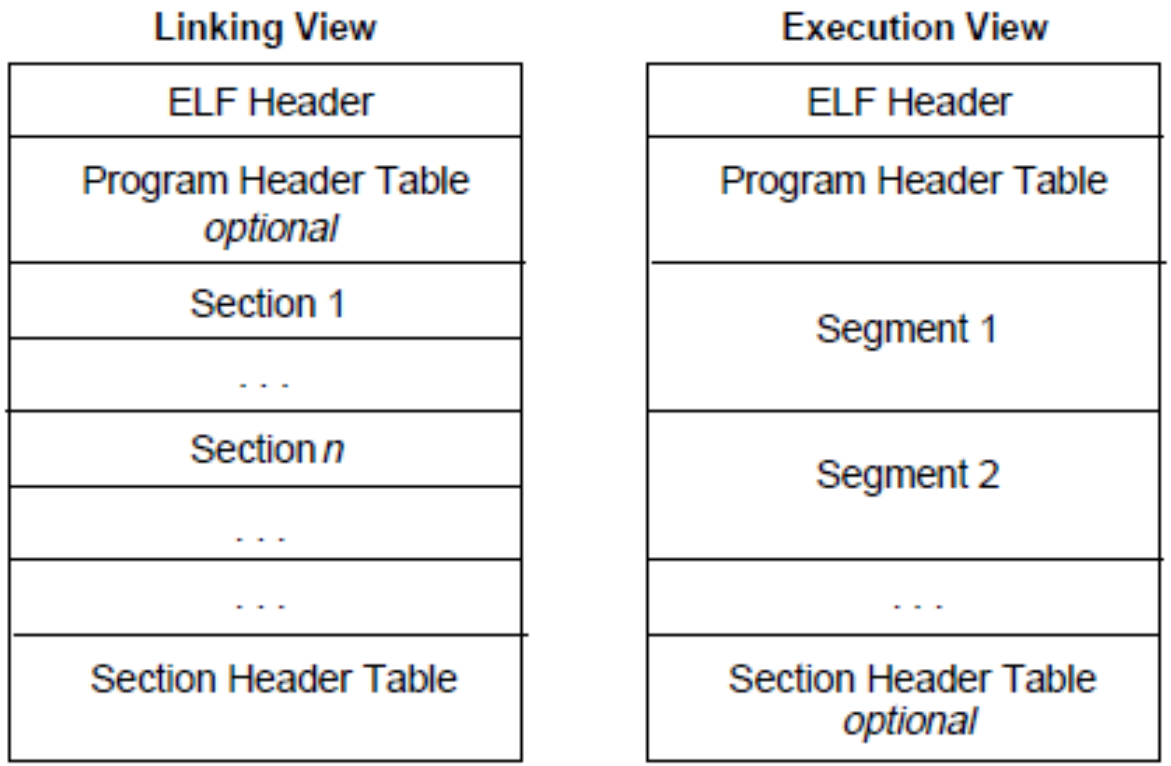
ELF format

Format


Linking View
ELF Header
Program Header Table
optional
Section 1
. . .
Section n
. . .
. . .
Section Header Table
Execution View
ELF Header
Program Header Table
Segment 1
Segment 2
. . .
Section Header Table
optional

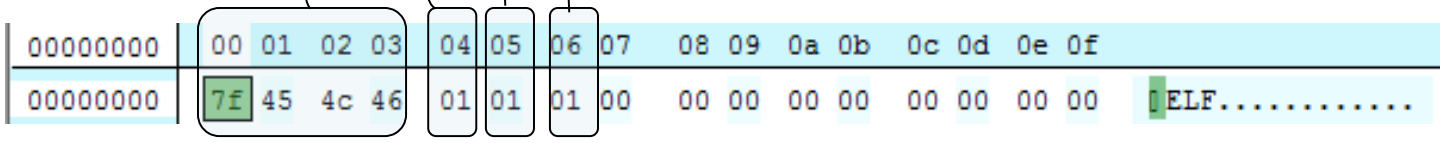
Zaglavlje

```
#define EI_NIDENT       16

typedef struct {
          unsigned char  e_ident[EI_NIDENT];
          Elf32_Half     e_type;
          Elf32_Half     e_machine;
          Elf32_Word     e_version;
          Elf32_Addr     e_entry;
          Elf32_Off      e_phoff;
          Elf32_Off      e_shoff;
          Elf32_Word     e_flags;
          Elf32_Half     e_ehsize;
          Elf32_Half     e_phentsize;
          Elf32_Half     e_phnum;
          Elf32_Half     e_shentsize;
          Elf32_Half     e_shnum;
          Elf32_Half     e_shstrndx;
 } Elf32_Ehdr;
```

e_ident[ ]

Name	Value	Purpose
EI_MAG0	0	File identification
EI_MAG1	1	File identification
EI_MAG2	2	File identification
EI_MAG3	3	File identification
EI_CLASS	4	File class
EI_DATA	5	Data encoding
EI_VERSION	6	File version
EI_PAD	7	Start of padding bytes
EI_NIDENT	16	Size of e_ident[]



e_ident

Name	Value	Meaning
ELFMAG0	0x7f	e_ident[EI_MAG0]
ELFMAG1	'E'	e_ident[EI_MAG1]
ELFMAG2	'L'	e_ident[EI_MAG2]
ELFMAG3	'F'	e_ident[EI_MAG3]

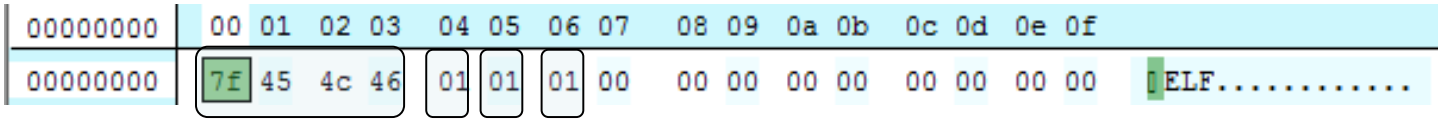
za 32-bitni sistem

Name	Value	Meaning
ELFCLASSNONE	0	Invalid class
ELFCLASS32	1	32-bit objects
ELFCLASS64	2	64-bit objects

litle-endian

Name	Value	Meaning
ELFDATANONE	0	Invalid data encoding
ELFDATA2LSB	1	See below
ELFDATA2MSB	2	See below

Verzija zaglavlja: 1



Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

Name	Value	Meaning
ET_NONE	0	No file type
ET_REL	1	Relocatable file
ET_EXEC	2	Executable file
ET_DYN	3	Shared object file
ET_CORE	4	Core file
ET_LOPROC	0xff00	Processor-specific
ET_HIPROC	0xffff	Processor-specific

```
00000000  00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
00000010  01 00 03 00 01 00 00 00 00 00 00 00 00 00 00 00
00000020  d0 00 00 00 00 00 00 00 34 00 00 00 00 00 28 00
00000030  09 00 06 00 e8 07 00 00 00 6a 00 e8 fc ff ff ff
```

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

Name	Value	Meaning
ET_NONE	0	No machine
EM_M32	1	AT&T WE 32100
EM_SPARC	2	SPARC
EM_386	3	Intel Architecture
EM_68K	4	Motorola 68000
EM_88K	5	Motorola 88000
EM_860	7	Intel 80860
EM_MIPS	8	MIPS RS3000 Big-Endian
EM_MIPS_RS4_BE	10	MIPS RS4000 Big-Endian
RESERVED	11-16	Reserved for future use

```
00000000  00 01 02 03 04 05 06 07  08 09 0a 0b 0c 0d 0e 0f
00000010  01 00 03 00 01 00 00 00  00 00 00 00 00 00 00 00
00000020  d0 00 00 00 00 00 00 00  34 00 00 00 00 00 28 00
00000030  09 00 06 00 e8 07 00 00  00 6a 00 e8 fc ff ff ff
```

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_version

Name	Value	Meaning
EV_NONE	0	Invalid versionn
EV_CURRENT	1	Current version

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000010	01	00	03	00	01	00	00	00	00	00	00	00	00	00	00	00
00000020	d0	00	00	00	00	00	00	00	34	00	00	00	00	00	28	00
00000030	09	00	06	00	e8	07	00	00	00	6a	00	e8	fc	ff	ff	ff

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_entry: virtuelna adresa ulazne tačke programa ili 0

00000000	00 01	02 03	04 05	06 07	08 09	0a 0b	0c 0d	0e 0f
00000010	01 00	03 00	01 00	00 00	00 00	00 00	00 00	00 00
00000020	d0 00	00 00	00 00	00 00	34 00	00 00	00 00	28 00
00000030	09 00	06 00	e8 07	00 00	00 6a	00 e8	fc ff	ff ff

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_phoff: ofset u fajlu (u bajtovima) do zaglavlja programa ili 0

00000000	00 01	02 03	04 05	06 07	08 09	0a 0b	0c 0d	0e 0f
00000010	01 00	03 00	01 00	00 00	00 00	00 00	00 00	00 00
00000020	d0 00	00 00	00 00	00 00	34 00	00 00	00 00	28 00
00000030	09 00	06 00	e8 07	00 00	00 6a	00 e8	fc ff	ff ff

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_shoff: ofset u fajlu (u bajtovima) do tabele zaglavlja sekcija ili 0

00000000	00 01	02 03	04 05	06 07	08 09	0a 0b	0c 0d	0e 0f
00000010	01 00	03 00	01 00	00 00	00 00	00 00	00 00	00 00
00000020	d0 00	00 00	00 00	00 00	34 00	00 00	00 00	28 00
00000030	09 00	06 00	e8 07	00 00	00 6a	00 e8	fc ff	ff ff

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_flags: flegovi specifični za konkretan procesor

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000010	01	00	03	00	01	00	00	00	00	00	00	00	00	00	00	00
00000020	d0	00	00	00	00	00	00	00	34	00	00	00	00	00	28	00
00000030	09	00	06	00	e8	07	00	00	00	6a	00	e8	fc	ff	ff	ff

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_ehsize: veličina ELF zaglavlja u bajtovima.

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000010	01	00	03	00	01	00	00	00	00	00	00	00	00	00	00	00
00000020	d0	00	00	00	00	00	00	00	34	00	00	00	00	00	28	00
00000030	09	00	06	00	e8	07	00	00	00	6a	00	e8	fc	ff	ff	ff

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_phentsize: veličina zaglavlja programa (jedan ulaz u tabeli zaglavlja programa).

00000000	00 01	02 03	04 05	06 07	08 09	0a 0b	0c 0d	0e 0f
00000010	01 00	03 00	01 00	00 00	00 00	00 00	00 00	00 00
00000020	d0 00	00 00	00 00	00 00	34 00	00 00	00 00	28 00
00000030	09 00	06 00	e8 07	00 00	00 6a	00 e8	fc ff	ff ff

Ostatak zaglavlja

```
unsigned char   e_ident[EI_N
Elf32_Half      e_type;
Elf32_Half      e_machine;
Elf32_Word      e_version;
Elf32_Addr      e_entry;
Elf32_Off       e_phoff;
Elf32_Off       e_shoff;
Elf32_Word      e_flags;
Elf32_Half      e_ehsize;
Elf32_Half      e_phentsize;
Elf32_Half      e_phnum;
Elf32_Half      e_shentsize;
Elf32_Half      e_shnum;
Elf32_Half      e_shstrndx;
```

e_phnum: broj ulaza u tabeli zaglavlja programa ili 0 ako tabela nije prisutna

00000000	00 01	02 03	04 05	06 07	08 09	0a 0b	0c 0d	0e 0f
00000010	01 00	03 00	01 00	00 00	00 00	00 00	00 00	00 00
00000020	d0 00	00 00	00 00	00 00	34 00	00 00	00 00	28 00
00000030	09 00	06 00	e8 07	00 00	00 6a	00 e8	fc ff	ff ff

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_shentsize: veličina zaglavlja sekcije (jedan ulaz u tabeli zaglavlja sekcija)

00000000	00 01	02 03	04 05	06 07	08 09	0a 0b	0c 0d	0e 0f
00000010	01 00	03 00	01 00	00 00	00 00	00 00	00 00	00 00
00000020	d0 00	00 00	00 00	00 00	34 00	00 00	00 00	28 00
00000030	09 00	06 00	e8 07	00 00	00 6a	00 e8	fc ff	ff ff

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_shnum: broj ulaza u tabeli zaglavlja sekcija ili 0 ako tabela nije prisutna

00000000	00 01	02 03	04 05	06 07	08 09	0a 0b	0c 0d	0e 0f
00000010	01 00	03 00	01 00	00 00	00 00	00 00	00 00	00 00
00000020	d0 00	00 00	00 00	00 00	34 00	00 00	00 00	28 00
00000030	09 00	06 00	e8 07	00 00	00 6a	00 e8	fc ff	ff ff

Ostatak zaglavlja

```
unsigned char   e_ident[EI_N
Elf32_Half      e_type;
Elf32_Half      e_machine;
Elf32_Word      e_version;
Elf32_Addr      e_entry;
Elf32_Off       e_phoff;
Elf32_Off       e_shoff;
Elf32_Word      e_flags;
Elf32_Half      e_ehsize;
Elf32_Half      e_phentsize;
Elf32_Half      e_phnum;
Elf32_Half      e_shentsize;
Elf32_Half      e_shnum;
Elf32_Half      e_shstrndx;
```

e_shstrndx: indeks ulaza u tabeli sekcija koji odgovara section name string table.

00000000	00 01	02 03	04 05	06 07	08 09	0a 0b	0c 0d	0e 0f
00000010	01 00	03 00	01 00	00 00	00 00	00 00	00 00	00 00
00000020	d0 00	00 00	00 00	00 00	34 00	00 00	00 00	28 00
00000030	09 00	06 00	e8 07	00 00	00 6a	00 e8	fc ff	ff ff

Sekcije

- Rezervisani indeksi:
  - SHN_UNDEF – objekat koji referiše ovu sekciju nije definisan.
  - SHN_LORESERVE – donja granica rezervisanih indeksa sekcija.
  - SHN_LOPROC – sekcije rezervisane za potrebe različitih procesora
  - SHN_HIPROC
  - SHN_ABS – simbol koji referiše ovaj segment je apsolutni simbol.
  - SHN_COMMON – sekcija za common simbole (za simbole definisane u C-u koji nisu alocirani).
  - SHN_HIRESERVE – gornja granica rezervisanih indeksa sekcija.

Name	Value
SHN_UNDEF	0
SHN_LORESERVE	0xff00
SHN_LOPROC	0xff00
SHN_HIPROC	0xff1f
SHN_ABS	0xfff1
SHN_COMMON	0xfff2
SHN_HIRESERVE	0xffff

Specifičnosti sekcija

- Svaka sekcija ima tačno jedno zaglavlje.
- Može postojati zaglavlje bez sekcije.
- Svaka sekcija obuhvata kontinualan niz bajtova.
- Sekcije se ne preklapaju.
- U fajlu može postojati sadržaj koji je van sekcija i njegov format nije specificiran.

