents of directory
cp – copy files
mv – move files
rm – remove files
ln – create links
chmod – change file permissions
chown – change file owner
chgrp – change file group
more – display contents of the file (one page at a time)

Changing file permissions

```
chmod [who] operator [ permissions ] files
```

who:
u – change user's permissions
g – change group's permissions
o – change other's permissions
a – change all permissions

operator:
+ – add permissions
− – clear permissions
= – set permissions

Example:

```
chmod o+w document.txt
```

Listing files

ls – list contents of current directory
ls -l – list contents of current directory in long format
ls -R – list contents of current directory and all subdirectories
ls -x – list contents of current directory in multiple columns
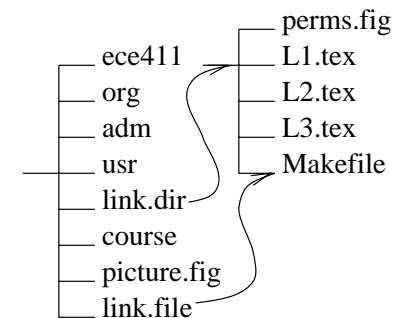**ls -1** – list contents of current directory in one column

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Linking files

```
ln [-s] link_name file_name
```

ln -s ece411 link.dir

ln -s ece411/Makefile link.file

ece411
org
adm
usr
link.dir
course
picture.fig
link.file

perms.fig
L1.tex
L2.tex
L3.tex
Makefile