

Re: question about change in inet_ntoa.c

Source: <http://unix.derkeiler.com/Mailing-Lists/FreeBSD/net/2008-02/msg00303.html>

- *From:* Bruce Evans <brde@xxxxxxxxxxxxxxxx>
 - *Date:* Wed, 27 Feb 2008 03:05:41 +1100 (EST)
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On Tue, 26 Feb 2008, ithilgore wrote:

Giorgos Keramidas wrote:

On 2008-02-23 02:37, ithilgore <ithilgore.fbsd@xxxxxxxx> wrote:

ithilgore wrote:

I was looking at the differences between
some old FreeBSD code
and the one of 7.0-RC1 and was wondering
about a change
in inet_ntoa.c

```
/* 7.0-RC1 */
```

```
printf(buf, "%d.%d.%d.%d",  
ucp[0] & 0xff,  
ucp[1] & 0xff,  
ucp[2] & 0xff,  
ucp[3] & 0xff);
```

This version in libkern is best (except `buf' is static, so it is not reentrant and thus quite broken). ucp[N] is unsigned char, but masking with 0xff is needed to support the (unsupported) machines with more than 8 bits in their chars. On normal machines with 8-bit chars, the compiler will optimize away the masks so their only cost is increased portability of the source code. POSIX now requires 8-bit chars, but didn't when the above was written. %d is good enough after masking, since the result is nonnegative and <= INT_MAX. %u would be a style bug except on exotic machines with sizeof(char) == sizeof(int), since the default promotions normally turn all the numeric printf args into ints (not u_ints) thanks to C90's broken "value-preserving" promotion rules.

Re: question about change in inet_ntoa.c

```
/****** 4.11-RELEASE *****/
```

```
static const char fmt[] = "%u.%u.%u%u";  
if ((size_t)snprintf(dst, size, fmt, src[0],  
src[1], src[2], src[3])  
>= size) {
```

This is actually in somewhere/inet_ntop.c:inet_ntop4().

Bugs in this version include:

- benign type mismatch between %u and the promoted args except on exotic machines
- broken on