Struktura ulaza u tabeli sekcija

```
typedef struct {
            Elf32_Word    sh_name;
            Elf32_Word    sh_type;
            Elf32_Word    sh_flags;
            Elf32_Addr    sh_addr;
            Elf32_Off     sh_offset;
            Elf32_Word    sh_size;
            Elf32_Word    sh_link;
            Elf32_Word    sh_info;
            Elf32_Word    sh_addralign;
            Elf32_Word    sh_entsize;
} Elf32_Shdr;
```

00000098	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f	
00000098	69	33	38	36	00	00	00	00	00	2e	73	79	6d	74	61	62	i386.....symtab
000000a0	00	2e	73	74	72	74	61	62	00	2e	73	68	73	74	72	74	..strtab..shstrt
000000b0	61	62	00	2e	72	65	6c	2e	74	65	78	74	00	2e	64	61	ab..rel.text..da
000000c0	74	61	00	2e	62	73	73	00	2e	6e	6f	74	65	00	00	00	ta..bss..note...

```
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

Indeks naziva sekcije u tabeli stringova sekcije zaglavlja.

000000d0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0
000000e0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
000000f0	00	00	00	00	00	00	00	00	1f	00	00	00	01	00	00	00	
00000100	06	00	00	00	00	00	00	00	34	00	00	00	46	00	00	00	1
00000110	00	00	00	00	00	00	00	00	04	00	00	00	00	00	00	00	
00000120	1b	00	00	00	09	00	00	00	00	00	00	00	00	00	00	00	
00000130	48	03	00	00	30	00	00	00	07	00	00	00	01	00	00	00	2
00000140	04	00	00	00	08	00	00	00	25	00	00	00	01	00	00	00	
00000150	03	00	00	00	00	00	00	00	7c	00	00	00	05	00	00	00	3
00000160	00	00	00	00	00	00	00	00	04	00	00	00	00	00	00	00	
00000170	2b	00	00	00	08	00	00	00	03	00	00	00	00	00	00	00	
00000180	84	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	4
00000190	04	00	00	00	00	00	00	00	30	00	00	00	07	00	00	00	
000001a0	00	00	00	00	00	00	00	00	84	00	00	00	14	00	00	00	5
000001b0	00	00	00	00	00	00	00	00	01	00	00	00	00	00	00	00	
000001c0	11	00	00	00	03	00	00	00	00	00	00	00	00	00	00	00	
000001d0	98	00	00	00	36	00	00	00	00	00	00	00	00	00	00	00	6
000001e0	01	00	00	00	00	00	00	00	01	00	00	00	02	00	00	00	
000001f0	00	00	00	00	00	00	00	00	38	02	00	00	d0	00	00	00	7
00000200	08	00	00	00	07	00	00	00	04	00	00	00	10	00	00	00	
00000210	09	00	00	00	03	00	00	00	00	00	00	00	00	00	00	00	
00000220	08	03	00	00	40	00	00	00	00	00	00	00	00	00	00	00	8
00000230	01	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	

```
00000098  00 01 02 03  04 05 06 07  08 09 0a 0b  0c 0d 0e 0f
00000098  69 33 38 36  00 00 00 00  00 2e 73 79  6d 74 61 62   i386.....symtab
000000a0  00 2e 73 74  72 74 61 62  00 2e 73 68  73 74 72 74   ..strtab..shstrt
000000b0  61 62 00 2e  72 65 6c 2e  74 65 78 74  00 2e 64 61   ab..rel.text..da
000000c0  74 61 00 2e  62 73 73 00  2e 6e 6f 74  65 00 00 00   ta..bss..note...
```

```
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

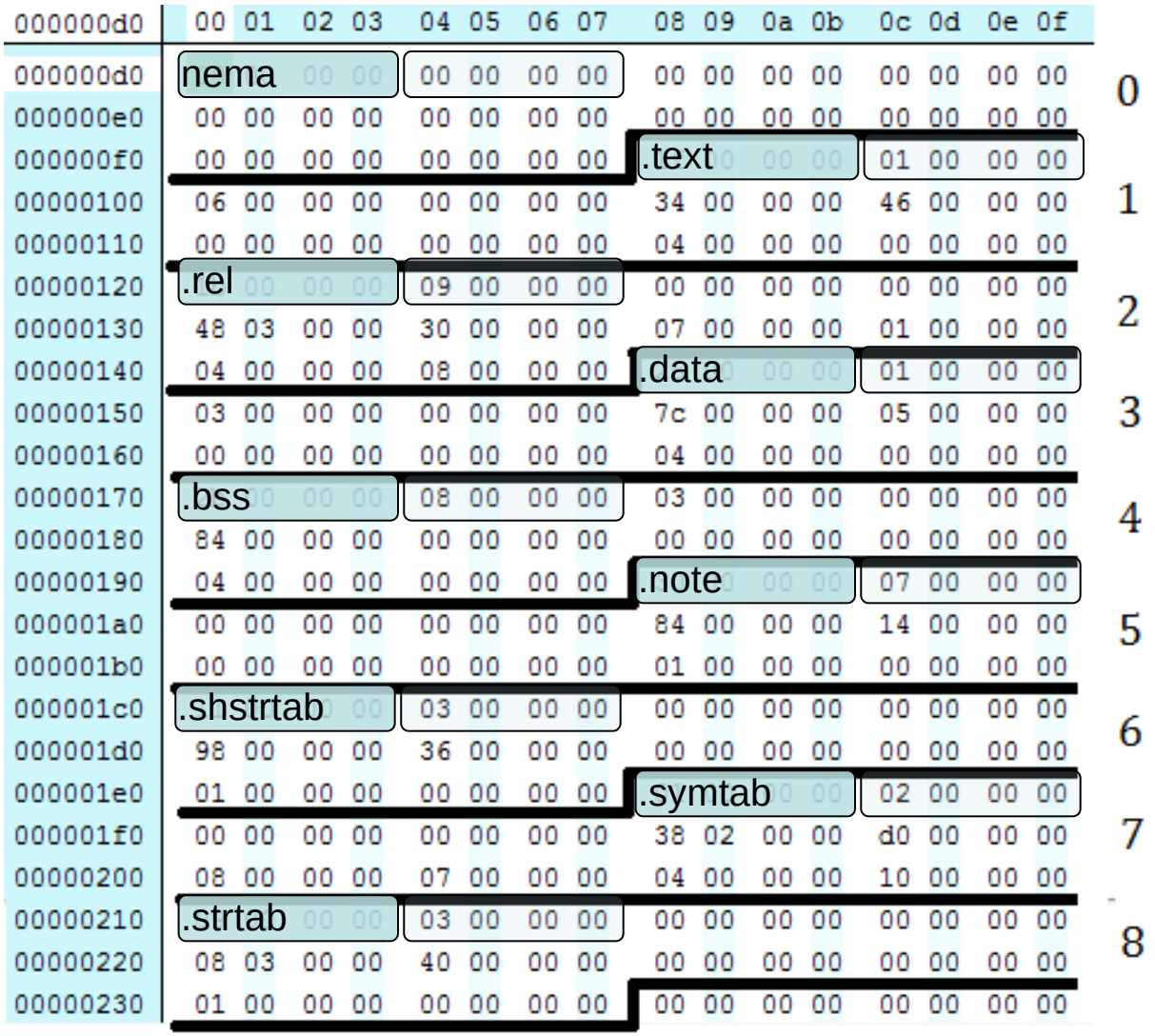
Indeks naziva sekcije u tabeli stringova sekcije zaglavlja.

```
000000d0  nema 00 00  00 00 00 00  00 00 00 00  00 00 00 00   0
000000e0  00 00 00 00  00 00 00 00  00 00 00 00  00 00 00 00
000000f0  00 00 00 00  00 00 00 00  .text 00 00  01 00 00 00
00000100  06 00 00 00  00 00 00 00  34 00 00 00  46 00 00 00   1
00000110  00 00 00 00  00 00 00 00  04 00 00 00  00 00 00 00
00000120  .rel 00 00 00  09 00 00 00  00 00 00 00  00 00 00 00
00000130  48 03 00 00  30 00 00 00  07 00 00 00  01 00 00 00   2
00000140  04 00 00 00  08 00 00 00  .data 00 00  01 00 00 00
00000150  03 00 00 00  00 00 00 00  7c 00 00 00  05 00 00 00   3
00000160  00 00 00 00  00 00 00 00  04 00 00 00  00 00 00 00
00000170  .bss 00 00 00  08 00 00 00  03 00 00 00  00 00 00 00
00000180  84 00 00 00  00 00 00 00  00 00 00 00  00 00 00 00   4
00000190  04 00 00 00  00 00 00 00  .note 00 00  07 00 00 00
000001a0  00 00 00 00  00 00 00 00  84 00 00 00  14 00 00 00   5
000001b0  00 00 00 00  00 00 00 00  01 00 00 00  00 00 00 00
000001c0  .shstrtab 00  03 00 00 00  00 00 00 00  00 00 00 00
000001d0  98 00 00 00  36 00 00 00  00 00 00 00  00 00 00 00   6
000001e0  01 00 00 00  00 00 00 00  .symtab 00 00  02 00 00 00
000001f0  00 00 00 00  00 00 00 00  38 02 00 00  d0 00 00 00   7
00000200  08 00 00 00  07 00 00 00  04 00 00 00  10 00 00 00
00000210  .strtab 00 00  03 00 00 00  00 00 00 00  00 00 00 00
00000220  08 03 00 00  40 00 00 00  00 00 00 00  00 00 00 00   8
00000230  01 00 00 00  00 00 00 00  00 00 00 00  00 00 00 00
```

r tabele zaglavlja sekcija

Name	Value
SHT_NULL	0
SHT_PROGBITS	1
SHT_SYMTAB	2
SHT_STRTAB	3
SHT_RELA	4
SHT_HASH	5
SHT_DYNAMIC	6
SHT_NOTE	7
SHT_NOBITS	8
SHT_REL	9
SHT_SHLIB	10
SHT_DYNSYM	11
SHT_LOPROC	0x70000000
SHT_HIPROC	0x7fffffff
SHT_LOUSER	0x80000000
SHT_HIUSER	0xffffffff

Definiše tip i značenje sadržaja sekcije.

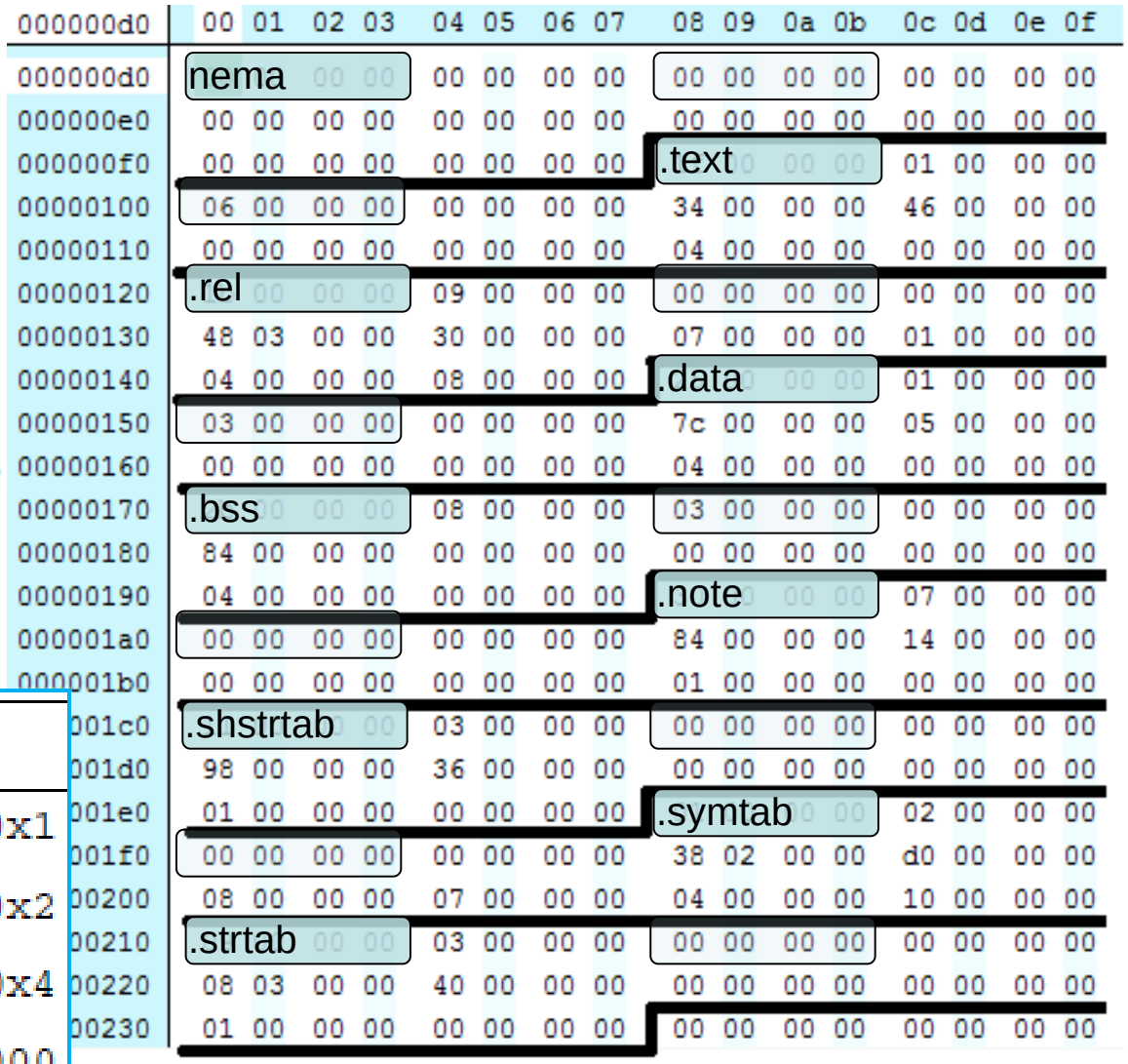


Primjer tabele zaglavlja sekcija

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

Flegovi:

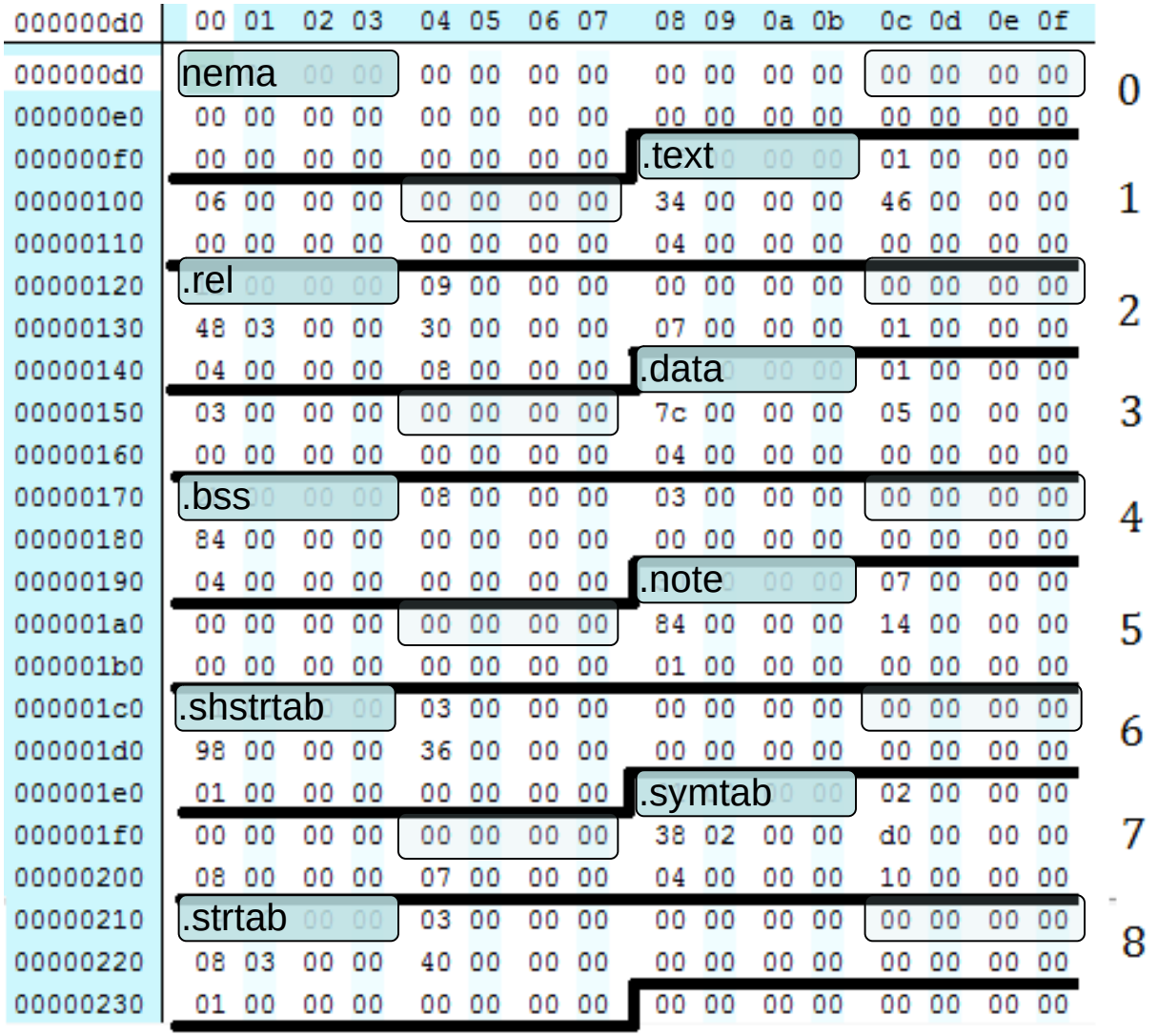
Name	Value
SHF_WRITE	0x1
SHF_ALLOC	0x2
SHF_EXECINSTR	0x4
SHF_MASKPROC	0xf0000000



