

# Warm up

Category: Reverse

27 Points

283 Solves

Problem description:

Must-Have Pre-Workout Warm up Challenge.

Author: Chaocipher

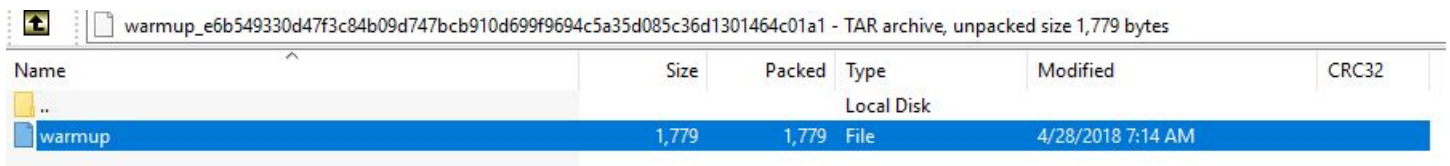
Date: 5/2/2018

Thanks goes to ASIS for organizing the CTF.

## Start

I downloaded the file from the description. It's just a 7z file nested inside another 7z file with one file inside:

1. warmup



Name	Size	Packed	Type	Modified	CRC32
..			Local Disk		
warmup	1,779	1,779	File	4/28/2018 7:14 AM	

# Warmup

This is just a .c file with a bit of code put into a single line to read.

```
#define M 37
#define q (2+M/M)
#define v (q/q)
#define ef ((v+q)/2)
#define f (q-v-ef)
#define k (8-ef)
struct b{int64_t y[13];};int m=1811939329,N=1,t[1<<26]={2},a,*p,i,e=73421233,s,c,U=1;g(d,h){for(i=s;i<1<<25;i*=2)d=d*1LL*d%m;for(p=t;p<t+N;p+=s)for(i=s,c=1;i;i-->a=p[s]*(h?c:1LL)%m,p[s]=(m*1U+*p-a)*(h?1LL:c)%m,*p=(a*1U+*p)%m,p++,c=c*1LL*d%m;};l(){while(e/=2){N*=2;U=U*1LL*(m+1)/29%m;for(s=N;s/=2;)g(136,0);for(p=t;p<t+N;p++)*p=*p*1LL*p%m*U%m;for(s=1;s<N;s*=2)g(839354248,1);for(a=0,p=t;p<t+N;)a+=*p<<(e&1),*p++=a%10,a/=10;}}z(n){int y=3,j,c;for(j=2;j<=n;){l();for(c=2;c<=y-1;c++){l();if(y%c==0)break;}if(c==y){l();j++;}y++;}l();return y-1;}main(a, pq) char* pq;{int b=sizeof(S),y=b,j=M;l();int x[M]={b-M-sizeof((short int) a),(b>>v)+(k<<v)+(v<<(q|ef))+z(v+(ef<<v)),(z(k*ef)<<v)-pow(ef,f),z(((j-ef*k)|ef<<k>>v)/k-ef<<v)-ef,(((y+M)&b)<<(k/q+ef))-z(ef+v),((ef<<k)-v)&y,y*v+v,(ef<<(q*ef-v-(k>>ef)))&q-v,(f<<q)|(ef<<(q*f+k))-j+k,(z(z(z(z(v)))))*q&(((j/q)-(ef<<v))<<q)|(j+(q|(ef<<v))))&y|(q+v),(ef<<ef)-v+ef*(((j>>ef)|j)-v+ef-q+v),(z(j&(b<<ef))&z(v<<v)<<k))-(q<<v)-q,(k<<q)+q,(z(y)>>(ef<<v)))+(z(k+v))-q,(z(z(k&ef|j)))&b|ef|v<<f<<q<<v&ef>>k|q<<ef<<v|k|q)+z(v<<v)+v,(ef>>v)*q*z(k-v)+z(ef<<ef&q|k)+ef,z(k<<k)&v&k|y+k-v,z(f>>ef|k)>>ef|v|k)*(ef>>v)*q,(ef<<k-ef<<v)>>q<<ef*ef)-j+(ef<<v),z(ef*k)*z(v<<v)+k-v,z((z(k)<<z(v)))&y|k|v,z(ef<<ef<<v)<<v)+ef+z(v<<ef|k|(b>>q)&y-f)-(ef<<q)+(k-v)-ef,k<<(ef+q)/z(ef)*z(q)&z(k<<k)|v,(((z(y|j)>>k*ef))%ef<<z(v<<v)<<v)>>q<<q|j)/ef+v,(j-ef<<ef<<v)*z(v>>v)<<v)>>ef)/ef%z(k<<j)+q,z(k-v)+k|z(ef<<k)>>v<<f)-z(q<<q)*ef>>v,(z(ef|y&j|k)%q|j+ef<<z(k|ef)%k<<q|ef|k<<ef<<q/ef|y/ef+j>>q)&k<<j|ef+v,84,z(v*ef<<ef<<q)*q%ef<<k|k|q-v,((z(20)*v|(f>>q)|(k<<k))/ef-(ef<<(v*q+ef))-(k<<q)+z(k)-q);while(j--){putchar(x[M-v-j]);}printf(" From ASIS With Love <3\n");return 0;}
```

I tinkered with the code a bit, but I didn't see anything wrong so I just tried to compile it. With enough effort I was able to get the correct GCC compile command with all the required imports. Here is the string I ended up with:

**gcc warmup.c -o warmup.exe -include stdint.h -include stdio.h -include math.h**

From there I just ran the exe and waited for a couple minutes.

```
root@843f864d32d1:~/archive# ./warmup.exe
ASIS{hi_all_w31c0m3_to_ASISCTF}      From ASIS With Love <3
```