



# Administrativa

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EECS 325/425

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# Docket

	This Week	Next Week
Mon	Fall Break; No Class No Office Hours Midterm Grades Posted	Lecture: Network Layer Project #3 Returned
Tue		
Wed	<b>Lecture: Network Layer</b>	Lecture: Network Layer
Thu		
Fri		

# Completed Work

- I still have grade reports and tests

# Project 3

- Will return on Monday
- If you haven't finished it, switch to project 4

# Project 4

- -s: summary mode
- -l: length mode
- -p: packet printing mode
- -m: trafficmatrix mode

# Project 4

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- 6 traces available
  - ranging from 1 packet (low) ...
  - ... to 8000+ packets (kashmir)

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- Start with small traces and easier modes (e.g., summary mode)
- move on as your program becomes more capable



# Project 4

- 6 traces available
  - ranging from 1 packet (low) ...
  - ... to 8000+ packets (kashmir)
- Start with small traces and easier modes (e.g., summary mode)
  - move on as your program becomes more capable
- You'll need to rely on diff

# Project 4

```
od -A d -t ul low.trace
```

```
00000000      0  54   0   0  65 192  41 161   0   2   7   6 128  11 152  59
00000016    185 236 132  10  74 226 119 215   8   0  69   0   5 220  42 231
00000032     64   0 255   6 201  35  10   1 124  10 192 168   2  16   2  63
00000048     19  99 224 196 173 145 228  43   2 224  80  16 128   0  29  11
00000064      0   0
00000066
```

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od -A d -t u1 low.trace
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00000016	185	236	132	10	74	226	119	215	8	0	69	0	5	220	42	231
00000032	64	0	255	6	201	35	10	1	124	10	192	168	2	16	2	63
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9th byte of IP  
header is TTL  
TTL = 255

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od -A d -t ul low.trace
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9th byte of IP header is TTL  
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1st byte of IP header is 4 bits of version and 4 bytes of header len



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69 = 01000101

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9th byte of IP header is TTL  
TTL = 255

1st byte of IP header is 4 bits of version and 4 bytes of header len  
 $69 = 01000101$   
version =  $0100 = 4$

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9th byte of IP header is TTL  
TTL = 255

1st byte of IP header is 4 bits of version and 4 bytes of header len  
69 = 01000101  
version = 0100 = 4  
HL = 0101 = 5

# Project 4

```
od -A d -t u2 low.trace
00000000      13824      0      49217      41257      512      1543      2944      15256
00000016      60601     2692     57930     55159      8      69     56325     59178
00000032      64      1791      9161      266     2684     43200     4098     16130
00000048     25363    50400     37293     11236     57346     4176      128      2845
00000064      0
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```

# Project 4

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od -A d -t u2 low.trace
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**od -A d -t u2 low.trace**

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1st and 2nd bytes of TCP header  
represents the source port  
16130 is in network byte order  
actual value is 575

# Project 4

```
% python
```

```
Python 2.7.10 (default, Oct 23 2015, 19:19:21)
```

```
[GCC 4.2.1 Compatible Apple LLVM 7.0.0 (clang-700.0.59.5)] on darwin
```

```
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> import socket
```

```
>>> socket.ntohs (16130)
```

```
575
```

# Project 4

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- thunder.trace
  - make sure you can deal with this one
  - all sorts of oddities and crazy situations

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- thunder.trace
  - make sure you can deal with this one
  - all sorts of oddities and crazy situations
- kashmir.trace
  - sort -m output ...
    - `./proj4 -m -t kashmir.trace |sort > my.m.out`
    - `diff kashmir-m.out my.m.out`

# Questions ??