Primjer tabele zaglavlja sekcija

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

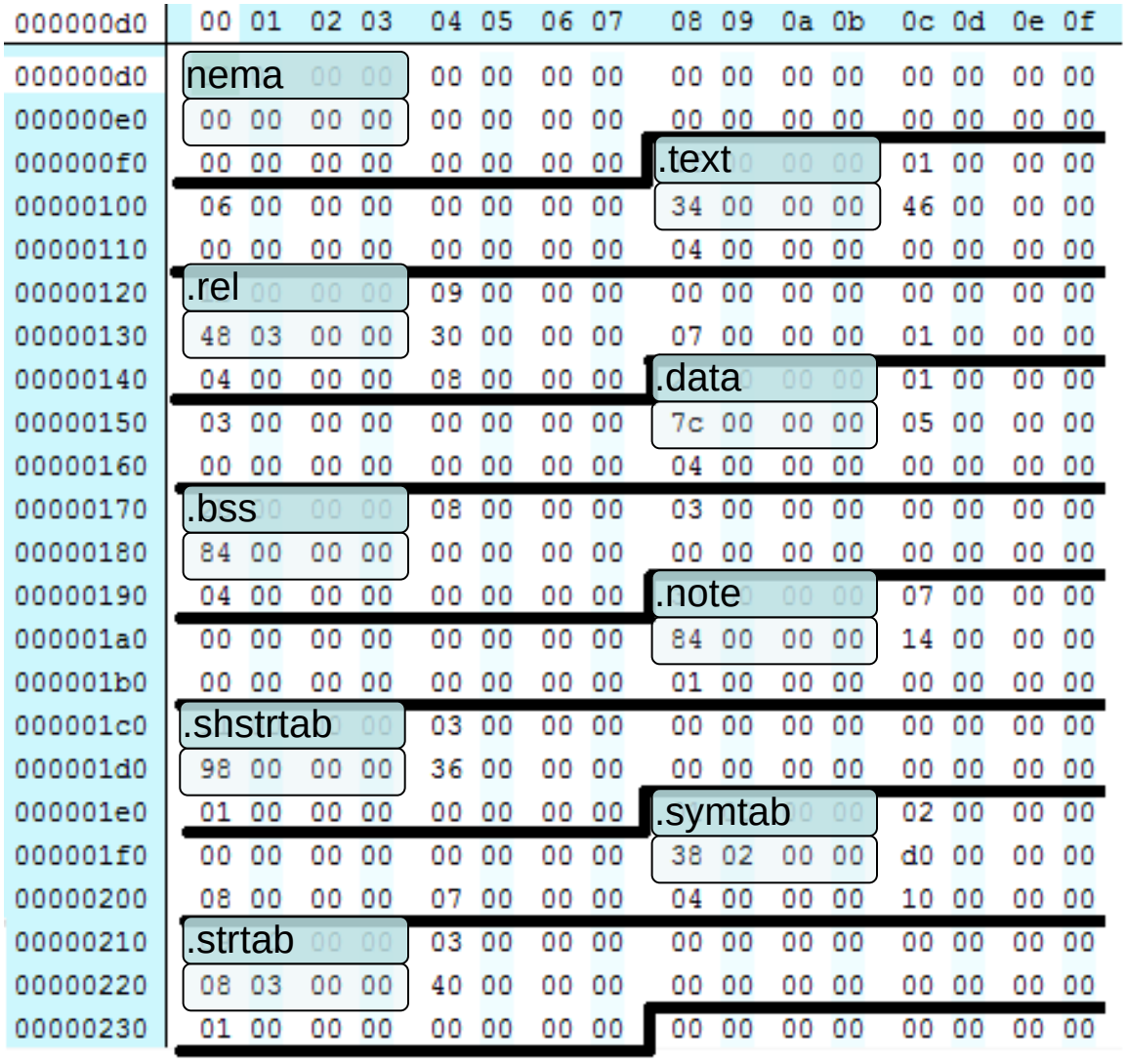
Virtuelna adresa prvog bajta ukoliko sekcija treba da bude u memoriji u toku izvršavanja.



Primjer tabele zaglavlja sekcija

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

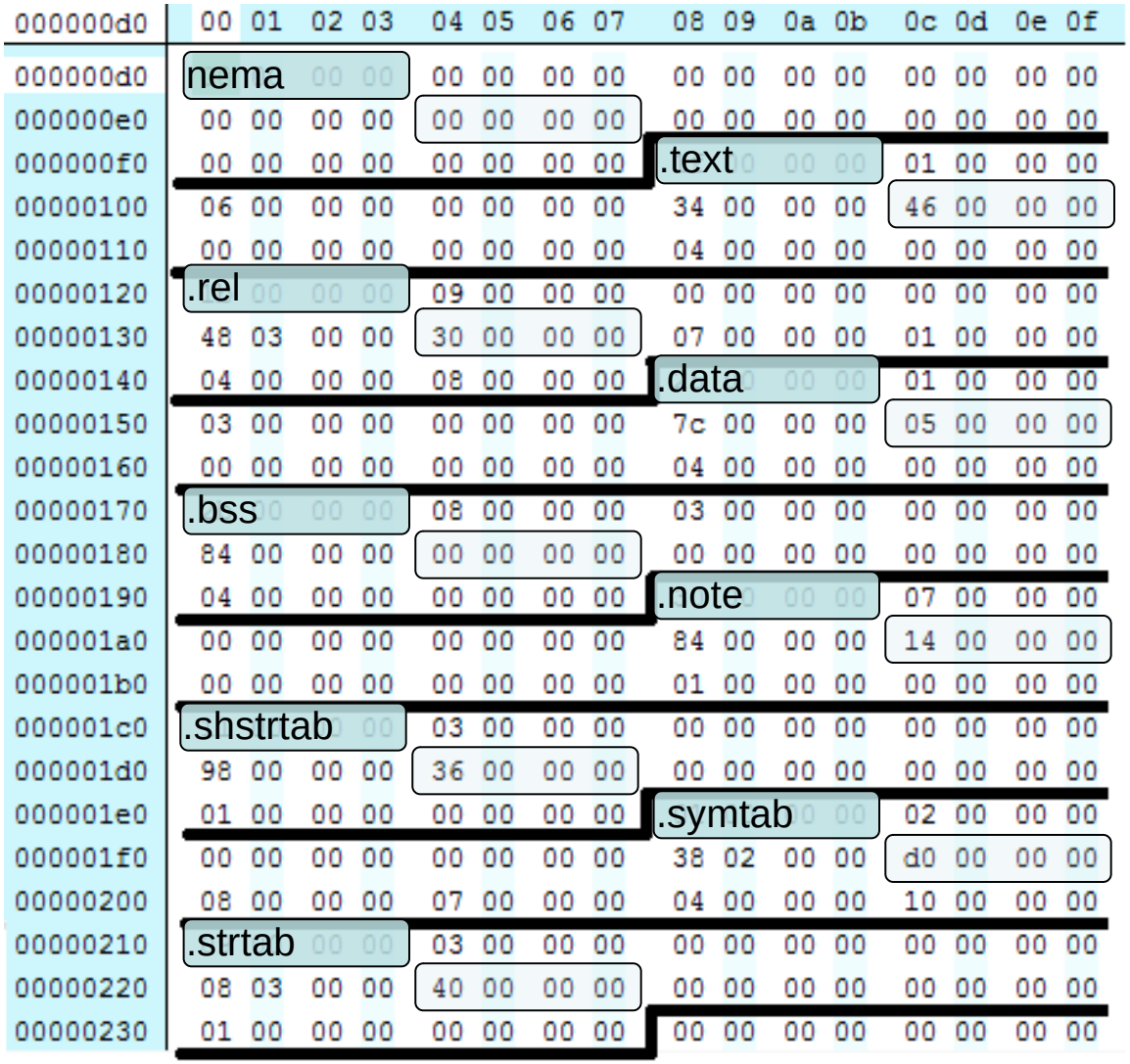
Ofset prvog bajta sekcije u odnosu na početak fajla, računato u bajtovima. Ako sekcija nema sadržaj u fajlu, onda SHT_NOBITS.



Primjer tabele zaglavlja sekcija

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

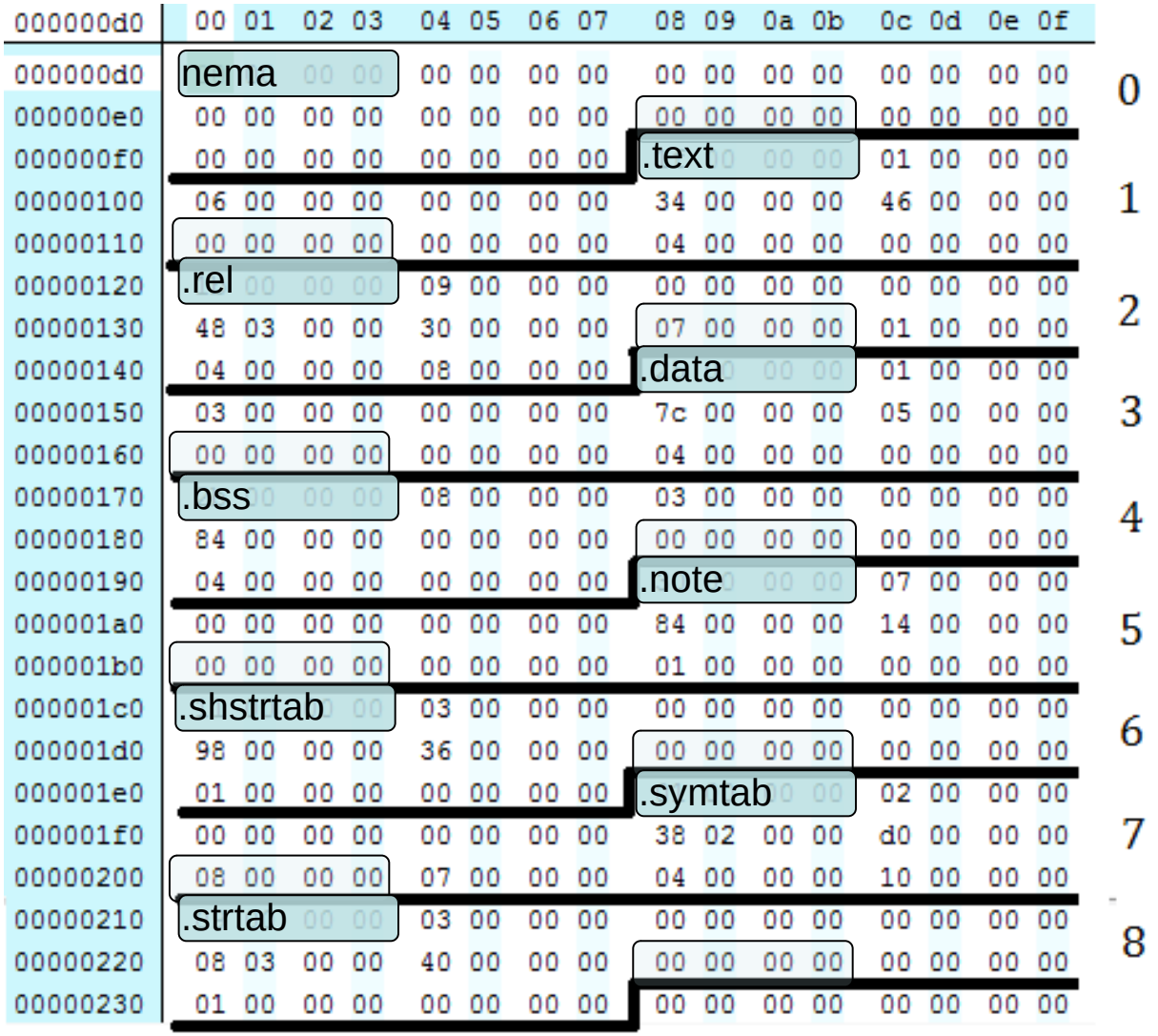
Veličina sekcije u bajtovima. Čak i sekcije koje ne zauzimaju prostor u fajlu mogu da imaju veličinu.



Primjer tabele zaglavlja sekcija

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

Ovo i naredno polje imaju posebno značenje.



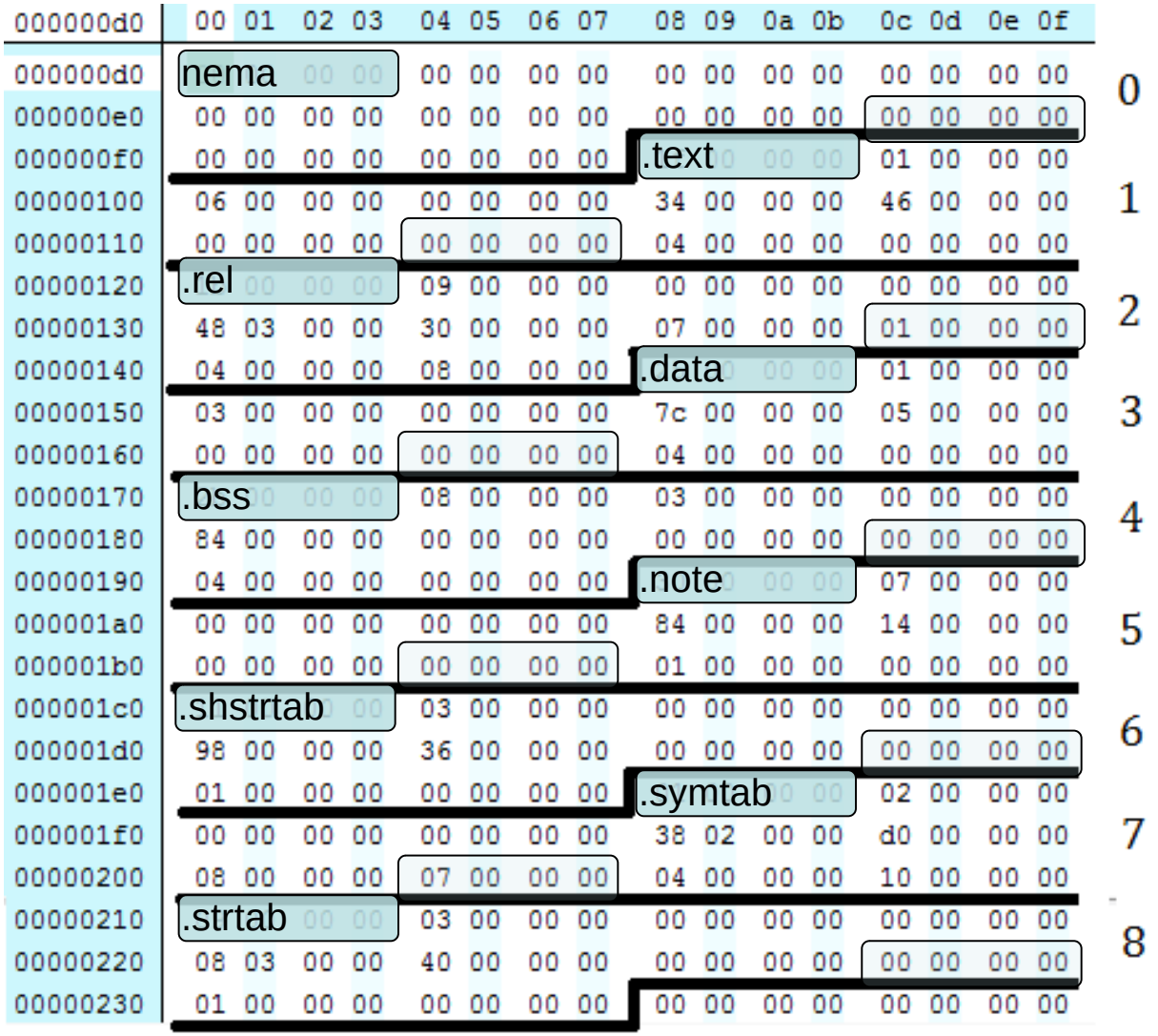
Značenje polja sh_link i sh_info

sh_type	sh_link	sh_info
SHT_DYNAMIC	The section header index of the string table used by entries in the section.	0
SHT_HASH	The section header index of the symbol table to which the hash table applies.	0
SHT_REL SHT_RELA	The section header index of the associated symbol table.	The section header index of the section to which the relocation applies.
SHT_SYMTAB SHT_DYNSYM	This information is operating system specific.	This information is operating system specific.
other	SHN_UNDEF	0

Primjer tabele zaglavlja sekcija

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

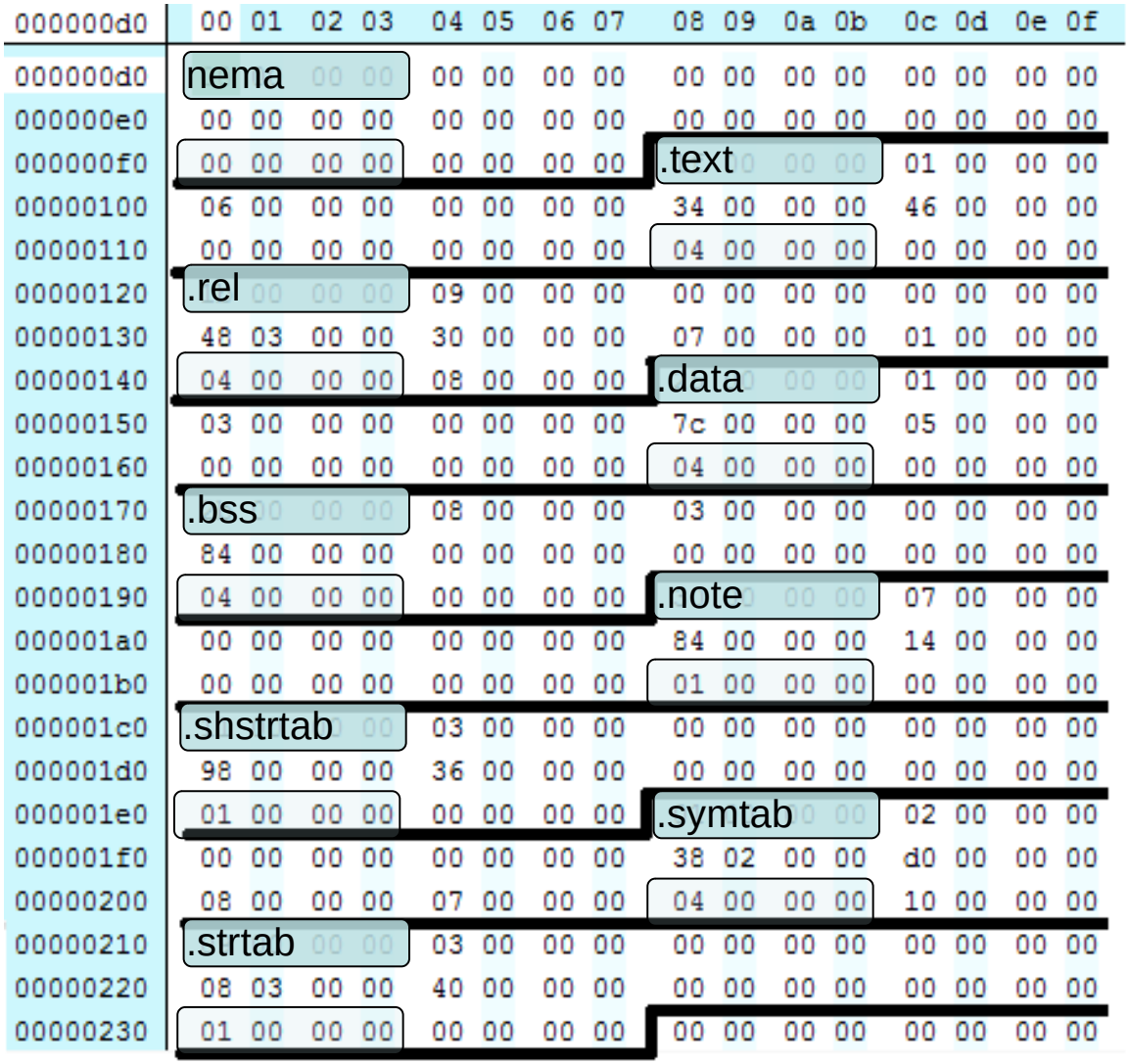
Značenje opisano na prethodnom slajdu.



Primjer tabele zaglavlja sekcija

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

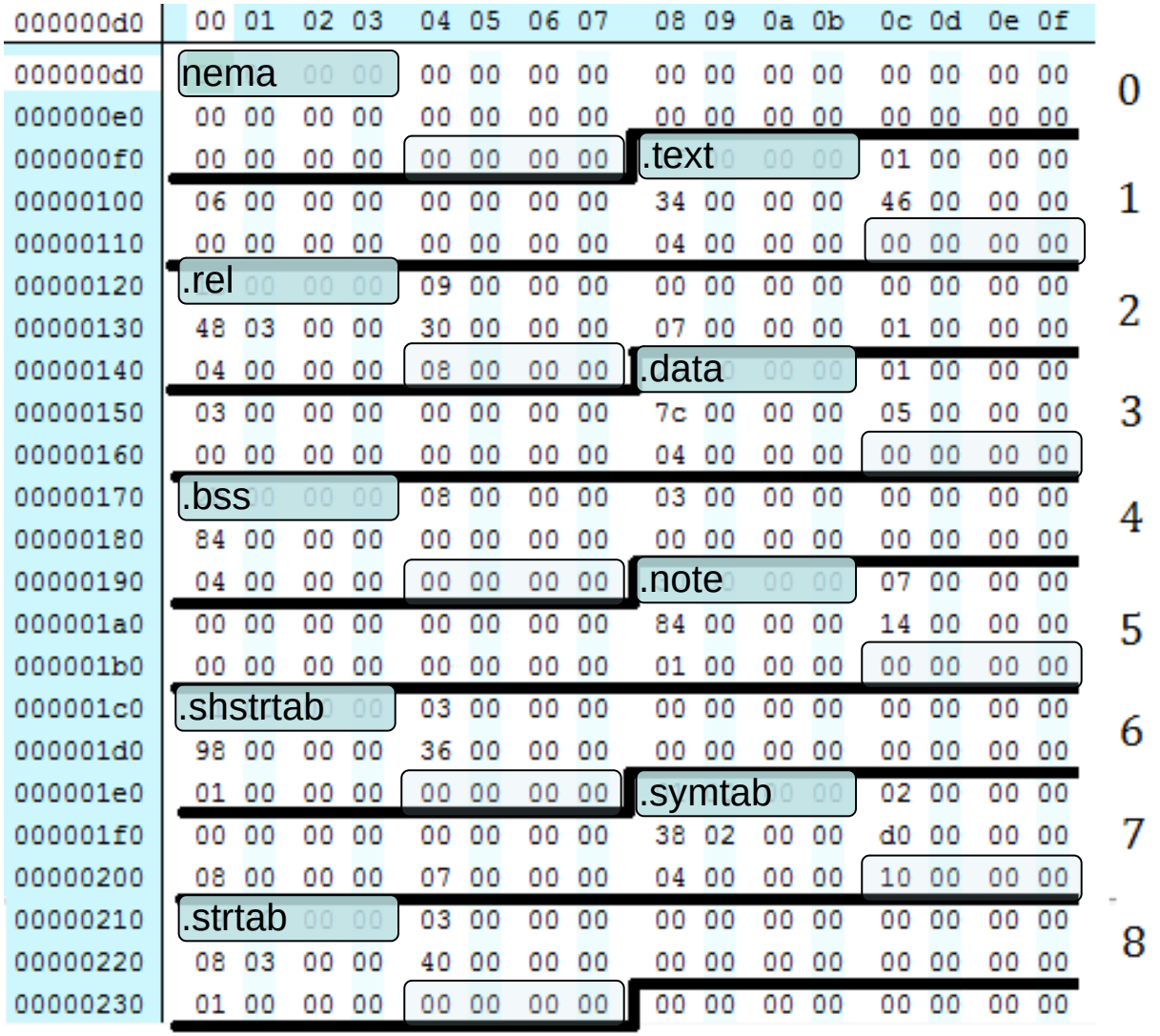
Poravnanje sekcije. 0 ili 1 znače da nije zahtevano posebno poravnanje. Osim 0 i 1, dozvoljeni su samo stepeni broja 2.



Primjer tabele zaglavlja sekcija

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

Ako sekcija sadrži ulaze fiksne veličine, ovo polje predstavlja veličinu jednog ulaza u bajtovima.



Standardno prisutne sekcije

Name	Type	Attributes
.bss	SHT_NOBITS	SHF_ALLOC+SHF_WRITE
.comment	SHT_PROGBITS	none
.data	SHT_PROGBITS	SHF_ALLOC + SHF_WRITE
.data1	SHT_PROGBITS	SHF_ALLOC + SHF_WRITE
.debug	SHT_PROGBITS	none
.dynamic	SHT_DYNAMIC	see below
.hash	SHT_HASH	SHF_ALLOC
.line	SHT_PROGBITS	none
.note	SHT_NOTE	none
.rodata	SHT_PROGBITS	SHF_ALLOC
.rodata1	SHT_PROGBITS	SHF_ALLOC
.shstrtab	SHT_STRTAB	none
.strtab	SHT_STRTAB	see below
.symtab	SHT_SYMTAB	see below
.text	SHT_PROGBITS	SHF_ALLOC + SHF_EXECINSTR

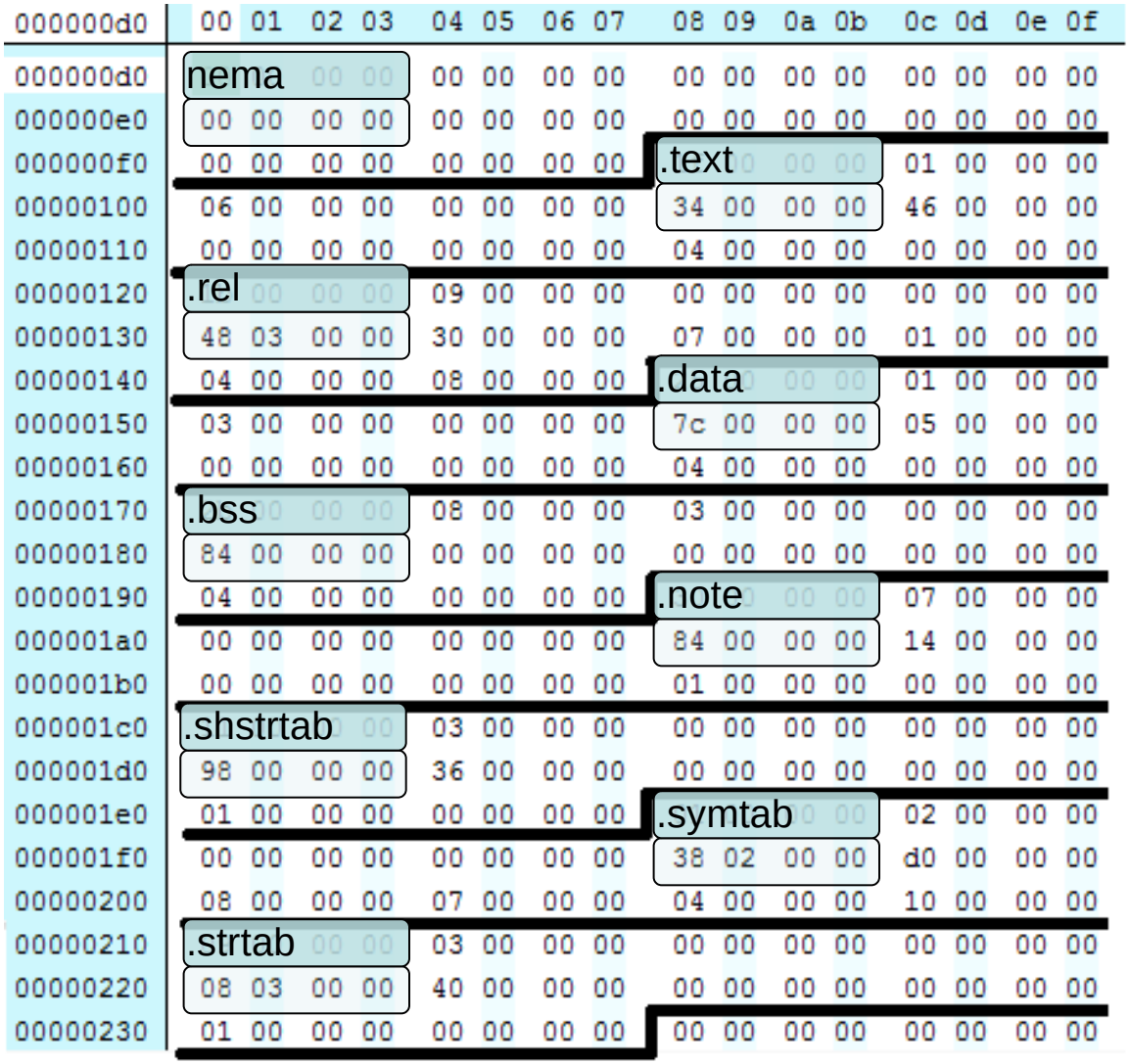
Struktura ulaza u tabeli simbola

```
typedef struct {
            Elf32_Word    st_name;
            Elf32_Addr    st_value;
            Elf32_Word    st_size;
            unsigned char st_info;
            unsigned char st_other;
            Elf32_Half    st_shndx;
} Elf32_Sym;
```

Primjer tabele zaglavlja sekcija (ponovljeno)

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

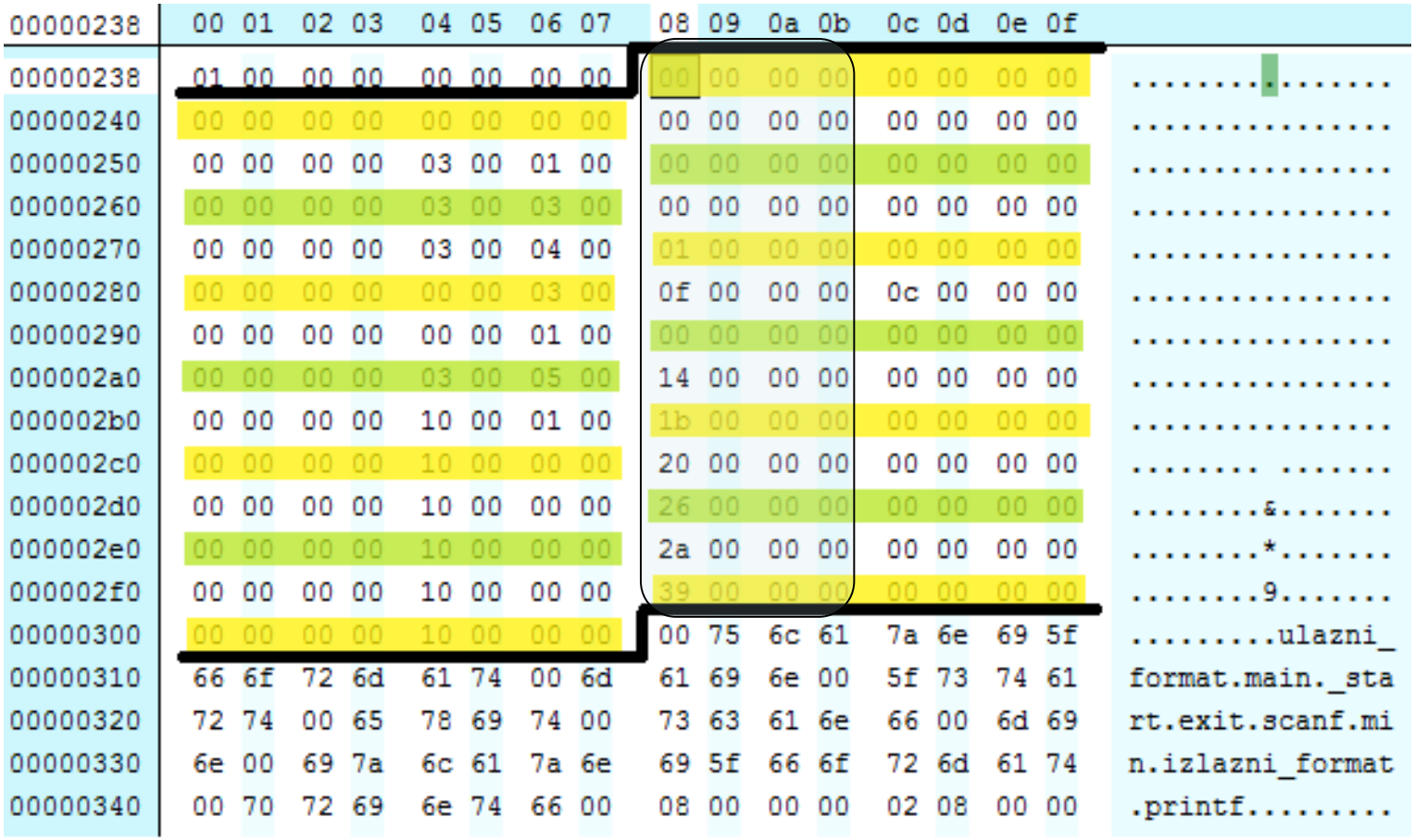
Ofset prvog bajta sekcije u odnosu na početak fajla, računato u bajtovima. Ako sekcija nema sadržaj u fajlu, onda SHT_NOBITS.



Primjer tabele simbola

```
Elf32_Word    st_name;
Elf32_Addr    st_value;
Elf32_Word    st_size;
unsigned char st_info;
unsigned char st_other;
Elf32_Half    st_shndx;
```

Indeks u tabeli stringova (u ovom slučaju, odgovarajuća tabela stringova počinje na adresi 308; pogledati slajd 27, ulaz 8).

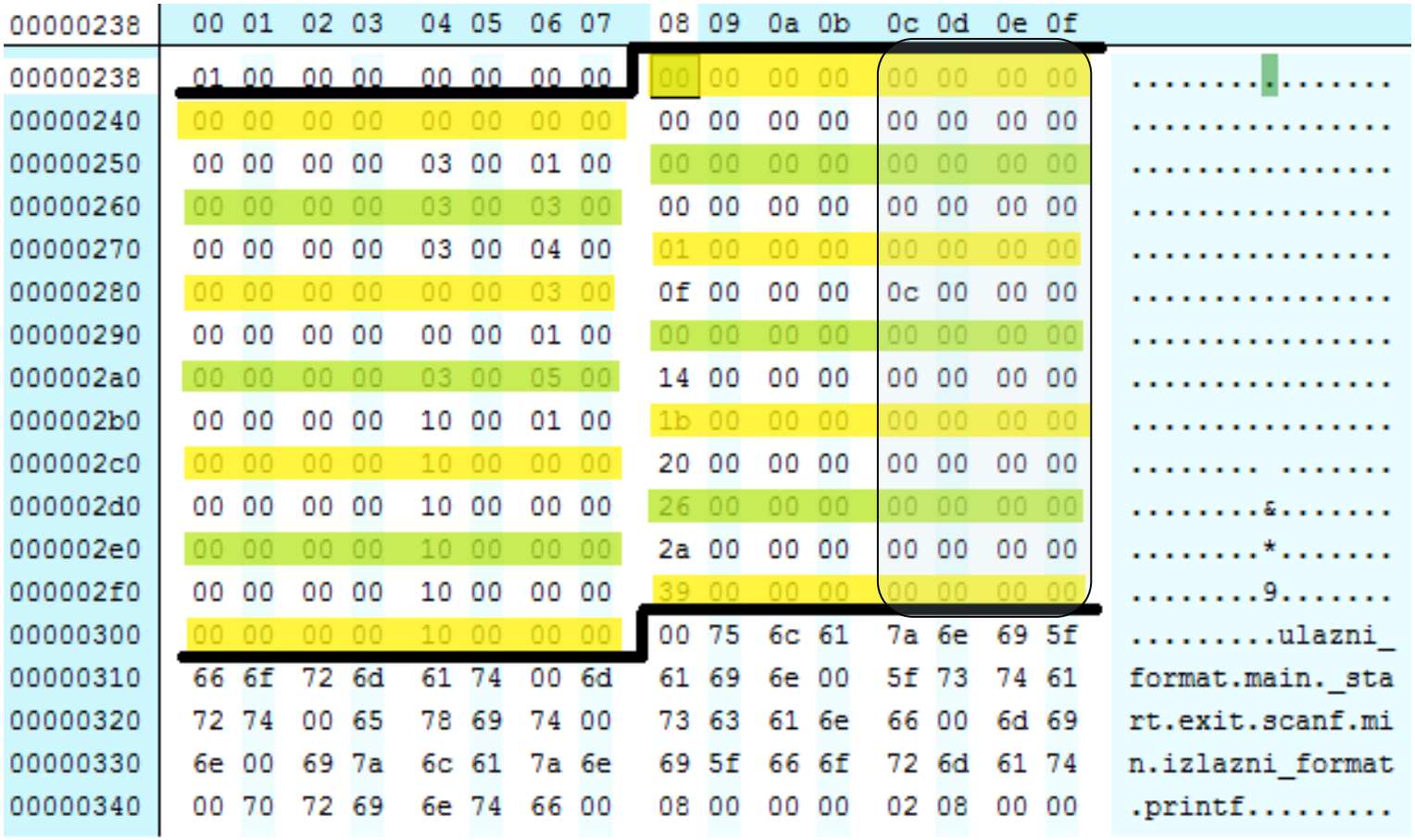


00000238	00 01 02 03	04 05 06 07	08 09 0a 0b	0c 0d 0e 0f	
00000238	01 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	....
00000240	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	....
00000250	00 00 00 00	03 00 01 00	00 00 00 00	00 00 00 00	....
00000260	00 00 00 00	03 00 03 00	00 00 00 00	00 00 00 00	....
00000270	00 00 00 00	03 00 04 00	01 00 00 00	00 00 00 00	....
00000280	00 00 00 00	00 00 03 00	0f 00 00 00	0c 00 00 00	....
00000290	00 00 00 00	00 00 01 00	00 00 00 00	00 00 00 00	....
000002a0	00 00 00 00	03 00 05 00	14 00 00 00	00 00 00 00	....
000002b0	00 00 00 00	10 00 01 00	1b 00 00 00	00 00 00 00	....
000002c0	00 00 00 00	10 00 00 00	20 00 00 00	00 00 00 00	....
000002d0	00 00 00 00	10 00 00 00	26 00 00 00	00 00 00 00	........&........
000002e0	00 00 00 00	10 00 00 00	2a 00 00 00	00 00 00 00	........*........
000002f0	00 00 00 00	10 00 00 00	39 00 00 00	00 00 00 00	........9........
00000300	00 00 00 00	10 00 00 00	00 75 6c 61	7a 6e 69 5f	.........ulazni_
00000310	66 6f 72 6d	61 74 00 6d	61 69 6e 00	5f 73 74 61	format.main._sta
00000320	72 74 00 65	78 69 74 00	73 63 61 6e	66 00 6d 69	rt.exit.scanf.mi
00000330	6e 00 69 7a	6c 61 7a 6e	69 5f 66 6f	72 6d 61 74	n.izlazni_format
00000340	00 70 72 69	6e 74 66 00	08 00 00 00	02 08 00 00	.printf.........

Primjer tabele simbola

```
Elf32_Word    st_name;
Elf32_Addr    st_value;
Elf32_Word    st_size;
unsigned char st_info;
unsigned char st_other;
Elf32_Half    st_shndx;
```

Vrijednost simbola. Može biti apsolutna ili relokatibilna.
-za relokatibilan fajl, to je ofset u odnosu na početak sekcije (relokatibilan fajl)
-za izvršni fajl ili deljenu biblioteku, to je virtuelna adresa.

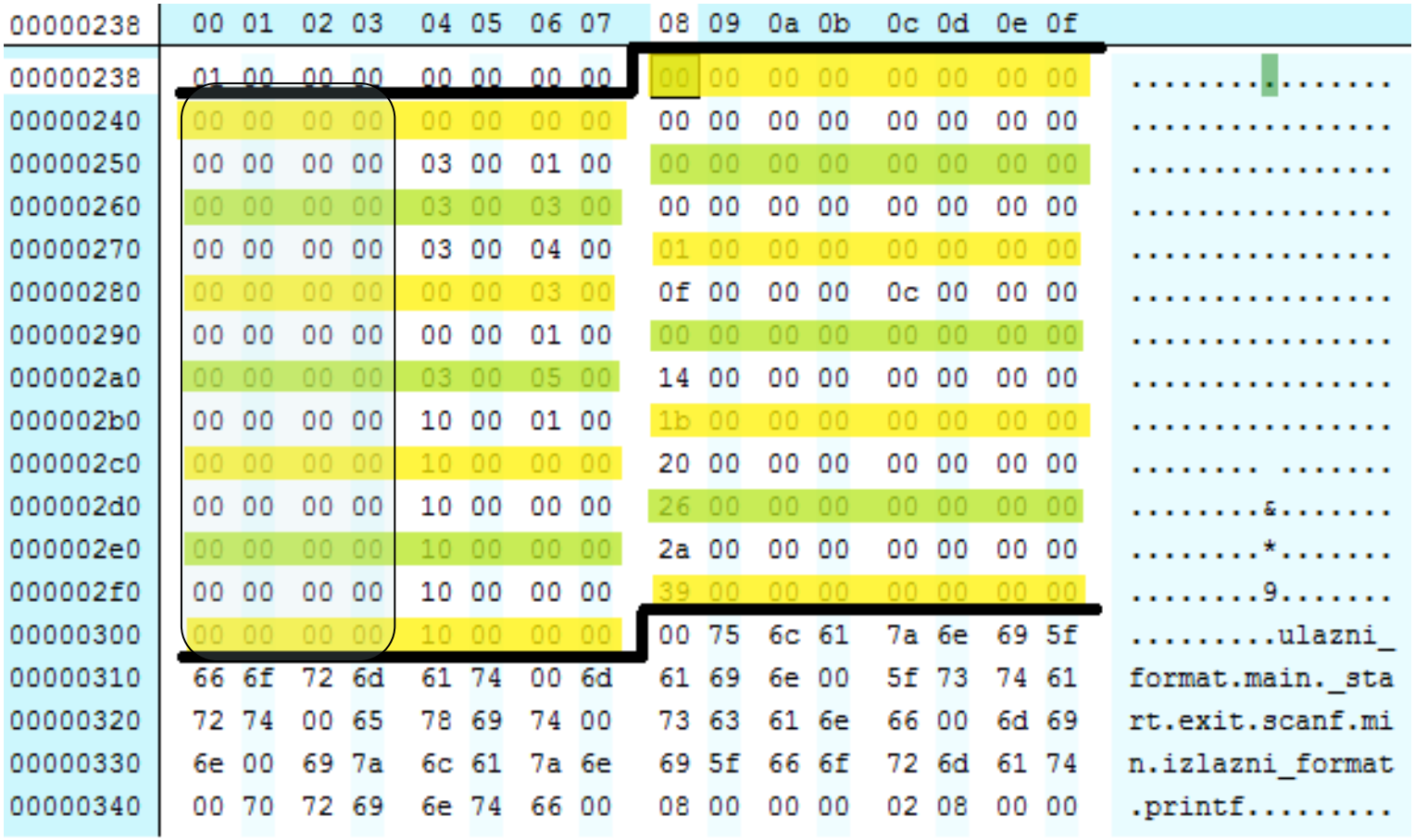


00000238	00 01 02 03	04 05 06 07	08 09 0a 0b	0c 0d 0e 0f	
00000238	01 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	....
00000240	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	....
00000250	00 00 00 00	03 00 01 00	00 00 00 00	00 00 00 00	....
00000260	00 00 00 00	03 00 03 00	00 00 00 00	00 00 00 00	....
00000270	00 00 00 00	03 00 04 00	01 00 00 00	00 00 00 00	....
00000280	00 00 00 00	00 00 03 00	0f 00 00 00	0c 00 00 00	....
00000290	00 00 00 00	00 00 01 00	00 00 00 00	00 00 00 00	....
000002a0	00 00 00 00	03 00 05 00	14 00 00 00	00 00 00 00	....
000002b0	00 00 00 00	10 00 01 00	1b 00 00 00	00 00 00 00	....
000002c0	00 00 00 00	10 00 00 00	20 00 00 00	00 00 00 00	....
000002d0	00 00 00 00	10 00 00 00	26 00 00 00	00 00 00 00	.... &.......
000002e0	00 00 00 00	10 00 00 00	2a 00 00 00	00 00 00 00	.... *.......
000002f0	00 00 00 00	10 00 00 00	39 00 00 00	00 00 00 00	.... 9.......
00000300	00 00 00 00	10 00 00 00	00 75 6c 61	7a 6e 69 5f	.... .ulazni_
00000310	66 6f 72 6d	61 74 00 6d	61 69 6e 00	5f 73 74 61	format.main._sta
00000320	72 74 00 65	78 69 74 00	73 63 61 6e	66 00 6d 69	rt.exit.scanf.mi
00000330	6e 00 69 7a	6c 61 7a 6e	69 5f 66 6f	72 6d 61 74	n.izlazni_format
00000340	00 70 72 69	6e 74 66 00	08 00 00 00	02 08 00 00	.printf.....

Primjer tabele simbola

```
Elf32_Word    st_name;
Elf32_Addr    st_value;
Elf32_Word    st_size;
unsigned char st_info;
unsigned char st_other;
Elf32_Half    st_shndx;
```

Veličina simbola, ako je poznata,



00000238	00 01 02 03	04 05 06 07	08 09 0a 0b	0c 0d 0e 0f	
00000238	01 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	....
00000240	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	....
00000250	00 00 00 00	03 00 01 00	00 00 00 00	00 00 00 00	....
00000260	00 00 00 00	03 00 03 00	00 00 00 00	00 00 00 00	....
00000270	00 00 00 00	03 00 04 00	01 00 00 00	00 00 00 00	....
00000280	00 00 00 00	00 00 03 00	0f 00 00 00	0c 00 00 00	....
00000290	00 00 00 00	00 00 01 00	00 00 00 00	00 00 00 00	....
000002a0	00 00 00 00	03 00 05 00	14 00 00 00	00 00 00 00	....
000002b0	00 00 00 00	10 00 01 00	1b 00 00 00	00 00 00 00	....
000002c0	00 00 00 00	10 00 00 00	20 00 00 00	00 00 00 00	....
000002d0	00 00 00 00	10 00 00 00	26 00 00 00	00 00 00 00	........&.......
000002e0	00 00 00 00	10 00 00 00	2a 00 00 00	00 00 00 00	........*.......
000002f0	00 00 00 00	10 00 00 00	39 00 00 00	00 00 00 00	........9.......
00000300	00 00 00 00	10 00 00 00	00 75 6c 61	7a 6e 69 5f	.........ulazni_
00000310	66 6f 72 6d	61 74 00 6d	61 69 6e 00	5f 73 74 61	format.main._sta
00000320	72 74 00 65	78 69 74 00	73 63 61 6e	66 00 6d 69	rt.exit.scanf.mi
00000330	6e 00 69 7a	6c 61 7a 6e	69 5f 66 6f	72 6d 61 74	n.izlazni_format
00000340	00 70 72 69	6e 74 66 00	08 00 00 00	02 08 00 00	.printf.........

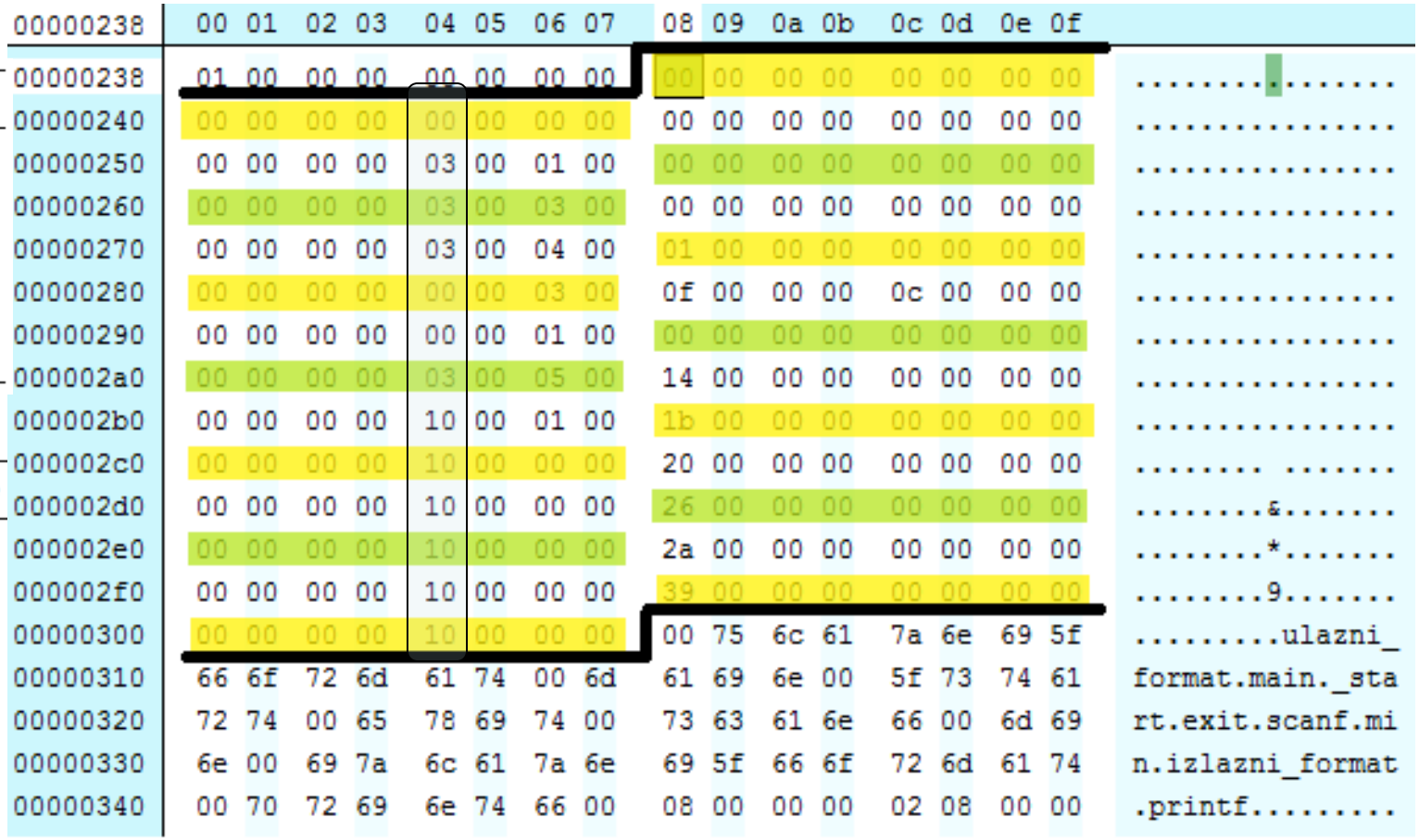
Primjer tabele simbola

```
Elf32_Word    st_name;
Elf32_Addr    st_value;
Elf32_Word    st_size;
unsigned char st_info;
unsigned char st_other;
Elf32_Half    st_shndx;
```

Viša 4 bita: vezivanje (tabela levo u sredini).
Niža 4 bita: tip (tabela dole levo).

Name	Value
STB_LOCAL	0
STB_GLOBAL	1
STB_WEAK	2
STB_LOPROC	13
STB_HIPROC	15

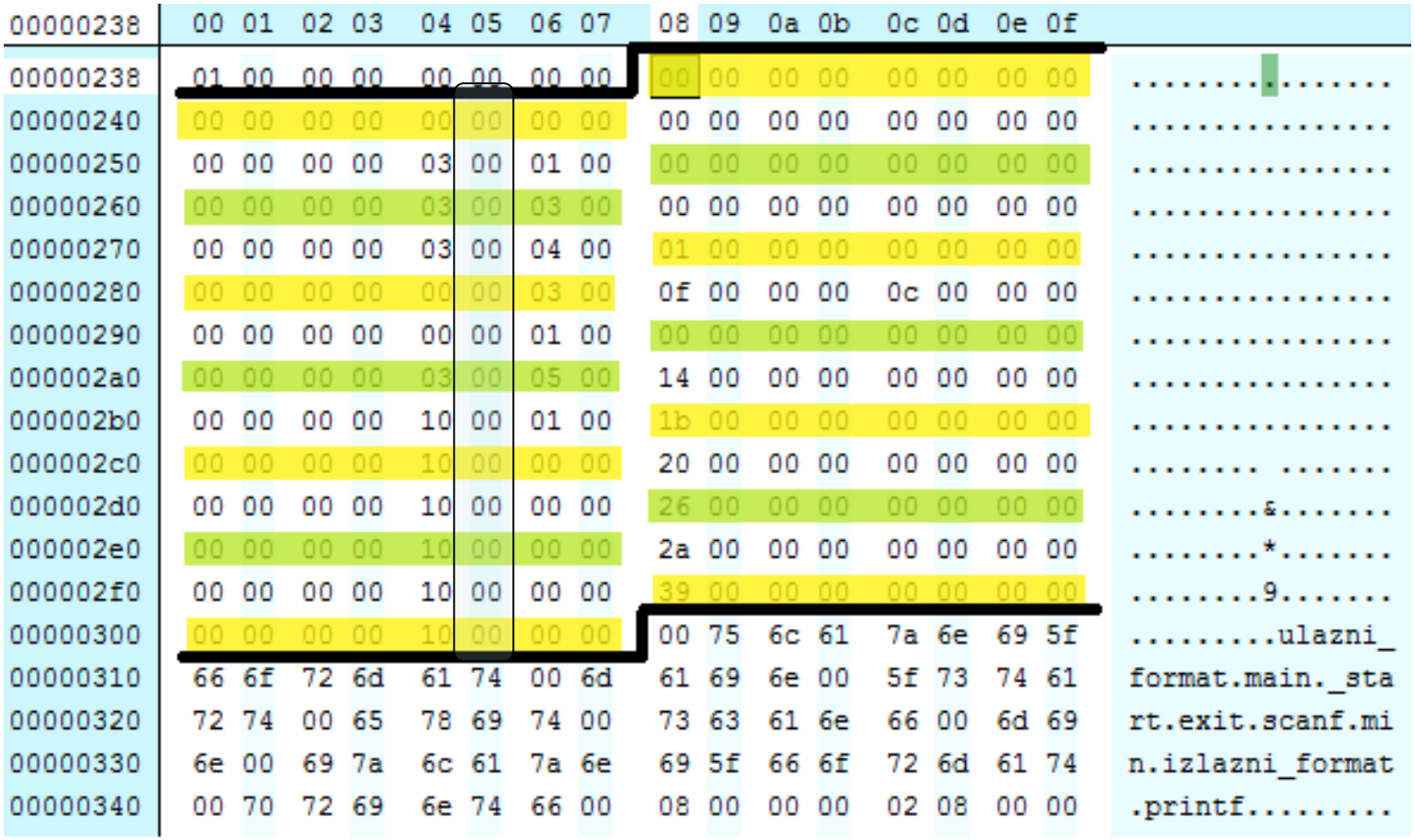
Name	Value
STT_NOTYPE	0
STT_OBJECT	1
STT_FUNC	2
STT_SECTION	3
STT_FILE	4
STT_LOPROC	13
STT_HIPROC	15



Primjer tabele simbola

```
Elf32_Word    st_name;
Elf32_Addr    st_value;
Elf32_Word    st_size;
unsigned char st_info;
unsigned char st_other;
Elf32_Half    st_shndx;
```

Za sada, fiksno 0.

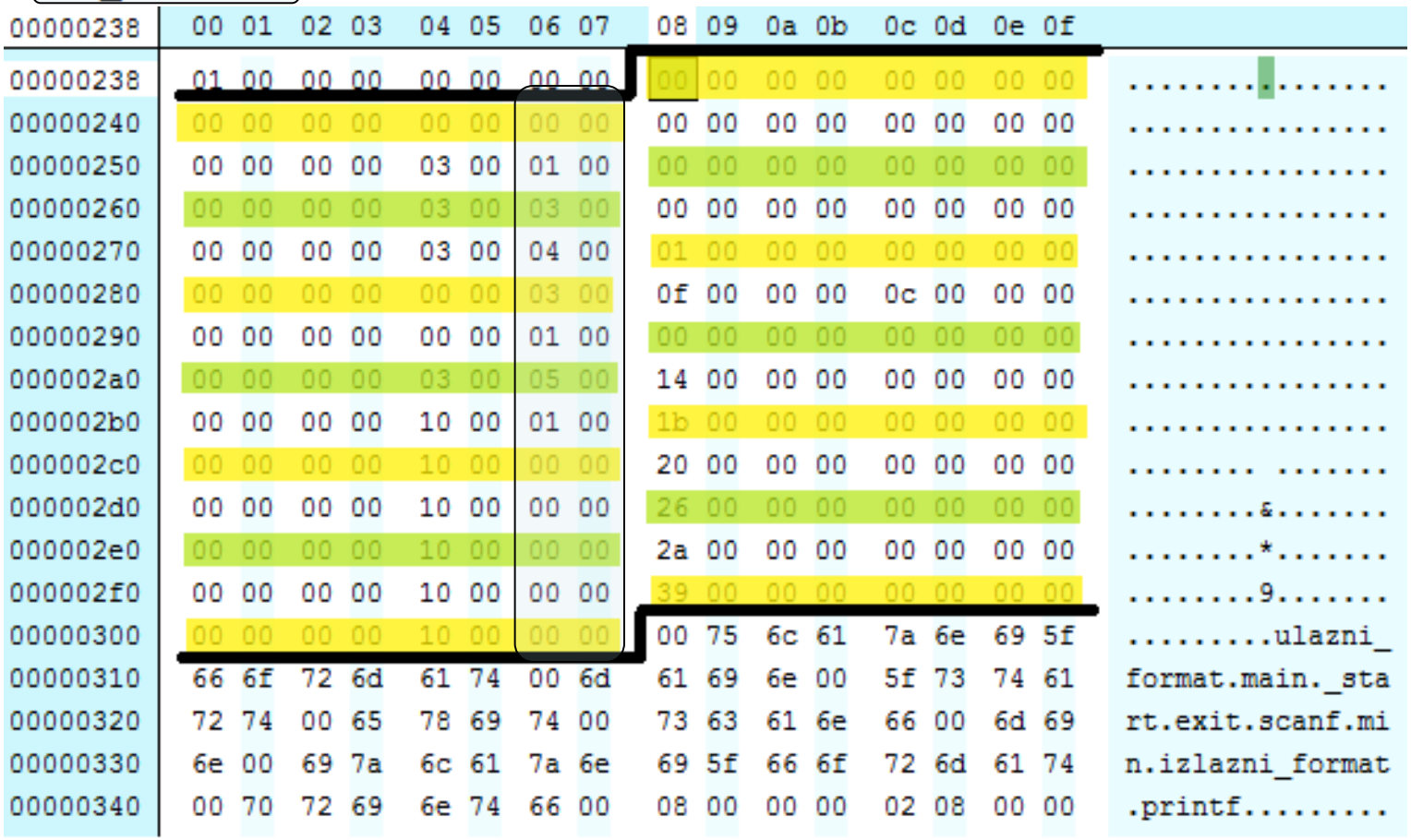


```
00000238  00 01 02 03  04 05 06 07  08 09 0a 0b  0c 0d 0e 0f
00000238  01 00 00 00  00 00 00 00  00 00 00 00  00 00 00 00  ................
00000240  00 00 00 00  00 00 00 00  00 00 00 00  00 00 00 00  ................
00000250  00 00 00 00  03 00 01 00  00 00 00 00  00 00 00 00  ................
00000260  00 00 00 00  03 00 03 00  00 00 00 00  00 00 00 00  ................
00000270  00 00 00 00  03 00 04 00  01 00 00 00  00 00 00 00  ................
00000280  00 00 00 00  00 00 03 00  0f 00 00 00  0c 00 00 00  ................
00000290  00 00 00 00  00 00 01 00  00 00 00 00  00 00 00 00  ................
000002a0  00 00 00 00  03 00 05 00  14 00 00 00  00 00 00 00  ................
000002b0  00 00 00 00  10 00 01 00  1b 00 00 00  00 00 00 00  ................
000002c0  00 00 00 00  10 00 00 00  20 00 00 00  00 00 00 00  ........ .......
000002d0  00 00 00 00  10 00 00 00  26 00 00 00  00 00 00 00  ........&.......
000002e0  00 00 00 00  10 00 00 00  2a 00 00 00  00 00 00 00  ........*.......
000002f0  00 00 00 00  10 00 00 00  39 00 00 00  00 00 00 00  ........9.......
00000300  00 00 00 00  10 00 00 00  00 75 6c 61  7a 6e 69 5f  .........ulazni_
00000310  66 6f 72 6d  61 74 00 6d  61 69 6e 00  5f 73 74 61  format.main._sta
00000320  72 74 00 65  78 69 74 00  73 63 61 6e  66 00 6d 69  rt.exit.scanf.mi
00000330  6e 00 69 7a  6c 61 7a 6e  69 5f 66 6f  72 6d 61 74  n.izlazni_format
00000340  00 70 72 69  6e 74 66 00  08 00 00 00  02 08 00 00  .printf.........
```

Primjer tabele simbola

```
Elf32_Word    st_name;
Elf32_Addr    st_value;
Elf32_Word    st_size;
unsigned char st_info;
unsigned char st_other;
Elf32_Half    st_shndx;
```

Indeks sekcije u tabeli zaglavlja sekcija za koji je posmatrani simbol vezan.



00000238	00 01 02 03	04 05 06 07	08 09 0a 0b	0c 0d 0e 0f	
00000238	01 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	....
00000240	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	....
00000250	00 00 00 00	03 00 01 00	00 00 00 00	00 00 00 00	....
00000260	00 00 00 00	03 00 03 00	00 00 00 00	00 00 00 00	....
00000270	00 00 00 00	03 00 04 00	01 00 00 00	00 00 00 00	....
00000280	00 00 00 00	00 00 03 00	0f 00 00 00	0c 00 00 00	....
00000290	00 00 00 00	00 00 01 00	00 00 00 00	00 00 00 00	....
000002a0	00 00 00 00	03 00 05 00	14 00 00 00	00 00 00 00	....
000002b0	00 00 00 00	10 00 01 00	1b 00 00 00	00 00 00 00	....
000002c0	00 00 00 00	10 00 00 00	20 00 00 00	00 00 00 00	....
000002d0	00 00 00 00	10 00 00 00	26 00 00 00	00 00 00 00	........&........
000002e0	00 00 00 00	10 00 00 00	2a 00 00 00	00 00 00 00	........*........
000002f0	00 00 00 00	10 00 00 00	39 00 00 00	00 00 00 00	........9........
00000300	00 00 00 00	10 00 00 00	00 75 6c 61	7a 6e 69 5f	.........ulazni_
00000310	66 6f 72 6d	61 74 00 6d	61 69 6e 00	5f 73 74 61	format.main._sta
00000320	72 74 00 65	78 69 74 00	73 63 61 6e	66 00 6d 69	rt.exit.scanf.mi
00000330	6e 00 69 7a	6c 61 7a 6e	69 5f 66 6f	72 6d 61 74	n.izlazni_format
00000340	00 70 72 69	6e 74 66 00	08 00 00 00	02 08 00 00	.printf.........

Struktura zapisa u tabelama relokacija

- Polje r_addend:
  - Sadrži neposrednu konstantu koju je pri relokaciji potrebno dodati na sadržaj lokacije koja se prepravlja (relocira).
  - Veoma često, ovo polje se ne koristi, već se konstanta upiše direktno kao početni sadržaj lokacije koja će se kasnije prepravljati – relocirati.

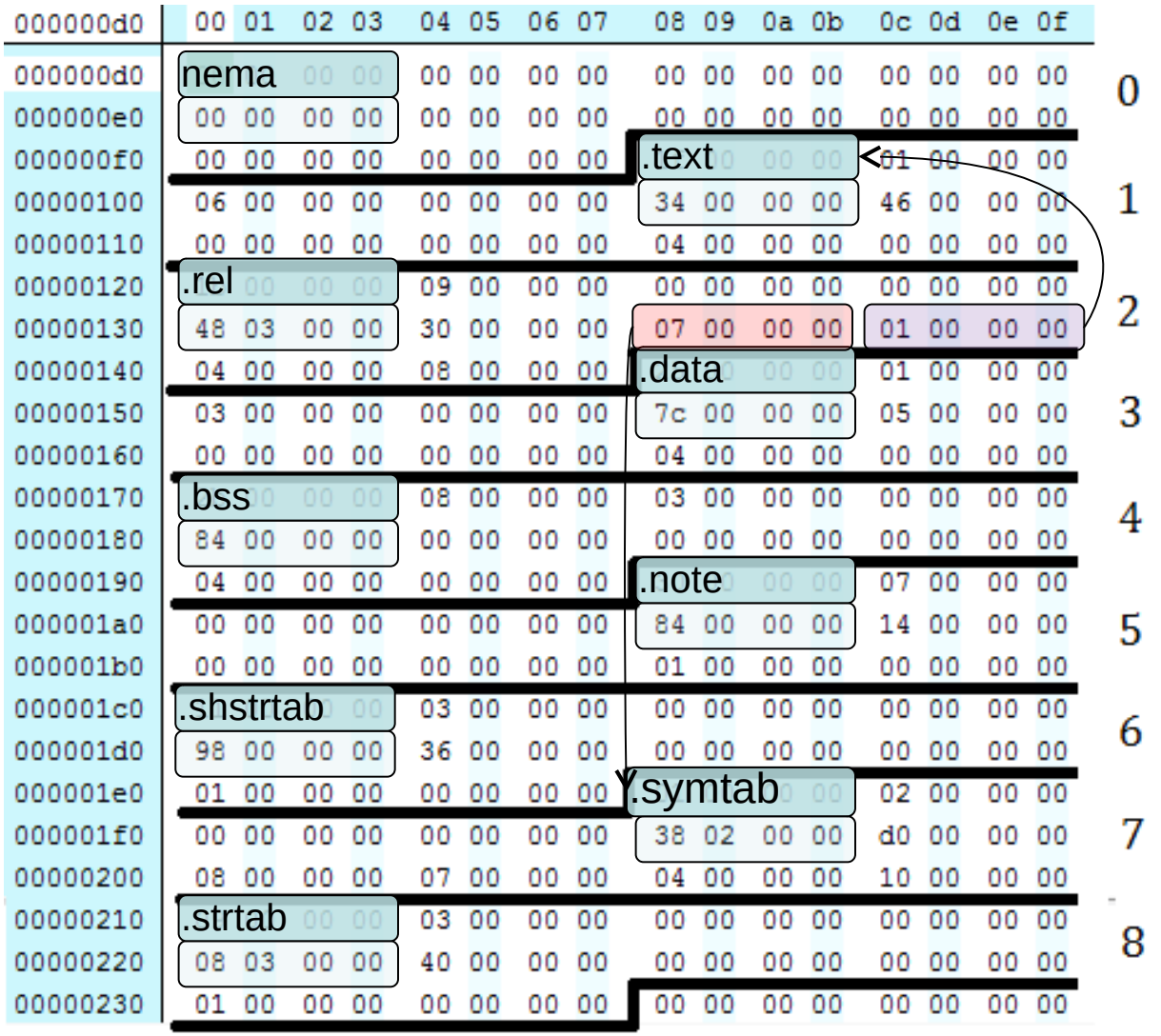
```
typedef struct {
        Elf32_Addr      r_offset;
        Elf32_Word      r_info;
} Elf32_Rel;

typedef struct {
        Elf32_Addr      r_offset;
        Elf32_Word      r_info;
        Elf32_Sword     r_addend;
} Elf32_Rela;
```

Primjer tabele zaglavlja sekcija (ponovljeno)

```
Elf32_Word    sh_name;
Elf32_Word    sh_type;
Elf32_Word    sh_flags;
Elf32_Addr    sh_addr;
Elf32_Off     sh_offset;
Elf32_Word    sh_size;
Elf32_Word    sh_link;
Elf32_Word    sh_info;
Elf32_Word    sh_addralign;
Elf32_Word    sh_entsize;
```

Ofset prvog bajta sekcije u odnosu na početak fajla, računato u bajtovima. Ako sekcija nema sadržaj u fajlu, onda SHT_NOBITS.



Primjer sekcije relokacija

```
Elf32_Addr    r_offset;
Elf32_Word    r_info;
```

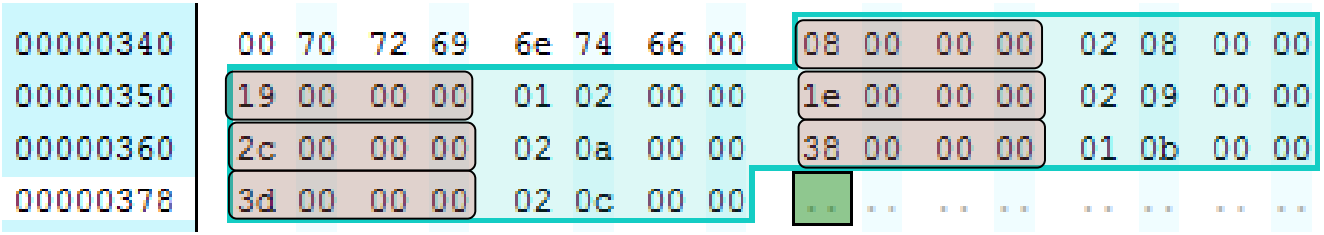
U zavisnosti od tipa fajla:

-Predmetni fajl na ulazu linkera:

-Polje r_offset sadrži ofset lokacije na koju treba primeniti relokaciju. Ofset se računa u bajtovima, u odnosu na početak sekcije u kojoj se nalazi lokacija.

-Predmetni fajl namenjen za pokretanje:

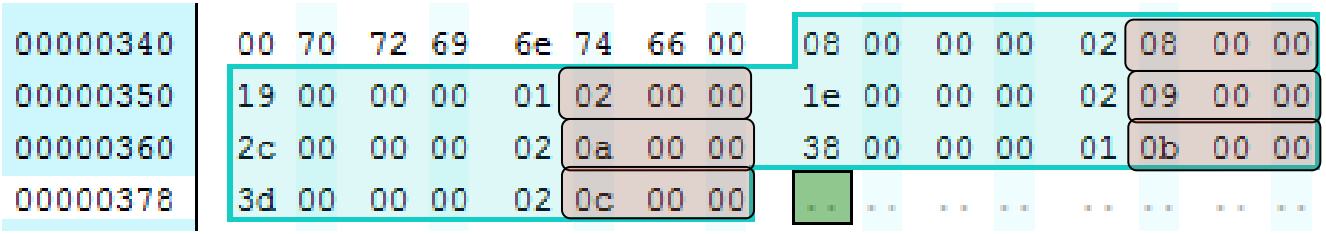
-Polje r_offset sadrži virtuelnu adresu lokacije na koju treba primeniti relokaciju.



Primjer sekcije relokacija

```
Elf32_Addr    r_offset;
Elf32_Word    r_info;
```

Redni broj objekta u tabeli simbola u odnosu na koji se vrši relokacija.



Primjer sekcije relokacija

```
Elf32_Addr    r_offset;
Elf32_Word    r_info;
```

Tip relokacija – zavisi od procesora. Za x86:
A – konstanta koja se dodaje,
S – vrednost simbola koji je referenciran,
P – adresa tekuće lokacije.

Name	Value	Field	Calculation
R_386_NONE	0	none	none
R_386_32	1	word32	S+A
R_386_PC32	2	word32	S+A-P

```
00000340  00 70 72 69 6e 74 66 00  08 00 00 00 02 08 00 00
00000350  19 00 00 00 01 02 00 00  1e 00 00 00 02 09 00 00
00000360  2c 00 00 00 02 0a 00 00  38 00 00 00 01 0b 00 00
00000378  3d 00 00 00 02 0c 00 00  .. .. .. .. .. .. .. ..
```

Primjer sekcije relokacija

Tipovi relokacija:

R_386_32	1
R_386_PC32	2

Tabela simbola:

```
00 l d .text   .text
00 l d .data   .data
00 l d .bss    .bss
00 l   .data   ulazni_format
0c l   .text   main
00 l d .note   .note
00 g   .text   _start
00     *UND*   exit
00     *UND*   scanf
00     *UND*   min
00     *UND*   izlazni_format
00     *UND*   printf
```

Disasemblirana .text sekcija sa relokacijama (-d –r):

```
00000000 <_start>:
   0:   e8 07 00 00 00          call   c <main>
   5:   6a 00                   push   $0x0
   7:   e8 fc ff ff ff          call   8 <_start+0x8>
                8: R_386_PC32   exit
0000000c <main>:
   c:   c8 08 00 00             enter  $0x8,$0x0
...
  18:   68 00 00 00 00          push   $0x0
                19: R_386_32    .data
  1d:   e8 fc ff ff ff          call   1e <main+0x12>
                1e: R_386_PC32  scanf
...
  2b:   e8 fc ff ff ff          call   2c <main+0x20>
                2c: R_386_PC32  min
...
  37:   68 00 00 00 00          push   $0x0
                38: R_386_32    izlazni_format
  3c:   e8 fc ff ff ff          call   3d <main+0x31>
                3d: R_386_PC32  printf
  41:   83 c4 10                add    $0x10,%esp
  44:   c9                      leave
  45:   c3                      ret
```

```
00000340  00 70 72 69 6e 74 66 00  08 00 00 00 02 08 00 00
00000350  19 00 00 00 01 02 00 00  1e 00 00 00 02 09 00 00
00000360  2c 00 00 00 02 0a 00 00  38 00 00 00 01 0b 00 00
00000378  3d 00 00 00 02 0c 00 00  .. .. .. .. .. .. .. ..
```

Struktura relokacije:

```
Elf32_Addr    r_offset;
Elf32_Word    r_info;
```

Ostatak zaglavlja – izvršni program

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

Name	Value	Meaning
ET_NONE	0	No file type
ET_REL	1	Relocatable file
ET_EXEC	2	Executable file
ET_DYN	3	Shared object file
ET_CORE	4	Core file
ET_LOPROC	0xff00	Processor-specific
ET_HIPROC	0xffff	Processor-specific

```
00000000   00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
00000000   7f 45 4c 46 01 01 01 00 00 00 00 00 00 00 00 00
00000010   02 00 03 00 01 00 00 00 00 82 04 08 34 00 00 00
00000020   24 04 00 00 00 00 00 00 34 00 20 00 05 00 28 00
00000030   12 00 0f 00 06 00 00 00 34 00 00 00 34 80 04 08
```

Ostatak zaglavlja

```
unsigned char   e_ident[EI_N
Elf32_Half      e_type;
Elf32_Half      e_machine;
Elf32_Word      e_version;
Elf32_Addr      e_entry;
Elf32_Off       e_phoff;
Elf32_Off       e_shoff;
Elf32_Word      e_flags;
Elf32_Half      e_ehsize;
Elf32_Half      e_phentsize;
Elf32_Half      e_phnum;
Elf32_Half      e_shentsize;
Elf32_Half      e_shnum;
Elf32_Half      e_shstrndx;
```

Name	Value	Meaning
ET_NONE	0	No machine
EM_M32	1	AT&T WE 32100
EM_SPARC	2	SPARC
EM_386	3	Intel Architecture
EM_68K	4	Motorola 68000
EM_88K	5	Motorola 88000
EM_860	7	Intel 80860
EM_MIPS	8	MIPS RS3000 Big-Endian
EM_MIPS_RS4_BE	10	MIPS RS4000 Big-Endian
RESERVED	11-16	Reserved for future use

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_version

Name	Value	Meaning
EV_NONE	0	Invalid versionn
EV_CURRENT	1	Current version

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char   e_ident[EI_N
Elf32_Half      e_type;
Elf32_Half      e_machine;
Elf32_Word      e_version;
Elf32_Addr      e_entry;
Elf32_Off       e_phoff;
Elf32_Off       e_shoff;
Elf32_Word      e_flags;
Elf32_Half      e_ehsize;
Elf32_Half      e_phentsize;
Elf32_Half      e_phnum;
Elf32_Half      e_shentsize;
Elf32_Half      e_shnum;
Elf32_Half      e_shstrndx;
```

e_entry: virtuelna adresa ulazne tačke programa ili 0

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_phoff: ofset u fajlu (u bajtovima) do zaglavlja programa ili 0

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_shoff: ofset u fajlu (u bajtovima) do tabele zaglavlja sekcija ili 0

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char   e_ident[EI_N
Elf32_Half      e_type;
Elf32_Half      e_machine;
Elf32_Word      e_version;
Elf32_Addr      e_entry;
Elf32_Off       e_phoff;
Elf32_Off       e_shoff;
Elf32_Word      e_flags;
Elf32_Half      e_ehsize;
Elf32_Half      e_phentsize;
Elf32_Half      e_phnum;
Elf32_Half      e_shentsize;
Elf32_Half      e_shnum;
Elf32_Half      e_shstrndx;
```

e_flags: flegovi specifični za konkretan procesor

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char   e_ident[EI_N
Elf32_Half      e_type;
Elf32_Half      e_machine;
Elf32_Word      e_version;
Elf32_Addr      e_entry;
Elf32_Off       e_phoff;
Elf32_Off       e_shoff;
Elf32_Word      e_flags;
Elf32_Half      e_ehsize;
Elf32_Half      e_phentsize;
Elf32_Half      e_phnum;
Elf32_Half      e_shentsize;
Elf32_Half      e_shnum;
Elf32_Half      e_shstrndx;
```

e_ehsize: veličina ELF zaglavlja u bajtovima.

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_phentsize: veličina zaglavlja programa (jedan ulaz u tabeli zaglavlja programa).

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char   e_ident[EI_N
Elf32_Half      e_type;
Elf32_Half      e_machine;
Elf32_Word      e_version;
Elf32_Addr      e_entry;
Elf32_Off       e_phoff;
Elf32_Off       e_shoff;
Elf32_Word      e_flags;
Elf32_Half      e_ehsize;
Elf32_Half      e_phentsize;
Elf32_Half      e_phnum;
Elf32_Half      e_shentsize;
Elf32_Half      e_shnum;
Elf32_Half      e_shstrndx;
```

e_phnum: broj ulaza u tabeli zaglavlja programa ili 0 ako tabela nije prisutna

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char   e_ident[EI_N
Elf32_Half      e_type;
Elf32_Half      e_machine;
Elf32_Word      e_version;
Elf32_Addr      e_entry;
Elf32_Off       e_phoff;
Elf32_Off       e_shoff;
Elf32_Word      e_flags;
Elf32_Half      e_ehsize;
Elf32_Half      e_phentsize;
Elf32_Half      e_phnum;
Elf32_Half      e_shentsize;
Elf32_Half      e_shnum;
Elf32_Half      e_shstrndx;
```

e_shentsize: veličina zaglavlja sekcije (jedan ulaz u tabeli zaglavlja sekcija)

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_shnum: broj ulaza u tabeli zaglavlja sekcija ili 0 ako tabela nije prisutna

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ostatak zaglavlja

```
unsigned char  e_ident[EI_N
Elf32_Half     e_type;
Elf32_Half     e_machine;
Elf32_Word     e_version;
Elf32_Addr     e_entry;
Elf32_Off      e_phoff;
Elf32_Off      e_shoff;
Elf32_Word     e_flags;
Elf32_Half     e_ehsize;
Elf32_Half     e_phentsize;
Elf32_Half     e_phnum;
Elf32_Half     e_shentsize;
Elf32_Half     e_shnum;
Elf32_Half     e_shstrndx;
```

e_shstrndx: indeks ulaza u tabeli sekcija koji odgovara section name string table.

00000000	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f
00000000	7f	45	4c	46	01	01	01	00	00	00	00	00	00	00	00	00
00000010	02	00	03	00	01	00	00	00	00	82	04	08	34	00	00	00
00000020	24	04	00	00	00	00	00	00	34	00	20	00	05	00	28	00
00000030	12	00	0f	00	06	00	00	00	34	00	00	00	34	80	04	08

Ulaz tabele zaglavlja programa

```
typedef struct {
            Elf32_Word      p_type;
            Elf32_Off       p_offset;
            Elf32_Addr      p_vaddr;
            Elf32_Addr      p_paddr;
            Elf32_Word      p_filesz;
            Elf32_Word      p_memsz;
            Elf32_Word      p_flags;
            Elf32_Word      p_align;
} Elf32_Phdr;
```

Primjer tabele zaglavlja programa

```
Elf32_Word    p_type;
Elf32_Off     p_offset;
Elf32_Addr    p_vaddr;
Elf32_Addr    p_paddr;
Elf32_Word    p_filesz;
Elf32_Word    p_memsz;
Elf32_Word    p_flags;
Elf32_Word    p_align;
```

Name	Value
PT_NULL	0
PT_LOAD	1
PT_DYNAMIC	2
PT_INTERP	3
PT_NOTE	4
PT_SHLIB	5
PT_PHDR	6
PT_LOPROC	0x70000000
PT_HIPROC	0x7fffffff

```
00000030  12 00 0f 00  06 00 00 00  34 
00000040  34 80 04 08  a0 00 00 00  a0 
00000050  04 00 00 00  03 00 00 00  d4 00 00 00  d4 80 04 08
00000060  d4 80 04 08  13 00 00 00  13 00 00 00  04 00 00 00
00000070  01 00 00 00  01 00 00 00  00 00 00 00  00 80 04 08
00000080  00 80 04 08  9c 02 00 00  9c 02 00 00  05 00 00 00
00000090  00 10 00 00  01 00 00 00  9c 02 00 00  9c 92 04 08
000000a0  9c 92 04 08  d2 00 00 00  d2 00 00 00  06 00 00 00
000000b0  00 10 00 00  02 00 00 00  9c 02 00 00  9c 92 04 08
000000c0  9c 92 04 08  a0 00 00 00  a0 00 00 00  06 00 00 00
000000d0  04 00 00 00  2f 6c 69 62  2f 6c 64 2d  6c 69 6e 75
```

2

3

4

5

Primjer tabele zaglavlja programa

```
Elf32_Word    p_type;
Elf32_Off     p_offset;
Elf32_Addr    p_vaddr;
Elf32_Addr    p_paddr;
Elf32_Word    p_filesz;
Elf32_Word    p_memsz;
Elf32_Word    p_flags;
Elf32_Word    p_align;
```

Ofset u bajtovima u odnosu na početak fajla do prvog bajta opisanog segmenta.

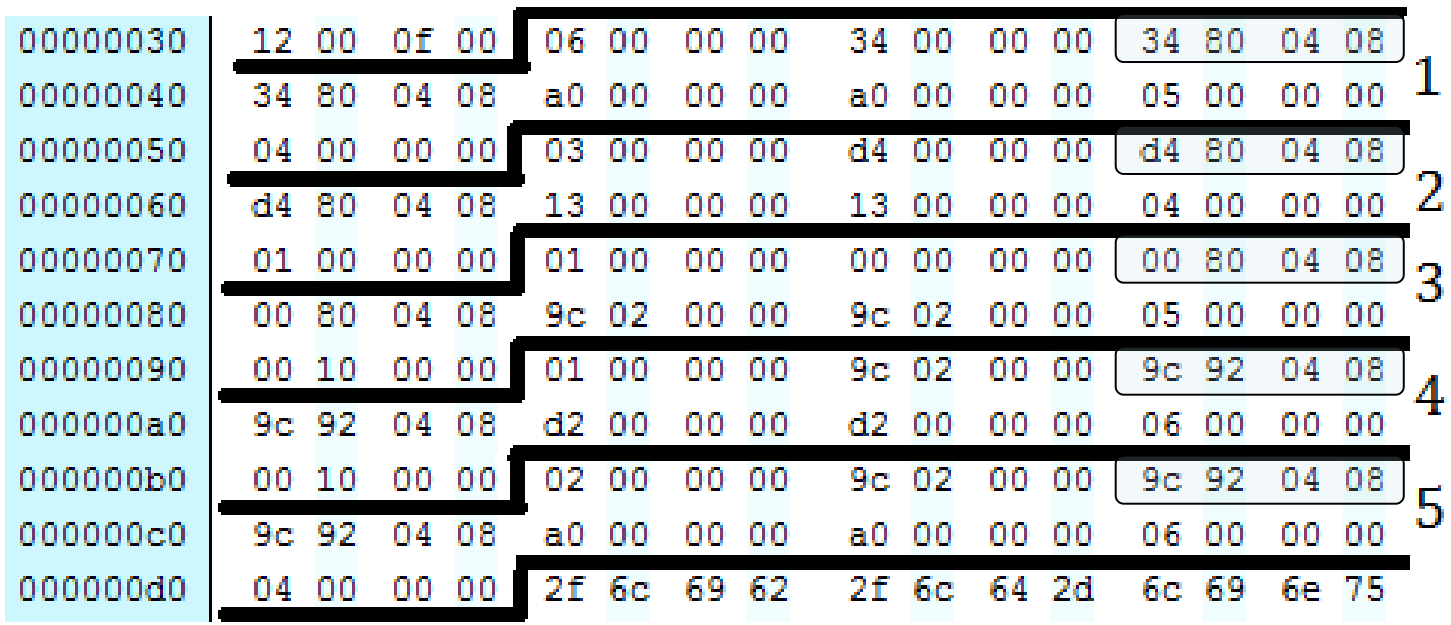
```
00000030  12 00 0f 00  06 00 00 00  34 00 00 00  34 80 04 08
00000040  34 80 04 08  a0 00 00 00  a0 00 00 00  05 00 00 00
00000050  04 00 00 00  03 00 00 00  d4 00 00 00  d4 80 04 08
00000060  d4 80 04 08  13 00 00 00  13 00 00 00  04 00 00 00
00000070  01 00 00 00  01 00 00 00  00 00 00 00  00 80 04 08
00000080  00 80 04 08  9c 02 00 00  9c 02 00 00  05 00 00 00
00000090  00 10 00 00  01 00 00 00  9c 02 00 00  9c 92 04 08
000000a0  9c 92 04 08  d2 00 00 00  d2 00 00 00  06 00 00 00
000000b0  00 10 00 00  02 00 00 00  9c 02 00 00  9c 92 04 08
000000c0  9c 92 04 08  a0 00 00 00  a0 00 00 00  06 00 00 00
000000d0  04 00 00 00  2f 6c 69 62  2f 6c 64 2d  6c 69 6e 75
```

1 2 3 4 5

Primjer tabele zaglavlja programa

```
Elf32_Word    p_type;
Elf32_Off     p_offset;
Elf32_Addr    p_vaddr;
Elf32_Addr    p_paddr;
Elf32_Word    p_filesz;
Elf32_Word    p_memsz;
Elf32_Word    p_flags;
Elf32_Word    p_align;
```

Virtuelna adresa predviđena kao početak segmenta.



Primjer tabele zaglavlja programa

```
Elf32_Word    p_type;
Elf32_Off     p_offset;
Elf32_Addr    p_vaddr;
Elf32_Addr    p_paddr;
Elf32_Word    p_filesz;
Elf32_Word    p_memsz;
Elf32_Word    p_flags;
Elf32_Word    p_align;
```

Fizička adresa predviđena kao početak segmenta (za sisteme u kojima to ima smisla).

```
00000030  12 00 0f 00  06 00 00 00  34 00 00 00  34 80 04 08
00000040  34 80 04 08  a0 00 00 00  a0 00 00 00  05 00 00 00   1
00000050  04 00 00 00  03 00 00 00  d4 00 00 00  d4 80 04 08
00000060  d4 80 04 08  13 00 00 00  13 00 00 00  04 00 00 00   2
00000070  01 00 00 00  01 00 00 00  00 00 00 00  00 80 04 08
00000080  00 80 04 08  9c 02 00 00  9c 02 00 00  05 00 00 00   3
00000090  00 10 00 00  01 00 00 00  9c 02 00 00  9c 92 04 08
000000a0  9c 92 04 08  d2 00 00 00  d2 00 00 00  06 00 00 00   4
000000b0  00 10 00 00  02 00 00 00  9c 02 00 00  9c 92 04 08
000000c0  9c 92 04 08  a0 00 00 00  a0 00 00 00  06 00 00 00   5
000000d0  04 00 00 00  2f 6c 69 62  2f 6c 64 2d  6c 69 6e 75
```

Primjer tabele zaglavlja programa

```
Elf32_Word    p_type;
Elf32_Off     p_offset;
Elf32_Addr    p_vaddr;
Elf32_Addr    p_paddr;
Elf32_Word    p_filesz;
Elf32_Word    p_memsz;
Elf32_Word    p_flags;
Elf32_Word    p_align;
```

Veličina segmenta u bajtovima unutar fajla. Može biti 0.

```
00000030  12 00 0f 00  06 00 00 00  34 00 00 00  34 80 04 08
00000040  34 80 04 08  a0 00 00 00  a0 00 00 00  05 00 00 00
00000050  04 00 00 00  03 00 00 00  d4 00 00 00  d4 80 04 08
00000060  d4 80 04 08  13 00 00 00  13 00 00 00  04 00 00 00
00000070  01 00 00 00  01 00 00 00  00 00 00 00  00 80 04 08
00000080  00 80 04 08  9c 02 00 00  9c 02 00 00  05 00 00 00
00000090  00 10 00 00  01 00 00 00  9c 02 00 00  9c 92 04 08
000000a0  9c 92 04 08  d2 00 00 00  d2 00 00 00  06 00 00 00
000000b0  00 10 00 00  02 00 00 00  9c 02 00 00  9c 92 04 08
000000c0  9c 92 04 08  a0 00 00 00  a0 00 00 00  06 00 00 00
000000d0  04 00 00 00  2f 6c 69 62  2f 6c 64 2d  6c 69 6e 75
```

1 2 3 4 5

Primjer tabele zaglavlja programa

```
Elf32_Word    p_type;
Elf32_Off     p_offset;
Elf32_Addr    p_vaddr;
Elf32_Addr    p_paddr;
Elf32_Word    p_filesz;
Elf32_Word    p_memsz;
Elf32_Word    p_flags;
Elf32_Word    p_align;
```

Veličina segmenta u bajtovima, kada se segment učita u radnu memoriju.

```
00000030  12 00 0f 00  06 00 00 00  34 00 00 00  34 80 04 08
00000040  34 80 04 08  a0 00 00 00  a0 00 00 00  05 00 00 00
00000050  04 00 00 00  03 00 00 00  d4 00 00 00  d4 80 04 08
00000060  d4 80 04 08  13 00 00 00  13 00 00 00  04 00 00 00
00000070  01 00 00 00  01 00 00 00  00 00 00 00  00 80 04 08
00000080  00 80 04 08  9c 02 00 00  9c 02 00 00  05 00 00 00
00000090  00 10 00 00  01 00 00 00  9c 02 00 00  9c 92 04 08
000000a0  9c 92 04 08  d2 00 00 00  d2 00 00 00  06 00 00 00
000000b0  00 10 00 00  02 00 00 00  9c 02 00 00  9c 92 04 08
000000c0  9c 92 04 08  a0 00 00 00  a0 00 00 00  06 00 00 00
000000d0  04 00 00 00  2f 6c 69 62  2f 6c 64 2d  6c 69 6e 75
```

1 2 3 4 5

Primjer tabele zaglavlja programa

```
Elf32_Word    p_type;
Elf32_Off     p_offset;
Elf32_Addr    p_vaddr;
Elf32_Addr    p_paddr;
Elf32_Word    p_filesz;
Elf32_Word    p_memsz;
Elf32_Word    p_flags;
Elf32_Word    p_align;
```

Flegovi za segment.

Name	Value	Meaning
PF_X	0x1	Execute
PF_W	0x2	Write
PF_R	0x4	Read
PF_MASKPROC	0xf0000000	Unspecified

```
00000030  12 00 0f 00  06 00 00 00  34 00 00 00  34 80 04 08
00000040  34 80 04 08  a0 00 00 00  a0 00 00 00  05 00 00 00   1
00000050  04 00 00 00  03 00 00 00  d4 00 00 00  d4 80 04 08
00000060  d4 80 04 08  13 00 00 00  13 00 00 00  04 00 00 00   2
00000070  01 00 00 00  01 00 00 00  00 00 00 00  00 80 04 08
00000080  00 80 04 08  9c 02 00 00  9c 02 00 00  05 00 00 00   3
00000090  00 10 00 00  01 00 00 00  9c 02 00 00  9c 92 04 08
000000a0  9c 92 04 08  d2 00 00 00  d2 00 00 00  06 00 00 00   4
000000b0  00 10 00 00  02 00 00 00  9c 02 00 00  9c 92 04 08
000000c0  9c 92 04 08  a0 00 00 00  a0 00 00 00  06 00 00 00   5
000000d0  04 00 00 00  2f 6c 69 62  2f 6c 64 2d  6c 69 6e 75
```

Primjer tabele zaglavlja programa

```
Elf32_Word    p_type;
Elf32_Off     p_offset;
Elf32_Addr    p_vaddr;
Elf32_Addr    p_paddr;
Elf32_Word    p_filesz;
Elf32_Word    p_memsz;
Elf32_Word    p_flags;
Elf32_Word    p_align;
```

Poravnanje za virtuelnu adresu i ofset u fajlu.

```
00000030  12 00 0f 00  06 00 00 00  34 00 00 00  34 80 04 08
00000040  34 80 04 08  a0 00 00 00  a0 00 00 00  05 00 00 00   1
00000050  04 00 00 00  03 00 00 00  d4 00 00 00  d4 80 04 08
00000060  d4 80 04 08  13 00 00 00  13 00 00 00  04 00 00 00   2
00000070  01 00 00 00  01 00 00 00  00 00 00 00  00 80 04 08
00000080  00 80 04 08  9c 02 00 00  9c 02 00 00  05 00 00 00   3
00000090  00 10 00 00  01 00 00 00  9c 02 00 00  9c 92 04 08
000000a0  9c 92 04 08  d2 00 00 00  d2 00 00 00  06 00 00 00   4
000000b0  00 10 00 00  02 00 00 00  9c 02 00 00  9c 92 04 08
000000c0  9c 92 04 08  a0 00 00 00  a0 00 00 00  06 00 00 00   5
000000d0  04 00 00 00  2f 6c 69 62  2f 6c 64 2d  6c 69 6e 75
```

Sadržaj drugog segmenta (tipa PT_INTERP)

- Interpreter (dinamički povezivač) se učitava umesto programa i njegova je odgovornost da se u sistem učita korektna slika programa:
  - da učita segmente programa,
  - da po potrebi učita biblioteke sa dinamičkim vezivanjem i mapira ih u adresni prostor procesa,
  - da obezbedi povezivanje sa dinamičkom bibliotekom.